SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT

CEQR No: 11DME012M

Lead Agency:
Office of the Deputy Mayor for Economic Development

Lead Agency Contact:
Robert R. Kulikowski, Ph.D.

Preparers:
AKRF, Inc.
VHB/Eng-Wong, Taub & Associates
Beyer Blinder Belle

August 10, 2012

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT
FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT (FGEIS)

Project Location:	Community District 3 Borough of Manhattan
CEQR No.	11DME012M
Type of Action:	Type I
ULURP Nos.	120226ZMM, N120227ZRM, 120228ZSM, 120229ZSM, N120230ZAM, 120231ZSM, 120233ZSM, 120234ZSM, 120235ZSM, 120236HAM, 120237PQM, 120156MMM
Lead Agency:	Office of the Deputy Mayor for Economic Development
Lead Agency Contact:	Robert R. Kulikowski, Ph.D.
Project Applicants:	New York City Economic Development Corporation and City of New York Department of Housing, Preservation, & Development
Preparers:	AKRF, Inc. 440 Park Avenue South New York, NY 10016 VHB/Eng-Wong, Taub & Associates Two Penn Plaza, Suite 2602 New York, NY 10121 Beyer Blinder Belle Architects & Planners LLP 41 East 11th Street, New York, NY 10003
Acceptance Date:	August 10, 2012

The FGEIS is available for review on the website of the Mayor's Office of Environmental Coordination.

http://www.nyc.gov/oec

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Foreword*

The Draft Generic Environmental Impact Statement (DGEIS) for the Seward Park Mixed-Use Development Project was certified as complete by the Office of the Deputy Mayor for Economic Development (ODMED), as lead agency under City Environmental Quality Review, and issued for public review and comment on March 23, 2012. A public hearing on the DEIS was held on July 11, 2012 concurrently with the Uniform Land Use Review Procedure (ULURP) public hearing held by the New York City Planning Commission at Spector Hall, 22 Reade Street, New York, NY 10007. Oral and written comments were accepted at that hearing and throughout the public comment period, which was held open until 5:00 PM on Monday, July 23, 2012.

This Final Generic Environmental Impact Statement (FGEIS) reflects editorial revisions, revisions made to impact studies, and all substantive comments made during the public review period of the DGEIS. Notable changes subsequent to publishing the DGEIS relate to the following:

- The No Action condition. Subsequent to publishing the DGEIS, a new No Action project was identified at 215 Chrystie Street. This residential and hotel project has been added to the No Action condition analyzed in the FGEIS. In addition, the New York City Department of Transportation (NYCDOT) began implementing the Delancey Street Safety Improvements plan in June 2012. That plan will reduce vehicular traffic capacity along Delancey Street in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs. The NYCDOT plan is described in Chapter 2, "Land Use, Zoning and Public Policy," and has been incorporated into the FGEIS analyses, as warranted.
- The Transportation analyses. The following principal changes were incorporated into the transportation analyses presented in Chapter 13, "Transportation," of this FGEIS:
  - The altered traffic patterns through the traffic study area intersections resulting from the Delancey Street Safety Improvements plan. As described above, NYCDOT began implementing the plan in June 2012 to improve traffic and pedestrian safety along the Delancey Street corridor. The plan includes left turn prohibitions, corner "bump-outs," and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street. In addition to promoting pedestrian and bicycle safety, the plan includes a reconfiguration of Clinton Street to one-way northbound between Delancey and Grand Streets to allow vehicle traffic to access the Williamsburg Bridge from northbound Clinton Street.
  - The person and vehicular trips that would be generated by the new No Action background development proposed at 215 Chrystie Street.
  - Signal timing modifications proposed by NYCDOT along Allen Street to improve service along the M15 bus line.

* This Foreword is new to the FGEIS.

- The inclusion of additional transit elements, including escalator and internal stairways, as part of the Delancey Street/Essex Street subway station analysis.

These changes to the transportation analyses were accounted for in the air quality and noise analyses and other FGEIS analyses, as appropriate.

- The Construction analysis. A refined construction noise analysis was performed that resulted in fewer predicted construction noise impacts at the existing Seward Park High School and a shorter duration of impacts. Accordingly the discussion of construction noise in Chapter 19, "Construction," was revised to reflect this analysis. In addition, the analysis of construction traffic was revised to account for the Delancey Street Safety Improvements plan.
- Mitigation measures. Chapter 21, "Mitigation Measures," was revised to account for changes to the transportation and construction noise analyses.
- Project commitments. The discussion of project commitments related to replacement of the roses in the Schiff Malls along Delancey Street, certification under the Enterprise Green Communities program, the implementation of Best Management Practices, exhaust stack location requirements on Sites 5 and 9, and construction noise mitigation were revised to indicate that commitments would be required either through a Land Disposition Agreement between the City of New York Department of Housing Preservation & Development and the developer(s) to be selected through the Request for Proposals process or through a contract of sale or long-term lease or other legally binding agreement between the New York City Economic Development Corporation and the developer(s).

In addition to these changes, the FGEIS identifies the comments made during the public review period and provides responses in a new chapter, Chapter 25, "Response to Comments." Where appropriate, the text of other chapters of this FGEIS was revised in response to comments, revisions in the analyses, or editorial changes. These revisions and changes are indicated by ~~strikethroughs~~ and double underlines.

A. INTRODUCTION

The Office of the Deputy Mayor for Economic Development (ODMED), in coordination with the New York City Economic Development Corporation (NYCEDC) and the City of New York Department of Housing Preservation & Development (HPD), is sponsoring an initiative to allow for the implementation of an approximately 1.7 million gross-square-foot[1] (gsf) (1.648 million zoning square feet) mixed-use development on 10 City-owned sites. These 10 sites are located in Manhattan Community District 3 generally along Delancey and Essex Streets on the Lower East Side (see **Figure S-1**). Five of the sites (Sites 2, 3, 4, 5, and 6) are located within the former Seward Park Extension Urban Renewal Area (SPEURA), which was established in 1965 and expired in 2005. Four sites (Sites 7, 8, 9, and 10) are located within the 2008 East Village/Lower East Side Rezoning area. The tenth site (Site 1) is in neither. The 10 City-owned sites and demapped sections of Broome and Suffolk Streets that would be mapped as City streets and sections of Clinton and Delancey Streets that would be demapped encompass the project site ("project site") (see **Figure S-2**).

The program for the proposed development on Sites 1 through 6 and 8 through 10 is expected to include a variety of mixed-income residential, commercial such as retail and office space, and community or cultural uses. The project would also include provisions for parking and publicly accessible open space. Site 7 has been considered part of the project site since the community planning process commenced in 2008 and all City-owned properties in the area were identified. However, in the proposed development project, Site 7 would retain its current function as a municipal parking garage, which would continue to support the existing neighborhood uses, as well as the potential new program on the development sites.

The project site is the largest underdeveloped City-owned site south of 96th Street, and the purpose of adopting the proposed land use actions is to allow for the implementation of a mixed-use development on the project site, which has the following goals: (1) transform several underutilized City-owned properties into a thriving, financially viable, mixed-use development; (2) provide affordable and market-rate housing units, commercial and retail uses, community facilities and other neighborhood amenities (e.g., parking, a new and expanded facility for the public Essex Street Market, and publicly accessible open space); and (3) knit these sites back into the larger, vibrant Lower East Side neighborhood.

To facilitate the redevelopment project, a number of discretionary actions would be required. Adoption of proposed Uniform Land Use Review Procedure (ULURP) actions would involve public review by a number of entities, which include, depending on the action, Manhattan Community Board 3 (CB3), the Manhattan Borough President, the New York City Planning Commission (CPC), and the New York City Council. These actions include zoning map changes and zoning text amendments, zoning special permits, authorization, City map amendment, the

[1] This number does not include below-grade parking space or space in the existing parking garage on Site 7.

Former Seward Park Urban Renewal Area (URA)

Former Seward Park Extension URA

1 *Proposed Development Sites*

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

2008 East Village/Lower East Side Rezoning Boundary

Proposed Development Sites
Figure S-1

8.1.12

NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Proposed Street Mapping and Demapping Actions

Figure S-2

disposition of City-owned property, approval of an Urban Development Action Area Project (UDAAP), and an acquisition. Mayoral and Borough Board approval of the business terms with the developer or developers to be selected pursuant to Requests for Proposals (RFPs) may also be required, as applicable. Should the discretionary actions subject to ULURP be approved, an RFP process would commence to solicit proposals for development under the approvals. Further details regarding the discretionary approvals for the proposed actions are provided below in Section C.

B. PROJECT BACKGROUND

The Seward Park Mixed-Use Development Project is located in the historically economically and ethnically diverse Lower East Side. By the turn of the 20th century, the Lower East Side was an immigrant neighborhood known for its bustling street-level commercial activity and its overcrowded tenement buildings. In the mid-1950s through the 1970s, portions of land on the Lower East Side, including the former SPEURA, were deemed appropriate for urban renewal under the City's Urban Renewal Law. Development in these urban renewal areas had typically taken the form of multi-tower residential buildings on large superblocks along the East River from East 14th Street to as far south as the Manhattan Bridge.

SEWARD PARK EXTENSION URBAN RENEWAL AREA

Established in 1965, the SPEURA was bordered by Essex Street, Grand Street, Bialystoker Place, and Delancey Street (see **Figure S-1**). It was located directly north of the original Seward Park Urban Renewal Area (SPURA) that was designated in 1955. In 1967, demolition began in the SPEURA to clear land for new housing and commercial buildings. In addition, Broome Street between Norfolk and Clinton Streets and Suffolk Street between Grand and Delancey Streets were demapped (see **Figure S-2**) although they continue to function as streets. The first new buildings in the SPEURA were completed in 1972. In total, since the establishment of SPEURA in 1965, 1,240 units of housing have been built in portions of SPEURA; however, the sites now designated as Sites 2-6 for the proposed actions were never developed. The SPEURA plan proposed largely commercial development on those remaining sites.

There were several attempts in the 1980s and 1990s to redevelop the remaining five SPEURA sites. In 2003, HPD and NYCEDC, for discussion purposes, proposed a program of affordable and market-rate residential units and commercial uses for the SPEURA. These plans and the proposal for discussion did not move forward because of a lack of community consensus.

The urban renewal area designation expired in 2005. Today, the former SPEURA comprises a mix of affordable housing, institutional, community, and cultural uses, and the five remaining underdeveloped sites. These five sites include parking lots, a partially vacant former market building, a residential building with seven occupied units, a former fire station with a commercial tenant, and a building that is vacant except for a ground-floor retail tenant.

2011 COMMUNITY BOARD 3 PLANNING GUIDELINES

With the goal of gaining broad community consensus on a development program for the project site, CB3 embarked on a planning process for the sites starting in 2008, and invited the City to be part of the discussions. NYCEDC, HPD, and the New York City Department of City Planning (DCP) participated in the process, providing technical support and resources to facilitate the community's discussion and analysis. Over the course of more than two years, CB3 worked to develop a set of project guidelines that CB3 unanimously adopted in January 2011. CB3 subsequently worked with the City to understand the urban design opportunities of the project and passed a set of urban design principles in June 2011. Together, these project guidelines and design principles express the community's desired mixed-use, mixed-income characteristics of the program for the project site and urban design preferences with respect to the site's layout, height, and density.

The community guidelines and urban design recommendations adopted by CB3 serve as a broad framework for defining key elements of the current project proposal. The guidelines call for a mixed-use and mixed-income development that is reflective of, and compatible with, adjacent communities. CB3 recommends that the design of the proposed development conform to the principles of contextual design, such that building orientation and access should support and enhance the existing pedestrian realm and integrate with the existing neighborhood.

C. PROJECT DESCRIPTION

SITE DESCRIPTION

As shown on **Table S-1**, the project site contains a mix of parking, active, vacant, and partially vacant commercial uses, and a residential building with 7 occupied units. Within the project area, Suffolk Street is demapped between Grand and Delancey Streets and Broome Street is demapped between Norfolk and Clinton Streets. Sites 1, 3, 4, and 6 are each entirely occupied by surface parking. Sites 1, 3, and 6 contain a total of approximately 300 public parking spaces and Site 4 contains approximately 100 commercial parking spaces for neighborhood businesses. Sites 2 and 5 also contain surface parking; Site 2 has 90 spaces for City vehicles and Site 5 has 100 public parking spaces. The remainder of Site 2 is occupied by one of the four former Essex Street Market buildings; the former market section of the building at 78-92 Essex Street is vacant, while the storefronts on Delancey Street contain a diner and a liquor store. In addition to surface parking, Site 5 contains three buildings: a walk-up residential building at 400 Grand Street that is under the jurisdiction of HPD and also contains a ground-floor visitor center for the Lower East Side Jewish Conservancy; a three-story building that is mostly vacant except for a ground-floor shoe repair store at 402 Grand Street; and a former fire station at 185 Broome Street that formerly housed a film prop company and is occasionally used to house furniture sales. Site 7 is a 362-space municipal public parking garage and would retain its current function as a municipal parking garage. Sites 8, 9, and 10 contain the other three Essex Street Market buildings, only one of which now operates as a public market. The building at 130-144 Essex Street (on Site 8) is vacant and used for the storage of refuse generated by the market in the building on Site 9. The Essex Street Market building on Site 9 (96-124 Essex Street) is approximately 20,000 square feet, of which approximately 15,000 square feet are the public market. The market currently has 23 vendors. The building, constructed in 1939 to provide an indoor retail market space for pushcart vendors, also contains retail and restaurant space on the Delancey and Rivington Street frontages. The building at 150 Essex Street (on Site 10) contains a health clinic run by the Community Healthcare Network (CHN).

Table S-1
Proposed Development Sites – Existing Conditions

Site No.	Block	Lot(s)	Address	Lot Area (sf)	Building Area (sf)	Residential Area (sf)	Commercial and Community Facility Area	No. Stories	Zoning
1	409	56	236 Broome Street	21,996	—	—	65 public parking spaces	—	C6-1
2	352	1, 28	80 Essex Street, 85 Norfolk Street	43,140	17,995	—	15,265 sf vacant; 1,300-sf diner; 1,430-sf liquor store; 90 City parking spaces	1	C6-1
3	346	40	135 Delancey Street	40,776	—	—	Approx. 190 public parking spaces	—	R8
4	346	40	155 Delancey Street	40,627	—	—	Approx. 100 commercial parking spaces	—	R8
5	346	40	400 Grand Street	60,712	3 buildings: 8,400; 12,500; 5,700	12,050 (7 households)	9,450 sf vacant; 4,200-sf storage space; 450-sf non-profit cultural org.; 450-sf shoe repair; 100 public parking spaces	2, 5, 3	R8
6	347	71	178 Broome Street	21,344	—	—	48 public parking spaces	—	R8
8	354	1	140 Essex Street	11,210	11,210	—	11,210-sf vacant	1	C4-4A
9	353	44	116 Delancey Street	20,817	20,750	—	15,000-sf market, 5,750 sf retail and restaurant	2	C4-4A, C6-2A
10	354	12	150 Essex Street	6,840	6,840	—	6,840-sf health clinic	1	C4-4A
Total				**267,392**[1]	**83,395**	**12,050**	**35,420 sf; 35,925 sf vacant; Approx. 400 public parking spaces; Approx. 190 other parking spaces**		
7[2]	410	38	112 Ludlow Street	22,402	132,750	—	362 public parking spaces (garage)	5	C4-4

Notes:
1. This total does not include the demapped sections of Suffolk and Broome Streets that would be mapped, which total approximately 45,786 square feet. It also does not include the mapped sections of Clinton and Delancey Streets that would be demapped, which total approximately 17,580 square feet.
2. Site 7—a public parking garage—would not be redeveloped under the proposed actions, but is included for informational purposes.
Sources: NYCEDC; http://gis.nyc.gov/doitt/nycitymap/;http://gis.nyc.gov/dof/dtm/index.jsf; http://a810-bisweb.nyc.gov/bisweb/bispi00.jsp

SITE PLAN AND URBAN DESIGN

As currently contemplated, the program for the proposed actions would include up to approximately 1.7 million gsf (1.648 million zoning square feet) of mixed-use residential, commercial development, and community facility use.

The proposed development includes relocating the existing Essex Street Market to a new, larger facility. The new public market would be over 29,000 gsf and would accommodate 35 to 65 vendors (depending on the size of each stall). The larger space would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors the first opportunity to relocate their business to the new market facility, when the new facility on Site 2 is complete and ready for occupancy.

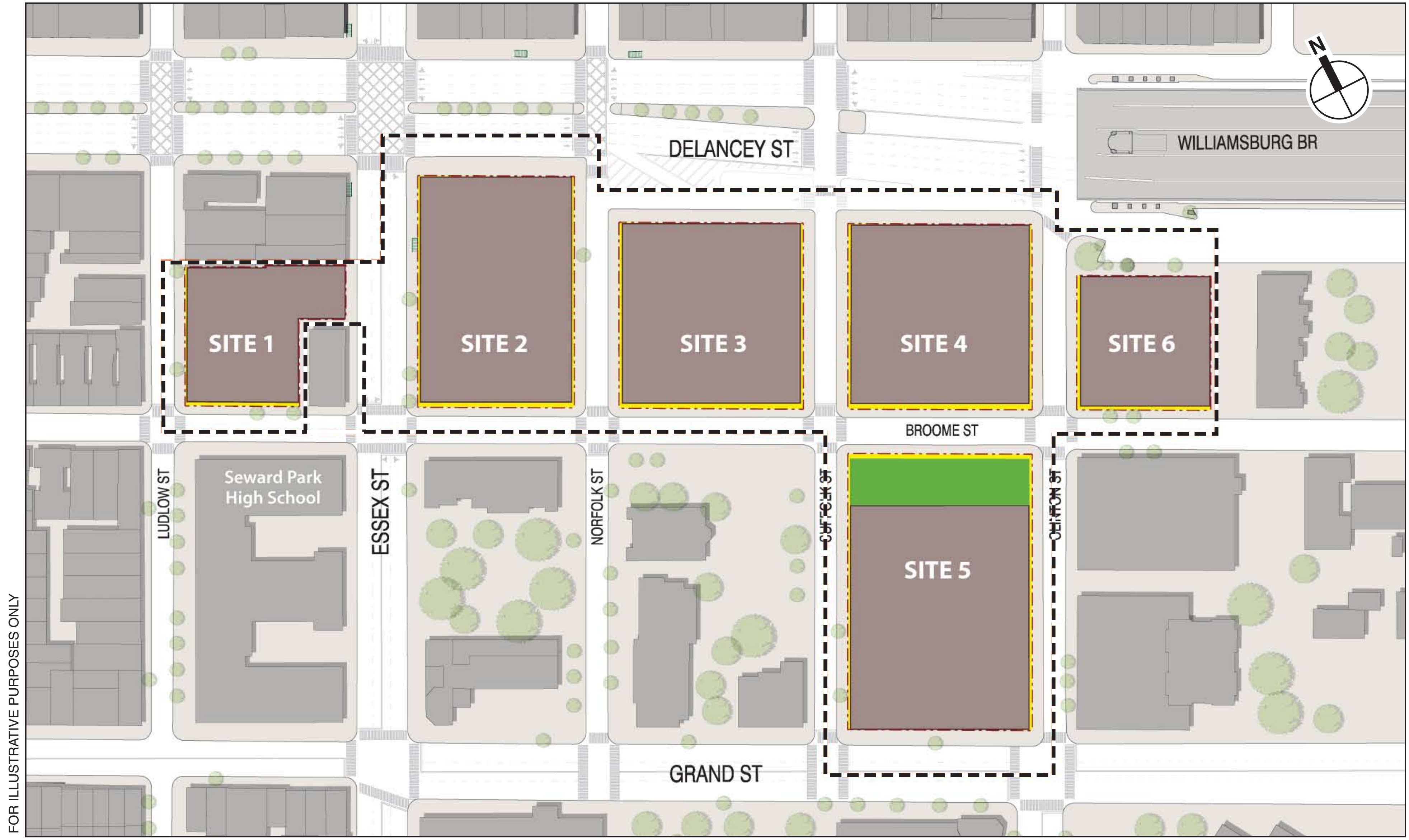
The urban design for the proposed development builds on the framework laid out in the CB3 urban design principles. The general concept for the massing incorporates elements from the building forms of the surrounding neighborhood, which vary from low-rise walk-ups to large towers-in-the-park. The project would incorporate a connected street grid, and new buildings would have retail and residential entrances on multiple sides to create ground-floor activity and provide necessary access. The buildings would incorporate streetwall design characteristics that are intended to activate the pedestrian realm and setback towers that will permit access to light and air. The development project would maximize street-level uses such as retail that support pedestrian activity throughout the development. A publicly accessible open space of approximately 10,000 square feet with a mix of active and/or passive recreation uses would be incorporated into the development as well. The proposed development would include up to 500 parking spaces on up to four sites (Sites 2 through 5).

To allow for comprehensive planning for the project site and to allow flexibility in design and massing, including the ability to distribute floor area across lots and modify bulk distribution, height, and placement of buildings, the project seeks approval of Large Scale General Development (LSGD) special permits that would apply to Sites 1 through 6 (see **Figure S-3**). The LSGD would establish a maximum building envelope for each site, which is the three-dimensional space on the zoning lot within which a structure can be built, as permitted by applicable height, setback, and yard controls. Each of the maximum zoning envelopes on Sites 1 through 6 would be larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design. Buildings on Sites 1 through 6 would be massed with multiple setbacks, and the envelopes would establish base heights of between 60 and 85 feet (6–8 stories), with varying heights above. The upper portions of all buildings would be set back at least 10 feet from Delancey, Essex, and Grand Streets, and 10 feet from side streets. The maximum building envelopes would allow potential towers on Sites 2 and 4 of up to 285 feet and 260 feet to the roof parapets, respectively (up to approximately 24 stories each), and building heights of up to 160 feet to the roof parapets (up to approximately 14 stories) on Sites 1, 3, 5, and 6.[1] Sites 8, 9, and 10 would be consistent with massing requirements and maximum heights allowable under existing zoning. **Figures S-4a** and **S-4b** show the maximum envelopes and massing controls for Sites 1 through 6 and, in plan, potential massings for structures developed within the maximum building envelopes. **Figure S-5** shows an illustrative rendering of the proposed development; Sites 1 through 6 are shown with illustrative massings rendered within the maximum building envelopes.

The proposed land uses and illustrative massings are intended to be illustrative of a possible configuration of the proposed uses and the possible interactions among those proposed uses across the project site. The eventual built configuration of uses would be subject to change based on the results of the environmental review, the results of developer(s)’ response(s) to the RFP(s), market conditions, and further discussion with stakeholders, among other factors.

The City is currently in the process of considering how sustainability measures might be implemented as part of the project. Through an RFP process, the City would look favorably upon proposals that enhance the energy efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at

[1] Building heights to the tops of the mechanical bulkheads would be as follows: 190 feet on Sites 1, 3, 5, and 6; 315 feet on Site 2; and 290 feet on Site 4.



Proposed Building Footprint

Large Scale General Development Boundary

Proposed Publicly Accessible Open Space

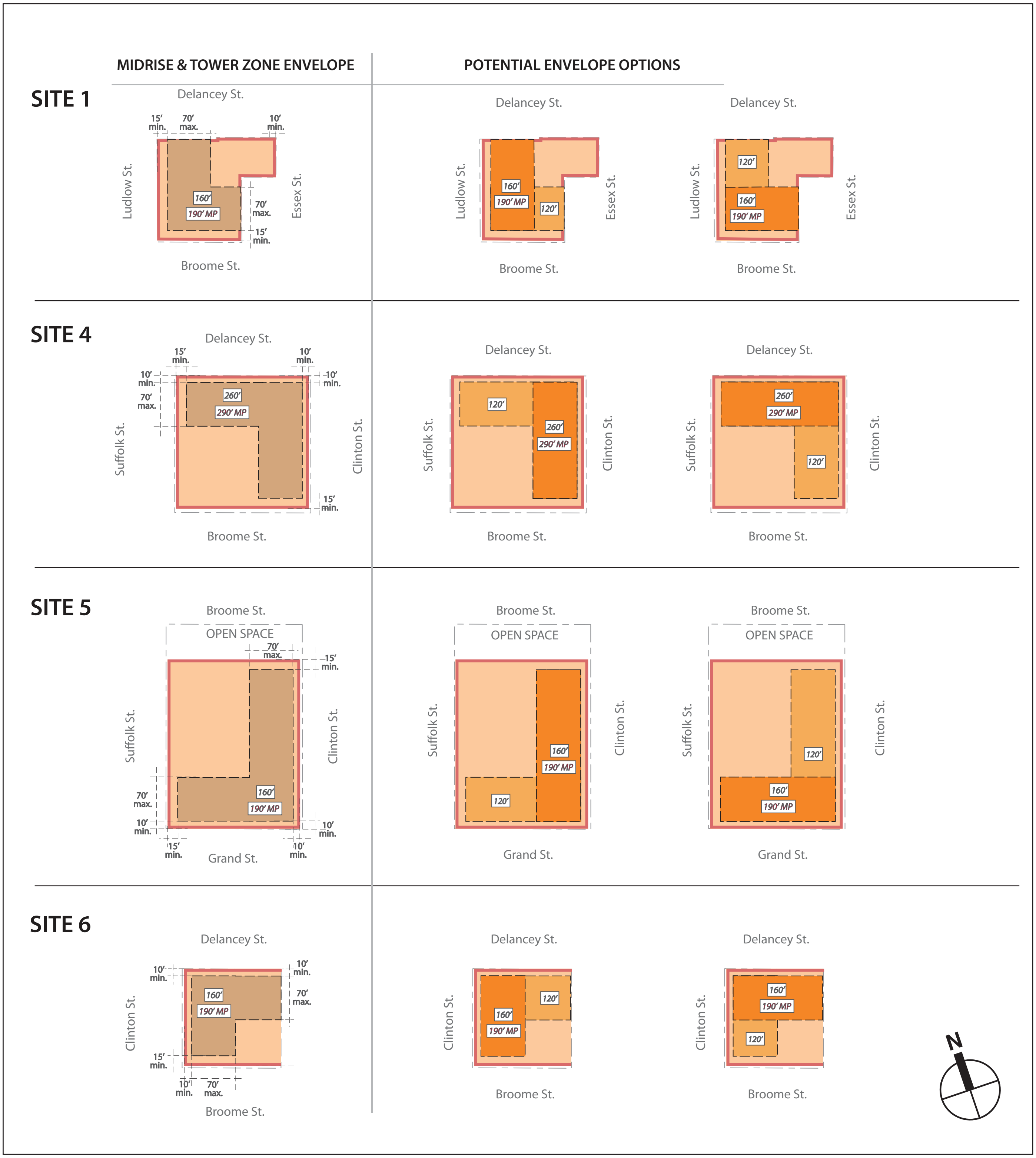
Proposed Sidewalk Widening

NOT TO SCALE

NOTE: This figure has been revised for the FGEIS.

Proposed Large Scale General Development Boundary

Figure S-3



SOURCE: Beyer Blinder Belle

LEGEND AND NOTES

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- X′ Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- X′MP Maximum building height including rooftop mechanical

DESIGN CONTROLS

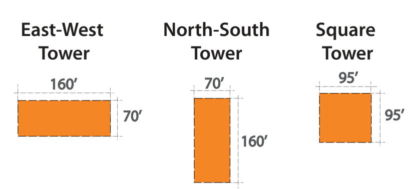
TOWER ORIENTATION:
Towers to be oriented to create variety.

BUILDING SETBACKS:
Maximum base heights to be minimum 60′ and maximum 85′ high

Above the base, building to setback 10′ (wide street) or 15′ (narrow street) per zoning, except along Clinton Street where 10′ setbacks are permissible.

Midrise levels to be maximum height of 120′

MAXIMUM TOWER DIMENSIONS (ABOVE 120′)

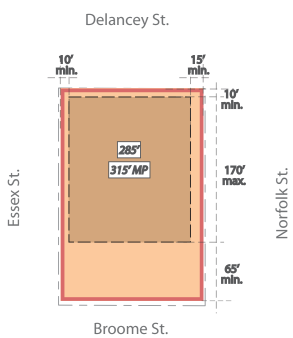


Illustrative LSGD Massing (Sites 1, 4, 5, and 6)
Figure S-4a

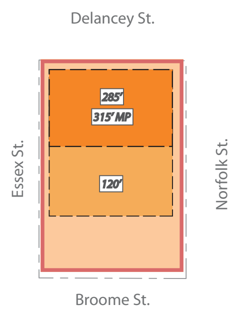
3.12.12

SITE 2

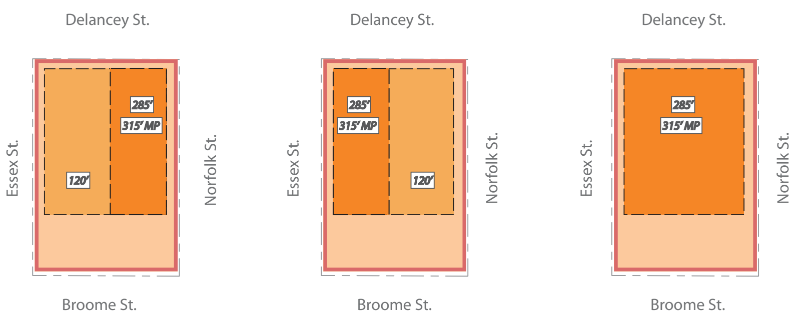
MIDRISE & TOWER ZONE ENVELOPE



POTENTIAL ENVELOPE OPTIONS



ADDITIONAL MASSING ALTERNATES



LEGEND AND NOTES

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- X′ — Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- X′ MP — Maximum building height including rooftop mechanical

DESIGN CONTROLS

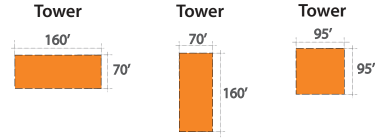
TOWER ORIENTATION:
Towers to be oriented to create variety.

BUILDING SETBACKS:
Maximum base heights to be minimum 60′ and maximum 85′ high

Above the base, building to setback 10′ (wide street) or 15′ (narrow street) per zoning, except along Clinton Street where 10′ setbacks are permissible.

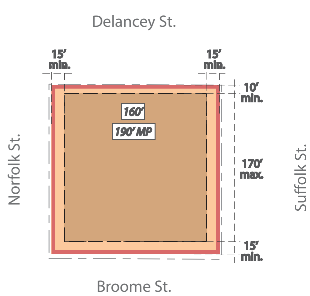
Midrise levels to be maximum height of 120′

MAXIMUM TOWER DIMENSIONS (ABOVE 120′)

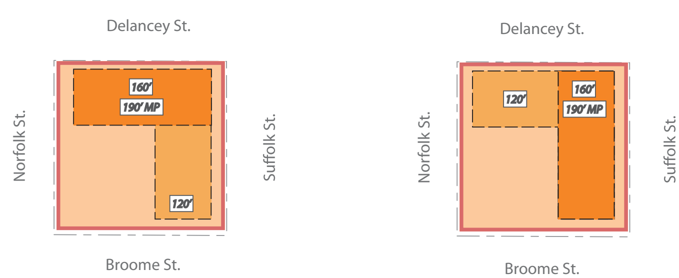


SITE 3

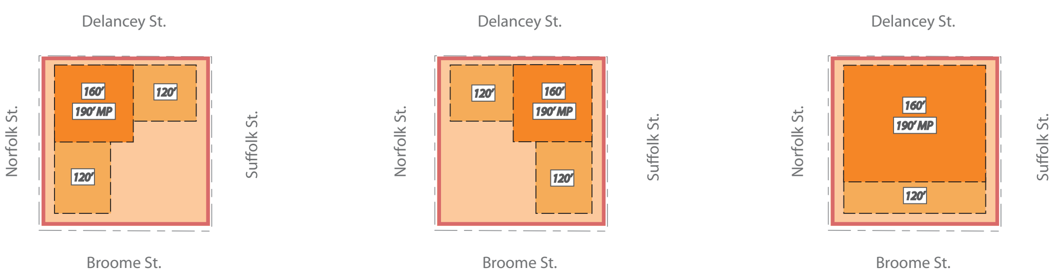
MIDRISE & TOWER ZONE ENVELOPE



POTENTIAL ENVELOPE OPTIONS



ADDITIONAL MASSING ALTERNATES



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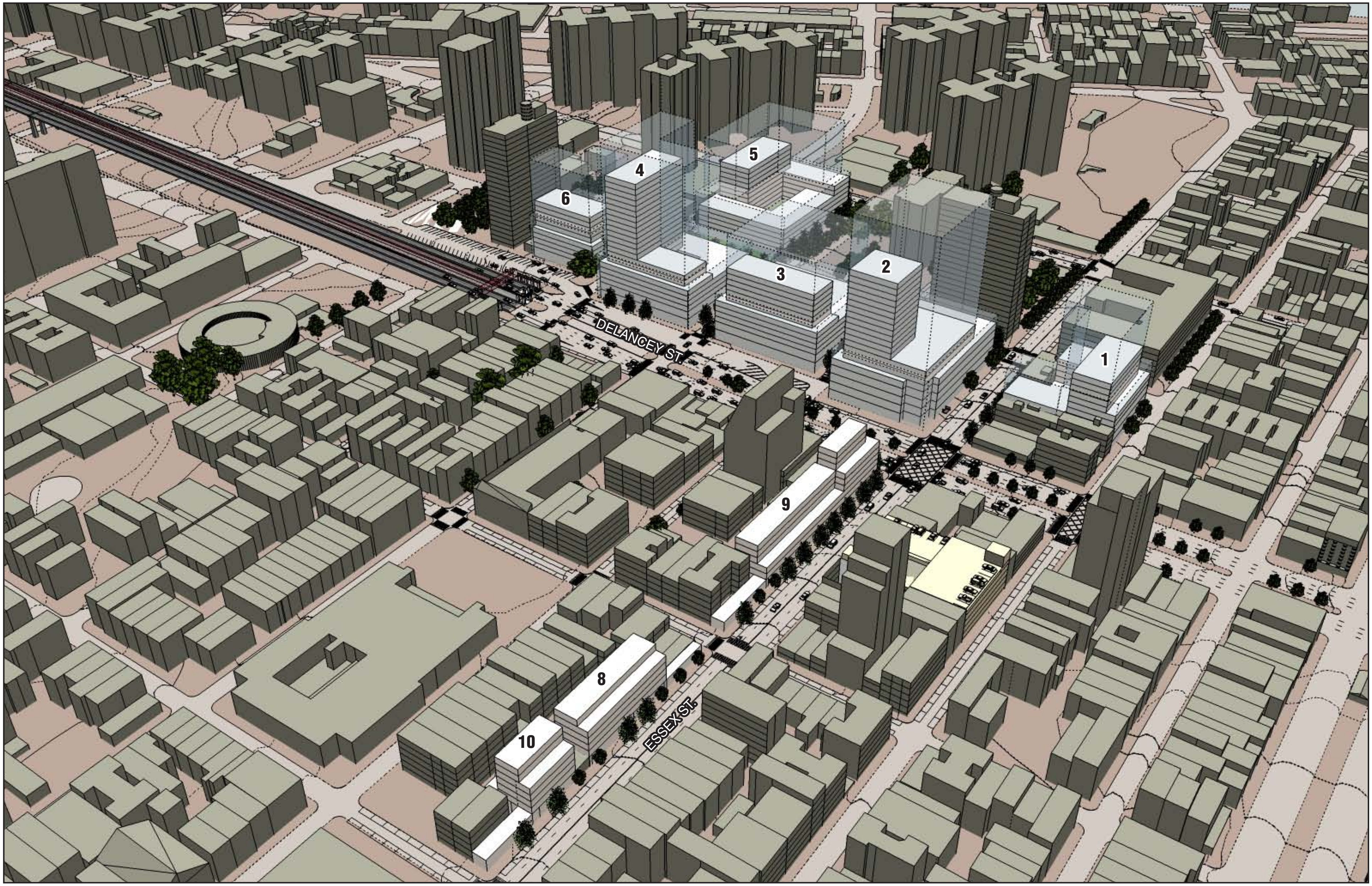
SOURCE: Beyer Blinder Belle

Illustrative LSGD Massing (Sites 2 and 3)

Figure S-4b



Illustrative Rendering with Maximum Building Envelopes and RWCDS Massing - View South

Figure S-5

reducing energy consumption such as energy-efficient building envelopes, high-efficiency heating, ventilation, and air conditioning (HVAC) systems, incinerators and generators, and window glazing to optimize daylighting and solar heat gain and to reduce heat loss. Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program, or meet equivalent sustainability measures, as more fully described in Chapter 15, "Greenhouse Gas Emissions." For sites that may be under the jurisdiction of HPD, the Land Disposition Agreement between HPD and the developer(s) would require a commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures. For housing developments on City-owned sites that are managed by NYCEDC, the commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures would be required through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

DISCRETIONARY ACTIONS SUBJECT TO CEQR AND SEQRA

The proposed mixed-use development would require multiple City approvals. Some of these are discretionary actions requiring review under the City Environmental Quality Review (CEQR) process. ~~The Office of the Deputy Mayor for Economic Development (~~ODMED~~)~~ is the lead agency for CEQR. The potential discretionary actions that would be required for the proposed development include:

- **Disposition:** Disposition of Sites 1 through 6 and 8 through 10 by the City of New York for the purpose of subsequent development;
- **Urban Development Action Area Project Designation (UDAAP):** Designation of Sites 1 through 6 and 8 through 10 as an Urban Development Action Area Project;
- **Acquisition:** Acquisition of a portion of Site 2 for the sole purpose of the relocated Essex Street Market;
- **Zoning Map Change:** Zoning map amendment for a C2-5 commercial overlay on Sites 3, 4, 5, and 6;
- **Special Permit:** Special permit from the CPC pursuant to Section 74-743 of the Zoning Resolution (ZR) of the City of New York for an LSGD, applicable to Sites 1-6 to allow the following in order to achieve a superior site plan:
  - Redistribution of floor area, lot coverage and dwelling units between zoning lots and across zoning district boundaries;
  - Waiver of height and setback regulations;
  - Waiver of rear yard regulations, rear yard equivalent regulations, and rear yard setback regulations;
  - Waiver of minimum base height;
  - Waiver of minimum distance between legally required windows and any wall in an inner court;
  - Waiver of outer court regulations; and
  - Waiver of planting requirements;
- **Special Permit:** Special permit from the CPC pursuant to ZR Section 74-744 for an LSGD, applicable to Sites 1-6, to allow the following:

- Waiver of regulations regarding the location of residential uses relative to non-residential use;
- Waiver of regulations regarding the location of commercial uses; and
- Permit Use Group 10, 11A, and certain 12A uses in C2 districts;

- **Special Permits:** Four special permits from the CPC pursuant to ZR Sections 13-562 and 74-52 to allow for the development of up to four public parking garages on Sites 2 through 5;
- **Authorization:** Authorization pursuant to ZR section 74-744(c)(2) to modify signage regulations to permit C6-1 signage regulations along certain streets;
- **Zoning Text Amendment:** Zoning text amendment to ZR Sections 74-743 and 74-744 to:
  - Eliminate the planting strip requirement in the proposed sidewalk widenings;
  - Allow commercial FAR to be shifted from the C6 district to the C2 district;
  - Allow Use Group 10, 11A, and certain 12A uses in the C2 zoning district; and
  - Allow the modification of certain signage regulations;
- **Street Mapping:** Mapping of the demapped section of Suffolk Street between Grand and Delancey Streets and the demapped section of Broome Street between Norfolk and Clinton Streets as new streets through the project site; and
- **Street Mapping:** Demapping of sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets that were previously mapped to widen Delancey and Clinton Streets, thereby aligning the mapped streets with the existing built street condition.

Mayoral and Borough Board approval of the business terms with the developer or developers to be selected pursuant to RFPs, may also be required, as applicable. In addition, NYCEDC and HPD will coordinate with the MTA-New York City Transit (NYCT) regarding subway easement areas. Construction financing for the residential buildings may come from a variety of private and public (local, state, and federal) sources, including, but not limited to funding from HPD, the New York City Housing Development Corporation, and the United States Department of Housing and Urban Development. In addition, potential construction funding may be provided by other state funding sources, including New York State Homes & Community Renewal (HCR) and the New York State Housing Finance Agency (HFA).

D. ANALYTICAL FRAMEWORK FOR ENVIRONMENTAL REVIEW

In order to address the potential range of responses to the RFP(s), the environmental review analyzes a reasonable worst-case development scenario (RWCDS) that conservatively considers for each impact category the reasonable worst-case potential for environmental effects. While the proposed discretionary actions have been defined, the development program and design specifics under those actions would be dependent on the RFP response(s). Thus, pursuant to CEQR, a Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) has been prepared that considers the environmental impacts based on the RWCDS.

A GEIS is a more general EIS that analyzes the impacts of a concept or overall plan rather than those of a specific project plan. The GEIS is useful when the details of a specific impact cannot be accurately identified, as no site-specific project has been proposed, but when a broad set of further projects that fit within the RWCDS is likely to result from the agency’s action. It should be noted that the program analyzed in the RWCDS is being used for illustrative and analysis purposes only; a site-specific breakdown is required for the environmental review. This is not meant to indicate an actual development program.

The proposed actions would change the regulatory controls governing land use and development on the project site and would allow the project site to be developed. In accordance with the *CEQR Technical Manual* (January 2012 edition) guidelines, this ~~D~~FGEIS analyzes the proposed actions' potential to generate significant adverse environmental impacts as the redevelopment takes place. The ~~D~~FGEIS considers alternatives that would reduce or eliminate impacts identified in the technical analyses and proposes mitigation for such impacts, to the extent practicable. The proposed actions would permit a range of development options; from among these, the ~~D~~FGEIS will examine the anticipated "reasonable worst-case development scenario." The approach to the analysis framework is further discussed below.

REASONABLE WORST-CASE DEVELOPMENT SCENARIO

The proposed actions would allow for a range of new developments on the project site. While the actual development will depend on developer proposals and future market conditions, the City has developed a maximum development envelope, or RWCDS, for CEQR analysis purposes. The RWCDS was developed by establishing the maximum buildable floor area allowed under zoning (approximately 1.648 million zoning square feet) and assigning a 60 percent to 40 percent ratio of residential floor area to commercial floor area, in addition to community facilities use. To the extent that actual development proposals exceed the analysis envelope of the RWCDS, they would be subject to additional environmental review as appropriate. This RWCDS will be used as a framework to assess potential impacts.

SITE PROGRAM

Under a reasonable worst-case development scenario, it is assumed that the proposed actions would result in approximately 951,000 gsf of residential development (comprising 900 dwelling units, in accordance with the UDAAP application, of which half would be affordable units); up to approximately 632,300 gsf of commercial space; approximately 114,000 gsf of community facility or cultural uses; up to 500 parking spaces; and an approximately 10,000-square-foot publicly accessible open space on Site 5. The commercial space would include up to approximately 469,350 gsf of retail (including a grocery store), over 29,000 square feet of public market space, an approximately 97,500-square-foot hotel, and approximately 36,300 gsf of non-specific commercial uses (See **Table S-2**). Note that the site-specific program shown in **Table S-2** is illustrative only and for analysis purposes only; and this is not meant to indicate an actual development program. Pursuant to the proposed actions, the existing Essex Street Market, which is located on Site 9, would be relocated to a new, expanded public market facility on Site 2.

Residential

One of the goals of the proposed actions is to allow for the development of a mixed-income residential development. Under the RWCDS, approximately 951,000 gsf of residential development would be developed comprising 900 dwelling units. As contemplated in the RWCDS, these residential units would be developed on all the sites with the exception of Site 2. Half of these dwelling units would be dedicated for affordable housing and would include a mix of affordable housing options such as senior housing. However, for analysis purposes, the ~~D~~FGEIS has not assumed a senior housing component since that would not be the most conservative assumption regarding demand for public school seats or publicly-funded day care services. It should be noted that nothing in this analysis precludes senior housing from being built.

Table S-2
Reasonable Worst-Case Development Scenario (RWCDS) Program

Site No.	Total Zoning Floor Area (zsf)	Total Gross Floor Area (gsf)	Residential (gsf)	Retail (gsf)	Hotel (gsf)	Other Comm. (gsf)	Public Market (gsf)	Community Fac. (gsf)
1	142,708	140,682	74,951	60,731	0	0	0	5,000
2	280,410	355,200	0	167,294	97,450	36,304	29,152	25,000
3	265,038	254,258	168,239	71,019	0	0	0	15,000
4	264,063	346,351	256,663	69,688	0	0	0	20,000
5	394,602	311,458	229,603	47,855	0	0	0	34,000
6	138,593	122,026	88,101	18,925	0	0	0	15,000
8	44,840	46,652	37,862	8,790	0	0	0	0
9	90,384	94,168	75,361	18,807	0	0	0	0
10	27,360	26,642	20,402	6,240	0	0	0	0
Total	**1,647,997**	**1,697,437**	**951,182**	**469,349**	**97,450**	**36,304**	**29,152**	**114,000**

Notes:
1. The RWCDS program is for illustrative purposes only; it does not represent an actual development program, which is dependent on a future developer(s)'s RFP process.
2. Site 7, a public parking garage, would not be redeveloped under the proposed actions.
3. The proposed actions would also include the provision for up to 500 parking spaces in 314,502 gsf of below-grade space.

Commercial

In order to facilitate development flexibility, a wide range of commercial uses would be allowed under the LSGD plan. These commercial uses, totaling approximately 632,300 gsf, are expected to include retail, such as local and neighborhood services and some retail stores with a larger draw; a public market, which represents the relocation and expansion of the existing Essex Street Market; and other commercial uses such as offices. The ~~D~~FGEIS also includes the analysis of a grocery store and a 200-room hotel since these commercial uses have unique characteristics (particularly related to traffic and pedestrian activities).

Community Facility

The proposed development includes a total of approximately 114,000 gsf of community facility or cultural space that, as shown in **Table S-2**, would be distributed among Sites 1 through 6.

Parking and Circulation

As noted above, Site 7 would remain a municipal public parking garage with a capacity of 362 spaces. In addition, the project proposes the inclusion of up to 500 parking spaces on up to four of the development sites to meet the project's demand and to replace the number of public parking spaces that could be lost as a result of the proposed actions. The proposed development seeks approval for 4 special permits to allow for these additional public parking facilities on Sites 2 through 5 within the LSGD. The RWCDS assumes that Sites 2 through 5 would provide the parking in approximately 314,500 gsf of below-grade space, which is a reasonable worst-case assumption for the maximum amount of below-grade space required to allow up to 500 parking spaces on up to four sites.

ANALYSIS YEARS

It is assumed that the proposed actions would be approved by 2012. Based on a compressed and conservative development timeline, design and construction would be undertaken in a continuous manner and is assumed to span 10 years with a full build-out anticipated to be by 2022. In the future without the proposed actions, it is expected that existing uses on the projected development sites would remain. In addition, the future without the proposed actions would account for other development projects that are planned to be in place by 2022 absent the proposed actions.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE, ZONING, AND PUBLIC POLICY

Overall, this analysis concludes that the proposed actions would not have any significant adverse impacts on land use, zoning, or public policy.

LAND USE

The proposed actions would have a positive effect on land use by creating an active new mixed-use development with open space on underutilized sites. The new housing, retail, publicly accessible open space, and community facility uses would bring activity to the proposed development sites and would serve both residents of the surrounding area and the larger community. The new uses introduced by the proposed actions would be compatible with the existing and anticipated future mix of residential, retail, and commercial uses in the surrounding area. The height and bulk of the proposed development would complement the existing built fabric and help to knit together surrounding neighborhoods. Therefore, the proposed actions would not result in any significant adverse land use impacts.

ZONING

The proposed actions would include a LSGD special permit, which would allow the proposed development to better integrate the programming of its proposed uses, and would provide flexibility in design and massing. The proposed actions would not change the underlying zoning of the project site, except to map new C2-5 commercial overlay zones on Sites 3, 4, 5, and 6. The proposed commercial overlay zones would be compatible with existing commercial zoning in adjacent areas. The retail uses that could be introduced as a result of the zoning change would be compatible with existing retail uses and the mixed-use character of the study area. The zoning relief (such as height and setback waivers) being sought would facilitate a superior site plan that is responsive to the context of the project site and would complement the surrounding study area. Therefore, the proposed actions would not result in significant adverse zoning impacts.

PUBLIC POLICY

The proposed actions would support and further the objectives of applicable public policies, including the Mayor’s New Housing Marketplace Plan, nearby Business Improvement Districts, and PlaNYC 2030. The proposed actions would not result in any significant adverse public policy impacts. In addition, the proposed actions would be in broad accordance with CB3’s redevelopment guidelines in terms of its mixed-use character, affordable and market housing development, commercial development, urban design plan, parking, and potential for community facility development.

SOCIOECONOMIC CONDITIONS

The analysis presented in this chapter finds that the proposed actions would not result in significant adverse socioeconomic impacts. In accordance with *CEQR Technical Manual* (January 2012 edition) guidelines, this socioeconomic analysis evaluates the RWCDS against six specific elements that can result in significant adverse socioeconomic impacts: (1) direct displacement of residential population on a project site; (2) direct displacement of existing businesses on a project site; (3) indirect displacement of residential population in a study area due to increased rents; (4) indirect displacement of businesses or institutions in a study area due to increased rents; (5) indirect business displacement due to retail market saturation; and (6) adverse effects on specific industries.

DIRECT RESIDENTIAL DISPLACEMENT

A screening-level assessment finds that the proposed actions would not result in significant adverse impacts due to direct residential displacement. The proposed actions would directly displace approximately nine residents who are living in seven dwelling units located in a City-owned rental building at 400 Grand Street (Site 5). The direct displacement resulting from the proposed actions would not be of a scale large enough to alter the demographics and socioeconomic character of the neighborhood. The amount of displacement (nine residents) falls well below the CEQR threshold of 500 displaced residents, and therefore a preliminary assessment is not warranted.

HPD would assign a relocation manager to each of the households that would be displaced and provide each household with an information letter that outlines the benefits available to the household. Eligible residents would receive relocation benefits, which include advisory services, including referrals to comparable and suitable replacement homes and assistance in preparing claim forms; payment for moving expenses; and financial assistance to help buy or rent a replacement home.

DIRECT BUSINESS DISPLACEMENT

A preliminary assessment finds that the proposed actions would not result in significant adverse impacts due to direct business displacement. As part of the proposed actions, the Essex Street Market tenants on Site 9 could relocate to a new market facility on Site 2. Aside from the Essex Street Market relocation, there are an estimated 14 businesses and 107 employees who could be displaced without specific plans or provisions for their relocation within the study area. The retail, parking, eating and drinking, and health care uses that would be displaced are common in the study area such that businesses and consumers would be able to find similar products and services elsewhere in the study area in the future with the proposed actions. The employment that would be lost would not be substantial, and the proposed actions would introduce many new employment opportunities in similar industry sectors. Although these businesses are valuable individually and collectively to the City’s economy, their displacement from the project site would not substantially alter the neighborhood’s economic activities.

INDIRECT RESIDENTIAL DISPLACEMENT

A preliminary assessment finds that the proposed actions would not result in significant adverse impacts due to indirect residential displacement. The proposed actions would introduce 900 new dwelling units that would be available to households with a mix of incomes; ~~it is expected that~~ 50 percent of these new units would be affordable. The project-generated population would represent less than 5 percent of the future study area population, and therefore would not introduce a population that could substantially affect residential market conditions in the ¼-mile study area. There is an existing trend toward increased rents in the study area that would exist with or without the proposed actions; the effects of this new housing stock and population are not expected to have a substantial affect on future residential rents in the study area. In addition, the project's affordable housing would expand housing options available to the lower-income residents in the study area, and could balance the upward momentum of rents in the area caused by redevelopment.

INDIRECT BUSINESS DISPLACEMENT DUE TO INCREASED RENTS

A preliminary assessment finds that the proposed actions would not result in significant adverse indirect business displacement impacts due to increased rents. Residential, retail, hotel, community facility uses, and parking are already common in the ¼-mile study area, and there are already existing trends of residential and hotel development in the study area. The proposed actions would contribute to these existing trends, rather than alter economic patterns. Under the RWCDS, approximately 36,300 square feet of non-specific commercial uses would be built on the project site, some of which could be office space. This amount of office space would not be enough of a new economic activity to introduce trends that would alter existing economic patterns.

In the future with the proposed actions, there would be increased foot traffic in the study area, which would benefit existing retail stores, restaurants and galleries in the study area. While the proposed actions could benefit many existing local businesses, increases in pedestrian foot traffic could lead to increased rents in the immediate vicinity of the project site, which in turn could result in the indirect displacement of some existing retail establishments that are not able to capture sales from the increased foot traffic. However, this potential displacement is expected to be limited and would not constitute a significant adverse impact under CEQR. The retail stores that would be vulnerable to indirect displacement are not unique to the study area, and do not have locational needs that would preclude them from relocating elsewhere within the city. The ¼-mile study area already contains a large residential population (an estimated 43,711 residents). Therefore, there would still be the local demand for neighborhood retail and services necessary to maintain the strong retail presence within the study area. The limited indirect retail displacement that could result from increased rents would not be expected to lead to adverse changes to neighborhood character and would not result in significant adverse socioeconomic impacts.

In addition, industrial uses in the ¼-mile study area—including, but not limited to wholesalers, warehouses, and auto repair shops—could be considered potentially vulnerable to indirect displacement. Industrial businesses are typically less compatible with the economic trends that are creating upward rent pressures in the ¼-mile study area; i.e., they tend to not directly benefit in terms of increased business activity from the market forces generating the increases in rent. However, these pressures are already present within the study area and are expected to increase in the future irrespective of the proposed actions. While the proposed actions could result in limited indirect displacement of existing industrial businesses, it would not alter or accelerate trends that would change existing economic patterns in a manner that would result in significant displacement.

INDIRECT BUSINESS DISPLACEMENT DUE TO RETAIL MARKET SATURATION

The proposed actions would add a combination of regional- and local-serving retail that could overlap with the local-serving retail strips in the area, especially those anchored by convenience goods. Based on the detailed analysis, the proposed actions would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition.

The preliminary analysis found that capture rates for each broad retail category (shoppers' goods, convenience goods, and eating and drinking establishments) with the exception of a building materials and garden supply category are over 100 percent in the existing condition and would continue to exceed 100 percent in the future with the proposed actions.[1] Therefore, a detailed analysis was conducted. The detailed analysis focused on grocery stores, since they often serve as anchors for retail concentrations and since the RWCDS under the proposed actions could introduce up to a 65,000 square foot grocery store in addition to other stores (e.g. discount department stores) that may offer products that would substantially overlap with typical grocery store offerings. In addition, department stores and home improvement stores were analyzed.

The proposed actions are not expected to alter the number of businesses and services that are located on retail corridors in the ½-Mile Local Trade Area, and vacancy rates are not expected to change in the future. The Lower East Side has a particularly robust retail profile, grounded in a long history of entrepreneurship. The character of retail in the area makes any substantial displacement due to new development and market saturation unlikely. The area contains a broad mix of commercial uses supported by a number of retail spending sources including residents of the Lower East Side and beyond, local workers, day-visitors, and overnight tourists. Overall, the proposed actions would generate increased foot traffic that would benefit existing retail businesses in the ½-Mile Local Trade Area. While the possibility of some limited indirect business displacement due to competition cannot be ruled out, any displacement that might occur would not jeopardize the viability of any local retail strips.

Competitive pressure generated by a chain supermarket would be felt most strongly by major supermarkets in the ½-Mile Local Trade Area. The detailed analysis concludes that there is one grocery store in the ½-Mile Local Trade Area that could experience competitive pressure from a supermarket introduced as part of the RWCDS and that serves as an anchor to a local neighborhood retail concentration. The store could retain its customer base even with the proposed actions due to the density of residential population in surrounding blocks and other factors. However, even if the store was to close due to competition from a grocery store on the project site, the closure would not spur additional vacancies in adjacent storefronts since they are surrounded by high density residential uses so they would continue to experience high levels of foot traffic. Accordingly, closure would not negatively impact neighborhood character, and would not result in a significant adverse impact due to indirect business displacement from market saturation.

The detailed analysis studied building materials and garden supply stores since they often serve as anchors for retail concentrations and since the RWCDS could introduce a building material and garden supply store. A large-scale building materials and garden supply store on the

[1] Shoppers' goods are usually higher value goods—such as clothing, electronics, or furniture—for which consumers compare quality and price at more than one store before making a purchase. Convenience goods are usually lower value goods that are purchased frequently and immediately, often near the home or workplace, with little or no comparison shopping. The building materials and garden supplies category includes goods such as hardware, paint, building materials and supplies, and lawn and garden equipment and supplies. The eating and drinking establishment category includes restaurants, bars, and other special food services, such as caterers.

proposed project site would not draw substantial sales away from stores selling comparable goods in the ½-Mile Local Trade Area. Large-scale home improvement stores tend to draw sales from a broad trade area and from both contractors and households. There are few home improvement stores located in the ½-Mile Local Trade Area and they do not anchor neighborhood retail strips.

The detailed analysis also studied large-scale department stores and discount department stores since they often serve as anchors for retail concentrations and since the RWCDS could introduce a large-scale department store or discount department store. Large-scale department or discount department stores tend to draw sales from a broad trade area. They are not relying on a particular local residential population for their customer base and therefore do not typically have the potential to result in significant adverse impacts due to indirect business displacement from retail market saturation of the local market. The ½-Mile Local Trade Area does not contain any large-scale department stores, so any such store introduced as part of the proposed actions would be the only one in the trade area. Competitive pressure from this store and other shoppers' goods stores on the project site would be minimal for many shoppers' goods stores in the Local Trade Area. The ½-Mile Local Trade Area includes distinct pockets of shoppers' goods stores, including a concentration of lighting stores on the Bowery, boutique shops in Nolita, stores catering to tourists in Little Italy, and stores in Chinatown catering to the sizable Asian population living in the trade area and beyond. Overall, although there could be some overlap between products offered at existing and proposed project shoppers' goods stores, concentrations of shoppers' goods stores currently located in the ½-Mile Local Trade Area distinguish themselves in different ways (e.g., a focus on tourists, a focus on ethnic populations, a concentration of a particular type of product). Therefore, many of these stores would not be in direct competition with stores expected on the project site.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

A preliminary assessment finds that the proposed actions would not have the potential to have a significant adverse impact on any specific industries in the City. The businesses that would be directly displaced by the proposed actions collectively account for only a small fraction of the total employment and economic activities in the study area, and are not expected to be critical to the viability of any City industries.

COMMUNITY FACILITIES AND SERVICES

Based on a preliminary screening, the proposed actions warrant analysis for direct effects to health care facilities and indirect effects to public elementary and intermediate schools and child care centers. The analysis finds that the proposed actions would not result in any significant adverse impacts on community facilities.

DIRECT EFFECTS ON HEALTH CARE SERVICES

The proposed actions would result in the relocation of the Downtown Health Center, a clinic at 150 Essex Street (on Site 10) that is run by the CHN. The lease between NYCEDC and the CHN allows for the facility to be relocated within its lease term to another location in the immediate area. Because CHN would be relocated in the immediate area, it is expected that it would be able to serve the same population and the extent of service disruption would be minimal. Therefore, the relocation of the Downtown Health Center would not be considered a significant adverse impact.

INDIRECT EFFECTS ON PUBLIC SCHOOLS

The analysis of indirect effects on public schools concludes that the proposed actions would not result in any significant adverse impacts on public elementary or intermediate schools.

The proposed project site is located within Sub-districts 1 and 2 of Community School District (CSD) 1 and Sub-district 1 of CSD 2. The proposed actions would result in the development of 900 residential units in the study area. Based on CEQR student generation rates, the proposed actions would generate approximately 108 elementary school students and 37 intermediate school students in the study area by 2022. Conditions at elementary and intermediate schools in the sub-district study areas in the future without the proposed actions were predicted based on the New York City Department of Education (DOE) enrollment projections and the New York City School Construction Authority (SCA) data on other new development projects in the study areas. The future utilization rate for school facilities was calculated by adding the estimated enrollment from proposed residential developments in the schools study area to DOE's projected enrollment, and then comparing that number with projected school capacity.

Although elementary schools within the three sub-districts analyzed would operate with a shortage of seats in 2022, the proposed actions would introduce a small number of students relative to the overall enrollment of the study area. As a result, they would not substantially increase the elementary school utilization rate. The largest increase in utilization over the No Action condition would be in Sub-district 1 of CSD 2, where the proposed actions would increase the utilization rate by approximately two percent, which is below the CEQR threshold of five percent or more for a significant adverse impact. Because the proposed actions would increase the elementary school utilization rate by less than five percentage points, the proposed actions would not result in a significant adverse impact on elementary schools in any of the sub-districts analyzed. Therefore, the proposed actions would not result in a significant adverse impact on elementary schools.

With regard to intermediate schools, all three sub-districts analyzed (Sub-districts 1 and 2 of CSD 1 and Sub-district 1 of CSD 2) would operate with surplus capacity at the intermediate school level in 2022. Therefore, the proposed actions would not result in any significant adverse impacts on intermediate schools.

INDIRECT EFFECTS ON CHILD CARE FACILITIES

As discussed below, the proposed actions would not result in any significant adverse impacts on publicly funded child care facilities. The child care analysis was based on current enrollment data from the Administration for Children's Services (ACS) for the child care and Head Start centers closest to the project site. Future conditions were predicted based on the number of new low-income and low/moderate-income housing units expected in the study area. Child care enrollment introduced by the proposed actions was added to conditions in the future without the proposed actions. The proposed actions would introduce 450 low- to middle-income units by 2022. Based on the most recent CEQR child care multipliers, this development would generate approximately 52 children under the age of six who would be eligible for publicly funded child care programs. With the addition of these children, there would be a deficit of slots in the study area by 2022, and the proposed actions would result in an increase in the utilization rate of three percent over the No Action condition. While child care facilities in the study area would operate above capacity, the increase due to the proposed actions would be less than five percentage points and below the CEQR threshold. Therefore, the proposed actions would not result in a significant adverse impact on child care facilities.

OPEN SPACE

DIRECT EFFECTS

The proposed actions would not remove or alter any existing publicly accessible open spaces, nor would they result in any significant adverse shadow, noise, or air quality impacts on any open spaces. On the contrary, the proposed actions would increase the supply of publicly accessible open space in the study area by creating a new 10,000-square-foot (approximately 0.23 acres) publicly accessible open space on Site 5.

INDIRECT EFFECTS

Based on the methodology of the *CEQR Technical Manual*, a preliminary analysis of the proposed actions' indirect effects on open space was conducted to determine the need for a detailed analysis. The preliminary analysis concluded that the proposed actions would not result in a significant adverse impact on open space and that a detailed analysis was not necessary.

Table S-3 provides a summary of the open space analysis including a comparison of conditions with and without the proposed actions. As shown in the table, the proposed actions would result in a decrease in the passive open space ratio for workers in the commercial (¼-mile) study area. However, the open space ratio for workers in the study area would still remain almost five times over the City's recommended guideline ratio. Therefore, the proposed actions would not result in any significant adverse impacts on open space resources in the commercial study area.

Table S-3
2022 Future with the Proposed Actions: Open Space Ratios Summary

Ratio	City Guideline	Open Space Ratios: Existing Conditions	Open Space Ratios: Future Without the Proposed Actions	Open Space Ratios: Future With the Proposed Actions	Percent Change Future Without to Future With the Proposed Actions
Commercial (¼-Mile) Study Area					
Passive/Workers	0.15	0.82	0.78 ~~0.80~~	0.69 ~~0.70~~	-11.45% ~~-11.61%~~
Residential (½-Mile) Study Area					
Total/Residents	2.5	0.79	0.83	0.82	-1.32%
Passive/Residents	0.5	0.23	0.26	0.26	-1.18%
Active/Residents	2.0	0.56	0.57	0.56	-1.38%

Note: Ratios in acres per 1,000 people.

In the residential study area, the open space ratios for the future with the proposed actions, as with existing conditions and the future without the proposed actions, would continue to fall short of the City's recommended open space ratio guidelines. However, the proposed actions would introduce approximately 0.23 acres of publicly accessible open space to Site 5 and, as shown in **Table S-3**, the open space ratios for the residential study area would decrease by 1.38 percent or less. These decreases would not constitute a substantial change. Therefore, because the open space ratios would remain substantially the same in the future with the proposed actions compared to the future without the proposed actions and the proposed actions would introduce new publicly accessible open space to partially offset the additional project-generated demand, the proposed actions would not result in any significant adverse impacts on open space resources in the residential study area and a detailed open space analysis is not required.

SHADOWS

To ensure a conservative shadow analysis, the maximum zoning envelope was used for each of the nine sites that would be redeveloped with new structures. The ultimate development as constructed on each site would be subject to the results of the environmental review, the results of developer(s)' response(s) to an RFP process, and further discussion with stakeholders, among other factors. Each of the zoning envelopes is larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design, and consequently the actual developments would cast smaller shadows than what would be cast by the maximum zoning envelopes analyzed in the shadow assessment. Three of the Schiff Mall medians, which are located along the center of Delancey Street and contain rose bushes and other plantings, could experience large extents and durations of incremental shadow during the months of the growing season that would potentially affect the rose bushes' viability, particularly in March and September when the overall length of the day, and therefore the available sunlight, is shorter. However, from early May through mid-August, these medians would receive seven hours or more of direct sun. Therefore, the plantings other than the rose bushes would not be significantly affected by the project-generated shadow. The buildings that would actually be developed on Sites 1, 2, 3, and 4 would not be as large or bulky as the maximum zoning envelopes analyzed in this conservative study, and so the actual extent and duration of incremental shadow would likely be less than what is described here, and the roses may not actually be impacted. Therefore, if a tower is constructed on these sites that would impact the roses, and the roses are still there at the time of construction, then the roses would be replaced with shade tolerant plantings as part of the project.

The P.S. 142 Playground on Delancey Street would experience a little over an hour of new shadow from the proposed actions in the late spring and summer seasons, but it would occur late in the afternoons and would not cause significant adverse impacts. Several other sun-sensitive resources in the study area would receive short durations of incremental shadow and would not be adversely impacted by the proposed actions.

The proposed publicly accessible open space on Site 5 would also experience project-generated shadow. This publicly accessible open space, which would be located on the Broome Street side of Site 5, would experience substantial project-generated shadow throughout the year. This analysis is conservative as it is based on the maximum zoning envelope, which could not be fully built based on the requirements of the LSGD approvals. The actual development on the site would be smaller than the maximum zoning envelope and would likely result in slightly less shadows on the proposed publicly accessible open space in the late spring and summer. However, pursuant to CEQR, shadows cast on the project's proposed open space are not considered significant.

HISTORIC AND CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

In an Environmental Review letter dated August 16, 2011, the New York City Landmarks Preservation Commission (LPC) determined that there is the potential for the recovery of archaeological resources associated with the 19th-century occupation of the following locations within the project site: Block 346, Lot 40 (corresponding to Sites 3, 4, and 5); Block 347, Lot 71 (corresponding to Site 6); and Block 352, Lot 28 (corresponding to part of Site 2). A Phase 1A Archaeological Documentary Study of Sites 2 through 6 was requested by LPC to clarify this initial finding. LPC determined that Site 1, Sites 8 through 10, and the portions of the streets to be mapped and demapped as part of the proposed actions have no archaeological significance, and no in-ground disturbance is proposed for Site 7. Therefore, no further archaeological analysis is warranted for Site 1, Sites 7 through 10, and for the portions of the streets to be mapped and demapped as part of the proposed actions.

In December 2011, a Phase 1A Archaeological Documentary Study of Sites 2, 3, 4, 5, and 6 was prepared. The study concluded that 50 historic lots within Sites 2 through 6 were sensitive for historic-period archaeological resources. The Phase 1A recommended a Phase 1B archaeological investigation to determine the presence or absence of archaeological resources in the areas identified as archaeologically sensitive. These potential archaeological resources could include shaft features (i.e., privies, cisterns, or wells) associated with the residential occupation of these historic lots in the early- to mid-19th century. The Phase 1A was submitted to LPC and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A. With implementation of Phase 1B testing and continued consultation with LPC and OPRHP regarding the need for, and implementation of, any Phase 2 and 3 investigations, there would be no significant adverse impacts on archaeological resources from the proposed actions.

At this time, it is not known which sites will be disposed of by which project sponsors, and there will be no specific, defined development projects on each site until a developer or developers are selected pursuant to a RFP process. Further archaeological investigation will be required to be undertaken by the developer(s) after selection. For sites that may be under the jurisdiction of HPD, remedial measures, including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC/OPRHP, will be required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by NYCEDC, remedial measures, including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC/OPRHP, will be required to be undertaken by the developer(s) through the provisions of a contract for sale or lease, or other legally binding agreement between NYCEDC and the developer(s).

ARCHITECTURAL RESOURCES

The proposed actions would result in significant adverse direct impacts on two architectural resources from development on Sites 2, 5, 8, 9, and 10. Those impacts could be partially mitigated as described below. Further, development of the proposed project could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, development on Site 1 could result in significant adverse visual and contextual impacts on two architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

The analysis concludes that the proposed actions would not have any significant adverse impacts related to urban design and visual resources. The proposed actions would enhance the pedestrian's experience of the development sites by replacing underutilized buildings and surface parking lots with new active, mixed-use development. The proposed actions would change the urban design and visual character of the study area, but would improve the pedestrian experience by activating currently underdeveloped and under-utilized sites. This change would complement the existing context of the adjacent areas and be consistent with the existing trends of new residential, hotel, and mixed-use development, making the neighborhood more densely developed.

HAZARDOUS MATERIALS

The proposed actions would result in the demolition of existing structures and surface parking areas on Sites 1 through 6 and 8 through 10 followed by subsurface disturbance associated with construction of new structures. Site 7 would not be redeveloped pursuant to the proposed actions and the existing parking garage would remain.

The proposed actions would include appropriate health and safety/remedial measures that would precede or govern demolition, construction, and soil disturbance activities on the development sites, as warranted. With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions. Following construction, there would be no potential for significant adverse impacts.

WATER AND SEWER INFRASTRUCTURE

This analysis finds that the proposed actions would not result in any significant adverse impacts on the City's water supply, wastewater or stormwater conveyance and treatment infrastructure.

WATER SUPPLY

By 2022, the RWCDS would generate an incremental water demand of 656,392 gallons per day (gpd) as compared to the future without the proposed actions. Based on the projected incremental demand, it is expected that there would be adequate water service to meet the proposed actions' incremental water demand, and there would be no significant adverse impacts on the City's water supply.

SANITARY SEWAGE

By 2022, the RWCDS would generate an incremental 373,844 gpd of sewage over the future without the proposed actions. This volume would not result in an exceedance of the Newtown Creek Wastewater Treatment Plant's capacity, and therefore would not create a significant adverse impact on the City's sanitary sewage conveyance and treatment system. In addition, per the New York Plumbing Code (Local Law 33 of 2007), low-flow fixtures would be required to be implemented and would help to reduce sanitary flows from the new buildings.

STORMWATER

The overall volume of stormwater runoff and the peak stormwater runoff rate from the project site is anticipated to slightly increase due to the replacement of surface parking areas with buildings; however, 10,000 square feet of publicly accessible open space is proposed on Site 5. With the incorporation of select best management practices (BMPs) such as on-site detention facilities (rooftop detention, underground storage tanks, or tanks within the buildings) or other stormwater source controls, the peak stormwater runoff rates would be reduced from the future without the proposed actions and would not have a significant impact on the downstream City combined sewer system or the City sewage treatment system.

SOLID WASTE AND SANITATION SERVICES

While the proposed actions would generate additional solid waste, no significant adverse impacts on solid waste and sanitation services would result from the proposed actions. The New York City

Department of Sanitation is responsible for the collection and disposal of municipal solid waste, including the collection of recyclables generated by residents, some nonprofit institutions, tax exempt properties, and City agencies. Private carters provide these services to commercial and other users. The proposed actions would increase the volume of solid waste and recyclables that would have to be managed, but would not pose a significant strain to overall capacity of the City's municipal and private solid waste system or hamper the provision of adequate sanitation services.

ENERGY

The proposed actions would not have a significant adverse impact on energy systems and services. Although the proposed actions would increase demand on electricity, this increase in demand would be insignificant relative to the capacity of these systems and the current levels of service in the Con Edison service area. Upon completion, development pursuant to the proposed actions would comply with the *New York City Energy Conservation Code*. In compliance with the code, the basic designs of all buildings would incorporate the required energy conservation measures, including meeting the code's requirements relative to energy efficiency and combined thermal transmittance.

Through an RFP process, the City would look favorably upon proposals that enhance the energy-efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at reducing energy consumption and greenhouse gas (GHG) emissions.

In addition, housing developments on all sites are expected to be certified under the Enterprise Green Communities Program, or meet equivalent sustainability measures. Therefore, no significant adverse energy impacts would result from the proposed actions.

TRANSPORTATION

TRAFFIC

In accordance with *CEQR Technical Manual* (January 2012 edition) guidelines, a RWCDS was developed to estimate the peak hour vehicular and pedestrian volumes expected as a result of the proposed actions. In the weekday AM peak hour (8:00 to 9:00 AM), the RWCDS would generate 209 vehicle trips arriving at the project sites and 162 vehicle trips leaving the project sites, for a total of 371 vehicle trips. In the weekday midday peak hour (1:00 to 2:00 PM), it would generate 267 inbound vehicle trips plus 260 outbound vehicle trips for a total of 527 vehicle trips. In the weekday PM peak hour (5:15 to 6:15 PM), it would generate 244 inbound vehicle trips plus 296 outbound vehicle trips for a total of 540 vehicle trips. In the Saturday peak hour (3:45 to 4:45 PM), it would generate 250 vehicle trips arriving and 246 vehicle trips leaving, for a total of 496 vehicle trips. Although these volumes are significantly lower than those for several other major EISs in New York City, the number of development parcels, the displacement of existing parking facilities, and the critical nature of potential issues along key corridors like Delancey Street, Grand Street, Essex Street, and others has made the number of intersections analyzed in this ~~D~~FGEIS comparable to other large-scale EISs in New York City.

Of the 30 study area intersections analyzed (25 signalized and five unsignalized intersections), the proposed actions would cause significant traffic impacts at 13 ~~nine~~ intersections in the weekday AM peak hour, 11 ~~seven~~ in the weekday midday peak hour, 15 ~~18~~ in the weekday PM peak hour, and 14 ~~10~~ in the Saturday peak hour. The number and locations of significant traffic impacts are different than those identified in the DGEIS. Following the issuance of the DGEIS, the New York City Department of Transportation (NYCDOT) adopted and began implementing the area-wide Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety conditions along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner “bump-outs” and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area’s transportation network were incorporated as part of the FGEIS. As a result, some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the FGEIS due to the safety oriented changes in the roadway network described above, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs. Traffic capacity improvements that would be needed to mitigate these significant impacts are addressed below in Section G, “Mitigation Measures.”

~~NYCDOT is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Incorporation of the plan may result in some changes to significant traffic impact locations or time periods when impacts occur. Details related to this plan would be included in the FGEIS and the effects of the plan on traffic and pedestrian conditions will be addressed between completion of the DGEIS and FGEIS should the plans be adopted prior to release of the FGEIS.~~

TRANSIT

The preliminary screening assessment concluded that a detailed examination of subway line-haul analysis is not warranted. However, bus line-haul analyses and a detailed analysis of station elements at the Delancey Street/Essex Street subway station (F, J, M, and Z lines) were prepared.

The proposed actions would result in significant adverse impacts on bus line-haul levels on the southbound M9 and westbound M14A during the AM peak period and the northbound and southbound M9 during the PM peak period. Potential measures to mitigate the projected significant adverse bus line-haul impacts are described below in Section G, “Mitigation Measures.”

Additional analysis of certain interior transfer and platform stairways was undertaken in the FGEIS. The analysis indicates the proposed project would not result in the potential for significant adverse impacts on these stairway elements.

~~Based on the transit analysis of the Essex Street/Delancey Street station, no potential significant adverse subway station impacts have so far been shown for the peak analysis periods. At the direction of the Metropolitan Transportation Authority-New York City Transit (MTA NYCT), further analyses of certain interior transfer and platform stairways will be undertaken for the FGEIS. The analysis may result in significant adverse subway station impacts that are being conservatively disclosed in this DGEIS. Should the results of the analyses identify significant adverse impacts, measures to increase capacity would be recommended to mitigate such impacts. The practicability and feasibility of such mitigation measures will be further assessed in the FGEIS.~~

PEDESTRIANS

Weekday and Saturday peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements at 22 area intersections. Under the RWCDS, significant adverse pedestrian impacts are anticipated for ~~four~~ five pedestrian analysis locations ~~at~~ along Delancey Street ~~and~~ at Essex and Clinton Streets including the west crosswalk of Delancey Street and Essex Street during the midday peak period, the east crosswalk of Delancey Street and Essex Street during the midday, PM and Saturday peak periods, the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, ~~and~~ the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period.

The pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairs, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of that particular sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk widths to approximately 20 to 30 percent of the overall widths available at the two sidewalk locations on Essex Street. The combination of all these factors would result in the potential for significant adverse pedestrian impacts at the two Essex Street sidewalks in the future 2022 With Action condition.

However, it should be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the project's development program and design may not materialize to the full extent resulting in different travel patterns at the study area's pedestrian facilities.

Measures that can be implemented to mitigate these significant adverse pedestrian impacts are discussed below in Section G, "Mitigation Measures."

VEHICULAR AND PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between February 29, 2008 and February 28, 2011. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. During this three-year period, a total of 587 reportable and non-reportable accidents, 3 fatalities, 475 injuries, and 175 pedestrian/bicyclist-related accidents occurred at the study area intersections; ten study area intersections have been defined as high pedestrian accident locations in the 2008 to 2011 period. These intersections are Allen Street at Delancey Street, Clinton Street at Delancey Street, Essex Street at Delancey Street, Norfolk Street at Delancey Street, Suffolk Street at Delancey Street, Avenue A at Houston Street, Bowery at Houston Street, Allen Street at Grand Street, Clinton Street at Grand Street, and Essex Street at Grand Street. As described earlier, in June 2012, ~~The New York City Department of Transportation (~~NYCDOT~~) is currently developing a~~ began implementation of the safety plan along the Delancey Street corridor ~~plan~~ to improve ~~traffic and~~ pedestrian, bicycle, and vehicular safety. Once this plan is ~~finalized and~~ fully implemented, it is expected that the pedestrian safety conditions at the high accident locations along the Delancey Street corridor will ~~would~~ improve as described later in this chapter. ~~Details related to this plan would be included in the FGEIS~~

~~(should the plan be adopted prior to the release of the FGEIS) and the effects of the plan on traffic and pedestrian conditions will be addressed between completion of the DGEIS and FGEIS.~~ For the remaining high pedestrian accident locations, measures that could be implemented to improve vehicular and pedestrian safety include installation of crosswalk countdown timers, restriping faded crosswalks, and installation of warning signs to alert drivers about the high pedestrian activities at the intersections.

PARKING

The proposed actions are expected to include a total of up to 500 off-street parking spaces within Sites 2, 3, 4, and 5. Parking demands generated by the proposed actions during peak traffic hours would be fully accommodated by the parking garages. The maximum project-generated demand of 257 spaces would be reached during 9-10 AM and 2-3 PM on a typical weekday. The maximum accumulation of ~~254~~ 252 spaces for a Saturday would occur between 4-5 PM. In the existing conditions, there are approximately 507 parking spaces (approximately 400 public spaces, and approximately 100 spaces being used by commercial vehicles such as vans and trucks) within surface lots that currently occupy Sites 3, 4, 5, and 6. Approximately 400 public spaces on these four sites would be displaced as part of the proposed actions. In the garages developed under the proposed actions, there would be a surplus capacity of about 240 to 250 spaces which would serve to accommodate a portion of the displaced parkers. Approximately 150 vehicles would need to find parking elsewhere in the area. These vehicles would be accommodated within the 375 to 625 off-street spaces that would be available within off-street lots/garages in the study area.

Among the proposed actions of the ULURP application are four special permits for public parking facilities on Sites 2, 3, 4 and 5. Consistent with the overall limit in the number of spaces that would be permitted under the LSGD, the ~~D~~FGEIS analyzed up to 500 off-street parking spaces in accordance with the *CEQR Technical Manual*. Given that the special permits would allow for flexibility with respect to the distribution of these spaces among Sites 2, 3, 4 and 5, an assessment was conducted to project conditions that could arise if the parking spaces were distributed only on two or three of the sites. That assessment found that the resulting conditions would be generally similar to those in the ~~D~~FGEIS and affected locations could require standard traffic improvements. Based on this analysis, it was determined that the streets providing access to the public parking garages would be adequate to handle traffic generated thereby.

AIR QUALITY

The maximum predicted pollutant concentrations and concentration increments from mobile sources with the proposed actions would be below the corresponding guidance thresholds and ambient air quality standards. The proposed actions' parking facilities would also not result in any significant adverse air quality impacts. Based on a refined stationary source modeling analysis, there would be no potential for significant adverse air quality impacts from the heating and hot water systems for the proposed development. The only fossil fuel that would be used for heating and hot water systems at the development sites included in the proposed actions would be natural gas. ~~This requirement will be included in the developers RFP(s).~~ In addition, ~~the RFP(s) will specify~~ heat and hot water system stack placement ~~requirements for~~ would be restricted for Sites 5 and 9. These ~~RFP~~ requirements could be modified or eliminated in the future if additional air quality modeling shows that the requirements are not needed to meet national and local ambient air quality standards and thresholds. Future modeling could rely on information that is expected to become available as the design for the proposed sites progresses. For sites that may be under the jurisdiction of HPD, the implementation of fuel use and stack placement requirements will be required to be implemented by the developer(s) through provisions in the LDA between HPD and the developer(s). For City properties that may be managed by the NYCEDC, the implementation of fuel use and stack placement requirements will be required to be undertaken by the developer(s) through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

Therefore, there would be no potential for significant adverse impacts on air quality with the proposed actions.

GREENHOUSE GAS EMISSIONS

Total potential GHG emissions associated with the operation of the proposed development are estimated to be 24,508 metric tons of carbon dioxide equivalent (CO_2e) per year, comprising 13,615 metric tons CO_2e per year from building heating and electricity and 10,894 metric tons CO_2e per year from on-road emissions. Note that if the buildings were to be constructed elsewhere to accommodate the same uses as the proposed development, the emissions from the use of electricity, energy for heating and hot water, and vehicle use could equal or exceed those of the proposed development sites, depending on their location, access to transit, building type, availability of buildings for reuse, and energy efficiency measures.

The proposed actions would support the City's transit-oriented development and sustainable transportation goal as the project site is well served by public transportation options, is served by the city's bicycle lane network, and may also provide bicycle storage, showers and changing facilities. Further, the proposed actions would include a mix of uses, including residential and retail, and it is located in an area served by existing retail uses within walking distance.

Through an RFP process, the City would look favorably upon proposals that use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program or to incorporate measures which would achieve equivalent energy efficiency levels. In addition, all housing developments would also reduce construction and demolition waste by at least 25 percent.

All proposed buildings would likely produce heat and hot water using natural gas fired systems, which would produce lower GHG emissions than fuel oil. In addition, the proposed actions would support the City's transit-oriented development and sustainable transportation goal as the project site is well served by public transportation options, including both bus and subway services, is served by the city's bicycle lane network, and may also provide bicycle storage, showers and changing facilities. Further, the proposed actions would include a mix of uses, including residential and retail, and it is located in an area served by existing retail uses within walking distance.

Overall, the proposed actions, therefore, be consistent with the City's citywide GHG reduction goal.

NOISE

The analysis concludes that, given the high levels of noise in the study area resulting from vehicular traffic on nearby roadways, vehicular and rail traffic on the Williamsburg Bridge, and other sources, structures on the proposed development sites would be required to provide between 18 and 34 dBA of window/wall attenuation in order to maintain acceptable interior noise levels. By adhering to specific design measures, development pursuant to the proposed actions would be expected to provide sufficient attenuation to comply with CEQR and HUD interior noise level guidelines.

PUBLIC HEALTH

The proposed actions would not result in significant adverse impacts in the following technical areas: air quality, water quality, hazardous materials, or operational noise.

While during some periods of construction, the proposed actions would result in significant adverse impacts related to noise as defined by CEQR thresholds, the predicted overall changes to noise levels would not be large enough to significantly affect public health. Therefore, the proposed actions would not result in significant adverse public health impacts.

NEIGHBORHOOD CHARACTER

Currently, the southern portion of the project site is generally inactive and aesthetically unappealing as it primarily includes surface parking uses surrounded by chain-link fencing. The inactivity in the southern portion of the project site is in stark contrast to the surrounding area, which is generally densely developed with a mix of residential, commercial, community facility and publicly accessible open space uses. In the future with the proposed actions, the character of the neighborhood would improve as the gaps in the streetscape of the neighborhood south of Delancey Street would be filled with new, active development. The proposed mix of local retail and destination retail stores in the RWCDS would complement the existing mix of commercial uses in the study area. The mix of uses would also bring a greater level of pedestrian activity to the project sites, making the neighborhood more inviting and appealing to live in and visit.

In addition to the ground floor retail that would activate the streets, the character of the project site would be improved with new street trees that would shade as well as visually enhance the neighborhood and with new publicly accessible open space on Site 5 that would bring passive and/or active recreational opportunities to the area. Also, the proposed mapping and demapping actions would make the mapped street pattern consistent with the pedestrian’s current experience of those areas. The pedestrian environment would be further improved by the widened sidewalks adjacent to Sites 1 through 6.

The proposed actions would also enhance neighborhood character by the relocation and expansion of the Essex Street Market. The larger space would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points. The new, larger market facility would address many of the physical limitations of the existing facility, as it would be energy efficient, fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control, as well as expand common gathering areas for public seating and market events. In addition, the new facility would be expected to have an improved internal layout and better connections with the street. When the new facility is complete and ready for occupancy, the City would give existing vendors at the time of the move the first opportunity to relocate their business to the new market facility.

Overall, the analysis concludes that the proposed actions would not create a significant adverse impact on neighborhood character. To the contrary, neighborhood character would be improved by replacing underutilized buildings and surface parking lots with new active, mixed-use development.

CONSTRUCTION

For each of the various technical areas presented below, appropriate construction analysis years were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods may differ for different analysis areas. Where appropriate, the analysis accounted for the effects of project elements that would be completed and operational during the selected construction analysis years.

While the anticipated construction durations have been developed with an experienced New York City construction manager, the discussion is only illustrative as specific means and methods will be chosen at the time of construction. At this time, there are no specific construction programs or designs for any development that is projected to result from the proposed actions. The construction durations are conservatively chosen to serve as the basis of the analyses in this chapter and are representative of the reasonable worst-case for potential impacts. The conceptual schedule represents a very compressed and conservative potential timeline for construction, which shows overlapping construction activities and simultaneously operating construction equipment for development sites in proximity ~~of~~ to one another. Thus, the analysis captures the cumulative nature of construction impacts, which would result in the greatest impacts at nearby receptors.

TRANSPORTATION

Traffic

Construction activities would generate the highest amount of construction-related traffic in the third quarter of 2017. Construction-related traffic is expected to occur earlier than the commuter peak hours, typically at 6-7 AM and 3-4 PM, and the total number of vehicle trips generated during construction would be approximately 68 percent and 86 percent lower than the total number of vehicle trips generated by the completed development project during the AM and PM hours, respectively. Nevertheless, a detailed analysis of traffic conditions was completed for nine key intersections near the construction sites, and this analysis indicated that significant adverse traffic impacts could occur at just one ~~four of these~~ location~~s~~ during construction, but at lesser magnitudes than impacts identified under the With-Action condition. Where impacts during construction may occur, measures similar to the ones recommended to mitigate impacts of the proposed actions could be implemented early to aid in alleviating congested traffic conditions. Sidewalk and lane closures would be finalized as the maintenance and protection of traffic (MPT) plans are developed and reviewed with NYCDOT.

Parking

The majority of construction workers are expected to commute to the job site by public transportation; only 29 percent are expected to drive to work. There would be no parking provided for them at the construction sites but the overall peak parking demand for 80 spaces ~~w~~could be accommodated in off-street parking facilities within a quarter-mile distance (about a five-minute walk) from the project site.

Transit

The study area is well served by public transit, including the F, J, M, and Z subway lines at the Essex Street-Delancey Street station. There are also several local bus routes, including the M9, M14A, M15, M21, and M22. Based on the number of projected construction workers being distributed among the various subway and bus routes, station entrances, and bus stops near the project area, 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 hours of 8-9 AM and 5-6 PM. Hence, there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips. Any temporary relocation of bus stops along bus routes that operate adjacent to the project area would be coordinated with and approved by NYCDOT and NYCT to ensure proper access is maintained.

Pedestrians

Considering that pedestrian trips generated by construction workers would occur during hours outside of the typical commuter peak hours of 8-9 AM and 5-6 PM and would be distributed among numerous sidewalks and crosswalks in the area, the preliminary analysis found that there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. During the course of construction, sidewalks may be closed for varying periods of time to allow for certain construction activities but pedestrian circulation and access would be maintained through the use of temporary sidewalks or sidewalk bridges. This sidewalk work would be coordinated with and approved by NYCDOT and the New York City Department of Buildings (NYCDOB).

AIR QUALITY

The proposed actions would not result in significant adverse impacts with respect to air quality. A detailed analysis of on-site and on-road emissions determined that annual-average NO_2, CO, and PM_{10} concentrations would be below their corresponding NAAQS. Therefore, construction under the proposed actions would not cause or contribute to any significant adverse air quality impacts with respect to these standards.

Dispersion modeling determined that the maximum predicted incremental concentrations of $PM_{2.5}$ (using a worst-case emissions scenario) would exceed the City's applicable 24-hour interim guidance criterion of 2 micrograms per cubic meter ($\mu g/m^3$) at near-side sidewalk receptor locations and four residential locations. The occurrences of elevated 24-hour average concentrations for $PM_{2.5}$ would be limited in duration, frequency, and magnitude. Therefore, taking into account the limited duration and extent of these predicted exceedances, and the limited area-wide extent of the 24-hour impacts, it was concluded that no significant adverse air quality impacts for $PM_{2.5}$ would occur from the on-site construction sources.

Because background concentrations are not known and the analysis methodology for mobile and construction sources have not been developed for the new 1-hour NO_2 NAAQS, exceedances of the 1-hour NO_2 standard resulting from construction activities cannot be ruled out. Therefore, measures including diesel equipment reduction, utilization of newer equipment, and idling restriction, would be implemented to the extent feasible and practicable to minimize NO_x emissions from construction activities under the proposed actions.

NOISE AND VIBRATION

Noise

Development pursuant to the proposed actions would result in significant adverse impacts with respect to construction noise. This conclusion is based on a conservative analysis of the construction procedures, including peak quarterly levels assumed to represent each year of construction, a maximum amount of construction equipment assumed to be operation on each development site and at locations closest to nearby receptors, and a compressed construction schedule with a maximum amount of development sites under construction simultaneously.

Construction on the proposed development sites would include noise control measures as required by the New York City Noise Control Code, including both path and source controls. Even with these measures, the results of more detailed construction analyses undertaken for the FGEIS indicate that elevated noise levels are predicted to occur for two or more consecutive years at ~~forty-five (45)~~ ~~thirteen (~~13) of the ~~eighty-three (~~83) receptor sites analyzed. Affected locations include residential, institutional and open space areas adjacent to the proposed development sites and along routes expected to be traveled by construction-related vehicles to and from the project site. However, most affected buildings have double-glazed windows and air-conditioning, and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA, which would be considered acceptable according to CEQR criteria. At affected locations that do not already have double-glazed windows and air conditioning interior, $L_{10(1)}$ values resulting from construction may exceed 45 dBA. Additional options for source and path controls would be incorporated into the construction methodology to the extent practicable and feasible. Thus, should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to ~~fifteen (15)~~ three ~~(3)~~ locations could be expected, for certain limited periods of the construction period, to experience significant impacts. Of the ~~fifteen (15)~~ three locations with predicted noise impacts ~~that would experience interior noise levels exceeding CEQR's acceptability guideline for residential use~~, one location is at a high school and the other ~~14~~ two locations are at the outdoor balconies of residential buildings ~~mixed use residential/commercial uses~~.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior L10 values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there are no practicable mitigation measures, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

At limited times during the construction period, Seward Park High School (350 Grand Street) would be expected to experience significant noise impacts ~~that may be considered unmitigated~~. The FGEIS discloses worst-case construction-related noise impacts at the school. Upon selection of a developer for each of Sites 1, 2, and 3, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the proposed actions. If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High

School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated. If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing, and any additional path and source controls still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the New York City School Construction Authority. In the event that implementing such receptor controls is not practicable, as determined by ODMED, as the lead agency, in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in the FGEIS.

~~However, it is possible that based on further assessment of conditions at the school, certain façades (or portions thereof) may be less affected (or not be affected at all) by project-related construction noise. Further assessment related to construction impacts at the school will be conducted between the DGEIS and the FGEIS to refine the area of potential impact. Some potential receptor controls that could be used to mitigate the impacts include the installation of interior storm windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. The project sponsors will explore potential mitigation measures between DGEIS and FGEIS. In the event that mitigation measures are not determined feasible and practicable, the impact would be only partially mitigated unmitigated.~~

In addition, at the residential building south of Grand Street between Essex and Clinton Streets~~,~~ and the residential building at the southeast corner of Clinton and Grand Streets~~, 243 Broome Street, 149 Essex Street, 153 Essex Street, and 113 Norfolk Street~~, balconies on various floors may experience significant noise impacts due to construction for limited portions of the construction period. However, it should be noted that even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g., during night-time and on weekends. At these outdoor balconies, there would be no feasible or practicable mitigation to mitigate the construction noise impacts. Therefore, these balconies would be considered to experience unmitigated significant noise impacts as a result of construction.

Vibration

Development pursuant to the proposed actions is not expected to result in significant adverse construction impacts with respect to vibration. Use of construction equipment that would have the most potential to exceed the 65 VdB criterion within a distance of 230 feet of sensitive receptor locations (e.g., equipment used during pile driving) would be perceptible and annoying. Therefore, for limited time periods, perceptible vibration levels may be experienced by occupants and visitors to all of the buildings and locations on and immediately adjacent to the construction sites. However, the operations which would result in these perceptible vibration levels would only occur for finite periods of time at any particular location and, therefore, the resulting vibration levels, while perceptible, would not result in any significant adverse impacts.

OTHER TECHNICAL AREAS

Historic and Cultural Resources

Construction would involve subsurface disturbance to areas that have been identified as archaeologically sensitive by the Phase 1A studies. The Phase 1A recommended a Phase 1B archaeological investigation to determine the presence or absence of archaeological resources in the areas identified as archaeologically sensitive. These potential archaeological resources could include shaft features (i.e., privies, cisterns, or wells) associated with the residential occupation of these historic lots in the early to mid-19th century. The Phase 1A was submitted to LPC and OPRHP for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A. With implementation of Phase 1B testing and continued consultation with LPC and/or OPRHP regarding the need for, and implementation of, any Phase 2 and 3 investigations, no significant adverse impacts on archaeological resources would result from construction.

Architectural resources are defined as buildings, structures, objects, sites or districts listed on S/NR or determined eligible for such listing, National Historic Landmarks, NYCLs and Historic Districts, and properties that have been found by the LPC to appear eligible for designation, considered for designation ("heard") by LPC at a public hearing, or calendared for consideration at such a hearing (these are "pending" NYCLs). The proposed actions could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. NYCDOB *Technical Policy and Procedure Notice* (*TPPN) #10/88*, applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. *TPPN #10/88* supplements the standard building protections afforded by the Building Code by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With these required measures, significant adverse construction-related impacts would not occur to the former Norfolk Street Baptist Church (NYCL, S/NR) or to the contributing buildings within the Lower East Side Historic District (S/NR) that are located within 90 feet of project construction. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s).

For the non-designated or listed resources—the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible) and the Williamsburg Bridge (S/NR-eligible)—construction under the proposed actions could potentially result in construction-related impacts on the resources. Additional protective measures afforded under *TPPN #10/88* would only become applicable if those resources are designated or listed in the future prior to the initiation of adjacent construction or if the adjacent sites are developed under the jurisdiction of HPD. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s). If the resources are not designated or listed and the adjacent sites are developed under the management of NYCEDC, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions.

Hazardous Materials

The proposed actions would result in the demolition of existing structures and surface parking areas on Sites 1through 6 and 8 through 10 followed by subsurface disturbance associated with construction of new structures. Site 7 would not be redeveloped pursuant to the proposed actions and the existing parking garage would remain. The proposed actions would include appropriate health and safety/remedial measures, as warranted, that would precede or govern demolition, construction, and soil disturbance activities on the development sites. With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions.

Open Space

There are no publicly accessible open spaces within the project site, and no open space resources would be used for staging or other construction activities. The nearest open space is the 0.45-acre Broome Seward Park Extension, which is located on Broome Street between Clinton Street and Ridge Street, approximately 130 feet east of Site 6. At limited times, activities such as excavation and foundation construction may generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction fences around the project site would shield the park from construction activities. Construction under the proposed actions would not limit access to the park or other open space resources in the vicinity of the project site. Therefore, construction under the proposed actions would not result in significant adverse impacts on open space.

Socioeconomic Conditions

Construction activities could temporarily affect pedestrian and vehicular access. However, lane and/or sidewalk closures would not obstruct entrances to any existing businesses, and businesses are not expected to be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Utility service would be maintained to all businesses, although short term interruptions (i.e., hours) may occur when new equipment/infrastructure (e.g., a transformer, or a sewer or water line) is put into operation. Overall, construction activities associated with the proposed actions would not result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

Community Facilities

The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care. Construction of the proposed buildings would not block or restrict access to any facilities in the area, and would not materially affect emergency response times significantly. NYPD and FDNY emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas. As discussed ~~below~~ above (See "Noise and Vibration"), at limited times during the entire construction period, Seward Park High School would be expected to experience significant noise impacts. ~~that may be considered unmitigated~~ Upon selection of a developer for each of Sites 1, 2, and 3, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the proposed actions. If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated. If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing, and any available additional path and source controls still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the SCA. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

Land Use and Neighborhood Character

Construction activities would affect land use on the project site but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the site. There would also be noise, sometimes intrusive, from building construction as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as most construction activities would take place within the project site or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the project site. Overall, while the construction at the site would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

F. ALTERNATIVES

As mandated by both CEQR and SEQRA, this ~~D~~FGEIS examines a No Action Alternative, which describes the conditions that would exist if the proposed actions were not implemented. The second alternative analyzed is the Essex Street Market Alternative, in which the existing Essex Street Market remains in its current facility on Site 9 and there is no additional development on that site. The third alternative is the No Unmitigated Significant Impacts Alternative, which examines alternatives that would avoid unmitigated significant adverse impacts in the areas of historic and cultural resources, traffic, and construction.

NO ACTION ALTERNATIVE

In the future without the proposed actions, it is expected that existing uses on the projected development sites would remain. The future without the proposed actions would account for other development projects that are planned to be in place by 2022 absent the proposed actions. Differences between the proposed actions and the No Action Alternative are described below.

The No Action Alternative would not have a positive effect on land use by creating an active new mixed-use development with open space on underutilized sites. The No Action Alternative would not introduce new housing, retail, publicly accessible open space, community facility uses, and a relocated Essex Street Market assumed in the RWCDS that would bring activity to the proposed development sites and would serve both residents of the surrounding area and the larger community. In addition, the No Action Alternative would not support and further the objectives of applicable public policies, including the Mayor's New Housing Marketplace Plan, nearby business improvement districts, and PlaNYC 2030.

While the proposed actions would displace approximately nine residents who are living in seven dwelling units located in a City-owned rental building at 400 Grand Street (Site 5), the No Action Alternative would not result in the direct displacement of any residents. Also unlike with the proposed actions, in which an estimated 14 businesses and 107 employees could be displaced without specific plans or provisions for their relocation within the study area, no businesses would be directly displaced under the No Action Alternative. Under the No Action Alternative, the potential for indirect displacement of some existing retail establishments that may occur with the proposed actions would not occur. However, the No Action Alternative would not result in the increased foot traffic in the study area that would benefit existing retail stores, restaurants and galleries in the study area as the proposed actions would. The No Action Alternative would not provide new market rate and affordable housing that would be developed with the proposed actions.

Unlike the proposed actions, the No Action Alternative would not result in the relocation of the Downtown Health Center, a clinic at 150 Essex Street (on Site 10) that is run by CHN. Under this alternative, there would not be the approximately 114,000 gsf of community facility or cultural uses introduced by the proposed actions.

The No Action Alternative would not increase the supply of publicly accessible open space in the study area by creating a new 10,000-square-foot (approximately 0.23 acres) publicly accessible open space on Site 5, as would occur with the proposed actions. Neither the No Action Alternative nor the proposed actions would result in adverse shadow impacts on any sun-sensitive resource. However, unlike the proposed actions, three of the Schiff Mall medians, which are located along the center of Delancey Street between Ludlow and Suffolk Streets and contain rose bushes and other plantings, and the P.S. 142 Playground on Delancey Street would not experience incremental shadows with the No Action Alternative.

Under the No Action Alternative, the development sites would not be redeveloped, and there would be no potential for significant adverse impact to archaeological or architectural resources. Unlike the proposed actions, the No Action Alternative would not result in significant adverse direct impacts on two architectural resources from development on Sites 2, 5, 8, 9, and 10. The No Action Alternative would also not have the potential for adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, since there would be no development on Site 1, unlike with the proposed actions, the No Action Alternative would not result in significant adverse visual and contextual impacts on two architectural resources.

As opposed to the proposed actions, the No Action Alternative would not improve the pedestrian experience by activating currently underdeveloped and under-utilized sites which are surrounded by chain link fencing. Unlike the proposed actions, the No Action Alternative would not serve to fill in the gaps in the streetscape of the neighborhood with new development south of Delancey Street. In addition, the No Action Alternative would not include new street trees that would shade as well as visually enhance the pedestrian experience.

The No Action Alternative would result in a higher rate of stormwater runoff from the project site as compared to the proposed actions, as it would not benefit from the incorporation of select BMPs.

Under the No Action Alternative, it is expected that existing uses on the projected development sites would remain. Although the No Action Alternative would not generate any new vehicular trips, traffic volumes in the study area would be expected to increase as a result of background growth and planned development in the study area. The overall levels of service would be expected to deteriorate slightly for the No Action Alternative as compared to the existing conditions since traffic increases from background growth and other developments in the area would be relatively modest. Under this alternative, all subway station stairways and control area elements would continue to operate at acceptable levels, except for the northeast stairway (S-6) at the Delancey Street and Norfolk Street entrance, and all analyzed bus routes would continue to operate within their guideline capacities. All sidewalk, corner reservoir, and crosswalk analysis locations would continue to operate at acceptable mid-LOS D or better, except at the north crosswalk of Clinton Street and Delancey Street.

The No Action Alternative would not result in the significant adverse traffic impacts at the ~~nine~~ 13 intersections in the weekday AM peak hour, ~~seven~~ 11 in the weekday midday peak hour, ~~18~~ 15 in the weekday PM peak hour, and ~~10~~ 14 in the Saturday peak hour identified under the proposed actions.

The significant adverse pedestrian impacts anticipated for the proposed actions at the intersections of Delancey Street and Essex Street, and Delancey Street and Clinton Street, would not occur with the No Action Alternative. Furthermore, the significant adverse transit impacts anticipated for the proposed actions on the M9 and M14A bus routes would also not occur with the No Action Alternative.

Under the No Action Alternative, it is expected that existing uses on the projected development sites would remain. Therefore, unlike the proposed actions, there would be no change in greenhouse gas emissions associated with this alternative.

The No Action Alternative would not introduce the mix of uses that would be developed by the proposed actions, which would bring a greater level of pedestrian activity to the project sites, making the neighborhood more inviting and appealing to live in and visit. The increased pedestrian activity resulting from the proposed actions, which would benefit existing retail stores in the area, would also not occur under the No Action Alternative. As the No Action Alternative would not create a new publicly accessible open space on Site 5, passive and/or active recreational opportunities would not be introduced to the area. Also, the No Action Alternative would not implement the proposed mapping and demapping actions, which would make the mapped street pattern consistent with drivers' and the pedestrians' current experience of those areas. Under the No Action Alternative, certain sidewalks would not be widened as under the proposed actions. The No Action Alternative would not enhance neighborhood character by the relocation and expansion of the Essex Street Market, which would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points.

Under the No Action Alternative, no construction would occur on the project site. Thus, there would not be the potential for impacts of construction with respect to transportation, air quality, noise and vibration, historic and cultural resources, hazardous materials, open space, socioeconomic conditions, community facilities and land use and neighborhood character. Specifically, the No Action Alternative would not result in significant adverse construction traffic impacts at four intersections identified under the proposed actions, or elevated construction noise levels at ~~forty-five (45)~~ thirteen (13) of the ~~eighty-three (~~83~~)~~ receptor sites analyzed including residential, institutional and open space areas adjacent to the proposed development sites and along routes expected to be traveled by construction-related vehicles to and from the project site. It would not result in the significant adverse construction noise impacts under the proposed actions at up to ~~15~~ 3 of the ~~45~~ 13 receptor locations. Unlike the proposed actions, the No Action Alternative would not have the potential for adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, the potential for construction-related impacts on the non-designated or listed resources—the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible) and the Williamsburg Bridge (S/NR-eligible)—would also not occur under the No Action Alternative.

Under the No Action Alternative, the direct economic benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity would not be realized. The No Action Alternative would also not contribute to increased tax revenues for the City and State, including those from personal income taxes.

ESSEX STREET MARKET ALTERNATIVE

The Essex Street Market Alternative retains the existing public Essex Street Market in its current facility on Site 9, with no new development on that site. Site 2 would be redeveloped as under the proposed actions with the space allocated for the market under the proposed actions used instead for retail, although market uses would not be precluded. At other sites, this Alternative assumes the same uses and same floor area as the proposed actions. Overall, the Essex Street Market Alternative would provide approximately 1.60 million gross square feet of development, approximately 6 percent less total development than with the proposed actions. Similar to the proposed actions, the Essex Street Market Alternative would introduce an approximately 97,500-square-foot hotel, approximately 36,300 gsf of non-specific commercial uses, and 114,000 gsf of community facility or cultural uses. However, the Essex Street Market Alternative would introduce less residential and retail space compared with the proposed actions. The Essex Street Market Alternative would introduce 875,800 gsf of residential space, approximately 8 percent lower than the 951,000 gsf of residential space that would be introduced by the proposed actions. This alternative would introduce 479,700 gsf of retail space, which is 4 percent less space than the retail and public market space that would be introduced by the proposed actions.

Like the proposed actions, the Essex Street Market Alternative assumes that half of all units on the project site would be affordable housing units. However, as less residential space would be introduced in the future with the Essex Street Market alternative, fewer total units and therefore fewer affordable housing units would be introduced with this alternative compared with the proposed actions.

As discussed above, the Essex Street Market Alternative would retain the existing Essex Street Market on Site 9, with no new development on that site. Under this alternative, the market would continue to be approximately 15,000 sf, which is 14,000 square feet less than the market that would be introduced by the proposed actions. In addition, the physical limitations of the existing market would remain. The facility would continue to be not fully compliant with the Americans with Disabilities Act and have insufficient storage capabilities, garbage handling, and climate control. It is currently anticipated that the market would continue to accommodate approximately 23 vendors. However, addressing these physical shortcomings in the future may require changes to the facility’s operations. In addition, this alternative would not include the expanded common gathering areas for public seating and market events.

In the existing condition, garbage from the Essex Street Market is stored on Site 8. With the Essex Street Market Alternative, Site 8 would be redeveloped and would no longer store garbage from the Essex Street Market. Therefore, under this alternative, the Essex Street Market would need to find another garbage handling solution, such as other nearby storage or removing vendor stalls to accommodate a garbage storage room onsite.

Building above the existing market was determined to be infeasible as it would require temporarily closing the existing market to construct columns through the existing structure and would temporarily displace vendors during the construction period. In addition, the new columns and potential spaces (such as a lobby and elevator and mechanical core) for the new structure above would reduce the area available for public market uses and could potentially reduce the number of vendors.

It is assumed that on all sites other than Site 9 the Essex Street Market Alternative would include the same sustainable, green components as those analyzed in the proposed actions.

The site plan, bulk and massing of buildings under the Essex Street Market Alternative would be the same as the proposed actions. However, with this alternative, no new development would occur on Site 9 as the existing Essex Street Market building would be retained. Further differences between the proposed actions and the Essex Street Market Alternative are described below.

Although this alternative would increase the supply of affordable housing available in New York City, which is consistent with City housing policy, fewer dwelling units would be introduced by the Essex Street Market Alternative than the proposed actions. The Essex Street Market Alternative, therefore, would provide fewer affordable housing units than the proposed actions.

The Essex Street Market Alternative would result in many of the same impacts on architectural resources as the proposed actions. However, this Alternative would partially avoid the significant adverse impact on the Essex Street Market as it would retain the existing market building on Site 9.

Like the proposed actions, the Essex Street Market Alternative would generate increased demands on New York City’s energy services. However, the Essex Street Market Alternative would demand less energy than the proposed actions, which include development on Site 9. Therefore, the Essex Street Market Alternative would result in lower energy consumption than the proposed actions.

With the Essex Street Market Alternative, the existing Essex Street Market would remain on Site 9 and thus the stack placement requirements for the site, identified for the proposed actions would not apply with this alternative. Under this alternative, Site 9 would not undergo energy efficiency improvements, but would also not require energy and materials for construction of a new market. This alternative would also result in less development, and therefore the energy and emissions associated with construction and operation of Site 9 would not occur; however, that demand would be accommodated elsewhere (not as part of this project), and may be more or less energy efficient than under the proposed actions.

Travel demand estimates were conducted for the Essex Street Market Alternative. Based on the trip generation assumptions detailed in Chapter 13, "Transportation," the Essex Street Market Alternative would generate ~~2,703~~ 3,005, ~~5,423~~ 6,441, ~~5,191~~ 6,007, and ~~5,885~~ 7,010 person trips and 357, 522, 520, and 482 vehicle-trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In comparison, the proposed actions would generate up to ~~6,204~~ 7,403 peak hour person-trips and up to 540 peak hour vehicle-trips. The Essex Street Market Alternative would result in up to ~~319~~ 393 fewer peak hour person-trips and up to 20 fewer peak hour vehicle-trips. Overall, the Essex Street Market Alternative is expected to generate one percent to four percent fewer peak hour vehicle-trips compared to the proposed actions. Thus, with the Essex Street Market Alternative, there would be no significant reduction in impacts or the ability to provide mitigation.

As stated above in "Construction," construction activities would result in significant noise impacts at some residential receptors adjacent to the proposed development sites. Since the construction of Site 9 would not begin until 2020 according to the conceptual construction schedule on which the construction noise analysis was based, the conclusions of the construction noise analysis for the years 2016 through 2019 would be unchanged. During 2020 and 2021, construction activities and equipment would be decreased without the construction of Site 9 occurring, and depending on the specific location, noise levels would be the same to somewhat lower as compared to the levels with the proposed actions. Consequently, the Essex Street Market Alternative would be expected to result in the same or possibly slightly fewer significant adverse construction noise impacts as the proposed actions.

NO UNMITIGATED SIGNIFICANT IMPACTS ALTERNATIVE

The proposed actions would result in some partial or unmitigated impacts with respect to historic and cultural resources, traffic, and construction. Therefore, as required by the *CEQR Technical Manual*, alternatives were developed to explore modifications to the proposed actions and reasonable worst-case development scenario that would allow for the mitigation of these impacts.

HISTORIC AND CULTURAL RESOURCES

The No Unmitigated Significant Impacts Alternative would retain the four Essex Street Market buildings on Sites 2, 8, 9, and 10 and the former fire station on Site 5 and would reduce the scale of the building on Site 1. Overall, this alternative would greatly reduce the number of residential units that could be provided, preventing the proposed actions from providing 900 units, of which 450 would be affordable units. This alternative would also reduce the amount of commercial space that could be provided, compromising another of the proposed actions' goals.

TRAFFIC

The proposed actions would result in significant adverse traffic impacts at intersections within the study area that can not be fully mitigated with practical traffic capacity improvement measures. Because of existing congestion at a number of intersections, even a minimal increase in traffic could result in unmitigated impacts at some locations. A sensitivity analysis determined that the addition of just ~~four~~ two vehicle trips turning right along the ~~southbound~~ northbound approach of Essex Street at the intersection with Delancey Street during the PM peak period would create a significant adverse impact that can not be fully mitigated. Thus, almost any new development on the project site would result in unmitigated significant adverse traffic impacts, and no reasonable alternative could be developed to completely avoid such impacts without substantially compromising the goals of the proposed actions.

PEDESTRIANS

The proposed actions would result in potential significant adverse pedestrian impacts at the west sidewalk of Essex Street between Delancey and Broome Streets and the east sidewalk of Essex Street between Delancey and Rivington Streets. The potential significant adverse pedestrian impact at the west sidewalk of Essex Street could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 8 inches. For the east sidewalk of Essex Street, the potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 7 inches. However, these mitigation measures are not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways would preclude any widening towards the building lines. Although widening the sidewalks by extending them into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impacts would be unmitigated.

The pedestrian analysis for the With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairs, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of that particular sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk widths to approximately 20 to 30 percent of the overall widths available at the two sidewalk locations on Essex Street. The combination of all these factors would result in the potential for significant adverse pedestrian impacts at the two Essex Street sidewalks in the future With Action condition. However, it should be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels, since the project's development program and design may not materialize to the full extent resulting in different travel patterns at the study area's pedestrian facilities.

A sensitivity analysis determined that even the addition of just one pedestrian trip to the levels in the No Action condition during the AM peak period could result in a significant adverse impact that cannot be mitigated. Thus, any new development in the With Action on the project site would result in potential unmitigated significant adverse sidewalk impacts, and no reasonable alternative could be developed to completely avoid such impacts.

CONSTRUCTION

Construction of the proposed development would be expected to result in substantially elevated noise levels for two or more continuous years at ~~45~~ 13 locations within the study area. However, most affected buildings have double-glazed windows and air-conditioning, and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA, which would be considered acceptable according to CEQR criteria. Of these ~~45~~ 13 locations, up to ~~15~~ 3 locations, including 350 Grand Street (Seward Park High School) and the outdoor balconies of two residential buildings south of Grand Street near Clinton Street, could experience significant impacts for certain limited periods during construction. The impacts at 350 Grand Street (Seward Park High School) would be avoided if construction were not undertaken on Sites 1, 2, or 3. The unmitigated impacts at the residential balconies would be avoided if construction were not undertaken on Site 5. If construction were not undertaken on Sites 1, 2, 3 or 5 ~~8, 9, and 10~~, this alternative would fail to meet the goal of the proposed actions to provide 900 residential units, of which 450 would be affordable units, and to provide commercial and retail development as part of a thriving, financially viable, mixed-use development.

G. MITIGATION MEASURES

The preceding sections discuss the potential for significant adverse environmental impacts resulting from the proposed Seward Park Mixed-Use Development Project. Such potential impacts were identified in the areas of historic and cultural resources, transportation, and construction. Measures have been examined to minimize or eliminate these anticipated impacts. These mitigation measures are discussed below.

HISTORIC AND CULTURAL RESOURCES

The proposed actions, through redevelopment, would have significant adverse direct impacts on two architectural resources that have been determined eligible for listing on the State and National Registers of Historic Places (S/NR)—the Essex Street Market and the former fire station at 185 Broome Street. In addition, new development on Site 1 could have significant adverse visual and contextual impacts on the S/NR-listed Lower East Side Historic District and the S/NR-eligible Eastern Dispensary, which also appears to be eligible for New York City Landmark (NYCL) designation.

In accordance with CEQR guidelines, NYCEDC and HPD are undertaking ongoing consultation with the New York City Landmarks Preservation Commission (LPC) regarding the development of mitigation measures for these significant adverse impacts. In addition, because construction financing may come from New York State and/or the United States Department of Housing and Urban Development, NYCEDC and HPD are undertaking ongoing consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law) and, acting in its capacity as the State Historic Preservation Office, Section 106 of the National Historic Preservation Act of 1966.

Potential mitigation measures that could partially mitigate the impact of the demolition of the Essex Street Market and former fire station may include, to the extent practicable and feasible:

- Historic American Buildings Survey (HABS) documentation. HABS Level I documentation of all four buildings of the Essex Street Market and the former fire station could be conducted by a recognized professional credentialed for preparing such reports, to be submitted to LPC, OPRHP, the New York Historical Society, the Museum of the City of New York, and/or other repositories.
- A site commemoration plan. A permanent interpretive exhibit or exhibits about the Essex Street Market and the former fire station could be developed and installed in the new Essex Street Market facility on Site 2 or in another appropriate location near the project site. This exhibit could document the history of the Essex Street Market and former fire station and could encompass the larger history of the project site neighborhood.

- Architectural salvage. Surveys of the Essex Street Market and former fire station could be conducted to determine if any significant exterior or interior architectural elements could be removed and incorporated into the proposed development.
- Design of the new buildings on Sites 2, 8, 9, and/or 10 to reference the design of the Essex Street Market. This could include incorporating references to such architectural elements of the market buildings as the strip windows and the incised lettering above the entrances.

In addition, NYCEDC and HPD will continue to consult with LPC and/or OPRHP regarding the compatibility of the proposed development on Site 1 with the S/NR-listed Lower East Side District, in which it is located, and with the S/NR-eligible and NYCL-eligible Eastern Dispensary. Although the historic and cultural resources analysis (See Chapter 7, "Historic and Cultural Resources") concluded that the proposed developments on Sites 8, 9, and 10 would not have significant adverse visual and contextual impacts on the adjacent potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible), should there be any State or Federal permitting or funding for development on those sites, HPD and NYCEDC shall consult with OPRHP regarding the compatibility of the proposed developments on Sites 8, 9, and 10 with the historic district.

TRANSPORTATION

TRAFFIC

The proposed actions would result in significant adverse traffic impacts at a number of locations in the traffic study area. The major overall finding of the traffic mitigation analysis is that the majority of the 30 intersections analyzed would either not be significantly impacted or could be mitigated with readily implementable traffic improvement measures, including signal timing and phasing changes, parking regulation changes to gain or widen a travel lane at key intersections, and lane restriping. These measures represent some of the standard traffic capacity improvements that are typically implemented by NYCDOT. **Table S-4** summarizes the significant adverse traffic impacts and whether they could be fully or partially mitigated with the implementation of these traffic improvement measures.

Table S-4
Traffic Impact Mitigation Summary

Intersections	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM	
No significant impact	~~21~~ 17	~~23~~ 19	~~12~~ 15	~~20~~ 16
Impact could be fully mitigated	~~6~~ 5	~~6~~ 7	~~12~~ 8	8
Impact could be partially mitigated	~~0~~ 1	0	~~1~~ 0	~~1~~ 0
Unmitigated impact	~~3~~ 7	~~1~~ 4	~~5~~ 7	~~1~~ 6

During the weekday AM peak hour, ~~three~~ seven of the 30 intersections would remain unmitigated, and one intersection could only be partially mitigated; in the weekday midday peak hour, ~~one~~ four intersections would remain unmitigated; in the weekday PM peak hour, ~~five~~ seven intersections would remain unmitigated~~, and one intersection could only be partially mitigated~~; and in the Saturday peak hour, ~~one~~ six intersections would remain unmitigated~~, and one intersection could be partially mitigated~~.

~~Six~~ Ten of the thirty intersections would have significant adverse traffic impacts resulting from the proposed actions and could not be fully mitigated in at least one peak hour, including:

- East Houston Street and Chrystie Street/Second Avenue (unmitigated during the weekday AM peak hour).
- East Houston Street and Allen Street/First Avenue (~~unmitigated~~ could be partially during the weekday AM ~~and PM~~ peak hours).
- Delancey Street and Allen Street (~~partially mitigated~~ unmitigated during the weekday PM peak hour).
- Delancey Street and Ludlow Street (unmitigated during all four peak hours).
- Delancey Street and Essex Street (unmitigated during all four peak hours).
- Delancey Street and Norfolk Street (unmitigated during all four peak hours ~~partially mitigated during the Saturday peak hour; unmitigated during the weekday PM peak hour~~).
- Delancey Street and Suffolk Street (unmitigated during the weekday PM and Saturday peak hour).
- Delancey Street and Clinton Street (unmitigated during ~~the weekday AM and PM~~ all four peak hours).
- Broome Street and Norfolk Street (unmitigated during the weekday PM peak hour).
- Grand Street and Clinton Street (unmitigated during the weekday AM and Saturday peak hours).

~~Five~~ Six of these intersections are along Delancey Street, which is characterized by heavy volumes approaching and leaving the Williamsburg Bridge.

As noted previously, NYCDOT ~~is currently developing~~ has adopted and begun implementing an area-wide Delancey Street Improvements plan to improve ~~traffic and~~ pedestrian, bicycle, and vehicular safety along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner “bump-outs” and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These ~~C~~changes to the study area’s transportation network ~~resulting from these changes will be~~ have been incorporated as part of the ~~between the DGEIS and FGEIS, should the plan be adopted prior to the release of the~~ FGEIS. As a result, mitigation measures presented in the FGEIS at a number of analysis locations ~~may be~~ are different than those identified in the DGEIS. Some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the FGEIS due to the safety oriented changes in the roadway network described above, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs.

Implementation

Each of the traffic capacity improvements described above fall within the jurisdiction of NYCDOT for implementation. The implementation of these measures would result in the loss of approximately ~~eight metered parking or “standing” spaces during the weekday AM peak period, 13 spaces during the weekday midday peak period, 13 spaces during the weekday PM peak period, and~~ ~~eight~~ seven parking spaces along Essex Street between Rivington and Stanton Streets during the Saturday peak period. ~~Delancey Street would lose three parking spaces~~

~~between Norfolk Street and Suffolk Street, and Grand Street would lose up to 10 parking spaces between Allen Street and Clinton Street~~. No designated truck loading/unloading zones or bus layover space would be affected by the proposed parking modifications for mitigation. If it is determined that on-street parking should be retained at locations where such mitigation was assumed, additional unmitigated traffic impacts could result.

TRANSIT

The proposed actions would result in significant adverse bus line haul impacts on the M9 bus route during both the AM and PM peak periods and the M14A bus route during the AM peak period. **Table S-5** provides a comparison of existing service and the number of buses required to fully mitigate the identified significant adverse impacts along the M9 and M14A bus routes. While NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted, these service adjustments are subject to the agencies' fiscal and operational constraints and, if implemented, are expected to take place over time.

Table S-5
2022 Mitigated Future With The Proposed Actions Condition (Capacity Improvement): Bus Line Haul Levels

		Northbound/Eastbound Buses per Hour		Southbound/Westbound Buses per Hour	
Route	Peak Period	Existing	Mitigation	Existing	Mitigation
M9	AM	8	n/a	6	8
	PM	5	7	4	5
M14A	AM	7	n/a	8	9

Notes: The M9 bus route operates standard buses with a guideline capacity of 54 passengers per bus.
The M14A bus route operates articulated buses with a guideline capacity of 85 passengers per bus.

PEDESTRIANS

The proposed actions would result in significant adverse pedestrian impacts for ~~four~~ five pedestrian analysis locations ~~at~~ along Delancey Street ~~and~~ at Essex and Clinton Streets including the west crosswalk of Delancey Street and Essex Street during the midday peak period, the east crosswalk of Delancey Street and Essex Street during the midday, PM, and Saturday peak periods, the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, ~~and~~ the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period. Potential measures to mitigate these impacts are described below, and the mitigated conditions are summarized in **Table S-6**.

Delancey Street and Essex Street

Crosswalks

- The west crosswalk at this intersection would deteriorate from below mid-LOS D (~~22.4~~ 21.7 SFP) to beyond mid-LOS D (~~18.4~~ 17.2 SFP) during the midday peak period. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 14 feet to ~~15~~ 16 feet.
- The east crosswalk at this intersection would deteriorate from LOS C (39.6 SFP), LOS C (39.8 SFP) and LOS ~~B~~ C (~~40.5~~ 34.5 SFP) to LOS E (14.5 SFP), LOS D (15.4 SFP) and LOS ~~D~~ E (~~18.5~~ 13.5 SFP) during the midday, PM and Saturday peak periods, respectively. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 14 feet to ~~15~~ 20 feet.

Table S-6
2022 No Action, With Action, and Mitigated With Action Conditions
Pedestrian Level of Service Analysis

Location	Mitigation Measures	No Action		With Action		Mitigated With Action	
		SFP/PMF	LOS	SFP/PMF	LOS	SFP/PMF	LOS
Weekday AM Peak 15-Minutes							
Delancey Street and Essex Street – SW sidewalk	Widening sidewalk by ~~2 feet 3~~ 8 inches to ~~15~~ 13 feet ~~3~~ 8 inches	~~6.3~~ 6.4	D	~~11.1~~ 10.9	~~E~~ D	~~8.4~~ 8.5	D
Weekday Midday Peak 15-Minutes							
Delancey Street and Essex Street – SW sidewalk	Widening sidewalk by ~~2 feet 3~~ 8 inches to ~~15~~ 13 feet ~~3~~ 8 inches	~~4.5~~ 4.6	C	~~9.2~~ 9.3	D	~~6.9~~ 7.3	D
Delancey Street and Essex Street – NE sidewalk	Widening sidewalk by 7 inches to 13 feet 7 inches	3.7	C	8.6	D	7.5	D
Delancey Street and Essex Street – West Crosswalk	Widening crosswalk by ~~1~~ 2 ~~foot~~ feet to ~~15~~ 16 feet	~~22.4~~ 21.7	D	~~18.4~~ 17.2	D	19.9	D
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by 6 feet to 20 feet	39.6	C	14.5	E	21.1	D
Weekday PM Peak 15-Minutes							
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by 6 feet to 20 feet	39.8	C	15.4	D	22.5	D
Saturday Peak 15-Minutes							
Delancey Street and Essex Street – NE sidewalk	Widening sidewalk by ~~2~~ 7 inches to 13 feet ~~2~~ 7 inches	~~5.3~~ 5.2	C	~~8.8~~ 9.8	D	~~8.4~~ 8.5	D
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by ~~1~~ 6 ~~foot~~ feet to ~~15~~ 20 feet	~~40.5~~ 34.5	~~B~~ C	~~18.5~~ 13.5	~~D~~ E	~~19.9~~ 19.7	D
Delancey Street and Clinton Street – North Crosswalk	Widening crosswalk by 1 foot to 17 feet	16.7	D	14.9	E	16.0	D

Note: SFP = square feet per pedestrian; PMF = pedestrians per minute per foot.

Sidewalks

- The west sidewalk of Essex Street between Delancey Street and Broome Street would deteriorate from below mid-LOS D (~~6.3~~ 6.4 PMF) and LOS C (~~4.5~~ 4.6 PMF) to ~~LOS E~~ beyond mid-LOS D (~~11.1~~ 10.9 PMF) and LOS D (~~9.2~~ 9.3 PMF) during the AM and midday peak periods, respectively. Subsequent to the issuance of the DGEIS, at NYCDOT's direction, the assignment of pedestrian trips to study area sidewalks and crosswalks was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in a potential significant adverse impact at this sidewalk location. The pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the proposed actions' RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stair entrances, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of this sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk width to approximately 20 percent of the overall width. The combination of all these factors resulted in the potential for a significant adverse sidewalk impact at this location in the future 2022 With Action condition. ~~These~~ This potential significant adverse pedestrian impact~~s~~ could be fully mitigated by widening the sidewalk from its existing width of 13 feet to ~~15~~ 13 feet and ~~3~~ 8 inches. However, this mitigation measure is not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of a subway stairway would preclude any widening towards the west side. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impact would be unmitigated.

It should be further noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the proposed actions' development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at this location.

- The east sidewalk of Essex Street between Delancey Street and Rivington Street would deteriorate from LOS C (3.7 PMF) and LOS C (~~5.3~~ 5.2 PMF) to LOS D (8.6 PMF) and LOS D (~~8.8~~ 9.8 PMF) during the midday and Saturday peak periods, respectively. Subsequent to the issuance of the DGEIS, the assignment of pedestrian trips to study area sidewalks and crosswalks was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in a potential significant adverse impact at this sidewalk location. In addition, the pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the proposed actions' RWCDS full build-out. The sidewalk analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stair entrances, street furniture, and "shy-distances" throughout the entire length of this sidewalk segment following the *2000 Highway Capacity Manual* guidelines. This assumption reduced the effective sidewalk width to approximately 30 percent of the overall width. The combination of all these factors resulted in the potential for a significant adverse sidewalk impact at this location in the future 2022 With Action condition. This significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and ~~2~~ 7 inches. However, this mitigation measure is not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways abutting the proposed development site (Site 9) would preclude any widening towards the east side. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impact would be unmitigated.

  It should be further noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the proposed actions' development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at this location.

Delancey Street and Clinton Street

The north crosswalk at this intersection would deteriorate from LOS D (16.7 SFP) to LOS E (14.9 SFP) during the Saturday peak period. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 16 feet to 17 feet.

Effects of Traffic Mitigations on Pedestrian Operations

As described above, intersection operations could be altered with the implementation of the recommended traffic mitigation measures. These measures would include changes to existing signal timings and lane utilizations. A review of the effects of these changes on pedestrian circulation and service levels at intersection corners and crosswalks showed that they would not alter the conclusions made for the pedestrian impact analyses, nor would they result in the potential for any additional significant adverse pedestrian impacts.

Following the issuance of the DGEIS, as noted previously, NYCDOT adopted and began implementing an area-wide Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner "bump-outs" and signal timing changes to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area's transportation network were incorporated as part of the FGEIS.

~~As mentioned above, NYCDOT is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions in the study area would improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

CONSTRUCTION

TRAFFIC

As existing and No Action traffic conditions at some study area intersections through which construction-related traffic is expected to travel would operate at unacceptable levels during commuter peak hours, it is possible that significant adverse traffic impacts could occur at some of these locations during construction. A detailed analysis of traffic conditions was completed for nine key intersections near the construction sites, and this analysis indicated that significant adverse traffic impacts could occur at ~~four~~ one of these locations during construction, but at lesser magnitudes than impacts identified under the With Action condition. Where impacts during construction may occur, measures similar to the ones recommended to mitigate impacts of the proposed actions could be implemented early to alleviate congested traffic conditions.

NOISE

Construction activities would be expected to result in substantially elevated noise levels for two or more continuous years at ~~forty-five (45)~~ thirteen (13) locations within the study area. Most of those locations, however, have double-glazed windows and an alternate means of ventilation. For buildings with double-glazed windows and window air conditioners, interior noise levels would be approximately 20 to 25 dBA less than exterior noise levels, and for buildings with double-glazed windows and well-sealed through-the-wall/sleeve/PTAC air conditioners interior noise levels would be approximately 25 to 30 dBA less than exterior noise levels. The typical attenuation provided by double-glazed windows and the alternate ventilation outlined above would be expected to 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, although these structures have double-glazed windows and alternate ventilation, during some limited time periods construction activities may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for these uses .

A visual survey was performed to identify which locations may not currently have double-glazed windows and/or a means of alternate ventilation, or may have outdoor balconies. At these locations, typical attenuation provided by single-paned windows would range from 5 dBA for an open window condition (i.e., no alternate means of ventilation) to 20 dBA (i.e., with an alternate means of ventilation/closed-window condition). This level of attenuation would not be expected to 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). Construction activities would be expected to result in significant adverse noise impacts at ~~15~~ 3 locations, which are shown in **Table S-7**.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior L_{10} values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there are no practicable mitigation measures are not practicable, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

The refined construction analysis performed between the DGEIS and FGEIS predicted construction noise impacts at fewer windows at Seward Park High School and a shorter duration of impacts. The remaining impacts at the school are a result of noise generated by construction of Sites 1, 2, and 3.

Upon selection of a developer for each of these development sites, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the project. The Office of the Deputy Mayor for Economic Development (ODMED), as lead agency, and HPD and/or NYCEDC will review the additional analyses.

If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated.

Table S-7
Predicted Noise Impact Locations

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Impact Duration (year)	Range of Increase(s) in dBA*	# of Impacted Single-Glazed Windows	Air-Conditioning
Balconies of Residential Building south of Grand Street between Essex and Clinton Streets	Residential	18	North	1A, 1B, 1E	All ~~2nd to top~~	2016-2018	5.0-8.8	n/a	
			East (northernmost section)	1C	~~7th~~ 5th to top	2016-2018	~~5.7~~ 5.4-10.1		
			West (northernmost section)	1D	~~7th~~ 5th to top	2016-2018	~~5.4~~ 5.2-7.3		
Residential Building at the southeast corner of Clinton and Grand Streets	Residential	19	North	3B	~~7th~~ 5th to top	2016-2017	~~4.7~~ 3.0-8.4	n/a	
			West (northernmost section)	3C, 3D	~~5th~~ 2nd to top	2016-2018	~~3.3-8.5~~ 3.2-9.2		
			West (middle section)	3E, 3F	~~7th~~ 2nd to top	2016-2018	~~5.3~~ 5.0-9.5		
			West (southernmost section)	3G, 3H	~~11th~~ 5th to top	2016-2018	~~5.2~~ 5.1-9.3		
			~~South~~	~~3I~~	~~top~~	~~2016-2018~~	~~5.6-6.9~~		
350 Grand Street	Institutional (Seward Park High School/ Urban Assembly Academy of Government and Law)	10	North	14	All	2016-2019	~~5.5~~ 5.2-17.5	111	Existing Window A/C
			East (northernmost section)	14A	~~5th~~ 3rd to top	2016-2018	3.3-6.9	110	
			~~East (middle section)~~	~~14B~~	~~9th to top~~	~~2016-2017~~	~~3.0-3.7~~	~~192~~	
			~~West (northernmost section)~~	~~14G~~	~~4th to top~~	~~2019-2020~~	~~4.1-11.1~~	~~156~~	
~~83 Essex Street~~	~~Residential/ Commercial~~	~~4~~	~~East~~	~~15~~	~~2nd to top~~	~~2016-2017~~	~~3.1-7.5~~	~~9~~	~~None visible~~
~~101 Delancey Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~16C~~	~~Top~~	~~2016-2017~~	~~3.2-4.2~~	~~Not Visible~~	~~Not Visible~~
			~~South~~	~~16B~~	~~All~~	~~2016-2017~~	~~5.1-10.0~~	~~Not Visible~~	~~Not Visible~~
~~87 Ludlow Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~17~~	~~3rd to top~~	~~2019-2020~~	~~3.4-10.6~~	~~5~~	~~Existing Window A/C~~
~~249-255 Broome Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~North~~	~~21~~	~~3rd to top~~	~~2019-2020~~	~~5.4-14.8~~	~~43~~	~~Existing Window A/C~~
~~141 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~35~~	~~5th to top~~	~~2020-2021~~	~~3.1-4.9~~	~~6~~	~~Existing Window A/C~~
~~145 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~37~~	~~4th to top~~	~~2020-2021~~	~~3.2-6.0~~	~~2~~	~~Existing Window A/C~~
~~149 Essex Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~39~~	~~4th to top~~	~~2020-2021~~	~~3.4-7.2~~	~~18~~	~~Existing PTAC~~
~~Balconies of 153 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~41~~	~~top~~	~~2020-2021~~	~~3.3-5.2~~	~~n/a~~	
~~Balconies of 113 Norfolk Street~~	~~Residential~~	~~8~~	~~West~~	~~46A~~	~~6th to top~~	~~2020-2021~~	~~5.0-17.9~~	~~n/a~~	
~~123 Rivington Street~~	~~Residential/ Commercial~~	~~7~~	~~South~~	~~51B~~	~~4th to top~~	~~2020-2021~~	~~5.1-20.2~~	~~5~~	~~Existing Window A/C~~
~~133 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~54A~~	~~6th to top~~	~~2020-2021~~	~~3.5-19.1~~	~~3~~	~~None visible~~
~~106 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~69~~	~~6th to top~~	~~2017-2018~~	~~3.1-3.7~~	~~30~~	~~Existing Window A/C~~

Note: * Range of increases values were taken from predicted noise levels compared to existing noise levels.

If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing and any available additional path and source controls, still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the New York City School Construction Authority (SCA). Potential receptor controls to be considered may include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air conditioning, so that the impacted façades of the school can maintain a maximum interior noise environment of 45dBA under closed-window conditions. These measures would have the potential to mitigate the impacts at Seward Park High School. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

For properties that may be under the jurisdiction of HPD or developed through an HPD program, additional mitigation (source and path control measures) identified in the refined and/or additional analyses would be required to be undertaken by the developer(s) through provisions in a Land Disposition Agreement to be entered into at the time of closing. The Land Disposition Agreement would also require the use of a construction monitor, which would operate under the oversight of ODMED, to ensure such measures are implemented during construction activities. In the event it is determined that receptor controls will be implemented at the school, the developer(s) would be required to fund and install the measures (in coordination with ODMED, HPD and SCA) at the affected facades of the school prior to the commencement of construction at the site(s) causing the noise impact.

For properties that may be under the jurisdiction of NYCEDC, noise control measures identified in the refined and/or additional analyses, including receptor controls if determined to be practicable, would be required to be undertaken by the developer(s) through provisions of a contract or other legally binding agreement between NYCEDC and the developer(s). The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMED, to ensure that such measures are implemented during construction activities.

At the ~~four~~ two locations with the potential to experience construction noise impacts only at outdoor balconies, there would be no feasible or practicable mitigation to mitigate the construction noise impacts. Therefore these balconies would be considered to experience an unmitigated significant adverse impact at various times.

~~Further assessment related to construction impacts at Seward Park High School (350 Grand Street) will be conducted between DGEIS and FGEIS to refine the area of potential impact. The project sponsors will also explore potential mitigation measures at the school between DGEIS and FGEIS. In the event that mitigation measures are not determined to be feasible and practicable, the impact would be unmitigated.~~

H. UNAVOIDABLE ADVERSE IMPACTS

As described above, a number of the potential impacts identified for the proposed actions could be mitigated. However, as described below, in some cases, impacts from the proposed actions would not be fully mitigated.

HISTORIC AND CULTURAL RESOURCES

Potential mitigation measures that could partially mitigate the impact of the demolition of the S/NR-eligible Essex Street Market and former fire station may include, to the extent practicable and feasible: preparation of HABS documentation of all four buildings of the Essex Street Market and the former fire station; a permanent interpretive exhibit or exhibits about the Essex Street Market and the former fire station, which could be developed and installed in the new Essex Street Market facility on Site 2 or in another appropriate location near the project site; architectural salvage if any significant exterior or interior architectural elements could be removed and incorporated into the proposed development; and design of the new buildings on Sites 2, 8, 9, and/or 10 to reference the design of the Essex Street Market, which could include incorporating references to such architectural elements of the market buildings as the strip windows and the incised lettering above the entrances. In addition, NYCEDC and HPD will continue to consult with LPC and/or OPRHP regarding the compatibility of the proposed development on Site 1 with the S/NR-listed Lower East Side District, in which it is located, and with the S/NR-eligible and NYCL-eligible Eastern Dispensary. Submission of the preliminary design of the proposed building on Site 1 to LPC and/or OPRHP for review and comment following a developer's RFP process is proposed as a means to eliminate or partially mitigate the potential contextual and visual impact on the historic district and Eastern Dispensary from the proposed development on Site 1. If LPC and/or OPRHP determine that the preliminary design of the proposed building on Site 1 would result in a significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary and no design changes, which are feasible and practicable given NYCEDC and HPD's goals and objectives, are identified to eliminate or fully mitigate this impact, it would constitute an unmitigable significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary.

TRANSPORTATION

TRAFFIC

As described above, NYCDOT has adopted and begun implementing an area-wide plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor. Some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the FGEIS due to these safety oriented changes, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area's transportation network were incorporated as part of the FGEIS.

Under the proposed actions, ~~a maximum of~~ ~~six~~ ten intersections would experience unmitigable traffic impacts in the 2022 With Action year (but not in all peak hours). Of these ~~six~~ ten intersections, one intersection, the intersection of East Houston Street ~~Delancey Street~~ and Allen Street, could be partially mitigated. At this intersection, traffic improvements would be able to mitigate one, but not all, of the impacted movements during the weekday AM peak hour. The ~~five~~ nine other intersections that would remain unmitigated are the intersections of: East Houston Street and Chrystie Street/Second ~~Allen Street/First~~ Avenue;~~,~~ ~~and~~ Delancey Street with Allen Street, Ludlow Street, Essex Street, Norfolk Street, Suffolk Street and Clinton Street; Broome Street and Norfolk Street; and Grand Street and Clinton Street.

PEDESTRIANS

Under the proposed actions, up to two sidewalks could experience unmitigable impacts in the 2022 With-Action year (but not in all peak hours). These potential significant impacts would occur at the west sidewalk of Essex Street between Delancey and Broome Streets and the east sidewalk of Essex Street between Delancey and Rivington Streets. As discussed previously, subsequent to the issuance of the DGEIS, at NYCDOT's direction, the pedestrian trip assignment was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in potential significant adverse impacts at these sidewalk locations. In addition, the pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. The sidewalk analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairways, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of these sidewalk segments following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective widths to approximately 20 to 30 percent of the overall widths available at these two sidewalk locations. The combination of all these factors resulted in the potential for significant adverse sidewalk impacts at these locations in the future 2022 With Action condition.

For the east sidewalk of Essex Street between Delancey and Rivington Streets, the potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 7 inches. The potential significant adverse pedestrian impact at the west sidewalk of Essex Street between Delancey and Broome Streets could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 8 inches. However, these mitigation measures to widen the sidewalks by 7 and 8 inches are not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways would preclude any widening towards the west side. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impacts would be unmitigated.

It should also be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the project's development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at these locations.

CONSTRUCTION

~~Measures described above in Section G, "Mitigation Measures," would have the potential to partially mitigate the construction noise impacts at 10 residential/commercial locations. Some potential receptor controls could include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there~~

~~are no practicable mitigation measures, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

Construction activities would be expected to result at various times in significant adverse noise impacts at ~~these~~ three locations. At the ~~four~~ two locations with the potential to experience construction noise impacts only at outdoor balconies, there would be no feasible or practicable mitigation to mitigate the construction noise impacts. Further assessment related to construction impacts at Seward Park High School (350 Grand Street) resulting from construction at Sites 1, 2, and 3 will be conducted upon selection of a developer or developers for these Sites, and additional mitigation measures will also be considered. ~~between DGEIS and FGEIS to refine the area of potential impact~~. ~~The project sponsors will also explore potential mitigation measures at the school between DGEIS and FGEIS.~~ In the event that mitigation measures are not determined feasible and practicable, the impacts at Seward Park High School would be only partially mitigated ~~unmitigated~~.

I. GROWTH-INDUCING ASPECTS OF THE PROPOSED ACTIONS

The proposed actions would be limited to the project site, which would be developed with mixed-income residential, commercial, community or cultural uses, parking, and publicly accessible open space. The proposed actions would be expected to improve land use conditions in the study area by replacing underutilized sites with new development that would integrate with, and knit together, surrounding communities. While the new uses would contribute to growth in the City and State economies, they would not be expected to induce additional notable growth outside the project site. It is anticipated that the consumer needs of the new residential and worker populations would largely be satisfied by a combination of the new retail uses that would be included as part of the proposed actions and the existing retail stores in the area. The area already contains a broad mix of commercial uses, local services, and a growing number of restaurants and drinking establishments. It is possible that development resulting from the proposed actions and other developments in the area could prompt some new retail development from those looking to capitalize on the area's increased consumer base. Induced commercial development, if it were to occur, would be limited and would likely include stores catering to the new residential and worker populations, such as food stores, restaurants, beauty salons and dry cleaners.

In addition, the proposed actions would not include the introduction or expansion of infrastructure capacity (e.g., sewers, central water supply) that would result in indirect development.

Therefore, the proposed actions would not induce significant new growth in the surrounding area.

J. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The commitments of land resources and materials are weighed against the benefits of the proposed actions. The proposed actions would transform several underutilized City-owned properties into a thriving, financially viable, mixed-use development. The proposed actions would provide affordable and market-rate housing units, commercial and retail uses, community facilities and other neighborhood amenities (e.g., parking, a new and expanded facility for the public Essex Street Market, and publicly accessible open space). The mix of uses would bring a greater level of pedestrian activity to the project site, making the neighborhood more inviting and appealing to live in and visit. In addition, the increased pedestrian activity that would result from the proposed actions would increase foot traffic and retail demand, benefitting existing retail stores in the area.

The proposed development includes relocating the existing Essex Street Market to a new, larger facility, which would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors the first opportunity to relocate their business to the new market facility, when the facility on Site 2 is complete and ready for occupancy.

In addition, the proposed actions would replace underutilized sites with new development that would integrate with, and knit together, surrounding communities. ✷

A. INTRODUCTION

The Office of the Deputy Mayor for Economic Development, in coordination with the New York City Economic Development Corporation (NYCEDC) and the City of New York Department of Housing Preservation & Development (HPD), is sponsoring an initiative to allow for the implementation of an approximately 1.7 million gross-square-foot[1] (gsf) (1.648-million zoning-square-foot) mixed-use development on 10 City-owned sites. These 10 sites are located in Manhattan Community District 3 generally along Delancey and Essex Streets on the Lower East Side (see **Figure 1-1**). Five of the sites (Sites 2, 3, 4, 5, and 6) are located within the former Seward Park Extension Urban Renewal Area (SPEURA), which was established in 1965 and expired in 2005. Four sites (Sites 7, 8, 9, and 10) are located within the 2008 East Village/Lower East Side Rezoning area. The tenth site (Site 1) is in neither. The 10 City-owned sites and demapped sections of Broome and Suffolk Streets that would be mapped as City streets and sections of Clinton and Delancey Streets that would be demapped encompass the project site ("project site") (see **Figure 1-2**).

The program for the proposed development on Sites 1–6 and 8–10 is expected to include a variety of mixed-income residential, commercial such as retail and office space, and community or cultural uses. The project would also include provisions for parking and publicly accessible open space. Site 7 has been considered part of the project site since the community planning process commenced in 2008 and all City-owned properties in the area were identified. However, in the proposed development project, Site 7 would retain its current function as a municipal parking garage, which would continue to support the existing neighborhood uses, as well as the potential new development on the development sites.

The project site is the largest underdeveloped City-owned site south of 96th Street, and the purpose of adopting the proposed land use actions is to allow for the implementation of a mixed-use development on the project site, which has the following goals: (1) transform several underutilized City-owned properties into a thriving, financially viable, mixed-use development; (2) provide affordable and market-rate housing units, commercial and retail uses, community facilities and other neighborhood amenities (e.g., parking, a new and expanded facility for the public Essex Street Market, and publicly accessible open space); and (3) knit these sites back into the larger, vibrant Lower East Side neighborhood.

To facilitate the redevelopment project, a number of discretionary actions would be required. Adoption of proposed Uniform Land Use Review Procedure (ULURP) actions would involve public review by a number of entities, which include, depending on the action, Manhattan Community Board 3, the Manhattan Borough President, the New York City Planning Commission (CPC), and the New York City Council. These actions include zoning map changes

[1] This number does not include below-grade parking space or space in the existing parking garage on Site 7.

12.15.11

Former Seward Park Urban Renewal Area (URA)

Former Seward Park Extension URA

1 Proposed Development Sites

* Site 7 Would not be Redeveloped Under the Proposed Actions

2008 East Village/Lower East Side Rezoning Boundary

0 500 FEET

SCALE

Proposed Development Sites

Figure 1-1

NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Proposed Street Mapping and Demapping Actions

Figure 1-2

and zoning text amendments, zoning special permits, authorization, City map amendment, the disposition of City-owned property, approval of an Urban Development Action Area Project (UDAAP), and an acquisition. Mayoral and Borough Board approval of the business terms with the developer or developers to be selected pursuant to Request for Proposals (RFPs) may also be required, as applicable. Should the discretionary actions subject to ULURP be approved, an RFP process would commence to solicit proposals for development under the approvals. Further details regarding the discretionary approvals for the proposed actions are provided below in Section C.

B. PROJECT BACKGROUND

The Seward Park Mixed-Use Development Project is located in the historically economically and ethnically diverse Lower East Side. By the turn of the 20th century, the Lower East Side was an immigrant neighborhood known for its bustling street-level commercial activity and its overcrowded tenement buildings. In the mid-1950s through the 1970s, portions of land on the Lower East Side, including the former Seward Park Extension Urban Renewal Area (SPEURA), were deemed appropriate for urban renewal under the City's Urban Renewal Law. Development in these urban renewal areas had typically taken the form of multi-tower residential buildings on large superblocks along the East River from East 14th Street to as far south as the Manhattan Bridge.

SEWARD PARK EXTENSION URBAN RENEWAL AREA

Established in 1965, the SPEURA was bordered by Essex Street, Grand Street, Bialystoker Place, and Delancey Street (see **Figure 1-1**). It was located directly north of the original Seward Park Urban Renewal Area (SPURA) that was designated in 1955. In 1967, demolition began in the SPEURA to clear land for new housing and commercial buildings. In addition, Broome Street between Norfolk and Clinton Streets and Suffolk Street between Grand and Delancey Streets were demapped (see **Figure 1-2**) although they continue to function as streets. The first new buildings in the SPEURA were completed in 1972. These buildings, Seward Park Extension East and West, included 360 units built by the New York City Housing Authority. An additional 600 units were built in the SPEURA by St. Mary's Roman Catholic Church. In the 1980s, the Chinatown Planning Council built 156 units and the United Jewish Council built 124 senior units. In total, since the establishment of SPEURA in 1965, 1,240 units of housing have been built in portions of the SPEURA; however, the sites now designated as Sites 2-6 for the proposed actions were never developed. The SPEURA plan proposed largely commercial development on those remaining sites.

There were several attempts in the 1980s and 1990s to redevelop the remaining five SPEURA sites: a proposal in 1988 by the LeFrak Organization, a 1993 proposal by Kraus Enterprises, and a 2001 proposal by a joint partnership of the LeFrak Organization and Edward J. Minskoff Equities. The 1988 LeFrak proposal included a mix of affordable and market-rate housing units. Kraus Enterprises' proposal in 1993 included residential units, park space, retail, and a movie theater. The LeFrak/Minskoff proposal in 2001 also included a mix of affordable and market-rate housing units. In 2003, HPD and NYCEDC, for discussion purposes, proposed a program of affordable and market-rate residential units and commercial uses for the SPEURA. These plans and the proposal for discussion did not move forward because of a lack of community consensus.

The urban renewal area designation expired in 2005. Today, the former SPEURA comprises a mix of affordable housing, institutional, community, and cultural uses, and the five remaining underdeveloped sites. These five sites (Sites 2–6) remain underutilized and comprise the largest, underdeveloped City-owned sites in Manhattan south of 96th Street; they include parking lots, a partially vacant former market building, a residential building with seven occupied units, a former fire station with a commercial tenant, and a building that is vacant except for a ground-floor retail tenant.

2011 COMMUNITY BOARD 3 PLANNING GUIDELINES

With the goal of gaining broad community consensus on a development program for the project site, Manhattan Community Board 3 (CB3) embarked on a planning process for the sites starting in 2008, and invited the City to be part of the discussions. NYCEDC, HPD, and the New York City Department of City Planning (DCP) participated in the process, providing technical support and resources to facilitate the community's discussion and analysis. Over the course of more than two years, CB3 worked to develop a set of project guidelines that CB3 unanimously adopted in January 2011. CB3 subsequently worked with the City to understand the urban design opportunities of the project and passed a set of urban design principles in June 2011. Together, these project guidelines and design principles express the community's desired mixed-use, mixed-income characteristics of the program for the project site and urban design preferences with respect to the site's layout, height, and density.

The community guidelines and urban design recommendations adopted by CB3 serve as a broad framework for defining key elements of the current project proposal. The guidelines call for a mixed-use and mixed-income development that is reflective of, and compatible with, adjacent communities. CB3 recommends that the design of the proposed development conform to the principles of contextual design, such that building orientation and access should support and enhance the existing pedestrian realm and integrate with the existing neighborhood.

C. PROJECT DESCRIPTION

SITE DESCRIPTION

As shown on **Table 1-1**, the project site contains a mix of parking, active, vacant, and partially vacant commercial uses, and a residential building with 7 occupied units. Within the project area, Suffolk Street is demapped between Grand and Delancey Streets and Broome Street is demapped between Norfolk and Clinton Streets. Sites 1, 3, 4, and 6 are each entirely occupied by surface parking. Sites 1, 3, and 6 contain a total of approximately 300 public parking spaces and Site 4 contains approximately 100 commercial parking spaces for neighborhood businesses. Sites 2 and 5 also contain surface parking; Site 2 has 90 spaces for City vehicles and Site 5 has 100 public parking spaces. The remainder of Site 2 is occupied by one of the four Essex Street Market buildings; the former market section of the building at 78-92 Essex Street is vacant, while the storefronts on Delancey Street contain a diner and a liquor store. In addition to surface parking, Site 5 contains three buildings: a walk-up residential building at 400 Grand Street that is under the jurisdiction of HPD and also contains a ground-floor visitor center for the Lower East Side Jewish Conservancy; a three-story building that is mostly vacant except for a ground-floor shoe repair store at 402 Grand Street; and a former fire station at 185 Broome Street that formerly housed a film prop company and is occasionally used to house furniture sales. Site 7 is a 362-space municipal public parking garage and would retain its current function as a municipal parking garage. Sites 8, 9, and 10 contain the other three Essex Street Market buildings, only one of which now operates as a public market. The building at 130-144 Essex Street (on Site 8) is vacant and used for the storage of refuse generated by the market in the building on Site 9. The Essex Street Market building on Site 9 (96-124 Essex Street) is approximately 20,000 square feet, of which approximately 15,000 square feet are the public market. The market currently has 23 vendors. The building, constructed in 1939 to provide an indoor retail market space for pushcart vendors, also contains retail and restaurant space on the Delancey and Rivington Street frontages. The building at 150 Essex Street (on Site 10) contains a health clinic run by the Community Healthcare Network.

Table 1-1
Proposed Development Sites – Existing Conditions

Site No.	Block	Lot(s)	Address	Lot Area (sf)	Building Area (sf)	Residential Area (sf)	Commercial and Community Facility Area	No. Stories	Zoning
1	409	56	236 Broome Street	21,996	—	—	65 public parking spaces	—	C6-1
2	352	1, 28	80 Essex Street, 85 Norfolk Street	43,140	17,995	—	15,265 sf vacant; 1,300-sf diner; 1,430-sf liquor store; 90 City parking spaces	1	C6-1
3	346	40	135 Delancey Street	40,776	—	—	Approx. 190 public parking spaces	—	R8
4	346	40	155 Delancey Street	40,627	—	—	Approx. 100 commercial parking spaces	—	R8
5	346	40	400 Grand Street	60,712	3 buildings: 8,400; 12,500; 5,700	12,050 (7 households)	9,450 sf vacant; 4,200-sf storage space; 450-sf non-profit cultural org.; 450-sf shoe repair; 100 public parking spaces	2, 5, 3	R8
6	347	71	178 Broome Street	21,344	—	—	48 public parking spaces	—	R8
8	354	1	140 Essex Street	11,210	11,210	—	11,210 sf vacant	1	C4-4A
9	353	44	116 Delancey Street	20,817	20,750	—	15,000-sf market, 5,750 sf retail and restaurant	2	C4-4A, C6-2A
10	354	12	150 Essex Street	6,840	6,840	—	6,840-sf health clinic	1	C4-4A
Total				**267,462[1]**	**83,395**	**12,050**	**35,420 sf; 35,925 sf vacant; Approx. 400 public parking spaces; Approx. 190 other parking spaces**		
7[2]	410	38	112 Ludlow Street	22,402	132,750	—	362 public parking spaces (garage)	5	C4-4

Notes:
1. This total does not include the demapped sections of Suffolk and Broome Streets that would be mapped, which total approximately 45,786 square feet. It also does not include the mapped sections of Clinton and Delancey Streets that would be demapped, which total approximately 17,580 square feet.
2. Site 7—a public parking garage—would not be redeveloped under the proposed actions, but is included for informational purposes.
Sources: NYCEDC; http://gis.nyc.gov/doitt/nycitymap/;http://gis.nyc.gov/dof/dtm/index.jsf; http://a810-bisweb.nyc.gov/bisweb/bispi00.jsp

SITE PLAN AND URBAN DESIGN

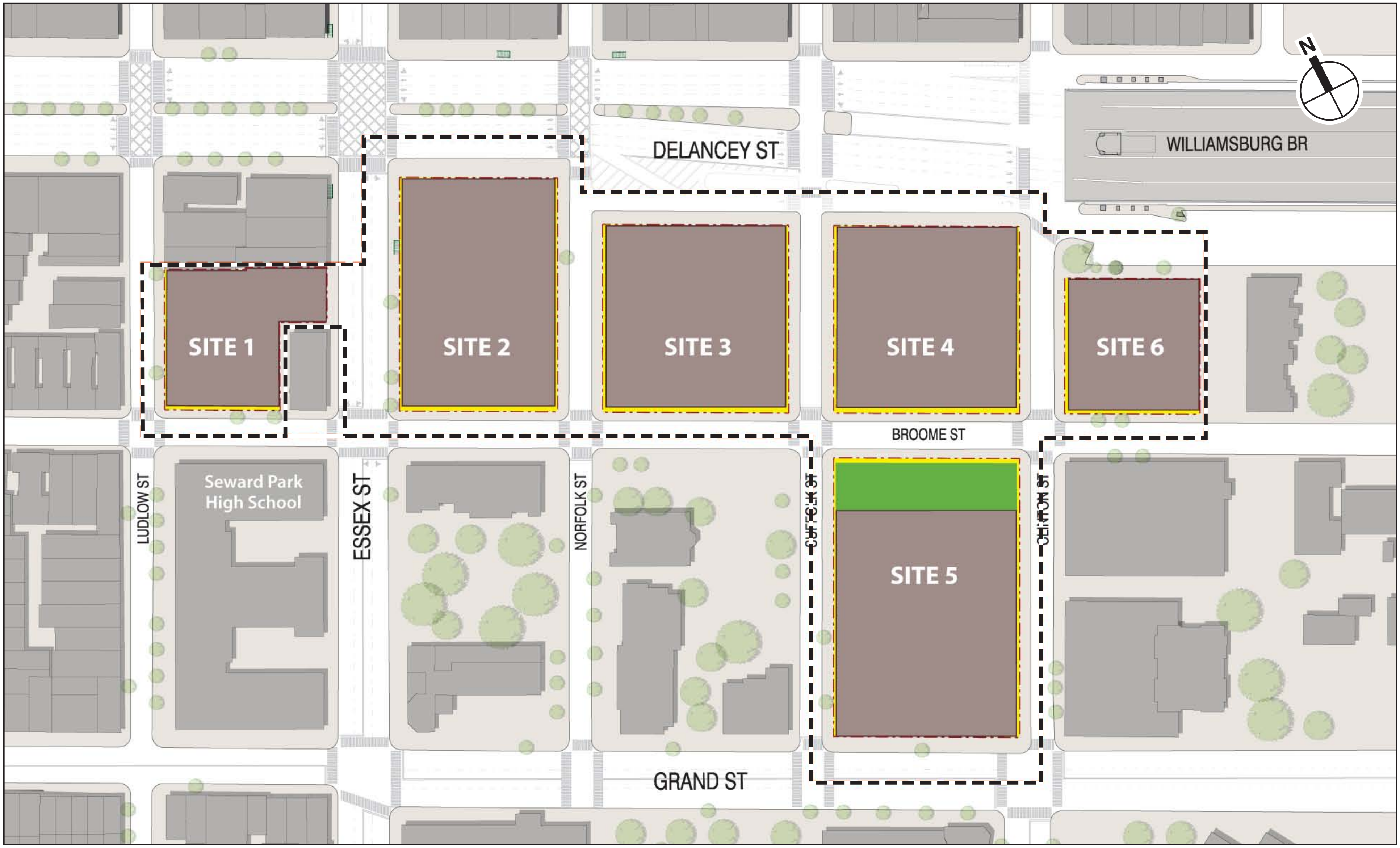
As currently contemplated, the program for the proposed actions would include up to approximately 1.7 million gsf (1.648 million zoning square feet) of mixed-use residential, commercial development, and community facility use.

The proposed development includes relocating the existing Essex Street Market to a new, larger facility. The new public market would be over 29,000 gsf and would accommodate 35 to 65 vendors (depending on the size of each stall). The larger space would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street, and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors at the time of the move the first opportunity to relocate their business to the new market facility, when the new facility on Site 2 is complete and ready for occupancy.

The urban design for the proposed development builds on the framework laid out in the CB3 urban design principles. The general concept for the massing incorporates elements from the building forms of the surrounding neighborhood, which vary from low-rise walk-ups to large towers-in-the-park. The project would incorporate a connected street grid, and new buildings would have retail and residential entrances on multiple sides to create ground-floor activity and provide necessary access. The buildings would incorporate streetwall design characteristics that are intended to activate the pedestrian realm and setback towers that will permit access to light and air. The development project would maximize street-level uses such as retail that support pedestrian activity throughout the development. A publicly accessible open space of approximately 10,000 square feet with a mix of active and/or passive recreation uses would be incorporated into the development as well. The proposed development would include up to 500 parking spaces on up to four sites (Sites 2 through 5).

To allow for comprehensive planning for the project site and to allow flexibility in design and massing, including the ability to distribute floor area across lots and modify bulk distribution, height, and placement of buildings, the project seeks approval of Large Scale General Development (LSGD) special permits that would apply to Sites 1 through 6 (see **Figure 1-3**). The LSGD would establish a maximum building envelope for each site, which is the three-dimensional space on the zoning lot within which a structure can be built, as permitted by applicable height, setback, and yard controls. Each of the maximum zoning envelopes on Sites 1 through 6 would be larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design. Buildings on Sites 1 through 6 would be massed with multiple setbacks, and the envelopes would establish base heights of between 60 and 85 feet (6–8 stories), with varying heights above. The upper portions of all buildings would be set back at least 10 feet from Delancey, Essex, Clinton, and Grand Streets, and 15 feet from Ludlow, Broome, Norfolk, and Suffolk Streets. The maximum building envelopes would allow potential towers on Sites 2 and 4 of up to 285 feet and 260 feet to the roof parapets, respectively (up to approximately 24 stories), and building heights of up to 160 feet to the roof parapets (up to approximately 14 stories) on Sites 1, 3, 5, and 6.[1] Sites 8, 9, and 10 would be consistent with massing requirements and maximum heights allowable under existing zoning. **Figures 1-4a** and **1-4b** show the massing controls and potential massings (in plan) for structures developed within the maximum building envelopes on Sites 1 through 6.

[1] Building heights to the tops of the mechanical bulkheads would be as follows: 190 feet on Sites 1, 3, 5, and 6; 315 feet on Site 2; and 290 feet on Site 4.



FOR ILLUSTRATIVE PURPOSES ONLY

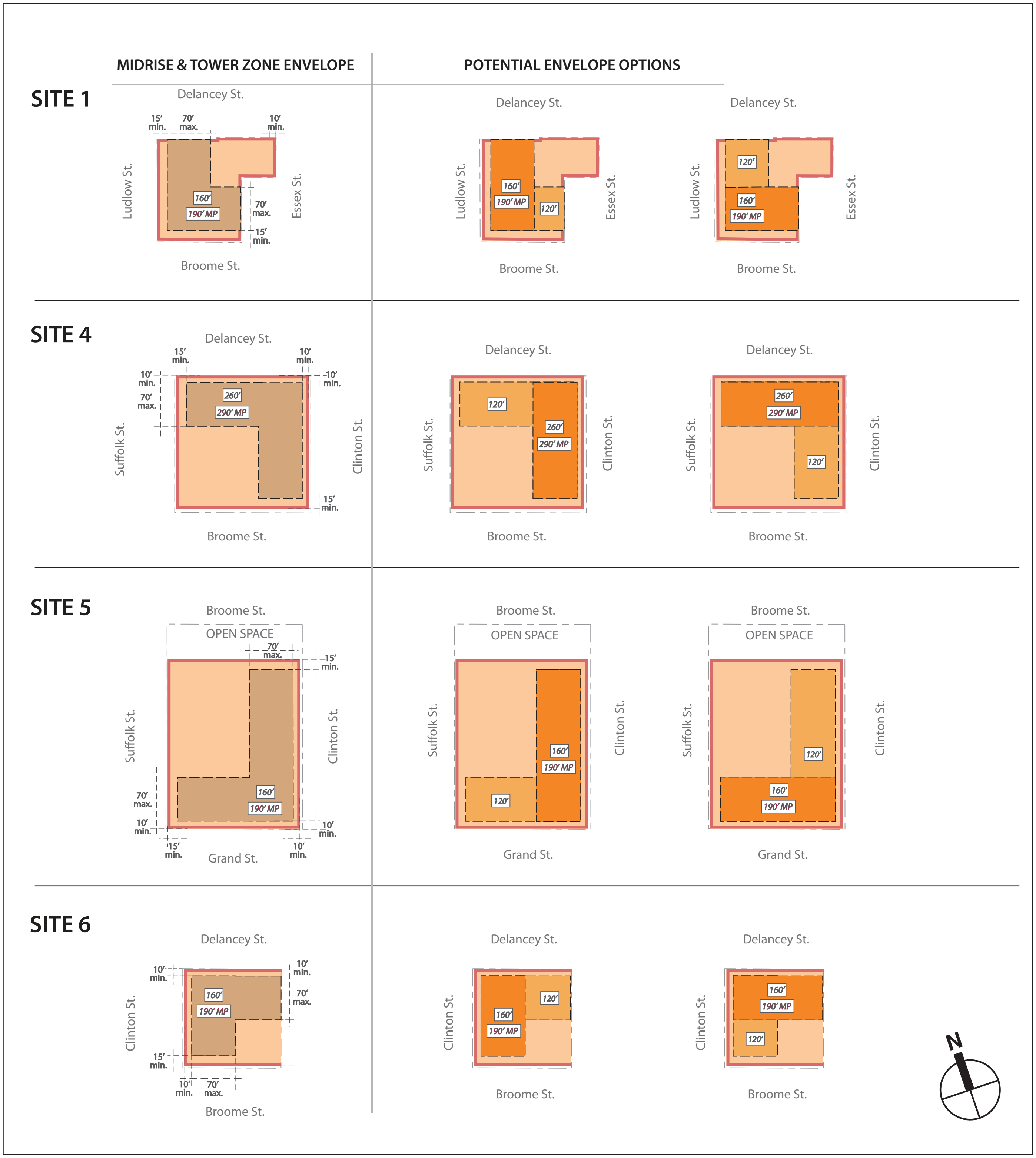
Proposed Building Footprint
Large Scale General Development Boundary
Proposed Publicly Accessible Open Space
Proposed Sidewalk Widening

NOT TO SCALE

NOTE: This figure has been revised for the FGEIS.

Proposed Large Scale General Development Boundary
Figure 1-3

3.12.12



SOURCE: Beyer Blinder Belle

LEGEND AND NOTES

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- X′ Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- X′MP Maximum building height including rooftop mechanical

DESIGN CONTROLS

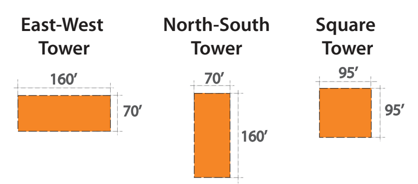
TOWER ORIENTATION:
Towers to be oriented to create variety.

BUILDING SETBACKS:
Maximum base heights to be minimum 60′ and maximum 85′ high

Above the base, building to setback 10′ (wide street) or 15′ (narrow street) per zoning, except along Clinton Street where 10′ setbacks are permissible.

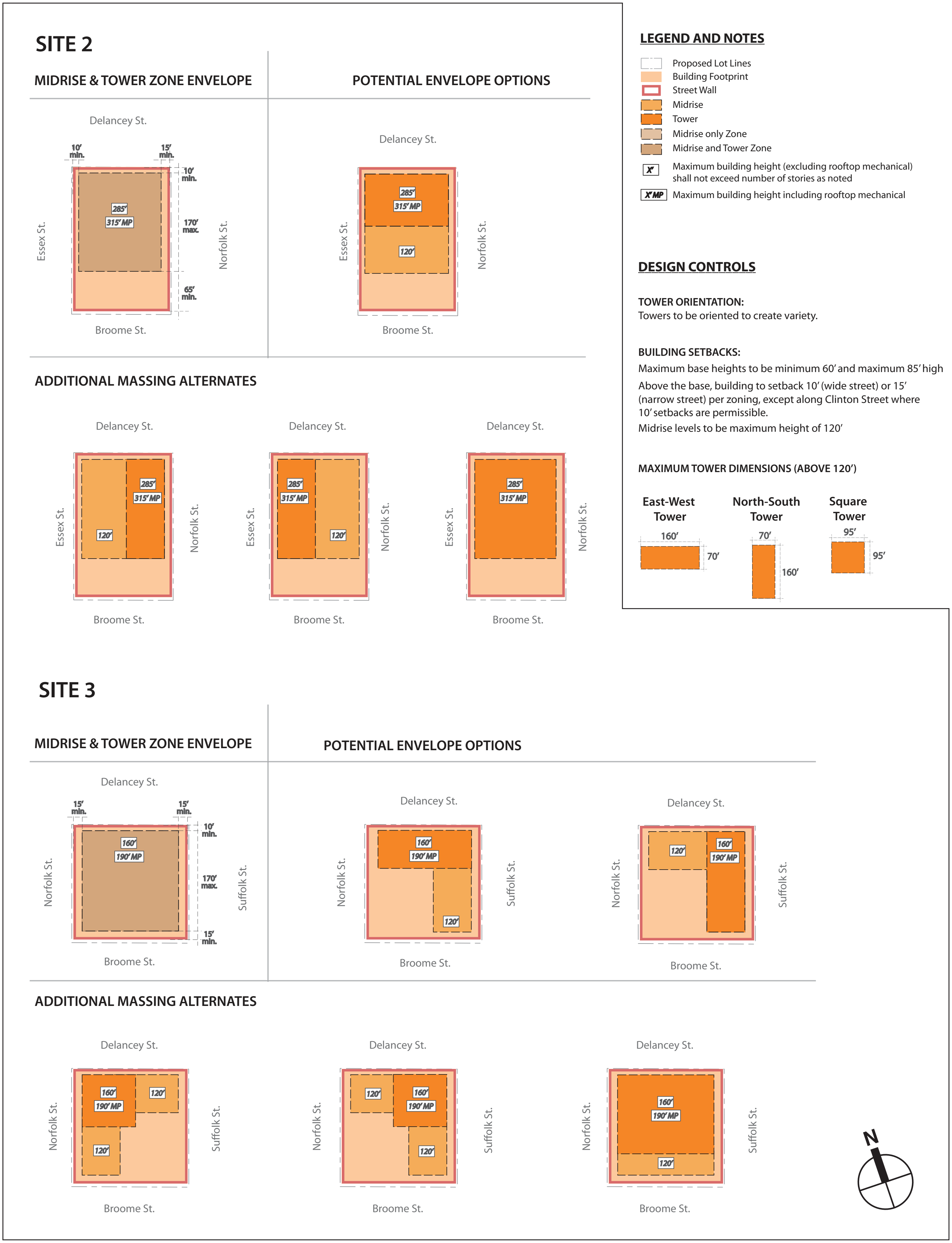
Midrise levels to be maximum height of 120′

MAXIMUM TOWER DIMENSIONS (ABOVE 120′)



Illustrative LSGD Massing (Sites 1, 4, 5, and 6)
Figure 1-4a

3.12.12



SOURCE: Beyer Blinder Belle

Illustrative LSGD Massing (Sites 2 and 3)

Figure 1-4b

Figure 1-5 shows an illustrative rendering of the proposed development; Sites 1 through 6 are shown with illustrative massings rendered within the maximum building envelopes.

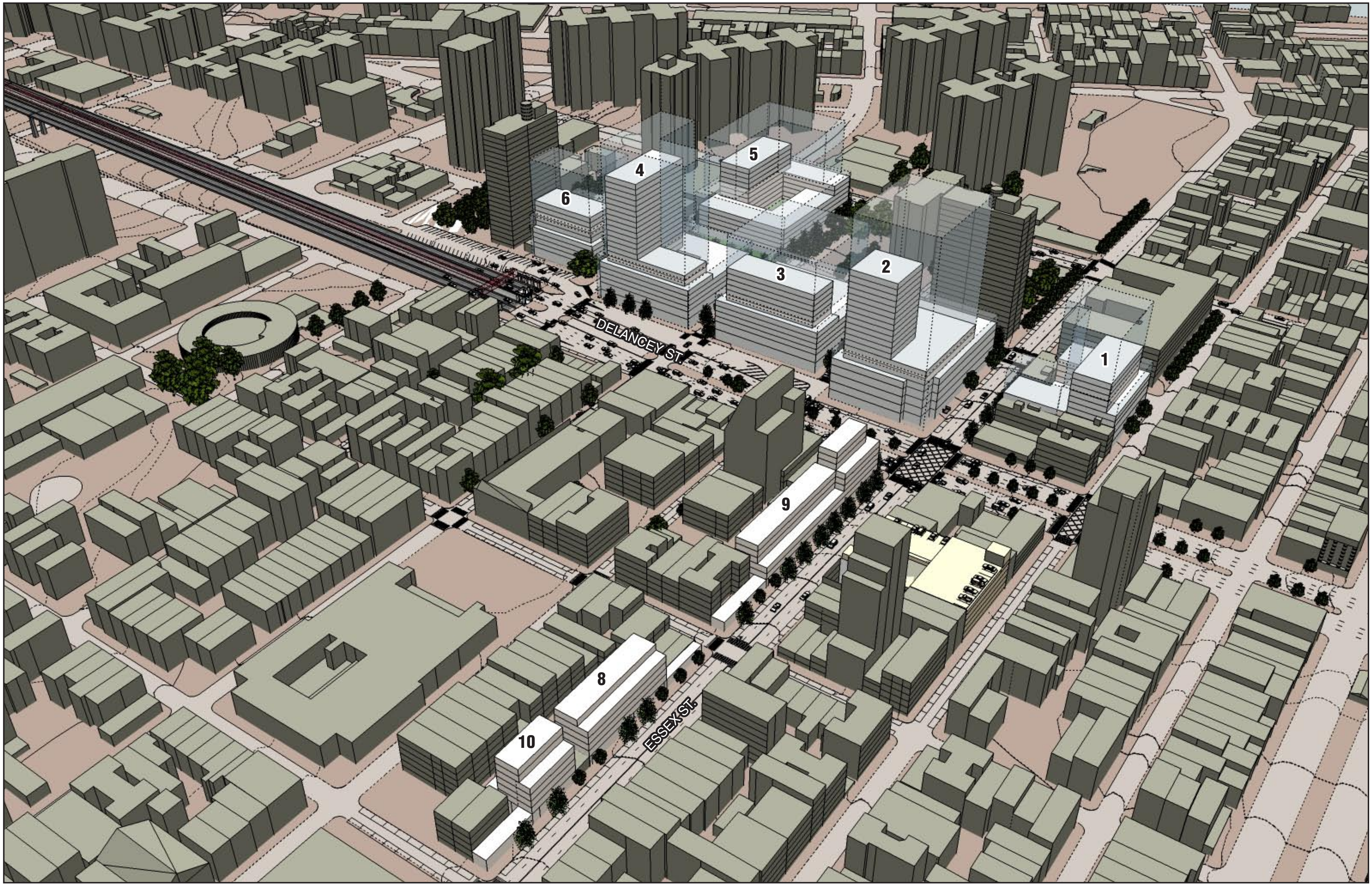
The proposed land uses and illustrative massings are intended to be illustrative of a possible configuration of the proposed uses and the possible interactions among those proposed uses across the project site. The eventual built configuration of uses would be subject to change based on the results of the environmental review, the results of developer(s)' response(s) to the RFP(s), market conditions, and further discussion with stakeholders, among other factors.

The City is currently in the process of considering how sustainability measures might be implemented as part of the project. Through an RFP process, the City would look favorably upon proposals that enhance the energy efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at reducing energy consumption such as energy-efficient building envelopes, high-efficiency heating, ventilation, and air conditioning (HVAC) systems, incinerators and generators, and window glazing to optimize daylighting and solar heat gain and to reduce heat loss. Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program. If a housing development can not be certified under the Enterprise Green Communities Program, because American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2007 does not apply to its construction methodology, the development would be designed and constructed to reduce construction and demolition waste and to incorporate sustainable design features that reduce energy consumption and greenhouse gas emissions in an amount equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program. For housing developments on City-owned sites that are managed by NYCEDC and can not comply with the Enterprise Green Communities Program, because ASHRAE Standard 90.1-2007 does not apply to their construction methodology, consultation with the Mayor's Office of Environmental Coordination would be required to ensure that sustainability measures equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program are implemented. For sites that may be under the jurisdiction of HPD, the Land Disposition Agreement between HPD and the developer(s) would require a commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures. For housing developments on City-owned sites that are managed by NYCEDC, the commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures would be required through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

DISCRETIONARY ACTIONS SUBJECT TO CEQR AND SEQRA

The proposed mixed-use development would require multiple City approvals. Some of these are discretionary actions requiring review under the City Environmental Quality Review (CEQR) process. The Office of the Deputy Mayor for Economic Development (ODMED) is the lead agency for CEQR. The potential discretionary actions that would be required for the proposed development include:

- **Disposition:** Disposition of Sites 1 through 6 and 8 through 10 by the City of New York for the purpose of subsequent development;
- **Urban Development Action Area Project Designation (UDAAP):** Designation of Sites 1 through 6 and 8 through 10 as an Urban Development Action Area Project;



Illustrative Rendering with Maximum Building Envelopes and RWCDS Massing - View South

Figure 1-5

- **Acquisition:** Acquisition of a portion of Site 2 for the sole purpose of the relocated Essex Street Market;
- **Zoning Map Change:** Zoning map amendment for a C2-5 commercial overlay on Sites 3, 4, 5, and 6;
- **Special Permit:** Special permit from the CPC pursuant to Section 74-743 of the Zoning Resolution (ZR) of the City of New York for an LSGD, applicable to Sites 1-6 to allow the following in order to achieve a superior site plan:
  - Redistribution of floor area, lot coverage and dwelling units between zoning lots and across zoning district boundaries;
  - Waiver of height and setback regulations;
  - Waiver of rear yard regulations, rear yard equivalent regulations, and rear yard setback regulations;
  - Waiver of minimum base height;
  - Waiver of minimum distance between legally required windows and any wall in an inner court;
  - Waiver of outer court regulations; and
  - Waiver of planting requirements;
- **Special Permit:** Special permit from the CPC pursuant to ZR Section 74-744 for an LSGD, applicable to Sites 1-6, to allow the following:
  - Waiver of regulations regarding the location of residential uses relative to non-residential use;
  - Waiver of regulations regarding the location of commercial uses; and
  - Permit Use Group 10, 11A, and certain 12A uses in C2 districts;
- **Special Permits:** Four special permits from the CPC pursuant to ZR Sections 13-562 and 74-52 to allow for the development of up to four public parking garages on Sites 2 through 5;
- **Authorization:** Authorization pursuant to ZR section 74-744(c)(2) to modify signage regulations to permit C6-1 signage regulations along certain streets;
- **Zoning Text Amendment:** Zoning text amendment to ZR Sections 74-743 and 74-744 to:
  - Eliminate the planting strip requirement in the proposed sidewalk widenings;
  - Allow commercial FAR to be shifted from the C6 district to the C2 district;
  - Allow Use Group 10, 11A, and certain 12A uses in the C2 zoning district; and
  - Allow the modification of certain signage regulations;
- **Street Mapping:** Mapping of the demapped section of Suffolk Street between Grand and Delancey Streets and the demapped section of Broome Street between Norfolk and Clinton Streets as new streets through the project site (see **Figure 1-2**); and
- **Street Mapping:** Demapping of sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets that were previously mapped to widen Delancey and Clinton Streets, thereby aligning the mapped streets with the existing built street condition (see **Figure 1-2**).

Mayoral and Borough Board approval of the business terms with the developer or developers to be selected pursuant to RFPs, may also be required, as applicable. In addition, NYCEDC and HPD will coordinate with the MTA-New York City Transit (NYCT) regarding subway easement areas. Construction financing for the residential buildings may come from a variety of private and public (local, state, and federal) sources, including, but not limited to funding from HPD, the New York City Housing Development Corporation, and the United States Department of Housing and Urban Development. In addition, potential construction funding may be provided by other state funding sources, including New York State Homes & Community Renewal (HCR) and the New York State Housing Finance Agency (HFA).

D. ANALYTICAL FRAMEWORK FOR ENVIRONMENTAL REVIEW

In order to address the potential range of responses to the RFP(s), the environmental review analyzes a Reasonable Worst-Case Development Scenario (RWCDS) that conservatively considers for each impact category the reasonable worst-case potential for environmental effects. While the proposed discretionary actions have been defined, the development program and design specifics under those actions would be dependent on the RFP response(s). Thus, pursuant to City Environmental Quality Review (CEQR), a Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) has been prepared that will consider the environmental impacts based on the RWCDS.

A GEIS is a more general EIS that analyzes the impacts of a concept or overall plan rather than those of a specific project plan. The GEIS is useful when the details of a specific impact cannot be accurately identified, as no site-specific project has been proposed, but when a broad set of further projects that fit within the RWCDS is likely to result from the agency's action. It should be noted that the program analyzed in the RWCDS is being used for illustrative and analysis purposes only; a site-specific breakdown is required for the environmental review. This is not meant to indicate an actual development program.

The proposed actions would change the regulatory controls governing land use and development on the project site and would allow the project site to be developed. This ~~D~~FGEIS has been prepared pursuant to CEQR and the 2012 edition of the *CEQR Technical Manual*, which was released in January 2012, and it analyzes the proposed actions' potential to generate significant adverse environmental impacts as the redevelopment takes place. The ~~D~~FGEIS considers alternatives that would reduce or eliminate impacts identified in the technical analyses and proposes mitigation for such impacts, to the extent practicable. The proposed actions would permit a range of development options; from among these, the ~~D~~FGEIS will examine the anticipated "reasonable worst-case development scenario." The approach to the analysis framework is further discussed below.

REASONABLE WORST-CASE DEVELOPMENT SCENARIO

The proposed actions would allow for a range of new developments on the project site. While the actual development will depend on developer proposals and future market conditions, the City has developed a maximum development envelope, or RWCDS, for CEQR analysis purposes. The RWCDS was developed by establishing the maximum buildable floor area allowed under zoning (approximately 1.648 million zoning square feet) and assigning a 60 percent to 40 percent ratio of residential floor area to commercial floor area, in addition to community facilities use. To the extent that actual development proposals exceed the analysis envelope of the RWCDS, they would be subject to additional environmental review as appropriate. This RWCDS will be used as a framework to assess potential impacts.

SITE PROGRAM

Under a reasonable worst-case development scenario, it is assumed that the proposed actions would result in approximately 951,000 gsf of residential development (comprising 900 dwelling units, in accordance with the UDAAP application, of which half would be affordable units); up to approximately 632,300 gsf of commercial space; approximately 114,000 gsf of community facility or cultural uses; up to 500 parking spaces; and an approximately 10,000-square-foot publicly accessible open space on Site 5. The commercial space would include up to approximately 469,350 gsf of retail (including a grocery store), over 29,000 square feet of public market space, an approximately 97,500-square-foot hotel, and approximately 36,300 gsf of non-specific commercial uses. See **Table 1-2** and **Figure 1-3**. Note that the site-specific program shown in **Table 1-2** is illustrative only and for analysis purposes only; and this is not meant to indicate an actual development program. Pursuant to the proposed actions, the existing Essex Street Market, which is located on Site 9, would be relocated to a new, expanded public market facility on Site 2.

Table 1-2
Reasonable Worst-Case Development Scenario (RWCDS) Program

Site No.	Allowable Zoning Floor Area (zsf)	Total Gross Floor Area (gsf)	Residential (gsf)	Retail (gsf)	Hotel (gsf)	Other Comm. (gsf)	Public Market (gsf)	Community Facility (gsf)
1	142,708	140,682	74,951	60,731	0	0	0	5,000
2	280,410	355,200	0	167,294	97,450	36,304	29,152	25,000
3	265,038	254,258	168,239	71,019	0	0	0	15,000
4	264,063	346,351	256,663	69,688	0	0	0	20,000
5	394,602	311,458	229,603	47,855	0	0	0	34,000
6	138,593	122,026	88,101	18,925	0	0	0	15,000
8	44,840	46,652	37,862	8,790	0	0	0	0
9	90,384	94,168	75,361	18,807	0	0	0	0
10	27,360	26,642	20,402	6,240	0	0	0	0
Total	**1,647,997**	**1,697,437**	**951,182**	**469,349**	**97,450**	**36,304**	**29,152**	**114,000**

Notes:
1. The RWCDS program is for illustrative purposes only; it does not represent an actual development program, which is dependent on a future developer(s) RFP process.
2. Site 7, a public parking garage, would not be redeveloped under the proposed actions.
3. The proposed actions would also include the provision for up to 500 parking spaces in 314,502 gsf of below-grade space.

Residential

One of the goals of the proposed actions is to allow for the development of a mixed-income residential development. Under the RWCDS, approximately 951,000 gsf of residential development would be developed comprising 900 dwelling units. As contemplated in the RWCDS, these residential units would be developed on all the sites with the exception of Site 2. Half of these dwelling units would be dedicated for affordable housing and would include a mix of affordable housing options such as senior housing. However, for analysis purposes, the ~~D~~FGEIS has not assumed a senior housing component since that would not be the most conservative assumption regarding demand for public school seats or publicly-funded day care services. It should be noted that nothing in this analysis precludes senior housing from being built.

Commercial

In order to facilitate development flexibility, a wide range of commercial uses would be allowed under the LSGD plan. These commercial uses, totaling approximately 632,300 gsf, are expected to include retail, such as local and neighborhood services and some retail stores with a larger draw; a public market, which represents the relocation and expansion of the existing Essex Street Market; and other commercial uses such as offices. The ~~D~~FGEIS also includes the analysis of a 200-room hotel and a grocery store, since these commercial uses have unique characteristics (particularly related to traffic and pedestrian activities).

Community Facility

The proposed development includes a total of approximately 114,000 gsf of community facility or cultural space that, as shown in **Table 1-2**, would be distributed among Sites 1 through 6. Again, this use is included as part of the proposed development to allow for site development flexibility.

Parking and Circulation

As noted above, Site 7 would remain a municipal public parking garage with a capacity of 362 spaces. In addition, the project proposes the inclusion of up to 500 parking spaces on up to four of the development sites to meet the project's demand and to replace the number of public parking spaces that could be lost as a result of the proposed actions. The proposed development seeks approval for four special permits to allow for these additional public parking facilities on Sites 2 through 5 within the LSGD. The RWCDS assumes that Sites 2 through 5 would provide the parking in approximately 314,500 gsf of below-grade space, which is a reasonable worst-case assumption for the maximum amount of below-grade space required to allow up to 500 parking spaces on up to four sites.

ANALYSIS YEARS

It is assumed that the proposed actions would be approved by 2012. Based on a compressed and conservative development timeline, design and construction would be undertaken in a continuous manner and is assumed to span 10 years with a full build-out anticipated to be by 2022. In the future without the proposed actions, it is expected that existing uses on the projected development sites would remain. In addition, the future without the proposed actions would account for other development projects that are planned to be in place by 2022 absent the proposed actions.

A. INTRODUCTION

As described in Chapter 1, "Project Description," the proposed actions would result in an approximately 1.7 million gross-square-foot[1] (gsf) (1.648 million zoning-square-foot) mixed-use development on 10 City-owned sites (of which nine are proposed development sites), the mapping of sections of Broome and Suffolk Streets, and the demapping of sections of Clinton and Delancey Streets, on the Lower East Side of Manhattan (see **Figure 2-1**). As set forth in Chapter 1, the reasonable worst-case development scenario (RWCDS) for the proposed actions envisions the development of 900 dwelling units (of which half would be affordable), approximately 632,300 gsf of commercial space, approximately 114,000 gsf of community facility or cultural uses, up to 500 parking spaces, and an approximately 10,000-square-foot publicly accessible open space. This chapter considers the proposed actions' potential impacts on land use, zoning, and public land use policies.

PRINCIPAL CONCLUSIONS

Overall, this analysis concludes that the proposed actions would not have any significant adverse impacts on land use, zoning, or public policy.

LAND USE

The proposed actions would have a positive effect on land use by creating an active new mixed-use development with publicly accessible open space on underutilized sites. The new housing, retail, publicly accessible open space, and community facility uses would bring activity to the proposed development sites and would serve both residents of the surrounding area and the larger community. The new uses introduced by the proposed actions would be compatible with the existing and anticipated future mix of residential, retail, and commercial uses in the surrounding area. The height and bulk of the proposed development would complement the existing built fabric and help to knit together surrounding neighborhoods. Therefore, the proposed actions would not result in any significant adverse land use impacts.

ZONING

The proposed actions would include a Large Scale General Development (LSGD) special permit, which would allow the proposed development to better integrate the programming of its proposed uses, and would provide flexibility in design and massing. The proposed actions would not change the underlying zoning of the project site, except to map new C2-5 commercial overlay zones on Sites 3, 4, 5, and 6. The proposed commercial overlay zones would be compatible with existing commercial zoning in adjacent areas. The retail uses that could be introduced as a result of the zoning change would be compatible with existing retail uses and the mixed-use character of the study area. The zoning relief (such as height and setback waivers)

[1] This number does not include below-grade parking space or space in the existing parking garage on Site 7.

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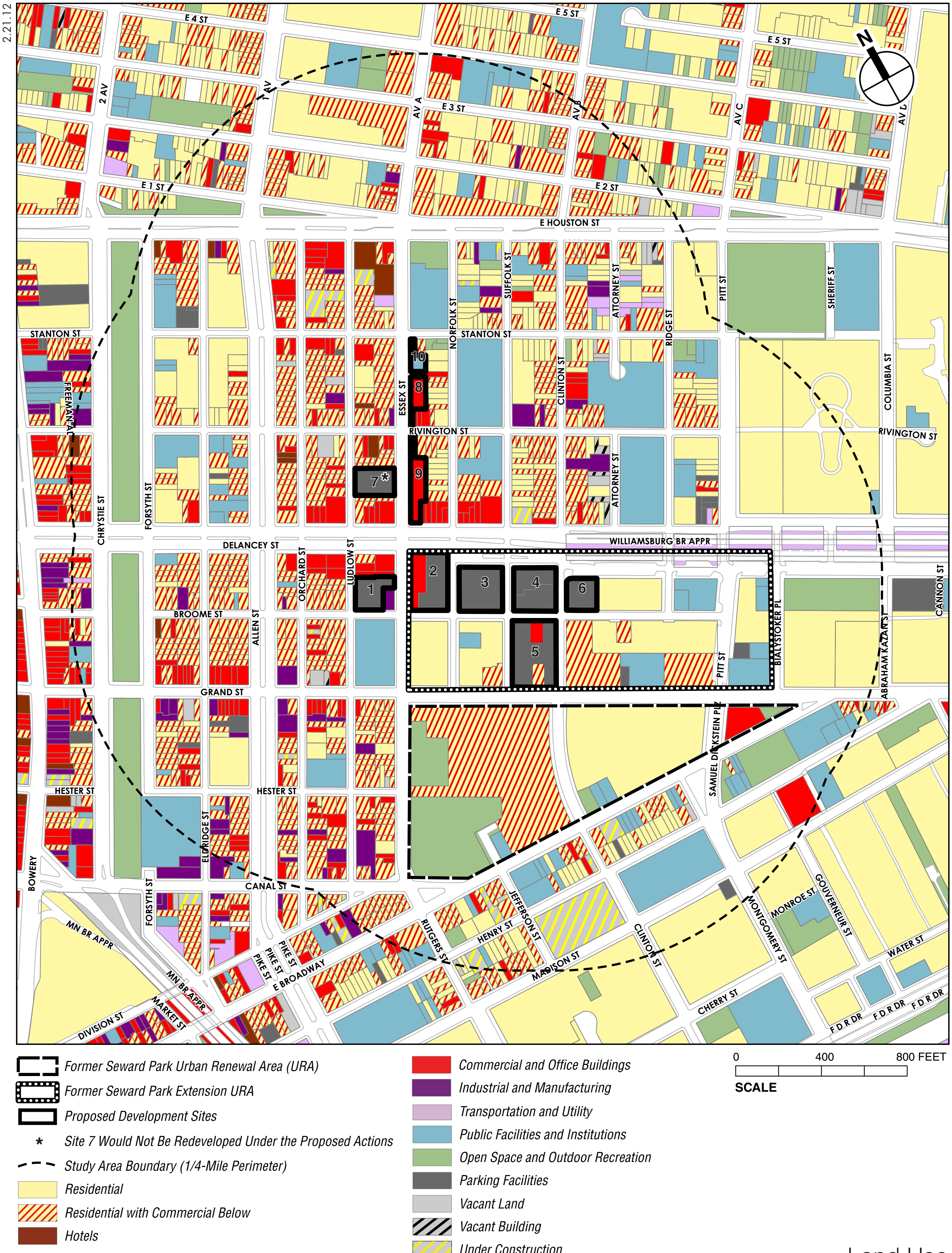

Land Use
Figure 2-1

being sought would facilitate a superior site plan that is responsive to the context of the project site and would complement the surrounding study area. Therefore, the proposed actions would not result in significant adverse zoning impacts.

PUBLIC POLICY

The proposed actions would support and further the objectives of applicable public policies, including the Mayor's New Housing Marketplace Plan, nearby business improvement districts, and PlaNYC 2030. The proposed actions would not result in any significant adverse public policy impacts. In addition, the proposed actions and RWCDS would be in broad accordance with Manhattan Community Board 3's (CB3) redevelopment guidelines in terms of its mixed-use character, affordable and market housing development, commercial development, urban design plan, parking, and potential for community facility development.

B. METHODOLOGY

The purpose of this chapter is to examine the effects of the proposed land use and zoning changes and determine whether they would result in any significant adverse impacts on land use, zoning, or public policy. The analysis methodology is based on the guidelines of the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition) and examines the consistency of the proposed actions and RWCDS with land use patterns and development trends, zoning regulations and other applicable public policies.

According to the *CEQR Technical Manual*, a detailed assessment of land use, zoning and public policy may be appropriate when needed to sufficiently inform other technical reviews and determine whether changes in land use could affect conditions analyzed in those technical areas. Therefore, this chapter includes a detailed analysis that involves a thorough description of existing land uses within the project site and the broader study area. Following the guidelines of the *CEQR Technical Manual*, the detailed analysis describes existing and anticipated future conditions for the 2022 analysis year to a level necessary to understand the relationship of the proposed actions and RWCDS to such conditions, assesses the nature of any changes on these conditions that would be created by the proposed actions, and identifies those changes, if any, that could be significant or adverse. The analysis of the impacts of the proposed actions in 2022 considers the full development of the RWCDS.

The study area for this analysis has been defined as being within a ¼-mile radius of the project site, where the proposed actions have the greatest potential to affect land use trends (see **Figure 2-1**). Various sources were used to comprehensively analyze the land use, zoning, and public policy characteristics of the study area, including field surveys, land use and zoning maps, and online sources from the New York City Department of City Planning (DCP), the New York City Economic Development Corporation (NYCEDC), the City of New York Department of Housing Preservation & Development (HPD), and the New York City Department of Buildings (DOB).

C. BACKGROUND AND DEVELOPMENT HISTORY

The project site is located in the historically economically and ethnically diverse Lower East Side. By the turn of the 20th century, the Lower East Side was an immigrant neighborhood known for its bustling street-level commercial activity and its overcrowded tenement buildings. While the population on the Lower East Side grew through the middle of the 20th century, the housing—much of which had been built 60 years prior—remained overcrowded. In the mid-1950s through the 1970s, portions of the Lower East Side were deemed as appropriate for urban renewal under the City's Urban Renewal Law. Development in these urban renewal areas typically took the form of multi-tower residential buildings on large superblocks along the East River from East 14th Street to as far south as the Manhattan Bridge.

Urban renewal is the legal authority granted to municipalities to redevelop entire neighborhoods through planned and coordinated actions, provided by Section 504 of Article 15 ("Urban Renewal Law") of the General Municipal Law of the State of New York. There have been approximately 150 urban renewal areas (URAs) in New York City, which are planned and administered by HPD, the agency designated to carry out the provisions of the Urban Renewal Law pursuant to Section 502(5) of the Urban Renewal Law and Section 1802(6)(e) of the City Charter.

In the project area, the area bounded by Essex Street on the west, Grand Street on the north, and East Broadway on the south was designated in 1955 as the Seward Park Urban Renewal Area (SPURA), and it was cleared for redevelopment. In 1957, the federal government provided funding for the Seward Park Co-ops, which were completed in 1962. This development included approximately 1,728 affordable non-profit cooperative housing units, a bank, health center, and local retail stores. Although the units were price-restricted for more than 30 years, the co-op board voted to go private in 2000, which allowed the tenants to sell their units at market prices.

Established in 1965 and expired in 2005, the Seward Park Extension URA (SPEURA), which is directly north of the original SPURA, is bordered by Essex Street, Grand Street, Bialystoker Place, and Delancey Street. Sites 2, 3, 4, 5, and 6 are located within the former SPEURA boundaries. In 1967, demolition began in the SPEURA to clear land for new housing and commercial buildings. However, the following original pre-1967 buildings were not demolished and remained within the SPEURA boundaries: Sages of Israel Synagogue, Bialystoker Synagogue, Beth Hamerdash Synagogue, Beth Jacob School, St. Mary's Roman Catholic Church and School, two tenement buildings, a firehouse, and Essex Street Market Building D. The first new buildings in the SPEURA were completed in 1972. These buildings, Seward Park Extension East and West, contain 360 units built by the New York City Housing Authority. Six hundred additional low-income housing units were built by St. Mary's Roman Catholic Church in the Grand Street Guild buildings. In the 1980s, the Chinatown Planning Council built 156 units at Grand and Norfolk Streets, and the United Jewish Council built 124 senior units at the Sages of Israel site at 25 Bialystoker Place. Since the establishment of SPEURA in 1965, 1,240 units of housing have been built in portions of the SPEURA; however, the sites designated as Sites 2-6 for the proposed actions were never developed under the URA plan.

There were several attempts in the 1980s and 1990s to redevelop the remaining five SPEURA sites: a proposal in 1988 by the LeFrak Organization, a 1993 proposal by Kraus Enterprises, and a 2001 proposal by a joint partnership of the LeFrak Organization and Edward J. Minskoff Equities. The 1988 LeFrak proposal included a mix of affordable and market-rate housing units. Kraus Enterprises' proposal in 1993 included residential units, park space, retail, and a movie theater. The LeFrak/Minskoff proposal in 2001 also included a mix of affordable and market-rate housing units. In 2003, HPD and NYCEDC, for discussion purposes, proposed a program of affordable and market-rate residential units and commercial uses for the SPEURA. These plans and the proposal for discussion did not move forward because of a lack of community consensus.

Despite many attempts to redevelop the five remaining sites of the 14 original blocks, they remained underutilized and currently comprise the largest group of underdeveloped City-owned sites in Manhattan south of 96th Street. The urban renewal area designation expired in 2005.

Today, the former SPEURA comprises a mix of affordable housing, institutional, community, cultural uses, and the five remaining underdeveloped sites that are largely in use as parking lots.

With the goal of gaining broad community consensus on the development program for the five remaining underdeveloped sites, CB3 embarked on a planning process in 2008, and invited the City to be part of the discussions. Over the course of more than three years, CB3 worked to develop a set of community project guidelines, which the full board unanimously adopted in January 2011. CB3 subsequently worked with the City to understand the urban design opportunities of the project guidelines and passed a set of urban design principles in June 2011. These project guidelines and design principles discussed program development including desired use, mixed-income characteristics for the proposed housing program, civic uses, and urban design considerations related to site layout, height and density.

ESSEX STREET MARKET

For more than 70 years, the Essex Street Market has been a commercial focal point in the Lower East Side neighborhood at the intersection of Delancey and Essex Streets. Originally occupying four buildings, the Essex Street Market is now located in one of the original buildings, which is on Site 9. The City built the four buildings of the Essex Street Market in 1939 to provide an indoor retail market for the pushcart vendors of the outdoor markets on the Lower East Side. The Essex Street Market was one of many indoor retail markets constructed in Manhattan, Brooklyn, and the Bronx as part of a program by Mayor Fiorello LaGuardia and the Department of Markets to reduce the congestion and unsanitary conditions associated with the City’s outdoor pushcart markets. When it opened in 1940, the Essex Street Market provided 475 spaces for vendors. In the 1960s, the City divested itself of the enclosed retail markets and leased the Essex Street Market to the vendors who took over its management. In the 1980s, the City considered redevelopment proposals for the Essex Street Market buildings and, with 59 tenants remaining, leased the market to a private developer in 1988. In 1995, NYCEDC took over the management of the market, consolidating the remaining vendors from two buildings into one building at 96-124 Essex Street (located on Site 9). This is the only building that currently houses public market operations.

D. EXISTING CONDITIONS

LAND USE

PROJECT SITE

The project site primarily contains surface parking uses, as well as some commercial uses, and a residential building with seven occupied units. As noted above, the project site consists of ten sites (of which nine are proposed development sites) and demapped sections of Broome and Suffolk Streets that would be mapped as City streets, and sections of Clinton and Delancey Streets that would be demapped (see **Figure 2-1**). Site 7 is not a proposed development site, as it would not be redeveloped under the proposed actions and would remain in use as a municipal parking garage. In general, the proposed development sites are underutilized and in a deteriorated condition. Below, the existing land use conditions of each site are described in detail.

Site 1

Site 1 (Block 409, Lot 56) is entirely occupied by a 65-space surface public parking lot with frontages on Ludlow Street, Broome Street, and Essex Street.

Site 2

Site 2 (Block 352, Lots 1 and 28) occupies the entire City block bounded by Delancey Street, Norfolk Street, Broome Street, and Essex Street. Site 2 contains a one-story, 18,000-square-foot commercial building along the Essex Street frontage, which is one of the four original Essex Street Market buildings. Most of the commercial building is vacant but it does contain a liquor store and diner on Delancey Street. Built in 1940, the building shell is in an aged condition, and its eastern façade (facing the parking lot) is defaced by graffiti. The remainder of the block contains 90 parking spaces, which are used by HPD.

Site 3

Site 3 (Block 346, Lot 40) occupies the entire City block bounded by Delancey Street, Suffolk Street, Broome Street, and Norfolk Street. The site is entirely occupied by a surface parking lot that contains approximately 190 public parking spaces.

Site 4

Site 4 (Block 346, Lot 40) occupies the entire City block bounded by Delancey Street, Clinton Street, Broome Street, and Suffolk Street. The site is entirely occupied by a surface parking lot that contains approximately 100 commercial parking spaces for area businesses.

Site 5

Site 5 (Block 346, Lot 40) occupies the entire City block bounded by Broome Street, Clinton Street, Grand Street, and Suffolk Street. Site 5 contains three buildings: a 5-story walk-up residential building at 400 Grand Street with seven occupied units that is under the jurisdiction of HPD and also contains a ground-floor visitor center for the Lower East Side Jewish Conservancy; a three-story mostly vacant building with a ground-floor shoe repair store at 402 Grand Street; and a former fire station at 185 Broome Street that formerly housed a film prop company and is occasionally used to house furniture sales. The remainder of the lot is occupied by a 100-space public parking lot.

Site 6

Site 6 (Block 347, Lot 71) is a 48-space public parking lot with frontages on Delancey Street, Clinton Street, and Broome Street. Site 6 is entirely occupied by surface parking uses.

Site 7

Site 7 (Block 410, Lot 38) contains a 362-space public parking garage, located at 107 Essex Street. This municipal parking garage would not be redeveloped under the proposed actions.

Site 8

Site 8 (Block 354, Lot 1) contains a vacant, one-story commercial building located at 140 Essex Street. This vacant building was formerly part of the Essex Street Market; today it is used for the storage of garbage generated by the Essex Street Market building on Site 9.

Site 9

Site 9 (Block 353, Lot 44) contains the Essex Street Market, a restaurant on the Rivington Street frontage, and commercial space on the Delancey and Essex Street frontages. The site spans the east side of Essex Street from Delancey Street to Rivington Street and is one- to two-stories tall. The 23 merchants in the Essex Street Market offer a range of culinary products at various price points that include affordable dry goods and produce, baked goods, gourmet cheeses, premium cuts of meat, fresh fish, and a host of other products. The building containing the market is

20,000 square feet, of which 9,000 square feet is leasable market space. The building is not energy efficient and has inadequate climate controls, inadequate storage for goods, and no storage for refuse, which consequently has to be stored in the vacant market building on Site 8.

Site 10

Site 10 (Block 354, Lot 12) contains a one-story tall, 6,933-square-foot health care facility located at 150 Essex Street that is run by the Community Healthcare Network. This building was formerly part of the Essex Street Market.

STUDY AREA

The 1/4-mile study area extends north roughly to East 4th Street, south to Madison Street, east to Sheriff Street, and west to midblock between Chrystie Street and the Bowery. The study area contains a mix of residential, commercial, community facility, and open space uses. Residential uses are located in walk-up tenements, mid-20th-century high-rise "tower-in-the-park" developments, and new mid- to high-rise apartment buildings. In recent years, the study area has experienced substantial growth and redevelopment, including new hotel, luxury condominium, high-end commercial, nightlife, restaurant, and entertainment uses. Despite the influx of new residents and uses, the study area retains substantial public housing and community facility uses. The study area is described below by distinct subdistricts.

Seward Park Area (south of Delancey Street and east of Allen Street)

The portion of the study area east of Allen Street and south of Delancey Street, and which contains Sites 2-6, is dominated by superblock residential developments and large vacant parcels. Certain portions, such as the East Broadway corridor, and between Allen Street and Essex Street, are mostly defined by tenements with ground-floor retail uses.

Superblock residential developments north of East Broadway include: the approximately 1,728-unit Seward Park Houses, a private cooperative, located on a two-block triangle bounded by Grand Street, Essex Street, and East Broadway; and the New York City Housing Authority's (NYCHA) Seward Park Extension, a 360-unit development in two 23-story buildings: one occupies the block south of Site 2 and the other occupies the eastern end of the block that contains Site 6. South of East Broadway, there are three major NYCHA developments within and adjacent to the southern edge of the study area: Rutgers Houses contains 721 units in five 20-story buildings bounded by Madison, Rutgers, Cherry, and Pike Streets; LaGuardia Houses contains 1,092 units in nine 16-story buildings bounded by Madison, Montgomery, Cherry, and Rutgers Streets; and Vladeck Houses contains 1,510 units in 20 six-story buildings bounded by Henry, Water, Gouverneur, and Jackson Streets.

Commercial, industrial, and transportation uses in this subarea are limited in the superblock areas. There are local retail uses along East Broadway, Ludlow and Orchard Streets, Grand Street, Broome, and Hester Streets, and Essex Street, including restaurants, delis, coffee shops, drinking establishments, clothing stores, and art galleries. Zarin Fabrics & Home Furnishings, a well-known discounted designer fabrics store and warehouse, is located at 314 Grand Street between Allen and Orchard Streets. Many buildings along Ludlow and Orchard Streets also contain manufacturing uses or support operations for other uses. The southwest corner of this subarea is the easternmost section of Chinatown and contains many ethnic businesses and community facilities.

This subarea is home to many public and private institutions, such as the Henry Street Settlement, which is located at 17 program sites in the Lower East Side, including its headquarters at 265 Henry Street and the Abrons Art Center at 466 Grand Street. Other community facilities within this subarea include the Lower East Side Tenement Museum, located at 97 and 103 Orchard Street; the Educational Alliance at 197 East Broadway, a group founded to help Jewish immigrants settle in the United States that today offers a range of programming that assists over 50,000 New Yorkers; the New York City Police Department (NYPD) 7th Precinct House and the New York City Fire Department (FDNY) Engine 15 Ladder 18 at 19-23 Pitt Street at Delancey Street; the New York Public Library (NYPL) Seward Park Branch; and the Knickerbocker Station post office. Schools in this subarea include: Seward Park High School; P.S. 134, Henrietta Szold School; and P.S. 110, Florence Nightingale School. Religious institutions and facilities are also scattered throughout the entire subarea, including within the former SPEURA boundaries and with a concentration of synagogues along East Broadway.

A defining use of this subarea is the 7,308-feet long Williamsburg Bridge, which opened in 1903. Today, the Williamsburg Bridge carries over 100,000 vehicles daily on eight lanes of roadway, in addition to the J, M, and Z lines of the New York City Subway, and pedestrians and bicyclists. Subway stations in this subarea include the Essex Street station, which carries the J, M, and Z lines, and is connected to the Delancey Street station, which carries the F line. There is an additional F line station, the East Broadway Station, at East Broadway and Rutgers Street. Bus service in the area includes the M9, M14A, M14D, M15, M15 Select Bus Service (SBS), M21, and M22 lines.

Notable open spaces in the southern portion of this subarea include the Allen Malls that extend along Allen Street between East Houston Street and East Broadway and are divided into eight sections, each containing a walkway and assigned a number one through eight (sections one through five are located in this subarea); some of the malls contain soccer fields, and benches and trees flank the full extension of the malls. Other open spaces include Seward Park, Seward Park Athletic Field (for the Seward Park High School), Luther Gulick Playground, Sol Lain Playground, and Henry M. Jackson Playground. In addition, the triangle formed by Montgomery Street, East Broadway, and Samuel Dickstein Place is a “greenstreet.” Greenstreets are a citywide program administered by the New York City Department of Parks and Recreation (DPR) to convert paved, vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs, and groundcover. See Chapter 5, “Open Space,” for more detailed descriptions of open space resources.

East of Allen Street, North of Delancey Street, South of East Houston Street

This portion of the study area contains a mix of residential, community facility, and commercial uses, including a growing number of entertainment and nightlife uses. The majority of buildings are tenements but there are also several high-rise residential and hotel buildings. Sites 7, 8, 9, and 10 are included in this portion of the study area.

Most of the residential buildings are four- to six-story tenements, with retail uses typically found on the street level. NYCHA housing in this portion of the study area includes: NYCHA Stanton Street, which is located on the southeast corner of Stanton and Attorney Streets, and is a three-story building with 13 apartments; Samuel Gompers Houses, which is located on the east side of Pitt Street between Stanton Street and Delancey Street, and contains 473 units in two 20-story buildings; and the largest NYCHA development in Manhattan, Bernard M. Baruch Houses, which is located just outside of the study area in the blocks bounded by the FDR Drive, East Houston, Delancey and Columbia Streets, and contains 2,194 apartments in 17 buildings that are between seven and 14 stories tall. Until the adoption of the Lower East Side/East Village

Rezoning in 2008, there had been an area trend towards higher-density residential development that included a number of tall residential buildings such as the 15-story Blue Condominium at 100 Norfolk Street and the 23-story Ludlow at 188 Ludlow Street and East Houston Street.

Commercial uses are common throughout this subarea; the most notable commercial uses include the Orchard Street Shopping District, the Delancey Street commercial corridor, and the Essex Street Market. The Orchard Street Shopping District was historically known for discounted apparel shops, tailors, and fabric stores but is now also home to an increasing number of upscale restaurants, boutiques, art galleries, specialty shops, signature clothing shops, spas, and lounges. On Sundays, it becomes a pedestrian mall prohibited to vehicles. Delancey Street has maintained its discount commercial character, although new development has added a wider range of commercial uses. This wide thoroughfare between Allen and Clinton Streets is lined with local, regional, and national retailers; a number of optical shops are also located on Delancey Street in this subarea.

The commercial uses east of Essex Street and north of Delancey Street are typically older local retail uses and include restaurants, delis, small grocery stores, hair and nail salons, tailors and dry cleaners, and discount stores. Along Clinton Street, these local retail shops mix with an increasing number of specialty apparel shops, coffee shops, and upscale restaurants.

Along East Houston Street are two famous businesses, Katz's Delicatessen, which opened in 1888; and Russ & Daughters, which first opened on Orchard Street in 1914. These establishments are remnants of the former large Jewish population and concentration of Jewish businesses in this area.

This subarea has also proved to be a popular location for boutique hotels. The largest of these is the 21-story Hotel on Rivington at 107 Rivington Street between Ludlow and Essex Streets. A number of new, tall luxury hotels are currently under construction, including an 18-story mixed-use hotel/residential building at 180 Ludlow Street, the 16-story Allen Street Hotel at 139 Allen Street, the 24-story Hotel Indigo at 180 Orchard Street, and an 8-story Holiday Inn at 150 Delancey Street.

There are a large number of bars and small nightclubs concentrated between Clinton and Ludlow Streets north of Delancey Street, which have helped to make the Lower East Side a popular late night destination. This neighborhood is also home to many live music venues and performance spaces, including Mercury Lounge on East Houston Street and Pianos on Ludlow Street.

There are a few remaining light industrial uses scattered throughout this area, including loft spaces, wholesalers, and warehouses; a small enclave of auto repair shops is located on Attorney Street between East Houston and Stanton Streets. The 362-space Delancey and Essex Municipal Parking Garage is located just north of Delancey Street between Ludlow and Essex Streets on Site 7.

Community facilities are a common land use in this subarea, some of which occupy large tracts of land. There are a number of large public schools in this subarea, including: P.S. 20, Anna Silver School, at 166 Essex Street between East Houston and Stanton Streets; P.S. 140, Nathan Straus School, at 123 Ridge Street and Rivington Street; and P.S. 142, Amalia Castro School, occupying the entire block bounded by Rivington, Ridge, Delancey, and Attorney Streets. The Lower East Side Preparatory School and the Marta Valle School share a facility at 145 Stanton Street, occupying the entire block bounded by Stanton, Suffolk, Rivington, and Norfolk Streets. Some of these schools, including P.S. 140 and P.S. 142, have playgrounds that are open to the public after school hours.

The Clemente Soto Velez Cultural & Educational Center (CSV), founded in 1993, is a Puerto Rican/Latino cultural institution that provides affordable space for the arts. It is geared towards promoting artists and hosting performance events for the Lower East Side and the city as a whole. The 81,000-square-foot CSV Cultural Center at 107 Suffolk Street currently houses 53 visual artists and 16 performing arts groups. Other community facilities in this subarea include the Angel Orensanz Foundation for the Arts at 172 Norfolk Street, the Downtown Health Center at 150 Essex Street and the Puerto Rican Council Day Care Center at 180 Suffolk Street.

There are also a number of religious institutions in this subarea, which further reflect the diversity of the neighborhood. Our Lady of Sorrows Roman Catholic Church, including its Parish School, is located on the southwest corner of Stanton and Pitt Streets. The Congregation Chasam Sopher, the city's second oldest synagogue, is located at 8 Clinton Street just south of East Houston Street. The Stanton Street Shul, which was constructed in 1913, is located at 180 Stanton Street. Spanish-speaking churches in this subarea include the Iglesia Pentecostal Arca de Salvacion on the southwest corner of East Houston and Suffolk Streets and the Iglesia Alianza Cristiana y Misionera on Attorney Street between East Houston and Stanton Streets.

The largest public open space in this portion of the study area is Hamilton Fish Park, located at the southeast corner of East Houston Street and Pitt Street. This 4.3-acre park includes numerous amenities including an outdoor pool, playgrounds, playing courts, and a fitness center that offers a gymnasium, game room, and computer resource center. Other open spaces in this subarea include two playgrounds: ABC Playground on East Houston Street between Essex and Norfolk Streets and adjacent to P.S. 20; and the Nathan Straus Playground, adjacent to P.S. 140 along Rivington Street. (For a more complete list of open spaces in the project area, see Chapter 5, "Open Space.") There are two community gardens in this subarea: the Suffolk Street Community Garden between East Houston and Stanton Streets and the Greenthumb Poor People in Action of the Lower East Side on the southeast corner of Clinton and Stanton Streets. This subarea also includes sections six through eight of the Allen Malls. Restrooms are located on the north side of the Allen and Delancey Street intersection. Lastly, portions of East Houston and Delancey Streets are classified as greenstreets.

West of Allen Street and South of East Houston Street

The western portion of the study area, located south of East Houston Street and west of Allen Street, contains a diverse mixture of residential, commercial, light industrial, community facility, and open space uses.

Residential uses in this area are typically found in four- to six-story tenements with ground floor commercial uses. There are three NYCHA developments in this area: the 17-story 149-unit Rafael Hernandez building at 189 Allen Street between East Houston and Stanton Streets; the 14-story 104-unit 45 Allen Street development on Hester Street between Eldridge Street and Allen Street; and the 189-unit Lower East Side I Infill development, comprised of five buildings between four and nine stories in height and spread over portions of three blocks along Eldridge Street between Stanton and Delancey Streets. A new 16-story residential building containing 55 condominiums was completed in May 2010, on the northeast corner of Delancey Street and Forsyth Street. The School of Visual Arts (SVA) opened a 19-story dormitory at 101 Ludlow Street (at Delancey Street) in 2010.

Commercial uses are located throughout this portion of the study area. Many of these commercial uses are characteristic of the easternmost section of Chinatown. Grand Street is a main eastern Chinatown commercial corridor, lined with restaurants, seafood and meat markets, and small electronics shops. Landmark Theaters' Sunshine Cinema, housed in the former Houston Hippodrome motion picture theatre at 143 East Houston Street, is a five-screen art-house cinema dedicated to first-run independent and foreign films.

There is a growing number of hotels in this area, including: East Houston Hotel at 151 East Houston Street, the GEM Hotel SoHo at 135 East Houston Street, the Windsor Hotel at 108 Forsyth Street, the Off SoHo Suites Hotel at 11 Rivington Street, and the Comfort Inn Manhattan Bridge at 61 Chrystie Street.

Light industrial uses, such as warehouses, wholesalers, distributors, and hardware stores that support Chinatown's commercial corridors are located along Chrystie and Eldridge Streets.

Community facilities in this portion of the study area include the Adult Education Complex (in the former P.S. 91 building at Forsyth and Stanton Streets), which houses the Satellite Academy, CASCADES High School, the Tenzer Center, and the Jewish Association for Services for the Aged (JASA) Weinberg Residence on Forsyth Street between Rivington and Delancey Streets. Other schools in the area include Pace High School, which is a New York City charter school at 100 Hester Street, and the Doctor Sun Yat Sen Middle School (M.S. 131), which is located in the same complex as Pace High School. The historic headquarters of University Settlement, the first settlement house in the United States (founded in 1886), is located on the corner of Rivington and Eldridge Streets and serves as a vital neighborhood anchor. Village Care of New York, a community-based, not-for-profit service organization serving older adults, persons living with HIV/AIDS and individuals in need of medical and rehabilitation services, operates a dental services facility and day treatment program at 45 Rivington Street. Dixon Place, an experimental theater, is located at 167A Chrystie Street. Other community facilities include the Comprehensive Care Management Health Services Center at 183 Chrystie Street and the Garment Industry Day Care Center at 115 Chrystie Street.

Religious institutions include Church of Grace to Fujianese NY at 133 Allen Street between Rivington and Delancey Streets, the Iglesia Adventista Delancey on the southeast corner of Delancey and Forsyth Streets, and the New York Chinese Alliance Church at 162 Eldridge Street.

Sara D. Roosevelt Park, a dominant land use in this portion of the study area, is a 7.85-acre linear park extending from Canal Street to East Houston Street between Chrystie and Forsyth Streets, and was named after the mother of President Franklin Delano Roosevelt. Portions of Stanton, Rivington, Broome, and Hester Streets were closed to create the contiguous areas of this park, which include a number of active and passive uses lined at the perimeter with benches and shade trees. Components of this open space resource include playgrounds, basketball, and handball courts, a soccer field, general open recreation areas, seating areas, walking paths, and restrooms. The park includes Hester Playground, a formerly deteriorated playground that was renovated and reopened in June 2010. The M'Finda Kalunga Garden, named in memory of an African-American burial ground that was located on nearby Chrystie Street between Rivington and Stanton Streets, is located on parkland between Rivington and Delancey Streets. Other park elements include the BRC's Golden Age Center for senior citizens, a vendors market, and the Wah-Mei Bird Garden.

East Village and Alphabet City (North of East Houston Street)

The northernmost portion of the study area north of East Houston Street includes portions of the East Village and Alphabet City neighborhoods, and contains a mix of residential, commercial, institutional, and open space uses.

Residential uses typically take the form of four- to six-story tenement buildings on small lots. There are also three larger scale affordable residential developments that differ from the prevalent small-scale residential pattern. The largest of these is Village View Housing, a 1,235-unit tower-in-the-park residential development comprised of three 21-story buildings and four 16-story buildings. Located along the east side of First Avenue between East 2nd Street and East 6th Street, Village View is a Mitchell-Lama housing development.[1] Max Meltzer Tower, a NYCHA development at 94 East 1st Street between First Avenue and Avenue A, is a 20-story building exclusively for seniors with 229 apartments. First Houses, at 138 East 3rd Street, is the oldest public housing development in the city. Unlike the taller residential buildings of Village View and Max Meltzer, this 126-unit NYCHA development is composed of a series of eight 4- to 5-story buildings along East 3rd Street and Avenue A.

Commercial uses within this area are generally found on the ground floor of residential buildings along the major north-south streets: First Avenue, Avenue A, and Avenue B. Typical retail uses include restaurants, bars, coffee shops, delis, clothing stores, and other neighborhood retail uses.

Community facility uses within this portion of the study area include: one public school, PS 63, located at 121 East 3rd Street; FDNY Engine 28 Ladder 11, at 222 East 2nd Street; and Metropolitan Playhouse at 220 East 4th Street. Just outside of the study area, the New York City Marble Cemetery, a designated New York City landmark, is located at 52-74 East 2nd Street between First and Second Avenues, and a U.S. Post Office is located at 244 East 3rd Street.

The largest open space in this area is First Park at First Avenue and East 1st Street; this 1.4-acre park contains benches, basketball courts, play equipment with safety surfacing, swings, and a kiosk selling food with a separate seating area. Other open spaces in this subarea include small parks and playgrounds adjacent to public schools, community gardens, and Peretz Square, the small triangle formed by East Houston Street, East 1st Street, and First Avenue.

ZONING

A variety of zoning districts are mapped in the project study area. They are presented in **Figure 2-2**, summarized in **Table 2-1**, and described below. The table identifies zoning districts by permitted uses and bulk.

PROJECT SITE

Site 1 and Site 2

Sites 1 and 2 are located in a C6-1 zoning district that is bounded by Delancey Street, Norfolk Street, Broome Street, Essex Street, Grand Street, and Ludlow Street. C6-1 zoning districts support medium- and high-bulk commercial uses, including large retail stores and related activities, and these districts also permit residential use. C6-1 districts permit commercial uses up to 6.0 floor area ratio (FAR), residential uses up to 3.44 FAR, and community facilities up to 6.5 FAR.

Sites 3-6

Sites 3 through 6 are located in an R8 zoning district. Residential developments in R8 districts typically range in size from eight- to ten-story buildings to taller buildings set back from the street on large zoning lots. Residential use is permitted up to 6.02 FAR, and community facilities can be built up to 6.5 FAR.

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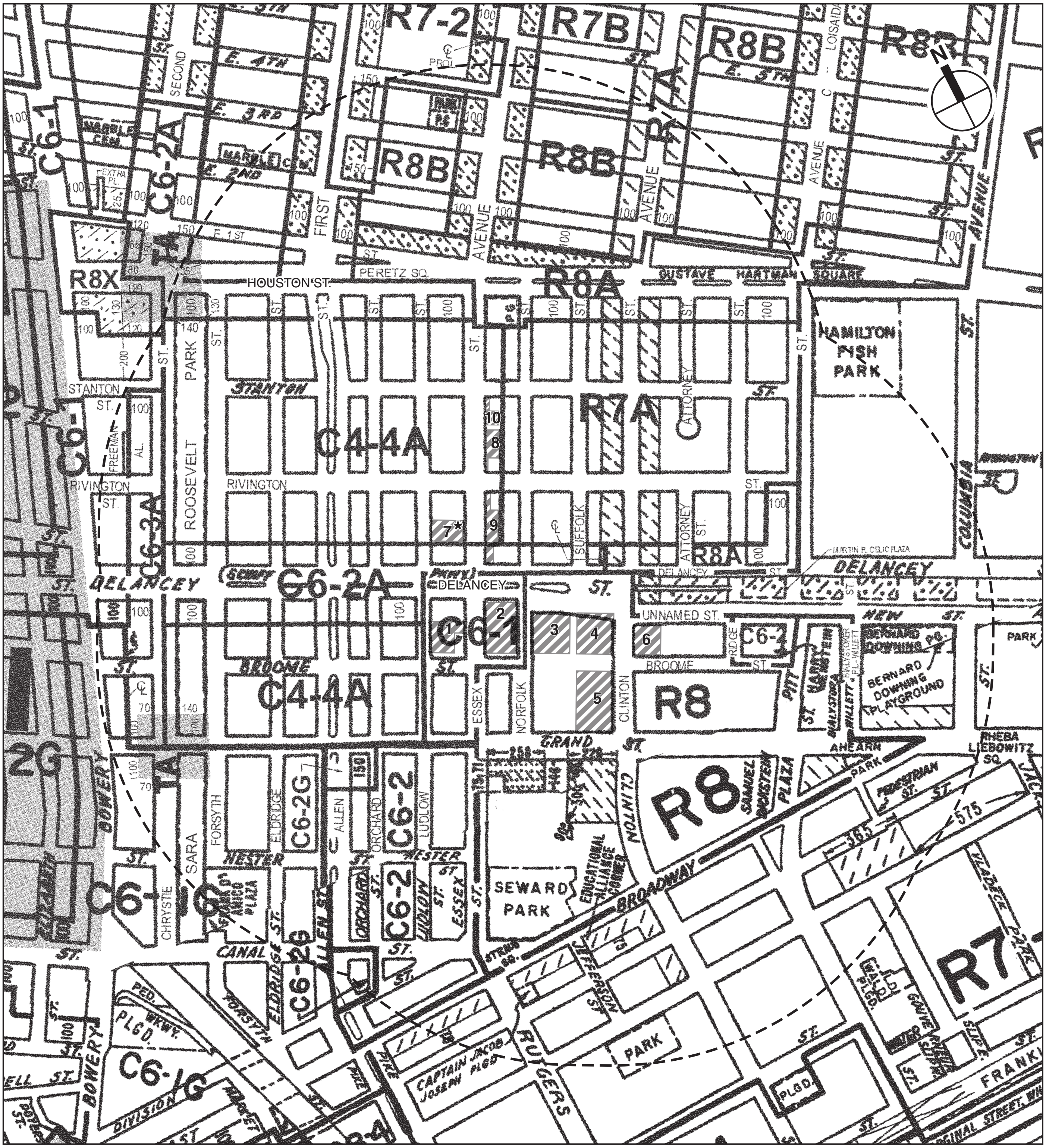
[1] Enacted in 1955, the Mitchell-Lama Housing Program utilizes tax abatements, low-interest mortgages, and other subsidies for developers to build housing for low- and middle-income tenants.



1 Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Study Area Boundary (1/4-Mile Perimeter)

Zoning District Boundary

C1-5 Overlay

C2-5 Overlay

0 200 500 FEET

SCALE

Existing Zoning

Figure 2-2

Table 2-1
Zoning Districts Located in the Secondary Study Area

Zoning District	Maximum FAR	Uses/Zone Type
R7A	4.0 residential or community facility	Contextual residence district, mandatory Quality Housing bulk regulations, medium-density housing, mid-rise buildings with greater lot coverage
R7B	3.0 residential or community facility	Contextual residence district, mandatory Quality Housing bulk regulations, medium-density housing, low-rise buildings with greater lot coverage
R7-2	0.87 to 3.44[2] residential 6.5 community facility	General residence district, medium-density housing
R8	0.94 to 6.02 residential 6.5 community facility	General residence district, high-density housing
R8A	6.02 residential 6.5 community facility	Contextual residence district, high-density housing, compatible with existing older neighborhoods
R8B	4.0 residential or community facility	Contextual residence district, high-density housing, row house-style buildings
C1-5 overlay	2.0 (in R6 to R10) commercial, follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C2-5 overlay	2.0 (in R6 to R10) commercial, follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C4-4A	4.0 commercial, residential, community facility	Contextual commercial district outside central business district, allowing a wide range of commercial uses and allowing residential and community facility uses
C6-1	6.0 commercial[3] 0.87 to 3.44 residential 6.5 community facility[3]	General commercial district outside central business district, allowing a wide range of commercial uses and allowing residential and community facility uses
C6-1G	6.0 commercial[3] 0.87 to 3.44 residential 6.5 community facility[3]	General commercial district outside central business district, special regulations regarding conversion of non-residential space to residential use
C6-2	6.0 commercial[2] 0.94 to 6.02 residential 6.5 community facility[2]	General commercial district outside central business district, allowing a wide range of commercial uses and allowing residential and community facility uses
C6-2A	6.0 commercial 6.02 residential 6.5 community facility	Contextual commercial district outside central business district, allowing a wide range of commercial uses and allowing residential and community facility uses
C6-2G	6.0 commercial[2] 0.94 to 6.02 residential 6.5 community facility[2]	General commercial district outside central business district, special regulations regarding conversion of non-residential space to residential use
C6-3	6.0 commercial[2] 0.99 to 7.52 residential 10 community facility[2]	High-density office district, wide range of high-bulk commercial uses requiring a central location
C6-3A	6.0 commercial 7.52 residential[1] 7.5 community facility	Contextual high-density office district, wide range of high-bulk commercial uses requiring a central location

Notes:
1 Up to 12 FAR for inclusionary housing bonus.
2 Up to 20 percent increase for plaza bonus.
3 Up to 12 FAR with bonus.
4 Up to 4.0 on wide streets outside the Manhattan Core under Quality Housing Program.
5 Up to 7.2 FAR on wide streets outside the Manhattan Core under Quality Housing Program.
Source: *New York City Zoning Resolution*.

Site 7, Site 8, Site 10

Sites 7, 8, and 10 are located in a C4-4A zoning district that is bounded by: the midblock between East Houston Street and Stanton Street to the north; the midblock between Essex Street and Norfolk Street to the east; the midblock between Delancey Street and Rivington Street to the south; and Chrystie Street to the west. As described in greater detail below, this area was zoned C4-4A in 2008 under the East Village/Lower East Side rezoning. C4-4A districts generally produce medium-density commercial development with continuous retail frontages. C4-4A is also a contextual zoning designation, in which the height and bulk of new development must be consistent with existing neighborhood character. Height regulations require a streetwall between 40 and 65 feet high and limit maximum building heights to 80 feet. The maximum commercial and residential FAR in C4-4A districts is 4.0, which can be increased for residential uses with an Inclusionary Housing Program bonus.[1]

Site 9

Site 9, which contains the Essex Street Market, is located in two zoning districts: the northern portion is within the C4-4A district, as described above. The southern portion that fronts on Delancey Street is within a C6-2A district that generally extends along the Delancey Street corridor as far east as midblock between Suffolk Street and Clinton Street. C6-2A zoning produces medium- to high-density commercial districts with such uses as large hotels, office buildings, department stores, and entertainment facilities. C6-2A is also a contextual zoning designation, in which the height and bulk of new development must be consistent with existing neighborhood character. The maximum FAR for commercial uses is 6.02; the maximum FAR for residential uses is 6.02, which can increase through the Quality Housing Program or through the Inclusionary Housing Program.

STUDY AREA

Generally, the eastern half of the study area (east of Essex Street) contains residential zoning designations, while the western half of the study area (west of Essex Street) contains commercial designations (see **Figure 2-2**).

Residential Districts

There is an R7-2 district located south of East Broadway and bounding the eastern portion of the study area along Bialystoker Place, along the Williamsburg Bridge approach to Clinton Street, and along Pitt Street. R7-2 districts are medium-density general residential districts that typically result in mid-rise buildings with lower lot coverage and permit residential FAR of up to 3.44 and community facilities up to 6.5 FAR. Building heights are governed by sky exposure planes and are thus dependent on zoning lot dimensions as opposed to maximum building height regulations. Under the Quality Housing Program, R7 districts permit a maximum 4 FAR on wide streets and 3 FAR on narrow streets.

An R7A district is mapped over the area roughly extending north to 100 feet below East Houston Street, south to 100 feet above Delancey Street, east to Clinton Street, and west to the midblock between Norfolk Street and Essex Street. R7A districts are contextual districts that ensure new development fits the context of the existing neighborhood. This medium-density zoning designation allow residential and community facility uses up to 4.0 FAR.

[1] Through the Inclusionary Housing Program, a bonus of 33 percent of floor area can be obtained for providing 20 percent as affordable housing, which can be provided on- or off-site.

An R8 district is mapped over the area roughly bounded by Delancey Street to the north, Willett Street to the east, East Broadway to the south, and Essex Street to the west (including Sites 3, 4, 5, and 6, as described above).

There are R8A and R8B contextual districts located in the northern portion of the study area. R8B districts are located in the midblock areas of the East Village and Alphabet City, including: between First Avenue and Avenue A, north of East 1st Street and south of East 4th Street; between Avenue A and Avenue B, north of East Houston Street and south of East 4th Street; and between Avenue B and Avenue C, north of East 1st Street. There is also an R8A district mapped 100 feet north and south of East Houston Street, roughly from Chrystie Street to Avenue D. R8A districts are contextual residence districts that are typically compatible with existing older neighborhoods. This zoning designation allows residential uses up to 6.02 FAR and community facilities up to 6.5 FAR. R8B districts, with a maximum FAR of 4.0, apply modified height and setback regulations typically resulting in row house-style buildings designed to be compatible with existing low-rise buildings.

Commercial Overlay Districts

Commercial overlays are mapped in residential districts along streets that serve the local retail needs of the neighborhood, and are found extensively throughout the City’s lower- and medium-density areas and occasionally in higher-density districts. Typical uses include grocery stores, restaurants, and beauty parlors, catering to the immediate neighborhood. The maximum permitted bulk of residential uses in commercial overlay districts is governed by the underlying residential zoning designation.

There are C1-5 commercial overlays along Avenue A, Avenue B, Avenue D; Clinton Street between East Houston Street and Delancey Street, and between East Broadway and Madison Street; Grand Street between Pitt Street and Columbia Street; East Broadway from Pike Street to Clinton Street, and on a 365-foot wide through-block portion of the block bounded by Montgomery Street, Henry Street, Jackson Street, and Madison Street. C1-5 districts within R1 to R5 zones are permitted a maximum FAR of 1.0, and C1-5 districts within R6 to R10 zones are permitted a maximum FAR of 2.0.

There are C2-5 commercial overlays along First Avenue; Avenue A; Avenue C; the south side of Delancey Street from Clinton Street to Columbia Street; and at the southeast corner of Essex and Grand Streets. C2-5 districts within R1 to R5 zones are permitted a maximum FAR of 1.0, and C2-5 districts within R6 to R10 zones are permitted a maximum FAR of 2.0.

Commercial Districts

Two areas in the study area are mapped with C4-4A zoning: one area, which contains Sites 7, 8, 10 and a portion of 9, extends north to 100 feet south of East Houston Street, south to 100 feet north of Delancey Street, east to the midblock of Essex Street and Norfolk Street, and west to Chrystie Street. C4-4A is a contextual commercial zoning designation, as described above.

There is a C6-1 zoning district, which contains Sites 1 and 2, bounded to the north by Delancey Street, to the south by Grand Street and Broome Street, to the east by Essex Street and Norfolk Street, and to the west by Ludlow Street. There is an additional C6-1 district adjacent to the western edge of the study area, along the Bowery corridor. C6-1 is a general commercial zoning designation, as described above.

A C6-1G area is mapped in the southwest corner of the study area, south of Grand Street and west of Allen Street. A C6-2G zone is mapped in the small area between Allen and Orchard Streets, up to 150 feet south of Grand Street. The FAR regulations for C6-1G and C6-2G districts are identical to those of their respective C6-1 and C6-2 districts (as described above) but contain special provisions governing the conversion of non-residential space to residential use.

C6-2A and C6-3A districts are contextual zoning districts with maximum building heights. They permit a wide range of high-bulk commercial uses to a maximum commercial FAR of 6.0. Residential uses are also permitted up to a maximum FAR of 6.02 in C6-2A districts, and a maximum of 7.52 in C6-3A districts.

Special Districts

Small portions of the study area include Transit Land Use Special District (TA) designations. TA zones were established to govern development along the future Second Avenue subway line. In place of sidewalk obstructions that impede pedestrian circulation, the special district requires builders of developments adjoining planned subway stations to reserve space in their projects, through providing an easement, for public access to the future subway station.

There is a TA designation centered on the intersection of Chrystie Street and Grand Street; and also at the intersection of East Houston Street and Chrystie Street/Second Avenue. The designations extend 70 to 150 feet along the streets from the center of the intersection.

RECENT REZONING ACTIONS

Lower East Side/East Village Rezoning

In 2008, the City Council approved rezoning the area generally bounded by East 13th Street to the north; Avenue D to the east; East Houston Street, Delancey Street and Grand Street on the south; and the Bowery and Third Avenue on the west. Under the rezoning, approximately 111 blocks of the East Village and Lower East Side were rezoned from R7-2 and C6-1 designations to R7A, R7B, R8A, R8B, C4-4A, and C6-2A designations. In addition, a new C2-5 commercial overlay was mapped along Second Avenue between East 3rd Street and East 7th Street.

The purpose of the rezoning was to preserve the low-scale character of the East Village and Lower East Side neighborhoods while focusing new development towards specific areas considered suitable for new residential construction with incentives for affordable housing. Under the previous zoning designations, non-contextual development resulted in buildings that were inconsistent with the typical mid-rise character of these neighborhoods. The rezoning also sought to address the need for new housing and affordable housing in these neighborhoods. Overall, the rezoning sought to balance the need to preserve the area’s unique neighborhood character with the need for affordable housing.

PUBLIC POLICY

MAYOR’S NEW HOUSING MARKETPLACE PLAN

The City first released *The New Housing Marketplace Plan* in 2003 and last updated it in 2010. The goal of this $7.5 billion, ten-year plan is to create or preserve 165,000 units of affordable housing, of which more than 100,000 units have been created or preserved to date. HPD and the New York City Housing Development Corporation (HDC) are responsible for implementing the plan by focusing on four key strategies: finding new land for housing; creating incentives to develop housing for new populations; harnessing the private market to create affordable housing; and preserving government assisted affordable housing.

BUSINESS IMPROVEMENT DISTRICTS

Lower East Side Business Improvement District

The Lower East Side Business Improvement District (LES BID) was established in 1992 to revitalize the Orchard Street Shopping District while preserving its unique and diverse character. The LES BID consists of more than 400 merchants and property owners and includes the following areas: Orchard Street from East Houston to Canal Streets; Delancey Street from Allen to Clinton Streets; and Grand Street from Forsyth to Clinton Streets. The LES BID promotes local businesses, hosts events, and provides various community beautification services, including maintenance of the Orchard Street Pedestrian Mall.

Chinatown Business Improvement District

The City's newest BID is the Chinatown District Management Association, which was approved by the City Council in September 2011. The BID is bounded roughly by Broome Street to the north; White, Worth, and Madison streets to the south; Allen and Rutgers streets to the east; and Broadway to the west. The BID formed an interim board and began initial operations in January 2012. The purpose of the BID is to advocate for the area, as well as to provide sanitation, graffiti-removal, and holiday lighting services.

PLANYC

In April 2007, the Mayor's Office of Long Term Planning and Sustainability released *PlaNYC: A Greener, Greater New York*. An update to PlaNYC in April 2011 built upon the goals set forth in 2007 and provided new goals and strategies. PlaNYC represents a comprehensive and integrated approach to planning for New York City's future. It includes policies to address three key challenges that the City faces over the next 20 years: (1) population growth; (2) aging infrastructure; and (3) global climate change. In the 2011 update, elements of the plan are organized into ten categories—housing and neighborhoods, parks and public space, brownfields, waterways, water supply, transportation, energy, air quality, solid waste, and climate change—with corresponding goals and initiatives for each category.

OTHER PLANNING FRAMEWORKS

CB3 Guidelines

With the goal of gaining broad community consensus on a development program for the project site, CB3 embarked on a planning process for the sites starting in 2008, and invited the City to be part of the discussions. NYCEDC, HPD, and DCP participated in the process, providing technical support and resources to facilitate the community's discussion and analysis. Over the course of more than two years, CB3 worked to develop a set of project guidelines that CB3 unanimously adopted in January 2011. CB3 subsequently worked with the City to understand the urban design opportunities of the project and passed a set of urban design guidelines in June 2011. Together, these program guidelines and design principles express the community's desired mixed-use, mixed-income characteristics of the program for the project site and urban design preferences with respect to the site's layout, height, and density.

The community guidelines and urban design recommendations adopted by CB3 serve as a broad framework for defining key elements of the current project proposal. The guidelines call for a mixed-use and mixed-income development that is reflective of, and compatible with, adjacent communities. CB3 recommends that the design of the proposed development conform to the principles of contextual design, such that building orientation and access should support and enhance the existing pedestrian realm and integrate with the existing neighborhood.

Delancey Street Safety Improvements Plan

Following the issuance of the DGEIS, the New York City Department of Transportation (NYCDOT) adopted and began implementing the Delancey Street Safety Improvements plan to improve pedestrian safety conditions at high accident locations along the Delancey Street corridor. Improvements include:

- Shortening 14 of 19 pedestrian crossings on the Delancey Street corridor by a minimum of 5 feet, up to a 49 foot reduction at Clinton Street;
- Converting Clinton Street between Grand and Delancey Streets into one-way northbound, allowing direct access onto the Williamsburg Bridge;
- Improving corridor traffic flow with full time left-turn bans from southbound Essex to Delancey, eastbound Delancey to Chrystie, and eastbound Delancey to Allen. Also, with right-turn only lanes off the westbound Williamsburg Bridge onto Clinton and off westbound Delancey onto Essex, both of which will allow reduction of pedestrian crossing distances;
- Investigating signal timing modifications to allow for longer crossing time;
- Creating a pedestrian plaza on the south side of Delancey Street between Norfolk and Suffolk Streets with planters or other amenities/street furniture; and
- Improving street markings to better organize traffic and improve safety.

Implementation of these improvements started in June 2012.

E. THE FUTURE WITHOUT THE PROPOSED ACTIONS

LAND USE

PROJECT SITE

In the future without the proposed actions, existing conditions on the project site would not change. Most of the project site would continue to be largely vacant and underutilized.

However, the municipal parking garage on Site 7 will be refurbished by the New York City Department of Design and Construction (DDC) and New York City Department of Transportation (DOT) as part of the City's Design Excellence Program. The improvements will include resurfacing the parking floors, installing improved lighting on floors and in stairwells, and renovating the façade. The current façade, which consists of deteriorated concrete panels, will be replaced with a weave of steel cables that will improve the aesthetics of the site.

STUDY AREA

Independent of the proposed actions, 39 ~~38~~ background development projects ("No Action" projects) are anticipated to be constructed within the ¼-mile study area, as well as 19 additional development projects that were projected in the 2008 East Village/Lower East Side Rezoning Final Environmental Impact Statement (FEIS). As summarized below in **Table 2-2**, and shown in **Figure 2-3**, the No Action projects indicate a growing trend towards mixed use development in the study area, including new market-rate residential, commercial, and hotel uses. Overall, by 2022, the No Action projects are expected to create 523 ~~512~~ new residential units, over 76,000 square feet of commercial space, 1,026 ~~693~~ new hotel rooms, over 150,000 square feet of community facility space, and 82 parking spaces.

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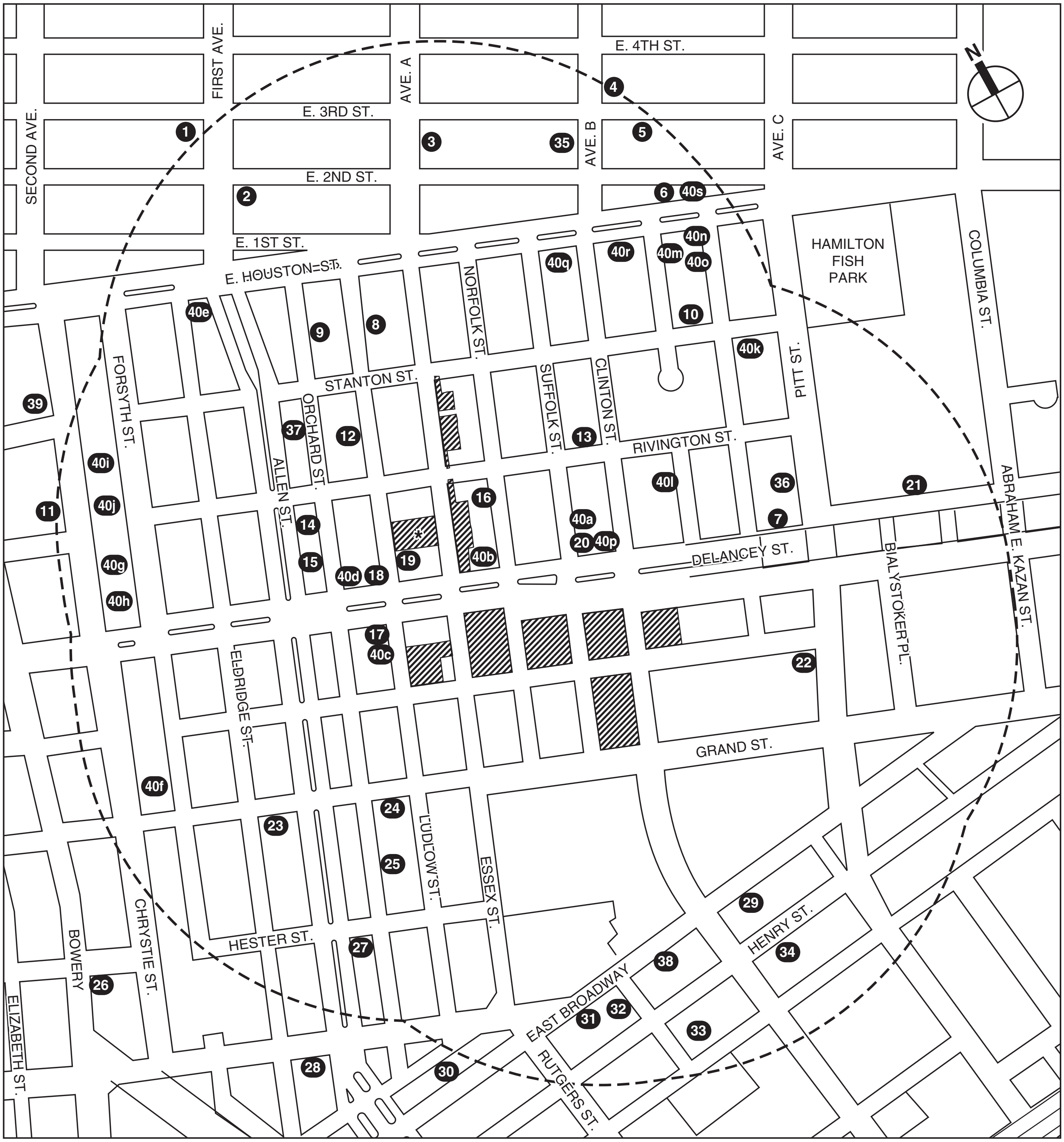

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Study Area Boundary (1/4-Mile Perimeter)

1 No Action Projects (see Table 2-2 for reference)

0 200 1000 FEET

SCALE

NOTE: This figure has been revised for the FGEIS.

No Action Projects

Figure 2-3

Table 2-2
Development Under Construction or Proposed Within ¼-Mile of the Project Sites

Map No.	Location	Description	Commercial (SF)	Comm. Fac. (SF)	Res. Units	Hotel Rooms	Parking	Build Year
1	49½ First Avenue	Addition – Residential			1			2012
2	24 First Avenue	Conversion – Residential			1			Pending[1]
3	28 Avenue A	Addition – Residential			15			Pending[1]
4	41 Avenue B	Addition – Residential			1			Pending[1]
5	222 East 3rd Street	Addition – Residential			9			2012
6	229 East 2nd Street	Residential		300	5			2011
7	210 Delancey Street*	Residential		8,400	69		10	2012
8	180 Ludlow Street	18 story hotel or condos						Under Construction
9	180 Orchard Street	Hotel Indigo	2,200			290	58	2013
10	196 Stanton Street*	Conversion – Dormitory			15			2012
11	191 Chrystie Street*	Conversion – Residential			11			2021
12	145 Ludlow Street	Mixed Use	3,000		10			Pending[1]
13	156 Rivington Street	ABC No Rio Renovation		7,000				2021
14	139 Orchard Street	Hotel				80		2012
15	119 Orchard Street	Mixed Use	8,000	500	3	40		2012
16	115 Norfolk Street	Residential			24		12	2011
17	95 Delancey Street*	Addition - Commercial	3,500					2011
18	101 Ludlow Street	Addition - Commercial	3,300					Pending[1]
19	100 Delancey Street	Residential			21			2011
20	150 Delancey Street*	Holiday Inn Hotel				132		2012
21	231 Delancey Street	Commercial	2,780					Pending[1]
22	17 Pitt Street	Accessory Maintenance Building[2]						2012
23	285 Grand Street	Commercial	10,000					Pending[1]
24	329 Grand Street	Addition - Residential			4			Pending[1]
25	48 Orchard Street	Conversion – Res.			1			2012
26	93 Bowery	Windham Hotel				106		2011
27	92 Hester Street	Conversion – Commercial	7,000					2012
28	86 Canal Street	Mixed Use	25,000	900	23			Under Construction
29	225 East Broadway	Residential			22			
30	136 East Broadway	Mixed Use	2,700		22			2011
31	183 East Broadway	Residential			21			Under Construction
32	14 Jefferson Street	3-story addition			5			Under Construction
33	227 Madison Street	Gouverneur Hosp. Expansion		108,000				2013
34	152 Henry Street	Buddhist temple expansion		33,000				2013
35	26 Avenue B*	Mixed Use	1,614		8			Pending[1]
36	61 Pitt Street*	Residential			1			Pending[1]
37	163 Orchard Street*	Hotel				45		2013
38	197 East Broadway	Educational Alliance		3,200				2013
39	215 Chrystie Street	Hotel/Residential			11	333		2021

Table 2-2, cont'd
Development Under Construction or Proposed Within ¼-Mile of the Project Sites

Map No.	Location	Description	Commercial (SF)	Comm. Fac. (SF)	Res. Units	Hotel Rooms	Parking	Build Year
~~39a-s~~ 40a-s	Multiple Locations	19 Reasonable Worst Case Development Scenario sites from the East Village/Lower East Side Rezoning			220		2	2017
	TOTAL		**76,094**	**154,300**	**523** ~~**512**~~	**1,026** ~~**693**~~	**82**	

Notes:
1 "Pending": the project has been filed with the NYC Department of Buildings (DOB) but is waiting for DOB approval.
2 This is a 3,417-square-foot maintenance building for the Seward Park Extension residential complex.
* This site is a projected development site under the RWCDS for the East Village/Lower East Side FEIS (2008) for which there is now an actual project planned or under construction.
See attached Figure 2-4.

ZONING

PROJECT SITE

In the future without the proposed actions, existing zoning on the project site will remain in force. The project site will continue to have C4-4A, C6-2A, C6-1, and R8 zoning designations, as described above under "Existing Conditions."

STUDY AREA

In the future without the proposed actions, existing zoning in the 1/4-mile study area will remain in force. The study area will continue to have a mixture of residential, commercial, and contextual zoning designations, as described above.

PUBLIC POLICY

In the future without the proposed actions, existing public policies are expected to remain in force. PlaNYC will be updated in 2015 and 2019.

F. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

This section describes the land use, zoning, and public policy conditions that would result from the proposed actions by 2022, and evaluates the potential for the proposed actions to result in significant adverse impacts.

As set forth in Chapter 1, "Project Description," the proposed RWCDS would require multiple City approvals. The potential discretionary actions that would be required for the proposed development include:

- **Disposition:** Disposition of Sites 1 through 6 and 8 through 10 by the City of New York for the purpose of subsequent development;
- **Urban Development Action Area Project Designation (UDAAP):** Designation of Sites 1 through 6 and 8 through 10 as an Urban Development Action Area Project;
- **Acquisition:** Acquisition of a portion of Site 2 for the sole purpose of the relocated Essex Street Market;
- **Zoning Map Change:** Zoning map amendment for a C2-5 commercial overlay on Sites 3, 4, 5, and 6;

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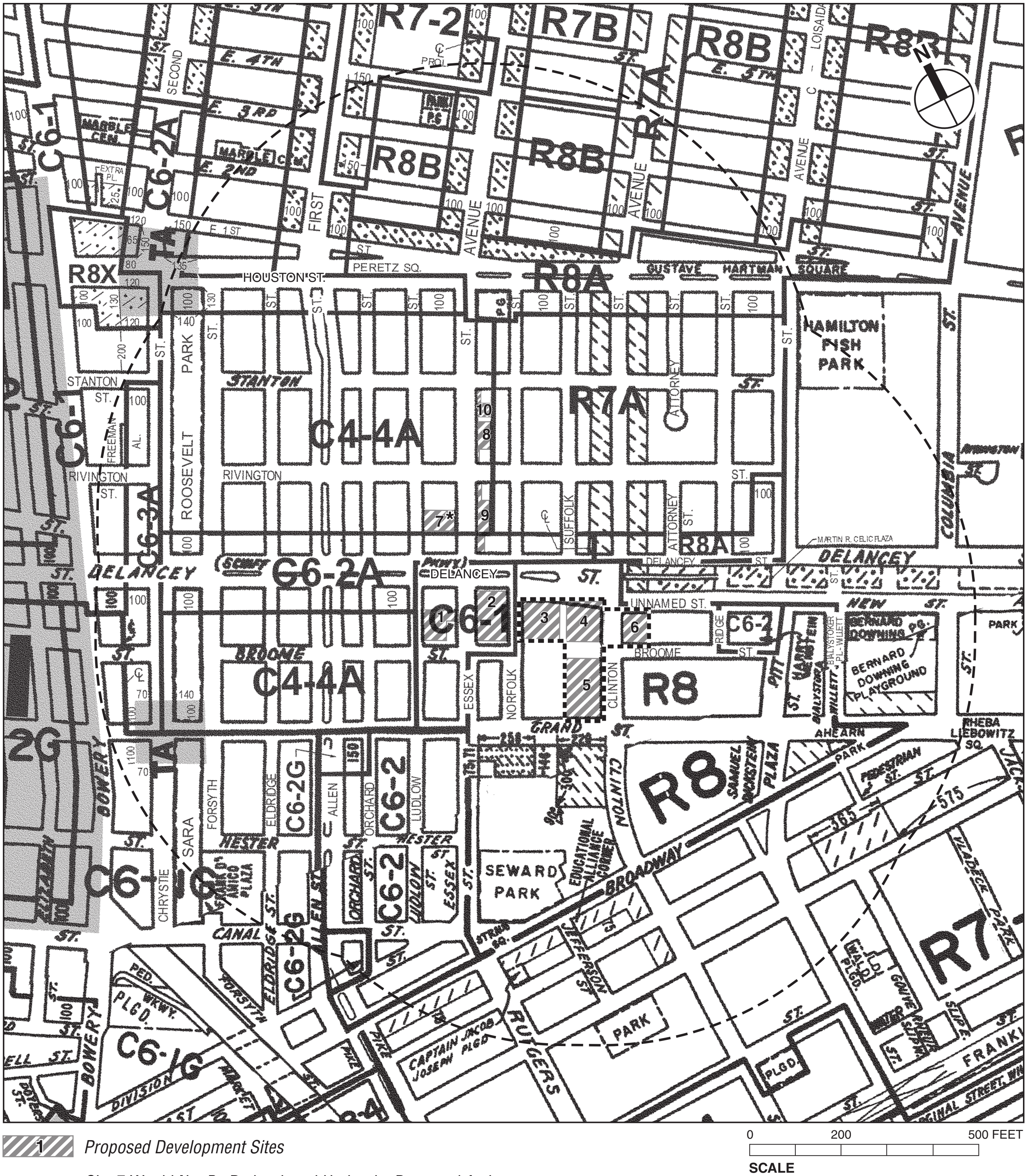

1 Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Study Area Boundary (1/4-Mile Perimeter)

Zoning District Boundary

C1-5 Overlay

C2-5 Overlay

Area Proposed to be Mapped with C2-5 Overlay

Proposed Zoning
Figure 2-4

- **Special Permit:** Special permit from the New York City Planning Commission (CPC) pursuant to Section 74-743 of the Zoning Resolution (ZR) of the City of New York for an Large Scale General Development (LSGD), applicable to Sites 1-6 to allow the following in order to achieve a superior site plan:
  - Redistribution of floor area, lot coverage and dwelling units between zoning lots and across zoning district boundaries;
  - Waiver of height and setback regulations;
  - Waiver of rear yard regulations, rear yard equivalent regulations, and rear yard setback regulations;
  - Waiver of minimum base height;
  - Waiver of minimum distance between legally required windows and any wall in an inner court;
  - Waiver of outer court regulations; and
  - Waiver of planting requirements.
- **Special Permit:** Special permit from the CPC pursuant to ZR Section 74-744 for an LSGD, applicable to Sites 1-6, to allow the following:
  - Waiver of regulations regarding the location of residential uses relative to non-residential use;
  - Waiver of regulations regarding the location of commercial uses; and
  - Permit Use Group 10, 11A, and certain 12A uses in C2 districts.
- **Special Permits:** Four special permits from the CPC pursuant to ZR Sections 13-562 and 74-52 to allow for the development of up to four public parking garages on Sites 2 through 5;
- **Authorization:** Authorization pursuant to ZR section 74-744(c)(2) to modify signage regulations to permit C6-1 signage regulations along certain streets;
- **Zoning Text Amendment:** Zoning text amendment to ZR Sections 74-743 and 74-744 to:
  - Eliminate the planting strip requirement in the proposed sidewalk widenings;
  - Allow commercial FAR to be shifted from the C6 district to the C2 district;
  - Allow Use Group 10, 11A, and certain 12A uses in the C2 zoning district; and
  - Allow the modification of certain signage regulations.
- **Street Mapping:** Mapping of the demapped section of Suffolk Street between Grand and Delancey Streets and the demapped section of Broome Street between Norfolk and Clinton Streets as new streets through the project site; and
- **Street Mapping:** Demapping of sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets that were previously mapped to widen Delancey and Clinton Streets, thereby aligning the mapped streets with the existing built street condition.

Mayoral and Borough Board approval of the business terms with the developer or developers to be selected pursuant to a Request for Proposals (RFPs), may also be required, as applicable, pursuant to New York Charter Section 384(b)(4). In addition, NYCEDC and HPD will coordinate with the Metropolitan Transportation Authority-New York City Transit (NYCT) regarding subway easement areas. Construction financing for the residential buildings may come from a variety of private and public (local, state, and federal sources), including, but not limited to funding from HPD, the New York City Housing Development Corporation, and the United States Department of Housing and Urban Development. In addition, potential construction funding may be provided by other state funding sources, including New York State Homes & Community Renewal (HCR) and the New York State Housing Finance Agency (HFA).

As discussed in Chapter 1, "Project Description," this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) analyzes the impacts of a concept or overall plan rather than those of a specific project plan. While the actual development will depend on developer proposals and future market conditions, the City has developed a maximum development envelope, or RWCDS (see Table 1-2 in Chapter 1, "Project Description").

Under the RWCDS, it is assumed that the proposed actions would result in approximately 951,000 square feet of residential development (comprising 900 dwelling units, in accordance with the UDAAP application, of which half would be affordable units); up to approximately 632,300 square feet of commercial space; approximately 114,000 square feet of community facility or cultural uses; up to 500 parking spaces; and approximately 10,000 square feet of publicly accessible open space on Site 5. The commercial space would include up to approximately 469,300 square feet of retail uses (including a grocery store), over 29,000 square feet of public market space, an approximately 97,500-square-foot hotel, and approximately 36,300 square feet of non-specific commercial uses. Pursuant to the proposed actions, the existing Essex Street Market, which is located on Site 9, would be relocated to a new, expanded public market facility. Chapter 20, "Alternatives," considers an alternative mixed-use program that is similar to the proposed project but retains the existing Essex Street Market in its current location on Site 9.

LAND USE

PROJECT SITE

By 2022, the proposed actions would result in the full redevelopment of the project site as per the RWCDS. To facilitate the proposed actions, there would be a disposition of Sites 1 through 6 and 8 through 10 by the City of New York to a developer or developers for the purpose of subsequent development, and the designation of these sites as an UDAAP by the CPC. The existing buildings on Sites 2, 5, 8, 9, and 10 would be demolished, and the existing parking uses on all sites except Site 7 would be removed and replaced by the new development. These uses would be replaced by new mixed-use buildings of varying height and bulk. There would also be an acquisition by the City of an ownership or leasehold interest of a portion of Site 2 for the relocated Essex Street Market to ensure that the relocated market remains in the public trust. The project site also includes demapped sections of Broome and Suffolk Streets that would be mapped as City streets and sections of Clinton and Delancey Streets that would be demapped.

The design of the proposed development on Sites 1-6, including the height, bulk, and placement of buildings, would be governed by the LSGD special permit that will be sought under the proposed actions. The LSGD Section 74-74 of the Zoning Resolution is intended to permit owners of two or more zoning lots that are contiguous (or would be contiguous but for their separation by a street or street intersection) and are a minimum area (1.5 acres) to plan for the development or redevelopment of the lots on a comprehensive rather than a parcel by parcel basis. To improve the site plan and the relationship among buildings and open areas to adjacent streets, height and setback requirements may be modified and bulk may be distributed among the lots. The preliminary massing of the LSGD buildings contemplates base heights of between 60 and 85 feet (six to eight stories), with varying heights above. The upper portions of all buildings would be set back at least 10 feet from Delancey, Essex, Clinton, and Grand Streets, and 15 feet from Ludlow, Broome, Norfolk, and Suffolk Streets. The preliminary massing includes potential towers on Sites 2 and 4 of up to 285 feet and 260 feet to the roof parapets (315 and 290 feet, respectively, to the top of the mechanical bulkheads, or up to approximately 24 stories each) and building heights of up to 160 feet to the roof parapets (190 feet to the top of the mechanical bulkheads or up to approximately 14 stories) on Sites 1, 3, 5, and 6. Sites 8, 9, and 10 would be consistent with massing requirements and maximum heights allowable under existing contextual zoning and could be built up to 80 feet tall on Essex Street and up to 120 feet tall on Delancey Street. The preliminary concept for the massing incorporates elements from the building forms of the surrounding neighborhood, which vary from low-rise walk-ups to large tower-in-the-park developments. The LSGD would incorporate a connected street grid, and all new buildings would have retail and residential entrances on multiple sides to create ground-floor activity and provide necessary access. The buildings would incorporate streetwalls to activate the pedestrian realm and setback towers permitting access to light and air. The ground-level frontages would consist of retail uses, and the proposed actions would maximize street-level uses that support pedestrian activity throughout the development.

The proposed development includes relocating the existing Essex Street Market from its current location in Site 9 to a new, larger facility in the base of the new building on Site 2. The new public market would be approximately 29,000 square feet and would accommodate 35 to 65 vendors (depending on the size of each stall). The larger space would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street, and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. When the new facility is complete and ready for occupancy, the City would give existing vendors at the time of the move the first opportunity to relocate their business to the new market facility.

The proposed development would also provide for 10,000 square feet of publicly accessible open space, which would serve as an important community amenity. The proposed development would also provide for approximately 500 parking spaces, which would serve residents as well as visitors. However, the goal of the proposed actions is to provide transit-oriented development that would primarily utilize existing public transportation services.

While the density of development on the project site would increase as a result of the proposed actions, this change would not be considered adverse, as the proposed actions would improve land use conditions by replacing underutilized and deteriorated buildings and surface parking lots with a vibrant, mixed-use development. The mixture of uses within the proposed development would be complementary to each other, as the development would provide for housing at different income levels, a range of retail uses, publicly accessible open space, and community facilities. Overall, the proposed actions would not result in any significant adverse impacts to land use on the project site.

In addition, the proposed actions would fill in the remaining sites cleared in SPEURA, the plan for which expired on its own terms in 2005. The proposed actions would replace underutilized land that detracts from the character of the neighborhood with active residential (including 450 affordable units), commercial, community facility, and publicly accessible open space uses.

STUDY AREA

By 2022, the proposed actions would be expected to improve land use conditions in the study area by replacing underutilized sites with new development that would integrate with, and knit together, surrounding communities. The LSGD is being designed to complement adjacent development through its layout and massing. As described above, the urban design plan for the project would be influenced by the surrounding neighborhoods, and include a mixture of heights and building forms. The proposed development would also knit together the area by incorporating a street grid, ground-level activity, and a publicly accessible open space, which would activate the pedestrian realm. Therefore, the design of the proposed development would transform underutilized land, which detracts from nearby uses, into a pedestrian-oriented mixed-use development, which would be supportive of surrounding land uses. The building heights envisioned would not be out of character for the study area but would relate to the existing form of the neighborhood. With a maximum building height of 24-stories, the proposed development would be compatible with existing buildings in the area, such as the 23-story Seward Park Extension towers and the 20-story Seward Park Houses.

The proposed mix of uses would be consistent with, and complementary to, existing study area uses and development trends. The proposed actions respond to the community's need for new affordable housing through the provision of 450 new affordable units. As the study area contains substantial affordable housing stock, this proposed use would be compatible with existing land uses in the study area. The proposed development would be adjacent to the NYCHA-owned Seward Park Extension development, and other affordable housing developments nearby within the study area include Baruch Houses, 45 Allen Street, and Lower East Side Infill. Some of the affordable units may be set aside for senior citizen housing, which would also be compatible with existing land uses, and would help meet the growing demand for such housing in this neighborhood. The proposed development would also include 450 units of market-rate residential housing, which would be consistent with the recent market-rate housing development within the study area. The project site is adjacent to the Seward Park Houses, which voted in 2000 to end their limited equity rules and allow market-rate transactions. More recently, luxury condominiums have been built in the study area in various sites, including a 55-unit project at 38 Delancey Street, and the Ludlow, a 23-story luxury rental building at 188 Ludlow Street.

The proposed commercial uses would be supportive of existing commercial uses, as well as consistent with recent development trends. Historically, the study area has been home to a range of bustling commercial uses, from garment production to food production and eateries, to pushcart vendors. Today, the study area contains a broad mix of commercial uses, ranging from local delis and tailors, to a growing number of restaurants and drinking establishments, to larger commercial establishments, such as clothing stores, and banks. The proposed mix of local retail and destination retail stores in the RWCDS would complement the existing mix of commercial uses in the study area. The proposed Use Group 10, 11A, and certain 12A uses could include business such as department stores, bowling alleys, pool halls, and art production (see "Zoning," below). These new uses would not be expected to conflict with the existing range of uses in the study area, but would instead help to create a vibrant mixed-use destination with a broader range of uses that would draw more visitors to the study area. Additionally, the possible hotel use would be in keeping with the growing popularity and expansion of hotels in the study area. Hotels built in recent years include the Hotel Rivington at 107 Rivington Street, the East Houston Hotel at 151 East Houston Street, and the Thompson Hotel at 190 Allen Street. While specific community facility uses are not yet defined, potential uses could include important community amenities such as daycare, educational, or social service functions. These uses would be compatible with existing community facility uses in the immediate area. The proposed publicly accessible open space would complement existing and proposed residential and commercial uses, and provide much needed passive and/or active open space opportunities.

Overall, the proposed actions would not introduce any new uses to the surrounding area, as the proposed uses in the proposed development are consistent with the uses in the surrounding ¼-mile study area. This area has historically contained residential and commercial uses, and in more recent years, has seen substantial new hotel, commercial, and condominium development. The mixture of market-rate and affordable housing, and likewise the mixture of local retail and larger commercial establishments, would be compatible with existing conditions and development trends in the study area. Therefore, the proposed actions would not result in any significant adverse land use impacts in the study area.

ZONING

PROJECT SITE

Under the proposed actions, the underlying zoning of the project site would not change, except to map a C2-5 commercial overlay on Sites 3 through 6 (see **Figure 2-4**). The additional zoning actions that would be sought would facilitate the development in order to improve land use conditions on the project site and complement the surrounding study area. These zoning changes are necessary to fulfill the purpose and need of the proposed actions, and to create a vibrant mixed-use development that would be responsive to the needs of the local community and of the City. As discussed below, the proposed zoning changes would not result in any significant adverse impacts.

The following changes to the City Map will be proposed:

- *Mapping of the Demapped Sections of Streets:* Under the proposed actions, Suffolk Street between Grand and Delancey Streets, and the demapped section of Broome Street between Norfolk and Clinton Streets, would be mapped as streets through the project site (see **Figure 2-5**). These streets were demapped as part of SPEURA (see “Background and Development History,” above), although they continue to function as streets today.
- *Demapping of Sections of Unbuilt Streets:* Under the proposed actions, sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets would be demapped (see **Figure 2-5**). These proposed sections of streets were previously mapped to widen Delancey and Clinton Streets, but the street widening projects were later abandoned. This action would map the street widths to the current built width.

The following zoning map amendments will be proposed:

- *Zoning map amendment for a C2-5 commercial overlay:* This zoning change is required to allow the mixture of commercial uses on Sites 3 through 6 that would be required to serve local residents and the surrounding community. The proposed commercial overlay zone on Sites 3 through 6 would not significantly change the zoning of the study area, as it would be compatible with existing commercial overlay zoning along Clinton Street to the north of the project site, along Delancey Street to the east of the project site, and along Grand Street to the south of the project site. It would also be consistent with the existing commercial zoning mapped over Sites 1, 2, 7, 8, 9, and 10, and other commercial zones to the west of the project site. Further, the local retail uses that could be introduced as a result of the zoning change would be compatible with existing retail uses and the mixed-use character of the study area.

NOTE: This figure has been revised for the FGEIS.

Proposed Street Mapping and Demapping Actions
Figure 2-5

The following special permits will be proposed:

- *LSGD Special Permit:* A special permit from CPC pursuant to Section 74-743 of the ZR would be sought for an LSGD, which would be applicable to Sites 1 through 6 (see **Figure 2-6**). The LSGD special permit would allow the proposed development to achieve a superior site plan and would provide flexibility in design and massing. As a result, the new buildings would be more responsive to their location and context. The special permit would allow the following: redistribution of floor area, lot coverage and dwelling units between zoning lots and across zoning district boundaries; waiver of height and setback regulations; waiver of rear yard regulations, rear yard equivalent regulations, and rear yard setback regulations; waiver of minimum base height; waiver of minimum distance between legally required windows and any wall in an inner court; waiver of outer court regulations; and waiver of planting requirements.

  The waivers and redistribution requested by this permit are necessary to facilitate the LSGD design plan for the proposed development. As analyzed in Chapter 8, "Urban Design and Visual Resources," the LSGD plan would combine the defining characteristics of the northern and southern portions of the study area—the strong streetwalls north of Delancey Street, and the light and air provided by the "tower in the park"-style developments south of Delancey Street—using a tower on base approach to provide a transition between these two distinct areas. The requested height and setback waivers would allow an ample amount of light and air to reach streets on and adjacent to the project site, as well as the surrounding area, and would provide the tower portions of the buildings with abundant light, air and views, which would not be possible using contextual zoning bulk regulations. The LSGD plan would also establish streetwalls that would provide a meaningful relationship with the pedestrian realm, which would provide for a more interesting and lively pedestrian experience than could otherwise be achieved. The proposed waivers and redistribution requested by this permit would help facilitate a plan that reflects many years of input, debate and collaboration from a wide variety of stakeholders, including Manhattan Community Board 3. Overall, the waivers and redistribution sought under the LSGD special permit would improve land use conditions on Sites 1 through 6 by facilitating a superior design plan that is responsive to the context of the project site.

- *LSGD Special Permit:* A special permit from CPC pursuant to Section 74-744 of the ZR would be sought for an LSGD, which would be applicable to Sites 1 through 6. The LSGD special permit would allow for waivers of regulations regarding location of residential uses relative to non-residential uses and location of commercial uses, and permit a wider variety of commercial uses. The special permit would allow the following: waiver of regulations regarding the location of residential uses relative to non-residential use; waiver of regulations regarding the location of commercial uses; and permit Use Group 10, 11A, and certain 12A uses in C2 districts.

  Use Group 10, 11A and 12A uses are commonly found in vibrant mixed-use areas throughout the City and are an important part of the mix of proposed uses that will help foster a dynamic neighborhood with an active street life that serves residents, workers and visitors. Most of the uses listed in Use Groups 10, 11A and 12A (except for arenas or auditoriums, skating rinks, public auction rooms, trade expositions or stadiums, which would not be allowed pursuant to the LSGD special permit), are already allowed in areas directly adjacent to the R8/C2-5 district within the proposed LSGD boundary. These uses are permitted as-of-right on Sites 1 and 2, which are zoned C6-1. These uses are

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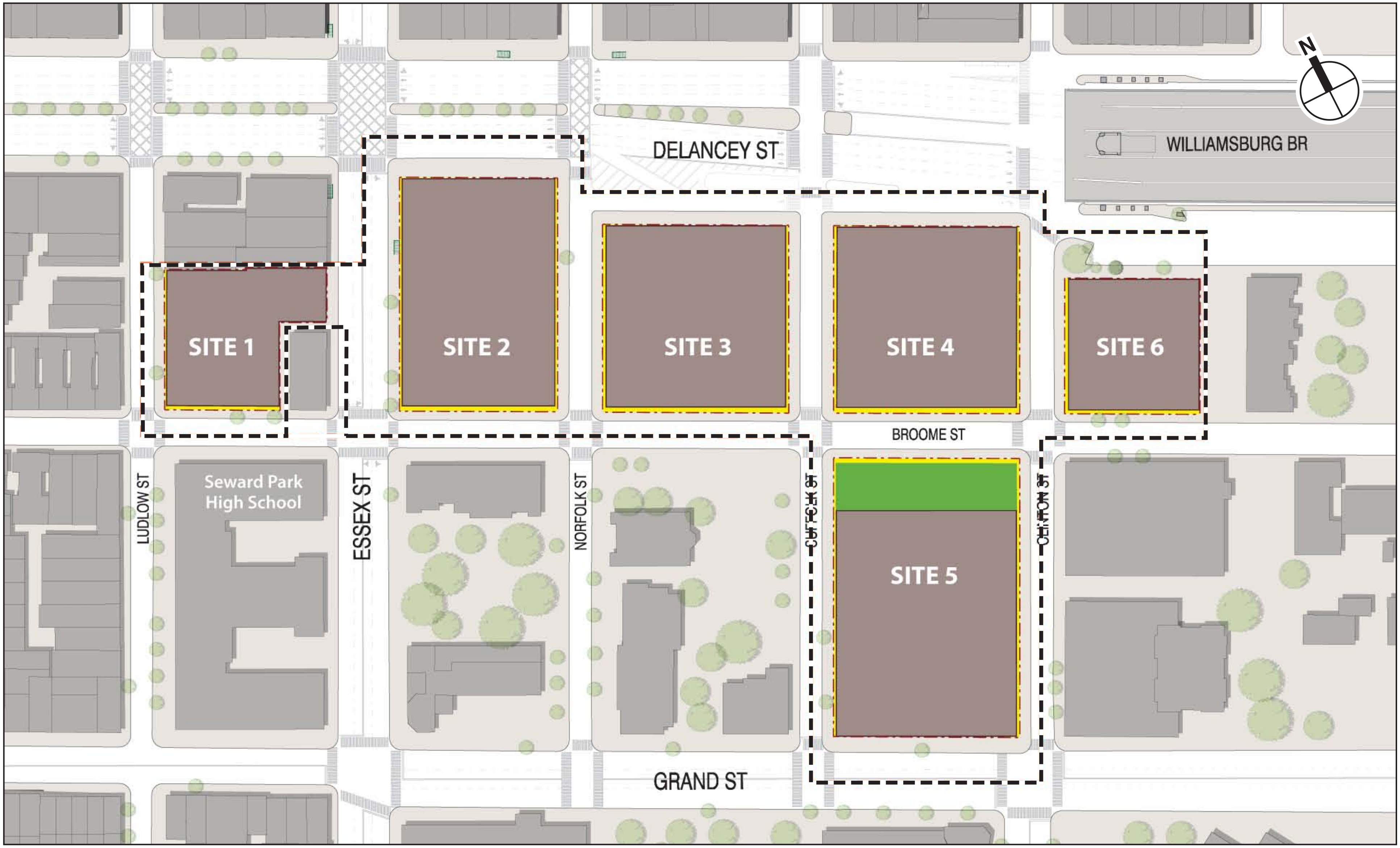


FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Building Footprint
Large Scale General Development Boundary
Proposed Publicly Accessible Open Space
Proposed Sidewalk Widening

NOT TO SCALE

NOTE: This figure has been revised for the FGEIS.

Proposed Large Scale General Development Boundary
Figure 2-6

also permitted in the C6-2A district that is mapped along many blocks of Delancey Street, in the C6-2, C6-1G and C6-2G districts to the southwest of the proposed LSGD, and in the C4-4A districts that cover a large area of the Lower East Side to the north and west of the proposed LSGD. Therefore, the uses that would be permitted on Sites 1 through 6 under the LSGD special permit would be consistent with other portions of the project site and the surrounding area.

There would not be any direct access between commercial uses and residential uses within the proposed buildings, and residential entrances would be completely separate from any commercial entrance, thereby avoiding potential conflicts between the two uses. While it is possible that the requested waiver would permit commercial uses to be located on floors that are higher than floors containing residential units, commercial uses would never be located directly above any residential unit. These restrictions would ensure that no adverse land use or zoning effects result from the proposed waivers sought under the LSGD special permit.

- *Authorization to modify signage regulations:* An authorization from CPC pursuant to Section 74-744(c)(2) of the ZR would be sought to modify signage regulations, in order to permit C6-1 signage regulations along certain streets. The ZR Section 74-744 special permit described above would allow uses commonly found in C6 districts, such as larger retail stores, to be located in the C2 district. Applying the C6-1 signage regulations to these uses would therefore be consistent with the amount, type and location of uses proposed within the LSGD on Sites 1 through 6.
- *Special permits for public parking facilities and for location of public parking spaces and loading berths within a LSGD:* The proposed development program would require special permits for public parking garages. CPC may allow by special permit public parking garages that would otherwise not be permitted as-of-right by the New York City Zoning Resolution, provided that applicable regulations regarding the need for spaces, sufficiency of nearby parking, effects on traffic congestion and pedestrian flow, and access to the street are met. As the receipt of a special permit is contingent upon a CPC finding of no negative impacts, the proposed special permits relating to parking would not be expected to result in any significant adverse impacts to zoning in the study areas. Although the RWCDS assumes the development of up to 500 parking spaces (in addition to those existing on Site 7) and the total number of permitted parking spaces would be limited to 500 spaces through the LSGD and related approvals, the proposed actions would include special permits that would allow for up to four parking garages that in total could contain 973 parking spaces. This larger parking envelope would allow flexibility in the siting and allocation of the 500 parking spaces.

In order to approve the special permits described above, CPC must make findings related to the resulting beneficial effects on the site plan and relationship with streets, the distribution of floor area and the location of buildings, obstructions of light and air, access to mapped streets, the effects on traffic, and the provision of public facilities. As the receipt of these special permits is contingent on a finding by the CPC related to impacts in these areas, the proposed zoning actions are not expected to result in any significant adverse impacts to land use and zoning.

The following zoning text amendments will be proposed (see **Appendix A** for the draft text amendments):

- *Retail establishments*. For the LSGD, CPC may modify the applicable district regulations to allow Use Group 10, 11A, and 12A uses, excluding arenas, stadiums, trade expositions, skating rinks, and public auction rooms, provided that such uses will not impair the character of future uses or development of the surrounding area, and the streets providing access to such uses will be adequate to handle the project-generated traffic. Typical Use Group 10 uses that would be permitted include department stores and large furniture and electronic good stores. Typical Use Group 11A uses that would be permitted include custom manufacturing uses such as art, ceramic, jewelry, book, and musical instrument production. Typical Use Group 12A uses that would be permitted include bowling alleys, pool halls, large restaurants, and historical exhibits. These uses would be consistent with the mixed-use character of the proposed development on the project site, and with the range of existing uses in the study area. This action would facilitate greater flexibility in the retail program of the proposed development, which would help to create an attractive mix of retail uses that would serve project site residents, residents of the surrounding community, and visitors to the area. The variety of uses that would be permitted would help to enliven the project site and provide substantial economic development opportunities.

- *Waiver of planting requirements*. For the LSGD, a waiver may be granted of the planting requirements of Section 23-892 (In R6 through R10 Districts), provided that the area between the street line and the streetwalls of the building and their prolongations is to be improved as a publicly accessible widened sidewalk. This action is necessary to allow development on the project site that meets the City's programmatic and design goals and objectives. The proposed project would provide widened sidewalks and include an approximately 10,000-square foot publicly accessible open space, and would provide street trees where possible.
- *Distribution of floor area*. For an LSGD, commercial floor area normally may not be transferred from a C6 district to a C2 district. However, as this LSGD would encompass both C6 and C2 districts, the floor area will be allowed to shift between all sites in order to achieve a superior site plan. The same uses are allowed in both the C6 and the C2 districts, and the use shift would be consistent with the bulk shifts requested simultaneously. In addition, the ability to shift commercial floor area between C6 and C2 districts will be limited to LSGDs located partially in the former SPEURA and, therefore, this action would not be expected to adversely impact land use conditions on the project site, in the study area, or outside of the study area.
- *Modification of sign regulations*. For the LSGD, CPC, by authorization, may make the sign regulations of a C6-1 district applicable to those portions of the LSGD within a C2 district, and in addition, may modify the provisions of ZR Section 32-68 (Permitted Signs on Residential or Mixed Buildings) to allow signs accessory to non-residential uses above the level of the finished floor of the third story, provided such signs do not exceed a height of 40 feet above curb level. In order to grant such authorizations, CPC shall find that such modifications are consistent with the location of commercial uses permitted within the LSGD and will not adversely affect residential uses in adjoining residential districts. This action would be supportive of creating a mixed use development with a commercially viable component. The signage flexibility would help to ensure that retailers on the project site, including those in the relocated Essex Street Market, can attract customers and visitors. As this action requires a CPC finding related to its impacts, it would not be expected to result in any significant adverse zoning impacts.

As described above, the proposed actions and RWCDS would be consistent with surrounding land uses, and the proposed zoning changes would be compatible with existing zoning regulations in the area. Therefore, the proposed changes would not result in any significant adverse impacts to zoning on the development sites or in the study area.

STUDY AREA

The proposed actions would not result in any zoning changes in the study area beyond the proposed development sites. Current zoning, as described above under “Existing Conditions,” would remain in force.

PUBLIC POLICY

MAYOR’S NEW MARKET HOUSING PLAN

The proposed actions would create 450 new affordable housing units on underutilized City property. Therefore, the proposed actions would contribute to achieving the City’s stated goal of creating new affordable housing units, as expressed in *The New Housing Marketplace Plan.*

BUSINESS IMPROVEMENT DISTRICTS

The proposed actions would support the LES and Chinatown BIDs by providing economic development within and adjacent to the BIDs’ areas of operations. The new residents, visitors, and commercial activity that would result from the proposed actions would provide a new source of customers and business opportunity for the BIDs and their members. See Chapter 3, “Socioeconomic Conditions,” for a more detailed analysis of the socioeconomic impacts of the proposed actions and RWCDS. Overall, the proposed actions would not adversely impact the LES or Chinatown BIDs.

PLANYC

PlaNYC’s initiatives relate to several technical areas that are included in a CEQR assessment, including Open Space, Natural Resources, Infrastructure, Energy, Construction, Transportation, Greenhouse Gas Emissions, and Air Quality. Below is an assessment of the consistency of the proposed actions with PlaNYC’s sustainability goals.

Air Quality

According to PlaNYC, New York City falls short in meeting federal air quality standards. PlaNYC’s air quality goal is to attain compliance with federal standards for $PM_{2.5}$ and ozone, and also to achieve the cleanest air quality of any city in the country. To fulfill this goal, PlaNYC establishes 14 policy initiatives that aim to reduce road vehicle and other transportation emissions, reduce emissions from buildings, and to pursue natural solutions to improve air quality.

According to the *CEQR Technical Manual*, a project undergoing a CEQR review would generally be consistent with PlaNYC’s air quality initiatives if it maximizes its use of one or more of the following elements: the promotion of mass transit; the use of alternative fuel vehicles; the installation of anti-idling technology; the use of retrofitted diesel trucks; the use of biodiesel in vehicles and in heating oil; the use of ultra-low sulfur diesel and retrofitted construction vehicles; the use of low sulfur heating fuels; and the planting of street trees and other vegetation.

The proposed actions would support PlaNYC’s air quality goals by providing transit oriented development. The project site is located in an area well-served by existing transit services, including the F, J, M, and Z subway lines, and M9, M14A, M14D, M15, M15 SBS, M21, and M22 bus lines. The proposed actions would also result in the planting of new street trees, and the establishment of a new 10,000-square-foot publicly accessible open space. The extent to which the proposed development would utilize alternative fuel vehicles or other such construction methods has not yet been determined.

Energy

PlaNYC's primary energy goal is to provide cleaner and more reliable power for the City. PlaNYC outlines 14 energy policy initiatives that intend to improve energy planning, reduce the City's energy consumption, expand the City's clean power supply, and modernize the electricity delivery infrastructure.

According to the *CEQR Technical Manual*, a project undergoing a CEQR review would generally be consistent with PlaNYC's energy initiatives if it maximizes its use of one or more of the following elements: exceeding the energy code; using energy efficient appliances, fixtures, and building systems; participating in peak load management systems, including smart metering; repowering and constructing power plants and dedicated transmission lines; building distributed generation power units; expanding the natural gas infrastructure; using renewable energy; using natural gas; installing solar panels; using digester gas from sewage treatment plants; using energy from solid waste; and reinforcing the energy grid.

Through an RFP process, the City would look favorably upon proposals that enhance the energy efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at reducing energy consumption such as energy-efficient building envelopes, high-efficiency HVAC systems, incinerators and generators, and window glazing to optimize daylighting and solar heat gain and reduce heat loss. Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program. If a housing development can not be certified under the Enterprise Green Communities Program, because American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2007 does not apply to its construction methodology, the development would be designed and constructed to reduce construction and demolition waste and to incorporate sustainable design features that reduce energy consumption and greenhouse gas emissions in an amount equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program. For housing developments on City-owned sites that are managed by NYCEDC and can not comply with the Enterprise Green Communities Program, because ASHRAE Standard 90.1-2007 does not apply to their construction methodology, consultation with the Mayor's Office of Environmental Coordination would be required to ensure that sustainability measures equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program are implemented. <u>For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), the Land Disposition Agreement (LDA) between HPD and the developer(s) would require a commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures. For housing developments on City-owned sites that are managed by the New York City Economic Development Corporation (NYCEDC), this commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures would be required through the provisions of a contract of sale or long-term lease, or other legally binding agreement between NYCEDC and the developer(s).</u> While the sustainability measures that would be incorporated into the proposed development have not been finalized, the commitment to adhere to these standards would ensure that the proposed actions are supportive of PlaNYC's energy initiatives.

Water Quality

PlaNYC's water initiatives focus on the City's water network and water quality, with an objective of opening 90 percent of the City's waterways to recreation by preserving natural areas and reducing pollution. PlaNYC's 10 water quality initiatives aim to continue implementation of infrastructure upgrades, prevent stormwater from entering the system, expand, track, and analyze new Best Management Practices (BMPs) on a broad scale. The nine water network initiatives are intended to ensure the quality of the City's drinking water, create redundancy for aqueducts, and modernize water distribution.

According to the *CEQR Technical Manual*, a project would generally be consistent with PlaNYC's water quality initiatives if it includes one or more of the following elements: expanding and improving wastewater treatment plants; building high level storm sewers; expanding the amount of green, permeable surfaces across the city; expanding the Bluebelt system; incorporating green infrastructure, low impact development, or best management practices concepts and initiatives; being consistent with the Sustainable Stormwater Management Plan; building systems for on-site management of stormwater runoff; incorporating planting and stormwater management within parking lots; building green roofs; protecting wetlands; using water efficient fixtures; or adopting a water conservation project.

Sites under HPD jurisdiction would achieve Enterprise Green Community Standards certification, which would ensure that the proposed development on those sites is supportive of PlaNYC's water quality objectives, such as through the use of water-conserving fixtures. The proposed actions would include new publicly accessible open space, and would incorporate on-site stormwater detention methods or other stormwater source controls. As discussed in Chapter 10, "Water and Sewer Infrastructure," a Stormwater Best Management Practice (BMP) Concept Plan has been developed showing potential onsite stormwater source controls. The plan would help to avoid exacerbation of existing stormwater discharges to the East River. Overall, the proposed actions would be supportive of PlaNYC's water quality goals.

Land Use

Regarding land use, PlaNYC sets forth the goals of creating homes for approximately one million residents, while making housing more sustainable and affordable. These goals are to be achieved by 12 PlaNYC initiatives that encourage publicly-initiated rezonings, creation of new housing on public land, expanding targeted affordability programs, and exploration of additional areas of opportunity.

According to the *CEQR Technical Manual*, a project would generally be consistent with PlaNYC's land use initiatives if it includes one or more of the following elements: pursuing transit-oriented development; reclamation of underutilized waterfronts; adaptation of outdated buildings to new uses; development of underutilized areas to knit neighborhoods together; decking over rail yards, rail lines, and highways; extension of the Inclusionary Housing program in a manner consistent with such polity; preservation of existing affordable housing; or redevelopment of brownfields.

The proposed actions would support PlaNYC's land use goals by fostering transit-oriented development; developing an underutilized area in order to knit together the adjacent neighborhoods; and creation of 450 new affordable housing units.

Open Space

As outlined in PlaNYC, the City has a goal of ensuring that all New Yorkers live within a ten-minute walk of a park. PlaNYC's seven open space goals approach this goal by making existing resources available to more New Yorkers, expanding hours at existing resources, and re-imagining the public realm to create or enhance public spaces in the cityscape.

According to the *CEQR Technical Manual*, a project is generally consistent with PlaNYC's open space initiatives if it includes one or more of the following elements: completion of underdeveloped destination parks; providing multi-purpose fields; installation of new lighting at fields; creation or enhancement of public plazas; or planting of trees and other vegetation.

The proposed actions would support PlaNYC's open space goals by providing 10,000 square feet of new publicly accessible open space, as well as new street trees and other vegetation.

Natural Resources

Effective conservation of the City's natural resources is a key objective of PlaNYC. According to the *CEQR Technical Manual*, a project is generally consistent with PlaNYC's natural resources initiatives if it includes one or more of the following elements: planting street trees and other vegetation; protection of new wetlands; creation of open space; minimizing or capturing stormwater runoff; or redevelopment of brownfields.

The proposed actions would support PlaNYC's natural resources goals by providing 10,000 square feet of new publicly accessible open space. In addition, as per the Enterprise Green Community Standards criteria, the proposed development would include new street trees and other landscaping elements where possible. In addition, as described in Chapter 10, "Water and Sewer Infrastructure," stormwater management within the project site would be implemented through the use of best management practices including on-site detention facilities (rooftop detention, underground storage tanks or tanks within the buildings) or other stormwater source controls, which would be required as a part of the site connection approval process with the New York City Department of Environmental Protection. The development and implementation of additional BMPs will be a commitment in the Land Disposition Agreement between HPD and the developer(s) to be designated pursuant to the RFP or in the contract of sale or long-term lease, or other legally binding agreement between NYCEDC and ~~with~~ the developer(s) to be designated pursuant to the RFP.

Transportation

PlaNYC's two transportation goals are to add transit capacity for one million more residents, visitors, and workers, and to reach a full state of good repair on the City's roads, subways, and rails. PlaNYC identifies 16 transportation initiatives, which are intended to build and expand transit infrastructure, improve transit service on existing infrastructure, promote other sustainable transportation modes, reduce congestion, achieve the state of good repair, and develop new funding sources for regional transit financing.

According to the *CEQR Technical Manual*, a project is generally consistent with PlaNYC's transportation initiatives if it includes one or more of the following elements: transit-oriented development; promoting cycling and other sustainable modes of transportation; managing roads more efficiently; facilitating freight movements; increasing the capacity of mass transit; providing new commuter rail access to Manhattan; improving and expanding bus service; improving local commuter rail service; improving access to existing transit; or expanding water-based transportation services.

The proposed actions would support PlaNYC's transportation goals by fostering transit-oriented development.

Conclusion

The proposed actions would be supportive of PlaNYC's policies and goals, as it would result in economic development, affordable housing, and community amenities including new publicly accessible open space, in an area well-served by existing mass transit, and would incorporate sustainable design measures (the extent to which has not yet been determined). The commitment to achieve Enterprise Green Community Standards certification or equivalent for the housing developments on all sites would ensure that the proposed development complies with PlaNYC. Overall, the proposed actions would be not result in any significant adverse public policy impacts.

OTHER PLANNING FRAMEWORKS

CB3 Guidelines

The proposed actions and RWCDS would be in broad accordance with CB3's redevelopment guidelines in terms of its mixed-use character, affordable and market housing development, commercial development, urban design plan, parking, and potential for community facility development. While the proposed actions would result in the relocation of the Essex Street Market, the new market facility would be on a superior site on a major street to accommodate a larger market with more goods and services. Overall, the proposed actions are supportive of the CB3 guidelines.

Delancey Street Safety Improvements Plan

As discussed above, in June 2012, NYCDOT began implementation of the Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety conditions at high accident locations along the Delancey Street corridor. See Chapter 13, "Transportation," for more details on this plan and for an analysis of the effects of the proposed actions on traffic and pedestrian conditions. ✷

A. INTRODUCTION

This chapter assesses whether the proposed actions could result in significant adverse impacts to the socioeconomic character of the area within and surrounding the project site. As described in the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition), the socioeconomic character of an area includes its population, housing, and economic activities. Socioeconomic changes may occur when a project directly or indirectly changes any of these elements. Although some socioeconomic changes may not result in environmental impacts under CEQR, they are disclosed if they would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of the area.

As detailed in Chapter 1, "Project Description," the proposed actions would result in an approximately 1.7 million gross-square-foot[1] (gsf) mixed-use development on 9 sites. The reasonable worst-case development scenario (RWCDS) includes a variety of uses: 900 dwelling units, of which half would be affordable; approximately 632,000 gsf of commercial space, of which approximately 469,000 gsf would be retail uses; approximately 29,000 square feet of public market space to house the Essex Street Market, which would be relocated and expanded by 14,000 square feet under the proposed actions; 114,000 gsf of community facility or cultural uses; up to 500 parking spaces; and a 10,000-square-foot publicly accessible open space. This RWCDS is in line with the goals of the proposed actions to transform underutilized property into a thriving, mixed-use development; provide affordable and market-rate housing, commercial and retail uses, community facilities and other neighborhood amenities; and knit these sites back into the neighborhood.

In accordance with *CEQR Technical Manual* guidelines, this socioeconomic analysis evaluates the RWCDS against six specific elements that can result in significant adverse socioeconomic impacts: (1) direct displacement of residential population on a project site; (2) direct displacement of existing businesses on a project site; (3) indirect displacement of residential population in a study area due to increased rents; (4) indirect displacement of businesses or institutions in a study area due to increased rents; (5) indirect business displacement due to retail market saturation; and (6) adverse effects on specific industries.

PRINCIPAL CONCLUSIONS

The analysis presented in this chapter finds that the proposed actions would not result in significant adverse socioeconomic impacts. The following presents the findings for each of the six areas of socioeconomic concern prescribed in the *CEQR Technical Manual* (numbered above).

[1] This number does not include below-grade parking space.

DIRECT RESIDENTIAL DISPLACEMENT

A screening-level assessment finds that the proposed actions would not result in significant adverse impacts due to direct residential displacement. The proposed actions would directly displace approximately nine residents who are living in seven dwelling units located in a City-owned rental building at 400 Grand Street (Site 5). The direct displacement resulting from the proposed actions would not be of a scale large enough to alter the demographics and socioeconomic character of the neighborhood. The amount of displacement (nine residents) falls well below the CEQR threshold of 500 displaced residents, and therefore a preliminary assessment is not warranted.

HPD would assign a relocation manager to each of the households that would be displaced and provide each household with an information letter that outlines the benefits available to the household. Eligible residents would receive relocation benefits, which include advisory services, including referrals to comparable and suitable replacement homes and assistance in preparing claim forms; payment for moving expenses; and financial assistance to help buy or rent a replacement home.

DIRECT BUSINESS DISPLACEMENT

A preliminary assessment finds that the proposed actions would not result in significant adverse impacts due to direct business displacement. As part of the proposed actions, the Essex Street Market tenants on Site 9 could relocate to a new market facility on Site 2. Aside from the Essex Street Market relocation, there are an estimated 14 businesses and 107 employees who could be displaced without specific plans or provisions for their relocation within the study area. The retail, parking, eating and drinking, and health care uses that would be displaced are common in the study area such that businesses and consumers would be able to find similar products and services elsewhere in the study area in the future with the proposed actions. The employment that would be lost would not be substantial, and the proposed actions would introduce many new employment opportunities in similar industry sectors. In addition, the businesses that could be displaced are not the subject of any regulations or public policy that seeks to preserve a specific type of business or institutional use. Although these businesses are valuable individually and collectively to the City's economy, their displacement from the project site would not substantially alter the neighborhood's economic activities.

INDIRECT RESIDENTIAL DISPLACEMENT

A preliminary assessment finds that the proposed actions would not result in significant adverse impacts due to indirect residential displacement. The proposed actions would introduce 900 new dwelling units that would be available to households with a mix of incomes; ~~it is expected that~~ 50 percent of these new units would be affordable. Despite the introduction of a substantial number of affordable housing units, as a whole the average household income of the project-generated population could be higher than that of the average ¼-mile study area population. However, the project-generated population would represent less than 5 percent of the future study area population, and therefore would not introduce a population that could substantially affect residential market conditions in the ¼-mile study area. There is an existing trend toward increased rents in the study area that would exist with or without the proposed actions; the effects of this new housing stock and population are not expected to have a substantial affect on future residential rents in the study area. The project's affordable housing would expand housing options available to the lower-income residents in the study area, and could balance the upward momentum of rents in the area caused by redevelopment.

INDIRECT BUSINESS DISPLACEMENT DUE TO INCREASED RENTS

A preliminary assessment finds that the proposed actions would not result in significant adverse indirect business displacement impacts due to increased rents. As described above, the RWCDS under the proposed actions would introduce a mix of uses, including residential, retail, office, hotel, community facility uses, and parking. Residential, retail, hotel, community facility uses, and parking are already common in the ¼-mile study area, and there are already existing trends of residential and hotel development in the study area. The proposed actions would contribute to these existing trends, rather than alter economic patterns. Under the RWCDS, approximately 36,300 square feet of non-specific commercial uses would be built on the project site, some of which could be office space. This amount of office space would not be enough of a new economic activity to introduce trends that would alter existing economic patterns.

In the future with the proposed actions, there would be increased foot traffic in the study area, which would benefit existing retail stores, restaurants and galleries in the study area. While the proposed actions could benefit many existing local businesses, increases in pedestrian foot traffic could lead to increased rents in the immediate vicinity of the project site, which in turn could result in the indirect displacement of some existing retail establishments that are not able to capture sales from the increased foot traffic. However, this potential displacement is expected to be limited and would not constitute a significant adverse impact under CEQR. As set forth in the *CEQR Technical Manual*, the consideration of a business or institution's economic value is based on the following criteria: (1) its products and services; (2) its location needs and whether those needs can be satisfied at other locations; and (3) the potential effects on businesses or on consumers of losing the displaced business or institution as a product or service. The retail stores that would be vulnerable to indirect displacement are not unique to the study area, and do not have locational needs that would preclude them from relocating elsewhere within the city. The ¼-mile study area already contains a large residential population (an estimated 43,711 residents). Therefore, there would still be the local demand for neighborhood retail and services necessary to maintain the strong retail presence within the study area. The limited indirect retail displacement that could result from increased rents would not be expected to lead to adverse changes to neighborhood character and would not result in significant adverse socioeconomic impacts.

In addition, industrial uses in the ¼-mile study area—including, but not limited to wholesalers, warehouses, and auto repair shops—could be considered potentially vulnerable to indirect displacement. However, these pressures are already present within the study area and are expected to increase in the future irrespective of the proposed actions. While the proposed actions could result in limited indirect displacement of existing industrial businesses, it would not alter or accelerate trends that would change existing economic patterns in a manner that would result in significant displacement.

INDIRECT BUSINESS DISPLACEMENT DUE TO RETAIL MARKET SATURATION

As described below, the proposed actions would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition. According to the *CEQR Technical Manual*, an analysis of indirect business displacement due to retail market saturation is necessary if a project would result in more than 200,000 square feet of retail on a single development site or more than 200,000 square feet of regional-serving retail on multiple sites located across a project area. The RWCDS would introduce up to approximately 469,000 square feet of destination and local retail and an additional 14,000 square feet of public market space.

Since it is assumed that the proposed actions would introduce more than 200,000 square feet of regional-serving retail, an analysis of indirect business displacement due to retail market saturation is necessary.

In many ways, the Lower East Side has a particularly robust retail profile, grounded in a long history of entrepreneurship. The character of retail in the area makes any substantial displacement due to new development and market saturation unlikely. The area contains a broad mix of commercial uses supported by a number of retail spending sources including residents of the Lower East Side and beyond, local workers, day-visitors, and overnight tourists. One of the characteristics that makes the Lower East Side and its adjacent neighborhoods of NoHo, Chinatown, and the East Village popular as a shopping destination is the tight concentration of particular types of retail such as restaurant supply, lighting, and Asian foods, artwork, and housewares. Shoppers enjoy the ease of comparison shopping in an area where a large volume of similar products can be found in the space of a few blocks. More generally, clothing, shoe, and accessory stores throughout the Lower East Side and adjacent neighborhoods all benefit from the high volumes of foot traffic spurred by the co-location of stores offering similar goods and services that draw shoppers from throughout the region. In effect, the concentration of stores in a location like the Lower East Side creates more positive synergy than negative competition among similar stores.

The preliminary analysis found that capture rates for each broad retail category (shoppers' goods, convenience goods, and eating and drinking establishments) with the exception of the building materials and garden supply category are over 100 percent in the existing condition and would continue to exceed 100 percent in the future with the proposed actions.[1] While the capture rates are high, they are not unusual in the context of New York City. The area has a high concentration of employment and encompasses prime tourist destinations that draw shoppers from the region. The proposed actions would add a combination of regional- and local-serving retail that could overlap with the local-serving retail strips in the area, especially those anchored by convenience goods. Therefore, a detailed analysis was conducted. The detailed analysis focused on grocery stores, since they often serve as anchors for retail concentrations and since the RWCDS under the proposed actions could introduce up to a 65,000 square foot grocery store in addition to other stores (e.g. discount department stores) that may offer products that would substantially overlap with typical grocery store offerings. In addition, department stores and home improvement stores were analyzed.

Competitive pressure generated by a chain supermarket would be felt most strongly by major supermarkets in the ½-Mile Local Trade Area. Smaller food stores would experience more moderate competitive pressure, if any, and neighborhood services stores and eating and drinking establishments would not be adversely impacted; this is because local residents would continue to shop at existing smaller grocery stores for specialized goods and services (including those familiar to an ethnic community), for convenience, and for accessibility to public transit. The

[1] Shoppers' goods are usually higher value goods—such as clothing, electronics, or furniture—for which consumers compare quality and price at more than one store before making a purchase. Convenience goods are usually lower value goods that are purchased frequently and immediately, often near the home or workplace, with little or no comparison shopping. The building materials and garden supplies category includes goods such as hardware, paint, building materials and supplies, and lawn and garden equipment and supplies. The eating and drinking establishment category includes restaurants, bars, and other special food services, such as caterers.

detailed analysis concludes that there is one grocery store in the ½-Mile Local Trade Area that could experience competitive pressure from a supermarket introduced as part of the RWCDS and that serves as an anchor to a local neighborhood retail concentration. The store could retain its customer base even with the proposed actions due to the density of residential population in surrounding blocks and other factors. However, even if the store was to close due to competition from a grocery store on the project site, the closure would not spur additional vacancies in adjacent storefronts storefronts since they are surrounded by high density residential uses so they would continue to experience high levels of foot traffic. Accordingly, closure would not negatively impact neighborhood character, and would not result in a significant adverse impact due to indirect business displacement from market saturation.

The detailed analysis studied building materials and garden supply stores since they often serve as anchors for retail concentrations and since the RWCDS could introduce an approximately 115,000-gsf building material and garden supply store. A large-scale building materials and garden supply store on the proposed project site would not draw substantial sales away from stores selling comparable goods in the ½-Mile Local Trade Area. Large-scale home improvement stores tend to draw sales from a broad trade area and from both contractors and households. There are few home improvement stores located in the ½-Mile Local Trade Area and they do not anchor neighborhood retail strips.

The detailed analysis also studied large-scale department stores and discount department stores since they often serve as anchors for retail concentrations and since the RWCDS could introduce a large-scale department store or discount department store. Large-scale department or discount department stores tend to draw sales from a broad trade area. They are not relying on a particular local residential population for their customer base and therefore do not typically have the potential to result in significant adverse impacts due to indirect business displacement from retail market saturation of the local market. The ½-Mile Local Trade Area does not contain any large-scale department stores, so any such store introduced as part of the proposed actions would be the only one in the trade area. Competitive pressure from this store and other shoppers' goods stores on the project site would be minimal for many shoppers' goods stores in the Local Trade Area. The ½-Mile Local Trade Area includes distinct pockets of shoppers' goods stores, including a concentration of lighting stores on the Bowery, boutique shops in Nolita, stores catering to tourists in Little Italy, and stores in Chinatown catering to the sizable Asian population living in the trade area and beyond. Overall, although there could be some overlap between products offered at existing and proposed project shoppers' goods stores, concentrations of shoppers' goods stores currently located in the ½-Mile Local Trade Area distinguish themselves in different ways (e.g., a focus on tourists, a focus on ethnic populations, a concentration of a particular type of product). Therefore, many of these stores would not be in direct competition with stores expected on the project site.

The proposed actions are not expected to alter the number of businesses and services that are located on retail corridors in the ½-Mile Local Trade Area, and vacancy rates are not expected to change in the future. Overall, the proposed actions would generate increased foot traffic that would benefit existing retail businesses in the ½-Mile Local Trade Area. While the possibility of some limited indirect business displacement due to competition cannot be ruled out, any displacement that might occur would not jeopardize the viability of any local retail strips. Therefore, the proposed actions would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

A preliminary assessment finds that the proposed actions would not have the potential to have a significant adverse impact on any specific industries in the City. The businesses that would be directly displaced by the proposed actions collectively account for only a small fraction of the total employment and economic activities in the study area, and are not expected to be critical to the viability of any City industries.

B. METHODOLOGY

BACKGROUND

Under CEQR, the socioeconomic character of an area includes its population, housing, and economic activity. Although socioeconomic changes may not result in impacts under CEQR, they are disclosed if they would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of the area. In some cases, these changes may be substantial but not adverse. In other cases, these changes may be good for some groups but bad for others. The objective of the CEQR analysis is to disclose whether any changes created by the project would have a significant impact compared to what would happen in the future without the proposed actions.

An assessment of socioeconomic impacts distinguishes between impacts on the residents and businesses in an area and separates these impacts into direct and indirect displacement for both of those segments. Direct displacement occurs when residents or businesses are involuntarily displaced from the actual site of the proposed actions or sites directly affected by it. For example, direct displacement would occur if a currently occupied site was redeveloped for new uses or structures or if a proposed easement or right-of-way encroached on a portion of a parcel and rendered it unfit for its current use. In these cases, the occupants of a particular structure to be displaced can usually be identified, and therefore the disclosure of direct displacement focuses on specific businesses and a known number of residents and workers.

According to the *CEQR Technical Manual*, indirect or secondary displacement occurs when residents, business, or employees are involuntarily displaced due to a change in socioeconomic conditions in the area caused by a proposed action. Examples include the displacement of lower-income residents who are forced to move due to rising rents caused by higher-income housing introduced by a proposed action or a similar process resulting in higher-paying commercial tenants replacing industrial uses as the result of the introduction of a new use by a proposed action. Unlike direct displacement, the exact occupants to be displaced are not known. Therefore, an assessment of indirect displacement usually identifies the size and type of groups of residents, businesses, or employees potentially affected.

Some projects may not directly or indirectly displace businesses but may affect the operation of a major industry or commercial operation in the city. In these cases, the CEQR review process may involve an assessment of the economic impacts of the project on that specific industry.

DETERMINING WHETHER A SOCIOECONOMIC ASSESSMENT IS APPROPRIATE

Under CEQR, a socioeconomic assessment should be conducted if a project may be reasonably expected to create substantial socioeconomic changes in the area affected by the project that would not be expected to occur in the absence of the project. The following circumstances would typically require a socioeconomic assessment:

- The project would directly displace 500 or more residents or 100 or more employees.
- The project would directly displace a business whose products or services are dependent on its location, is the subject of policies or plans aimed at its preservation, or serves a population dependent on its services in its present location.
- The project would result in new development of 200 residential units or more or 200,000 square feet (sf) or more of commercial use that is markedly different from existing uses, development, and activities in the neighborhood. This type of development may lead to indirect displacement.
- The project would add to or create a total of 200,000 sf or more of regional-serving retail on multiple sites located across a project area or 200,000 sf or more of retail on a single development site, thus creating the potential to draw a substantial amount of sales from existing businesses within the study area. This type of development may lead to indirect business displacement due to market saturation.
- The project is expected to affect conditions within a specific industry, which could affect socioeconomic conditions if a substantial number of workers or residents depend on the goods or services provided by the affected businesses, or if it would result in the loss or substantial diminishment of a particularly important product or service within the City.

If a project would exceed any of these initial thresholds, an assessment of socioeconomic conditions is generally warranted. The direct displacement resulting from the proposed actions are below the 500-resident threshold but exceed the 100-employee threshold warranting assessment. In addition, the RWCDS for the proposed actions includes 900 residential units, approximately 469,000 square feet of retail development, and roughly 14,000 square feet of net new public market space. Therefore, an assessment of direct business displacement and analyses of the potential for indirect residential displacement and indirect business displacement from increased rents are warranted. In addition, the RWCDS assumes that the proposed actions would introduce more than 200,000 square feet of regional-serving retail across a project area; therefore, an assessment of indirect business displacement due to retail market saturation is warranted.

ANALYSIS FORMAT

Following *CEQR Technical Manual* guidelines, the socioeconomic analysis begins with a screening assessment that determines the need for a preliminary assessment. For one of the six areas of concern—direct residential displacement—the effects of the proposed actions were not significant enough to warrant a preliminary assessment. However, as required by CEQR, the impacts for direct residential displacement are disclosed in the following analysis. For the remaining five areas of concern—direct business displacement, indirect residential displacement, indirect business displacement due to increased rents, indirect business displacement due to retail market saturation, and adverse effects on specific industries—preliminary assessments were conducted.

The preliminary assessment is conducted to learn enough about the potential effects of the proposed actions to either rule out the possibility of significant adverse impacts or determine that a more detailed analysis is required to fully determine the extent of the impacts. A detailed analysis is designed to examine existing conditions and then evaluate the changes to those conditions in the future with the proposed actions as compared to the changes that would be expected in the future without the proposed actions. As detailed in Chapter 2, "Land Use, Zoning, and Public Policy," the future without the proposed actions is defined by development projects expected to occur by the build date of the proposed actions. These projects are described in terms of the possible changes to socioeconomic conditions that they would cause, including potential population increases, changes in income characteristics of the affected area, changes to the rents or sale prices of residential units, new commercial or industrial uses, or changes to employment or retail sales.

For direct residential displacement, direct business and institutional displacement, indirect residential displacement, indirect business displacement due to increase rents, and adverse impacts on specific industries, a screening-level assessment or a preliminary assessment was sufficient to conclude that the proposed actions would not result in any significant adverse socioeconomic impacts. For indirect business displacement due to retail market saturation, a detailed assessment was required to fully understand potential impacts.

STUDY AREA DELINEATION

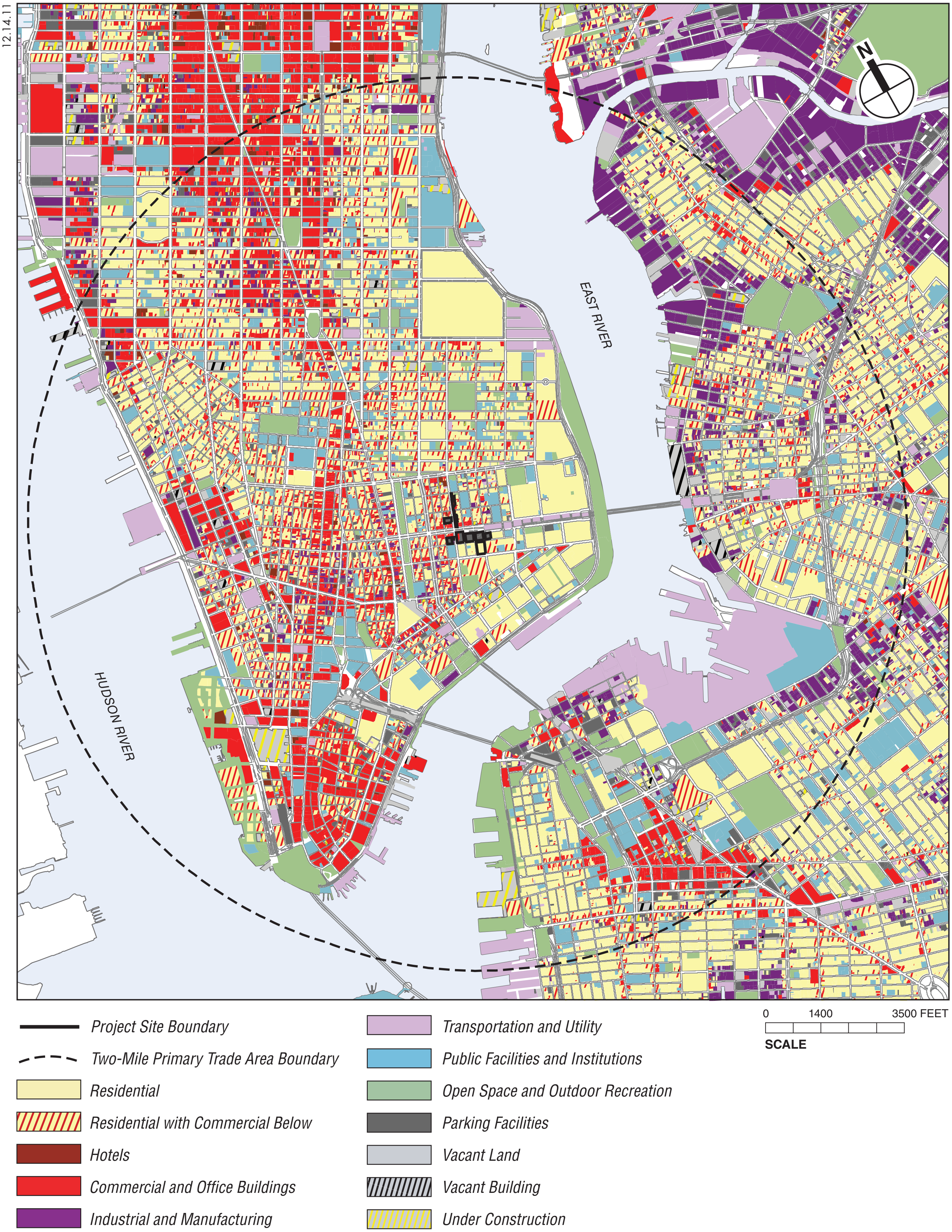
Under CEQR, residential and business displacement is considered an impact if it affects the character of the neighborhood. Therefore, the socioeconomic analysis considers residential and business changes that could be generated by the proposed actions within a larger study area surrounding the project site. As recommended by the *CEQR Technical Manual*, the study area used for the analyses of direct business displacement, indirect residential displacement, indirect business displacement due to increased rents, and adverse effects on specific industries is the same as the land use study area and approximates the ¼-mile perimeter around the project site. Because the assessments examine population and employment data, this ¼-mile study area was modified to include all census tracts in which at least 50 percent of the tract's residential units are within the ¼-mile boundary. The socioeconomic study area for these four areas of concern therefore includes census tracts 12, 14.01, 14.02, 16, 18, 22.01, 30.01, 30.02, and 36.01 (See **Figure 3-1**).

The assessment of indirect business displacement due to retail market saturation uses "trade areas" surrounding the project site, rather than the ¼-mile study area described above. The preliminary assessment uses a Primary Trade Area that approximates a two-mile radius around the project site. **Figure 3-2** shows the boundaries of this 2-Mile Primary Trade Area. As defined by the Urban Land Institute's Shopping Center Development Handbook, trade areas for shopping centers similar to the proposed actions in size and potential tenant mix would generally extend three to five miles from the site, and typically can be reached within a 10- to 20-minute drive. However, trade areas for retail projects in New York City are typically smaller than the national standards cited in the Shopping Center Development Handbook, due primarily to the density of development in the New York metropolitan area. Therefore, the preliminary assessment for indirect business displacement due to retail market saturation is based on a 2-Mile Primary Trade Area.

The detailed analysis of indirect business displacement due to retail market saturation focuses on a ½-Mile Local Trade Area (see **Figure 3-3**)—the area from which the proposed actions' retail would have the greatest potential to draw frequent, repeat visits from customers of existing retail concentrations, thereby affecting the business environment of those areas.

Socioeconomic Study Area

Figure 3-1



Two-Mile Primary Trade Area
Figure 3-2

2.21.12

0 1000 FEET
SCALE

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Half-Mile Local Trade Area Boundary

1 Key Retail Concentrations

Retail Concentrations
in the Half-Mile Local Trade Area
Figure 3-3

DATA SOURCES

Information used in the socioeconomic assessment includes data from the U.S. Census Bureau's 2010 Census, 2000 Census, the 2006-2010 American Community Survey, and New York City Department of Finance's Real Property Assessment Data (RPAD) 2011 database. Existing employment estimates were obtained from NYCEDC and standard employee ratios. Employment data for 2010 was obtained from ESRI, Inc, a commercial data provider. Population estimates for the No Action projects used 2008-2010 American Community Survey data for Manhattan Community District 3, obtained from the New York City Department of City Planning (DCP). Estimates of stabilized housing units were obtained from March 2008 data from the NYS Department of Housing and Community Renewal, compiled by the DCP Housing, Economic, and Infrastructure Planning Division. Average residential rents were based on CitiHabitats, the MNS Manhattan Rental Market Report, and searches for apartment listings on Streeteasy.com conducted on January 11, 2012. Extensive field visits and retail surveys were performed between October and November of 2011 to collect data for this assessment.

C. PRELIMINARY ASSESSMENT

This section assesses the potential impacts of the proposed actions in terms of the six areas of socioeconomic concern identified by CEQR. For five of the six issue areas—direct residential displacement, direct business displacement, indirect residential displacement, indirect business displacement due to increased rents, and adverse impacts on specific industries—a screening-level assessment or a preliminary assessment was sufficient to rule out the possibility that the proposed actions would have any significant adverse impacts on the study area. For indirect business displacement due to retail market saturation, the preliminary assessment was not sufficient to rule out the possibility of significant adverse impacts, and a detailed assessment was conducted. The detailed analysis can be found in Section E of this chapter.

DIRECT RESIDENTIAL DISPLACEMENT

According to the *CEQR Technical Manual*, direct residential displacement is not a significant socioeconomic impact by itself. Impacts may result from direct residential displacement if, due to the number and type of people displaced, it is significant enough to alter the socioeconomic character of a neighborhood. Because the direct residential displacement caused by the proposed actions would fall well below the CEQR threshold of 500 displaced residents, the project's displacement would not be expected to alter the socioeconomic character of the neighborhood, and would not result in significant adverse socioeconomic impacts.

Whether or not the impact is considered significant, the *CEQR Technical Manual* requires that the direct residential displacement be disclosed for any project. The proposed actions would directly displace approximately nine residents living in seven dwelling units within a City-owned, rental residential building at 400 Grand Street, which is located on Site 5. The building is under the jurisdiction of the New York City Department of Housing Preservation and Development (HPD). HPD would assign a relocation manager to each of the households that would be displaced and provide each household with an information letter that outlines that benefits available to the household. Eligible residents would receive relocation benefits, which include advisory services, including referrals to comparable and suitable replacement homes and assistance in preparing claim forms; payment for moving expenses; and financial assistance to help buy or rent a new replacement home. It should be noted that Sites 2, 3, 4, 5, and 6 are located within the former Seward Park Extension Urban Renewal Area (SPEURA), which was established in 1965 and expired in 2005. Historically, actions related to the SPEURA have resulted in direct residential displacement. As described in Chapter 2, "Land Use, Zoning, and Public Policy," in 1967, demolition began in the SPEURA to clear land for new housing and commercial buildings (see Chapter 2, "Land Use, Zoning, and Public Policy" for further information).

DIRECT BUSINESS DISPLACEMENT

The *CEQR Technical Manual* defines direct business displacement as the involuntary displacement of businesses from a site or sites directly affected by a proposed action. As described above, the *CEQR Technical Manual* recommends a preliminary assessment of direct business displacement if the project would displace over 100 employees, or if a project would displace a business that is unusually important because its products or services are uniquely dependent on its location; based on its type or location, it is the subject of other regulations or publicly adopted plans aimed at its preservation; or it serves a population uniquely dependent on its services in its present location.

An estimated 14 businesses and 107 employees associated with those businesses could be displaced without specific plans or provisions for their relocation within the study area. Therefore, the following preliminary assessment was conducted to examine the characteristics of the affected uses to determine the significance of the potential impact. The assessment first examines the employment trends within the ¼-mile study area, identifies the businesses and employment on the project site, and then considers whether the project's business displacement could result in significant adverse impacts.

EMPLOYMENT IN THE STUDY AREA

In 2010, there were an estimated 12,589 employees working in the ¼-mile study area (see **Table 3-1**). These employees represented 0.57 percent of the total employment in Manhattan and 0.36 percent of employment in New York City. Health care and social assistance constituted the largest percentage of employment in the study area (28.6 percent), followed by accommodation and food services (15.6 percent), retail trade (10.6 percent), and educational services (9.8 percent). Each of these sectors accounted for a larger percentage of employment in the study area than in Manhattan or New York City.

EMPLOYMENT ON THE PROJECT SITE

There are approximately 40 business and institutional uses located within the project site, including 23 separate vendors located in the Essex Street Market on Site 9. The remaining businesses include seven parking uses, a diner, liquor store, shoe repair business, non-profit cultural organization, restaurant, health clinic, various retail businesses, and a former film prop company that occasionally houses furniture sales. The 40 businesses collectively employ approximately 188 people, accounting for about 1.5 percent of employment in the study area (see **Table 3-2**).

As part of the preliminary assessment, the following threshold indicators (numbered in italics below) are considered to determine the potential for significant adverse impacts.

Table 3-1
Study Area Employment in 2010

	¼-Mile Study Area		Manhattan		New York City	
	Number	Percent	Number	Percent	Number	Percent
Agriculture, Forestry, Fishing and Hunting	4	0.0%	326	0.0%	1,051	0.0%
Mining	0	0.0%	255	0.0%	329	0.0%
Utilities	0	0.0%	5,124	0.2%	8,394	0.2%
Construction	275	2.2%	28,325	1.3%	86,719	2.5%
Manufacturing	351	2.8%	78,671	3.6%	146,253	4.2%
Wholesale Trade	276	2.2%	54,122	2.5%	118,766	3.4%
Retail Trade	1,330	10.6%	200,933	9.1%	353,729	10.0%
Transportation and Warehousing	559	4.4%	23,873	1.1%	88,067	2.5%
Information	171	1.4%	201,410	9.1%	229,203	6.5%
Finance and Insurance	134	1.1%	375,694	17.0%	411,979	11.7%
Real Estate and Rental and Leasing	274	2.2%	80,810	3.7%	130,118	3.7%
Professional, Scientific, and Technical Services	262	2.1%	348,970	15.8%	399,869	11.4%
Management of Companies and Enterprises	1	0.0%	26,779	1.2%	27,385	0.8%
Administrative and Support and Waste Management and Remediation Services	224	1.8%	84,937	3.9%	118,552	3.4%
Educational Services	1,240	9.8%	82,970	3.8%	266,100	7.6%
Health Care and Social Assistance	3,598	28.6%	187,260	8.5%	447,317	12.7%
Arts, Entertainment, and Recreation	816	6.5%	64,474	2.9%	77,433	2.2%
Accommodation and Food Services	1,965	15.6%	159,300	7.2%	233,089	6.6%
Other Services (except Public Administration)	915	7.3%	114,591	5.2%	212,209	6.0%
Public Administration	147	1.2%	67,439	3.1%	141,846	4.0%
Unclassified Establishments	47	0.4%	18,199	0.8%	22,731	0.6%
Total	**12,589**	**100.0%**	**2,204,462**	**100.0%**	**3,521,139**	**100.0%**
Source: ESRI Business Analyst, Inc, Business Summary Report						

Table 3-2
Employment and Businesses Currently Located on Projected Development Sites

Sector	Employees	Percent of Total	Businesses	Percent of Total
Other Services (except Public Administration)	15	8.04%	9	23.08%
Accommodation and Food Services	40	21.26%	3	7.69%
Retail Trade	85	45.18%	26	64.10%
Arts, Entertainment, and Recreation	4	2.13%	1	2.56%
Health Care and Social Assistance	44	23.39%	1	2.56%
Total	**188**	**100.00%**	**40**	**100.00%**
Notes: Of the 40 businesses, 23 are separate vendors in the Essex Street Market and one is the parking lot on Site 7.				
Sources: NYCEDC, AKRF, Inc.				

CEQR ASSESSMENT CRITERIA

1. Do the businesses to be displaced provide products or services essential to the local economy that would no longer be available in the trade area to local residents or businesses due to the difficulty of either relocating the businesses or establishing new, comparable businesses?

Of the 40 businesses shown in **Table 3-2**, the public parking garage on Site 7 would not be redeveloped under the proposed actions, and 23 vendors within the Essex Street Market are expected to be offered relocation within the redeveloped Essex Street Market on Site 2. The Essex Street Market vendors occupy approximately 15,000 square feet of the existing 20,000-square-foot building on Site 9. Under the proposed actions, the existing vendors at the time of a move would be relocated to a new, expanded public market facility on Site 2. The new facility would be larger than the existing market—approximately 29,152 square feet, with space for 35 to 65 vendors. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act (ADA), and have improved storage capabilities, garbage handling, and climate control. Though the existing facility would be displaced, existing vendors at the time of a move would be given the first opportunities to relocate their businesses to the new facility upon its completion. As the new market would contain enough space for 35 to 65 vendors, it would be able to accommodate the existing vendors at the time of a move in the relocation.

There is a municipal parking lot on Site 1 that is owned and operated by New York City Department of Transportation (DOT), and on Site 2, there is a parking lot for City vehicles that is owned and operated by New York City Department of Housing Preservation & Development (HPD). These uses would be permanently displaced from the project site. DOT and HPD are government agencies and, therefore, are not the subject of direct displacement analysis under CEQR, since it is assumed that the City would retain the employees who would be displaced, as well as the services provided to the City. It is assumed that the City would find suitable sites (although not necessarily in the study area) for the displaced uses.

With the expected relocation of the tenants of the Essex Street Market building at Site 9, with Site 7 retaining its current function as a municipal parking garage, and excluding the parking lots on Sites 1 and 2, there would be 14 businesses and 107 employees directly displaced without specific plans or provisions for their relocation within the study area. These include a health clinic on Site 10, four remaining businesses on Site 9, four surface parking lots, two businesses on Site 2, and two businesses and a non-profit organization on Site 5. **Table 3-3** lists the types of businesses and the estimated number of employees that would be directly displaced by the proposed actions.

Table 3-3
Potential Direct Business Displacement

Sector	Employees	Percent of Total	Businesses	Percent of Total
Other Services (except Public Administration)	6	5.61%	6	42.86%
Accommodation and Food Services	40	37.38%	3	21.43%
Retail Trade	13	12.15%	3	21.43%
Arts, Entertainment, and Recreation	4	3.74%	1	7.14%
Healthcare and Social Assistance	44	41.12%	1	7.14%
Total	**107**	**100.00%**	**14**	**100.00%**

Sources: NYCEDC, AKRF, Inc.

The Essex Street Market building on Site 9 includes four storefronts that would not be relocated with the public market space. These storefronts are occupied by a news stand, a limited-service restaurant, a cell phone store, and a full-service restaurant. Collectively, these four businesses employ an estimated 41 workers. The displacement of these uses and employment would not constitute a significant adverse socioeconomic impact because the businesses are not unusually important in the community or uniquely dependent on their location within the study area. Local consumers and businesses would be able to find similar products and services elsewhere in the study area. In addition, the RWCDS would include up to 470,000 square feet of retail space, and displaced businesses may be able to relocate to new space in the project site.

Site 2 is one of the former Essex Street Market buildings. The former market section of the building at 78-92 Essex Street is vacant, while the storefronts on Delancey Street contain a diner and a liquor store that would be directly displaced in the future with the proposed actions. As described above, these types of retail are common in the study area. Residents and businesses would find similar products elsewhere, and the current businesses may be able to find alternative space in the new development.

Site 5 contains three commercial and institutional uses that would be displaced as a result of the proposed actions: a ground-floor visitor center for the Lower East Side Jewish Conservancy at 400 Grand Street; a shoe repair store at the ground-floor of 402 Grand Street; and a former film prop company at 185 Broome Street that occasionally houses furniture sales. Given the availability of similar neighborhood services in the study area, the displacement of the shoe repair store would not constitute a significant adverse impact. In addition, the film prop company recently relocated its main operations to Brooklyn and only occasionally uses the building at 185 Broome Street to house furniture sales. The Lower East Side Jewish Conservancy could likely find space to relocate elsewhere in the study area.

As discussed above, the municipal parking lot on Site 1 that is owned and operated by DOT and the parking lot for City vehicles on Site 2 that is owned and operated by HPD are not subject to direct displacement analysis under CEQR. The remaining parking lots on Sites 3, 4, 5, and 6 are each occupied by surface parking. Site 3 is operated by the Lower East Side Business Improvement District and provides two hours of free parking for visitors and shoppers. Site 4 is also operated by the Lower East Side Business Improvement District and contains approximately 100 commercial parking spaces for area businesses. Site 5 includes a 100 space public parking lot that is operated by a private parking operator. The parking lot on Site 6 is operated by a private parking operator and contains 48 public parking spaces. In total, the directly displaced parking lots subject to CEQR include approximately 338 public parking spaces and approximately 100 commercial parking spaces. Under the RWCDS, the proposed actions are expected to include up to 500 parking spaces on Sites 2 through 5 to accommodate peak parking demand levels generated by the proposed actions as well to replace the number of public parking spaces that could be lost as a result of the proposed actions.

The proposed actions would displace the Community Healthcare Network (CHN) from its current location at 150 Essex Street (Site 10). CHN’s 10-year lease with the City for the clinic includes a commitment that should Site 10 be developed during that period, the City would relocate CHN to another location within the immediate area. However, because it is not certain that CHN would be relocated within the ¼-mile study area, it is assumed that the clinic would be displaced as a result of the proposed actions. CHN is a nonprofit organization that aims to provide primary care, mental health care, and social services to underserved populations. CHN accepts patients regardless of immigration status, race/ethnicity, sexual orientation, age or ability to pay, and can accommodate patients who speak English, Spanish, or Chinese. CHN offers a variety of services, including prenatal and post-partum care, pediatrics, geriatric care, preventive medicine, HIV treatment, and social services. As seen in **Table 3-1**, health care and social assistance constituted the largest percentage of employment in the study area (3,598 employees or 28.6 percent). There are several health clinics in the study area that offer similar services. For example, the Henry Street Settlement's Community Consultation Center, located at 40 Montgomery Street, offers services including HIV/AIDS services, outpatient mental health services, psychiatric day treatment, primary healthcare, parent education, and support and job training opportunities, and provides services in English, Spanish, Chinese, Italian, Sicilian and German. Gouverneur Healthcare Services, located at 227 Madison Street, includes an ambulatory care center, a 210-bed nursing facility, and offers interpreter services in several languages. Gouverneur Healthcare Services has several programs and services to accommodate the diverse population of the Lower East Side, including its Asian Mental Health Program and its Mobile Crisis Unit that provides psychiatric care to the homeless. Betances Health Center at 280 Henry Street offers services including primary care, prenatal care, and geriatric services, and social services, in English, Spanish, Mandarin, Cantonese, and Russian. These facilities offer services to patients regardless of immigration status or ability to pay. Local residents who use the services provided by CHN would be able to find similar services elsewhere in the study area.[1]

2. Are any of the businesses to be displaced part of a category of businesses subject to regulations or publicly adopted plans to preserve, enhance, or otherwise protect it?

The businesses that could be displaced are not the subject of any regulations or public policy that seeks to preserve a specific type of business or institutional use. In fact, as described in Chapter 2, “Land Use, Zoning, and Public Policy,” the community guidelines and urban design recommendations adopted by CB3 served as a broad framework for defining essential elements of the proposed actions.

CONCLUSION

Collectively, an estimated 14 businesses and 107 employees could be displaced without specific plans or provisions for their relocation within the study area. While every business is important to the City’s economy, under CEQR guidelines, the potential loss of these businesses and employment within the study area would not be considered a significant adverse impact. The employment that would be lost would not be substantial, and the proposed actions would introduce many new employment opportunities in similar industry sectors. Collectively and individually, the displaced businesses provide products and services that are not critical to the study area or the defining element of the study area, and the products and services would continue to be available in a trade area to local residents and businesses. Therefore, the proposed actions would not result in significant adverse impacts due to direct business displacement.

INDIRECT RESIDENTIAL DISPLACEMENT

An analysis of indirect residential displacement aims to determine whether the proposed actions would introduce or accelerate a socioeconomic trend in a neighborhood, thereby changing the socioeconomic character of the neighborhood. Generally, an indirect residential displacement analysis is conducted only in cases in which the potential impact may be experienced by renters

[1] Information on capacity and services provided obtained from http://www.betances.org/; http://www.nyc.gov/html/hhc/gouverneur/html/home/home.shtml; http://www.henrystreet.org/programs/primary-behavioral-health/; and http://www.chnnyc.org/.

living in privately held units unprotected by rent control, rent stabilization, or other government regulations restricting rents, or whose incomes or poverty status indicate that they may not support substantial rent increases. The *CEQR Technical Manual* provides a step-by-step analysis for a preliminary assessment of indirect residential displacement.

STEP 1: Determine if the proposed project would add new population with higher average incomes compared to the average incomes of the existing populations and any new population expected to reside in the study area without the proposed project.

According to 2006-2010 ACS data, the average household income in the ¼-mile study area was approximately $69,083 (see **Table 3-4**). In comparison, the average household income was $125,163 in Manhattan and $79,512 in New York City as a whole. The relatively low average household income in the ¼-mile study area is due in large part to the abundance of public housing in the study area, such as the Seward Park Extension and the development at 45 Allen Street. In general, the census tracts in which these developments are located have average incomes that are the lowest relative to the average incomes for Manhattan and New York City as a whole.

The average income in the ¼-mile study area increased by 17.8 percent since 1999. Over the same time period, the average income in Manhattan increased by 2.2 percent and the average income in New York City decreased by 2.2 percent (see **Table 3-4**). This large increase can be explained by the trend of new residential development that occurred in the area during this time. Notable market-rate residential developments in the area include the 243-unit Ludlow building at 188 Ludlow Street, the 30-unit Blue condo building at 105 Norfolk Street, and the 24-unit condo building at 115 Norfolk Street. Overall, census tracts that contain large amounts of new market-rate residential housing experienced the highest increase in average income.

Table 3-4
Average Household Income (1999, 2006-2010)

	1999	2006-2010	Percent Change
¼-Mile Study Area	$ 58,621	$ 69,083	17.8%
Manhattan	$ 122,454	$ 125,163	2.2%
New York City	$ 81,265	$ 79,512	-2.2%

Notes: 1. Average household income for the study area was estimated based on a weighted average of mean household income for the census tracts in the study area.
2. The ACS collects data throughout the period on an on-going, monthly basis and asks for respondents' income over the "past 12 months." The 2006-2010 ACS data therefore reflects incomes over 2005 and 2010, while Census 2000 data reflects income over the prior calendar year (1999). The median household income for both time periods is presented in 2011 dollars using an average of the U.S. Department of Labor's March 2011 Consumer Price Indices for the "New York-Northern New Jersey-Long Island Area."
Sources: U.S. Census Bureau, 2000 Census, Summary File 3; 2006-2010 American Community Survey; U.S. Department of Labor Bureau of Labor Statistics; AKRF, Inc.

When the median is used as a measure of income in the ¼-mile study area, the increase is more dramatic. The median household income for the ¼-mile study area from 2006-2010 was an estimated $46,633 (see **Table 3-5**). This is significantly lower that the median household income for Manhattan ($66,318) and lower that that of New York City ($51,328). The presence of subsidized housing in the area is more notable in the examination of the median income than in the average income, as the median is less affected by the presence of a relatively small number of higher-income households in new market rate developments. However, the ¼-mile study area has also experienced a notable increase in median household income over the past decade—the median income grew by approximately 22.2 percent in the study area, which is much higher than the increase experienced in Manhattan (1.5 percent). New York City as a whole experienced a 3.5 percent decrease in median household income over the same period.

Table 3-5
Median Household Income (1999, 2006-2010)

	1999	2006-2010	Percent Change
¼-Mile Study Area	$ 38,150	$ 46,633	22.2%
Manhattan	$ 65,326	$ 66,318	1.5%
New York City	$ 53,190	$ 51,328	-3.5%

Notes: 1. Median household income for the study area was estimated based on a weighted average of median household incomes for the census tracts in the study area.
2. The ACS collects data throughout the period on an on-going, monthly basis and asks for respondents' income over the "past 12 months." The 2006-2010 ACS data therefore reflects incomes over 2005 and 2010, while Census 2000 data reflects income over the prior calendar year (1999). The median household income for both time periods is presented in 2011 dollars using an average of the U.S. Department of Labor's March 2011 Consumer Price Indices for the "New York-Northern New Jersey-Long Island Area."
Sources: U.S. Census Bureau, 2000 Census, Summary File 3; 2006-2010 American Community Survey; U.S. Department of Labor Bureau of Labor Statistics; AKRF, Inc.

Under the RWCDS, the proposed actions would add 900 residential units, resulting in the introduction of an estimated 1,989 residents to the area.[1] ~~It is expected that h~~Half of these units (450 residential units) would be affordable housing, and therefore would be occupied by a range of low- to middle-income households. The remaining residential units would be market rate, which would be available for households at any income level. Recent real estate trends in the area indicate that many of these market rate units could be occupied by households with incomes higher than both the area average and median. According to the *Black & White Report* from CitiHabitats, Inc., average monthly rental rates for apartments on the Lower East Side in 2010 were $2,196 for a one-bedroom unit and $2,931 for a two-bedroom unit. A search of listings for Lower East Side apartments on Streeteasy.com in January 2012 indicated that the median rental rate is approximately $2,195 for a one-bedroom unit and $3,450 for a two-bedroom unit. Newly constructed or converted rental buildings generally have more amenities, including doormen, and can command higher rental rates. The MNS Manhattan Rental Market Report from December 2011 shows the average rental rate for one-bedroom units in the Lower East Side ranging from $2,132 to $2,565 in non-doorman buildings and from $2,760 to $3,825 in doorman buildings, and the average rental rate for two-bedroom units ranging from $3,324 to $3,823 in non-doorman buildings and from $3,989 to $5,158 in doorman buildings. Based on these data, and assuming that households spend 30 percent of their annual income on rent, renters of a one-bedroom apartment in the Lower East Side would be projected to earn between $87,800 and $153,000, and renters of a two-bedroom apartment would be projected to earn between $117,240 and $206,320.[2]

Since 2000, the average and median incomes in the study area have increased at rates higher than those experienced in Manhattan and New York City as a whole. In the context of changes

[1] Estimate assumes the average household size (2.21 people per household) of Community District 3.

[2] Assumption based on U.S. Department of Housing and Urban Development (HUD) definition of affordable housing. According to HUD, families who pay more than 30 percent of their income for housing are cost burdened.

in both the median and average income in the study area, the change resulting from the proposed actions would represent the continuation of an existing trend. However, in the context of market rate rents in the study area, it is possible that the market rate units added by the proposed actions could introduce a population with incomes higher than the average and the median in the study area. Because it is possible that an estimated 994 new residents would have income greater than the average and the median in the study area, Step 2 of the preliminary assessment is required.

STEP 2: Determine if the project's increase in population is large enough relative to the size of the population expected to reside in the study area without the project to affect real estate market conditions in the study area.

According to the *CEQR Technical Manual*, a population increase of less than 5 percent of the total study area population would generally not be expected to change real estate market conditions. According to the U.S. Census, in 2010 the study area had a population of 43,711—a 6.4 percent decline from the population in 2000 (see **Table 3-6**). In comparison, the population of Manhattan increased by 3.2 percent, and the population of New York City increased by 2.1 percent during the same time period.

Table 3-6
Population Change (2000-2010)

	2000	2010	Percent Change
Study Area	46,684	43,711	-6.4%
Manhattan	1,537,195	1,585,873	3.2%
New York City	8,008,278	8,175,133	2.1%

Sources: U.S. Census Bureau, 2000 Census, Summary File 3; 2010 Census; AKRF, Inc.

As detailed in Table 2-2 in Chapter 2, "Land Use, Zoning, and Public Policy," several development projects are expected in the future without the proposed actions. Based on information about these planned projects, approximately 523 ~~512~~ residential units will be built in the ¼-mile study area by the 2022 build year. Assuming the average household size (2.21 people per household) and the occupancy rate (91.8 percent) of Community District 3, these planned development projects would add an estimated 1,061 ~~1,039~~ residents to the study area. The total population in the future without the proposed actions would be 44,772 ~~44,750~~ residents (see **Table 3-7**).

Table 3-7
Estimated Population Change

	Population			Percent Change (Future with and without the Proposed Actions)
	2010	Future without the Proposed Actions	Future with the Proposed Actions	
Study Area	43,711	44,772 ~~44,750~~[1]	46,761 ~~46,739~~[2]	4.44%

Notes: 1. Based on the No Action list presented in Table 2-2, there will be approximately 523 ~~512~~ residential units built in the study area by 2022, absent the proposed actions. Based on Community District 3's average household size from the 2008-2010 American Community Survey 3-Year Estimates (2.21 people per household) and the occupancy rate (91.8 percent), 1,061 ~~1,039~~ people will be added in the future without the proposed actions.
2. Based on the RWCDS, 900 residential units would be added in the future with the proposed actions. Assuming Community District 3's average household size from the 2008-2010 American Community Survey 3-Year Estimates (2.21 people per household), approximately 1,989 residents would be added by the proposed actions.

Sources: Census 2010, New York City Department of City Planning, AKRF, Inc.

As explained in the previous step, the proposed actions would add 900 residential units to the project site. Assuming the 2.21 people per household average for Community District 3, this increase in residential units would introduce 1,989 residents to the study area, for a total population of 46,761 ~~46,739~~ or an increase of 4.44 percent (see **Table 3-7**).

Since this increase is lower than the 5 percent CEQR threshold, the proposed actions are not expected to substantially change the demographic composition or alter real estate market conditions in the study area. Any upward pressure on rent that could be generated by the project would be limited in scale, and is not expected to extend beyond an area immediately surrounding the project site. In addition, by allocating half of the residential component in the proposed actions to affordable housing, the proposed actions could balance the upward momentum of rents in the area caused by redevelopment. The 450 affordable housing units could also expand housing options available to the lower-income residents in the study area, protecting them against indirect displacement in the future.

INDIRECT BUSINESS DISPLACEMENT DUE TO INCREASED RENTS

According to the *CEQR Technical Manual,* the objective of the indirect business displacement analysis is to determine whether the proposed actions may introduce trends that would increase commercial property values and therefore rents, making it difficult for some categories of businesses to remain in the area. In this preliminary assessment the potential to introduce such a trend is addressed by considering the italicized questions below.

1. Would the proposed project introduce enough of a new economic activity or add to the concentration of a particular sector of the local economy enough to introduce trends that would alter existing economic patterns?

Under the RWCDS, the proposed actions would introduce the following types of economic activities and uses to the proposed development sites: residential; office; hotel; retail; community facility space; and parking. The addition of community facility uses and parking spaces would not alter existing economic patterns. Therefore, this assessment focuses on the proposed actions' residential, office, hotel, and retail uses.

RESIDENTIAL

The RWCDS would introduce 900 residential units to the study area by 2022. As stated above in "Indirect Residential Displacement," the ¼-mile study area already contains a large residential population (an estimated 43,711 residents). The project-generated population would represent less than five percent of the total population in the ¼-mile study area.

The residential units that would be added by the proposed actions are expected to contribute to the existing trend toward residential development in the ¼-mile study area. Between 2000 and 2010, the number of housing units in the study area increased by 5.8 percent, from 19,381 housing units to 20,510 housing units. Recent market rate residential development includes the 23-story, 243-unit Ludlow residential building at 188 Ludlow Street that was built in 2006; the 16-story, 30 unit Blue condo at 105 Norfolk Street that was built in 2005; and the 7-story, 24-unit condo building at 115 Norfolk Street that was built in 2008. In addition, approximately 523 ~~512~~ residential units are expected to be built in the study area in the future without the proposed actions. Given the existing established trend toward residential development in the study area, the residential units that would be introduced by the proposed actions represent a continuation of an existing trend and would not change existing economic patterns.

OFFICE

Under the RWCDS, approximately 36,300 square feet of non-specific commercial uses would be built on the project site, some of which could be office space. Since some portion of this space could be used for other commercial uses, less than 36,300 square feet of office space could be added as a result of the proposed actions. Although this would be a new use to the study area, up to 36,300 square feet of this new use would not be enough of a new economic activity to alter existing economic patterns in the study area.

HOTEL

The 200-room hotel that would be introduced under the RWCDS would not add to a particular sector of the local economy such that it would affect overall ongoing economic trends in the ¼-mile study area. According to ESRI Business Analyst, the study area has nine existing hotels with 331 employees. Hotels in the area include: the Hotel on Rivington at 107 Rivington Street; Thompson Lower East Side at 190 Allen Street; and Blue Moon Hotel at 100 Orchard Street. In addition, as shown on Table 2-2, 1,026 ~~693~~ additional hotel rooms are proposed in the future without the proposed actions. Thus, the proposed actions would contribute to the existing trend toward hotel development in the ¼-mile study area.

RETAIL

As described above, the RWCDS would introduce approximately 469,000 square feet of retail including both destination and local retail. In addition, the project would relocate and expand the existing Essex Street Market space by approximately 14,000 square feet from approximately 15,000 square feet to approximately 29,000 square feet. Specific tenants and store sizes for the proposed actions have not yet been determined. Currently, the ¼-mile study area has 2.20 million square feet of retail. The 483,000 square feet of retail (including the 14,000 square feet of net new public market space) that would be introduced by the proposed actions would be a 22.0 percent increase over existing retail.

The concern for this assessment is whether the retail introduced by the proposed actions would alter economic patterns in a way that would make existing commercial uses vulnerable to indirect displacement due to increased rents. In general, existing retail businesses in the ¼-mile study area would benefit from the increased foot traffic that would be created by the residential and worker population introduced by the proposed actions. For many businesses located in the ¼-mile study area, spending from the new households and employees would increase sales. By increasing sales, these businesses could afford increases in commercial rents, thereby avoiding displacement.

Although, as a whole, existing businesses in the ¼-mile study area would benefit from the increased foot traffic, there is some potential that certain types of businesses could experience indirect displacement pressure. Assuming an increase in rents, retail stores most vulnerable to displacement would be those that are not able to capture sales from the new population. The extent of rent increases would depend upon the incremental levels of pedestrian activity generated by the proposed actions, and the location of existing storefronts relative to the areas of increased pedestrian activity; while no particular category of retail store would be immune to potential rent increases, those stores whose sales did not grow proportionately to rent increases would be most vulnerable to displacement. While neighborhood services and convenience goods stores generally benefit from increases in residential population, if a store targets a particular demographic group whose numbers are decreasing within the ¼-mile study area even as total population is increasing, then that store may be vulnerable to displacement due to increases in rent. For example, discount apparel or shoe stores along Delancey Street appeal primarily to a low- and moderate-income customer base. Although these stores may be less likely to capture dollars from new, more affluent residents and workers in the area, the study area contains a mix of incomes, as would the population introduced by the proposed actions.

Although some retail tenants may be indirectly displaced, their displacement would not constitute a significant adverse impact under CEQR. As set forth in the *CEQR Technical Manual*, the consideration of a business or institution's economic value is based on the following criteria: (1) its products and services; (2) its location needs and whether those needs can be satisfied at other locations; and (3) the potential effects on businesses or on consumers of losing the displaced business or institution as a product or service. The retail stores that would be vulnerable to indirect displacement are not unique to the study area, and do not have locational needs that would preclude them from relocating elsewhere within the city. Furthermore, since the ¼-mile study area already contains a large residential population (an estimated 43,711 residents), there would still be the local demand for neighborhood retail and services necessary to maintain the strong retail presence within the study area. Therefore, the indirect retail displacement that could result from increased rents would not be expected to result in significant adverse socioeconomic impacts.

Area businesses potentially vulnerable to indirect displacement due to increased rent also include industrial businesses. Industrial businesses are typically less compatible with the economic trends that are creating upward rent pressures in the ¼-mile study area; i.e., they tend to not directly benefit in terms of increased business activity from the market forces generating the increases in rent. For example, if a neighborhood is a more desirable place to live, uses that are less compatible with residential conditions (such as manufacturing) would be less able to afford increases in rent due to increases in property values compared with a neighborhood service use, convenience goods store, or eating and drinking establishment, which could see increased business activity from the increased residential presence. Therefore, industrial uses in the study area could be considered potentially vulnerable to indirect displacement, as a property owner could decide to convert an existing industrial property to a retail use.

As stated in Chapter 2, "Land Use, Zoning, and Public Policy," there are a few remaining light industrial uses scattered throughout the area, including loft spaces, wholesalers, and warehouses; and a small enclave of auto repair shops is located on Attorney Street between East Houston and Stanton Streets. In addition, light industrial uses, such as warehouses, wholesalers, distributers, and hardware stores that support Chinatown's commercial corridors are located along Chrystie and Eldridge Streets. These industrial uses in the ¼-mile study area could be considered potentially vulnerable to indirect displacement, as a property owner could decide to convert an existing industrial property to a retail use. However, these pressures are already present within the study area and are expected to increase in the future irrespective of the proposed actions. While the proposed actions could result in limited indirect displacement of existing industrial businesses, it would not alter or accelerate trends that would change existing economic patterns in a manner that would result in significant displacement.

2. ***Would the proposed project directly displace uses of any type that directly support businesses in the area or bring people to the area that form a customer base for local businesses?***

As discussed in the direct displacement sections above, the proposed actions would directly displace nine tenants, as well as 14 businesses for which relocation plans have not been identified, including: a news stand; three eating establishments; a cell phone store; a liquor store; a ground-floor visitor center for the Lower East Side Jewish Conservancy; and a shoe repair store. The goods and services offered by potentially displaced uses can be found elsewhere within the ¼-mile study area, and the proposed actions would likely introduce similar uses. None of the potentially displaced businesses provide substantial direct support to other businesses in the study area. While the visitor center brings visitors to the study area, it does not bring substantial visitors to the area that form a customer base for local businesses. Furthermore, it is possible that these displaced businesses could relocate to the new commercial space that would be added by the proposed actions.

In addition, four surface parking lots with approximately 338 public parking spaces and approximately 100 commercial parking spaces would be directly displaced by the proposed actions. In the future with the proposed actions, it is expected that up to 500 public parking spaces would be provided. As described in Chapter 13, "Transportation," the 500 off-street parking spaces that would be introduced by the proposed actions would be sufficient to accommodate peak parking demand levels generated by the proposed actions.

3. Would the proposed project directly or indirectly displace residents, workers, or visitors who form the customer base of existing businesses in the study area?

As described above, nine residents and an estimated 107 employees would be directly displaced by the proposed actions. Although these potentially displaced residents and employees may form a portion of the customer base of neighborhood retail and service establishments, the proposed actions would introduce approximately 1,989 residents and approximately 1,449 workers to the ¼-mile study area. The increase in residential and worker populations in the study area due to the proposed actions would add to the potential customer base of existing study area businesses.

CONCLUSION

Based on the preliminary assessment presented above, the proposed actions would not result in significant adverse impacts due to indirect business displacement, and a detailed analysis is not warranted.

INDIRECT BUSINESS DISPLACEMENT DUE TO MARKET SATURATION

As described in the *CEQR Technical Manual,* development activity such as shopping facilities may draw sales from existing stores. While these competitive socioeconomic impacts do not necessarily generate environmental concerns, they can become an environmental concern if they have the potential to impact neighborhood character by affecting the viability of neighborhood shopping areas.

The purpose of this preliminary assessment is to determine whether the proposed project may capture retail sales from existing businesses to the extent that vacancies and disinvestment on neighborhood commercial streets would occur, thereby affecting land use patterns and the economic viability of the neighborhood.

As stated in the *CEQR Technical Manual*, indirect displacement due to market saturation is rare in New York City, where population density, population growth, and purchasing power are often high enough to sustain increases in retail supply. In many ways, the Lower East Side, the neighborhood in which the project site is located, has a particularly robust retail profile, grounded in a long history of entrepreneurship. The character of retail in the area makes any substantial displacement due to new development and market saturation unlikely. Historically, the Lower East Side has been home to a range of bustling commercial uses, from garment production to food production and eateries to pushcart vendors. Today, the area contains a broad mix of commercial uses including local delis and tailors; a growing number of restaurants, drinking establishments, art galleries, and fashion boutiques; wholesale and retail restaurant supply and lighting stores; and larger commercial establishments such as clothing stores and banks. These are supported by a number of retail spending sources including residents of the Lower East Side and beyond, local workers, day-visitors, and overnight tourists staying at the growing inventory of boutique hotels on the Lower East Side.

One of the characteristics that makes the Lower East Side and its adjacent neighborhoods of NoHo, Chinatown, and the East Village, popular as a shopping destination is the tight concentration of particular types of retail. For example, the concentration of stores in Chinatown specializing in products such as Asian foods, artwork and housewares draws both regular customers from all over the city and a constant stream of tourists. Shoppers enjoy the ease of comparison shopping in an area where a large volume of similar products can be found in the space of a few blocks. The cluster of restaurant supply and lighting stores along Bowery Street likewise provides an opportunity for easy access to a wide variety of products in a specific category of retail. More generally, clothing, shoe, and accessory stores throughout the Lower East Side and adjacent neighborhoods all benefit from the high volumes of foot traffic spurred by the co-location of stores offering similar goods and services. In effect, the concentration of stores in a location like the Lower East Side creates more positive synergy than a negative competition among similar stores.

The *CEQR Technical Manual* provides a step-by-step preliminary assessment that can be described as a “capture rate analysis.” Capture rates are measures of business activity in a trade area, indicating the percentage of consumer expenditures for retail goods that are being captured by retailers in the trade area.

STEP 1:

The first step in a retail capture rate analysis is to determine whether the categories of goods to be sold at the proposed development are similar to the categories of goods sold in stores found on neighborhood retail streets within the study area.

The RWCDS assumes that the proposed actions would result in the development of 469,000 gsf of retail uses, comprising a mix of local retail (i.e., small-scale stores geared towards serving the day-to-day needs of the study area population), and destination retail (i.e., retail generally sold in larger format stores that will attract customers from greater distances in order to compare price, quality, and the selection of merchandise). Specific tenants and store sizes for the proposed actions have not yet been determined. For purposes of this analysis, it is conservatively assumed that the retail program could include, in addition to various small and mid-size retail stores and incremental Essex Street Market space, a 125,000-gsf discount department store; a 115,000-gsf home improvement store, and a 65,000-gsf grocery store. This assumption is conservative because these types of stores tend to have substantial overlap with a variety of smaller format stores that may already exist on nearby neighborhood retail streets, and their annual per square foot sales are typically high compared to other retail uses.

The ¼-mile study area and areas close to the ¼-mile study area boundary include a substantial amount of retail, and stores are varied in both size and product offerings. Certain retail concentrations in the area include retail stores that specialize in goods unlikely to be sold at project site stores. For example, the Bowery hosts a concentration of stores specializing in restaurant supply and lighting fixtures, and Chinatown includes grocery stores that cater to the large Asian population living in the study area and in other parts of the city. It is unlikely that these stores would be directly competitive with the new retail stores introduced under the proposed actions. However, with up to 469,000 square feet of retail and 14,000 square feet of net new public market space, it is assumed that the proposed actions could include retailers whose product offerings do overlap with the offerings at some study area retail stores.

STEP 2:

Step 2 in a retail capture rate analysis is to determine a Primary Trade Area. For the proposed "anchor" stores – the largest stores in the proposed development that are expected to yield the largest proportion of retail sales.

As described in Chapter 1, "Project Description," footprints for the projected development sites range from approximately 7,000 square feet to approximately 61,000 square feet. These footprints could accommodate a range of retail uses, including destination retailers that would draw customers from outside of the immediate neighborhood.

As defined by Urban Land Institute's Shopping Center Development Handbook, trade areas for shopping concentrations similar to the proposed actions in size and potential tenant mix would generally extend three to five miles from the site, and typically can be reached within a ten- to twenty-minute drive. Trade areas for retail projects in New York City are typically smaller than the national standards cited in the Shopping Center Development Handbook, due primarily to the density of development in the New York metropolitan area. A five-mile radius from the proposed project site extends into Queens and deep into Brooklyn, reaches north to approximately 100th Street in Manhattan, and covers most of Hudson County in New Jersey. This would not be an appropriate trade area for the proposed actions because many of those traveling from the more distant reaches of a five-mile trade area would be traveling past retail concentrations of equal or greater size to reach the project site. For example, residents of Hudson County are more likely to regularly visit closer retail destinations such as Newport Centre Mall in Jersey City and residents in most areas of Brooklyn would pass destination retail in Downtown Brooklyn, Gowanus, and Red Hook before reaching the project site.

Thus, for purposes of analysis, the Primary Trade Area for the proposed actions is a two-mile perimeter around the project site, hereafter referred to as the 2-Mile Primary Trade Area (see **Figure 3-2**).

STEP 3:

Step 3 in the preliminary assessment is to estimate sales volumes for relevant retail stores within the Primary Trade Area, i.e., stores that sell categories of goods similar to those expected to be offered by stores introduced by the proposed project.

As described above, no specific retailing plan has been developed for the proposed actions, but it is expected that the project would include retail stores selling a variety of goods and services. Therefore, this analysis assesses sales in four major retail categories: shoppers' goods; convenience goods; building materials and garden supplies; and eating and drinking establishments. Shoppers' goods are usually higher value goods—such as clothing, electronics, or furniture—for which consumers compare quality and price at more than one store before making a purchase. Convenience goods are usually lower value goods that are purchased frequently and immediately, often near the home or workplace, with little or no comparison shopping. The building materials and garden supplies category includes goods such as hardware, paint, building materials and supplies, and lawn and garden equipment and supplies. The eating and drinking establishment category includes restaurants, bars, and other special food services, such as caterers.

Data for department stores and grocery stores—subsets of the shoppers' goods and convenience goods categories, respectively—are also analyzed. This analysis focuses on these stores in particular because grocery stores and department stores often serve as anchors for retail concentrations, and the proposed actions could introduce stores offering products that would substantially overlap with typical grocery store or department store offerings.

According to ESRI, a national provider of geographic planning data, retail sales at stores in the 2-Mile Primary Trade Area totaled approximately $17.5 billion in 2010 for the retail categories analyzed (see **Table 3-8**). Approximately 47 percent of these sales were at shoppers' goods stores ($8.2 billion), 23 percent at convenience goods stores ($4.1 billion), and 29 percent at eating and drinking establishments ($5.0 billion). One percent of sales were at building materials and garden supply stores ($175.9 million). Only three percent of sales in the shoppers' goods category were attributed to department stores ($215.0 million), reflecting the prevalence of small- and mid-size stores rather than larger-format department stores in the 2-Mile Primary Trade Area.

Table 3-8
Retail Sales in the 2-Mile Primary Trade Area

Retail Category	Total Sales (Millions of 2011 Dollars)
Shoppers' Goods[1]	$8,225.25
Department Stores	*$215.00*
Convenience Goods[1]	$4,078.70
Grocery Stores	*$1,559.73*
Building Materials and Garden Supply	$175.91
Eating and Drinking Establishments	$4,975.24
Total[2]	$17,455.10

Notes: 1. Shoppers' Goods include: furniture and home furnishings stores; electronics and appliance stores; clothing and clothing accessories stores; sporting goods, hobby, book, and music stores; general merchandise stores; office supply, stationary, and gift stores; and used merchandise stores. Convenience Goods include: food and beverage stores; health and personal care stores; florists; and other miscellaneous store retailers.
2. Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc.; AKRF, Inc.

STEP 4:

Step 4 in the preliminary assessment is to estimate the expenditure potential, or retail demand, for relevant retail goods of shoppers within the Primary Trade Area.

Retail demand for any retail concentration can originate from a variety of sources, including local households and workers, businesses, tourists, and online sales. Data sources that report on both retail demand and sales tend to focus on demand from households in a defined geography and do not always address demand from workers, businesses, or tourists, which can be more difficult to pinpoint and relate directly to retail sales. (The U.S. Census Bureau compiles data on household expenditures by retail category, but does not have a corresponding data set for spending by workers or tourists for defined geographies, and many data providers rely heavily on information from the U.S. Census Bureau.) The 2-Mile Primary Trade Area in particular has a high concentration of employment and encompasses prime tourist destinations such as Wall Street, the Brooklyn Bridge, Chinatown, SoHo and NoHo, as well as the Hudson River Park, and DUMBO, and therefore is drawing retail sales from a base much wider than its own residential population. However, the data sets available for this analysis provide retail demand estimates only for 2-Mile Primary Trade Area households, not for workers, tourists, or other visitors who live outside of the 2-Mile Primary Trade Area, and therefore do not capture the true magnitude of expenditure potential within the trade area.

According to ESRI, households in the 2-Mile Primary Trade Area spent an estimated $7.6 billion on retail goods in 2010 (see **Table 3-9**). Approximately 35 percent was spent on shoppers' goods, 36 percent on convenience goods, 25 percent on eating and drinking establishments, and 4 percent on building materials and garden supply. On a per household basis, Primary Trade Area residents spent roughly $8,656 annually on shoppers' goods including $644 at department stores, $8,840 annually on convenience goods including $4,739 at grocery stores, $6,200 on eating and drinking establishments, and $941 at building materials and garden supply stores.

Table 3-9
Household Retail Demand in the 2-Mile Primary Trade Area

	Total Demand (2011 Dollars)[1]	Demand per Household (2011 Dollars)[1]
Shoppers' Goods[2]	$2,671,020,000	$8,656
Department Stores	*$198,640,000*	*$644*
Convenience Goods[2]	$2,727,950,000	$8,840
Grocery Stores	*$1,462,320,000*	*$4,739*
Building Materials and Garden Supply	$290,430,000	$941
Eating and Drinking Establishments	$1,913,110,000	$6,200
Total[3]	$7,624,680,000	$24,636

Notes: 1. Demand (retail expenditure potential) estimates the expected amount spent by consumers at retail establishments.
2. Shoppers' Goods include: furniture and home furnishings stores; electronics and appliance stores; clothing and clothing accessories stores; sporting goods, hobby, book, and music stores; general merchandise stores; office supply, stationary, and gift stores; and used merchandise stores. Convenience Goods include: food and beverage stores; health and personal care stores; florists; and other miscellaneous store retailers.
3. Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc.; AKRF, Inc.

STEP 5:

Step 5 in the preliminary assessment is to compare retail sales (Step 3) with retail demand (Step 4) to develop a "capture rate," which can help determine whether the Primary Trade Area is currently saturated with retail uses or whether there is likely to be an outflow of sales from the area.

Capture rates are measures of business activity in a trade area, indicating the percentage of consumer expenditures for retail goods that are being captured by retailers in the trade area. If the total sales in the trade area are much lower than the area's expenditure potential, then residents are likely spending a large portion of their available dollars outside of the trade area, and the capture rate is low. If sales are closer in value to expenditure potential, then area residents are likely spending a higher proportion of their available resources within the area, and the capture rate is high.

Capture rates are also affected by money flowing into an area from people who do not live in that area. Some of the sales in the 2-Mile Primary Trade Area, for example, are from people living in other areas of Manhattan, other New York City boroughs, Nassau County, NY, Hudson County, NJ and elsewhere, shopping at stores in the Primary Trade Area. However, it is not possible to know exactly who (residents or nonresidents) is spending money in the area. Therefore, a high capture rate may be indicative of an area with a high proportion of destination retail, i.e., retail that will attract customers from greater distances in order to compare price, quality, and the selection of merchandise. This is the case for New York City as a whole, where the retail capture rate is approximately 109 percent and the capture rate for shopper's goods is 138 percent. Despite these uncertainties about the origin of sales in any particular trade area, comparing expenditure and sales data can provide a good indication of how much of a trade area's household expenditure potential is being captured by trade area retailers.

Tables 3-10 through 3-12 show the capture rates for the 2-Mile Primary Trade Area, Manhattan, and New York City. As shown in **Table 3-10**, capture rates in the 2-Mile Primary Trade Area exceed 100 percent for all retail categories analyzed with the exception of building materials and garden supply stores, which has a capture rate of approximately 61 percent. Capture rates in Manhattan are also well over 100 percent for all retail categories except in the building materials and garden category, which has a capture rate of approximately 46 percent (see **Table 3-11**). As shown in **Table 3-12**, retail capture rates for New York City as a whole are approximately 143 percent for shoppers' goods, 87 percent for convenience goods, 51 percent for building materials and garden supplies and 122 percent for eating and drinking establishments. These data show that the capture rates for the Primary Study Area, while high, are not unusual in the context of New York City. As stated above, the 2-Mile Primary Trade Area in particular has a high concentration of employment and encompasses prime tourist destinations such as Wall Street, the Brooklyn Bridge, Chinatown, SoHo and NoHo, and the Hudson River Park, and DUMBO, and therefore is drawing retail sales from a base much wider than its own residential population.

Table 3-10
Household Retail Expenditures and Total Retail Sales, 2-Mile Primary Trade Area, 2010

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Amount Not Being Captured in Primary Trade Area[1]	Primary Trade Area Capture Rate
Shoppers' Goods	$8,225.25	$2,671.02	($5,554.23)	307.9%
Department Stores	$215.00	$198.64	*($16.36)*	*108.2%*
Convenience Goods	$4,078.70	$2,727.95	($1,350.76)	149.5%
Grocery Stores	$1,559.73	$1,462.32	*($97.42)*	*106.7%*
Building Materials and Garden Supply	$175.91	$290.43	$114.53	60.6%
Eating and Drinking Establishments	$4,975.24	$1,913.11	($3,062.13)	260.1%
Total[2]	$17,455.10	$7,602.51	($9,852.59)	229.6%

Notes: 1. All values are in millions of 2011 dollars.
2. Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc; AKRF, Inc.

Table 3-11
Household Retail Expenditures and Total Retail Sales, Manhattan, 2010

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Amount Not Being Captured in Primary Trade Area[1]	Primary Trade Area Capture Rate
Shoppers' Goods	$17,944.13	$7,266.91	($10,677.22)	246.9%
Department Stores	$710.73	$532.84	*($177.89)*	*133.4%*
Convenience Goods	$9,982.59	$7,142.18	($2,840.42)	139.8%
Grocery Stores	$3,960.09	$3,711.02	*($249.07)*	*106.7%*
Building Materials and Garden Supply	$346.59	$755.82	$409.22	45.9%
Eating and Drinking Establishments	$11,129.60	$5,109.18	($6,020.42)	217.8%
Total[2]	$39,402.91	$20,274.08	($19,128.83)	194.4%

Notes: 1. All values are in millions of 2011 dollars.
2. Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc; AKRF, Inc.

Table 3-12
Household Retail Expenditures and Total Retail Sales, New York City, 2010

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Amount Not Being Captured in Primary Trade Area[1]	Primary Trade Area Capture Rate
Shoppers' Goods	$24,215.63	$16,939.41	($7,276.21)	143.0%
Department Stores	*$1,172.28*	*$1,347.92*	*$175.64*	*87.0%*
Convenience Goods	$19,377.03	$22,216.61	$2,839.58	87.2%
Grocery Stores	*$9,825.13*	*$14,008.51*	*$4,183.38*	*70.1%*
Building Materials and Garden Supply	$1,219.73	$2,410.68	$1,190.95	50.6%
Eating and Drinking Establishments	$16,418.24	$13,409.59	($3,008.65)	122.4%
Total[2]	$61,230.62	$54,976.29	($6,254.33)	111.4%

Notes: 1. All values are in millions of 2011 dollars.
2. Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc; AKRF, Inc.

A closer look at the area more immediately surrounding the project site—a ½-mile radius—reveals that capture rates for most categories are higher in the ½-mile area than in the 2-Mile Primary Trade Area. In the ½-mile radius (referred to later in this chapter as the ½-Mile Local Trade Area), the capture rate for convenience goods is approximately 238 percent; the capture rate for building materials and garden supply is 82 percent, and the rate for eating and drinking establishments is 311 percent. Only the capture rate for shoppers' goods stores is lower in the ½-Mile Local Trade Area (168 percent) compared to the 2-Mile Primary Trade Area (308 percent). The higher capture rates in the ½-mile area are likely due to the concentration of retail and particular types of retail in the area. For example, the high capture rate for grocery stores in the ½-Mile Local Trade Area (242 percent compared to 107 percent in the 2-Mile Primary Trade Area) is attributable in part to the presence of Chinatown, which draws shoppers from all over the city and metropolitan region. Because there are few places in the New York City region that contain such a concentration of stores selling Asian grocery products, Chinatown attracts sales from residents throughout the metropolitan region. This drives up the capture rate for grocery stores in the ½-Mile Local Trade Area. In comparison, the 2-Mile Primary Trade Area includes a higher proportion of neighborhoods where grocery store sales are derived more heavily from local residents.

STEP 6:

Step 6 in the preliminary assessment is to assess factors that will affect conditions in the Primary Trade Area in the build year even absent the proposed project. Such factors typically include population changes, which could increase expenditure potential and generate additional demand for retail goods, and new retail projects, which would expand the retail inventory.

Capture rate analyses sometimes use information on known residential and retail projects to quantify new retail sales and household demand in a Primary Trade Area. These changes are layered onto the existing conditions to determine changes in capture rates between the existing conditions and the future without the proposed actions. Sales and household demand from the proposed actions are then added to estimate capture rates in the future with the proposed actions. This more nuanced quantified approach towards capture rates in the No Action condition can be appropriate when capture rates are below 100 percent or when there are large residential or retail projects planned for the Primary Trade Area—projects that could substantially affect retail capture rates.

Retail capture rates in the 2-Mile Primary Trade Area are already well over 100 percent (see Step 5) and there are no known residential or retail projects planned for the 2-Mile Primary Trade Area that would have the potential to substantially alter retail capture rates in the area. Therefore, a quantified approach to No Action capture rates is not essential to this analysis. Further, as described below under Step 8, the *CEQR Technical Manual* indicates that a detailed analysis of the potential for indirect business displacement due to competition is warranted when retail capture rates in relevant categories are over 100 percent in the future with the proposed actions. Retail capture rates for shoppers' goods, convenience goods, and eating and drinking establishments are already well over 100 percent for the 2-Mile Primary Trade Area and will remain so in the future with the proposed actions. Therefore, a detailed analysis will be required and the exercise of quantifying No Action capture rates is not necessary.

STEP 7:

Step 7 is to project the sales volume for the proposed project's retail uses.

As described above under Step 1, under the RWCDS the proposed actions would introduce approximately 469,000 gsf of retail including both destination and local (neighborhood-oriented) retail. In addition, the project would relocate and expand the existing Essex Street Market space by about 14,000 gsf from approximately 15,000 square feet to approximately 29,000 square feet. **Table 3-13** shows the breakdown of retail assumed under this analysis.

Table 3-13
Estimated Sales at Stores Introduced Under the Proposed Actions

	Square Feet	Estimated Sales (Millions of 2011 Dollars)
Shoppers' Goods	**182,000**	**$90.26**
Shoppers' Goods at Discount Department Stores[1]	*120,000*	*$42.76*
All Other	*63,000*	*$47.50*
Convenience Goods	**145,000**	**$78.12**
Grocery Store	*65,000*	*$46.60*
Net New Essex Street Market	*14,000*	*$4.73*
Grocery at Discount Department Store	*38,000*	*$18.33*
Other Neighborhood Retail[2]	*29,000*	*$8.46*
Building Materials and Garden Supply	**115,000**	**$66.19**
Eating and Drinking Establishments	**41,000**	**$25.74**
Total[2]	**484,000**	**$260.32**

Notes: 1. Based on information from selected 2006 and 2007 SEC 10K filings of typical discount department stores, approximately 30 percent of sales at the discount department store are assumed to be from grocery items.
2. Conservatively includes all neighborhood service businesses (e.g., Laundromat, nail and hair salons, etc.) Totals may not sum due to rounding.

Sources: Discount department store and home improvement sales were estimated based on proprietary sales data from discount department stores and home improvement stores and shopping centers in the New York Metropolitan Area. Sales for all other shoppers' goods, convenience goods, and eating and drinking establishments were estimated based on data from the Urban Land Institute's *2008 Dollars and Cents of Shopping Centers*.

As shown in **Table 3-13**, retail sales resulting from the proposed actions are projected to be approximately $260.32 million annually, generated by approximately 182,000 square feet of shoppers' goods space, 145,000 square feet of convenience goods space, 41,000 square feet of eating and drinking establishments, and 115,000 square feet of building material and garden supply space. Annual sales for shoppers' goods are estimated at $90.26 million; annual sales for convenience goods are estimated to be $78.12 million; annual sales for eating and drinking establishments are estimated to be 25.74 million; and estimated annual sales for home improvement stores are $66.19 million.

The approximately $260 million in projected retail sales from the proposed actions would represent less than two percent of total retail sales for the 2-Mile Primary Trade area, which are estimated to be $17.5 billion annually. While potential effects on local retail are examined in detail in Section E, the overall retail sales generated by the project are modest compared to the retail market in the 2-Mile Primary Trade Area and Manhattan as a whole, and are less than what is expected from modest annual retail growth rates in the future without the proposed actions.

The proposed actions would also introduce 900 residential units to the 2-Mile Primary Trade Area. Based on 2010 retail expenditure figures from ESRI, these households would add approximately $20.9 million to the trade area expenditure potential (see **Table 3-14**).

Table 3-14
Estimated Retail Demand from Households to be Introduced by Proposed Actions

	Retail Demand from Households
Shoppers' Goods	$6.5
Department Stores	*$0.6*
Convenience Goods	$8.0
Grocery Stores	*$4.3*
Building Materials and Garden Supply	$0.8
Eating and Drinking Establishments	$5.6
Total[1]	$20.9

Notes: 1) Values are in millions of 2011 dollars.
2) Total does not reflect total for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: ESRI, Inc; AKRF, Inc.

STEP 8:

Step 8 is to develop a capture rate for the Primary Trade Area in the future with the proposed project. According to the CEQR Technical Manual, if the capture rate for relevant categories of goods would exceed 100 percent, it may have the potential to saturate the market for particular retail goods and a detailed assessment is warranted.

As described above under Step 7, the proposed actions would increase retail sales in the 2-Mile Primary Trade Area by an estimated $260.3 million annually, and would increase household retail expenditure potential by approximately $20.9 million annually. **Table 3-15** compares Primary Trade Area retail sales, demand, and capture rates for existing conditions and in the future with the proposed actions.

Table 3-15
Comparison of Estimated Retail Capture Rates in 2-Mile Primary Trade Area: Existing Conditions and Future With the Proposed Actions

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Primary Trade Area Capture Rate
Existing Conditions			
Shoppers' Goods	$8,225	$2,671	308%
Department Stores	$215	$199	108%
Convenience Goods	$4,079	$2,728	150%
Grocery	$1,560	$1,462	107%
Building Materials and Garden Supply	$176	$290	61%
Eating and Drinking	$4,975	$1,913	260%
TOTAL	**$17,455**	**$7,603**	**230%**
2022 With the Proposed Actions			
Shoppers' Goods	$8,316	$2,679	310%
Department Stores	$258	$199	129%
Convenience Goods	$4,157	$2,736	152%
Grocery	$1,629	$1,467	111%
Building Materials and Garden Supply	$242	$291	83%
Eating and Drinking	$5,001	$1,919	261%
TOTAL	**$17,715**	**$7,625**	**232%**

As shown in the table, the overall retail capture rate would increase to 232 percent in the future with the proposed actions. This capture rate is approximately two percentage points higher than in the existing conditions. Department stores and building materials and garden supply stores would experience the greatest relative increase, with the capture rate for department stores increasing from 108 to 129 percent and the capture rate for building materials and garden supply stores increasing from 61 percent to 83 percent. Increases for the other categories would be more modest, with the grocery store capture rate increasing by four percentage points to 111 percent and the eating and drinking establishment capture rate increasing by one percentage point to 161 percent.

With the exception of the building materials and garden supply category, capture rates for each of the broad retail categories analyzed would exceed 100 percent in the future with the proposed actions. As described above, capture rates are not an exact measure of retail sales and expenditure potential in any area, and this analysis has focused by necessity on the household expenditure potential component of retail demand, not quantifying additional demand from other sources such as workers, tourists and other visitors, or internet sales. Despite these uncertainties, and although capture rates in all but one of the retail categories analyzed are already over 100 percent in the existing conditions, the potential for significant adverse impacts due to retail market saturation cannot be ruled out with this preliminary assessment, and, therefore, a detailed analysis is warranted. The detailed analysis, presented in Section E, focuses more closely on a subset of the 2-Mile Primary Trade Area – a ½-Mile Local Trade Area.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

According to the *CEQR Technical Manual*, a significant adverse impact may occur if an action would measurably diminish the viability of a specific industry that has substantial economic value to the city's economy. An example as cited in the *CEQR Technical Manual* would be new regulations that prohibit or restrict the use of certain processes that are critical to certain industries. A preliminary assessment of the adverse effects on specific industries, using the *CEQR Technical Manual* threshold indicators (numbered in italics below), is provided to determine the potential for significant adverse impacts.

1. Would the proposed project significantly affect business conditions in any industry or any category of business within or outside the study area?

The proposed actions would not significantly affect business conditions in any industry or any category of business within or outside the study area. As described in "Direct Business Displacement" above, the proposed actions would displace an estimated 14 businesses and 107 employees without specific plans or provisions for their relocation within the study area. These include a news stand; a health clinic; three eating establishments; a cell phone store; a liquor store; a visitor center for the Lower East Side Jewish Conservancy; a shoe repair store; and four surface parking lots.

The businesses that would be displaced do not represent a critical mass of businesses within any City industry or category of business. Although these businesses are valuable individually and collectively to the City's economy, the goods and services offered by potentially displaced uses can be found elsewhere within the ¼-mile study area and within the City. Therefore, the proposed actions would not affect business condition in any specific industry within or outside of the study area.

2. Would the proposed project indirectly substantially reduce employment or impair the economic viability in the industry or category of businesses?

As described above, the proposed actions would not result is significant indirect business displacement due to increased rents, and any indirect displacement that could result from market saturation is expected to be limited, and would not substantially affect a specific industry or category of business. Therefore, the proposed actions would not affect the economic viability or substantially reduce employment in any industry or category of business.

CONCLUSION

Based on this preliminary assessment, the proposed actions would not have the potential to have significant adverse impacts on specific industries within the study area. The businesses that would be directly displaced account for a small fraction of the total employment in the study area, and any indirect displacement would be limited and not expected to affect any specific category of businesses.

D. DETAILED ANALYSIS: INDIRECT BUSINESS DISPLACEMENT DUE TO RETAIL MARKET SATURATION

According to the *CEQR Technical Manual*, if the capture rate analysis developed as part of the preliminary assessment of indirect business displacement due to competition shows that the retail capture rate for relevant types of retail goods would exceed 100 percent in the future with the proposed actions, then a more detailed analysis is necessary. While competitive socioeconomic impacts do not necessarily generate environmental concerns, they can become an environmental concern if they have the potential to affect neighborhood character by affecting the viability of neighborhood shopping areas.

The preliminary assessment revealed 2-Mile Primary Trade Area capture rates of over 100 percent in the future with the proposed actions. This finding indicates that many retail stores in the 2-Mile Primary Trade Area serve a regional customer base, drawing a significant portion of sales from sources other than the residential population. Therefore, this section evaluates whether potential indirect displacement from competition could result in significant adverse impacts.

While the preliminary assessment analyzed a 2-Mile Primary Trade Area, this detailed analysis focuses on a ½-Mile Local Trade Area—the area from which the proposed actions’ retail would have the greatest potential to draw frequent, repeat visits from customers of existing retail concentrations, thereby affecting the business environment of those areas.

The analysis focuses on grocery stores in particular, because grocery stores often serve as anchors for retail concentrations and the proposed actions could introduce a 65,000-square-foot grocery store in addition to other stores (e.g., discount department store) that may offer products that substantially overlap with typical grocery store offerings. Although capture rates for department stores and home improvement stores would also increase in the future with the proposed actions, and department stores would have a capture rate of over 100 percent, these store types are given secondary focus in this analysis because they do not anchor local retail concentrations near the project site and they tend to draw customers from larger trade areas than food stores.

EXISTING CONDITIONS

The ½-Mile Local Trade Area contains a broad range of shopping options across a variety of distinct neighborhoods, each with distinct retail types. This section describes major retail concentrations within the ½-Mile Local Trade Area, focusing on types of retail and services and storefront vacancy rates for each area. Because of the prevalence of commercial uses and the density of retail in the ½-Mile Local Trade Area, key retail concentrations were identified for detailed, quantitative analysis (see **Table 3-16** and **Figure 3-3**). The detailed surveys of the retail key retail concentrations were used to characterize retail in more general commercial areas, which are described in qualitative discussions below. Quantitative and qualitative analyses are based on field surveys conducted in October and November 2011. Detailed retail inventories are provided in **Appendix B, "Socioeconomic Conditions."**

Table 3-16
Key Retail Concentrations in the ½-Mile Local Trade Area

Map Ref.	Description	Boundaries
1	Project Site Immediate Surroundings	Stanton Street, Pitt Street, East Broadway, Canal Street, and Allen Street
2	Alphabet City: Avenue B	Avenue B from Tompkins Square Park to East Houston Street
3	East Village: Second Avenue	Second Avenue between East Houston Street and East 6th Street
4	East Village and Alphabet City: 7th Street	East 7th Street between Avenue A and Second Avenue
5	Bowery	Bowery between Grand Street and Stanton Street
6	Nolita: Intersection of Mott Street and Prince Street	Mott Street between Spring Street and East Houston Street; Prince Street between Centre Street and Bowery
7	Chinatown: Grand Street	Grand Street between Allen and Mott Street
8	Chinatown: East Broadway	East Broadway between Catherine and Market Street
9	Chinatown: Canal Street	Canal Street between Bowery and Mulberry Street
10	Little Italy	Mulberry Street between Canal Street and Broome Street
Source: AKRF, Inc.		

SUMMARY OF KEY RETAIL CONCENTRATIONS IN THE TRADE AREA

Detailed retail inventories were conducted for approximately 1,579 storefronts in the ½-Mile Local Trade Area. A summary of the detailed inventories is provided in **Table 3-17**. All of these retail concentrations contribute to the overall draw of the Lower East Site as a shopping destination that attracts shoppers from throughout the region. Approximately 26 percent of all the storefronts surveyed offer shopping goods, which include clothing and accessories, home furnishings, electronics, sporting goods, miscellaneous goods such as used merchandise and art dealers, and others. Approximately 21 percent of the storefronts were occupied by eating and drinking establishments, which include both full- and limited-service restaurants and bars.[1] Neighborhood services accounted for approximately 22 percent of retail in the detailed analysis areas. These include banks, salons and spas, medical and dental offices, and other professional services, among others. The overall vacancy rate for the areas of detailed analysis is approximately 18 percent. Areas with higher vacancy rates include the Bowery (29 percent) and

[1] Limited-service restaurants are those where patrons generally order or select items and pay before eating.

Table 3-17
Storefronts in Key Retail Concentrations in the ½-Mile Local Trade Area

Retail Category	Storefronts	Percent of Total
Shopping Goods	404	26%
Building Materials and Garden Supply	36	2%
Convenience Goods	179	11%
Neighborhood Services	341	22%
Eating and Drinking Places	332	21%
Auto-Related Trade	2	0.1%
Vacant Storefronts	285	18%
Total Storefronts	1,579	100%

Notes: Tabulation only includes storefronts in key retail concentrations.
Sources: AKRF, Inc. field surveys conducted in October 2011

the area immediately surrounding the project site (24 percent). Little Italy and Chinatown had the lowest vacancy rates in the study area, at 3.2 percent and 4.5 percent respectively. Each of the key retail concentrations are described in detail below.

KEY RETAIL CONCENTRATION: THE AREA IMMEDIATELY SURROUNDING THE PROJECT SITE

The project site spans Delancey Street to the north and south and extends from Ludlow Street to the west to the Williamsburg Bridge ramp to the east. Detailed retail surveys were conducted on Delancey Street between Allen Street and Ridge Street (see below) as well as for the entire area immediately surrounding the project site (bounded by Stanton Street and Canal and East Broadway to the north and south; and Pitt Street and Allen Street to the east and west). The area contains active retail along Delancey Street as well as streets like Orchard and Ludlow to the west. To the east, Clinton Street provides another active retail concentration, though activity drops off south of Delancey. These areas have a variety of boutique clothing stores for men and women, hair and nail salons, as well as limited- and full-service restaurants. Many of the storefronts are occupied by bars, which limit pedestrian and retail activity during the daytime. The area contains two small grocery stores but is also served by various delis and bodegas. Shopping goods make up the largest percentage of retail in this area north of Delancey Street (25.6 percent). Another 22 percent of retail in the area north of Delancey Street comprises eating and drinking establishments, of which 44 are full service restaurants and 32 are bars. In contrast, the portion of this area south of Delancey Street is characterized by a high vacancy rate (30.7 percent) that is higher than any retail category. A variety of neighborhood services make up the second largest percentage of retail in this area south of Delancey Street, with 22.4 percent or 78 storefronts. Parking is available on the street as well as in some of the parking lots on the project site.

Delancey Street between Allen Street and Ridge Street is the most active retail strip in the area immediately surrounding the project site. It is a car-oriented thoroughfare that also has heavy pedestrian traffic due to the subway station at Delancey Street and Essex Street. This traffic supports 68 storefronts with the largest percentage—approximately 33.8 percent—occupied by shopping goods retailers. Neighborhood services account for 22.1 percent of the retail, of which parking lots and banks are the most common. Eating and drinking establishments, specifically limited-service restaurants, also represent a large percentage of retail (16.2 percent). Unlike the surrounding area, the neighborhood services and eating and drinking establishments on Delancey Street are mostly national chains, such as Chase and Bank of America, and fast food restaurants like McDonald's, Popeye's, Burger King, and Starbucks. Other national chains include clothing retailers like Rainbow, Payless Shoes, and The Children's Place, as well as four national cell phone dealers. Despite the active retail, Delancey Street has a vacancy rate of approximately 19.1 percent—a rate that is high but relatively similar to the rest of the ½-Mile Local Trade Area.

LITTLE ITALY

Qualitative Discussion

The businesses that constitute Little Italy are concentrated on Mulberry Street between Canal Street and Broome Street, extending to the side streets on Hester and Grand Street. Little Italy is surrounded by Chinatown on all sides, but is characterized by retail patterns that are distinct from the adjacent streets. The streets are narrow and pedestrian-oriented with street parking available. Heavy pedestrian traffic is supported by dense storefronts and a high occupancy rate. The eating and drinking establishments almost exclusively offer Italian and Italian-American specialties, while the shopping goods businesses include mostly souvenir and accessories shops. A detailed retail survey was conducted on Mulberry Street between Canal Street and Broome Street to characterize retail in Little Italy.

Key Retail Concentration: Mulberry Street between Canal Street and Broome Street

Mulberry Street between Canal Street and Broome Street represents the heart of Little Italy. The street is narrow and the sidewalk is crowded with pedestrians and outdoor seating for restaurants. Unlike nearby Chinatown (described below), retail in Little Italy is catered primarily to tourists, with a low percentage of neighborhood services (1.6 percent) and no national chains represented. Instead, 34 of the 62 total storefronts (54.8 percent) in this key retail concentration are occupied by eating or drinking establishments. Most of these are full-service Italian restaurants, with only one bar and one limited service restaurant on the strip. Gift, novelty, and souvenir stores and accessory retailers are also common on this strip. There are 12 souvenir stores (19.4 percent) and seven accessories stores on this corridor. The 3.2 percent vacancy rate is the lowest in the ½-Mile Local Trade Area.

THE BOWERY

Qualitative Discussion

The Bowery spans the west side of the study area from East 4th Street in the north to Chatham Square in the south. It is a wide, auto-oriented thoroughfare that contains a distinct concentration of wholesale and retail establishments targeted to building materials and supplies for homes and businesses, specifically the restaurant industry. This niche industry is supported by the many eating and drinking establishments located in the adjacent neighborhoods of Chinatown, Nolita, SoHo, Little Italy, and others. For the pedestrian, the Bowery bisects Chinatown south of Delancey, and serves as somewhat of an east-west boundary. The storefronts on the Bowery maintain a distinct character, with wholesale trade representing a large percentage of business and truck loading common along the street. In order to describe retail on the Bowery, a detailed retail survey was conducted on the Bowery between Grand Street and Stanton Street.

Key Retail Concentration: Bowery between Grand Street and Stanton Street

Retail on the Bowery is concentrated in the ½-Mile Local Trade Area between Grand Street and Stanton Street. This key retail concentration contains 25 storefronts that are occupied by wholesale restaurant equipment and supply businesses. Though not included in the inventory of retail establishments, these represent 31.3 percent of all storefronts in the area. There is light pedestrian traffic north of Delancey Street, where workers occupy the sidewalk loading, unloading, and cleaning equipment. The northern section also contains a mix of older architecture and newer residential buildings and hotels. There are two full-service restaurants and two bars on this northern portion. South of Delancey Street, 21 storefronts are occupied by lighting businesses, which represent 38.2 percent of retail on this strip. The storefronts are denser in this southern portion, supporting heavier pedestrian traffic. The businesses reflect some of the retail types seen in nearby Chinatown, and many have Chinese signage. Vacancies in the area are clustered or tend to be located on the corners.

NOLITA

Qualitative Discussion

Within the ½-Mile Local Trade Area, Nolita is bounded by East Houston Street and Kenmare Street to the north and south, and Bowery and Lafayette Street to the east and west. Named for its location north of Little Italy, the area reflects the streetscape of Little Italy in its dense storefronts, narrow streets, and on-street parking. Pedestrian traffic is less heavy than the more tourist-oriented Little Italy, but is constant. This traffic is supported by a variety of high-end retail and eating and drinking establishments. In order to define retail in Nolita, detailed surveys were conducted around the intersection of Mott Street between East Houston and Spring Street and Prince Street between Bowery and Lafayette. These streets represented the highest concentration of retail in the area, in which some streets are dominated by residential buildings.

Key Retail Concentration: Mott Street between East Houston and Spring Street; Prince Street between Bowery and Lafayette

The intersection of Mott Street and Prince Street represents the center of the Nolita neighborhood. Retail storefronts are found on the ground floors of buildings with residential uses above. Both of these streets are pedestrian-oriented and contain a mix of retail dominated by women’s clothing boutiques, which represent 27.2 percent of storefronts (24 businesses). These are high-end boutiques that reflect the type of retail and higher-income residential character in the nearby neighborhood of SoHo. There are nine full-service and six limited-service restaurants in the area, collectively representing the second highest percentage of retail (17.0 percent). Neighborhood services—notably hair and nail salons—account for another 10.2 percent of retail. The 9.1 percent vacancy rate is low relative to the rest of the ½-Mile Local Trade Area.

CHINATOWN

Qualitative Discussion

Chinatown occupies a large section in the southwest of the ½-Mile Local Trade Area, roughly bounded by Kenmare Street and Madison Street to the north and south Allen Street and Rutgers Street to the east, and extending west to the ½-mile perimeter. Within Chinatown, detailed assessments were conducted for three key retail concentrations. In order to capture variety of retail in Chinatown three detailed survey were conducted in the portion of Chinatown within the ½-Mile Local Trade Area: Canal Street between Mulberry Street and Bowery, Grand Street between Mott Street and Allen Street, and East Broadway between Catherine Street and Market Street. For all three of the key retail concentrations, shopping goods and neighborhood services both accounted for large percentages of retail. Convenience goods were more prevalent along Grand Street, which caters to a more residential population than both Canal Street and East Broadway. Based on these three detailed analyses, the entire area has the second lowest vacancy rate in the trade area (4.5 percent).

Key Retail Concentration: Canal Street between Mulberry Street and Bowery

Canal Street between Mulberry Street and Bowery is a major commercial thoroughfare in Chinatown. Canal Street bisects Chinatown, separating historic Chinatown in the south from newer portions in the north. Seven subway lines connect at Canal Street between Centre Street and Broadway, just west of the ½-Mile Local Trade Area. The strip of Canal Street in the ½-Mile Local Trade Area contains 65 storefronts with a high concentration of shopping goods stores (44.6 percent or 29 businesses), most of which are jewelry stores (26 businesses). Neighborhood services such as banks, professional and medical offices, and hair, nail, and skin services account for 38.5 percent of the retail uses. Convenience goods have the third highest concentration of storefronts with 7.7 percent (5 businesses). Eating and drinking establishments account for only 3.1 percent of the retail, with 2 limited-service eating establishments. This key retail concentration has a vacancy rate of 6.2 percent. The jewelry stores and mix of banks that are national chains and branches of international banks cater to a residential population in Chinatown as well as tourists.

Key Retail Concentration: Grand Street between Mott Street and Allen Street

Grand Street between Mott Street and Allen Street is a dense commercial strip with a diverse mix of stores. Both pedestrian and auto traffic are heavy along Grand Street, supporting 103 storefronts with a relatively even distribution of retail types, though most feature Chinese goods. Convenience goods account for 27.2 percent of the retail, representing the highest concentration, followed by 24.3 percent neighborhood services, of which hair, nail, and skin services and other professional offices such as travel agencies and tax preparers are the most common. Shopping goods establishments occupy 22.3 percent of the storefronts. Eating and drinking establishments account for 18.4 percent of the retail with 19 businesses, of which 12 are limited-service restaurants and seven are full-service restaurants. Grand Street caters more to a residential and immigrant population, with groceries and pharmacies carrying Chinese products. The vacancy rate on Grand Street is 6.8 percent—higher than the other key retail concentrations in Chinatown, but still far lower than the average for the ½-Mile Local Trade Area.

Key Retail Concentration: East Broadway between Catherine Street and Market Street

The key retail concentration on East Broadway between Catherine Street and Market Street contains 118 storefronts. Like Canal Street, East Broadway is a wider, auto-oriented thoroughfare. However, the buildings on East Broadway reflect the older tenement buildings in the Lower East Side, while Canal contains newer facades. Like Grand Street, East Broadway caters to a local, immigrant population, with neighborhood services accounting for the largest percentage of retail uses at 48.3 percent (57 businesses), of which professional services (such as immigration service businesses and lawyers) are the most common. The next highest concentration of retail on this strip is shopping goods, which account for 23.7 percent of the retail uses. These carry a wide range of merchandise such as clothing, accessories, home furnishings, appliances and electronics, books, and office supplies. Convenience goods stores (16.9 percent or 20 businesses) also include a variety of offerings such as meat markets, specialty food stores, pharmacies, and florists. Eating and drinking establishments occupy 9.3

percent of retail, with 6 full-service restaurants, 4 limited-service eating places, and 1 drinking place on the strip. Vacancy in this key retail concentration is low at 1.7 percent.

ALPHABET CITY

Qualitative Discussion

Alphabet City occupies the northeast section of the ½-Mile Local Trade Area, generally bounded by Avenue A on the west, East 9th Street to the north, Avenue D to the east, and East Houston Street to the south. As stated in Chapter 2, "Land Use, Zoning, and Public Policy," commercial uses within this area are generally found on the ground floor of residential buildings along the major north-south streets of Avenue A and Avenue B. Typical retail uses include restaurants, bars, coffee shops, delis, clothing stores, and other neighborhood retail uses. In order to characterize Alphabet City, detailed retail surveys were conducted for Avenue B between East Houston and East 7th Street. Avenues B was representative of the retail on Avenues A and C as these avenues also have a high concentration of eating and drinking establishments and neighborhood services. Avenue D, however, had a lower concentration of eating and drinking establishments, and seemed to have a higher concentration of stores that provide convenience goods and neighborhood services to residents in the area. Local businesses were more common throughout Alphabet City with national chains scattered on Avenue A (Key Food, Citibank, and Sovereign Bank), Avenue B (Duane Reade and Banco Popular), Avenue C (Capital One Bank), and Avenue D (H&R Block and Rite Aid).

Key Retail Concentration: Avenue B between East Houston Street and East 7th Street

Detailed retail surveys were conducted on Avenue B between East Houston and East 7th Street. This key retail concentration contains 58 storefronts, of which the largest concentration is eating and drinking places (17 storefronts or 29.3 percent). The eating and drinking establishments included a mix of full-service restaurants, limited-service eating places, and bars. The next highest concentration of retail on Avenue B was convenience goods stores (22.4 percent or 13 storefronts). These included six bodegas and three health and personal care stores. Neighborhood services were also common on Avenue B, with three hair, nail, and skin services, two laundromats, two dry cleaners, two banks, and two professional offices. Vacancy on Avenue B was high at 24.1 percent.

EAST VILLAGE

Qualitative Discussion

The East Village occupies the northwest section of the ½-Mile Local Trade Area, and encompasses the area west of First Avenue to the Bowery. Similar to Alphabet City, typical retail uses in the East Village include restaurants, bars, coffee shops, delis, clothing stores, and other neighborhood retail uses. In order to characterize the East Village, detailed retail surveys were conducted for Second Avenue between East Houston Street and East 8th Street, and for East 7th Street between Second Avenue and Avenue A. Commercial uses within this area are concentrated on the ground floor of residential buildings along the major north-south streets. Second Avenue was representative of other north-south avenues in the East Village (Bowery and First Avenue) as these streets had a high concentration of restaurants, bars and stores providing convenience goods and neighborhood services. Although retail is concentrated on the north-south streets, retail in the East Village is also present on the ground-floors of residential buildings on the east-west streets. The retail found on the east-west streets included clothing stores and neighborhood services (such as hair and nail salons). In order to characterize the east-west streets, retail surveys were conducted for East Seventh Street between Second Avenue and Avenue A.

Key Retail Concentration: Second Avenue between East Houston Street and East Sixth Street

Second Avenue between East Houston and East Sixth Street contains 80 storefronts, including 30 eating and drinking places representing 37.5 percent of all retail. Of these eating and drinking places, 23 were full-service restaurants, followed by six drinking places, and one limited-service eating place. Similar to Alphabet City, the East Village had a high concentration of convenience goods stores and neighborhood services, each with 10 stores, representing 12.5 percent of all storefronts on the strip. However, while restaurants and bars were common on the north-south streets in both the East Village and Alphabet City, Second Avenue had a more diverse mix of stores compared to Avenue B. While only 5.2 percent of storefronts on Avenue B were shopping goods stores, 10.0 percent of storefronts on Second Avenue were in this category. In addition, Second Avenue had two building materials stores and two auto-related trade stores; however, these categories were unrepresented on Avenue B. Vacancy on Second Avenue was high at 22.5 percent.

Key Retail Concentration: Seventh Street between Second Avenue and Avenue A

Detailed retail surveys were also conducted for key retail concentration on Seventh Street between Second Avenue and Avenue A. This retail concentration has 66 storefronts. Similar to the Second Avenue retail concentration, Seventh Street also had a large concentration of full-service restaurants (15 businesses or 22.7 percent), limited-service eating places (6 businesses or 9.1 percent), and drinking places (5 businesses or 7.6 percent). In addition, Seventh Street had a high concentration of neighborhood services, particularly hair, nail, and skin services (11 businesses or 16.7 percent). Approximately 22.7 percent of businesses on Seventh Street were shopping goods stores, including ten clothing and accessories boutiques and two used merchandise stores. Convenience goods had the fourth highest concentration of stores with 7.6 percent of storefronts. Vacancy was low on Seventh Street at 4.5 percent.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

The two primary factors that would affect retail conditions in the ½-Mile Local Trade Area in the future without the proposed actions include population growth, which could increase expenditure potential and generate additional demand for retail goods, and new retail projects, which would expand the retail inventory. As described in Chapter 2, “Land Use, Zoning, and Public Policy,” known projects under construction or planned for the ¼-mile land use study area will introduce approximately 76,100 gsf of commercial space and 523 ~~512~~ residential units to the area by 2022. It can be expected that a mix of new residential and retail uses would also be introduced to the area between the ¼-mile and ½-mile perimeters.

As stated in the *CEQR Technical Manual*, New York City’s commercial streets are dynamic and are continually affected by changes in consumer spending, shopping trends, demographics, and population growth. There are no known projects in the broader ½-Mile Local Trade Area that would be unusual in the size or nature of their residential or retail programs. Overall, in the future without the proposed actions, it is expected that the retail landscape in the ½-Mile Local Trade Area will continue to evolve consistent with current trends, with natural turnover and growth in retail uses and growing household retail demand.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

As described above, under the RWCDS the proposed actions would introduce approximately 469,000 square feet of retail including both destination and local retail. In addition, the proposed actions would relocate and expand the existing Essex Street Market space by approximately 14,000 gsf from approximately 15,000 gsf to approximately 29,000 gsf on a new site. Specific tenants and store sizes for the proposed actions have not yet been determined. For purposes of this analysis, it is conservatively assumed that the retail program could include, in addition to various small and mid-size retail stores, a 125,000-gsf discount department store, a 115,000-gsf home improvement store, and a 65,000-gsf grocery store.

As described in the *CEQR Technical Manual*, there may be potential for a significant adverse impact on retail businesses if a project would decrease shopper traffic on commercial streets such that retail vacancies rise and retail businesses in the study area are no longer economically viable. This should be considered likely if the following conditions are met:

- The proposed anchor stores have potential to affect the ability of existing stores selling similar categories of goods to capture the sales volume necessary to remain in business;
- These existing stores draw a substantial share of shopper traffic to the neighborhood commercial strips on which they are located, or the street contains a concentration of businesses that sell the relevant categories of retail goods; and
- Limited demand for retail tenants is expected.

Population growth in the ½-Mile Local Trade Area will increase demand for retail tenants in both the future without and with the proposed actions. The project itself would introduce 900 new households, adding approximately $20.9 million annually in new retail demand to the ½-Mile Local Trade Area. In addition, as described above, it is expected that approximately 523 ~~280~~ new households will be added within ¼-mile of the project site by 2022 absent the proposed actions. Not only would the proposed actions introduce new households, they would also introduce workers and visitors to the area. The combination of new residents, workers, and visitors would increase foot traffic and increase retail demand, benefitting existing retail concentrations in the ½-Mile Local Trade Area. Therefore, this analysis focuses on the first two conditions bulleted above —whether the proposed anchor stores could affect the ability of existing stores to remain in business and whether these stores anchor the commercial strips on which they are located or are part of a larger concentration of stores, all selling relevant categories of retail goods.

The analysis focuses first on local food stores, followed by home improvement stores and shoppers' goods stores.

POTENTIAL IMPACTS ON LOCAL FOOD STORES

The retail corridors within the ½-Mile Local Trade Area contain a variety of food and beverage stores, including several large chain supermarkets and smaller independent stores such as delis and grocery stores, meat and fish markets, fruit and vegetable markets, and retail bakeries. The grocery store inventory in the ½-Mile Local Trade Area includes large chain supermarkets such as Pathmark, Fine Fare, and Whole Foods, and several smaller supermarket chains such as Key Food, Associated, and Met Food. In addition, there are a number of Asian food markets of varying size. Excluding the Essex Street Market, there are approximately 29 supermarkets or grocery stores in the ½-Mile Local Trade Area. The names and addresses of each supermarket or large grocery store are provided in **Table 3-18** and are mapped in **Figure 3-4**. As noted above, the analysis focuses on

3.21.12

0 1000 FEET
SCALE

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Half-Mile Local Trade Area Boundary

1 Grocery Store (See Table 3-17 for Reference)

30 Under the proposed actions, the Essex Street Market would be relocated and expanded from approximately 15,00 square feet to approximately 29,000 square feet

Selected Grocery Stores
in the Half-Mile Local Trade Area
Figure 3-4

grocery stores in particular because grocery stores often serve as anchors for retail concentrations and the proposed actions could introduce a 65,000 square foot grocery store, as well as other stores offering products that substantially overlap with typical grocery store offerings.

Table 3-18
Selected Grocery Stores in ½-Mile Local Trade Area

Map Ref.	Grocery Store[1]	Address	Size (SF)
1	**Fine Fare**	**357 Grand Street**	**20,000**
2	Clinton Supermarket and Mall	90 Clinton Street	4,000
3	Key Food	43 Columbia Street	9,000
4	**Fine Fare**	**549 Grand Street**	**11,400**
5	W+Y Grocery	277 Broome Street	3,600
6	**Pathmark**	**250 South Street**	**40,000**
7	East Side Kosher Dairy	504 Grand Street	1,800
8	**Whole Foods**	**93 East Houston Street**	**73,000**
9	**Key Food**	**52 Avenue A**	**11,500**
10	**Associated**	**338 East 8th Street**	**11,000**
11	**Fine Fare**	**42 Avenue C**	**14,000**
12	Met Food	107 Second Avenue	4,500
13	Met Food	249 Mulberry Street	3,500
14	Deluxe Food Market	79 Elizabeth St (122 Mott St)	7,000
15	Houston Village Farm's Deli and Café	61 First Ave	1,800
16	New Kam Man	198-200 Canal St	5,000
17	East Village Farm and Grocery	69 Second Ave	1,500
18	Hong Kong Supermarket	157 Hester St (80 Elizabeth St)	9,300
19	Spring Mart	202 Mott St (26 Spring St)	4,000
20	Tan Tin-Hung Supermarket	121 Bowery	2,500
21	New York Supermarket	75 East Broadway	8,900
22	**New York Mart**	**128 Mott St**	**28,800**
23	GS Food Market	250 Grand St	1,300
24	Ken Hing Food Market	247 Grand St	2,000
25	Fairtown Trading Inc	272-274 Grand St	3,800
26	Best Goody Food Corp	101 Bowery	2,500
27	Hai Sen	249 Grand St	3,800
28	Compare Foods	71 Avenue D	5,900
29	Han May Co Inc	69 Mulberry St (94 Bayard St)	2,200
30	**Essex Street Market[2]**	**116 Delancey Street**	**15,000**

Notes: (1) Supermarkets greater than 10,000 square feet are listed in bold. Grocery stores less than 1,000 square feet in size are not included.
(2) Under the proposed actions, the Essex Street Market would be expanded from approximately 15,000 square feet to approximately 29,000 square feet.

Sources: Store square footage based on RPAD data, site visits, and data from New York State Department of Agriculture and Markets provided by New York City Department of City Planning.

As described below under *Grocery Store Findings*, with the proposed actions including a potential 65,000 square foot grocery store and 14,000 square feet of additional Essex Street Market space, the amount of competitive business displacement of grocery stores would be minimal, is not expected to jeopardize the viability of any neighborhood retail strips or concentration of stores offering similar products and, therefore, is not expected to result in significant adverse impacts due to competition.

Grocery Store Finding One: Retail corridors in certain segments of the ½-Mile Local Trade Area cater to specific ethnic groups.

Many parts of the ½-Mile Local Trade Area have a distinct character in terms of the income and ethnic background of their residents. The local retail concentrations reflect the income and ethnic patterns of their local neighborhoods, with local retailers offering specialty goods and services familiar to a specific ethnic community and frequently doing business in a foreign language. For example, shopping areas along Grand Street in Chinatown caters to a largely Chinese immigrant population, with groceries and pharmacies carrying Asian products. The area southeast of the proposed project site, generally south of Delancey Street and east of Clinton Street, includes a concentration of Kosher stores catering to the Jewish residential population in that area. And the Alphabet City portion of the ½-Mile Local Trade Area includes a number of small-scale bodegas and convenience stores catering to the neighborhood's Hispanic population.

By focusing on a specific, and in some cases, geographically small local market area, these retail concentrations have maintained strong local support. And despite the fact that many of the local commercial strips draw from a small primary trade area (in some cases a two- or three-block radius), sales are high due to high population densities throughout the ½-Mile Local Trade Area and Lower Manhattan as a whole. Some of the stores, particularly those in Chinatown, draw customers from throughout New York City. Furthermore, it is unlikely that the proposed retail would offer goods, services, or restaurants that would directly compete with the specialty goods, services, and ethnic restaurants offered by local retailers focusing on a specific ethnic community. Overall, many shopping areas would be likely to retain their customer base.

Grocery Store Finding Two: Local stores would remain convenient to many shoppers.

Local area residents would continue to make a majority of their grocery shopping trips to stores closest to their homes and closest to public transportation. For example, residents living in the East Village portion of the ½-Mile Local Trade Area are more likely to utilize grocery stores north of the project site, which are closer on foot to most areas of the East Village and also proximate to the Number 6 subway stop at Astor Place and to several bus routes including M9, M14A, M15, and M21. Similarly, residents living in Chinatown are more likely to use stores in that neighborhood, particularly given that they are likely to use the 4/5/6, N/R/Q or M/J/Z subway lines, all of which have stops in or close to Chinatown. In general, shoppers are more likely to patronize supermarkets closest to their homes and to public transportation in places like Lower Manhattan where most people travel and shop by foot and public transit rather than by car.

Small- to medium-sized, independently owned grocery stores, bodegas, and delis serve a retail function similar to specialty food stores, though they offer a wider variety of food items. In general, these smaller grocery stores tend to act as convenience stores, where customers make frequent trips and purchase fewer items that are in immediate demand, such as milk or bread, or housekeeping supplies such as light bulbs. While shoppers may sometimes purchase these types of goods at chain supermarkets, they typically do not make frequent trips for convenience goods to area supermarkets; instead, they are likely to continue to fill their more frequent convenience food and beverage need at smaller, nearby grocery stores.

Grocery Store Finding Three: Local retail corridors tend to have more convenience goods and neighborhood services stores compared with anticipated uses under the proposed project.

Retail concentrations in the ½-Mile Local Trade Area that cater to local communities (i.e., those who would purchase grocery items on a regular basis) tend to offer a variety of convenience goods stores and neighborhood service stores. Neighborhood-oriented retail would not compete with the destination retail that could be introduced as part of the proposed plan. Although the RWCDS does include some neighborhood retail, including a potential 65,000 gsf grocery store, this retail would cater in part to the 900 residential units that would be built as part of the proposed actions and to the new worker population at the project site.

Many of the smaller grocery stores in the ½-Mile Local Trade Area are located along commercial corridors that offer a variety of convenience goods, shopping goods, and neighborhood services, or in small retail clusters that include other basic convenience goods stores. Many residents would continue to do the majority of their grocery shopping at these supermarkets because of the opportunity they provide for easily combining trips. It is therefore unlikely that a large portion of their sales would be diverted from local grocery stores to a supermarket on the proposed project site.

Grocery Store Finding Four: Many individual supermarkets in the ½-Mile Local Trade Area are not critical to the survival of local retail concentrations.

Indirect displacement due to competition in itself does not constitute a significant adverse impact under CEQR guidelines. The potential for significant adverse impacts exists only if proposed stores have the potential to affect neighborhood character by affecting the viability of neighborhood shopping areas. The ½-Mile Local Trade Area contains approximately 30 grocery stores; nine of these are large supermarkets that might serve as anchors of their respective retail concentrations. **Smaller grocery stores**, such as Met Food, typically with less than 10,000 sf of space, primarily serve the convenience shopping needs of local residents and so they would not directly compete with a supermarket on the proposed project site. Even though one or more of these smaller grocery stores may be present on a local shopping street, they do not typically anchor the commercial mix and are not critical to the survival of surrounding stores, and so would not adversely alter neighborhood character even if they were to be negatively affected by competition.

The section below evaluates whether specific **large grocery stores** might be vulnerable to competition from a potential supermarket on the proposed project site, and whether or not these supermarkets are critical to the survival of the neighborhood commercial strips or shopping centers in which they are located. As discussed below, many of these supermarkets are not critical to the survival of their retail concentration, and those that are would remain competitive for a variety of reasons. Overall, the proposed actions are not expected to result in the displacement of local grocery stores and supermarkets that are critical to the vitality of retail concentrations within the ½-Mile Local Trade Area.

- Certain large grocery stores in the ½-Mile Local Trade Area have niche markets, catering to ethnic populations or providing specialty food items. For example, New York Mart on Mott Street caters to an Asian population, primarily Chinese. Whole Foods on East Houston Street specializes in organic foods. And the Essex Street Market, a neighborhood institution with a strong local customer base, contains food booths specializing in high quality fresh food items such as fish, meat, cheese, and baked goods, as well as affordable groceries and a variety of ethnic foods. (As mentioned above, the Essex Street Market would be relocated to

Site 2 under the proposed actions.) All of these stores have niche markets and draw some proportion of customers from beyond the ½-Mile Local Trade Area and would, therefore, not be negatively impacted by a 65,000 square foot grocery store on the project site. Furthermore, the proposed actions would result in increased foot traffic that could benefit existing retail in the area.

- Some large grocery stores in the ½-Mile Local Trade Area are particularly convenient to public transportation. For example, Key Food on Avenue A is located on the M14A bus route, which runs along Avenue A. Associated on East 8th Street is located within one or two blocks of the M8, M9, and M14D bus routes which provide both north/south and east/west transportation. The Fine Fare at 549 Grand Street is located on the M22 and the M21 bus routes, along with the M14A, which provides access from the J/Z/F/M subways. The Fine Fare at 42 Avenue C is located on the M9 bus route. Such proximity to public transportation makes grocery stores such as these convenient to local residents.
- Certain large grocery stores in the ½-Mile Local Trade Area are convenient for shoppers traveling by car. Pathmark on South Street, for example, is located under the Manhattan Bridge and has its own parking lot. Because this store has a parking lot and is almost a half mile from the proposed project site it is unlikely to directly compete with any grocery store on the project site.
- Large grocery stores in the ½-Mile Local Trade Area do not tend to serve as critical anchors for larger shopping concentrations. For example, Associated on East 8th Street is located in the base of a residential building and has no abutting retail use and Pathmark on South Street is also a stand-alone use rather than a retail anchor.
- There is one larger grocery store in the ½-Mile Local Trade Area—Fine Fare located just south of the proposed project site at 357 Grand Street—that could experience some degree of competitive pressure from a grocery store located on the project site and that may serve to anchor the retail concentration in which it is situated.

  The Fine Fare located on Grand Street is approximately 20,000 square feet and offers a typical range of grocery items, i.e., not focused on any ethnic group or niche market. The block on which the store is located is occupied by twelve other storefronts including two variety/miscellaneous goods stores, two limited-service restaurants, a pharmacy, bank, post office, dry cleaner, deli, barbershop, liquor store, and one vacant storefront. The store is surrounded by high-density residential uses so could continue to experience high levels of foot traffic even with a new grocery store on the project site. The store does appear to anchor the commercial building in which it is located. However, even if this store were to close due to competition with a grocery store developed pursuant to the proposed actions, the new demand from residential, worker, and visitor population at the project site would make the Fine Fare site a more desirable retail location in general and it is unlikely that the storefront would remain vacant for any prolonged period of time. Therefore, even if Fine Fare were to close due to competition from a grocery store on the project site, this closure would not spur additional vacancies in adjacent storefronts, would not negatively impact neighborhood character, and would not result in a significant adverse impact due to indirect business displacement from market saturation.

POTENTIAL IMPACTS ON BUILDING MATERIAL AND GARDEN SUPPLY STORES

Under the RWCDS the proposed actions could introduce an approximately 115,000-gsf building material and garden supply store. Large-format building materials and garden supply stores do not typically have the potential to result in significant adverse indirect business displacement impacts since they tend to draw customers from larger trade areas than food stores and a substantial portion of their sales come from contractors and other businesses as opposed to households.

As evidenced by the detailed retail surveys presented above, there are few building materials and garden supply stores currently located in the ½-Mile Local Trade Area. The Bowery includes a number of stores selling building materials, but the vast majority are wholesale, not retail businesses. The retail surveys revealed one retail store in the building material and garden supply sector on the Bowery: an approximately 3,500 square foot store named Green Depot. This store would not directly compete with a more traditional large format home improvement store since it specializes in “green” building supplies and markets to a particular niche consumer. Further, due to its relatively small size and niche market, it does not serve as an anchor to the retail concentration in which it is located.

A second home improvement retail store, A E Supply Corp., is located on 2nd Avenue at the corner of East 1st Street. The store is approximately 3,100 square feet. The corner opposing the store to the north is occupied by a gas station and the lot adjacent to the store to the south is vacant. This store does not anchor any larger retail concentration nor is it likely to directly compete with a home improvement store at the project site due to its smaller size and location over a quarter mile from the project site.

There are additional small hardware and building supply stores located throughout the study area but they do not serve as anchors to neighborhood retail concentrations and many are focused in their retail offerings. For example, the approximately 5,250-square-foot Lendy Electric Equipment Supply Corporation on Grand Street primarily sells electric supplies, while Advance Kitchen Supplies on Delancey Street targets its merchandise to the restaurant industry. These types of stores would not directly compete with a more traditional large format home improvement store.

Overall, the proposed actions would not have the potential to result in significant adverse business displacement impacts due to competitive effects from building materials and garden supply stores.

POTENTIAL IMPACTS ON SHOPPERS’ GOODS STORES

The proposed actions may include a large-scale (approximately 125,000 square feet) department store or discount department store, in addition to small- and mid-size shoppers’ goods stores. While department stores can anchor commercial corridors or concentrations, similar to building material and garden supply stores, they tend to draw customers from larger trade areas than grocery stores and therefore do not typically have the potential to result in significant adverse impacts due to indirect business displacement from competition or retail market saturation.

Currently, there are no large-scale department stores located in the ½-Mile Local Trade Area. The shoppers’ goods retail market in the trade area is characterized by small- to mid-size shops including both chain and independent stores. Some concentrations of retail stores in the trade area cater to tourist populations, such as the stores along Mulberry Street in Little Italy. Neither the merchandise offerings nor the shopping experience at these stores would substantially overlap with the types of retail expected for the project site. Other retail concentrations in the ½-Mile Local Trade Area, such as Grand Street in Chinatown, cater to specific ethnic groups and would not substantially overlap with the more traditional offerings at the project site. Certain concentrations of retail stores in the ½-Mile Local Trade Area, such as the lighting stores clustered on the Bowery, will continue to attract customers from all over the city because their co-location allows customers to easily comparison shop and find what they want without taking multiple shopping trips. Finally, there is a prevalence of high-end boutique stores in certain segments of the ½-Mile Local Trade Area, such as Nolita. Customers shop at these stores for both the high-end merchandise and the overall shopping experience (attractive storefronts, nearby cafes and restaurants, etc.), and the area would retain its unique character with or without the addition of retail at the proposed project site.

The shoppers' goods retail concentrations have contributed to making the Lower East Side popular as a shopping destination. As discussed above, the existing retail benefits from the high volumes of foot traffic from residents and workers of the Lower East Side, day visitors, and overnight tourists. The proposed actions would increase the number of residents, workers, and visitors in the area. Thus, there would be increased foot traffic that could benefit existing retail in the area.

Overall, although there could be some overlap between products offered at existing and proposed project shoppers' goods stores, concentrations of shoppers' goods stores currently located in the ½-Mile Local Trade Area distinguish themselves in different ways (e.g., a focus on tourists, a focus on ethnic populations, a concentration of a particular type of product). Businesses in the ½-Mile Local Trade Area would benefit from the increased foot traffic generated by the proposed actions, strengthening the destination appeal of the Lower East Side, and local retail would not be significantly impacted by new retail introduced as part of the proposed actions. ✷

Chapter 4: Community Facilities and Services

A. INTRODUCTION

This chapter examines the potential effects of the proposed actions on community facilities in the vicinity of the project site, which is located on the Lower East Side of Manhattan. The *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition) defines community facilities as public or publicly funded facilities, including schools, health care, day care, libraries, and fire and police protection services. CEQR methodology focuses on direct impacts on community facilities and services and on increased demand for community facilities and services generated by new users such as the population that would occupy the proposed development.

PRINCIPAL CONCLUSIONS

Based on a preliminary screening, the proposed actions warrant analysis for direct effects to health care facilities and indirect effects to public elementary and intermediate schools and child care centers. The analysis finds that the proposed actions would not result in any significant adverse impacts on community facilities.

DIRECT EFFECTS ON HEALTH CARE SERVICES

The proposed actions would result in the relocation of the Downtown Health Center, a clinic at 150 Essex Street (on Site 10) that is run by the Community Healthcare Network (CHN). The lease between the New York City Economic Development Corporation (NYCEDC) and the CHN allows for the facility to be relocated to another location in the immediate area. NYCEDC, no earlier than January 1, 2015, is required to provide no less than twelve months notice of relocation to CHN. Because CHN would be relocated in the immediate area, it is expected that it would be able to serve the same population and the extent of service disruption would be minimal. Therefore, the relocation of the Downtown Health Center would not be considered a significant adverse impact.

INDIRECT EFFECTS ON PUBLIC SCHOOLS

The analysis of indirect effects on public schools concludes that the proposed actions would not result in any significant adverse impacts on public elementary or intermediate schools.

The proposed project site is located within Sub-districts 1 and 2 of Community School District (CSD) 1 and Sub-district 1 of CSD 2. The proposed actions would result in the development of 900 residential units in the study area. Based on CEQR student generation rates, the proposed actions would generate approximately 108 elementary school students and 36 intermediate school students in the study area by 2022.

Although elementary schools within the three sub-districts analyzed would operate with a shortage of seats in 2022, the proposed actions would introduce a small number of students relative to the overall enrollment of the study area. As a result, they would not substantially increase the elementary school utilization rate. The largest increase in utilization over the No Action condition would be in Sub-district 1 of CSD 2, where the proposed actions would increase the utilization rate by approximately two percent, which is below the CEQR threshold of five percent or more for a significant adverse impact. Because the proposed actions would increase the elementary school utilization rate by less than five percentage points, the proposed actions would not result in a significant adverse impact on elementary schools in any of the sub-districts analyzed. Therefore, the proposed actions would not result in a significant adverse impact on elementary schools.

With regard to intermediate schools, the increase in the utilization rate in all three sub-districts analyzed (Sub-districts 1 and 2 of CSD 1 and Sub-district 1 of CSD 2) would be less than five percentage points in 2022. Therefore, the proposed actions would not result in any significant adverse impacts on intermediate schools.

INDIRECT EFFECTS ON CHILD CARE FACILITIES

As discussed below, the proposed actions would not result in any significant adverse impacts on publicly funded child care facilities. The proposed actions would introduce 450 low- to middle-income units by 2022. Based on the most recent CEQR child care multipliers, this development would generate approximately 52 children under the age of six who would be eligible for publicly funded child care programs. With the addition of these children, there would be a deficit of slots in the study area by 2022, and the proposed actions would result in an increase in the utilization rate of three percent over the No Action condition. While child care facilities in the study area would operate above capacity, the increase due to the proposed actions would be less than five percentage points and below the CEQR threshold. Therefore, the proposed actions would not result in a significant adverse impact on child care facilities.

B. PRELIMINARY SCREENING

This analysis of community facilities has been conducted in accordance with *CEQR Technical Manual* guidelines and the latest data and guidance from agencies such as the New York Department of Education (DOE) and the New York City Department of City Planning (DCP).

The purpose of the preliminary screening is to determine whether a community facilities assessment is required. As recommended by the *CEQR Technical Manual*, a community facilities assessment is warranted if a project has the potential to result in either direct or indirect effects on community facilities. If a project would physically alter a community facility, whether by displacement of the facility or other physical change, this “direct” effect triggers the need to assess the service delivery of the facility and the potential effect that the physical change may have on that service delivery. New population added to an area as a result of a project would use existing services, which may result in potential “indirect” effects on service delivery. Depending on the size, income characteristics, and age distribution of the new population, there may be effects on public schools, libraries, or child care centers.

DIRECT EFFECTS

The proposed development on Site 10 (Block 354, Lot 12) would require the relocation of the Downtown Health Center located at 150 Essex Street that is run by CHN.

The proposed actions would not physically alter or directly displace any other community facility, and therefore the assessment of direct effects in this chapter is limited to the health care uses on Site 10.

INDIRECT EFFECTS

The *CEQR Technical Manual* provides thresholds that provide guidance in making an initial determination of whether a detailed analysis is necessary to determine potential impacts. **Table 4-1** lists those *CEQR Technical Manual* thresholds for each community facility analysis. If a proposal exceeds the threshold for a specific facility, a more detailed analysis is warranted. A preliminary screening analysis was conducted to determine if the proposed actions would exceed established *CEQR Technical Manual* thresholds warranting further analysis. Based on that screening, a detailed analysis is provided for public elementary and intermediate schools.

Table 4-1
Preliminary Screening Analysis Criteria

Community Facility	Threshold For Detailed Analysis
Public schools	More than 50 elementary/middle school or 150 high school students
Libraries	Greater than 5 percent increase in ratio of residential units to libraries in borough
Health care facilities (outpatient)	Introduction of sizeable new neighborhood where none existed before[1]
Child care centers (publicly funded)	More than 20 eligible children based on number of low- and low/moderate-income units by borough
Fire protection	Introduction of sizeable new neighborhood where none existed before[1]
Police protection	Introduction of sizeable new neighborhood where none existed before[1]

Notes: [1] The *CEQR Technical Manual* cites the Hunter's Point South project as an example of a project that would introduce a sizeable new neighborhood where none existed before. The Hunter's Point South project would introduce approximately 6,650 new residential units to the Hunter's Point South waterfront in Long Island City, Queens.
Source: *CEQR Technical Manual* (January 2012 edition).

PUBLIC SCHOOLS

The *CEQR Technical Manual* recommends conducting a detailed analysis of public schools if a proposed action would generate more than 50 elementary/intermediate school students and/or more than 150 high school students. Based on 900 residential units and the CEQR student generation rates (0.12 elementary, 0.04 middle, and 0.06 high school students per housing unit in Manhattan), the proposed actions would generate approximately 200 total students—with approximately 108 elementary school students, 36 intermediate school students, and 54 high school students. This number of students warrants a detailed analysis of the proposed actions' effects on elementary and intermediate schools. Because the proposed actions would not introduce more than 150 high school students, a detailed analysis of public high schools is not warranted.

LIBRARIES

Potential impacts on libraries can result from an increased user population. According to the *CEQR Technical Manual*, a proposed action in Manhattan that generates a 5 percent increase in the average number of residential units served per branch (901 residential units in Manhattan) may cause significant impacts on library services and require further analysis. With 900 units, the proposed actions do not exceed this threshold, and a detailed analysis of libraries is not warranted.

CHILD CARE CENTERS

According to the *CEQR Technical Manual*, if a proposed action would add more than 20 children eligible for child care to the study area's child care facilities, a detailed analysis of its impact on publicly funded child care facilities is warranted. This threshold is based on the number of low-income and low/moderate-income units within a proposed project site.[1] In Manhattan, projects introducing 170 or more low- to moderate-income units would introduce 20 or more children eligible for child care services. Because the proposed actions would introduce 450 affordable housing units, a detailed child care analysis is warranted.

HEALTH CARE FACILITIES

Health care facilities include public, proprietary, and nonprofit facilities that accept government funds (usually in the form of Medicare and Medicaid reimbursements) and that are available to any member of the community. Examples of these types of facilities include hospitals, nursing homes, clinics, and other facilities providing outpatient health services.

According to the *CEQR Technical Manual*, if a proposed action would create a sizeable new neighborhood where none existed before, there may be increased demand on local public health care facilities, which may warrant further analysis of the potential for indirect impacts on outpatient health care facilities. The proposed actions would not result in the creation of a sizeable new neighborhood where none existed before, as the proposed actions are located in the densely populated Lower East Side neighborhood of Manhattan. Therefore a detailed analysis of indirect effects on health care facilities is not warranted.

The potential for direct effects on the health care facility on Site 10 is discussed below.

POLICE AND FIRE SERVICES

The *CEQR Technical Manual* recommends detailed analyses of impacts on police and fire service in cases where a proposed action would affect the physical operations of, or direct access to and from, a precinct house or fire station, or where a proposed action would create a sizeable new neighborhood where none existed before. The proposed actions would not result in these direct effects on either police or fire services, nor would it create a sizeable new neighborhood where none existed before; therefore, no further analysis is warranted.

C. DIRECT EFFECTS ON HEALTH CARE SERVICES

As noted above, Site 10 currently contains the Downtown Health Center, a clinic at 150 Essex Street that is run by the Community Healthcare Network. The Community Healthcare Network is a group of 10 non-profit medical centers that provide healthcare services in Manhattan, the Bronx, Queens, and Brooklyn. The Downtown Health Center, which has been in operation since

[1] Low-income and low/moderate-income are the affordability levels used in the *CEQR Technical Manual*. They are intended to approximate the financial eligibility criteria established by the Administration for Children's Services, which generally corresponds to 200 percent Federal Poverty Level or 80% of area median income.

1971 and operating at 150 Essex Street since 2007, provides a range of services, including: prenatal and post-partum care; pediatrics; adolescent and adult medicine; geriatric care; preventive medicine; family planning; immunizations; school physicals; HIV education, testing, and treatment; nutrition counseling; pediatric weight management; reproductive health care; social services; health education; and a mobile mammogram program.[1]

Under the proposed actions, Site 10 would be redeveloped by 2022, and the Downtown Health Center would be relocated. The lease between NYCEDC and CHN allows for the facility to be relocated to another location in the immediate area. NYCEDC, no earlier than January 1, 2015, is required to provide no less than twelve months' notice of relocation to CHN. Because CHN would be relocated in the immediate area, it is expected that it would be able to serve the same population and the extent of service disruption would be minimal. Therefore, the relocation of Downtown Health Center would not be considered a significant adverse impact.

D. INDIRECT EFFECTS ON PUBLIC ELEMENTARY AND INTERMEDIATE SCHOOLS

METHODOLOGY

This analysis assesses the potential effects of the proposed actions (specifically its residential component which is assumed to have 900 residential units for analysis purposes) on public elementary and intermediate schools serving the project area. Following methodologies in the *CEQR Technical Manual*, the study area for the analysis of elementary and intermediate schools is the school districts' "sub-district" ("regions" or "school planning zones") in which the project is located. The proposed project site is located in three sub-districts: Sub-districts 1 and 2 of CSD 1 and Sub-district 1 of CSD 2 (see **Figure 4-1**). Specifically, Sites 1, 2, 3, 4, and 5 are located in Sub-district 1 of CSD 2; Site 6 is located in Sub-district 1 of CSD 1; and Sites 8, 9, and 10 are located in Sub-district 2 of CSD 1. As discussed above in Section B, an assessment of high schools is not required due to the limited number of public high school students that would be generated by the proposed development.

This schools analysis presents the most recent capacity, enrollment, and utilization rates for elementary and intermediate schools in the sub-district study areas. Future conditions are then predicted based on enrollment projections and proposed development projects—the future utilization rate for school facilities is calculated by adding the estimated enrollment from proposed residential developments in the schools study area to DOE's projected enrollment, and then comparing that number with projected school capacity. DOE does not include charter school enrollment in its enrollment projections. DOE's enrollment projections for years 2009 through 2018, the most recent data currently available, are posted on the School Construction Authority (SCA) website.[2] These enrollment projections are based on broad demographic trends and do not explicitly account for discrete new residential developments planned for the study area. Therefore, the additional populations from the other new development projects expected to be completed within the study area have been obtained from the SCA's Capital Planning Division and are added to the projected enrollment to ensure a more conservative prediction of

[1] Community Healthcare Network website: http://www.chnnyc.org/locations/downtown/

[2] Enrollment projections by the Grier Partnership were used: https://www.nycsca.org

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Sub-District Boundary

Sub-District Study Area Boundary

● Public School (See Table 4-2 for Reference)

Public Elementary and Intermediate Schools Serving the Study Areas

Figure 4-1

future enrollment and utilization. In addition, any new school projects identified in the DOE Five-Year Capital Plan are included if construction has begun.

The effect of the new students introduced by the proposed actions on the capacity of schools within the study areas is then evaluated. According to the *CEQR Technical Manual,* a significant adverse impact may occur if the proposed actions would result in both of the following conditions:

1. A utilization rate of the elementary and/or intermediate schools in the sub-district study area that is equal to or greater than 100 percent in the future with the proposed actions condition (With Action); and
2. An increase of five percentage points or more in the collective utilization rate between the future without the proposed actions (No Action) and With Action conditions.

EXISTING CONDITIONS

ELEMENTARY SCHOOLS

As shown in **Figure 4-1**, a number of elementary schools serve the sub-district study areas. As shown in **Table 4-2**, DOE's 2010-2011 school year enrollment figures, which are the most recent data currently available, Sub-district 1 of CSD1 has a total enrollment of 1,558 students, or 86 percent of capacity, with 245 available seats. Sub-district 2 of CSD 1 has a total enrollment of 1,895 students, or 83 percent of capacity, with 401 available seats. Sub-district 1 of CSD 2 has a total enrollment of 4,566 students, or 97 percent of capacity, with 146 available seats.

INTERMEDIATE SCHOOLS

As shown in **Table 4-2**, total enrollment at the intermediate schools in Sub-district 1 of CSD 1 is 663 students, or 58 percent of capacity, with a surplus of 475 seats. Sub-district 2 of CSD 1 has a total enrollment of 849 students, or 81 percent of capacity, with 198 available seats. Sub-district 1 of CSD 2 has a total enrollment of 1,056 students, or 92 percent of capacity, with 88 available seats.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

ENROLLMENT PROJECTIONS

As noted above, SCA provides future enrollment projections by district for up to 10 years. The latest available enrollment projections to 2018 have been used in this analysis for student enrollment to 2022.

These enrollment projections focus on the natural growth of the City's student population (through births and grade retention) and do not account for new residential developments planned for the sub-district study areas (No Action projects). ~~Therefore, as noted above, the additional students from the anticipated No Action projects within the study areas were also included to more conservatively predict future enrollment and utilization.~~ Therefore, as noted above, the additional projected student populations from the other new development projects expected to be completed within the study area have been obtained from the SCA's Capital Planning Division and are added to the projected enrollment to ensure a more conservative prediction of future enrollment and utilization.

Table 4-2
Public Schools Serving the Project Sites, Enrollment and Capacity Data, 2010-2011 School Year

Map No.	Name	Address	Enrollment	Capacity	Available Seats	Utilization
Elementary Schools						
Sub-district 1 of CSD 1						
1	PS 110 Florence Nightingale School	285 Delancey St	435	484	49	90%
2	PS 134 Henrietta Szold School	293 E Broadway	371	413	42	90%
3	PS 137 John L Bernstein School	327 Cherry St	232	247	15	94%
4	PS 184 Shuang Wen School (PS Component)	293 E Broadway	520	659	139	79%
Sub-district 1 of CSD 1 Total			**1,558**	**1,803**	**245**	**86%**
Sub-district 2 of CSD 1						
5	PS 20 Anna Silver School	166 Essex St	625	823	198	76%
6	PS 140 Nathan Straus School (PS Component)	123 Ridge St	209	330	121	63%
7	PS 142 Amalia Castro School	100 Attorney St	430	508	78	85%
8	New Explorations Science, Tech And Math School (PS Component)	111 Columbia St	631	635	4	99%
Sub-district 2 of CSD 1 Total			**1,895**	**2,296**	**401**	**83%**
Sub-district 1 of CSD 2						
9	PS 42 Benjamin Altman School	71 Hester St	810	709	-101	114%
10	PS 124 Yung Wing School	40 Division St	926	887	-39	104%
11	PS 130 Hernando DeSoto School	143 Baxter St	1,022	946	-76	108%
12	PS 1 Alfred E Smith School	8 Henry St	544	720	176	76%
13	PS 126 Jacob August Riis School (PS Component)	80 Catherine St	432	539	107	80%
14	PS 2 Meyer London School	122 Henry St	832	911	79	91%
Sub-district 1 of CSD 2 Total			**4,566**	**4,712**	**146**	**97%**
Intermediate Schools						
Sub-district 1 of CSD 1						
15	IS 332 University Neighborhood Middle School	220 Henry St	116	323	207	36%
16	IS 345 Collaborative Academy Of Science, Technology And Language Arts Education	220 Henry St	262	417	155	63%
17	JHS 292 Henry Street School For International Studies (IS Component)*	220 Henry St	120	189	69	63%
18	PS 184 Shuang Wen School (IS Component)	293 E Broadway	165	209	44	79%
Sub-district 1 of CSD 1 Total			**663**	**1,138**	**475**	**58%**
Sub-district 2 of CSD 1						
19	New Explorations Science, Tech And Math School (IS Component)*	111 Columbia St	395	398	3	99%
20	PS 140 Nathan Straus School (IS Component)	123 Ridge St	188	296	108	64%
21	IS 378	145 Stanton St	266	353	87	75%
Sub-district 2 of CSD 1 Total			**849**	**1,047**	**198**	**81%**
Sub-district 1 of CSD 2						
22	IS 131	100 Hester St	703	703	0	100%
23	PS 126 Jacob August Riis School (IS Component)	80 Catherine St	353	441	88	80%
Sub-district 1 of CSD 2 Total			**1,056**	**1,144**	**88**	**92%**

Notes: See Figure 4-1
Sources: DOE *Utilization Profiles: Enrollment/Capacity/Utilization, 2010-2011*.

Table 4-3 outlines the estimated number of new public school students generated as a result of development in the future without the proposed actions, which is based on student generation rates listed in Table 6-1a of the *CEQR Technical Manual* (0.12 elementary students and 0.04 intermediate school students per residential unit in Manhattan).

PROJECTED SCHOOL CAPACITY

According to the DOE's *2010-2014 Five-Year Capital Plan—Proposed February 2012 Amendment*, there is no new school capacity under construction within CSD 1 or CSD 2's Sub-district 1.

Table 4-3
Estimated Number of Students Introduced by Development in the Future Without the Proposed Actions

Study Area	Students	
	Elementary	Intermediate
Sub-district 1 of CSD 1	0	11
Sub-district 2 of CSD 1	51	13
Sub-district 1 of CSD 2	203	69

Sources: SCA Capital Planning Division.

P.S. 397 (The Spruce Street School) recently moved into a new facility at 12 Spruce Street that will provide additional capacity in the Lower Manhattan area of CSD 2. However, while this facility is physically located in CSD 2's Sub-district 1, the capacity was planned to address need in CSD 2's Sub-district 2, which is not one of the study areas. Therefore, this capacity is not included in the quantitative analysis.

However, the *Proposed February 2012 Amendment* has planned for a new elementary school facility at Peck Slip, P.S. 343, with a projected completion date of July 2015. This planned capacity is intended to address need in both Sub-district 1 and Sub-district 2. The Sub-district 1 planned capacity for this new school facility is included in the quantitative analysis. P.S. 343 will open in September 2012 with kindergarten enrollment in a smaller space at 52 Chambers Street and is expected to phase in one grade per year over the next few years to reach its full capacity of 712 elementary seats at the Peck Slip location.

ANALYSIS

Elementary Schools

As shown in **Table 4-4**, elementary schools in all three sub-districts will be over capacity in the 2022 No Action condition: Sub-district 1 of CSD 1 will operate at 125 percent utilization; Sub-district 2 of CSD 1 will operate at 112 percent utilization; and Sub-district 1 of CSD 2 will operate at 122 percent utilization.

Table 4-4
Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2022 No Action Condition

Study Area	Projected Enrollment in 2022	Students Introduced by Residential Development in No Action	Total No Action Enrollment	Capacity	Available Seats	Utilization
Elementary Schools						
Sub-district 1 of CSD 1	2,245[1]	0	2,245	1,803	-442	125%
Sub-district 2 of CSD 1	2,510[1]	51	2,561	2,296	-265	112%
Sub-district 1 of CSD 2	5,746[1]	203	5,949	4,882[2]	-1,067	122%
Intermediate Schools						
Sub-district 1 of CSD 1	811[1]	11	822	1,138	316	72%
Sub-district 2 of CSD 1	945[1]	13	958	1,047	89	91%
Sub-district 1 of CSD 2	1,251[1]	69	1,320	1,144[2]	-176	115%

Notes:
[1] Elementary and intermediate school enrollment in each sub-district study area in 2022 was calculated per 2012 *CEQR Technical Manual* methodology.
[2] P.S. 343 (the Peck Slip School) is assumed to add 170 elementary seats to Sub-district 1 of CSD 2.
Sources: DOE *Enrollment Projections 2009-2018 by the Grier Partnership*; DOE, *Utilization Profiles: Enrollment/Capacity/Utilization, 2010-2011*, DOE 2010-2014 *Five-Year Capital Plan, Proposed Amendment*, February 2012; School Construction Authority.

Intermediate Schools

As shown in **Table 4-4**, intermediate schools in all three sub-districts will operate with a surplus of seats: Sub-district 1 of CSD 1 will operate at 72 percent utilization, Sub-district 2 of CSD 1 will operate at 91 percent utilization, and Sub-district 1 of CSD 2 will operate at 115 percent utilization.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

The proposed actions would result in the development of 900 residential units in the study areas. Based on the CEQR student generation rates, the proposed actions would generate approximately 108 elementary school students and 36 intermediate school students by 2022 (see **Table 4-5**).

Table 4-5
Estimated Number of Students Introduced in the Study Areas: 2022 Future With the Proposed Actions

Study Area	Housing Units	Elementary Students	Intermediate Students
Sub-district 1 of CSD 1	74	9	3
Sub-district 2 of CSD 1	127	15	5
Sub-district 1 of CSD 2	699	84	28
Total	900	108	36

Sources: *CEQR Technical Manual* (January 2012 edition), Table 6-1a.

ELEMENTARY SCHOOLS

The total enrollment of Sub-district 1 of CSD 1 would increase by 9 students to 2,254 (125 percent utilization), and the deficit of seats would increase slightly to 451 seats from 442 seats in the future without the proposed actions. The total enrollment of Sub-district 2 of CSD 1 would increase by 15 students to 2,576 (112 percent utilization), and the deficit of seats would increase slightly to 280 seats from 265 seats in the future without the proposed actions. The total enrollment of Sub-district 1 of CSD 2 would increase by 84 students to 6,033 (124 percent utilization), and the deficit of seats would increase to 1,151 seats from 1,067 seats in the future without the proposed actions (see **Table 4-6**).

Table 4-6
Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2022 With Action Condition

Study Area	Future No Action Enrollment	Students Introduced by Proposed Actions	Total With Action Enrollment	Capacity	Available Seats	Utilization	Increase in Utilization over No Action
Elementary Schools							
Sub-district 1 of CSD 1	2,245	9	2,254	1,803	-451	125%	0%
Sub-district 2 of CSD 1	2,561	15	2,576	2,296	-280	112%	1%
Sub-district 1 of CSD 2	5,949	84	6,033	4,882	-1,151	124%	2%
Intermediate Schools							
Sub-district 1 of CSD 1	822	3	825	1,138	313	72%	0%
Sub-district 2 of CSD 1	958	5	963	1,047	84	92%	0%
Sub-district 1 of CSD 2	1,320	28	1,348	1,144	-204	118%	3%

Sources: DOE *Enrollment Projections 2009-2018 by the Grier Partnership*; DOE, *Utilization Profiles: Enrollment/Capacity/Utilization, 2010-2011*, DOE 2010-2014 *Five-Year Capital Plan, Proposed Amendment*, February 2012; School Construction Authority.

As noted above, a significant adverse impact may occur if the proposed actions would result in both of the following conditions: (1) a utilization rate of the elementary schools in the sub-district study area that is equal to or greater than 100 percent in the future without the proposed actions; and (2) an increase of five percentage points or more in the collective utilization rate between the future without the proposed actions and future with the proposed actions conditions.

Although elementary schools within the three sub-districts analyzed would operate with a shortage of seats in 2022, the proposed actions would introduce a small number of students relative to the overall enrollment of the study area. As a result, they would not substantially increase the elementary school utilization rate. The largest increase in utilization over the No Action condition would be in Sub-district 1 of CSD 2, where the proposed actions would increase the utilization rate by approximately two percent, which is below the CEQR threshold of 5 percent or more for a significant adverse impact. Because the proposed actions would increase the elementary school utilization rate by less than five percentage points, the proposed actions would not result in a significant adverse impact on elementary schools in any of the sub-districts analyzed. Therefore, the proposed actions would not result in a significant adverse impact on elementary schools.

INTERMEDIATE SCHOOLS

The total enrollment of Sub-district 1 of CSD 1 would increase by 3 to 825 (72 percent utilization), resulting in a surplus of 313 seats. The total enrollment of Sub-district 2 of CSD 1 would increase by 5 to 963 (92 percent utilization), resulting in a surplus of 84 seats. The total enrollment of Sub-district 1 of CSD 2 would increase by 28 to 1,348 (118 percent utilization), and there would be a deficit of 204 seats (see **Table 4-6**).

As noted above, a significant adverse impacts may occur if the proposed actions would result in both of the following conditions: (1) a utilization rate of the intermediate schools in the sub-district study area that is equal to or greater than 100 percent in the future without the proposed actions; and (2) an increase of five percentage points or more in the collective utilization rate between the future without the proposed actions and future with the proposed actions condition.

Two sub-districts analyzed (Sub-districts 1 and 2 of CSD 1) would operate with surplus capacity at the intermediate school level in 2022, and the proposed actions would not result in a collective utilization rate equal to or greater than 100 percent. In addition, in all three sub-districts analyzed the proposed actions would increase the intermediate school utilization rate by no more than 3 percent. Therefore, the proposed actions would not result in any significant adverse impacts on intermediate schools.

E. INDIRECT EFFECTS ON CHILD CARE SERVICES

METHODOLOGY

The New York City Administration for Children's Services (ACS) provides subsidized child care in center-based group child care, family-based child care, informal child care, and Head Start. Publicly financed child care services are available for income-eligible children up to the age of 12. In order for a family to receive subsidized child care services, the family must meet specific financial and social eligibility criteria that are determined by federal, state, and local regulations. In general, children in families that have incomes at or below 200 percent Federal Poverty Level (FPL), depending on family size, are financially eligible, although in some cases eligibility can go up to 275 percent FPL.[1] The inclusion of families with incomes up to 200 percent FPL provides a

[1] 2012 Federal Poverty Levels (also known as poverty guidelines) are issued annually by the Department of Health and Human Services and are available online at: http://aspe.hhs.gov/poverty/12poverty.shtml.

conservative assessment of demand, because eligibility for subsidized child care is not strictly defined by income; it also accounts for family size and other social eligibility criteria. For instance, a family must also have an approved "reason for care," such as involvement in a child welfare case or participation in a "welfare-to-work" program. Head Start is a federally funded child care program that provides children with half-day or full-day early childhood education; program eligibility is limited to families with incomes 130 percent or less of federal poverty level.

Most children are served through contract with private and nonprofit organizations that operate child care programs throughout the City. Registered or licensed providers can offer family-based child care in their homes. Informal child care can be provided by a relative or neighbor for no more than two children. Children aged two months through 12 years old can be cared for either in group child care centers licensed by the Department of Health or in homes of registered child care providers. ACS also issues vouchers to eligible families, which may be used by parents to pay for child care from any legal child care provider in the City.

Publicly financed child care centers, under the auspices of the New York City Division for Child Care and Head Start (CCHS) within ACS, provide care for the children of income-eligible households. Space for one child in such child care centers is termed a "slot." These slots may be in group child care or Head Start centers, or they may be in the form of family-based child care in which 7 to 12 children are placed under the care of a licensed provider and an assistant in a home setting.

Since there are no locational requirements for enrollment in child care centers, and some parents or guardians choose a child care center close to their employment rather than their residence, the service areas of these facilities can be quite large and not subject to strict delineation in order to identify a study area. However, according to the current methodology for child care analyses, the locations of publicly funded group child care centers within 1½ miles or so of the project site should be shown, reflecting the fact that the centers closest to the project site are more likely to be subject to increased demand. Current enrollment data for the child care and Head Start centers closest to the project site was gathered from ACS.

The child care enrollment in the future without the proposed actions was estimated by multiplying the number of new low-income and low/moderate-income housing units expected in the 1½-mile study area by the *CEQR Technical Manual* multipliers for estimating the number of children under age six eligible for publicly funded child care services. For Manhattan, the multiplier estimates 0.115 public child care-eligible children under age six per low- and low/moderate-income household.[1] The estimate of new public child care-eligible children was added to the existing child care enrollment to estimate enrollment in the future without the proposed actions.

The child care-eligible population introduced by the proposed actions was estimated using the *CEQR Technical Manual* child care multipliers (Table 6-1b). The population of public child care eligible children under age six was then added to the child care enrollment calculated in the future without the proposed actions. According to the *CEQR Technical Manual*, if a proposed action would result in a demand for slots greater than remaining capacity of child care centers, and if that demand constitutes an increase of 5 percent or more of the collective capacity of the child care centers serving the area of the proposed actions, a significant adverse impact may result.

[1] Low-income and low/moderate-income are the affordability levels used in the *CEQR Technical Manual*. They are intended to approximate the financial eligibility criteria established by ACS, which generally corresponds to 200 percent FPL or 80 percent of AMI.

EXISTING CONDITIONS

There are 18 publicly funded group child care facilities and 13 Head Start facilities within the study area (see **Figure 4-2**). The child care and head start facilities have a total capacity of 1,750 slots and have 52 available slots (97 percent utilization). **Table 4-7** shows the current capacity and enrollment for these facilities. Family-based child care facilities and informal care arrangements provide additional slots in the study area, but these slots are not included in the quantitative analysis.

Table 4-7
Publicly Funded Child Care Facilities Serving the Study Area

Map ID	Name	Address	Enrollment	Capacity	Available Slots	Utilization Rate
		Child Care				
1	C.P.C. Jacob Riis Child Care Center	108 Ave D	51	53	2	96%
2	Hamilton-Madison House Child Care Center	243 Cherry St	15	15	0	100%
3	Virginia Day Nursery	464 East 10 St	47	45	-2	104%
4	Coalition For Human Housing Day Care Center	60 Essex St	37	35	-2	106%
5	Emmanuel Day Care Center	737 East 6 St	49	55	6	89%
6	Henry Street Settlement Urban Family School	110 Baruch Drive	11	23	12	48%
7	Grand Street Settlement Child Care Center	300 Delancey St	73	74	1	99%
8	Hamilton Madison House Child Care Center	60 Catherine St	51	49	-2	104%
9	Hamilton Madison House Child Care Center	10 Catherine Slip	61	60	-1	102%
10	Lillian Wald Day Care Center Of The Educational Al	34 Ave D	44	45	1	98%
11	Puerto Rican Council Day Care Center	180 Suffolk St	37	43	6	86%
12	Bellevue -Educare Child Care Center (P/S)	462 First Ave	23	33	10	70%
13	Educational Alliance Head Start	197 East Broadway	72	71	-1	101%
14	Garment Industry Day Care Center	115 Chrystie St	75	70	-5	107%
15	Chung Pak Day Care Center	125 Walker St	78	75	-3	104%
16	Little Star Of Broome Street	151 Broome St	60	62	2	97%
17	Henry Street Settlement Day Care Center	301 Henry St	76	83	7	92%
18	League for Child Care	184 Eldridge St	61	61	0	100%
	Child Care Total		***921***	***952***	***31***	***97%***
		Head Start				
A	Grand Street Settlement Head Start	294 Delancey St	74	74	0	100%
B	Hamilton Madison House Head Start	129 Fulton St	22	34	12	65%
C	Hamilton Madison House Head Start	77 Market St	37	32	-5	116%
D	Hamilton Madison House Head Start	79 Catherine St	16	20	4	80%
E	Hamilton Madison House Head Start (P/S)	243 Cherry St	34	37	3	92%
F	University Settlement Early Childhood Head Start[1]	184 Eldridge St	51	51	0	100%
G	Bank Street Head Start	113 East 13 St	60	60	0	100%
H	Dewitt Reformed Church Head Start	123 Ridge St	52	52	0	100%
I	Dewitt Reformed Church Head Start	280 Rivington St	82	81	-1	101%
J	Educational Alliance Child Care Center[1]	197 East Broadway	72	74	2	97%
K	Escuela Hispana Montessori Inc.(Head Start)	185 Ave D	90	91	1	99%
L	Cardinal Spellman Head Start	137 East 2 St	86	91	5	95%
M	Chinatown Head Start	180 Mott St	101	101	0	100%
	Head Start Total		***777***	***798***	***21***	***97%***
	Grand Total		**1,698**	**1,750**	**52**	**97%**

Notes: [1] These Child Care facilities and Head Start programs are operated as collaborative programs. The enrollment and capacity for these collaborative programs has been adjusted to avoid double-counting slots.
Sources: ACS, November and December 2011.

2.21.12

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

1 1/2-Mile Study Area Boundary

A Head Start Facility

1 Child Care Center

Publicly Funded Child Care and Head Start Facilities Serving the Study Areas

Figure 4-2

THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, no new development would occur on the project site. Within the 1½-mile study area planned or proposed development projects will introduce approximately 926 new affordable housing units by 2022.[1] Based on the CEQR generation rates for the projection of children eligible for publicly funded day care multipliers, this amount of development would introduce approximately 106 new children under the age of six who would be eligible for publicly funded child care programs.

Based on these assumptions, the number of children eligible for public child care would exceed available slots in the future without the proposed actions. As described above, there is currently a combined surplus of 52 seats in group child care and head start programs. When the estimated 106 children under age six introduced by planned development projects are added to this total, there would be a deficit of 54 seats in publicly funded child care programs in the study area (103 percent utilization).

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

The proposed actions would introduce 450 low- to middle-income units by 2022. To provide a conservative analysis, it is assumed that all of these units, including the middle-income units, would meet the financial and social eligibility criteria for publicly funded child care. Based on CEQR child care multipliers, this development would generate approximately 52 children under the age of six who would be eligible for publicly funded child care programs.

As noted above, the *CEQR Technical Manual* guidelines indicate that a demand for slots greater than the remaining capacity of child care facilities and an increase in demand of 5 percent of the study area capacity could result in a significant adverse impact. With the addition of these children, child care facilities would continue to operate over 100 percent capacity, with a deficit of 106 slots in the study area. Total enrollment would increase to 1,856 compared to a capacity of 1,750 slots, which represents a utilization rate of 106 percent, three percentage points over the No Action condition. While child care facilities in the study area would operate above capacity, the increase in the utilization rate due to the proposed actions would be less than five percent, and therefore, the proposed actions would not result in a significant adverse impact on child care facilities.

Furthermore, several factors may reduce the number of children in need of publicly funded child care slots in ACS-contracted child care facilities. Families in the study area could make use of alternatives to publicly funded child care facilities. There are slots at homes licensed to provide family-based child care that families of eligible children could elect to use instead of public center child care. As noted above, these facilities provide additional slots in the study area but are not included in the quantitative analysis. Parents of eligible children are also not restricted to enrolling their children in child care facilities in a specific geographical area and could use public child care centers outside of the study area. ✷

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[1] Assuming that 20 percent of units in developments of 20 or more units would be occupied by low- or low/moderate-income households meeting the financial and social criteria for publicly funded child care. The analysis excludes developments that would not include low- to moderate-income units, such as dormitories and faculty housing.

Chapter 5: Open Space

A. INTRODUCTION

The proposed actions would introduce new residents and workers to the project site, creating new demands for open space in the area. It would create approximately 0.23 acres of new publicly accessible open space. Because the proposed actions would add a new residential and non-residential (i.e., worker) population, this chapter examines the proposed actions' potential impacts on open space resources in accordance with the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition). This chapter examines potential direct effects of the proposed actions on nearby publicly accessible open spaces (e.g., additions or reductions in open space, shadows, noise increases) as well as indirect effects created by changes in demand for and use of the area's open spaces. The analysis inventories the condition and use of open spaces serving both the residential and worker populations and addresses impacts on open space facilities both qualitatively and quantitatively.

PRINCIPAL CONCLUSIONS

DIRECT EFFECTS

The proposed actions would not remove or alter any existing publicly accessible open spaces, nor would they result in any significant adverse shadow, noise, or air quality impacts on any open spaces. On the contrary, the proposed actions would increase the supply of publicly accessible open space in the study area by creating a new 10,000-square-foot (approximately 0.23 acres) publicly accessible open space on Site 5.

INDIRECT EFFECTS

Based on the methodology of the *CEQR Technical Manual*, a preliminary analysis of the proposed actions' indirect effects on open space was conducted to determine the need for a detailed analysis. The preliminary analysis concluded that the proposed actions would not result in a significant adverse impact on open space and that a detailed analysis was not necessary.

Table 5-1 provides a summary of the open space analysis including a comparison of conditions with and without the proposed actions. As shown in the table, the proposed actions would result in a decrease in the passive open space ratio for workers in the commercial (¼-mile) study area. However, the open space ratio for workers in the study area would still remain almost five times over the City's recommended guideline ratio. Therefore, the proposed actions would not result in any significant adverse impacts on open space resources in the commercial study area.

In the residential study area, the open space ratios for the future with the proposed actions, as with existing conditions and the future without the proposed actions, would continue to fall short of the City's recommended open space ratio guidelines. However, the proposed actions would

Table 5-1
2022 Future with the Proposed Actions: Open Space Ratios Summary

Ratio	City Guideline	Open Space Ratios			Percent Change Future Without to Future With the Proposed Actions
		Existing Conditions	Future Without the Proposed Actions	Future With the Proposed Actions	
Commercial (¼-Mile) Study Area					
Passive/Workers	0.15	0.82	0.78 ~~0.80~~	0.69 ~~0.70~~	-11.45% ~~-11.61%~~
Residential (½-Mile) Study Area					
Total/Residents	2.5	0.79	0.83	0.82	-1.32%
Passive/Residents	0.5	0.23	0.26	0.26	-1.18%
Active/Residents	2.0	0.56	0.57	0.56	-1.38%

Note: Ratios in acres per 1,000 people.

introduce approximately 0.23 acres of publicly accessible open space to Site 5 and, as shown in **Table 5-1**, the open space ratios for the residential study area would decrease by 1.38 percent or less. These decreases would not constitute a substantial change. Therefore, because the open space ratios would remain substantially the same in the future with the proposed actions compared to the future without the proposed actions and the proposed actions would introduce new publicly accessible open space to partially offset the additional project-generated demand, the proposed actions would not result in any significant adverse impacts on open space resources in the residential study area and a detailed open space analysis is not required.

B. METHODOLOGY

DIRECT EFFECTS ANALYSIS

According to the *CEQR Technical Manual*, a proposed action would directly affect open space conditions if it causes the loss of public open space, changes the use of an open space so that it no longer serves the same user population, limits public access to an open space, or results in increased noise or air pollutant emissions, odor, or shadows that would temporarily or permanently affect the usefulness of a public open space. This chapter uses information from Chapter 6, “Shadows,” Chapter 14, “Air Quality,” and Chapter 16, “Noise,” to determine whether the proposed actions would directly affect any open spaces near the project site. A proposed action can also directly affect an open space by enhancing its design or increasing its accessibility to the public. The direct effects analysis is included in the “Probable Impacts of the Proposed Actions” portion of Section C, “Preliminary Assessment.”

INDIRECT EFFECTS ANALYSIS

As described in the *CEQR Technical Manual*, open space can be indirectly affected by a proposed action if the project would add enough population, either residents or non-residents, to noticeably diminish the capacity of open space in an area to serve the future population. Typically, an assessment of indirect effects is conducted when a project would introduce 200 or more residents or 500 or more workers to an area; however, the thresholds for assessment are slightly different for areas of the City that have been identified as either underserved or well-served by open space. Because the project site is not located within an area that has been identified as either underserved or well-served, the 200 resident and 500 worker thresholds were applied in this analysis.

With the proposed 900 residential units, the proposed actions would introduce approximately 1,989 new residents to the project area. The proposed actions also would increase the number of workers in the area by approximately 1,449. Because the proposed actions would introduce more than 200 new residents and more than 500 new employees to the project area, a preliminary analysis was conducted to assess the proposed actions' potential indirect effects on open space resources in the area. The purpose of a preliminary assessment is to clarify the degree to which an action would affect open space and the need for further analysis. If the preliminary assessment indicates the need for further analysis, a detailed analysis of open space should be performed.

Using the methodology of the *CEQR Technical Manual*, the adequacy of open space in the study area is assessed quantitatively using a ratio of usable open space acreage to the study area population—the open space ratio. This quantitative measure is then used to assess the changes in the adequacy of open space resources in the future, both with and without the proposed actions. In addition, qualitative factors are considered in making an assessment of a proposed action's effects on open space resources.

STUDY AREA

The *CEQR Technical Manual* recommends establishing study area boundaries as the first step in an open space analysis. Worker and residential populations use different open space study areas. Workers typically use passive open spaces within walking distance of their workplaces; this area is roughly ¼-mile. Therefore, projects that would add substantial worker populations analyze their effects on passive open spaces located within ¼-mile of the project site. Residents are more likely to travel farther to reach parks and recreational facilities, and they use both passive and active open spaces. Residents will typically walk up to ½ mile for recreational spaces. Thus, projects that would add substantial residential populations analyze their effects on active and passive open spaces located within ½ mile of the project site. The proposed actions would add sizable worker and residential populations. Therefore, as recommended in the *CEQR Technical Manual*, two study areas were used—a commercial (¼-mile) and residential (½-mile) study area.

Commercial (¼-Mile) Study Area

Following the methodology in the *CEQR Technical Manual*, the commercial study area for the proposed actions includes all census tracts with at least 50 percent of their area inside a ¼-mile radius around the project site. The census tracts with at least 50 percent of their area within ¼-mile of the project site are shown on **Figure 5-1**.

Residential (½-Mile) Study Area

The residential study area for the proposed actions includes all census tracts that fall at least 50 percent within a ½-mile radius around the project site. **Figure 5-1** shows all census tracts included in the residential study area.

OPEN SPACE USER POPULATIONS

Existing Conditions

Census data and data from ESRI, Inc, a commercial data provider, were used to identify potential open space users within the study areas. Open space user groups include area residents and employees. To determine the number of residents currently located within the study areas, data were compiled from the 2010 Census for the tracts and block groups in each study area. The worker population in the study area was estimated using 2010 employment data from ESRI, Inc.

2.21.12

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Half Mile Perimeter

Quarter Mile Perimeter

Commercial Study Area Boundary

Residential Study Area Boundary

Census Tract Boundary

Open Space Study Areas

Figure 5-1

The Future Without the Proposed Actions

As discussed in Chapter 2, “Land Use, Zoning, and Public Policy,” a number of new developments are anticipated to be constructed by 2022 in the ¼-mile and ½-mile study areas. To estimate the population anticipated in the study areas in the future without the proposed actions, the average household size for Manhattan Community District 3 (2.21 persons per household) was applied to the number of new housing units forecast in each area. The number of workers introduced by these developments was estimated using standard employment density ratios for the expected uses. The number of new workers and residents introduced by these developments was added to the existing study area populations to calculate the total worker and resident populations in each study area in the future without the proposed actions.

Probable Impacts of the Proposed Actions

The residential population introduced by the proposed actions was estimated by multiplying the number of units by the average household size for Manhattan Community District 3 (2.21 persons per household). The number of workers introduced by the proposed actions was estimated using standard employment density ratios. The number of new workers and residents introduced by the proposed actions was added to the study area populations in the future without the proposed actions to calculate the total worker and resident populations in each study area in the future with the proposed actions.

INVENTORY OF OPEN SPACE RESOURCES

The *CEQR Technical Manual* defines public open space as open space that is regularly open to the public during designated daily periods. Open spaces that do not fit this definition because they are not available to the public on a regular basis or are available only to a limited set of users are considered private open space and are not included in the quantitative open space analysis. A private, fee-charging health club or roof deck for residents of a particular building are examples of a private open space.

In addition, community gardens in the study area were not included in the open space inventory and quantitative analysis, because their use is often restricted to certain days, typically weekends, and certain times of the day. The following community gardens under the jurisdiction of the New York City Department of Parks and Recreation (DPR) were not included in the open space inventory: Miracle Garden, Kenkeleba House Garden, the community garden at the corner of Clinton and Stanton Streets, De Colores Community Garden, La Plaza Cultural, Fireman’s Memorial Garden, Green Oasis and Gilbert’s Garden, Creative Little Garden, 6th Street and Avenue B Garden, 6 B/C Botanical Garden, Secret Garden, El Jardin Del Paradiso, Generation X Garden, Los Amigos Garden, Orchard Alley Garden, Peach Tree Community Garden, Liz Christy Community Garden, and Le Petit Versailles. The following community gardens owned by the Manhattan Land Trust were not included in the open space inventory: Parque de Tanquilidad, All People’s Garden, Albert’s Garden, and the Lower East Side People Care Garden. In addition, the study area also includes the Children’s Magical Garden at the corner of Stanton and Suffolk Streets. That property occupies one privately owned lot and two lots owned by the City of New York Department of Housing Preservation & Development (HPD); the property has no formal status as a community garden and is not sanctioned by the City of New York, and the garden operators have never requested formal permission to use the City-owned lots from the City of New York (from HPD or DPR through the GreenThumb Program).

All publicly accessible open spaces and recreational facilities within the study areas were identified. The inventory of open spaces was assembled based on field visits conducted in October 2011 and information from DPR. Published environmental impact statements (EISs) for recent projects in or near the study area were also consulted.

The character, condition, and use of the publicly accessible open spaces and recreational facilities within the study areas were recorded during field visits. Active and passive amenities were noted at each open space. Active facilities are intended for vigorous activities, such as jogging, field sports, and children's active play. Such facilities might include basketball and handball courts, jogging paths, ball fields, and playground equipment. Passive facilities encourage such activities as strolling, reading, sunbathing, and people watching. Passive open spaces are characterized by picnic areas, walking paths, or gardens. Certain areas, such as lawns or public esplanades, can serve as both active and passive open spaces.

In addition to the open spaces located in the study areas, open spaces located just outside of the study areas were considered in the qualitative analysis as they may be used by the worker or resident populations.

ADEQUACY OF OPEN SPACE RESOURCES

Comparison to City Guidelines

The adequacy of open space in the study area was quantitatively assessed using a ratio of useable open space acreage to the study area population (the "open space ratio"). The open space ratio was compared to City open space planning guidelines. The following guidelines are used in this type of analysis:

- For nonresidential populations, 0.15 acres of passive open space per 1,000 non-residents is typically considered adequate.
- For residential populations, two guidelines are used. The first is a citywide median open space ratio of 1.5 acres per 1,000 residents. In New York City, local open space ratios vary widely, and the median ratio at the Community District level is 1.5 acres of open space per 1,000 residents. The second is an open space planning goal established for the City of 2.5 acres per 1,000 residents—2.0 acres of active and 0.5 acres of passive open space per 1,000 residents—for large scale plans and proposals. However, these goals are often not feasible for many areas of the City, and they are not considered an impact threshold. Rather, they are used as benchmarks to represent how well an area is served by its open space resources.

Impact Assessment

Impacts are based on how a project would change the open space ratios in the study area. According to the *CEQR Technical Manual*, if a proposed action would result in a decrease approaching or exceeding 5 percent, it is considered to substantially change open space conditions and a detailed analysis may be warranted. However, in areas that are extremely lacking in open space, a reduction as small as 1 percent may be considered significant, depending on the area of the City. Furthermore, in areas that are well-served by open space, a greater change in the open space ratio may be tolerated.

The *CEQR Technical Manual* recommends that the quantitative open space analysis described above be supplemented by an examination of qualitative factors. These factors include the proximity to "destination" resources, the beneficial effects of any open space added by the proposed actions, and the comparison of projected open space ratios with established City guidelines. It is recognized that the open space ratios of the City guidelines described above are not feasible for many areas of the City, and they are not considered impact thresholds on their own. Rather, they are benchmarks that indicate how well an area is served by open space.

C. PRELIMINARY ASSESSMENT

A preliminary assessment of open space consists of calculating total population, tallying the open space acreage within the area, and comparing the open space ratios for the future without and with the proposed actions.

EXISTING CONDITIONS

OPEN SPACE USER POPULATION

According to 2010 data, the commercial (¼-mile) study area has a worker population of 9,463 (see **Table 5-2**). Based on the 2010 Census, the residential (½-mile) study area has a population of approximately 126,620 (see **Table 5-3**).

Table 5-2
Existing Worker Population in the Commercial Study Area – 2011 Estimate

Tract	Worker Population
12	1,251
14.01	647
14.02	402
18	2,845
22.01	1,153
30.01	1,646
30.02	555
36.01	964
TOTAL	**9,463**
Source: ESRI Business Analyst, Inc, Business Summary Report	

OPEN SPACE INVENTORY

Commercial (¼-Mile) Study Area

The commercial (¼-mile) study area contains 23 publicly accessible open spaces totaling 25.43 acres, of which 7.74 acres is passive open space and 17.69 acres is active open space (see **Figure 5-2** and **Table 5-4**). The largest open space in the commercial study area is Sara D. Roosevelt Park, which includes courts, playgrounds, gardens, and a picnic area. The park is located along Chrystie and Forsyth Streets, from East Houston Street to Canal Street. Seward Park is the second largest open space in the commercial study area, and it includes benches and recreational areas.

The commercial study area contains three playgrounds that are jointly owned and operated by DPR and the New York City Department of Education (DOE). These parks serve City public schools as well as the public. Although public use during school hours is prohibited in these parks, they were included in the open space inventory and quantitative analysis.

8.7.12

0 1000 FEET

SCALE

▨ *Proposed Development Sites*

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Commercial Study Area Boundary

Residential Study Area Boundary

1 *Open Space Resource*

NOTE: This figure has been revised for the FGEIS.

Table 5-3
Existing Residential Population in the Residential Study Area – 2010 Census

Tract	Residential Population
10.01	1,434
10.02	6,547
12	3,397
14.01	3,005
14.02	2,782
16	8,478
18	8,660
2.01	3,058
2.02	7,316
22.01	6,398
22.02	2,189
26.01	3,772
26.02	4,227
30.01	4,492
30.02	3,106
32	8,234
36.01	3,393
36.02	3,151
38	9,237
41	7,817
43	4,270
6	11,367
8	10,290
TOTAL	**126,620**
Source: U.S. Census Bureau, 2010 Census	

A number of community gardens are located throughout the commercial study area. Use of the community gardens is often restricted to certain days, typically weekends, and certain times of the day. Therefore, these community gardens were not included in the open space inventory and quantitative analysis, as noted above.

Residential (½-Mile) Study Area

The residential (½-mile) study area contains 46 publicly accessible open spaces, including all of the open spaces within the commercial study area. There is a total of 100.38 acres of open space in the residential study area, of which 29.61 acres is passive open space and 70.77 is active open space (see **Figure 5-2** and **Table 5-4**). Approximately 25.52 acres of the roughly 57-acre East River Park fall within the residential study area. The East River Park stretches along the East River from Montgomery Street on the south to East 12th Street on the north. The park includes an amphitheater, just south of Grand Street, which has been reconstructed and is often used for public performances. The park includes football, baseball, and soccer fields; tennis, basketball, and handball courts; a running track and bike paths including the East River Greenway; and fishing, as well as other amenities. The park is bisected by the Williamsburg Bridge.

Table 5-4
Open Space Inventory

Map ID No.[1]	Name	Location	Owner	Total Acres	Passive	Active	Amenities	Condition /Use Level
Inventory of Open Space Resources - 1/4 Mile Commercial Study Area								
1	McKinley Playground/P.S. 63 Playground	Avenue A, E 3rd St and E 4th St	DOE/DPR	0.56	0.00	0.56	Playground, drinking and playing fountain, chess, checkers, picnic	Excellent/Moderate
2	First Houses	112 E 3rd St	NYCHA	0.76	0.23	0.53	Benches, playground	Excellent/Low
3	First Park	Houston St, E 1st St, 1st Av	DPR	0.76	0.23	0.53	Center, trees, playground, benches, courts, artwork, fountain, recreation center	Excellent/Moderate
4	Peretz Square	E 1st St, E Houston St, 1st Av and Allen St	DPR	0.19	0.19	0.00	Benches, landscaping	Fair/Low
5	Metzer Tower	117 E 2nd St	NYCHA	0.64	0.64	0.00	Landscaping, pavement, bench	Excellent/Low
6	Sara D. Roosevelt Park	E Houston St to Canal St	DPR	7.85	0.00	7.85	Courts, benches, playground, garden, center, restrooms	Excellent/Heavy
7	ABC Playground (near P.S. 20)	Essex St, Norfolk St, Houston St	DPR	0.46	0.14	0.32	Courts, playground, benches, pavement, sculptures	Excellent/Moderate
8	The Dorothy Strelsin Memorial Garden	Suffolk Street, btw 170 and 176	NYRP	0.52	0.52	0.00	Benches, landscaping	Excellent/Low
9	Gompers Houses	60 Pitt St	NYCHA	2.27	0.68	1.59	Benches, courts, landscape, playground	Excellent/Moderate
10	Nathan Straus Playground	178 Rivington Street	DOE/DPR	0.85	0.21	0.64	Benches, courts	Good/Moderate
11	Bernard Downing/ Luther Gulick Playground	Columbia St, Delancey St, and Willet St	DPR	1.45	0.00	1.45	Courts, rollerblading, benches, playground	Excellent/Moderate
12	Broome Seward Park Extension	150 Broome St	NYCHA	0.45	0.45	0.00	Benches, trees	Good/Low
13	Allen/Pike Malls	Between E Houston St and FDR Dr along Allen St and Pike St	City of New York	2.17	2.17	0.00	Landscaping, benches, trees	Excellent/Moderate
14	William H. Seward HS Park	28 Essesx St	DOE	1.02	0.00	1.02	Athletic courts and fields	Excellent/Low
15	William H. Seward Park	E Broadway and Rutgers St	DPR	3.36	1.01	2.35	Playground, benches, bathrooms, park offices, recreation center, landscaping, trees, library, water fountain	Excellent/Heavy
16	Ahearn Park	Grand St, E Broadway, and Willet St	DPR	0.09	0.09	0.00	Benches, trees, landscaping	Excellent/Low
17	Sol Lain Playground/ P.S. 134 Playground	Broadway, Henry St, Gouverneur St	DOE/DPR	0.89	0.27	0.62	Playground, benches, garden	Fair/Low
18	Martin Luther King, Jr. Community Park	Broadway and Henry St, Gouverneur St and Montgomery St	DCAS	0.15	0.15	0.00	Gazebo, sculptures, picnic tables, landscaping, trees, benches	Excellent/Low

Table 5-4 (cont'd)
Open Space Inventory

Map ID No.[1]	Name	Location	Owner	Total Acres	Passive	Active	Amenities	Condition /Use Level
Inventory of Open Space Resources - 1/4 Mile Commercial Study Area (cont'd)								
19	Landscaped sitting area/plaza	Montgomery St, Samuel Dickenson Plaza, Broadway	DPR	0.26	0.26	0.00	Benches, trees	Poor/Low
20	Captain Jacob Joseph Playground	Rutgers St and Henry St	DPR	0.14	0.00	0.14	Play equipment	Excellent/Low
21	Straus Square	Canal St, Rutgers St and E Broadway	DPR	0.12	0.12	0.00	Sculpture, benches, trees	Excellent/Low
22	45 Allen St.	45 Allen St	NYCHA	0.38	0.29	0.09	Landscaping, benches, playground	Excellent/Low
23	Abrons Art Center	464 Grand Street	Henry Street Settlement	0.09	0.09	0.00	Amphitheater seating, benches, trees	Excellent/Low
			Study Area Total	**25.43**	**7.74**	**17.69**		
Inventory of Open Space Resources - 1/2 Mile Residential Study Area[2]								
24	Tompkins Square Park	Avenue A to Avenue B, E 7th St to E 10th St	DPR	10.50	0.00	10.50	Playground, courts, pavement, dog park, benches, landscape, trees, picnic, library	Excellent/High
25	Playground	E 6th Street	NYCHA	0.11	0.03	0.08	Playground, tables, benches,	Excellent/Low
26	De Salvio Playground	Spring Street and Mulberry Street	DPR	0.27	0.00	0.27	Swings, slides, seesaws, play equipment, shower basin, game tables, benches, Bocci	Excellent/ Moderate
27	Hamilton Fish Park	E Houston St, Stanton St, Sheriff St, Pitts St	DPR	4.30	1.29	3.01	Center, pool, playground, courts, fields, park supervisor's office, library	Excellent/ Moderate
28	Baruch Houses and Baruch Houses Playground/P.S. 97[3]	288 Delancey St	NYCHA/DPR	3.29	0.99	2.30	Athletic fields, courts, playground, benches, picnic, bath	Excellent/Low
29	Henry M. Jackson Playground/JHS 82 Playground	Jackson St, Madison St, and Henry St	DPR	0.61	0.00	0.61	Benches, playground equipment, handball courts	Fair/ Moderate
30	Sophie Irene Loeb Playground	Henry St, Market St, E Broadway	DPR	0.12	0.00	0.12	Playground, trees	Excellent/Low
31	Henry Rutgers	300 Cherry St	NYCHA	4.48	0.00	4.48	Playground, courts	Good/Low
32	NYCHA	45 Pike Street	NYCHA	1.55	1.17	0.38	Courts, benches, trees	Good/Low
33	LaGuardia Houses/ Little Flower Playground/ Rutgers Pool4	Cherry St	NYCHA/DPR	2.02	0.61	1.41	Picnic, courts, statue, restrooms, benches, trees, spray showers, center	Good/Low
34	La Guardia Houses Playground	318 Cherry St	NYCHA	0.05	0.02	0.03	Playground, benches	Excellent/Low
35	La Guardia Houses Playground	318 Cherry St	NYCHA	0.17	0.13	0.04	Playground, benches	Excellent/Low
36	Lillian D. Wald Playground	356 Cherry St	DPR	0.68	0.34	0.34	Courts, benches, trees	Excellent/Low

Table 5-4 (cont'd)
Open Space Inventory

Map ID No.[1]	Name	Location	Owner	Total Acres	Passive	Active	Amenities	Condition /Use Level
Inventory of Open Space Resources - 1/2 Mile Residential Study Area[2] (cont'd)								
37	Vladeck 1 Houses and Vladeck Park[5]	656 Water St	NYCHA/DPR	7.96	2.39	5.57	Playground, benches, tables	Good/Low
38	Corlears Hook Park	Jackson St, Cherry St, FDR Dr	DPR	4.36	0.00	4.36	Playground	Excellent/Low
39	Vladeck II	14 Jackson St	NYCHA	1.33	1.33	0.00	Benches, playground, landscape	Excellent/Low
40	East River Park[6]	Montgomery St to E 12 St, FDR Dr	DPR	25.52	12.76	12.76	Athletic fields, track, courts, playground, picnic, center, trees, landscaping, pool	Excellent/ Moderate
41	Clinton Cherry Playground	Cherry St	DPR	0.48	0.00	0.48	Courts, trees , benches, playground	Excellent/Low
42	East River Esplanade	Cherry St	DPR	0.43	0.43	0.00	Benches	Good/ Moderate
43	Coleman Square Playground	72 Market St	DPR	2.61	0.00	2.61	Playground, benches, athletic fields, courts	Excellent/Low
44	Martin F. Tanahey Playground	Cherry St to Water St, W Catherine St to Market St	DPR	1.26	0.38	0.88	Bocci, courts, rollerblading, benches, playground, chess, picnic	Excellent/Low
45	Verizon Field	Cherry St, Pike St, and Monroe St	DPR	2.61	0.00	2.61	Playfield, running track	Excellent/Low
46	P.S. 110 Playground/ Sidney Hillman Playground	Lewis St and Delancey St	DOE/DPR	0.19	0.00	0.19	Playground, courts, pavement	Excellent/Low
			Study Area Total	**100.38**	**29.61**	**70.77**		

Notes:
1) See Figure 5-2 for open space resources.
2) The residential study area includes all of the open spaces contained within the commercial study area.
3) The acreage calculation for Baruch Houses and Baruch Houses Playground/P.S. 97 includes all of the publicly accessible park areas. Only 2.182 acres is owned by DPR.
4) The acreage calculation for LaGuardia Houses/ Little Flower Playground/ Rutgers Pool includes all of the publicly accessible park areas. Only 1.131 acres is owned by DPR.
5) The acreage calculation for Vladeck 1 Houses and Vladeck Park includes all of the publicly accessible park areas. Only 0.79 acres is owned by DPR.
6) The acreage calculation for East River Park includes only the area located within the residential study area.
DPR= New York City Department of Parks and Recreation
DOE= New York City Department of Education
NYCHA= New York City Housing Authority
Sources: AKRF Field Surveys, October 2011; *East Village/Lower East Side Rezoning FEIS*, CEQR No. 07DCP078M, September 26, 2008; NYCHA open space acreage calculated using GIS data.

Tompkins Square Park, bounded on the north by East 10th Street, on the east by Avenue B, on the south by East 7th Street, and on the west by Avenue A, is the second largest open space in the residential study area and is devoted to both active and passive uses. Amenities include three playgrounds, basketball courts, handball courts, and a temporary children's swimming pool in the summer season. In addition, paved walkways, monuments, benches, trees, and planters are part of the passive open space.

Several of the other DPR parks are entirely active and characterized as neighborhood parks. These parks include Clinton Cherry Playground, Martin F. Tanahey Playground, and Coleman Square Playground. These parks may include playground equipment, courts, benches, and play areas.

Several New York City Housing Authority (NYCHA) housing developments with open spaces are located in the residential study area. While open space within a public housing development is primarily meant for use by residents of that housing development, the space is accessible to the public. Several of the housing developments include amenities such as benches, trees, walkways, playgrounds, jungle gyms, and basketball courts. In certain developments, such as the Baruch Houses, there are parks owned and operated by DPR or jointly owned and operated by DPR and NYCHA.

The Sidney Hillman Playground at P.S. 110, also included in the open space inventory and quantitative analysis, is the only open space in the residential study area that is jointly owned and operated by DPR and DOE. As noted above, public use during school hours is prohibited.

Several community gardens are located throughout the residential study area. These were not included in the open space inventory and quantitative analysis because of their limited hours of public accessibility, as noted above.

ADEQUACY OF OPEN SPACES

Commercial (¼-Mile) Study Area

As described above, the analysis of the commercial study area focuses on passive open spaces that may be used by workers in the area. **Table 5-5** compares the ratio of existing passive open space per 1,000 workers in the study area with the City guidelines. The study area has a passive open space ratio of 0.82 acres per 1,000 workers, which is over five times greater than the City's guideline of 0.15 acres of passive open space per 1,000 workers.

Table 5-5
Existing Conditions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	9,463	25.43	17.69	7.74	N/A	N/A	0.82	N/A	N/A	0.15
Residential (½-Mile) Study Area										
Residents	126,620	100.38	70.77	29.61	0.79	0.56	0.23	2.5	2.0	0.50
Note: Ratios in acres per 1,000 people.										

Residential (½-Mile) Study Area

With a total of 100.38 acres of open space (70.77 for active use and 29.61 for passive use) and a total residential population of 126,620, the residential study area has an overall open space ratio of 0.79 acres per 1,000 residents (see **Table 5-5**). This is substantially less than the City's planning guideline of 2.5 acres of open space per 1,000 residents, and approximately 50 percent less than the citywide community district median of 1.5 acres per 1,000 residents.

The study area's current residential passive open space ratio is 0.23 acres of passive open space per 1,000 residents, which is below the City's goal of 0.5 acres per 1,000 residents. The area's residential active open space ratio is 0.56 acres per 1,000 residents, which is also below the City's planning guideline of 2.0 acres per 1,000 residents.

Qualitative Considerations

As described above, one of the major open spaces in the study area, East River Park, extends far beyond the study area boundaries. Residents in the northeast section of the study area, particularly those seeking opportunities for active recreational activities such as biking and running, are likely to make use of a larger area of this park than the 25.52-acre portion that falls within the study area. In addition, Columbus Park and City Hall Park to the southwest, Washington Square Park and Union Square to the west and northwest respectively, and the Dry Dock Playground and Pool to the north are other large open spaces just outside of the study area boundaries that provide active and passive recreation space for residents in the study area. Together, these open space resources provide an additional 30.70 acres of open space serving study area residents within walking distance of these areas.

As previously mentioned, several community gardens are located throughout the residential study area. Although these were not included in the open space inventory and quantitative analysis, they do provide additional passive open space resources for residents within walking distance of these gardens during the hours that they are open to the public.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

STUDY AREA POPULATION

Absent the proposed actions, existing conditions on the project site would not change. No new employees or residents would be introduced to the site.

As described in Chapter 2, "Land Use, Zoning, and Public Policy," several anticipated developments in both the commercial and residential study areas are planned or under construction and are expected to be completed by 2022. These developments will increase both the residential and worker populations within the study areas.

Commercial (¼-Mile) Study Area

New developments projected to be completed in the commercial study area by 2022 will introduce approximately 405 ~~267~~ new workers to the study area.[1] The total worker population in the study area will increase to approximately 9,868 ~~9,730~~ workers.

Residential (½-Mile) study area

In addition to the new development that will occur in the commercial study area, new development in the residential study area will result in an additional 523 ~~512~~ residential units

[1] Employment density ratios were applied to the expected square footage for each use to estimate future employment. The ratios used assume one worker each per 400 square feet of retail space; three hotel rooms; 250 square feet office space; 1,000 square feet of community facility space; 25 residential units; and 10 parking spaces.

anticipated to be constructed by 2022.[1] It is anticipated that the population of the study area will increase by 1,156 ~~1,132~~ residents for a total study area residential population of 127,776 ~~127,752~~ in 2022.[2]

STUDY AREA OPEN SPACES

In the future without the proposed actions, two pending and proposed park improvement projects are expected within the residential study area. According to DPR, the planned park projects in the study area are: the East River Esplanade Waterfront and Piers project and the East River Waterfront Access project. Overall, the total amount of open space is expected to increase by approximately 5.64 acres, of which 1.59 acres would be active open space and 4.05 would be passive open space (as noted below, 0.43 acres of this passive open space is currently used). With the additional open spaces, the study area would be expected to have a total of 105.60 acres of open space divided between 72.36 acres of active space and 33.24 acres of passive space. The East River Esplanade Waterfront and Piers project and East River Waterfront Access project are described in detail below.

East River Esplanade Waterfront and Piers

The City has proposed a plan for the revitalization of the East River waterfront by improving a two-mile-long, City-owned public open space connecting the Whitehall Ferry Terminal and Peter Minuit Plaza to the south to East River Park to the north. The plan seeks to improve access to the waterfront, enhance pedestrian connectivity, and create waterfront amenities for public use and enjoyment. The existing esplanade would be enhanced, some new sections of esplanade would be created, and several piers would be renovated and redeveloped.

It is expected that this project would create 2.24 acres of open space in the residential study area. Approximately 0.43 acres of this space is currently used as publicly accessibly open space. Therefore, the East River Esplanade Waterfront and Piers would create 1.81 acres of new open space and would improve the 0.43 acres of existing open space. Overall, the East River Esplanade Waterfront and Piers project would improve existing open space and create new public open space along a two-mile stretch of the East River and thus help to alleviate the shortage of open space experienced by the dense residential and worker populations of Lower Manhattan.

East River Waterfront Access

The DPR-sponsored East River Waterfront Access Project would provide community amenities and significantly improve the pedestrian connections between the East River Waterfront and its neighboring Lower Manhattan areas—the South Street Seaport District, Chinatown, the Lower East Side, and East River Park. The new East River Park Connector, located in the upland portion of Pier 42 (at Gouverneur Street), would add 3.41 acres of open space to the residential study area. The East River Park Connector would create a wider, safer pedestrian and bike path connection between the existing East River Waterfront esplanade and East River Park. The Access Project would remove existing fencing and install planted berms to separate the path

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[1] The 523 ~~512~~ residential units anticipated to be constructed in the residential study area includes residential units anticipated to be constructed in the commercial study area.

[2] The Community District 3 average household size of 2.21 persons per household was applied to the expected number of units in the residential study area.

from the FDR Drive. The pedestrian path and bikeway would be paved with a modular, reinforced concrete system.

In addition to the two pending and proposed park improvement projects discussed above, a pedestrian plaza will be created on the south side of Delancey Street between Norfolk and Clinton Streets as a result of New York City Department of Transportation's Delancey Street Safety Improvements plan. This plaza is expected to include planters or street furniture/other amenities. This pedestrian plaza is not included in the quantitative analysis.

ADEQUACY OF OPEN SPACES

Commercial (¼-Mile) Study Area

The development projects expected to be completed in the commercial study area in the future without the proposed actions would introduce new workers to the study area, and the passive open space ratio would decrease slightly. However, the commercial study area would remain adequately served by passive open spaces to meet the needs of the non-residential population. The ratio of passive open space per 1,000 workers would be 0.78 ~~0.80~~ acres in the future without the proposed actions, still well above the City's guideline ratio of 0.15 acres per 1,000 workers (see **Table 5-6**).

Table 5-6
Future Without the Proposed Actions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	9,868 ~~9,730~~	25.43	17.69	7.74	N/A	N/A	0.78 ~~0.80~~	N/A	N/A	0.15
Residential (½-Mile) Study Area										
Residents	127,776 ~~127,752~~	105.60	72.36	33.24	0.83	0.57	0.26	2.5	2.0	0.50
Note: Ratios in acres per 1,000 people.										

Residential (½-Mile) Study Area

In the future without the proposed actions, the open space ratios in the residential study area would slightly increase but would remain below the City's guidelines. The total open space ratio would increase to 0.83 acres per 1,000 residents but would remain lower than the City's planning guideline of 2.5 acres of total open space per 1,000 residents. It would also remain approximately 50 percent less than the citywide median of 1.5 acres per 1,000 residents (see **Table 5-6**). The active open space ratio would increase slightly to 0.57 acres per 1,000 residents, and the passive open space ratio would also increase slightly to 0.26 acres per 1,000 residents. As in existing conditions, the active and passive open space ratios would remain below the City's guideline ratios of 2.0 acres of active open space per 1,000 residents and 0.5 acres of passive open space per 1,000 residents.

Qualitative Analysis

As in existing conditions, study area residents and workers would continue to have access to open spaces just outside the study area, most notably the portions of East River Park that extend north and south of the study area.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS

DIRECT EFFECTS

The proposed actions would not directly displace any public open spaces and would have a positive direct effect on open space in the study area by adding 0.23 acres of publicly accessible open space. The proposed actions would not have any adverse impacts on existing open space in terms of air quality, noise, odors, or shadows. See Chapter 6, "Shadows," Chapter 14, "Air Quality," and Chapter 16, "Noise," for additional information.

INDIRECT EFFECTS

Study Area Population

Commercial (¼-Mile) Study Area

The proposed actions would result in the development of new retail, office, community facility, residential, and publicly accessible open space uses. As described in Chapter 2, "Land Use, Zoning, and Public Policy," the proposed development would increase both the residential and worker populations within the study areas.

The proposed actions would introduce approximately 1,449 new workers. With the addition of these new workers, the nonresidential commercial study area population is expected to increase to 11,317 ~~11,179~~.

Residential (½-Mile) Study Area

The proposed actions would introduce approximately 1,989 new residents. These new residents would increase the residential study area's total population to 129,765 ~~129,741~~.

Study Area Open Spaces

Commercial (¼-Mile) Study Area

As previously described, the proposed actions would create approximately 0.23 acres of publicly accessible open space on the project site. For analysis purposes it is assumed that approximately half of the open space would be dedicated to passive open space (0.115 acres) and the other half to active open space (0.115 acres). With the addition of the open space on the project site, the total amount of open space in the commercial study area would be 25.66 acres, of which 7.86 would be passive recreation and 17.80 would be active recreation.

Residential (½-Mile) Study Area

With the proposed actions, the total amount of open space in the residential study area would be 105.83 acres, of which 33.36 would be passive recreation and 72.47 would be active recreation.

Adequacy of Open Spaces

Commercial (¼-Mile) Study Area

In the future with the proposed actions, the ratio of passive open space acreage per 1,000 workers would decrease to 0.69 ~~0.70~~ acres, compared to 0.78 ~~0.80~~ acres in the future without the proposed actions. However, as in existing conditions and the future without the proposed actions, the passive open space ratio in the commercial study area would still remain nearly five times greater than the recommended City guideline of 0.15 acres of passive open space per 1,000 workers (see **Table 5-7**).

Table 5-7
Future With the Proposed Actions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	11,317 ~~11,179~~	25.66	17.80	7.86	N/A	N/A	0.69 ~~0.70~~	N/A	N/A	0.15
Residential (½-Mile) Study Area										
Residents	129,765 ~~129,741~~	105.83	72.47	33.36	0.82	0.56	0.26	2.5	2.0	0.50
Note: Ratios in acres per 1,000 people.										

Residential (½-Mile) Study Area

With the proposed actions, similar to existing conditions and the future without the proposed actions, all of the open space ratios in the residential study area would remain below City guideline levels. Although the proposed actions would add 0.23 acres of publicly accessible open space to the study area, a slight decrease in the total, active, and passive open space categories would still occur because of the increase in the residential population (see **Table 5-7**). However, the total open space ratio would only slightly decrease from 0.83 acres per 1,000 residents in the future without the proposed actions to 0.82 acres per 1,000 residents in the future with the proposed actions (a decrease of less than two percent). The active and passive open space ratios also would only slightly decrease by less than two percent from the future without to the future with the proposed actions.

Qualitative Considerations

As in existing conditions and the future without the proposed actions, study area residents and workers would continue to have access to open spaces just outside the study area, including the remainder of East River Park north and south of the study area, Columbus Park and City Hall Park to the southwest, Washington Square Park and Union Square to the west and northwest respectively, and the Dry Dock Playground and Pool to the north. As noted above, these open space resources provide an additional 30.70 acres of open space serving study area residents within walking distance of these resources.

D. CONCLUSIONS

According to the *CEQR Technical Manual*, if the decrease in the open space ratio approaches or exceeds 5 percent, it is generally considered a substantial change warranting a more detailed analysis. However, the change in the open space ratio should be balanced against how well-served an area is by open space. If the study area exhibits a low open space ratio, even a small decrease may warrant a detailed analysis. Likewise, if the study area exhibits an open space ratio that approaches or exceeds the planning goal of 2.5 acres, a greater percentage of change in the ratio may be acceptable.

COMMERCIAL (¼-MILE) STUDY AREA

The proposed actions would result in a decrease in the passive open space ratio from 0.78 ~~0.80~~ acres per 1,000 workers in the future without the proposed actions to 0.69 ~~0.70~~ acres per 1,000 workers in the future with the proposed actions (see **Table 5-8**). Although this reduction constitutes an approximately 11.5 ~~12~~ percent decrease, the passive open space ratio would still remain nearly five times greater than the City's recommended guidelines of 0.15 acres of passive open space per 1,000 workers. Therefore, the proposed actions would not result in any significant adverse impacts on open space resources in the commercial study area.

RESIDENTIAL (½-MILE) STUDY AREA

As with existing conditions and the future without the proposed actions, the open space ratios for the future with the proposed actions would continue to fall short of the City's recommended open space ratio guidelines. However, the proposed actions would introduce approximately 0.23 acres of open space to Site 5 and, as shown in **Table 5-8**, open space ratios for the residential study area would decrease by 1.38 ~~2.5~~ percent or less. These decreases would not constitute a substantial change.

Table 5-8
Future with the Proposed Actions: Open Space Ratios Summary

Ratio	City Guideline	Open Space Ratios: Existing Conditions	Open Space Ratios: Future Without the Proposed Actions	Open Space Ratios: Future With the Proposed Actions	Percent Change Future Without to Future With the Proposed Actions
Commercial (¼-Mile) Study Area					
Passive/Workers	0.15	0.82	0.78 ~~0.80~~	0.69 ~~0.70~~	-11.45% ~~-11.61%~~
Residential (½-Mile) Study Area					
Total/Residents	2.5	0.79	0.83	0.82	-1.32%
Passive/Residents	0.5	0.23	0.26	0.26	-1.18%
Active/Residents	2.0	0.56	0.57	0.56	-1.38%
Note: Ratios in acres per 1,000 people.					

It is recognized that the City guidelines are not feasible for many areas of the City, and they are not considered impact thresholds. In addition, some of the active open space needs of the study area population would be met by open spaces outside the study area, particularly East River Park. East River Park's active open space amenities just outside the study area include the continuation of the bike/jogging path, an open lawn area that could be used for active recreation such as informal ball games, and several multi-use athletic fields.

Overall, because the open space ratios would remain substantially the same in the future with the proposed actions compared to the future without the proposed actions and the proposed actions would introduce new publicly accessible open space to partially offset the additional project-generated demand, the proposed actions would not result in any significant adverse impacts on open space resources in the residential study area and a detailed open space analysis is not required. ✷

Chapter 6: Shadows

A. INTRODUCTION

Sunlight and shadows affect people and their use of open space all day long and throughout the year, although the effects vary by season. Sunlight supports vegetation and enhances architectural features, such as stained glass windows and carved detail on historic structures. Conversely, shadows can affect plant growth and the sustainability of landscape features and the visibility and architectural significance of building features.

This chapter examines whether the reasonable worst-case development scenario (RWCDS) for the proposed actions would cast new shadows on any sunlight-sensitive resources and assesses the possible effects of any such new shadows. Public open spaces, historic, cultural, and natural resources are all potentially sunlight-sensitive resources, and, therefore, this chapter is closely linked to the information presented in other sections of this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS), such as Chapter 5, “Open Space” and Chapter 7, “Historic and Cultural Resources.”

According to the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition), a shadows assessment is required if a proposed project would result in structures (or additions to existing structures) of 50 feet or more, or be located adjacent to, or across the street from, a sunlight-sensitive resource. As described in Chapter 1, “Project Description,” the RWCDS for the proposed actions would consist of new buildings on 9 sites with maximum heights that range from 80 feet to 315 feet (including the rooftop mechanical). Therefore, a shadows assessment was conducted for the proposed actions.

PRINCIPAL CONCLUSIONS

To ensure a conservative shadow analysis, the maximum zoning envelope was used for each of the nine sites that would be redeveloped with new structures. The ultimate development as constructed on each site would be subject to the results of the environmental review, the results of developer(s)’ response(s) to a Request for Proposal (RFP) process, and further discussion with stakeholders, among other factors. Each of the zoning envelopes is larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design, and consequently the actual developments would cast smaller shadows than what would be cast by the maximum zoning envelopes analyzed in the shadow assessment.

Three of the Schiff Mall medians, which are located along the center of Delancey Street between Ludlow and Suffolk Streets and contain rose bushes and other plantings, could experience large extents and durations of incremental shadow during the months of the growing season that would potentially affect the rose bushes’ viability, particularly in March and September when the overall length of the day, and therefore the available sunlight, is shorter. However, from early May through mid-August, these medians would receive seven hours or more of direct sun.

Therefore, the plantings other than the rose bushes would not be significantly affected by the project-generated shadow. The buildings that would actually be developed on Sites 1, 2, 3, and 4 would not be as large or bulky as the maximum zoning envelopes analyzed in this conservative study, and so the actual extent and duration of incremental shadow would likely be less than what is described here, and the roses may not actually be impacted. Therefore, if a tower is constructed on these sites that would impact the roses, and the roses are still there at the time of construction, then the roses would be replaced with shade tolerant plantings as part of the project.

The P.S. 142 Playground on Delancey Street would experience a little over an hour of new shadow from the proposed actions in the late spring and summer seasons, but it would occur late in the afternoons and would not cause significant adverse impacts. Several other sun-sensitive resources in the study area would receive short durations of incremental shadow and would not be adversely impacted by the proposed actions.

The proposed publicly accessible open space on Site 5 would also experience project-generated shadow. The open space, which would be located on the Broome Street side of Site 5, would experience substantial project-generated shadow throughout the year. This analysis is conservative as it is based on the maximum zoning envelope, which could not be fully built based on the requirements of the Large Scale General Development (LSGD) approvals. The actual development on the site would be smaller than the maximum zoning envelope and would likely result in slightly less shadows on the proposed open space in the late spring and summer. However, pursuant to CEQR, shadows cast on the project’s proposed open space are not considered significant.

B. DEFINITIONS AND METHODOLOGY

DEFINITIONS

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource’s usability or architectural integrity. Such resources generally include:

- *Public open space* (e.g., parks, beaches, playgrounds, plazas, schoolyards, greenways, landscaped medians with seating). Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- *Features of architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features need be considered, as opposed to the entire resource. Such sunlight-sensitive features might include: design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure’s importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource’s condition or microclimate. Such resources could include surface water bodies, wetlands, or designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources, for the purposes of CEQR, include:

- *City streets and sidewalks* (except Greenstreets).
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space).
- *Project-generated open space.* Project-generated open space cannot experience a significant adverse shadow impact from a project, according to CEQR, because without the project the open space would not exist.

A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

METHODOLOGY

Following the guidelines of the *CEQR Technical Manual*, a preliminary screening assessment must first be conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed project that represents the longest shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City. If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by project shadow by looking at specific representative days of the year and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project, taking into account existing buildings and their shadows. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

To ensure a conservative analysis, the maximum zoning envelope was used for each of the nine sites and is shown on the analysis figures. As described in Chapter 1, "Project Description" and Chapter 8, "Urban Design and Visual Resources," this ~~D~~FGEIS analyzes a RWCDS for the proposed actions for which an illustrative massing has been prepared. The ultimate development as constructed on each site would be subject to the results of the environmental review, the results of developer(s)' response(s) to an RFP, and further discussion with stakeholders, among other factors. Existing zoning and the proposed actions would establish maximum zoning envelopes for each site that would govern development. The maximum building envelope is the three-dimensional space on the zoning lot within which a structure can be built, as permitted by applicable height, setback, and yard controls. Each of the zoning envelopes is larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design, and they consequently would cast larger shadows than what would be cast by the actual developments.

C. PRELIMINARY SCREENING ASSESSMENT

A base map was developed showing the location of the project site and the surrounding street layout (see **Figure 6-1**). In coordination with the information regarding open space and historic and cultural resources presented in other sections of this ~~D~~FGEIS, potentially sunlight-sensitive resources were identified and shown on the map.[1]

TIER 1 SCREENING ASSESSMENT

For the Tier 1 assessment, the longest shadow that the maximum zoning envelope on each of the nine development sites could cast is calculated, and using this length as the radius, a perimeter is drawn around each site. Anything outside this perimeter, which represents the longest possible shadow, could never be affected by project-generated shadow, while anything inside the perimeter needs additional assessment.

According to the *CEQR Technical Manual*, the longest shadow that a structure can cast at the latitude of New York City occurs on December 21, the winter solstice, at the start of the analysis day at 8:51 AM, and is equal to 4.27 times the height of the structure.

Table 6-1 summarizes the maximum height of each of the zoning envelopes for the nine developments sites and, multiplying each height by 4.27, the longest possible shadow in feet that each maximum zoning envelope could cast.

Table 6-1
Heights and Maximum Shadow Lengths of the Development Sites

Development Site	Maximum Height[1] (in Feet)	Maximum Shadow Length Factor	Longest Shadow (in Feet)
Site 1	190’	4.27	811’
Site 2	315’	4.27	1,345’
Site 3	190’	4.27	811’
Site 4	290’	4.27	1,238’
Site 5	190’	4.27	811’
Site 6	190’	4.27	811’
Site 8	80’	4.27	342’
Site 9	80’	4.27	342’
Site 10	80’	4.27	342’

Notes: Height represents height of maximum tower envelope from curb level. Longest shadow occurs on December 21 at start of analysis day. As described in Chapter 1, “Project Description,” Site 7 would not be redeveloped pursuant to the proposed actions and is, therefore, not included in this analysis.
[1] This height includes rooftop mechanical space.

[1] Although the Beth Hamedrath Hagodol Synagogue—which is a New York City Landmark (NYCL) and State and National Register-listed (S/NR) property—is located on the east side of Norfolk Street between Broome and Grand Streets adjacent to Sites 2-5, it was not included in this study, because its pointed-arch windows on the north and south façades are plain rather than stained glass and are, therefore, not considered sunlight-dependent architectural features per CEQR methodology. The west (front) façade faces away from the project and the east (rear) façade does not have windows.

Using the longest shadow distance as a radius, a perimeter was drawn around each site (see **Figure 6-1**). Since a number of sun-sensitive resources lie within the combined perimeter or longest shadow study area, the next tier of screening assessment was conducted.

TIER 2 SCREENING ASSESSMENT

Because of the path that the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City this area lies between -108 and +108 degrees from true north. **Figure 6-2** illustrates this triangular area south of the project site. The complementing area to the north within the combined longest shadow study area represents the remaining area that could potentially experience new project-generated shadow.

A number of public open spaces are located within the remaining shadow study area, as shown in **Figure 6-2** and listed in **Table 6-2**.

Table 6-2
Public Open Spaces in Longest Shadow Study Area

Map Key	Open Spaces
1	William H. Seward Park
2	William H. Seward HS Fields/Courts
3	45 Allen St. (NYCHA)
4	Allen Malls
5	Sara Roosevelt Park
6	Schiff Mall
7	ABC Playground (near P.S. 20)
8	The Dorothy Strelsin Memorial Garden
9	Community Of Poor People In Action Garden
10	Nathan Straus Playground
11	Gompers Houses Playgrounds (NYCHA)
12	P.S. 142 Playground
13	150 Broome St. (NYCHA)
14	Bernard Downing/Luther Gulick Playground
15	Henry Street Settlement Abrons Art Center

In addition, a number of historic resources with sunlight-sensitive features are located within the remaining shadow study area. All of these resources are either churches or synagogues, and any large, decorative windows that are visible from within sanctuaries or other publicly-accessible rooms in these historic buildings are considered sun-sensitive features and must be assessed for shadows. Therefore additional assessment was undertaken to determine which facades contained sun-sensitive features, and further, whether these facades were oriented toward any of the project sites and could potentially receive project-generated shadow, or whether they faced away from the project sites.

Figure 6-3 shows the relationship between the project site and the historic resources in the longest shadow study area, and indicates which facades of the historic buildings have sun-sensitive features.

Shadows from Sites 1 and 2 would be long enough to reach the **Kehila Kadosha Janina Synagogue** (NYCL, S/NR) on Broome Street between Allen and Eldridge Streets (see **Figure 6–1**); however, these two sites are located too far north to cast shadow on the front/south facade of the synagogue. Site 5 would be the only site located far enough south to cast shadows on the front facade of this synagogue, but the maximum envelope proposed for that site would not cast a shadow long enough to reach it.

The front/west façade of the **Anshe Chesed Synagogue** (NYCL) on Norfolk Street between Stanton and East Houston Streets has large decorative windows. Only shadows from Sites 2 and 10 could potentially be long enough to reach this façade (see **Figure 6-1**). Additional assessment of potential shadow effects is therefore necessary.

The front façade of the **Stanton Street Shul** (NR), between Clinton and Attorney Streets, contains stained-glass windows, and faces south towards the project site (see **Figure 6-3**). Shadows from Sites 2 and 4 could be potentially long enough to reach it (see **Figure 6-1**), and therefore further analysis of this resource is necessary.

The front façade of **Our Lady of Sorrows Church** (NYCL-eligible), located on Pitt Street between Stanton and Rivington Streets, faces east, away from the project sites. The front façade is the only façade that has sun-sensitive features, and therefore no further analysis of this resource is necessary.

St. Mary's Church (which is a potential historic resource) is located on Grand Street a block east of Site 5 and has large decorative windows on its west, south and east facades. The south and east facades face away from the project site but the west façade faces towards Site 5 and requires additional analysis. The other sites are too far north to cast shadow on the west façade of this church (see **Figure 6-3).**

The **Bialystoker Synagogue** (NYCL) is located on Bialystoker Place between Delancey and Grand Streets. It has decorative windows on all four facades; however only its west façade faces the project site. Site 5 is the only development site located far enough south to potentially cast shadow on the Synagogue (see **Figure 6-3**), but as **Figure 6-1** shows, shadow from the maximum zoning envelope on Site 5 would not be long enough to reach it. Therefore no further analysis of this resource is warranted.

In summary, the following historic resources have sun-sensitive features that need further assessment: **Anshe Chesed Synagogue** (west façade), **Stanton Street Shul** (south façade), and **St. Mary's Church** (west façade).

TIER 3 SCREENING ASSESSMENT

The direction and length of shadows vary throughout the course of the day and also differ depending on the season. In order to determine when project-generated shadow could fall on a sunlight-sensitive resource, three-dimensional computer mapping software is used in the Tier 3 assessment to calculate and display the proposed project's shadows on individual representative days of the year.

REPRESENTATIVE DAYS FOR ANALYSIS

Shadows on the summer solstice (June 21), winter solstice (December 21) and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, generally the day halfway between the summer solstice and the equinoxes, i.e., May 6 or August 6, which have approximately the same shadow patterns.

TIMEFRAME WINDOW OF ANALYSIS

The shadow assessment considers shadows occurring between one and a half hours after sunrise and one and a half hours before sunset. At times earlier or later than this timeframe window of analysis, the sun is down near the horizon and the sun's rays reach the Earth at tangential angles, diminishing the amount of solar energy and producing shadows that are long, move fast, and generally blend with shadows from existing structures until the sun reaches the horizon and sets. Consequently, shadows occurring outside the timeframe window of analysis are not considered significant under CEQR, and their assessment is not required.

TIER 3 SCREENING ASSESSMENT RESULTS

The Tier 3 screening assessment analyzed each of the nine sites individually on the four different analysis days. The results are summarized in this section by site and then by resource. As noted above, the assessment analyzed shadows from the maximum zoning envelope for each of the nine development sites.

It is important to note that the Tier 3 assessment considered the maximum zoning envelope for each site and the potential shadow effects on sun-sensitive resources <u>without</u> considering intervening buildings. The purpose of the Tier 3 assessment is to identify where the potential for incremental shadow could occur, to be further analyzed in a more detailed analysis that includes intervening and surrounding buildings.

Site 1 (Figure 6-4)

Site 1 is the westernmost of the sites. The shadow from the maximum zoning envelope on Site 1 would be long enough to reach sections of the Allen Street Malls on all four analysis days. The shadow could also reach portions of Schiff Mall on Delancey Street on the March/September and December analysis days, but not on the May/August and June analysis days when shadows are short when cast northward in the middle of the day. No other sun-sensitive resources would be affected by shadow from the maximum zoning envelope on Site 1. (On March 21/September 21, the shadow would be just long enough to reach the footprint of Kehila Kadosha Janina Synagogue on Broome Street at the start of the analysis day, but the shadow would not fall on the front/south façade where the decorative window is located.)

Site 2 (Figure 6-5)

The maximum zoning envelope on Site 2 is the tallest of the zoning envelopes. Its shadow would be long enough to reach the Allen Malls on all four analysis days, and the Schiff Mall on Delancey Street on all four analysis days. In addition, at the end of the May/August analysis day, shadow from the maximum zoning envelope could reach the P.S. 142 Playground several blocks to the east; at the start of the June 21 analysis day it would fall just far enough to the southwest to reach the NYCHA-owned public open space at 45 Allen Street; at the end of the June 21 analysis day it would fall far enough to the southeast to reach the NYCHA-owned public open space at 150 Broome Street; and on December 21, again at the end of the analysis period, it would be long enough to reach the Dorothy Strelsin Memorial Garden several blocks to the northeast. On March 21/September 21, shadow from Site 2 would be long enough to reach the footprint of Kehila Kadosha Janina Synagogue on Broome Street at the start of the analysis day, but the shadow would not fall on the front/south façade where the decorative window is located.

Site 3 (Figure 6-6)

The Tier 3 assessment showed that shadow from the maximum zoning envelope on Site 3 could reach the Schiff Mall on Delancey Street on three of the four analysis days, excepting only June 21. At the end of the June 21 analysis day, the shadow could fall far enough east to reach the NYCHA-owned 150 Broome Street space.

Site 4 (Figure 6-7)

Shadow from the maximum zoning envelope on Site 4 could reach the Schiff Mall on Delancey Street on the March 21/September 21 and December 21 analysis days, but would be too short to reach it on the late spring and summer analysis days. Shadow from the maximum zoning envelope on Site 4 could reach the P.S. 142 Playground in the late afternoon of the March/September and May/August analysis days, although on the May 6/August 6 it would only reach a short distance across the southern edges of the space. On the May/August and June analysis days, the shadow could reach the NYCHA-owned 150 Broome Street space in the afternoons. On the June 21 analysis day only, the shadow could reach all the way to a small section of the Luther Gulick Playground at the end of the analysis day, likely for only a few minutes. Finally, on December 21, shadow from the maximum zoning envelope on Site 4 could reach the Nathan Straus Playground toward the end of the analysis day. It would come close, but would not reach, either the Community of Poor People in Action Garden or the front/south façade of the Stanton Street Shul.

Site 5 (Figures 6-8)

Shadow from Site 5 could reach the NYCHA-owned space at 150 Broome Street in the late afternoons of the March/September and May/August analysis days. Shadow from Site 5 could also reach far enough south to fall on a small portion of the Seward Park High School fields and ball courts early on the June 21 mornings. Finally, shadow from Site 5 could potentially reach the east façade of St. Mary’s Church at the end of the June 21 analysis day.

Site 6 (Figure 6-9)

Site 6 is the westernmost of the development sites. Shadow from the maximum zoning envelope could reach the P.S. 142 Playground on the March/September and December analysis days and the 150 Broome Street space on the March/September, May/August, and June analysis days. It would also reach the Schiff Mall on Delancey Street on the December 21 day only. Shadow from the maximum zoning envelope would come close but not fall on the southeast corner of the Nathan Straus Playground in the final few minutes of the December 21 analysis day.

Site 8 (Figure 6-10)

Shadow from Site 8 would not reach any sun-sensitive resources at any time of year.

Site 9 (Figure 6-11)

Shadow from Site 9 could reach a portion of Schiff Mall on Delancey Street early on the May 6/August 6 and June 21 analysis days, and would not reach any other sun-sensitive resource at any time.

Site 10 (Figure 6-12)

Shadow from Site 10 would not reach any sun-sensitive resources at any time of year.

Summary of Tier 3 Assessment by Resource

The Tier 3 assessment showed that the following four open space resources could be affected by project-generated shadow on multiple analysis days, by multiple sites: portions of the Allen Street Malls, portions of the Schiff Mall on Delancey Street, the P.S. 142 Playground, and the NYCHA-owned space at 150 Broome Street.

The Seward Park High School ball fields and courts could be reached by shadow from the maximum zoning envelope on Site 5 early on the May/August and June analysis mornings.

The following open space resources could be affected on only a single analysis day, by a single site: the NYCHA-owned 45 Allen Street space, the Dorothy Strelsin Memorial Garden, Gulick Playground, and Nathan Straus Playground.

Finally, the east façade of St. Mary’s Church could potentially be reached by shadow from the maximum zoning envelope on Site 5 late on the June 21 analysis day only.

For all of these sun-sensitive resources, the Tier 3 assessment did not eliminate the possibility that new shadows could occur, and therefore additional analysis was required.

The Tier 3 assessment concluded that the following open space resources from the Tier 1/Tier 2 assessment could not be affected by project shadow at any time and required no further analysis: Seward Park, Sara Roosevelt Park, ABC Playground (P.S. 20), the Gompers Houses playgrounds (NYCHA), and the Henry Street Settlement Abrons Art Center. The following historic resources were also eliminated by the Tier 3 assessment from further analysis: Anshe Chesed Synagogue, Stanton Street Shul, Kehila Kadosha Synagogue, and Bialystoker Synagogue.

D. DETAILED SHADOW ANALYSIS

The purpose of the detailed analysis is to determine the extent and duration of new incremental shadows that fall on a sunlight-sensitive resource as a result of the proposed project, and to assess their effects. The detailed analysis establishes a baseline condition (future No Action) that is compared to the future condition resulting from the proposed project to illustrate the shadows cast by existing (or future planned) buildings and distinguish the additional (incremental) shadow cast by the project. Because existing buildings may already cast shadows on a sun-sensitive resource, the proposed project may not result in additional, or incremental, shadows upon that resource.

In order to carry out the detailed shadow analysis, the three-dimensional computer model used for the Tier 3 screening assessment was augmented by adding the existing buildings in the study area and relevant No Action developments. A combination of data sources was used to develop the three-dimensional existing structures, including NYC DoITT GIS data, Fugro EarthData Inc., and the project applicant. Figure 6-13 shows views of the computer model used in the detailed analysis. Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

The analysis results are described below for each analysis day. **Table 6-3** summarizes the results of the detailed analysis. It shows the entry and exit times and total duration of project-generated incremental shadow on each affected resource. **Figures 6-14** through **6-40** document the results of the analysis by providing graphic representations or “snapshots” of times when incremental shadow would fall on a sun-sensitive resource. The figures illustrate the extent of additional, incremental shadow at that moment in time, highlighted in red, and also show existing shadow and remaining areas of sunlight.

Table 6-3
Incremental Shadow Durations

Sun-sensitive resources	March 21 / Sept. 21 7:36 AM-4:29 PM	May 6 / August 6 6:27 AM-5:18 PM	June 21 5:57 AM-6:01 PM	December 21 8:51 AM-2:53 PM
Seward Park High School ball fields/courts	—	6:27 AM–6:45 AM Total: 18 min	5:57 AM–6:20 AM Total: 23 min	—
Allen Street Malls	—	6:35 AM–6:45 AM Total: 10 min	5:57 AM–6:10 AM Total: 13 min	8:51 AM–9:30 AM Total: 39 min
Schiff Mall (Delancey St between Orchard & Ludlow Sts)	9:00 AM–10:00 AM **Total: 1 hr**	—	5:57 AM–7:20 AM **Total: 1 hr 23 min**	8:51 AM–9:00 AM 9:20 AM–12:20 PM **Total: 3 hr 9 min**
Schiff Mall (Delancey St between Ludlow & Essex Sts)	9:10 AM–12:00 PM 1:10 PM–3:30 PM **Total: 5 hr 10 min**	6:27 AM–6:30 AM 10:40 AM–11:20 AM Total: 43 min	—	8:51 AM–11:40 AM 12:20 PM–2:20 PM **Total: 4 hr 49 min**
Schiff Mall (Delancey St between Essex & Norfolk Sts)	10:20 AM–4:29 PM **Total: 6 hr 9 min**	10:40 AM–3:50 PM **Total: 5 hr 10 min**	11:40 AM–3:20 PM **Total: 3 hr 40 min**	8:51 AM–2:53 PM **Total: 6 hr 2 min**
Schiff Mall (Delancey St between Norfolk & Suffolk Sts)	9:40 AM–4:29 PM **Total: 6 hr 49 min**	1:30 PM–5:18 PM **Total: 3 hr 48 min**	1:30 PM–5:10 PM **Total: 3 hr 40 min**	8:51 AM–2:53 PM **Total: 6 hr 2 min**
Nathan Straus Playground	—	—	—	2:20 PM–2:53 PM Total: 33 min
P.S. 142 Playground	3:20 PM–4:29 PM **Total: 1 hr 9 min**	3:50 PM–4:50 PM 5:00 PM–5:18 PM **Total: 1 hr 18 min**	—	2:30 PM–2:53 PM Total: 23 min
150 Broome Street (NYCHA)	4:00 PM–4:29 PM Total: 29 min	4:20 PM–5:18 PM Total: 58 min	—	—
Luther Gulick Playground	—	—	5:59 PM–6:01 PM Total: 2 min	—

Notes: Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource. Daylight saving time is not used.

MARCH 21/SEPTEMBER 21

MORNING

The Allen Street Mall between Delancey Street and Broome Street is in existing shadow from buildings to its immediate east during the first half-hour of this analysis day when project-generated shadow would otherwise fall there. No incremental shadow would therefore occur on the Allen Street Malls on this analysis day.

Incremental shadow from the maximum zoning envelope on Site 2 would move across the Schiff Mall on Delancey Street between Orchard and Ludlow Streets from 9:00 AM to 10:00 AM (see **Figure 6-14**), and across the adjacent Mall between Ludlow and Essex Streets from 9:10 AM to 12:00 PM (see **Figures 6-14, 6-15,** and **6-16**).

MORNING/AFTERNOON

Incremental shadow from the maximum zoning envelopes on Sites 2, 3 and 4 would move across the Schiff Mall median on Delancey Street between Norfolk and Suffolk Streets from 9:40 AM to the end of the analysis day at 4:29 PM, shading large portions of the median for much of this period (see **Figures 6-15 to 6-20**). Incremental shadow primarily from the maximum zoning envelopes on Sites 1 and 2 would move across the Schiff Mall median between Essex and Norfolk Streets from 10:20 AM until 4:29 PM, shading large portions of the median for much of this period (see **Figures 6-15 to 6-20**).

AFTERNOON

A small shadow from the top portion of the maximum zoning envelope on Site 1 would enter the Schiff Mall median between Ludlow and Essex Streets at 1:10 PM and move across it, exiting at 3:30 PM (see **Figure 6-17**).

The P.S. 142 Playground would be mostly or completely in direct sun from morning to mid-afternoon. At 3:20 PM, shadow from the maximum zoning envelope on Site 4 would enter the west side of the Playground, and 10 minutes later at 3:30 PM shadow from the maximum zoning envelope on Site 6 would enter from the south (see **Figure 6-19**). Project-generated shadow would spread eastward, shading much of the Playground by 3:50 PM and eliminating all remaining sunlight from 4:10 PM to 4:29 PM (see **Figure 6-20**).

Shadow from the maximum zoning envelope on Site 5 would enter the NYCHA-owned open space at 150 Broome Street at 4:00 PM and move across it during the last 29 minutes of the analysis day (see **Figure 6-20**). This space would be mostly or totally in sun from morning to mid-afternoon, when existing shadows from the west and south would begin to cover large portions of it.

MAY 6/AUGUST 6

MORNING

The maximum zoning envelope on Site 9 would cast three minutes of new shadow on a small area of Schiff Mall on Delancey Street and Essex Street at the start of the analysis day.

The maximum zoning envelope on Site 5 would cast a small extent of incremental shadow of brief duration on the Seward Park High School ball fields and courts at the start of this analysis day, from 6:27 AM to 6:45 AM (see **Figure 6-21**).

The maximum zoning envelope on Site 1 would cast new shadow on a small area of the Allen Street Malls, just south of Broome Street, from 6:35 AM to 6:45 AM (see **Figure 6-21**). No other project-generated shadow would occur on the Allen Street Malls on this analysis day.

Shadow from the upper portion of the maximum zoning envelope on Site 2 would pass across a small section of the Schiff Mall between Essex and Ludlow Streets from 10:40 AM to 11:20 AM (see **Figure 6-22**).

MORNING/AFTERNOON

Shadow from the maximum zoning envelope on Site 2 would pass across the Schiff Mall median between Essex and Norfolk Streets from 10:40 AM to 3:50 PM, shading large portions of the median for much of this period (see **Figures 6-22 to 6-25**).

AFTERNOON

Incremental shadow primarily from the maximum zoning envelope on Site 2 would fall on the Schiff Mall median between Norfolk and Suffolk Streets from 1:30 PM to the end of the analysis day at 5:18 PM, shading large portions of the median for much of this period (see **Figures 6-23 to 6-27**).

Incremental shadow from the maximum zoning envelope on Site 4 would move across the southern edge of the P.S. 142 Playground between 3:50 PM and 4:50 PM, extending approximately 10 feet into the space at its greatest extent (see **Figure 6-26**). Shadow from the maximum zoning envelope on Site 2 would fall on portions of the Playground from 5:00 PM to 5:18 PM (see **Figure 6-27**).

The maximum zoning envelope on Site 5 would cast new shadow on the open space at 150 Broome Street beginning at 4:20 PM (see **Figure 6-26**); from 4:50 PM until the end of the analysis day at 5:18 PM, this shadow would eliminate the wedge of sunlight that would otherwise remain absent the proposed actions (see **Figure 6-27**).

JUNE 21

MORNING

The NYCHA-owned open space at 45 Allen Street would not receive any incremental shadow from the proposed actions, because it would be shaded by existing buildings when shadow from the maximum zoning envelope on Site 2 would otherwise fall there.

The maximum zoning envelope on Site 2 would cast a small incremental shadow on a section of the Allen Street Malls from 5:57 AM to 6:10 AM, falling in between existing shadows (see **Figure 6-28**).

The maximum zoning envelope on Site 5 would briefly cast incremental shadow on Seward Park High School’s ball fields from 5:57 AM until 6:20 AM (see **Figure 6-28**).

The maximum zoning envelope on Site 9 would cast a small area of incremental shadow on the adjacent Schiff Mall median from 5:57 AM to 7:20 AM (see **Figures 6-28** and **6-29**).

MORNING/AFTERNOON

Shadow from the maximum zoning envelope on Site 2 would pass across the Schiff Mall median between Essex and Norfolk Streets from 11:40 AM to 3:20 PM (see **Figures 6-30 to 6-32**).

AFTERNOON

Shadow from the maximum zoning envelope on Site 2 would pass across the Schiff Mall median between Norfolk and Suffolk Streets from 1:30 PM to 5:10 PM (see **Figures 6-31 to 6-33**).

Shadow from the maximum zoning envelope on Site 4 would cast a small area of shadow on Luther Gulick Playground for the final two minutes of the analysis day.

The maximum zoning envelope on Site 5 would not cast incremental shadow on St. Mary’s Church to the east, due to the 26-story intervening building at 410 Grand Street.

DECEMBER 21

MORNING

The maximum zoning envelope on Site 1 would cast a small area of incremental shadow on the Allen Street Mall just north of Delancey Street from 8:51 AM to 9:30 AM (see **Figure 6-34**).

MORNING/AFTERNOON

The maximum zoning envelopes on Sites 1, 2, 3 and 4 would cast new shadows on the four blocks of the Schiff Mall on Delancey Street between Orchard and Suffolk Streets. The westernmost of these medians would receive small areas of new shadow from 8:51 AM to 9:00 AM and then from 9:20 AM to 12:20 PM from the maximum zoning envelope on Site 1 (see **Figures 6-34 to 6-37**). The median between Ludlow and Essex Streets would receive new shadows of varying but occasionally large extents between 8:51 AM and 11:40 AM from the maximum zoning envelope on Site 2 (see **Figures 6-34 to 6-36**) and between 12:20 PM and 2:20 PM from the maximum zoning envelope on Site 1 (see **Figures 6-38 and 6-39**). The two medians between Essex and Suffolk Streets would receive project-generated shadow throughout the day from the maximum zoning envelopes on Sites 2, 3 and 4 (see **Figures 6-34 to 6-40**).

AFTERNOON

Incremental shadow from the maximum zoning envelope on Site 4 would fall on a portion of Nathan Straus Playground for the final 33 minutes of the analysis day, 2:20 PM to 2:53 PM (see **Figure 6-40**).

New shadow from the maximum zoning envelope on Site 6 would fall on the northwest corner of the P.S. 142 Playground for the final 23 minutes of the analysis day (see **Figure 6-40**).

No project-generated shadow would affect the Dorothy Strelsin Memorial Garden on Suffolk Street between Stanton and East Houston Streets.

E. CONCLUSIONS

According to the *CEQR Technical Manual*, a significant shadow impact generally occurs when the incremental shadow added by a proposed project falls on a sunlight sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public's use or appreciation of the resource or threatening the viability of vegetation.

This conclusions section summarizes the extent and duration of project-generated incremental shadow and considers the potential impacts on each affected resource. The features or use of each resource are described if appropriate.

The **Seward Park High School ball fields and courts** would only experience between 18 and 23 minutes of new shadow early on the late spring and summer analysis days, and none on the March/September and December analysis days. This active recreation facility would not be adversely impacted by this limited duration of new shadow.

Portions of the **Allen Street Malls** would receive 10 to 13 minutes of new shadow on the late spring and summer analysis days; this limited duration would not adversely impact the vegetation of the malls. On the winter analysis day, the 40 minutes of new shadow would not substantially affect the vegetation, being outside the growing season.

Schiff Mall comprises medians in the center of Delancey Street that contain trees, rose bushes, and other vegetation. Four of the block-long medians located between Orchard and Suffolk Streets would experience project-generated shadow in one or more seasons. The westernmost median between Orchard and Ludlow Streets would experience the least amount of incremental shadow. On the March 21/September 21 analysis day, it would continue to receive approximately five hours of direct sunlight, and in the May/August and June seasons it would be in direct sun through the late morning and afternoon. This median's plantings would therefore continue to receive enough direct sunlight to remain viable throughout the growing season. The other three medians between Ludlow and Suffolk Streets could experience large extents and durations of incremental shadow during the months of the growing season that would potentially affect the rose bushes' viability, particularly in March and September when the overall length of the day and available sunlight is shorter. However, from early May through mid-August, these medians would receive seven hours or more of direct sun. Therefore the plantings other than the rose bushes would not be significantly affected by the project-generated shadow. The buildings that would actually be developed on Sites 1, 2, 3, and 4 would not be quite as large or bulky as the maximum zoning envelopes for those sites, and so the actual extent and duration of incremental shadow would likely be less than what is described here, and the roses may not actually be impacted. Therefore, if a tower is constructed on these sites that would impact the roses, and the roses are still there at the time of construction, then the roses would be replaced with shade tolerant plantings as part of the project. For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), additional analysis of shadows on the roses and the potential replacement of the roses will be required to be undertaken by the developer(s) through the provisions in the Land Disposition Agreement between HPD and the developer(s). For City properties that may be managed by the New York City Economic Development Corporation (NYCEDC), additional analysis of shadows on the roses and the potential replacement of the roses will be required to be undertaken by the developer(s) through provisions of a contract of sale or long-term lease, or other legally binding agreement between NYCEDC and the developer(s). Alternatively, the developer(s) could assume the findings based on the maximum building envelope presented in this FGEIS and replace the roses without conducting the additional analysis.

The 33 minutes of incremental shadow that would fall on **Nathan Straus Playground** at the end of the December 21 analysis day would not be substantial enough in extent or duration to result in a significant adverse impact on this space, which contains playground equipment and handball and basketball courts.

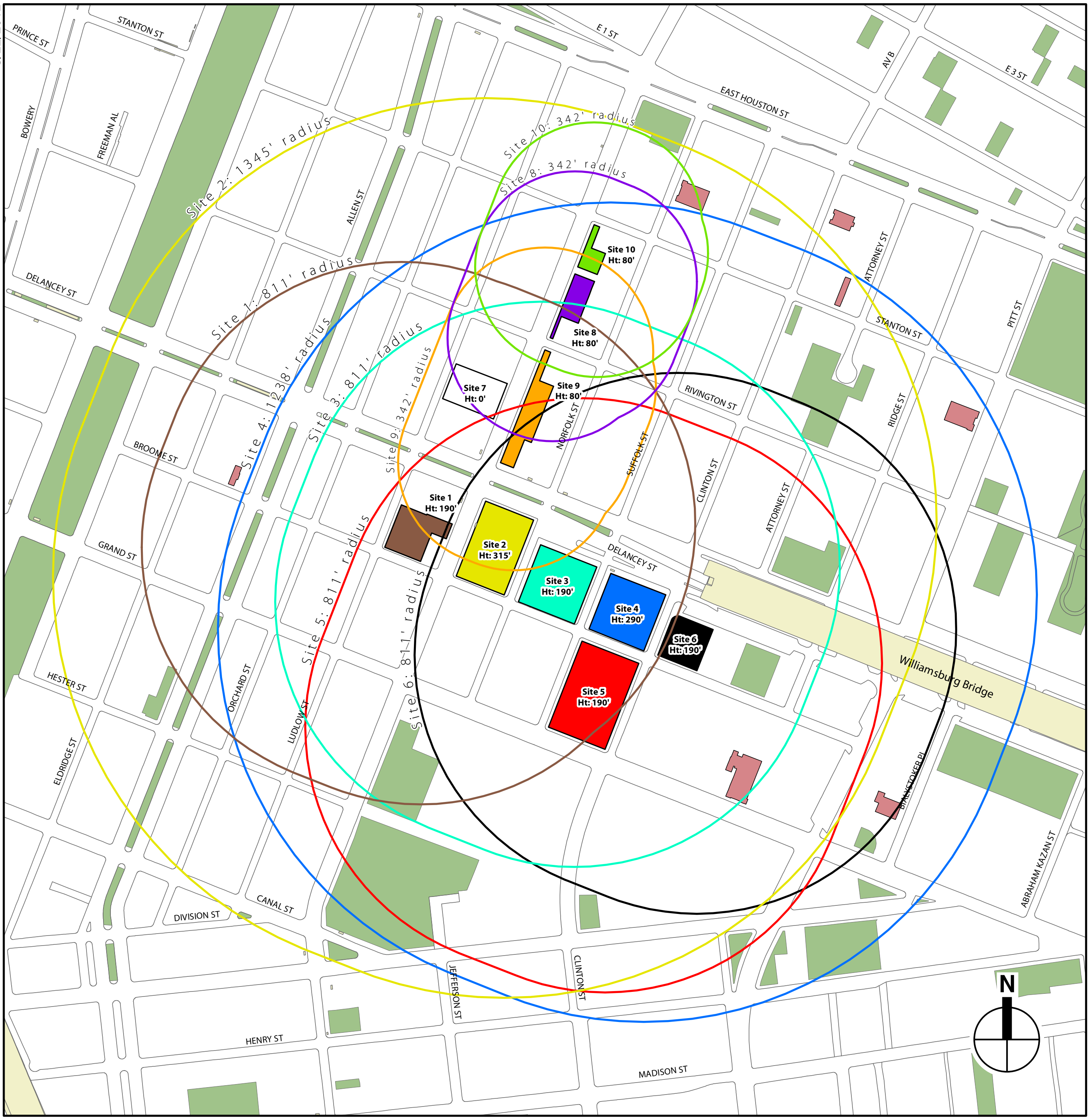
The P.S. 142 Playground would experience about an hour and ten minutes of new shadow on the March 21/September 21 analysis day. The incremental shadow would be large in extent after 3:50 PM and would eliminate all remaining sunlight from 4:10 to 4:29 PM. However, the schoolyard would be completely or mostly in sun for nearly the entire analysis day up until 3:50 PM, and the duration of incremental shadow would be too short to cause a significant adverse impact. On the May 6/August 6 analysis day, there would be a similar duration of incremental shadow but it would remain small in extent throughout this period, limited to a narrow area near the southern edge of the space, and would not cause a significant adverse impact. On December 21, the 22 minutes of incremental shadow would not be a substantial enough duration to cause a significant adverse impact to the Playground.

The NYCHA-owned public space at **150 Broome Street** contains trees, seating and tables. It would receive between a half-hour and an hour of new shadow in the spring, summer and early fall, and no new shadow in the winter. The incremental shadow would not reduce sunlight enough to threaten the health of the trees, since the space would remain in sun during the morning and early afternoon. Near the end of the May 6/August 6 day, when shadows become long and move quickly, incremental shadow would remove the remaining area of sunlight for the final half-hour of the analysis day; however this limited duration of new shadow would not be likely to alter the utility of the space substantially enough to cause a significant adverse impact.

Two minutes of incremental shadow on the June 21 analysis day would not cause a significant adverse impact to **Luther Gulick Playground**.

The publicly accessible **open space proposed for Site 5** would be located on the north side of the site on Broome Street. The proposed open space would be largely in shadow from the maximum zoning envelope on Site 5 during most of the fall, winter and early spring analysis days. In the late spring and summer, portions of the north side of the space would be in sun for much of the morning and mid-day, and in the afternoon the northwest section would be in sun; however, shadow from the maximum zoning envelope on Site 5 would shade the southern areas of the space for most of the day even on these analysis days. This analysis is conservative as it is based on the maximum zoning envelope, which could not be fully built based on the requirements of the LSGD. The actual development on the site would be smaller than the maximum zoning envelope and would likely result in slightly less shadows on the open space in the late spring and summer. However, pursuant to CEQR, shadows cast on the project's proposed open space are not considered significant. ✷

3/22/2012



0 200 400 600 800 1,000 Feet

The longest shadow a structure can cast occurs on December 21 at the start of the analysis day, and its length is equal to 4.27 times the height of the structure. For the Tier 1 analysis, a radius representing this maximum shadow length was calculated and drawn for each development site (except Site 7, which would not have a new structure).

In this diagram each site and the corresponding maximum shadow length radius from each building are represented by a unique color.

Proposed building heights include rooftop mechanical.

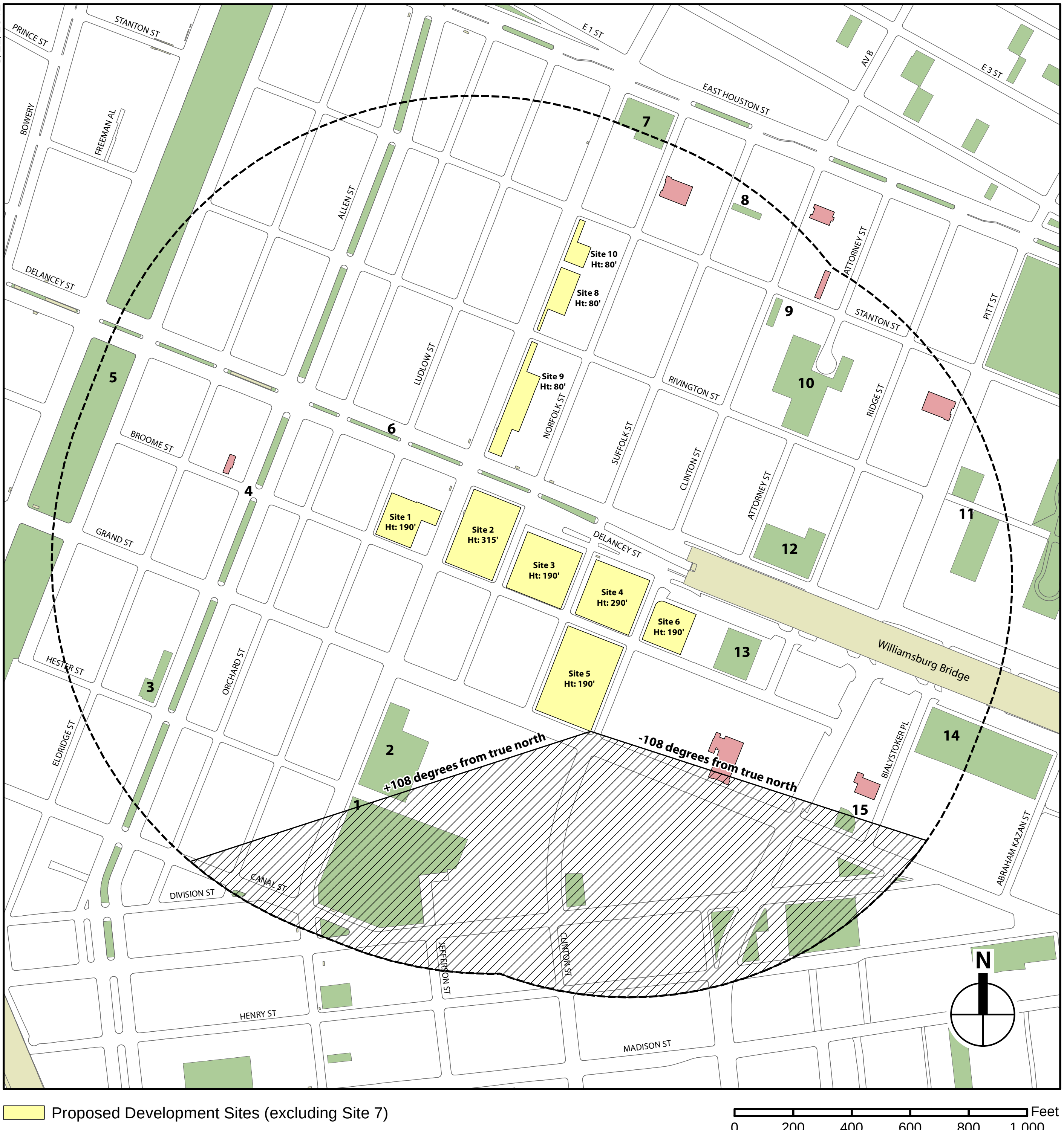
Publicly Accessible Open Space and Greenstreets

Historic Resources with Sun-Sensitive Features

Tier 1 Screening Assessment

Figure 6-1

3/22/2012



Proposed Development Sites (excluding Site 7)

Longest Shadow Study Area of RWCDS

Area that Cannot Be Shaded by Project

Publicly Accessible Open Space

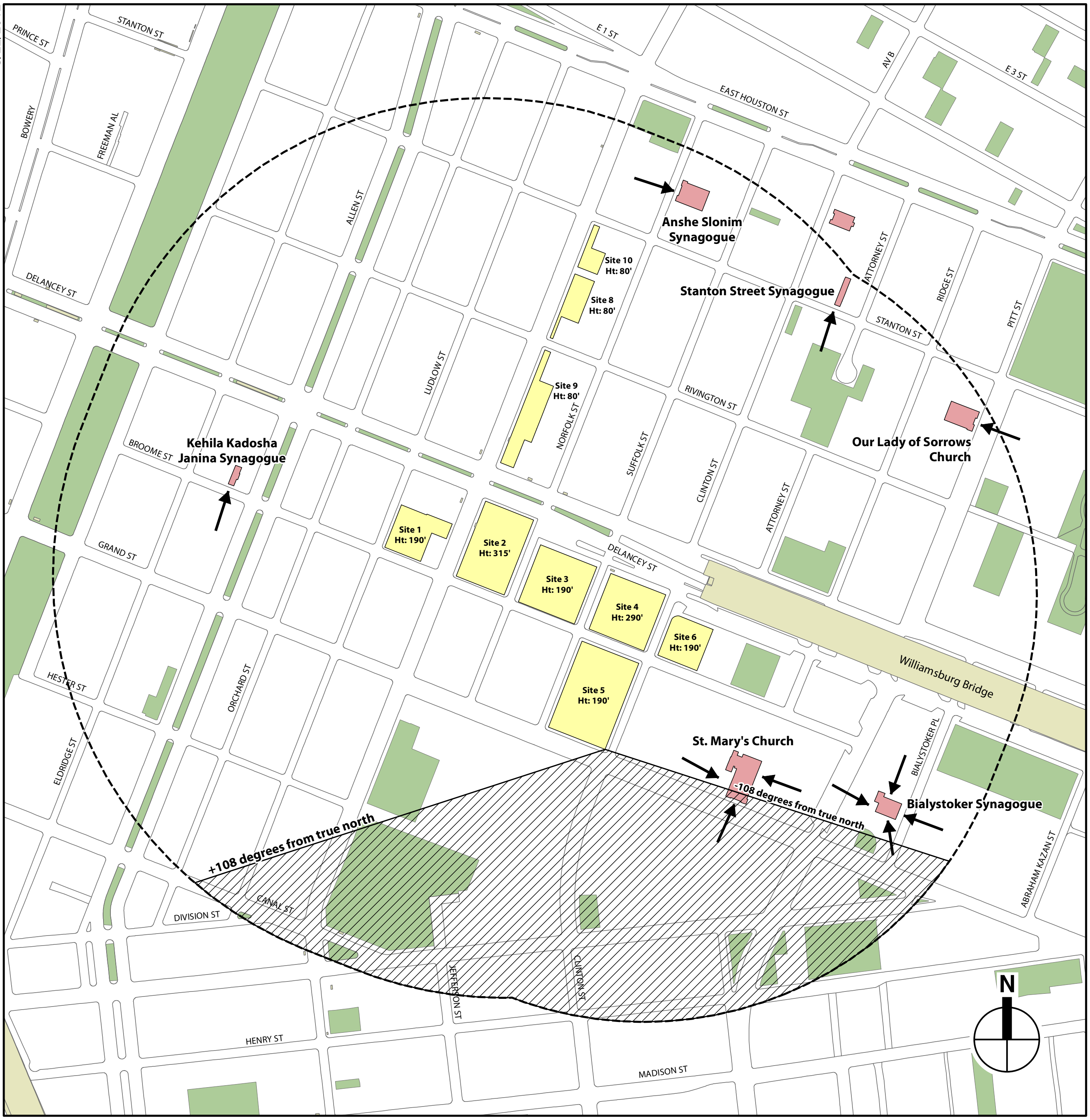
Historic Resources with Sun-Sensitive Features

Note: Proposed building heights include rooftop mechanical.

Tier 2 Screening Assessment - Open Spaces

Figure 6-2

3/22/2012



Feet
0 200 400 600 800 1,000

Proposed Development Sites (excluding Site 7)

Longest Shadow Study Area of RWCDS

Area that Cannot Be Shaded by Project

Publicly Accessible Open Space and Greenstreets

Historic Resources with Sun-Sensitive Features

Facade With Sun-Sensitive Feature

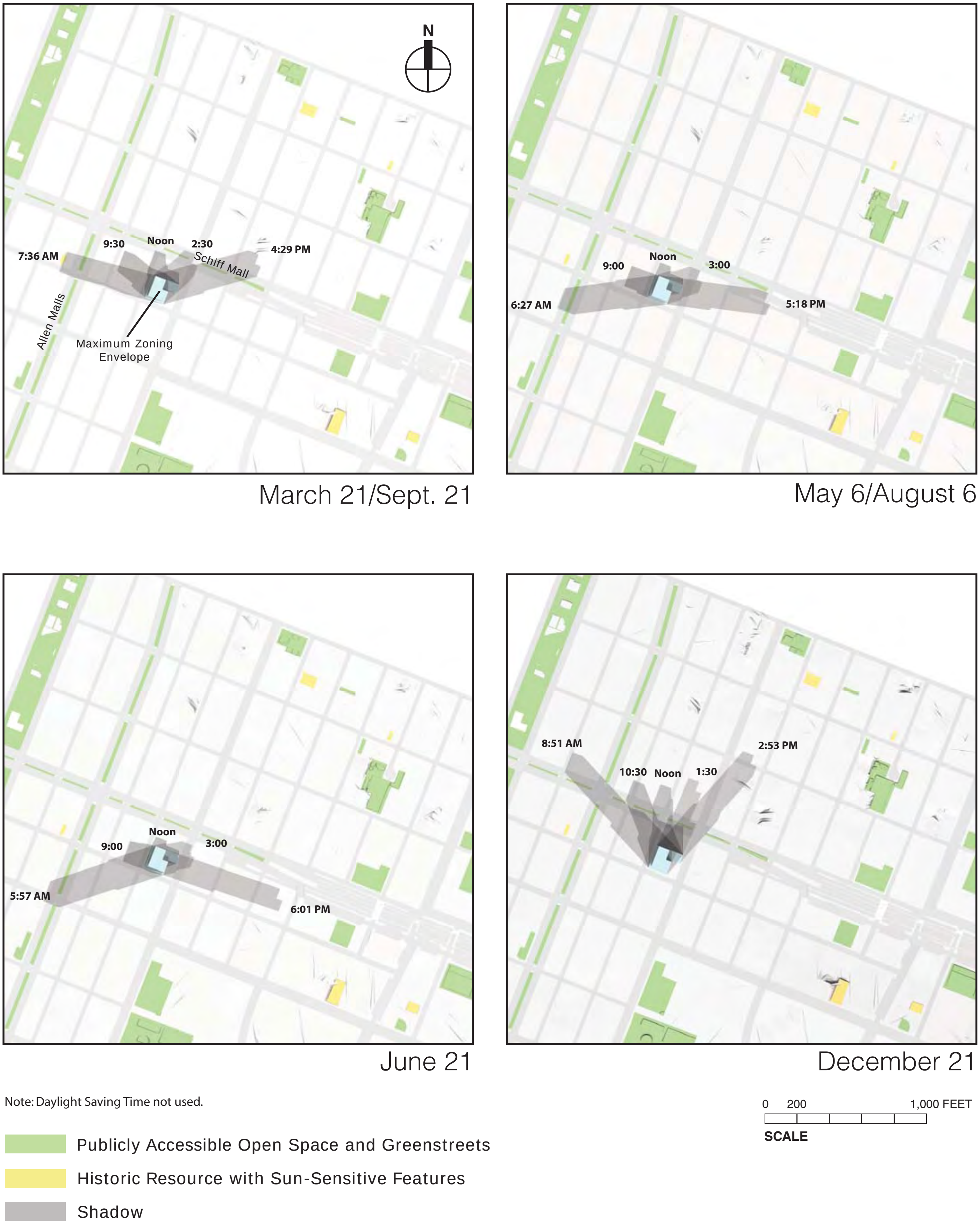
Note: Proposed building heights include rooftop mechanical.

Tier 2 Screening Assessment - Historic Resources

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Figure 6-3

3.22.12



Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

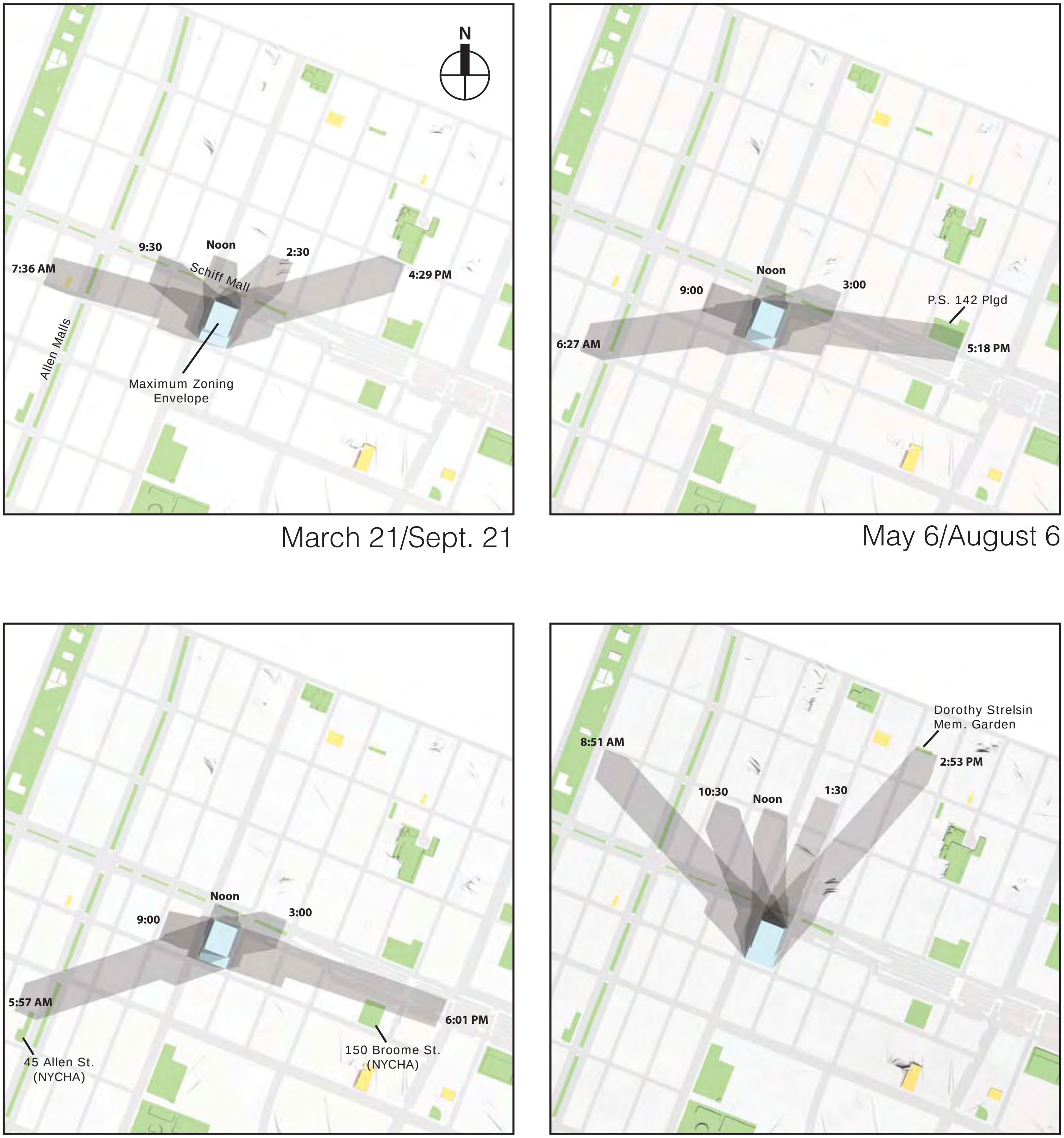
Historic Resource with Sun-Sensitive Features

Shadow

Tier 3 Assessment - Site 1

Figure 6-4

3.22.12



Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

0 200 1,000 FEET

SCALE

Tier 3 Assessment - Site 2

Figure 6-5

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

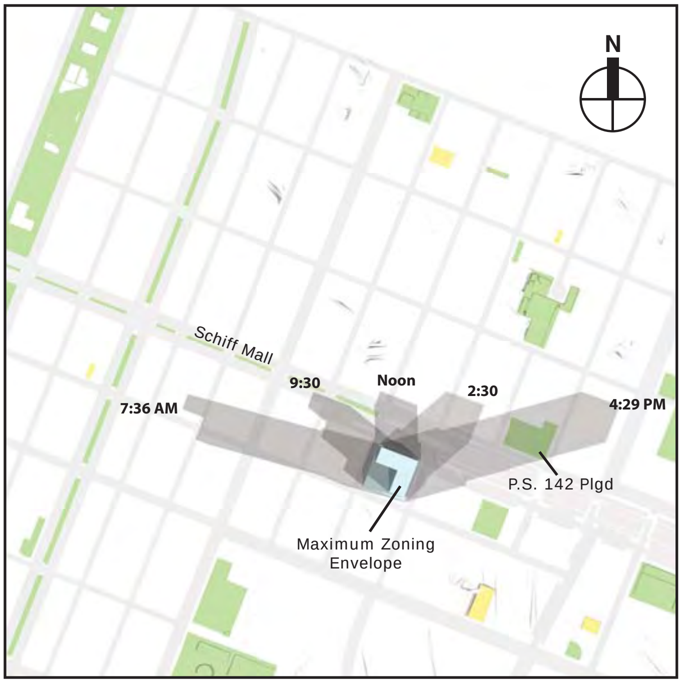
0 200 1,000 FEET

SCALE

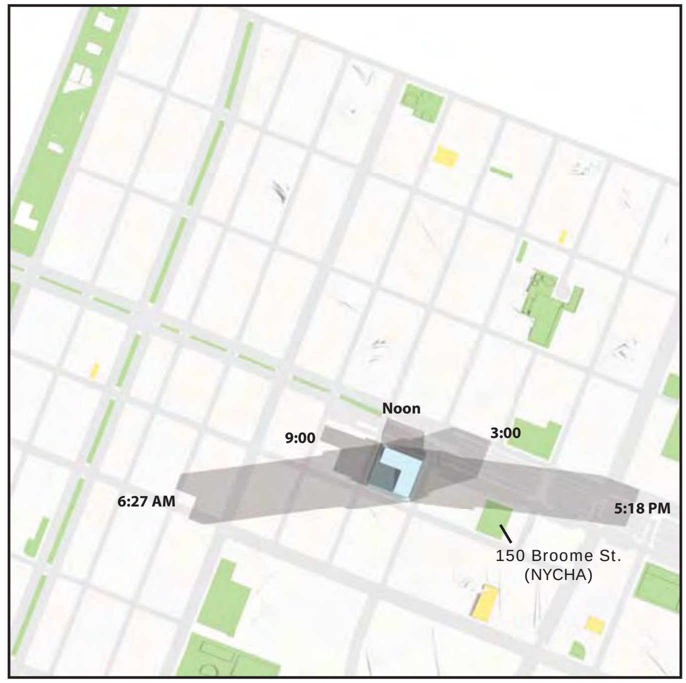
Tier 3 Assessment - Site 3

Figure 6-6

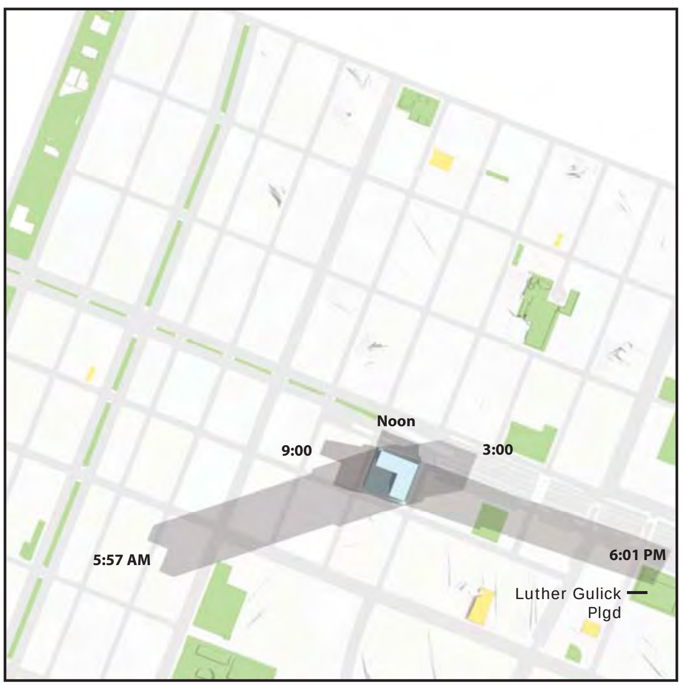
3.22.12



March 21/Sept. 21



May 6/August 6



June 21

December 21

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

0 200 1,000 FEET

SCALE

Tier 3 Assessment - Site 4

Figure 6-7

3.22.12

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

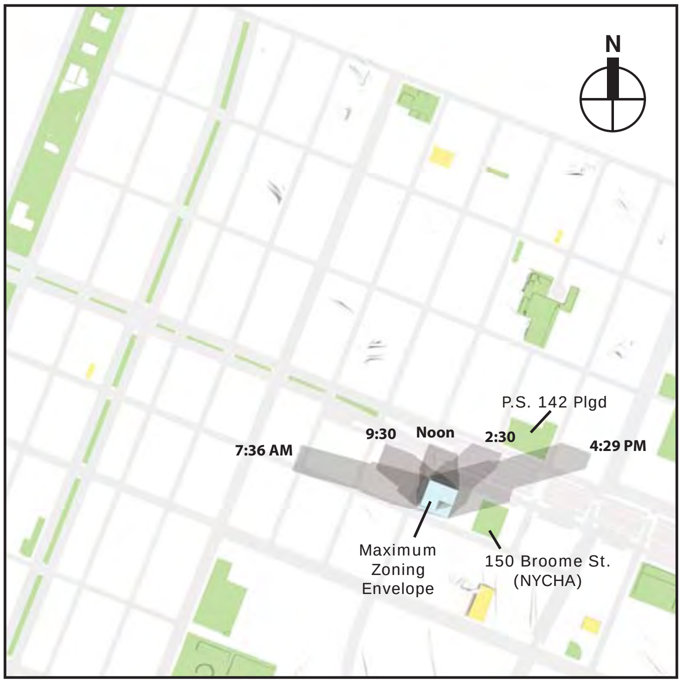
0 200 1,000 FEET

SCALE

Tier 3 Assessment - Site 5

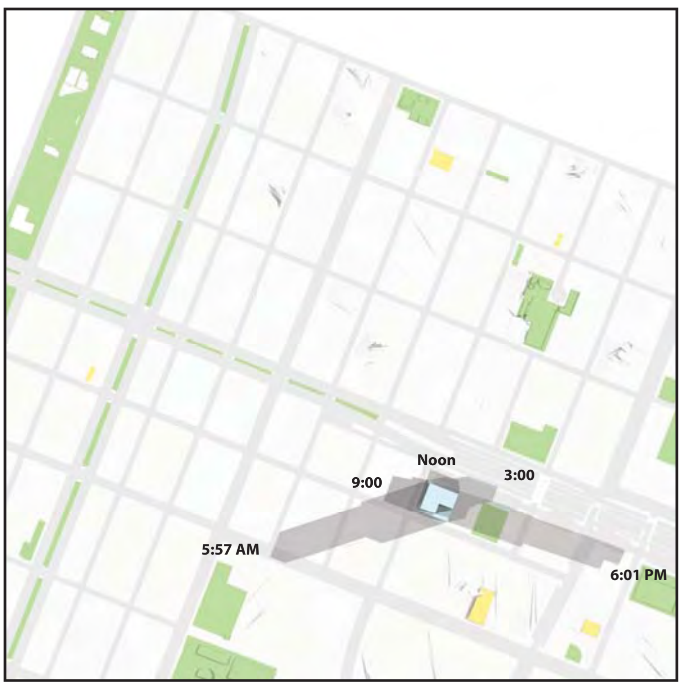
Figure 6-8

3.22.12



March 21/Sept. 21

May 6/August 6



June 21

December 21

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

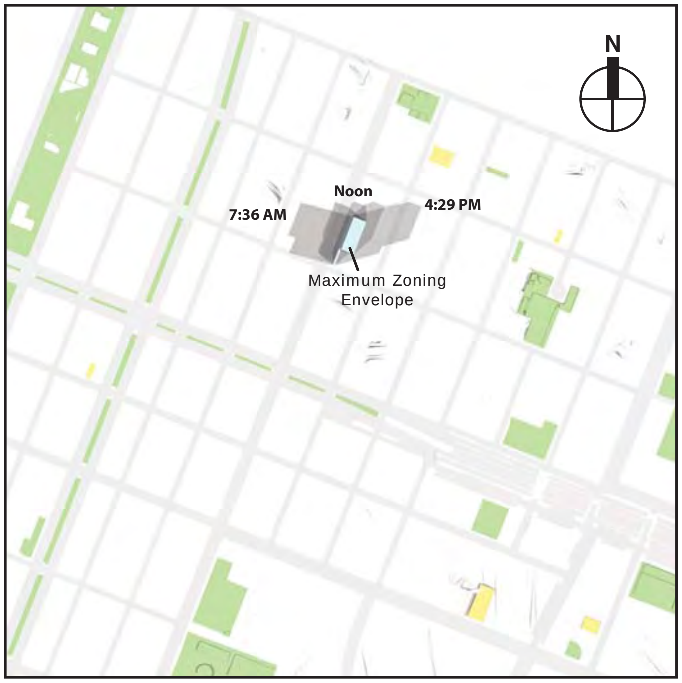
0 200 1,000 FEET

SCALE

Tier 3 Assessment - Site 6

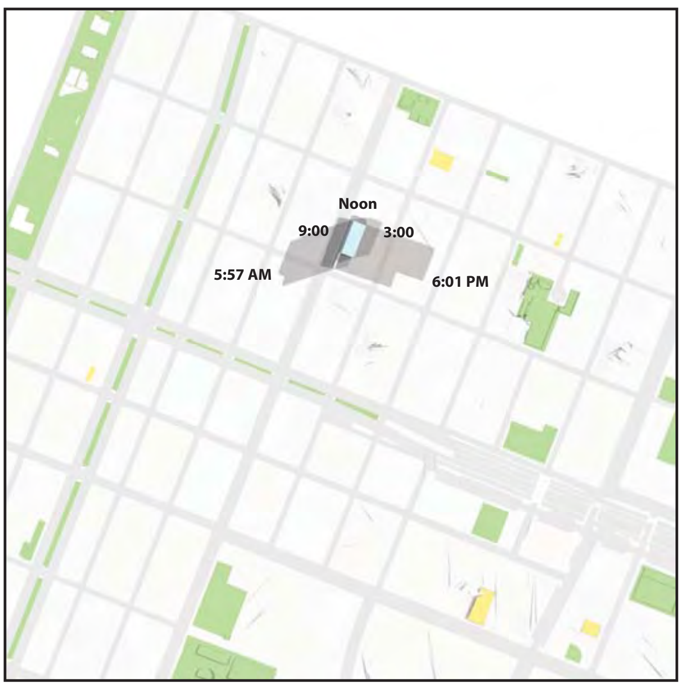
Figure 6-9

3.22.12



March 21/Sept. 21

May 6/August 6



June 21

December 21

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

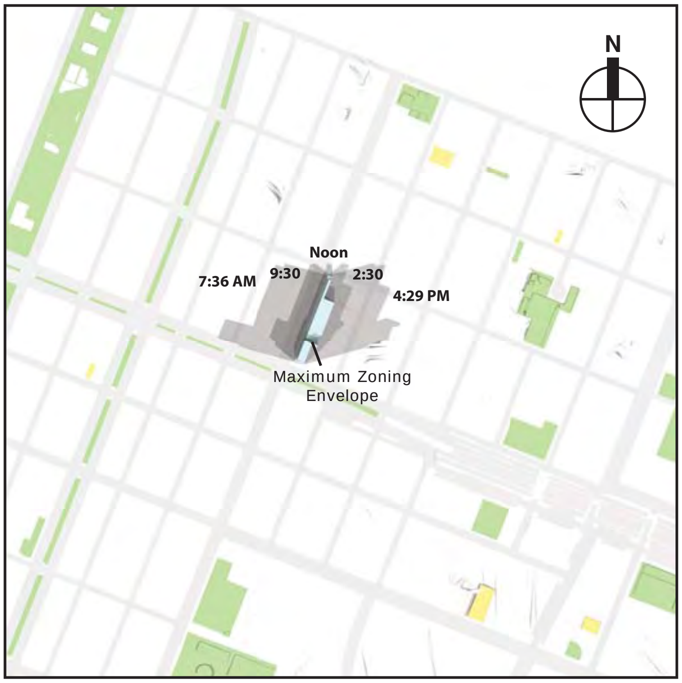
Historic Resource with Sun-Sensitive Features

Shadow

0 200 1,000 FEET
SCALE

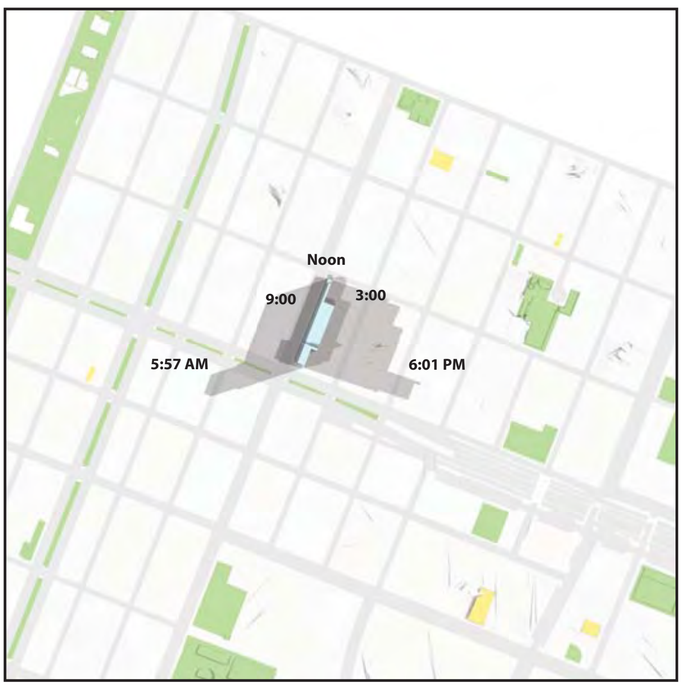
Tier 3 Assessment - Site 8
Figure 6-10

3.22.12



March 21/Sept. 21

May 6/August 6



June 21

December 21

Note: Daylight Saving Time not used.

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Shadow

0 200 1,000 FEET

SCALE

Tier 3 Assessment - Site 9

Figure 6-11

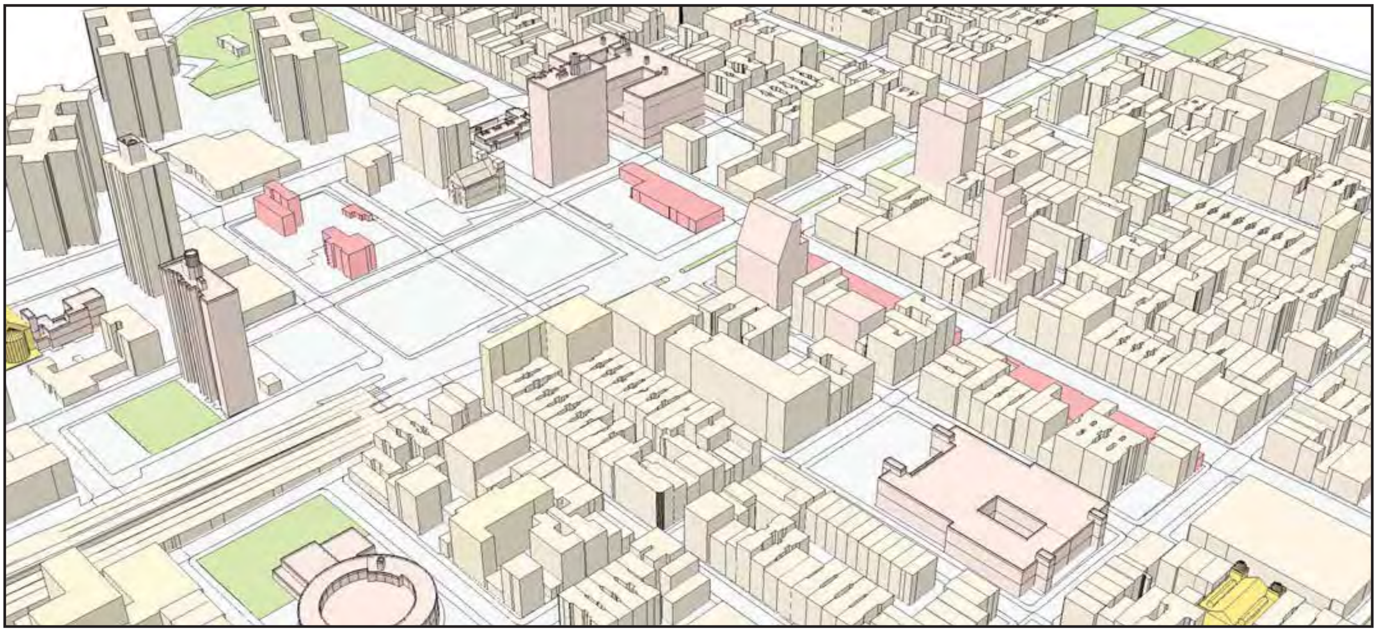
3.22.12

Note: Daylight Saving Time not used.

- Publicly Accessible Open Space and Greenstreets
- Historic Resource with Sun-Sensitive Features
- Shadow

0 200 1,000 FEET
SCALE

Tier 3 Assessment - Site 10
Figure 6-12

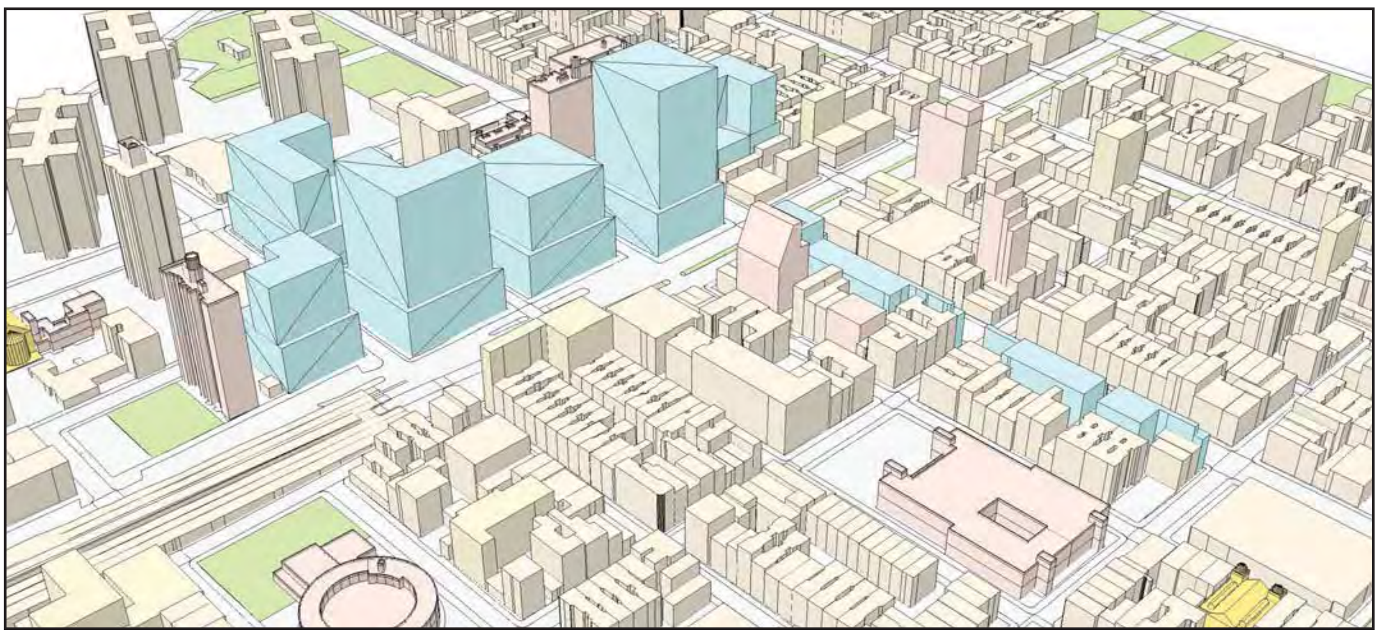


No Action

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Existing Buildings on RWCDS Sites



With Proposed Project

Publicly Accessible Open Space and Greenstreets

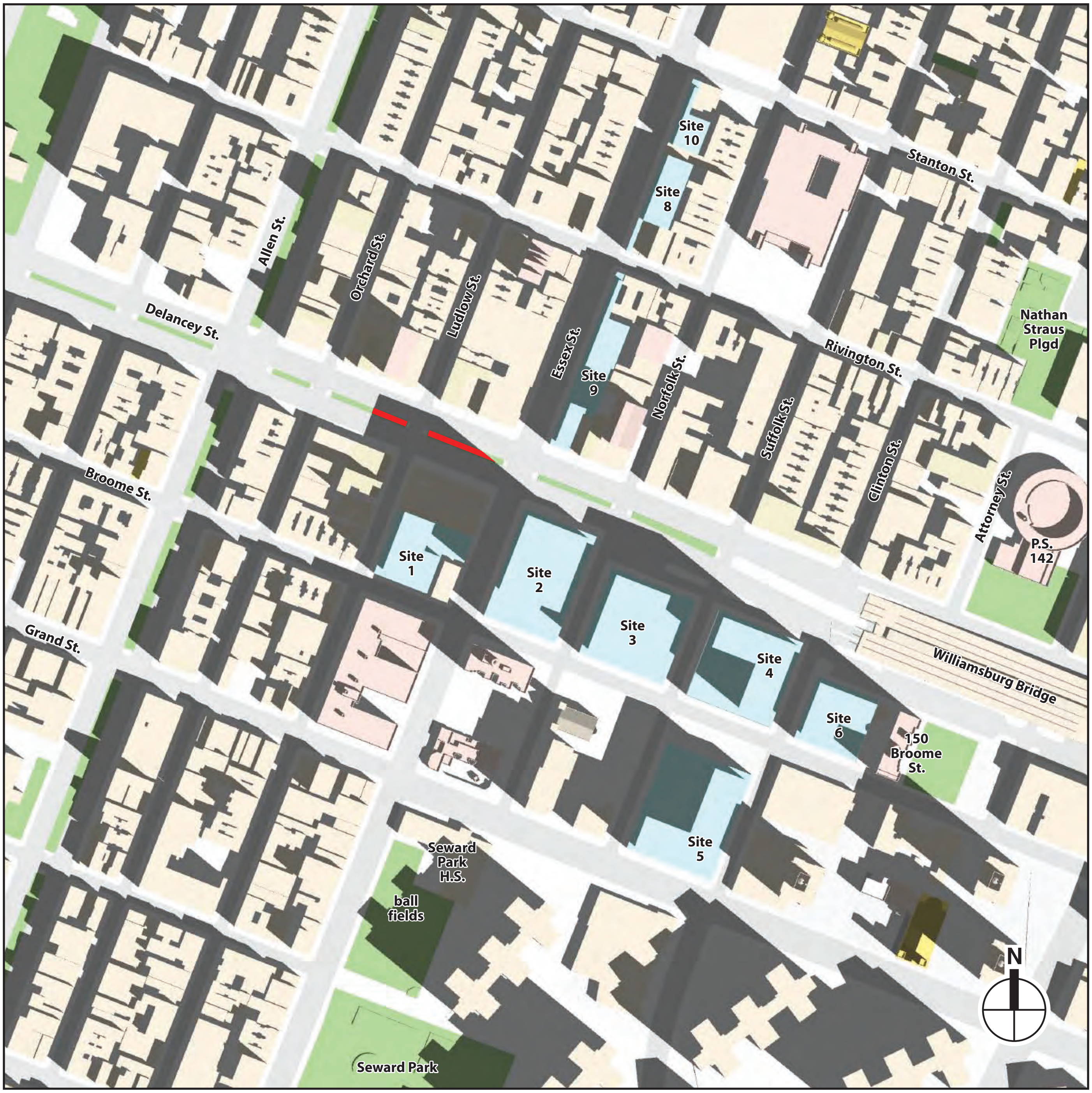
Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

ILLUSTRATIVE FOR ANALYSIS PURPOSES

Illustrative Three-Dimensional Computer Model
View Southwest
Figure 6-13

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

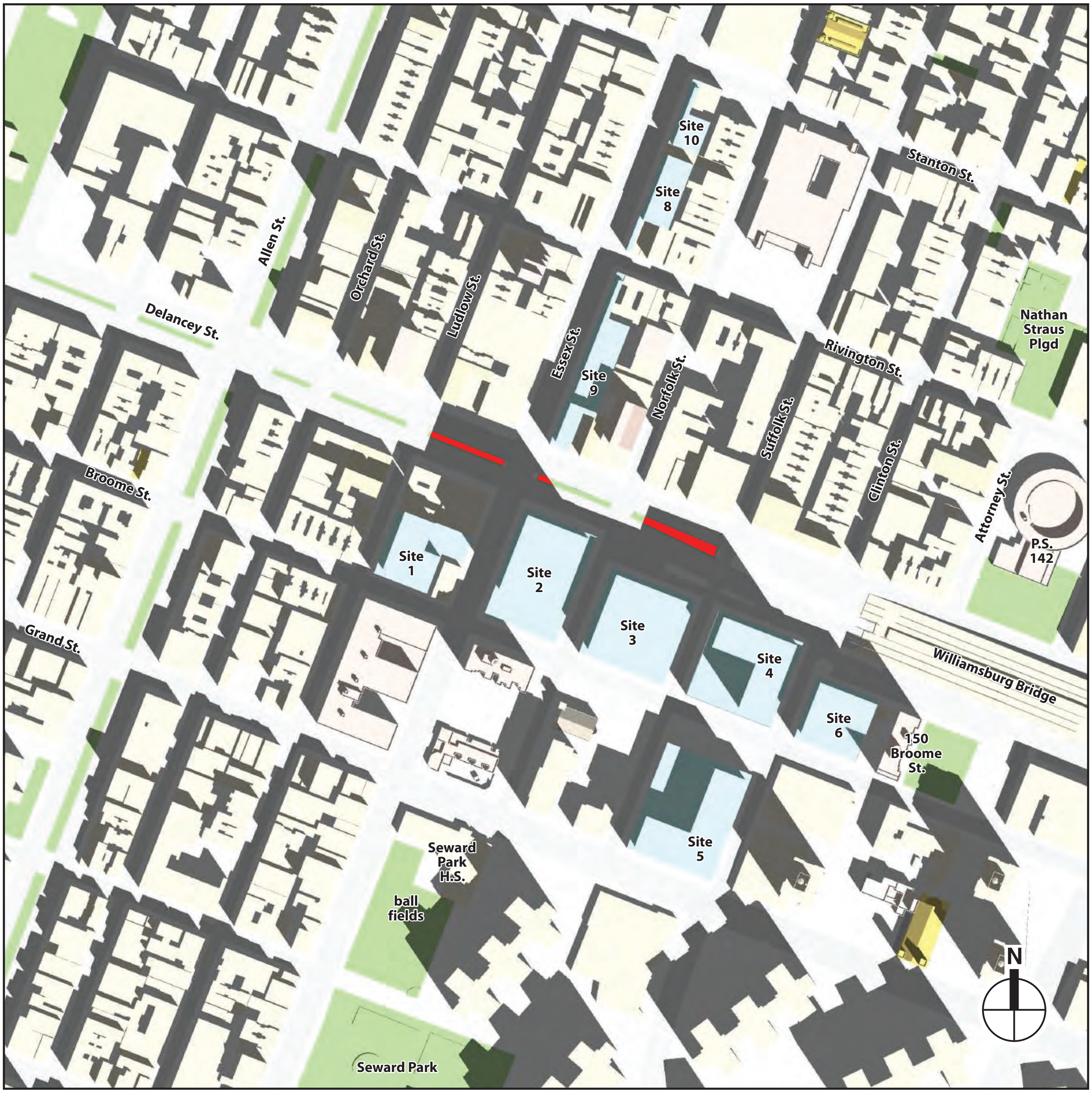
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 9:30 AM

Figure 6-14



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

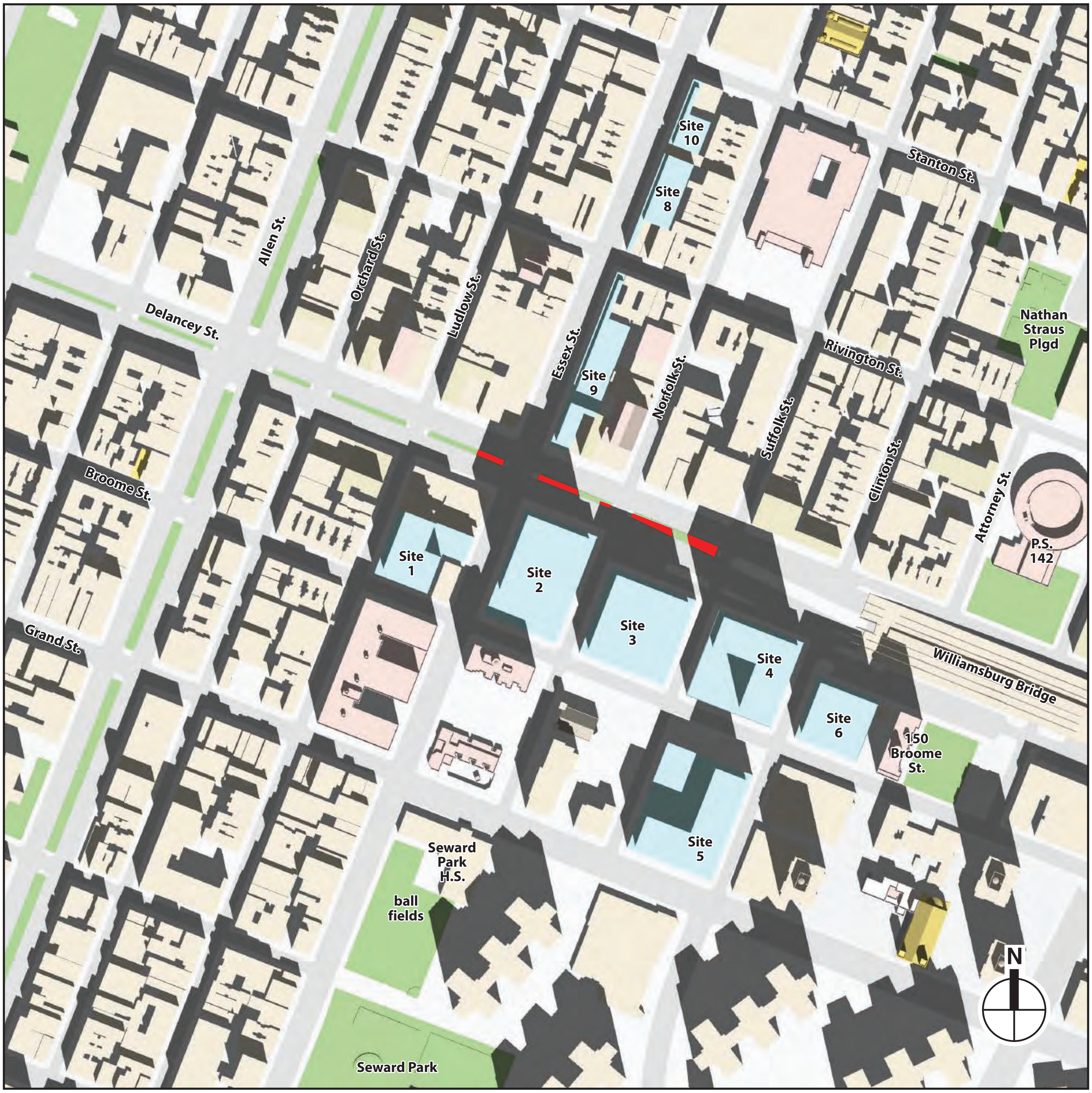
SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 10:30 AM

Figure 6-15

3.22.12



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

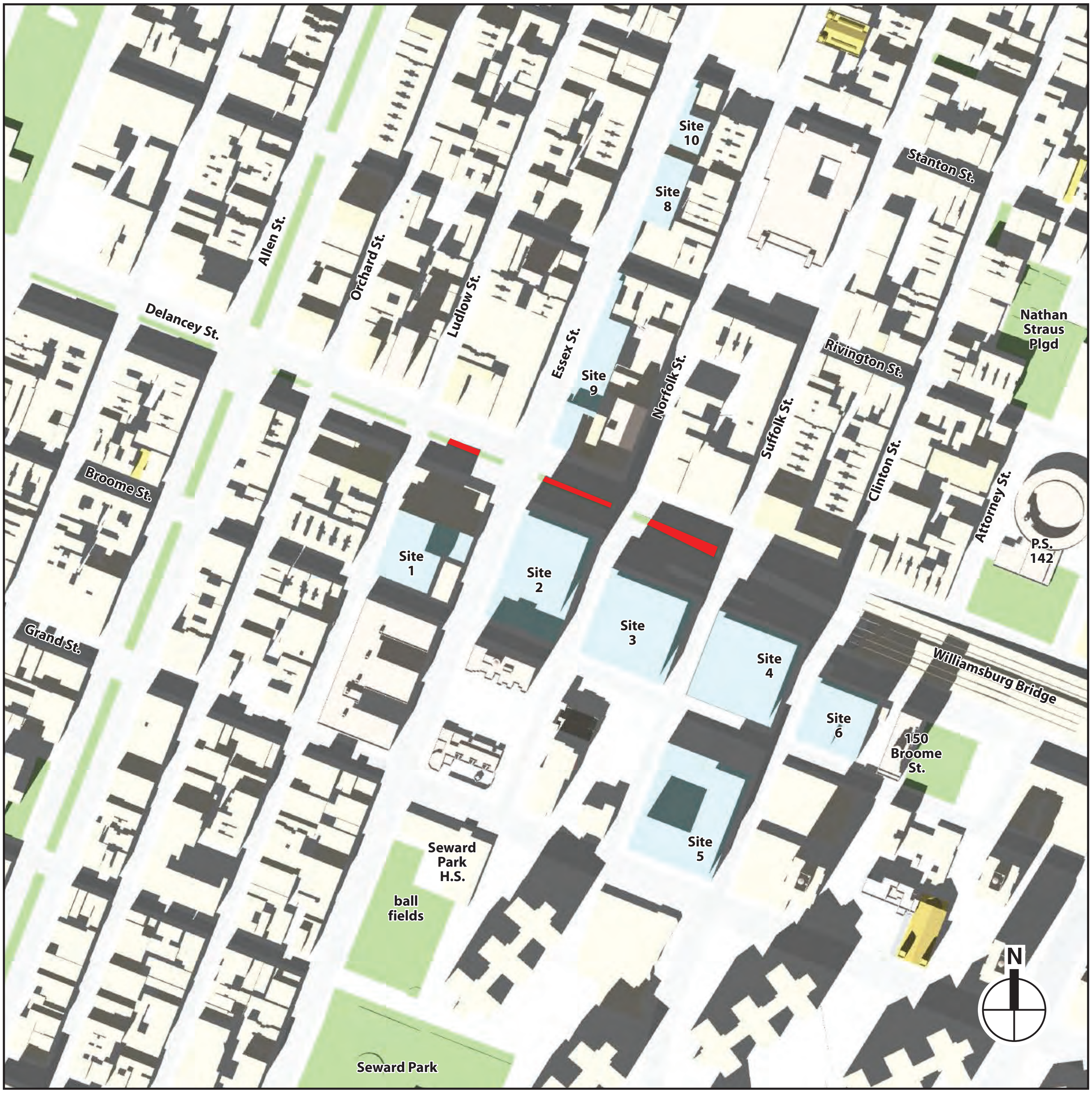
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 11:30 AM

Figure 6-16



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

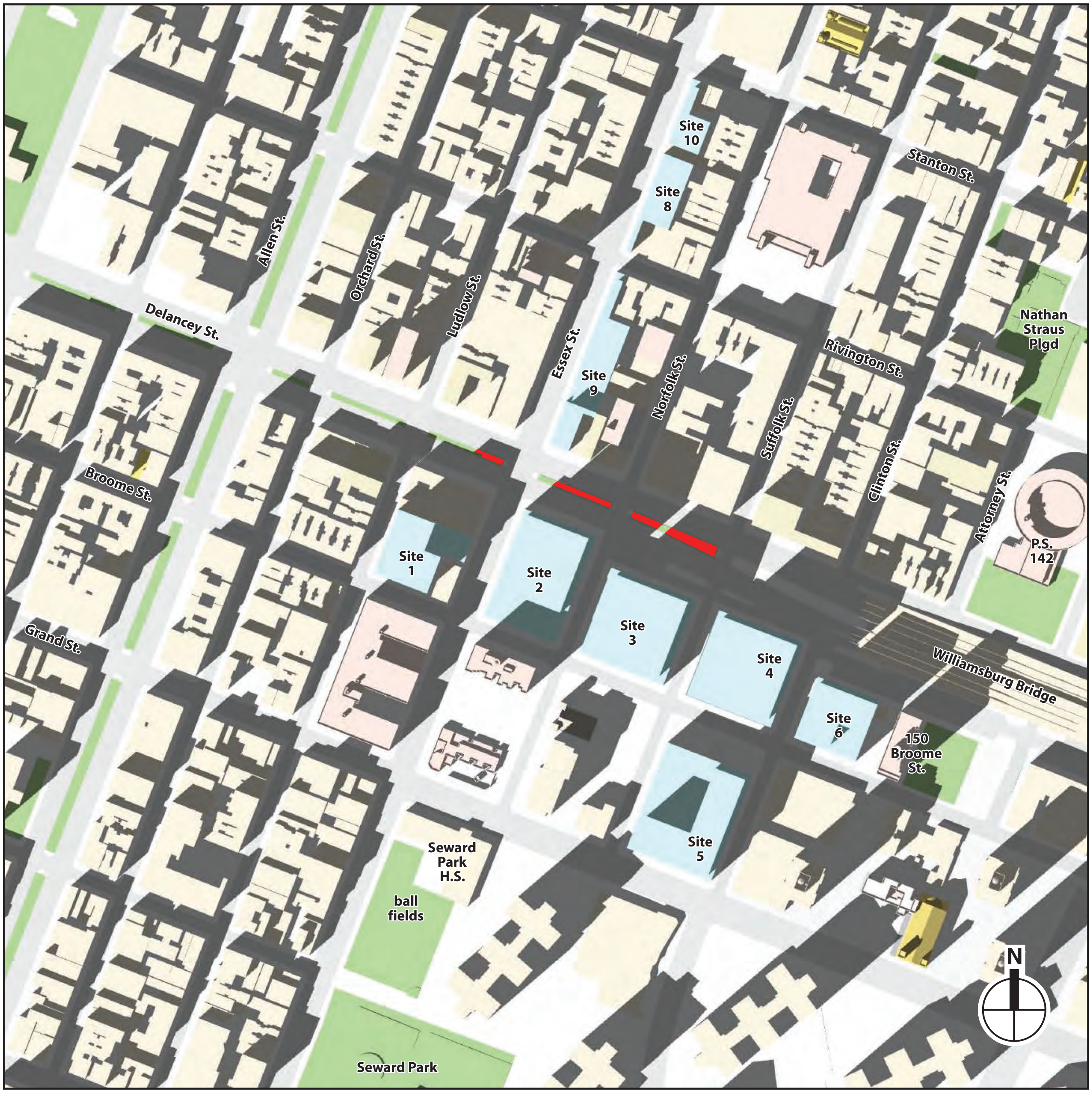
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 1:30 PM

Figure 6-17



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

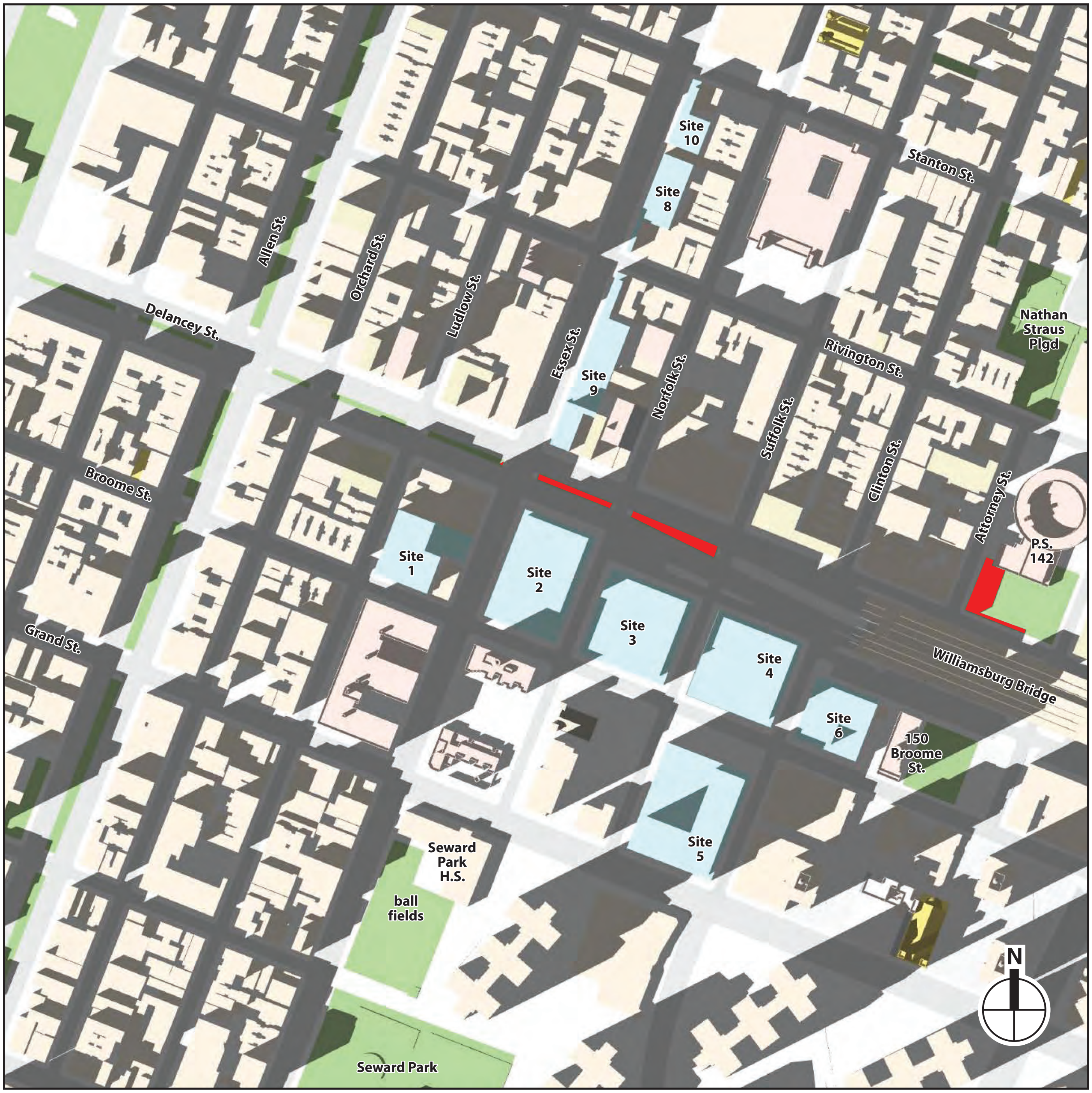
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 2:30 PM

Figure 6-18



ILLUSTRATIVE FOR ANALYSIS PURPOSES

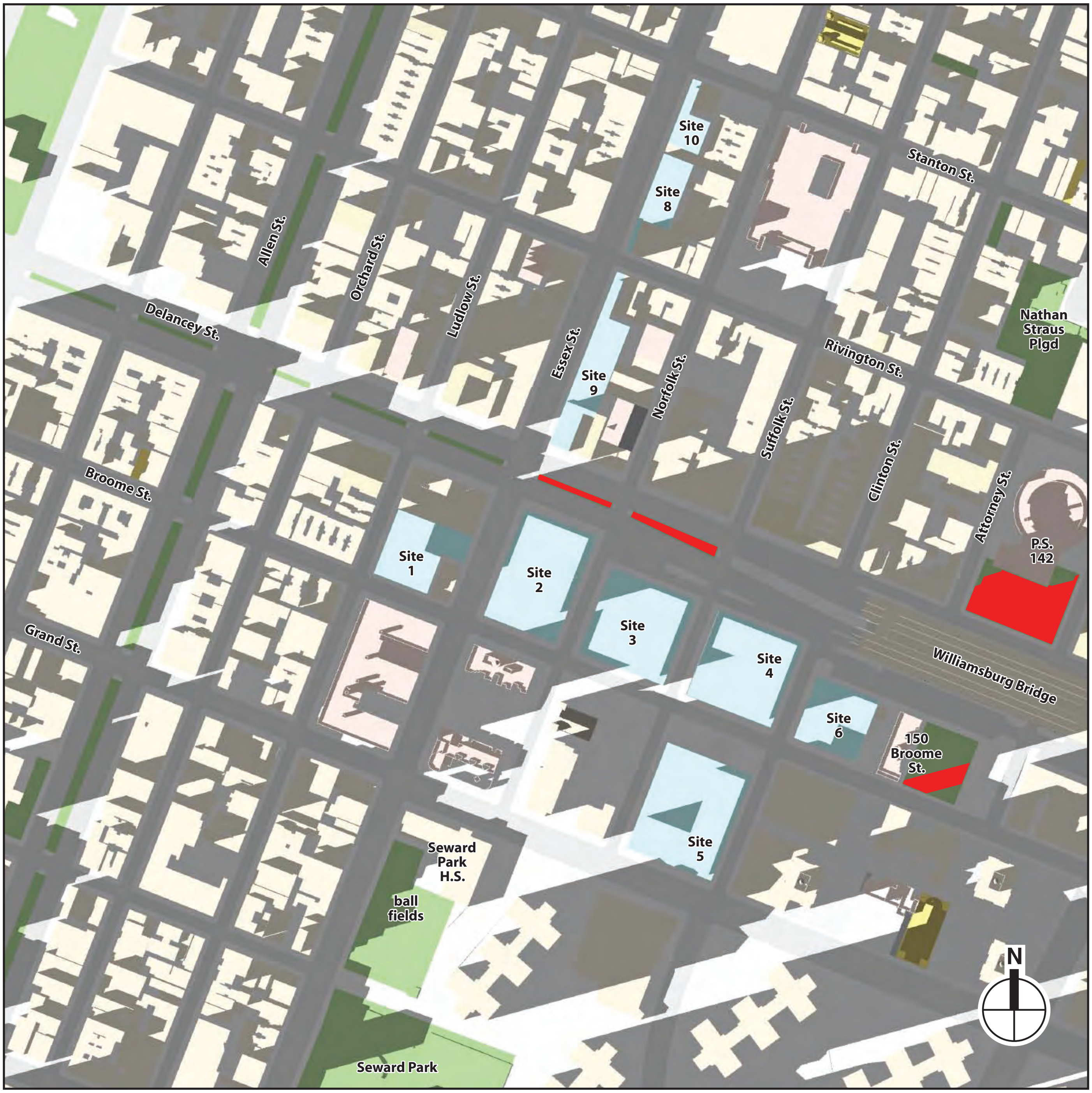
- Publicly Accessible Open Space and Greenstreets
- Historic Resource with Sun-Sensitive Features
- Proposed Maximum Envelopes
- Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 3:30 PM

Figure 6-19



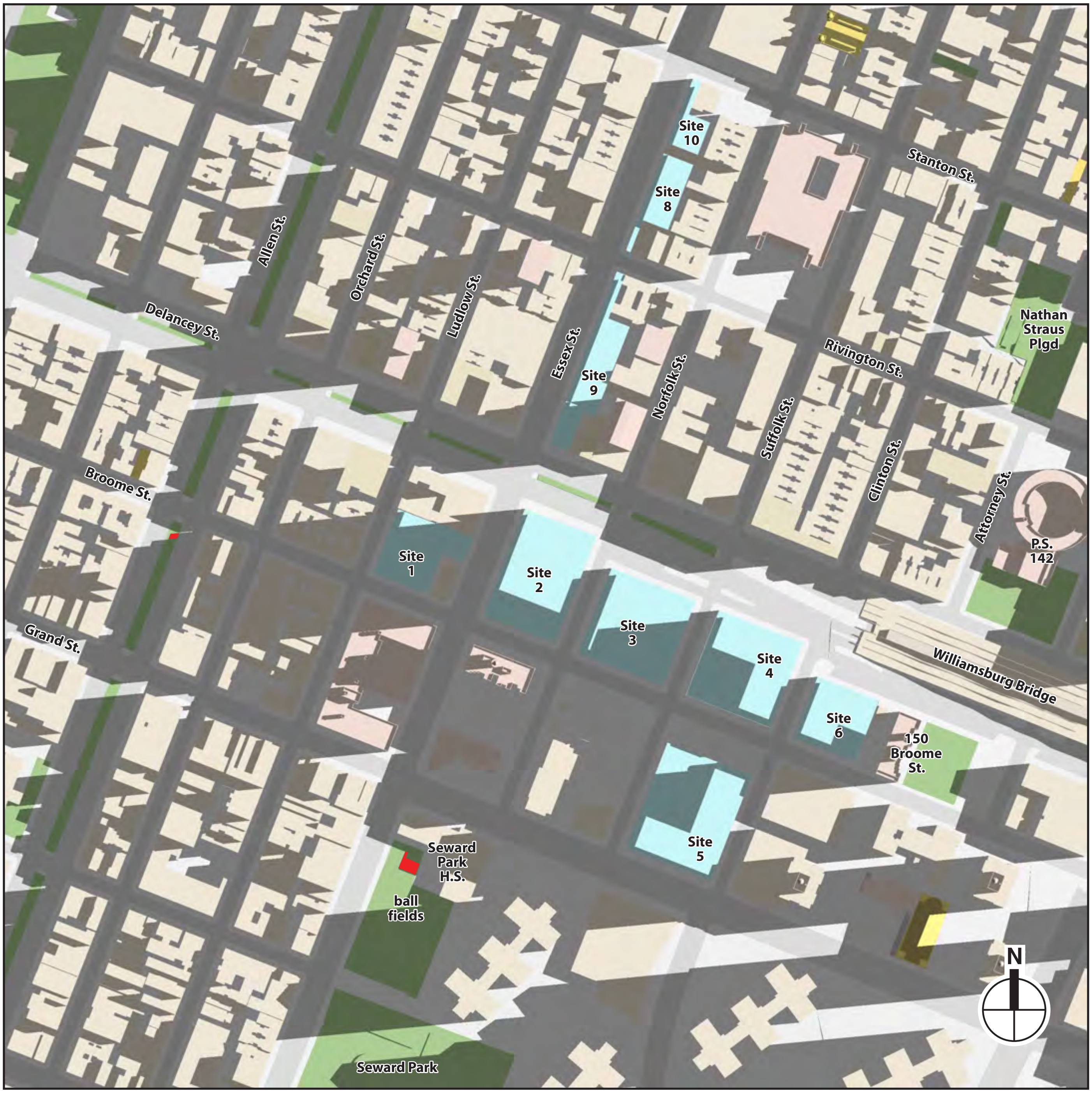
(light green)	Publicly Accessible Open Space and Greenstreets
(yellow)	Historic Resource with Sun-Sensitive Features
(light blue)	Proposed Maximum Envelopes
(red)	Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

March 21/September 21 - 4:29 PM

Figure 6-20



3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

May 6/August 6 - 6:40 AM

Figure 6-21

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

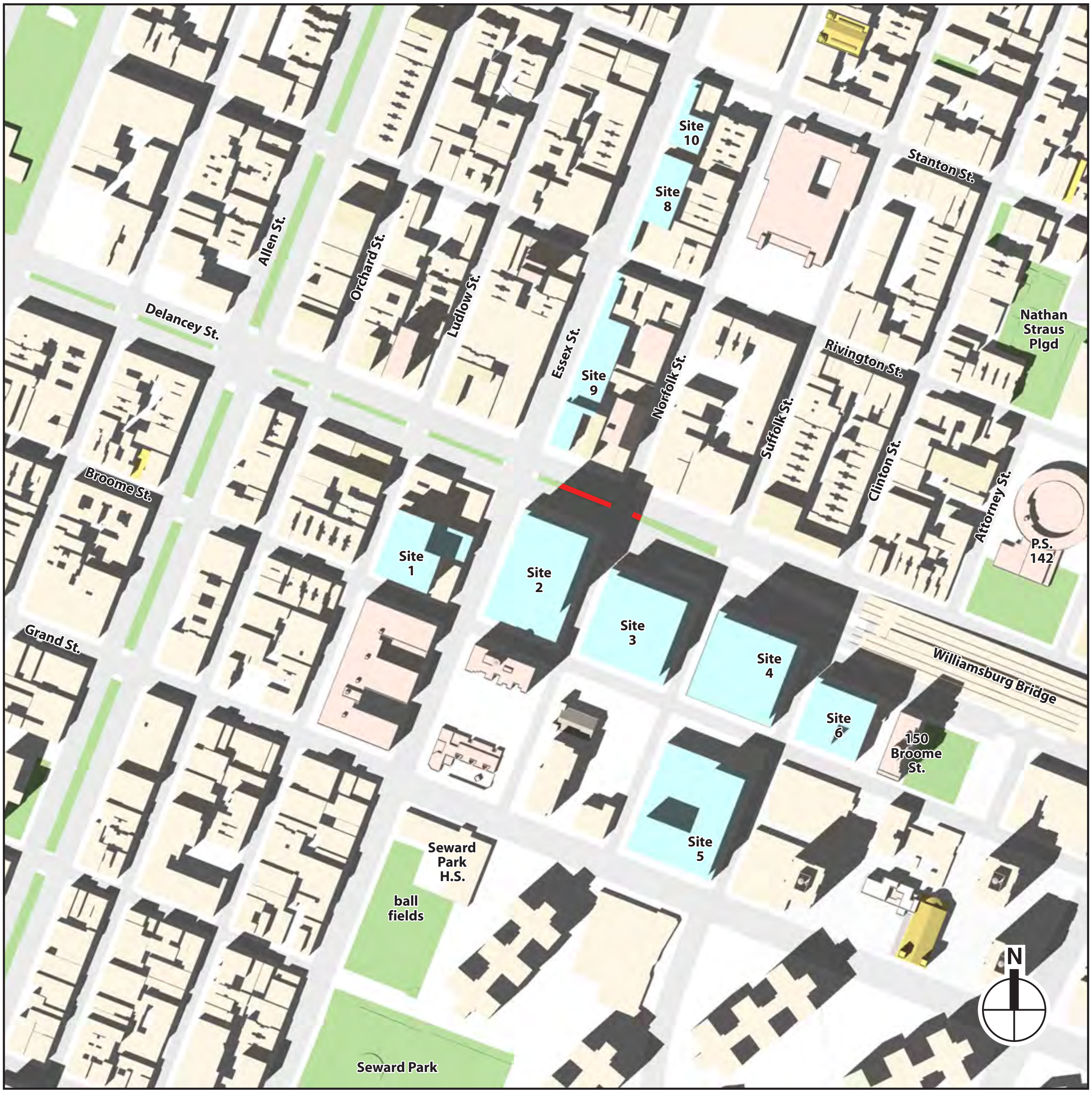
Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

Note: Daylight Saving Time not used.

May 6/August 6 - 11:00 AM

Figure 6-22



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

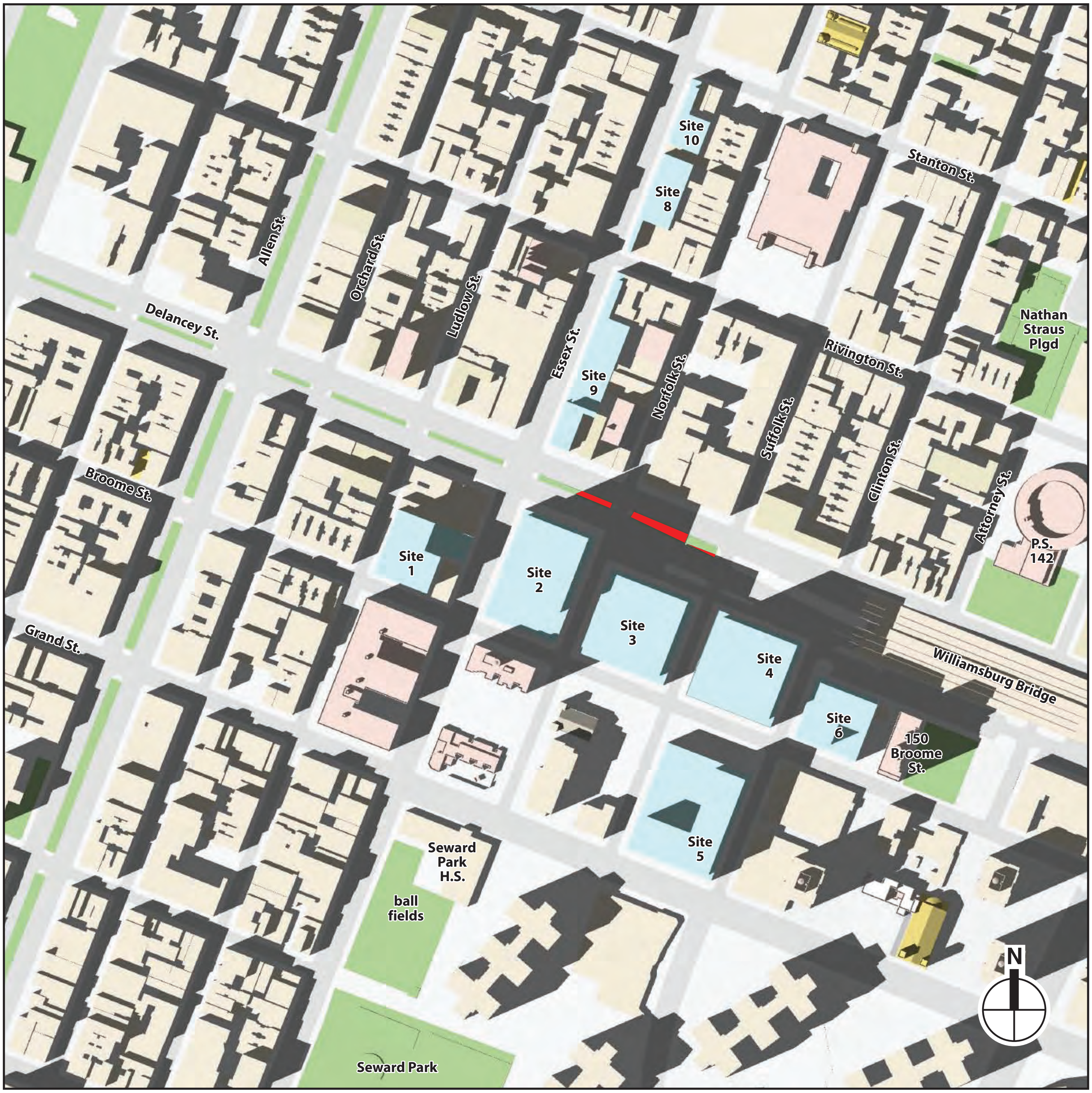
Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

May 6/August 6 - 1:30 PM



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

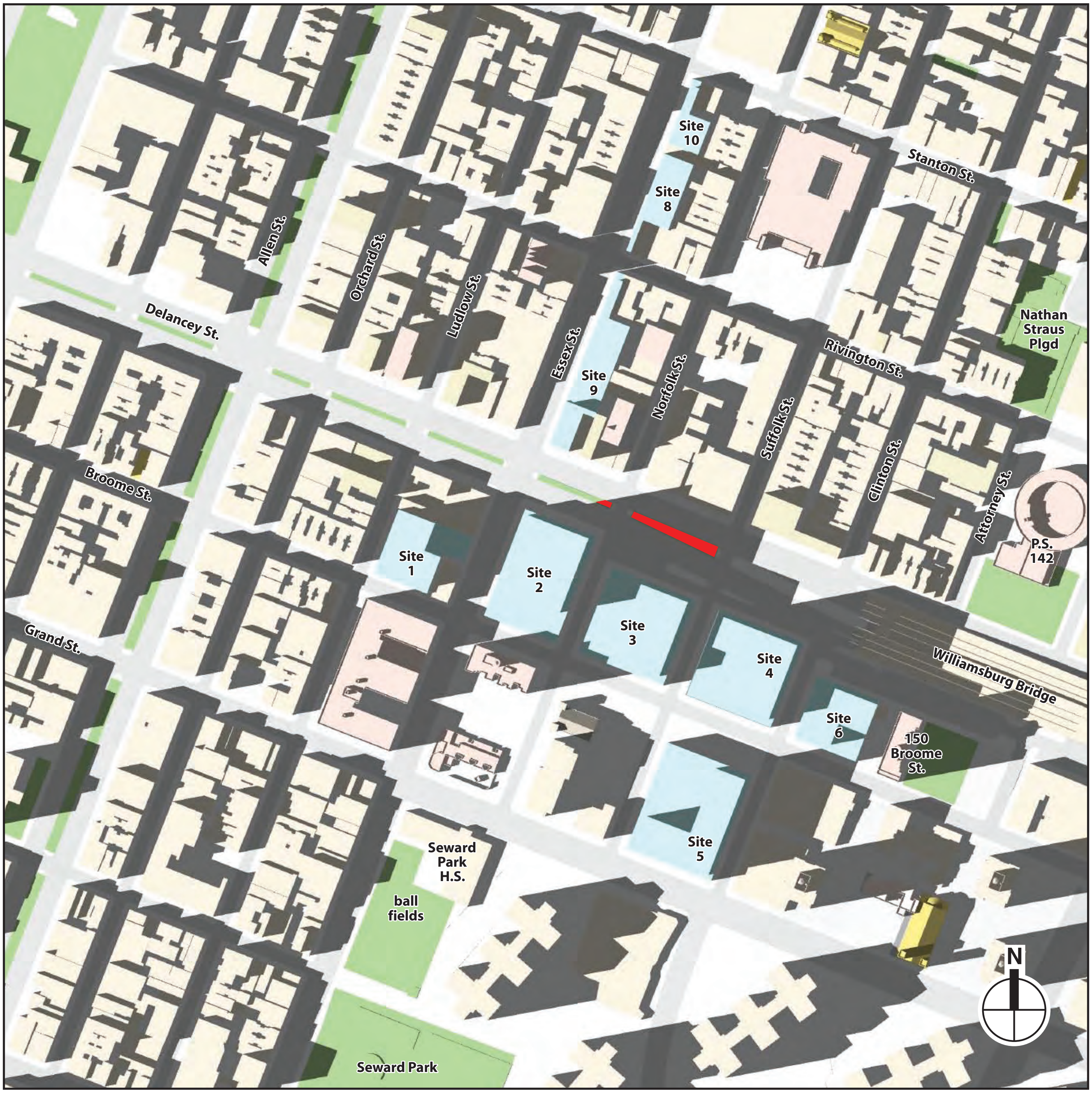
SCALE

Note: Daylight Saving Time not used.

May 6/August 6 - 2:30 PM

Figure 6-24

3.22.12



ILLUSTRATIVE FOR ANALYSIS PURPOSES

(green)	Publicly Accessible Open Space and Greenstreets
(yellow)	Historic Resource with Sun-Sensitive Features
(blue)	Proposed Maximum Envelopes
(red)	Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

May 6/August 6 - 3:30 PM

Publicly Accessible Open Space and Greenstreets

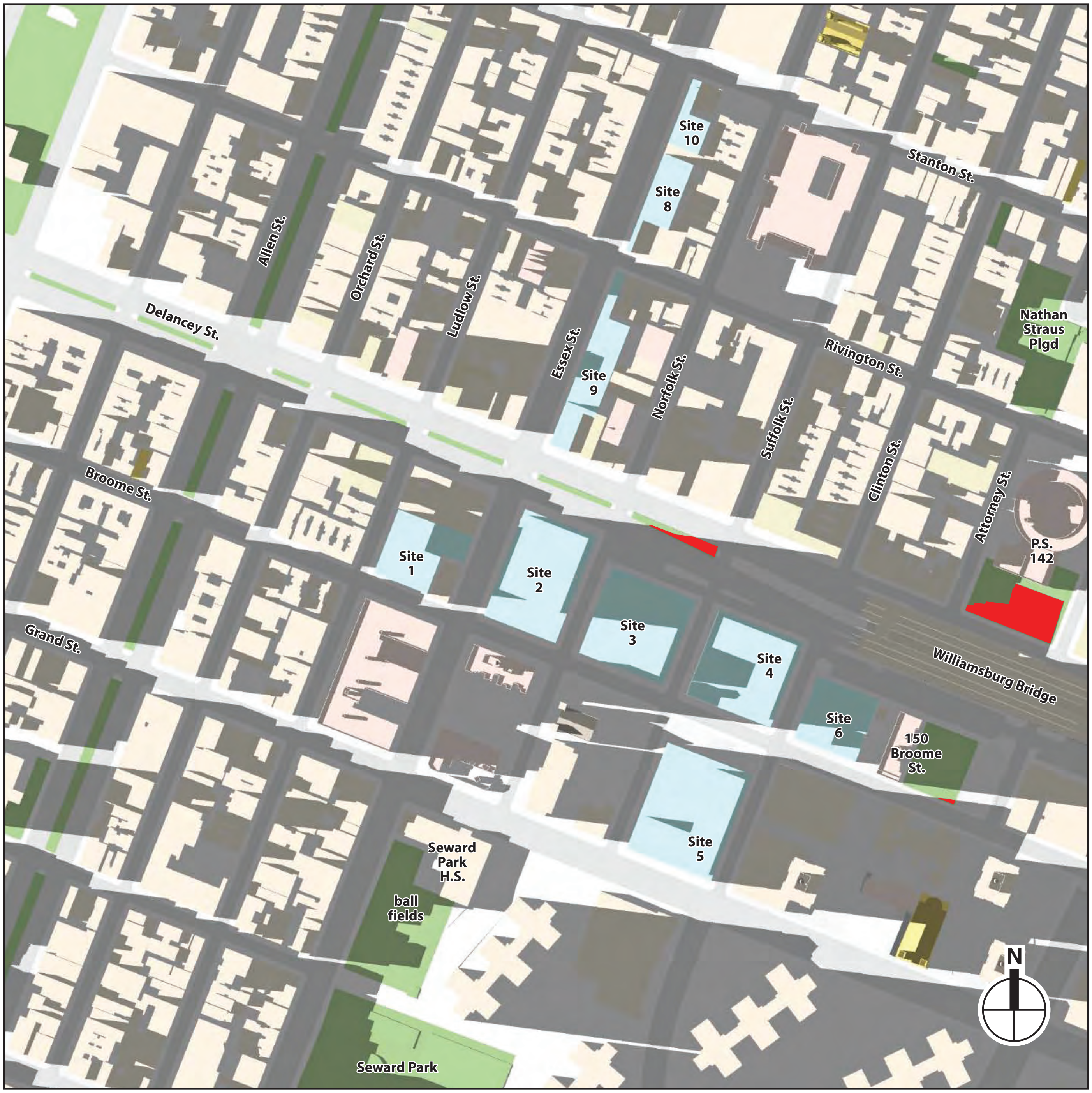
Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

Note: Daylight Saving Time not used.

May 6/August 6 - 4:30 PM



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

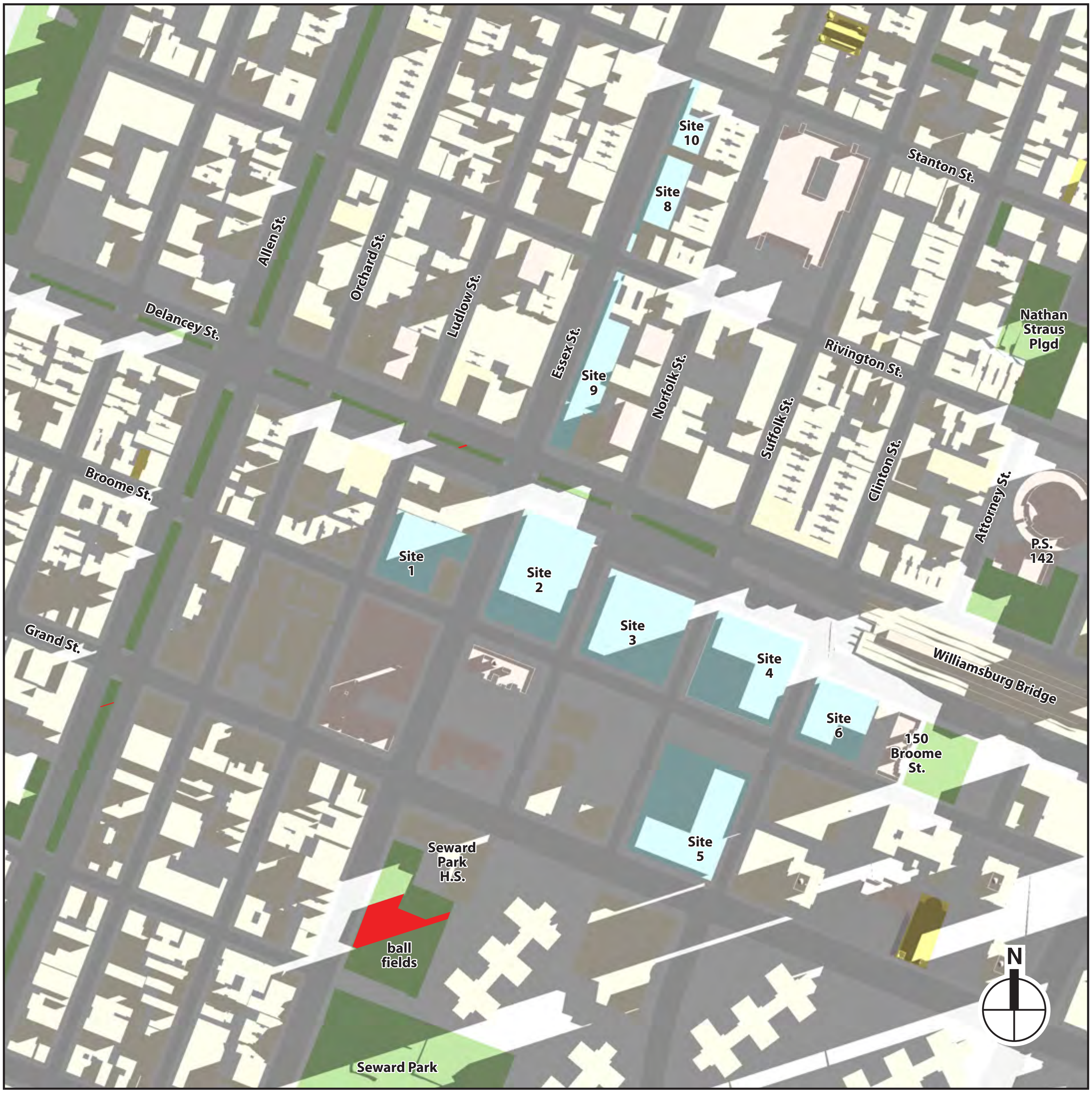
Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

May 6/August 6 - 5:18 PM

Figure 6-27



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

June 21 - 6:00 AM

Figure 6-28

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

June 21 - 7:00 AM

Figure 6-29

3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

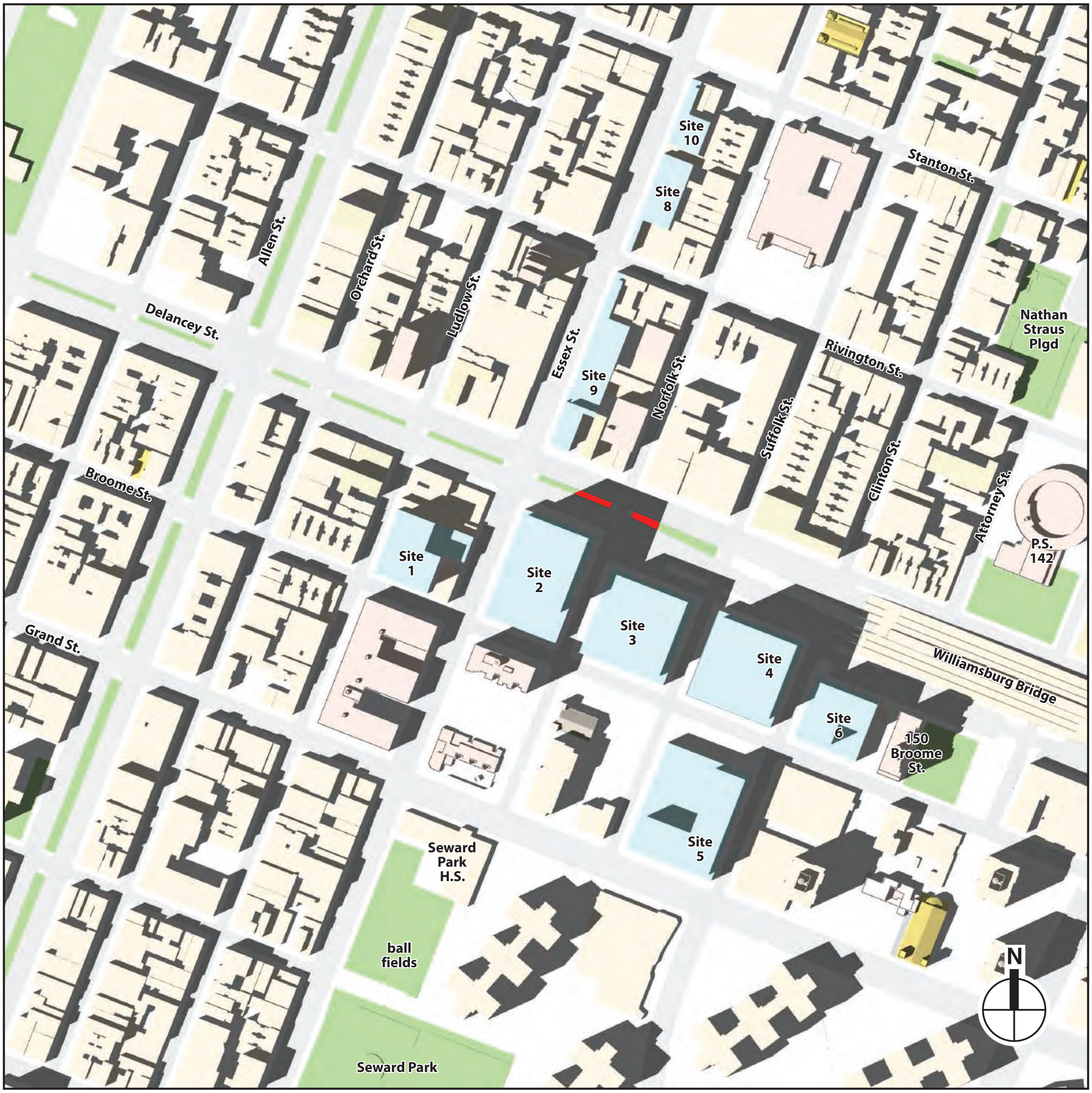
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

June 21 - 1:00 PM

Figure 6-30



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

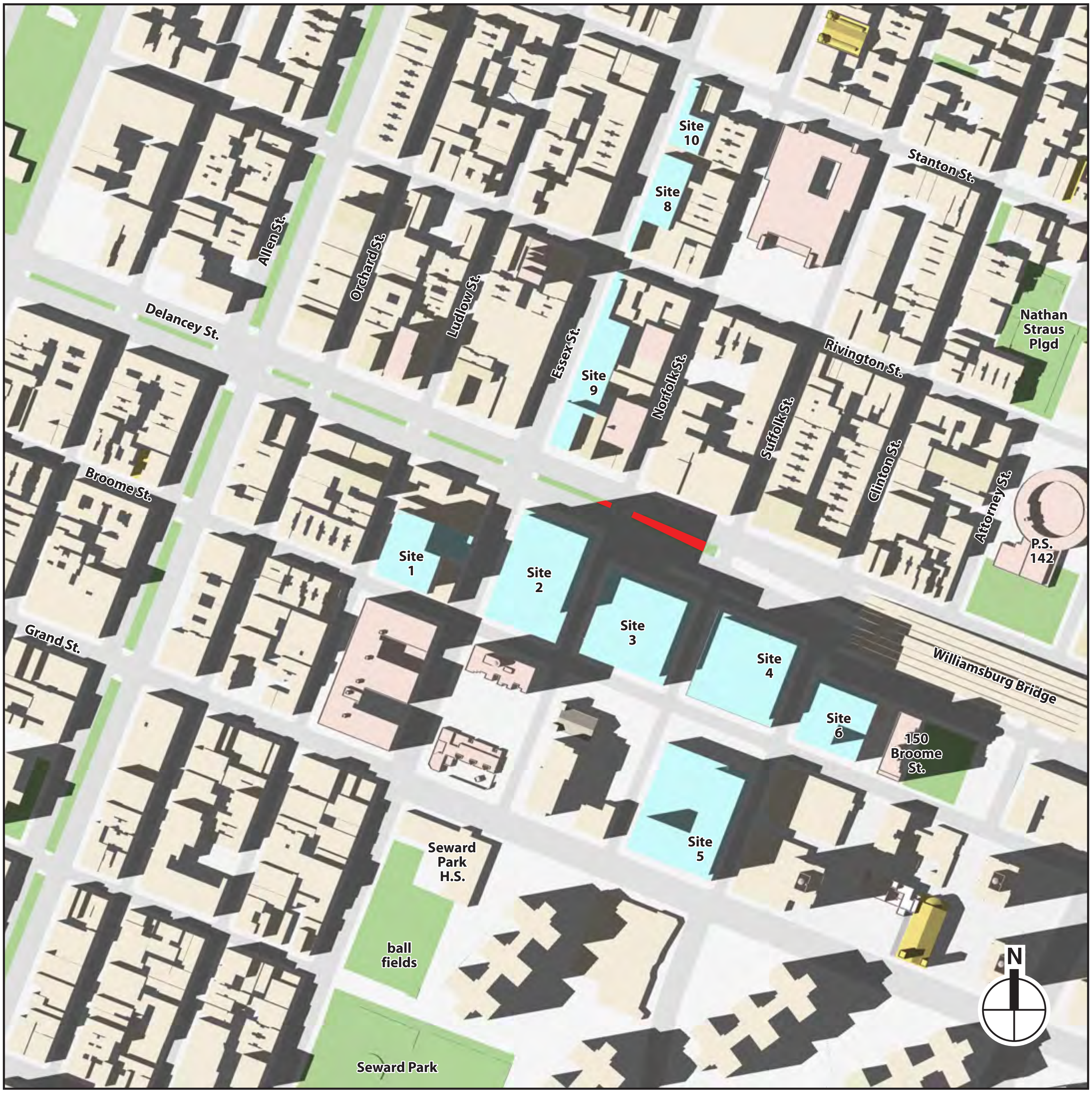
Note: Daylight Saving Time not used.

June 21 - 2:00 PM

Figure 6-31

3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

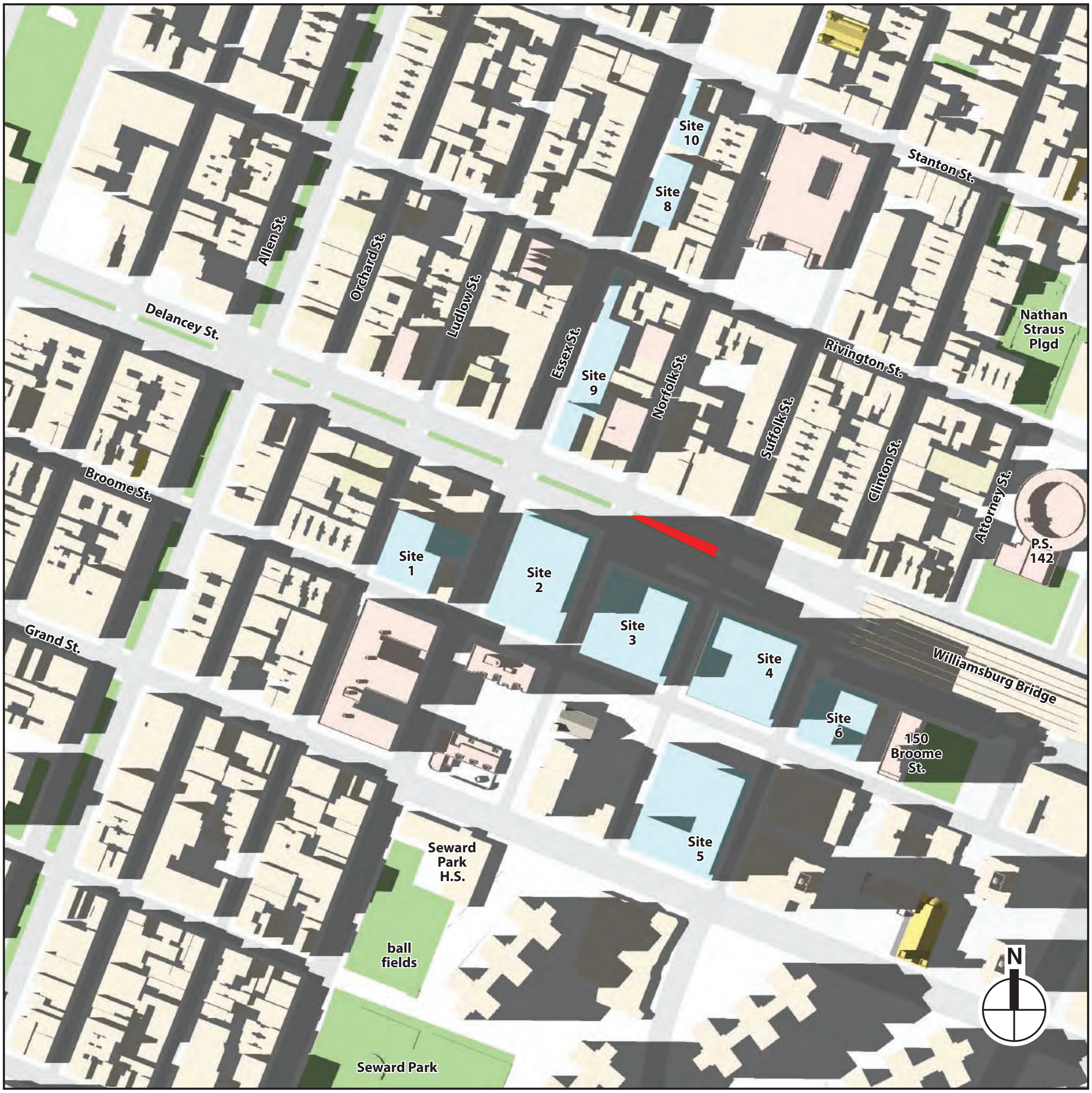
Note: Daylight Saving Time not used.

June 21 - 3:00 PM

Figure 6-32

3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

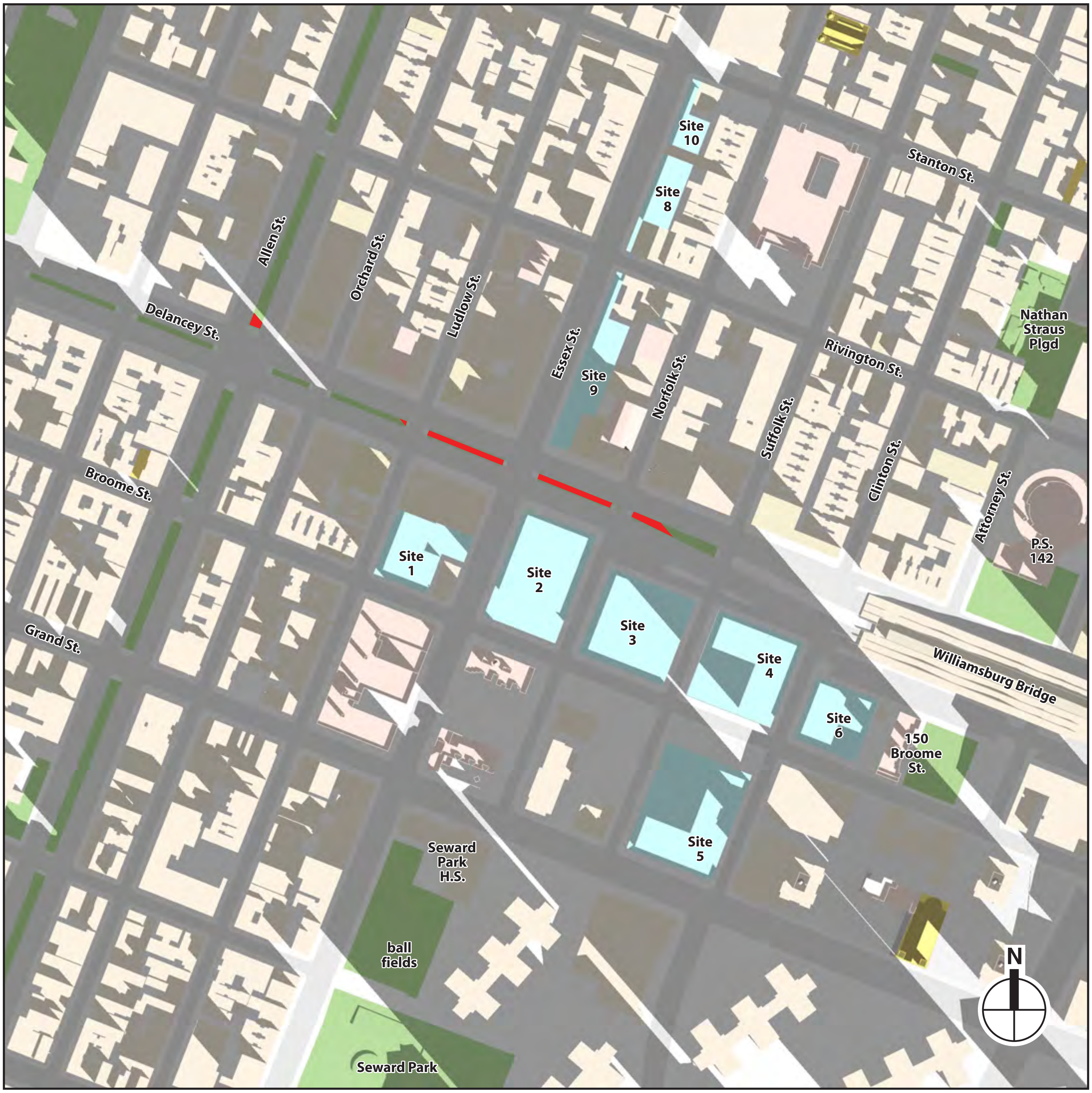
Note: Daylight Saving Time not used.

June 21 - 4:00 PM

Figure 6-33

3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

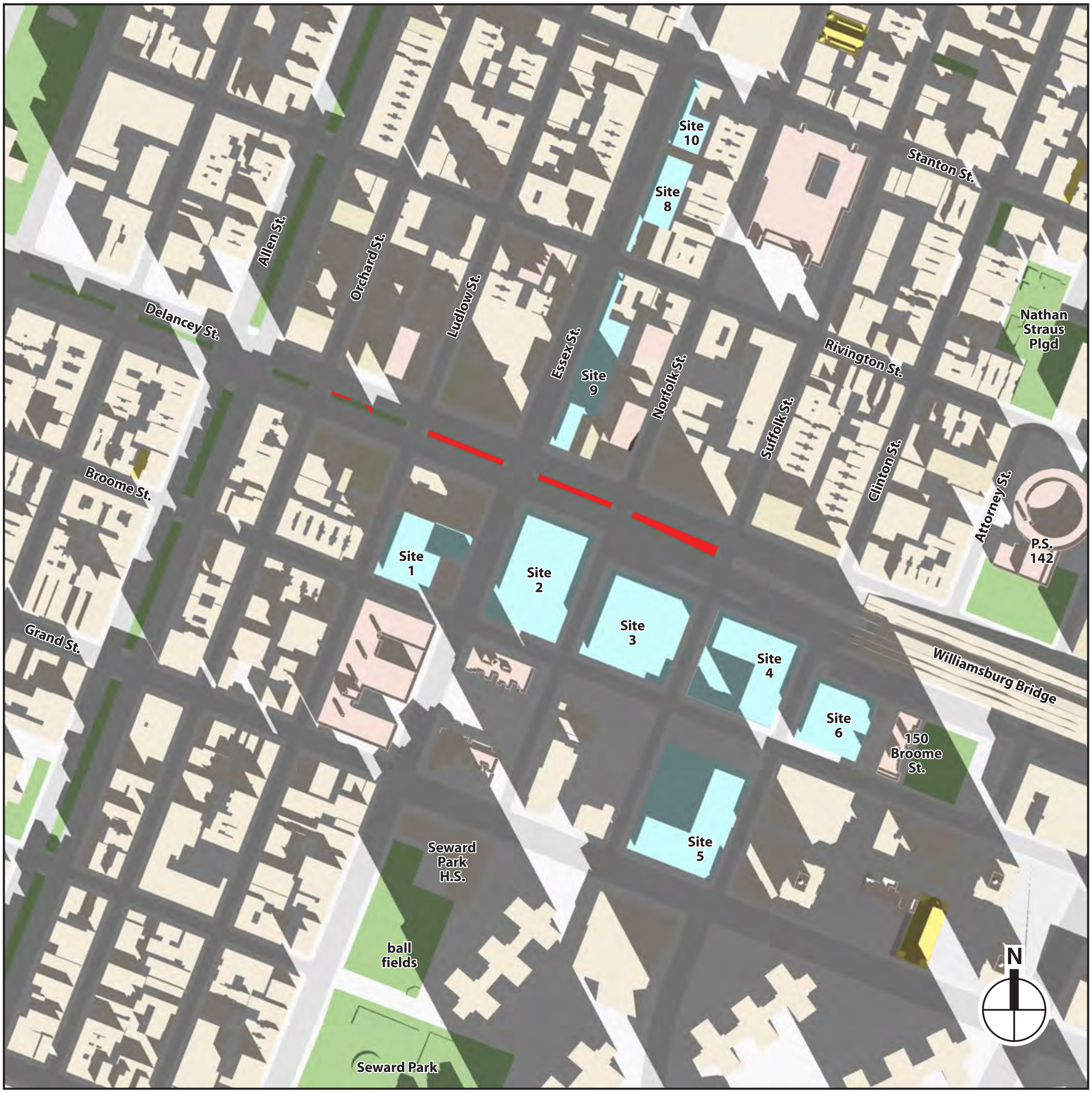
0 200 500 FEET

SCALE

Note: Daylight Saving Time not used.

December 21 - 9:00 AM

3.22.12



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

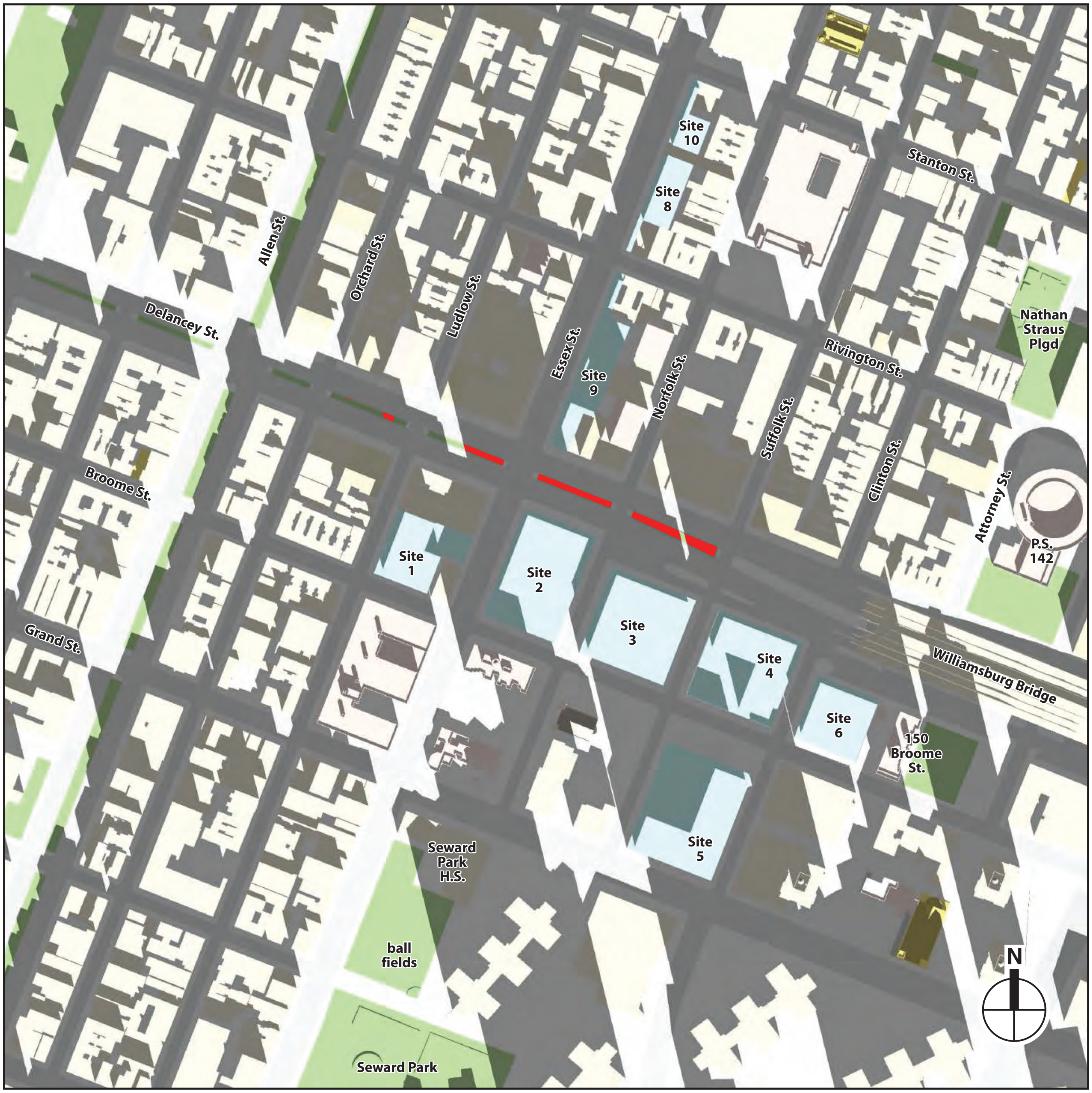
SCALE

Note: Daylight Saving Time not used.

December 21 - 10:00 AM

Figure 6-35

3.22.12



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

SCALE

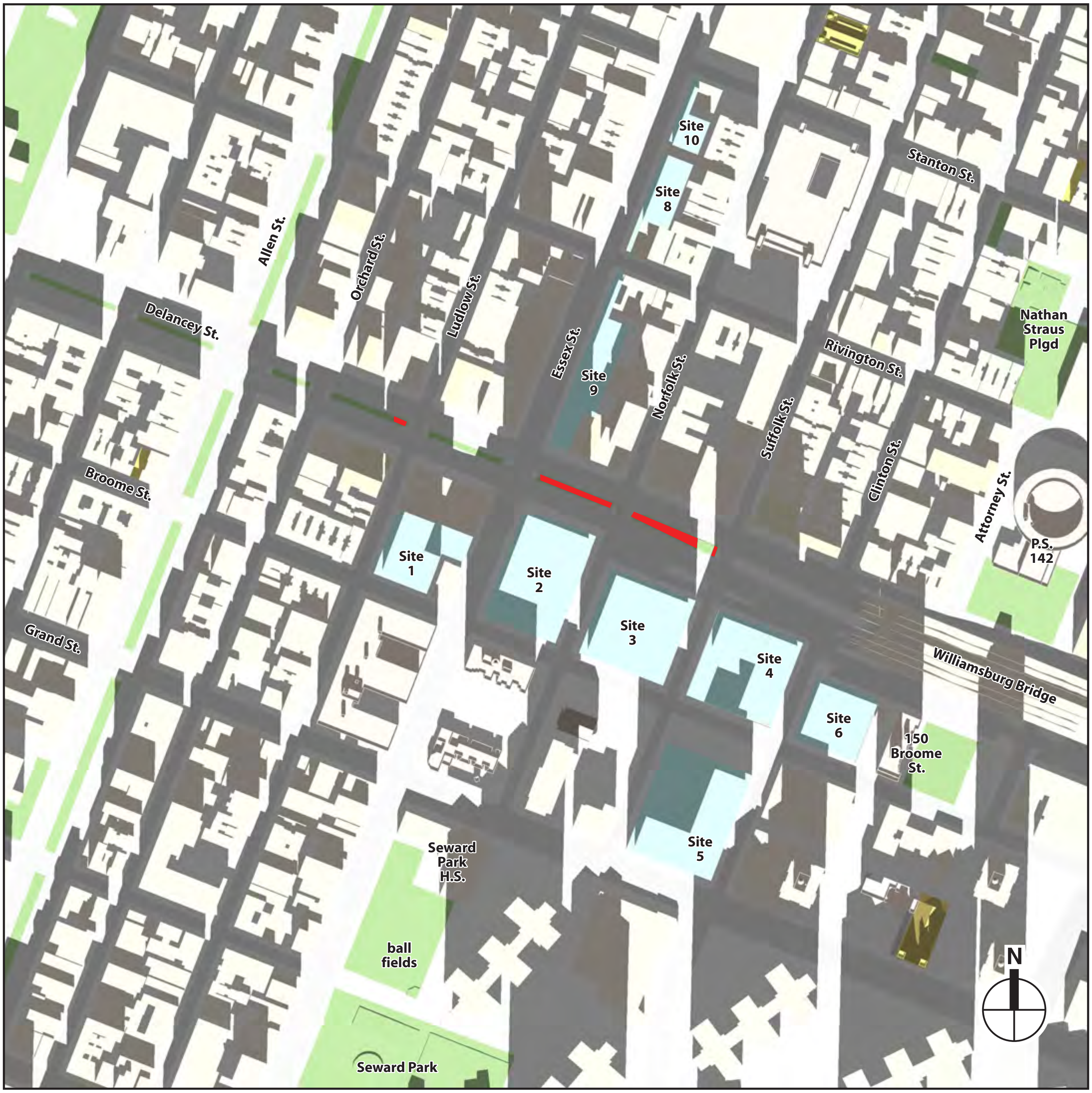
Note: Daylight Saving Time not used.

December 21 - 11:00 AM

Figure 6-36

3.22.12

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

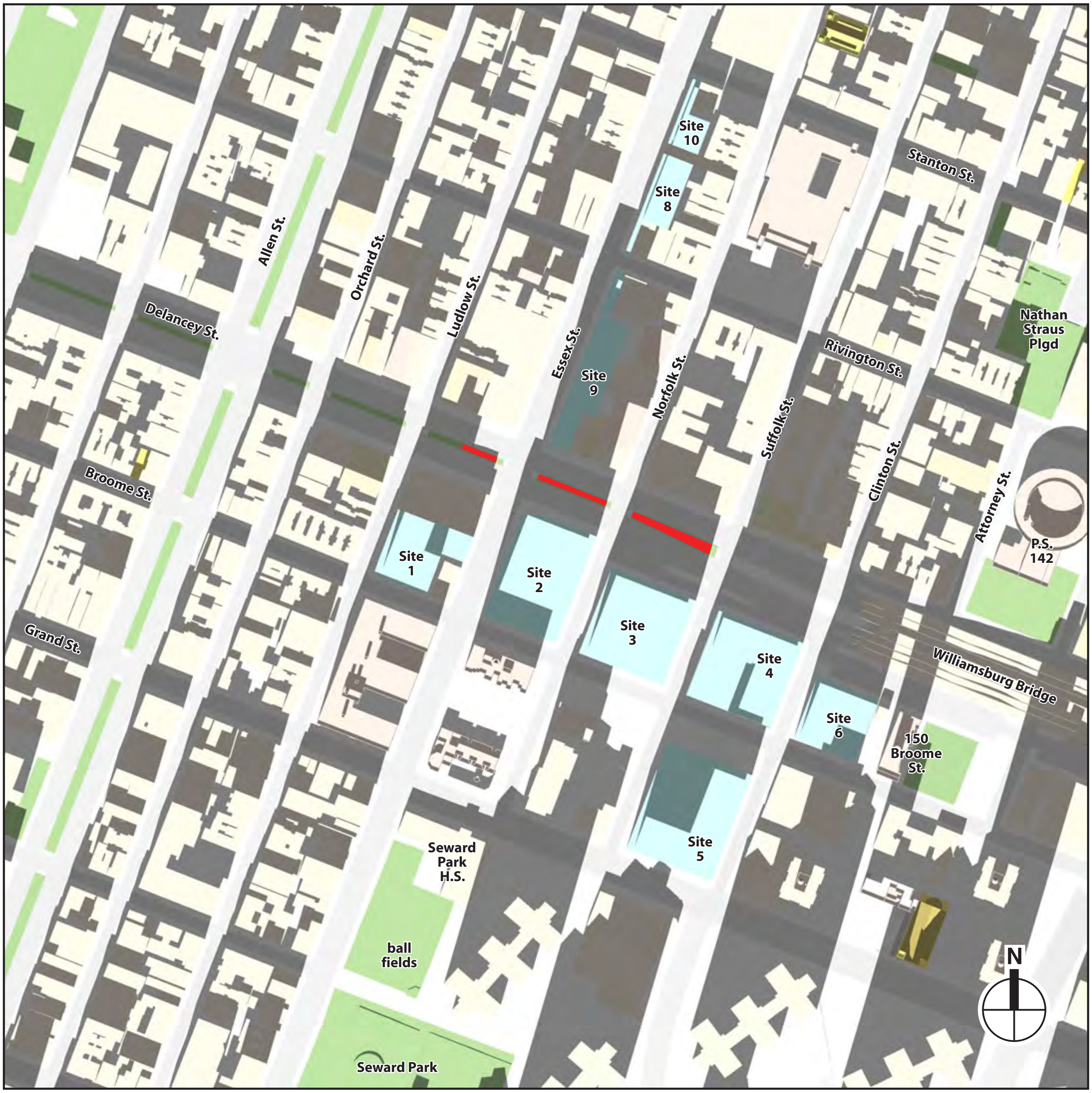
SCALE

Note: Daylight Saving Time not used.

December 21 - 12:00 PM

Figure 6-37

ILLUSTRATIVE FOR ANALYSIS PURPOSES



Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET

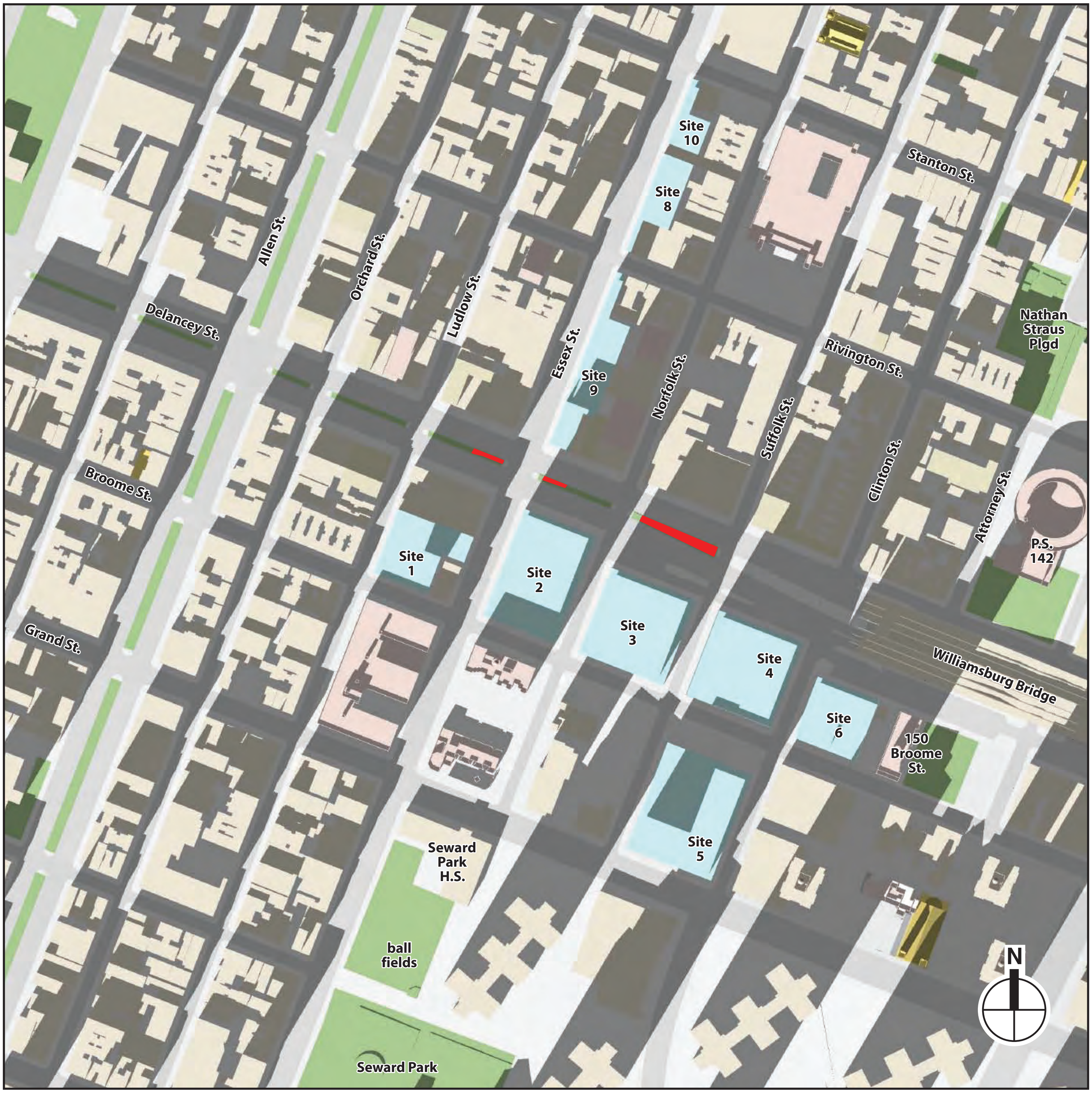
SCALE

Note: Daylight Saving Time not used.

December 21 - 1:00 PM

Figure 6-38

3.22.12



ILLUSTRATIVE FOR ANALYSIS PURPOSES

Publicly Accessible Open Space and Greenstreets

Historic Resource with Sun-Sensitive Features

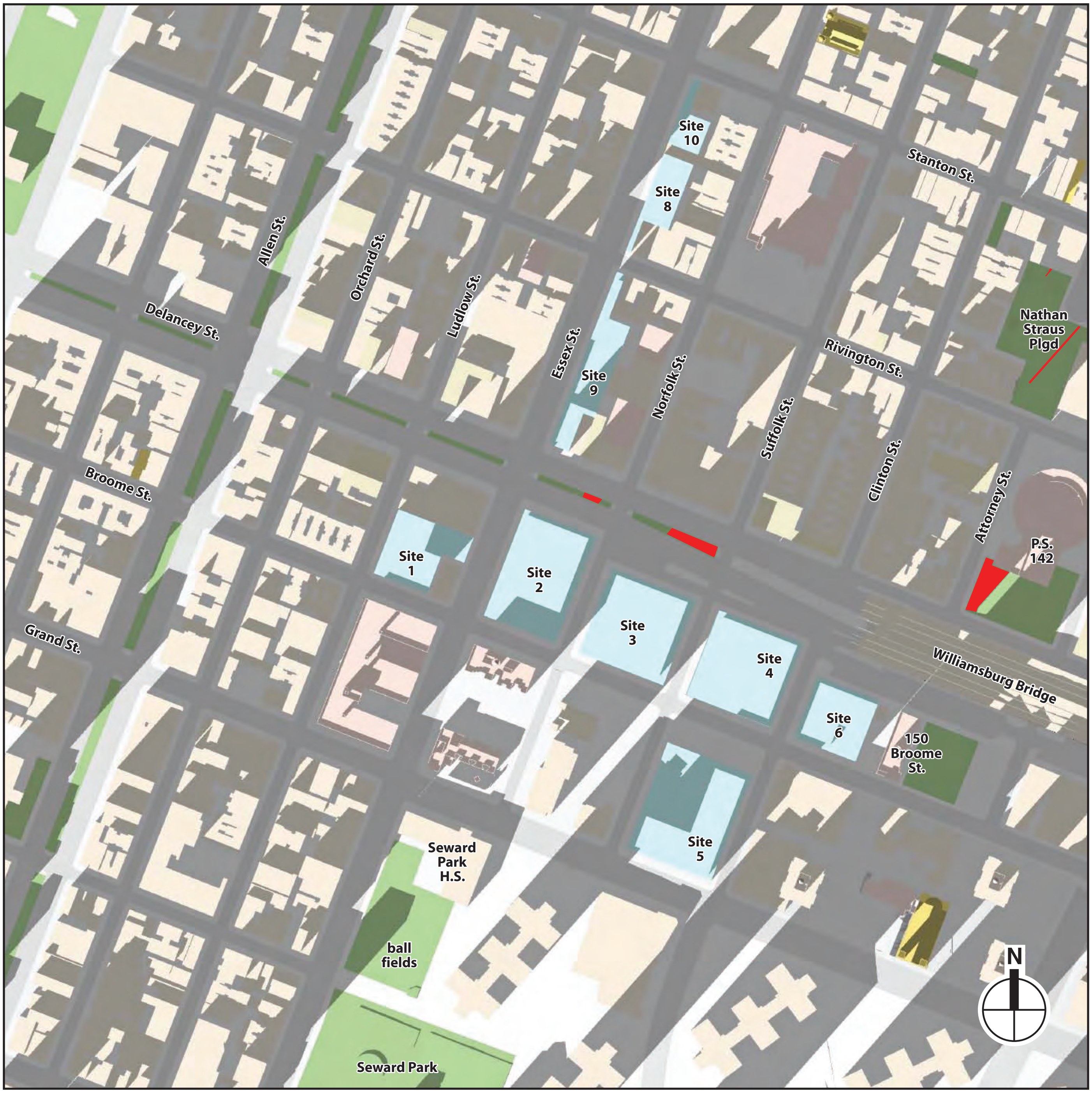
Proposed Maximum Envelopes

Incremental Shadow on Sun-Sensitive Resource

Note: Daylight Saving Time not used.

December 21 - 2:00 PM

Figure 6-39



ILLUSTRATIVE FOR ANALYSIS PURPOSES

(light green)	Publicly Accessible Open Space and Greenstreets
(yellow)	Historic Resource with Sun-Sensitive Features
(light blue)	Proposed Maximum Envelopes
(red)	Incremental Shadow on Sun-Sensitive Resource

0 200 500 FEET
SCALE

Note: Daylight Saving Time not used.

December 21 - 2:53 PM
Figure 6-40

A. INTRODUCTION

This chapter considers the potential of the proposed actions to affect historic and cultural resources, both archaeological and architectural. It has been prepared in accordance with City Environmental Quality Review (CEQR) guidelines, the State Environmental Quality Review Act, and Section 14.09 of the New York State Historic Preservation Act of 1980. These laws and regulations require that City and state agencies, respectively, consider the impacts of their actions on historic and cultural resources. In addition, because construction financing may come from New York State and/or the United States Department of Housing and Urban Development (HUD), this chapter has also been prepared in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law) and Section 106 of the National Historic Preservation Act of 1966. In accordance with CEQR and Section 106 guidelines, this analysis identifies all historic and cultural resources that have been designated or determined to meet the eligibility requirements for local, state, or national designation, including the Criteria for listing on the National Register of Historic Places contained in the Code of Federal Regulations, Title 36, Part 63, and it also identifies properties that may meet such eligibility requirements. In assessing potential project effects on historic and cultural resources, this analysis follows the guidance of the *CEQR Technical Manual* (January 2012 edition). It also applies the criteria of adverse effect contained in the Code of Federal Regulations, Title 36, Part 800 to historic and cultural resources that may be affected by the proposed actions, so that this analysis may used as the basis for further review of the proposed actions pursuant to Section 106.

The *CEQR Technical Manual* recommends that a historic resources assessment be performed if a proposed action would result in any of the following actions: in-ground disturbance; new construction, demolition, or significant physical alteration of any building, structure, or object; the change in scale, visual prominence, or visual context of any building, structure, or object or landscape feature; or the screening or elimination of publicly accessible views, even if no known historic resources are located nearby. Since the proposed actions are expected to generate some of these results, a full analysis under CEQR was undertaken.

PRINCIPAL CONCLUSIONS

ARCHAEOLOGICAL RESOURCES

In an Environmental Review letter dated August 16, 2011, the New York City Landmarks Preservation Commission (LPC) determined that there is the potential for the recovery of archaeological resources associated with the 19th-century occupation of the following locations within the project site: Block 346, Lot 40 (corresponding to Sites 3, 4, and 5); Block 347, Lot 71 (corresponding to Site 6); and Block 352, Lot 28 (corresponding to part of Site 2). A Phase 1A Archaeological Documentary Study of Sites 2 through 6 was requested by LPC to clarify this initial finding. LPC determined that Site 1, Sites 8 through 10, and the portions of the streets to be mapped and demapped as part of the proposed actions have no archaeological significance, and no in-ground disturbance is proposed for Site 7. Therefore, no further archaeological analysis is warranted for Site 1, Sites 7 through 10, and for the portions of the streets to be mapped and demapped as part of the proposed actions.

In December 2011, a Phase 1A Archaeological Documentary Study of Sites 2, 3, 4, 5, and 6 was prepared. The study concluded that 50 historic lots within Sites 2 through 6 were sensitive for historic-period archaeological resources. The conclusions of the Phase 1A study are summarized below. The Phase 1A recommended a Phase 1B archaeological investigation to determine the presence or absence of archaeological resources in the areas identified as archaeologically sensitive. These potential archaeological resources could include shaft features (i.e., privies, cisterns, or wells) associated with the residential occupation of these historic lots in the early- to mid-19th century. The Phase 1A was submitted to LPC and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A. With implementation of Phase 1B testing and continued consultation with LPC and OPRHP regarding the need for, and implementation of, any Phase 2 and 3 investigations, there would be no significant adverse impacts on archaeological resources from the proposed actions.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to a Request for Proposals (RFP) process. Further archaeological investigation will be required to be undertaken by the developer(s) after selection. For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), remedial measures, including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC and/or OPRHP, will be required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by the New York City Economic Development Corporation (NYCEDC), remedial measures, including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC, will be required to be undertaken by the developer(s) through the provisions of a contract for sale or lease, or other legally binding agreement between NYCEDC and the developer(s).

ARCHITECTURAL RESOURCES

As described below, the proposed actions would result in significant adverse direct impacts on two architectural resources from development on Sites 2, 5, 8, 9, and 10. Those impacts could be partially mitigated as described in Chapter 21, “Mitigation Measures.” Further, development of the proposed project could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, development on Site 1 could result in significant adverse visual and contextual impacts on two architectural resources.

B. METHODOLOGY

ARCHAEOLOGICAL RESOURCES

Archaeological resources are physical remnants, usually buried, of past human activities on a site. They can include archaeological resources associated with Native American populations that used or occupied a site and can include stone tools or refuse from tool-making activities, remnants of habitation sites, etc. These resources are also referred to as "precontact," since they were deposited before Native Americans' contact with European settlers. Archaeological resources can also include remains from activities that occurred during the historic period, which began with the European colonization of the New York area in the 17th century; such resources can include remains associated with European contact with Native Americans, battle sites, landfill deposits, structural foundations, and domestic shaft features such as cisterns, wells, and privies.

On sites where later development occurred, archaeological resources may have been disturbed or destroyed by grading, excavation, and infrastructure installation and street improvements. However, some resources do survive in urban environments despite extensive development. Deposits can be protected when covered with pavement (i.e., a parking lot) or with a building with a shallow foundation and no basement. In both scenarios, archaeological deposits can be sealed beneath the ground surface, protected from further disturbance.

The study area for archaeological resources is the area that would be disturbed for project construction, i.e., Sites 1 through 6 and Sites 8 through 10 and the portions of the streets to be mapped and demapped. In the summer of 2011, LPC was contacted for its preliminary evaluation of the project site's archaeological sensitivity. LPC reviewed the City blocks, tax lots, and streets that compose the project site for the purpose of identifying lots and streets with the potential to contain archaeological resources. As written in an Environmental Review letter dated August 16, 2011, LPC determined that there is the potential for the recovery of archaeological resources associated with the 19th-century occupation of the following locations within the project site: Block 346, Lot 40 (corresponding to Sites 3, 4, and 5); Block 347, Lot 71 (corresponding to Site 6); and Block 352, Lot 28 (corresponding to part of Site 2). Accordingly, LPC recommended that an archaeological documentary study be performed for those locations to clarify their initial findings and provide the threshold for the next level of review, if warranted (see **Appendix C** for LPC correspondence). LPC determined that Site 1, Sites 8 through 10, and the portions of the streets to be mapped and demapped as part of the proposed actions have no archaeological significance, and no in-ground disturbance is proposed for Site 7. Therefore, no further archaeological analysis is warranted for Site 1, Sites 7 through 10, and for the portions of the streets to be mapped and demapped as part of the proposed actions. A Phase 1A Archaeological Documentary Study of Sites 2, 3, 4, 5, and 6 was prepared in December 2011 and its conclusions are summarized below.

ARCHITECTURAL RESOURCES

OVERVIEW

Architectural resources are defined as buildings, structures, objects, sites or districts listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing based on the criteria defined below, National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts, and properties that have been found by the LPC to appear eligible for designation, considered for designation ("heard") by LPC at a public hearing, or calendared for consideration at such a hearing (these are "pending" NYCLs).

The study area for architectural resources is determined based on the proposed action's area of potential effect on architectural resources, which accounts for both direct physical impacts and indirect impacts. Direct impacts include demolition of a resource and alterations to a resource that cause it to become a different visual entity. A resource could also be damaged by construction activities such as blasting, pile driving, falling objects, subsidence, collapse, or damage from construction machinery unless proper protection measures are put in place. Construction activity that would occur within 90 feet of an architectural resource, as defined in the New York City Department of Buildings (DOB) *Technical Policy and Procedure Notice (TPPN) #10/88*, may cause such damage.

Indirect impacts are contextual or visual impacts that could result from project construction or operation. As described in the *CEQR Technical Manual*, indirect impacts can result from a change in scale, visual prominence, or visual context of any building, structure, or object or landscape feature; screening or elimination of publicly accessible views; or introduction of significant new shadows or significant lengthening of the duration of existing shadows on a historic landscape or on a historic structure if the features that make the resource significant depend on sunlight. Significant adverse direct or indirect impacts can occur if a project would cause a change in the quality of a property that qualifies it for S/NR listing or for designation as a NYCL.

To account for potential direct and indirect impacts, the architectural resources study area for the Seward Park Mixed-Use Development Project is defined as the project site and the area within approximately 400 feet of the project site (see **Figure 7-1**).

CRITERIA AND REGULATIONS

Once the study area was determined, an inventory of officially recognized ("designated and eligible") architectural resources was compiled. Criteria for listing on the National Register are in the Code of Federal Regulations, Title 36, Part 63, and the LPC has adopted these criteria for use in identifying architectural resources for CEQR review. Following these criteria, districts, sites, buildings, structures, and objects are eligible for the National Register if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and: (1) are associated with events that have made a significant contribution to the broad patterns of history (Criterion A); (2) are associated with significant people (Criterion B); (3) embody distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or (4) may yield information important in prehistory or history. Properties that are younger than 50 years of age are ordinarily not eligible, unless they have achieved exceptional significance. Official determinations of eligibility are made by OPRHP.

In addition, LPC designates historically significant properties in the City as NYCLs and/or Historic Districts, following the criteria provided in the Local Laws of the City of New York, New York City Charter, Administrative Code, Title 25, Chapter 3. Buildings, properties, or objects are eligible for landmark status when a part is at least 30 years old. Landmarks have a special character or special historical or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the city, state, or nation. There are four types of landmarks: individual landmark, interior landmark, scenic landmark, and historic district.

In addition to identifying architectural resources officially recognized in the study area, an inventory was compiled of potential architectural resources. For this project, potential architectural resources were those that appeared to meet one or more of the National Register criteria (described above), and they were identified based on the 2008 East Village/Lower East Side Rezoning Environmental Impact Statement, field surveys in the summer and fall of 2011, and by using historical sources, such as documents at the New York Public Library and Avery Architectural Library at Columbia University, the Municipal Archives, and the DOB archives. The inventory of 12 potential resources was submitted to LPC and OPRHP for their evaluation

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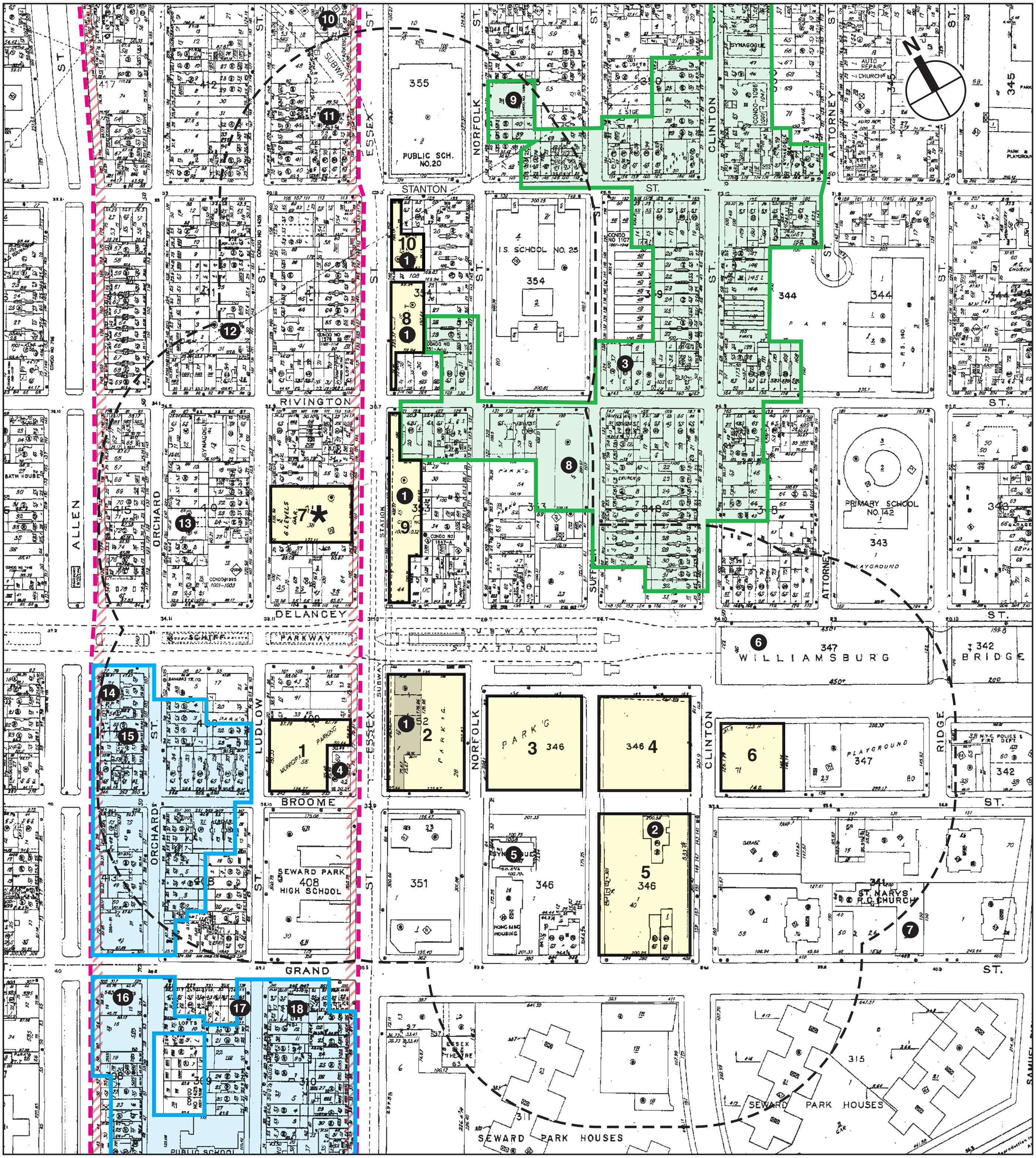

1 Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

400-Foot Perimeter

Lower East Side Historic District (S/NR)

Potential Orchard Street Historic District (NYCL-eligible)

Potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)

1 Individual Architectural Resource

0 200 500 FEET

SCALE

Historic Resources

Figure 7-1

and determination of eligibility. As written in an Environmental Review letter dated January 23, 2012, LPC reviewed the inventory of potential resources and determined that one of the potential resources appears to meet the eligibility criteria for S/NR listing. As written in a letter dated January 12, 2012, OPRHP determined that two of the potential resources (which include the one resource identified as S/NR-eligible by LPC) appear to meet the eligibility criteria for listing on the Registers. OPRHP also determined that one of the potential resources is a contributing building within a NYCL-eligible and S/NR-eligible historic district. The remaining nine resources do not appear eligible for NYCL designation or S/NR listing.[1] See **Appendix C** for LPC and OPRHP correspondence.

Once the architectural resources in the study area were identified, the proposed actions were assessed for both direct physical impacts and indirect visual and contextual impacts on architectural resources.

C. EXISTING CONDITIONS

ARCHAEOLOGICAL RESOURCES

The conclusions of the Phase 1A Archaeological Documentary Study of Sites 2, 3, 4, 5, and 6 are summarized below. The Phase 1A study was submitted to LPC and OPRHP for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A (see **Appendix C** for LPC correspondence).

PRECONTACT ARCHAEOLOGICAL SENSITIVITY

The precontact sensitivity of project sites in the New York City is generally evaluated by a site's proximity to high ground (but not exceeding 15 percent slopes), fresh water courses, well-drained soils, and previously identified precontact archaeological sites. The varied resources provided by both the East River and the wetlands that bordered it would have been essential to Native American life, and it is highly likely that such resources were frequently exploited by Native Americans who occupied the land in and around Sites 2 through 6. The presence of a Native American trail leading to the East River situated to the south of the project site confirms prolonged Native American activity in the area. The project site would not likely have been the location of a habitation site, although a documented habitation site was located on the high ground formerly located to the east of Sites 2 through 6. However, it is possible that the location surrounding the project site was used for the gathering and processing of resources, which is supported by the presence of a Native American trail through the area in the vicinity of modern East Broadway.

Despite the likelihood that Native Americans used the project site as a temporary hunting or fishing location, Native American archaeological sites tend to be shallowly buried, often within 4 to 5 feet of the precontact ground surface. During the historic period, the landscape of the project area was greatly transformed as a result of farming, grading, the demolition of hills, the cutting of streets, and

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[1] The nine potential resources found by LPC and OPRHP to not appear eligible for NYCL designation or S/NR listing are: the tenement at 400 Grand Street (on Site 5); the tenement at 402 Grand Street (on Site 5); sections of Belgian block street paving within the project site along Suffolk and Broome Streets; the below-grade former Williamsburg Bridge Railway Terminal; the tenements at 384-388 Grand Street; the tenement at 157 Broome Street; the tenement at 125-127 Stanton Street; the former Loew's Delancey theater at 140-146 Delancey Street; and the tenements at 170-174 Delancey Street.

the construction of buildings. Subsequent basement excavations and utility installations would have generated additional disturbance to the ground surface, the elevation of which has changed little since the mid-19th century according to historic maps. Therefore, it appears that the original ground surface in this area would have been sufficiently altered so as to have disturbed any precontact archaeological resources that could have been located there at one time. Therefore, the project site is determined to have no sensitivity for precontact archaeological resources.

HISTORIC PERIOD ARCHAEOLOGICAL SENSITIVITY

The project site was included within several large tracts of farmland until the late 18th century. The properties were initially owned by a variety of Dutch and English settlers and became incorporated into the property of the DeLancey family in the early to mid-18th century. The DeLanceys were British loyalists and their large estate was confiscated during the Revolutionary War and divided and sold in the late 18th century.

During the late-18th and early-19th centuries, the Lower East Side experienced a surge of development and during this time, the modern streets were cut through the area and the newly formed city blocks were divided into lots and developed for residential use. Most of the approximately 100 historic lots within Sites 2 through 6 were developed with houses or shops before 1820 and nearly all were developed and occupied by 1830. During the early- to mid-19th century, the majority of the 100 lots were developed with small brick structures and many had both front and rear dwellings on the property separated by a shared central courtyard. The majority of these structures were residential dwellings, although at least one church and structures used for industrial or commercial purposes were located on many of the lots. By the 1860s, water and sewer lines would have been accessible in the project site streetbeds, but it is likely that many of the structures in the project site were not connected to those networks and were dependent on cisterns, privies, and wells for the purposes of water gathering and sanitation, possibly until the end of the 19th century.

As the 19th century ended, the Lower East Side featured a demographic shift, as immigrants flooded the area and moved into the older tenements that lined the neighborhood's streets. Waves of immigrants came first from Ireland, then from Germany, and finally from Eastern Europe. During this surge of immigration in the second half of the 19th century, many of the lots currently located within Sites 2 through 6 were redeveloped with larger tenements that covered more lot area and housed more people.

In the first decades of the 20th century, large infrastructure improvements following the 1898 consolidation of the boroughs of New York City affected the neighborhood surrounding the project site. The construction of the Williamsburg Bridge between 1896 and 1903 resulted in the widening of several streets, including Delancey Street, and the demolition of many tenements. In 1967, as part of the redevelopment of the Seward Park Extension Urban Renewal Area, demolition began to clear land for new housing and commercial buildings. Sites 2 through 6 have been occupied by paved parking lots since that time.

Nearly all of the almost 100 historic lots included within Sites 2 through 6 were disturbed to some extent as a result of excavation associated with the construction of buildings with basements. All lots that were fully developed or where all but a portion of the lot measuring less than 10 feet in width was developed with structures with basements are considered to have been fully disturbed and, therefore, are not considered to be sensitive for archaeological resources. Historic lots that include areas greater than 10 feet in width that were not fully disturbed by basement excavation are determined to have moderate to high sensitivity for archaeological resources associated with the 19th-century residential occupation of those lots. These archaeological resources are expected to include domestic shaft features such as privies, cisterns, and wells in the historic lots' rear yards. There is also a low probability that burial vaults associated with a church formerly located on Site 3 may be present within the property formerly located at 72 Norfolk Street.

The historic lots that have been identified as archaeologically sensitive include the historic lots that formerly stood at the following addresses:

- Site 2: 214 Broome Street; and 73, 75, 77, 79, 81, 83, and 85 Norfolk Street;
- Site 3: 200, 204, and 206 Broome Street; 72, 76, and 78 Norfolk Street; and 73 and 75 Suffolk Street;
- Site 4: 188 and 190 Broome Street; 72, 74, and 76 Suffolk Street; and 127, 129, 131, 133, and 135 Clinton Street;
- Site 5: 398 and 400 Grand Street; 42, 44, 50, 52, 54, 58, 60, and 62 Suffolk Street; and 139, 141, 143, 147, 149, 155, 189, and 191 Clinton Street; and
- Site 6: 170, 172, and 174 Broome Street; and 124 Clinton Street.

These areas of archaeological sensitivity are depicted on **Figure 7-2**.

ARCHITECTURAL RESOURCES

There are 21 known architectural resources on the project site and in the study area. These resources are shown on **Figure 7-1**, listed in **Table 7-1**, and described below.

PROJECT SITE

There are two known architectural resource located on the project site. The Essex Street Market (#1, S/NR-eligible) consists of four one-story buildings on Site 2 (78-90 Essex Street), Site 8 (130-144 Essex Street), Site 9 (96-124 Essex Street), and Site 10 (150 Essex Street). In addition, a S/NR-eligible former fire station is located on Site 5. The two architectural resources located on the project site are described below.

Site 1

Site 1 is occupied by a paved parking lot and does not contain any known or potential architectural resources. It is, however, located within the boundaries of the S/NR-listed Lower East Side Historic District. That historic district is described below.

Site 2

Site 2 contains the former Essex Street Market building (#1, S/NR-eligible) at 78-90 Essex Street. The City of New York, under the administration of Fiorello LaGuardia, built the four Art Moderne buildings of the Essex Street Market in 1939 as part of a citywide program to address sanitation issues and relieve street congestion from pushcart vendors by providing indoor retail space. The Essex Street Market was the fourth of the City's enclosed retail markets, and when it opened it provided 475 spaces for vendors who had previously operated pushcarts in the open-air markets along Orchard, Hester, Grand, Rivington, Stanton, and East Houston Streets. Simply designed, the brick market buildings feature steel sash strip windows and concrete panels with incised lettering that reads "Essex Street Retail Market." In the early 1960s, the City sought to close the remaining six or seven enclosed retail markets, including the Essex Street Market. However, the City leased the Essex Street Market to the remaining 120 vendors in 1966. In the 1980s, the City considered

Sites Included in the Phase 1A Archaeological Documentary Study

Area of Archaeological Sensitivity

0 100 200 FEET

SCALE

Sanborn Map, 1951

Showing Areas of Archaeological Sensitivity

Figure 7-2

Table 7-1
Architectural Resources

Map Ref. No.	Name/Building Type	Address	NYCL	NYCL-eligible	S/NR	S/NR-eligible	NHL
Project Site							
1	Essex Street Market	78-90, 96-124, 130-144, and 150 Essex Street				X	
2	Former Engine Co. 17	185 Broome Street				X	
Study Area							
	Lower East Side Historic District	Roughly bounded by Houston, Essex, Allen, and Division Streets			X		
	Potential Orchard Street Historic District	Roughly bounded by Allen, Delancey, Ludlow, Essex, and Canal Streets		X			
	Potential Clinton, Rivington, Stanton Street Historic District	Roughly bounded by Essex, Houston, Attorney, and Delancey Streets		X		X	
3	Streit's Matzo Factory	148-154 Rivington Street				X[1]	
4	Eastern Dispensary	75 Essex Street		X[2]		X	
5	Norfolk Street Baptist Church	60-64 Norfolk Street	X		X		
6	Williamsburg Bridge					X	
7	St. Mary's R.C. Church and Rectory	438-400 Grand Street				X	
8	Public School 160	107 Suffolk Street		X		X	
9	Anshe Chesed Synagogue	172-176 Norfolk Street	X				
10	Provident Loan Society of New York	223 East Houston Street		X	X[2]		
11	Substation 409	163 Essex Street			X[3]		
12	Commercial Building	141 Ludlow Street			X[2]	X	
13	New York Telephone Company Exchange	130 Orchard Street			X[2]	X	
14	Bank of the United States	77 Delancey Street			X[2]	X	
15	Lower East Side Tenement Museum	97 Orchard Street			X[3]		X
16	E. Ridley & Sons Dept. Store	315 Grand Street	Heard		X[2]	X	
17	Row House	339 Grand Street	Heard		X[2]		
18	Commercial Building	345 Grand Street		X	X[2]		

Notes:
NYCL: New York City Landmark
Heard: Application has been heard at the NYC Landmarks Preservation Commission.
NYCL-eligible: Determined to appear eligible for designation as a NYCL.
S/NR: Listed on the State and National Registers of Historic Places.
S/NR-eligible: Officially determined eligible for listing on the State and National Registers of Historic Places.
NHL: National Historic Landmark
1. Streit's Matzo Factory is not individually S/NR-eligible but is a contributing building within the Potential Clinton, Rivington, Stanton Street Historic District.
2. This building is a contributing building within the S/NR Lower East Side Historic District.
3. This building is both S/NR listed and a contributing building within the S/NR Lower East Side Historic District.

redevelopment proposals for the Essex Street Market buildings and, with 59 tenants remaining, leased the market to a private developer in 1988. The New York City Economic Development Corporation took over the management of the market in 1995 and consolidated the remaining vendors from two buildings into the one building at 96-124 Essex Street (located on Site 9). This is the only building that currently houses public market operations.

The Essex Street Market building at 78-90 Essex Street is the second largest of the four market buildings. It is mostly vacant but contains a diner and liquor store along the Delancey Street frontage (see view 1 of **Figure 7-3**). The incised lettering above the two entrances on Essex Street has been filled in but can be faintly discerned.

Site 3

Site 3 is occupied by a paved parking lot and does not contain any known or potential architectural resources.

Site 4

Site 4 is occupied by a paved parking lot and does not contain any known or potential architectural resources.

Site 5

Site 5 contains a surface parking lot and three buildings.

LPC and OPRHP determined that the building at 185 Broome Street (#2) appears to meet the criteria for S/NR listing. This building is the former fire station of Engine Company 17 and Hook & Ladder Company 18. It was built in 1937 by the Works Progress Administration and designed by James T. Treacy. Engine Company 17 was originally located at 91 Ludlow Street (built 1878, see below), and Hook & Ladder Company 18 was originally located nearby on Attorney Street as early as 1897. In 1973, the two companies moved into a new station at Pitt and Delancey Streets that also contained the Seventh Police Precinct. That building still contains the police precinct and Hook & Ladder Company 18. Engine Company 17 was closed in 1991. The former fire station at 185 Broome Street is a two-story brick, stone, and concrete building designed in the Art Moderne style (see view 2 of **Figure 7-4**). The Broome Street façade is articulated with multi-faceted brick piers with concrete capitals that provide a sense of verticality to the small, low-rise building. There are two large vehicular entrances. Mostly recently, the building housed a company that provided equipment and props for the motion picture industry. In a letter dated January 12, 2012, OPRHP determined that the former fire station meets National Register Criterion C as a representative example of Art Deco civic architecture.

LPC and OPRHP reviewed information on the two tenements at 400 and 402 Grand Street and determined that they do not appear to meet the criteria for NYCL designation or S/NR listing.

Site 6

Site 6 is occupied by a paved parking lot and does not contain any known or potential architectural resources.

Site 7

Site 7 is located within the boundaries of the S/NR-listed Lower East Side Historic District (described below). It is occupied by a five-level concrete parking garage that is a non-contributing building to the historic district.

Site 2 – Essex street Market (#1), 78-90 Essex Street **1**

Project Site
Figure 7-3

Site 5 – 185 Broome Street (#2) **2**

Site 8 – Essex Street Market (#1), 130-144 Essex Street **3**

Site 8

Site 8 contains the former Essex Street Market building (#1, S/NR-eligible) at 130-144 Essex Street (see view 3 of **Figure 7-4**). This building is currently used for garbage storage by the Essex Street Market located on Site 9. Original incised lettering remains above one of the entrances on Essex Street.

Site 9

Site 9 contains the Essex Street Market building (#1, S/NR-eligible) at 96-124 Essex Street. It is still in operation as a public market and currently contains 23 vendors. In addition to the market uses, there is a restaurant on the Rivington Street frontage and small retail operations on the Delancey Street frontage. Like the other three market buildings, it is simply designed with strip windows and recessed entrance bays faced in concrete (see view 4 of **Figure 7-5**). The incised lettering above the main entrance remains. In addition, original applied lettering naming the market is located on the Delancey and Essex Street façades.

Site 10

Site 10 contains the former Essex Street Market building (#1, S/NR-eligible) at 150 Essex Street (see view 5 of **Figure 7-5**). This market building currently contains a health clinic.

Streets to Be Mapped

There are areas of exposed Belgian block street paving along the sections of Suffolk and Broome Streets that would be mapped under the proposed actions. However, LPC and OPRHP determined that they do not appear to meet the criteria for NYCL designation or S/NR listing.

STUDY AREA

In the project study area, beyond the boundaries of the project site, there are three known historic districts and 16 individual architectural resources. These known architectural resources are shown in **Figure 7-1**, listed in **Table 7-1**, and described below.

Lower East Side Historic District

The Lower East Side Historic District (S/NR) comprises 38 blocks in the Lower East Side neighborhood, extending south and east beyond the boundaries of the project study area. The main portion of the roughly L-shaped district is bounded by East Houston Street on the north, Essex Street on the east, Allen Street on the west, and Division Street on the south. The district also includes several blocks along Henry and Madison Streets and East Broadway and the Vladeck Houses on Madison Street between Gouverneur and Jackson Streets. Residential structures with ground-floor commercial spaces constitute the majority of the historic district. Most of these buildings are 19th-century, five- and six-story, brick and stone-clad tenements with cornices. Other resources in the district include Federal and Greek Revival-style row houses, industrial loft structures, cast-iron and brick commercial buildings, Seward Park, and several synagogues and other institutional buildings. The Lower East Side Historic District is historically significant for its association with immigration in America between 1820 and 1940. In the early 19th century, the area developed as a middle-class neighborhood on land that was originally part of the estates of the Rutgers, Delancey, and Stuyvesant families. In the 1840s, the Lower East Side became an enclave of German immigrants, and then one of Eastern European Jewish immigrants in the 1870s. The neighborhood's population began declining in the 1920s, but the area retained a commercial and residential character. Within the boundaries of the

Site 9 – Essex Street Market (#1), 96-124 Essex Street **4**

Site 10 – Essex Street Market (#1), 150 Essex Street **5**

Project Site
Figure 7-5

historic district are multiple modern rooftop additions to tenement buildings and several recent tall apartment, hotel, and dormitory buildings that include the Hotel on Rivington, which is located on Rivington Street between Essex and Ludlow Streets, the Ludlow apartment building on East Houston Street at Ludlow Street, the Blue Condominium on Norfolk Street just north of Delancey Street, and a dormitory for the School of Visual Arts on the north side of Delancey Street at Ludlow Street.

The portion of the historic district that falls within the project study area is typical of the larger district and primarily consists of tenements and institutional and commercial buildings (see **Figures 7-6 through 7-10**). The following individual architectural resources, which are described in detail below, are located within the portion of the historic district that falls within the project study area: (#4) the Eastern Dispensary; (#10) the Provident Loan Society of New York; (#11) Substation 409; (#12) 141 Ludlow Street; (#13) the New York Telephone Company Exchange; (#14) the Bank of the United States; (#15) the Lower East Side Tenement Museum; (#16) the E. Ridley and Sons Department Store; (#17) 339 Grand Street; and (#18) 345 Grand Street.

As mentioned above, Site 1 is located within the boundaries of the Lower East Side Historic District. Buildings in the immediate vicinity of Site 1 include the Eastern Dispensary (#4, NYCL-eligible, S/NR-eligible), Seward Park High School, the former home of Engine Company 17, and tenements. Described in more detail below, the Eastern Dispensary is a four-story former medical clinic located adjacent to Site 1 at the northwest corner of Essex and Broome Streets. Seward Park High School occupies the full block to the south of Site 1. Built in 1927 and designed by William H. Gompert in a Renaissance Revival style, the high school is a large, six-story (95-foot-tall) building with an “E plan.” Under that site plan and layout, the main building core is located along Ludlow Street and there are three short wings set perpendicular to that section with two courtyards on Essex Street between the wings. Located across Ludlow Street from Site 1, the former Engine Company 17 (built 1878) is a heavily altered three-story building with a bracketed cornice. Two five-story Neo-Grec brick tenements from the 1880s are located at 85 and 87 Ludlow Street, and a six-story Beaux Arts brick tenement from 1898 is located at 246 Broome Street (at the northwest corner of the intersection with Ludlow Street). New buildings and recently enlarged historic buildings are also located in the immediate vicinity of Site 1.

Potential Orchard Street Historic District

Roughly bounded by Allen, Delancey, Ludlow, Essex, and Canal Streets, the potential Orchard Street Historic District (NYCL-eligible) is located wholly within the boundaries of the S/NR Lower East Side Historic District. The northern portion of the district falls within the project study area and includes buildings on the west side of Ludlow Street across from Site 1. Building types within the potential district include 19th-century tenements, 19th- and 20th-century commercial buildings, and a school (see view 9 of **Figure 7-7**, view 10 of **Figure 7-8**, and **Figure 7-9**). The following individual resources are located within the portion of the district that falls within the project study area: (#14) the Bank of the United States; (#15) the Lower East Side Tenement Museum; (#16) the E. Ridley and Sons Department Store; (#17) 339 Grand Street; and (#18) 345 Grand Street.

Potential Clinton, Rivington, Stanton Street Historic District

The potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible) is roughly bounded by Essex, East Houston, Attorney, and Delancey Streets, and

Seward Park High School, view northwest from Grand and Essex Streets **6**

Seward Park high School, view north on Ludlow Street from Grand Street **7**

Study Area
Lower East Side Historic District
Figure 7-6

View northwest on Ludlow Street from Grand Street **8**

View northwest on Ludlow Street from Broome Street **9**

Study Area
Lower East Side Historic District
Figure 7-7

85-87 Ludlow Street **10**

91 Ludlow Street **11**

Study Area
Lower East Side Historic District
Figure 7-8

View northwest on Broome Street from Ludlow Street **12**

View southwest on Broome Street from Ludlow Street **13**

Study Area
Lower East Side Historic District
Figure 7-9

View northwest on Essex Street from Delancey Street **14**

View southwest on Essex Street from Stanton Street **15**

Study Area
Lower East Side Historic District
Figure 7-10

portions of it abut Sites 8 and 9. In a letter dated January 12, 2012, OPRHP determined that the district appears to meet the criteria for S/NR listing and is significant under National Register Criterion A for its association with the history of immigration in America and Criterion C for its architecture, which reflects the changing character of urban architecture for the poor.

The district includes 19th-century tenements, synagogues, a factory, a school, and commercial buildings. See **Figures 7-11** and **7-12** and view 20 of **Figure 7-13** for images of buildings within the historic district. The following individual resources are located within the portion of the district that falls within the project study area: (#8) Public School 160 and (#9) Anshe Chesed Synagogue. Streit's Matzo Factory (#3) at 148-154 Rivington Street was identified as a potential historic resource for this analysis, and ORPHP subsequently identified it as a key contributing building to the potential Clinton, Rivington, Stanton Street Historic District. Founded by Aron Streit, the matzo factory has been located in a group of four converted and combined tenements since 1925, when the area was a bustling and densely populated Jewish neighborhood. The four- and five-story buildings have terra cotta ornamentation, brownstone banding, and decorative brickwork. Four brick tenements of five and six stories at 121-129 Rivington Street are adjacent to Site 9. They exhibit stone trim and bracketed cornices, and the tenement at 121 Rivington Street, which abuts Site 9, is further embellished with windows with keystones and splayed lintels and windows framed with columns and pediments. Five-story brick tenements at 128-130 Rivington Street and 135-137 Norfolk Street are adjacent to Site 8. These tenements are ornamented with decorative brickwork, stone trim, decorative panels, and bracketed cornices.

Eastern Dispensary, 75 Essex Street (#4)

The Eastern Dispensary (NYCL-eligible, S/NR-eligible) is a four-story (67-foot-tall), former medical clinic designed by Rose & Stone in a Romanesque Revival/Neo-Renaissance style. Built in 1889, it is clad in brick with stone and terra-cotta trim and has a rusticated base, decorative brick window surrounds on the second and third floors, arched windows on the fourth floor, and a projecting cornice at the roofline (see view 21 of **Figure 7-13**). Adjacent to Site 1, this building is a contributing building within the S/NR Lower East Side Historic District (i.e., it contributes to the historic significance of the district, as noted in the National Register of Historic Places Registration Form for the Lower East Side Historic District).[1] OPRHP also determined that this building individually appears to meet the criteria for S/NR listing.

Norfolk Street Baptist Church, 60-64 Norfolk Street (#5)

The former Norfolk Street Baptist Church (NYCL, S/NR) dates to 1850. In 1885, Congregation Beth Hamedrash Hagodol, the country's oldest congregation of Orthodox Russian Jews, converted the church into a synagogue. The Gothic Revival-style synagogue is raised above the street, and the Norfolk Street façade is arranged with two square towers flanking the recessed nave entrance (see view 22 of **Figure 7-14**). Some original ornament has been removed, but remaining details include pointed-arch doors and windows and a frieze of quatrefoil designs. A

[1] As defined in the National Register Bulletin *How to Complete the National Register Registration Form* (1997) published by the U.S. Department of the Interior, a contributing building, site, structure, or object adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant because: it was present during the period of significance, relates to the documented significance of the property, and possesses historic integrity or is capable of yielding important information about the period; or it independently meets the National Register criteria.

View southeast on Rivington Street from Essex Street **16**

View northwest at Rivington and Norfolk Streets **17**

Study Area
Potential Clinton, Rivington, Stanton Street Historic District
Figure 7-11

135-137 Norfolk Street **18**

View southeast at Rivington and Norfolk Streets **19**

Study Area
Potential Clinton, Rivington, Stanton Street Historic District
Figure 7-12

Streit's Matzo Factory (#3), 148-154 Rivington Street **20**

Eastern Dispensary (#4), 75 Essex Street **21**

Norfolk Street Baptist Church (#5), 60-64 Norfolk Street **22**

Church of St. Mary's (#7), 438-400 Grand Street **23**

Study Area
Figure 7-14

decorative metal fence encloses the building along Norfolk Street while a concrete block wall surrounds the north and east façades. The building is heavily deteriorated.

Williamsburg Bridge (#6)

The Williamsburg Bridge (S/NR-eligible) was constructed in 1903 from plans by Leffert L. Buck with ornamental detailing added by Gustav Lindenthal. This steel suspension bridge spans the East River and connects Delancey Street on the Lower East Side of Manhattan to Marcy Avenue in Williamsburg, Brooklyn. It is 7,308 feet long with a main span of 1,600 feet and was the longest and heaviest suspension bridge when it was built. The span is suspended from four steel cables with four arched support towers located close to the Manhattan and Brooklyn shorelines. Steel latticework extends almost the entire distance of the bridge. The J/M/Z subway runs over the bridge. The approach span along Delancey Street is located within the project study area. The entrance plaza is located in the vicinity of Clinton Street and it is marked by two stone colonnades on the north and south sides of the approach entry and by a semicircular colonnade in the center of Delancey Streets. These colonnades are topped by stone balustrades. For two blocks to Pitt Street, the approach span inclines on a rusticated stone and concrete ramp and then is supported on concrete piers.

St. Mary's Roman Catholic Church and Rectory, 438-400 Grand Street (#7)

Completed in 1833 for a parish founded in 1826, the Church of St. Mary (S/NR-eligible) is one of the City's oldest Catholic churches. The church originally had a Greek Revival façade with a single, central tower placed above a temple-front façade. In 1864, Patrick C. Keely, the prolific architect of ecclesiastical structures, gave the building the current Romanesque façade. That brick and brownstone façade is arranged with a peaked-roof nave flanked by two corner towers with tall conical roofs (see view 23 of **Figure 7-14**). The entrances and windows have wood arches and tracery. Plastic covering is applied to the windows, but the original features remain behind, and are visible through, the coverings. The fieldstone side walls are original to the 1833 church. The rectory is located to the west of the church, and it is a 3½-story brick building with stone trim, inset multi-colored tiles, and a bracketed cornice. In a letter dated January 12, 2012, ORPHP determined that the church appears to meet the criteria for S/NR listing under National Register Criterion C as an outstanding example of Romanesque Revival ecclesiastical design. The rectory was determined to be a contributing feature.

Public School 160, 107 Suffolk Street (#8)

C.B.J. Snyder designed the former Public School 160 (NYCL-eligible, S/NR-eligible) at 107 Suffolk Street. Built in 1897, it is a five-story brick building with an "L-plan" footprint and layout, designed in the Dutch Revival style with some Collegiate Gothic elements and faced in brick with terra cotta ornament and trim. On the ground floor, there are numerous pointed-arched entrance vestibules and windows, and the upper floors contain large square windows with eared lintels and terra cotta architraves. Gables of various sizes create a staggered roofline. Additional ornamental touches include pilasters, panels with carved foliate designs, scrolls, and recessed spandrel panels. The main entrance vestibule on Suffolk Street has three large pointed-arch doorways, a mosaic floor with "PS 160" set in a wreath, and stone walls decorated with colonnettes, pointed arch windows, and recessed panels. The former school is now the Clemente Soto Velez Educational & Cultural Center. Public School 160 is currently being restored and is covered in scaffolding and construction netting. It is located within the potential Clinton, Rivington, Stanton Street Historic District.

Anshe Chesed Synagogue, 172-176 Norfolk Street (#9)

Located at 172-176 Norfolk Street and constructed in 1849, the Anshe Chesed Synagogue (NYCL) is the earliest synagogue built on the Lower East Side and the oldest extant building in New York City that was built specifically for use as a synagogue. Alexander Saeltzer designed the two-story, masonry synagogue in the Gothic Revival style (see view 24 of **Figure 7-15**). The recessed central bay has a pointed-arch, recessed entrance flanked by pointed-arch doors, and a large pointed-arch window flanked by smaller windows with quatrefoil tracery. Pointed-arch windows with decorative tracery are found on the side bays. Modern metal sculptural columns are located in front of the building, which currently houses the Angel Orensanz Foundation Center for the Arts. This building is located within the potential Clinton, Rivington, Stanton Street Historic District.

Provident Loan Society of New York, 223 East Houston Street (#10)

Renwick, Aspinwall & Tucker designed this one-story, Classical Revival-style brick bank building (NYCL-eligible), which was constructed in 1912. The two façades (on East Houston and Essex Streets) are designed with three large windows with heavy, stone enframements and alternating triangular and segmental pediments (see view 25 of **Figure 7-15**). Below a modillioned metal cornice, a stone entablature is inscribed with “The Provident Loan Society of New York” on each façade. This building is a contributing building within the S/NR Lower East Side Historic District.

Substation 409, 163 Essex Street (#11)

IND Substation 409 (S/NR) at 163 Essex Street is part of the S/NR Multiple Property Submission of the Historic Resources of the New York City Subway System. It is also a contributing building within the Lower East Side Historic District (S/NR). Substation 409 (the Stanton Street Substation) was built in 1936 as part of the IND system, and it currently provides power for the F, J, M, and Z lines of the IND and BMT subway systems. It originally supplied power with mercury arc rectifiers, which have been replaced. The building is a double-height masonry building designed in the Art Deco style like the other above-ground IND substations from the same period (see view 26 of **Figure 7-16**).

141 Ludlow Street (#12)

This three-story commercial building (S/NR-eligible) with a five-story corner tower dates to around 1930 and has Neo-Gothic terracotta ornament (see view 27 of **Figure 7-16**). It originally housed a garage and a funeral parlor. The building is a contributing building within the S/NR Lower East Side Historic District.

New York Telephone Company Exchange, 130 Orchard Street (#13)

Cyrus Eidlitz designed this five- and six-story, brick Neo-Renaissance building (S/NR-eligible). It has cast-iron and limestone trim and was constructed in 1902. It has multiple cornices and large arched windows on the second and third floors (see view 28 of **Figure 7-17**). It is a contributing building within the S/NR Lower East Side Historic District.

Bank of the United States, 77 Delancey Street (#14)

Samuel Sass designed this seven-story Classical Revival-style marble and terra-cotta commercial building (S/NR-eligible). Constructed in 1913, the building has a tripartite arrangement of base, shaft, and capital (see view 29 of **Figure 7-17**). Above the two-story base,

Anshe Chesed Synagogue (#9),
172-176 Norfolk Street **24**

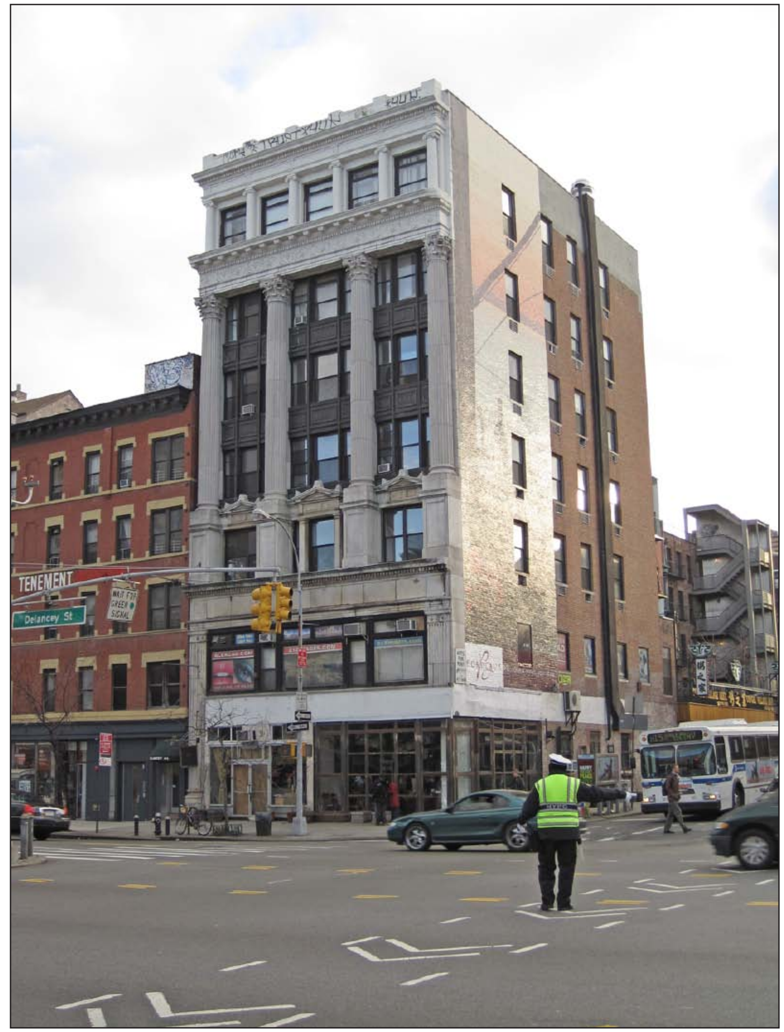
Provident Loan Society of New York (#10), 223 East Houston Street **25**

Study Area
Figure 7-15

Substation 409 (#11), 163 Essex Street **26**

141 Ludlow Street (#12) **27**

New York Telephone Company Exchange (#13), 130 Orchard Street **28**



Bank of the United States (#14), 77 Delancey Street **29** the temple-front façade has four large Corinthian columns supporting an entablature. The attic story (the capital) is designed as an Ionic colonnade. This building is a contributing building within the S/NR Lower East Side Historic District.

Lower East Side Tenement Museum, 97 Orchard Street (#15)

The Lower East Side Tenement Museum (S/NR, NHL) at 97 Orchard Street is located within the Lower East Side Historic District. In 1862, Lucas Glockner, Adam Stumm, and Jacob Walter bought the land currently occupied by 95, 97, and 99 Orchard Street from the Second Reformed Protestant Church. Lucas Glockner built 99 Orchard Street in 1863. The Lower East Side Tenement Museum is similar in design to 99 Orchard Street and is a five-story, Italianate-style, brick tenement (see view 30 of **Figure 7-18**). The lower two floors originally served as commercial space. On these two floors, large metal and glass storefront windows project from the brick façade on either side of the entrance. These shopfronts date from 1905. The upper floor windows are arched with stone lintels. This building is a contributing building within the S/NR Lower East Side Historic District, and there is a contributing archaeological site in the rear yard.

E. Ridley & Sons Department Store, 315 Grand Street (#16)

The former E. Ridley & Sons Department Store (NYCL-heard, S/NR-eligible) at 315-321 Grand Street is a five-story, Neo-Grec cast-iron building. It was built in two phases with the original section dating from 1876 and designed by architect John B. Snook. The building was extended in 1886 and designed by architect Paul F. Schoen. The building has several rear additions and the building's west end was removed when Allen Street was widened. That building section was then rebuilt in brick with limestone trim in the Art Deco style (see view 31 of **Figure 7-18**). This building is a contributing building within the S/NR Lower East Side Historic District.

339 Grand Street (#17)

The Federal-era row house (NYCL-heard) at 339 Grand Street dates to around 1832. The three-story brick building has a pitched roof, windows with brownstone lintels and sills, and the remnant of a dormer (see view 32 of **Figure 7-19**). A shorter addition is located at the rear. The ground-floor storefront is not original but is several decades old in its own right. This building is a contributing building within the S/NR Lower East Side Historic District. LPC heard the building for NYCL designation in June 2011 but no action has been taken.

345 Grand Street (#18)

The five-story, Neo-Grec/Queen Anne-style cast-iron commercial building (NYCL-eligible) at 345 Grand Street dates to 1887. Frederick Jenth designed the façade with columns, pilasters, arched windows on the top floor, and a pedimented cornice with sunbursts and brackets (see view 33 of **Figure 7-19**). It is a contributing building within the S/NR Lower East Side Historic District.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

Absent the proposed actions, no development would occur on Sites 1 through 6 and Sites 8 through 10; those sites are expected to remain as they are in existing conditions. However, the municipal parking garage on Site 7 will be refurbished by the New York City Department of Design and Construction and the New York City Department of Transportation (NYCDOT) as part of the City's Design Excellence Program. The improvements will include resurfacing the parking floors, installing improved lighting on floors and in stairwells, and replacing the

Lower East Side Tenement Museum (#15),
97 Orchard Street **30**

E. Ridley & Sons Department Store (#16), 315 Grand Street **31**

Study Area
Figure 7-18

339 Grand Street (#17) **32**

345 Grand Street (#18) **33**

Study Area
Figure 7-19

concrete façade with a weave of steel cables that will improve the aesthetics of the site. It is not expected that these construction activities would directly affect any adjacent contributing buildings within the Lower East Side Historic District. In addition, there are several projects planned or under construction in the study area, as described more fully in Chapter 2, "Land Use, Zoning, and Public Policy." Projects that could affect architectural resources in the future without the proposed actions are described below.

ARCHAEOLOGICAL RESOURCES

In the future without the proposed actions, there would be no ground disturbance on the archaeologically sensitive portions of the project site. Therefore, any archaeological resources located on those lots would not be disturbed or destroyed in the future without the proposed actions.

ARCHITECTURAL RESOURCES

OVERVIEW

In the future without the proposed actions, the status of architectural resources could change. S/NR-eligible resources could be listed on the Registers, NYCL-eligible properties could be calendared for a designation hearing, and properties pending designation as Landmarks could be designated. It is also possible, given the project's completion year of 2022, that additional sites could be identified as architectural resources and/or potential architectural resources in this time frame.

In the future without the proposed actions, changes to architectural resources or to their settings could occur. For instance, indirect impacts from future projects could include: a change in scale, visual prominence, or visual context of any building, structure, or object or landscape feature; screening or elimination of publicly accessible views; or introduction of significant new shadows or significant lengthening of the duration of existing shadows on a historic landscape or on a historic structure if the features that make the resource significant depend on sunlight. It is also possible that some architectural resources in the study area could deteriorate or experience direct impacts through alteration or demolition, while others could be restored.

Architectural resources that are listed on the S/NR or that have been found eligible for listing are given a measure of protection under Section 106 of the National Historic Preservation Act from the effects of projects sponsored, assisted, or approved by federal agencies. Although preservation is not mandated, federal agencies must attempt to avoid adverse effects on such resources through a notice, review, and consultation process. Properties listed on the Registers are similarly protected against effects resulting from projects sponsored, assisted, or approved by State agencies under the State Historic Preservation Act. However, private owners of properties eligible for, or even listed on, the Registers using private funds can alter or demolish their properties without such a review process. Privately owned properties that are NYCLs, in New York City Historic Districts, or pending designation as Landmarks are protected under the New York City Landmarks Law, which requires LPC review and approval before any alteration or demolition can occur, regardless of whether the project is publicly or privately funded. Publicly owned resources are also subject to review by the LPC before the start of a project; however, the LPC's role in projects sponsored by other City or State agencies generally is advisory only.

The New York City Building Code provides some measures of protection for all properties against accidental damage from adjacent construction by requiring that all buildings, lots, and service facilities adjacent to foundation and earthwork areas be protected and supported. While these regulations serve to protect all structures adjacent to construction areas, they do not afford special consideration for historic structures. A second protective measure, the DOB's *TPPN #10/88*, applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. *TPPN #10/88* supplements the standard building protections afforded by the Building Code by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed.

POTENTIAL EFFECTS FROM KNOWN DEVELOPMENT PROJECTS

There are 11 projects under construction or planned or projected for development within the Lower East Side Historic District (S/NR). (A tenth project within the district is an interior renovation of a modern dormitory building at 101 Ludlow Street, which will have no effect on the historic district.) Three of these projects are substantially taller than the low-rise buildings that compose the historic district and each will alter the historic district's setting. In addition, six of the projects will replace or alter existing buildings that are contributing structures to the historic district. Further, construction of these 11 projects could cause accidental construction damage to contributing historic district buildings located within 90 feet of construction. Adjacent contributing buildings would be offered some protection through DOB controls governing the protection of adjacent properties from construction activities. The 11 projects located within the Lower East Side Historic District are:

- An 18-story hotel at 180 Ludlow Street. This project will replace a non-contributing historic district building.
- A 24-story hotel at 180 Orchard Street. This project will replace a non-contributing historic district building.
- A proposed six-story mixed-use building at 145 Ludlow Street. This project will replace a contributing one-story commercial building.
- A 16-story hotel at 139 Orchard Street. This project will replace a contributing five-story tenement.
- A 10-story mixed-use building at 119 Orchard Street. This project will replace a contributing row house.
- The renovation and enlargement by one story of the existing two-story commercial building at 95 Delancey Street. This building is a contributing structure to the Lower East Side Historic District.
- The renovation and enlargement by two stories of the existing four-story building at 100 Delancey Street. This building is a non-contributing building to the Lower East Side Historic District.
- The enlargement by two stories of the existing three-story building at 329 Grand Street. This building is a contributing structure to the Lower East Side Historic District. This project is also adjacent to the potential Orchard Street Historic District (NYCL-eligible).
- A 120-foot-tall projected residential building at 91 Ludlow Street. This project will replace a contributing fire station. This project is also adjacent to the potential Orchard Street Historic District (NYCL-eligible).

- A 120-foot-tall projected residential building at 88 Delancey Street. This project will replace a non-contributing historic district building.

There is one known development project located within the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible). The ABC No Rio cultural center plans to reconstruct their building at 156 Rivington Street, replacing a historic district building. In addition, construction of this project could cause accidental construction damage to historic district buildings located within 90 feet of construction. OPRHP has reviewed this project pursuant to Section 106 regulations, because the project will receive HUD funding through the Lower Manhattan Development Corporation (LMDC). LMDC will require the preparation and implementation of a Construction Protection Plan for adjacent structures to protect against inadvertent construction-related damage.

Four additional known and projected development projects are located adjacent to the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)—a six-story residential building at 115 Norfolk Street; an eight-story hotel at 150 Delancey Street; a 120-foot-tall projected residential building at 152 Delancey Street; and a 120-foot-tall projected residential building at 156 Delancey Street . At these heights, these four projects will largely be in keeping with the heights of buildings located in the adjacent district and will not substantially change the visual setting of the potential historic district. Construction of these projects could cause accidental construction damage to historic district buildings located within 90 feet of construction. In addition, the project at 115 Norfolk Street is adjacent to the rear of the Essex Street Market building (#1, S/NR-eligible) on Site 9. Adjacent historic district buildings and the Essex Street Market would be offered some protection through DOB controls governing the protection of adjacent properties from construction activities. An additional projected residential building at 124 Delancey Street is located within 90 feet of the Essex Street Market building (#1, S/NR-eligible) on Site 9, and the Essex Street Market building would be offered some protection through DOB controls governing the protection of adjacent properties from construction activities.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

OVERVIEW

As described in Chapter 1, "Project Description," the proposed actions would result in an approximately 1.7 million gross-square-foot (gsf) mixed-use development on Sites 1 through 6 and Sites 8 through 10. Further, demapped sections of Suffolk Street between Grand and Delancey Streets and of Broome Street between Norfolk and Clinton Streets would be mapped as City streets, and sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets would be demapped. The reasonable worst-case development scenario (RWCDS) for the proposed actions envisions the development of 900 dwelling units, approximately 632,300 gsf of commercial space, approximately 114,000 gsf of community facility or cultural uses, up to 500 parking spaces, and an approximately 10,000-square-foot publicly accessible open space. Further, the commercial program for the reasonable worst-case development scenario includes relocating the existing Essex Street Market on Site 9 to a new, expanded public market facility on Site 2.

The design of the proposed development on Sites 1 through 6, including the height, bulk, and placement of buildings, would be governed by the Large-Scale General Development (LSGD) special permit that will be sought under the proposed actions. The LSGD would establish a maximum building envelope for each site, which is the three-dimensional space on the zoning lot within which a structure can be built, as permitted by applicable height, setback, and yard controls. Each of the zoning envelopes on Sites 1 through 6 is larger in terms of height, massing, tower locations, and floor area than what could ultimately be built on each development site to allow for flexibility of design. Buildings on Sites 1 through 6 would be massed with multiple setbacks, and the envelopes would establish base heights of between 60 and 85 feet, with varying heights above. The upper portions of all buildings would be set back at least 10 feet from Delancey, Essex, Clinton, and Grand Streets, and 15 feet from Ludlow, Broome, Norfolk, and Suffolk Streets. Midrise sections would have maximum heights of 120 feet, and the maximum building envelopes would allow buildings on Sites 2 and 4 of up to 285 feet and 260 feet tall to the roof parapets (and up to 315 feet and 290 feet to the tops of the mechanical bulkheads), respectively, and buildings on Sites 1, 3, 5, and 6 of up to 160 feet tall to the roof parapets (and up to 190 feet tall to the tops of the mechanical bulkheads). **Figures 7-20a** and **7-20b** show the massing controls and potential massings (in plan) for structures developed within the maximum building envelopes. Sites 8, 9, and 10, which would not be within the LSGD, would be built in accordance with existing zoning and could be built up to 80 feet tall on Essex Street and up to 120 feet tall on Delancey Street. Sites 8, 9, and 10 were rezoned in 2008 as part of the East Village/Lower East Side Rezoning that aimed to preserve established neighborhood scale and character by establishing contextual zoning districts with height limits and to provide modest opportunities for residential growth and incentives for affordable housing along the area's widest streets well served by bus or subway lines. **Figure 7-21** shows an illustration of the maximum building envelopes on Sites 1 through 6 and 8 through 10, and **Figure 7-22** shows illustrative RWCDS massings rendered within the maximum building envelopes on Sites 1 through 6.

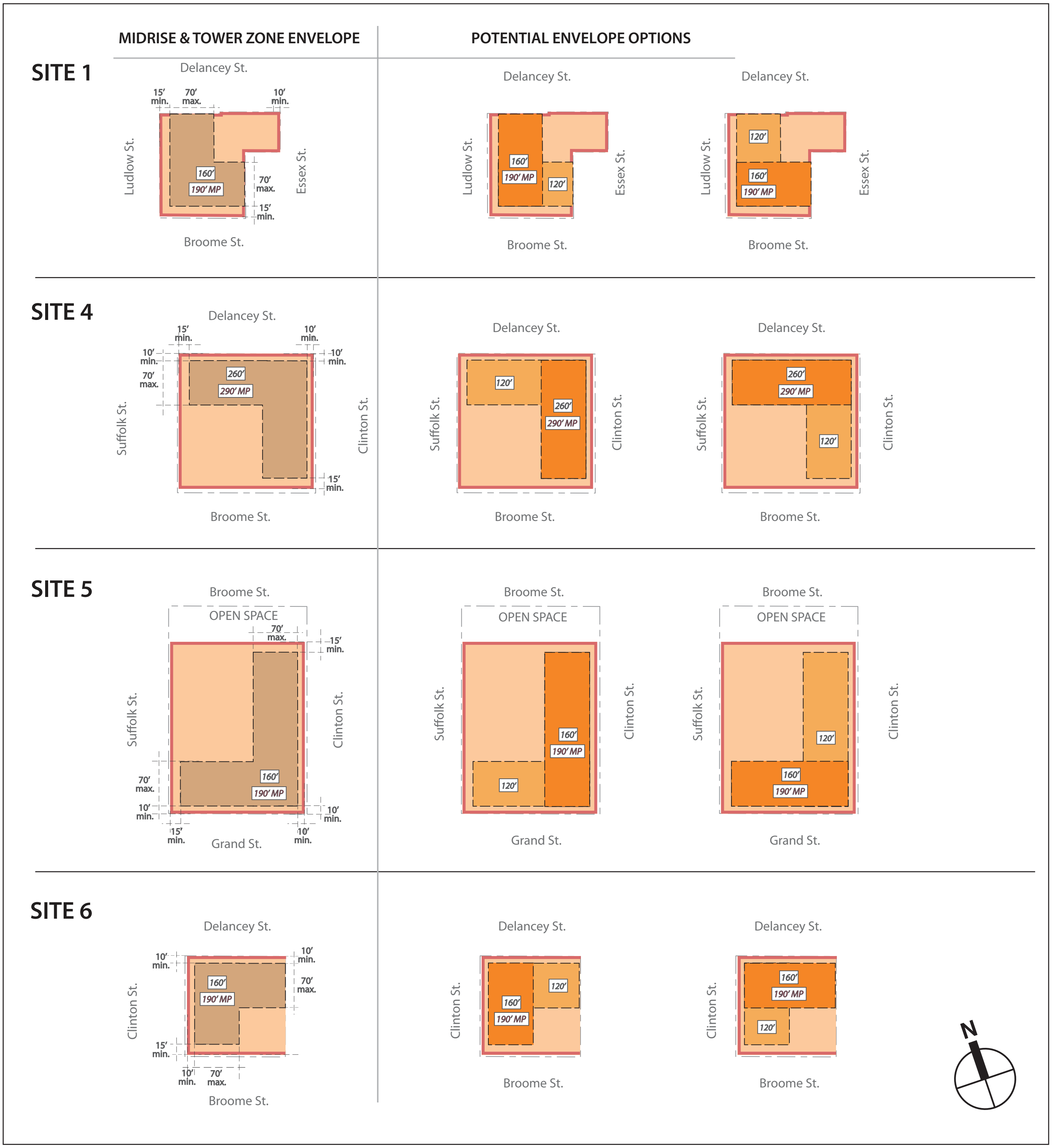
Development pursuant to the proposed actions could have potential adverse impacts on architectural resources from direct physical impacts—demolition and alteration of architectural resources, or accidental damage to architectural resources from adjacent construction—and indirect impacts on architectural resources by: changing the scale, visual prominence, or visual context of any building, structure, or object or landscape feature; screening or eliminating publicly accessible views of a resource; or introducing significant new shadows or significantly lengthening the duration of existing shadows on a historic landscape or on a historic structure if the features that make the resource significant depend on sunlight. These potential impacts are examined below.

ARCHAEOLOGICAL RESOURCES

Portions of Sites 2 through 6 have been identified as being moderately to highly sensitive for historic-period archaeological resources. A sensitivity map has been prepared to indicate those areas for which further investigation is recommended (see **Figure 7-2**). Archaeological resources on the project site could include domestic shaft features and household trash deposits associated with the early- to mid-19th century occupation of the historic lots. In addition, the Phase 1A identified a small possibility that burial vaults could have been associated with a church that formerly stood at the northwest corner of Norfolk and Broome Streets (within Site 3). If any artifacts are present, they could provide new information about the mid- to late-19th century residents of the Lower East Side. This information could be compared and contrasted with data associated with similar populations elsewhere in the city.

In accordance with CEQR guidelines, the project sponsors are undertaking continuing consultation with LPC regarding the archaeological sensitivity of portions of Sites 2 through 6. Further, because construction financing may come from HUD and/or New York State, the project sponsors are also undertaking continuing consultation with OPRHP pursuant to Section 106 and Section 14.09.

3.22.12



SOURCE: Beyer Blinder Belle

LEGEND AND NOTES

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- X — Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- X MP — Maximum building height including rooftop mechanical

DESIGN CONTROLS

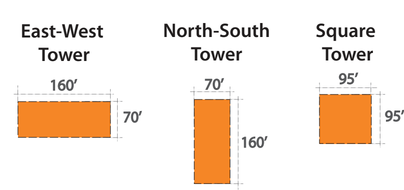
TOWER ORIENTATION:
Towers to be oriented to create variety.

BUILDING SETBACKS:
Maximum base heights to be minimum 60' and maximum 85' high

Above the base, building to setback 10' (wide street) or 15' (narrow street) per zoning, except along Clinton Street where 10' setbacks are permissible.

Midrise levels to be maximum height of 120'

MAXIMUM TOWER DIMENSIONS (ABOVE 120')



Illustrative Large Scale General Development Massing (Sites 1, 4, 5, and 6)
Figure 7-20a

SITE 2

LEGEND AND NOTES

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- X′ Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- X′ MP Maximum building height including rooftop mechanical

DESIGN CONTROLS

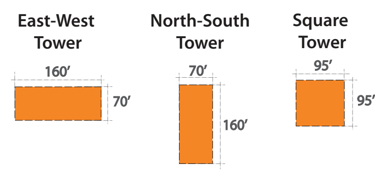
TOWER ORIENTATION:
Towers to be oriented to create variety.

BUILDING SETBACKS:
Maximum base heights to be minimum 60′ and maximum 85′ high

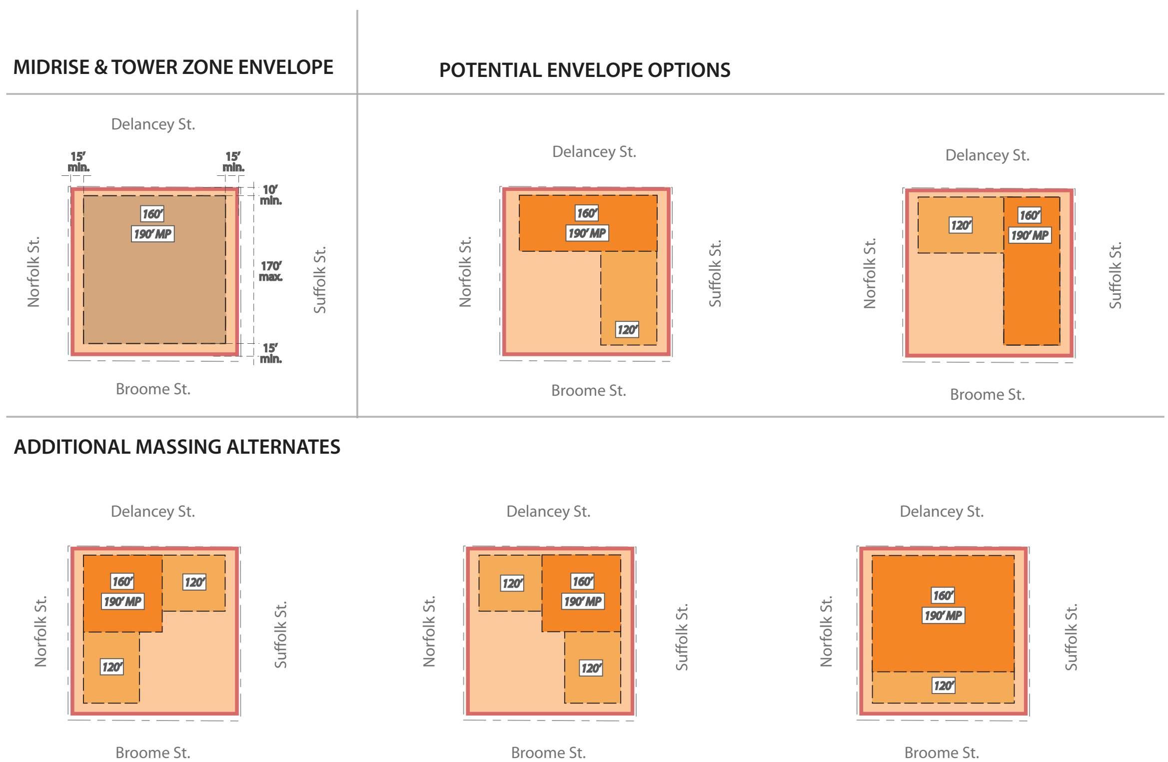
Above the base, building to setback 10′ (wide street) or 15′ (narrow street) per zoning, except along Clinton Street where 10′ setbacks are permissible.

Midrise levels to be maximum height of 120′

MAXIMUM TOWER DIMENSIONS (ABOVE 120′)



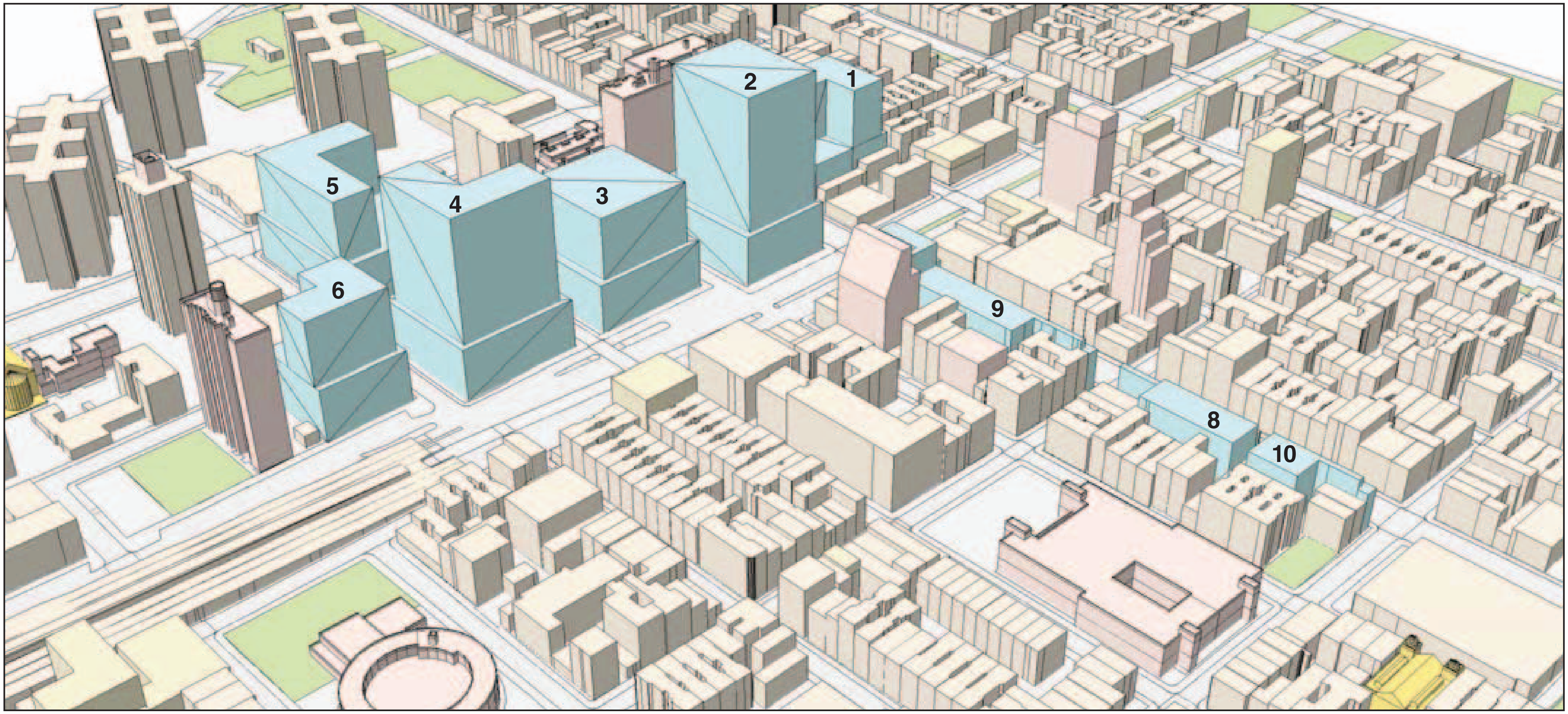
SITE 3



SOURCE: Beyer Blinder Belle

Illustrative Large Scale General Development Massing (Sites 2 and 3)

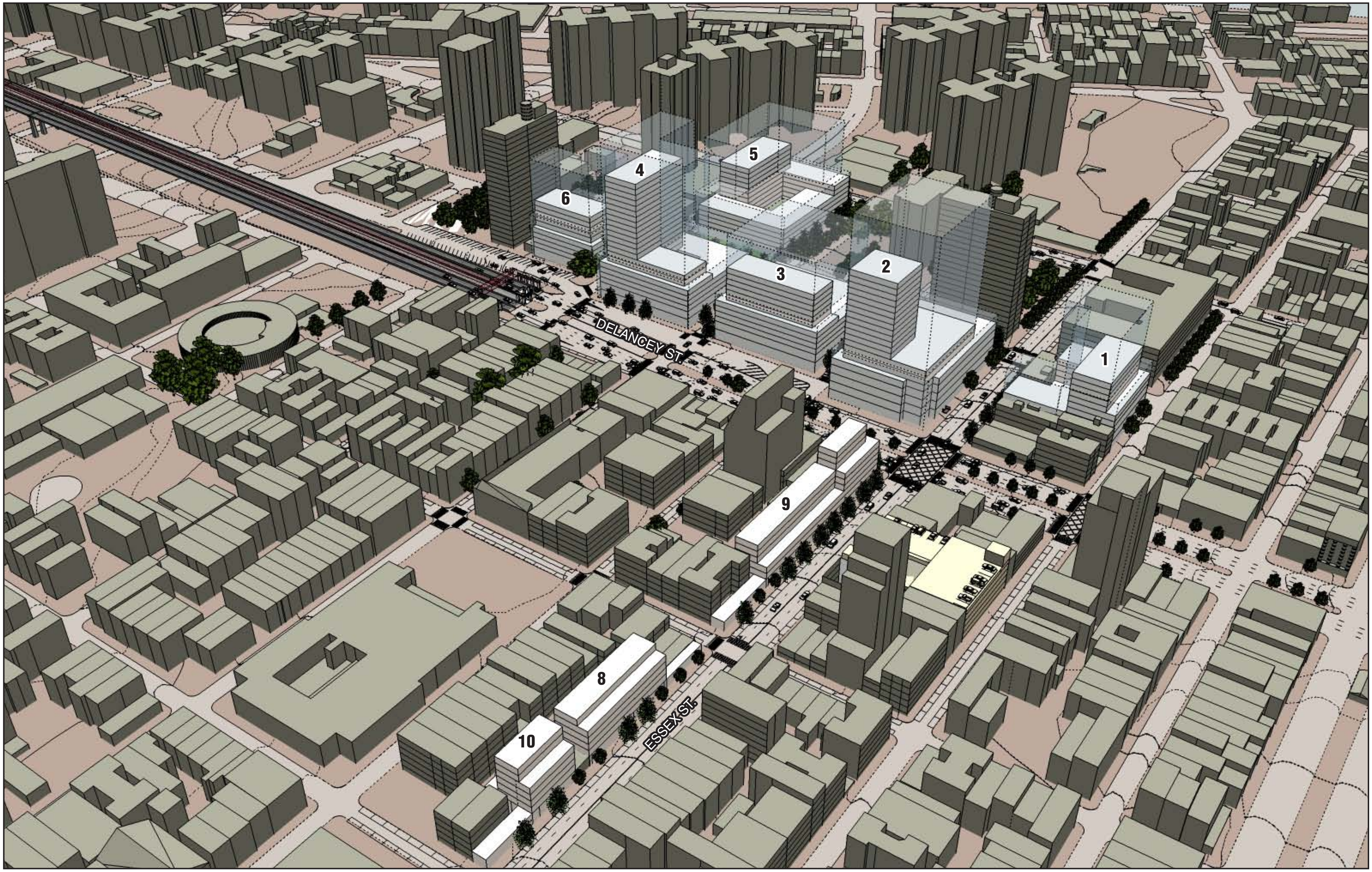
Figure 7-20b



Proposed Maximum Envelopes

FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Three-Dimensional Computer Model of Maximum Zoning Envelopes
View Southwest
Figure 7-21



FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Rendering with Maximum Building Envelopes and RWCDS Massing - View South

Figure 7-22

The proposed project would involve subsurface disturbance to some or all of the historic lots that have been identified as archaeologically sensitive. Therefore, the Phase 1A recommended that further investigation in the form of Phase 1B archaeological testing be undertaken in the archaeologically sensitive areas. The Phase 1B testing would determine the presence or absence of archaeological resources such as domestic shaft features (i.e., privies, cisterns, or wells) or other archaeological resources dating to the early- to mid-19th century. The Phase 1B survey would be undertaken as part of the proposed project and completed prior to the start of construction in consultation with LPC and/or OPRHP. A Phase 1B testing protocol would be prepared and submitted to LPC and/or OPRHP for review and comment before the Phase 1B survey would begin. If no archaeological resources were encountered during the Phase 1B survey, a final report summarizing the results of the Phase 1B testing would be prepared and submitted to LPC and/or OPRHP for review and comment. Should any intact archaeological resources be identified during the course of the Phase 1B survey, further testing (i.e., a Phase 2 survey) could be necessary to assess the horizontal and vertical extent of any recovered archaeological resources, as well as their potential significance (S/NR-eligibility). Any identified archaeological resources would be properly documented and evaluated in consultation with LPC and/or OPRHP. A Phase 2 survey would therefore determine if further investigation in the form of Phase 3 data recovery is warranted. With implementation of Phase 1B testing and continued consultation with LPC and/or OPRHP regarding the need for, and implementation of, any Phase 2 or 3 investigations, there would be no significant adverse impacts on archaeological resources.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to an RFP process. Further archaeological investigation will be required to be undertaken by the developer(s) after selection. For sites that may be under the jurisdiction of HPD, remedial measures including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC and/or OPRHP will be required to be undertaken by the developer(s) through provisions in the LDA between HPD and the developer(s). For City properties that may be managed by NYCEDC, remedial measures including Phase 1B testing, any necessary Phase 2 and 3 investigations, and continued consultation with LPC will be required to be undertaken by the developer(s) through the provisions of a contract of sale or lease, or other legally binding agreement between NYCEDC and the developer(s).

ARCHITECTURAL RESOURCES

As shown in **Table 7-2** and described below, the proposed actions would: result in significant adverse direct impacts on two architectural resources from development on Sites 2, 5, 8, 9, and 10; could result in adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities; and could result in significant adverse visual and contextual impacts on two known architectural resources from development on Site 1.

In accordance with CEQR guidelines, the project sponsors are undertaking continuing consultation with LPC regarding the development of mitigation for these significant adverse direct and visual and contextual impacts and the evaluation of alternatives that may avoid or fully mitigate these significant adverse impacts. Alternatives are described in Chapter 20, “Alternatives.” Further, because construction financing may come from HUD and/or New York State, the project sponsors are also undertaking continuing consultation with OPRHP pursuant to Section 106 and Section 14.09 (see **Appendix C** for OPRHP correspondence regarding continuing consultation).

POTENTIAL DIRECT IMPACTS FROM REDEVELOPMENT

Development of the proposed project would result in significant adverse impacts on two architectural resources: the Essex Street Market (#1, S/NR-eligible) and the former fire station (#2, S/NR-eligible) at 185 Broome Street.

Under the proposed actions, the four buildings of the Essex Street Market (#1, S/NR-eligible) would be redeveloped. The market building at 78-90 Essex Street on Site 2 would be replaced by an approximately 355,000-gsf, 285-foot-tall building that would contain a new market facility, the market building at 96-124 Essex Street on Site 9 would be replaced by an approximately 94,000-gsf, 80- to 120-foot-tall building, the market building at 130-144 Essex Street on Site 8 would be replaced by an approximately 46,000-gsf, 80-foot-tall building, and the market building at 150 Essex Street on Site 10 would be replaced by an approximately 26,000-gsf, 80-foot-tall building. Therefore, the proposed development would have a direct significant adverse impact on each Essex Street Market building and on the four-building market complex as a whole. Measures that could partially mitigate these significant adverse impacts are described in Chapter 21, "Mitigation Measures."

Table 7-2
Summary of Impacts on Architectural Resources

Resource	Adverse Impact
Essex Street Market (#1, S/NR-eligible)	Significant Adverse Impacts from Development on Sites 2, 8, 9, and 10
Former Fire Station (#2, S/NR-eligible)	Significant Adverse Impact from Development on Site 5
Lower East Side Historic District (S/NR)	Potential Adverse Construction-Related Impacts from Construction on Site 1 to the 11 buildings at: 75 and 83 Essex Street; 85, 87, 90, and 94 Ludlow Street; 246-248 Broome Street; 95 and 101 Delancey Street; and Seward Park High School.
	Potential Significant Visual and Contextual Impact from Development of Site 1
Eastern Dispensary (#4, NYCL-eligible, S/NR-eligible)	Potential Adverse Construction-Related Impacts from Construction on Site 1
	Potential Significant Visual and Contextual Impact from Development of Site 1
Potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)	Potential Adverse Construction-Related Impacts from Construction on Site 8 to the buildings at: 121-123, 125, 128, and 130 Rivington Street; and 133, 135, and 137 Norfolk Street.
	Potential Adverse Construction-Related Impacts from Construction on Site 9 to the buildings at: 121-123, 125, 127, and 129 Rivington Street; and 121 Norfolk Street.
Norfolk Street Baptist Church (#5, NYCL, S/NR)	Potential Adverse Construction-Related Impacts from Construction on Site 3
Williamsburg Bridge (#6, S/NR-eligible)	Potential Adverse Construction-Related Impacts from Construction on Site 6

The development of an approximately 311,000-gsf, 160-foot-tall building and a 10,000-sf publicly accessible open space on Site 5 would replace the former fire station (#2, S/NR-eligible) at 185 Broome Street. Therefore, the proposed development would have a direct significant adverse impact on this architectural resource. Measures that could partially mitigate this significant adverse impact are described in Chapter 21, "Mitigation Measures."

POTENTIAL DIRECT IMPACTS FROM ADJACENT CONSTRUCTION

Development of the proposed project could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. The five architectural resources that could experience adverse construction-related impacts are:

- The Lower East Side Historic District (S/NR). The three contributing historic district buildings at 75 Essex Street (the Eastern Dispensary, #4, NYCL-eligible, S/NR-eligible), 83 Essex Street, and 90 Ludlow Street are located adjacent to Site 1, and the following eight contributing historic district buildings are located within 90 feet of Site 1: Seward Park High School; 85, 87, and 94 Ludlow Street; 246-248 Broome Street; and 95 and 101 Delancey Street. The buildings at 246-248 Broome Street and 85 and 87 Ludlow Street are also located within the potential Orchard Street Historic District (NYCL-eligible). In total, eleven historic district buildings are located within 90 feet of project construction.
- The Eastern Dispensary (#4, NYCL-eligible, S/NR-eligible) is located adjacent to Site 1, as described above.
- The potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible). The two buildings at 121-123 and 125 Rivington Street are adjacent to Site 9 and within 90 feet of Site 8; the three buildings at 127 and 129 Rivington Street and 121 Norfolk Street are located within 90 feet of Site 9; the three buildings at 133, 135, and 137 Norfolk Street are adjacent to Site 8; and the two buildings at 128 and 130 Rivington Street are located within 90 feet of Site 8. In total, ten historic district buildings are located within 90 feet of project construction.
- The former Norfolk Street Baptist Church (#5, NYCL, S/NR) is located within 90 feet of Site 3.
- The Williamsburg Bridge (#6, S/NR-eligible) is located within 90 feet of Site 6.

There are two mechanisms to protect buildings in New York City from potential damage caused by adjacent construction. All buildings are provided some protection from accidental damage through DOB controls that govern the protection of adjacent properties from construction activities under Building Code Section BC 3309: Protection of Adjoining Property. For all construction work, Building Code Section BC 3309 serves to protect all adjacent properties from excavation, filling, and foundation operations and from construction above the roof of the adjacent properties by requiring certain inspection and protection measures.

The second protective measure applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. For these structures, *TPPN #10/88* applies. *TPPN #10/88* supplements the standard building protections afforded by Building Code Section BC 3309 by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With these required measures, significant adverse construction-related impacts would not occur to the former Norfolk Street Baptist Church (#7, NYCL, S/NR) or to the contributing buildings within the Lower East Side Historic District (S/NR) that are located within 90 feet of project construction, including the Eastern Dispensary (#4). Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will likely be required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s).

For the non-designated or listed resources—the Williamsburg Bridge (#6, S/NR-eligible) and the buildings within the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)—construction under the proposed actions could potentially result in construction-related impacts to the resources. The resources would be afforded limited protection under DOB regulations applicable to all buildings located adjacent to construction sites (Section BC 3309); however, since the resources are not New York City Landmarks or listed National Register properties, they are not afforded special protections under *TPPN #10/88*. Additional protective measures afforded under *TPPN #10/88* would only become applicable if the Williamsburg Bridge and the potential historic district are designated or listed in the future prior to the initiation of adjacent construction or if the adjacent sites are developed under the jurisdiction of HPD. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s). If the bridge and potential historic district are not designated or listed and the adjacent sites are developed under the management of NYCEDC, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions.

POTENTIAL VISUAL AND CONTEXTUAL IMPACTS

As written in the *CEQR Technical Manual*, visual and contextual impacts on historic resources can include: a change in scale, visual prominence, or visual context of any building, structure, or object or landscape feature; screening or elimination of publicly accessible views of a historic resource; or introduction of significant new shadows or significant lengthening of the duration of existing shadows on a historic landscape or on a historic structure if the features that make the resource significant depend on sunlight. For the most part, the proposed actions would not result in any of those types of visual and contextual impacts on the majority of architectural resources.

The proposed development of an approximately 140,000-gsf building on Site 1 would likely result in a significant adverse visual and contextual impact on the Lower East Side Historic District (S/NR), even though it would be constructed on a non-contributing parking lot. There is no specific design for a new development on this site, but the proposed building could have a portion that could be as tall as 190 feet to the top of the mechanical bulkhead as permitted by the maximum building envelope that would be established by the LSGD, and the RWCDS assumes that a 120-foot-tall (approximately 10-story) building would be constructed on Site 1. Therefore, this building would be substantially taller than the majority of contributing historic district buildings within the project study area, most of which are six stories (68 feet) or less. Further, the proposed building could adversely impact the visual prominence and setting of the 67-foot-tall Eastern Dispensary (#4, NYCL-eligible, S/NR-eligible), as it would be located immediately behind that historic resource and the RWCDS building would be 53 feet taller than it. Potential mitigation measures for these potential significant adverse impacts are discussed in Chapter 21, “Mitigation Measures.”

The development of new buildings of various heights on Sites 2 through 6 would not have adverse visual and contextual impacts on architectural resources. The historic resources located north of the wide and heavily trafficked Delancey Street have little contextual relationship with Sites 2 through 6; therefore, the new developments on those sites would not result in any visual and contextual impacts on the historic resources located north of Delancey Street. Sites 2 through 6 are not adjacent to the Lower East Side Historic District (S/NR), and that historic district and the individual historic resources located south of Delancey Street in the area surrounding Sites 2 through 6 currently exist in a context of tall buildings of approximately 190, 200, and 230 feet tall that were constructed in the second half of the 20th century. Urban renewal in the 1950s and 1960s cleared the tenement neighborhood east of Essex Street and south of Delancey Street where Sites 2 through 6 are located. Therefore, adding new buildings on Sites 2 through 6 of up to 160, 260, and 285 feet tall would not change the scale, visual prominence, or visual context of the Lower East Side Historic District (S/NR), the Eastern Dispensary (#4, NYCL-eligible, S/NR-eligible), the former Norfolk Street Baptist Church (#5, NYCL, S/NR), the Williamsburg Bridge (#6, S/NR-eligible), and the Church of St. Mary's (#7, S/NR-eligible), nor screen or eliminate publicly accessible views of those historic resources. The new buildings would be in keeping with the surrounding context of tall, modern apartment buildings along Grand and Broome Streets. In addition, the Manhattan side of the Williamsburg Bridge is currently lined by tall residential buildings east of Clinton Street, and two existing residential buildings of 23 and 26 stories are located between the project site and the Church of St. Mary's. While new buildings on Sites 2 through 6 may block some partial southward views from Delancey Street of the Church of St. Mary's, those blocked views would not result in significant adverse impacts. The southward view of the church is only a limited, partial view of the church's rear façade, and unobstructed views of the church would continue to be available on Grand Street.

The development of mid-rise mixed-use buildings on Sites 8, 9, and 10 would likewise not have significant adverse visual and contextual impacts on historic resources as they would not change the scale, visual prominence, or visual context of any historic resource or screen or eliminate publicly accessible views of any historic resource. These sites are not adjacent to the Lower East Side Historic District (S/NR), as they are located across the 80-foot wide Essex Street. Sites 8 and 9 are adjacent to the westernmost portion of the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible); Site 8 is adjacent to the rear of the five-story tenements at 135-137 Norfolk Street and 128 Rivington Street, and the northernmost portion of Site 9 is adjacent to the five-story tenements at 121-123 Rivington Street. Sites 8 and 9 are located one block or more from the main portion of the potential historic district, which is located along Clinton Street. The proposed building on Site 8 at a maximum of 80 feet tall (and 70 feet tall under the RWCDS) and the proposed building on Site 9 at a maximum of 80 feet tall along Essex Street and 120 feet tall on Delancey Street (and 100 feet tall under the RWCDS) would be built in accordance with existing zoning regulations and would be consistent with building heights in the potential Clinton, Rivington, and Stanton Street Historic District where there are numerous examples of six-story tenements. Further, the adjacent tenements within the potential Clinton, Rivington, and Stanton Street Historic District (NYCL-eligible, S/NR-eligible) already exist in a larger context that includes modern residential buildings and two modern schools, I.S. 25 on Stanton Street between Norfolk and Suffolk Streets and P.S. 20 on Essex Street between Stanton and East Houston Streets. Therefore, the proposed developments on Sites 8, 9, and 10 would not adversely impact the visual context of surrounding historic resources. ✷

A. INTRODUCTION

This chapter considers the effects of the proposed actions on urban design and visual resources. The proposed actions would result in a mixed-use development on an approximately 6.6-acre site, which consists of ten City-owned sites (of which nine would be developed) and areas of streets to be mapped and demapped on the Lower East Side of Manhattan (together encompassing the "project site").

Under the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition), urban design is defined as the totality of components that may affect a pedestrian's experience of public space. These components include streets, buildings, visual resources, open spaces, natural resources, wind, and sunlight. An urban design assessment under CEQR must consider whether and how a project may change the experience of a pedestrian in a project area. The *CEQR Technical Manual* guidelines recommend the preparation of a preliminary assessment of urban design and visual resources, followed by a detailed analysis if warranted based on the conclusions of the preliminary assessment. The analysis provided below addresses urban design characteristics and visual resources for existing conditions, the future without the proposed actions, and the probable impacts of the proposed actions.

PRINCIPAL CONCLUSIONS

Overall, this analysis concludes that the proposed actions would not have any significant adverse impacts related to urban design and visual resources.

B. PRELIMINARY ASSESSMENT

Based on the *CEQR Technical Manual*, a preliminary assessment of urban design and visual resources is appropriate when there is the potential for a pedestrian to observe, from the street level, a physical alteration beyond that allowed by existing zoning. Examples include projects that permit the modification of yard, height, and setback requirements, and projects that result in an increase in built floor area beyond what would be allowed "as-of-right" in the future without the proposed actions.

To facilitate the redevelopment of the project site, a number of discretionary actions would be required, including zoning map and text amendments, zoning special permits, street mappings and demappings, and the disposition of City-owned property. The zoning changes would permit the creation of a Large-Scale General Development (LSGD) and the modification of bulk requirements. Therefore, while the proposed actions do not constitute an upzoning, they would be expected to result in physical alterations beyond that allowed by existing zoning, and thus would meet the threshold for a preliminary assessment of urban design and visual resources.

The *CEQR Technical Manual* guidelines state that if the preliminary assessment shows that changes to the pedestrian environment are sufficiently significant to require greater explanation and further study, then a detailed analysis is appropriate. Examples include projects that would potentially obstruct view corridors, compete with icons in the skyline, or make substantial alterations to the streetscape of a neighborhood by noticeably changing the scale of buildings. Detailed analyses also are generally appropriate for area-wide rezonings that include an increase in permitted floor area or changes in height and setback requirements, large-scale general developments (LSGDs), or projects that would result in substantial changes to the built environment of a historic district or components of a historic building that contribute to the resource's historic significance. Conditions that merit consideration for further analysis of visual resources include when the project partially or totally blocks a view corridor or a natural or built visual resource that is rare in the area or considered a defining feature of the neighborhood; or when the project changes urban design features so that the context of a natural or built visual resource is altered (i.e., if the project alters the street grid so that the approach to the resource changes; if the project changes the scale of surrounding buildings so that the context changes; or if the project removes lawns or other open areas that serve as a setting for the resource).

The proposed actions would involve changes to nine of ten proposed development sites over a 6.6-acre site and could potentially make noticeable alterations to the streetscape of the surrounding area by noticeably changing the scale of buildings, compared to the future without the proposed actions. In many cases, sites would go from being wholly or partially developed with surface parking lots to being nearly or completely occupied by structures ranging in height from 80 to 285 feet tall (or up to 315 feet with bulkheads). Therefore, the proposed actions would meet the threshold for a detailed assessment of urban design and visual resources. This analysis is provided below.

C. METHODOLOGY

As defined in the *CEQR Technical Manual*, urban design is the totality of components that may affect a pedestrian's experience of public space. This detailed assessment considers the effects of the proposed actions on the experience of a pedestrian in the study area. The assessment focuses on those project elements that have the potential to alter the built environment, or urban design, of the project area, which is collectively formed by the following components:

- Streets—the arrangement and orientation of streets define location, flow of activity, street views, and create blocks on which buildings and open spaces are arranged. Other elements including sidewalks, plantings, street lights, curb cuts, and street furniture also contribute to an area's streetscape.
- Buildings—a building's size, shape, setbacks, pedestrian and vehicular entrances, lot coverage and orientation to the street are important urban design components that define the appearance of the built environment.
- Visual Resources—visual resources include significant natural or built features, including important views corridors, public parks, landmarks structures or districts, or otherwise distinct buildings.
- Open Space—open space includes public and private areas that do not include structures including parks and other landscaped areas, cemeteries, and parking lots.
- Natural Features—natural features include vegetation and geologic and aquatic features that are natural to the area.

The *CEQR Technical Manual* recommends an analysis of pedestrian wind conditions for projects that would result in the construction of large buildings at locations that experience high wind conditions (such as along the waterfront, or other location where winds from the waterfront are not attenuated by buildings or natural features), which may result in an exacerbation of wind conditions due to “channelization” or “downwash” effects that may affect pedestrian safety. The project site is not within a location that experiences high wind conditions. Therefore, a pedestrian wind conditions analysis has not been prepared.

The study area for the urban design and visual resources analysis has been defined as the area within approximately 400 feet of the project site. This study area roughly extends from Houston Street to the north, Grand Street to the south, Suffolk and Ridge Streets to the east, and Allen Street to the west (see **Figure 8-1**). The study area for visual resources has been extended to consider longer view corridors along Delancey Street and from the Williamsburg Bridge.

D. EXISTING CONDITIONS

URBAN DESIGN

PROJECT SITE

The project site is 6.6 acres in size and includes ten sites (see **Figure 8-2**). Sites 1 through 6 are located south of Delancey Street, between Ludlow and Ridge Streets; Sites 7 through 10 are north of Delancey Street, oriented along Essex Street. **Table 8-1** provides information on each site’s lot area, built floor area, and lot coverage.

Table 8-1
Proposed Development Sites – Existing Conditions

Site No.	Lot Area (sf)	Building Area (sf)	Allowable FAR	Built FAR	Lot Coverage Percentage
1	21,996	—	6.0 (commercial), 0.87-3.44 (residential), 6.5 (community facility)	N/A	0
2	43,140	17,995	6.0 (commercial), 0.87-3.44 (residential), 6.5 (community facility)	0.42	35
3	40,776	—	0.94-6.02 (residential), 6.5 (community facility)	N/A	0
4	40,627	—	0.94-6.02 (residential), 6.5 (community facility)	N/A	0
5	60,712	3 buildings: 8,400; 12,500; 5,700	0.94-6.02 (residential), 6.5 (community facility)	0.52	15
6	21,344	—	0.94-6.02 (residential), 6.5 (community facility)	N/A	0
7	22,402	132,750	4.0 (commercial, residential, community facility)	5.93	100
8	11,210	11,210	4.0 (commercial, residential, community facility)	1.00	100
9	20,817	20,750	6.0 (commercial), 6.02 (residential), 6.5 (community facility)	1.02	100
10	6,840	6,840	4.0 (commercial, residential, community facility)	1.00	100

Notes: All numbers above are best estimates. The demapped sections of Suffolk and Broome Streets that would be mapped total approximately 45,786 square feet. The mapped sections of Clinton and Delancey Streets that would be demapped total approximately 17,580 square feet.
Site 7 would not be redeveloped under the proposed actions, but is included for informational purposes.

Site 1 is an L-shaped lot on the southern half of the block bounded by Delancey, Ludlow, Broome, and Essex Streets. It is occupied by a paved surface parking lot and surrounded by chain link fencing. The site has frontages on Ludlow, Broome, and Essex Streets, and the

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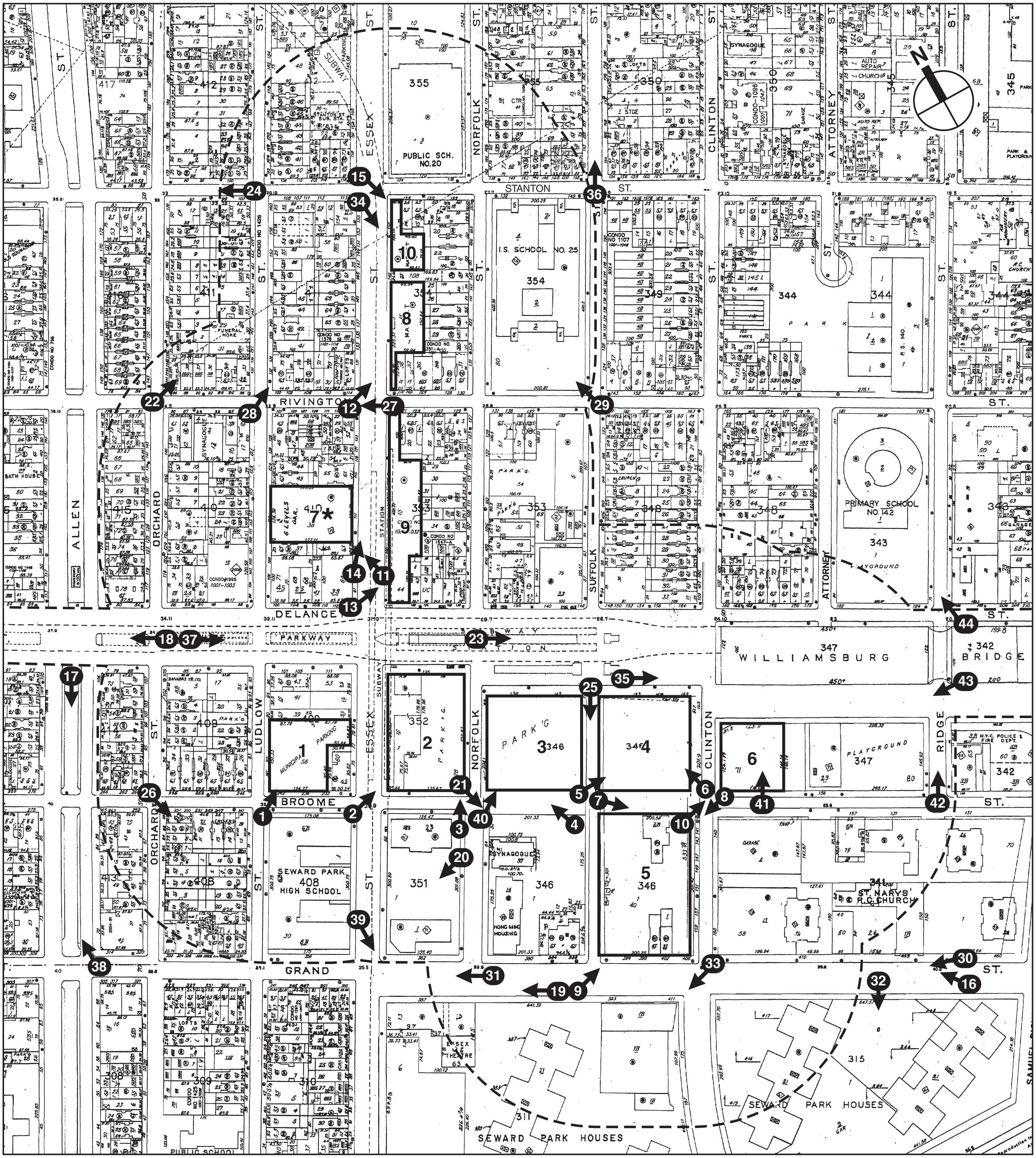


0 200 500 FEET

SCALE

1 *Proposed Development Sites*

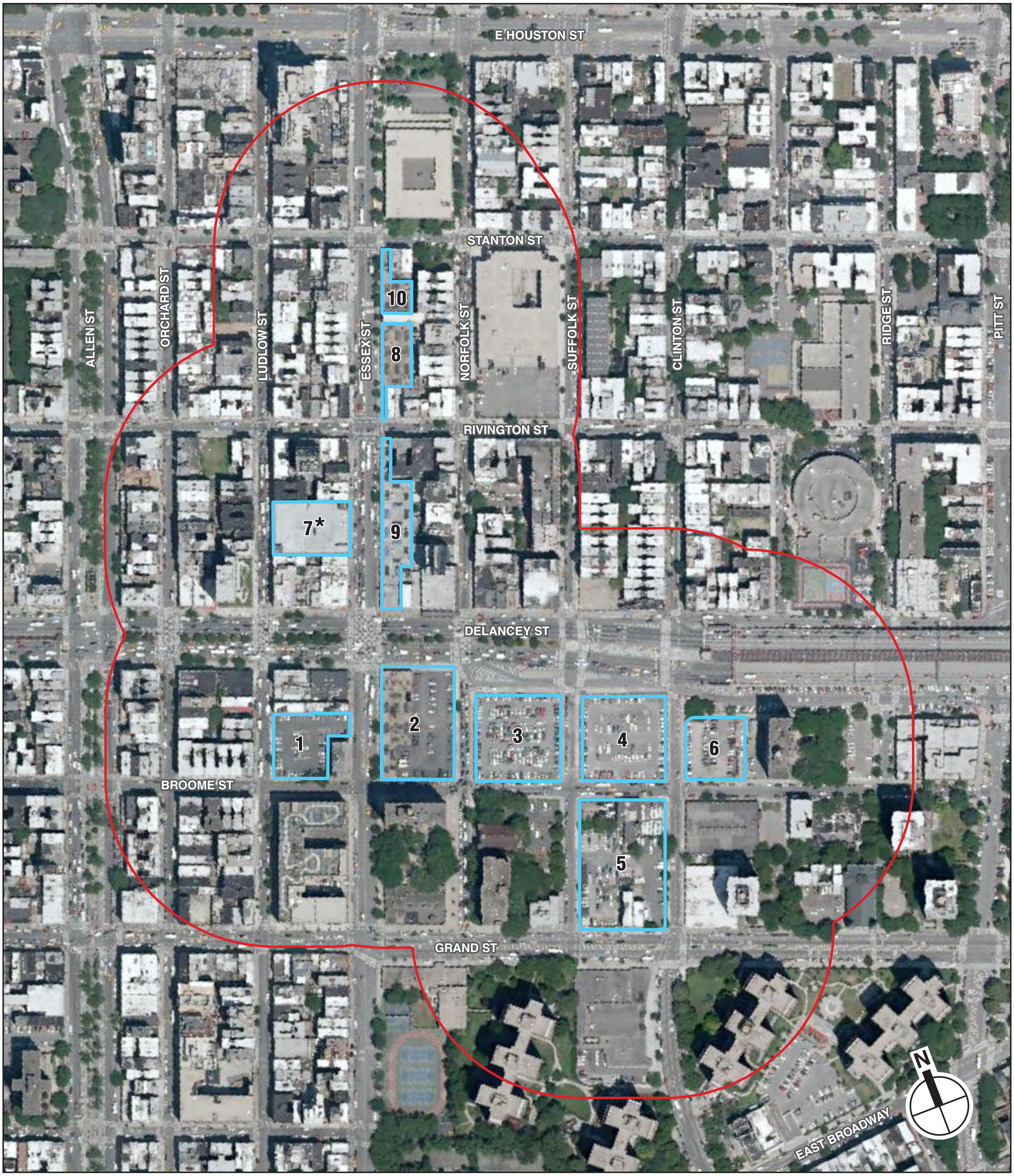
* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Study Area Boundary (400-Foot Perimeter)

Photograph View Direction and Reference Number

Urban Design and Visual Resources Study Area

Figure 8-1



1 Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Study Area Boundary (400-Foot Perimeter)

0 200 500 FEET

SCALE

Aerial Photograph
of Development Sites and Study Area
Figure 8-2

vehicular entrances are on Ludlow and Essex Streets (see View 1 of **Figure 8-3**). There are street trees located along the site's Ludlow Street frontage.

Site 2 is the entire block bounded by Delancey, Norfolk, Broome, and Essex Streets. A one-story, brick utilitarian building—formerly one of four Essex Street Market buildings—occupies the site's full Essex Street frontage (see Views 2 and 3 of **Figures 8-3** and **8-4**). The remainder of the site is occupied by a paved surface parking lot, surrounded by chain link fencing. Along Essex Street the building is mostly vacant, but it contains a liquor store and diner along its Delancey Street frontage. There is also a subway station exit in the ground-floor on Essex Street; the subway entrance is in the adjacent sidewalk. Street trees are located along the Essex Street frontage.

Site 3 is the block bounded by Delancey, Suffolk, Broome, and Norfolk Streets, and Site 4 is the block bounded by Delancey, Clinton, Broome, and Suffolk Streets (see Views 4-6 of **Figures 8-4** and **8-5**). These sites are occupied by paved surface parking lots surrounded by chain link fencing.

Site 5 is the block bounded by Broome, Clinton, Grand, and Suffolk Streets. Site 5 contains three buildings: a 5-story, brick tenement building fronting on Grand Street, that has a ground-floor visitor center for the Lower East Side Jewish Conservancy (LESJC); an adjacent 3-story, brick building with retail on the ground floor and vacant space above; and a 2-story, brick former fire station on Broome Street (see Views 7-9 of **Figures 8-6** and **8-7**). Surrounding these buildings, and occupying the remainder of the site, is a paved surface parking lot surrounded by chain link fencing. There are a small number of trees on and at the perimeter of the parking lot.

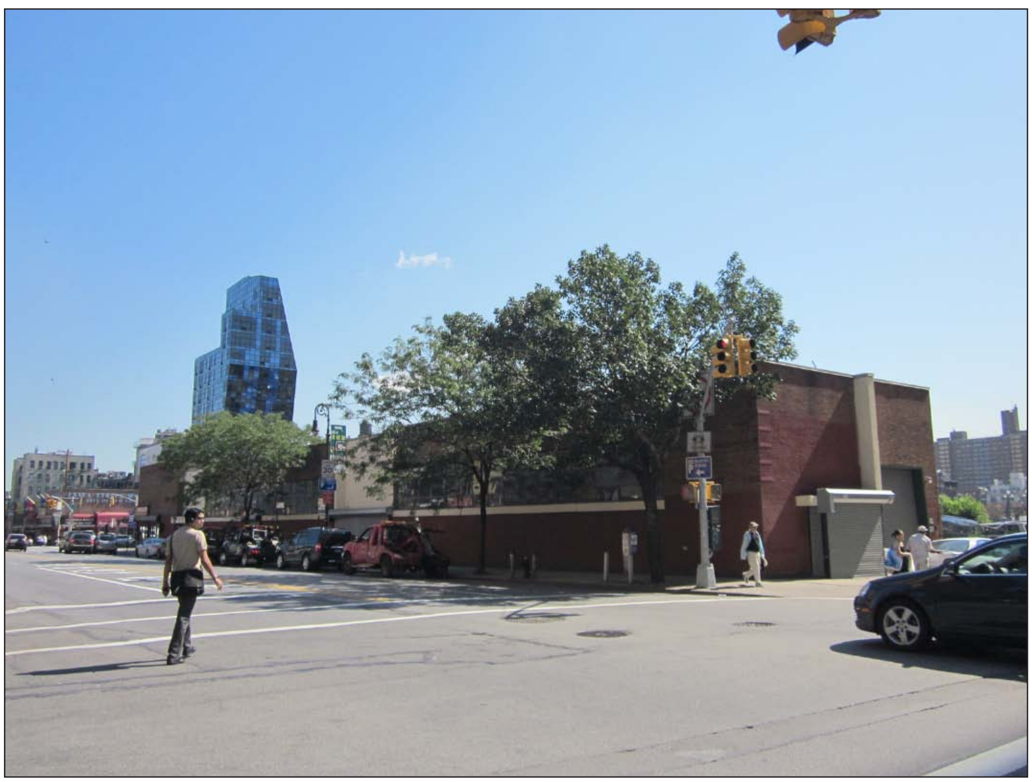
Site 6 is a square-shaped lot on the western side of the block bounded by Delancey, Clinton, Ridge, and Broome Streets. The site has frontages on Unnamed, Clinton, and Broome Streets. It is occupied by a paved surface parking lot surrounded by chain link fencing (see View 10 of **Figure 8-7**). There are gaps in the lot's pavement, allowing low vegetation to grow; there are also some trees at the perimeter of the lot.

Sites 1 through 6 together currently comprise the largest, under-developed City-owned sites in Manhattan south of 96th Street. In general, the pedestrian experience on the streets surrounding these sites is not an active or aesthetically appealing one. With the exception of a few uses on Site 2 and the LESJC and small retail uses on Site 5, there are no retail or other ground-floor building uses to draw pedestrians to the sites; and the streets themselves are unevenly paved and the striping is faded. There are few street trees or street furniture adjacent to these sites.

Site 7, which would not be redeveloped under the proposed actions, is a large, rectangular-shaped lot in the middle of the block bounded by Ludlow, Delancey, Rivington, and Essex Streets. The through-block site is occupied by a 6-level public parking garage with access/egress points on Essex and Ludlow Streets (see View 11 of **Figure 8-8**). The garage is clad in brick and vertical concrete ribbing.

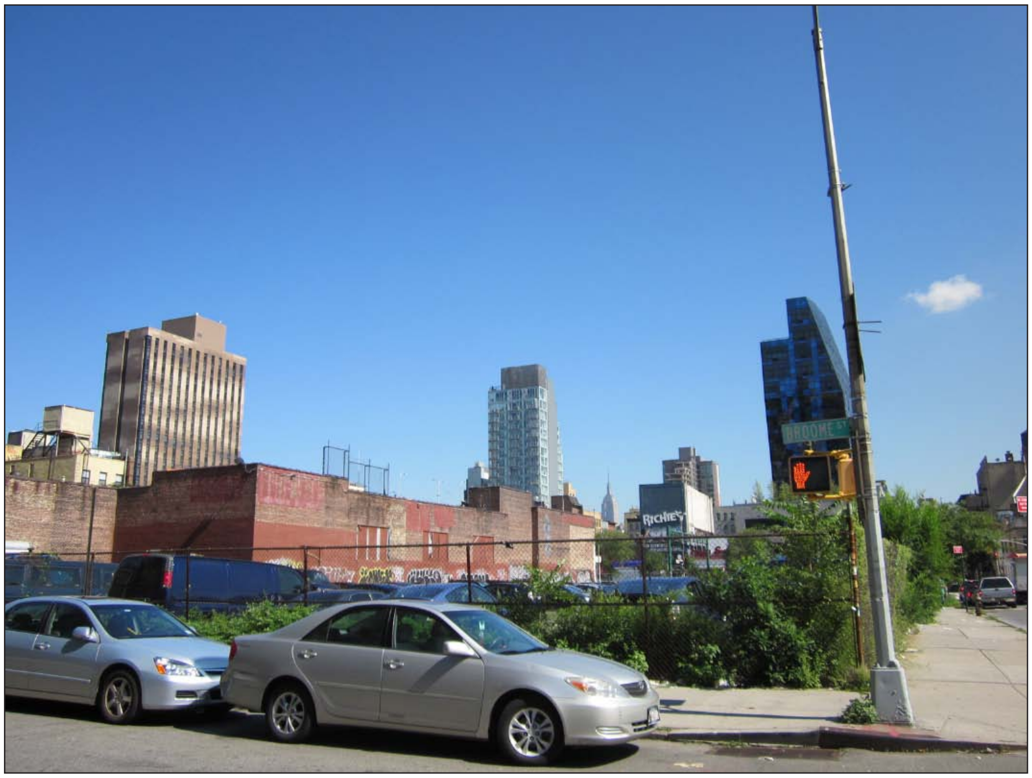
Site 8 is a narrow, irregular-shaped lot fronting on Essex Street, on the southern portion of the block bounded by Essex, Stanton, Rivington, and Norfolk Streets. Like Site 2, Site 8 is occupied by a former Essex Street Market building; the one-story brick building on Site 8 is similar in appearance to the building on Site 2 (see View 12 of **Figure 8-8**). This building has no active ground-floor uses and is currently used for the storage of garbage generated by the current Essex Street Market building on Site 9.

Site 1, looking north from Broome Street **1**



Site 2, looking northeast from Broome and Essex Streets **2**

Photographs of Development Sites
Views 1 & 2
Figure 8-3



Site 2, looking north from Broome and Norfolk Streets **3**

Site 3, looking northwest from Broome Street **4**

Photographs of Development Sites
Views 3 & 4
Figure 8-4

Site 4, looking east from Broome and Suffolk Streets **5**

Site 4, looking northwest from Broome and Clinton Streets **6**

Photographs of Development Sites
Views 5 & 6
Figure 8-5

Site 5, looking southeast from Broome and Suffolk Streets **7**

Site 5, looking southwest from Broome and Clinton Streets **8**

Photographs of Development Sites
Views 7 & 8
Figure 8-6

Site 5, looking northeast from Grand and Suffolk Streets **9**

Site 6, looking northeast from Broome and Clinton Streets **10**

Photographs of Development Sites
Views 9 & 10
Figure 8-7

Site 7, looking northwest from Essex Street **11**

Site 8, looking northeast from Rivington Street **12**

Photographs of Development Sites
Views 11 & 12
Figure 8-8

Site 9 is a narrow, irregular-shaped lot fronting on Essex Street. It occupies most of the western half of the block bounded by Rivington, Delancey, Essex, and Norfolk Streets. The site contains one of the four original Essex Street Market buildings and is the only one of the buildings to currently contain a public market. The building is similar in design to the former market buildings on Sites 2, 8, and 10 (which is described below) (see Views 13 and 14 of **Figure 8-9**). There are colorful advertising banners affixed at various locations along the building's Essex Street and Delancey Street façades. It also contains a restaurant with its entrance on the Rivington Street frontage, and small retail spaces on Delancey Street. There is a subway station exit in the ground-floor on Essex Street; a subway entrance is located in the adjacent sidewalk.

Site 10 is a narrow lot fronting on Essex Street, on the northern portion of the block bounded by Essex, Stanton, Rivington, and Norfolk Streets. Like the buildings on Sites 2, 8, and 9, the one-story brick building on Site 10 is a former Essex Street Market building; this building currently houses a health clinic (see View 15 of **Figure 8-10**).

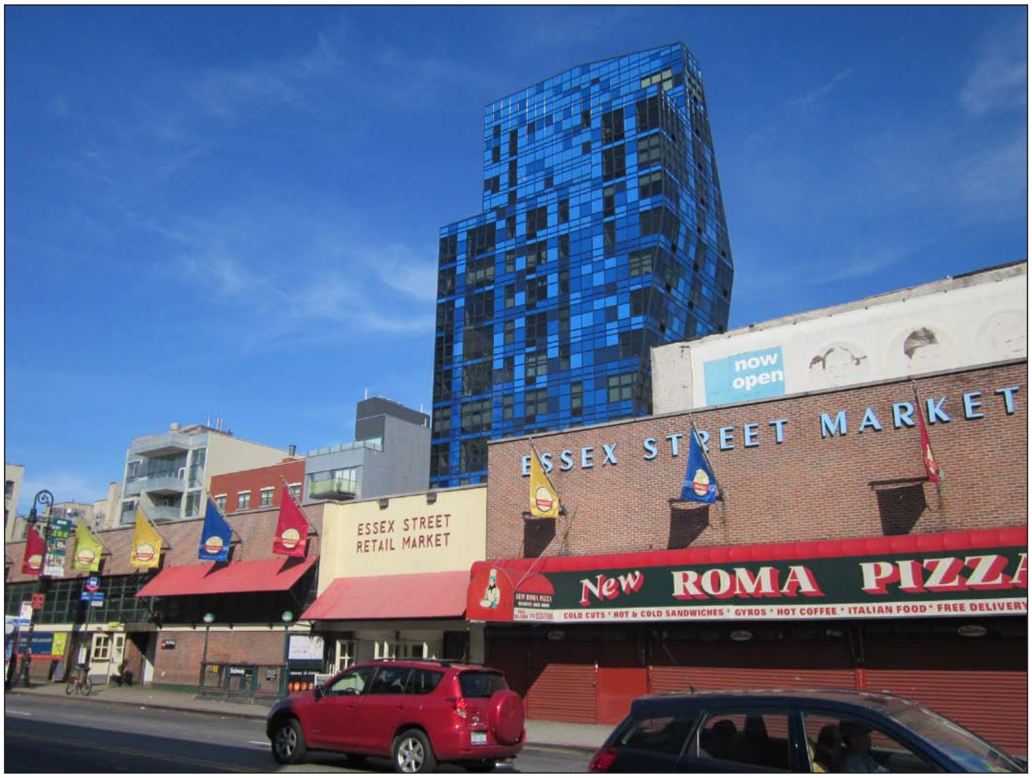
Unlike the pedestrian experience of Sites 1–6, the pedestrian experience of Sites 7–10 is not notably different than that of neighboring portions of the study area. While Sites 7 and 8 do not have active ground-floor uses, Sites 9 and 10 do, and all sites contain structures that are built to the lot line. The ground-floor uses on Sites 9 and 10 bring pedestrian and vehicular activity to Essex Street, which is lined with other ground-floor retail, commercial, and institutional uses. The subway station entrance and exit at Site 9 also brings pedestrian activity to this portion of the project site. The metal roll-down gates covering building entrances on the sites are consistent with the appearance of security gates used at other nearby buildings.

The project site also includes a demapped section of Suffolk Street between Grand and Delancey Streets, a demapped section of Broome Street between Norfolk and Clinton Streets, a mapped section of Delancey Street between Norfolk and Clinton Streets, and a mapped section of Clinton Street between Grand and Delancey Streets. Although the project site sections of Suffolk and Broome Streets are demapped, they look and function as mapped streets with paved travel lanes, curbs, and sidewalks. They do contain some areas of exposed Belgian block paving where the asphalt overlayer has worn away. The sidewalks along the streets included within the project site are of varying width, weathered and occasionally overgrown, and lined by chain link fencing.

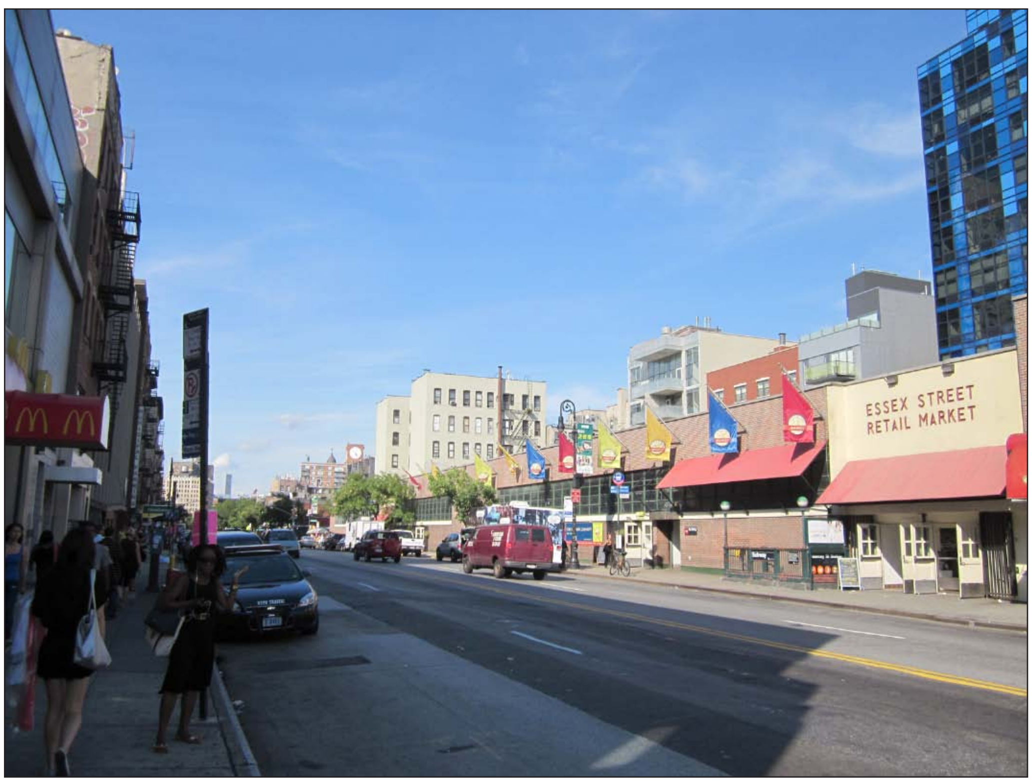
STUDY AREA

The street pattern in the study area is generally a grid system, which creates rectangular, north-south oriented blocks. Several superblocks interrupt this pattern within the portion of the study area south of Delancey Street, creating longer walking intervals for pedestrians. The superblocks include the area bounded by Clinton, Ridge, Delancey, and Broome Streets (which includes Site 6); the block just to the south, which is bounded by Clinton, Pitt, Broome, and Grand Streets and occupied by the 26-story (232-foot-tall) Seward Park Extension houses, St. Mary's Church with its twin corner towers, a parking garage, and other assorted small-scale structures (see View 16 of **Figure 8-10**); and the superblocks containing the Seward Park Houses (described below), which are bounded by Grand, Essex, Canal, East Broadway, Clinton, and Pitt Streets. Just south of the study area the street pattern changes, with East Broadway and other streets that parallel the East River shoreline angling from southwest to northeast to intersect with Grand Street just east of Bialystoker Place.

Most of the study area's pedestrian and vehicular traffic is focused in the area along and north of Delancey Street; south of Delancey Street, particularly around Sites 2–6, there is less pedestrian



Site 9, looking east from just north of Delancey Street **13**



Site 9, looking northeast from Essex Street near Delancey Street **14**

Photographs of Development Sites
Views 13 & 14
Figure 8-9

Site 10, view southeast from Essex and Stanton Streets **15**

North side of Grand Street, view from Pitt Street **16**

Photographs of Development Sites and Study Area
Views 15 & 16
Figure 8-10

or vehicular traffic. In part, the higher pedestrian traffic north of Delancey Street and west of Ludlow Street south of Delancey Street is due to the greater amount of street-level retail and restaurant uses in these areas and the activity these uses generate. The major thoroughfares through the study area are Delancey, Allen, Essex, Broome, and Grand Streets; other important, but more local, streets include Norfolk, Suffolk, and Clinton Streets.

Delancey Street runs in an east-west direction and carries vehicular, bicycle, and pedestrian traffic to the Williamsburg Bridge, the access point for which is at the eastern edge of the study area around Clinton Street. Allen Street runs north-south. Both streets include protected bicycle paths, which appear to be well used, and a landscaped median with trees that provide visual relief and shade for pedestrians and bicyclists (see Views 17 and 18 of **Figure 8-11**). In addition, portions of Delancey Street are classified as "greenstreets." The Allen Malls, which extend along Allen Street between East Houston Street and East Broadway, also include benches and walkways. The Malls are currently being renovated. On Delancey Street, the bike path begins at Suffolk/Clinton Street and continues over the bridge. ~~In the weekday evening rush hour, left turns from Essex Street onto Delancey are prohibited; therefore, at those times vehicles traveling south on Essex Street headed for the Williamsburg Bridge travel past its intersection with Delancey Street and turn left onto Broome Street, and left again onto Norfolk Street, creating evening congestion at the intersection of Norfolk Street and Broome Street.~~

In June 2012, the New York City Department of Transportation began implementation of the Delancey Street Safety Improvements plan. As part of this plan, several pedestrian crossings on the Delancey Street corridor are being shortened using neckdowns and median tip extensions. A pedestrian plaza is being created on the south side of Delancey Street between Norfolk and Suffolk Streets, which may include planters or other street furniture. Left turns will be prohibited at all times from Essex Street onto Delancey Street, and from eastbound Delancey Street to Chrystie Street and Allen Street. As implementation of the plan progresses, ~~traffic flow and~~ pedestrian safety conditions along Delancey Street will improve.

Essex is a two-way street and is wider than adjacent north-south streets, which are one-way only. Grand Street also runs in an east-west direction, at the southern end of the study area, but appears less congested with vehicular traffic than Delancey and Allen Streets. Grand Street provides a painted, non-protected bicycle lane, as do Stanton, Rivington, Suffolk, and Clinton Streets. Grand Street also has a wide median, some portions of which are landscaped (see View 19 of **Figure 8-12**). The remainder of the cross streets in the study area are generally one-way and less traveled. North of Delancey Street, Orchard Street becomes a pedestrian-only thoroughfare on Sundays.

The topography of the study area is generally flat, with slight slopes downward toward the East River and from Grand Street to Delancey Street. There are no natural features within the study area. The area's public open spaces are mainly playgrounds associated with public schools and public and privately owned housing complexes, including P.S. 142, P.S. 20, William H. Seward High School, and the Broome Seward Park Extension (see View 20 of **Figure 8-12**). There are also a few community gardens in the study area. There are some street trees throughout the study area, mostly along Essex Street, and more extensive vegetation on the open lots surrounding the Gothic Revival-style former synagogue of the Beth Hamedrash Hagadol congregation and the Seward Park Houses, described below (see View 21 of **Figure 8-13**). In general, the preponderance of fully developed sites north of Delancey Street and the paved parking lots surrounded by chain-link fencing south of Delancey Street give the pedestrian's experience of this area a distinct visual character, which is reinforced by cars parallel parked on streets,

Allen Street Malls, view south from Delancey Street **17**

Delancey Street, view west from Orchard Street **18**

Photographs of Study Area
Views 17 & 18
Figure 8-11

Grand Street, view west from Suffolk Street **19**

Broome Seward Park Extension playground **20**

Photographs of Study Area
Views 19 & 20
Figure 8-12

Southeast corner of Broome and Norfolk Streets **21**

View north on Orchard Street from Rivington Street **22** concrete sidewalks, ground-floor retail uses, the typical open-mesh and metal roll-down gates used to secure ground-floor openings, and the presence of typical street furniture (e.g. bus shelters, newspaper bins, parking meters, transportation and other signage, trash bins).

Other elements that contribute to the pedestrian’s experience of the study area streetscape include the large directional signage on gantries above Delancey Street leading to the Williamsburg Bridge and above Orchard Street providing information regarding its car-free operation on Sundays (see Views 22 and 23 of **Figures 8-13** and **8-14**). Although most of the lampposts in the area are of modern design, there are also a three-armed traffic light at the northeast corner of Suffolk and Broome Streets and historic reproduction bishop’s crook lampposts within the boundaries of the Lower East Side Historic District (see Chapter 7, “Historic and Cultural Resources”) (see View 24 of **Figure 8-14**). Some of the streets in the study area also have historic Belgian block paving, including: Orchard Street south of Delancey Street; Suffolk Street north of Grand Street; Suffolk Street between Broome and Delancey Streets; and Broome Street between Suffolk and Clinton Streets. The historic and reproduction lampposts and street paving materials contribute to the pedestrian’s understanding of the layers of built history that remain in this area. The pavement of other streets, specifically those around the project sites south of Delancey Street, is uneven and the striping is faded, giving this area a more deteriorated appearance to pedestrians (see View 25 of **Figure 8-15**).

As described below, the buildings in the portions of the study area north of Delancey Street and west of Essex Street are generally built at or close to the street line, creating strong streetwalls. There are some exceptions to this pattern, such as for historic tenements and modern row houses set back from the lot line, with stoops leading to the second-floor main entrances. Other setbacks from the lot line in this area include P.S. 20’s frontage on Stanton Street, which is set back behind a paved playground well shaded by street trees. Some streets, including Suffolk and Norfolk Streets north of Delancey Street, have a greater number of fully residential and institutional uses, and thus have less pedestrian activity than the neighboring streets with greater amounts of ground-floor retail. Because of the age of the buildings, there are few loading docks or associated curb cuts in this portion of the study area, except those associated with recently constructed, larger-scale developments.

The portion of the study area south of Delancey Street and east of Essex Street (surrounding Sites 2–6) has a different visual character than the rest of the study area. In this area, large housing complexes on superblocks and surface parking lots surrounded by chain link fencing establish the visual character. These complexes are typically set back from the street line within a landscaped setting, and thus the streetwalls in this portion of the study area are less strong, particularly along Grand Street. The large housing complexes in this portion of the study area include the Seward Park Houses, four 21-story (187-foot-tall) brick buildings—each roughly 150 feet wide and 350 feet long—set on an angle in a landscaped campus on the three-block triangle bounded by Grand Street, Essex Street, and East Broadway. The large footprints of these buildings and their angled placement on the superblocks serve to make them particularly noticeable in the surrounding area (see View 30 of **Figure 8-17**). The portion of the Seward Park Extension NYCHA project on the block bounded by Essex, Norfolk, Broome, and Grand Streets (referred to as the Broome Seward Park Extension) is a 23-story (229-foot-tall) brown-brick tower with no setbacks. The remainder of the block is surrounded by a low brown brick wall, within which is a hardscaped private open space with one piece of play equipment (see View 31 of **Figure 8-18**). Other portions of the Seward Park Extension include a twin building on the block bounded by Broome, Ridge, Clinton, and Delancey Streets, and three 26-story (232-foot)

Delancey Street, view east from Norfolk Street **23**

View west on Stanton Street from Ludlow Street **24**

Photographs of Study Area
Views 23 & 24
Figure 8-14

Suffolk Street, view south from Delancey Street **25**

Orchard Street, view south from Broome Street **26**

Photographs of Study Area
Views 25 & 26
Figure 8-15

Rivington Street, view west from Essex Street **27**

Ludlow Street, view north from Rivington Street **28**

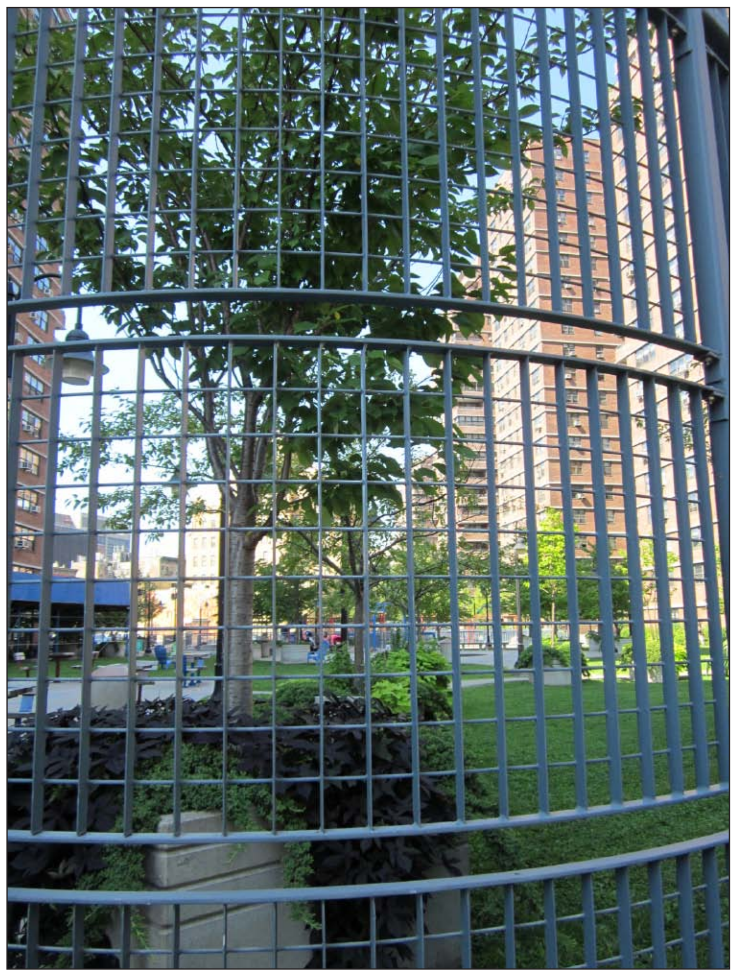
Photographs of Study Area
Views 27 & 28
Figure 8-16

Lower East Side Preparatory School/Marta Valle School, view northwest from Rivington and Suffolk Streets **29**

Seward Park Houses, view west from Grand Street **30**

Photographs of Study Area
Views 29 & 30
Figure 8-17

North side of Grand Street, view west from Norfolk Street **31**



Seward Park Houses, private open space **32**

Photographs of Development Sites
Views 31 & 32
Figure 8-18

brick buildings with roughly square footprints on the superblock bounded by Clinton, Pitt, Broome, and Grand Streets.

On the south side of Grand Street, some of the open areas between the Seward Park Houses are enclosed behind blue metal grid fencing, These open areas, and others within the Seward Park Houses complex include attractive lawns, gardens, and mature trees, as well as play equipment for residents (see View 32 of **Figure 8-18**). In addition to the various housing complexes, this portion of the study area includes several 1-story buildings along Grand Street, including a broad, low, modern 1-story retail building at the southwest corner of Clinton and Grand Streets that is part of the Seward Park Houses complex. The building's broad roof overhang provides shade and relief from the elements for shoppers and pedestrians (see View 33 of **Figure 8-19**).

The portions of the study area north of Delancey Street, and west of Ludlow Street south of Delancey Street, were recently rezoned to preserve their mainly low-scale existing character. These areas are densely developed, mainly with 4- to 6-story tenement buildings that are built to the street line and fully occupy their lots. Most of these buildings are still in residential use on the upper floors and have ground-floor retail. Some of the tenement buildings in this area retain their original features and are highly ornamented; others have experienced more alterations over the years, particularly at the ground floor (see View 26 of **Figure 8-15**).

Some of the modern insertion buildings within this area keep to the same 4- to 6- story scale. Higher-density residential and hotel development also is becoming more prevalent in this area, with a number of taller buildings currently under construction or recently completed. These include the 16-story (169-foot-tall) Blue Condo at 100 Norfolk. Because it is surrounded by lower-scale development, the Blue Condo building is visible throughout much of the study area. There is also a new glass and metal-clad, 21-story (195-foot-tall) hotel building at 107 Rivington Street, just west of Essex; an 18-story (226-foot-tall) School of Visual Arts (SVA) dorm at 101 Ludlow Street, the northwest corner of Ludlow and Delancey Streets; an 18-story mixed-use hotel/residential building at 180 Ludlow Street, the 16-story Allen Street Hotel at 139 Allen Street, the 24-story Hotel Indigo at 180 Orchard Street, and an 8-story Holiday Inn at 150 Delancey Street (see Views 27 and 28 of **Figure 8-16**). The juxtaposition of these new high-rise developments against the prevailing low-scale development north of Delancey Street is changing the visual character of this portion of the study area.

Other buildings in the study area include religious and educational facilities, firehouses, police precincts, post offices, libraries, and commercial buildings. The Lower East Side Preparatory School and the Marta Valle School, for example, share a bulky concrete- and brick-clad 4-story building on the block bounded by Stanton, Suffolk, Rivington, and Norfolk Streets. The concrete-paved play yard on the south side of the school block is surrounded by chain link fencing (see View 29 of **Figure 8-17**). Just south of the high school is a 5-story, L-plan, C.B.J. Snyder-designed brick school building with terra cotta ornament. This former P.S. 160 building, which currently houses the Clemente Soto Velez Educational and Cultural Center, is currently being restored and is covered with scaffolding and netting. Other large public schools in the study area include the Seward Park High School (described below); P.S. 20, Anna Silver School, a 3-story, utilitarian brick structure at 166 Essex Street between East Houston and Stanton Streets; and P.S. 142, Amalia Castro School, a 3-story circular brick structure occupying the entire block bounded by Rivington, Ridge, Delancey, and Attorney Streets.

Clinton Street, view south from Grand Street **33**

View south on Essex Street from Stanton Street **34**

Photographs of Study Area
Views 33 & 34
Figure 8-19

VISUAL RESOURCES

The *CEQR Technical Manual* defines a visual resource as "the connection from the public realm to significant natural or built features, including views of the waterfront, public parks, landmark structures or districts, otherwise distinct buildings or groups of buildings, or natural resources."

PROJECT SITE

There are no visual resources located on the project site. While the Essex Market buildings on Sites 2, 8, 9, and 10 are known architectural resources, and the three buildings on Site 5 have been identified as potential architectural resources (see Chapter 7, "Historic and Cultural Resources"), these buildings are not particularly prominent or distinct in surrounding views. (Site 1 is located within the boundaries of the State and National Register-listed Lower East Side Historic District, but as noted above is occupied by a paved parking lot.) In general, views from and through Sites 1–6 are more expansive than from Sites 7–10 because of the lack, or lesser level, of development on Sites 1–6. Views looking south on Essex Street from sidewalks adjacent to Sites 7–10 include the 23-story Seward Park Extension tower and portions of the glass-clad Blue Condo building; views looking north end at Houston Street (see View 34 of **Figure 8-19**). Views from and through Sites 1–6 include the Williamsburg Bridge and the Blue Condo, as well as the various NYCHA housing developments described above and below (see View 35 of **Figure 8-20** and Views 3, 4, 6 of **Figures 8-4** and **8-5**, above).

STUDY AREA

North of Delancey Street, views to the north on most of the north-south streets terminate with the buildings along Houston Street, including 250 Houston Street, with its rooftop "Askew" clock and statue of Vladimir Lenin, and the Meltzer Tower NYCHA development, as well as new developments within the study area (see View 36 of **Figure 8-20** and View 28 of **Figure 8-16**, above). The play yards associated with the Lower East Side Preparatory School and other public schools noted above also allow wider views through adjacent portions of the study area.

Delancey, Grand, and Allen Streets, as the widest thoroughfares in the study area, also provide the most expansive view corridors. Views east along Delancey Street are of the Williamsburg Bridge, both the bridge approach and its Manhattan-side anchorage (see View 37 of **Figure 8-21**). Views from Delancey Street looking south are more expansive because of the general lack of development on Sites 1–6. From this location, the large-scale housing complexes described above can be seen, as well as other large-scale housing complexes located outside of the study area. From the south side of Delancey Street looking north, views include the Blue Condo. Views north along Allen Street and a portion of Essex Street include the top of the Chrysler Building (see View 38 of **Figure 8-21**). There are few items of note in views along Grand Street, excepting the twin corner towers of St. Mary's R.C. Church. Views from Essex Street near Grand Street south include the top of the Manhattan-side anchorage of the Manhattan Bridge (see View 39 of **Figure 8-23**).

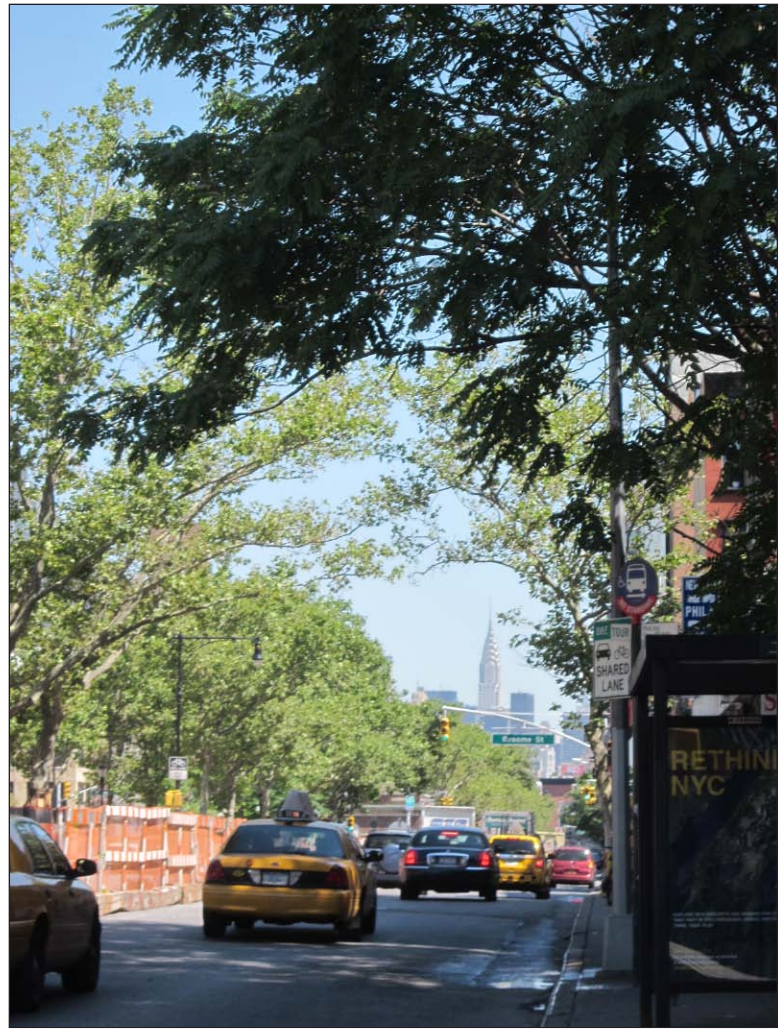
Views from Broome Street north through Sites 3, 4, 6 and a portion of 2 are of the Blue Condo on Norfolk Street, other tall buildings in the northern part of the study area, and the top of the Empire State Building in the far distance. Views to the northeast from this area are of the Baruch and Gompers public housing complexes on the north side of Delancey Street, just east of the study area (see View 40 of **Figure 8-22**). Views east along Broome Street end with the 11-story brick-clad Lejb and Golda Orenstein Building on the superblock that also contains the historic Bialystoker Synagogue facing onto Abraham Place, which is not visible in the eastward views from Broome Street. South of Grand Street, Clinton Street curves to the east, closing off that

View east on Delancey Street, from Suffolk Street **35**

View north on Suffolk Street from Stanton Street **36**

Photographs of Study Area
Views 35 & 36
Figure 8-20

View east on Delancey Street from Orchard Street **37**



View north on Allen Street from Grand Street **38**

Photographs of Study Area
Views 37 & 38
Figure 8-21

View southeast from Essex Street near Grand Street **39**

View northeast from Broome and Norfolk Streets **40**

Photographs of Study Area
Views 39 & 40
Figure 8-22

View north through Site 6, from Broome Street **41**

View north on Ridge Street, from Broome Street **42** view corridor with the buildings along East Broadway; views north on Clinton Street include the top of the Empire State Building. Views through Site 6 include the masonry entrance to the Williamsburg Bridge (see View 41 of **Figure 8-23**). Views south on Norfolk Street are of the Seward Park Houses. Views north and south along Ridge Street are of the viaduct carrying the Williamsburg Bridge approach above Delancey Street (see View 42 of **Figure 8-23**).

Views to the project site are also available to pedestrians, bicyclists, and drivers from the Williamsburg Bridge itself. From this location, viewers get a strong sense of how the visual character of the study area differs north and south of Delancey Street (see Views 43 and 44 of **Figure 8-24**). There are no notable visual resources in these views, other than the bridge itself.

E. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, existing conditions on the project site would not change. Most of the project site would continue to be largely vacant and underutilized; however, the municipal parking garage on Site 7 will be refurbished. The current façade of the garage, which consists of deteriorated concrete panels, will be replaced with a weave of steel cables that will improve the appearance and thus the pedestrian experience of this facility.

EFFECTS OF OTHER FUTURE PROJECTS

Fourteen development projects are anticipated to be constructed within the study area independent of the proposed project (see **Figure 8-25**). These projects include a commercial addition to existing buildings at 95 Delancey Street/101 Ludlow Street (a 19-story building); new hotel buildings at 150 Delancey Street (8 stories tall), 180 Ludlow Street, and 139 Orchard Street (16 stories tall); new residential buildings at 91 Ludlow Street, 80 Clinton Street, 115 Norfolk Street, and 88, 100, 124, and 156 Delancey Street (all projected to be approximately 120 feet tall or less); and new mixed-use buildings at 145 Ludlow Street (6 stories) and 119 Orchard Street (10 stories). Just outside of the study area, a 26-story mixed-use (hotel and residential) building is under construction at 180 Orchard Street, and a 16-story hotel is under construction at 139 Allen Street. These projects will change the urban design and visual character of the study area by continuing an existing trend of new residential, hotel, and mixed-use development and adding to the area's mix of low-rise and high-rise structures, making the neighborhood more densely developed.

F. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

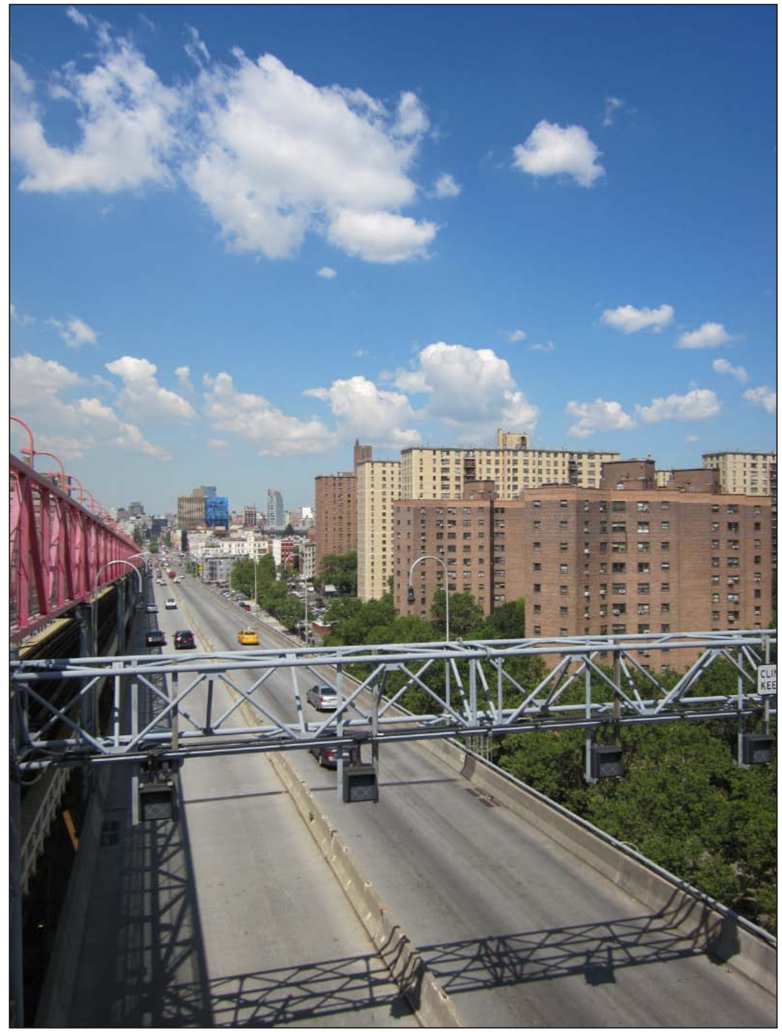
URBAN DESIGN

PROJECT SITE

As set forth in Chapter 1, "Project Description," the proposed actions include:

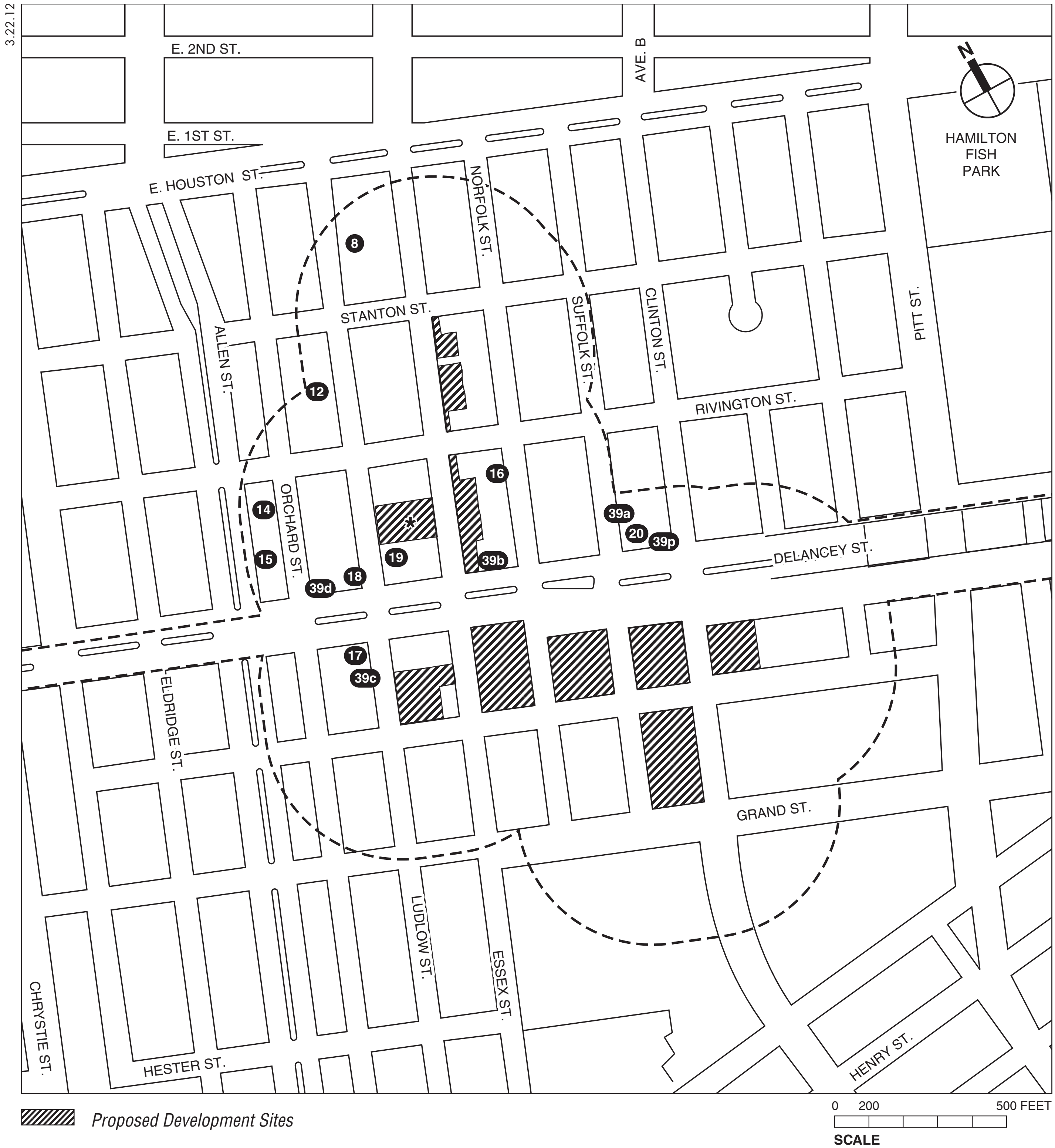
- Disposition of Sites 1-6 and 8-10 by the City of New York for the purpose of subsequent development;
- Designation of Sites 1-6 and 8-10 as an Urban Development Action Area Project;
- Acquisition of a portion of Site 2 for the purposes of the relocated Essex Street Market;
- A zoning map amendment for a C2-6 commercial overlay on Sites 3-6;
- A special permit for a LSGD, applicable to Sites 1–6 (see **Figure 8-26**), to achieve a superior site plan;

View west to project area south of Delancey Street, from Williamsburg Bridge **43**



View west to project area north of Delancey Street, from Williamsburg Bridge **44**

Photographs of Study Area
Views 43 & 44
Figure 8-24



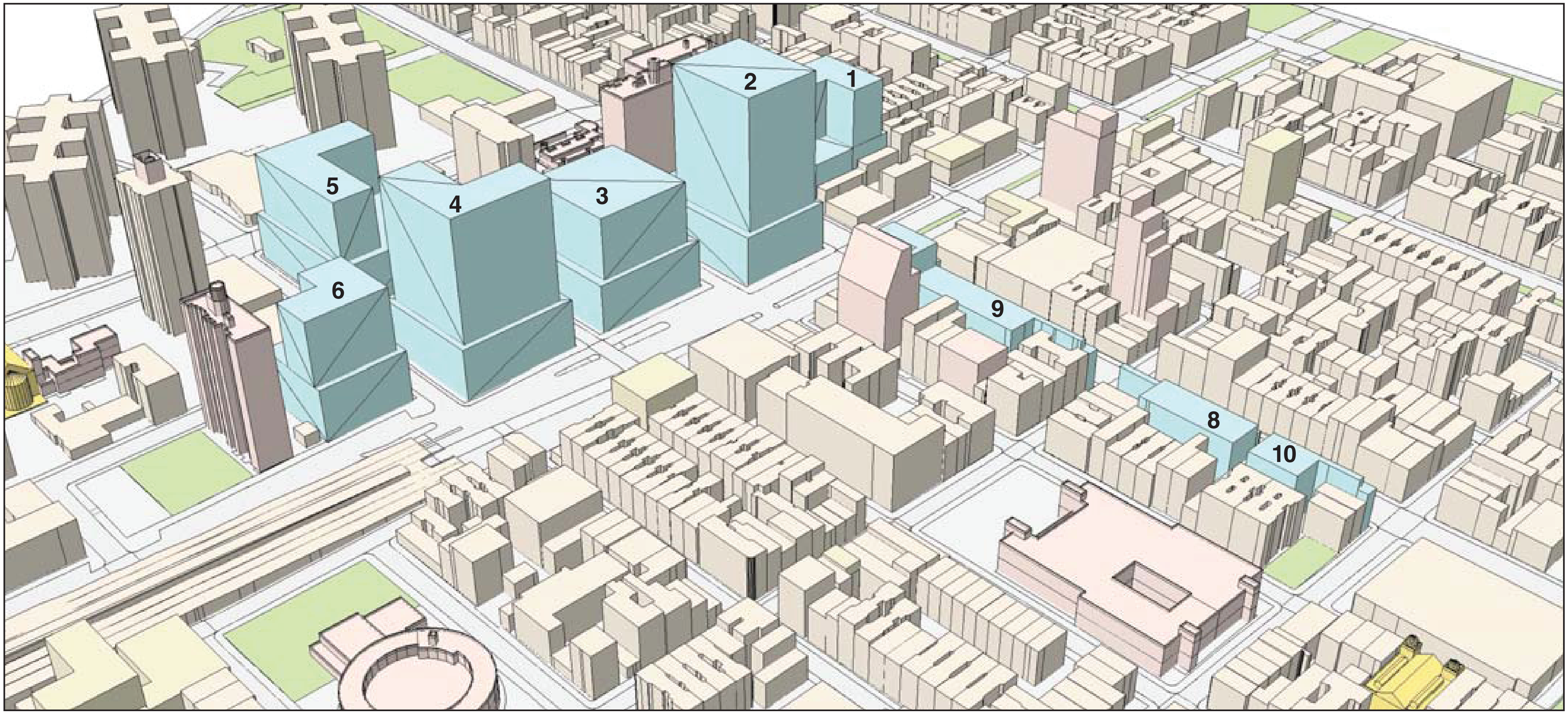
Proposed Development Sites

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Study Area Boundary (400-Foot Perimeter)

1 *No Action Projects*
(see Chapter 2, "Land Use, Zoning and Public Policy" for list of No Action Projects)

No Action Projects
Figure 8-25



Proposed Maximum Envelopes

FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Three-Dimensional Computer Model of Maximum Zoning Envelopes
View Southwest
Figure 8-26

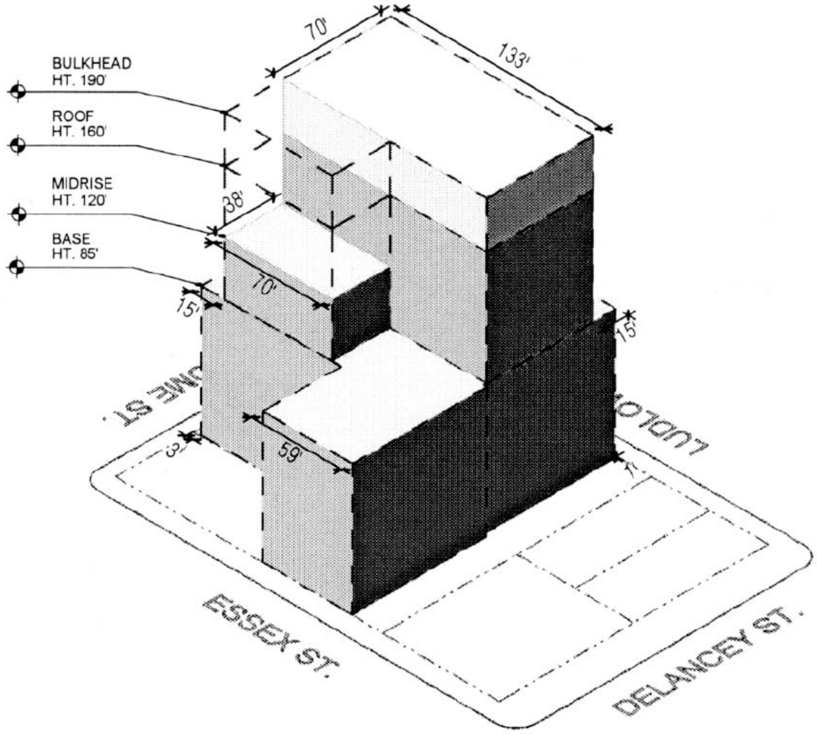
- Special permits and zoning text amendments to allow certain use groups and the shifting of commercial FAR from the C6 district to the C2 district, eliminate the planting strip requirement in the proposed sidewalk widenings, and waive certain location of use regulations within the proposed LSGD;
- Special permits related to public parking garages;
- An authorization for the modification of signage regulations to permit C6-1 signage along certain streets, and a zoning text amendment to allow the signage waiver;
- Mapping of the demapped sections of Suffolk Street between Grand and Delancey Streets and Broome Street between Norfolk and Clinton Streets as new streets through the project site; and
- Demapping of sections of Delancey Street between Norfolk and Clinton Streets and of Clinton Street between Delancey and Grand Streets that were previously mapped to widen Delancey and Clinton Streets, thereby aligning the mapped street with the existing built street condition.

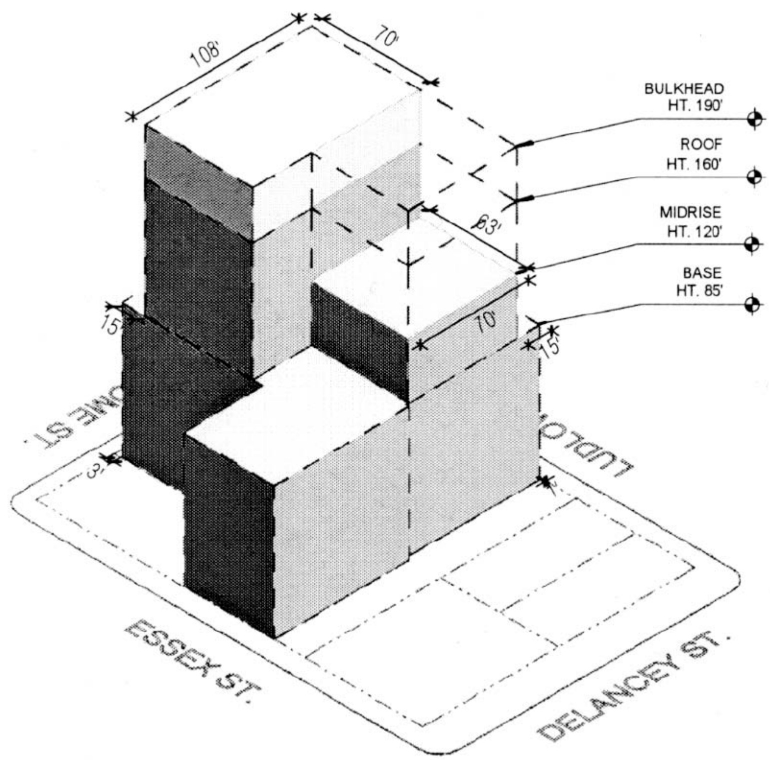
Under the reasonable worst-case development scenario (RWCDS) developed for the proposed actions, it is assumed that the proposed actions would result in the full redevelopment of Sites 1–6 and 8–10. The existing buildings on Sites 2, 5, 8, 9, and 10 would be demolished, the existing parking uses on sites 1, 3, 4, and 6 would be removed, and all of the sites except Site 7 would be redeveloped with new mixed-use buildings of varying height and bulk. The RWCDS assumes the development on the proposed sites would total approximately 951,000 square feet (900 units) of residential uses; up to 632,300 gross square feet (gsf) of commercial space; approximately 114,000 gsf of community facility or cultural uses; up to 500 parking spaces in below-grade space; and approximately 10,000 square feet of new publicly accessible open space on Site 5. The existing Essex Street Market would be relocated from Site 9 to a new, larger facility of approximately 29,000 gsf.

The urban design concept for the LSGD is to combine the defining characteristics of the northern and southern portions of the study area—the strong streetwalls north of Delancey Street, and the light and air provided by the "tower in the park"-style developments south of Delancey Street—using a tower on base approach to provide a transition between these two distinct areas. The illustrative massing prepared for the RWCDS anticipates higher density along Delancey and Essex Streets, with lesser density and lower heights on the portions of the sites fronting other, narrower streets. The illustrative RWCDS massing contemplates building base heights of between 60 and 85 feet (six to eight stories), with varying heights above.

Table 8-2 provides the assumed RWCDS and maximum heights for the development on each site. **Figure 8-26** shows an illustration of the maximum zoning envelopes on the nine development sites; **Figures 8-27a through 8-27f** show potential massings for the RWCDS on Sites 1-6; and **Figures 8-28** and **8-29** provide illustrative renderings of some of the potential massings for the RWCDS.

The actual development on each site would be within the limits of the maximum zoning envelope according to LSGD rules, and the design would be determined through responses to Request(s) for Proposals. For the maximum zoning envelope, Sites 2 and 4 could have new towers of up to 285 feet and 260 feet, respectively (315 and 290 feet, respectively, to the top of mechanical bulkheads, or up to approximately 24 stories), and the new developments on Sites 1, 3, 5, and 6 could have building heights of up to 160 feet (190 feet to the top of mechanical bulkheads, or up to approximately 14 stories). The development projected to occur on Sites 8, 9, and 10 (80 feet tall on Essex Street, 120 feet tall along Delancey Street) would be consistent with

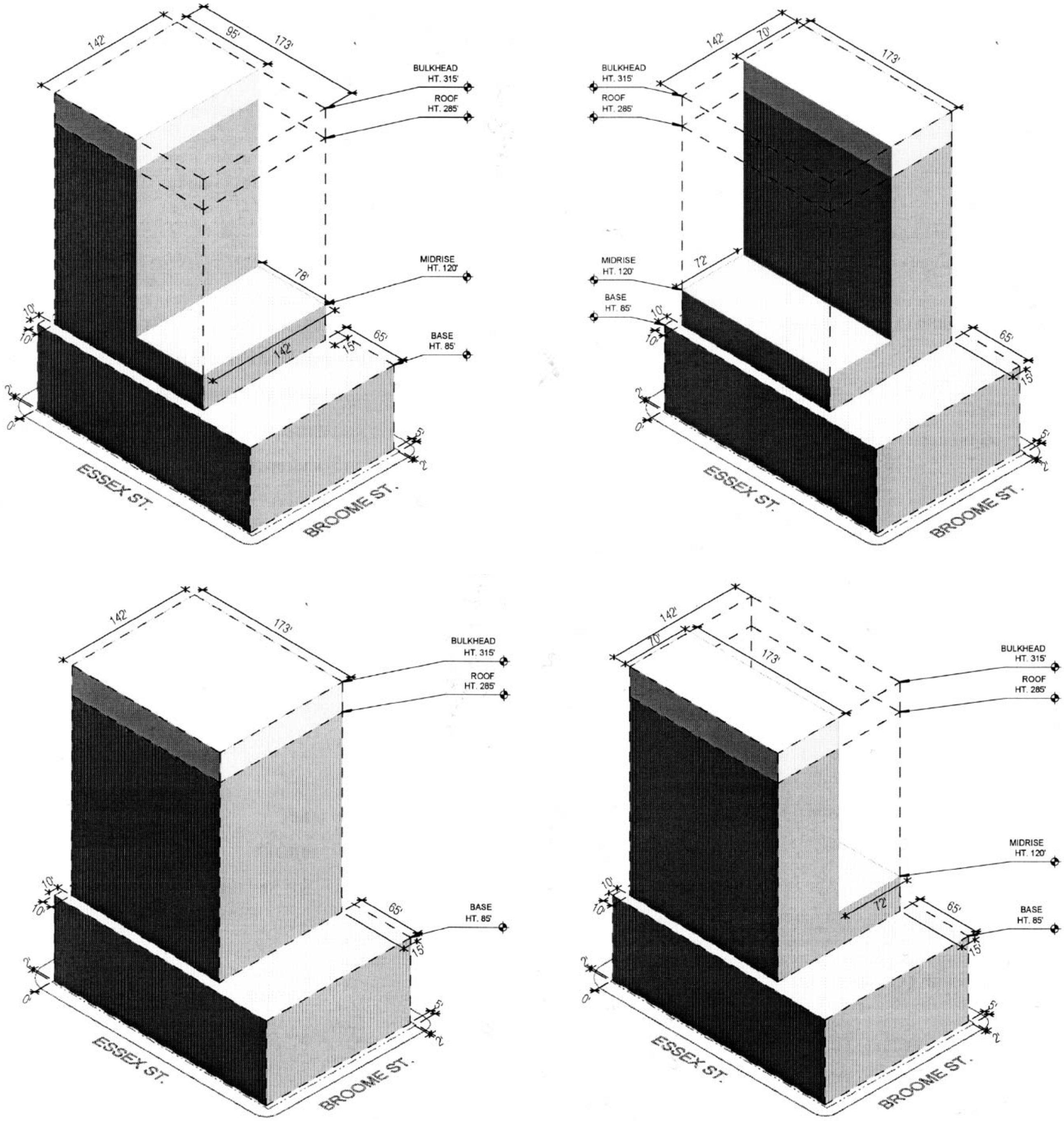




FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 1 - View from Northeast

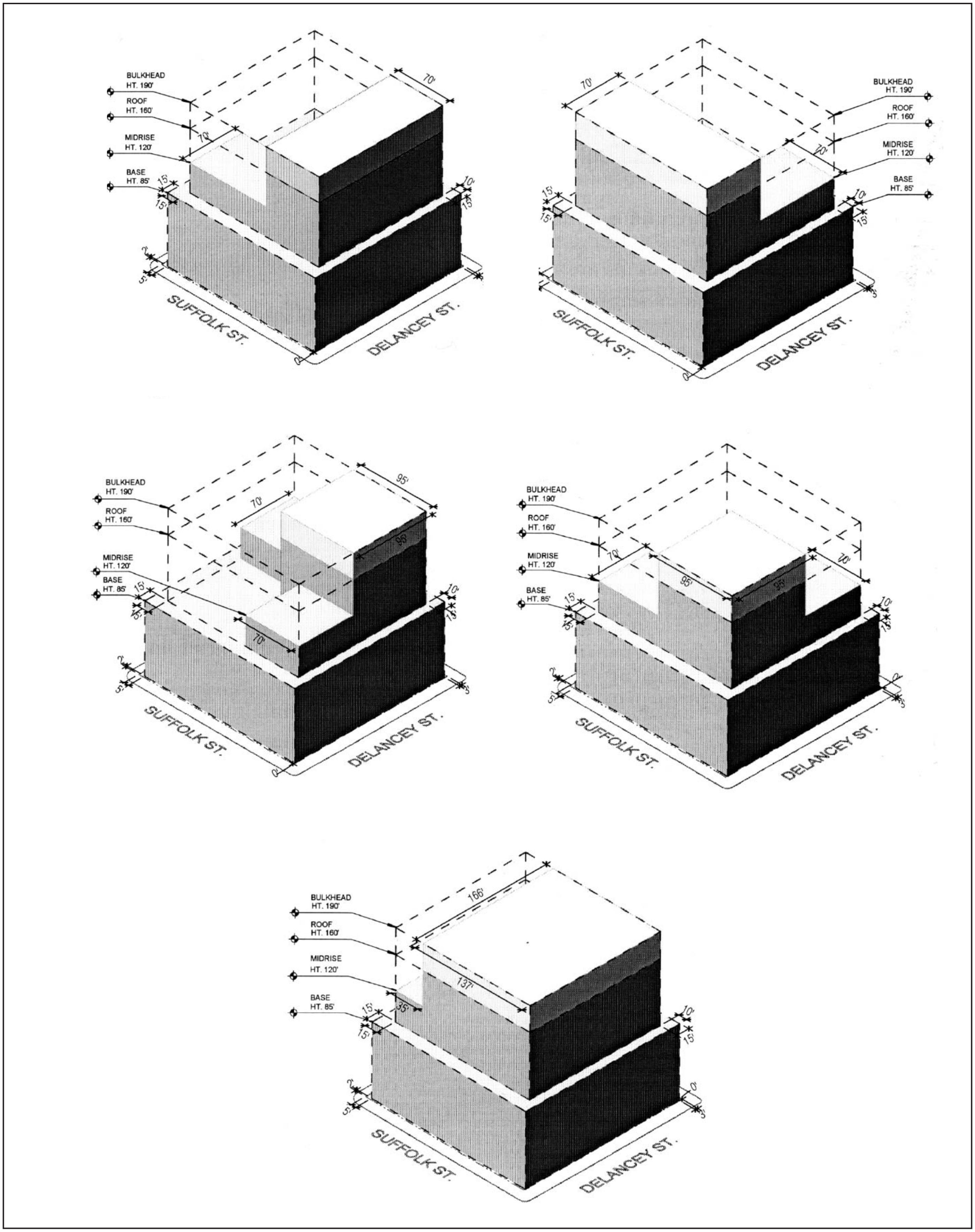
Figure 8-27a



FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 2 - View from Southwest

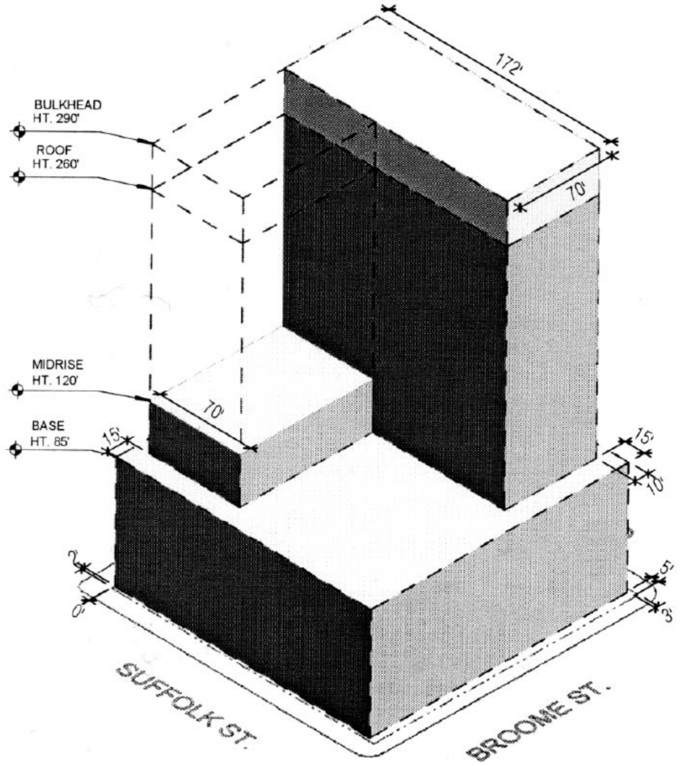
Figure 8-27b

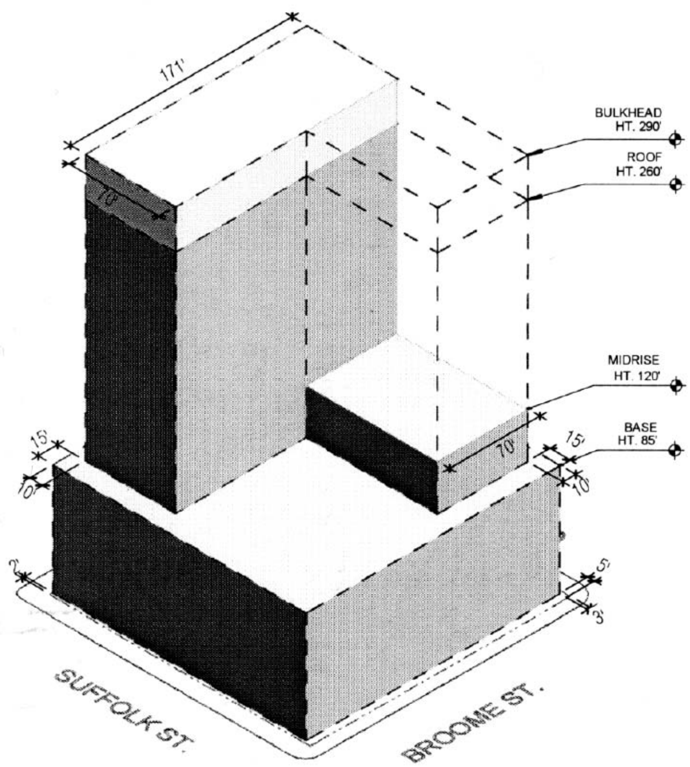


FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 3 - View from Northeast

Figure 8-27c

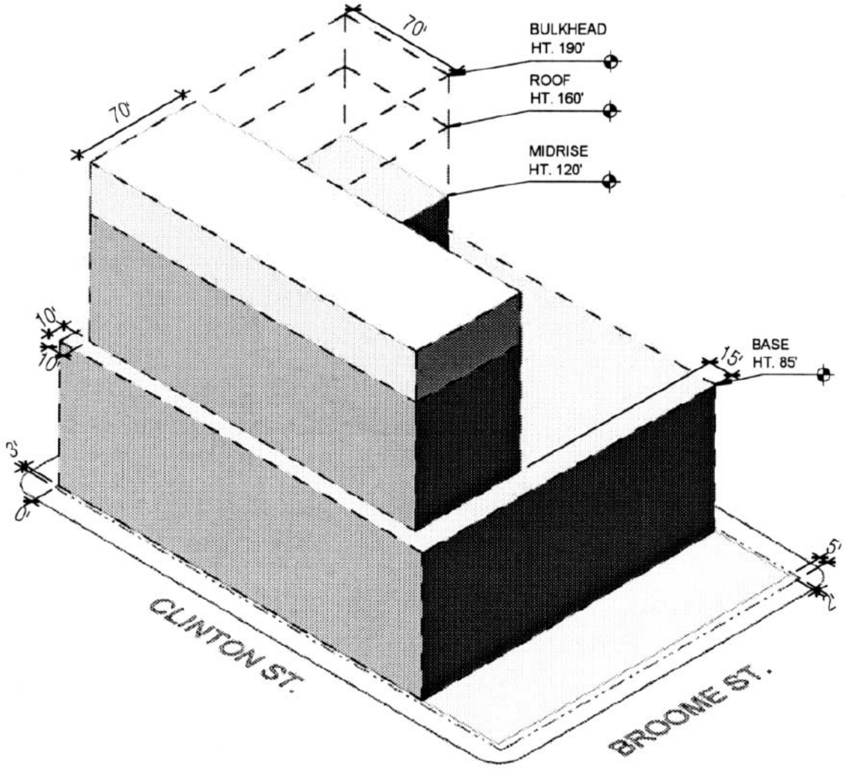


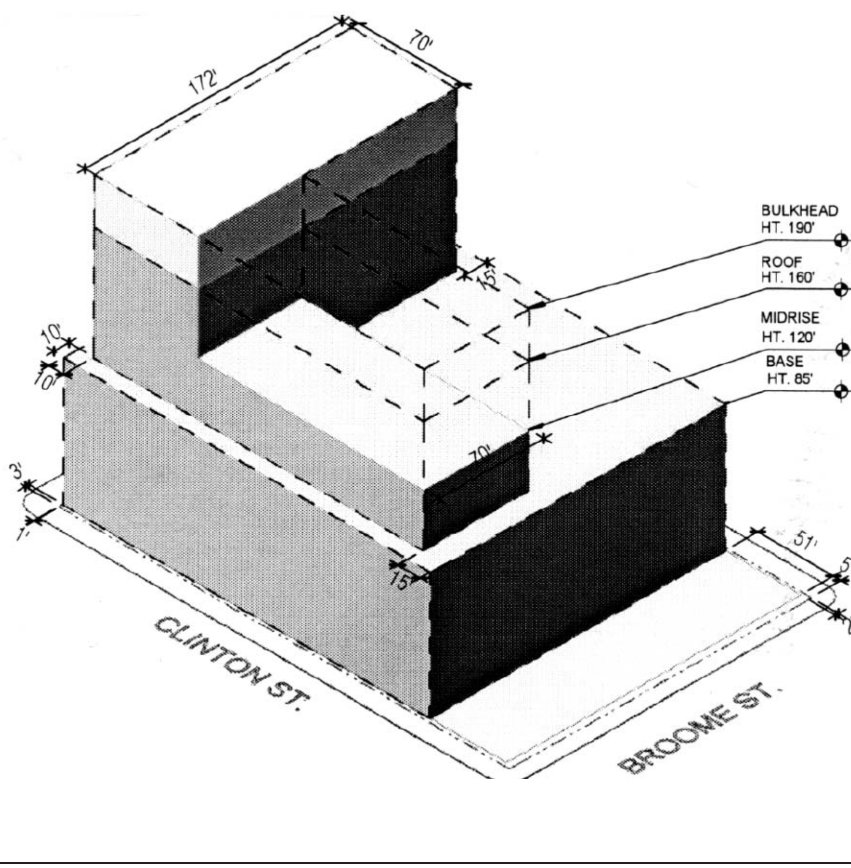


FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 4 - View from Southwest

Figure 8-27d

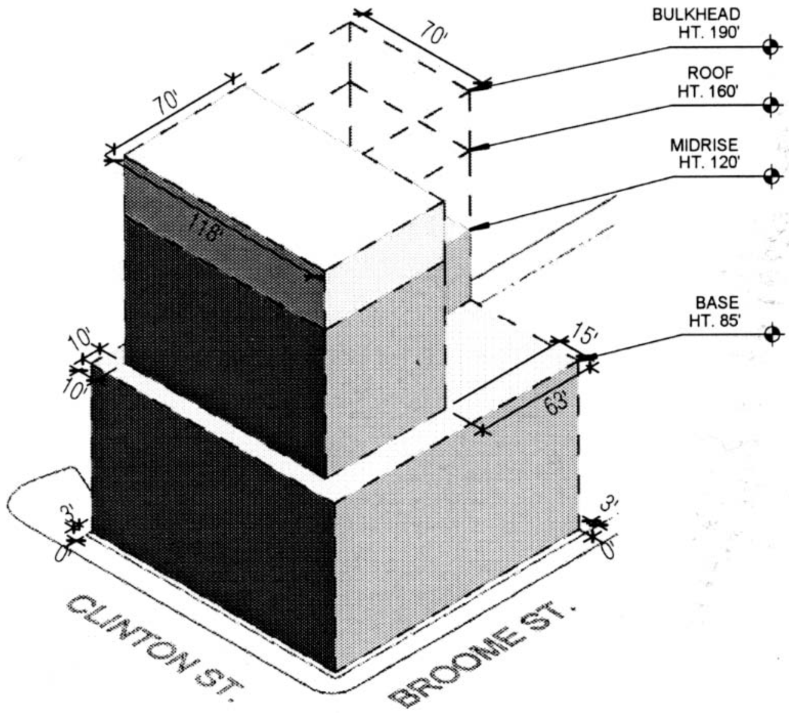


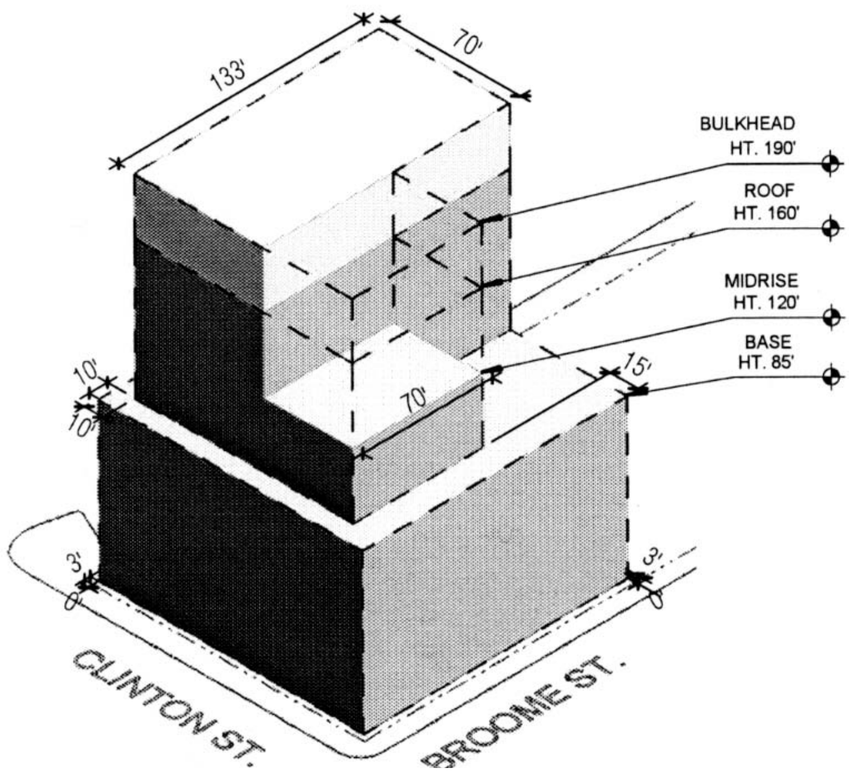


FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 5 - View from Northeast

Figure 8-27e



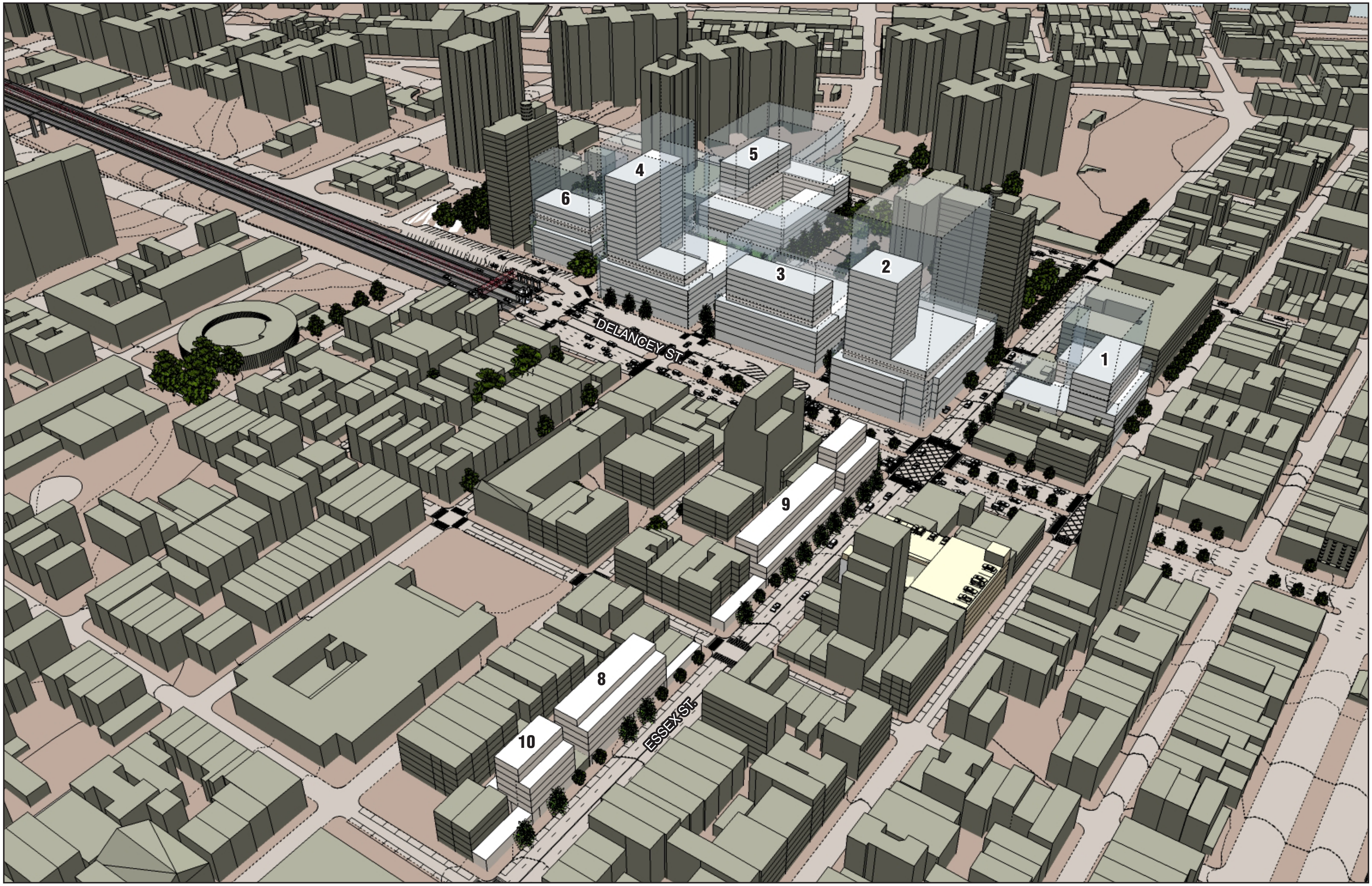


FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Large Scale General Development Massings
Site 6 - View from Southwest

Figure 8-27f

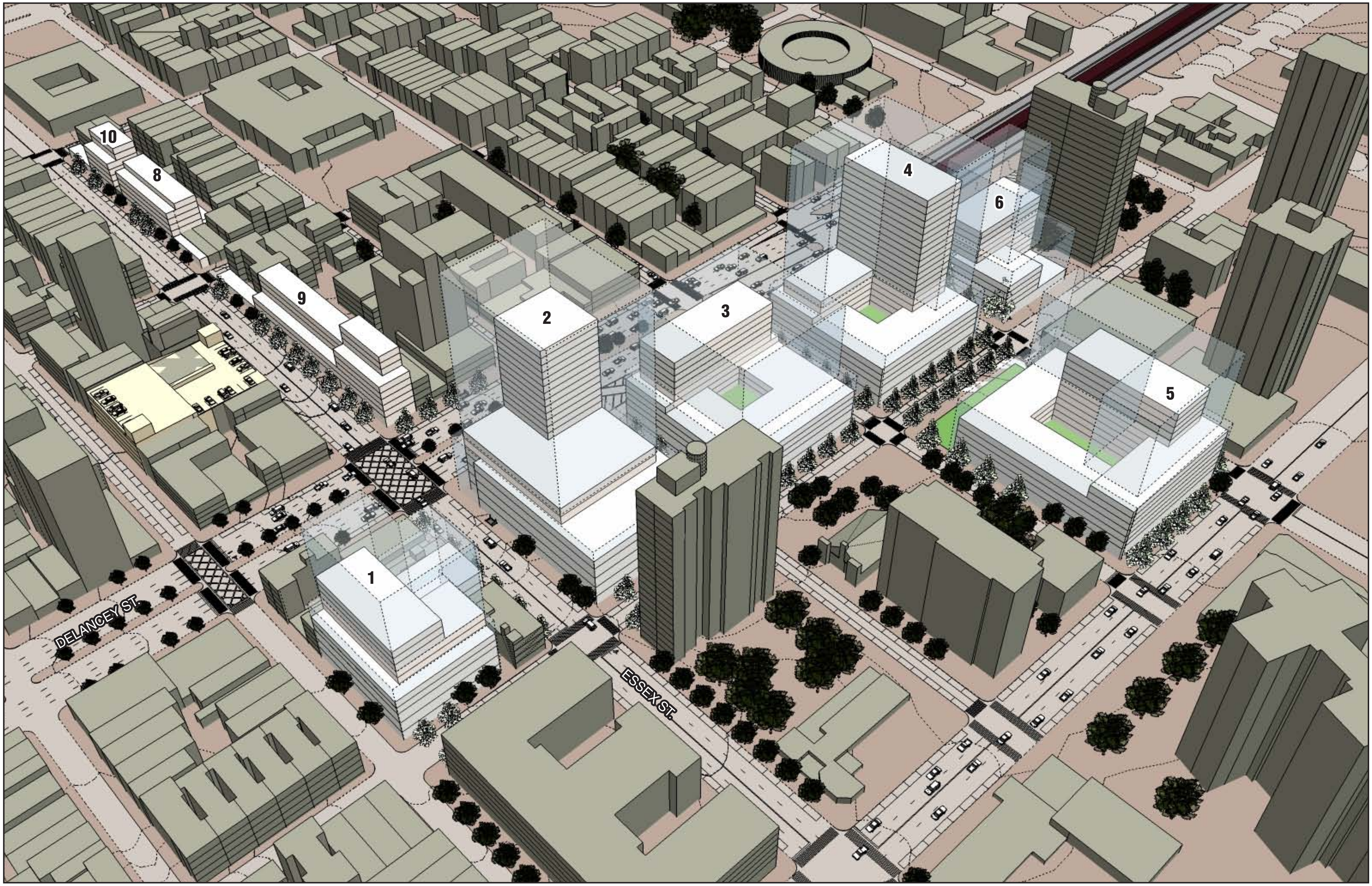
3.21.12



FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Rendering with Maximum Building Envelopes and RWCDS Massing - View South

Figure 8-28



FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Rendering with Maximum Building Envelopes and RWCDS Massing - View Northeast

Figure 8-29

Table 8-2
Preliminary Massing Scenario

Site No.	Maximum Zoning Envelope		RWCDS	
	Maximum Floors	Total Height (Approx., to Mechanical Bulkheads)	Assumed No. Floors	Height (Not Including Mechanical Bulkheads)
1	14	190	10	120
2	24	315	20	231
3	14	190	12	140
4	24	290	22	240
5	14	190	12	130
6	14	190	10	110
7	No change			
8	Existing zoning compliant	80 (Existing zoning compliant)	6	70
9	Existing zoning compliant	80 on Essex, 120 on Delancey (Existing zoning compliant)	9	100
10	Existing zoning compliant	80 (Existing zoning compliant)	7	80

the massing requirements and maximum heights allowable under existing zoning. The upper portions of all buildings would be set back at least 10 feet from wide streets and 15 feet from narrow streets, per zoning, except along Clinton Street where 10-foot setbacks would be permissible. As shown on **Figure 8-26**, it is assumed that the tallest portions of the new development would be oriented along Delancey and/or Clinton Streets. It is also assumed that a portion of the interior of the lots could be reserved for landscaped or private open space. The projected new buildings would have ground-floor retail and residential entrances on multiple sides to create pedestrian activity surrounding the sites as well as to provide necessary access. The projected development also would maximize street-level uses such as retail that support pedestrian activity throughout the development. A publicly accessible open space of approximately 10,000 square feet with a mix of active and/or passive recreation uses also would be incorporated into the development on Site 5. The proposed development is also anticipated to include new street trees.

In comparison to the maximum zoning envelope, the RWCDS assumes that Sites 2 and 4 would have new towers of up to 231 and 240 feet, respectively (up to 20 and 22 stories, respectively) and the new developments on Sites 1, 3, 5, and 6 are assumed to have building heights of between 110 and 140 feet (up to 12 stories). The developments projected to occur on Sites 8, 9, and 10 would be 70, 100 (only on Delancey Street), and 80 feet tall, respectively. As illustrated on **Figures 8-27a through 8-27f, 8-28,** and **8-29**, the RWCDS assumes that the towers on Sites 2 and 4 would be generally oriented toward the wider, more active Delancey Street corridor. The proposed actions are intended to create variety in tower orientation, avoiding towers in adjacent blocks on Delancey Street from orienting in the same north-south or east-west alignment. The upper portions of all buildings would be set back as described above. In comparison to the maximum zoning envelope, the RWCDS illustrative massings also show that the upper portions of the buildings are allowed to have both shorter and taller tower elements, which would add to the individual distinctiveness of each site. In general, the RWCDS assumes that the buildings to be constructed on Sites 1-6 would be less tall and more varied in the arrangement of their bulk than is illustrated by the maximum zoning envelope.

In the portion of the LSGD that is within a C2 zoning district, the sign regulations of a C6-1 district may be made applicable through CPC authorization. The C6-1 district signage equivalent would apply to the LSGD frontages on Delancey and Grand Streets only. The CPC also may modify the provisions of Zoning Resolution Section 32-68 (Permitted Signs on Residential or Mixed Buildings). In order to grant such authorizations, CPC shall find that such modifications are consistent with the location of commercial uses permitted within the LSGC and will not adversely affect residential uses in adjoining residential districts. The changes would allow for the maximum surface area of non-illuminated and illuminated signs to be up to 500 square feet on each street frontage, rather than 150 feet and 50 feet, respectively. In addition, the height of signs accessory to non-residential uses would be permitted up to 40 feet above curb level, rather than up to 25 feet above curb level for commercial buildings or below the level of the finished floor of the third story for residential buildings.

Compared to the future without the proposed actions, in the future with the proposed actions the visual appearance and thus the pedestrian experience of the development sites would change considerably; however, this change would not meet the *CEQR Technical Manual* threshold for a significant adverse urban design impact, in that it would not alter the arrangement, appearance, or functionality of the sites such that the alteration would negatively affect a pedestrian's experience of the area. Rather, instead of undeveloped and under-developed sites surrounded by chain link fencing, the pedestrian would experience new buildings with active ground-floor uses, including retail (see **Figures 8-30** and **8-31**). The gaps in the streetscape of the neighborhood south of Delancey Street would be filled with this new development. New street trees would shade as well as visually enhance the experience of walking around the project sites. Greater levels of pedestrian activity generated by the proposed uses on the sites would be self-reinforcing, making the project area more inviting and appealing to visit. As with the existing buildings on Sites 8, 9, and 10, the projected development on these sites would be built to the lot line, thus maintaining streetwalls where they currently exist. The new development on Sites 1-6 would be pulled back slightly from the lot line on two or more sides to accommodate wider sidewalks; therefore, the streetwalls on these frontages would be approximately the same, but one to five feet deeper, depending on the site and frontage. New streetwalls would be created by the buildings to be developed on Sites 1, 3, 4, and 6, thus strengthening the visual character of these sites and connecting them to the surrounding built environment, and the streetwalls created by existing buildings on other sites would be maintained with the new development. The new publicly accessible open space on Site 5 would bring passive and/or active recreational opportunities to an area where these are not widely available to the general public. (While there are more public open spaces in the larger neighborhood, including Seward Park and Sara D. Roosevelt Park, as noted above the public open spaces within the study area are mainly playgrounds associated with public schools and public and privately-owned housing complexes.) The proposed mapping and demapping actions would make the mapped street pattern consistent with the pedestrian's current experience of those areas. The potential changes in signage regulations would provide for larger and higher-placed signage than is currently allowed on Delancey, Grand, and Essex Streets; however, as noted above these are among the main pedestrian and vehicular thoroughfares in the study area and thus are more appropriate locations for larger signage than other, more narrow or residential streets. In addition, Delancey Street already includes large directional signage on gantries.

Existing/No Action Condition

FOR ILLUSTRATIVE PURPOSES ONLY

With Action Condition

Illustrative Rendering of Broome Street
View West from Clinton Street
Figure 8-30

Existing/No Action Condition

FOR ILLUSTRATIVE PURPOSES ONLY

With Action Condition

Illustrative Rendering of Proposed Developement
Aerial View South
Figure 8-31

The buildings on the project sites would generally be anticipated to fully occupy their lots, and thus would be consistent with the full lot coverage of existing buildings on Sites 8–10 (as well as the structure on Site 7, which will remain). Exceptions to this pattern would be the sidewalk setback easements noted above for Sites 1 through 6, and the new open space to be developed on Site 5. Furthermore, the assumed building base height (6-8 stories) reflects the scale of existing buildings in the northern portion of the surrounding area, which as noted above are predominantly tenements. Although the towers on the development sites would be taller than what currently exists on the sites, because Sites 1-6 are mostly not developed with buildings, they would be generally consistent with other large-scale buildings within the surrounding area. As described above, the buildings in the southern portion of the study area are generally towers on superblocks, set back from the street line within a landscaped setting. The LSGD allows for transfer of floor area and variations in the arrangement of bulk across Sites 1-6; however, the overall height maximums established within the LSGD would be maintained. Furthermore, the RWCDS assumes that the buildings to be constructed on Sites 1-6 would be less tall and more varied in the arrangement of their bulk than is illustrated by the maximum zoning envelope. The ground floors of the new buildings within the LSGD would be required to have 70 percent glazing, with a minimum of 50 percent transparency and a maximum of 20 percent translucency, to help activate the ground-floor appearance of these buildings. The uses proposed for the new buildings would be consistent with land uses found in the surrounding area.

Overall, the proposed actions would enhance the pedestrian's experience of the development sites by replacing underutilized buildings and surface parking lots with new active, mixed-use development.

STUDY AREA

Compared to the future without the proposed actions, in the future with the proposed actions the visual appearance of the development sites—and thus the pedestrian's experience of the study area—would change considerably. The gaps in the streetscape of the neighborhood south of Delancey Street would be filled with new, active development. New street trees would shade as well as visually enhance the experience of walking around the project sites. Greater levels of pedestrian activity generated by the proposed uses on the sites—particularly ground-floor retail uses—would be self-reinforcing, making the project area more inviting and appealing to visit. New streetwalls would be created where they do not currently exist.

The proposed actions would preserve existing streets, including those that had been demapped in the 1960s but were never taken out of functional use. In terms of building orientation and access, the projected new buildings would have retail and residential entrances on multiple sides to create pedestrian activity surrounding the sites, provide necessary access, and integrate with the existing neighborhood.

As noted above, for the maximum zoning envelope, Sites 2 and 4 are assumed to have new towers of up to 285 and 260 feet, respectively (315 and 290 feet respectively to the top of mechanical bulkheads, approximately 24 stories), and the RWCDS assumes that these sites would have new towers of up to 231 and 240 feet, respectively (up to 20 and 22 stories, respectively). The new developments on Sites 1, 3, 5, and 6 are assumed for the maximum zoning envelope to have building heights of up to 160 feet (190 feet to the top of mechanical bulkheads, up to approximately 14 stories), and up to 140 feet (approximately 12 stories) for the RWCDS. The height of the anticipated towers on Sites 2 and 4 would be compatible with the larger existing buildings in the area, such as the various Seward Park Extension towers, which range in height from 229 to 232 feet. The height of the anticipated towers on Sites 1, 3, 5, and 6 would be more consistent with that of the Seward Park Houses (at approximately 187 feet) to the south and the 169-foot-tall Blue Condo and the 195-foot-tall Hotel on Rivington to the north. The setbacks of the anticipated towers would permit access to light and air. The lot coverage of the new buildings on Sites 1–6 would be greater than that of other large-scale developments south of Delancey Street, which are mainly set within large, landscaped sites, and would be more consistent with the lot coverage of the existing Essex Street Market buildings, tenements, and other lower-scale buildings in the study area. Due to the greater lot coverage on these sites, the overall bulk of the new buildings may appear larger than that of the various existing larger-scale buildings noted above, even though the density is consistent with the surrounding context. The proposed actions would bring a greater level of active ground-floor uses to the portion of the study area south of Delancey Street and east of Essex Street, where the existing large housing developments currently do not provide many such uses. The proposed mixture of uses would be consistent with existing study area uses, however.

In summary, the proposed actions would change the urban design and visual character of the study area, but would improve the pedestrian experience by activating currently underdeveloped and under-utilized sites. This change would be consistent with the existing trends of new residential, hotel, and mixed-use development, making the neighborhood more densely developed.

VISUAL RESOURCES

PROJECT SITE

As noted above, there are no visual resources located on the project site. With the proposed actions, pedestrian-level views would no longer be available through the currently undeveloped portions of Sites 1–6; however, these through-site views do not currently provide views to any visual resources except the Williamsburg Bridge, and views of the Williamsburg Bridge would remain from Delancey Street adjacent to Sites 2–4 and 6, as well as other locations within the study area. Pedestrian-level views would still be available along sidewalks adjacent to Sites 1–6, and views north and south on Essex Street from sidewalks adjacent to Sites 7–10 also would remain available in the future with the proposed actions.

STUDY AREA

In the future with the proposed actions, pedestrian-level views in the study area would include the more dense development anticipated on Sites 1–6 and 8–10 (see **Figure 8-30**). Since this development would be contained within existing blocks, existing view corridors along study area streets would not be obstructed. Delancey, Grand, and Allen Streets would continue to provide the most expansive view corridors, and views east along Delancey Street would continue to include the Williamsburg Bridge approach and its Manhattan-side anchorage. The context of these views would change notably with the new development—particularly the development anticipated on Sites 1–6—but this change would not be expected to be adverse (see **Figure 8-31**). Rather, the Delancey Street view corridor could be enhanced, as it could become more focused on the elements of the Williamsburg Bridge by the new development along the street, which would better frame these views.

Other than Delancey Street, views along Essex, Broome, and, to a lesser extent, Grand Streets would be most altered with the proposed actions. The change would be less notable on Essex Street north of Delancey Street, as the development projected for Sites 8, 9, and 10 would be consistent with the massing requirements and maximum heights allowable under the recently established contextual zoning. South of Delancey Street, views along these streets would no longer be as expansive, and they would be framed by new buildings, rather than fenced parking. The new buildings would be anticipated to improve the visual character of these sites, and thus the character of the view corridors, compared to the future without the proposed actions. The Blue Condo building and large-scale housing complexes in the surrounding area would be less visible from these vantage points; however, the Blue Condo and other tall, modern developments north of Delancey Street still would be visible in many other study area views, rising above the lower-scale development in this portion of the study area. Views along Grand Street would now include the new development on Site 5, which—at approximately 180 feet tall—would be similar to the 187-foot-tall Seward Park Houses on the south side of the street. Views along Allen Street are not anticipated to be affected by the proposed actions. Views of the top of the Empire State Building from Clinton Street near East Broadway would likely no longer be available because of the development on Sites 1–5; however, these views are not prominent, and the Empire State Building would continue to be visible from other locations within and outside of the study area.

From the Williamsburg Bridge, views to the development sites north of Delancey Street would not be notably different with the proposed actions compared to existing conditions, since these sites are not currently visible from this location and would be developed with smaller-scale buildings. Views to the development sites south of Delancey Street, however, would be notably altered. The increased scale, both in terms of bulk and height, of the new buildings in this portion of the project area would be a significant change from the existing appearance and character of these sites. In many cases, the sites would go from hosting no buildings, to being fully occupied by tall, bulky structures. While significant, this change is not anticipated to be adverse. The change in views would not obstruct any visual resources, and views from this location are transitory.

Overall, while the proposed actions would result in substantial urban design changes, it would not have any significant adverse impacts related to urban design and visual resources. ✷

A. INTRODUCTION

This chapter assesses hazardous materials issues related to the proposed actions and subsequent development, specifically the potential presence of hazardous materials on the project site in soil, groundwater, or existing structures.

Hazardous materials, as defined in the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition), are substances that pose a threat to human health and the environment including, but not limited to, heavy metals, volatile and semi-volatile organic compounds (VOCs and SVOCs), methane, polychlorinated biphenyls (PCBs), and pesticides.

As described in the *CEQR Technical Manual*, the goal of a hazardous materials assessment is to determine whether a proposed action could lead to potential increased human exposure to hazardous materials and whether the increased exposure could lead to significant public health impacts or environmental impacts. The objective of this analysis is to determine which, if any, of the ten sites, constituting the project site, may have been adversely affected by current or historical uses on-site, adjacent to, or within 400 feet of the sites, such that the property may have been adversely impacted by hazardous materials.

To identify any potential environmental concerns from past or current on- and off-site operations, the following reports were reviewed: a September 2008 *Phase I Environmental Site Assessment* (ESA) for Sites 1 to 9 prepared by H2M in conformance with the requirements of ASTM E-1527-00 and a September 2010 Phase I ESA for Site 10 prepared by GIANCO Environmental Services in conformance with ASTM E-1527-05. Both ESAs evaluated sites for potential impacts due to hazardous materials by reviewing: (1) historical aerial photographs, topographic maps and Sanborn fire insurance maps; (2) environmental regulatory databases for the sites and buffer areas; and (3) City directories of historic occupants. Additional information included site reconnaissance to identify environmental conditions and current occupants or operations/activities.

PRINCIPAL CONCLUSIONS

The proposed actions would result in the demolition of existing structures and surface parking areas on Sites 1–6 and 8–10 followed by subsurface disturbance associated with construction of new structures. Site 7 would not be redeveloped pursuant to the proposed actions and the existing parking garage would remain.

As described below, the proposed project would include appropriate health and safety/remedial measures that would precede or govern demolition, construction, and soil disturbance activities on the development sites. With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions. Following construction, there would be no potential for significant adverse impacts.

B. EXISTING CONDITIONS

Though primarily now used for parking or retail operations, historical uses at the sites have included: plumbers (Sites 1 and 2), a laundromat (Site 2), auto repair (Site 3), printing (Sites 3, 4 and 9), a firehouse (Site 5), and a machinist (Site 9).

The 2008 Phase I identified three *Recognized Environmental Conditions*, i.e., per ASTM E1527-00, "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products." These related to:

- Out of service fuel oil underground storage tanks (USTs) at Sites 3 and 5;
- A vaulted 1,500 gallon fuel oil aboveground storage tank (AST) at Site 5; and
- Potential vapor intrusion issues at Sites 1–9 due to possible historical releases from the many nearby USTs, ASTs and drycleaners and/or a historical manufactured gas plant (MGP) located on Hester Street (for which no remediation is currently required by New York State).

Site 5 was also identified as associated with a facility that previously generated lead and chromium wastes that were sent for off-site disposal. The 2010 Phase I conducted separately for Site 10 did not identify any *Recognized Environmental Conditions*.

Both Phase Is also identified that, due to their age, existing structures on the project site may include asbestos-containing materials (ACM) and/or lead-based paint.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to a Request for Proposals (RFP) process. Since there are no site-specific proposals at this time, certain parameters necessary for a subsurface investigation (i.e., depth to foundation, building footprint, presence/absence of a cellar level) are unknown. Subsequent investigation, including soil and groundwater testing (and potential remediation), would be undertaken by the developer(s) after selection. For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), these measures will be required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by the New York City Economic Development Corporation (NYCEDC), these measures will be required to be undertaken by the developer(s) through the provisions of a contract <u>of sale or long-term lease,</u> or other legally binding agreement between NYCEDC and the developer(s).

C. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, the project site is expected to continue in its current uses, which do not currently present a hazard to people or the environment. However, legal requirements should petroleum tanks and/or spills be identified, and requirements for maintenance, disturbance and handling of suspect lead-based paint and asbestos-containing materials would need to be followed.

D. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

At all of the sites where ground disturbance is expected to occur as a result of future development activities (i.e., at all sites except Site 7) the proposed actions could have the potential for environmental impacts due to the potential presence of hazardous materials.

Although the proposed actions could result in demolition and construction activities that could increase pathways for human exposure (to workers and the community), the possibility of impacts would be reduced by the measures identified below, which will be included in the LDA between HPD and the developer(s) and the contract of sale or long-term lease, or other legally binding agreement between NYEDC and the developer(s).

For demolition:

- All known petroleum tanks, prior to any demolition activities with the potential to disturb these tanks, would be closed and removed, along with any contaminated soil, in accordance with applicable requirements including New York State Department of Environmental Conservation (NYSDEC) spill reporting and tank registration requirements. If additional tanks are discovered, they would be properly registered, if required, with NYSDEC and/or the New York City Fire Department.
- Unless information exists to indicate that suspect ACMs do not contain asbestos, prior to demolition an asbestos survey would be completed and all ACMs that would be disturbed by the demolition would be removed and disposed of in accordance with local, state, and federal requirements.
- Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Unless labeling or laboratory testing data indicates that suspected PCB-containing fluorescent lighting fixtures, transformers, other electrical equipment, lifts, and elevators do not contain PCBs, and that fluorescent lights do not contain mercury, disposal would be performed in accordance with applicable federal, state, and local requirements.
- Disposal of any chemicals (such as cleaning fluids) would be in accordance with applicable requirements.

For excavation:

- Prior to any new construction, further investigation would be performed on each site to determine the presence and nature of contaminants of concern. Specifically, a *Site Investigation Work Plan and Health and Safety Plan*, the scope of which would include laboratory analysis of soil and groundwater samples and would be pre-approved by DEP, would be implemented. Depending on the Site Investigation results, one or more Remedial Action Plans (RAPs) and Construction Health and Safety Plans (CHASPs) would be prepared and submitted to DEP (and the New York State Department of Environmental Conservation, if necessary) for approval. The RAP would govern all soil disturbance and would include procedures for: removal of petroleum storage tanks; handling, stockpiling, testing, transportation and disposal of excavated materials, including any unexpectedly encountered contaminated soil and petroleum storage tanks; appropriate clean fill importation criteria and criteria for allowable reuse of excavated site soils (whether in the uppermost layer of landscaped areas or elsewhere), and, if necessary, the design of engineering controls to address vapor intrusion (such as a vapor barrier) to be included beneath a newly constructed building. The CHASP would ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment with appropriate air monitoring, dust control, etc.

- During any required dewatering, water would be discharged to the sewer system in accordance with DEP requirements. If necessary, the water would be pretreated prior to discharge.
- As with demolition, any tanks unexpectedly encountered would be closed and removed, along with any contaminated soil, in accordance with applicable requirements including NYSDEC spill reporting requirements. If historical tanks are discovered, they would be properly registered, if required, with NYSDEC and/or the New York City Fire Department.

With the implementation of these measures prior to and/or during demolition and excavation, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions and subsequent development of the project site. Following construction, there would be no potential for significant adverse impacts. ✷

A. INTRODUCTION

This chapter evaluates the potential for the proposed actions to result in significant adverse impacts on the City's water supply, as well as its wastewater and stormwater conveyance and treatment infrastructure. As described in Chapter 1, "Project Description," the proposed actions would result in a mixed-use development on an approximately 6.6-acre project site, which consists of ten City-owned sites (of which nine would be developed) and areas of streets to be mapped and demapped on the Lower East Side of Manhattan (together encompassing the "project site"). The reasonable worst-case development scenario (RWCDS) for the proposed actions envisions the development of 900 dwelling units, over 600,000 gross square feet (gsf) of commercial development, including a hotel, and 10,000 square feet of new publicly accessible open space. These new uses and project-generated residents, employees, and other users would increase the project site's water consumption, sewage generation, and stormwater runoff as compared to conditions in the future without the proposed actions.

PRINCIPAL CONCLUSIONS

This analysis finds that the proposed actions would not result in any significant adverse impacts on the City's water supply, wastewater or stormwater conveyance and treatment infrastructure.

WATER SUPPLY

By 2022, the RWCDS would generate an incremental water demand of 656,392 gallons per day (gpd) as compared to the future without the proposed actions. This represents a 0.06 percent increase in demand on the New York City water supply system. Based on the projected incremental demand, it is expected that there would be adequate water service to meet the proposed actions' incremental water demand, and there would be no significant adverse impacts on the City's water supply.

SANITARY SEWAGE

By 2022, the RWCDS would generate an incremental 373,844 gpd of sewage over the future without the proposed actions. This incremental volume in sanitary flow to the combined sewer system would represent approximately 0.16 percent of the average daily flow to the Newtown Creek Wastewater Treatment Plant (WWTP). This volume would not result in an exceedance of the Newtown Creek WWTP's capacity, and therefore would not create a significant adverse impact on the City's sanitary sewage treatment system.

STORMWATER

The overall volume of stormwater runoff and the peak stormwater runoff rate from the project site is anticipated to slightly increase due to the replacement of surface parking areas with buildings; however, 10,000 square feet of publicly accessible open space is proposed on Site 5. With the incorporation of selected best management practices (BMPs), the peak stormwater runoff rates would be reduced from the future without the proposed actions and would not have a significant impact on the downstream City combined sewer system or the City sewage treatment system.

B. METHODOLOGY

This analysis follows the methodologies set forth in the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition). According to the *CEQR Technical Manual*, a preliminary water analysis is needed if a project would result in an exceptionally large demand of water (over 1,000,000 gpd), or is located in an area that experiences low water pressure (i.e., at the end of the water supply distribution system such as the Rockaway Peninsula or Coney Island). The project site is not located in an area that experiences low water pressure and the proposed actions would not result in water demand exceeding 1,000,000 gpd. Therefore, further water analysis was not warranted; however total water demand has been calculated for purposes of the preliminary sanitary analysis.

A preliminary sewer analysis is warranted if a project site is over 5 acres and would result in an increase of impervious services on the site; or if a project located in a combined sewer area in Manhattan would result in the incremental development of 1,000 residential units or 250,000 square feet of commercial, public facility and institution and/or community facility space. The proposed actions meet both of these CEQR thresholds, and therefore a preliminary sewer analysis was conducted.

Existing and future water demands and sanitary sewage generation are calculated based on use generation rates set by the *CEQR Technical Manual*.[1] The New York City Department of Environmental Protection (DEP) Flow Volume Calculation Matrix was then used to calculate the overall combined sanitary sewage and stormwater runoff volume discharged to the combined sewer system for four rainfall volume scenarios with varying durations. The ability of the City's water and sewer infrastructure to handle the proposed actions' anticipated demand is assessed by estimating existing water demand and sewage generation rates, and then comparing the future with and without the proposed actions. In addition, this chapter compares the incremental water demand and sewage generated from the proposed actions to the future without the proposed actions per *CEQR Technical Manual* methodology.

The project site includes 10 City-owned sites but, as described in Chapter 1, "Project Description," development is proposed on only 9 of the 10 sites. See Figure 1-1 (Site Location Map) for the locations of each of the sites. Site 7, an existing public parking garage, is not proposed to be redeveloped as a part of the proposed actions; therefore it was not included in the calculations for this analysis.

[1] *CEQR Technical Manual*, January 2012, p.13-12.

C. EXISTING CONDITIONS

WATER SUPPLY

New York City's water supply system is composed of three watersheds—Croton, Delaware, and Catskill—and extends as far north as the Catskill Mountains. From these watersheds, water is carried to the City via a conveyance system made up of reservoirs, aqueducts, and tunnels. Within the City, a network of underground water pipes distributes water to customers. On average, the New York City water system delivers approximately 1.1 billion gallons per day (bgd) to the five boroughs and Westchester County.

The Croton system supplies an average of 22 million gallons per day (mgd), primarily to users in the lower-elevation portions of Manhattan and the Bronx. The Delaware and Catskill systems supply all five boroughs and deliver approximately 98 percent of the City's drinking water. The Delaware and Catskill water systems collect water from watershed areas in the Catskill Mountains and deliver it to the Kensico Reservoir in Westchester County. From the Kensico Reservoir, water is sent to the Hillview Reservoir in Yonkers, which balances the daily fluctuations in water demand and pressure to the system. From there, water is delivered to the City through three tunnels, Tunnel Nos. 1, 2, and 3. Tunnel No. 1 carries water through the Bronx and Manhattan to Brooklyn; Tunnel No. 2 travels through the Bronx, Queens, Brooklyn, and then through the Richmond Tunnel to Staten Island; and Tunnel No. 3 goes through the Bronx and Manhattan, terminating in Queens. City Tunnel No. 1 serves the southern portion of Manhattan where the project site is located.

WATER CONSUMPTION

City water mains are present in all the roadways adjacent to each of the development sites. There are currently buildings on Sites 2, 5, 8, 9 and 10; however 35,925 square feet of the 83,395 square feet of building space is currently vacant. **Table 10-1** summarizes the estimated water demand on Sites 1-6 and 8-10.

Table 10-1
Existing Water Consumption

Use	Unit	Size (Square feet)	Rate	Consumption (gallons per day)
Residential				
Domestic	9 (people)	NA	100 gpd/person	900
Retail				
Domestic	NA	23,480	0.24 gpd/sf	5,635
Air Conditioning	NA	23,480	0.17 gpd/sf	3,992
Commercial				
Domestic	NA	11,912	0.10 gpd/sf	1,191
Air Conditioning	NA	11,912	0.17 gpd/sf	2,025
TOTAL	NA	NA	NA	**13,743**

Source: Rates from *CEQR Technical Manual* (January 2012 edition).

SANITARY SEWAGE

Sanitary sewage from the proposed development sites is conveyed to combined sewers in the abutting streets. For purposes of this analysis, the amount of sanitary sewage is conservatively estimated as all water demand except that used by air conditioning, which is typically not discharged to the sewer system. The estimated amount of daily sanitary sewage currently generated by the proposed development sites is 7,726 gpd.

In periods of dry weather, the combined sewers that are in the streets adjacent to the project site convey only sanitary sewage. During and immediately after wet weather, the combined sewers can experience a much larger flow due to stormwater runoff collection. To control flooding at the Newtown Creek WWTP, where combined sewage from the project site is treated, regulators are built into the system to allow only approximately two times the amount of design dry weather flow into the interceptors. The interceptor takes the flow to the Newtown Creek WWTP, while the excess flow to the regulators is discharged to the nearest waterbody as combined sewer overflow (CSO).

The 9 proposed development sites are located within the subcatchment areas of 8 different CSO outfalls (although all flow during dry weather is ultimately conveyed to Newtown Creek WWTP). See **Figure 10-1** for a map of CSO Outfall Subcatchment Area Locations. Sites 1, 2, 3, 4, 6 and 81 percent of Site 5 comprise approximately 4.98 acres and are located in CSO outfall subcatchment areas NCM-042, NCM-059, and NCM-060 (based on information provided by DEP, approximately 1.66 acres are located in each of these CSO outfall subcatchment areas). Approximately 19 percent of Site 5 (approximately 0.26 acres) is within CSO outfall subcatchment area NCM-063. Sites 8 and 10 (approximately 0.41 acres) are within CSO outfall subcatchment areas NCM-020 and NCM-057. Approximately 0.21 acres from Sites 8 and 10 are conveyed to CSO outfall NCM-020 and the remaining approximately 0.21 acres is conveyed to NCM-057. A total of 39 percent (approximately 0.19 acres) of Site 9 is with the CSO outfall NCM-028 subcatchment area and 61 percent (approximately 0.29 acres) is conveyed to CSO outfall NCM-058.

Flow is conveyed via the interceptor to the 13th Street Pumping Station, where flow is pumped from Manhattan to Newtown Creek WWTP. At Newton Creek WWTP, wastewater is fully treated by physical and biological processes before it is discharged into the East River. The quality of the treated wastewater (effluent) is regulated by a New York State Pollution Discharge Elimination System (SPDES) permit issued by the New York State Department of Environmental Conservation (DEC). A maximum daily capacity for each treatment facility in the City is set to ensure that the quality of effluent is acceptable to discharge into surrounding water bodies, and the maximum capacity for the Newtown Creek WWTP is 310 million gallons per day (mgd). The average monthly flow over the past 12 months is 230 mgd, well below the maximum permitted level of 310 mgd.

STORMWATER

As discussed above, the area surrounding the project site is served by a combined sewer system that conveys both sanitary and stormwater to Newton Creek WWTP. Stormwater runoff from the project site is collected and conveyed by the City’s combined sewers to the Newtown Creek WWTP.

Cumulatively, the proposed development sites (Sites 1–6 and 8–10) are approximately 6.14 acres in size. As described above, combined sewer flow from the development sites is conveyed to 8 CSO outfall drainage areas. **Table 10-2** describes the surfaces and surface areas of the development sites, and how stormwater runoff is currently discharged from the sites. The weighted runoff coefficient calculated for each of the subcatchment areas is listed in Table 10-2. These numbers correspond to the percentage of precipitation that becomes surface runoff.

2.21.12

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

CSO Subcatchment Area

Regulator

Tide Gate

CSO Outfall

NOTES:
1. Per DEP, Sites 1,2,3,4,6 and a portion of Site 5 are located within CSO subcatchment areas NCM-042, NCM-059, and NCM-060 and Sites 8 and 10 are located within CSO subcatchment areas NCM-020 and NCM-057.

2. Regulator, Tide Gate and Outfall Locations are approximate

0 400 800 FEET
SCALE

CSO Subcatchment Area Location
Figure 10-1

Table 10-2
Existing Surface Coverage

Affected CSO Outfall	Surface Type	Surface Areas (sf)/ Percent Coverage	Discharge Method	Weighted Runoff Coefficient
NCM-020	Building Roofs	9,025/100%	Combined Sewer	
	Total	**9,025/100%**		**1.00**
NCM-028	Building Roofs	8,119/100%	Combined Sewer	
	Total	**8,119/100%**		**1.00**
NCM-042	Building Roofs	7,915/11%	Combined Sewer	
	Paved Surfaces	64,439/89%	Combined Sewer	
	Total	**72,354/100%**		**0.87**
NCM-057	Building Roofs	9,025/100%	Combined Sewer	
	Total	**9,025/100%**		**1.00**
NCM-058	Building Roofs	12,698/100%	Combined Sewer	
	Total	**12,698/100%**		**1.00**
NCM-059	Building Roofs	7,914/11%	Combined Sewer	
	Paved Surfaces	64,439/89%	Combined Sewer	
	Total	**72,353/100%**		**0.87**
NCM-060	Building Roofs	7,914/11%	Combined Sewer	
	Paved Surfaces	64,439/89%	Combined Sewer	
	Total	**72,353/100%**		**0.87**
NCM-063	Building Roofs	3,554/31%	Combined Sewer	
	Paved Surfaces	7,981/69%	Combined Sewer	
	Total	**11,535/100%**		**0.90**

Sources: Control Point Associates Survey dated July 2011.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, existing conditions on each of the proposed development sites would not change. Most of the sites would continue to be largely vacant and underutilized.

In 2008, the City Council approved the Lower East Side/East Village Rezoning, which resulted in the rezoning of approximately 111 blocks from R7-2 and C6-1 designations to R7A, R7B, R8A, R8B, C4-4A, and C6-2A designations. This rezoning action is identified to analyze the cumulative impacts of additional sanitary flows to the combined sewer system because the rezoned area is partially located within the CSO outfall NCM-020, NCM-028, NCM-057 and NCM-058 subcatchment areas, and Sites 8, 9, and 10 are located within the 2008 East Village/Lower East Side Rezoning area. As a result of the rezoning, an additional 279,826 gpd of sanitary sewage is projected to be generated, which is approximately 0.21 percent of the 230 mgd average daily flow to Newtown Creek WWTP.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

WATER SUPPLY

By 2022, the proposed actions would result in the full redevelopment of the nine development sites as per the RWCDS. The existing buildings on Sites 2, 5, 8, 9, and 10 would be demolished, and the existing parking uses on all sites except Site 7 would be removed and replaced by the new development. These uses would be replaced by new mixed-use buildings of varying height and bulk. The project site also includes demapped sections of Broome and Suffolk Streets that would be mapped as City streets and sections of Clinton and Delancey Streets that would be demapped. **Table 10-3** summarizes the projected water consumption in the future with the proposed actions for the development sites based on the RWCDS.

Table 10-3
Future With the Proposed Actions Water Consumption

Use	Unit	Size (Square feet)	Rate	Consumption (gallons per day)
Residential				
Domestic	1,989 (people)[1]	NA	100 gpd/person	198,900
Air Conditioning	NA	951,182	0.17 gpd/sf	161,701
Commercial/Office[2]				
Domestic	NA	150,304	0.10 gpd/sf	15,030
Air Conditioning	NA	150,304	0.17 gpd/sf	25,552
Retail[3]				
Domestic	NA	498,501	0.24 gpd/sf	119,640
Air Conditioning	NA	498,501	0.17 gpd/sf	84,745
Hotel				
Domestic	200 (rooms)	NA	120 gpd/room/occupant[4]	48,000
Air Conditioning	NA	97,450	0.17 gpd/sf	16,567
TOTAL	NA	1,697,437	NA	**670,135**

Notes:
1. The number of residents was calculated based on 900 units. A Community District 3 rate of 2.21 residents per unit was applied.
2. Commercial/Office uses also include community facilities.
3. Retail uses include the relocated Essex Street Market.
4. Assumes 2 occupants/hotel room.

Source: Rates from *CEQR Technical Manual* (January 2012 edition).

The cumulative water demand from the development on Sites 1–6 and 8–10 would be 670,135 gpd. The incremental water demand over the No Action condition generated by uses that would be introduced by the proposed actions would be 656,392 gpd.

The 656,392 gpd incremental demand represents a small increase in demand on the New York City water supply system—approximately 0.06 percent of the 1.1 bgd typically distributed within New York City and Westchester County. As a result, the proposed actions would have no significant adverse impacts on the City's water supply.

SANITARY SEWAGE

The estimated amount of sanitary sewage generated by the proposed development would be 381,570 gpd. The incremental sanitary sewage over the No Action condition generated by the proposed development would be 373,844 gpd. This amount would represent approximately 0.16 percent of the average daily flow of 230 mgd at the Newtown Creek WWTP, and would not result in an exceedance of the Newtown Creek WWTP's capacity. Therefore, the proposed actions would not create a significant adverse impact on the City's sanitary sewage treatment system. In addition, per the New York City Plumbing Code (Local Law 33 of 2007) low-flow fixtures would be required to be implemented and would help to reduce sanitary flows from the new buildings.

STORMWATER

As a result of the proposed development, the weighted runoff coefficient of four of the CSO outfall subcatchment areas (NCM-042, NCM-059, NCM-060 and NCM-063) would slightly increase (see **Table 10-4** for incremental changes to the weighted runoff coefficients**)**. The increase would be a result of the replacement of surface parking with buildings on Sites 1–6; however, in the subcatchment area of CSO outfalls NCM-042 NCM-059, and NCM-060, the increase of the weighted runoff coefficient would be partially offset by the 10,000 square feet of publicly accessible open space that would be developed on Site 5. The weighted runoff coefficient of CSO outfall subcatchment areas NCM-020, NCM-028, NCM-057 and NCM-058 would all remain the same, because these sites are fully occupied by buildings in both the existing and proposed conditions.

Table 10-4
Proposed Surface Coverage

Affected CSO Outfall	Surface Type	Surface Areas (sf)/ Percent Coverage	Discharge Method	Weighted Runoff Coefficient	Existing Weighted Runoff Coefficient	Incremental Change in Runoff Coefficient
NCM-020	Building Roofs	9,025/100%	Combined Sewer			
	Total	**9,025/100%**		**1.00**	**1.00**	**No Change**
NCM-028	Building Roofs	8,119/100%	Combined Sewer			
	Total	**8,119/100%**		**1.00**	**1.00**	**No Change**
NCM-042	Building Roofs	69,020/95%	Combined Sewer			
	Vegetation	3,334/5%	Infiltration/Combined Sewer			
	Total	**72,354/100%**		**0.96**	**0.87**	**+0.09**
NCM-057	Building Roofs	9,025/100%	Combined Sewer			
	Total	**9,025/100%**		**1.00**	**1.00**	**No Change**
NCM-058	Building Roofs	12,698/100%	Combined Sewer			
	Total	**12,698/100%**		**1.00**	**1.00**	**No Change**
NCM-059	Building Roofs	69,020/95%	Combined Sewer			
	Vegetation	3,333/5%	Infiltration/Combined Sewer			
	Total	**72,353/100%**		**0.96**	**0.87**	**+0.09**
NCM-060	Building Roofs	69,020/95%	Combined Sewer			
	Vegetation	3,333/5%	Infiltration/Combined Sewer			
	Total	**72,353/100%**		**0.96**	**0.87**	**+0.09**
NCM-063	Building Roofs	11,535/100%	Combined Sewer			
	Total	**11,535/100%**		**1.00**	**0.90**	**+0.10**
Sources:	Draft Large Scale General Development site plans, dated September 2011.					

Table 10-4 describes the development site surfaces and surface areas, how stormwater runoff would be discharged from the sites and incremental changes to the weighted runoff coefficient.

Using the existing site plan and the draft site plans for the proposed Large Scale General Development, the DEP Flow Volume Calculation Matrix was completed for the existing and With-Action conditions. The calculations from the Flow Volume Calculation Matrix help to determine the change in wastewater volumes to the combined sewer system from existing conditions to the future with the proposed actions. Runoff volumes were calculated for four rainfall volume scenarios with varying durations. The summary tables, taken from the DEP Flow Volume Calculation Matrix, are included in **Table 10-5.**

Table 10-5
DEP Flow Volume Matrix:
Existing and Build Volume Comparison

Rainfall Volume (in.)	Rainfall Duration (hr.)	Runoff Volume Direct Drainage (MG)	Runoff Volume To CSS** (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Runoff Volume To River (MG)	Runoff Volume To CSS** (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Increased Total Volume to CSS** (MG)	Percent Increase From Existing Conditions (%)
NCM-020		Existing 9,025 sf / 0.21 Acres				Build 9,025 sf / 0.21 Acres				**NCM-020 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	*
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	52
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.0036	52
2.50	19.50	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.0061	43
NCM-028		Existing 8,119 sf / 0.19 Acres				Build 8,119 sf / 0.19 Acres				**NCM-028 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0009	*
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0009	40
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.0028	40
2.50	19.50	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.0048	34
NCM-042		Existing 72,354 sf / 1.66 Acres				Build 72,354 sf / 1.66 Acres				**NCM-042 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.0176	*
0.40	3.80	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.03	0.0193	123
1.20	11.30	0.00	0.05	0.00	0.05	0.00	0.05	0.05	0.10	0.0574	122
2.50	19.50	0.00	0.10	0.00	0.10	0.00	0.11	0.09	0.20	0.1010	103
NCM-057		Existing 9,025 sf / 0.21 Acres				Build 9,025 sf / 0.21 Acres				**NCM-057 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	*
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	52
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.0036	52
2.50	19.50	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.0061	43
NCM-058		Existing 12,698 sf / 0.29 Acres				Build 12,698 sf / 0.29 Acres				**NCM-058 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0015	*
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.0015	40
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.0044	40
2.50	19.50	0.00	0.02	0.00	0.02	0.00	0.02	0.01	0.03	0.0076	34
Rainfall Volume (in.)	**Rainfall Duration (hr.)**	**Runoff Volume Direct Drainage (MG)**	**Runoff Volume To CSS** (MG)**	**Sanitary Volume To CSS (MG)**	**Total Volume To CSS (MG)**	**Runoff Volume To River (MG)**	**Runoff Volume To CSS** (MG)**	**Sanitary Volume To CSS (MG)**	**Total Volume To CSS (MG)**	**Increased Total Volume to CSS** (MG)**	**Percent Increase From Existing Conditions (%)**
NCM-059		Existing 72,353 sf / 1.66 Acres				Build 72,353 sf / 1.66 Acres				**NCM-059 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.0176	*
0.40	3.80	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.03	0.0193	123
1.20	11.30	0.00	0.05	0.00	0.05	0.00	0.05	0.05	0.10	0.0574	122
2.50	19.50	0.00	0.10	0.00	0.10	0.00	0.11	0.09	0.20	0.1010	103
NCM-060		Existing 72,353 sf / 1.66 Acres				Build 72,353 sf / 1.66 Acres				**NCM-060 Increment**	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.0176	*
0.40	3.80	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.03	0.0193	123
1.20	11.30	0.00	0.05	0.00	0.05	0.00	0.05	0.05	0.10	0.0574	122
2.50	19.50	0.00	0.10	0.00	0.10	0.00	0.11	0.09	0.20	0.1010	103

Table 10-5, cont'd
DEP Flow Volume Matrix:
Existing and Build Volume Comparison

Rainfall Volume (in.)	Rainfall Duration (hr.)	Runoff Volume Direct Drainage (MG)	Runoff Volume To CSS** (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Runoff Volume To River (MG)	Runoff Volume To CSS** (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Increased Total Volume to CSS** (MG)	Percent Increase From Existing Conditions (%)
NCM-063		Existing 11,535 sf / 0.26 Acres				Build 11,535 sf / 0.26 Acres				NCM-063 Increment	
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0017	*
0.40	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0020	74
1.20	11.30	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.0060	74
2.50	19.50	0.00	0.02	0.00	0.02	0.00	0.02	0.01	0.03	0.0108	64

Notes:
*Percent increase computed for rainfall events only.
** Assumes no on-site detention/BMPs
CSS = Combined Sewer System; MG = Million Gallons

As shown in Table 10-5, the range of the percent increase in total combined sewer discharge to each subcatchment area is as follows:

- NCM-020 - 43 to 52 percent
- NCM-028 - 34 to 40 percent
- NCM-042 - 103 to 123 percent
- NCM-057 - 43 to 52 percent
- NCM-058 - 34 to 40 percent
- NCM-059 - 103 to 123 percent
- NCM-060 - 103 to 123 percent
- NCM-063 - 64 to 74 percent

The Flow Volume Matrix calculations do not, however, reflect the use of any best management practices to reduce sanitary and stormwater runoff volumes to the combined sewer system.

BMPs would be required as a part of the DEP site connection approval process. The BMP Concept Plan in the following section summarizes the potential BMPs that would be suitable for implementation within the project site.

STORMWATER BMP CONCEPT PLAN

The following stormwater BMP concept plan is intended to illustrate opportunities to incorporate onsite stormwater source controls during the site planning and building design phases of project development. The proposed zoning is described within the concept plan to provide a guideline of suitable BMPs based on allowable building form. Refer to **Figure 10-2** for the Stormwater Best Management Practice Concept Plan showing potential onsite stormwater source controls. ~~Pursuant to a Request for Proposals (RFP), which will require the developer(s) to develop and implement~~ For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), the development and implementation of BMPs that would achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites will be

3.21.12

Area for Potential Roof Detention

Proposed Publicly Accessible Open Space

Site with Potential Detention Tanks within Building

Site with Potential Subsurface Detention

NOTES:

1. The selected BMPs will be designed to achieve 0.25 cubic feet per second (cfs) or 10% allowable flow discharge rate, whichever is greater. Other BMPs not identified in this plan could be implemented to achieve the required discharge rate, as approved by DEP.

2. Site 7 would not be redeveloped under the Proposed Actions.

FOR ILLUSTRATIVE PURPOSES ONLY, SUBJECT TO CHANGE BASED ON FINAL DESIGN

Stormwater Best Management Practices Concept Plan

Figure 10-2

required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by the New York City Economic Development Corporation (NYCEDC), the development and implementation of BMPs that would achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites will be required to be undertaken by the developer(s) through provisions of a contract of sale or long-term lease, or other legally binding agreement between NYCEDC and the developer(s). ~~, the development and implementation of BMPs would also be a commitment in the legally binding agreement with the developer(s)~~. The typical BMP measures described would help to avoid exacerbation of existing CSOs discharged to the East River.

ZONING DISTRICT

The existing zoning for Sites 1 and 2 is C6-1, Sites 3-6 is R8, Site 7, 8 and 10 is C4-4A and Site 9 is located in two zoning districts: C6-2A and C4-4A. The proposed actions would not change the underlying zoning of the project site, except to map new C2-5 commercial overlay zones on Sites 3, 4, 5, and 6. See Chapter 2, "Land Use, Zoning, and Public Policy" for a description of the uses and regulations associated with the various existing zoning districts. BMPs suitable for the types of development permitted under the zoning in the future with the proposed actions include green roofs and blue roofs, subsurface detention, porous pavement and enhanced tree pits. Green and blue roofs would be suitable for retaining or releasing stormwater with slowed discharge rates to control peak runoff rates. In addition, onsite rain gardens, infiltration swales and stormwater detention are possible, where open space is required. Walkways, courtyards and other paved areas onsite could be constructed with permeable concrete or porous asphalt to decrease the overall volume of stormwater runoff.

STORMWATER SOURCE CONTROLS

Stormwater management within the project site would be implemented through the use of BMPs including on-site detention facilities (rooftop detention, underground storage tanks or tanks within the buildings) or other stormwater source controls, which would be required as a part of the DEP site connection approval process as described above. On-site detention would be used to store water for gradual release during rain events, freeing up capacity in combined sewers.

~~The City of New York Department of Housing Preservation & Development (HPD)~~ HPD has mandated that all projects using their funding sources be certified as green buildings by Enterprise Green Communities. This program either mandates or provides optional support for many on-site water retention or water management building technologies. It also requires that water conserving fixtures be used. All of the BMPs outlined above would be suitable for the Enterprise Green Communities program for sites under HPD jurisdiction.

In coordination with DEP, the developer(s) to be designated pursuant to a Request for Proposals (RFP) would develop and implement BMPs that would be used together to achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites. For sites that may be under the jurisdiction of HPD, the development and implementation of BMPs that would achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites will be required to be undertaken by the developer(s) through provisions in the LDA between HPD and the developer(s). For City properties that may be managed by NYCEDC, the development and implementation of BMPs that would achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites will be required to be undertaken by the developer(s) through provisions of a contract of sale or long-term lease, or other legally binding agreement between NYCEDC and the developer(s).

With the incorporation of select BMPs outlined in the BMP concept plan, the overall volume of stormwater runoff and the peak stormwater runoff rate would be reduced. In conclusion, the proposed actions would not result in any significant adverse impacts to wastewater treatment or stormwater conveyance infrastructure. ✷

Chapter 11: Solid Waste and Sanitation Services

A. INTRODUCTION

This chapter considers the proposed actions' effects on solid waste and sanitation services. Based on the *City Environmental Quality Review* (*CEQR) Technical Manual* (January 2012 edition), a solid waste assessment determines whether a project has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity, or otherwise be inconsistent with the City's Solid Waste Management Plan (SWMP) or with state policy related to the City's integrated solid waste management system. The following analysis estimates the amount of existing solid waste generated by uses on the project site, and assesses the potential impacts of the proposed actions on solid waste and sanitation services.

PRINCIPAL CONCLUSIONS

While the proposed actions would generate additional solid waste, no significant adverse impacts on solid waste and sanitation services would result from the proposed actions. The New York City Department of Sanitation (DSNY) is responsible for the collection and disposal of municipal solid waste, including the collection of recyclables, generated by residents, some nonprofit institutions, tax exempt properties, and City agencies. Private carters provide these services to commercial and other users. The proposed actions would increase the volume of solid waste and recyclables that would have to be managed, but would not pose a significant strain to overall capacity of the City's municipal and private solid waste system or hamper the provision of adequate sanitation services.

B. EXISTING CONDITIONS

DESCRIPTION OF CURRENT SOLID WASTE SANITATION SERVICES

DSNY is the City agency responsible for the collection and disposal of municipal solid waste, refuse, and designated recyclable materials generated by residences, public schools, some nonprofit institutions, tax exempt non-residential facilities, and many City and State agencies. DSNY also collects waste from City litter baskets, street-sweeping operations, and lot cleaning activities. It is estimated DSNY collects over 12,000 tons of residential and institutional refuse and recyclables per day.[1] DSNY delivers most of the refuse it collects to certain public or private solid waste management facilities known as transfer stations, in the City or in adjoining communities, for processing and transportation to out-of-city disposal facilities. Solid wastes that are not recycled, reused, or converted to a useful product locally must be exported from the City for disposal since New York City does not have public or private local disposal facilities such as sanitary landfills, construction and demolition debris landfills, traditional incinerators, or waste-to-energy resource recovery facilities.

[1] DSNY website: http://www.nyc.gov/html/dsny/html/about/about.shtml

DSNY collects designated recyclables, including metal, glass, and plastic, and designated paper recyclables and delivers them to materials recovery facilities. In addition, DSNY collects residential yard waste on certain fall weekends and delivers it to the City's yard waste and composting facilities.

DSNY developed a Solid Waste Management Plan (SWMP) to address management of expected future demands for the city's solid waste. The SWMP was approved by the New York City Council in July 2006 and by the New York State Department of Environmental Conservation (NYSDEC) in October 2006, and covers the period through 2025.

The City's solid waste management services are undertaken in accordance with the SWMP, through DSNY. The SWMP establishes a hierarchy of preferred solid waste management methods to reduce and process solid waste generated within the City. The objectives of the SWMP are, in order of importance: waste reduction, recycling, composting, resource conservation and energy production, and lastly, landfill disposal. The SWMP calls for DSNY-managed refuse from each borough to be taken to certain transfer stations located in that borough for export by rail or barge to landfills or waste-to-energy facilities. Commercial refuse is taken to private transfer stations or waste-to-energy facilities in the region, and will be accepted at four DSNY marine transfer stations for further transport and disposal. The City's integrated solid waste management system also includes special waste dropoff sites in each borough for certain hazardous or problem wastes, and yard waste composting facilities. The City's Recycling Law, Local Law 19 of 1989, as amended, requires that DSNY and private carters collect designated recyclable materials and deliver them to material recovery facilities. New York City residents are required to separate aluminum foil, glass, plastic and metal containers, and newspapers and other paper wastes from household waste for separate DSNY collection. The Recycling Law also mandates that commercial establishments are subject to recycling requirements. Businesses must separate certain types of paper wastes, cardboard, metal items, and construction wastes for collection by private carters. Food and beverage establishments must recycle metal, glass, and plastic containers, and aluminum foil, in addition to meeting the commercial recycling requirements.

Recycling of certain waste electronic equipment in New York State is regulated by the Electronic Equipment Recycling and Reuse Act, which was enacted in May 2010. This Act requires manufacturers of certain kinds of electronic items sold in the state, such as televisions, computers, and printers, to take back such items of electronic waste for reuse or recycling. The law prohibits disposal of electronic waste within the state by those other than individuals and households as of January 1, 2012, and by individuals and households as of January 1, 2015.

Recycling of rechargeable batteries is enforced by Local Law 97 of 2005. This law requires that rechargeable batteries be taken to local retailers that sell such batteries so that they may be recycled pursuant to a program arranged by the battery manufacturer.

SOLID WASTE GENERATION

The nine proposed development sites contain a number of active uses that currently generate solid waste. Based on *CEQR Technical Manual* solid waste generation rates and waste generation rates from other published environmental studies, the existing uses on the proposed development sites generate a total of approximately 32,123 pounds of solid waste per week (about 16 tons per week). **Table 11-1** summarizes the existing solid waste generation.

Table 11-1
Existing Conditions: Solid Waste Generation

Use	Units	Generation Rate (pounds per week)[1]	Total (pounds per week)
Residential	7 dwelling units	41 per household	287
Single Office[2]	2 employees	9 per employee	18
Storage Space[3]	4 employees	66 per employee	264
Health Clinic[5]	44 employees	13 per employee[4]	572
General Retail[5]	14 employees	79 per employee	1,106
Restaurant[5]	28 employees	251 per employee	7,028
Fast Food[5]	12 employees	200 per employee	2,400
Food Stores[5]	72 employees	284 per employee	20,448
		TOTAL:	**32,123**

Notes:
1. Solid waste generation rates based on Table 14-1 of the *CEQR Technical Manual* (January 2012 edition).
2. Includes a non-profit cultural organization. Assumes 1 employee per 250 sf for the non-profit cultural organization.
3. Assumes 1 employee per 1,000 sf. The solid waste generation rate for storage was based on the solid waste generation for storage space in the *Domino Sugar Rezoning FEIS.*
4. Based on the solid waste generation rate for medical office uses in the *Saint Vincent's Campus Redevelopment DEIS.*
5. Employment estimates for the health clinic, retail, restaurants, and food stores provided by the New York City Economic Development Corporation (NYCEDC).

C. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, it is assumed that the proposed development sites would continue in their current use and configuration, and no notable changes would be expected from these sites with respect to solid waste generation.

D. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

This section discloses the anticipated future demand for solid waste handling in the future with the proposed actions. Under a reasonable worst-case development scenario, it is assumed that the proposed actions would result in 900 dwelling units, 469,350 square feet of retail space, 29,152 square feet of public market space, 36,304 square feet of non-specific commercial uses that could be office space, 114,000 square feet of community facility space, and a 200-room hotel of up to 97,450 square feet. For purposes of analysis, it was assumed that the retail would include a 65,000 square foot grocery store, 298,000 square feet of destination retail space and approximately 106,350 square feet of local retail space. The approximate square footage of restaurant space and fast food space was determined based on Urban Land Institute data on shopping centers.[1]

As shown in **Table 11-2**, the proposed actions would generate solid waste at a rate of 221,238 pounds per week (approximately 110.6 tons). In 2022, an estimated 38,382 pounds (about 19.2 tons) per week of solid waste generated by the proposed actions would be from residential and community facility uses. This residential and public solid waste would be collected by DSNY. According to the *CEQR Technical Manual* guidelines, the typical DSNY collection truck has a capacity of 12.5 tons. Therefore, the proposed actions would be expected to generate solid waste

[1] Urban Land Institute, *Dollars & Cents of Shopping Centers/The SCORE 2008.*

Table 11-2
The Future with the Proposed Actions: Solid Waste Generation

Use	Program	Households/ Employment	Generation Rate (pounds per week)[1]	Total (pounds per week)
Residential	900 units	900 households	41 per household	36,900
Office Building	36,304 sf	145 employees[2]	13 per employee	1,885
General Retail	363,095 sf	535 employees[3]	79 per employee	42,265
Restaurants	21,367 sf	107 employees[4]	251 per employee	26,857
Fast Food	19,887 sf	199 employees[5]	200 per employee	39,800
Food Stores	94,152 sf	236 employees[3]	284 per employee	67,024
Hotel	200 rooms	67 employees[6]	75 per employee	5,025
Community Facility	114,000 sf	114 employees[7]	13 per employee	1,482
Total				**221,238**

Notes:
1. Solid waste generation rates as per Table 14-1 in the *CEQR Technical Manual* (January 2012 edition).
2. Office employment based on 250 sf per employee.
3. Local retail and food stores employment based on 400 sf per employee. Destination retail employment based on 800 sf per employee.
4. Restaurant employment based on 200 sf per employee.
5. Fast food employment based on 100 sf per employee.
6. Hotel employment based on 3 rooms per employee.
7. Based on the solid waste generation rate used in the *Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS* and in the *Willets Point Development Plan FGEIS.*

for DSNY collection that would require up to two added truckloads per week for solid waste collection services. According to the *CEQR Technical Manual*, because of the large size of the City's public and private refuse and recyclables collection fleets, the capacity of the local and regional transfer stations and related access to materials recovery facilities and disposal facilities, and the fact that solid waste often moves in interstate commerce, any given project's waste generation would not likely be significant relative to the total citywide and regionwide system. Therefore, since only two additional truckloads would be needed per week, this is not a significant impact on solid waste services for DSNY.

The non-residential solid waste (retail, office, and hotel uses) would be collected by private carters. The total amount of this waste would be 182,856 pounds per week (or about 91.4 tons). According to the *CEQR Technical Manual* guidelines, commercial carters typically carry between 12 and 15 tons of waste material per truck. Conservatively assuming that the private carters carry 12 tons of solid waste, the proposed actions would require approximately eight additional truck trips per week. As stated in the *CEQR Technical Manual,* because of the large size of the private refuse and recyclables collection fleets as well as other factors, any given project's waste generation would not likely be significant relative to the total citywide and region-wide system. Therefore, the need for eight additional truck trips per week would not be a significant increase in demand and would be met by private-sector response to the increase in service needs.

Overall, compared with the solid waste generation in the future without the proposed actions, the proposed actions would result in a net increase of approximately 95 tons per week (or about 14 tons per day). Compared with the 12,000 tons per day that DSNY handles and the 13,000 tons per day that private carters handle,[1] the amount of solid waste that would be generated by the proposed actions would be minimal. At this time, the proposed location and method of storage of

[1] http://www.nyc.gov/html/dsny/html/about/about.shtml [Accessed November 15, 2011]

refuse and recyclables prior to collection is unknown. However, since the proposed actions would not result in a substantial increase in solid waste that would overburden available waste management capacity and would not be inconsistent with the City's SWMP or other policies, the proposed actions would not result in significant adverse impacts on solid waste and sanitation services. ✷

Chapter 12: Energy

A. INTRODUCTION

This chapter describes the potential effects of the proposed actions on the use and conservation of energy. As stated in the *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition), the demand caused by most projects results in incremental supply, and consequently, an individual project's energy consumption would not create a significant impact on energy supply. A detailed assessment of energy impacts would be limited to projects that could significantly affect the transmission or generation of energy (such as a new roadway that could lead to a substantial increase in the number of vehicle miles traveled, and thus, fuel consumed in the City). Because all new structures requiring heating and cooling must conform to the *New York City Energy Conservation Code*, which reflects state and City energy policy, actions resulting in new construction would not create significant energy impacts, and would not require a detailed energy assessment. Therefore, this chapter simply discloses the proposed actions' energy consumption as recommended by the *CEQR Technical Manual*.

PRINCIPAL CONCLUSIONS

The proposed actions would not have a significant adverse impact on energy systems and services. Although the proposed actions would increase demand on electricity, this increase in demand would be insignificant relative to the capacity of these systems and the current levels of service in the Con Edison service area. Upon completion, development pursuant to the proposed actions would comply with the *New York City Energy Conservation Code*. In compliance with the code, the basic designs of all buildings would incorporate the required energy conservation measures, including meeting the code's requirements relative to energy efficiency and combined thermal transmittance.

Through a Request for Proposals (RFP) process, the City would look favorably upon proposals that enhance the energy-efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at reducing energy consumption and greenhouse gas (GHG) emissions.

In addition, housing developments on all sites are expected to be certified under the Enterprise Green Communities Program, or meet equivalent sustainability measures. Therefore, no significant adverse energy impacts would result from the proposed actions.

B. ENERGY SUPPLY

ENERGY PROVIDER

Electricity within Manhattan is distributed by Con Edison. The electrical energy is supplied from a variety of sources that originate both within and outside New York City. These include nonrenewable sources, such as oil, natural gas, coal fuel, and uranium; and renewable sources, such as hydroelectricity and, to a much lesser extent, biomass fuels, solar power, and wind power. New York City's electrical demands are met by a combination of sources, including electricity generated within New York City, at locations across the Northeast, and from places as far away as Canada.

Con Edison distributes power throughout the City. Transmission substations receive electricity from the regional high voltage transmission system and reduce the voltage to a level that can be delivered to area substations. Area substations further reduce the voltage to a level that can be delivered to the distribution system, or street "grid." Within the grid, voltage is further reduced for delivery to customers. Each area substation serves one or more distinct geographic areas, called networks, which are isolated from the rest of the local distribution system. The purpose of the networks is if one substation goes out of service, the problem can be isolated to that network and not spread to other parts of the City. Substations are designed to have sufficient capacity for the network to grow.

Con Edison provides natural gas service to Manhattan. In addition, Con Edison maintains a district steam system in Manhattan. High-pressure steam is generated in cogeneration plants and conventional plants, and is distributed through an interconnected piping network (with pipe sizes up to 30 inches in diameter) to approximately 1,800 customers in Manhattan for heating, hot water, and air conditioning. Gas mains ranging from 4 to 24 inches supply natural gas for heating and cooking uses within the study area. Typically, these gas lines are located between 2 and 4 feet below the street.

In 2010 (the latest year for which data are available), annual electricity usage totaled approximately 59 billion kilowatt-hours (KWH), or 200 trillion British Thermal Units (BTUs) in Con Edison's delivery area. In addition, Con Edison supplied approximately 124 trillion BTUs of natural gas and approximately 23 billion pounds of steam, which is equivalent to approximately 23 trillion BTUs. Overall, approximately 347 trillion BTUs of energy are consumed annually within its New York City and Westchester County service area.[1]

RECENT ENERGY CONSERVATION DIRECTIVES

In 2001, New York State began implementing measures to address the increasing electrical power capacity needs of the New York City region. New York State Governor's Executive Order No. 111 (EO 111) was introduced in June 2001, directing state agencies, state authorities, and other affected entities to address energy efficiency, renewable energy, green building practices, and alternate fuel vehicles. EO 111 identified the New York State Energy Research and Development Authority (NYSERDA) as the organization responsible for coordinating and assisting agencies and other affected entities with their responsibilities. NYSERDA and other utilities have implemented programs to encourage businesses to reduce energy usage and increase energy efficiency.

For 2011-2012, the independent, non-profit New York State Reliability Council (NYSRC) has determined that a minimum of 81 percent of the City's peak load must be provided by generating sources within the City to maintain compliance with the criteria established by the regional and national reliability councils. Presently, there is sufficient capacity within the City to

[1] Con Edison of New York, *Annual Report*, year ended December 31, 2010.

meet this 81 percent local energy generation requirement.[1] However, as the energy demand increases over time, additional in-city generation would be needed to satisfy this requirement.

The New York Independent System Operator (NYISO), which manages the safety and reliability of the state's electric transmission system, reported in September 2010 that the state's wholesale electric power system will continue to meet accepted reliability standards through 2020. The accepted reliability standards set forth in NYISO's *2010 Reliability Needs Assessment* will be met because there are two new proposed generating plants totaling 1,060 MW and because there is lower energy demand forecasted since a) the 2009 recession reduced the peak demand forecast for 2012 by 1,218 MW, and has reduced the projections of peak load in subsequent years; and b) statewide energy efficiency programs seeking to lower energy consumption on the electric system by 15 percent are projected to result in energy savings of 13,040 GWh by 2018 and 13,684 GWh by 2020.[2] Because of the existing supply and the addition of the proposed NYISO generating plants and the State's planning process to identify potential shortfalls years before they would materialize, it is expected that an adequate generating capacity, which would exceed projected demands, would be available in the New York City metropolitan area through the proposed actions' 2022 build year.

C. EXISTING CONDITIONS

Rates provided in the *CEQR Technical Manual* were used to estimate the existing annual energy consumption on the project site. The measure of energy used in the analysis is BTUs per year. One BTU is the quantity of heat required to raise the temperature of one pound of water one Fahrenheit degree. According to the *CEQR Technical Manual*, this unit of measure can be used to compare consumption of energy from different sources (e.g., gasoline, hydroelectric power, etc.), taking into consideration how efficiently those sources are converted to energy. Use of this methodology avoids the confusion inherent in comparing different measures of output (e.g., horsepower, kilowatt hours, etc.) and consumption (e.g., tons per day, cubic feet per minute, etc.). As shown in **Table 12-1**, the project site currently uses an estimated 12.5 billion BTUs per year for heating, cooling, and electric power.

Table 12-1
Estimated Existing Energy Consumption

Use	Consumption Rates Thousand BTU (MBTU)/sf/yr)	SF	Annual Energy Use (million BTUs)
Commercial	216.3	28,130	6,085
Institutional	250.7	19,312	4,842
Large Residential (> 4 family)	126.7	12,500	1,584
		Total Energy Consumption	**12,511**

Source: Consumption rates are from the *CEQR Technical Manual* (January 2012 edition), Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

[1] New York State Reliability Council, New York Control Area Installed Capacity Requirements for the Period May 2011 through April 2012, December 10, 2010.

[2] New York Independent System Operator, *2010 Reliability Needs Assessment*, September 2010.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions, it is expected that the proposed development parcels would continue in their current use and configuration. Energy consumption in the future without the proposed actions would not be expected to change relative to existing conditions.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

The proposed actions would result in increased energy demands on the project site. As shown in **Table 12-2**, full development pursuant to the proposed actions would create a total demand for 285.9 billion BTUs per year. Compared with the approximate 347 trillion BTUs of energy consumed within Con Edison's New York City and Westchester County service area, the increase that would result from the proposed actions would be considered a negligible increment. This additional demand is not expected to overburden the energy generation, transmission, and distribution system, and would not result in a significant adverse energy impact.

Table 12-2
Estimated Future Energy Consumption

Use	Consumption Rates (Thousand BTU (MBTU)/sf/yr)	Size (GSF)	Annual Energy Use (million BTUs)
Commercial	216.3	632,255	136,757
Community Facility[1]	250.7	114,000	28,580
Large Residential (> 4 family)	126.7	951,182	120,515
		Total Energy Consumption	**285,852**

Note: Energy consumption for the community facility space assumes the institutional energy consumption rate.
Source: Consumption rates are from the *CEQR Technical Manual* (January 2012 edition), Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

Upon completion, development pursuant to the proposed actions would comply with the *New York City Energy Conservation Code.* In compliance with this code, the buildings to be constructed on Sites 1-6 and 8-10 must incorporate the required energy conservation measures, including meeting code requirements relating to energy efficiency and combined thermal transmittance.

Through an RFP process, the City would look favorably upon proposals that enhance the energy-efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs could include features aimed at reducing energy consumption and GHG emissions such as:

- Energy efficient building envelopes to reduce cooling and heating;
- High-efficiency HVAC systems, incinerators and/or generators;
- Window glazing to optimize daylighting and solar heat gain and reduce heat loss; and
- Fuel from renewable sources or less GHG-intense fuels, such as natural gas, co-firing of biomass or use of biofuels or bioheat for heating fuel or in vehicles/equipment.

Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program. Mandatory energy efficiency measures required by the Enterprise Green Communities program include:

- Heating and cooling systems must be sized according to the Air Conditioning Contractors of America (ACCA) Manuals, Parts J, S, and D, or ASHRAE handbooks;
- If provided, clothes washers, dishwashers, and refrigerators must be Energy Star-labeled;
- Interior lighting should be either Energy Star Advanced Lighting Package (ALP) or lighting specified in EPA's Multi-Family High-Rise (MFHR) program;
- For common areas and for emergency lighting, lighting specified in EPA's MFHR program should be installed;
- For exterior lighting, either Energy Star compact fluorescents or LEDs, or lighting specified in EPA's MFHR program should be installed;
- All dwelling units must be equipped with individual or sub-metered electric meters; and
- Installation of water-conserving fixtures in all units and any common facilities per minimum requirements.

If a housing development cannot be certified under the Enterprise Green Communities Program because American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2007 does not apply to its construction methodology, the development would be designed and constructed to reduce construction and demolition waste and to incorporate sustainable design features that reduce energy consumption and greenhouse gas emissions in an amount equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program. For housing developments on City-owned sites that are managed by ~~the New York City Economic Development Corporation (~~NYCEDC~~)~~ and cannot comply with the Enterprise Green Communities Program because ASHRAE Standard 90.1-2007 does not apply to their construction methodology, consultation with the Mayor's Office of Environmental Coordination would be required to ensure that sustainability measures equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities program are implemented. For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), the Land Disposition Agreement (LDA) between HPD and the developer(s) would require a commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures. For housing developments on City-owned sites that are managed by the New York City Economic Development Corporation (NYCEDC), this commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures would be required through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

Therefore, as previously stated, no significant adverse energy impacts would result from the proposed actions. ✷

Chapter 13: Transportation

A. INTRODUCTION

As described in detail in Chapter 1, "Project Description," the Office of the Deputy Mayor for Economic Development (ODMED), in coordination with the New York City Economic Development Corporation (NYCEDC) and the City Of New York Department of Housing Preservation & Development (HPD), is sponsoring initiatives to allow mixed-use development on 10 City-owned sites in Manhattan Community District 3 on the Lower East Side. The project site also includes demapped sections of Broome and Suffolk Streets that would be mapped as City streets and sections of Clinton and Delancey Streets that would be demapped.

The proposed actions would allow for a range of new developments including residential, office, community facility, hotel, local retail, and destination retail uses. While the actual development will depend on developer proposals and future market conditions, the City has developed a maximum development envelope, or reasonable worst-case development scenario (RWCDS). The transportation analyses are based on the RWCDS which describes various development components that represent a "worst-case" for the ~~Draft~~ Final Generic Environmental Impact Statement (~~DGEIS~~ FGEIS) technical analyses.

This chapter examines the potential effects of the proposed development on the study area transportation systems.

PRINCIPAL CONCLUSIONS

TRAFFIC

In accordance with *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition) guidelines, a RWCDS was developed (discussed in detail later in this chapter) to estimate the peak hour vehicular and pedestrian volumes expected as a result of the proposed actions. In the weekday AM peak hour, the RWCDS would generate 209 vehicle trips arriving at the project sites and 162 vehicle trips leaving the project sites, for a total of 371 vehicle trips. In the weekday midday peak hour, it would generate 267 inbound vehicle trips plus 260 outbound vehicle trips for a total of 527 vehicle trips. In the weekday PM peak hour, it would generate 244 inbound vehicle trips plus 296 outbound vehicle trips for a total of 540 vehicle trips. In the Saturday peak hour, it would generate 250 vehicle trips arriving and 246 vehicle trips leaving, for a total of 496 vehicle trips. Although these volumes are significantly lower than those for several other major EISs in New York City, the number of development parcels, the displacement of existing parking facilities, and the critical nature of potential issues along key corridors like Delancey Street, Grand Street, Essex Street, and others has made the number of intersections analyzed in this DGEIS comparable to other large-scale EISs in New York City.

Of the 30 study area intersections analyzed (25 signalized and five unsignalized intersections), the proposed actions would cause significant traffic impacts at 13 ~~nine~~ intersections in the weekday AM peak hour, 11 ~~seven~~ in the weekday midday peak hour, 15 ~~18~~ in the weekday PM peak hour, and 14 ~~10~~ in the Saturday peak hour. The number and locations of significant traffic impacts are different than those identified in the DGEIS. Following the issuance of the Draft Generic Environmental Impact Statement (DGEIS), the New York City Department of Transportation (NYCDOT) adopted and began implementing an area-wide Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner "bump-outs" and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicle traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area's transportation network were incorporated as part of the FGEIS. As a result, some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the FGEIS due to the safety oriented changes in the roadway network described above, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs. Traffic capacity improvements that would be needed to mitigate these significant impacts are addressed in Chapter 21, "Mitigation Measures."

~~The New York City Department of Transportation (NYCDOT) is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Incorporation of the plan may result in some changes to significant traffic impact locations or time periods when impacts occur. Details related to this plan would be included in the FGEIS and the effects of the plan on traffic and pedestrian conditions will be addressed between completion of the DGEIS and FGEIS should the plans be adopted prior to release of the FGEIS.~~

TRANSIT

The preliminary screening assessment summarized below concluded that a detailed examination of subway line-haul analysis is not warranted. However, bus line-haul analyses and a detailed analysis of station elements at the Delancey Street/Essex Street subway station (F, J, M, and Z lines) were prepared. Based on the result of the transit analysis, the proposed actions would not result in potential significant adverse impacts at the Essex Street/Delancey Street station during any analysis peak periods.

Additional analysis of certain interior transfer and platform stairways was undertaken in the FGEIS. The analysis indicates the proposed actions would not result in the potential for significant adverse impacts on these stairway elements.

The proposed actions would result in potential significant adverse impacts on bus line-haul levels on the southbound M9 and westbound M14A during the AM peak period, and the northbound and southbound M9 during the PM peak period. Potential measures to mitigate the projected potential significant adverse bus line-haul impacts are described in Chapter 21, "Mitigation Measures."

~~Based on the transit analysis of the Essex Street/Delancey Street station, no potentially significant adverse subway station impacts at the Essex Street/Delancey Street station have so far been determined during the peak analysis periods. At the direction of the Metropolitan Transportation Authority-New York City Transit (MTA NYCT), analyses of the following interior transfer and platform stairways will be undertaken for the Final Generic Environmental Impact Statement (FGEIS):~~

- ~~PL4 (A61) - platform stair at uptown J/M/Z platform;~~

- ~~P9 (N525) - leading to uptown F train platform;~~
- ~~PL2 & PL9 (leading to PL11B on uptown F train platform) - Brooklyn bound J/M/Z platform; and~~
- ~~PL18 (connecting to downtown F train platform) - Brooklyn bound J/M/Z platform.~~

~~As part of incorporating these stairway elements in the subway analyses, the distribution of project generated subway trips will be refined to reflect the connectivity of the interior and platform stairways with the street-level stairways analyzed in this DGEIS.~~

~~The above amendments to the analysis may result in significant adverse subway station impacts that are being conservatively disclosed in this DGEIS. Should the results of the analyses identify significant adverse impacts, measures to increase capacity would be recommended to mitigate such impacts. The practicability and feasibility of such mitigation measures will be further assessed in the FGEIS.~~

PEDESTRIANS

Weekday and Saturday peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements at 22 area intersections. Under the RWCDS, potential significant adverse pedestrian impacts are anticipated for ~~four~~ five pedestrian analysis locations ~~at~~ along Delancey Street ~~and~~ at Essex and Clinton Streets including the west crosswalk of Delancey Street and Essex Street during the midday peak period, the east crosswalk of Delancey Street and Essex Street during the midday, PM and Saturday peak periods, the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, ~~and~~ the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period.

The pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairs, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of that particular sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk widths to approximately 20 to 30 percent of the overall widths available at the two sidewalk locations on Essex Street. The combination of all these factors would result in the potential for significant adverse pedestrian impacts at the two Essex Street sidewalks in the future 2022 With Action condition.

However, it should be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the project's development program and design may not materialize to the full extent resulting in different travel patterns at study area's pedestrian facilities.

Measures that can be implemented to mitigate these potential significant adverse pedestrian impacts are discussed in Chapter 21, "Mitigation Measures."

VEHICULAR AND PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from NYSDOT for the time period between February 29, 2008 and February 28, 2011. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. During this three-year period, a total of 587 reportable and non-reportable accidents, 3 fatalities, 475 injuries, and 175 pedestrian/bicyclist-related accidents occurred at the study area intersections; ten study area intersections have been defined as high pedestrian accident locations in the 2008 to 2011 period. These intersections are Allen Street at Delancey Street, Clinton Street at Delancey Street, Essex Street at Delancey Street, Norfolk Street at Delancey Street, Suffolk Street at Delancey Street, Avenue A at Houston Street, Bowery at Houston Street, Allen Street at Grand Street, Clinton Street at Grand Street, and Essex Street at Grand Street. As described earlier, in June 2012, NYCDOT ~~is currently developing a~~ began implementing an area-wide Delancey Street Safety Improvements plan to improve ~~traffic and~~ pedestrian, bicycle, and vehicular safety. Once this plan is ~~finalized and~~ fully implemented, it is expected that the pedestrian safety conditions at the high accident locations along the Delancey Street corridor will ~~would~~ improve as described later in this chapter. ~~Details related to this plan would be included in the FGEIS (should the plan be adopted prior to the release of the FGEIS) and the effects of the plan on traffic and pedestrian conditions will be addressed between completion of the DGEIS and FGEIS.~~ For the remaining high pedestrian accident locations, measures that can be implemented to improve vehicular and pedestrian safety include installation of crosswalk countdown timers, restriping faded crosswalks, and installation of warning signs to alert drivers about the high pedestrian activities at the intersections.

PARKING

The proposed actions are expected to include a total of up to 500 off-street parking spaces within Sites 2, 3, 4, and 5 to meet the project's demand and to replace the number of parking spaces that could be lost as a result of the proposed actions. Parking demands generated by the proposed actions during peak traffic hours would be fully accommodated by the parking garages. The maximum project-generated demand of 257 spaces would be reached during 9-10 AM and 2-3 PM on a typical weekday. The maximum accumulation of ~~254~~ 252 spaces for a Saturday would occur between 4-5 PM. In the existing conditions, there are approximately 507 parking spaces (approximately 400 public spaces, and approximately 100 spaces being used by commercial vehicles such as vans and trucks) within surface lots that currently occupy Sites 3, 4, 5, and 6. Approximately 400 public spaces on these four sites would be displaced as part of the proposed actions. In the garages developed under the proposed actions, there would be a surplus capacity of about 240 to 250 spaces which would serve to accommodate a portion of the displaced parkers. Approximately 150 vehicles would need to find parking elsewhere in the area. These vehicles would be accommodated within the 375 to 625 off-street spaces that would be available within off-street lots/garages in the study area.

Among the proposed actions of the ULURP application are four special permits for public parking facilities on Sites 2, 3, 4 and 5. Consistent with the overall limit in the number of spaces that would be permitted under the LSGD, the DGEIS analyzed up to 500 off-street parking spaces in accordance with the *CEQR Technical Manual*. Given that the special permits would allow for flexibility with respect to the distribution of these spaces among Sites 2, 3, 4 and 5, an assessment was conducted to project conditions that could arise if the parking spaces were distributed only on two or three of the sites. That assessment found that the resulting conditions would be generally similar to those in the DGEIS and affected locations could require standard traffic improvements. Based on this analysis, it was determined that the streets providing access to the public parking garages would be adequate to handle traffic generated thereby.

B. PRELIMINARY ANALYSIS METHODOLOGY

The *CEQR Technical Manual* describes a two-tier screening procedure for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted.

As discussed below, the preliminary analysis begins with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed actions. According to the *CEQR Technical Manual*, if the proposed actions are expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips that could be incurred at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed actions would generate 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

C. LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the volume of person and vehicle trips by mode expected to be generated by the proposed actions during the weekday AM, midday, PM, and Saturday peak hours for the RWCDS. These estimates were then compared to the CEQR analysis thresholds to determine if a Level 2 screening and/or quantified analyses would be warranted.

BACKGROUND

The proposed development would include residential, retail and office space, community facility use, as well as provisions for parking and publicly accessible open space. This development area is the largest underdeveloped City-owned site south of 96th Street. It consists of 10 sites located in Community Board 3 generally along Delancey and Essex Streets on the Lower East Side. Five of the sites (Sites 2, 3, 4, 5, and 6) are located within the former Seward Park Extension Urban Renewal Area (SPEURA). Four sites (Sites 7, 8, 9, and 10) are located within the 2008 East Village/Lower East Side Rezoning area. The tenth site (Site 1) is in neither.

The program for the proposed development on Sites 1–6 and 8–10 is expected to include a variety of residential and commercial uses, such as mixed-income residential, retail, other commercial uses such as office space, parking, and publicly accessible open space. Site 7 would retain its current function as a municipal parking garage that will support the new development across all development sites.

TRANSPORTATION PLANNING ASSUMPTIONS

As described in Chapter 1, "Project Description," the RWCDS includes various development components that represent a "worst-case" for the ~~D~~FGEIS technical analyses. The proposed actions would allow for a range of new developments. While the actual development will depend on developer proposals and future market conditions, the City has developed a maximum development envelope, or RWCDS, for the purpose of the ~~D~~FGEIS technical analysis.

Under a RWCDS, it is assumed that the proposed actions would result in approximately 951,000 square feet of residential development (comprising 900 dwelling units, ~~of which~~ half would be affordable units); up to approximately 632,300 square feet of commercial space; up to approximately 114,000 gsf of community facility or cultural uses; approximately 500 parking spaces; and an approximately 10,000 square-foot publicly accessible open space. The commercial space would include up to approximately 235,000 square feet of ground-floor retail, an approximately 29,150 square-foot public market, an approximately 65,000 square-foot supermarket, an approximately 97,500 square-foot hotel, and approximately 283,400 square feet of non-specific commercial uses.

For trip generation purposes in the ~~D~~FGEIS analysis, the commercial space was divided into approximately 36,300 gsf of commercial office use, 146,900 gsf of local retail space (including 29,150 gsf of public market space and 65,000 gsf of supermarket space), 351,600 gsf of destination retail space, 114,000 gsf of community facility uses (including medical office, community office, and general community facility space), and a 97,500 square-foot hotel (comprising approximately 200 hotel rooms). The RWCDS program is for illustrative purposes only; it does not represent an actual development program. The distribution of development space among the development sites is summarized in **Table 13-1**.

Table 13-1
Reasonable Worst-Case Development Scenario (RWCDS) Program

Use		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Total
Residential	SF	74,951		168,239	256,663	229,603	88,101	--	37,862	75,361	20,402	951,182
	Units	71		159	243	217	83	--	36	71	20	900
Hotel	SF		97,500					--				97,450
	Rooms		200					--				200
Office	SF		36,304					--				36,304
Local Retail	SF						18,925	--	8,790	18,807	6,240	52,762
Destination Retail	SF	60,731	102,294	71,019	69,688	47,855		--				351,587
Public Market	SF		29,152					--				29,152
Supermarket	SF		65,000					--				65,000
Medical Office	SF		25,000	15,000	20,000	34,000		--				94,000
Community Office	SF						10,000	--				10,000
Community Facility	SF	5,000					5,000	--				10,000
Total	SF	140,682	355,200	254,258	346,351	311,458	122,026	--	46,652	94,168	26,642	1,697,437

Note: The RWCDS program is for illustrative purposes only; it does not represent an actual development program.

Travel demand projections were prepared for each of the proposed development components for the weekday AM, midday, PM, and Saturday peak hours. The trips generated by the proposed development were compared to the above screening thresholds to determine if additional quantified analyses are warranted. **Table 13-2** shows the transportation planning assumptions used in calculating the trip estimates. Consistent with CEQR requirements, these assumptions are based on travel demand factors from established and published sources including the *CEQR Technical Manual*, *ITE Trip Generation 8th Edition*, 2000 U.S. Census data, and various approved studies.

TRIP GENERATION

RESIDENTIAL

For the residential component, trip generation rates of 8.075 daily person trips per dwelling unit for weekday and 9.6 daily person trips per dwelling unit for Saturday, and a temporal distribution of 10 percent for the weekday AM peak hour, 5 percent for the midday peak hour, 11 percent for the PM peak hour, and 8 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution of 15 percent "in" during the weekday AM peak hour, 50 percent "in" during the midday peak hour, 70 percent "in" during the PM peak hour, and 50 percent "in" during the Saturday peak hour were also obtained from the *Western Rail Yard FEIS*. Modal split information (11 percent by auto, 2 percent by taxi, 49 percent by subway 9 percent by bus, 29 percent by walk) and auto occupancy (1.18 persons per auto) for the weekday and Saturday peak hours were obtained from the *American Community Survey (ACS) 2005-2009*. A taxi occupancy rate of 1.40 passengers per taxi was obtained from the *Western Rail Yard FEIS*.

Table 13-2
Travel Demand Assumptions

Use	Residential				Hotel				Office				Local Retail				Destination Retail			
Daily Person Trip	(1)				(1)				(1)				(1)				(1)			
Generation Rate	8.075			9.6	9.4			9.4	18.0			3.9	205			240	78.2			92.5
	Trips / Unit				Trips / Room				Trips / KSF				Trips / KSF				Trips / KSF			
Trip Linkage	0%				0%				0%				25%				25%			
	AM	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**
Temporal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	10%	5%	11%	8%	8%	14%	13%	9%	12%	15%	14%	17%	3%	19%	10%	10%	3%	9%	9%	11%
Direction	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(6)	(4)	(4)	(4)
In	15%	50%	70%	50%	39%	54%	65%	56%	96%	48%	5%	57%	50%	50%	50%	50%	61%	55%	47%	52%
Out	85%	50%	30%	50%	61%	46%	35%	44%	4%	52%	95%	43%	50%	50%	50%	50%	39%	45%	53%	48%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(4)	(5)	(4)	(5)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Auto	11%	11%	11%	11%	9%	8%	9%	9%	27%	2%	27%	2%	2%	2%	2%	2%	9%	9%	9%	9%
Taxi	2%	2%	2%	2%	18%	15%	18%	18%	1%	3%	1%	3%	3%	3%	3%	3%	4%	4%	4%	4%
Subway	49%	49%	49%	49%	24%	13%	24%	24%	37%	6%	37%	6%	6%	6%	6%	6%	29%	20%	29%	20%
Bus	9%	9%	9%	9%	3%	3%	3%	3%	8%	6%	8%	6%	6%	6%	6%	6%	8%	8%	8%	8%
Walk	29%	29%	29%	29%	46%	61%	46%	46%	23%	83%	23%	83%	83%	83%	83%	83%	51%	59%	51%	59%
Work at Home	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(3)(4)	(3)(4)	(3)(4)	(3)(4)	(4)	(4)	(4)	(4)	(4)(5)	(4)(5)	(4)(5)	(4)(5)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Auto	1.18	1.18	1.18	1.18	1.40	1.40	1.40	1.40	1.25	1.25	1.25	1.25	1.65	1.65	1.65	1.65	2.00	2.00	2.00	2.00
Taxi	1.40	1.40	1.40	1.40	1.80	1.80	1.80	1.80	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	2.00	2.00	2.00	2.00
Daily Delivery Trip	(1)				(4)				(1)				(1)				(1)			
Generation Rate	0.06			0.02	0.06			0.01	0.32			0.01	0.35			0.04	0.35			0.04
	Delivery Trips / Unit				Delivery Trips / Room				Delivery Trips / KSF				Delivery Trips / KSF				Delivery Trips / KSF			
	AM	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**
Delivery Temporal	(1)	(1)	(1)	(1)	(4)	(4)	(4)	(4)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	12%	9%	2%	9%	12%	9%	1%	9%	10%	11%	2%	11%	8%	11%	2%	11%	8%	11%	2%	11%
Delivery Direction	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Use	Public Market/ Supermarket				Medical Office (Staff)				Medical Office (Visitors)				Community Office				Community Facility			
Daily Person Trip	(1)(2)				(10)				(10)				(1)				(10)			
Generation Rate	175			231	10.0			4.3	33.6			14.5	18.0			3.9	48			19
	Trips / KSF				Trips / KSF				Trips / KSF				Trips / KSF				Trips / KSF			
Trip Linkage	25%				0%				0%				0%				0%			
	AM	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**
Temporal	(1)	(1)	(1)	(1)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(1)	(1)	(1)	(1)	(10)	(10)	(10)	(10)
	5%	6%	10%	9%	24%	17%	24%	17%	6.0%	9.0%	5.0%	9%	12%	15%	14%	17%	7%	10%	7%	14%
Direction	(7)	(7)	(7)	(8)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(4)	(4)	(4)	(4)	(10)	(10)	(10)	(10)
In	59%	46%	47%	51%	94%	50%	12%	50%	94%	50%	12%	50%	96%	48%	5%	57%	61%	55%	29%	49%
Out	41%	54%	53%	49%	6%	50%	88%	50%	6%	50%	88%	50%	4%	52%	95%	43%	39%	45%	71%	51%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(9)	(9)	(9)	(9)	(5)(11)	(5)(11)	(5)(11)	(5)(11)	(10)	(10)	(10)	(10)	(5)	(4)	(5)	(4)	(10)	(10)	(10)	(10)
Auto	2%	2%	2%	2%	28%	28%	28%	28%	25%	25%	25%	25%	27%	2%	27%	2%	5%	5%	5%	5%
Taxi	3%	3%	3%	3%	1%	1%	1%	1%	25%	25%	25%	25%	1%	3%	1%	3%	1%	1%	1%	1%
Subway	6%	6%	6%	6%	39%	39%	39%	39%	29%	29%	29%	29%	37%	6%	37%	6%	3%	3%	3%	3%
Bus	6%	6%	6%	6%	8%	8%	8%	8%	11%	11%	11%	11%	8%	6%	8%	6%	6%	6%	6%	6%
Walk	83%	83%	83%	83%	24%	24%	24%	24%	10%	10%	10%	10%	23%	83%	23%	83%	85%	85%	85%	85%
Work at Home	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	4%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(9)	(9)	(9)	(9)	(4)(5)	(4)(5)	(4)(5)	(4)(5)	(10)	(10)	(10)	(10)	(4)(5)	(4)(5)	(4)(5)	(4)(5)	(10)	(10)	(10)	(10)
Auto	1.65	1.65	1.65	1.65	1.25	1.25	1.25	1.25	1.65	1.65	1.65	1.65	1.25	1.25	1.25	1.25	1.65	1.65	1.65	1.65
Taxi	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.20	1.20	1.20	1.20	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Daily Delivery Trip	(9)				(10)				(10)				(1)				(10)			
Generation Rate	0.35			0.04	0.29			0.0	0.29			0.0	0.32			0.01	0.29			0.04
	Delivery Trips / KSF				Delivery Trips / KSF				Delivery Trips / KSF				Delivery Trips / KSF				Delivery Trips / KSF			
	AM	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**	**AM**	**MD**	**PM**	**SAT**
Delivery Temporal	(9)	(9)	(9)	(9)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(1)	(1)	(1)	(1)	(10)	(10)	(10)	(10)
	8%	11%	2%	11%	9.6%	11.0%	1.0%	0%	9.6%	11%	1.0%	0%	10%	11%	2%	11%	10%	11%	1%	0%
Delivery Direction	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Sources:
(1) 2010 CEQR Technical Manual
(2) Assumed supermarket use.
(3) ACS 2005-2009 5-year estimates.
(4) Western Rail Yard EIS
(5) 2000 Census Reverse Journey-to-Work Data.
(6) ITE Trip Generation 8th Edition, Land Use Code: 820, P1501.
(7) 250 East 57th Street Redevelopment EAF.
(8) ITE Trip Generation 8th Edition, Land Use Code: 850, P1580.
(9) Same as local retail use.
(10) Jamaica Plan FEIS
(11) Work at home mode excluded from modal split estimations
Note: Linked trip credit of 25 percent was not applied to walk-only person trips.

Daily truck trip generation rates of 0.06 trips per dwelling unit for weekday and 0.02 trips per dwelling unit for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (12 percent during the weekday AM peak hour, 9 percent during the midday peak hour, 2 percent during the PM peak hour, and 9 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual.*

HOTEL

A daily person trip generation rate of 9.4 persons per room for weekday and Saturday, and a temporal distribution of 8 percent for the weekday AM peak hour, 14 percent for the midday peak hour, 13 percent for the PM peak hour, and 9 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. Peak hour directional distribution (39 percent, 54 percent, 65 percent, and 56 percent "in" during the weekday AM, midday, PM and Saturday peak hours, respectively), modal splits (9 percent by auto, 18 percent by taxi, 24 percent by subway, 3 percent by bus, and 46 percent walk during weekday AM and PM peak hours and during the Saturday peak hour; 8 percent by auto, 15 percent by taxi, 13 percent by subway, 3 percent by bus, and 61 percent walk during the weekday midday peak hour), and vehicle occupancy rates (1.4 persons per auto and 1.8 passengers by taxi) were all obtained from the *Western Rail Yard FEIS*.

Daily truck trip generation rates of 0.06 trips per room for weekday and 0.01 trips per room for Saturday, and a temporal distribution of 12 percent during the weekday AM peak hour, 9 percent during the midday peak hour, 1 percent during the PM peak hour, and 9 percent during the Saturday peak hour) and were obtained from the *Western Rail Yard FEIS*. Directional distribution assumptions (50 percent "in" during all peak hours) were based on the *CEQR Technical Manual.*

OFFICE/COMMUNITY OFFICE

For office and community office space, daily trip generation rates of 18 person trips per 1,000 square feet for weekday and 3.9 daily person trips per 1,000 square feet for Saturday, and a temporal distribution of 12 percent for the weekday AM peak hour, 15 percent for the midday peak hour, 14 percent for the PM peak hour, and 17 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. Directional distributions of 96 percent "in" during the weekday AM peak hour, 48 percent "in" during the midday peak hours, 5 percent "in during the PM peak hour, and 57 percent "in" during the Saturday peak hour were obtained from the *Western Rail Yard FEIS*. Weekday AM and PM peak hour modal splits of 27 percent by auto, 1 percent by taxi, 37 percent subway, 8 percent by bus, 23 percent by walk, and 4 percent working at home (not an external trip) were obtained from 2000 Census reverse journey-to-work data. Weekday midday and Saturday peak hour modal splits of 2 percent by auto, 3 percent by taxi, 6 percent by subway, 6 percent by bus, and 83 percent by walk were obtained from the *Western Rail Yard FEIS,* and reflect a substantially higher walk share and slightly higher taxi share typical for the middle of the work day and Saturdays. Auto occupancies (1.25 persons per auto) were obtained from the 2000 Census' reverse-journey-to work data, and taxi occupancies (1.40 passengers per taxi) were obtained from the *Western Rail Yard FEIS.*

Daily truck trip generation rates of 0.32 trips per 1,000 square feet for weekday and 0.01 trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (10 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 2 percent during the PM peak hour, and 11 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual.*

LOCAL RETAIL

For local retail, daily person trip generation rates of 205 person trips per 1,000 square feet for weekday and 240 trips per 1,000 square feet for Saturday, and a temporal distribution of 3 percent for the weekday AM peak hour, 19 percent for the midday peak hour, 10 percent for the PM peak hour, and 10 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution of 50 percent "in" during all peak hours, a modal split of 2 percent by auto, 3 percent by taxi, 6 percent by subway, 6 percent by bus, and 83 percent by walk, and vehicle occupancy rates of 1.65 persons per auto and 1.4 passengers by taxi during all peak hours were all obtained from the *Western Rail Yard FEIS*. A 25 percent linked trip credit was assumed for all local retail trips with the exception of walk-only person trips.

For truck deliveries, a daily trip generation rate of 0.35 trips per 1,000 square feet for weekday and 0.04 trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distribution (8 percent during the weekday AM peak hour, 11 percent during the midday peak hour, 2 percent during the PM peak hour, and 11 percent during the Saturday peak hour) and directional distribution assumptions (50 percent "in" during all peak hours) were also obtained from the *CEQR Technical Manual.*

DESTINATION RETAIL

For the destination retail component, trip generation rates of 78.2 person trips per 1,000 square feet for weekday and 92.5 trips per 1,000 square feet for Saturday, and a temporal distribution of 3 percent for the weekday AM peak hour, 9 percent for the midday peak hour, 9 percent for the PM peak hour, and 11 percent for the Saturday peak hour were obtained from the *CEQR Technical Manual*. A directional distribution for the weekday AM peak hour (61 percent "in") was obtained from *ITE Trip Generation* while weekday midday and PM, and Saturday directional distributions (55, 47, and 52 percents "in", respectively) were obtained from the *Western Rail Yard FEIS*. A modal split of 9 percent by auto, 4 percent by taxi, 29 percent by subway, 8 percent by bus, and 51 percent by walk during the weekday AM, weekday PM, and Saturday peak hours was also obtained from the *Western Rail Yard FEIS*. The weekday midday peak hour would have a similar modal split but with a slightly higher walk share (59 percent) and a slightly lower subway share (20 percent). Vehicle occupancy rates (2.0 persons per auto and taxi) were obtained from the *Western Rail Yard FEIS* as well. A 25 percent linked trip credit was assumed for all destination retail trips with the exception of walk-only person trips.

Daily truck trip generation rates were similar to local retail.

PUBLIC MARKET

For the public market space, a daily trip generation of 175 person trips per 1,000 square feet for weekday and 231 person trips per 1,000 square feet for Saturday, and temporal distributions of 5 percent during the weekday AM peak hour, 6 percent during the midday peak hour, 10 percent during the PM peak hour, and 9 percent during the Saturday peak hour were based on the *CEQR Technical Manual* rates for supermarket use. Weekday directional distributions of 59 percent "in" during the AM peak hour, 46 percent "in" during the midday peak hour, and 47 percent "in" during the PM peak hour were obtained from the *250 East 57th Street Redevelopment EAF*, while a Saturday peak hour distribution of 51 percent "in" was obtained from *ITE Trip Generation*. Weekday and Saturday peak hour modal splits (2 percent by auto, 3 percent by taxi, 6 percent by subway, 6 percent by bus, and 83 percent by walk) and vehicle occupancies (1.65 persons per auto and 1.4 passengers per taxi) were assumed similar to local retail use. A 25 percent linked trip credit was assumed for all public market trips with the exception of walk-only person trips.

Truck delivery trip generation rates for the public market component were also assumed to be similar to local retail.

MEDICAL OFFICE (STAFF)

For medical office staff, daily trip generation rates (10 person trips per 1,000 square feet for weekday and 4.3 person trips per 1,000 square feet for Saturday), temporal distribution (24, 17, and 24 percent during weekday AM, midday, and PM peak hours, respectively; 17 percent during the Saturday peak hour) and directional distribution percentages (94 percent “in” during the weekday AM peak hour, 50 percent “in” during the midday peak hour, 12 percent “in” during the PM peak hour, and 50 percent “in” during the Saturday peak hour) were all obtained from the *Jamaica Plan FEIS*. A modal split of 28 percent by auto, 1 percent by taxi, 39 percent by subway, 8 percent by bus, and 24 percent by walk was based on US Census 2000 journey-to-work data but was slightly modified to exclude ‘work from home’. An auto occupancy rate of 1.25 persons per auto was based on US Census 2000 data, and a taxi occupancy rate of 1.4 passengers per taxi was obtained from the *Western Rail Yard FEIS*.

For truck delivery trips, a weekday daily trip generation rate of 0.29 trips per 1,000 square feet and a temporal distribution of 9.6 percent during the weekday AM peak hour, 11 percent during the midday peak hour, and 1 percent during the PM peak hour were obtained from the *Jamaica Plan FEIS.* No truck delivery trips would be generated on Saturday.

MEDICAL OFFICE (VISITORS)

All trip generation rates and percentages for medical office visitors were obtained from the *Jamaica Plan FEIS*. This includes a daily trip generation rate of 33.6 person trips per 1,000 square feet for weekday and 14.5 person trips per 1,000 square feet for Saturday, and a temporal distribution of 6 percent during the weekday AM peak hour, 9 percent during the midday peak hour, 5 percent during the PM peak hour, and 9 percent during the Saturday peak hour. A directional distribution of 94 percent “in” during the weekday AM peak hour, 50 percent “in” during the midday peak hour, 12 percent “in” during the PM peak hour, and 50 percent “in” during the Saturday peak hour was used, and a modal split of 25 percent by auto, 25 percent by taxi, 29 percent by subway, 11 percent by bus, and 10 percent by walk was applied. Vehicle occupancies used for medical office visitors were 1.65 persons per auto and 1.4 passengers per taxi.

Truck delivery trip generation rates for medical office visitors were the same as medical office staff, and were also obtained from the *Jamaica Plan FEIS*.

COMMUNITY FACILITY

To calculate trips generated by community facility space, rates from the *Jamaica Plan FEIS* were used. This included a weekday trip generation rate of 48 daily person trips per 1,000 square feet and a Saturday rate of 19 person trips per 1,000 square feet. A temporal distribution of 7 percent during the weekday AM peak hour, 10 percent during the midday peak hour, 7 percent during the PM peak hour, and 14 percent during the Saturday peak hour, and directional splits of 61 percent “in” during the weekday AM peak hour, 55 percent “in” during the midday peak hour, 29 percent “in” during the PM peak hour, and 49 percent “in” during the Saturday peak hour were used. A modal split of 5 percent by auto, 1 percent by taxi, 3 percent by subway, 6 percent by bus, and 85 percent by walk was applied, and vehicle occupancies of 1.65 persons per auto and 1.4 passengers per taxi were used.

For delivery trips, a weekday trip generation rate of 0.29 daily trips per 1,000 square feet for weekday and 0.04 daily trips per 1,000 square feet on a Saturday, and a temporal distribution of

10 percent, 11 percent, 1 percent, and 0 percent during the weekday AM, midday and PM, and Saturday peak hours, respectively, were all obtained from the *Jamaica Plan FEIS*.

Table 13-3 summarizes the person trips generated by the proposed actions. As presented in **Table 13-3**, the proposed actions would generate approximately ~~2,904~~ 3,245, ~~5,379~~ 6,375, ~~5,477~~ 6,355, and ~~6,204~~ 7,403 person trips, which is the summation of all trips by all modes, during the weekday AM, midday, PM, and Saturday peak hours, respectively. The proposed actions would also generate approximately 371, 527, 540, and 496 vehicle trips, including both auto trips and taxi trips, during the weekday AM, midday, PM, and Saturday peak hours, respectively (see **Table 13-4)**. These trips would be distributed among the project sites comprising the proposed overall development. Since the projected trips would exceed the CEQR analysis thresholds for vehicular traffic, transit, and pedestrians, a Level 2 screening assessment, as detailed below, was undertaken to identify specific locations where additional detailed analyses would be warranted.

Table 13-3
Trip Generation Summary - Person Trips

Use		Peak Hour		Person Trips					
				Auto	**Taxi**	**Subway**	**Bus**	**Walk**	**Total**
Residential	**900 Dwelling Units**	**AM**	In	12	2	53	10	32	109
			Out	68	12	303	56	179	618
			Total	**80**	**14**	**356**	**66**	**211**	**727**
		MD	In	20	4	89	16	53	182
			Out	20	4	89	16	53	182
			Total	**40**	**8**	**178**	**32**	**106**	**364**
		PM	In	62	11	274	50	162	559
			Out	26	5	118	22	70	241
			Total	**88**	**16**	**392**	**72**	**232**	**800**
		SAT	In	38	7	169	31	100	345
			Out	38	7	169	31	100	345
			Total	**76**	**14**	**338**	**62**	**200**	**690**
Hotel	**200 Rooms**	**AM**	In	5	11	14	2	27	59
			Out	8	17	22	3	42	92
			Total	**13**	**28**	**36**	**5**	**69**	**151**
		MD	In	11	21	18	4	87	141
			Out	10	18	16	4	74	122
			Total	**21**	**39**	**34**	**8**	**161**	**263**
		PM	In	14	29	38	5	73	159
			Out	8	15	21	3	39	86
			Total	**22**	**44**	**59**	**8**	**112**	**245**
		SAT	In	9	17	23	3	44	96
			Out	7	13	18	2	34	74
			Total	**16**	**30**	**41**	**5**	**78**	**170**
Office	**36.304 KSF**	**AM**	In	20	1	28	6	17	72
			Out	1	0	1	0	1	3
			Total	**21**	**1**	**29**	**6**	**18**	**75**
		MD	In	1	1	3	3	39	47
			Out	1	2	3	3	42	51
			Total	**2**	**3**	**6**	**6**	**81**	**98**
		PM	In	1	0	2	0	1	4
			Out	23	1	32	7	20	83
			Total	**24**	**1**	**34**	**7**	**21**	**87**
		SAT	In	0	0	1	1	11	13
			Out	0	0	1	1	9	11
			Total	**0**	**0**	**2**	**2**	**20**	**24**

Table 13-3 (cont'd)
Trip Generation Summary - Person Trips

Use		Peak Hour		Person Trips					
				Auto	**Taxi**	**Subway**	**Bus**	**Walk**	**Total**
Local Retail	**52.762 KSF**	**AM**	In	2	4	7	7	~~101~~ 135	~~121~~ 155
			Out	2	4	7	7	~~101~~ 135	~~121~~ 155
			Total	**4**	**8**	**14**	**14**	**~~202~~ 270**	**~~242~~ 310**
		MD	In	15	23	46	46	~~640~~ 853	~~770~~ 983
			Out	15	23	46	46	~~640~~ 853	~~770~~ 983
			Total	**30**	**46**	**92**	**92**	**~~1,280~~ 1,706**	**~~1,540~~ 1,966**
		PM	In	8	12	24	24	~~337~~ 449	~~405~~ 517
			Out	8	12	24	24	~~337~~ 449	~~405~~ 517
			Total	**16**	**24**	**48**	**48**	**~~674~~ 898**	**~~810~~ 1,034**
		SAT	In	9	14	28	28	~~394~~ 526	~~473~~ 605
			Out	9	14	28	28	~~394~~ 526	~~473~~ 605
			Total	**18**	**28**	**56**	**56**	**~~788~~ 1,052**	**~~946~~ 1,210**
Destination Retail	**351.587 KSF**	**AM**	In	34	15	108	30	~~191~~ 254	~~378~~ 441
			Out	22	10	69	19	~~122~~ 162	~~242~~ 282
			Total	**56**	**25**	**177**	**49**	**~~313~~ 416**	**~~620~~ 723**
		MD	In	92	41	204	82	~~602~~ 803	~~1,021~~ 1,222
			Out	75	33	167	67	~~493~~ 657	~~835~~ 999
			Total	**167**	**74**	**371**	**149**	**~~1,095~~ 1,460**	**~~1,856~~ 2,221**
		PM	In	79	35	249	70	~~440~~ 587	~~873~~ 1,020
			Out	89	39	280	79	~~497~~ 662	~~984~~ 1,149
			Total	**168**	**74**	**529**	**149**	**~~937~~ 1,249**	**~~1,857~~ 2,169**
		SAT	In	126	56	279	112	~~823~~ 1,098	~~1,396~~ 1,671
			Out	116	52	258	103	~~760~~ 1,013	~~1,289~~ 1,542
			Total	**242**	**108**	**537**	**215**	**~~1,583~~ 2,111**	**~~2,685~~ 3,213**

Table 13-3 (cont'd)
Trip Generation Summary - Person Trips

Use		Peak Hour		Person Trips: Auto	Taxi	Subway	Bus	Walk	Total
Public Market	**94.152 KSF**	**AM**	In	7	11	22	22	~~303~~ 403	~~365~~ 465
			Out	5	8	15	15	~~210~~ 280	~~253~~ 323
			Total	**12**	**19**	**37**	**37**	**~~513~~ 683**	**~~618~~ 788**
		MD	In	7	10	20	20	~~283~~ 377	~~340~~ 434
			Out	8	12	24	24	~~332~~ 443	~~400~~ 511
			Total	**15**	**22**	**44**	**44**	**~~615~~ 820**	**~~740~~ 945**
		PM	In	12	17	35	35	~~482~~ 643	~~581~~ 742
			Out	13	20	39	39	~~544~~ 725	~~655~~ 836
			Total	**25**	**37**	**74**	**74**	**~~1,026~~ 1,368**	**~~1,236~~ 1,578**
		SAT	In	15	22	45	45	~~621~~ 829	~~748~~ 956
			Out	14	22	43	43	~~597~~ 796	~~719~~ 918
			Total	**29**	**44**	**88**	**88**	**~~1,218~~ 1,625**	**~~1,467~~ 1,874**
Medical Office (Staff)	**94 KSF**	**AM**	In	59	2	83	17	51	212
			Out	4	0	5	1	3	13
			Total	**63**	**2**	**88**	**18**	**54**	**225**
		MD	In	22	1	31	6	19	79
			Out	22	1	31	6	19	79
			Total	**44**	**2**	**62**	**12**	**38**	**158**
		PM	In	8	0	11	2	6	27
			Out	56	2	77	16	48	199
			Total	**64**	**2**	**88**	**18**	**54**	**226**
		SAT	In	10	0	13	3	8	34
			Out	10	0	13	3	8	34
			Total	**20**	**0**	**26**	**6**	**16**	**68**
Medical Office (Visitors)	**94 KSF**	**AM**	In	45	45	52	20	18	180
			Out	3	3	3	1	1	11
			Total	**48**	**48**	**55**	**21**	**19**	**191**
		MD	In	36	36	41	16	14	143
			Out	36	36	41	16	14	143
			Total	**72**	**72**	**82**	**32**	**28**	**286**
		PM	In	5	5	5	2	2	19
			Out	35	35	40	15	14	139
			Total	**40**	**40**	**45**	**17**	**16**	**158**
		SAT	In	15	15	18	7	6	61
			Out	15	15	18	7	6	61
			Total	**30**	**30**	**36**	**14**	**12**	**122**

Table 13-3 (cont'd)
Trip Generation Summary - Person Trips

				Person Trips					
Use		**Peak Hour**		**Auto**	**Taxi**	**Subway**	**Bus**	**Walk**	**Total**
Community Office	**10 KSF**	**AM**	In	6	0	8	2	5	21
			Out	0	0	0	0	0	0
			Total	**6**	**0**	**8**	**2**	**5**	**21**
		MD	In	0	0	1	1	11	13
			Out	0	0	1	1	12	14
			Total	**0**	**0**	**2**	**2**	**23**	**27**
		PM	In	0	0	0	0	0	0
			Out	6	0	9	2	6	23
			Total	**6**	**0**	**9**	**2**	**6**	**23**
		SAT	In	0	0	0	0	3	3
			Out	0	0	0	0	2	2
			Total	**0**	**0**	**0**	**0**	**5**	**5**
Community Facility	**10 KSF**	**AM**	In	1	0	1	1	18	21
			Out	1	0	0	1	11	13
			Total	**2**	**0**	**1**	**2**	**29**	**34**
		MD	In	1	0	1	2	22	26
			Out	1	0	1	1	18	21
			Total	**2**	**0**	**2**	**3**	**40**	**47**
		PM	In	1	0	0	1	9	11
			Out	1	0	1	1	21	24
			Total	**2**	**0**	**1**	**2**	**30**	**35**
		SAT	In	1	0	0	1	11	13
			Out	1	0	0	1	12	14
			Total	**2**	**0**	**0**	**2**	**23**	**27**
Total		**AM**	In	191	91	376	117	~~763~~ 960	~~1,538~~ 1,735
			Out	114	54	425	103	~~670~~ 814	~~1,366~~ 1,510
			Total	**305**	**145**	**801**	**220**	**~~1,433~~ 1,774**	**~~2,904~~ 3,245**
		MD	In	205	137	454	196	~~1,770~~ 2,278	~~2,762~~ 3,270
			Out	188	129	419	184	~~1,697~~ 2,185	~~2,617~~ 3,105
			Total	**393**	**266**	**873**	**380**	**~~3,467~~ 4,463**	**~~5,379~~ 6,375**
		PM	In	190	109	638	189	~~1,512~~ 1,932	~~2,638~~ 3,058
			Out	265	129	641	208	~~1,596~~ 2,054	~~2,839~~ 3,297
			Total	**455**	**238**	**1,279**	**397**	**~~3,108~~ 3,986**	**~~5,477~~ 6,355**
		SAT	In	223	131	576	231	~~2,021~~ 2,636	~~3,182~~ 3,797
			Out	210	123	548	219	~~1,922~~ 2,506	~~3,022~~ 3,606
			Total	**433**	**254**	**1,124**	**450**	**~~3,943~~ 5,142**	**~~6,204~~ 7,403**

Table 13-4
Trip Generation Summary - Vehicle Trips

Use	Weekday Peak Hours									Saturday Peak Hour		
	AM			Midday			PM					
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Autos												
Residential	10	59	69	17	17	34	52	22	74	34	34	68
Hotel	4	6	10	8	7	15	10	5	15	6	5	11
Office	16	1	17	1	1	2	1	19	20	0	0	0
Local Retail	1	1	2	9	9	18	6	6	12	6	6	12
Destination Retail	16	10	26	45	38	83	39	45	84	63	60	123
Medical Office (Staff)	48	3	51	18	18	36	6	44	50	8	8	16
Medical Office (Visitors)	27	1	28	22	22	44	3	21	24	8	8	16
Community Office	4	0	4	0	0	0	0	5	5	0	0	0
Community Facility	1	0	1	0	0	0	0	1	1	0	0	0
Public Market	4	3	7	4	5	9	7	8	15	9	9	18
Deliveries (all uses)	11	11	22	14	14	28	0	0	0	0	0	0
Taxis (all uses)	67	67	134	129	129	258	120	120	240	116	116	232
Total	**209**	**162**	**371**	**267**	**260**	**527**	**244**	**296**	**540**	**250**	**246**	**496**

D. LEVEL 2 SCREENING ASSESSMENT

A Level 2 screening assessment involves the distribution and assignment of projected trips to the transportation network and the determination of whether specific locations are expected to incur incremental trips exceeding CEQR thresholds. If the results of this analysis show that the proposed actions would generate 50 or more peak hour vehicle trips through an intersection, 50 or more peak hour bus riders on a bus route in a single direction, 200 or more peak hour subway passengers per station element, or 200 or more peak hour pedestrian trips per pedestrian element, further quantified analyses may be warranted to evaluate the potential for significant adverse traffic, transit, pedestrian, and parking impacts. For the proposed actions, trips projected for the 2022 full build-out, representing the maximum amount of project-generated trips under the RWCDS, were allocated to the area's roadways, transit facilities, and pedestrian elements to identify the various study areas for which detailed analyses of potential impacts would be prepared.

TRAFFIC

As shown above, incremental vehicle trips resulting from the proposed actions would exceed the CEQR Level 1 screening threshold during the weekday AM, midday, PM, and Saturday peak hours. These vehicle trips were assigned to area intersections based on the most likely travel routes to and from the project sites, the configuration of the roadway network, and the anticipated locations of site access and egress. Although some vehicles might seek parking off-site at available nearby parking facilities, for a conservative analysis, all auto trips were assigned to the on-site parking garages on Sites 2, 3, 4, and 5. Taxi trips were assigned to the block faces bordering each project site. Traffic assignments for autos, taxis, and deliveries are discussed in detail later in this chapter under Section F, "Traffic."

In coordination with NYCDOT, 30 area intersections were identified for study (25 signalized and five unsignalized). Of these, 25 intersections are situated in the immediate area near the project sites (Primary Study Area) bounded by Stanton Street to the north, Grand Street to the south, Allen Street to the west, and Clinton Street to the east. Five additional intersections along Houston Street and Grand Street/East Broadway are located within a Secondary Study Area. These study area intersections include (see **Figure 13-1**):

3.22.12

*Site 7 Would Not Be Redeveloped Under the Proposed Actions

Traffic Study Area
Figure 13-1

1. Delancey Street and Clinton Street
2. Delancey Street and Suffolk Street
3. Delancey Street and Norfolk Street
4. Delancey Street and Essex Street
5. Delancey Street and Ludlow Street
6. Delancey Street and Orchard Street
7. Delancey Street and Allen Street
8. Broome Street and Clinton Street (unsignalized)
9. Broome Street and Suffolk Street (unsignalized)
10. Broome Street and Norfolk Street
11. Broome Street and Essex Street
12. Broome Street and Ludlow Street (unsignalized)
13. Grand Street and Clinton Street
14. Grand Street and Suffolk Street
15. Grand Street and Norfolk Street
16. Grand Street and Essex Street
17. Grand Street and Ludlow Street
18. Grand Street and Orchard Street
19. Grand Street and Allen Street
20. Grand Street and East Broadway
21. Rivington Street and Norfolk Street
22. Rivington Street and Essex Street
23. Rivington Street and Ludlow Street (unsignalized)
24. Stanton Street and Norfolk Street
25. Stanton Street and Essex Street
26. Stanton Street and Ludlow (unsignalized)
27. Houston Street and Essex Street/Avenue A
28. Houston Street and Allen Street/First Avenue
29. Houston Street and Chrystie Street/Second Avenue
30. Houston Street and the Bowery

TRANSIT

SUBWAY

The development sites are located near the Delancey Street/Essex Street subway station (F, J, M, and Z lines) operated by New York City Transit (NYCT). Subway lines at this station provide convenient access to all of the project sites. Therefore, all projected subway trips are expected to be served by this station. The proposed actions are expected to generate 801, 873, 1,279, and 1,124 incremental peak hour subway trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. Based on the distribution of these trips to the Delancey Street/Essex Street subway station, the following elements were identified for a detailed analysis for the weekday AM and PM peak hours.

- Station stairway at Essex Street between Delancey Street and Broome Street on the east sidewalk (S-4) and the adjoining control area (N-526) elements;
- Station stairways at the Delancey Street and Norfolk Street entrance (S-6 and S-7) on the north sidewalk and adjoining control area (A-61) element.

- Station escalator at Essex Street between Delancey Street and Broome Street on the east sidewalk (E328)
- PL3(PL4) – Manhattan bound J/M/Z platform connecting to Uptown F platform;
- P9(P10) - stairway leading to uptown F platform;
- PL2 & PL9– Brooklyn bound J/M/Z platform leading to PL11B on Uptown F platform; and
- PL18 - Brooklyn bound J/M/Z platform connecting to downtown F train platform.

~~Based on the transit analysis of the Essex Street/Delancey Street station, no potentially significant adverse subway station impacts at the Essex Street/Delancey Street station have so far been determined during the peak analysis periods. At the direction of MTA NYCT, analyses of the following interior transfer and platform stairways will be undertaken for the Final Generic Environmental Impact Statement (FGEIS):~~

- ~~PL4 (A61) - platform stair at uptown J/M/Z platform;~~
- ~~P9 (N525) - leading to uptown F train platform;~~
- ~~PL2 & PL9 (leading to PL11B on uptown F train platform) – Brooklyn bound J/M/Z platform; and~~
- ~~PL18 (connecting to downtown F train platform) - Brooklyn bound J/M/Z platform.~~

~~As part of incorporating these stairway elements in the subway analyses, the distribution of project generated subway trips will be refined to reflect the connectivity of the interior and platform stairways with the street-level stairways analyzed in this DGEIS.~~

To determine whether a subway line-haul analysis is warranted, the estimated incremental ridership for each subway line by direction was compared to each line's peak period service frequency to determine the incremental increase in subway riders per subway car as presented in **Table 13-5**. According to the *CEQR Technical Manual*, an incremental ridership of fewer than 5 riders per subway car is unlikely to result in the potential for a significant subway line-haul impact. The detailed subway trip assignments showed that all subway lines would incur fewer than 5 additional riders per car along all subway lines under the RWCDS. Since the projected peak ridership increment would be below this threshold, a detailed subway line-haul analysis is not warranted.

Table 13-5[1]

Subway Line Haul Screening Analysis

Subway Line	Projected Riders	No. of Cars *	No. Riders/Car	Screening Result
AM Peak Hour (8:00- 9:00 AM)				
J/M/Z- Brooklyn Bound	135	160	0.8	Screened out
F- Brooklyn Bound	236	140	1.7	Screened out
J/M/Z- Downtown	185	136	1.4	Screened out
F- Uptown	245	110	1.8	Screened out
PM Peak Hour (5:00- 6:00 PM)				
J/M/Z- Brooklyn Bound	270	136	2.0	Screened out
F- Brooklyn Bound	383	110	3.5	Screened out
J/M/Z- Downtown	242	128	1.9	Screened out
F-Uptown	384	130	3.0	Screened out

Note: * Number of cars available for each line during the peak hour is obtained from NYCT 2010 cordon counts

[1] This table is new to the FGEIS.

NYCT BUS

NYCT bus trips were distributed to bus routes serving the Lower East Side area (see **Figure 13-2**). There are six bus routes (M9, M14A, M15, M15 SBS, M21, and M22) with stops adjacent to or near the project sites. As summarized in **Table 13-3**, the proposed actions are expected to generate 220, 380, 397, and 450 incremental peak hour bus trips during the weekday AM, midday, PM, and Saturday midday peak hours, respectively. Based on the distribution of these trips, the following bus routes would incur 50 or more peak hour riders in a single direction, and require a detailed line-haul analysis for the weekday AM and PM peak hours to address potential transit impacts on the bus system associated with the proposed actions.

- M14A northbound/westbound;
- M14A southbound/eastbound;
- M15/M15 SBS northbound;
- M15/M15 SBS southbound;
- M9 northbound; and
- M9 southbound.

Even though the M15 and M15 SBS bus routes would not incur 50 or more peak hour riders in a single direction on either route, these were included in the detailed line-haul analysis since their combined increase would exceed 50 or more peak hour riders in both directions.

PEDESTRIANS

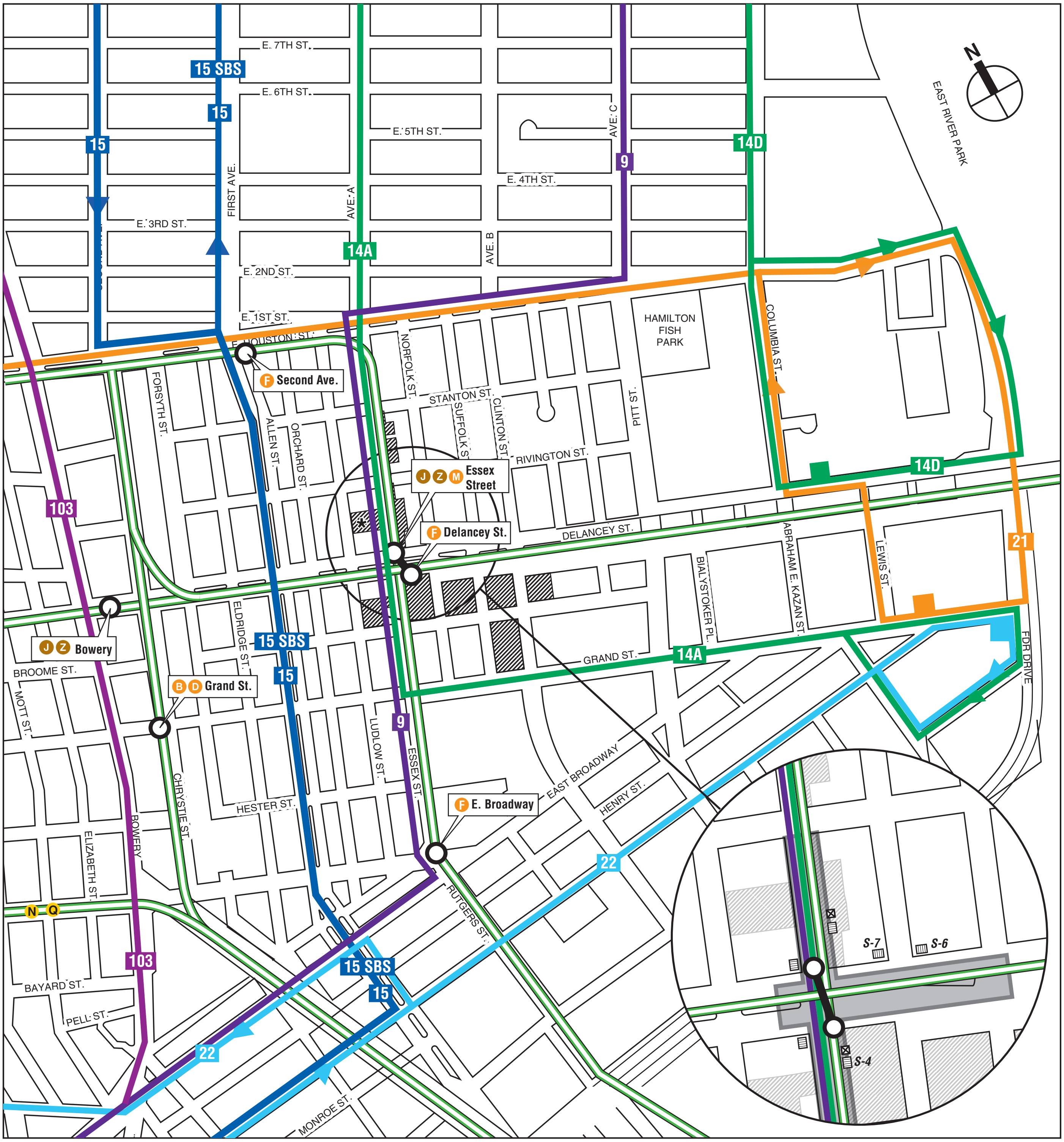
Pedestrian trip assignments were developed by distributing person trips generated by the individual project sites under the proposed actions to surrounding pedestrian facilities, including sidewalks, corner reservoirs, and crosswalks, adjacent to and near the project sites. It was assumed that all of the sites would be accessible from all block faces that the sites extend to, with the exception of Sites 8, 9, and 10 which would be accessed only from Essex Street. It was also assumed that the entrances on Broome Street, Essex Street, Delancey Street, and Grand Street would be used for the retail use, with the entrances on Ludlow Street, Norfolk Street, Suffolk Street, and Clinton Street being used for the residential, hotel, and commercial office uses.

Pedestrian assignments for sidewalks, corners and crosswalks are discussed in detail later in this chapter under Section H, “Pedestrians.”

Based on the *CEQR Technical Manual*, quantified pedestrian analyses would be required for pedestrian elements incurring 200 or more incremental peak hour trips. Based on this Level 2 pedestrian assignment, various sidewalks, crosswalks, and corner reservoirs in the vicinity of the proposed development site would exceed 200 peak hour trips. The pedestrian analysis locations for the weekday AM, midday, PM, and Saturday peak hours were selected in coordination with NYCDOT and are summarized in **Table 13-~~5~~6** and depicted in **Figure 13-3.**

The Level 2 pedestrian trip assignments were developed for each of the sites for the different uses on each site to account for the highest project-generated pedestrian volumes. For each use, pedestrian trips would follow similar assignment procedures, as described below:

- Auto Trips – Motorists would park either at the on-site parking facilities or at the nearest available public parking facilities and walk to and from the project sites.
- Taxi Trips – Taxi riders would get dropped off and picked up near the entrance of each site.



Proposed Development Sites

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Subway Line

Subway Stop

Subway Stairs

S-7 *Subway Stair Number*

Subway Escalators

Underground Walkway

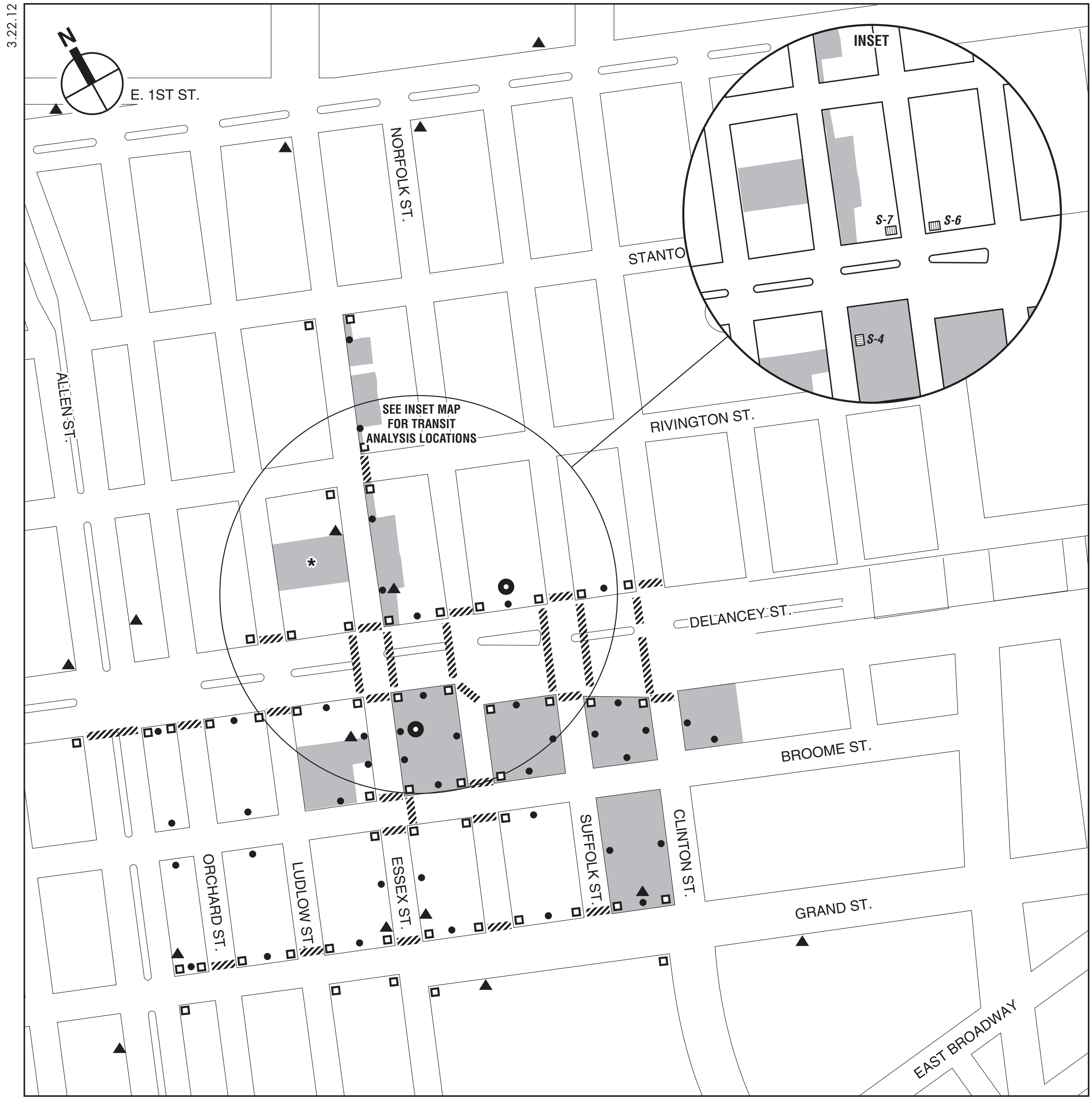
1 *Bus Line*

0 400 1000 FEET

SCALE

Public Transit Options

Figure 13-2



Proposed Development Sites

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Sidewalk

Corner

Subway Station Access

Crosswalk

Subway Stairs

S-7 *Subway Stair Number*

Bus Stop

Transit and Pedestrian Analysis Locations

Figure 13-3

Table 13-~~5~~6
Pedestrian Analysis Locations

Intersection No.	Location	Elements
1	Essex Street and Stanton Street	Southeast Corner/ Southwest Corner
		East sidewalk between Stanton Street and Rivington Street (on Essex Street)
2	Essex Street and Rivington Street	East Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner
		East sidewalk between Rivington Street and Stanton Street (on Essex Street)
		East sidewalk between Rivington Street and Delancey Street (on Essex Street)
3	Allen Street and Delancey Street	South Crosswalk
		Southeast Corner / Southwest Corner
		South sidewalk between Allen Street and Orchard Street (on Delancey Street)
4	Orchard Street and Delancey Street	South Crosswalk
		Southeast Corner / Southwest Corner
		South sidewalk between Orchard Street and Ludlow Street (on Delancey Street)
5	Ludlow Street and Delancey Street	North Crosswalk/ South Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		South sidewalk between Ludlow Street and Essex Street (on Delancey Street)
6	Essex Street and Delancey Street	North Crosswalk/ East Crosswalk/ South Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		East sidewalk between Delancey Street and Rivington Street (on Essex Street)
		North sidewalk between Essex Street and Norfolk Street (on Delancey Street)
		South sidewalk between Essex Street and Norfolk Street (on Delancey Street)
		East sidewalk between Delancey Street and Broome Street (on Essex Street)
		West sidewalk between Delancey Street and Broome Street (on Essex Street)
7	Norfolk Street and Delancey Street	North Crosswalk/ South Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		North sidewalk between Norfolk Street and Suffolk Street (on Delancey Street)
		South sidewalk between Norfolk Street and Suffolk Street (on Delancey Street)
		West sidewalk between Delancey Street and Broome Street (on Norfolk Street)
		South sidewalk between Norfolk Street and Essex Street (on Delancey Street)
		North sidewalk between Norfolk Street and Essex Street (on Delancey Street)
8	Suffolk Street and Delancey Street	North Crosswalk/ East Crosswalk/ South Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		North sidewalk between Suffolk Street and Clinton Street (on Delancey Street)
		South sidewalk between Suffolk Street and Clinton Street (on Delancey Street)
		East sidewalk between Delancey Street and Broome Street (on Suffolk Street)
		South sidewalk between Suffolk Street and Norfolk Street (on Delancey Street)
9	Clinton Street and Delancey Street	North Crosswalk/ West Crosswalk (North of Williamsburg Bridge)/ South Crosswalk/ West Crosswalk (South of Williamsburg Bridge)
		Southeast Corner / Southwest Corner / Northwest Corner
		East sidewalk between Delancey Street and Broome Street (on Clinton Street)
		South sidewalk between Clinton Street and Suffolk Street (on Delancey Street)
10	Allen Street and Broome Street	North sidewalk between Allen Street and Orchard Street (on Broome Street)
		South sidewalk between Allen Street and Orchard Street (on Broome Street)
11	Ludlow Street and Broome Street	North sidewalk between Ludlow Street and Essex Street (on Broome Street)
		South sidewalk between Ludlow Street and Orchard Street (on Broome Street)
		North sidewalk between Ludlow Street and Orchard Street (on Broome Street)
12	Essex Street and Broome Street	North Crosswalk/ East Crosswalk /South Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		West sidewalk between Broome Street and Delancey Street (on Essex Street)
		East sidewalk between Broome Street and Delancey Street (on Essex Street)
		North sidewalk between Essex Street and Norfolk Street (on Broome Street)
		East sidewalk between Broome Street and Grand Street (on Essex Street)
		West sidewalk between Broome Street and Grand Street (on Essex Street)
		North sidewalk between Essex Street and Ludlow Street (on Broome Street)
13	Norfolk Street and Broome Street	North Crosswalk/ South Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		West sidewalk between Broome Street and Delancey Street (on Norfolk Street)
		North sidewalk between Norfolk Street and Suffolk Street (on Broome Street)
		South sidewalk between Norfolk Street and Suffolk Street (on Broome Street)
		North sidewalk between Norfolk Street and Essex Street (on Broome Street)

Table 13-~~5~~6 (cont'd)
Pedestrian Analysis Locations

Intersection No.	Location	Elements
14	Suffolk Street and Broome Street	West sidewalk between Broome Street and Delancey Street (on Suffolk Street)
		North sidewalk between Suffolk Street and Clinton Street (on Broome Street)
		East sidewalk between Broome Street and Grand Street (on Suffolk Street)
		North sidewalk between Suffolk Street and Norfolk Street (on Broome Street)
15	Clinton Street and Broome Street	North sidewalk between Clinton Street and Ridge Street (on Broome Street)
		North sidewalk between Clinton Street and Suffolk Street (on Broome Street)
16	Allen Street and Grand Street	Northeast Corner / Southeast Corner
		North sidewalk between Allen Street and Orchard Street (on Grand Street)
17	Orchard Street and Grand Street	North Crosswalk
		Northeast Corner / Northwest Corner
18	Ludlow Street and Grand Street	North Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		North sidewalk between Ludlow Street and Essex Street (on Grand Street)
		South sidewalk between Ludlow Street and Orchard Street (on Grand Street)
		North sidewalk between Ludlow Street and Orchard Street (on Grand Street)
19	Essex Street and Grand Street	North Crosswalk/ West Crosswalk
		Northeast Corner/ Southeast Corner/ Southwest Corner / Northwest Corner
		West sidewalk between Grand Street and Broome Street (on Essex Street)
		East sidewalk between Grand Street and Broome Street (on Essex Street)
		North sidewalk between Essex Street and Norfolk Street (on Grand Street)
20	Norfolk Street and Grand Street	North Crosswalk
		Northeast Corner / Northwest Corner
		North sidewalk between Norfolk Street and Suffolk Street (on Grand Street)
21	Suffolk Street and Grand Street	North Crosswalk
		Northeast Corner / Northwest Corner
		North sidewalk between Suffolk Street and Clinton Street (on Grand Street)
22	Clinton Street and Grand Street	Southwest Corner/ Northwest Corner
		West sidewalk between Grand Street and Broome Street (on Clinton Street)

- NYCT Bus Trips – Bus riders would use one of the six bus lines serving the Lower East Side area (M9, M14A, M15, M15 SBS, M21, and M22) and would get on and off at the bus stops nearest to the project site and walk to and from the site.
- Subway Trips – Subway riders were assigned to the Delancey Street and Essex Street station. They ~~and~~ were assumed to enter into/exit from the entrances/exits that allow easy access to the available lines (F, J, M, and Z) and would walk to and from the project site. The distribution of the subway riders to each of the subway lines was based on the NYCT's 2010 Cordon Counts and the 2000 US Census origin and destination data.
- Walk-Only Trips – Pedestrians who walk to and from the project site were distributed based on the neighborhood land-use characteristics and available pedestrian facilities (i.e., crosswalks, sidewalks, and corners).

E. TRANSPORTATION ANALYSIS METHODOLOGIES

TRAFFIC OPERATIONS

The operation of all of the signalized and unsignalized intersection analysis locations were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*, which is the analysis methodology approved for use by NYCDOT The *HCM* procedure evaluates the levels of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for determining levels of service for individual lane groups (grouping of movements in one or more travel lanes), the overall approaches to each intersection, and the overall intersection itself. Levels of service are defined in **Table 13-~~6~~7**.

Table 13-~~6~~7
LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds
Source:	Transportation Research Board. *Highway Capacity Manual*, 2000.

LOS A describes operations with low delays, i.e., 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.

LOS B describes operations with delays in excess of 10.0 seconds up to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.

LOS C describes operations with delays in excess of 20.0 seconds up to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delays in excess of 35.0 seconds up to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

LOS E describes operations with delays in excess of 55.0 seconds up to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.

LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Based on *CEQR Technical Manual* guidelines, LOS A, B, and C are considered acceptable, LOS D is considered marginally acceptable up to mid-LOS D (45 seconds of delay for signalized intersections) and unacceptable above mid-LOS D, and LOS E and F indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. Level of service criteria for unsignalized intersections are summarized in **Table 13-~~7~~8**.

For unsignalized intersections, LOS E is considered the limit of acceptable delay, while LOS F is considered unacceptable to most drivers. LOS F conditions exist when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely.

Table 13-~~7~~8
LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

Significant Impact Criteria

The assessment of potential significant traffic impacts of a proposed action is based on significant impact criteria defined in the *CEQR Technical Manual.* No Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E, or F in the future With Action condition are considered a significant traffic impact.

For future With Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, mitigation to mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact.

For a No Action LOS D, an increase of delay by five or more seconds in the With Action condition is considered a significant impact if the With Action delay meets or exceeds 45.0 seconds. For a No Action LOS E, the threshold is a four second increase in With Action delay; for a No Action LOS F, a three second increase in delay in the With Action condition is significant. For unsignalized intersections, for the minor street to generate a significant impact, 90 passenger car equivalents (PCEs) must be identified in the With Action condition in any peak hour.

TRANSIT OPERATIONS

SUBWAY STATION ELEMENTS

The methodology for assessing station circulation (stairs, escalators, and passageways) and fare control (regular turnstiles, high entry/exit turnstiles, and high exit turnstiles) elements compares the user volume with the analyzed element's design capacity, resulting in a volume-to-capacity (v/c) ratio.

For stairs, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction or counter-flow between upward and downward pedestrians (up to 10 percent capacity reduction is applied to account for counter-flow friction), surging of exiting pedestrians (up to 25 percent capacity reduction is applied to account for detraining surges near platforms), and the average area required for circulation. For passageways, similar considerations are made. For escalators and turnstiles, capacities are measured by the number and width of an element and the NYCT optimum capacity per element, also account for the potential for surging of exiting pedestrians. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals.

The estimated v/c ratio is compared with NYCT criteria to determine a level of service (LOS) for the operation of an element, as summarized in **Table 13-~~8~~9**.

Table 13-~~8~~9
LOS Criteria for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (January 2012 edition).

At LOS A ("free flow") and B ("fluid flow"), there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C ("fluid, somewhat restricted"), movement is fluid although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking speed. At LOS D ("crowded, walking speed restricted"), walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E ("congested, some shuffling and queuing") and F ("severely congested, queued"), walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

Significant Impact Criteria

The determination of significant impacts for station elements varies based on their type and use. For stairs and passageways, significant impacts are defined in term of width increment threshold (WIT) based on the minimum amount of additional capacity that would be required either to mitigate the location to its service conditions (LOS) under the No Action levels, or to bring it to a v/c ratio of 1.00 (LOS C/D), whichever is greater. Significant impacts are typically considered to occur once the WITs in **Table 13-~~9~~10** are reached or exceeded.

For escalators and control area elements, impacts are significant if the proposed action causes a v/c ratio to increase from below 1.00 to 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No Action condition, a 0.01 increase in v/c ratio is also significant.

Table 13-~~9~~10
Significant Impact Guidance for Stairs and Passageways

No Action V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Notes: WIT = Width Increment Threshold
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (January 2012 edition).

SUBWAY AND BUS LINE-HAUL CAPACITIES

As per the *CEQR Technical Manual*, line-haul capacities are evaluated when a proposed action is anticipated to generate a perceptible number of passengers on particular subway and bus routes. For subways, if, on average, a subway car for a particular route is expected to incur five or more riders from a proposed action, a review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route's guideline (or practical) capacity would be exceeded. NYCT operates six different types of subway cars with different seating and guideline capacities. The peak period guideline capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions.

Bus line-haul capacities are evaluated when a proposed action is anticipated to generate 50 or more bus passengers to a single bus line in one direction. The assessment of bus line-haul conditions involves analyzing bus routes at their peak load points and, if necessary, also their bus stops closest to the project site to identify the potential for the analyzed routes to exceed their guideline (or practical) capacities. NYCT and the MTA Bus Company operate three types of buses: standard and articulated buses, and over-the-road coaches. During peak hours, standard buses operate with up to 54 passengers per bus, articulated buses operate with up to 85 passengers per bus, and over-the-road coaches operate with up to 55 passengers per bus.

Significant Impact Criteria

For subways, projected increases from the No Action condition within guideline capacity to a With Action condition that exceeds guideline capacity may be a significant impact. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated. For buses, an increase in bus load levels greater than the maximum capacity at any load point is defined as a potential significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalks, crosswalks, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2000 *Highway Capacity Manual* (HCM), pursuant to procedures detailed in the *CEQR Technical Manual*.

Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per minute per foot (PMF) of effective walkway width is the basis for a sidewalk level of service (LOS) analysis. The determination of walkway LOS is also dependent on whether the pedestrian flow being analyzed is best described as “non-platoon” or “platoon.” Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway’s pedestrian volume. In addition to the pedestrian flow, effective sidewalk width (i.e. part of the sidewalk that could be effectively used by pedestrians free of any obstructions) is another important parameter used in the analysis. In calculating the effective sidewalk width, the “shy distances” (i.e. the space left between pedestrians and building façades/curbs) are also taken into account.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The HCM methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total “time-space” available for these activities, expressed in square feet-second, is calculated by multiplying the net area of the corner (in square feet) by the signal’s cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk. The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized in **Table 13-~~10~~11**. The *CEQR Technical Manual* specifies acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better.

Table 13-~~10~~11
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	≤ 5 PMF	≤ 0.5 PMF	> 60 SFP
B	> 5 and ≤ 7 PMF	> 0.5 and ≤ 3 PMF	> 40 and ≤ 60 SFP
C	> 7 and ≤ 10 PMF	> 3 and ≤ 6 PMF	> 24 and ≤ 40 SFP
D	> 10 and ≤ 15 PMF	> 6 and ≤ 11 PMF	> 15 and ≤ 24 SFP
E	> 15 and ≤ 23 PMF	> 11 and ≤ 18 PMF	> 8 and ≤ 15 SFP
F	> 23 PMF	> 18 PMF	≤ 8 SFP

Notes: PMF = pedestrians per minute per foot; SFP = square feet per pedestrian.
Source: New York City Mayor’s Office of Environmental Coordination, *CEQR Technical Manual* (January 2012 edition).

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted deterioration in pedestrian flow or decrease in pedestrian space between the No Action and Action conditions. For different pedestrian elements, flow conditions, and area types, the CEQR procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the increase in average pedestrian flow rate (Y) in PMF needs to be greater or equal to 3.5 minus X divided by 8.0 (where X is the No Action pedestrian flow rate in PMF [$Y \geq 3.5 - X/8.0$]) for it to be a significant impact. For platoon flow, the sliding-scale formula is $Y \geq 3.03 - X/8.0$. Since deterioration in pedestrian flow within acceptable levels would not constitute a significant impact, these formulas would apply only if the With Action pedestrian flow exceeds LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 13-~~11~~12** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 13-~~11~~12
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: *Y ≥ 3.5 – X/8.0*				Sliding Scale Formula: *Y ≥ 3.03 – X/8.0*			
Non-CBD Areas		CBD Areas		Non-CBD Areas		CBD Areas	
No Action Ped. Flow (X, PMF)	Action Ped. Flow Incr. (Y, PMF)	No Action Ped. Flow (X, PMF)	Action Ped. Flow Incr. (Y, PMF)	No Action Ped. Flow (X, PMF)	Action Ped. Flow Incr. (Y, PMF)	No Action Ped. Flow (X, PMF)	Action Ped. Flow Incr. (Y, PMF)
7.5 to 7.8	≥ 2.6	–	–	3.5 to 3.8	≥ 2.6	–	–
7.9 to 8.6	≥ 2.5	–	–	3.9 to 4.6	≥ 2.5	–	–
8.7 to 9.4	≥ 2.4	–	–	4.7 to 5.4	≥ 2.4	–	–
9.5 to 10.2	≥ 2.3	–	–	5.5 to 6.2	≥ 2.3	–	–
10.3 to 11.0	≥ 2.2	10.4 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.4 to 7.0	≥ 2.2
11.1 to 11.8	≥ 2.1	11.1 to 11.8	≥ 2.1	7.1 to 7.8	≥ 2.1	7.1 to 7.8	≥ 2.1
11.9 to 12.6	≥ 2.0	11.9 to 12.6	≥ 2.0	7.9 to 8.6	≥ 2.0	7.9 to 8.6	≥ 2.0
12.7 to 13.4	≥ 1.9	12.7 to 13.4	≥ 1.9	8.7 to 9.4	≥ 1.9	8.7 to 9.4	≥ 1.9
13.5 to 14.2	≥ 1.8	13.5 to 14.2	≥ 1.8	9.5 to 10.2	≥ 1.8	9.5 to 10.2	≥ 1.8
14.3 to 15.0	≥ 1.7	14.3 to 15.0	≥ 1.7	10. to 11.0	≥ 1.7	10. to 11.0	≥ 1.7
15.1 to 15.8	≥ 1.6	15.1 to 15.8	≥ 1.6	11.1 to 11.8	≥ 1.6	11.1 to 11.8	≥ 1.6
15.9 to 16.6	≥ 1.5	15.9 to 16.6	≥ 1.5	11.9 to 12.6	≥ 1.5	11.9 to 12.6	≥ 1.5
16.7 to 17.4	≥ 1.4	16.7 to 17.4	≥ 1.4	12.7 to 13.4	≥ 1.4	12.7 to 13.4	≥ 1.4
17.5 to 18.2	≥ 1.3	17.5 to 18.2	≥ 1.3	13.5 to 14.2	≥ 1.3	13.5 to 14.2	≥ 1.3
18.3 to 19.0	≥ 1.2	18.3 to 19.0	≥ 1.2	14.3 to 15.0	≥ 1.2	14.3 to 15.0	≥ 1.2
19.1 to 19.8	≥ 1.1	19.1 to 19.8	≥ 1.1	15.1 to 15.8	≥ 1.1	15.1 to 15.8	≥ 1.1
19.9 to 20.6	≥ 1.0	19.9 to 20.6	≥ 1.0	15.9 to 16.6	≥ 1.0	15.9 to 16.6	≥ 1.0
20.7 to 21.4	≥ 0.9	20.7 to 21.4	≥ 0.9	16.7 to 17.4	≥ 0.9	16.7 to 17.4	≥ 0.9
21.5 to 22.2	≥ 0.8	21.5 to 22.2	≥ 0.8	17.5 to 18.2	≥ 0.8	17.5 to 18.2	≥ 0.8
22.3 to 23.0	≥ 0.7	22.3 to 23.0	≥ 0.7	18.3 to 19.0	≥ 0.7	18.3 to 19.0	≥ 0.7
> 23.0	≥ 0.6	> 23.0	≥ 0.6	> 19.0	≥ 0.6	> 19.0	≥ 0.6

Notes: PMF = pedestrians per minute per foot; Y = increase in average pedestrian flow rate in PMF; X = No Action pedestrian flow rate in PMF.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (January 2012 edition).

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the Action pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas.

Table 13-~~12~~13 summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 13-~~12~~13
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: $Y \geq X/9.0 - 0.31$			
Non-CBD Areas		CBD Areas	
No Action Pedestrian Space (X, SFP)	Action Pedestrian Space Reduction (Y, SFP)	No Action Pedestrian Space (X, SFP)	Action Pedestrian Space Reduction (Y, SFP)
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (January 2012 edition).

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high accident locations, where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, accident trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with NYCDOT.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by a proposed action. Typically, this analysis encompasses a study area within a quarter-mile of the project site. If the analysis concludes a shortfall in parking within the quarter-mile study area, the study area could sometimes be extended to a half-mile to identify additional parking supply.

For proposed projects located in Manhattan or other CBD areas, the inability of the proposed project or the surrounding area to accommodate the project's future parking demand is considered a parking shortfall, but is generally not considered significant due to the magnitude of available alternative modes of transportation. For other areas in New York City, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within a quarter-mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. In some cases, if there is adequate parking supply within a half-mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

F. TRAFFIC

2011 EXISTING CONDITIONS

ROADWAY NETWORK

The roadway network within the study area is generally a grid of local streets through residential and mixed-use neighborhoods on Manhattan's Lower East Side. Delancey Street is the key east-west roadway that passes through the study area providing direct access to the Williamsburg Bridge, and connectivity to Brooklyn. Other important east-west corridors include Houston Street, Grand Street, and Broome Street. Key north-south corridors include Essex Street/Avenue A, Allen Street/First Avenue, and Chrystie Street/Second Avenue, while other important, but more local, streets include Norfolk, Suffolk, and Clinton Streets.

Delancey Street extends in the east-west direction and is an important commuter route for traffic entering and exiting Manhattan via the Williamsburg Bridge. Delancey Street generally consists of four travel lanes in each direction with curbside parking allowed on both sides during the off-peak periods. Pedestrian refuge islands within the roadway's median separate the two-directional traffic and provide storage for pedestrians. Left turn prohibitions from Delancey Street are in effect at all times between the Williamsburg Bridge and Allen Street due to heavy through volumes; left turns for westbound Delancey Street are allowed onto southbound Allen Street. East of Clinton Street, the Delancey Street "mainline" leads onto the Williamsburg Bridge and its service roads extend to/from the FDR Drive. Delancey Street is generally characterized by mixed-use developments.

Houston Street extends in the east-west direction and forms the northern boundary of the study area. It connects with the FDR Drive to the east and extends to Route 9A to the west. Within the study area, Houston Street has three moving lanes in each direction with parking on both sides. Similarly to Delancey Street, it borders blocks with mixed-use developments.

Broome Street is oriented in the east-west direction and is one-way eastbound within the study area except for two blocks between Norfolk Street and Clinton Street where it is one-way westbound. West of Chrystie Street, Broome Street is one-way westbound and provides access to the Holland Tunnel. Within the study area, it is generally characterized by one travel lane per direction with parking on both sides.

Grand Street extends in the east-west direction and forms the southern edge of the study area. It generally consists of one travel lane in each direction with exclusive left turn lanes provided at certain intersections. Parking is allowed on both sides of the street. Grand Street also has Class II bike lanes (in both directions) that provide a travel lane designated for the exclusive use of bicycles. Within the study area, Grand Street is mostly characterized by residential and retail uses.

Allen Street is an important corridor that extends in the north-south direction. It provides the first opportunity for traffic traveling from the Williamsburg Bridge to turn left from Delancey Street onto the local roadway network. Allen Street generally carries two lanes in each direction separated by a wide pedestrian refuge island, and has dedicated bike lanes. Curbside parking is provided at some locations along both sides of the street. Allen Street is generally characterized by commercial and retail uses. North of Houston Street, Allen Street is called First Avenue and it operates as one-way northbound with three travel lanes, an exclusive bus lane and a dedicated bike lane. Curbside parking is allowed on both sides of the street.

Essex Street travels in the north-south direction and passes through the heart of the study area. It consists of two lanes in each direction with parking on both sides of the street. Left turns from northbound and southbound Essex Street onto Delancey Street are prohibited weekdays from 4 PM to 7 PM, although illegal left turns do occur. It is characterized by commercial/retail uses. Essex Street has local bus routes operating along its length within the study area. North of Houston Street, Essex Street is called Avenue A and it operates as a two-way roadway with one lane in each direction with bike lanes and parking on both sides.

Norfolk Street is a one-way northbound roadway that extends from Grand Street to Houston Street. It consists of one lane with parking on both sides of the street, except for the block between Delancey Street and Broome Street where parking is prohibited. This section of Norfolk Street serves as an important connection for traffic turning right towards the Williamsburg Bridge.

Suffolk Street is a one-way southbound roadway that extends from Houston Street to Grand Street. It consists of one lane with parking along the west curb south of Rivington Street and parking along the east curb north of Rivington Street. North of Delancey Street, Suffolk Street is a bike route with Class II bike lanes and Class III bike route markings.

Clinton Street travels in the north-south direction and is two-directional south of Delancey Street. South of Grand Street, it widens to accommodate Class II bike lanes and parking in both directions. North of Delancey Street, Clinton Street operates one-way northbound with a parking lane along the west curb and a Class II bike lane along the east curb. Clinton Street is generally characterized by residential land uses.

New York City designated truck routes in the study area vicinity include Delancey Street, Allen Street, and Houston Street west of Allen Street.

TRAFFIC CONDITIONS

Traffic counts were conducted for this DGEIS in June 2011 for weekday AM, midday, PM, and Saturday peak periods using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts. These volumes were used along with observations of traffic conditions to determine levels of service for the weekday peak hours of 8:00 to 9:00 AM, 1:00 to 2:00 PM, 5:15 to 6:15 PM, and the Saturday 3:45 to 4:45 PM peak hour. Volume information along key corridors within the study area is provided below.

Delancey Street between Allen Street and Norfolk Street is traveled by approximately 1,200 to 1,700 vph in the weekday AM peak hour, 1,400 to 1,950 vph in the weekday midday peak hour, 2,000 to 2,700 vph in the weekday PM peak hour, and 1,700 to 2,350 vph in the Saturday peak hour in the eastbound direction. Approximately 2,000 to 2,600 vph travel westbound in this section during all four peak analysis hours. Between Norfolk Street and Clinton Street, in the section closer to the Williamsburg Bridge, eastbound volumes increase to approximately 2,150, 2,350, 3,350, and 3,050 vph in the weekday AM, midday and PM, and Saturday peak hours, respectively, and westbound volumes increase to between 2,350 and 2,750 vph during all peak hours.

Along the Williamsburg Bridge traffic volumes in the eastbound direction (Brooklyn-bound) are approximately 2,150 vph in the weekday AM peak hour, 2,350 vph in the weekday midday peak hour, 3,350 vph during the weekday PM peak hour, and 3,050 vph in the Saturday peak hour. In the westbound direction (Manhattan-bound), traffic volumes are more consistent throughout the peak hours: 3,200 vph in the weekday AM peak hour; 2,750 vph in the weekday midday peak hour; 3,300 in the weekday PM peak hour; and 2,900 in the Saturday peak hour.

Along Houston Street between the Bowery and Essex Street/Avenue A, eastbound traffic volumes are approximately 550 to 900 vph in the weekday AM peak hour, 650 to 1,150 vph in the weekday midday peak hour, 600 to 950 vph in the weekday PM peak hour, and 650 to 1,200 vph in the Saturday peak hour, with the highest eastbound volumes at the intersection of Allen Street/First Avenue for all peak hours. Westbound traffic volumes are approximately 800 to 1,300 vph in the weekday AM peak hour, 650 to 1,150 vph in the weekday midday peak hour, 700 to 1,300 vph in the weekday PM peak hour, and 900 to 1,300 vph in the Saturday peak hour, with the highest westbound volumes at the intersection of Houston Street and the Bowery for all peak hours.

Grand Street, between Allen Street and East Broadway, is traveled by approximately 150 to 350 vph for all peak hours in the eastbound direction, while westbound volumes range from approximately 200 to 400 vph between Allen Street and Norfolk Street, and from 500 to 750 vph between Norfolk Street and East Broadway, during the four peak hours.

Within the study area, Broome Street primarily provides access to Norfolk Street for vehicles headed towards the Williamsburg Bridge. Between Ludlow Street and Norfolk Street, traffic operates in the eastbound direction with volumes of 50 to 90 vph during peak hours except in the weekday PM peak hour when volumes reach 225 vph. Between Norfolk Street and Clinton Street, traffic operates in the westbound direction with volumes of 200 to 375 vph during all peak hours.

Allen Street, between Houston Street and Grand Street, has northbound volumes that range from approximately 450 to 850 vph during all four peak hours. Southbound volumes are approximately 200 to 750 vph during all four peak hours.

Volumes along Essex Street between Houston Street and Grand Street range from approximately 200 to 600 vph for all peak hours in each direction. Volumes along the corridor are typically highest at Delancey Street where motorists make turns to travel to the Williamsburg Bridge.

Norfolk Street services northbound traffic in the study area between Grand Street and Houston Street, with approximately 250 to 650 vph in the weekday AM peak hour, 200 to 550 vph in the weekday midday peak hour, 200 to 800 vph in the weekday PM peak hour, and 150 to 800 vph in the Saturday peak hour, with the heaviest volumes at the intersection of Delancey Street where vehicles make right turns towards the Williamsburg Bridge.

The section of Suffolk Street north of Delancey Street carries approximately 20 to 65 vph in the southbound direction during all four peak hours. South of Delancey Street, Suffolk Street traffic volumes are generally less than 40 vph during the peak hours.

Clinton Street, between Broome Street and Grand Street, is characterized by 250 to 400 vph in the northbound direction and about 50 vph in the southbound direction during all peak hours. For the section between Delancey Street and Broome Street, Clinton Street is traveled by approximately 50 vph during the peak hours.

To supplement the field data, inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were also recorded to provide appropriate inputs for the operational analyses. In addition, official signal timings obtained from NYCDOT were used in the analyses for all the signalized intersections. Existing traffic volumes for the weekday AM, midday, and PM, and Saturday peak hours, respectively are provided at the end of the chapter.

LEVELS OF SERVICE

Tables 13-~~13~~14a and 13-~~13~~14b provide an overview of the levels of service that characterize existing "overall" intersection conditions and individual traffic movements, respectively, during the weekday AM, midday and PM, and Saturday peak hours. Detailed descriptions of the existing conditions traffic levels of service are provided in **Table 13-~~14~~15**.

Table 13-~~13~~14a
Existing Traffic Level of Service Summary – Overall Intersections

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Intersections at Overall LOS A/B/C	27	28	24	26
Intersections at Overall LOS D	3	2	6	4
Intersections at Overall LOS E	0	0	0	0
Intersections Overall LOS F	0	0	0	0

Note: Includes the 30 analyzed intersections (25 signalized and 5 unsignalized). All 5 unsignalized intersections operate at overall LOS A or B during all four traffic analysis hours.

Table 13-~~13~~14b
Existing Traffic Level of Service Summary – Traffic Movements

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Traffic movements at LOS A/B/C and acceptable LOS D	103	~~103~~ 106	~~100~~ 101	~~103~~ 104
Traffic movements at unacceptable LOS D	7	~~10~~ 8	6	~~6~~ 5
Traffic movements at LOS E	~~8~~ 9	3	8	~~6~~ 7
Traffic movements LOS F	1	2	3	3
Number of individual traffic movements*	~~119~~ 120	~~118~~ 119	~~117~~ 118	~~118~~ 119

Note: * Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

~~Table 13-14~~
~~Seward Park Development EIS~~
~~2011 Existing Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	29.7	C	L	0.42	31.5	C	L	0.40	32.5	C	L	0.68	38.8	D
		TR	0.63	28.2	C	TR	0.72	29.7	C	TR	0.69	28.9	C	TR	0.82	31.5	C
	WB	L	0.63	27.3	C	L	0.72	36.1	D	L	0.64	34.9	C	L	0.81	44.8	D
		TR	0.96	36.3	D	TR	0.80	31.0	C	TR	0.95	42.8	D	TR	0.93	37.2	D
Bowery	NB	L	0.80	39.4	D	L	0.47	28.1	C	L	0.76	46.4	D	L	0.69	36.1	D
		TR	0.89	38.5	D	TR	0.72	34.3	C	TR	0.66	32.4	C	TR	0.95	42.0	D
	SB	L	0.31	25.5	C	L	0.39	24.8	C	L	0.47	26.2	C	L	0.56	32.1	C
		TR	0.90	40.8	D	TR	0.80	37.2	D	TR	0.98	49.1	D	TR	0.99	49.0	D
Overall Intersection		-	**0.93**	**35.2**	**D**	-	**0.84**	**32.0**	**C**	-	**0.92**	**38.6**	**D**	-	**0.95**	**38.9**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	TR	0.96	53.6	D	TR	1.05	73.7	E	TR	0.80	34.4	C	TR	0.88	35.9	D
	WB	L	0.88	73.7	E	L	0.73	65.7	E	L	0.86	80.8	F	L	0.68	51.9	D
		T	0.92	42.2	D	T	0.80	35.9	D	T	0.55	28.4	C	T	0.80	32.7	C
Chrystie Street / Second Avenue	NB	L	0.92	46.9	D	L	0.60	38.3	D	L	0.71	40.5	D	L	0.55	36.6	D
		LR	0.93	51.0	D	LR	0.65	42.2	D	LR	0.75	44.3	D	LR	0.64	41.3	D
	SB	L	0.90	43.9	D	L	1.00	48.8	D	L	0.81	36.8	D	L	1.05	67.5	E
		LT	0.96	49.8	D	LT	1.01	51.7	D	LT	0.99	47.3	D	LT	1.04	59.0	E
		R	0.90	43.1	D	R	1.01	51.1	D	R	0.95	46.7	D	R	0.87	35.8	D
Overall Intersection		-	**0.92**	**47.9**	**D**	-	**0.93**	**52.2**	**D**	-	**0.87**	**39.6**	**D**	-	**0.87**	**43.0**	**D**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	0.99	56.1	E	L	0.69	26.5	C	L	0.74	33.0	C	L	0.78	36.0	D
		TR	0.77	29.0	C	TR	0.98	36.4	D	TR	0.80	31.1	C	TR	0.98	40.6	D
	WB	L	0.39	25.2	C	L	0.25	24.7	C	L	0.32	23.9	C	L	0.41	30.3	C
		TR	0.74	30.6	C	TR	0.60	27.8	C	TR	0.58	27.0	C	TR	0.81	32.1	C
Allen Street	NB	L	0.59	31.8	C	L	0.42	28.7	C	L	0.35	27.5	C	L	0.35	27.3	C
		T	0.94	45.7	D	T	0.75	34.3	C	T	0.97	51.5	D	T	0.81	35.3	D
		R	0.30	27.7	C	R	0.24	27.0	C	R	0.14	25.4	C	R	0.20	26.1	C
Overall Intersection		-	**0.98**	**36.1**	**D**	-	**0.81**	**32.1**	**C**	-	**0.90**	**35.0**	**C**	-	**0.91**	**35.5**	**D**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.45	16.3	B	L	0.35	13.0	B	L	0.26	13.3	B	L	0.27	13.3	B
		TR	0.41	22.4	C	TR	0.48	22.8	C	TR	0.47	22.9	C	TR	0.49	22.9	C
	WB	L	0.51	17.3	B	L	0.58	20.3	C	L	0.79	39.3	D	L	0.70	22.8	C
		TR	0.55	24.5	C	TR	0.45	23.1	C	TR	0.52	24.0	C	TR	0.62	25.3	C
Essex Street / Avenue A	NB	LTR	0.72	33.0	C	LTR	0.72	33.1	C	LTR	0.69	31.8	C	LTR	0.66	31.4	C
	SB	LTR	0.91	41.4	D	LTR	0.99	46.1	D	LTR	0.91	40.9	D	LTR	1.03	53.5	D
Overall Intersection		-	**0.75**	**26.8**	**C**	-	**0.73**	**27.2**	**C**	-	**0.76**	**28.3**	**C**	-	**0.78**	**28.8**	**C**

~~Table 13-14 (cont'd)~~
~~Seward Park Development EIS~~
~~2011 Existing Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.20	22.0	C	LTR	0.42	26.3	C	LTR	0.24	22.6	C	LTR	0.21	21.9	C
Essex Street	NB	TR	0.32	11.9	B	TR	0.24	11.1	B	TR	0.32	11.8	B	TR	0.30	11.6	B
	SB	LT	0.37	12.3	B	LT	0.34	11.9	B	LT	0.38	12.2	B	LT	0.52	13.8	B
Overall Intersection		-	**0.31**	**12.9**	**B**	-	**0.37**	**14.0**	**B**	-	**0.32**	**12.9**	**B**	-	**0.40**	**13.6**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.22	16.3	B	LT	0.19	15.8	B	LT	0.16	15.4	B	LT	0.21	16.0	B
Norfolk Street	NB	TR	0.44	19.4	B	TR	0.49	20.3	C	TR	0.40	18.7	B	TR	0.38	18.4	B
Overall Intersection		-	**0.33**	**18.4**	**B**	-	**0.34**	**19.0**	**B**	-	**0.28**	**17.7**	**B**	-	**0.30**	**17.5**	**B**
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	0.84	43.5	D	LTR	0.59	30.2	C	LTR	0.72	35.7	D	LTR	0.67	33.3	C
Essex Street	NB	LT	0.34	11.8	B	LT	0.27	11.2	B	LT	0.31	11.4	B	LT	0.32	11.6	B
	SB	TR	0.31	11.8	B	TR	0.39	12.7	B	TR	0.42	13.1	B	TR	0.82	32.4	C
Overall Intersection		-	**0.53**	**21.0**	**C**	-	**0.47**	**15.9**	**B**	-	**0.54**	**17.8**	**B**	-	**0.75**	**25.9**	**C**
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.52	21.2	C	TR	0.18	16.0	B	TR	0.42	19.3	B	TR	0.45	19.7	B
Norfolk Street	NB	LT	0.45	18.0	B	LT	0.60	20.4	C	LT	0.54	19.0	B	LT	0.40	17.5	B
Overall Intersection		-	**0.48**	**19.5**	**B**	-	**0.39**	**19.5**	**B**	-	**0.48**	**19.2**	**B**	-	**0.43**	**18.7**	**B**
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	0.91	34.8	C	TR	0.69	21.8	C	TR	0.91	31.0	C	TR	0.74	22.6	C
	WB	L	0.85	51.3	D	L	0.94	70.1	E	L	0.93	73.7	E	L	0.97	71.1	E
		TR	0.98	32.9	C	TR	0.75	14.1	B	TR	0.97	30.3	C	TR	0.79	14.7	B
Allen Street	NB	T	0.67	34.3	C	T	0.64	33.8	C	T	0.62	32.9	C	T	0.71	35.7	D
		R	0.57	36.6	D	R	0.74	45.3	D	R	0.95	71.7	E	R	0.82	55.1	E
	SB	TR	0.54	31.7	C	TR	0.69	33.4	C	TR	0.54	31.4	C	TR	0.75	35.1	D
Overall Intersection		-	**0.89**	**34.9**	**C**	-	**0.76**	**24.3**	**C**	-	**0.97**	**34.8**	**C**	-	**0.81**	**25.6**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.40	9.6	A	T	0.55	11.2	B	T	0.65	12.1	B	T	0.57	11.3	B
	WB	TR	0.75	14.1	B	TR	0.67	12.9	B	TR	0.78	14.7	B	TR	0.73	13.9	B
Orchard Street	NB	LTR	0.24	25.8	C	LTR	0.30	27.1	C	LTR	0.29	26.7	C	LTR	0.26	26.3	C
Overall Intersection		-	**0.58**	**12.9**	**B**	-	**0.55**	**12.6**	**B**	-	**0.62**	**13.8**	**B**	-	**0.58**	**13.1**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.42	10.0	B	TR	0.57	11.6	B	TR	0.69	13.1	B	TR	0.57	11.5	B
	WB	T	0.72	13.0	B	T	0.70	12.8	B	T	0.76	13.6	B	T	0.66	12.0	B
Ludlow Street	SB	LTR	0.59	34.9	C	LTR	0.81	48.9	D	LTR	1.04	96.5	F	LTR	1.03	89.8	F
Overall Intersection		-	**0.68**	**13.1**	**B**	-	**0.73**	**14.5**	**B**	-	**0.85**	**18.3**	**B**	-	**0.78**	**17.7**	**B**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.49	13.8	B	TR	0.65	16.0	B	TR	0.97	32.2	C	TR	0.85	24.2	C
	WB	TR	0.98	33.9	C	TR	0.93	21.1	C	TR	1.01	41.7	D	TR	0.99	31.2	C
Essex Street	NB	LTR	0.79	44.8	D	LTR	0.74	40.1	D	LTR	0.98	64.6	E	LTR	0.71	37.1	D
	SB	DefL	1.02	90.5	F	DefL	1.03	96.3	F	LTR	0.97	61.4	E	DefL	1.04	83.9	F
		TR	0.74	42.8	D	TR	0.73	42.2	D	-	-	-	-	TR	0.63	35.9	D
Overall Intersection		-	**0.99**	**31.9**	**C**	-	**0.96**	**25.1**	**C**	-	**1.00**	**41.6**	**D**	-	**1.01**	**32.3**	**C**
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.59	12.3	B	T	0.69	13.7	B	T	1.02	41.6	D	T	0.75	14.4	B
	WB	TR	0.90	17.7	B	TR	0.94	22.1	C	TR	0.96	22.7	C	TR	0.90	19.2	B
Norfolk Street	NB	TR	0.93	57.2	E	TR	0.75	39.1	D	TR	0.99	65.8	E	TR	0.93	59.0	E
		R	0.91	55.1	E	R	0.80	43.0	D	R	1.00	68.8	E	R	0.91	56.1	E
Overall Intersection		-	**0.91**	**21.1**	**C**	-	**0.89**	**21.0**	**C**	-	**1.01**	**36.6**	**D**	-	**0.91**	**22.4**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	T	0.77	16.7	B	T	0.78	15.4	B	T	1.04	39.5	D	T	0.96	22.8	C
	WB	T	0.91	18.9	B	T	0.75	14.2	B	T	0.82	15.3	B	T	0.72	13.8	B
Delancey Street Service Road	EB	TR	0.19	10.2	B	TR	0.14	8.5	A	TR	0.13	8.3	A	TR	0.10	8.2	A
Suffolk Street	SB	R	0.11	21.4	C	R	0.06	22.8	C	R	0.20	24.9	C	R	0.24	25.4	C
Overall Intersection		-	**0.61**	**17.7**	**B**	-	**0.54**	**14.7**	**B**	-	**0.75**	**28.1**	**C**	-	**0.72**	**18.8**	**B**
15. DELANCEY STREET AND CLINTON STREET																	
Williamsburg Bridge	WB	T	1.03	43.1	D	T	0.86	16.5	B	T	1.03	42.4	D	T	0.81	14.5	B
		R	1.04	72.3	E	R	0.87	37.8	D	R	1.04	71.7	E	R	0.95	49.2	D
Delancey Street Service Road	EB	TR	0.13	6.5	A	TR	0.12	6.4	A	TR	0.09	6.2	A	TR	0.08	6.2	A
	WB	TR	0.86	58.4	E	TR	0.49	45.7	D	TR	0.70	53.6	D	TR	0.59	48.6	D
Clinton Street	NB	R	0.17	28.0	C	R	0.09	26.8	C	R	0.16	27.6	C	R	0.09	26.7	C
Overall Intersection		-	**0.80**	**33.0**	**C**	-	**0.65**	**16.3**	**B**	-	**0.79**	**42.4**	**D**	-	**0.68**	**17.9**	**B**

~~Table 13-14 (cont'd)~~
~~Seward Park Development EIS~~
~~2011 Existing Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.16	21.2	C	LTR	0.13	20.8	C	LTR	0.13	20.9	C	LTR	0.18	21.3	C
Essex Street	NB	TR	0.29	11.5	B	TR	0.27	11.4	B	TR	0.42	12.7	B	TR	0.24	11.1	B
	SB	L	0.10	10.3	B	L	0.09	10.1	B	L	0.78	20.3	C	L	0.14	10.6	B
		T	0.25	11.3	B	T	0.24	11.2	B	T	0.28	11.2	B	T	0.21	10.9	B
Overall Intersection		-	**0.24**	**12.5**	**B**	-	**0.21**	**12.1**	**B**	-	**0.53**	**14.2**	**B**	-	**0.22**	**12.4**	**B**
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.12	10.3	B	L	0.09	10.0	A	L	0.64	36.2	D	L	0.12	10.3	B
	WB	R	0.40	13.6	B	R	0.31	12.4	B	R	0.92	65.3	E	R	0.57	16.9	B
Norfolk Street	NB	T	0.75	29.8	C	T	0.69	28.4	C	T	0.62	26.3	C	T	0.69	27.3	C
Overall Intersection		-	**0.53**	**21.6**	**C**	-	**0.46**	**20.9**	**C**	-	**0.75**	**42.2**	**D**	-	**0.62**	**20.8**	**C**
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	0.97	46.3	D	LTR	1.01	50.1	D	LTR	0.87	41.7	D	LTR	0.88	42.3	D
	WB	LTR	0.76	42.9	D	LTR	0.87	52.9	D	LTR	0.63	34.8	C	LTR	0.66	36.0	D
Allen Street	NB	L	0.67	60.5	E	L	0.41	45.5	D	L	0.28	40.4	D	L	0.58	52.2	D
		TR	0.53	21.5	C	TR	0.45	19.9	B	TR	0.59	22.0	C	TR	0.47	20.1	C
	SB	L	0.84	70.9	E	L	1.05	105.4	F	L	0.93	82.3	F	L	1.03	104.0	F
		TR	0.56	21.4	C	TR	0.71	23.9	C	TR	0.61	22.1	C	TR	0.57	21.4	C
Overall Intersection		-	**0.73**	**33.4**	**C**	-	**0.78**	**39.2**	**D**	-	**0.74**	**31.7**	**C**	-	**0.69**	**35.5**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.59	20.5	C	LT	0.66	20.6	C	LT	0.64	21.4	C	LT	0.66	21.3	C
	WB	TR	0.48	20.5	C	TR	0.52	21.1	C	TR	0.43	19.6	B	TR	0.48	20.5	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.6	B	LTR	0.14	15.3	B
Overall Intersection		-	**0.37**	**19.9**	**B**	-	**0.40**	**20.2**	**C**	-	**0.40**	**19.9**	**B**	-	**0.40**	**20.4**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.58	22.2	C	TR	0.64	23.9	C	TR	0.59	22.0	C	TR	0.56	21.2	C
	WB	LT	0.33	17.2	B	LT	0.35	17.6	B	LT	0.33	16.9	B	LT	0.34	17.6	B
Ludlow Street	SB	LTR	0.27	17.2	B	LTR	0.25	17.0	B	LTR	0.17	15.8	B	LTR	0.23	16.5	B
Overall Intersection		-	**0.43**	**19.5**	**B**	-	**0.45**	**20.5**	**C**	-	**0.38**	**19.4**	**B**	-	**0.40**	**19.2**	**B**
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.73	28.7	C	LTR	0.64	24.4	C	LTR	0.63	24.0	C	LTR	0.69	26.2	C
	WB	LTR	0.69	21.2	C	LTR	0.61	20.1	C	LTR	0.98	33.1	C	LTR	0.52	18.5	B
Essex Street	NB	LTR	0.36	17.7	B	LTR	0.29	16.7	B	LTR	0.36	17.5	B	LTR	0.23	16.0	B
	SB	DefL	0.38	20.7	C	LTR	0.31	17.3	B	LTR	0.33	17.5	B	LTR	0.25	16.3	B
		TR	0.28	17.3	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**0.55**	**21.9**	**C**	-	**0.47**	**19.8**	**B**	-	**0.67**	**24.2**	**C**	-	**0.47**	**20.1**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	0.30	14.7	B	L	0.22	13.2	B	L	0.24	13.8	B	L	0.14	11.9	B
		T	0.52	16.8	B	T	0.42	15.0	B	T	0.44	15.1	B	T	0.41	14.6	B
	WB	TR	0.99	42.6	D	TR	0.94	34.0	C	TR	1.02	42.8	D	TR	0.91	29.0	C
Overall Intersection		-	**1.00**	**32.7**	**C**	-	**0.94**	**27.4**	**C**	-	**1.01**	**33.6**	**C**	-	**0.90**	**24.1**	**C**
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.47	15.7	B	T	0.37	14.2	B	T	0.38	14.1	B	T	0.40	14.6	B
	WB	T	0.86	28.5	C	T	0.83	25.8	C	T	0.96	38.6	D	T	0.85	27.1	C
Suffolk Street	SB	LR	0.10	19.2	B	LR	0.06	18.7	B	LR	0.08	19.0	B	LR	0.07	18.7	B
Overall Intersection		-	**0.55**	**23.9**	**C**	-	**0.51**	**22.3**	**C**	-	**0.60**	**31.3**	**C**	-	**0.53**	**23.0**	**C**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	LTR	0.70	25.3	C	LTR	0.53	19.2	B	LTR	0.85	40.3	D	LTR	0.75	28.7	C
	WB	L	0.05	11.8	B	L	0.06	11.8	B	L	0.04	11.6	B	L	0.04	11.7	B
		T	0.68	20.5	C	T	0.70	21.2	C	T	0.76	22.3	C	T	0.69	20.5	C
		R	0.64	23.5	C	R	0.44	17.1	B	R	0.69	25.1	C	R	0.67	23.3	C
Clinton Street	NB	LTR	0.64	27.9	C	LTR	0.42	23.2	C	LTR	0.64	28.5	C	LTR	0.49	24.0	C
	SB	LTR	0.02	17.0	B	LTR	0.03	17.1	B	LTR	0.01	16.9	B	LTR	0.01	16.9	B
Overall Intersection		-	**0.67**	**23.4**	**C**	-	**0.58**	**20.2**	**C**	-	**0.76**	**27.5**	**C**	-	**0.64**	**23.4**	**C**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.16	7.1	A	T	0.13	6.9	A	T	0.11	6.8	A	T	0.12	6.8	A
	WB	LT	0.74	14.9	B	LT	0.80	16.3	B	LT	0.86	17.8	B	LT	0.79	15.9	B
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A
Overall Intersection		-	**0.74**	**13.4**	**B**	-	**0.81**	**14.9**	**B**	-	**0.85**	**16.4**	**B**	-	**0.79**	**14.6**	**B**

~~Table 13-14 (cont'd)~~
~~Seward Park Development EIS~~
~~2011 Existing Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	7.8	A	TR	-	8.6	A	TR	-	7.7	A	TR	-	8.2	A
Ludlow Street	SB	LT	-	8.6	A	LT	-	9.7	A	LT	-	9.0	A	LT	-	9.8	A
Overall Intersection		-	-	8.4	A	-	-	9.4	A	-	-	8.7	A	-	-	9.3	A
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	9.8	A	LT	-	9.2	A	LT	-	10.1	B	LT	-	11.1	B
Ludlow Street	SB	TR	-	8.9	A	TR	-	9.4	A	TR	-	9.9	A	TR	-	11.1	B
Overall Intersection		-	-	9.5	A	-	-	9.3	A	-	-	10.0	B	-	-	11.1	B
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.5	B	TR	-	13.8	B	TR	-	10.8	B	TR	-	12.1	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.4	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	-	5.9	A	-	-	4.4	A	-	-	5.4	A	-	-	5.6	A
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.3	A	LT	-	7.3	A	LT	-	15.0	B	LT	-	7.2	A
Suffolk Street	SB	TR	-	10.8	B	TR	-	10.2	B	TR	-	11.9	B	TR	-	11.8	B
Overall Intersection		-	-	1.7	A	-	-	1.3	A	-	-	2.5	A	-	-	0.9	A
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.7	A	LTR	-	9.3	A	LTR	-	9.9	A
	SB	LTR	-	8.8	A	LTR	-	9.3	A	LTR	-	9.3	A	LTR	-	8.1	A
Overall Intersection		-	-	6.0	A	-	-	6.4	A	-	-	7.0	A	-	-	8.6	A

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 13-15[1]
Seward Park Development EIS
2011 Existing Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	29.7	C	L	0.42	31.5	C	L	0.40	32.5	C	L	0.68	38.8	D
		TR	0.63	28.2	C	TR	0.72	29.7	C	TR	0.69	28.9	C	TR	0.82	31.5	C
	WB	L	0.63	27.3	C	L	0.72	36.1	D	L	0.64	34.9	C	L	0.81	44.8	D
		TR	0.96	36.3	D	TR	0.80	31.0	C	TR	0.95	42.8	D	TR	0.93	37.2	D
Bowery	NB	L	0.80	39.4	D	L	0.47	28.1	C	L	0.76	46.4	D	L	0.69	36.1	D
		TR	0.89	38.5	D	TR	0.72	34.3	C	TR	0.66	32.4	C	TR	0.95	42.0	D
	SB	L	0.31	25.5	C	L	0.39	24.8	C	L	0.47	26.2	C	L	0.56	32.1	C
		TR	0.90	41.0	D	TR	0.81	37.4	D	TR	0.99	49.8	D	TR	1.00	49.7	D
Overall Intersection		-	**0.93**	**35.2**	**D**	-	**0.84**	**32.1**	**C**	-	**0.92**	**38.7**	**D**	-	**0.95**	**39.0**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	TR	0.96	53.6	D	TR	1.05	73.7	E	TR	0.80	34.4	C	TR	0.88	35.9	D
	WB	L	0.88	73.7	E	L	0.73	65.7	E	L	0.86	80.8	F	L	0.68	51.9	D
		T	0.92	42.2	D	T	0.80	35.9	D	T	0.55	28.4	C	T	0.80	32.7	C
Chrystie Street / Second Avenue	NB	L	0.92	46.9	D	L	0.60	38.3	D	L	0.71	40.5	D	L	0.55	36.6	D
		LR	0.93	51.0	D	LR	0.65	42.2	D	LR	0.75	44.3	D	LR	0.64	41.3	D
	SB	L	0.90	43.9	D	L	1.00	48.8	D	L	0.81	36.8	D	L	1.05	67.5	E
		T	0.96	49.8	D	T	1.01	51.7	D	LT	0.99	47.3	D	LT	1.04	59.0	E
		R	0.90	43.1	D	R	1.01	51.1	D	R	0.95	46.7	D	R	0.87	35.8	D
Overall Intersection		-	**0.95**	**47.9**	**D**	-	**0.93**	**52.2**	**D**	-	**0.87**	**39.6**	**D**	-	**0.87**	**43.0**	**D**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	0.99	56.1	E	L	0.69	26.5	C	L	0.74	33.0	C	L	0.78	36.0	D
		TR	0.77	29.0	C	TR	0.98	36.4	D	TR	0.80	31.1	C	TR	0.98	40.6	D
	WB	L	0.39	25.2	C	L	0.25	24.7	C	L	0.32	23.9	C	L	0.41	30.3	C
		TR	0.74	30.6	C	TR	0.60	27.8	C	TR	0.58	27.0	C	TR	0.81	32.1	C
Allen Street	NB	L	0.59	31.8	C	L	0.42	28.7	C	L	0.35	27.5	C	L	0.35	27.3	C
		T	0.94	45.7	D	T	0.75	34.3	C	T	0.97	51.5	D	T	0.81	35.3	D
		R	0.30	27.7	C	R	0.24	27.0	C	R	0.14	25.4	C	R	0.20	26.1	C
Overall Intersection		-	**1.05**	**36.1**	**D**	-	**0.87**	**32.1**	**C**	-	**0.97**	**35.0**	**C**	-	**0.98**	**35.5**	**D**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.45	16.3	B	L	0.35	13.0	B	L	0.26	13.3	B	L	0.27	13.3	B
		TR	0.41	22.4	C	TR	0.48	22.8	C	TR	0.47	22.9	C	TR	0.49	22.9	C
	WB	L	0.51	17.3	B	L	0.58	20.3	C	L	0.79	39.3	D	L	0.70	22.8	C
		TR	0.55	24.5	C	TR	0.45	23.1	C	TR	0.52	24.0	C	TR	0.62	25.3	C
Essex Street / Avenue A	NB	LTR	0.72	33.0	C	LTR	0.72	33.1	C	LTR	0.69	31.8	C	LTR	0.66	31.4	C
	SB	LTR	0.92	42.3	D	LTR	0.99	46.9	D	LTR	0.91	41.7	D	LTR	1.03	55.4	E
Overall Intersection		-	**0.75**	**26.9**	**C**	-	**0.75**	**27.3**	**C**	-	**0.76**	**28.4**	**C**	-	**0.83**	**29.1**	**C**
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.20	22.0	C	LTR	0.42	26.3	C	LTR	0.24	22.6	C	LTR	0.21	21.9	C
Essex Street	NB	TR	0.32	11.9	B	TR	0.24	11.1	B	TR	0.32	11.8	B	TR	0.30	11.6	B
	SB	LT	0.37	12.3	B	LT	0.34	11.9	B	LT	0.38	12.2	B	LT	0.52	13.8	B
Overall Intersection		-	**0.31**	**12.9**	**B**	-	**0.37**	**14.0**	**B**	-	**0.32**	**12.9**	**B**	-	**0.40**	**13.6**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.22	16.3	B	LT	0.19	15.8	B	LT	0.16	15.4	B	LT	0.21	16.0	B
Norfolk Street	NB	TR	0.44	19.4	B	TR	0.49	20.3	C	TR	0.40	18.7	B	TR	0.38	18.4	B
Overall Intersection		-	**0.33**	**18.4**	**B**	-	**0.34**	**19.0**	**B**	-	**0.28**	**17.7**	**B**	-	**0.30**	**17.5**	**B**
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	0.84	43.5	D	LTR	0.59	30.2	C	LTR	0.72	35.7	D	LTR	0.67	33.3	C
Essex Street	NB	LT	0.34	11.8	B	LT	0.27	11.2	B	LT	0.31	11.4	B	LT	0.32	11.6	B
	SB	TR	0.31	11.8	B	TR	0.39	12.7	B	TR	0.42	13.1	B	TR	0.82	32.4	C
Overall Intersection		-	**0.53**	**21.0**	**C**	-	**0.47**	**15.9**	**B**	-	**0.54**	**17.8**	**B**	-	**0.75**	**25.9**	**C**
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.52	21.2	C	TR	0.18	16.0	B	TR	0.42	19.3	B	TR	0.45	19.7	B
Norfolk Street	NB	LT	0.45	18.0	B	LT	0.60	20.4	C	LT	0.54	19.0	B	LT	0.40	17.5	B
Overall Intersection		-	**0.48**	**19.5**	**B**	-	**0.39**	**19.5**	**B**	-	**0.48**	**19.2**	**B**	-	**0.43**	**18.7**	**B**

[1] This table has been revised for the FGEIS.

Table 13-15 (cont'd)
Seward Park Development EIS
2011 Existing Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 - 9:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday Midday (1:00 - 2:00 PM) Mvt.	V/C	Control Delay	LOS	Weekday PM (5:15 - 6:15 PM) Mvt.	V/C	Control Delay	LOS	Saturday (3:45 - 4:45 PM) Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	0.91	34.8	C	TR	0.69	21.8	C	TR	0.91	31.0	C	TR	0.74	22.6	C
	WB	L	0.85	51.3	D	L	0.94	70.1	E	L	0.93	73.7	E	L	0.97	71.1	E
		TR	0.98	32.9	C	TR	0.75	14.1	B	TR	0.97	30.3	C	TR	0.79	14.7	B
Allen Street	NB	T	0.67	34.3	C	T	0.64	33.8	C	T	0.62	32.9	C	T	0.71	35.7	D
		R	0.57	36.6	D	R	0.74	45.3	D	R	0.95	71.7	E	R	0.82	55.1	E
	SB	TR	0.54	31.7	C	TR	0.69	33.4	C	TR	0.54	31.4	C	TR	0.75	35.1	D
Overall Intersection		-	**0.89**	**34.9**	**C**	-	**0.76**	**24.3**	**C**	-	**0.97**	**34.8**	**C**	-	**0.81**	**25.6**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.40	9.6	A	T	0.55	11.2	B	T	0.65	12.1	B	T	0.57	11.3	B
	WB	TR	0.75	14.1	B	TR	0.67	12.9	B	TR	0.78	14.7	B	TR	0.73	13.9	B
Orchard Street	NB	LTR	0.24	25.8	C	LTR	0.30	27.1	C	LTR	0.29	26.7	C	LTR	0.26	26.3	C
Overall Intersection		-	**0.58**	**12.9**	**B**	-	**0.55**	**12.6**	**B**	-	**0.62**	**13.8**	**B**	-	**0.58**	**13.1**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.42	10.0	B	TR	0.57	11.6	B	TR	0.69	13.1	B	TR	0.57	11.5	B
	WB	T	0.72	13.0	B	T	0.70	12.8	B	T	0.76	13.6	B	T	0.66	12.0	B
Ludlow Street	SB	LTR	0.59	34.9	C	LTR	0.81	48.9	D	LTR	1.04	96.5	F	LTR	1.03	89.8	F
Overall Intersection		-	**0.68**	**13.1**	**B**	-	**0.73**	**14.5**	**B**	-	**0.85**	**18.3**	**B**	-	**0.78**	**17.7**	**B**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.49	13.8	B	TR	0.65	16.0	B	TR	0.97	32.2	C	TR	0.85	24.2	C
	WB	TR	0.98	33.9	C	TR	0.93	21.1	C	TR	1.01	41.7	D	TR	0.99	31.2	C
Essex Street	NB	LTR	0.79	44.8	D	LTR	0.74	40.1	D	LTR	0.98	64.6	E	LTR	0.71	37.1	D
	SB	DefL	1.02	90.5	F	DefL	1.03	96.3	F	LTR	0.97	61.4	E	DefL	1.04	83.9	F
		TR	0.74	42.8	D	TR	0.73	42.2	D	-	-	-	-	TR	0.63	35.9	D
Overall Intersection		-	**0.99**	**31.9**	**C**	-	**0.96**	**25.1**	**C**	-	**1.00**	**41.6**	**D**	-	**1.01**	**32.3**	**C**
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.59	12.3	B	T	0.69	13.7	B	T	1.02	41.6	D	T	0.75	14.4	B
	WB	TR	0.90	17.7	B	TR	0.94	22.1	C	TR	0.96	22.7	C	TR	0.90	19.2	B
Norfolk Street	NB	TR	0.93	57.2	E	TR	0.75	39.1	D	TR	0.99	65.8	E	TR	0.93	59.0	E
		R	0.91	55.1	E	R	0.80	43.0	D	R	1.00	68.8	E	R	0.91	56.1	E
Overall Intersection		-	**0.91**	**21.1**	**C**	-	**0.89**	**21.0**	**C**	-	**1.01**	**36.6**	**D**	-	**0.91**	**22.4**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	T	0.77	16.7	B	T	0.78	15.4	B	T	1.04	39.5	D	T	0.96	22.8	C
	WB	T	0.91	18.9	B	T	0.75	14.2	B	T	0.82	15.3	B	T	0.72	13.8	B
Delancey Street Service Road	EB	TR	0.19	10.2	B	TR	0.14	8.5	A	TR	0.13	8.3	A	TR	0.10	8.2	A
Suffolk Street	SB	R	0.11	21.4	C	R	0.06	22.8	C	R	0.20	24.9	C	R	0.24	25.4	C
Overall Intersection		-	**0.61**	**17.7**	**B**	-	**0.54**	**14.7**	**B**	-	**0.75**	**28.1**	**C**	-	**0.72**	**18.8**	**B**
15. DELANCEY STREET AND CLINTON STREET																	
Delancey Street	EB	T	0.62	9.9	A	T	0.71	11.2	B	T	1.02	37.6	D	T	0.90	14.3	B
Williamsburg Bridge (Inner Lane)	WB	T	0.92	22.6	C	T	0.77	14.0	B	T	0.99	34.8	C	T	0.80	14.9	B
Williamsburg Bridge (Outer Lane)		T	1.03	57.2	E	T	0.91	30.0	C	T	0.95	34.7	C	T	0.72	15.0	B
		R	1.04	72.3	E	R	0.87	37.8	D	R	1.04	71.7	E	R	0.95	49.2	D
Delancey Street Service Road	EB	TR	0.13	6.5	A	TR	0.12	6.4	A	TR	0.09	6.2	A	TR	0.08	6.2	A
	WB	TR	0.86	58.4	E	TR	0.49	45.7	D	TR	0.70	53.6	D	TR	0.59	48.6	D
Clinton Street	NB	R	0.17	28.0	C	R	0.09	26.8	C	R	0.16	27.6	C	R	0.09	26.7	C
Overall Intersection		-	**0.80**	**28.3**	**C**	-	**0.69**	**17.3**	**B**	-	**0.79**	**39.4**	**D**	-	**0.68**	**18.1**	**B**
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.16	21.2	C	LTR	0.13	20.8	C	LTR	0.13	20.9	C	LTR	0.18	21.3	C
Essex Street	NB	TR	0.29	11.5	B	TR	0.27	11.4	B	TR	0.42	12.7	B	TR	0.24	11.1	B
	SB	L	0.10	10.3	B	L	0.09	10.1	B	L	0.78	20.3	C	L	0.14	10.6	B
		T	0.25	11.3	B	T	0.24	11.2	B	T	0.29	11.2	B	T	0.21	10.9	B
Overall Intersection		-	**0.24**	**12.5**	**B**	-	**0.21**	**12.1**	**B**	-	**0.53**	**14.2**	**B**	-	**0.22**	**12.4**	**B**
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.12	10.3	B	L	0.09	10.0	A	L	0.64	36.2	D	L	0.12	10.3	B
	WB	R	0.40	13.6	B	R	0.31	12.4	B	R	0.92	65.3	E	R	0.57	16.9	B
Norfolk Street	NB	T	0.75	29.8	C	T	0.69	28.4	C	T	0.62	26.3	C	T	0.69	27.3	C
Overall Intersection		-	**0.53**	**21.6**	**C**	-	**0.46**	**20.9**	**C**	-	**0.75**	**42.2**	**D**	-	**0.62**	**20.8**	**C**

Table 13-15 (cont'd)
Seward Park Development EIS
2011 Existing Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	0.97	46.3	D	LTR	0.94	37.8	D	LTR	0.87	42.0	D	LTR	0.88	42.3	D
	WB	LTR	0.76	42.9	D	LTR	0.78	43.9	D	LTR	0.63	34.9	C	LTR	0.66	36.1	D
Allen Street	NB	L	0.67	60.5	E	L	0.41	45.5	D	L	0.28	40.4	D	L	0.58	52.2	D
		TR	0.53	21.2	C	TR	0.45	19.9	B	TR	0.59	22.0	C	TR	0.47	20.1	C
	SB	L	0.84	70.9	E	L	1.05	105.4	F	L	0.93	82.3	F	L	1.03	104.0	F
		TR	0.56	21.4	C	TR	0.71	23.9	C	TR	0.61	22.1	C	TR	0.57	21.4	C
Overall Intersection		-	**0.73**	**33.4**	**C**	-	**0.75**	**36.0**	**D**	-	**0.74**	**31.7**	**C**	-	**0.69**	**35.5**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.59	20.5	C	LT	0.66	20.6	C	LT	0.64	21.4	C	LT	0.66	21.3	C
	WB	TR	0.49	20.6	C	TR	0.52	21.2	C	TR	0.44	19.6	B	TR	0.48	20.5	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.6	B	LTR	0.14	15.3	B
Overall Intersection		-	**0.37**	**19.9**	**B**	-	**0.40**	**20.2**	**C**	-	**0.40**	**20.0**	**B**	-	**0.40**	**20.4**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.58	22.2	C	TR	0.64	24.0	C	TR	0.59	22.1	C	TR	0.56	21.2	C
	WB	LT	0.33	17.2	B	LT	0.35	17.6	B	LT	0.33	16.9	B	LT	0.34	17.6	B
Ludlow Street	SB	LTR	0.27	17.2	B	LTR	0.25	17.0	B	LTR	0.17	15.8	B	LTR	0.23	16.5	B
Overall Intersection		-	**0.43**	**19.5**	**B**	-	**0.45**	**20.5**	**C**	-	**0.38**	**19.4**	**B**	-	**0.40**	**19.3**	**B**
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.73	28.8	C	LTR	0.64	24.4	C	LTR	0.63	24.1	C	LTR	0.69	26.3	C
	WB	LTR	0.70	21.4	C	LTR	0.61	20.1	C	LTR	0.99	35.2	D	LTR	0.52	18.5	B
Essex Street	NB	LTR	0.36	17.7	B	LTR	0.29	16.7	B	LTR	0.36	17.5	B	LTR	0.23	16.0	B
	SB	DefL	0.38	20.7	C	LTR	0.31	17.3	B	LTR	0.33	17.5	B	LTR	0.25	16.3	B
		TR	0.28	17.3	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**0.55**	**21.9**	**C**	-	**0.47**	**19.9**	**B**	-	**0.67**	**25.0**	**C**	-	**0.47**	**20.1**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	0.30	14.7	B	L	0.22	13.2	B	L	0.24	13.8	B	L	0.14	11.9	B
		T	0.52	16.8	B	T	0.42	15.0	B	T	0.44	15.1	B	T	0.41	14.6	B
	WB	TR	0.99	42.6	D	TR	0.94	34.0	C	TR	1.02	42.8	D	TR	0.91	29.0	C
Overall Intersection		-	**1.00**	**32.7**	**C**	-	**0.94**	**27.4**	**C**	-	**1.01**	**33.6**	**C**	-	**0.90**	**24.1**	**C**
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.47	15.7	B	T	0.37	14.2	B	T	0.38	14.1	B	T	0.40	14.6	B
	WB	T	0.86	28.5	C	T	0.83	25.8	C	T	0.96	38.6	D	T	0.85	27.1	C
Suffolk Street	SB	LR	0.10	19.2	B	LR	0.06	18.7	B	LR	0.08	19.0	B	LR	0.07	18.7	B
Overall Intersection		-	**0.55**	**23.9**	**C**	-	**0.51**	**22.3**	**C**	-	**0.60**	**31.3**	**C**	-	**0.53**	**23.0**	**C**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	LTR	0.70	25.3	C	LTR	0.54	19.2	B	LTR	0.85	40.6	D	LTR	0.75	29.1	C
	WB	L	0.05	11.8	B	L	0.06	11.8	B	L	0.04	11.6	B	L	0.04	11.7	B
		T	0.68	20.5	C	T	0.70	21.2	C	T	0.76	22.3	C	T	0.69	20.5	C
		R	0.66	24.4	C	R	0.45	17.4	B	R	0.72	26.7	C	R	0.69	24.4	C
Clinton Street	NB	LTR	0.64	28.0	C	LTR	0.42	23.2	C	LTR	0.65	28.7	C	LTR	0.49	24.0	C
	SB	LTR	0.02	17.0	B	LTR	0.03	17.1	B	LTR	0.01	16.9	B	LTR	0.01	16.9	B
Overall Intersection		-	**0.68**	**23.5**	**C**	-	**0.58**	**20.3**	**C**	-	**0.76**	**27.9**	**C**	-	**0.64**	**23.7**	**C**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.16	7.1	A	T	0.13	6.9	A	T	0.11	6.8	A	T	0.12	6.8	A
	WB	LT	0.74	14.9	B	LT	0.80	16.3	B	LT	0.86	17.8	B	LT	0.79	15.9	B
East Broadway	NB	R	-	10.1	B	R	-	12.0	B	R	-	16.2	C	R	-	11.4	B
Overall Intersection		-	**0.74**	**13.1**	**B**	-	**0.81**	**14.7**	**B**	-	**0.85**	**16.4**	**B**	-	**0.79**	**14.5**	**B**

Table 13-15 (cont'd)
Seward Park Development EIS
2011 Existing Traffic Levels of Service

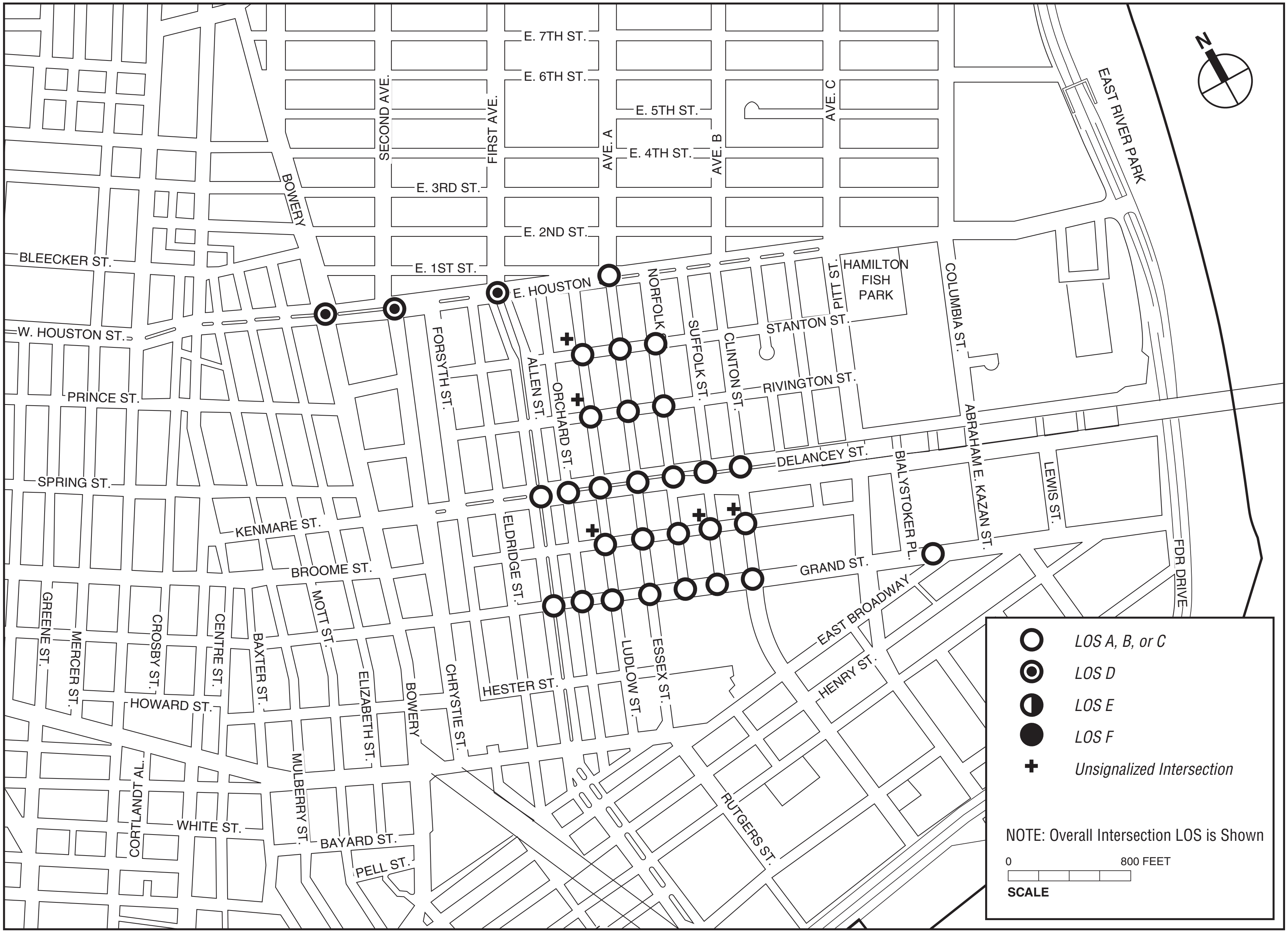
Intersection & Approach		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	7.8	A	TR	-	8.6	A	TR	-	7.7	A	TR	-	8.2	A
Ludlow Street	SB	LT	-	8.6	A	LT	-	9.7	A	LT	-	9.0	A	LT	-	9.8	A
Overall Intersection		-	**-**	**8.4**	**A**	-	**-**	**9.4**	**A**	-	**-**	**8.7**	**A**	-	**-**	**9.3**	**A**
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	9.8	A	LT	-	9.2	A	LT	-	10.1	B	LT	-	11.1	B
Ludlow Street	SB	TR	-	8.9	A	TR	-	9.4	A	TR	-	9.9	A	TR	-	11.1	B
Overall Intersection		-	**-**	**9.5**	**A**	-	**-**	**9.3**	**A**	-	**-**	**10.0**	**B**	-	**-**	**11.1**	**B**
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.5	B	TR	-	13.8	B	TR	-	10.8	B	TR	-	12.1	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.4	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	**-**	**5.9**	**A**	-	**-**	**4.4**	**A**	-	**-**	**5.4**	**A**	-	**-**	**5.6**	**A**
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.3	A	LT	-	7.3	A	LT	-	15.0	B	LT	-	7.2	A
Suffolk Street	SB	TR	-	10.8	B	TR	-	10.2	B	TR	-	11.9	B	TR	-	11.8	B
Overall Intersection		-	**-**	**1.7**	**A**	-	**-**	**1.3**	**A**	-	**-**	**2.5**	**A**	-	**-**	**0.9**	**A**
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.7	A	LTR	-	9.3	A	LTR	-	9.9	A
	SB	LTR	-	8.8	A	LTR	-	9.3	A	LTR	-	9.3	A	LTR	-	8.1	A
Overall Intersection		-	**-**	**6.0**	**A**	-	**-**	**6.4**	**A**	-	**-**	**7.0**	**A**	-	**-**	**8.6**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

This summary overview of existing conditions indicates that:

- In the weekday AM peak hour, none of the 25 signalized intersections analyzed are operating at overall LOS E or F, and three intersections are operating at marginally acceptable/unacceptable LOS D. "Overall" LOS E or F means that serious congestion exists—either one specific traffic movement has severe delays or two or more of the specific traffic movements at the intersection are at LOS E or F with significant delays (the overall intersection LOS is a weighted average of all the individual traffic movements). **Figure 13-4a** shows the location of these intersections. Ten ~~Nine~~ individual traffic movements out of approximately 120 ~~119~~ such movements analyzed are at LOS E or F (e.g., left turns from one street to another, through traffic on one street passing through the intersection, etc.) while seven are operating at unacceptable LOS D. Movements operating at unacceptable levels of service are shown in **Figure 13-4b**.
- In the weekday midday peak hour, no intersections operate at overall LOS E or F, and two intersections operate at marginally acceptable/unacceptable LOS D as shown in **Figure 13-5a**. Five individual traffic movements operate at LOS E or F and ~~10~~ eight other traffic movements operate at unacceptable LOS D. Movements operating at unacceptable levels of service are shown in **Figure 13-5b**.
- In the weekday PM peak hour, no intersections operate at overall LOS E or F, and six intersections operate at marginally acceptable/unacceptable LOS D as shown in **Figure 13-6a**. Eleven individual traffic movements operate at LOS E or F and six other traffic movements operate at unacceptable LOS D. Movements operating at unacceptable levels of service are shown in **Figure 13-6b**.
- In the Saturday midday peak hour, no intersections operate at overall LOS E or F, and four intersections operate at marginally acceptable/unacceptable LOS D as shown in **Figure 13-7a**. Ten ~~Nine~~ individual traffic movements operate at LOS E or F and five ~~six~~ other

3.19.12

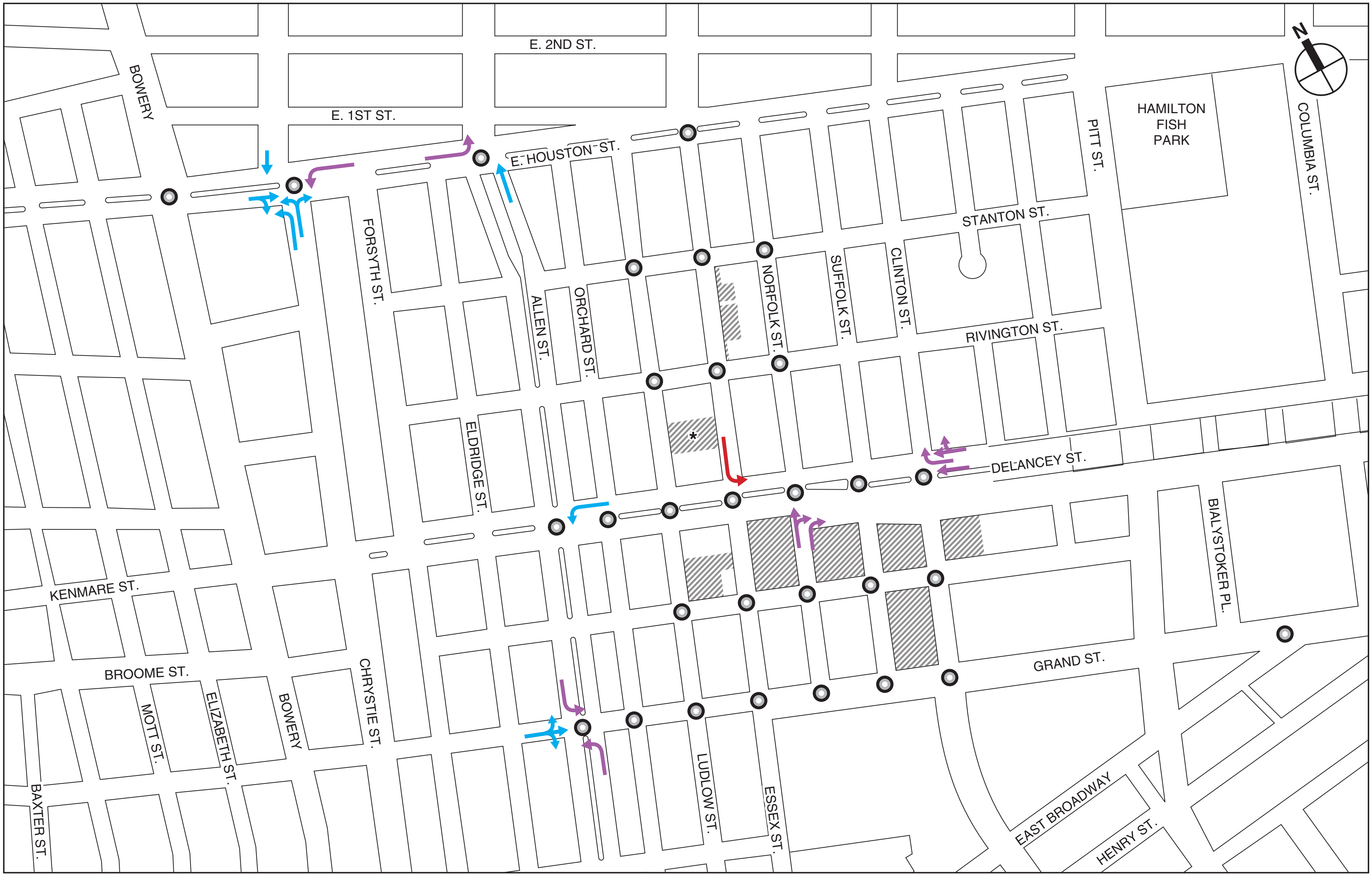


Existing Traffic Levels of Service - Overall Intersections
Weekday AM Peak Hour

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Figure 13-4a

8.7.12

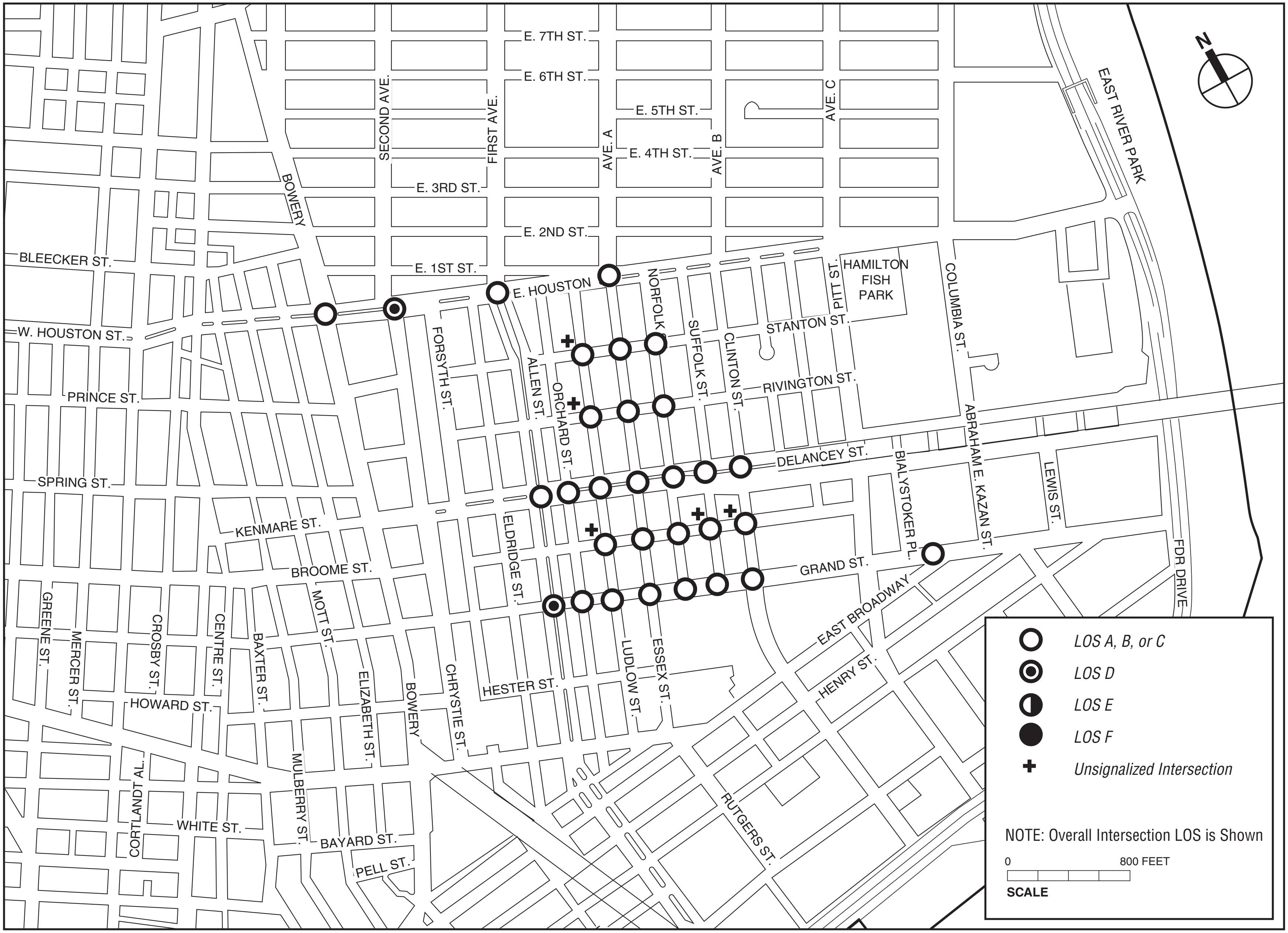


NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites
Intersection Analyzed
* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*
Unacceptable LOS D
LOS E
LOS F

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

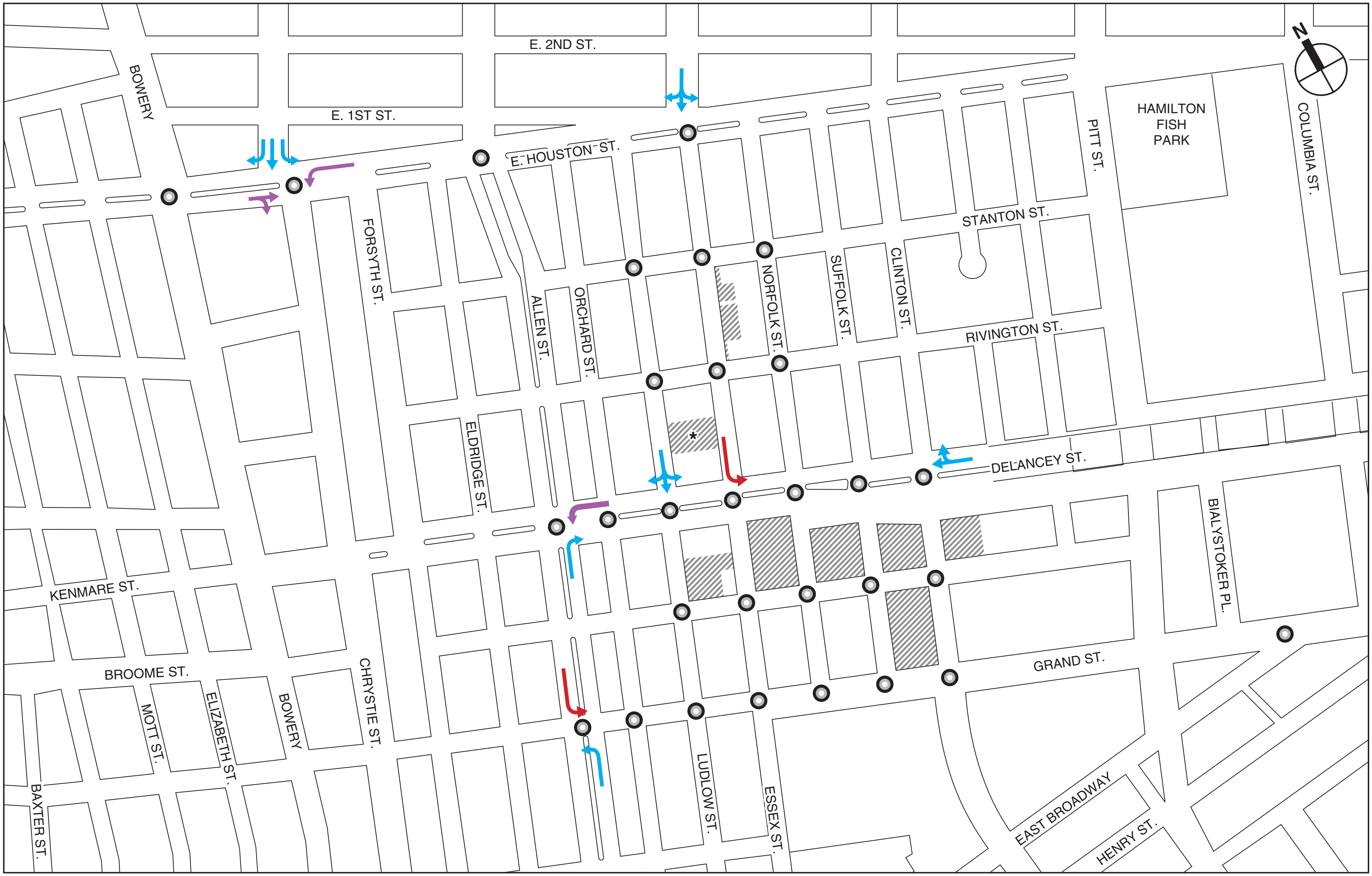
Existing Traffic Levels of Service - Unacceptable Traffic Movements
Weekday AM Peak Hour
Figure 13-4b



Existing Traffic Levels of Service - Overall Intersections
Weekday Midday Peak Hour

Figure 13-5a

8.7.12



NOTE: This figure has been revised for the FGEIS.

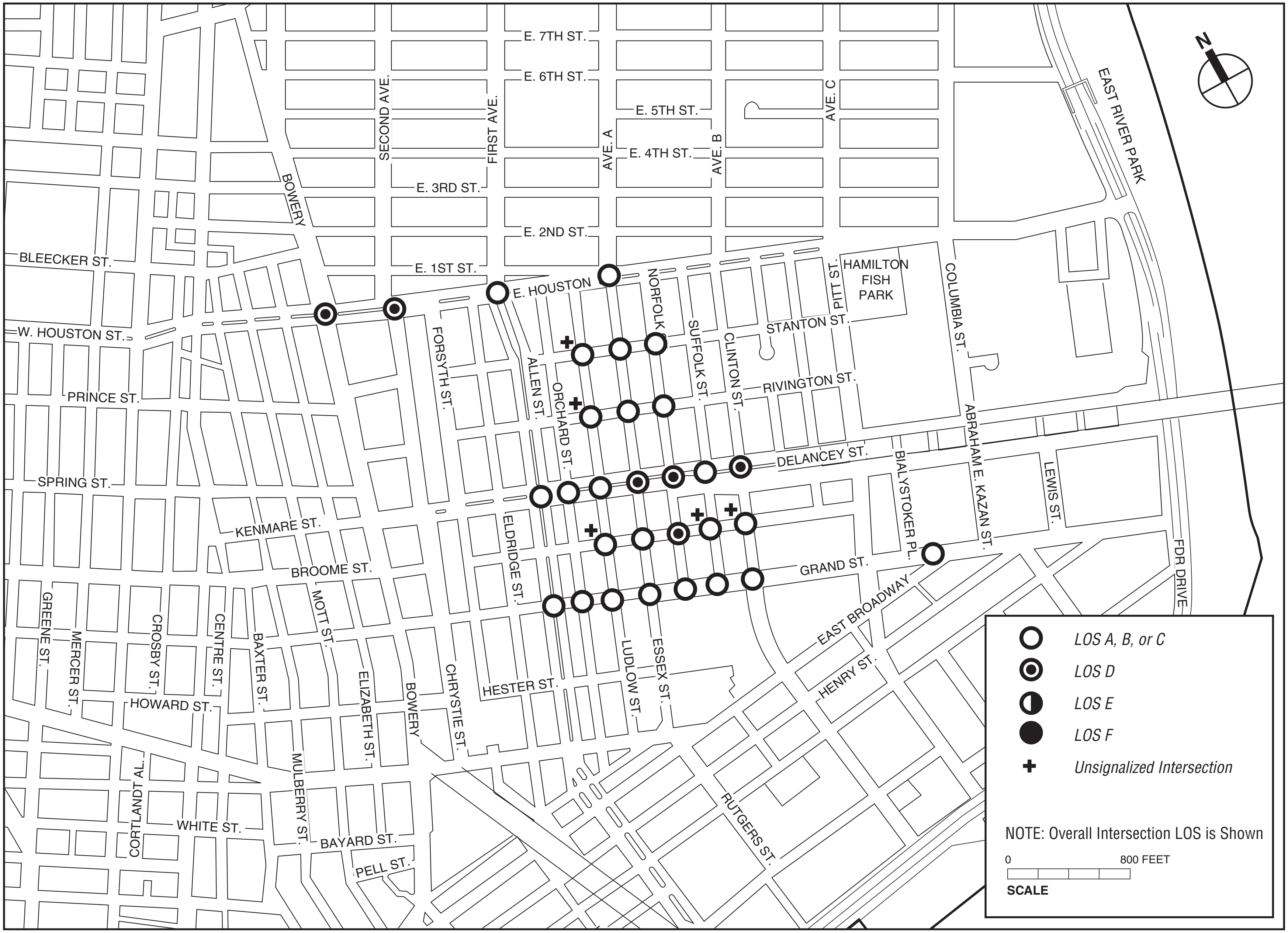
Proposed Development Sites
Intersection Analyzed
* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*
Unacceptable LOS D
LOS E
LOS F

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Existing Traffic Levels of Service - Unacceptable Traffic Movements
Weekday Midday Peak Hour

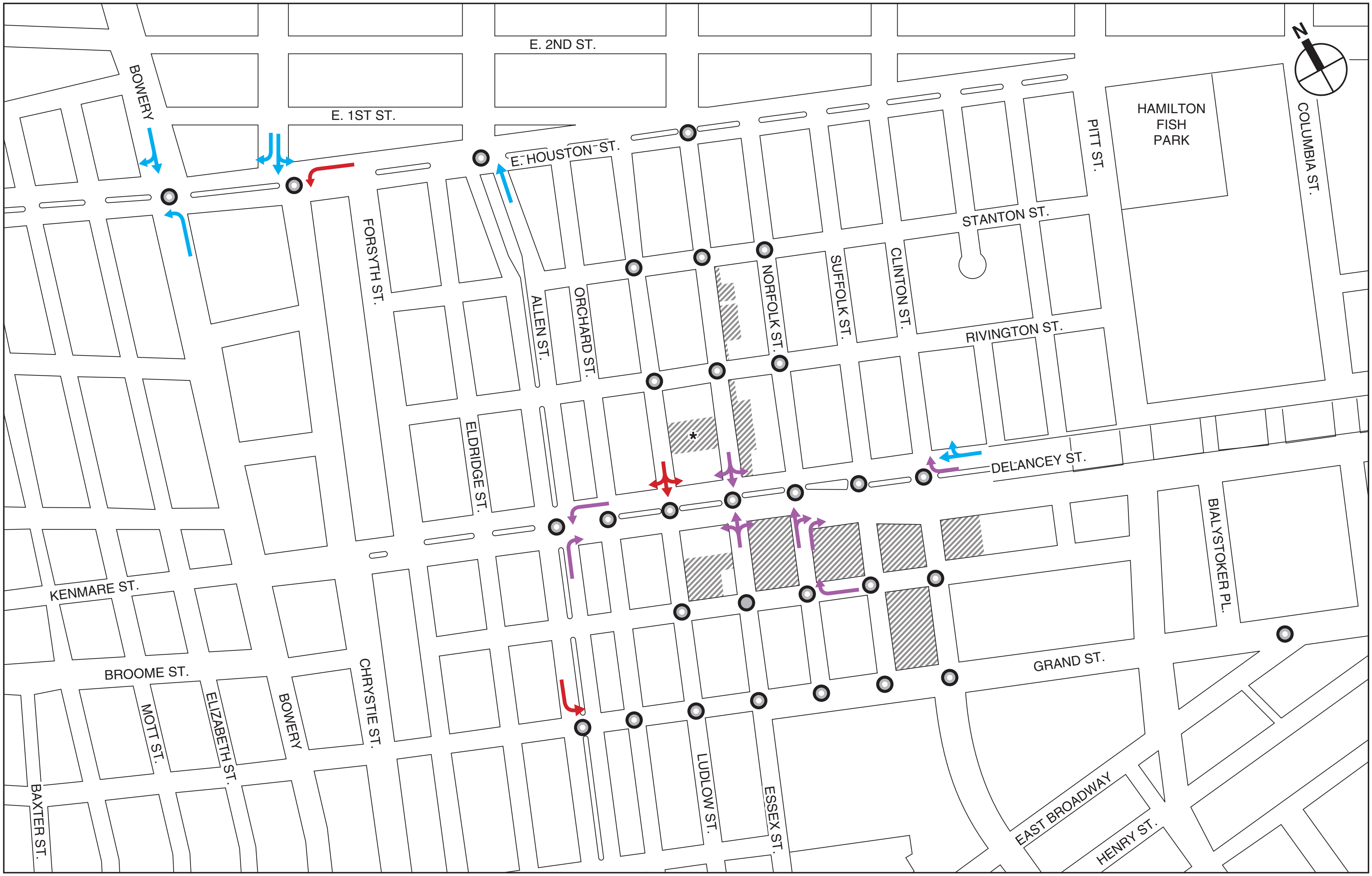
Figure 13-5b

3.19.12



Existing Traffic Levels of Service - Overall Intersections
Weekday PM Peak Hour
Figure 13-6a

3.22.12



Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

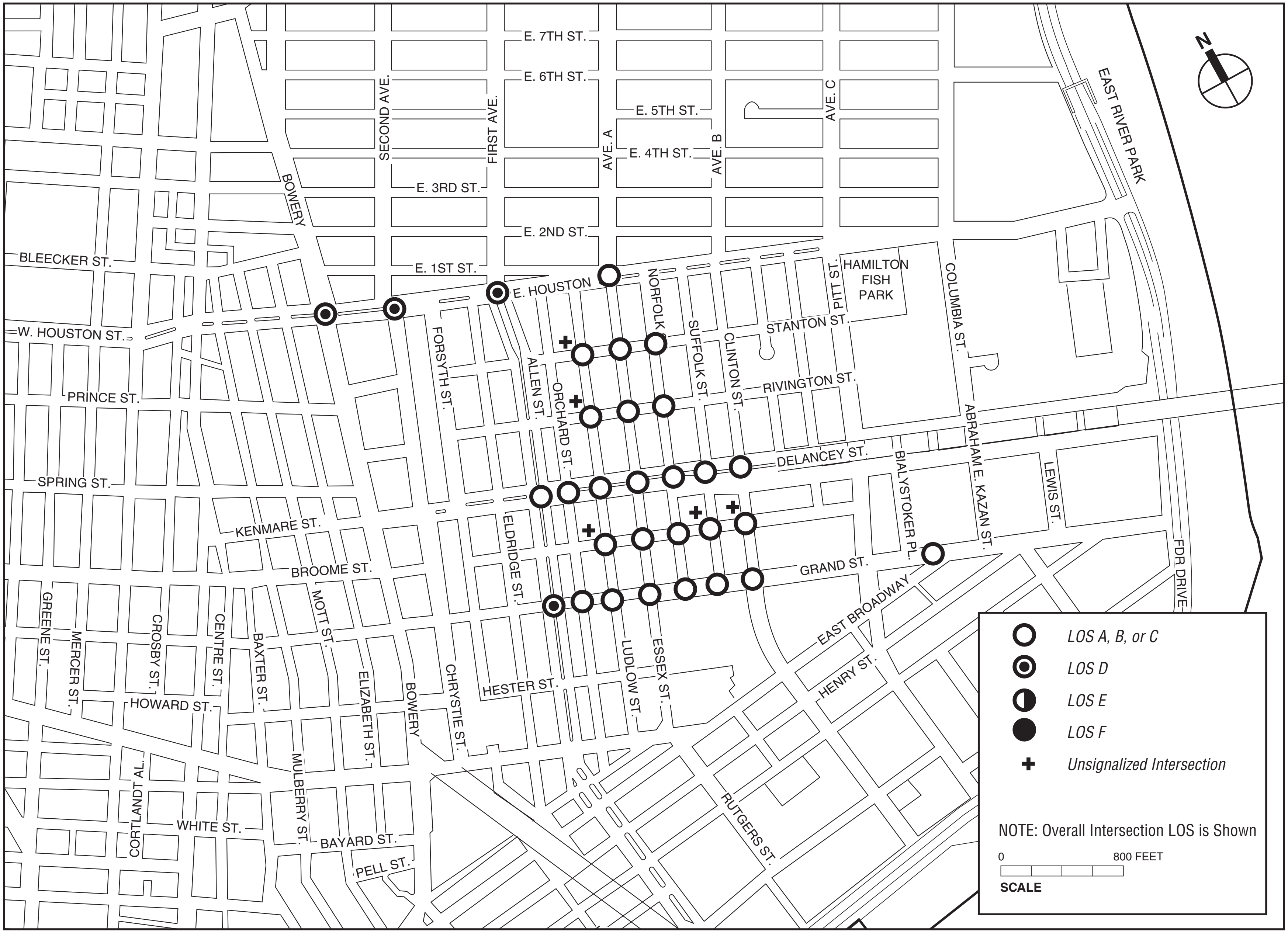
LOS E

LOS F

Existing Traffic Levels of Service - Unacceptable Traffic Movements
Weekday PM Peak Hour
Figure 13-6b

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

3.19.12



Existing Traffic Levels of Service - Overall Intersections
Saturday Peak Hour

Figure 13-7a

traffic movements operate at unacceptable LOS D. Movements operating at unacceptable levels of service are shown in **Figure 13-7b**.

- All of the five unsignalized intersections analyzed are operating at LOS A or B during all peak hours analyzed.

Traffic movements operating at unacceptable levels of service are listed below.

East Houston Street and Bowery

- Northbound Bowery left turn (weekday PM)
- Southbound Bowery through-right turn movement (weekday PM and Saturday)

East Houston Street and Chrystie Street/Second Avenue

- Eastbound East Houston Street through-right turn movement (weekday AM and midday)
- Westbound East Houston Street left turn (weekday AM, midday, PM, and Saturday)
- Northbound Chrystie Street left turn (weekday AM)
- Northbound Chrystie Street left-right turn movement (weekday AM)
- Southbound Second Avenue left turn (weekday midday and Saturday)
- Southbound Second Avenue left-through movement (weekday ~~AM, midday,~~ PM~~,~~ and Saturday)
- Southbound Second Avenue through movement (weekday AM and midday)
- Southbound Second Avenue right turn (weekday midday and PM)

East Houston Street and Allen Street/First Avenue

- Eastbound East Houston Street left turn (weekday AM)
- Northbound Allen Street through movement (weekday AM and PM)

East Houston Street and Essex Street/Avenue A

- Southbound Avenue A approach (weekday midday and Saturday)

Delancey Street and Allen Street

- Westbound Delancey Street left turn (weekday AM, midday, PM, and Saturday)
- Northbound Allen Street right turn (weekday midday, PM, and Saturday)

Delancey Street and Ludlow Street

- Southbound Ludlow Street approach (weekday midday, PM, and Saturday)

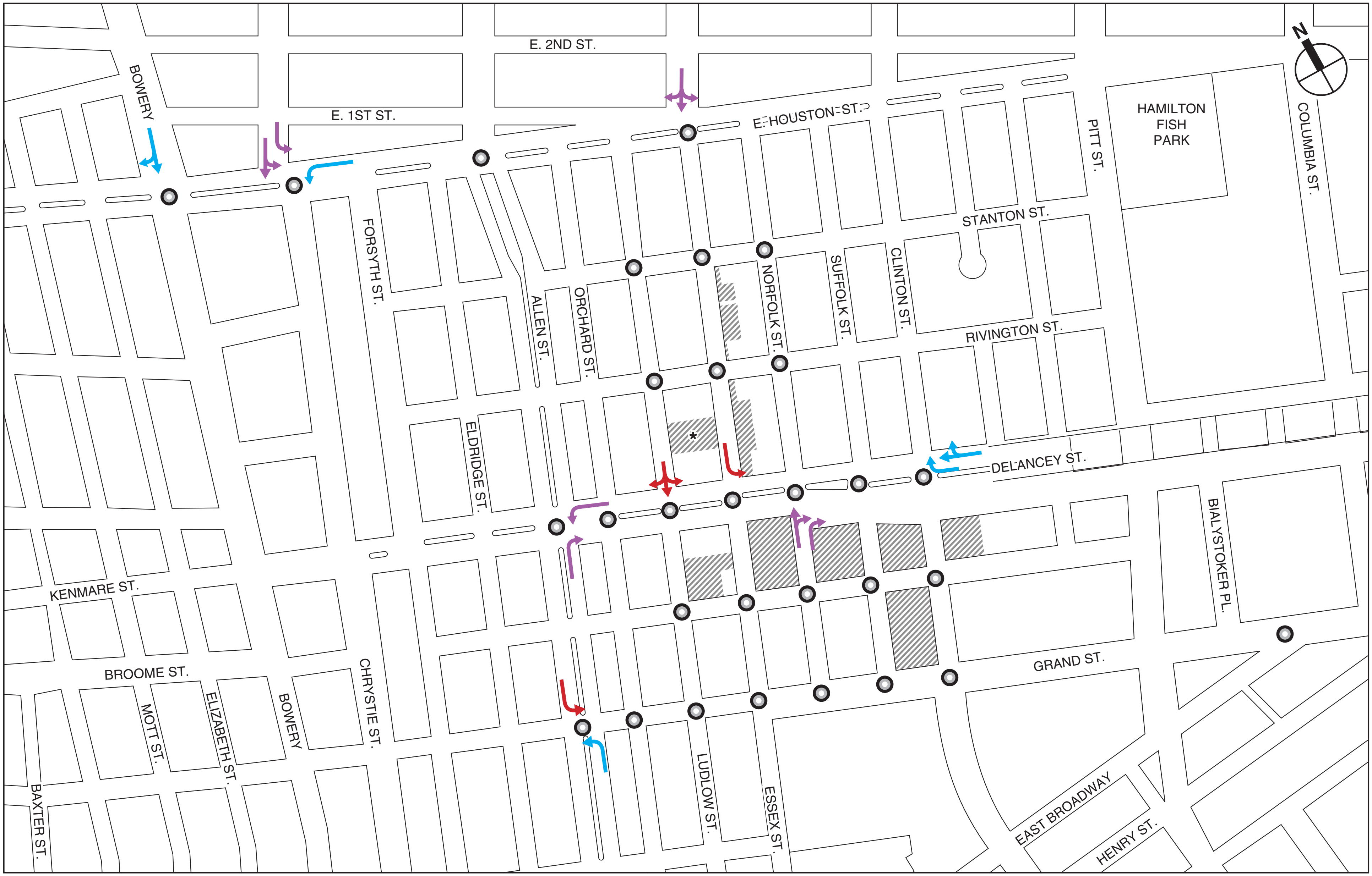
Delancey Street and Essex Street

- Northbound Essex Street approach (weekday PM)
- Southbound Essex Street de facto left turn (weekday AM, midday, and Saturday)
- Southbound Essex Street approach (weekday PM)

Delancey Street and Norfolk Street

- Northbound Norfolk Street through-right turn movement (weekday AM, PM, and Saturday)

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Existing Traffic Levels of Service - Unacceptable Traffic Movements
Saturday Peak Hour
Figure 13-7b

- Northbound Norfolk Street right turn (weekday AM, PM, and Saturday)

Delancey Street and Clinton Street

- Westbound ~~Delancey Street~~ Williamsburg Bridge right turn (weekday AM, PM, and Saturday)
- Westbound Williamsburg Bridge outer lane through movement (weekday AM)
- Westbound Delancey Street service road approach (weekday AM, midday, PM, and Saturday)

Broome Street and Norfolk Street

- Westbound Broome Street approach (weekday PM)

Grand Street and Allen Street

- Eastbound Grand Street approach (weekday AM~~ and midday~~)
- ~~Westbound Grand Street approach (weekday midday)~~
- Northbound Allen Street left turn (weekday AM, midday, and Saturday)
- Southbound Allen Street left turn (weekday AM, midday, PM, and Saturday)

The study area is generally characterized by heavy vehicular and pedestrian volumes, congestion at select key locations, illegal left turns and U-turn maneuvers, and the presence of traffic enforcement agents (TEAs) to process traffic flows. Although none of the 30 intersections analyzed operate at “overall” LOS E or F during the four peak analysis hours, several intersections have individual traffic movements that operate at unacceptable LOS E or F conditions, and there are persistent issues within the study area. The traffic analysis results, further supported by observed field conditions, are described below for key corridors and intersections with movements at LOS E or F.

As mentioned earlier, the Delancey Street corridor is characterized by heavy volumes especially in the section approaching and leaving the Williamsburg Bridge. In general, the perception of this corridor is that of a congested roadway with long queues and delays; however, the signal timings along this corridor favor the heavy eastbound-westbound movements along Delancey Street and provide a substantial amount of green time to this corridor. The majority of the vehicles often pass through intersections before having to stop, but the dense volumes and slow speeds along this corridor result in a perception that all vehicles stop repetitively, which is not the case.

Certain nearby intersections also create bottleneck issues which result in problems along this corridor. For example: vehicles trying to access the Williamsburg Bridge from local roadways have limited options—vehicles from sections south of Delancey Street primarily access the bridge via Norfolk Street by traveling on Clinton and Broome Streets. The northbound through and right turn movements along Norfolk Street at its intersection with Delancey Street operate at unacceptable LOS E during three of the four peak hours due to heavy volumes trying to access the bridge. The problem is exacerbated in the evening (4-7 PM Monday to Friday) when left turns from Essex Street onto Delancey Street are prohibited. Due to this prohibition, vehicles traveling south on Essex Street headed for the Williamsburg Bridge, travel past its intersection with Delancey Street and turn left onto Broome Street, and turn left again onto Norfolk Street. This adds to the congestion at the intersection of Norfolk Street and Broome Street, resulting in the westbound right turns at this intersection operating at LOS E during the weekday PM peak hour.

Southbound left turns from Essex Street onto Delancey Street operate at LOS F during the weekday AM, midday and Saturday peak hours. These vehicles, headed towards the Williamsburg Bridge, queue in the space in the middle of intersection due to blockage by pedestrians crossing the east crosswalk and vehicles from the opposing northbound movement. This space can store approximately five to six vehicles ("sneakers") at the end of the northbound/southbound phase. The TEAs were observed to facilitate the southbound left turn movement through a number of ways including starting the southbound approach early (into the leading pedestrian interval phase), stopping the northbound movement early, or delaying the start of the eastbound/westbound movements to allow more southbound left "sneakers". Although southbound left turns from Essex Street onto Delancey Street are prohibited between 4-7 PM, this movement is characterized by illegal left turns (approximately 75 vph were counted during the 5:15 to 6:15 PM peak hour) and results in the southbound approach at this intersection operating at LOS E.

Left turns are prohibited at all times from eastbound and westbound Delancey Street onto local streets between the Williamsburg Bridge and Allen Street. As a result, there is a heavy westbound left turn movement from Delancey Street onto Allen Street during all peak analysis hours causing this movement to operate at LOS E during the weekday midday, PM, and Saturday peak hours. TEAs allow westbound left turns along Delancey Street to queue in the space at the middle of the intersection during the eastbound/westbound phase; then they allow these movements to go while stopping the eastbound movement. TEAs were also observed to stop the northbound/southbound phase early to "jump start" the westbound left turn phase.

2022 NO ACTION CONDITION

The 2022 No Action condition was developed by increasing existing (2011) traffic levels by the expected growth in overall travel through and within the study area. As per *CEQR* guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (year 2011 to year 2016) and then 0.125 percent for the remaining years (year 2016 to year 2022). In addition, a total of ~~39~~ 40 No Action development projects were identified in coordination with the New York City Department of City Planning (DCP) as being planned for the study area (see **Figure 13-8** and **Table 13-~~15~~16**). However, many of these planned projects are modest in size and would be modest traffic generators. After reviewing the development programs for each of the ~~39~~ 40 planned and projected projects, it was determined that background growth will address the increase in traffic and pedestrian levels for 30 of the small-to-moderate-sized projects in the study area. Even though nineteen projected development sites from the 2008 East Village/Lower East Side Rezoning FEIS were included as one No Action project (number ~~39~~ 40 in **Table 13-~~15~~16**), these small-to-moderate-sized projected projects are dispersed throughout the study area and are not clustered together on any one city block. As a result, these sites would not add considerable development to any one city block and therefore were considered as part of the background growth. Person and vehicle trips generated by the remaining ~~nine~~ ten projects were then determined and incorporated in the 2022 No Action traffic analysis.

NOTE: This figure has been revised for the FGEIS.

No Action Projects

Figure 13-8

Table 13-~~15~~16
No Action Projects

Map No.	Project/Location	Description	With Action Year
1	49½ First Avenue *	Addition – Residential (I Unit)	2012
2	24 First Avenue *	Conversion – Residential (1 Unit)	Pending
3	28 Avenue A *	Addition – Residential (15 Units)	Pending
4	41 Avenue B *	Addition – Residential (1 Unit)	Pending
5	222 East 3rd Street *	Addition – Residential (9 Units)	2012
6	229 East 2nd Street *	Residential (5 Units) Community Facility (300 SF)	2011
7	210 Delancey Street	Residential (69 Units) Community Facility (8,400 SF) Parking (10 Spaces)	2012
8	180 Ludlow Street	Hotel (200 Rooms)	Under Construction
9	180 Orchard Street	Hotel (290 Rooms) Commercial (2,200 SF) Parking (58 Spaces)	2013
10	196 Stanton Street *	Conversion – Dormitory (15 Units)	2012
11	191 Chrystie Street *	Conversion – Residential (11 Units)	
12	145 Ludlow Street *	Residential (10 Units) Commercial (3,000 SF)	Pending
13	156 Rivington Street *	Community Facility (7,000 SF)	
14	139 Orchard Street	Hotel (80 Rooms)	2012
15	119 Orchard Street	Residential (3 Units) Hotel (40 Rooms) Community Facility (500 SF) Commercial (8,000 SF)	2012
16	115 Norfolk Street *	Residential (24 Units) Parking (12 Spaces)	2011
17	95 Delancey Street *	Addition – Commercial (3,500 SF)	Pending
18	101 Ludlow Street *	Addition – Commercial (3,300 SF)	Pending
19	100 Delancey Street *	Residential (21 Units)	2011
20	150 Delancey Street	Hotel (132 Rooms)	2011
21	231 Delancey Street *	Commercial (2,780 SF)	Pending
22	17 Pitt Street *	Addition – Commercial (3,417 SF)	2012
23	285 Grand Street *	Commercial (10,000 SF)	Pending
24	329 Grand Street *	Addition – Residential (4 Units)	Pending
25	48 Orchard Street *	Conversion – Residential (1 Unit)	2012
26	93 Bowery	Hotel (106 Rooms)	2011
27	92 Hester Street *	Conversion – Commercial (7,000 SF)	2012
28	86 Canal Street	Residential (23 Units) Community Facility (900 SF) Commercial (25,000 SF)	Under Construction
29	225 East Broadway *	Residential (22 Units)	
30	136 East Broadway *	Residential (22 Units) Commercial (2,700 SF)	2011
31	183 East Broadway *	Residential (21 Units)	Under Construction
32	14 Jefferson Street *	Addition – Residential (5 Units)	Under Construction
33	227 Madison Street	Addition – Community Facility (108,000 SF)	2013
34	152 Henry Street *	Addition – Community Facility (33,000 SF)	2013
35	26 Avenue B*	Residential (8 Units) Commercial (1,614 SF)	Pending
36	61 Pitt Street*	Residential (1 Unit)	Pending
37	163 Orchard Street*	Hotel (45 Rooms)	2013
38	197 East Broadway	Community Facility (3,200 SF)	2013
39	215 Chrystie Street	Residential (11 Units) Hotel (333 Units)	2021
40 ~~39~~a-s	Multiple Locations[1]*	Residential (220 Units across 19 sites) Parking (2 Spaces)	2017

Notes:

"Pending" projects have been filed with the NYC Department of Buildings (DOB) but are waiting for DOB approval.

* Project is included as part of the background growth due to the modest size of the development.

[1] Nineteen RWCDS sites from the 2008 East Village/Lower East Side Rezoning.

Overall, approximately ~~848~~ 1,181 hotel rooms, ~~95~~ 106 residential units, 108,000 square feet of modernized hospital space, 20,200 square feet of local retail space, 15,000 square feet of office space, and 9,800 square feet of medical office space are assumed to be built by 2022. As a result of this development, ~~196~~ 225 (~~97~~ 110 ins/~~99~~ 115 outs), ~~272~~ 305 (~~138~~ 156 ins/~~134~~ 149 outs), ~~271~~ 301 (~~140~~ 160 ins/~~131~~ 141 outs) and ~~199~~ 222 (~~102~~ 115 ins/~~97~~ 107 outs) vehicle trips are projected to be added to the street network during the weekday AM, midday and PM, and Saturday peak hours, respectively.

The No Action project-generated trips were assigned to the roadway network and, together with the background traffic growth, constitute the 2022 No Action traffic volume baseline. The 2022 No Action traffic volumes for the weekday AM, midday, and PM, and Saturday peak hours are included at the end of the chapter.

The traffic analyses for the 2022 No Action condition include changes at 17 ~~six~~ intersections from approved roadway projects which were provided by NYCDOT and are expected to be implemented by 2022. These changes include signal timing and roadway geometry modifications, and are detailed below for each intersection.

As described earlier in the chapter, following the issuance of the DGEIS, NYCDOT adopted and began implementing an area-wide plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner “bump-outs” and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area’s transportation network were incorporated as part of the No Build condition of the FGEIS.

~~Furthermore, NYCDOT is currently developing an area-wide plan to improve traffic and pedestrian safety along the Delancey Street corridor. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. Changes to the study area’s transportation network resulting from these changes will be incorporated between the DGEIS and FGEIS, should the plan be adopted prior to the release of the FGEIS.~~

HOUSTON STREET AND THE BOWERY

A curb extension will be installed on the south side of the northeast corner. Westbound Houston Street will operate as one 10-foot wide left turn lane, two 10-foot wide through lanes, and one 19-foot wide right turn lane with curbside parking. The northbound approach of the Bowery will have a striped left turn lane in comparison to the existing conditions which operates with a de-facto left turn movement.

HOUSTON STREET AND CHRYSTIE STREET/SECOND AVENUE

Ongoing construction work at this intersection is expected to be completed by 2022. For the No Action condition in 2022, westbound Houston Street will operate as one 10-foot wide left turn lane, two 10-foot wide through lanes, and one 13-foot wide through lane with parking. Eastbound Houston Street approach will operate as two 11-foot wide through lanes and one 22-foot wide right turn lane with parking. The eastbound receiving side will be reduced from three lanes to two lanes. Along Houston Street, the curb will be extended on the northeast and southwest corners. A curb extension will be installed on the east side of the northwest corner. Signal timings will be modified at this intersection. A shift of two seconds of green time from the southbound phase to the northbound phase will be in place during all times.

HOUSTON STREET AND ALLEN STREET/FIRST AVENUE

Eastbound Houston Street will operate as one 10-foot wide left turn lane, two 11-foot wide through lanes, one 5-foot wide bike lane, and one 11-foot wide right turn lane. Parking will be prohibited along the eastbound approach. The eastbound receiving side will consist of two travel lanes and one bike lane with parking. The westbound approach will operate as one 11-foot wide left turn lane, two 11-foot wide through-right lanes, and a bus stop (with pull in/pull out operation for buses). The westbound receiving side will be reduced from three lanes to two lanes with a bike lane. The northbound Allen Street receiving side will also be modified in the future; the receiving side will be narrowed and reduced from five travel lanes to four travel lanes. Signal timings will be modified at this intersection. A shift of three seconds of green time from the northbound phase to the eastbound/westbound phase will be in place during the weekday peak hours.

HOUSTON STREET AND ESSEX STREET/AVENUE A

In the future, East First Street will not begin from the intersection of Houston Street and Essex Street/Avenue A; it will be shifted to the intersection of Houston Street and Ludlow Street and operate as the north leg of that intersection. Houston Street and Essex Street/Avenue A will operate as a conventional four-legged intersection. The eastbound approach will operate as one 10-foot wide left turn lane, two 11-foot wide through-right lanes, and one 16-foot wide bus stop. The eastbound receiving side will be reduced from three lanes to two lanes with a bike lane. The westbound approach will operate as one 10-foot wide left turn lane, one 11-foot wide through lane, one 15-foot wide through lane, and one 13-foot wide curbside lane that will operate as a bus stop and right turn lane.

DELANCEY STREET AND ALLEN STREET

Left turns from eastbound Delancey Street will be prohibited at all times in the future. Parking will be prohibited approximately 90 feet from the intersection along the eastbound approach, and eastbound Delancey Street will be restriped as one 11-foot wide through lane, one 10-foot wide through lane, one 11-foot wide through lane, and one 15-foot wide through-right lane. Curb extensions on the north side of the eastbound approach median, and on the east side of the southbound approach median will be implemented to increase the amount of pedestrian refuge areas. Signal phasing and timings will be modified at this intersection. The signal phasing will accommodate a new northbound right turn lead phase in conjunction with the westbound lag phase (the protected westbound phase operates as a lead phase in the existing conditions). A shift of five seconds of green time from the eastbound/westbound phase to the westbound left turn lead phase will be in place during the weekday midday, PM, and the Saturday peak hours.

DELANCEY STREET AND ORCHARD STREET

Ongoing construction work along northbound Orchard Street will be completed by 2022. This approach will operate as one 25-foot wide travel lane with parking along the west curb during all peak hours. Parking will be prohibited at all times along westbound Delancey Street. Signal timings will be modified at this intersection. A shift of four seconds of green time from the eastbound/westbound phase to the northbound phase will be in place during all times.

DELANCEY STREET AND LUDLOW STREET

Westbound Delancey Street will operate with three through lanes, as compared to four lanes in the existing condition. Curb extensions will be installed on the south side of the northeast and northwest corners. Signal timings will be modified at this intersection. A shift of four seconds of green time from the eastbound/westbound phase to the southbound phase will be in place during all times.

DELANCEY STREET AND ESSEX STREET

Left turns from southbound Essex Street will be prohibited at all times in the future. The southbound approach will be restriped as two 11-foot wide through lanes and one 10-foot wide parking lane. The northbound receiving side will be reduced to one 12-foot wide lane and one 10-foot wide parking lane. Parking will be prohibited along northbound Essex Street for approximately 190 feet from the intersection, and the approach will operate as one 11-foot wide left-through lane, and one 13-foot wide right turn lane. Parking will be prohibited along westbound Delancey Street and the approach will operate as two 11-foot wide through lanes, one 10-foot wide through lane, and one 10-foot wide right turn lane. Curb extensions will be implemented on both sides of the northwest corner. Signal timings will be modified at this intersection. A shift of two seconds of green time from the eastbound/westbound phase to the northbound/southbound phase will be in place during all times.

DELANCEY STREET AND NORFOLK STREET

Signal timings will be modified at this intersection. A shift of three seconds of green time from the eastbound/westbound phase to the northbound phase will be in place during all times.

DELANCEY STREET AND SUFFOLK STREET

The sidewalk along eastbound Delancey Street between Norfolk Street and Suffolk Street will be widened, eliminating the eastbound Delancey Street service road located in this section. Signal timings will be modified at this intersection. A shift of three seconds of green time from the eastbound/westbound phase to the southbound phase will be in place during the weekday midday, PM, and Saturday peak hours.

DELANCEY STREET AND CLINTON STREET

The proposed curb extension on the south side of the northwest corner will prevent vehicles traveling westbound along the Delancey Street service road from traveling through the intersection; all vehicles along this approach will need to turn right onto northbound Clinton Street. The sidewalk along eastbound Delancey Street between Suffolk Street and Clinton Street will be widened, eliminating the eastbound Delancey Street service road located in this section. Clinton Street will be converted from a two-way street to a one-way street between Delancey Street and Grand Street, and will allow access to the Williamsburg Bridge. Northbound Clinton Street will operate as one 11-foot wide right turn lane with two 6-foot wide bike lanes along the west curb. Signal phasing and timing will be modified at this intersection to accommodate the future intersection layout. A shift of three seconds of green time from the eastbound/westbound phase to the northbound phase will be in place during all times.

BROOME STREET AND NORFOLK STREET

Crosswalks will be installed along all four approaches of the intersection.

BROOME STREET AND SUFFOLK STREET

Crosswalks will be installed along the north and south approaches of the intersection.

BROOME STREET AND CLINTON STREET

Clinton Street will be converted from a two-way street to a one-way street. Northbound Clinton Street will operate as one 11-foot wide travel lane with two 6-foot wide bike lanes along the west curb.

GRAND STREET AND ALLEN STREET

Existing construction along the Allen Street corridor is expected to be completed by 2022. The northbound and southbound Allen Street approaches will revert to their original (pre-construction) conditions: one 5-foot wide bike lane, one 10-foot wide left turn lane, one 10-foot wide through lane, and one 19-foot wide through-right lane with parking. Signal timings will be modified at this intersection. A shift of three or four seconds of green time from the northbound/southbound phase to the southbound lead phase and the eastbound/westbound phase will be in place during the weekday AM, midday, and PM peak hours.

GRAND STREET NORFOLK STREET

Westbound Grand Street will operate as one 11-foot wide through lane and one 15-foot wide right turn lane.

GRAND STREET AND CLINTON STREET

Clinton Street will be converted from a two-way street to a one-way northbound street between Grand Street and Delancey Street. In addition, left turns from eastbound Grad Street will be prohibited at all times. The curb lane along westbound Grand Street will be restriped as an exclusive right turn lane~~.~~ (~~T~~this lane currently functions like a right turn lane because of the parking prohibitions along this approach). A leading pedestrian interval will be introduced at the intersection to allow for extra pedestrian crossing time in the eastbound/westbound directions.

Projected traffic volume increases in the study area roadway network due to the cumulative effect of background projects and the annual growth in background traffic, and the traffic pattern changes resulting from the implementation of the safety plan along the Delancey Street corridor are quantified and discussed below.

Traffic volumes along Delancey Street are expected to increase by approximately 30 to ~~80~~ 100 vph in the eastbound direction west of Essex ~~Norfolk~~ Street during the weekday AM, midday and PM, and Saturday peak hours. East of Norfolk Street and towards the Williamsburg Bridge, eastbound traffic volumes are expected to decrease ~~increase~~ by approximately 65 ~~75~~ to 290 ~~110~~ vph during all peak hours due to diversions resulting from the implementation of the safety plan along the Delancey Street corridor.. Traffic volumes in the westbound direction are expected to increase by approximately 25 ~~65~~ to 85 ~~105~~ vph ~~in all~~ during the weekday midday, PM, and Saturday peak hours. During the weekday AM peak hour, traffic volumes along westbound Delancey Street are expected to increase by 15 to 55 vph, with a decrease of approximately 10 vph in the segment between Suffolk Street and Clinton Street. This represents ~~an approximate increase of two to four percent increase~~ a modest change (an increase or decrease of approximately one percent) in traffic volumes along Delancey Street.

Houston Street traffic volumes are expected to increase by approximately 25 ~~20~~ to 75 vph during all peak hours in each direction.

Traffic volumes along Grand Street, west of Norfolk Street, are generally expected to increase by 5 to 20 vph per direction during the weekday AM, midday and PM, and Saturday peak hours. The section of Grand Street between Essex Street and Norfolk Street is expected to decrease by approximately 5 vph in the eastbound direction and approximately 75 vph in the westbound direction during the weekday PM peak hour. Traffic volumes along eastbound Grand Street, east of Norfolk Street, are expected to decrease by 50 vph or less, and by 85 to 130 vph in the westbound direction during all peak hours. The decreases in traffic volumes along Grand Street are due to the diversions resulting from the implementation of the safety plan along the Delancey Street corridor.

Allen Street traffic volumes are expected to increase by approximately 5 to ~~40~~ 35 vph per direction for all peak hours.

Traffic volumes along Essex Street (in both directions) ~~and Norfolk Street~~ are generally expected to increase by less than 25 vph per direction during the weekday AM, midday and PM, and Saturday peak hours. Southbound Essex Street traffic volumes between Rivington Street and Delancey Street are expected to decrease by approximately 5 to 30 vph during the weekday AM, midday, and Saturday peak hours due to extension of the southbound left turn prohibition at Delancey Street to 24-hour, seven day per week operation. Further south, at the intersection with Broome Street, southbound Essex Street traffic volumes are expected to increase by approximately 200 to 290 vph during the weekday AM, midday, and Saturday peak hours, and by approximately 75 vph during the weekday PM peak hour. Traffic volumes along Suffolk Street are expected to increase by less than ~~5~~ 20 vph during the peak hours.

In the future, access to the Williamsburg Bridge from south of Delancey Street will also be provided via northbound Clinton Street, relieving some of the traffic at the Norfolk Street approach to Delancey Street. Traffic volumes along Norfolk Street are expected to decrease by approximately 25 to 75 vph during the weekday AM, midday, and Saturday peak hours, and by close to 150 vph during the weekday PM peak hour. Between Broome Street and Delancey Street, traffic volumes along Clinton Street are expected to increase by approximately 240 to 375 vph, and by approximately 70 to 85 vph between Grand Street and Broome Street ~~less than 10 vph in both directions~~ during analyzed peak hours. Along Clinton Street to the north of Delancey Street, traffic volumes would be expected to increase by approximately 25 vph in all peak hours.

Based on these traffic volume increases, No Action traffic levels of service were determined for the 30 analysis locations. **Tables 13-~~16~~17a and 13-~~16~~17b** shows a comparison of traffic levels of service for existing and No Action conditions. Detailed descriptions of the No Action conditions traffic levels of service are provided in **Table 13-~~17~~18**.

Table 13-~~16~~17a
Traffic Level of Service Summary Comparison – Overall Intersections: Existing vs. No Action Conditions (2022)

	Existing				2022 No Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Intersections at Overall LOS A/B/C	27	28	24	26	22	27	18	~~24~~ 23
Intersections at Overall LOS D	3	2	6	4	~~8~~ 4	~~3~~ 2	~~11~~ 7	~~4~~ 5
Intersections at Overall LOS E	0	0	0	0	~~0~~ 4	~~0~~ 1	~~1~~ 4	2
Intersections at Overall LOS F	0	0	0	0	0	0	~~0~~ 1	0

Note: Includes 30 analyzed intersections (25 signalized and 5 unsignalized). All 5 unsignalized intersections operate at overall LOS A or B during all four traffic analysis hours.

Table 13-~~16~~17b
Traffic Level of Service Summary Comparison – Traffic Movements: Existing vs. No Action Conditions (2022)

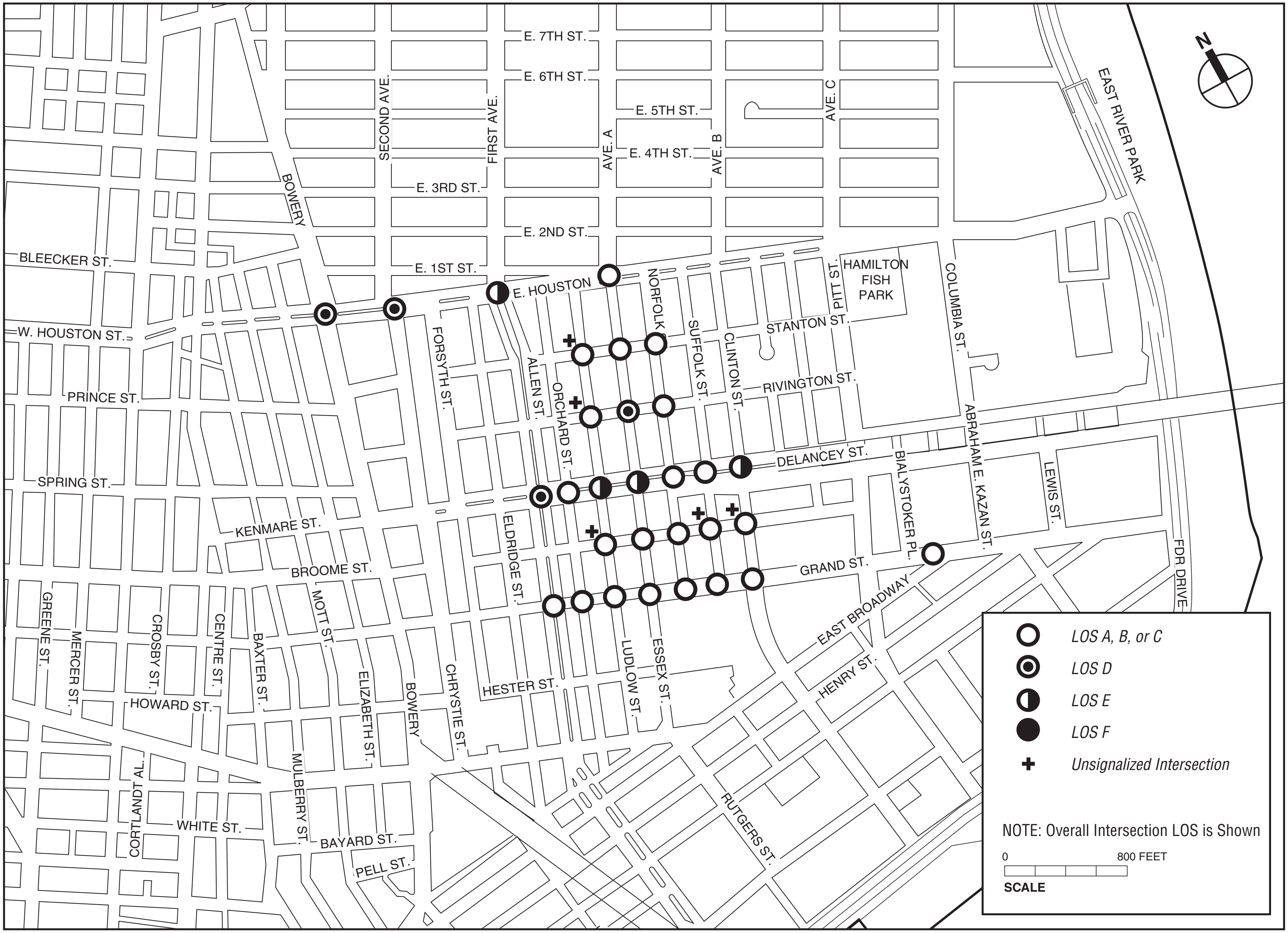
	Existing				2022 No Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Traffic movements at LOS A/B/C and acceptable LOS D	103	~~103~~ 106	~~100~~ 101	~~103~~ 104	~~101~~ 100	~~110~~ 108	89	~~99~~ 98
Traffic movements at unacceptable LOS D	7	~~10~~ 8	6	~~6~~ 5	~~9~~ 5	~~2~~ 3	~~10~~ 7	~~8~~ 7
Traffic movements at LOS E	~~8~~ 9	3	8	~~6~~ 7	8	~~3~~ 5	~~13~~ 11	~~7~~ 6
Traffic movements at LOS F	1	2	3	3	~~4~~ 7	~~6~~ 3	~~8~~ 12	~~7~~ 8
Number of individual traffic movements*	~~119~~ 120	~~118~~ 119	~~117~~ 118	~~118~~ 119	~~122~~ 120	~~121~~ 119	~~120~~ 119	~~121~~ 119

Note: * Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

The summary overview of the No Action condition indicates that:

- In the weekday AM peak hour, ~~none~~ four of the 30 study area intersections analyzed would operate at overall LOS E ~~or F~~, and ~~eight~~ four intersections would operate at marginally acceptable/unacceptable LOS D as shown in **Figure 13-9a**. Twenty~~-one~~ individual traffic movements out of approximately ~~122~~ 120 movements analyzed would operate at unacceptable levels of service as compared to ~~16~~ 17 in the existing conditions. Movements operating at unacceptable levels of service are shown in **Figure 13-9b**.
- In the weekday midday peak hour, ~~none~~ one ~~of the~~ intersections would operate at overall LOS E ~~or F~~, and two ~~three~~ intersections would operate at marginally acceptable/unacceptable LOS D as shown in **Figure 13-10a**. Eleven individual movements would operate at unacceptable levels of service as compared to ~~15~~ 13 in the existing conditions. Movements operating at unacceptable levels of service are shown in **Figure 13-10b.**

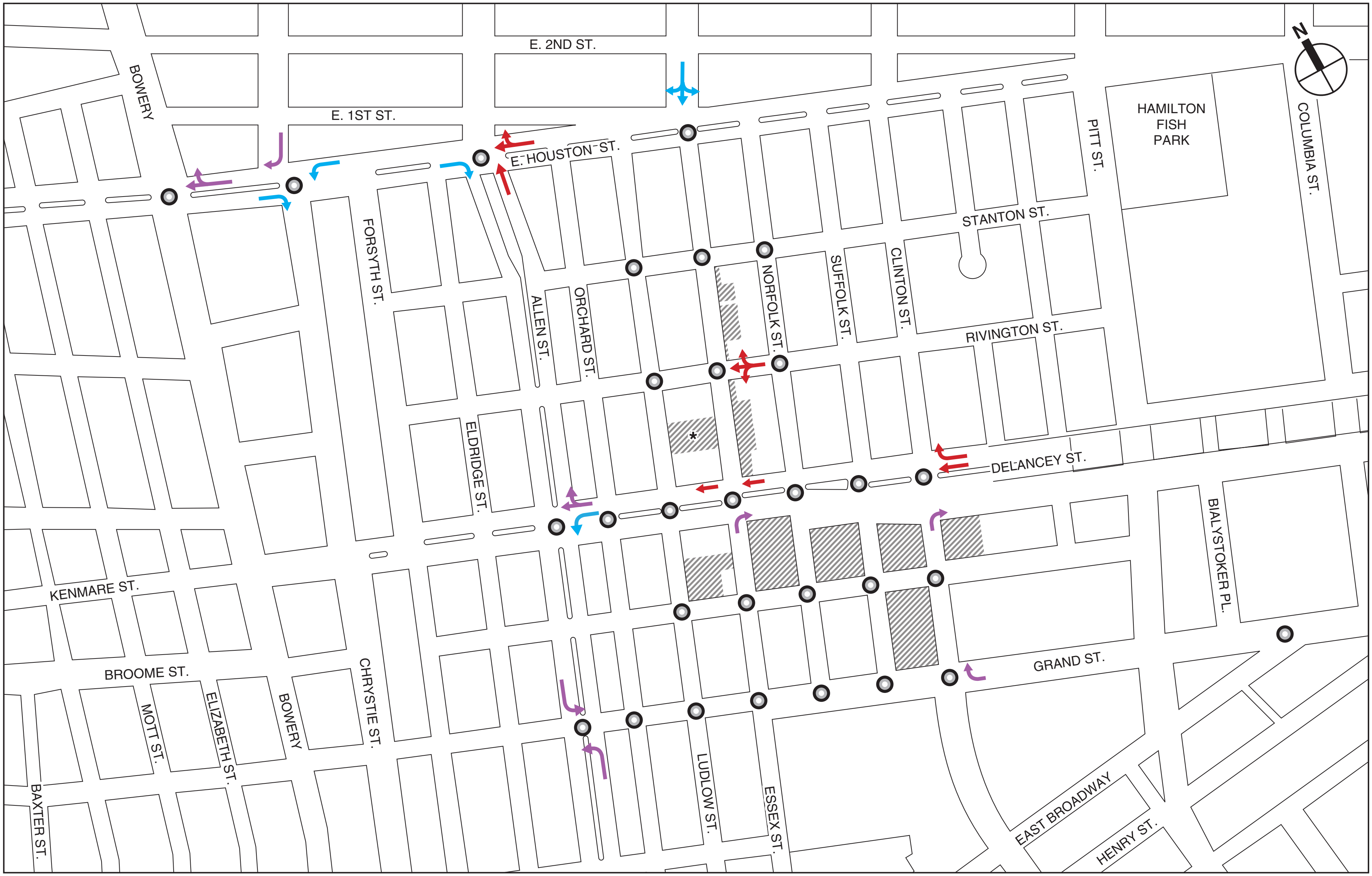
8.7.12



NOTE: This figure has been revised for the FGEIS.

No Action Traffic Levels of Service - Overall Intersections
Weekday AM Peak Hour
Figure 13-9a

8.7.12



NOTE: This figure has been revised for the FGEIS.

0 800 FEET

SCALE

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

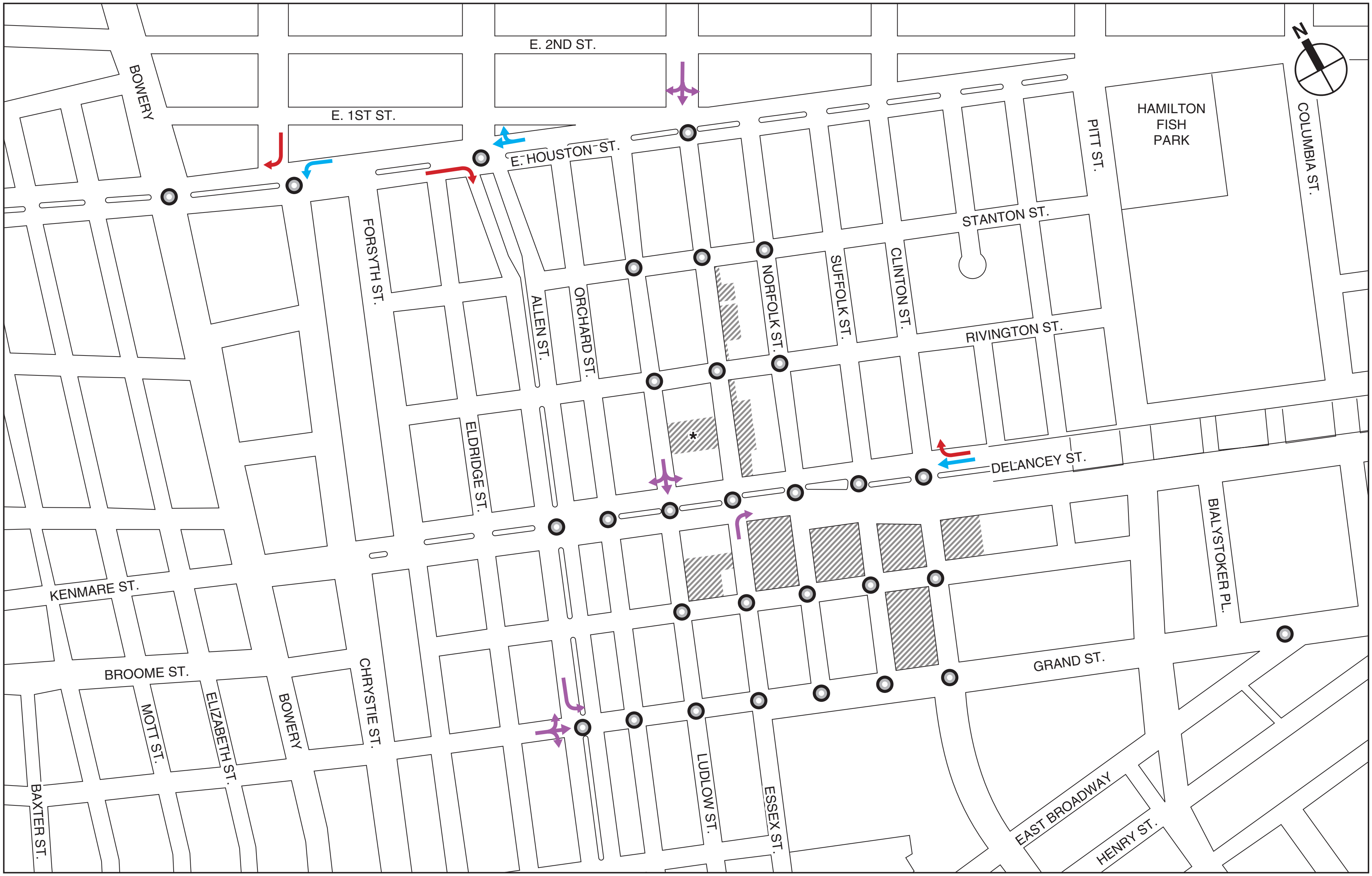
No Action Traffic Levels of Service - Unacceptable Traffic Movements
Weekday AM Peak Hour

Figure 13-9b

NOTE: This figure has been revised for the FGEIS.

No Action Traffic Levels of Service - Overall Intersections
Weekday Midday Peak Hour
Figure 13-10a

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

0 800 FEET

SCALE

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

No Action Traffic Levels of Service - Unacceptable Traffic Movements

Weekday Midday Peak Hour

Figure 13-10b

~~Table 13-17~~
~~Seward Park Development EIS~~
~~2022 No Action Traffic Levels of Service~~

Intersection &	Approach	Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	30.4	C	L	0.43	32.5	C	L	0.41	33.1	C	L	0.69	39.6	D
		TR	0.68	29.2	C	TR	0.77	31.2	C	TR	0.74	30.2	C	TR	0.87	33.6	C
	WB	L	0.68	29.9	C	L	0.79	42.1	D	L	0.70	39.8	D	L	0.85	50.0	D
		TR	1.04	54.6	D	TR	0.89	34.6	C	TR	1.04	64.3	E	TR	1.01	50.6	D
Bowery	NB	L	0.84	42.3	D	L	0.50	29.2	C	L	0.80	50.1	D	L	0.73	37.5	D
		TR	0.91	40.3	D	TR	0.74	35.0	C	TR	0.68	33.0	C	TR	0.97	45.5	D
	SB	L	0.32	26.2	C	L	0.41	25.4	C	L	0.48	26.8	C	L	0.57	32.8	C
		TR	0.92	42.5	D	TR	0.82	38.0	D	TR	1.00	53.8	D	TR	1.02	54.3	D
Overall Intersection		**-**	**0.97**	**42.5**	**D**	**-**	**0.90**	**34.2**	**C**	**-**	**0.95**	**47.1**	**D**	**-**	**0.98**	**44.8**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	T	0.56	29.3	C	T	0.77	33.9	C	T	0.72	32.4	C	T	0.86	35.9	D
		R	0.79	46.1	D	R	0.70	39.9	D	R	1.07	105.1	F	R	0.93	56.1	E
	WB	L	0.68	42.9	D	L	0.58	45.4	D	L	0.84	75.1	E	L	0.71	55.7	E
		T	0.74	31.6	C	T	0.66	30.5	C	T	0.64	30.1	C	T	0.92	38.7	D
Chrystie Street / Second Avenue	NB	L	0.85	39.9	D	L	0.55	35.1	D	L	0.68	37.3	D	L	0.51	33.8	C
		LR	0.87	42.5	D	LR	0.60	38.2	D	LR	0.68	39.0	D	LR	0.60	37.6	D
	SB	L	0.78	38.8	D	L	0.84	36.6	D	L	1.06	77.3	E	L	1.29	169.0	F
		LT	0.75	35.0	D	LT	0.86	35.3	D	LT	1.12	92.3	F	LT	1.28	163.6	F
		R	1.01	64.0	E	R	1.14	100.0	F	R	1.07	77.8	E	R	0.98	46.9	D
Overall Intersection		**-**	**0.87**	**38.5**	**D**	**-**	**0.82**	**42.2**	**D**	**-**	**0.97**	**59.4**	**E**	**-**	**0.94**	**76.2**	**E**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	1.12	102.6	F	L	0.81	33.5	C	L	0.85	44.2	D	L	0.82	40.7	D
		T	0.79	29.7	C	T	0.88	30.9	C	T	0.84	33.0	C	T	0.89	32.9	C
		R	0.82	37.6	D	R	1.29	165.2	F	R	0.90	53.4	D	R	1.27	160.2	F
	WB	L	0.43	28.0	C	L	0.27	26.2	C	L	0.36	27.6	C	L	0.44	31.9	C
		TR	1.04	67.8	E	TR	0.87	38.9	D	TR	0.83	35.0	C	TR	1.13	98.3	F
Allen Street	NB	L	0.62	32.6	C	L	0.46	29.4	C	L	0.39	28.1	C	L	0.38	27.7	C
		T	0.97	49.0	D	T	0.77	34.9	C	T	0.99	56.0	E	T	0.82	36.0	D
		R	0.35	28.5	C	R	0.29	28.0	C	R	0.19	26.1	C	R	0.24	26.8	C
Overall Intersection		**-**	**1.13**	**52.1**	**D**	**-**	**0.97**	**47.0**	**D**	**-**	**0.95**	**40.8**	**D**	**-**	**1.00**	**64.6**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.56	21.1	C	L	0.42	14.3	B	L	0.30	14.6	B	L	0.34	15.7	B
		TR	0.68	27.1	C	TR	0.80	27.8	C	TR	0.77	29.0	C	TR	0.80	27.8	C
	WB	L	0.63	22.4	C	L	0.74	31.0	C	L	1.00	83.9	F	L	0.88	40.2	D
		T	0.76	29.8	C	T	0.62	26.2	C	T	0.65	26.7	C	T	0.84	32.2	C
		R	0.11	19.9	B	R	0.10	19.8	B	R	0.26	22.0	C	R	0.14	20.2	C
	NB	LTR	0.77	35.0	C	LTR	0.77	35.3	D	LTR	0.74	33.7	C	LTR	0.70	32.6	C
	SB	LTR	0.96	48.4	D	LTR	1.06	68.3	E	LTR	0.96	48.7	D	LTR	1.08	72.8	E
Overall Intersection		**-**	**0.81**	**31.4**	**C**	**-**	**0.85**	**33.6**	**C**	**-**	**0.99**	**36.0**	**D**	**-**	**0.90**	**36.4**	**D**
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.48	27.7	C	LTR	0.28	23.3	C	LTR	0.24	22.4	C
Essex Street	NB	TR	0.33	12.0	B	TR	0.25	11.2	B	TR	0.32	11.9	B	TR	0.30	11.7	B
	SB	LT	0.39	12.4	B	LT	0.36	12.0	B	LT	0.39	12.3	B	LT	0.53	14.0	B
Overall Intersection		**-**	**0.33**	**13.1**	**B**	**-**	**0.40**	**14.5**	**B**	**-**	**0.35**	**13.2**	**B**	**-**	**0.42**	**13.8**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.23	16.4	B	LT	0.19	15.9	B	LT	0.16	15.5	B	LT	0.22	16.1	B
Norfolk Street	NB	TR	0.45	19.6	B	TR	0.51	20.6	C	TR	0.41	18.9	B	TR	0.39	18.6	B
Overall Intersection		**-**	**0.34**	**18.5**	**B**	**-**	**0.35**	**19.3**	**B**	**-**	**0.29**	**17.8**	**B**	**-**	**0.30**	**17.7**	**B**

~~Table 13-17 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 No Action Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	0.89	49.3	D	LTR	0.64	32.4	C	LTR	0.75	37.6	D	LTR	0.70	35.0	C
Essex Street	NB	LT	0.35	11.9	B	LT	0.28	11.3	B	LT	0.33	11.5	B	LT	0.33	11.6	B
	SB	TR	0.33	12.0	B	TR	0.42	13.1	B	TR	0.44	13.4	B	TR	0.85	35.1	D
Overall Intersection		**-**	**0.56**	**23.0**	**C**	**-**	**0.50**	**16.7**	**B**	**-**	**0.56**	**18.4**	**B**	**-**	**0.78**	**27.6**	**C**
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.54	21.8	C	TR	0.20	16.2	B	TR	0.45	19.8	B	TR	0.47	20.0	B
Norfolk Street	NB	LT	0.47	18.3	B	LT	0.63	20.9	C	LT	0.56	19.2	B	LT	0.42	17.8	B
Overall Intersection		**-**	**0.51**	**19.9**	**B**	**-**	**0.41**	**20.0**	**B**	**-**	**0.50**	**19.5**	**B**	**-**	**0.44**	**18.9**	**B**
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	0.94	36.4	D	TR	0.82	27.9	C	TR	1.08	72.0	E	TR	0.87	29.3	C
	WB	L	0.88	55.3	E	L	0.75	41.9	D	L	0.73	43.9	D	L	0.76	40.8	D
		TR	1.02	41.4	D	TR	0.79	14.9	B	TR	1.01	39.6	D	TR	0.82	15.5	B
Allen Street	NB	T	0.70	35.1	D	T	0.67	34.7	C	T	0.66	33.8	C	T	0.74	36.8	D
		R	0.60	37.7	D	R	0.79	50.6	D	R	1.00	84.9	F	R	0.85	58.4	E
	SB	TR	0.55	32.0	C	TR	0.71	33.8	C	TR	0.56	31.7	C	TR	0.77	35.7	D
Overall Intersection		**-**	**0.92**	**39.6**	**D**	**-**	**0.79**	**25.4**	**C**	**-**	**1.01**	**53.0**	**D**	**-**	**0.84**	**26.8**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.41	9.7	A	T	0.57	11.4	B	T	0.66	12.3	B	T	0.58	11.4	B
	WB	TR	0.78	14.7	B	TR	0.72	13.6	B	TR	0.82	15.6	B	TR	0.77	14.6	B
Orchard Street	NB	LTR	0.26	26.2	C	LTR	0.34	27.9	C	LTR	0.33	27.4	C	LTR	0.29	26.7	C
Overall Intersection		**-**	**0.61**	**13.3**	**B**	**-**	**0.59**	**13.1**	**B**	**-**	**0.66**	**14.4**	**B**	**-**	**0.61**	**13.6**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.43	10.1	B	TR	0.58	11.7	B	TR	0.70	13.3	B	TR	0.58	11.7	B
	WB	T	0.75	13.4	B	T	0.73	13.2	B	T	0.79	14.1	B	T	0.68	12.3	B
Ludlow Street	SB	LTR	0.72	41.5	D	LTR	1.00	84.2	F	LTR	1.25	168.9	F	LTR	1.15	130.5	F
Overall Intersection		**-**	**0.74**	**13.9**	**B**	**-**	**0.82**	**17.7**	**B**	**-**	**0.94**	**24.0**	**C**	**-**	**0.84**	**21.5**	**C**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.51	14.1	B	TR	0.68	16.5	B	TR	1.00	39.4	D	TR	0.88	25.3	C
	WB	TR	1.01	41.6	D	TR	0.96	23.6	C	TR	1.05	54.8	D	TR	1.02	39.6	D
Essex Street	NB	LTR	0.82	46.9	D	LTR	0.77	41.8	D	LTR	1.02	75.7	E	LTR	0.74	38.2	D
	SB	DefL	1.08	108.3	F	DefL	1.10	116.6	F	LTR	1.00	70.7	E	DefL	1.10	101.9	F
		TR	0.76	44.7	D	TR	0.76	44.4	D	-	-	-	-	TR	0.65	36.7	D
Overall Intersection		**-**	**1.04**	**37.2**	**D**	**-**	**1.02**	**27.6**	**C**	**-**	**1.04**	**51.9**	**D**	**-**	**1.07**	**37.6**	**D**
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.61	12.6	B	T	0.72	14.2	B	T	1.06	53.4	D	T	0.77	14.9	B
	WB	TR	0.93	19.0	B	TR	0.98	27.9	C	TR	1.00	29.0	C	TR	0.93	21.2	C
Norfolk Street	NB	TR	0.95	61.9	E	TR	0.77	40.3	D	TR	1.01	71.5	E	TR	0.95	63.0	E
		R	0.93	58.7	E	R	0.82	44.7	D	R	1.02	74.4	E	R	0.93	59.8	E
Overall Intersection		**-**	**0.94**	**22.4**	**C**	**-**	**0.93**	**24.2**	**C**	**-**	**1.04**	**45.1**	**D**	**-**	**0.94**	**24.0**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	T	0.79	17.4	B	T	0.81	16.1	B	T	1.07	52.7	D	T	0.99	27.3	C
	WB	T	0.94	20.0	B	T	0.78	14.8	B	T	0.85	16.0	B	T	0.75	14.3	B
Delancey Street Service Road	EB	TR	0.19	10.3	B	TR	0.14	8.5	A	TR	0.13	8.3	A	TR	0.11	8.2	A
Suffolk Street	SB	R	0.11	21.5	C	R	0.06	22.8	C	R	0.21	25.0	C	R	0.25	25.5	C
Overall Intersection		**-**	**0.63**	**18.6**	**B**	**-**	**0.56**	**15.3**	**B**	**-**	**0.78**	**35.4**	**D**	**-**	**0.74**	**21.4**	**C**

~~Table 13-17 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 No Action Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
15. DELANCEY STREET AND CLINTON STREETL																	
Delancey Street	EB	T	0.64	10.1	B	T	0.74	11.6	B	T	1.06	48.7	D	T	0.93	15.1	B
Williamsburg Bridge	WB	T	1.07	54.1	D	T	0.89	18.3	B	T	1.07	55.1	E	T	0.84	15.4	B
		R	1.07	82.0	F	R	0.89	40.8	D	R	1.07	80.0	F	R	0.97	54.1	D
Delancey Street Service Road	EB	TR	0.14	6.5	A	TR	0.12	6.4	A	TR	0.09	6.2	A	TR	0.08	6.2	A
	WB	TR	1.01	88.5	F	TR	0.69	59.2	E	TR	0.93	83.1	F	TR	0.72	57.4	E
Clinton Street	NB	R	0.17	28.0	C	R	0.09	26.8	C	R	0.16	27.7	C	R	0.09	26.7	C
Overall Intersection		**-**	**0.82**	**39.8**	**D**	**-**	**0.67**	**17.8**	**B**	**-**	**0.82**	**53.9**	**D**	**-**	**0.70**	**19.3**	**B**
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.17	21.3	C	LTR	0.13	20.9	C	LTR	0.13	20.9	C	LTR	0.18	21.4	C
Essex Street	NB	TR	0.30	11.6	B	TR	0.28	11.4	B	TR	0.43	12.9	B	TR	0.25	11.2	B
	SB	L	0.11	10.4	B	L	0.10	10.2	B	L	0.84	23.1	C	L	0.15	10.7	B
		T	0.26	11.4	B	T	0.25	11.3	B	T	0.29	11.3	B	T	0.22	11.0	B
Overall Intersection		**-**	**0.25**	**12.6**	**B**	**-**	**0.22**	**12.1**	**B**	**-**	**0.57**	**14.9**	**B**	**-**	**0.22**	**12.5**	**B**
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.12	10.3	B	L	0.09	10.0	B	L	0.65	36.7	D	L	0.12	10.3	B
	WB	R	0.41	13.7	B	R	0.32	12.5	B	R	0.93	68.8	E	R	0.58	17.1	B
Norfolk Street	NB	T	0.77	30.4	C	T	0.71	28.8	C	T	0.64	26.7	C	T	0.71	27.7	C
Overall Intersection		**-**	**0.55**	**21.9**	**C**	**-**	**0.47**	**21.2**	**C**	**-**	**0.77**	**43.6**	**D**	**-**	**0.63**	**21.0**	**C**
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	1.05	66.9	E	LTR	1.14	97.5	F	LTR	0.98	57.5	E	LTR	0.96	53.4	D
	WB	LTR	0.79	45.1	D	LTR	0.90	57.9	E	LTR	0.65	35.6	D	LTR	0.68	36.9	D
Allen Street	NB	L	0.63	55.7	E	L	0.39	44.2	D	L	0.26	39.8	D	L	0.55	49.7	D
		TR	0.53	21.0	C	TR	0.45	19.9	B	TR	0.59	21.9	C	TR	0.47	20.1	C
	SB	L	0.86	73.7	E	L	1.07	111.1	F	L	0.95	86.0	F	L	1.06	112.3	F
		TR	0.58	21.8	C	TR	0.74	24.9	C	TR	0.64	22.7	C	TR	0.60	21.9	C
Overall Intersection		**-**	**0.76**	**37.0**	**D**	**-**	**0.84**	**47.8**	**D**	**-**	**0.78**	**34.6**	**C**	**-**	**0.72**	**38.1**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.63	21.1	C	LT	0.71	21.7	C	LT	0.68	22.4	C	LT	0.70	22.2	C
	WB	TR	0.50	20.9	C	TR	0.55	21.8	C	TR	0.46	20.0	C	TR	0.50	20.9	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.7	B	LTR	0.14	15.4	B
Overall Intersection		**-**	**0.39**	**20.3**	**C**	**-**	**0.43**	**21.0**	**C**	**-**	**0.43**	**20.7**	**C**	**-**	**0.42**	**21.1**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.59	22.5	C	TR	0.66	24.5	C	TR	0.60	22.4	C	TR	0.58	21.6	C
	WB	LT	0.34	17.3	B	LT	0.37	17.8	B	LT	0.34	17.1	B	LT	0.35	17.8	B
Ludlow Street	SB	LTR	0.28	17.4	B	LTR	0.27	17.2	B	LTR	0.18	15.9	B	LTR	0.24	16.6	B
Overall Intersection		**-**	**0.44**	**19.7**	**B**	**-**	**0.46**	**20.8**	**C**	**-**	**0.39**	**19.6**	**B**	**-**	**0.41**	**19.5**	**B**
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.76	30.1	C	LTR	0.65	25.0	C	LTR	0.65	24.8	C	LTR	0.71	27.1	C
	WB	LTR	0.72	21.7	C	LTR	0.64	20.5	C	LTR	1.02	43.9	D	LTR	0.54	18.7	B
Essex Street	NB	LTR	0.38	17.9	B	LTR	0.30	16.9	B	LTR	0.38	17.8	B	LTR	0.24	16.1	B
	SB	DefL	0.40	21.5	C	LTR	0.33	17.6	B	LTR	0.35	17.8	B	LTR	0.26	16.5	B
		TR	0.29	17.5	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		**-**	**0.58**	**22.5**	**C**	**-**	**0.49**	**20.2**	**C**	**-**	**0.70**	**28.1**	**C**	**-**	**0.49**	**20.4**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	0.31	15.0	B	L	0.23	13.5	B	L	0.25	14.1	B	L	0.15	12.1	B
		T	0.54	17.1	B	T	0.43	15.2	B	T	0.45	15.3	B	T	0.42	14.7	B
	WB	TR	1.02	49.2	D	TR	0.97	39.3	D	TR	1.05	52.3	D	TR	0.93	32.2	C
Overall Intersection		**-**	**1.01**	**37.0**	**D**	**-**	**0.98**	**31.0**	**C**	**-**	**1.05**	**40.1**	**D**	**-**	**0.94**	**26.3**	**C**

~~Table 13-17 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 No Action Traffic Levels of Service~~

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.49	15.9	B	T	0.38	14.3	B	T	0.38	14.2	B	T	0.41	14.7	B
	WB	T	0.89	30.8	C	T	0.85	27.6	C	T	0.99	44.7	D	T	0.88	29.2	C
Suffolk Street	SB	LR	0.10	19.2	B	LR	0.06	18.7	B	LR	0.08	19.0	B	LR	0.07	18.7	B
Overall Intersection		-	**0.56**	**25.3**	**C**	-	**0.53**	**23.6**	**C**	-	**0.62**	**35.7**	**D**	-	**0.54**	**24.5**	**C**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	LTR	0.73	26.9	C	LTR	0.55	19.6	B	LTR	0.90	48.2	D	LTR	0.77	30.7	C
	WB	L	0.05	11.8	B	L	0.06	11.8	B	L	0.04	11.6	B	L	0.04	11.7	B
		T	0.70	21.0	C	T	0.72	21.8	C	T	0.78	23.0	C	T	0.71	20.9	C
		R	0.68	25.7	C	R	0.47	17.8	B	R	0.75	28.3	C	R	0.71	25.2	C
Clinton Street	NB	LTR	0.67	29.3	C	LTR	0.46	24.2	C	LTR	0.69	30.8	C	LTR	0.52	24.8	C
	SB	LTR	0.02	17.0	B	LTR	0.03	17.1	B	LTR	0.01	16.9	B	LTR	0.01	16.9	B
Overall Intersection		-	**0.70**	**24.5**	**C**	-	**0.60**	**20.8**	**C**	-	**0.81**	**30.4**	**C**	-	**0.66**	**24.5**	**C**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.16	7.1	A	T	0.13	6.9	A	T	0.12	6.8	A	T	0.12	6.8	A
	WB	LT	0.76	15.5	B	LT	0.82	17.2	B	LT	0.88	19.1	B	LT	0.81	16.7	B
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A
Overall Intersection		-	**0.76**	**13.9**	**B**	-	**0.82**	**15.7**	**B**	-	**0.88**	**17.5**	**B**	-	**0.81**	**15.3**	**B**
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	8.0	A	TR	-	9.0	A	TR	-	7.9	A	TR	-	8.5	A
Ludlow Street	SB	LT	-	9.2	A	LT	-	10.8	B	LT	-	9.7	A	LT	-	10.8	B
Overall Intersection		-	-	**8.9**	**A**	-	-	**10.3**	**B**	-	-	**9.4**	**A**	-	-	**10.2**	**B**
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	10.3	B	LT	-	9.7	A	LT	-	10.8	B	LT	-	11.8	B
Ludlow Street	SB	TR	-	9.4	A	TR	-	10.2	B	TR	-	11.0	B	TR	-	12.4	B
Overall Intersection		-	-	**9.9**	**A**	-	-	**10.0**	**A**	-	-	**10.9**	**B**	-	-	**12.1**	**B**
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.5	B	TR	-	14.0	B	TR	-	10.9	B	TR	-	12.2	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.4	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	-	**1.8**	**A**	-	-	**1.3**	**A**	-	-	**5.5**	**A**	-	-	**5.6**	**A**
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.3	A	LT	-	7.3	A	LT	-	15.0	B	LT	-	7.2	A
Suffolk Street	SB	TR	-	10.9	B	TR	-	10.2	B	TR	-	12.0	B	TR	-	11.9	B
Overall Intersection		-	-	**1.8**	**A**	-	-	**1.3**	**A**	-	-	**2.5**	**A**	-	-	**0.9**	**A**
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.7	A	LTR	-	9.4	A	LTR	-	10.0	B
	SB	LTR	-	8.8	A	LTR	-	9.3	A	LTR	-	9.4	A	LTR	-	8.1	A
Overall Intersection		-	-	**6.0**	**A**	-	-	**6.4**	**A**	-	-	**7.1**	**A**	-	-	**8.6**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 13-18[1]
Seward Park Development EIS
2022 No Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	30.5	C	L	0.43	32.5	C	L	0.41	33.2	C	L	0.69	39.7	D
		TR	0.69	29.4	C	TR	0.78	31.6	C	TR	0.75	30.5	C	TR	0.88	34.0	C
	WB	L	0.69	30.4	C	L	0.82	44.2	D	L	0.71	41.0	D	L	0.86	50.9	D
		TR	1.05	58.3	E	TR	0.90	35.2	D	TR	1.05	67.6	E	TR	1.01	52.8	D
Bowery	NB	L	0.86	44.0	D	L	0.53	30.1	C	L	0.83	53.0	D	L	0.74	38.2	D
		TR	0.92	41.3	D	TR	0.76	35.6	D	TR	0.69	33.3	C	TR	0.98	47.0	D
	SB	L	0.32	26.3	C	L	0.41	25.7	C	L	0.49	27.1	C	L	0.57	32.9	C
		TR	0.92	42.8	D	TR	0.82	38.2	D	TR	1.01	55.0	D	TR	1.02	54.7	D
Overall Intersection		-	**0.97**	**44.1**	**D**	-	**0.91**	**34.7**	**C**	-	**0.96**	**48.7**	**D**	-	**0.99**	**45.9**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	T	0.57	29.4	C	T	0.77	34.0	C	T	0.72	32.5	C	T	0.86	36.0	D
		R	0.82	49.4	D	R	0.75	42.7	D	R	1.15	128.8	F	R	0.97	65.0	E
	WB	L	0.72	45.7	D	L	0.68	53.7	D	L	0.94	94.1	F	L	0.81	68.8	E
		T	0.74	31.7	C	T	0.66	30.5	C	T	0.64	30.1	C	T	0.92	38.8	D
Chrystie Street / Second Avenue	NB	L	0.89	42.3	D	L	0.60	36.5	D	L	0.71	38.5	D	L	0.53	34.3	C
		LR	0.83	40.5	D	LR	0.57	37.2	D	LR	0.68	39.0	D	LR	0.58	36.9	D
	SB	L	0.78	38.8	D	L	0.84	36.6	D	L	1.06	77.3	E	L	1.29	169.0	F
		LT	0.76	35.1	D	LT	0.86	35.4	D	LT	1.12	93.6	F	LT	1.29	164.9	F
		R	1.01	64.0	E	R	1.14	100.0	F	R	1.07	77.8	E	R	0.98	46.9	D
Overall Intersection		-	**0.90**	**39.0**	**D**	-	**0.82**	**42.6**	**D**	-	**1.01**	**62.2**	**E**	-	**0.95**	**77.2**	**E**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	0.90	42.4	D	L	0.69	28.7	C	L	0.71	33.6	C	L	0.82	40.7	D
		T	0.86	33.1	C	T	0.96	36.3	D	T	0.91	39.1	D	T	0.90	33.3	C
		R	0.90	47.0	D	R	1.41	220.9	F	R	0.98	73.7	E	R	1.27	160.2	F
	WB	L	0.36	24.8	C	L	0.22	23.8	C	L	0.30	24.9	C	L	0.44	32.0	C
		TR	1.13	101.3	F	TR	0.95	50.8	D	TR	0.90	42.4	D	TR	1.14	103.6	F
Allen Street	NB	L	0.70	37.6	D	L	0.51	32.8	C	L	0.44	31.1	C	L	0.38	27.7	C
		T	1.10	90.7	F	T	0.87	43.3	D	T	1.13	103.5	F	T	0.82	36.0	D
		R	0.41	32.5	C	R	0.33	31.4	C	R	0.22	29.0	C	R	0.24	26.8	C
Overall Intersection		-	**1.13**	**66.0**	**E**	-	**1.07**	**58.3**	**E**	-	**0.98**	**56.2**	**E**	-	**1.08**	**66.3**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.57	21.6	C	L	0.43	14.5	B	L	0.32	14.9	B	L	0.34	15.8	B
		TR	0.69	27.3	C	TR	0.80	28.0	C	TR	0.78	29.3	C	TR	0.81	28.1	C
	WB	L	0.64	22.7	C	L	0.74	31.3	C	L	1.00	85.1	F	L	0.88	40.8	D
		T	0.77	30.0	C	T	0.62	26.4	C	T	0.66	26.9	C	T	0.84	32.5	C
		R	0.11	19.9	B	R	0.10	19.8	B	R	0.26	22.0	C	R	0.14	20.2	C
	NB	LTR	0.77	35.0	C	LTR	0.77	35.3	D	LTR	0.74	33.8	C	LTR	0.70	32.6	C
	SB	LTR	0.97	50.5	D	LTR	1.08	74.6	E	LTR	0.98	51.9	D	LTR	1.09	77.8	E
Overall Intersection		-	**0.87**	**31.8**	**C**	-	**0.94**	**34.6**	**C**	-	**0.99**	**36.6**	**D**	-	**0.91**	**37.3**	**D**

[1] This table has been revised for the FGEIS.

Table 13-18 (cont'd)
Seward Park Development EIS
2022 No Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.48	27.8	C	LTR	0.29	23.5	C	LTR	0.24	22.4	C
Essex Street	NB	TR	0.33	12.0	B	TR	0.25	11.2	B	TR	0.32	11.9	B	TR	0.30	11.7	B
	SB	LT	0.39	12.4	B	LT	0.36	12.0	B	LT	0.39	12.3	B	LT	0.53	14.0	B
Overall Intersection		-	**0.33**	**13.1**	**B**	-	**0.41**	**14.5**	**B**	-	**0.35**	**13.3**	**B**	-	**0.42**	**13.9**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.23	16.4	B	LT	0.19	15.9	B	LT	0.16	15.5	B	LT	0.22	16.1	B
Norfolk Street	NB	TR	0.45	19.7	B	TR	0.52	20.8	C	TR	0.42	18.9	B	TR	0.39	18.7	B
Overall Intersection		-	**0.34**	**18.6**	**B**	-	**0.36**	**19.4**	**B**	-	**0.29**	**17.9**	**B**	-	**0.31**	**17.7**	**B**
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	1.07	92.4	F	LTR	0.71	35.3	D	LTR	0.85	45.4	D	LTR	0.80	40.8	D
Essex Street	NB	LT	0.35	11.9	B	LT	0.29	11.4	B	LT	0.33	11.5	B	LT	0.33	11.7	B
	SB	TR	0.35	12.2	B	TR	0.44	13.5	B	TR	0.45	13.6	B	TR	0.92	42.2	D
Overall Intersection		-	**0.63**	**39.4**	**D**	-	**0.54**	**17.9**	**B**	-	**0.61**	**21.1**	**C**	-	**0.86**	**32.5**	**C**
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.69	26.4	C	TR	0.26	17.1	B	TR	0.52	21.4	C	TR	0.57	22.4	C
Norfolk Street	NB	LT	0.45	18.1	B	LT	0.61	20.7	C	LT	0.55	19.2	B	LT	0.41	17.6	B
Overall Intersection		-	**0.57**	**22.5**	**C**	-	**0.44**	**19.7**	**B**	-	**0.54**	**20.3**	**C**	-	**0.49**	**20.3**	**C**
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	0.98	40.4	D	TR	0.77	26.4	C	TR	1.11	87.6	F	TR	0.82	27.3	C
	WB	L	0.82	48.0	D	L	0.71	39.7	D	L	0.69	41.4	D	L	0.73	38.8	D
		TR	1.08	64.6	E	TR	0.85	17.0	B	TR	1.08	64.3	E	TR	0.88	17.7	B
Allen Street	NB	T	0.67	33.4	C	T	0.65	33.1	C	T	0.63	32.3	C	T	0.71	34.9	C
		R	0.23	9.0	A	R	0.36	15.8	B	R	0.46	17.4	B	R	0.37	16.0	B
	SB	TR	0.55	31.1	C	TR	0.68	32.5	C	TR	0.54	30.6	C	TR	0.75	34.1	C
Overall Intersection		-	**0.96**	**49.6**	**D**	-	**0.80**	**24.0**	**C**	-	**0.95**	**65.2**	**E**	-	**0.84**	**25.1**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.45	12.0	B	T	0.62	14.2	B	T	0.72	15.3	B	T	0.63	14.2	B
	WB	TR	0.86	19.4	B	TR	0.72	15.9	B	TR	0.83	18.0	B	TR	0.77	16.9	B
Orchard Street	NB	LTR	0.22	22.7	C	LTR	0.30	24.0	C	LTR	0.28	23.6	C	LTR	0.25	23.1	C
Overall Intersection		-	**0.62**	**17.0**	**B**	-	**0.56**	**15.4**	**B**	-	**0.62**	**16.9**	**B**	-	**0.58**	**15.9**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.47	12.5	B	TR	0.63	14.6	B	TR	0.76	16.7	B	TR	0.63	14.5	B
	WB	T	1.14	85.3	F	T	1.02	36.8	D	T	1.10	68.3	E	T	0.95	20.6	C
Ludlow Street	SB	LTR	0.78	42.0	D	LTR	1.01	79.7	E	LTR	1.09	105.3	F	LTR	1.15	124.3	F
Overall Intersection		-	**1.01**	**57.5**	**E**	-	**1.02**	**31.4**	**C**	-	**1.10**	**47.4**	**D**	-	**1.03**	**27.7**	**C**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.51	12.9	B	TR	0.67	15.2	B	TR	0.97	30.7	C	TR	0.87	23.6	C
	WB	T	1.17	99.9	F	T	1.03	37.7	D	T	1.09	68.9	E	T	1.03	41.0	D
		R	0.76	34.3	C	R	0.70	18.2	B	R	0.89	51.5	D	R	0.87	28.3	C
Essex Street	NB	LT	0.69	44.5	D	LT	0.54	36.1	D	T	0.40	30.7	C	LT	0.51	33.6	C
		R	0.80	57.7	E	R	0.91	74.3	E	R	1.38	228.7	F	R	0.95	83.0	F
	SB	TR	0.82	42.2	D	TR	0.76	38.8	D	TR	0.71	35.5	D	TR	0.83	41.5	D
Overall Intersection		-	**1.06**	**62.0**	**E**	-	**0.99**	**30.5**	**C**	-	**1.18**	**56.9**	**E**	-	**0.99**	**34.8**	**C**

Table 13-18 (cont'd)
Seward Park Development EIS
2022 No Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.57	13.7	B	T	0.69	15.4	B	T	1.06	56.8	E	T	0.73	15.7	B
	WB	TR	1.03	37.8	D	TR	1.00	32.8	C	TR	1.01	34.0	C	TR	0.95	24.1	C
Norfolk Street	NB	TR	0.74	35.7	D	TR	0.64	31.5	C	TR	0.72	33.1	C	TR	0.75	36.1	D
		R	0.71	34.6	C	R	0.67	33.0	C	R	0.71	33.3	C	R	0.72	35.4	D
Overall Intersection		-	**0.92**	**29.3**	**C**	-	**0.88**	**26.2**	**C**	-	**0.93**	**43.8**	**D**	-	**0.87**	**22.3**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	TR	0.74	16.3	B	TR	0.83	18.2	B	TR	1.07	53.6	D	TR	0.95	23.6	C
	WB	T	0.94	20.0	C	T	0.84	17.8	B	T	0.91	19.5	B	T	0.80	17.1	B
Suffolk Street	SB	R	0.21	23.0	C	R	0.12	21.4	C	R	0.26	23.6	C	R	0.29	24.0	C
Overall Intersection		-	**0.67**	**18.4**	**B**	-	**0.57**	**18.1**	**B**	-	**0.76**	**37.6**	**D**	-	**0.70**	**20.7**	**C**
15. DELANCEY STREET AND CLINTON STREETL																	
Delancey Street	EB	T	0.72	15.7	B	T	0.86	19.1	B	T	1.14	87.3	F	T	1.03	36.4	D
Williamsburg Bridge	WB	T	1.24	132.0	F	T	1.04	50.2	D	T	1.27	143.8	F	T	0.98	32.8	C
		R	0.86	28.8	C	R	0.71	20.3	C	R	0.92	35.5	D	R	0.78	23.1	C
Delancey Street Service Road	WB	R	2.05	571.1	F	R	0.68	93.4	F	R	1.83	499.7	F	R	0.66	72.2	E
Clinton Street	NB	R	1.01	75.8	E	R	0.73	36.4	D	R	1.00	72.5	E	R	1.09	97.2	F
Overall Intersection		-	**1.15**	**78.9**	**E**	-	**0.92**	**33.6**	**C**	-	**1.17**	**105.6**	**F**	-	**1.05**	**38.4**	**D**
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.17	21.3	C	LTR	0.13	20.9	C	LTR	0.13	20.9	C	LTR	0.18	21.4	C
Essex Street	NB	TR	0.30	11.6	B	TR	0.28	11.4	B	TR	0.37	12.2	B	TR	0.25	11.2	B
	SB	L	0.92	44.6	D	L	0.83	31.5	C	L	1.05	59.0	E	L	1.05	73.2	E
		T	0.33	12.3	B	T	0.30	11.9	B	T	0.36	11.8	B	T	0.26	11.6	B
Overall Intersection		-	**0.63**	**21.7**	**C**	-	**0.56**	**18.0**	**B**	-	**0.70**	**24.9**	**C**	-	**0.71**	**35.7**	**D**
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.43	14.0	B	L	0.37	12.9	B	L	0.88	52.0	D	L	0.53	15.7	B
	WB	R	0.11	10.2	B	R	0.10	10.2	B	R	0.28	29.2	C	R	0.14	10.5	B
Norfolk Street	NB	T	0.53	25.1	C	T	0.49	24.6	C	T	0.54	24.9	C	T	0.49	24.1	C
Overall Intersection		-	**0.47**	**18.2**	**B**	-	**0.41**	**17.4**	**B**	-	**0.68**	**37.5**	**D**	-	**0.52**	**18.1**	**B**
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	0.88	33.5	C	LTR	1.03	55.9	F	LTR	0.90	42.8	D	LTR	0.96	54.1	D
	WB	LTR	0.69	34.5	C	LTR	0.80	44.7	D	LTR	0.61	32.1	C	LTR	0.68	37.0	D
Allen Street	NB	L	0.63	55.7	E	L	0.39	44.2	D	L	0.26	39.8	D	L	0.55	49.7	D
		TR	0.59	24.9	C	TR	0.49	22.5	C	TR	0.66	26.1	C	TR	0.47	20.1	C
	SB	L	0.86	73.7	E	L	0.89	64.8	E	L	0.79	57.1	E	L	1.06	112.3	F
		TR	0.65	26.0	C	TR	0.77	26.3	C	TR	0.68	24.9	C	TR	0.60	21.9	C
Overall Intersection		-	**0.75**	**32.8**	**C**	-	**0.82**	**36.4**	**D**	-	**0.77**	**31.6**	**C**	-	**0.73**	**38.2**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.63	21.1	C	LT	0.71	21.7	C	LT	0.68	22.4	C	LT	0.70	22.2	C
	WB	TR	0.50	21.0	C	TR	0.55	21.9	C	TR	0.46	20.1	C	TR	0.50	21.0	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.7	B	LTR	0.14	15.4	B
Overall Intersection		-	**0.39**	**20.4**	**C**	-	**0.43**	**21.1**	**C**	-	**0.43**	**20.7**	**C**	-	**0.42**	**21.1**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.59	22.6	C	TR	0.68	25.4	C	TR	0.60	22.5	C	TR	0.58	21.7	C
	WB	LT	0.34	17.3	B	LT	0.37	17.8	B	LT	0.34	17.1	B	LT	0.35	17.8	B
Ludlow Street	SB	LTR	0.28	17.4	B	LTR	0.27	17.2	B	LTR	0.18	15.9	B	LTR	0.24	16.6	B
Overall Intersection		-	**0.44**	**19.8**	**B**	-	**0.48**	**21.3**	**C**	-	**0.39**	**19.7**	**B**	-	**0.41**	**19.5**	**B**

Table 13-18 (cont'd)
Seward Park Development EIS
2022 No Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.80	33.4	C	LTR	0.68	26.1	C	LTR	0.68	26.2	C	LTR	0.78	31.4	C
	WB	LTR	0.72	21.8	C	LTR	0.64	20.6	C	LTR	0.78	22.6	C	LTR	0.54	18.7	B
Essex Street	NB	LTR	0.38	17.9	B	LTR	0.30	16.9	B	LTR	0.38	17.8	B	LTR	0.24	16.1	B
	SB	DefL	0.45	22.9	C	LTR	0.34	17.8	B	LTR	0.35	17.8	B	LTR	0.26	16.5	B
		TR	0.31	17.7	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**0.62**	**23.6**	**C**	-	**0.51**	**20.6**	**C**	-	**0.58**	**21.3**	**C**	-	**0.52**	**21.9**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	0.21	12.6	B	L	0.15	11.8	B	L	0.17	12.0	B	L	0.10	11.2	B
		T	0.49	16.2	B	T	0.39	14.6	B	T	0.37	14.0	B	T	0.35	13.7	B
	WB	T	0.43	14.1	B	T	0.38	13.5	B	T	0.41	13.5	B	T	0.34	13.0	B
		R	0.28	12.5	B	R	0.30	12.7	B	R	0.31	12.6	B	R	0.31	12.8	B
Overall Intersection		-	**0.50**	**14.3**	**B**	-	**0.40**	**13.5**	**B**	-	**0.42**	**13.3**	**B**	-	**0.34**	**13.0**	**B**
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.45	15.2	B	T	0.34	13.9	B	T	0.31	13.3	B	T	0.34	13.7	B
	WB	T	0.71	20.5	C	T	0.69	19.8	B	T	0.77	21.8	C	T	0.69	19.7	B
Suffolk Street	SB	LR	0.11	19.3	B	LR	0.07	18.9	B	LR	0.09	19.0	B	LR	0.08	18.9	B
Overall Intersection		-	**0.46**	**18.5**	**B**	-	**0.43**	**17.9**	**B**	-	**0.49**	**19.4**	**B**	-	**0.44**	**17.8**	**B**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	TR	0.50	17.8	B	TR	0.46	17.1	B	TR	0.41	16.1	B	TR	0.45	16.8	B
	WB	L	0.06	11.9	B	L	0.07	12.0	B	L	0.04	11.6	B	L	0.05	11.7	B
		T	0.58	18.1	B	T	0.60	18.8	B	T	0.63	18.7	B	T	0.57	17.9	B
		R	1.00	65.8	E	R	0.74	27.1	C	R	1.19	127.8	F	R	1.01	63.7	E
Clinton Street	NB	LTR	0.75	36.8	D	LTR	0.51	29.7	C	LTR	0.72	35.2	D	LTR	0.65	33.1	C
Overall Intersection		-	**0.90**	**33.2**	**C**	-	**0.65**	**22.0**	**C**	-	**1.01**	**49.0**	**D**	-	**0.88**	**33.1**	**C**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.16	7.1	A	T	0.13	6.9	A	T	0.12	6.8	A	T	0.12	6.8	A
	WB	LT	0.76	15.5	B	LT	0.85	18.6	B	LT	0.88	19.1	B	LT	0.81	16.7	B
East Broadway	NB	R	-	10.2	B	R	-	12.1	B	R	-	16.5	C	R	-	11.5	B
Overall Intersection		-	**0.76**	**13.6**	**B**	-	**0.85**	**16.5**	**B**	-	**0.88**	**17.5**	**B**	-	**0.81**	**15.1**	**B**
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	8.0	A	TR	-	9.0	A	TR	-	7.9	A	TR	-	8.5	A
Ludlow Street	SB	LT	-	9.2	A	LT	-	10.8	B	LT	-	9.7	A	LT	-	10.8	B
Overall Intersection		-	**-**	**8.9**	**A**	-	**-**	**10.3**	**B**	-	**-**	**9.4**	**A**	-	**-**	**10.2**	**B**
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	12.3	B	LT	-	10.9	B	LT	-	11.5	B	LT	-	14.4	B
Ludlow Street	SB	TR	-	10.0	A	TR	-	10.7	B	TR	-	11.2	B	TR	-	13.4	B
Overall Intersection		-	**-**	**11.5**	**B**	-	**-**	**10.8**	**B**	-	**-**	**11.3**	**B**	-	**-**	**13.9**	**B**
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.5	B	TR	-	14.0	B	TR	-	10.9	B	TR	-	12.2	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.4	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	**-**	**5.9**	**A**	-	**-**	**4.4**	**A**	-	**-**	**5.4**	**A**	-	**-**	**5.5**	**A**
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.6	A	LT	-	7.8	A	LT	-	15.5	C	LT	-	7.7	A
Suffolk Street	SB	TR	-	10.6	B	TR	-	10.6	B	TR	-	11.9	B	TR	-	11.1	B
Overall Intersection		-	**-**	**6.1**	**A**	-	**-**	**5.3**	**A**	-	**-**	**7.6**	**A**	-	**-**	**4.3**	**A**
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	7.9	A	LTR	-	8.1	A	LTR	-	8.4	A	LTR	-	8.5	A
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.2**	**A**	-	**-**	**1.4**	**A**	-	**-**	**1.3**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

- In the weekday PM peak hour, ~~one~~ five intersections would operate at overall LOS E or F, and ~~11~~ seven intersections would operate at marginally acceptable/unacceptable LOS D, as shown in **Figure 13-11a**. Thirty ~~Thirty one~~ individual traffic movements would operate at unacceptable levels of service as compared to 17 in the existing conditions. Movements operating at unacceptable levels of service are shown in **Figure 13-11b.**
- In the Saturday peak hour, two intersections would operate at overall LOS E, and five intersections would operate at marginally acceptable/unacceptable LOS D, as shown in **Figure 13-12a**. Twenty~~-four~~ one individual movements would operate at unacceptable levels of service as compared to 15 in the existing conditions. Movements operating at unacceptable levels of service are shown in **Figure 13-12b.**
- All five of the unsignalized intersections would continue to operate at overall LOS B or better during all peak hours.

Traffic movements expected to operate at unacceptable levels of service in the No Action condition are listed below.

East Houston Street and Bowery

- Westbound East Houston Street left turn (Saturday)
- Westbound East Houston Street through-right turn movement (weekday AM, PM, and Saturday)
- Northbound Bowery left turn (weekday PM)
- Northbound Bowery through-right turn movement (Saturday)
- Southbound Bowery through-right turn movement (weekday PM and Saturday)

East Houston Street and Chrystie Street/Second Avenue

- Eastbound East Houston Street right turn (weekday AM, PM, and Saturday)
- Westbound East Houston Street left turn (weekday AM, midday, PM, and Saturday)
- Southbound Second Avenue left turn (weekday PM and Saturday)
- Southbound Second Avenue left-through movement (weekday PM and Saturday)
- Southbound Second Avenue right turn (weekday AM, midday, PM, and Saturday)

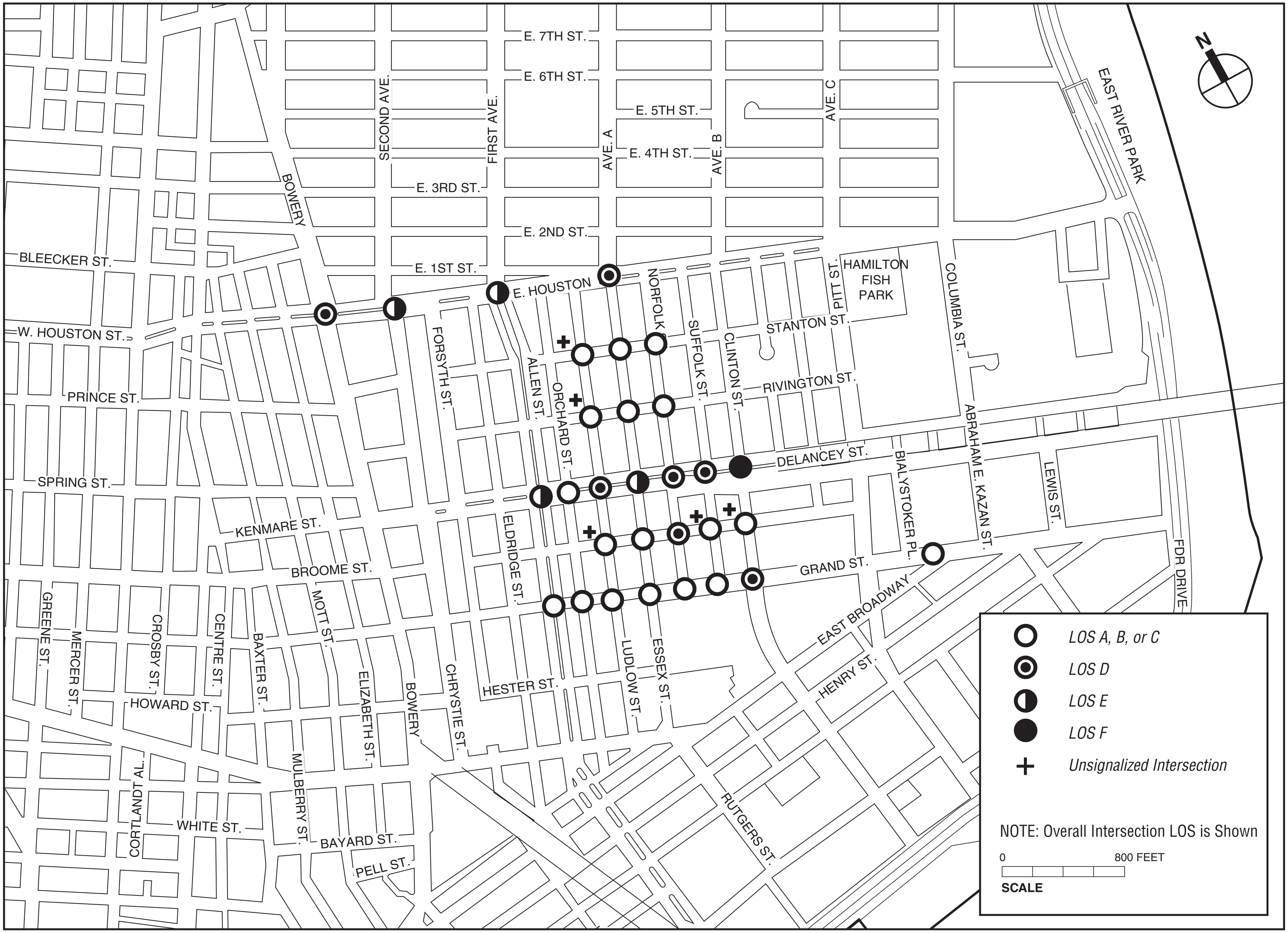
East Houston Street and Allen Street/First Avenue

- ~~Eastbound East Houston Street left turn (weekday AM)~~
- Eastbound East Houston Street right turn (weekday midday, PM, and Saturday)
- Westbound East Houston Street through-right turn movement (weekday AM, midday, and Saturday)
- Northbound Allen Street through movement (weekday AM and PM)

East Houston Street and Essex Street/Avenue A

- Westbound East Houston Street left turn (weekday PM)
- Southbound Avenue A approach (weekday AM, midday, PM, and Saturday)

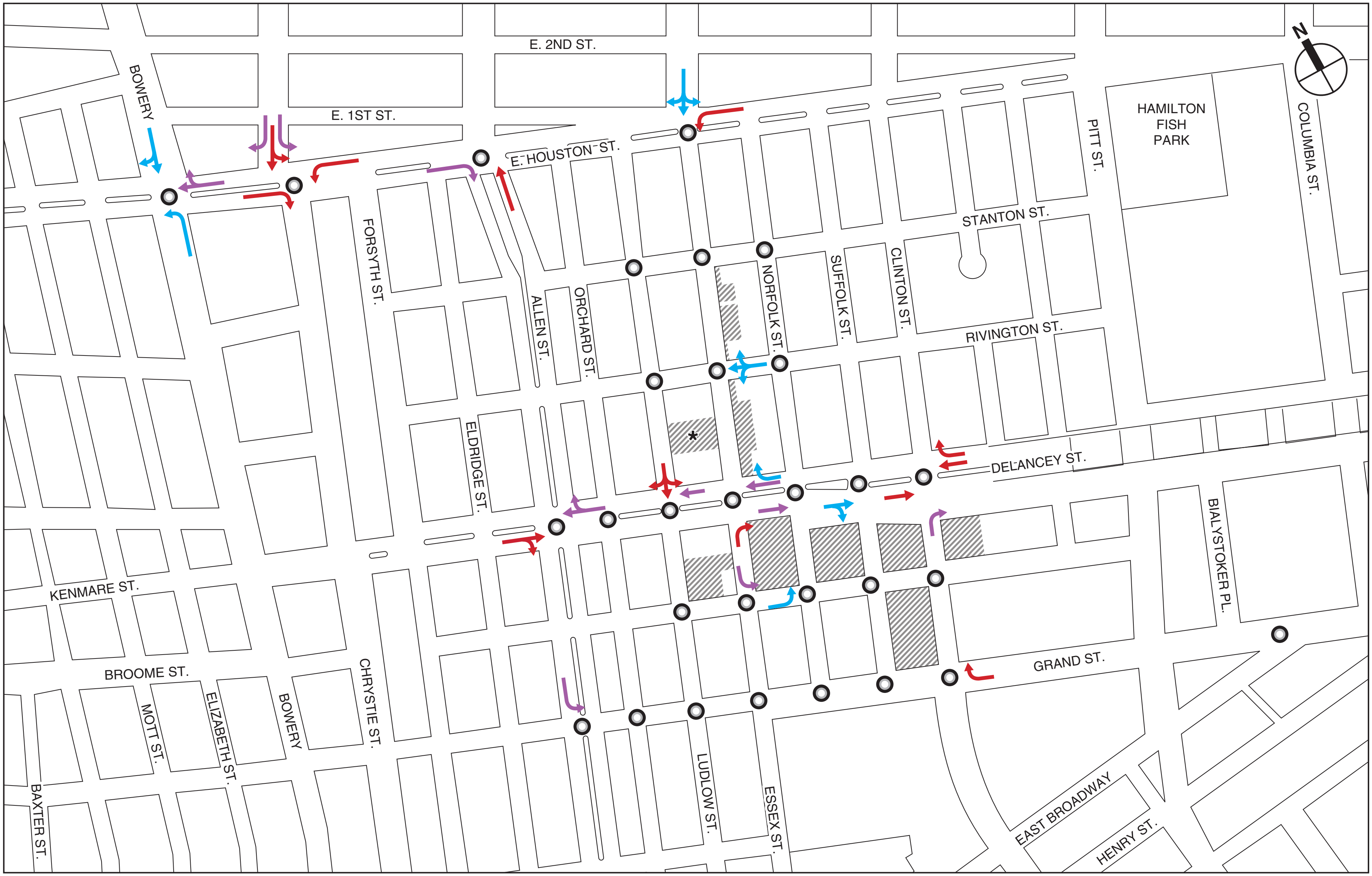
8.7.12



NOTE: This figure has been revised for the FGEIS.

No Action Traffic Levels of Service - Overall Intersections
Weekday PM Peak Hour
Figure 13-11a

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

0 800 FEET

SCALE

No Action Traffic Levels of Service - Unacceptable Traffic Movements
Weekday PM Peak Hour

Figure 13-11b

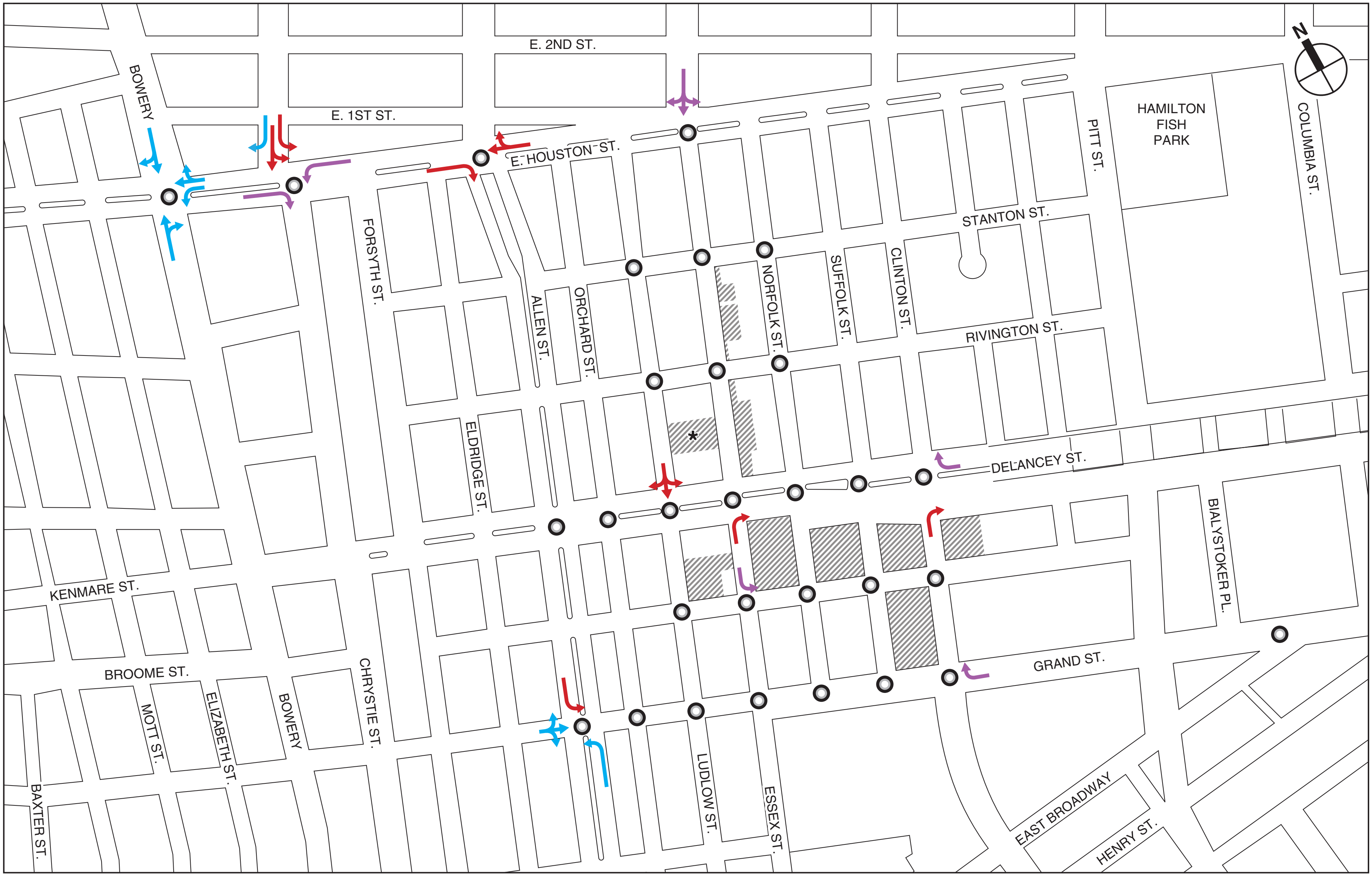
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

8.7.12

NOTE: This figure has been revised for the FGEIS.

No Action Traffic Levels of Service - Overall Intersections
Saturday Peak Hour
Figure 13-12a

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

0 800 FEET

SCALE

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

No Action Traffic Levels of Service - Unacceptable Traffic Movements

Saturday Peak Hour

Figure 13-12b

Rivington Street and Essex Street

- Westbound Rivington Street approach (weekday AM)

Delancey Street and Allen Street

- Eastbound Delancey Street approach (weekday PM)
- Westbound Delancey Street left turn (weekday AM)
- Westbound Delancey Street through-right turn movement (weekday AM and PM)
- ~~Northbound Allen Street right turn (weekday midday, PM, and Saturday)~~

Delancey Street and Ludlow Street

- Westbound Delancey Street approach (weekday AM and PM)
- Southbound Ludlow Street approach (weekday midday, PM, and Saturday)

Delancey Street and Essex Street

- Westbound Delancey Street ~~approach~~ through movement (weekday AM and PM)
- Westbound Delancey Street right turn movement (weekday PM)
- Northbound Essex Street ~~approach~~ right turn movement (weekday AM, midday, ~~and~~ PM, and Saturday)
- ~~Southbound Essex Street de facto left turn (weekday AM, midday, and Saturday)~~
- ~~Southbound Essex Street approach (weekday PM)~~

Delancey Street and Norfolk Street

- Eastbound Delancey Street approach (weekday PM)
- ~~Northbound Norfolk Street through-right turn movement (weekday AM, PM, and Saturday)~~
- ~~Northbound Norfolk Street right turn (weekday AM, PM, and Saturday)~~

Delancey Street and Suffolk Street

- Eastbound Delancey Street approach (weekday PM)

Delancey Street and Clinton Street

- Eastbound Delancey Street approach (weekday PM)
- Westbound ~~Delancey Street~~ Williamsburg Bridge through movement (weekday AM, midday, and PM)
- ~~Westbound Delancey Street right turn (weekday AM, PM, and Saturday)~~
- Westbound Delancey Street service road approach (weekday AM, midday, PM, and Saturday)
- Northbound Clinton Street approach (weekday AM, PM, and Saturday)

Broome Street and Essex Street

- Southbound left turn movement (weekday PM and Saturday)

Broome Street and Norfolk Street

- Eastbound left turn movement (weekday PM)

- ~~Westbound Broome Street right turn (weekday PM)~~

Grand Street and Allen Street

- Eastbound Grand Street approach (weekday ~~AM,~~ midday~~, PM,~~ and Saturday)
- ~~Westbound Grand Street approach (weekday AM and midday)~~
- Northbound Allen Street left turn (weekday ~~AM~~ and Saturday)
- Southbound Allen Street left turn (weekday AM, midday, PM, and Saturday)

~~*Grand Street and Norfolk Street*~~

- ~~Westbound Grand Street approach (weekday AM and PM)~~

Grand Street and Clinton Street

- ~~Eastbound~~ Westbound Grand Street ~~approach~~ right-turn movement (weekday AM, PM, and Saturday)

The "overall" levels of service would be expected to deteriorate ~~slightly~~ for the No Action condition as compared to the existing conditions ~~since~~ due to traffic increases from background growth and other developments in the area and changes in the roadway network as a result of the implementation of the safety improvements plan along the Delancey Street corridor. ~~would be relatively modest. There would be just two intersections expected to operate at "overall" LOS E—the intersections of Houston Street with Chrystie Street/Second Avenue and Houston Street with Allen Street/First Avenue during the weekday PM and/or the Saturday peak hours. However, t~~The number of individual traffic movements that would operate at unacceptable levels of service would be higher under the 2022 No Action condition as noted above. Select traffic movements along the Delancey Street corridor and other intersections operating at unacceptable levels of service in the existing conditions would deteriorate further. In addition to these, certain movements at intersections along Houston Street and Grand Street would also deteriorate to unacceptable levels of service.

2022 WITH ACTION CONDITION

Overall, the proposed actions would generate a total of 371 vehicles per hour (vph) (209 in and 162 out) during the weekday AM peak hour, 527 vph (267 in and 260 out) during the weekday midday peak hour, 540 vph (244 in and 296 out) during the weekday PM peak hour, and 496 vph (250 in and 246 out) during the Saturday peak hour. The distribution of these vehicle trips and the resulting 2022 traffic volume increases and impacts on levels of service are presented below.

TRIP DISTRIBUTION AND ASSIGNMENT

Autos

Residential

Residential auto assignments were based on U.S. Census 2000 journey-to-work data. Most residential trips would occur within Manhattan (80 percent) with the remaining trips being made to Brooklyn (seven percent), New Jersey (six percent), Queens/Long Island (five percent), and Bronx/Westchester County/Upstate New York (two percent).

Of the 80 percent of trips within Manhattan, approximately 15 percent were assigned to points west and south (Chinatown, Tribeca, Lower Manhattan etc.) via local streets such as Grand, Centre, Worth and Canal Streets; 10 percent were assigned to areas south via the FDR Drive, East Broadway and Madison Street; 25 percent were assigned to points north along the east side of Manhattan via the FDR Drive; 30 percent were assigned to locations in Midtown and the west side of Manhattan via Houston Street and Avenue A; 20 percent were also assigned to points north and west via Avenue A, Allen Street/First Avenue, Chrystie Street/Second Avenue and the Bowery.

Of the seven percent of trips traveling to Brooklyn, approximately 75 percent were assigned to the Williamsburg Bridge and the remaining 25 percent were assigned to the Manhattan Bridge via Chrystie Street, East Broadway and Grand Street.

Of the six percent of trips traveling to New Jersey, approximately 80 percent were assigned to the Holland Tunnel via local streets such as Broome Street and the remaining 20 percent would travel north via the FDR Drive.

The majority of trips (80 percent) traveling to Queens and Long Island would use the Williamsburg Bridge while the remaining trips would use the Queensboro Bridge and Queens-Midtown Tunnel via local roadways such as Avenue A, Allen Street/First Avenue, Chrystie Street/Second Avenue and the Bowery.

All trips traveling to Westchester County, the Bronx or upstate New York would do so via the FDR Drive.

Reverse trips are expected to return along the same general routes on which they departed. Residential auto trips were assigned to the accessory parking garages included as part of the proposed development plan.

OFFICE

Office auto assignments were based on U.S. Census 2000 reverse journey-to-work data. Most office trips would occur within Manhattan (47 percent) with the remaining trips being made from Brooklyn (35 percent) and Queens/Long Island (18 percent).

Of the 47 percent of trips within Manhattan, approximately 30 percent were assigned from points north via the FDR Drive; 40 percent were assigned from points west and north via Houston Street and Avenue A; 30 percent were assigned these areas via Avenue A, Chrystie Street, and the Bowery.

Of the 35 percent of trips traveling from Brooklyn, approximately 60 percent would arrive via the Williamsburg Bridge and the remaining 40 percent would reach the site via the Manhattan Bridge.

The majority of trips (80 percent) traveling to Queens and Long Island were assigned to the site via the Williamsburg Bridge while the remaining trips were assigned from the Queensboro Bridge and Queens Midtown Tunnel via local roadways such as Avenue A, Allen Street/First Avenue, Chrystie Street/Second Avenue, and the Bowery to travel north.

Reverse trips are expected to depart along the same general routes on which they arrived. Office auto trips were assigned to the accessory parking garages included as part of the proposed development plan.

HOTEL

Hotel auto trip assignments were split evenly between area airports/trains (50 percent) and tourist, business, and shopping destinations (50 percent).

Most airport/train trips were assigned to area airports, and a small percentage was assigned to Penn Station. Of these trips, 60 percent of were assigned to JFK and LaGuardia Airports, and were split between the Williamsburg Bridge (45 percent) and the Triborough Bridge or Queens-Midtown Tunnel via the FDR Drive (15 percent); 30 percent were assigned to Newark Airport via the Holland Tunnel; and 10 percent were assigned to Penn Station via Houston Street.

Of tourist, business, and shopping destination trips, 90 percent were assigned to points in Manhattan which include 40 percent assigned to points north and west via Houston Street; 30 percent assigned to points north via Avenue A, Allen Street/First Avenue, Chrystie Street/Second Avenue and the Bowery; 10 percent assigned to points south via local streets such as Grand, Centre, Worth and Canal Streets; five percent assigned to points south via the FDR Drive and Pearl Street; and five percent assigned to points north via the FDR Drive. The remaining 10 percent of these trips were assigned to Brooklyn via the Williamsburg Bridge.

DESTINATION RETAIL

The destination retail component would be expected to draw customers from within a three-mile radius of the project site; therefore the majority of the auto trips are expected to come from within Manhattan (65 percent) with some trips expected to come from Brooklyn (30 percent) and Queens (five percent).

Of the 65 percent of trips within Manhattan, approximately 35 percent were assigned from points west and south via local streets such as Grand, Centre, Worth, Madison and Canal Streets; 25 percent were assigned from points north via the FDR Drive; 20 percent were assigned from locations west and northwest via Houston Street; 20 percent were assigned to points north and northwest via Avenue A, Chrystie Street and the Bowery.

Of the 30 percent of the trips from Brooklyn, approximately 60 percent would arrive via the Williamsburg Bridge and the remaining 40 percent would arrive at the site via the Manhattan Bridge.

The volume of auto trips from Queens would be low since most of the borough lies beyond a three-mile radius of the project site, and there are many destination retail options within Queens. All destination retail auto trips from Queens were assigned to the Williamsburg Bridge to access the site.

LOCAL RETAIL/PUBLIC MARKET

The local retail and public market uses are expected to serve the immediate surrounding area. Therefore, auto trips were generally assigned from local origins within the neighborhood and adjacent residential areas. Auto trips were assigned to the site along the roadways such as Essex Street, Norfolk Street, Ludlow Street, Allen Street, East Broadway, Grand Street, Broome Street, and local roadways within the area. Departing trips were assigned along the same routes as arrivals.

COMMUNITY OFFICE/COMMUNITY FACILITY/MEDICAL OFFICE

Auto trips generated by the community office use were assigned similar to general office trips, while community facility trips were assigned from local origins within the neighborhood and surrounding residential area, similar to other local uses (local retail, public market etc.). Medical office staff trips were assigned similar to the other office uses. For medical office visitor trips, 50 percent were assigned locally to reflect neighborhood medical facilities (i.e., neighborhood physician's office, local medical clinic), and 50 percent were assigned more regionally—similar to destination retail—to account for specialist offices or other facilities that would draw trips from beyond the local area.

TAXIS

The majority of taxi pick-ups and drop-offs for all development components were assigned to pick up and drop off along the building frontages on Essex Street, Delancey Street, Norfolk Street, Suffolk Street, Clinton Street, and Grand Street.

DELIVERIES

Truck delivery trips for all land uses were assigned to NYCDOT designated truck routes. Trucks were assigned to the study area from regional origins via the Williamsburg Bridge and Delancey Street. Trucks were assigned along regional and local truck routes as long as possible until reaching the project site.

TRAFFIC VOLUME INCREMENTS

All project-generated auto trips were assigned to the garages being proposed on Sites 2, 3, 4, and 5. Delivery trips for Sites 1 through 6 would occur at each site's respective loading docks. Deliveries to Sites 8, 9, and 10 would be made curbside. The 2022 proposed actions vehicle trip increments for the weekday AM, midday, and PM, and Saturday peak hours are provided at the end of the chapter.

The proposed actions would add approximately 50 to 70 vehicles per hour (vph) in the eastbound direction along Delancey Street approaching the project area (from the west) during the four peak analysis hours. Within the study area, projected eastbound ~~westbound~~ traffic volume increases between Essex Street and Clinton Streets range from about ~~70~~ 30 to 215 vph during the peak hours. Volume increases along westbound ~~eastbound~~ Delancey Street would be about 5 ~~10~~ to 35 vph during all peak hours.

Volumes along the Williamsburg Bridge would increase by approximately 20 to 50 vph per direction during the peak hours as a result of the proposed actions.

Along Houston Street, eastbound traffic volumes would increase by approximately 20 to 35 vph during all peak hours, and by about 20 to 50 vph in the westbound direction.

Approaching Norfolk Street, traffic volumes along eastbound Broome Street would increase by ~~about 40 to 70~~ approximately 80 vph (as indicated previously, Broome Street travels one-way eastbound between Essex and Norfolk Streets) and would increase by approximately ~~15 to 30~~ 25 vph in the westbound direction (between Suffolk and Norfolk Streets). Volume increases along other sections of Broome Street would be ~~about 5 to 15~~ approximately 10 vph per direction during all four peak hours.

Project-generated traffic increases along Grand Street (between Allen and Essex Streets) range from 25 to 45 vph in the eastbound direction, and from 40 to 70 vph in the westbound direction during the peak analysis hours. In the section of Grand Street between Essex and Clinton Streets, eastbound volumes would increase from about 30 ~~5~~ to 50 ~~45~~ vph (with no expected increase between Norfolk Street and Suffolk Street), and westbound volumes would increase from about 40 ~~50~~ to 150 vph during the peak hours. East of Clinton Street, project-generated increments during the four peak hours would be ~~about 10 to 25~~ approximately 20 vph in the eastbound direction, and about 40 to 60 vph in the westbound direction.

Peak hour project traffic volume increments along Essex Street would ~~generally be in the range of 25 to 40 vph~~ be expected to increase by 40 vph or less per direction except for the section between Rivington and Broome ~~Delancey~~ Streets where southbound volume increases ~~(approaching Delancey Street)~~ would be between 65 and 75 vph.

Volumes along Allen Street would increase from 5 to 25 vph in the northbound direction and by 5 vph or less in the southbound direction.

The total 2022 With Action traffic volumes for the weekday AM, midday, and PM, and Saturday peak hours are provided at the end of the chapter.

TRAFFIC LEVELS OF SERVICE AND SIGNIFICANT IMPACTS

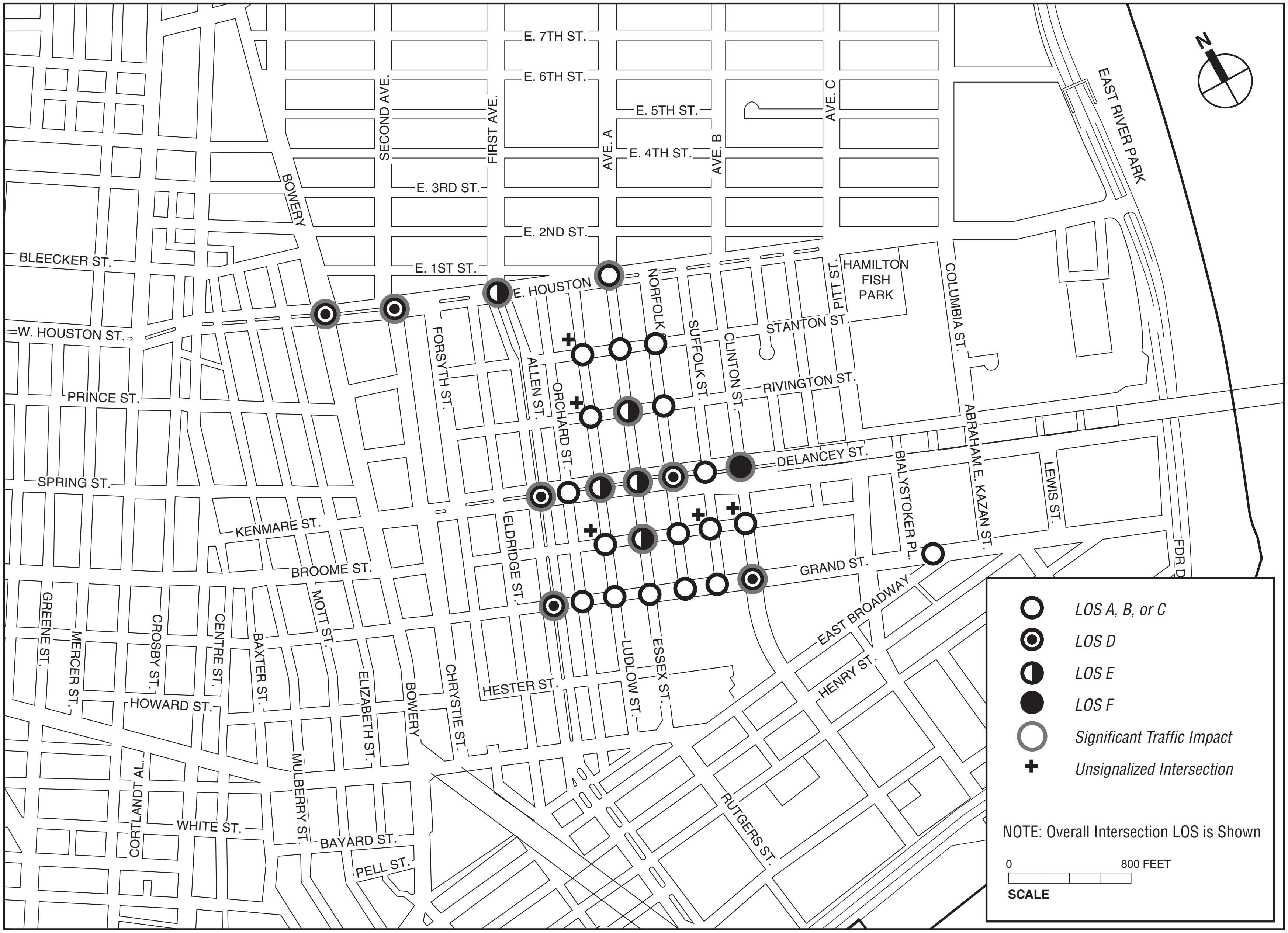
The assessment of potential significant traffic impacts of the proposed actions is based on significant impact criteria defined in the *CEQR Technical Manual*. No Action LOS A, B, or C conditions that deteriorate to unacceptable With Action LOS D, E, or F conditions are considered a significant traffic impact.

For No Action LOS A, B, or C conditions that deteriorate to unacceptable LOS D, mitigation to mid-LOS D (45.0 seconds of delay for signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact.

For a No Action LOS D, an increase of delay by five or more seconds in the With Action condition is considered a significant impact if the With Action delay meets or exceeds 45.0 seconds. For a No Action LOS E, the threshold is a four-second increase in With Action delay; for a No Action LOS F, a three-second increase in delay in the With Action condition is significant. For unsignalized intersections, for the minor street to generate a significant impact, 90 passenger car equivalents (PCEs) must be identified in the With Action condition in any peak hour.

The remainder of this section provides an overview of significant traffic impacts that would result under the 2022 With Action condition due to the proposed actions. The proposed actions would have significant traffic impacts at nine intersections in the weekday AM peak hour, seven intersections in the weekday midday peak hour, 18 intersections in the weekday PM peak hour, and 10 intersections in the Saturday peak hour.

Detailed volume-to-capacity (v/c) ratios, average vehicle delay, and levels of service movement-by-movement at each intersection under the With Action condition, and the total With Action volume maps are provided at the end of this chapter. A summary of level of service findings and significant traffic impacts for the 30 intersections analyzed is presented in **Tables 13-~~18~~19a and 13-~~18~~19b,** and **Figures 13-13a through 13-16b.** Detailed descriptions of the With Action conditions traffic levels of service and significant impacts are provided in **Table 13-~~19~~20**, and comparisons with No Action conditions traffic levels of service are provided in **Tables 13-21a through 13-21d**.

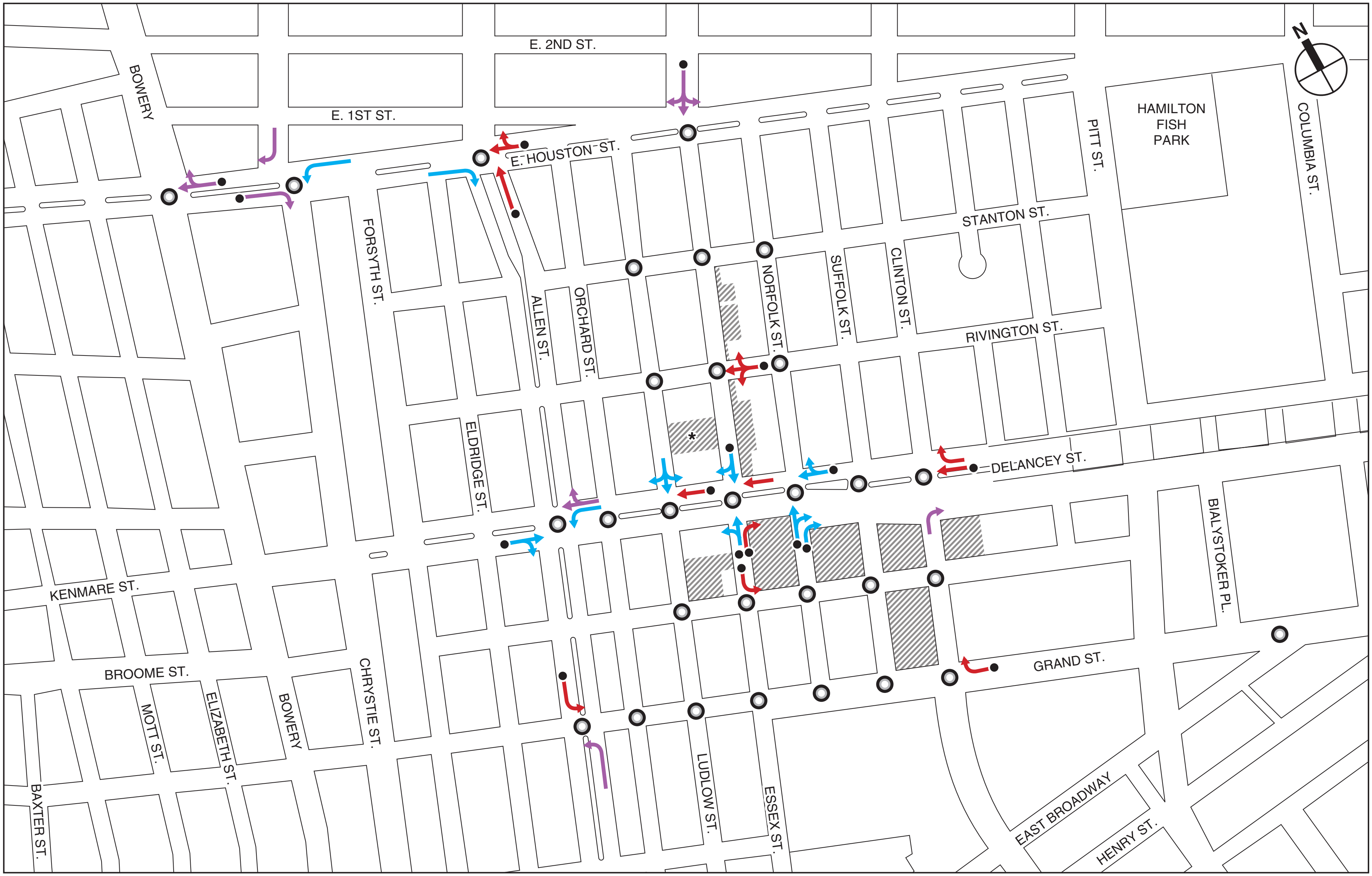


NOTE: This figure has been revised for the FGEIS.

With Action Traffic Levels of Service - Overall Intersections
Weekday AM Peak Hour

Figure 13-13a

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

Significant Traffic Impact

0 800 FEET

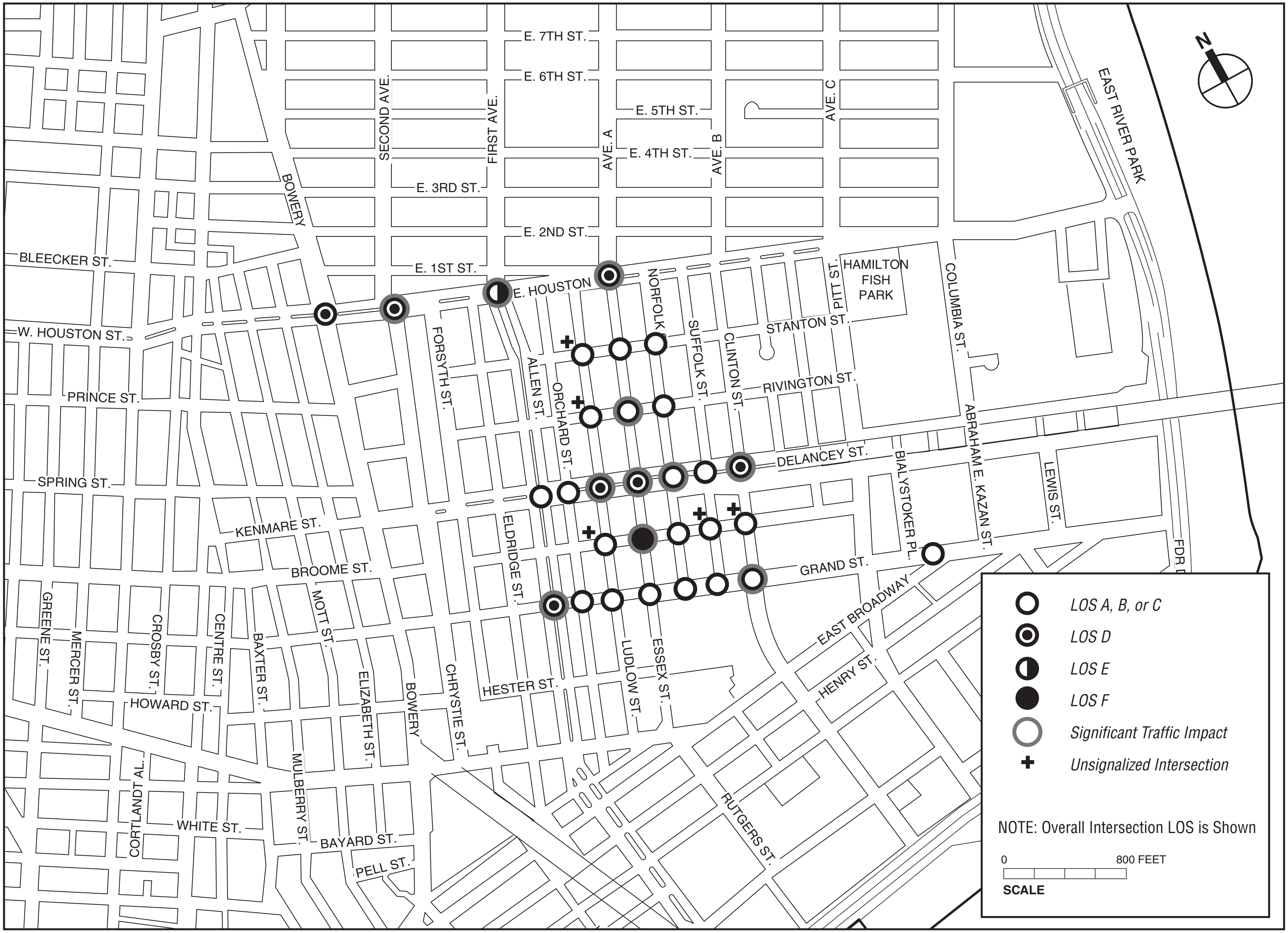
SCALE

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

With Action Traffic Levels of Service - Unacceptable Traffic Movements
Weekday AM Peak Hour

Figure 13-13b

8.7.12

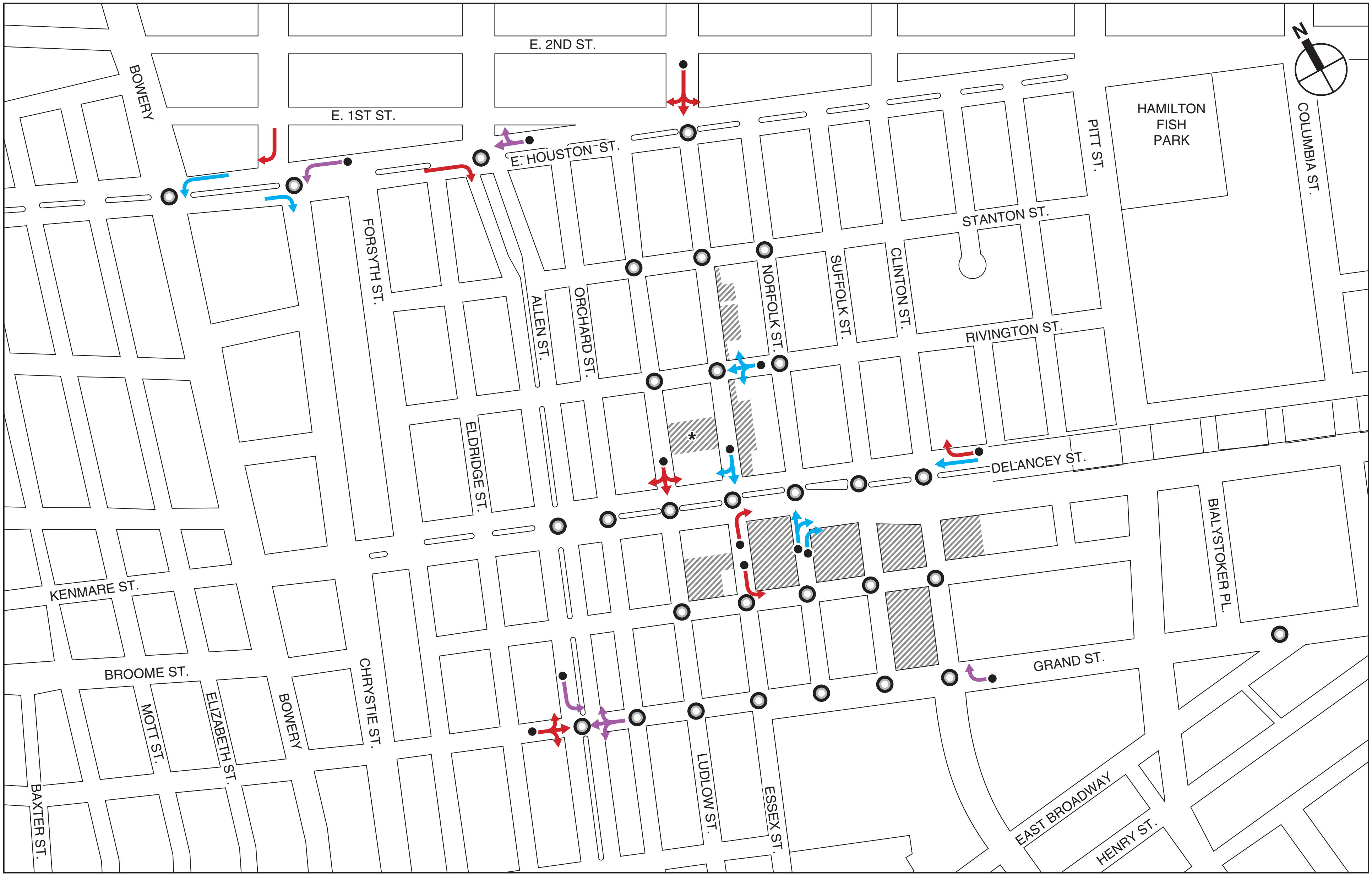


NOTE: This figure has been revised for the FGEIS.

With Action Traffic Levels of Service - Overall Intersections
Weekday Midday Peak Hour

Figure 13-14a

8.7.12



NOTE: This figure has been revised for the FGEIS.

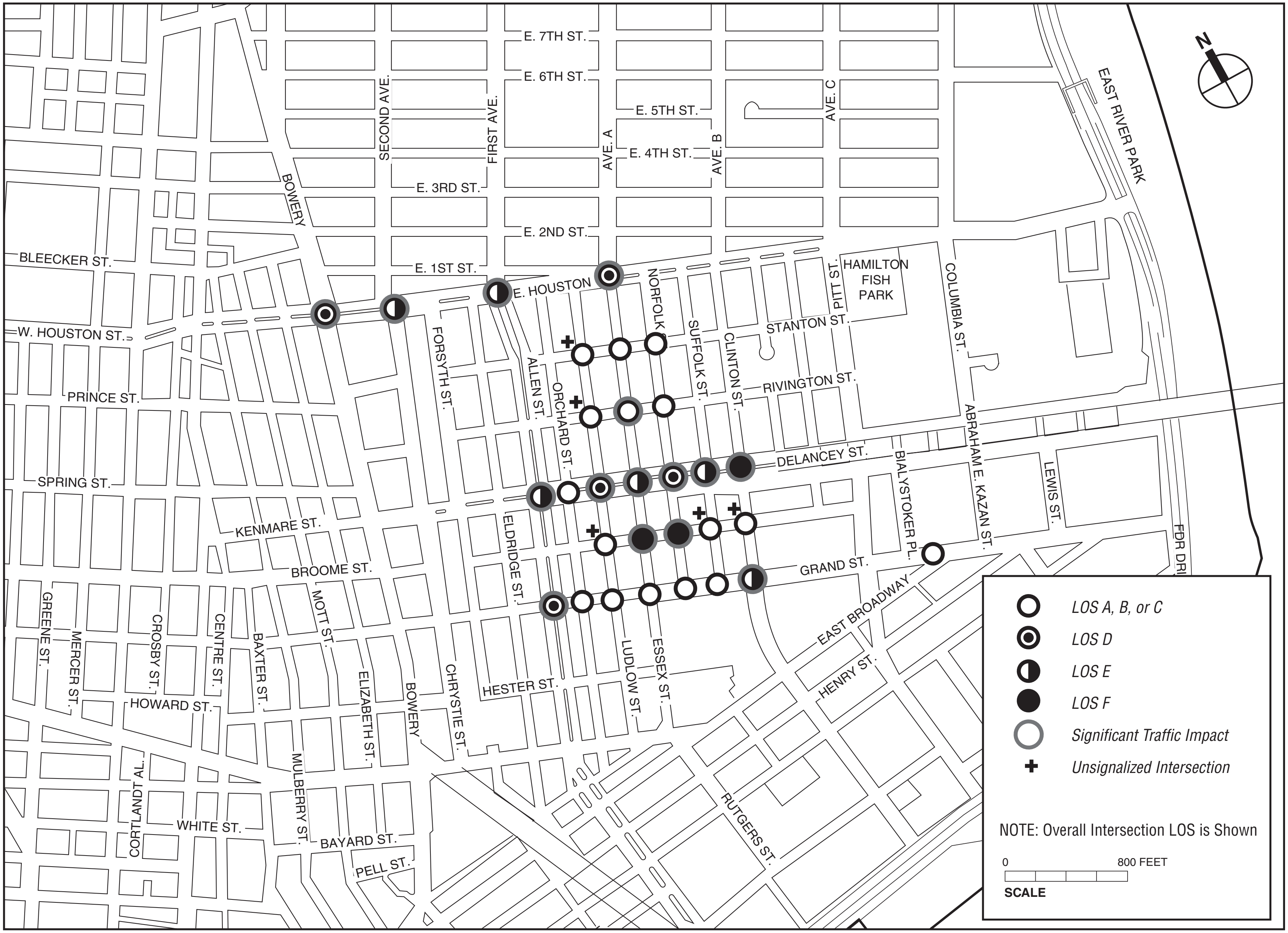
Proposed Development Sites
Intersection Analyzed
* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*
Unacceptable LOS D
LOS E
LOS F
Significant Traffic Impact

0 800 FEET
SCALE

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

With Action Traffic Levels of Service - Unacceptable Traffic Movements
Weekday Midday Peak Hour
Figure 13-14b

8.7.12

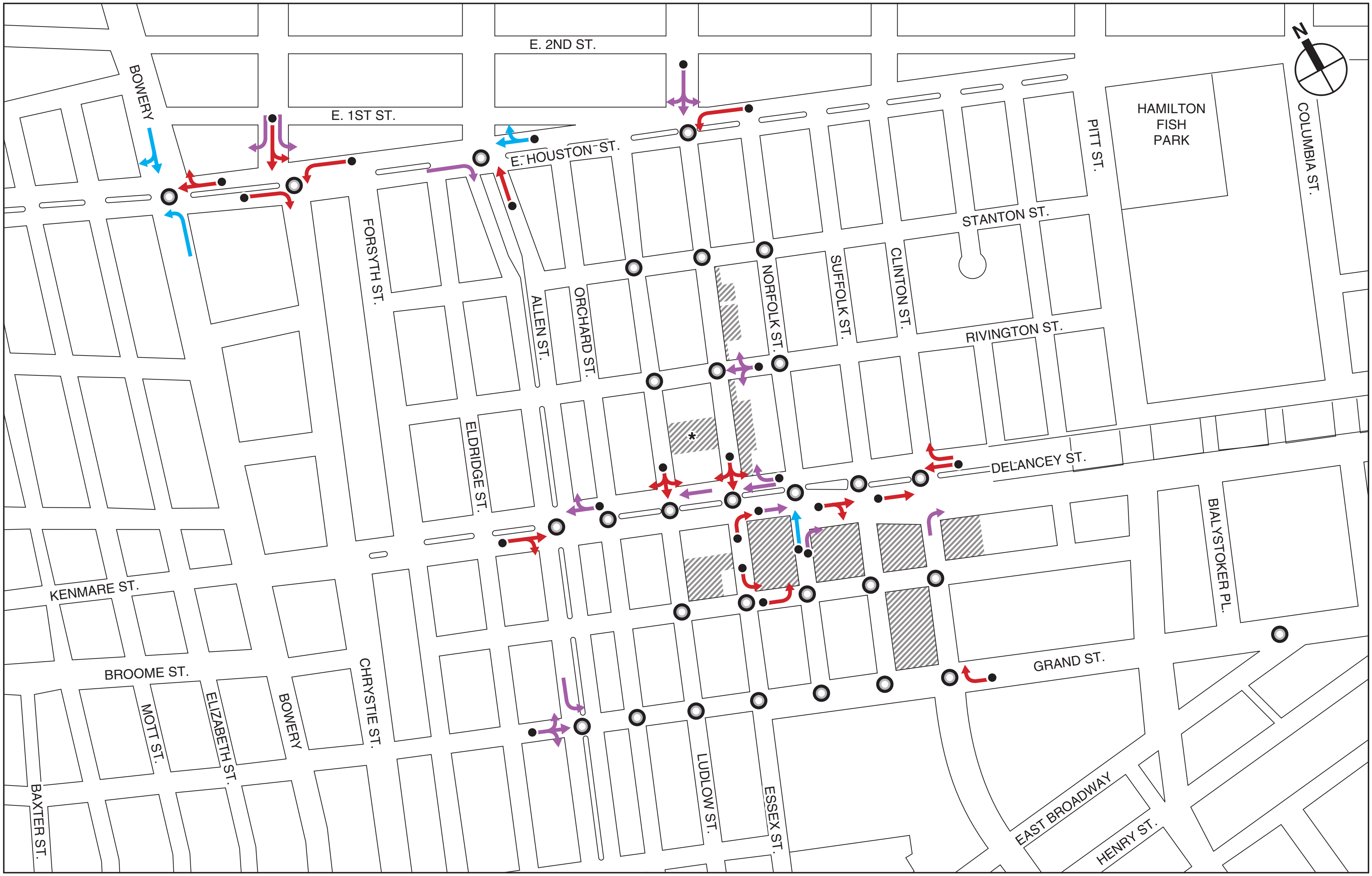


NOTE: This figure has been revised for the FGEIS.

With Action Traffic Levels of Service - Overall Intersections
Weekday PM Peak Hour

Figure 13-15a

8.7.12



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites

Intersection Analyzed

* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*

Unacceptable LOS D

LOS E

LOS F

Significant Traffic Impact

0 800 FEET

SCALE

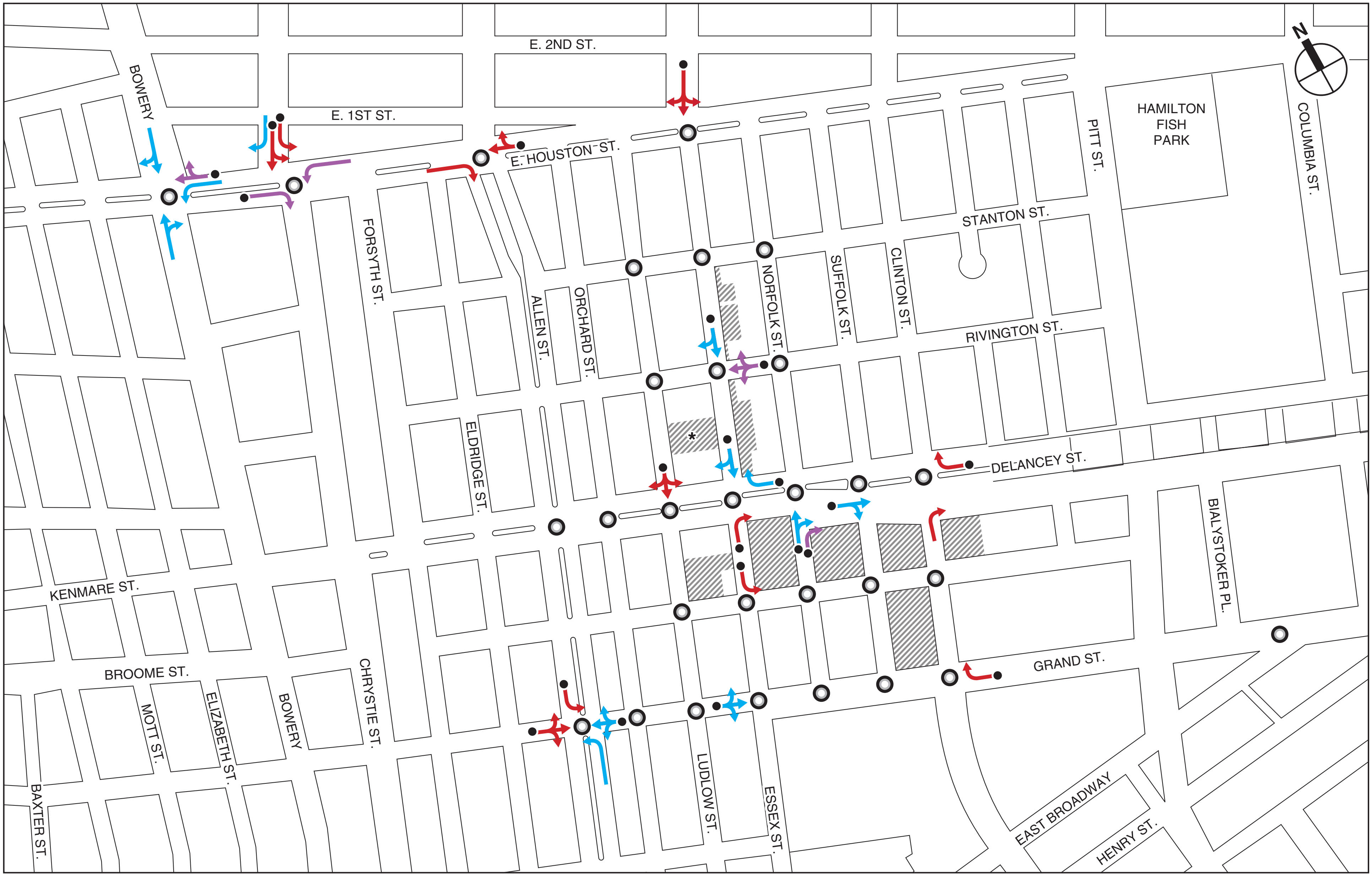
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

With Action Traffic Levels of Service - Unaccepatable Trafic Movements
Weekday PM Peak Hour

Figure 13-15b

NOTE: This figure has been revised for the FGEIS.

With Action Traffic Levels of Service - Overall Intersections
Saturday Peak Hour
Figure 13-16a



NOTE: This figure has been revised for the FGEIS.

Proposed Development Sites
Intersection Analyzed
* *Site 7 Would Not Be Redeveloped Under the Proposed Actions*
Unacceptable LOS D
LOS E
LOS F
Significant Traffic Impact

0 800 FEET
SCALE

With Action Traffic Levels of Service - Unaccepatable Trafic Movements
Saturday Peak Hour
Figure 13-16b

Table 13-~~18~~19a
Traffic Level of Service Summary Comparison – Overall Intersections: No Action vs. With Action Conditions (2022)

	2022 No Action				2022 With Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Intersections at Overall LOS A/B/C	22	27	18	~~24~~ 23	~~22~~ 18	~~23~~ 21	~~14~~ 16	~~23~~ 19
Intersections at Overall LOS D	~~8~~ 4	~~3~~ 2	~~11~~ 7	~~4~~ 5	6	~~6~~ 7	~~8~~ 5	~~5~~ 7
Intersections at Overall LOS E	~~0~~ 4	~~0~~ 1	~~1~~ 4	2	~~2~~ 5	1	~~8~~ 6	~~1~~ 2
Intersections at Overall LOS F	0	0	~~0~~ 1	0	~~0~~ 1	~~0~~ 1	~~0~~ 3	~~1~~ 2
Number of intersections with significant impacts	-	-	-	-	~~9~~ 13	~~7~~ 11	~~18~~ 15	~~10~~ 14

Table 13-~~18~~19b
Traffic Level of Service Summary Comparison – Traffic Movements: No Action vs. With Action Conditions (2022)

	2022 No Action				2022 With Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Traffic Movements at Acceptable LOS	~~101~~ 100	~~110~~ 108	89	~~99~~ 98	~~98~~ 92	~~105~~ 99	~~81~~ 85	~~95~~ 89
Traffic Movements at Unacceptable LOS D	~~9~~ 5	~~2~~ 3	~~10~~ 7	~~8~~ 7	~~4~~ 10	~~1~~ 7	~~9~~ 4	~~8~~ 12
Traffic Movements at LOS E	8	~~3~~ 5	~~13~~ 11	~~7~~ 6	~~10~~ 7	~~6~~ 5	~~10~~ 14	~~6~~ 5
Traffic Movements at LOS F	~~4~~ 7	~~6~~ 3	~~8~~ 12	~~7~~ 8	~~10~~ 11	~~9~~ 8	~~20~~ 16	~~12~~ 13
Number of significantly impacted movements	-	-	-	-	~~15~~ 19	~~12~~ 15	~~30~~ 24	~~16~~ 22
Number of individual traffic movements*	~~122~~ 120	~~121~~ 119	~~120~~ 119	~~121~~ 119	~~122~~ 120	~~121~~ 119	~~120~~ 119	~~121~~ 119

* Number of movements may vary between peak hours due to turn prohibitions, parking regulations, and the presence of de facto left turn movements.

~~Table13-19~~
~~Seward Park Development EIS~~
~~2022 With Action Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	30.7	C	L	0.43	32.7	C	L	0.41	33.5	C	L	0.69	39.8	D
		TR	0.71	29.9	C	TR	0.80	32.1	C	TR	0.77	31.0	C	TR	0.90	35.0	D
	WB	L	0.69	30.9	C	L	0.80	43.5	D	L	0.71	41.3	D	L	0.85	50.1	D
		TR	1.07	66.1	E	TR	0.92	36.7	D	TR	1.09	79.6	E	TR	1.04	60.2	E
Bowery	NB	L	0.84	42.3	D	L	0.50	29.2	C	L	0.80	50.1	D	L	0.73	37.5	D
		TR	0.92	40.6	D	TR	0.75	35.3	D	TR	0.68	33.1	C	TR	0.98	46.7	D
	SB	L	0.32	26.2	C	L	0.41	25.6	C	L	0.48	27.0	C	L	0.57	32.9	C
		TR	0.92	42.5	D	TR	0.82	38.0	D	TR	1.00	53.8	D	TR	1.02	54.3	D
Overall Intersection		-	**0.97**	**46.7**	**D**	-	**0.90**	**35.2**	**D**	-	**0.95**	**52.5**	**D**	-	**1.00**	**48.1**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	T	0.59	29.7	C	T	0.79	34.7	C	T	0.74	33.2	C	T	0.88	37.1	D
		R	0.83	50.7	D	R	0.74	41.8	D	R	1.14	125.7	F	R	0.98	67.6	E
	WB	L	0.71	45.5	D	L	0.63	50.4	D	L	0.90	88.6	F	L	0.73	57.1	E
		T	0.77	32.4	C	T	0.69	31.2	C	T	0.68	30.9	C	T	0.95	42.3	D
Chrystie Street / Second Avenue	NB	L	0.86	40.4	D	L	0.56	35.3	D	L	0.69	37.6	D	L	0.52	34.0	C
		LR	0.87	42.5	D	LR	0.60	38.2	D	LR	0.68	39.0	D	LR	0.60	37.7	D
	SB	L	0.78	38.8	D	L	0.85	36.7	D	L	1.06	78.5	E	L	1.31	179.0	F
		LT	0.79	35.8	D	LT	0.90	36.4	D	LT	1.15	107.1	F	LT	1.31	174.2	F
		R	1.01	64.0	E	R	1.14	100.0	F	R	1.07	77.8	E	R	0.98	46.9	D
Overall Intersection		-	**0.89**	**39.2**	**D**	-	**0.83**	**42.7**	**D**	-	**1.01**	**64.6**	**E**	-	**0.95**	**81.0**	**F**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	1.12	101.6	F	L	0.83	34.8	C	L	0.88	48.0	D	L	0.82	40.7	D
		T	0.82	30.4	C	T	0.91	31.7	C	T	0.87	34.5	C	T	0.91	34.1	C
		R	0.82	37.6	D	R	1.29	165.2	F	R	0.90	53.4	D	R	1.27	160.2	F
	WB	L	0.43	28.8	C	L	0.27	26.9	C	L	0.37	28.6	C	L	0.44	32.1	C
		TR	1.07	78.3	E	TR	0.91	43.3	D	TR	0.88	38.7	D	TR	1.17	114.9	F
Allen Street	NB	L	0.66	33.6	C	L	0.48	29.9	C	L	0.43	28.7	C	L	0.41	28.2	C
		T	0.98	51.3	D	T	0.78	35.5	D	T	1.01	60.2	E	T	0.84	36.7	D
		R	0.35	28.5	C	R	0.29	28.0	C	R	0.19	26.1	C	R	0.24	26.8	C
Overall Intersection		-	**1.17**	**55.5**	**E**	-	**0.99**	**48.3**	**D**	-	**0.97**	**43.4**	**D**	-	**1.00**	**70.1**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.58	22.1	C	L	0.45	14.8	B	L	0.33	15.3	B	L	0.34	16.1	B
		TR	0.71	27.8	C	TR	0.83	28.7	C	TR	0.81	30.4	C	TR	0.83	28.7	C
	WB	L	0.65	23.0	C	L	0.76	32.6	C	L	1.02	90.5	F	L	0.90	43.7	D
		T	0.79	30.8	C	T	0.65	27.0	C	T	0.70	27.8	C	T	0.87	34.1	C
		R	0.11	19.9	B	R	0.11	19.9	B	R	0.27	22.2	C	R	0.15	20.2	C
Essex Street / Avenue A	NB	LTR	0.79	35.9	D	LTR	0.81	37.2	D	LTR	0.77	35.1	D	LTR	0.73	33.4	C
	SB	LTR	1.01	59.2	E	LTR	1.15	101.6	F	LTR	1.03	65.5	E	LTR	1.14	98.1	F
Overall Intersection		-	**0.84**	**33.6**	**C**	-	**0.91**	**39.4**	**D**	-	**1.04**	**39.5**	**D**	-	**0.94**	**41.2**	**D**
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.50	28.3	C	LTR	0.29	23.4	C	LTR	0.24	22.5	C
Essex Street	NB	TR	0.33	12.0	B	TR	0.27	11.4	B	TR	0.34	12.1	B	TR	0.32	11.9	B
	SB	LT	0.42	12.8	B	LT	0.39	12.4	B	LT	0.42	12.6	B	LT	0.57	14.4	B
Overall Intersection		-	**0.35**	**13.3**	**B**	-	**0.43**	**14.7**	**B**	-	**0.37**	**13.4**	**B**	-	**0.44**	**14.2**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.23	16.4	B	LT	0.21	16.1	B	LT	0.17	15.6	B	LT	0.23	16.2	B
Norfolk Street	NB	TR	0.52	21.2	C	TR	0.63	23.8	C	TR	0.54	21.3	C	TR	0.51	20.9	C
Overall Intersection		-	**0.38**	**19.7**	**B**	-	**0.42**	**21.8**	**C**	-	**0.35**	**19.8**	**B**	-	**0.37**	**19.4**	**B**
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	1.03	80.2	F	LTR	0.80	41.9	D	LTR	0.86	47.8	D	LTR	0.82	43.7	D
Essex Street	NB	LT	0.36	11.9	B	LT	0.30	11.4	B	LT	0.35	11.7	B	LT	0.34	11.7	B
	SB	TR	0.36	12.3	B	TR	0.45	13.5	B	TR	0.48	13.8	B	TR	0.91	40.6	D
Overall Intersection		-	**0.62**	**33.3**	**C**	-	**0.58**	**19.5**	**B**	-	**0.63**	**21.4**	**C**	-	**0.87**	**32.4**	**C**

~~Table13-19 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 With Action Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.56	22.2	C	TR	0.22	16.5	B	TR	0.47	20.1	C	TR	0.49	20.4	C
Norfolk Street	NB	LT	0.59	20.0	C	LT	0.82	26.5	C	LT	0.75	22.7	C	LT	0.60	20.4	C
Overall Intersection		-	**0.57**	**20.9**	**C**	-	**0.52**	**24.6**	**C**	-	**0.61**	**21.7**	**C**	-	**0.54**	**20.4**	**C**
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	0.98	41.3	D	TR	0.86	29.3	C	TR	1.11	85.6	F	TR	0.91	31.2	C
	WB	L	0.90	58.1	E	L	0.77	43.1	D	L	0.75	44.8	D	L	0.78	41.5	D
		TR	1.03	44.1	D	TR	0.80	15.2	B	TR	1.02	42.4	D	TR	0.83	15.9	B
Allen Street	NB	T	0.73	36.1	D	T	0.71	35.7	D	T	0.70	34.8	C	T	0.77	38.2	D
		R	0.63	39.5	D	R	0.87	61.4	E	R	1.11	119.0	F	R	0.87	62.3	E
	SB	TR	0.56	32.2	C	TR	0.71	33.9	C	TR	0.56	31.7	C	TR	0.77	35.9	D
Overall Intersection		-	**0.94**	**42.6**	**D**	-	**0.84**	**26.6**	**C**	-	**1.05**	**60.9**	**E**	-	**0.86**	**28.0**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.43	9.8	A	T	0.59	11.7	B	T	0.68	12.6	B	T	0.60	11.7	B
	WB	TR	0.79	14.8	B	TR	0.72	13.8	B	TR	0.82	15.7	B	TR	0.78	14.8	B
Orchard Street	NB	LTR	0.26	26.2	C	LTR	0.34	27.9	C	LTR	0.33	27.4	C	LTR	0.29	26.7	C
Overall Intersection		-	**0.61**	**13.4**	**B**	-	**0.60**	**13.3**	**B**	-	**0.66**	**14.6**	**B**	-	**0.62**	**13.8**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.45	10.3	B	TR	0.61	12.1	B	TR	0.73	13.8	B	TR	0.61	12.1	B
	WB	T	0.75	13.5	B	T	0.74	13.4	B	T	0.79	14.1	B	T	0.69	12.4	B
Ludlow Street	SB	LTR	0.77	45.8	D	LTR	1.10	114.2	F	LTR	1.32	200.4	F	LTR	1.25	168.3	F
Overall Intersection		-	**0.76**	**14.2**	**B**	-	**0.86**	**20.0**	**B**	-	**0.97**	**26.3**	**C**	-	**0.87**	**24.6**	**C**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.53	14.3	B	TR	0.71	17.0	B	TR	1.03	46.3	D	TR	0.90	26.7	C
	WB	TR	1.02	42.8	D	TR	0.97	24.4	C	TR	1.06	56.9	E	TR	1.03	41.8	D
Essex Street	NB	LTR	0.92	60.4	E	LTR	0.97	68.0	E	LTR	1.20	140.1	F	LTR	0.91	54.7	D
	SB	DefL	1.34	209.8	F	DefL	1.46	260.7	F	LTR	1.15	119.3	F	DefL	1.34	198.8	F
		TR	0.89	58.4	E	TR	0.90	60.2	E	-	-	-	-	TR	0.77	43.0	D
Overall Intersection		-	**1.14**	**45.4**	**D**	-	**1.17**	**39.0**	**D**	-	**1.11**	**65.7**	**E**	-	**1.18**	**47.1**	**D**
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.64	13.0	B	T	0.76	15.0	B	T	1.08	63.3	E	T	0.81	15.6	B
	WB	TR	0.95	20.3	C	TR	1.01	33.5	C	TR	1.01	32.7	C	TR	0.95	22.9	C
Norfolk Street	NB	TR	1.07	93.6	F	TR	1.00	71.9	E	TR	1.27	166.4	F	TR	1.11	106.0	F
		R	1.08	97.2	F	R	1.01	76.6	E	R	1.27	165.4	F	R	1.13	114.2	F
Overall Intersection		-	**0.99**	**29.1**	**C**	-	**1.01**	**31.9**	**C**	-	**1.15**	**66.0**	**E**	-	**1.01**	**33.1**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	T	0.80	17.6	B	T	0.83	16.4	B	T	1.08	59.3	E	T	1.00	29.5	C
	WB	T	0.96	20.6	C	T	0.79	15.0	B	T	0.85	16.1	B	T	0.75	14.4	B
Delancey Street Service Road	EB	TR	0.44	13.0	B	TR	0.45	11.5	B	TR	0.41	10.6	B	TR	0.41	10.9	B
Suffolk Street	SB	R	0.14	22.1	C	R	0.08	23.2	C	R	0.28	26.9	C	R	0.33	28.0	C
Overall Intersection		-	**0.65**	**18.9**	**B**	-	**0.58**	**15.5**	**B**	-	**0.81**	**38.4**	**D**	-	**0.78**	**22.4**	**C**
15. DELANCEY STREET AND CLINTON STREET																	
Delancey Street	EB	T	0.64	10.2	B	T	0.75	11.8	B	T	1.07	54.7	D	T	0.94	15.5	B
Williamsburg Bridge	WB	T	1.08	59.4	E	T	0.90	19.0	B	T	1.08	57.9	E	T	0.85	15.7	B
		R	1.08	86.3	F	R	0.91	43.3	D	R	1.09	86.8	F	R	0.99	57.4	E
Delancey Street Service Road	EB	TR	0.16	6.7	A	TR	0.16	6.7	A	TR	0.14	6.5	A	TR	0.15	6.6	A
	WB	TR	1.01	88.5	F	TR	0.73	62.8	E	TR	0.93	82.9	F	TR	0.74	59.8	E
Clinton Street	NB	R	0.17	28.0	C	R	0.09	26.8	C	R	0.16	27.7	C	R	0.09	26.7	C
Overall Intersection		-	**0.83**	**42.7**	**D**	-	**0.68**	**18.4**	**B**	-	**0.83**	**58.3**	**E**	-	**0.70**	**19.8**	**B**
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.20	21.8	C	LTR	0.19	21.8	C	LTR	0.18	21.8	C	LTR	0.25	22.6	C
Essex Street	NB	TR	0.32	11.9	B	TR	0.32	11.9	B	TR	0.47	13.4	B	TR	0.29	11.6	B
	SB	L	0.25	12.3	B	L	0.28	12.7	B	L	1.22	126.1	F	L	0.32	13.3	B
		T	0.26	11.4	B	T	0.25	11.3	B	T	0.31	11.4	B	T	0.22	11.0	B
Overall Intersection		-	**0.27**	**12.8**	**B**	-	**0.27**	**12.7**	**B**	-	**0.82**	**38.7**	**D**	-	**0.29**	**13.1**	**B**

~~Table13-19 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 With Action Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (8:00 - 9:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday Midday (1:00 - 2:00 PM) Mvt.	V/C	Control Delay	LOS	Weekday PM (5:15 - 6:15 PM) Mvt.	V/C	Control Delay	LOS	Saturday (3:45 - 4:45 PM) Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.18	10.8	B	L	0.15	10.6	B	L	0.85	48.1	D	L	0.19	10.9	B
	WB	R	0.43	14.1	B	R	0.36	13.0	B	R	1.04	95.6	F	R	0.62	18.1	B
Norfolk Street	NB	T	0.92	40.0	D	T	0.91	39.0	D	T	0.81	31.1	C	T	0.88	33.3	C
Overall Intersection		-	**0.62**	**27.2**	**C**	-	**0.57**	**27.1**	**C**	-	**0.91**	**55.7**	**E**	-	**0.72**	**24.1**	**C**
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	1.16	112.5	F	LTR	1.31	172.7	F	LTR	1.12	100.5	F	LTR	1.11	97.3	F
	WB	LTR	0.95	68.2	E	LTR	1.09	106.2	F	LTR	0.87	52.2	D	LTR	0.85	50.1	D
Allen Street	NB	L	0.63	55.7	E	L	0.39	44.2	D	L	0.26	39.8	D	L	0.55	49.7	D
		TR	0.54	21.2	C	TR	0.46	20.1	C	TR	0.60	22.1	C	TR	0.48	20.2	C
	SB	L	0.90	81.2	F	L	1.11	125.3	F	L	0.98	92.8	F	L	1.08	119.4	F
		TR	0.58	21.8	C	TR	0.75	24.9	C	TR	0.64	22.7	C	TR	0.60	21.9	C
Overall Intersection		-	**0.81**	**49.5**	**D**	-	**0.90**	**70.7**	**E**	-	**0.84**	**44.8**	**D**	-	**0.79**	**48.3**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.69	22.6	C	LT	0.85	25.5	C	LT	0.76	24.6	C	LT	0.78	24.1	C
	WB	TR	0.58	22.8	C	TR	0.65	25.0	C	TR	0.57	22.7	C	TR	0.59	23.2	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.7	B	LTR	0.14	15.4	B
Overall Intersection		-	**0.42**	**21.9**	**C**	-	**0.50**	**24.3**	**C**	-	**0.47**	**22.8**	**C**	-	**0.46**	**23.1**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.66	24.6	C	TR	0.76	28.4	C	TR	0.68	24.5	C	TR	0.66	23.6	C
	WB	LT	0.41	18.3	B	LT	0.48	19.6	B	LT	0.47	18.9	B	LT	0.47	20.0	B
Ludlow Street	SB	LTR	0.29	17.5	B	LTR	0.29	17.5	B	LTR	0.20	16.1	B	LTR	0.26	16.9	B
Overall Intersection		-	**0.48**	**21.1**	**C**	-	**0.52**	**23.3**	**C**	-	**0.44**	**21.2**	**C**	-	**0.46**	**21.2**	**C**
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.86	38.1	D	LTR	0.78	30.8	C	LTR	0.76	29.7	C	LTR	0.84	35.4	D
	WB	LTR	0.88	26.3	C	LTR	0.90	28.8	C	LTR	1.24	134.9	F	LTR	0.76	22.4	C
Essex Street	NB	LTR	0.40	18.2	B	LTR	0.33	17.2	B	LTR	0.40	18.2	B	LTR	0.26	16.3	B
	SB	DefL	0.43	22.9	C	LTR	0.37	18.4	B	LTR	0.40	18.7	B	LTR	0.29	16.9	B
		TR	0.30	17.6	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**0.66**	**26.5**	**C**	-	**0.64**	**24.9**	**C**	-	**0.82**	**63.5**	**E**	-	**0.56**	**24.4**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	0.56	23.9	C	L	0.53	23.0	C	L	0.57	25.9	C	L	0.39	17.4	B
		T	0.54	17.1	B	T	0.44	15.3	B	T	0.47	15.6	B	T	0.42	14.8	B
	WB	TR	1.19	115.9	F	TR	1.22	128.2	F	TR	1.27	144.8	F	TR	1.15	98.2	F
Overall Intersection		-	**1.19**	**80.9**	**F**	-	**1.23**	**92.9**	**F**	-	**1.26**	**104.7**	**F**	-	**1.15**	**72.1**	**E**
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.49	15.9	B	T	0.38	14.4	B	T	0.40	14.5	B	T	0.42	14.8	B
	WB	T	0.95	39.4	D	T	0.95	38.4	D	T	1.07	67.0	E	T	0.96	40.7	D
Suffolk Street	SB	LR	0.34	22.7	C	LR	0.39	23.6	C	LR	0.41	23.8	C	LR	0.32	22.2	C
Overall Intersection		-	**0.70**	**30.5**	**C**	-	**0.72**	**30.5**	**C**	-	**0.79**	**48.5**	**D**	-	**0.70**	**31.5**	**C**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	LTR	0.81	32.7	C	LTR	0.68	24.3	C	LTR	1.16	123.2	F	LTR	0.92	48.8	D
	WB	L	0.06	11.8	B	L	0.07	12.0	B	L	0.04	11.6	B	L	0.05	11.7	B
		T	0.75	22.7	C	T	0.79	24.8	C	T	0.84	26.1	C	T	0.78	23.3	C
		R	0.75	30.2	C	R	0.55	20.3	C	R	0.79	31.9	C	R	0.83	34.9	C
Clinton Street	NB	LTR	0.72	31.4	C	LTR	0.53	26.3	C	LTR	0.79	37.4	D	LTR	0.59	27.1	C
	SB	LTR	0.04	17.2	B	LTR	0.06	17.4	B	LTR	0.05	17.3	B	LTR	0.05	17.3	B
Overall Intersection		-	**0.77**	**27.6**	**C**	-	**0.68**	**23.9**	**C**	-	**1.00**	**50.1**	**D**	-	**0.78**	**31.6**	**C**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.17	7.2	A	T	0.14	6.9	A	T	0.13	6.9	A	T	0.13	6.9	A
	WB	LT	0.81	17.7	B	LT	0.90	21.9	C	LT	0.95	25.6	C	LT	0.88	20.0	B
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A	R	0.00	6.1	A
Overall Intersection		-	**0.81**	**15.7**	**B**	-	**0.90**	**19.7**	**B**	-	**0.95**	**23.3**	**C**	-	**0.87**	**18.1**	**B**
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	8.0	A	TR	-	9.0	A	TR	-	7.9	A	TR	-	8.5	A
Ludlow Street	SB	LT	-	9.2	A	LT	-	10.9	B	LT	-	9.8	A	LT	-	10.9	B
Overall Intersection		-	-	**8.9**	**A**	-	-	**10.3**	**B**	-	-	**9.4**	**A**	-	-	**10.2**	**B**
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	10.3	B	LT	-	9.7	A	LT	-	10.9	B	LT	-	11.9	B
Ludlow Street	SB	TR	-	9.5	A	TR	-	10.3	B	TR	-	11.1	B	TR	-	12.5	B
Overall Intersection		-	-	**10.0**	**A**	-	-	**10.1**	**B**	-	-	**11.0**	**B**	-	-	**12.2**	**B**

~~Table13-19 (cont'd)~~
~~Seward Park Development EIS~~
~~2022 With Action Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (8:00 - 9:00 AM)				Weekday Midday (1:00 - 2:00 PM)				Weekday PM (5:15 - 6:15 PM)				Saturday (3:45 - 4:45 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
UNSIGNALIZED INTERSECTIONS																	
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.7	B	TR	-	14.5	B	TR	-	11.1	B	TR	-	12.7	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.5	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		**-**	**-**	**6.0**	**A**	**-**	**-**	**4.6**	**A**	**-**	**-**	**5.3**	**A**	**-**	**-**	**5.6**	**A**
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.4	A	LT	-	7.3	A	LT	-	15.5	C	LT	-	7.2	A
Suffolk Street	SB	TR	-	13.9	B	TR	-	12.2	B	TR	-	15.8	C	TR	-	15.2	C
Overall Intersection		**-**	**-**	**5.2**	**A**	**-**	**-**	**5.5**	**A**	**-**	**-**	**6.8**	**A**	**-**	**-**	**4.7**	**A**
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	8.6	A	LTR	-	8.8	A	LTR	-	9.7	A	LTR	-	10.2	B
	SB	LTR	-	8.8	A	LTR	-	9.3	A	LTR	-	9.4	A	LTR	-	8.1	A
Overall Intersection		**-**	**-**	**5.9**	**A**	**-**	**-**	**5.9**	**A**	**-**	**-**	**6.9**	**A**	**-**	**-**	**8.3**	**A**

~~**Notes:**~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~
~~Denotes a significant impact~~

Table 13-20[1]
Seward Park Development EIS
2022 With Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
EAST HOUSTON STREET																	
1. EAST HOUSTON STREET AND BOWERY																	
East Houston Street	EB	L	0.28	30.9	C	L	0.43	32.7	C	L	0.41	33.5	C	L	0.69	39.8	D
		TR	0.72	30.1	C	TR	0.81	32.4	C	TR	0.78	31.3	C	TR	0.91	35.6	D
	WB	L	0.71	31.4	C	L	0.83	46.1	D	L	0.73	42.5	D	L	0.85	51.1	D
		TR	1.08	69.9	E	TR	0.93	37.6	D	TR	1.09	83.1	F	TR	1.05	62.7	E
Bowery	NB	L	0.86	44.0	D	L	0.53	30.1	C	L	0.83	53.0	D	L	0.74	38.2	D
		TR	0.93	41.4	D	TR	0.76	35.8	D	TR	0.70	33.4	C	TR	0.98	48.1	D
	SB	L	0.32	26.4	C	L	0.41	25.8	C	L	0.49	27.2	C	L	0.57	33.0	C
		TR	0.92	42.8	D	TR	0.82	38.2	D	TR	1.01	55.0	D	TR	1.02	54.7	D
Overall Intersection		-	**0.98**	**48.3**	**D**	-	**0.91**	**35.8**	**D**	-	**0.96**	**54.2**	**D**	-	**1.02**	**49.3**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE																	
East Houston Street	EB	T	0.59	29.8	C	T	0.79	34.8	C	T	0.75	33.3	C	T	0.88	37.3	D
		R	0.87	55.6	E	R	0.80	46.2	D	R	1.21	153.3	F	R	1.03	78.4	E
	WB	L	0.74	48.4	D	L	0.73	61.2	E	L	0.99	110.0	F	L	0.81	68.8	E
		T	0.77	32.5	C	T	0.69	31.2	C	T	0.68	30.9	C	T	0.95	42.5	D
Chrystie Street / Second Avenue	NB	L	0.89	42.7	D	L	0.61	36.8	D	L	0.72	38.8	D	L	0.54	34.5	C
		LR	0.84	40.7	D	LR	0.57	37.2	D	LR	0.68	39.2	D	LR	0.59	37.0	D
	SB	L	0.78	38.8	D	L	0.85	36.7	D	L	1.06	78.5	E	L	1.31	179.0	F
		LT	0.79	35.9	D	LT	0.90	36.5	D	LT	1.15	108.4	F	LT	1.31	175.5	F
		R	1.01	64.0	E	R	1.14	100.0	F	R	1.07	77.8	E	R	0.98	46.9	D
Overall Intersection		-	**0.91**	**39.8**	**D**	-	**0.83**	**43.3**	**D**	-	**1.05**	**67.9**	**E**	-	**0.98**	**82.2**	**F**
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE																	
East Houston Street	EB	L	0.90	42.2	D	L	0.69	29.4	C	L	0.71	34.4	C	L	0.82	40.8	D
		T	0.89	34.3	C	T	0.98	39.6	D	T	0.94	42.7	D	T	0.92	34.7	C
		R	0.90	47.0	D	R	1.41	220.9	F	R	0.98	73.7	E	R	1.27	160.2	F
	WB	L	0.36	25.3	C	L	0.22	24.1	C	L	0.30	25.6	C	L	0.44	32.2	C
		TR	1.16	114.7	F	TR	1.00	60.9	E	TR	0.96	50.7	D	TR	1.18	120.0	F
Allen Street	NB	L	0.74	39.3	D	L	0.54	33.4	C	L	0.48	31.9	C	L	0.41	28.1	C
		T	1.11	95.9	F	T	0.89	44.7	D	T	1.15	111.2	F	T	0.84	36.7	D
		R	0.41	32.5	C	R	0.33	31.4	C	R	0.22	29.0	C	R	0.24	26.8	C
Overall Intersection		-	**1.13**	**71.2**	**E**	-	**1.08**	**61.7**	**E**	-	**1.10**	**61.0**	**E**	-	**1.08**	**71.9**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A																	
East Houston Street	EB	L	0.59	22.5	C	L	0.47	15.0	B	L	0.34	15.5	B	L	0.35	16.2	B
		TR	0.72	28.0	C	TR	0.84	28.9	C	TR	0.82	30.8	C	TR	0.85	29.0	C
	WB	L	0.65	23.4	C	L	0.76	33.3	C	L	1.03	92.1	F	L	0.90	44.4	D
		T	0.79	30.9	C	T	0.66	27.2	C	T	0.71	28.0	C	T	0.88	34.5	C
		R	0.11	19.9	B	R	0.11	19.9	B	R	0.27	22.2	C	R	0.15	20.2	C
	NB	LTR	0.79	36.0	D	LTR	0.81	37.6	D	LTR	0.78	35.2	D	LTR	0.73	33.4	C
	SB	LTR	1.02	63.1	E	LTR	1.16	109.2	F	LTR	1.05	69.9	E	LTR	1.15	103.6	F
Overall Intersection		-	**0.91**	**34.3**	**C**	-	**0.99**	**40.6**	**D**	-	**1.05**	**40.4**	**D**	-	**0.96**	**42.1**	**D**

[1] This table has been revised for the FGEIS.

Table 13-20 (cont'd)
Seward Park Development EIS
2022 With Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
STANTON STREET																	
5. STANTON STREET AND ESSEX STREET																	
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.51	28.7	C	LTR	0.30	23.7	C	LTR	0.25	22.5	C
Essex Street	NB	TR	0.33	12.0	B	TR	0.27	11.4	B	TR	0.34	12.1	B	TR	0.32	11.9	B
	SB	LT	0.42	12.7	B	LT	0.39	12.4	B	LT	0.42	12.6	B	LT	0.57	14.5	B
Overall Intersection		-	**0.34**	**13.3**	**B**	-	**0.43**	**14.8**	**B**	-	**0.37**	**13.5**	**B**	-	**0.44**	**14.2**	**B**
6. STANTON STREET AND NORFOLK STREET																	
Stanton Street	EB	LT	0.23	16.4	B	LT	0.22	16.2	B	LT	0.17	15.6	B	LT	0.23	16.2	B
Norfolk Street	NB	TR	0.52	21.2	C	TR	0.64	23.9	C	TR	0.55	21.5	C	TR	0.52	21.1	C
Overall Intersection		-	**0.38**	**19.7**	**B**	-	**0.43**	**21.9**	**C**	-	**0.36**	**20.0**	**C**	-	**0.37**	**19.5**	**B**
RIVINGTON STREET																	
7. RIVINGTON STREET AND ESSEX STREET																	
Rivington Street	WB	LTR	1.22	148.0	F	LTR	0.89	51.8	D	LTR	0.97	65.4	E	LTR	0.92	56.3	E
Essex Street	NB	LT	0.36	12.0	B	LT	0.31	11.5	B	LT	0.35	11.6	B	LT	0.34	11.7	B
	SB	TR	0.38	12.6	B	TR	0.48	14.0	B	TR	0.49	14.0	B	TR	0.98	52.6	D
Overall Intersection		-	**0.70**	**60.1**	**E**	-	**0.64**	**22.8**	**C**	-	**0.67**	**26.9**	**C**	-	**0.95**	**41.4**	**D**
8. RIVINGTON STREET AND NORFOLK STREET																	
Rivington Street	WB	TR	0.71	27.1	C	TR	0.30	17.6	B	TR	0.55	21.9	C	TR	0.60	23.2	C
Norfolk Street	NB	LT	0.58	19.8	B	LT	0.81	26.0	C	LT	0.75	22.8	C	LT	0.58	20.1	C
Overall Intersection		-	**0.64**	**23.4**	**C**	-	**0.55**	**23.9**	**C**	-	**0.65**	**22.4**	**C**	-	**0.59**	**21.7**	**C**
DELANCEY STREET																	
9. DELANCEY STREET AND ALLEN STREET																	
Delancey Street	EB	TR	1.02	50.6	D	TR	0.80	27.4	C	TR	1.15	102.0	F	TR	0.85	28.4	C
	WB	L	0.84	49.9	D	L	0.73	40.5	D	L	0.71	42.2	D	L	0.74	39.3	D
		TR	1.09	68.5	E	TR	0.86	17.5	B	TR	1.09	69.0	E	TR	0.89	18.4	B
Allen Street	NB	T	0.70	34.3	C	T	0.68	34.0	C	T	0.66	33.2	C	T	0.74	36.0	D
		R	0.24	9.1	A	R	0.38	16.2	B	R	0.49	18.0	B	R	0.37	16.1	B
	SB	TR	0.56	31.3	C	TR	0.69	32.6	C	TR	0.55	30.7	C	TR	0.75	34.3	C
Overall Intersection		-	**0.97**	**54.5**	**D**	-	**0.81**	**24.7**	**C**	-	**0.96**	**72.7**	**E**	-	**0.85**	**25.9**	**C**
10. DELANCEY STREET AND ORCHARD STREET																	
Delancey Street	EB	T	0.46	12.2	B	T	0.64	14.6	B	T	0.74	15.7	B	T	0.65	14.5	B
	WB	TR	0.87	19.6	B	TR	0.73	16.1	B	TR	0.83	18.1	B	TR	0.78	17.1	B
Orchard Street	NB	LTR	0.22	22.7	C	LTR	0.30	24.0	C	LTR	0.28	23.6	C	LTR	0.25	23.1	C
Overall Intersection		-	**0.63**	**17.1**	**B**	-	**0.57**	**15.6**	**B**	-	**0.63**	**17.1**	**B**	-	**0.58**	**16.2**	**B**
11. DELANCEY STREET AND LUDLOW STREET																	
Delancey Street	EB	TR	0.49	12.8	B	TR	0.66	15.1	B	TR	0.79	17.3	B	TR	0.66	15.0	B
	WB	T	1.15	88.3	F	T	1.04	40.5	D	T	1.11	69.9	E	T	0.96	21.0	C
Ludlow Street	SB	LTR	0.85	49.4	D	LTR	1.14	124.2	F	LTR	1.20	145.0	F	LTR	1.29	180.5	F
Overall Intersection		-	**1.04**	**59.3**	**E**	-	**1.08**	**37.0**	**D**	-	**1.14**	**50.9**	**D**	-	**1.08**	**33.3**	**C**
12. DELANCEY STREET AND ESSEX STREET																	
Delancey Street	EB	TR	0.53	13.2	B	TR	0.70	15.7	B	TR	0.99	35.4	D	TR	0.90	25.0	C
	WB	T	1.17	101.2	F	T	1.03	38.8	D	T	1.09	69.8	E	T	1.03	41.8	D
		R	0.80	39.0	D	R	0.80	22.9	C	R	0.98	74.5	E	R	0.97	45.2	D
Essex Street	NB	LT	0.76	49.9	D	LT	0.65	40.6	D	LT	0.43	31.2	C	LT	0.65	39.5	D
		R	0.97	91.5	F	R	1.40	249.0	F	R	1.94	478.4	F	R	1.46	274.0	F
	SB	TR	0.93	54.7	D	TR	0.90	49.2	D	TR	0.81	39.8	D	TR	0.94	53.2	D
Overall Intersection		-	**1.11**	**64.8**	**E**	-	**1.15**	**39.3**	**D**	-	**1.37**	**72.5**	**E**	-	**1.12**	**45.3**	**D**

Table 13-20 (cont'd)
Seward Park Development EIS
2022 With Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
13. DELANCEY STREET AND NORFOLK STREET																	
Delancey Street	EB	T	0.59	13.9	B	T	0.72	15.9	B	T	1.09	67.2	E	T	0.75	16.1	B
	WB	TR	1.05	45.8	D	TR	1.02	39.2	D	TR	1.03	38.9	D	TR	0.96	26.1	C
Norfolk Street	NB	TR	0.89	48.3	D	TR	0.88	46.8	D	TR	0.94	52.2	D	TR	0.92	53.4	D
		R	0.88	48.3	D	R	0.88	48.8	D	R	0.97	59.3	E	R	0.93	55.1	E
Overall Intersection		-	**0.99**	**35.5**	**D**	-	**0.97**	**31.9**	**C**	-	**1.04**	**53.1**	**D**	-	**0.95**	**26.5**	**C**
14. DELANCEY STREET AND SUFFOLK STREET																	
Delancey Street	EB	TR	0.82	18.3	B	TR	0.94	23.9	C	TR	1.18	101.5	F	TR	1.06	50.1	D
	WB	T	0.96	20.6	C	T	0.85	18.1	B	T	0.92	19.8	B	T	0.81	17.2	B
Suffolk Street	SB	R	0.25	24.0	C	R	0.16	22.3	C	R	0.34	25.8	C	R	0.38	26.7	C
Overall Intersection		-	**0.69**	**19.6**	**B**	-	**0.65**	**21.1**	**C**	-	**0.86**	**64.3**	**E**	-	**0.80**	**35.4**	**D**
15. DELANCEY STREET AND CLINTON STREETL																	
Delancey Street	EB	T	0.73	15.9	B	T	0.88	19.8	B	T	1.17	98.0	F	T	1.05	43.2	D
Williamsburg Bridge	WB	T	1.26	138.8	F	T	1.05	54.3	D	T	1.27	147.3	F	T	0.99	34.5	C
		R	0.87	29.9	C	R	0.73	21.0	C	R	0.93	38.3	D	R	0.79	23.9	C
Delancey Street Service Road	WB	R	2.05	571.1	F	R	0.82	132.7	F	R	1.83	499.7	F	R	0.79	101.4	F
Clinton Street	NB	R	1.01	75.8	E	R	0.73	36.4	D	R	1.00	72.5	E	R	1.09	97.2	F
Overall Intersection		-	**1.16**	**82.2**	**F**	-	**0.93**	**35.8**	**D**	-	**1.17**	**111.9**	**F**	-	**1.06**	**42.4**	**D**
BROOME STREET																	
16. BROOME STREET AND ESSEX STREET																	
Broome Street	EB	LTR	0.20	21.9	C	LTR	0.19	21.8	C	LTR	0.18	21.8	C	LTR	0.25	22.6	C
Essex Street	NB	TR	0.32	11.9	B	TR	0.32	11.9	B	TR	0.41	12.7	B	TR	0.29	11.6	B
	SB	L	1.32	179.4	F	L	1.41	219.4	F	L	1.55	273.0	F	L	1.71	352.4	F
		T	0.33	12.3	B	T	0.31	12.0	B	T	0.36	11.9	B	T	0.27	11.6	B
Overall Intersection		-	**0.88**	**66.9**	**E**	-	**0.94**	**80.3**	**F**	-	**1.02**	**90.7**	**F**	-	**1.15**	**149.0**	**F**
17. BROOME STREET AND NORFOLK STREET																	
Broome Street	EB	L	0.72	22.6	C	L	0.69	21.4	C	L	1.58	308.7	F	L	0.94	44.7	D
	WB	R	0.18	11.1	B	R	0.20	11.4	B	R	0.56	39.2	D	R	0.26	12.1	B
Norfolk Street	NB	T	0.67	27.8	C	T	0.68	28.1	C	T	0.71	28.0	C	T	0.65	26.5	C
Overall Intersection		-	**0.70**	**23.5**	**C**	-	**0.68**	**23.1**	**C**	-	**1.07**	**151.3**	**F**	-	**0.83**	**34.0**	**C**
GRAND STREET																	
18. GRAND STREET AND ALLEN STREET																	
Grand Street	EB	LTR	0.97	42.4	D	LTR	1.17	110.1	F	LTR	1.02	65.5	E	LTR	1.11	98.8	F
	WB	LTR	0.82	43.8	D	LTR	0.93	60.8	E	LTR	0.81	43.6	D	LTR	0.86	50.8	D
Allen Street	NB	L	0.63	55.7	E	L	0.39	44.2	D	L	0.26	39.8	D	L	0.55	49.7	D
		TR	0.60	25.1	C	TR	0.50	22.8	C	TR	0.67	26.3	C	TR	0.48	20.2	C
	SB	L	0.90	80.0	F	L	0.93	70.7	E	L	0.82	59.5	E	L	1.08	119.4	F
		TR	0.65	26.0	C	TR	0.77	26.4	C	TR	0.68	24.9	C	TR	0.60	21.9	C
Overall Intersection		-	**0.79**	**36.4**	**D**	-	**0.87**	**48.5**	**D**	-	**0.83**	**37.4**	**D**	-	**0.79**	**48.7**	**D**
19. GRAND STREET AND ORCHARD STREET																	
Grand Street	EB	LT	0.69	22.6	C	LT	0.85	25.3	C	LT	0.76	24.6	C	LT	0.78	24.1	C
	WB	TR	0.58	22.9	C	TR	0.65	25.0	C	TR	0.57	22.7	C	TR	0.59	23.4	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B	LTR	0.17	15.7	B	LTR	0.14	15.4	B
Overall Intersection		-	**0.42**	**21.9**	**C**	-	**0.50**	**24.2**	**C**	-	**0.47**	**22.8**	**C**	-	**0.46**	**23.1**	**C**
20. GRAND STREET AND LUDLOW STREET																	
Grand Street	EB	TR	0.66	24.7	C	TR	0.78	29.7	C	TR	0.68	24.7	C	TR	0.66	23.8	C
	WB	LT	0.41	18.3	B	LT	0.47	19.5	B	LT	0.47	18.8	B	LT	0.47	20.0	B
Ludlow Street	SB	LTR	0.29	17.6	B	LTR	0.29	17.5	B	LTR	0.20	16.2	B	LTR	0.26	16.9	B
Overall Intersection		-	**0.48**	**21.1**	**C**	-	**0.53**	**23.9**	**C**	-	**0.44**	**21.3**	**C**	-	**0.46**	**21.3**	**C**

Table 13-20 (cont'd)
Seward Park Development EIS
2022 With Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM)				Weekday Midday (1:00 – 2:00 PM)				Weekday PM (5:15 – 6:15 PM)				Saturday (3:45 – 4:45 PM)			
		Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
21. GRAND STREET AND ESSEX STREET																	
Grand Street	EB	LTR	0.89	43.3	D	LTR	0.80	32.6	C	LTR	0.77	30.8	C	LTR	0.91	45.3	D
	WB	LTR	0.89	27.0	C	LTR	0.90	28.9	C	LTR	1.00	38.0	D	LTR	0.77	22.5	C
Essex Street	NB	LTR	0.42	18.5	B	LTR	0.33	17.2	B	LTR	0.40	18.2	B	LTR	0.26	16.3	B
	SB	DefL	0.49	25.0	C	LTR	0.38	18.5	B	LTR	0.38	18.3	B	LTR	0.29	16.9	B
		TR	0.35	18.7	B	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**0.69**	**28.4**	**C**	-	**0.64**	**25.4**	**C**	-	**0.70**	**27.8**	**C**	-	**0.60**	**27.6**	**C**
22. GRAND STREET AND NORFOLK STREET																	
Grand Street	EB	L	L	0.35	14.9	B	L	0.31	14.2	B	L	0.33	14.7	B	L	0.23	12.8
		T	T	0.49	16.2	B	T	0.39	14.6	B	T	0.37	14.0	B	T	0.35	13.7
	WB	T	T	0.53	15.3	B	T	0.51	15.2	B	T	0.54	14.9	B	T	0.46	14.4
		R	R	0.34	13.1	B	R	0.38	13.6	B	R	0.38	13.2	B	R	0.38	13.5
Overall Intersection		-	-	**0.54**	**15.0**	**B**	-	**0.52**	**14.6**	**B**	-	**0.54**	**14.3**	**B**	-	**0.46**	**13.8**
23. GRAND STREET AND SUFFOLK STREET																	
Grand Street	EB	T	0.45	15.2	B	T	0.34	13.9	B	T	0.31	13.3	B	T	0.34	13.7	B
	WB	T	0.76	22.6	C	T	0.77	22.9	C	T	0.84	25.5	C	T	0.77	22.6	C
Suffolk Street	SB	LR	0.37	23.3	C	LR	0.45	24.8	C	LR	0.47	25.3	C	LR	0.40	23.6	C
Overall Intersection		-	**0.60**	**20.5**	**C**	-	**0.64**	**21.2**	**C**	-	**0.69**	**22.9**	**C**	-	**0.62**	**20.7**	**C**
24. GRAND STREET AND CLINTON STREET																	
Grand Street	EB	LTR	0.58	19.6	B	LTR	0.59	20.3	C	LTR	0.54	18.9	B	LTR	0.57	19.5	B
	WB	L	0.07	12.0	B	L	0.08	12.2	B	L	0.05	11.7	B	L	0.05	11.8	B
		T	0.63	19.2	B	T	0.68	20.7	C	T	0.69	20.2	C	T	0.64	19.4	B
		R	1.13	106.2	F	R	1.00	66.7	E	R	1.30	171.7	F	R	1.36	200.0	F
Clinton Street	NB	LTR	0.76	37.8	D	LTR	0.55	31.1	C	LTR	0.75	36.6	D	LTR	0.68	34.3	C
Overall Intersection		-	**0.99**	**42.8**	**D**	-	**0.83**	**32.2**	**C**	-	**1.08**	**58.8**	**E**	-	**1.10**	**68.2**	**E**
25. GRAND STREET AND EAST BROADWAY																	
Grand Street	EB	T	0.17	7.2	A	T	0.14	6.9	A	T	0.13	6.8	A	T	0.13	6.9	A
	WB	LT	0.81	17.8	B	LT	0.92	24.6	C	LT	0.95	26.0	C	LT	0.88	20.2	C
East Broadway	NB	R	-	10.3	B	R	-	12.2	B	R	-	16.7	B	R	-	11.6	B
Overall Intersection		-	**0.82**	**15.4**	**B**	-	**0.92**	**21.3**	**C**	-	**0.95**	**23.1**	**C**	-	**0.88**	**18.1**	**B**
UNSIGNALIZED INTERSECTIONS																	
26. STANTON STREET AND LUDLOW STREET																	
Stanton Street	EB	TR	-	8.0	A	TR	-	9.0	A	TR	-	8.0	A	TR	-	8.6	A
Ludlow Street	SB	LT	-	9.2	A	LT	-	11.0	B	LT	-	9.8	A	LT	-	11.0	B
Overall Intersection		-	**-**	**9.0**	**A**	-	**-**	**10.4**	**B**	-	**-**	**9.4**	**A**	-	**-**	**10.3**	**B**
27. RIVINGTON STREET AND LUDLOW STREET																	
Rivington Street	WB	LT	-	12.4	B	LT	-	11.0	B	LT	-	11.6	B	LT	-	14.6	B
Ludlow Street	SB	TR	-	10.1	B	TR	-	10.9	B	TR	-	11.4	B	TR	-	13.7	B
Overall Intersection		-	**-**	**11.6**	**B**	-	**-**	**10.9**	**B**	-	**-**	**11.5**	**B**	-	**-**	**14.2**	**B**
28. BROOME STREET AND LUDLOW STREET																	
Broome Street	EB	TR	-	10.7	B	TR	-	14.5	B	TR	-	11.1	B	TR	-	12.7	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.5	A	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	**-**	**6.0**	**A**	-	**-**	**4.6**	**A**	-	**-**	**5.4**	**A**	-	**-**	**5.6**	**A**

Table 13-20 (cont'd)
Seward Park Development EIS
2022 With Action Traffic Levels of Service

Intersection & Approach		Weekday AM (8:00 – 9:00 AM) Mvt	V/C	Control Delay	LOS	Weekday Midday (1:00 – 2:00 PM) Mvt	V/C	Control Delay	LOS	Weekday PM (5:15 – 6:15 PM) Mvt	V/C	Control Delay	LOS	Saturday (3:45 – 4:45 PM) Mvt	V/C	Control Delay	LOS
UNSIGNALIZED INTERSECTIONS																	
29. BROOME STREET AND SUFFOLK STREET																	
Broome Street	WB	LT	-	7.6	A	LT	-	7.8	A	LT	-	15.7	C	LT	-	7.7	A
Suffolk Street	SB	TR	-	14.2	B	TR	-	14.2	B	TR	-	16.4	C	TR	-	14.9	B
Overall Intersection		-	-	**10.6**	**B**	-	-	**11.2**	**B**	-	-	**13.2**	**B**	-	-	**10.8**	**B**
30. BROOME STREET AND CLINTON STREET																	
Broome Street	NB	LTR	-	7.9	A	LTR	-	8.2	A	LTR	-	8.5	A	LTR	-	8.5	A
Overall Intersection		-	-	**1.3**	**A**	-	-	**1.4**	**A**	-	-	**1.5**	**A**	-	-	**1.4**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
[yellow] Denotes a significant impact.

Table 13-21a[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday AM Peak Hour Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
EAST HOUSTON STREET									
1. EAST HOUSTON STREET AND BOWERY									
East Houston Street	EB	L	0.28	30.5	C	L	0.28	30.9	C
		TR	0.69	29.4	C	TR	0.72	30.1	C
	WB	L	0.69	30.4	C	L	0.71	31.4	C
		TR	1.05	58.3	E	TR	1.08	69.9	E
Bowery	NB	L	0.86	44.0	D	L	0.86	44.0	D
		TR	0.92	41.3	D	TR	0.93	41.4	D
	SB	L	0.32	26.3	C	L	0.32	26.4	C
		TR	0.92	42.8	D	TR	0.92	42.8	D
Overall Intersection		-	**0.97**	**44.1**	**D**	-	**0.98**	**48.3**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET/SECOND AVENUE									
East Houston Street	EB	T	0.57	29.4	C	T	0.59	29.8	C
		R	0.82	49.4	D	R	0.87	55.6	E
	WB	L	0.72	45.7	D	L	0.74	48.4	D
		T	0.74	31.7	C	T	0.77	32.5	C
Chrystie Street / Second Avenue	NB	L	0.89	42.3	D	L	0.89	42.7	D
		LR	0.83	40.5	D	LR	0.84	40.7	D
	SB	L	0.78	38.8	D	L	0.78	38.8	D
		LT	0.76	35.1	D	LT	0.79	35.9	D
		R	1.01	64.0	E	R	1.01	64.0	E
Overall Intersection		-	**0.90**	**39.0**	**D**	-	**0.91**	**39.8**	**D**
3. EAST HOUSTON STREET AND ALLEN STREET/FIRST AVENUE									
East Houston Street	EB	L	0.90	42.4	D	L	0.90	42.2	D
		T	0.86	33.1	C	T	0.89	34.3	C
		R	0.90	47.0	D	R	0.90	47.0	D
	WB	L	0.36	24.8	C	L	0.36	25.3	C
		TR	1.13	101.3	F	TR	1.16	114.7	F
Allen Street	NB	L	0.70	37.6	D	L	0.74	39.3	D
		T	1.10	90.7	F	T	1.11	95.9	F
		R	0.41	32.5	C	R	0.41	32.5	C
Overall Intersection		-	**1.13**	**66.0**	**E**	-	**1.13**	**71.2**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET/AVENUE A									

[1] This table is new to the FGEIS.

Table 13-21a[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday AM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
East Houston Street	EB	L	0.57	21.6	C	L	0.59	22.5	C
		TR	0.69	27.3	C	TR	0.72	28.0	C
	WB	L	0.64	22.7	C	L	0.65	23.4	C
		T	0.77	30.0	C	T	0.79	30.9	C
		R	0.11	19.9	B	R	0.11	19.9	B
Essex Street / Avenue A	NB	LTR	0.77	35.0	C	LTR	0.79	36.0	D
	SB	LTR	0.97	50.5	D	LTR	1.02	63.1	E
Overall Intersection		-	**0.87**	**31.8**	**C**	-	**0.91**	**34.3**	**C**
STANTON STREET									
5. STANTON STREET AND ESSEX STREET									
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.23	22.4	C
Essex Street	NB	TR	0.33	12.0	B	TR	0.33	12.0	B
	SB	LT	0.39	12.4	B	LT	0.42	12.7	B
Overall Intersection		-	**0.33**	**13.1**	**B**	-	**0.34**	**13.3**	**B**
6. STANTON STREET AND NORFOLK STREET									
Stanton Street	EB	LT	0.23	16.4	B	LT	0.23	16.4	B
Norfolk Street	NB	TR	0.45	19.7	B	TR	0.52	21.2	C
Overall Intersection		-	**0.34**	**18.6**	**B**	-	**0.38**	**19.7**	**B**
RIVINGTON STREET									
7. RIVINGTON STREET AND ESSEX STREET									
Rivington Street	WB	LTR	1.07	92.4	F	LTR	1.22	148.0	F
Essex Street	NB	LT	0.35	11.9	B	LT	0.36	12.0	B
	SB	TR	0.35	12.2	B	TR	0.38	12.6	B
Overall Intersection		-	**0.63**	**39.4**	**D**	-	**0.70**	**60.1**	**E**
8. RIVINGTON STREET AND NORFOLK STREET									
Rivington Street	WB	TR	0.69	26.4	C	TR	0.71	27.1	C
Norfolk Street	NB	LT	0.45	18.1	B	LT	0.58	19.8	B
Overall Intersection		-	**0.57**	**22.5**	**C**	-	**0.64**	**23.4**	**C**
DELANCEY STREET									
9. DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.98	40.4	D	TR	1.02	50.6	D
	WB	L	0.82	48.0	D	L	0.84	49.9	D
		TR	1.08	64.6	E	TR	1.09	68.5	E
Allen Street	NB	T	0.67	33.4	C	T	0.70	34.3	C
		R	0.23	9.0	A	R	0.24	9.1	A
	SB	TR	0.55	31.1	C	TR	0.56	31.3	C
Overall Intersection		-	**0.96**	**49.6**	**D**	-	**0.97**	**54.5**	**D**
10. DELANCEY STREET AND ORCHARD STREET									
Delancey Street	EB	T	0.45	12.0	B	T	0.46	12.2	B
	WB	TR	0.86	19.4	B	TR	0.87	19.6	B
Orchard Street	NB	LTR	0.22	22.7	C	LTR	0.22	22.7	C
Overall Intersection		-	**0.62**	**17.0**	**B**	-	**0.63**	**17.1**	**B**
11. DELANCEY STREET AND LUDLOW STREET									
Delancey Street	EB	TR	0.47	12.5	B	TR	0.49	12.8	B
	WB	T	1.14	85.3	F	T	1.15	88.3	F
Ludlow Street	SB	LTR	0.78	42.0	D	LTR	0.85	49.4	D
Overall Intersection		-	**1.01**	**57.5**	**E**	-	**1.04**	**59.3**	**E**
12. DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.51	12.9	B	TR	0.53	13.2	B
	WB	T	1.17	99.9	F	T	1.17	101.2	F
Essex Street		R	0.76	34.3	C	R	0.80	39.0	D
	NB	LT	0.69	44.5	D	LT	0.76	49.9	D
		R	0.80	57.7	E	R	0.97	91.5	F
	SB	TR	0.82	42.2	D	TR	0.93	54.7	D
Overall Intersection		-	**1.06**	**62.0**	**E**	-	**1.11**	**64.8**	**E**
13. DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	0.57	13.7	B	T	0.59	13.9	B
	WB	TR	1.03	37.8	D	TR	1.05	45.8	D
Norfolk Street	NB	TR	0.74	35.7	D	TR	0.89	48.3	D
		R	0.71	34.6	C	R	0.88	48.3	D

Table 13-21a[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday AM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
Overall Intersection		-	**0.92**	**29.3**	**C**	-	**0.99**	**35.5**	**D**
14. DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	TR	0.74	16.3	B	TR	0.82	18.3	B
	WB	T	0.94	20.0	C	T	0.96	20.6	C
Suffolk Street	SB	R	0.21	23.0	C	R	0.25	24.0	C
Overall Intersection		-	**0.67**	**18.4**	**B**	-	**0.69**	**19.6**	**B**
15. DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.72	15.7	B	T	0.73	15.9	B
Williamsburg Bridge	WB	T	1.24	132.0	F	T	1.26	138.8	F
		R	0.86	28.8	C	R	0.87	29.9	C
Delancey Street Service Road	WB	R	2.05	571.1	F	R	2.05	571.1	F
Clinton Street	NB	R	1.01	75.8	E	R	1.01	75.8	E
Overall Intersection		-	**1.15**	**78.9**	**E**	-	**1.16**	**82.2**	**F**
BROOME STREET									
16. BROOME STREET AND ESSEX STREET									
Broome Street	EB	LTR	0.17	21.3	C	LTR	0.20	21.9	C
Essex Street	NB	TR	0.30	11.6	B	TR	0.32	11.9	B
	SB	L	0.92	44.6	D	L	1.32	179.4	F
		T	0.33	12.3	B	T	0.33	12.3	B
Overall Intersection		-	**0.63**	**21.7**	**C**	-	**0.88**	**66.9**	**E**
17. BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.43	14.0	B	L	0.72	22.6	C
	WB	R	0.11	10.2	B	R	0.18	11.1	B
Norfolk Street	NB	T	0.53	25.1	C	T	0.67	27.8	C
Overall Intersection		-	**0.47**	**18.2**	**B**	-	**0.70**	**23.5**	**C**
GRAND STREET									
18. GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.88	33.5	C	LTR	0.97	42.4	D
	WB	LTR	0.69	34.5	C	LTR	0.82	43.8	D
Allen Street	NB	L	0.63	55.7	E	L	0.63	55.7	E
		TR	0.59	24.9	C	TR	0.60	25.1	C
	SB	L	0.86	73.7	E	L	0.90	80.0	F
		TR	0.65	26.0	C	TR	0.65	26.0	C
Overall Intersection		-	**0.75**	**32.8**	**C**	-	**0.79**	**36.4**	**D**
19. GRAND STREET AND ORCHARD STREET									
Grand Street	EB	LT	0.63	21.1	C	LT	0.69	22.6	C
	WB	TR	0.50	21.0	C	TR	0.58	22.9	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B
Overall Intersection		-	**0.39**	**20.4**	**C**	-	**0.42**	**21.9**	**C**
20. GRAND STREET AND LUDLOW STREET									
Grand Street	EB	TR	0.59	22.6	C	TR	0.66	24.7	C
	WB	LT	0.34	17.3	B	LT	0.41	18.3	B
Ludlow Street	SB	LTR	0.28	17.4	B	LTR	0.29	17.6	B
Overall Intersection		-	**0.44**	**19.8**	**B**	-	**0.48**	**21.1**	**C**
21. GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.80	33.4	C	LTR	0.89	43.3	D
	WB	LTR	0.72	21.8	C	LTR	0.89	27.0	C
		LTR	0.38	17.9	B	LTR	0.42	18.5	B
Essex Street	NB	DefL	0.45	22.9	C	DefL	0.49	25.0	C
	SB	TR	0.31	17.7	B	TR	0.35	18.7	B
		LTR	0.80	33.4	C	LTR	0.89	43.3	D
Overall Intersection		-	**0.62**	**23.6**	**C**	-	**0.69**	**28.4**	**C**
22. GRAND STREET AND NORFOLK STREET									
Grand Street	EB	L	0.21	12.6	B	L	0.35	14.9	B
		T	0.49	16.2	B	T	0.49	16.2	B
	WB	T	0.43	14.1	B	T	0.53	15.3	B
		R	0.28	12.5	B	R	0.34	13.1	B
Overall Intersection		-	**0.50**	**14.3**	**B**	-	**0.54**	**15.0**	**B**

Table 13-21a (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday AM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
23. GRAND STREET AND SUFFOLK STREET									
Grand Street	EB	T	0.45	15.2	B	T	0.45	15.2	B
	WB	T	0.71	20.5	C	T	0.76	22.6	C
Suffolk Street	SB	LR	0.11	19.3	B	LR	0.37	23.3	C
Overall Intersection		-	**0.46**	**18.5**	**B**	-	**0.60**	**20.5**	**C**
24. GRAND STREET AND CLINTON STREET									
Grand Street	EB	TR	0.50	17.8	B	LTR	0.58	19.6	B
	WB	L	0.06	11.9	B	L	0.07	12.0	B
		T	0.58	18.1	B	T	0.63	19.2	B
		R	1.00	65.8	E	R	1.13	106.2	F
Clinton Street	NB	LTR	0.75	36.8	D	LTR	0.76	37.8	D
Overall Intersection		-	**0.90**	**33.2**	**C**	-	**0.99**	**42.8**	**D**
25. GRAND STREET AND EAST BROADWAY									
Grand Street	EB	T	0.16	7.1	A	T	0.17	7.2	A
	WB	LT	0.76	15.5	B	LT	0.81	17.8	B
East Broadway	NB	R	-	10.2	B	R	-	10.3	B
Overall Intersection		-	**0.76**	**13.6**	**B**	-	**0.82**	**15.4**	**B**
UNSIGNALIZED INTERSECTIONS									
26. STANTON STREET AND LUDLOW STREET									
Stanton Street	EB	TR	-	8.0	A	TR	-	8.0	A
Ludlow Street	SB	LT	-	9.2	A	LT	-	9.2	A
Overall Intersection		-	**-**	**8.9**	**A**	-	**-**	**9.0**	**A**
27. RIVINGTON STREET AND LUDLOW STREET									
Rivington Street	WB	LT	-	12.3	B	LT	-	12.4	B
Ludlow Street	SB	TR	-	10.0	A	TR	-	10.1	B
Overall Intersection		-	**-**	**11.5**	**B**	-	**-**	**11.6**	**B**
28. BROOME STREET AND LUDLOW STREET									
Broome Street	EB	TR	-	10.5	B	TR	-	10.7	B
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.5	A
Overall Intersection		-	**-**	**5.9**	**A**	-	**-**	**6.0**	**A**
29. BROOME STREET AND SUFFOLK STREET									
Broome Street	WB	LT	-	7.6	A	LT	-	7.6	A
Suffolk Street	SB	TR	-	10.6	B	TR	-	14.2	B
Overall Intersection		-	**-**	**6.1**	**A**	-	**-**	**10.6**	**B**
30. BROOME STREET AND CLINTON STREET									
Broome Street	NB	LTR	-	7.9	A	LTR	-	7.9	A
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.3**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

Table 13-21b[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday Midday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
EAST HOUSTON STREET									
1. EAST HOUSTON STREET AND BOWERY									
East Houston Street	EB	L	0.43	32.5	C	L	0.43	32.7	C
		TR	0.78	31.6	C	TR	0.81	32.4	C
	WB	L	0.82	44.2	D	L	0.83	46.1	D
		TR	0.90	35.2	D	TR	0.93	37.6	D
Bowery	NB	L	0.53	30.1	C	L	0.53	30.1	C
		TR	0.76	35.6	D	TR	0.76	35.8	D
	SB	L	0.41	25.7	C	L	0.41	25.8	C
		TR	0.82	38.2	D	TR	0.82	38.2	D
Overall Intersection		-	**0.91**	**34.7**	**C**	-	**0.91**	**35.8**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET/SECOND AVENUE									
East Houston Street	EB	T	0.77	34.0	C	T	0.79	34.8	C
		R	0.75	42.7	D	R	0.80	46.2	D
	WB	L	0.68	53.7	D	L	0.73	61.2	E
		T	0.66	30.5	C	T	0.69	31.2	C
Chrystie Street / Second Avenue	NB	L	0.60	36.5	D	L	0.61	36.8	D
		LR	0.57	37.2	D	LR	0.57	37.2	D
	SB	L	0.84	36.6	D	L	0.85	36.7	D
		LT	0.86	35.4	D	LT	0.90	36.5	D
		R	1.14	100.0	F	R	1.14	100.0	F
Overall Intersection		-	**0.82**	**42.6**	**D**	-	**0.83**	**43.3**	**D**
3. EAST HOUSTON STREET AND ALLEN STREET/FIRST AVENUE									
East Houston Street	EB	L	0.69	28.7	C	L	0.69	29.4	C
		T	0.96	36.3	D	T	0.98	39.6	D
		R	1.41	220.9	F	R	1.41	220.9	F
	WB	L	0.22	23.8	C	L	0.22	24.1	C
		TR	0.95	50.8	D	TR	1.00	60.9	E
Allen Street	NB	L	0.51	32.8	C	L	0.54	33.4	C
		T	0.87	43.3	D	T	0.89	44.7	D
		R	0.33	31.4	C	R	0.33	31.4	C
Overall Intersection		-	**1.07**	**58.3**	**E**	-	**1.08**	**61.7**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET/AVENUE A									
East Houston Street	EB	L	0.43	14.5	B	L	0.47	15.0	B
		TR	0.80	28.0	C	TR	0.84	28.9	C
	WB	L	0.74	31.3	C	L	0.76	33.3	C
		T	0.62	26.4	C	T	0.66	27.2	C
		R	0.10	19.8	B	R	0.11	19.9	B
Essex Street / Avenue A	NB	LTR	0.77	35.3	D	LTR	0.81	37.6	D
	SB	LTR	1.08	74.6	E	LTR	1.16	109.2	F
Overall Intersection		-	**0.94**	**34.6**	**C**	-	**0.99**	**40.6**	**D**
STANTON STREET									
5. STANTON STREET AND ESSEX STREET									
Stanton Street	EB	LTR	0.48	27.8	C	LTR	0.51	28.7	C
Essex Street	NB	TR	0.25	11.2	B	TR	0.27	11.4	B
	SB	LT	0.36	12.0	B	LT	0.39	12.4	B
Overall Intersection		-	**0.41**	**14.5**	**B**	-	**0.43**	**14.8**	**B**
6. STANTON STREET AND NORFOLK STREET									
Stanton Street	EB	LT	0.19	15.9	B	LT	0.22	16.2	B
Norfolk Street	NB	TR	0.52	20.8	C	TR	0.64	23.9	C
Overall Intersection		-	**0.36**	**19.4**	**B**	-	**0.43**	**21.9**	**C**

[1] This table is new to the FGEIS.

Table 13-21b (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday Midday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
RIVINGTON STREET									
7. RIVINGTON STREET AND ESSEX STREET									
Rivington Street	WB	LTR	0.71	35.3	D	LTR	0.89	51.8	D
Essex Street	NB	LT	0.29	11.4	B	LT	0.31	11.5	B
	SB	TR	0.44	13.5	B	TR	0.48	14.0	B
Overall Intersection		-	**0.54**	**17.9**	**B**	-	**0.64**	**22.8**	**C**
8. RIVINGTON STREET AND NORFOLK STREET									
Rivington Street	WB	TR	0.26	17.1	B	TR	0.30	17.6	B
Norfolk Street	NB	LT	0.61	20.7	C	LT	0.81	26.0	C
Overall Intersection		-	**0.44**	**19.7**	**B**	-	**0.55**	**23.9**	**C**
DELANCEY STREET									
9. DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.77	26.4	C	TR	0.80	27.4	C
	WB	L	0.71	39.7	D	L	0.73	40.5	D
		TR	0.85	17.0	B	TR	0.86	17.5	B
Allen Street	NB	T	0.65	33.1	C	T	0.68	34.0	C
		R	0.36	15.8	B	R	0.38	16.2	B
	SB	TR	0.68	32.5	C	TR	0.69	32.6	C
Overall Intersection		-	**0.80**	**24.0**	**C**	-	**0.81**	**24.7**	**C**
10. DELANCEY STREET AND ORCHARD STREET									
Delancey Street	EB	T	0.62	14.2	B	T	0.64	14.6	B
	WB	TR	0.72	15.9	B	TR	0.73	16.1	B
Orchard Street	NB	LTR	0.30	24.0	C	LTR	0.30	24.0	C
Overall Intersection		-	**0.56**	**15.4**	**B**	-	**0.57**	**15.6**	**B**
11. DELANCEY STREET AND LUDLOW STREET									
Delancey Street	EB	TR	0.63	14.6	B	TR	0.66	15.1	B
	WB	T	1.02	36.8	D	T	1.04	40.5	D
Ludlow Street	SB	LTR	1.01	79.7	E	LTR	1.14	124.2	F
Overall Intersection		-	**1.02**	**31.4**	**C**	-	**1.08**	**37.0**	**D**
12. DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.67	15.2	B	TR	0.70	15.7	B
	WB	T	1.03	37.7	D	T	1.03	38.8	D
Essex Street		R	0.70	18.2	B	R	0.80	22.9	C
	NB	LT	0.54	36.1	D	LT	0.65	40.6	D
		R	0.91	74.3	E	R	1.40	249.0	F
	SB	TR	0.76	38.8	D	TR	0.90	49.2	D
Overall Intersection		-	**0.99**	**30.5**	**C**	-	**1.15**	**39.3**	**D**
13. DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	0.69	15.4	B	T	0.72	15.9	B
	WB	TR	1.00	32.8	C	TR	1.02	39.2	D
Norfolk Street	NB	TR	0.64	31.5	C	TR	0.88	46.8	D
		R	0.67	33.0	C	R	0.88	48.8	D
Overall Intersection		-	**0.88**	**26.2**	**C**	-	**0.97**	**31.9**	**C**
14. DELANCEY STREET AND SUFFOLK STREEET									
Delancey Street	EB	TR	0.83	18.2	B	TR	0.94	23.9	C
	WB	T	0.84	17.8	B	T	0.85	18.1	B
Suffolk Street	SB	R	0.12	21.4	C	R	0.16	22.3	C
Overall Intersection		-	**0.57**	**18.1**	**B**	-	**0.65**	**21.1**	**C**
15. DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.86	19.1	B	T	0.88	19.8	B
Williamsburg Bridge	WB	T	1.04	50.2	D	T	1.05	54.3	D
		R	0.71	20.3	C	R	0.73	21.0	C
Delancey Street Service Road	WB	R	0.68	93.4	F	R	0.82	132.7	F
Clinton Street	NB	R	0.73	36.4	D	R	0.73	36.4	D
Overall Intersection		-	**0.92**	**33.6**	**C**	-	**0.93**	**35.8**	**D**

Table 13-21b (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday Midday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
BROOME STREET									
16. BROOME STREET AND ESSEX STREET									
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.19	21.8	C
Essex Street	NB	TR	0.28	11.4	B	TR	0.32	11.9	B
	SB	L	0.83	31.5	C	L	1.41	219.4	F
		T	0.30	11.9	B	T	0.31	12.0	B
Overall Intersection		-	**0.56**	**18.0**	**B**	-	**0.94**	**80.3**	**F**
17. BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.37	12.9	B	L	0.69	21.4	C
	WB	R	0.10	10.2	B	R	0.20	11.4	B
Norfolk Street	NB	T	0.49	24.6	C	T	0.68	28.1	C
Overall Intersection		-	**0.41**	**17.4**	**B**	-	**0.68**	**23.1**	**C**
GRAND STREET									
18. GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	1.11	87.6	F	LTR	1.28	158.9	F
	WB	LTR	0.87	52.3	D	LTR	1.05	92.2	F
Allen Street	NB	L	0.39	44.2	D	L	0.39	44.2	D
		TR	0.49	22.5	C	TR	0.50	22.8	C
	SB	L	0.89	64.8	E	L	0.93	70.7	E
		TR	0.77	26.3	C	TR	0.77	26.4	C
Overall Intersection		-	**0.85**	**42.5**	**D**	-	**0.91**	**62.3**	**E**
19. GRAND STREET AND ORCHARD STREET									
Grand Street	EB	LT	0.71	21.7	C	LT	0.85	25.3	C
	WB	TR	0.55	21.9	C	TR	0.65	25.0	C
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B
Overall Intersection		-	**0.43**	**21.1**	**C**	-	**0.50**	**24.2**	**C**
20. GRAND STREET AND LUDLOW STREET									
Grand Street	EB	TR	0.68	25.4	C	TR	0.78	29.7	C
	WB	LT	0.37	17.8	B	LT	0.47	19.5	B
Ludlow Street	SB	LTR	0.27	17.2	B	LTR	0.29	17.5	B
Overall Intersection		-	**0.48**	**21.3**	**C**	-	**0.53**	**23.9**	**C**
21. GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.68	26.1	C	LTR	0.80	32.6	C
	WB	LTR	0.64	20.6	C	LTR	0.90	28.9	C
Essex Street	NB	LTR	0.30	16.9	B	LTR	0.33	17.2	B
	SB	LTR	0.34	17.8	B	LTR	0.38	18.5	B
Overall Intersection		-	**0.51**	**20.6**	**C**	-	**0.64**	**25.4**	**C**
22. GRAND STREET AND NORFOLK STREET									
Grand Street	EB	L	0.15	11.8	B	L	0.31	14.2	B
		T	0.39	14.6	B	T	0.39	14.6	B
	WB	T	0.38	13.5	B	T	0.51	15.2	B
		R	0.30	12.7	B	R	0.38	13.6	B
Overall Intersection		-	**0.40**	**13.5**	**B**	-	**0.52**	**14.6**	**B**
23. GRAND STREET AND SUFFOLK STREET									
Grand Street	EB	T	0.34	13.9	B	T	0.34	13.9	B
	WB	T	0.69	19.8	B	T	0.77	22.9	C
Suffolk Street	SB	LR	0.07	18.9	B	LR	0.45	24.8	C
Overall Intersection		-	**0.43**	**17.9**	**B**	-	**0.64**	**21.2**	**C**
24. GRAND STREET AND CLINTON STREET									
Grand Street	EB	TR	0.46	17.1	B	LTR	0.59	20.3	C
	WB	L	0.07	12.0	B	L	0.08	12.2	B
		T	0.60	18.8	B	T	0.68	20.7	C
		R	0.74	27.1	C	R	1.00	66.7	E
Clinton Street	NB	LTR	0.51	29.7	C	LTR	0.55	31.1	C
Overall Intersection		-	**0.65**	**22.0**	**C**	-	**0.83**	**32.2**	**C**

Table 13-21b (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday Midday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
25. GRAND STREET AND EAST BROADWAY									
Grand Street	EB	T	0.13	6.9	A	T	0.14	6.9	A
	WB	LT	0.85	18.6	B	LT	0.92	24.6	C
East Broadway	NB	R	-	12.1	B	R	-	12.2	B
Overall Intersection		-	**0.85**	**16.5**	**B**	-	**0.92**	**21.3**	**C**
UNSIGNALIZED INTERSECTIONS									
26. STANTON STREET AND LUDLOW STREET									
Stanton Street	EB	TR	-	9.0	A	TR	-	9.0	A
Ludlow Street	SB	LT	-	10.8	B	LT	-	11.0	B
Overall Intersection		-	**-**	**10.3**	**B**	-	**-**	**10.4**	**B**
27. RIVINGTON STREET AND LUDLOW STREET									
Rivington Street	WB	LT	-	10.9	B	LT	-	11.0	B
Ludlow Street	SB	TR	-	10.7	B	TR	-	10.9	B
Overall Intersection		-	**-**	**10.8**	**B**	-	**-**	**10.9**	**B**
28. BROOME STREET AND LUDLOW STREET									
Broome Street	EB	TR	-	14.0	B	TR	-	14.5	B
Ludlow Street	SB	LT	-	7.4	A	LT	-	7.5	A
Overall Intersection		-	**-**	**4.4**	**A**	-	**-**	**4.6**	**A**
29. BROOME STREET AND SUFFOLK STREET									
Broome Street	WB	LT	-	7.8	A	LT	-	7.8	A
Suffolk Street	SB	TR	-	10.6	B	TR	-	14.2	B
Overall Intersection		-	**-**	**5.3**	**A**	-	**-**	**11.2**	**B**
30. BROOME STREET AND CLINTON STREET									
Broome Street	NB	LTR	-	8.1	A	LTR	-	8.2	A
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.4**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

Table 13-21c[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday PM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
EAST HOUSTON STREET									
1. EAST HOUSTON STREET AND BOWERY									
East Houston Street	EB	L	0.41	33.2	C	L	0.41	33.5	C
		TR	0.75	30.5	C	TR	0.78	31.3	C
	WB	L	0.71	41.0	D	L	0.73	42.5	D
		TR	1.05	67.6	E	TR	1.09	83.1	F
Bowery	NB	L	0.83	53.0	D	L	0.83	53.0	D
		TR	0.69	33.3	C	TR	0.70	33.4	C
	SB	L	0.49	27.1	C	L	0.49	27.2	C
		TR	1.01	55.0	D	TR	1.01	55.0	D
Overall Intersection		-	**0.96**	**48.7**	**D**	-	**0.96**	**54.2**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET/SECOND AVENUE									
East Houston Street	EB	T	0.72	32.5	C	T	0.75	33.3	C
		R	1.15	128.8	F	R	1.21	153.3	F
	WB	L	0.94	94.1	F	L	0.99	110.0	F
		T	0.64	30.1	C	T	0.68	30.9	C
Chrystie Street / Second Avenue	NB	L	0.71	38.5	D	L	0.72	38.8	D
		LR	0.68	39.0	D	LR	0.68	39.2	D
	SB	L	1.06	77.3	E	L	1.06	78.5	E
		LT	1.12	93.6	F	LT	1.15	108.4	F
		R	1.07	77.8	E	R	1.07	77.8	E
Overall Intersection		-	**1.01**	**62.2**	**E**	-	**1.05**	**67.9**	**E**
3. EAST HOUSTON STREET AND ALLEN STREET/FIRST AVENUE									
East Houston Street	EB	L	0.71	33.6	C	L	0.71	34.4	C
		T	0.91	39.1	D	T	0.94	42.7	D
		R	0.98	73.7	E	R	0.98	73.7	E
	WB	L	0.30	24.9	C	L	0.30	25.6	C
		TR	0.90	42.4	D	TR	0.96	50.7	D
Allen Street	NB	L	0.44	31.1	C	L	0.48	31.9	C
		T	1.13	103.5	F	T	1.15	111.2	F
		R	0.22	29.0	C	R	0.22	29.0	C
Overall Intersection		-	**0.98**	**56.2**	**E**	-	**1.10**	**61.0**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET/AVENUE A									
East Houston Street	EB	L	0.32	14.9	B	L	0.34	15.5	B
		TR	0.78	29.3	C	TR	0.82	30.8	C
	WB	L	1.00	85.1	F	L	1.03	92.1	F
		T	0.66	26.9	C	T	0.71	28.0	C
		R	0.26	22.0	C	R	0.27	22.2	C
Essex Street / Avenue A	NB	LTR	0.74	33.8	C	LTR	0.78	35.2	D
	SB	LTR	0.98	51.9	D	LTR	1.05	69.9	E
Overall Intersection		-	**0.99**	**36.6**	**D**	-	**1.05**	**40.4**	**D**
STANTON STREET									
5. STANTON STREET AND ESSEX STREET									
Stanton Street	EB	LTR	0.29	23.5	C	LTR	0.30	23.7	C
Essex Street	NB	TR	0.32	11.9	B	TR	0.34	12.1	B
	SB	LT	0.39	12.3	B	LT	0.42	12.6	B
Overall Intersection		-	**0.35**	**13.3**	**B**	-	**0.37**	**13.5**	**B**
6. STANTON STREET AND NORFOLK STREET									
Stanton Street	EB	LT	0.16	15.5	B	LT	0.17	15.6	B
Norfolk Street	NB	TR	0.42	18.9	B	TR	0.55	21.5	C
Overall Intersection		-	**0.29**	**17.9**	**B**	-	**0.36**	**20.0**	**C**

[1] This table is new to the FGEIS.

Table 13-21c (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday PM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
RIVINGTON STREET									
7. RIVINGTON STREET AND ESSEX STREET									
Rivington Street	WB	LTR	0.85	45.4	D	LTR	0.97	65.4	E
Essex Street	NB	LT	0.33	11.5	B	LT	0.35	11.6	B
	SB	TR	0.45	13.6	B	TR	0.49	14.0	B
Overall Intersection		-	**0.61**	**21.1**	**C**	-	**0.67**	**26.9**	**C**
8. RIVINGTON STREET AND NORFOLK									
Rivington Street	WB	TR	0.52	21.4	C	TR	0.55	21.9	C
Norfolk Street	NB	LT	0.55	19.2	B	LT	0.75	22.8	C
Overall Intersection		-	**0.54**	**20.3**	**C**	-	**0.65**	**22.4**	**C**
DELANCEY STREET									
9. DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	1.11	87.6	F	TR	1.15	102.0	F
	WB	L	0.69	41.4	D	L	0.71	42.2	D
		TR	1.08	64.3	E	TR	1.09	69.0	E
Allen Street	NB	T	0.63	32.3	C	T	0.66	33.2	C
		R	0.46	17.4	B	R	0.49	18.0	B
	SB	TR	0.54	30.6	C	TR	0.55	30.7	C
Overall Intersection		-	**0.95**	**65.2**	**E**	-	**0.96**	**72.7**	**E**
10. DELANCEY STREET AND ORCHARD STREET									
Delancey Street	EB	T	0.72	15.3	B	T	0.74	15.7	B
	WB	TR	0.83	18.0	B	TR	0.83	18.1	B
Orchard Street	NB	LTR	0.28	23.6	C	LTR	0.28	23.6	C
Overall Intersection		-	**0.62**	**16.9**	**B**	-	**0.63**	**17.1**	**B**
11. DELANCEY STREET AND LUDLOW STREET									
Delancey Street	EB	TR	0.76	16.7	B	TR	0.79	17.3	B
	WB	T	1.10	68.3	E	T	1.11	69.9	E
Ludlow Street	SB	LTR	1.09	105.3	F	LTR	1.20	145.0	F
Overall Intersection		-	**1.10**	**47.4**	**D**	-	**1.14**	**50.9**	**D**
12. DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.97	30.7	C	TR	0.99	35.4	D
	WB	T	1.09	68.9	E	T	1.09	69.8	E
		R	0.89	51.5	D	R	0.98	74.5	E
Essex Street	NB	T	0.40	30.7	C	LT	0.43	31.2	C
		R	1.38	228.7	F	R	1.94	478.4	F
	SB	TR	0.71	35.5	D	TR	0.81	39.8	D
Overall Intersection		-	**1.18**	**56.9**	**E**	-	**1.37**	**72.5**	**E**
13. DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	1.06	56.8	E	T	1.09	67.2	E
	WB	TR	1.01	34.0	C	TR	1.03	38.9	D
Norfolk Street	NB	TR	0.72	33.1	C	TR	0.94	52.2	D
		R	0.71	33.3	C	R	0.97	59.3	E
Overall Intersection		-	**0.93**	**43.8**	**D**	-	**1.04**	**53.1**	**D**
14. DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	TR	1.07	53.6	D	TR	1.18	101.5	F
	WB	T	0.91	19.5	B	T	0.92	19.8	B
Suffolk Street	SB	R	0.26	23.6	C	R	0.34	25.8	C
Overall Intersection		-	**0.76**	**37.6**	**D**	-	**0.86**	**64.3**	**E**
15. DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	1.14	87.3	F	T	1.17	98.0	F
Williamsburg Bridge	WB	T	1.27	143.8	F	T	1.27	147.3	F
		R	0.92	35.5	D	R	0.93	38.3	D
Delancey Street Service Road	WB	R	1.83	499.7	F	R	1.83	499.7	F
Clinton Street	NB	R	1.00	72.5	E	R	1.00	72.5	E
Overall Intersection		-	**1.17**	**105.6**	**F**	-	**1.17**	**111.9**	**F**

Table 13-21c (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday PM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
BROOME STREET									
16. BROOME STREET AND ESSEX STREET									
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.18	21.8	C
Essex Street	NB	TR	0.37	12.2	B	TR	0.41	12.7	B
	SB	L	1.05	59.0	E	L	1.55	273.0	F
		T	0.36	11.8	B	T	0.36	11.9	B
Overall Intersection		-	**0.70**	**24.9**	**C**	-	**1.02**	**90.7**	**F**
17. BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.88	52.0	D	L	1.58	308.7	F
	WB	R	0.28	29.2	C	R	0.56	39.2	D
Norfolk Street	NB	T	0.54	24.9	C	T	0.71	28.0	C
Overall Intersection		-	**0.68**	**37.5**	**D**	-	**1.07**	**151.3**	**F**
GRAND STREET									
18. GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.90	42.8	D	LTR	1.02	65.5	E
	WB	LTR	0.61	32.1	C	LTR	0.81	43.6	D
Allen Street	NB	L	0.26	39.8	D	L	0.26	39.8	D
		TR	0.66	26.1	C	TR	0.67	26.3	C
	SB	L	0.79	57.1	E	L	0.82	59.5	E
		TR	0.68	24.9	C	TR	0.68	24.9	C
Overall Intersection		-	**0.77**	**31.6**	**C**	-	**0.83**	**37.4**	**D**
19. GRAND STREET AND ORCHARD STREET									
Grand Street	EB	LT	0.68	22.4	C	LT	0.76	24.6	C
	WB	TR	0.46	20.1	C	TR	0.57	22.7	C
Orchard Street	NB	LTR	0.17	15.7	B	LTR	0.17	15.7	B
Overall Intersection		-	**0.43**	**20.7**	**C**	-	**0.47**	**22.8**	**C**
20. GRAND STREET AND LUDLOW STREET									
Grand Street	EB	TR	0.60	22.5	C	TR	0.68	24.7	C
	WB	LT	0.34	17.1	B	LT	0.47	18.8	B
Ludlow Street	SB	LTR	0.18	15.9	B	LTR	0.20	16.2	B
Overall Intersection		-	**0.39**	**19.7**	**B**	-	**0.44**	**21.3**	**C**
21. GRAND STREET AND ESSEX STSREET									
Grand Street	EB	LTR	0.68	26.2	C	LTR	0.77	30.8	C
	WB	LTR	0.78	22.6	C	LTR	1.00	38.0	D
Essex Street	NB	LTR	0.38	17.8	B	LTR	0.40	18.2	B
	SB	LTR	0.35	17.8	B	LTR	0.38	18.3	B
Overall Intersection		-	**0.58**	**21.3**	**C**	-	**0.70**	**27.8**	**C**
22. GRAND STREET AND NORFOLK STREET									
Grand Street	EB	L	0.17	12.0	B	L	0.33	14.7	B
		T	0.37	14.0	B	T	0.37	14.0	B
	WB	T	0.41	13.5	B	T	0.54	14.9	B
		R	0.31	12.6	B	R	0.38	13.2	B
Overall Intersection		-	**0.42**	**13.3**	**B**	-	**0.54**	**14.3**	**B**
23. GRAND STREET AND SUFFOLK STREET									
Grand Street	EB	T	0.31	13.3	B	T	0.31	13.3	B
	WB	T	0.77	21.8	C	T	0.84	25.5	C
Suffolk Street	SB	LR	0.09	19.0	B	LR	0.47	25.3	C
Overall Intersection		-	**0.49**	**19.4**	**B**	-	**0.69**	**22.9**	**C**
24. GRAND STREET AND CLINTON STREET									
Grand Street	EB	TR	0.41	16.1	B	LTR	0.54	18.9	B
	WB	L	0.04	11.6	B	L	0.05	11.7	B
		T	0.63	18.7	B	T	0.69	20.2	C
		R	1.19	127.8	F	R	1.30	171.7	F
Clinton Street	NB	LTR	0.72	35.2	D	LTR	0.75	36.6	D
Overall Intersection		**-**	**1.01**	**49.0**	**D**	-	**1.08**	**58.8**	**E**

Table 13-21c (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Weekday PM Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	2022 No Action V/C	2022 No Action Control Delay	2022 No Action LOS	2022 With Action Mvt.	2022 With Action V/C	2022 With Action Control Delay	2022 With Action LOS
SIGNALIZED INTERSECTIONS									
25. GRAND STREET AND EAST BROADWAY									
Grand Street	EB	T	0.12	6.8	A	T	0.13	6.8	A
	WB	LT	0.88	19.1	B	LT	0.95	26.0	C
East Broadway	NB	R	-	16.5	C	R	-	16.7	B
Overall Intersection		-	**0.88**	**17.5**	**B**	-	**0.95**	**23.1**	**C**
UNSIGNALIZED INTERSECTIONS									
26. STANTON STREET AND LUDLOW STREET									
Stanton Street	EB	TR	-	7.9	A	TR	-	8.0	A
Ludlow Street	SB	LT	-	9.7	A	LT	-	9.8	A
Overall Intersection		-	**-**	**9.4**	**A**	-	**-**	**9.4**	**A**
27. RIVINGTON STREET AND LUDLOW STREET									
Rivington Street	WB	LT	-	11.5	B	LT	-	11.6	B
Ludlow Street	SB	TR	-	11.2	B	TR	-	11.4	B
Overall Intersection		-	**-**	**11.3**	**B**	-	**-**	**11.5**	**B**
28. BROOME STREET AND LUDLOW STREET									
Broome Street	EB	TR	-	10.9	B	TR	-	11.1	B
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	**-**	**5.4**	**A**	-	**-**	**5.4**	**A**
29. BROOME STREET AND SUFFOLK STREET									
Broome Street	WB	LT	-	15.5	C	LT	-	15.7	C
Suffolk Street	SB	TR	-	11.9	B	TR	-	16.4	C
Overall Intersection		-	**-**	**7.6**	**A**	-	**-**	**13.2**	**B**
30. BROOME STREET AND CLINTON STREET									
Broome Street	NB	LTR	-	8.4	A	LTR	-	8.5	A
Overall Intersection		-	**-**	**1.4**	**A**	-	**-**	**1.5**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

Table 13-21d[1]
Seward Park Development EIS
2022 No Action vs. 2022 With Action Saturday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS									
1. EAST HOUSTON STREET AND BOWERY									
East Houston Street	EB	L	0.69	39.7	D	L	0.69	39.8	D
		TR	0.88	34.0	C	TR	0.91	35.6	D
	WB	L	0.86	50.9	D	L	0.85	51.1	D
		TR	1.01	52.8	D	TR	1.05	62.7	E
Bowery	NB	L	0.74	38.2	D	L	0.74	38.2	D
		TR	0.98	47.0	D	TR	0.98	48.1	D
	SB	L	0.57	32.9	C	L	0.57	33.0	C
		TR	1.02	54.7	D	TR	1.02	54.7	D
Overall Intersection		-	**0.99**	**45.9**	**D**	-	**1.02**	**49.3**	**D**
2. EAST HOUSTON STREET AND CHRYSTIE STREET/SECOND AVENUE									
East Houston Street	EB	T	0.86	36.0	D	T	0.88	37.3	D
		R	0.97	65.0	E	R	1.03	78.4	E
	WB	L	0.81	68.8	E	L	0.81	68.8	E
		T	0.92	38.8	D	T	0.95	42.5	D
Chrystie Street / Second Avenue	NB	L	0.53	34.3	C	L	0.54	34.5	C
		LR	0.58	36.9	D	LR	0.59	37.0	D
	SB	L	1.29	169.0	F	L	1.31	179.0	F
		LT	1.29	164.9	F	LT	1.31	175.5	F
		R	0.98	46.9	D	R	0.98	46.9	D
Overall Intersection		-	**0.95**	**77.2**	**E**	-	**0.98**	**82.2**	**F**
3. EAST HOUSTON STREET AND ALLEN STREET/FIRST AVENUE									
East Houston Street	EB	L	0.82	40.7	D	L	0.82	40.8	D
		T	0.90	33.3	C	T	0.92	34.7	C
		R	1.27	160.2	F	R	1.27	160.2	F
	WB	L	0.44	32.0	C	L	0.44	32.2	C
		TR	1.14	103.6	F	TR	1.18	120.0	F
Allen Street	NB	L	0.38	27.7	C	L	0.41	28.1	C
		T	0.82	36.0	D	T	0.84	36.7	D
		R	0.24	26.8	C	R	0.24	26.8	C
Overall Intersection		-	**1.08**	**66.3**	**E**	-	**1.08**	**71.9**	**E**
4. EAST HOUSTON STREET AND ESSEX STREET/AVENUE A									
East Houston Street	EB	L	0.34	15.8	B	L	0.35	16.2	B
		TR	0.81	28.1	C	TR	0.85	29.0	C
	WB	L	0.88	40.8	D	L	0.90	44.4	D
		T	0.84	32.5	C	T	0.88	34.5	C
		R	0.14	20.2	C	R	0.15	20.2	C
Essex Street / Avenue A	NB	LTR	0.70	32.6	C	LTR	0.73	33.4	C
	SB	LTR	1.09	77.8	E	LTR	1.15	103.6	F
Overall Intersection		-	**0.91**	**37.3**	**D**	-	**0.96**	**42.1**	**D**
STANTON STREET									
5. STANTON STREET AND ESSEX STREET									
Stanton Street	EB	LTR	0.24	22.4	C	LTR	0.25	22.5	C
Essex Street	NB	TR	0.30	11.7	B	TR	0.32	11.9	B
	SB	LT	0.53	14.0	B	LT	0.57	14.5	B
Overall Intersection		-	**0.42**	**13.9**	**B**	-	**0.44**	**14.2**	**B**
6. STANTON STREET AND NORFOLK STREET									
Stanton Street	EB	LT	0.22	16.1	B	LT	0.23	16.2	B
Norfolk Street	NB	TR	0.39	18.7	B	TR	0.52	21.1	C
Overall Intersection		-	**0.31**	**17.7**	**B**	-	**0.37**	**19.5**	**B**

[1] This table is new to the FGEIS.

Table 13-21d (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Saturday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTION									
RIVINGTON STREET									
7. RIVINGTON STREET AND ESSEX STREET									
Rivington Street	WB	LTR	0.80	40.8	D	LTR	0.92	56.3	E
Essex Street	NB	LT	0.33	11.7	B	LT	0.34	11.7	B
	SB	TR	0.92	42.2	D	TR	0.98	52.6	D
Overall Intersection		-	**0.86**	**32.5**	**C**	-	**0.95**	**41.4**	**D**
8. RIVINGTON STREET AND NORFOLK									
Rivington Street	WB	TR	0.57	22.4	C	TR	0.60	23.2	C
Norfolk Street	NB	LT	0.41	17.6	B	LT	0.58	20.1	C
Overall Intersection		-	**0.49**	**20.3**	**C**	-	**0.59**	**21.7**	**C**
DELANCEY STREET									
9. DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.82	27.3	C	TR	0.85	28.4	C
	WB	L	0.73	38.8	D	L	0.74	39.3	D
		TR	0.88	17.7	B	TR	0.89	18.4	B
Allen Street	NB	T	0.71	34.9	C	T	0.74	36.0	D
		R	0.37	16.0	B	R	0.37	16.1	B
	SB	TR	0.75	34.1	C	TR	0.75	34.3	C
Overall Intersection		-	**0.84**	**25.1**	**C**	-	**0.85**	**25.9**	**C**
10. DELANCEY STREET AND ORCHARD STREET									
Delancey Street	EB	T	0.63	14.2	B	T	0.65	14.5	B
	WB	TR	0.77	16.9	B	TR	0.78	17.1	B
Orchard Street	NB	LTR	0.25	23.1	C	LTR	0.25	23.1	C
Overall Intersection		-	**0.58**	**15.9**	**B**	-	**0.58**	**16.2**	**B**
11. DELANCEY STREET AND LUDLOW STREET									
Delancey Street	EB	TR	0.63	14.5	B	TR	0.66	15.0	B
	WB	T	0.95	20.6	C	T	0.96	21.0	C
Ludlow Street	SB	LTR	1.15	124.3	F	LTR	1.29	180.5	F
Overall Intersection		-	**1.03**	**27.7**	**C**	-	**1.08**	**33.3**	**C**
12. DELANCEY STREET AND ESSEX SSTREET									
Delancey Street	EB	TR	0.87	23.6	C	TR	0.90	25.0	C
	WB	T	1.03	41.0	D	T	1.03	41.8	D
		R	0.87	28.3	C	R	0.97	45.2	D
Essex Street	NB	LT	0.51	33.6	C	LT	0.65	39.5	D
		R	0.95	83.0	F	R	1.46	274.0	F
	SB	TR	0.83	41.5	D	TR	0.94	53.2	D
Overall Intersection		-	**0.99**	**34.8**	**C**	-	**1.12**	**45.3**	**D**
13. DELANCEY STREEET AND NORFOLK STREET									
Delancey Street	EB	T	0.73	15.7	B	T	0.75	16.1	B
	WB	TR	0.95	24.1	C	TR	0.96	26.1	C
Norfolk Street	NB	TR	0.75	36.1	D	TR	0.92	53.4	D
		R	0.72	35.4	D	R	0.93	55.1	E
Overall Intersection		-	**0.87**	**22.3**	**C**	-	**0.95**	**26.5**	**C**
14. DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	TR	0.95	23.6	C	TR	1.06	50.1	D
	WB	T	0.80	17.1	B	T	0.81	17.2	B
Suffolk Street	SB	R	0.29	24.0	C	R	0.38	26.7	C
Overall Intersection		-	**0.70**	**20.7**	**C**	-	**0.80**	**35.4**	**D**
15. DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	1.03	36.4	D	T	1.05	43.2	D
Williamsburg Bridge	WB	T	0.98	32.8	C	T	0.99	34.5	C
		R	0.78	23.1	C	R	0.79	23.9	C
Delancey Street Service Road	WB	R	0.66	72.2	E	R	0.79	101.4	F
Clinton Street	NB	R	1.09	97.2	F	R	1.09	97.2	F
Overall Intersection		-	**1.05**	**38.4**	**D**	-	**1.06**	**42.4**	**D**

Table 13-21d (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Saturday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTION									
BROOME STREET									
16. BROOME STREET AND ESSEX STREET									
Broome Street	EB	LTR	0.18	21.4	C	LTR	0.25	22.6	C
Essex Street	NB	TR	0.25	11.2	B	TR	0.29	11.6	B
	SB	L	1.05	73.2	E	L	1.71	352.4	F
		T	0.26	11.6	B	T	0.27	11.6	B
Overall Intersection		-	**0.71**	**35.7**	**D**	-	**1.15**	**149.0**	**F**
17. BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.53	15.7	B	L	0.94	44.7	D
	WB	R	0.14	10.5	B	R	0.26	12.1	B
Norfolk Street	NB	T	0.49	24.1	C	T	0.65	26.5	C
Overall Intersection		-	**0.52**	**18.1**	**B**	-	**0.83**	**34.0**	**C**
GRAND STREEET									
18. GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.96	54.1	D	LTR	1.11	98.8	F
	WB	LTR	0.68	37.0	D	LTR	0.86	50.8	D
Allen Street	NB	L	0.55	49.7	D	L	0.55	49.7	D
		TR	0.47	20.1	C	TR	0.48	20.2	C
	SB	L	1.06	112.3	F	L	1.08	119.4	F
		TR	0.60	21.9	C	TR	0.60	21.9	C
Overall Intersection		-	**0.73**	**38.2**	**D**	-	**0.79**	**48.7**	**D**
19. GRAND STREET AND ORCHARD STREET									
Grand Street	EB	LT	0.70	22.2	C	LT	0.78	24.1	C
	WB	TR	0.50	21.0	C	TR	0.59	23.4	C
Orchard Street	NB	LTR	0.14	15.4	B	LTR	0.14	15.4	B
Overall Intersection		-	**0.42**	**21.1**	**C**	-	**0.46**	**23.1**	**C**
20. GRAND STREET AND LUDLOW STREET									
Grand Street	EB	TR	0.58	21.7	C	TR	0.66	23.8	C
	WB	LT	0.35	17.8	B	LT	0.47	20.0	B
Ludlow Street	SB	LTR	0.24	16.6	B	LTR	0.26	16.9	B
Overall Intersection		-	**0.41**	**19.5**	**B**	-	**0.46**	**21.3**	**C**
21. GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.78	31.4	C	LTR	0.91	45.3	D
	WB	LTR	0.54	18.7	B	LTR	0.77	22.5	C
Essex Street	NB	LTR	0.24	16.1	B	LTR	0.26	16.3	B
	SB	LTR	0.26	16.5	B	LTR	0.29	16.9	B
Overall Intersection		-	**0.52**	**21.9**	**C**	-	**0.60**	**27.6**	**C**
22. GRAND STREET AND NORFOLK STREET									
Grand Street	EB	L	0.10	11.2	B	L	0.23	12.8	B
		T	0.35	13.7	B	T	0.35	13.7	B
	WB	T	0.34	13.0	B	T	0.46	14.4	B
		R	0.31	12.8	B	R	0.38	13.5	B
Overall Intersection		-	**0.34**	**13.0**	**B**	-	**0.46**	**13.8**	**B**
23. GRAND STREET AND SUFFOLK STREET									
Grand Street	EB	T	0.34	13.7	B	T	0.34	13.7	B
	WB	T	0.69	19.7	B	T	0.77	22.6	C
Suffolk Street	SB	LR	0.08	18.9	B	LR	0.40	23.6	C
Overall Intersection		-	**0.44**	**17.8**	**B**	-	**0.62**	**20.7**	**C**
24. GRAND STREET AND CLINTON STREET									
Grand Street	EB	TR	0.45	16.8	B	LTR	0.57	19.5	B
	WB	L	0.05	11.7	B	L	0.05	11.8	B
		T	0.57	17.9	B	T	0.64	19.4	B
		R	1.01	63.7	E	R	1.36	200.0	F
Clinton Street	NB	LTR	0.65	33.1	C	LTR	0.68	34.3	C
Overall Intersection		-	**0.88**	**33.1**	**C**	-	**1.10**	**68.2**	**E**
25. GRAND STREET AND EAST BROADWAY									
Grand Street	EB	T	0.12	6.8	A	T	0.13	6.9	A
	WB	LT	0.81	16.7	B	LT	0.88	20.2	C
East Broadway	NB	R	-	11.5	B	R	-	11.6	B
Overall Intersection		-	**0.81**	**15.1**	**B**	-	**0.88**	**18.1**	**B**

Table 13-21d (cont'd)
Seward Park Development EIS
2022 No Action vs. 2022 With Action Saturday Peak Hour
Traffic Levels of Service

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS
UNSIGNALIZED INTERSECTIONS									
26. STANTON STREET AND LUDLOW STREET									
Stanton Street	EB	TR	-	8.5	A	TR	-	8.6	A
Ludlow Street	SB	LT	-	10.8	B	LT	-	11.0	B
Overall Intersection		-	**-**	**10.2**	**B**	-	**-**	**10.3**	**B**
27. RIVINGTON STREET AND LUDLOW STREET									
Rivington Street	WB	LT	-	14.4	B	LT	-	14.6	B
Ludlow Street	SB	TR	-	13.4	B	TR	-	13.7	B
Overall Intersection		-	**-**	**13.9**	**B**	-	**-**	**14.2**	**B**
28. BROOME STREET AND LUDLOW STREET									
Broome Street	EB	TR	-	12.2	B	TR	-	12.7	B
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A
Overall Intersection		-	**-**	**5.5**	**A**	-	**-**	**5.6**	**A**
29. BROOME STREET AND SUFFOLK STREET									
Broome Street	WB	LT	-	7.7	A	LT	-	7.7	A
Suffolk Street	SB	TR	-	11.1	B	TR	-	14.9	B
Overall Intersection		-	**-**	**4.3**	**A**	-	**-**	**10.8**	**B**
30. BROOME STREET AND CLINTON STREET									
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.5	A
Overall Intersection		-	**-**	**1.3**	**A**	-	**-**	**1.4**	**A**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

This summary overview of the With Action condition indicates that:

- During the weekday AM peak hour, the number of intersections analyzed that are projected to operate at overall LOS E or F would increase from four ~~none~~ under the No Action condition to six ~~two~~ under the With Action condition. The number of traffic movements projected to operate at unacceptable levels of service would increase from 20 ~~21~~ under the No Action condition to 28 ~~24~~ under the With Action condition. Overall, 13 ~~nine~~ of the 30 intersections would have significant impacts. **Figure 13-13a** shows overall levels of service and intersections where significant impacts would occur. **Figure 13-13b** shows significantly impacted movements along with movements that would operate at unacceptable levels of service.
- During the weekday midday peak hour, the number of intersections that would operate at overall LOS E or F would increase from none under the No Action condition to two ~~one~~ under the With Action condition. The number of traffic movements at unacceptable levels of service would increase from 11 to ~~16~~ 20. Overall, 11 ~~seven~~ intersections would be significantly impacted, as shown in **Figure 13-14a**. **Figure 13-14b** shows significantly impacted movements along with movements that would operate at unacceptable levels of service.
- During the weekday PM peak hour, the number of intersections that are projected to operate at overall LOS E or F would increase from five ~~one~~ under the No Action condition to nine ~~eight~~ under the With Action condition. The number of traffic movements projected to operate at unacceptable levels of service would increase from 30 ~~31~~ to ~~39~~ 34. As shown in **Figure 13-15a**, 15 ~~18~~ intersections would experience significant impacts. **Figure 13-15b** shows significantly impacted movements along with movements that would operate at unacceptable levels of service.
- During the Saturday peak hour, the number of intersections that are projected to operate at overall LOS E or F would ~~remain as~~ increase from two intersections under the No Action condition to four intersections under the With Action condition. The number of traffic movements projected to operate at unacceptable levels of service would increase from 21 ~~22~~ to ~~26~~ 30. As shown in **Figure 13-16a**, 14 ~~10~~ intersections would experience significant impacts. **Figure 13-16b** shows significantly impacted movements along with movements that would operate at unacceptable levels of service.
- All five unsignalized intersections analyzed would continue to operate at overall LOS A or B during all peak hours and would not be significantly impacted.

Traffic movements expected to operate at unacceptable levels of service under the No Action condition would continue to do so under the With Action condition. Additional movements expected to operate at unacceptable levels of service as a result of the proposed actions are listed below.

East Houston Street and Bowery

- Westbound East Houston Street left turn (weekday midday)

East Houston Street and Chrystie Street/Second Avenue

- Eastbound East Houston Street right turn (weekday midday)
- ~~Westbound East Houston Street left turn (weekday AM)~~

East Houston Street and Allen Street/First Avenue

- ~~Eastbound~~ Westbound East Houston Street ~~left turn~~ through-right-turn movement (weekday PM)

Rivington Street and Essex Street

- Westbound Rivington Street approach (weekday ~~PM~~ midday and Saturday)
- Southbound Essex Street approach (Saturday)

Delancey Street and Allen Street

- Eastbound Delancey Street approach (weekday AM)

Delancey Street and Ludlow Street

- Southbound Ludlow Street approach (weekday AM)

Delancey Street and Essex Street

- ~~Eastbound Delancey Street approach (weekday PM)~~
- Westbound Delancey Street right turn movement (Saturday)
- Northbound Essex Street ~~approach~~ left-turn through movement (weekday ~~midday and Saturday~~ AM)
- Southbound Essex Street through-right turn movement (weekday AM, ~~and~~ midday, and Saturday)

Delancey Street and Norfolk Street

- Westbound Delancey Street approach (weekday AM)
- Northbound Norfolk Street through-right turn movement (weekday AM, midday, midday, PM, and Saturday)
- Northbound Norfolk Street right turn (weekday AM, midday, PM, and Saturday)

Delancey Street and Suffolk Street

- Eastbound Delancey Street approach (Saturday)

Broome Street and Essex Street

- Southbound Essex Street left turn (weekday ~~PM~~ AM and midday)

~~*Broome Street and Norfolk Street*~~

- ~~Eastbound Broome Street approach (weekday PM)~~

Grand Street and Allen Street

- Eastbound Grand Street approach (weekday PM)
- Westbound Grand Street approach (~~weekday PM and~~ weekday midday and Saturday)

Grand Street and Essex Street

- ~~Westbound~~ Eastbound Grand Street approach (~~weekday PM~~ Saturday)

~~Grand Street and Norfolk Street~~

- ~~Westbound Grand Street through-right turn movement (weekday midday and Saturday)~~

~~Grand Street and Suffolk Street~~

- ~~Westbound Grand Street approach (weekday PM)~~

Grand Street and Clinton Street

- ~~Eastbound~~ Westbound Grand Street right turn movement ~~approach~~ (~~Saturday~~ weekday midday)

Significant Impacts

Of the 30 study area intersections analyzed, the proposed actions would cause significant traffic impacts at 13 ~~nine~~ intersections in the weekday AM peak hour, 11 ~~seven~~ in the weekday midday peak hour, 15 ~~18~~ in the weekday PM peak hour, and 14 ~~10~~ in the Saturday peak hour. Impacted traffic movements and the peak hours in which they are impacted are identified below.

East Houston Street and Bowery

- Westbound East Houston Street through-right turn movement (weekday AM, PM, and Saturday)

East Houston Street and Chrystie Street/Second Avenue

- Eastbound East Houston Street right turn (weekday AM, PM, and Saturday)
- Westbound East Houston Street left turn (weekday midday and PM)
- Southbound Second Avenue left turn (Saturday)
- Southbound Second Avenue left-through movement (weekday PM and Saturday)

East Houston Street and Allen Street/First Avenue

- Westbound East Houston Street through-right turn movement (weekday AM, midday, PM, and Saturday)
- Northbound Allen Street through movement (weekday AM and PM)

East Houston Street and Essex Street/Avenue A

- Westbound East Houston Street left turn (weekday PM)
- Southbound Avenue A approach (weekday AM, midday, PM, and Saturday)

Rivington Street and Essex Street

- Westbound Rivington Street approach (weekday AM~~,~~ ~~and~~ midday, PM, and Saturday)
- Southbound Essex Street approach (Saturday)

Delancey Street and Allen Street

- Eastbound Delancey Street ~~through-right turn movement~~ approach (weekday AM and PM)
- Westbound Delancey Street through-right turn movement (weekday PM)
- ~~Northbound Allen Street right turn (weekday midday and PM)~~

Delancey Street and Ludlow Street

- Westbound Delancey Street approach (weekday AM)
- Southbound Ludlow Street approach (weekday AM, midday, PM, and Saturday)

Delancey Street and Essex Street

- ~~Eastbound Delancey Street approach (weekday PM)~~
- Westbound Delancey Street right turn movement (weekday PM and Saturday)
- Northbound Essex Street ~~approach~~ left-through movement (weekday AM~~, midday, PM, and Saturday~~)
- Northbound Essex Street right turn movement (weekday AM, midday, PM, and Saturday)
- ~~Southbound Essex Street de facto left turn (weekday AM, midday, and Saturday)~~
- ~~Southbound Essex Street through-right turn movement (weekday AM and midday)~~
- Southbound Essex Street approach (weekday AM, midday, and Saturday ~~PM~~)

Delancey Street and Norfolk Street

- Eastbound Delancey Street approach (weekday PM)
- Westbound Delancey Street approach (weekday AM)
- Northbound Norfolk Street through-right turn movement (weekday AM, midday, PM, and Saturday)
- Northbound Norfolk Street right turn (weekday AM, midday, PM, and Saturday)

Delancey Street and Suffolk Street

- Eastbound Delancey Street approach (weekday PM and Saturday)

Delancey Street and Clinton Street

- Eastbound Delancey Street approach (weekday PM)
- Westbound ~~Delancey Street~~ Williamsburg Bridge through movement (weekday AM and PM)
- Westbound Delancey Street service road ~~right turn~~ approach (weekday ~~AM~~ midday and ~~PM~~ Saturday)

Broome Street and Essex Street

- Southbound Essex Street left turn (weekday AM, midday, PM, and Saturday)

Broome Street and Norfolk Street

- Eastbound Broome Street approach (weekday PM)
- ~~Westbound Broome Street approach (weekday PM)~~

Grand Street and Allen Street

- Eastbound Grand Street approach (weekday ~~AM,~~ midday, PM, and Saturday)
- Westbound Grand Street approach (weekday ~~AM,~~ midday~~, PM,~~ and Saturday)
- Southbound Allen Street left turn (weekday AM, midday, ~~PM,~~ and Saturday)

Grand Street and Essex Street

- ~~Westbound~~ Eastbound Grand Street approach (~~weekday PM~~ Saturday)

~~*Grand Street and Norfolk Street*~~

- ~~Westbound Grand Street approach (weekday AM, midday, PM, and Saturday)~~

~~*Grand Street and Suffolk Street*~~

- ~~Westbound Grand Street approach (weekday PM)~~

Grand Street and Clinton Street

- ~~Eastbound~~ Westbound Grand Street approach right turn movement (weekday AM, midday, PM~~,~~ and Saturday)

Eleven ~~Five~~ of the intersections where significant impacts would occur would have those impacts during all four peak hours analyzed. These intersections include: East Houston Street and Chrystie Street/Second Avenue; East Houston Street and Allen Street/First Avenue; East Houston Street and Essex Street/Avenue A; Rivington Street and Essex Street; Delancey Street and Ludlow Street; Delancey Street and Essex Street; Delancey Street and Norfolk Street; Delancey Street and Clinton Street; Broome Street and Essex Street; Grand Street and Allen Street; and Grand Street and Clinton ~~Norfolk~~ Street. Other intersections would be significantly impacted in one, two, or three of the four peak hours analyzed, while many intersections would not be significantly impacted during any of the peak hours analyzed.

~~As mentioned earlier, NYCDOT is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Incorporation of the plan may result in some changes to significant traffic impact locations or time periods when impacts would occur. Details related to this plan would be included in the FGEIS and the effects of the plan on traffic and pedestrian conditions will be addressed between completion of the DGEIS and FGEIS should the plans be adopted prior to release of the FGEIS.~~

The identification and evaluation of traffic capacity improvements needed to mitigate potential significant adverse traffic impacts created by the proposed actions are presented in Chapter 21, “Mitigation Measures.”

G. TRANSIT

Mass transit options serving the study area are provided by the NYCT and include the F, J, M, and Z subway lines at the Delancey Street/Essex Street Station and the M9, M14A, M15, M15

SBS, M21, and M22 bus routes. A detailed analysis of transit operations during the critical weekday AM and PM peak periods is presented below. During other time periods, background transit ridership and station utilization, as well as project trip generation, are comparatively lower. Hence, potential transit impacts were evaluated only for the weekday AM and PM peak periods.

TRANSIT STUDY AREAS

SUBWAY SERVICE

Below is the summary of subway lines that would most likely serve the project site. Subway lines serving stations further away are shown in the transit map (see **Figure 13-2**) but are not included in the description below.

- The F subway line (Queens Boulevard Express/6th Avenue Local) operates between Stillwell Avenue, Brooklyn and Jamaica, Queens via the 63rd Street connector. The F line runs express along Queens Boulevard.
- The J/Z subway lines operate between Broad Street, Manhattan and Jamaica Center, Queens. During weekdays, J trains run express in Brooklyn between Myrtle Avenue and Marcy Avenue from about 7 AM to 1 PM for Manhattan-bound trains and from 1:30 PM and 8 PM for the Queens-bound trains.
- The M subway line (Queens Boulevard Local/Sixth Avenue Local/Myrtle Avenue Local) operates between Middle Village-Metropolitan Avenue, Queens and Myrtle Avenue, Brooklyn at all times, and between Flushing Avenue, Brooklyn, and Forest Hills-71st Avenue, Queens part time (weekdays from 6 AM to 11 PM).

BUS SERVICE

Based on the travel demand estimates and the availability and service frequencies of the bus routes in the study area, it was determined that three bus routes near the project sites (i.e., M9, M14A, and M15/M15 SBS) serving the area would experience 50 or more peak hour bus trips in one direction—the CEQR recommended threshold for undertaking a quantified bus analysis. A quantitative bus line-haul analysis is conducted to determine the potential for significant bus line-haul impacts due to the proposed actions. **Table 13-~~20~~22** provides a summary of the NYCT bus routes that provide regular service to the study area and their weekday frequency of operation. The M14A and M15/M15 SBS routes use articulated buses with a guideline capacity of 85 passengers per bus while the M9 route uses standard buses with a guideline capacity of 54 passengers per bus.

Table 13-~~20~~22
NYCT Local Bus Routes Serving The Study Area

Bus Route	Start Point	End Point	Routing in Study Area	Freq. of Bus Service (Headway in Minutes) AM	Afternoon	PM
M9 N/S	Peter Cooper Village	City Hall	Essex St/Delancey St – Essex St/Grand St	10/9	15/12	12/12
M14A E/W	West Village	Lower East Side	Essex St/Delancey St – Essex St/Grand St	10/9	10/12	10/10
M15 N/S	East Harlem	South Ferry	Allen Street	8/7	9/9	9/9
M15 SBS N/S	East Harlem	South Ferry	Allen Street	3/4	7/7	5/5
M21 E/W	Lower East Side	West Village	Grand Street	15/15	30/30	20/20
M22 E/W	Lower East Side	Battery Park City	Grand Street	10/6	20/20	12/10

Notes: N/S = North/South; E/W = East/West.
Source: MTA NYCT Bus Timetables (2011/2012).

2011 EXISTING CONDITIONS—SUBWAY STATION OPERATIONS

As presented in **Table 13-3**, “Level 1 Screening Assessment,” the full build-out of the proposed actions in 2022 is expected to result in approximately 801 and 1,279 project-generated subway trips during the AM and PM peak hours, respectively. These trips were all assigned to the Delancey Street/Essex Street station and the corresponding station elements. As detailed in Section D, “Level 2 Screening Assessment,” the following station elements were identified for analysis.

- Station stairway at Essex Street between Delancey Street and Broome Street on the east sidewalk (S-4) and the adjoining control area (N-526) elements which include five two-way turnstiles and two High Entry /Exit Turnstiles (HEETs);
- Station stairways at Delancey Street between Essex Street and Suffolk Street (S-6 and S-7) on the north sidewalk and adjoining control area (A-61) element. A total of 7 two-way turnstiles serve this control area.
- Station escalator at Essex Street between Delancey Street and Broome Street on the east sidewalk (E328)
- PL3(PL4) - Downtown J/M/Z platform connecting to Uptown F platform;
- P9(P10) - stairway leading to uptown F platform;
- PL2 & PL9– Brooklyn bound J/M/Z platform leading to PL11B on Uptown F platform; and
- PL18 - Brooklyn bound J/M/Z platform connecting to downtown F train platform.

Field surveys were conducted on October 26, 2011 and April 18, 2012 during the hours of 7:00 to 9:30 AM and 4:00 to 6:30 PM and provided the baseline volumes for the analysis of the above subway station elements. As shown in **Tables 13-~~21~~23** ~~and~~ to **13-25**, all analyzed stairways, escalators and control areas currently operate at acceptable levels during the weekday AM and PM peak periods, with the exception of the northeast stairway (S-6) at the Delancey Street and Norfolk Street entrance (LOS D, v/c= 1.04) and PL3(PL4) interior stairway (LOS D, v/c = 1.31) during the AM peak period and PL9 interior stairway (LOS D, v/c = 1.14) during the PM peak period.

Table 13-~~21~~23
2011 Existing Conditions: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15 Minutes								
Delancey Street and Essex Street Entrance: N526								
SE (S-4)	4.9	3.9	90	72	0.80	0.90	0.34	A
Delancey Street and Norfolk Street Entrance: A61								
NE (S-6)	5.3	4.3	315	229	0.80	0.90	1.04	D
NW (S-7)	5.3	4.3	31	124	0.80	0.90	0.32	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	92	83	0.80	0.90	0.24	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	395	110	0.75*	0.90	1.31	D
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	28	53	0.75*	0.90	0.21	A
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	34	42	0.75*	0.90	0.22	A
PL9 – Brooklyn bound J/M/Z	4.4	3.4	145	69	0.75*	0.90	0.62	B
Weekday PM Peak 15 Minutes								
Delancey Street and Essex Street Entrance:N526								
SE (S-4)	4.9	3.9	40	110	0.80	0.90	0.34	A
Delancey Street and Essex Street Entrance:A61								
NE (S-6)	5.3	4.3	180	93	0.80	0.90	0.51	B
NW (S-7)	5.3	4.3	26	39	0.80	0.90	0.13	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	91	40	0.80	0.90	0.17	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	156	81	0.75*	0.90	0.62	B
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	54	222	0.75*	0.90	0.70	B
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	74	69	0.75*	0.90	0.42	A
PL9 – Brooklyn bound J/M/Z	4.4	3.4	198	194	0.75*	0.90	1.14	D

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)
* Surging factors were applied to both up and down subway passenger volumes since the stairway is connected to two platforms with exiting passengers.

Table 13-~~22~~24
2011 Existing Conditions: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
		Into Control Area	Out from Control Area				
AM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street (A61)							
Two-Way Turnstiles	7	346	353	0.75	0.90	0.25	A
Location 2. Delancey Street/Essex Street (N526- Entrance located south of Delancey Street)							
HEET	2	35	25	0.80	0.90	0.11	A
Two-Way Turnstiles	5	99	232	0.80	0.90	0.15	A
PM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street (A61)							
Two-Way Turnstiles	7	163	137	0.75	0.90	0.11	A
Location 2. Delancey Street/Essex Street (N526-Entrance located south of Delancey Street)							
HEET	2	15	46	0.80	0.90	0.09	A
Two-Way Turnstiles	5	128	123	0.80	0.90	0.12	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff)
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

Table 13-25
2011 Existing Conditions: Escalator Analysis

Station Element	Quantity	Tread Width(in)	Capacity(Persons/min)	Surging Factor	15-Min Volume	Peak 15-Min Guideline Capacity	V/C ratio	LOS
AM Peak 15- Minutes								
Escalator exit on Essex Street- East Sidewalk between Delancey Street and Broome St								
E328 -Up	1	24	32	0.75	36	480	0.10	A
PM Peak 15- Minutes								
E328 - Up	1	24	32	0.75	18	480	0.05	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =V/Gcap x Sf
V = Peak 15 Min Passenger Volume
Gcap= Guideline Capacity

2011 EXISTING CONDITIONS—BUS LINE-HAUL OPERATIONS

To assess the potential impacts on the study area bus routes, the most recent line-haul data for the M9, M14A, and M15/M15 SBS bus routes were acquired from NYCT.

It was conservatively assumed that project-generated bus riders would likely be on board the bus at the peak load points while travelling to and from the project sites. For the M9 route, during the AM peak period, the northbound peak load point is at Essex Street and Grand Street while the southbound peak load point is at Essex Street and Houston Street. During the PM peak period, the northbound M9 peak load point is at Houston Street and Norfolk Street while the southbound peak load point is at Essex Street and Grand Street. For the M14A route, during the AM and PM peak periods, the eastbound and westbound peak load point is at 14th Street and Avenue A.

For the M15/M15 SBS routes, during the AM and PM peak periods, the northbound peak load point is at 1st Avenue and East 2nd Street while the southbound peak load point is at Allen Street and Houston Street. As shown in **Table 13-~~23~~26**, under the existing conditions, during the AM peak period, the southbound M9 and westbound M14A would exceed guideline capacity (54 passengers per bus capacity for the M9 route and 85 passengers per bus capacity for the M14A route).

Table 13-~~23~~26
2011 Existing Conditions: Bus Line-Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP
AM Peak Hour					
M9	**North**	Essex Street/ Grand Street	164	8	21
	South	Essex Street/ E. Houston	351	6	(59)
M14A*	**East**	14th Street / Avenue A	308	7	44
	West	14th Street / Avenue A	696	8	(87)
M15*	**North**	1st Avenue/E. 2nd Street	327	9	37
	South	Allen Street/ E. Houston Street	107	9	12
M15 SBS*	**North**	1st Avenue/E. 2nd Street	678	17	40
	South	Allen Street/ E. Houston Street	418	8	53
PM Peak Hour					
M9	**North**	E. Houston St / Norfolk Street	256	5	52
	South	Essex Street/ Grand Street	138	4	35
M14A*	**East**	14th Street / Avenue A	347	5	70
	West	14th Street / Avenue A	278	5	56
M15*	**North**	1st Avenue/ E. 2nd Street	192	7	28
	South	Allen Street/ E. Houston Street	131	9	15
M15 SBS*	**North**	1st Avenue/E. 2nd Street	496	9	56
	South	Allen Street/ E. Houston Street	296	9	33

Notes: AP=average passengers per bus;
***** Articulated buses with guideline capacity of 85 passengers/bus
(#)=exceeds NYCT guideline capacity.
Source: NYCT Bus ridership data (2010/2011).

2022 NO ACTION CONDITION—SUBWAY STATION OPERATIONS

Estimates of peak hour transit volumes in the 2022 No Action condition were developed by applying the *CEQR Technical Manual* recommended annual background growth rates. An annual compounded background growth rate of 0.25 percent was applied to the transit volumes from 2011 to 2016, and an annual compounded background growth rate of 0.125 percent was applied to the transit volumes from 2016 to 2022. In addition, trips associated with No Action projects were incorporated into the No Action transit volumes.

The No Action peak period volume projections were allocated to the transit analysis elements described above.

As shown in **Tables 13-~~24~~27** ~~and~~ to **13-29**, all station stairways, escalators and control area elements would continue to operate at acceptable levels, except for the northeast stairway (S-6) at the Delancey Street and Norfolk Street entrance, which would operate at LOS D with a v/c ratio of 1.09 and PL3(PL4) interior stairway, which would operate at LOS E with a v/c ratio of 1.36 during the AM peak period and PL9 interior stairway which would operate at LOS D with a v/c ratio of 1.18 during the PM peak period.

Table 13-~~24~~27
2022 No Action Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes Down	15-Minute Pedestrian Volumes Up	Surging Factor	Friction Factor	V/C Ratio	LOS
Weekday AM Peak 15 Minutes								
Delancey Street and Essex Street Entrance: N526								
SE (S-4)	4.9	3.9	~~94~~ 93	~~75~~ 74	0.80	0.90	0.35~~7~~	A
Delancey Street and Norfolk Street Entrance: A61								
NE (S-6)	5.3	4.3	332	~~239~~ 241	~~0.75~~ 0.80	0.90	~~1.121~~ 1.09	D
NW (S-7)	5.3	4.3	32	127	~~0.75~~ 0.80	0.90	~~0.347~~ 0.33	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	96	86	0.80	0.90	0.25	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	408	117	0.75*	0.90	1.36	E
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	31	54	0.75*	0.90	0.22	A
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	38	44	0.75*	0.90	0.24	A
PL9 – Brooklyn bound J/M/Z	4.4	3.4	151	71	0.75*	0.90	0.64	B
Weekday PM Peak 15 Minutes								
Delancey Street and Essex Street Entrance:N526								
SE (S-4)	4.9	3.9	~~43~~ 42	~~114~~ 113	0.80	0.90	0.35	A
Delancey Street and Essex Street Entrance:A61								
NE (S-6)	5.3	4.3	193	~~104~~ 108	~~0.75~~ 0.80	0.90	0.57~~1~~	B
NW (S-7)	5.3	4.3	27	40	~~0.75~~ 0.80	0.90	0.13~~8~~	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	95	42	0.80	0.90	0.18	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	164	92	0.75*	0.90	0.67	B
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	59	227	0.75*	0.90	0.72	C
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	80	71	0.75*	0.90	0.44	A
PL9 – Brooklyn bound J/M/Z	4.4	3.4	207	199	0.75*	0.90	1.18	D

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)
* Surging factors were applied to both up and down subway passenger volumes since the stairway is connected to two platforms with exiting passengers.

Table 13-~~25~~28
2022 No Action Condition: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes: Into Control Area	15-Minute Pedestrian Volumes: Out from Control Area	Surging Factor	Friction Factor	V/C Ratio	LOS
AM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street (A61)							
Two-Way Turnstiles	7	364	~~365~~ 367	0.75	0.90	0.26	A
Location 2. Delancey Street/Essex Street (N526-Entrance located south of Delancey Street)							
HEET	2	37	26	0.80	0.90	0.11	A
Two-Way Turnstiles	5	102	~~239~~ 238	0.80	0.90	0.16	A
PM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street Station (A61)							
Two-Way Turnstiles	7	175	~~149~~ 153	0.75	0.90	0.12	A
Location 2. Delancey Street/Essex Street (N526-Entrance located south of Delancey Street)							
HEET	2	15	48	0.80	0.90	0.09	A
Two-Way Turnstiles	5	133	126	0.80	0.90	0.12	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff)
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

Table 13-29[1]
2022 No Action Condition: Escalator Analysis

Station Element	Quantity	Tread Width(in)	Capacity(Persons/min)	Surging Factor	15-Min Volume	Peak 15-Min Guideline Capacity	V/C ratio	LOS
AM Peak 15- Minutes								
Escalator exit on Essex Street- East Sidewalk between Delancey Street and Broome St								
E328-Up	1	24	32	0.75	37	480	0.10	A
PM Peak 15- Minutes								
E328-Up	1	24	32	0.75	18	480	0.05	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =V/Gcap x Sf
V = Peak 15 Min Passenger Volume
Gcap= Guideline Capacity

2022 NO ACTION CONDITION—BUS LINE-HAUL LEVELS

Estimates of peak hour bus volumes in the No Action condition were developed by applying *CEQR Technical Manual* recommended annual background growth rates as mentioned above. In addition, bus trips generated by No Action projects in the study area were added to the projected 2022 volumes to generate the 2022 No Action bus volumes used in the analysis. Bus trips were split among the seven study area bus routes—the M9, M14A, M15, M15 SBS, M21, M22, and M103 bus routes.

[1] This table is new to the FGEIS.

The bus trips were assigned based on the anticipated destinations of potential riders to/from the No Action project sites. It was assumed that 60 percent of the riders would be evenly distributed among the M9, and M14A routes (i.e., 30 percent for each route), 30 percent of the riders would be evenly distributed among the M15 and M15 SBS routes (i.e., 15 percent for each route) and the remaining 10 percent of riders would take the M21, M22, and M103 routes.

As shown in **Table 13-~~26~~30**, under the No Action condition, during the AM peak period, the southbound M9 and westbound M14A would exceed guideline capacity while the northbound M9 would exceed guideline capacity during the PM peak (54 passengers per bus capacity for the M9 route and 85 passengers per bus capacity for the M14A route).

Table 13-~~26~~30
2022 No Action Condition: Bus Line-Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP
AM Peak Hour					
M9	**North**	Essex Street/ Grand Street	177	8	22
	South	Essex Street/ E. Houston	369	6	(62)
M14A*	**East**	14th Street / Avenue A	319	7	46
	West	14th Street / Avenue A	716	8	(90)
M15*	**North**	1st Avenue/E. 2nd Street	338	9	38
	South	Allen Street/ E. Houston Street	112	9	12
M15 SBS*	**North**	1st Avenue/E. 2nd Street	696	17	41
	South	Allen Street/ E. Houston Street	429	8	54
PM Peak Hour					
M9	**North**	E. Houston St / Norfolk Street	274	5	(55)
	South	Essex Street/ Grand Street	154	4	39
M14A*	**East**	14th Street / Avenue A	365	5	73
	West	14th Street / Avenue A	296	5	59
M15*	**North**	1st Avenue/ E. 2nd Street	200	7	29
	South	Allen Street/ E. Houston Street	140	9	16
M15 SBS*	**North**	1st Avenue/E. 2nd Street	510	9	57
	South	Allen Street/ E. Houston Street	308	9	34

Notes: AP=average passengers per bus;
***** Articulated buses with guideline capacity of 85 passengers/bus
(#)=exceeds NYCT guideline capacity.
Source: NYCT Bus ridership data (2010/2011).

2022 WITH ACTION CONDITION—SUBWAY STATION OPERATIONS

The 801 (376 in and 425 out) AM peak hour and 1,279 (638 in and 641 out) PM peak hour project-generated subway trips under RWCDS (see **Table 13-3**) were all assigned to the Delancey Street/Essex Street station and the corresponding station elements.

As shown in **Tables 13-~~27~~31** ~~and~~ through **13-33**, all station stairways, escalators and control elements would continue to operate at acceptable levels, except for the northeast stairway (S-6) at the Delancey Street and Norfolk Street, which would operate at LOS D with a v/c ratio of 1.12, the interior stairway PL3 (PL4) which operates at LOS E with a v/c ratio of 1.43 during the AM peak period and the interior stairway PL9 which operates at LOS D with a v/c ratio of 1.25 during the PM peak period. ~~Compared to the No Action service levels (LOS D, v/c ratio of 1.121), the WIT for this stairway was calculated to be 5.96 inches, which is less than the *CEQR Technical Manual* WIT impact threshold of 6.0 inches (for stairway v/c ratios between 1.20 and 1.29 in the With Action condition; see **Table 13-9**).~~ Compared to the No Action service levels, the WITs for these stairways are less than the *CEQR Technical Manual* WIT impact thresholds. Therefore, the proposed actions would not result in any potential significant adverse subway impacts.

~~Based on the transit analysis of the Essex Street/Delancey Street station, no potentially significant adverse subway station impacts at the Essex Street/Delancey Street station have so far been determined during the peak analysis periods. At the direction of MTA NYCT, analyses of the following interior transfer and platform stairways will be undertaken for the FGEIS:~~

- ~~PL4 (A61) - platform stair at uptown J/M/Z platform;~~
- ~~P9 (N525) - leading to uptown F train platform;~~
- ~~PL2 & PL9 (leading to PL11B on uptown F train platform) – Brooklyn bound J/M/Z platform; and~~
- ~~PL18 (connecting to downtown F train platform) - Brooklyn bound J/M/Z platform.~~

~~As part of incorporating these stairway elements in the subway analyses, the distribution of project generated subway trips will be refined to reflect the connectivity of the interior and platform stairways with the street-level stairways analyzed in this DGEIS.~~

~~The above amendments to the analysis may result in significant adverse subway station impacts that are being conservatively disclosed in this DGEIS. Should the results of the analyses identify significant adverse impacts, measures to increase capacity would be recommended to mitigate such impacts. The practicability and feasibility of such mitigation measures will be further assessed in the FGEIS.~~

Table 13-~~27~~31
2022 With Action Condition: Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor	Friction Factor	V/C Ratio	LOS
			Down	Up				
Weekday AM Peak 15 Minutes								
Delancey Street and Essex Street Entrance: N526								
SE (S-4)	4.9	3.9	~~147~~ 175	~~121~~ 155	0.80	0.90	~~0.566~~ 0.70	~~B~~ C
Delancey Street and Norfolk Street Entrance: A61								
NE (S-6)	5.3	4.3	~~370~~ 346	~~267~~ 244	~~0.75~~ 0.80	0.90	~~1.251~~ 1.12	D
NW (S-7)	5.3	4.3	~~36~~ 32	~~138~~ 127	~~0.75~~ 0.80	0.90	~~0.379~~ 0.33	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	165	123	0.80	0.90	0.39	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	416	136	0.75*	0.90	1.43	E
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	37	55	0.75*	0.90	0.23	A
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	47	47	0.75*	0.90	0.27	A
PL9 – Brooklyn bound J/M/Z	4.4	3.4	160	74	0.75*	0.90	0.68	B
Weekday PM Peak 15 Minutes								
Delancey Street and Essex Street Entrance:N526								
SE (S-4)	4.9	3.9	181	238	0.80	0.90	0.91	C
Delancey Street and Essex Street Entrance:A61								
NE (S-6)	5.3	4.3	207	112	0.80	0.90	0.60	B
NW (S-7)	5.3	4.3	27	40	0.80	0.90	0.13	A
Interior and transfer stairs								
P9 (P10)- Stairway to Uptown F	7.1	6.1	213	101	0.80	0.90	0.41	A
PL3(PL4)-Connecting Downtown J/M/Z and Uptown F	4.8	3.8	174	113	0.75*	0.90	0.75	C
PL18(PL19)- Connecting Brooklyn bound J/M/Z and Downtown F	4.9	3.9	73	229	0.75*	0.90	0.76	C
PL1(PL2) – Brooklyn bound J/M/Z	4.4	3.4	96	79	0.75*	0.90	0.51	B
PL9 – Brooklyn bound J/M/Z	4.4	3.4	223	207	0.75*	0.90	1.25	D

Notes:
Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
Surging factors are only applied to the exiting pedestrian volume (*CEQR Technical Manual*).
V/C = [Vin / (150 * We * Sf * Ff)]+ [Vx/ (150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx = Peak 15-minute exiting passenger volume
We = Effective width of stairs
Sf = Surging factor (if applicable)
Ff = Friction factor (if applicable)
* Surging factors were applied to both up and down subway passenger volumes since the stairway is connected to two platforms with exiting passengers.

Table 13-~~28~~32
2022 With Action Condition: Subway Control Area Analysis

Station Elements	Qty.	15-Minute Pedestrian Volumes: Into Control Area	15-Minute Pedestrian Volumes: Out from Control Area	Surging Factor	Friction Factor	V/C Ratio	LOS
AM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street (A61)							
Two-Way Turnstiles	7	~~400~~ 378	~~404~~ 370	0.75	0.90	~~0.28~~ 0.26	A
Location 2. Delancey Street/Essex Street (N526: Entrance located south of Delancey Street)							
HEET	2	~~46~~ 61	~~30~~ 35	0.80	0.90	~~0.14~~ 0.18	A
Two-Way Turnstiles	5	~~129~~ 170	~~274~~ 317	0.80	0.90	~~0.19~~ 0.23	A
PM Peak 15- Minutes							
Location 1. Delancey Street/Norfolk Street Station (A61)							
Two-Way Turnstiles	7	~~266~~ 189	~~246~~ 157	0.75	0.90	~~0.18~~ 0.12	A
Location 2. Delancey Street/Essex Street (N526: Entrance located south of Delancey Street)							
HEET	2	~~21~~ 31	~~63~~ 87	0.80	0.90	~~0.05~~ 0.07	A
Two-Way Turnstiles	5	~~189~~ 272	~~167~~ 230	0.80	0.90	~~0.17~~ 0.24	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =Vin / (Cin x Ff)+ Vx / (Cx x Sf x Ff)
Vin = Peak 15 Min Entering Passenger Volume
Cin= Total 15-Minute Capacity of all turnstiles for entering Passengers
Vx = Peak 15- Minute Exiting Passenger
Cx = Total 15-minute Capacity of all turnstile for exiting Passengers
Sf = Surging Factor
Ff = Friction Factor

Table 13-33[1]
2022 With Action Condition: Escalator Analysis

Station Element	Quantity	Tread Width(in)	Capacity(Persons/min)	Surging Factor	15-Min Volume	Peak 15-Min Guideline Capacity	V/C ratio	LOS
AM Peak 15- Minutes								
Escalator exit on Essex Street- East Sidewalk between Delancey Street and Broome St								
E328-Up	1	24	32	0.75	47	480	0.13	A
PM Peak 15- Minutes								
E328-Up	1	24	32	0.75	34	480	0.09	A

Notes: Capacities were calculated based on rates presented in the *CEQR Technical Manual.*
V/C =V/Gcap x Sf
V = Peak 15 Min Passenger Volume
Gcap= Guideline Capacity

~~The above amendments to the analysis may result in significant adverse subway station impacts that are being conservatively disclosed in this DGEIS. Should the results of the analyses identify significant adverse impacts, measures to increase capacity would be recommended to mitigate such impacts. The practicability and feasibility of such mitigation measures will be further assessed in the FGEIS.~~

[1] This table is new to the FGEIS.

2022 WITH ACTION CONDITION—BUS LINE-HAUL LEVELS

Peak period bus ridership for the With Action conditions was generated by adding the incremental trips associated with the proposed actions to the No Action bus line-haul volumes. It was assumed that 60 percent of the project generated bus riders would be evenly distributed among the M9, and M14A routes (i.e., 30 percent for each route), 30 percent of the riders would be evenly distributed among the M15 and M15 SBS routes (i.e., 15 percent for each route) and the remaining 10 percent of riders would take the M21 and M22 routes.

As described in Section E, "Transportation Analysis Methodologies," impacts on bus line-haul levels are considered significant if a proposed action would result in operating conditions above guideline capacities. As shown in **Table 13-~~29~~34**, under the With Action condition, during the AM peak period, the southbound M9 and westbound M14A would exceed guideline capacity while both the northbound and southbound M9 would exceed guideline capacity during the PM peak (54 passengers per bus capacity for the M9 route and 85 passengers per bus capacity for the M14A route). These projected increases in bus ridership beyond guideline capacities constitute potential significant adverse bus line-haul impacts.

Table 13-~~29~~34
2022 With Action Condition: Bus Line-Haul Analysis

Route	Direction	Peak Load Point	Hourly Volumes	Buses/ Hour	AP
AM Peak Hour					
M9	**North**	Essex Street/ Grand Street	211	8	27
	South	Essex Street/ E. Houston	403	6	(68)
M14A*	**East**	14th Street / Avenue A	350	7	50
	West	14th Street / Avenue A	748	8	(94)
M15*	**North**	1st Avenue/E. 2nd Street	354	9	40
	South	Allen Street/ E. Houston Street	128	9	15
M15 SBS*	**North**	1st Avenue/E. 2nd Street	712	17	42
	South	Allen Street/ E. Houston Street	445	8	56
PM Peak Hour					
M9	**North**	E. Houston St / Norfolk Street	338	5	(68)
	South	Essex Street/ Grand Street	217	4	(55)
M14A*	**East**	14th Street / Avenue A	424	5	85
	West	14th Street / Avenue A	357	5	72
M15*	**North**	1st Avenue/ E. 2nd Street	230	7	33
	South	Allen Street/ E. Houston Street	172	9	20
M15 SBS*	**North**	1st Avenue/E. 2nd Street	540	9	60
	South	Allen Street/ E. Houston Street	340	9	38

Notes: AP=average passengers per bus;
***** Articulated buses with guideline capacity of 85 passengers/bus
(#)=exceeds NYCT guideline capacity.
Source: NYCT Bus ridership data (2010/2011).

Potential measures to mitigate the potential significant adverse bus line-haul impacts include scheduling additional buses to increase capacity. NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted. These service adjustments are subject to fiscal and operational constraints and, if implemented, are expected to occur over time. These measures are discussed in greater detail in Chapter 21, "Mitigation Measures."

H. PEDESTRIANS

2011 EXISTING CONDITIONS

Pedestrian data were collected in October 2011 at key locations near the project site during the weekday hours of 7:00 AM to 9:30 AM, 11:00 AM to 2:00 PM, and 4:00 PM to 6:30 PM and Saturday 12:00 PM to 5:00 PM.

Peak hours were determined by comparing rolling hourly averages and the highest 15-minute volumes within the selected peak hours were selected for analysis. The existing peak 15-minute pedestrian volume maps for the weekday AM, midday, and PM, and Saturday peak hours are provided at the end of the chapter. As shown in **Tables 13-~~30~~35** to **13-~~31~~37**, all sidewalk, corner reservoir, and crosswalk analysis locations operate at acceptable mid-LOS D or better (maximum of 8.5 PMF platoon flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks), except at the following location:

- The north crosswalk of Clinton Street and Delancey Street, which operates at LOS F with 7.3 SFP during the AM peak 15-minute period, LOS E with 8.2 SFP during the PM peak 15-minute period, and LOS D with 16.9 and 15.2 SFP during the midday and Saturday peak 15-minute periods, respectively.

Detailed descriptions of the existing pedestrian levels of service for sidewalk, corners and crosswalks are provided in **Tables 13-~~33~~38** to **13-~~35~~40**.

Table 13-~~30~~35
Existing Pedestrian Sidewalk Level of Service Summary

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	56	58	58	58
Overall LOS D	2	0	0	0
Overall LOS E	0	0	0	0
Overall LOS F	0	0	0	0
Note: Includes 58 sidewalk analysis locations.				

Table 13-~~31~~36
Existing Pedestrian Corner Level of Service Summary

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	52	52	52	52
Overall LOS D	0	0	0	0
Overall LOS E	0	0	0	0
Overall LOS F	0	0	0	0
Note: Includes 52 corner analysis locations.				

Table 13-~~31~~37
Existing Pedestrian Crosswalk Level of Service Summary

	Weekday			
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	29	29	29	29
Overall LOS D	0	1	0	1
Overall LOS E	0	0	1	0
Overall LOS F	1	0	0	0
Note: Includes 30 crosswalk analysis locations.				

Table 13-~~33~~38
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
AM Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	168	1.81	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	184	1.98	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	481	6.41	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	53	0.27	A
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	67	0.30	A
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	198	0.88	B
6	Delancey Street between Essex Street and Norfolk Street	North[1]	11.0	365	2.21	B
		South[1]	5.0	52	0.69	B
	Essex Street between Delancey Street and Rivington Street	East[1]	4.0	224	3.73	C
	Essex Street between Delancey Street and Broome Street	East	4.0	110	1.83	B
		West	4.0	363	6.05	D
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	365	2.21	B
		South	12.8	52	0.27	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	602	4.01	C
		South[1]	3.0	34	0.76	B
	Norfolk Street between Delancey Street and Broome Street	West	4.0	36	0.60	B
8	Delancey Street between Suffolk Street and Norfolk Street	South[1]	3.0	34	0.76	B
	Delancey Street between Suffolk Street and Clinton Street	North[1]	6.0	457	5.08	C
		South	8.0	41	0.34	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	14	0.08	A
		West	5.0	20	0.27	A
9	Delancey Street between Clinton Street and Suffolk Street	South	5.0	41	0.55	B
	Clinton Street between Delancey Street and Broome Street	East	3.0	26	0.58	B
		West	3.0	39	0.87	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	37	0.62	B
		South	5.0	25	0.33	A
11	Broome Street between Ludlow Street and Essex Street	North	3.0	41	0.91	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	75	1.67	B
		South	4.0	37	0.62	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	41	0.91	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	40	0.53	B
	Essex Street between Broome Street and Delancey Street	East	6.5	164	1.68	B
		West	6.0	242	2.69	B
	Essex Street between Broome Street and Grand Street	East	10.0	131	0.87	B
		West	7.0	191	1.82	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	40	0.53	B
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	25	0.67	B
		South	5.0	37	0.49	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	36	0.40	A

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
AM Peak Period (cont'd)						
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	25	0.56	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	24	0.40	A
	Suffolk Street between Broome Street and Delancey Street	East	5.0	14	0.19	A
		West	5.0	20	0.27	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	48	0.46	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	24	0.53	B
	Broome Street between Clinton Street and Ridge Street	North	4.0	27	0.45	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	26	0.58	B
		West	2.5	39	1.04	B
	Clinton Street between Broome Street and Grand Street	West	5.0	50	0.67	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	180	1.50	B
17	Grand Street between Ludlow Street and Orchard Street	North[1]	5.0	205	2.73	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	196	1.63	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	137	0.76	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	116	0.64	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	76	0.51	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	48	0.64	B
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	76	0.65	B
	Clinton Street between Grand Street and Broome Street	West	4.0	50	0.83	B
Midday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	136	1.46	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	82	0.88	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	222	2.96	B
3	Delancey Street between Allen Street and Orchard Street	South	13.0	143	0.73	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	93	0.41	A
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	155	0.69	B
6	Delancey Street between Essex Street and Norfolk Street	North[1]	11.0	393	2.38	B
		South[1]	5.0	45	0.60	B
	Essex Street between Delancey Street and Rivington Street	East[1]	4.0	201	3.35	C
	Essex Street between Delancey Street and Broome Street	East	4.0	122	2.03	B
		West	4.0	242	4.03	C

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
Midday Peak Period (cont'd)						
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	393	2.38	B
		South	12.8	45	0.23	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	341	2.27	B
		South[1]	3.0	26	0.58	B
	Norfolk Street between Delancey Street and Broome Street	West	4.0	36	0.60	B
8	Delancey Street between Suffolk Street and Norfolk Street	South[1]	3.0	26	0.58	B
	Delancey Street between Suffolk Street and Clinton Street	North[1]	6.0	315	3.50	C
		South	8.0	27	0.23	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	18	0.11	A
		West	5.0	11	0.15	A
9	Delancey Street between Clinton Street and Suffolk Street	South	5.0	27	0.36	A
	Clinton Street between Delancey Street and Broome Street	East	3.0	23	0.51	B
		West	3.0	38	0.84	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	74	1.23	B
		South	5.0	26	0.35	A
11	Broome Street between Ludlow Street and Essex Street	North	3.0	35	0.78	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	29	0.64	B
		South	4.0	47	0.78	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	35	0.78	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	27	0.36	A
	Essex Street between Broome Street and Delancey Street	East	6.5	113	1.16	B
		West	6.0	213	2.37	B
	Essex Street between Broome Street and Grand Street	East	10.0	163	1.09	B
		West	7.0	193	1.84	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	27	0.36	A
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	20	0.53	B
		South	5.0	18	0.24	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	36	0.40	A
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	20	0.44	A
	Broome Street between Suffolk Street and Clinton Street	North	4.0	27	0.45	A
	Suffolk Street between Broome Street and Delancey Street	East	5.0	18	0.24	A
		West	5.0	11	0.15	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	22	0.21	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	27	0.60	B
	Broome Street between Clinton Street and Ridge Street	North	4.0	19	0.32	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	23	0.51	B
		West	2.5	38	1.01	B
	Clinton Street between Broome Street and Grand Street	West	5.0	48	0.64	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	132	1.10	B

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period (cont'd)						
17	Grand Street between Ludlow Street and Orchard Street	North[1]	5.0	106	1.41	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	134	1.12	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	128	0.71	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	118	0.66	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	67	0.45	A
	Suffolk Street between Grand Street and Broome Street	East	5.0	22	0.29	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	67	0.57	B
	Clinton Street between Grand Street and Broome Street	West	4.0	48	0.80	B
PM Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	154	1.66	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	194	2.09	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	295	3.93	C
3	Delancey Street between Allen Street and Orchard Street	South	13.0	191	0.98	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	238	1.06	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	159	0.71	B
6	Delancey Street between Essex Street and Norfolk Street	North[1]	11.0	496	3.01	C
		South[1]	5.0	82	1.09	B
	Essex Street between Delancey Street and Rivington Street	East[1]	4.0	250	4.17	C
	Essex Street between Delancey Street and Broome Street	East	4.0	99	1.65	B
		West	4.0	186	3.10	C
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	496	3.01	C
		South	12.8	82	0.43	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	603	4.02	C
		South[1]	3.0	41	0.91	B
	Norfolk Street between Delancey Street and Broome Street	West	4.0	32	0.53	B
8	Delancey Street between Suffolk Street and Norfolk Street	South[1]	3.0	41	0.91	B
	Delancey Street between Suffolk Street and Clinton Street	North[1]	6.0	426	4.73	C
		South	8.0	77	0.64	B
	Suffolk Street between Delancey Street and Broome Street	East	11.0	22	0.13	A
		West	5.0	20	0.27	A
9	Delancey Street between Clinton Street and Suffolk Street	South	5.0	77	1.03	B
	Clinton Street between Delancey Street and Broome Street	East	3.0	52	1.16	B
		West	3.0	68	1.51	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	50	0.83	B
		South	5.0	34	0.45	A
11	Broome Street between Ludlow Street and Essex Street	North	3.0	62	1.38	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	44	0.98	B
		South	4.0	55	0.92	B

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
PM Peak Period (cont'd)						
12	Broome Street between Essex Street and Ludlow Street	North	3.0	62	1.38	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	44	0.59	B
	Essex Street between Broome Street and Delancey Street	East	6.5	154	1.58	B
		West	6.0	123	1.37	B
	Essex Street between Broome Street and Grand Street	East	10.0	129	0.86	B
		West	7.0	91	0.87	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	44	0.59	B
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	24	0.64	B
		South	5.0	30	0.40	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	32	0.36	A
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	24	0.53	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	43	0.72	B
	Suffolk Street between Broome Street and Delancey Street	East	5.0	22	0.29	A
		West	5.0	20	0.27	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	22	0.21	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	43	0.96	B
	Broome Street between Clinton Street and Ridge Street	North	4.0	28	0.47	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	52	1.16	B
		West	2.5	68	1.81	B
	Clinton Street between Broome Street and Grand Street	West	5.0	59	0.79	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	208	1.73	B
17	Grand Street between Ludlow Street and Orchard Street	North[1]	5.0	183	2.44	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	163	1.36	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	118	0.66	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	124	0.69	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	98	0.65	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	22	0.29	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	98	0.84	B
	Clinton Street between Grand Street and Broome Street	West	4.0	59	0.98	B

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
Saturday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	144	1.55	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	187	2.01	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	284	3.79	C
3	Delancey Street between Allen Street and Orchard Street	South	13.0	201	1.03	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	126	0.56	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	134	0.60	B
6	Delancey Street between Essex Street and Norfolk Street	North[1]	11.0	435	2.64	B
		South[1]	5.0	65	0.87	B
	Essex Street between Delancey Street and Rivington Street	East[1]	4.0	297	4.95	C
	Essex Street between Delancey Street and Broome Street	East	4.0	149	2.48	B
		West	4.0	165	2.75	B
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	435	2.64	B
		South	12.8	65	0.34	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	470	3.13	C
		South[1]	3.0	46	1.02	B
	Norfolk Street between Delancey Street and Broome Street	West	4.0	28	0.47	A
8	Delancey Street between Suffolk Street and Norfolk Street	South[1]	3.0	46	1.02	B
	Delancey Street between Suffolk Street and Clinton Street	North[1]	6.0	404	4.49	C
		South	8.0	39	0.33	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	27	0.16	A
		West	5.0	19	0.25	A
9	Delancey Street between Clinton Street and Suffolk Street	South	5.0	39	0.52	B
	Clinton Street between Delancey Street and Broome Street	East	3.0	22	0.49	A
		West	3.0	45	1.00	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	109	1.82	B
		South	5.0	71	0.95	B
11	Broome Street between Ludlow Street and Essex Street	North	3.0	44	0.98	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	106	2.36	B
		South	4.0	117	1.95	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	44	0.98	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	37	0.49	A
	Essex Street between Broome Street and Delancey Street	East	6.5	134	1.37	B
		West	6.0	129	1.43	B
	Essex Street between Broome Street and Grand Street	East	10.0	104	0.69	B
		West	7.0	90	0.86	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	37	0.49	A
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	30	0.80	B
		South	5.0	21	0.28	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	28	0.31	A

Table 13-~~33~~38 (cont'd)
2011 Existing Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period (cont'd)						
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	30	0.67	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	19	0.32	A
	Suffolk Street between Broome Street and Delancey Street	East	5.0	27	0.36	A
		West	5.0	19	0.25	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	20	0.19	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	19	0.42	A
	Broome Street between Clinton Street and Ridge Street	North	4.0	19	0.32	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	22	0.49	A
		West	2.5	45	1.20	B
	Clinton Street between Broome Street and Grand Street	West	5.0	42	0.56	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	172	1.43	B
17	Grand Street between Ludlow Street and Orchard Street	North[1]	5.0	152	2.03	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	124	1.03	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	114	0.63	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	110	0.61	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	78	0.52	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	20	0.27	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	78	0.67	B
	Clinton Street between Grand Street and Broome Street	West	4.0	42	0.70	B

Notes:
PMF = pedestrians per minute per foot
[1] Effective width narrowed by existing construction activity

Table 13-~~34~~39
2011 Existing Condition Corner Analysis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
1	Stanton Street and Essex Street	Southeast	104.8	A	149.6	A	72.2	A	86.0	A
		Southwest	162.0	A	212.9	A	163.7	A	82.2	A
2	Rivington Street and Essex Street	Northeast	81.0	A	154.7	A	74.5	A	61.7	A
		Southeast	36.0	C	78.6	A	36.9	C	48.8	B
		Southwest	126.9	A	112.1	A	51.9	B	64.5	A
3	Delancey Street and Allen Street	Southeast	474.2	A	344.9	A	221.0	A	188.3	A
		Southwest	463.4	A	234.5	A	235.6	A	194.5	A
4	Delancey Street and Orchard Street	Southeast	661.8	A	220.6	A	231.4	A	131.8	A
		Southwest	706.3	A	215.6	A	183.2	A	160.5	A
5	Delancey Street and Ludlow Street	Northeast	199.5	A	142.5	A	117.8	A	117.9	A
		Southeast	276.4	A	166.2	A	252.9	A	221.7	A
		Southwest	554.8	A	186.4	A	314.9	A	222.1	A
		Northwest	258.9	A	154.4	A	131.1	A	115.9	A
6	Delancey Street and Essex Street	Northeast	67.3	A	61.3	A	55.0	B	49.6	B
		Southeast	289.3	A	219.4	A	221.6	A	157.5	A
		Southwest	163.0	A	127.2	A	165.3	A	172.3	A
		Northwest	86.0	A	67.9	A	73.1	A	83.2	A
7	Delancey Street and Norfolk Street	Northeast	174.3	A	161.3	A	108.1	A	133.1	A
		Southeast	467.9	A	646.2	A	348.1	A	440.7	A
		Southwest	669.7	A	702.7	A	444.3	A	499.2	A
		Northwest	184.0	A	174.8	A	120.0	A	146.4	A
8	Delancey Street and Suffolk Street	Northeast	76.6	A	130.0	A	80.2	A	102.1	A
		Southeast	604.6	A	786.7	A	346.9	A	336.5	A
		Southwest	486.0	A	554.0	A	472.8	A	383.3	A
		Northwest	68.1	A	118.1	A	76.4	A	102.1	A
9	Delancey Street and Clinton Street	Southwest	51.3	B	51.6	B	27.3	C	44.4	B
		Northwest	51.6	B	100.7	A	53.1	B	82.1	A
12	Broome Street and Essex Street	Northeast	127.4	A	173.9	A	157.0	A	159.6	A
		Southeast	431.2	A	562.9	A	581.3	A	492.9	A
		Southwest	69.7	A	99.9	A	160.4	A	152.4	A
		Northwest	69.5	A	105.6	A	129.6	A	140.8	A
13	Broome Street and Norfolk Street	Northeast	291.6	A	333.6	A	344.3	A	411.8	A
		Southeast	533.5	A	688.5	A	470.5	A	633.9	A
		Southwest	1608.1	A	1963.3	A	1962.0	A	2011.5	A
		Northwest	405.5	A	581.3	A	457.4	A	412.6	A
16	Grand Street and Allen Street	Northeast	77.7	A	146.7	A	111.5	A	88.1	A
		Southeast	76.9	A	111.9	A	83.3	A	60.6	A
17	Grand Street and Orchard Street	Northeast	93.5	A	192.0	A	101.4	A	135.0	A
		Northwest	88.9	A	149.2	A	93.3	A	108.3	A
18	Grand Street and Ludlow Street	Northeast	252.0	A	335.9	A	277.0	A	268.4	A
		Southeast	127.6	A	177.6	A	121.5	A	113.7	A
		Northwest	117.1	A	243.8	A	153.3	A	132.4	A
19	Grand Street and Essex Street	Northeast	286.4	A	322.4	A	247.8	A	343.4	A
		Southeast	226.5	A	210.6	A	221.7	A	241.4	A
		Southwest	137.4	A	113.8	A	126.7	A	113.2	A
		Northwest	96.3	A	119.3	A	138.0	A	177.4	A
20	Grand Street and Norfolk Street	Northeast	794.1	A	725.1	A	670.7	A	654.7	A
		Northwest	1902.4	A	1730.5	A	1547.4	A	1536.5	A
21	Grand Street and Suffolk Street	Northeast	310.6	A	418.6	A	266.3	A	288.9	A
		Northwest	346.1	A	419.4	A	279.7	A	341.6	A
22	Grand Street and Clinton Street	Southwest	659.8	A	525.6	A	491.9	A	554.6	A
		Northwest	124.0	A	121.1	A	102.7	A	107.0	A

Note: SFP = square feet per pedestrian

Table 13-~~35~~40
2011 Existing Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles: AM 2-way Volume	AM SFP	AM LOS	Midday 2-way Volume	Midday SFP	Midday LOS	PM 2-way Volume	PM SFP	PM LOS	Saturday 2-way Volume	Saturday SFP	Saturday LOS
2	Rivington Street and Essex Street	East	24.0	11.0	267	36.4	C	108	103.9	A	197	54.6	B	180	60.8	A
3	Delancey Street and Allen Street	South[1]	44.0	20.0	58	132.1	A	95	127.4	A	124	102.6	A	160	80.5	A
4	Delancey Street and Orchard Street	South	25.0	22.0	51	516.5	A	155	170.6	A	165	157.2	A	192	134.3	A
5	Delancey Street and Ludlow Street	North	25.0	20.0	159	131.3	A	233	87.8	A	297	68.4	A	274	73.3	A
		South	26.0	22.0	68	378.5	A	193	130.9	A	103	251.5	A	138	183.5	A
6	Delancey Street and Essex Street	North	54.0	19.0	291	68.3	A	325	61.1	A	329	58.1	B	317	60.0	B
		East	110.0	14.0	98	66.2	A	119	54.0	B	113	50.0	B	144	43.9	B
		South	54.0	19.0	62	351.2	A	86	250.7	A	90	243.8	A	122	176.3	A
		West	110.0	14.0	190	36.3	C	273	24.7	C	152	46.1	B	133	52.7	B
7	Delancey Street and Norfolk Street	North	26.0	20.0	172	109.7	A	230	80.0	A	317	56.4	B	270	72.4	A
		South	24.0	10.0	21	494.1	A	25	413.0	A	51	202.3	A	37	279.6	A
		West	105.0	14.0	46	114.6	A	35	150.9	A	51	103.2	A	44	119.6	A
8	Delancey Street and Suffolk Street	North	26.0	20.0	494	41.0	B	303	73.4	A	439	48.9	B	330	68.0	A
		East[1]	56.0	20.0	30	425.6	A	16	691.0	A	63	174.7	A	64	169.8	A
		South	23.0	14.0	23	637.7	A	24	660.2	A	31	508.9	A	30	530.5	A
		West[1]	51.0	18.0	30	378.3	A	22	451.7	A	26	366.8	A	40	236.8	A
9	Delancey Street and Clinton Street	North	24.0	16.0	344	7.3	F	172	16.9	D	313	8.2	E	186	15.2	D
		South	26.0	17.0	48	453.4	A	38	582.7	A	74	299.8	A	48	461.2	A
		West (North of Median)	68.0	23.0	133	62.7	A	117	71.5	A	173	47.4	B	120	69.2	A
		West (South of Median)	68.0	23.0	77	108.5	A	81	103.1	A	129	64.3	A	92	90.9	A
12	Broome Street and Essex Street	North	54.0	11.0	25	293.5	A	21	351.1	A	30	244.1	A	42	174.4	A
		East	30.0	11.0	142	81.6	A	112	103.7	A	115	101.7	A	104	113.3	A
		South	54.0	15.0	38	258.5	A	26	385.3	A	18	557.2	A	27	368.1	A
13	Broome Street and Norfolk Street	North	25.0	12.0	24	426.5	A	15	718.1	A	17	588.7	A	19	471.0	A
		South	24.0	12.0	24	532.9	A	11	1180.3	A	24	538.8	A	17	758.4	A
17	Grand Street and Orchard Street	North	24.0	13.0	207	41.3	B	77	120.5	A	186	47.4	B	133	66.1	A
18	Grand Street and Ludlow Street	North	24.0	15.0	145	74.5	A	84	133.5	A	116	95.2	A	145	74.2	A
19	Grand Street and Essex Street	North	54.0	15.0	105	104.3	A	108	100.0	A	125	77.5	A	73	153.4	A
20	Grand Street and Norfolk Street	North	24.0	14.0	92	62.4	A	107	54.4	B	121	46.6	B	117	43.8	B
21	Grand Street and Suffolk Street	North	25.0	13.0	95	139.1	A	67	198.3	A	105	123.3	A	86	152.4	A

Notes: SFP = square feet per pedestrian
[1] Critical width (north/east or south/west of pedestrian refuge median) used for analysis street width

2022 NO ACTION CONDITION

The New York City Department of Transportation (NYCDOT) recently began implementation of Delancey Street Safety Improvements plan subsequent to the publication of the DGEIS to improve pedestrian, bicycle, and vehicular safety conditions in the study area. Specifically, as part of this safety plan, the following measures were implemented:

- Crossing distance at 14 of 19 locations on the Delancey Street corridor was reduced by installing neckdowns and median tip extensions,
- Clinton Street was converted to one-way northbound between Grand Street and Delancey Street providing direct access to Williamsburg Bridge from Clinton Street;
- Left-turn were prohibited at all-times at the following approaches on study area intersections:
  - southbound approach at the Essex Street and Delancey Street intersection;
  - eastbound approach at the Delancey Street and Chrystie Street intersection;
  - eastbound approach at the Delancey Street and Allen Street intersection; and
  - eastbound approach at the Grand Street and Clinton Street intersection.
- Pedestrian plazas were created on the south side of Delancey Street between Norfolk and Clinton Streets, replacing the existing Delancey Street service road; and
- Signal timings were modified along the Delancey Street corridor to allow increased pedestrian crossing times across Delancey Street.

No Action pedestrian volumes were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per CEQR guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (year 2011 to year 2016) and then 0.125 percent for the remaining years (year 2016 to year 2022). Pedestrian volumes from anticipated projects in the study area were also added to arrive at the 2022 No Action pedestrian volumes. Furthermore, for the purposes of the FGEIS pedestrian analysis, the 2022 No Action condition incorporated all of the safety measures identified above as part of the Delancey Street corridor safety plan.

The 2022 No Action peak 15-minute pedestrian volume maps for the weekday AM, midday, and PM, and Saturday peak hours are provided at the end of the chapter. As shown in **Tables 13~~36~~41** to **13-~~38~~43**, all sidewalk, corner reservoir, and crosswalk analysis locations will continue to operate at acceptable mid-LOS D or better (maximum of 8.5 PMF platoon flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks), except at the following location:

- The north crosswalk of Clinton Street and Delancey Street, which operates at LOS ~~F~~ E with ~~6.5~~ 8.3 ~~and 7.0~~ and 9.2 SFP during the AM and PM peak 15-minute periods, respectively and LOS D with 18.4 and 16.7 SFP ~~respectively~~ ~~and LOS E with 14.3 and 13.1 SFP~~ during the midday and Saturday peak 15-minute periods, respectively.

Detailed descriptions of the 2022 No Action pedestrian levels of service for sidewalk, corners and crosswalks are provided in **Tables 13-~~39~~44** to **13-~~41~~46**.

Table 13-~~36~~41
Pedestrian Sidewalk Level of Service Summary Comparison
Existing vs. No Action Conditions (2022)

	Existing				2022 No Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	56	58	58	58	56	58	58	58
Overall LOS D	2	0	0	0	2	0	0	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Note: Includes 58 sidewalk analysis locations.								

Table 13-~~37~~42
Pedestrian Corner Level of Service Summary Comparison
Existing vs. No Action Conditions (2022)

	Existing				2022 No Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	52	52	52	52	52	52	52	52
Overall LOS D	0	0	0	0	0	0	0	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Note: Includes 52 corner analysis locations.								

Table 13-~~38~~43
Pedestrian Crosswalk Level of Service Summary Comparison
Existing vs. No Action Conditions (2022)

	Existing				2022 No Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	29	29	29	29	29	28	29	29
Overall LOS D	0	1	0	1	0	~~1~~2	0	~~0~~1
Overall LOS E	0	0	1	0	~~0~~1	~~1~~0	~~0~~1	~~1~~0
Overall LOS F	1	0	0	0	~~1~~0	0	~~1~~0	0
Note: Includes 30 crosswalk analysis locations.								

Table 13-~~39~~44
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
AM Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	17~~7~~8	1.~~90~~91	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	19~~4~~5	2.~~09~~10	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	49~~6~~7	6.~~61~~63	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	61	0.31	A
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	74	0.33	A
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	206	0.92	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	391	2.37	B
		South	15.0	56	0.25	A
	Essex Street between Delancey Street and Rivington Street	East	4.0	23~~7~~5	3.~~95~~92	C
	Essex Street between Delancey Street and Broome Street	East	4.0	11~~8~~9	1.~~97~~98	B
		West	4.0	38~~0~~1	6.~~33~~35	D
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	391	2.37	B
		South	12.8	56	0.29	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	~~648~~650	4.~~32~~33	C
		South	~~10~~20.0	37	0.~~25~~12	A
	Norfolk Street between Delancey Street and Broome Street	West	4.0	36	0.60	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~10~~20.0	37	0.~~25~~12	A
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	50~~6~~8	3.~~37~~39	C
		South	~~8.0~~15.5	42	0.~~35~~18	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	16	0.10	A
		West	5.0	22	0.29	A
9	Delancey Street between Clinton Street and Suffolk Street	South	12.5~~.0~~	44	0.~~59~~23	~~B~~A
	Clinton Street between Delancey Street and Broome Street	East	3.0	26	0.58	B
		West	3.0	39	0.87	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	40	0.67	B
		South	5.0	28	0.37	A

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
AM Peak Period (cont'd)						
11	Broome Street between Ludlow Street and Essex Street	North	3.0	43	0.96	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	78	1.73	B
		South	4.0	40	0.67	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	43	0.96	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	42	0.56	B
	Essex Street between Broome Street and Delancey Street	East	6.5	17~~7~~8	1.~~82~~83	B
		West	6.0	25~~6~~7	2.~~84~~86	B
	Essex Street between Broome Street and Grand Street	East	10.0	14~~1~~2	0.~~94~~95	B
		West	7.0	20~~2~~4	1.~~92~~94	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	41	0.55	B
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	~~26~~27	0.~~69~~72	B
		South	5.0	38	0.51	B
	Norfolk Street between Broome Street and Delancey Street	West	6.0	36	0.40	A
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	~~26~~27	0.~~58~~60	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	~~24~~25	0.~~40~~42	A
	Suffolk Street between Broome Street and Delancey Street	East	5.0	16	0.21	A
		West	5.0	22	0.29	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	48	0.46	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	~~24~~25	0.~~53~~56	B
	Broome Street between Clinton Street and Ridge Street	North	4.0	~~28~~29	0.~~47~~48	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	26	0.58	B
		West	2.5	39	1.04	B
	Clinton Street between Broome Street and Grand Street	West	5.0	53	0.71	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	18~~6~~8	1.~~55~~57	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	21~~2~~4	1.~~81~~83	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	202	1.68	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	14~~4~~5	0.~~80~~81	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	12~~3~~4	0.~~68~~69	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	~~80~~82	0.~~53~~55	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	48	0.64	B
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	~~81~~82	0.~~69~~70	B
	Clinton Street between Grand Street and Broome Street	West	4.0	53	0.88	B

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	15~~2~~4	1.~~63~~66	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~98~~100	1.~~05~~08	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	244~~4~~5	3.~~25~~27	C
3	Delancey Street between Allen Street and Orchard Street	South	13.0	164	0.84	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	110~~9~~	0.~~48~~49	A
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	~~169~~171	0.~~75~~76	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	43~~6~~8	2.~~64~~65	B
		South	15.0	~~53~~54	0.24	A
	Essex Street between Delancey Street and Rivington Street	East	4.0	22~~2~~1	3.~~70~~68	C
	Essex Street between Delancey Street and Broome Street	East	4.0	14~~3~~7	2.~~38~~45	B
		West	4.0	27~~1~~4	4.~~52~~57	C
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	43~~6~~8	2.~~64~~65	B
		South	12.8	~~53~~54	0.28	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	39~~3~~7	2.~~62~~65	B
		South	~~10~~20.0	~~33~~34	0.~~22~~11	A
	Norfolk Street between Delancey Street and Broome Street	West	4.0	36	0.60	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~10~~20.0	~~33~~34	0.~~22~~11	A
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	~~387~~390	2.~~58~~60	B
		South	~~8.0~~15.5	27	0.~~23~~12	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	21	0.13	A
		West	5.0	14	0.19	A
9	Delancey Street between Clinton Street and Suffolk Street	South	12.5~~.0~~	~~29~~31	0.~~39~~17	A
	Clinton Street between Delancey Street and Broome Street	East	3.0	23	0.51	B
		West	3.0	40	0.89	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	~~82~~81	1.~~37~~35	B
		South	5.0	~~35~~36	0.~~47~~48	A
11	Broome Street between Ludlow Street and Essex Street	North	3.0	37	0.82	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	~~34~~32	0.~~76~~71	B
		South	4.0	~~55~~54	0.~~92~~90	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	37	0.82	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	33	0.44	A
	Essex Street between Broome Street and Delancey Street	East	6.5	~~136~~140	1.~~39~~44	B
		West	6.0	24~~2~~5	2.~~69~~72	B
	Essex Street between Broome Street and Grand Street	East	10.0	18~~5~~8	1.~~23~~25	B
		West	7.0	22~~0~~2	2.~~10~~11	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	31	0.41	A
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	24	0.64	B
		South	5.0	22	0.29	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	36	0.40	A

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period (cont'd)						
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	24	0.53	B
14	Broome Street between Suffolk Street and Clinton Street	North	4.0	29	0.48	A
14	Suffolk Street between Broome Street and Delancey Street	East	5.0	21	0.28	A
14	Suffolk Street between Broome Street and Delancey Street	West	5.0	14	0.19	A
14	Suffolk Street between Broome Street and Grand Street	East	7.0	24	0.23	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	29	0.64	B
15	Broome Street between Clinton Street and Ridge Street	North	4.0	~~21~~23	0.~~35~~38	A
15	Clinton Street between Broome Street and Delancey Street	East	3.0	23	0.51	B
15	Clinton Street between Broome Street and Delancey Street	West	2.5	40	1.07	B
15	Clinton Street between Broome Street and Grand Street	West	5.0	53	0.71	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	140	1.17	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	11~~6~~8	~~0.99~~1.01	B
17	Grand Street between Ludlow Street and Essex Street	North	8.0	14~~2~~4	1.~~18~~20	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	14~~2~~3	0.79	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	13~~1~~2	0.73	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	~~79~~80	0.53	B
20	Suffolk Street between Grand Street and Broome Street	East	5.0	24	0.32	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	~~79~~81	0.~~68~~69	B
21	Clinton Street between Grand Street and Broome Street	West	4.0	53	0.88	B
PM Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	16~~7~~9	1.~~80~~82	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	210~~8~~	2.~~24~~26	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	31~~3~~5	4.~~17~~20	C
3	Delancey Street between Allen Street and Orchard Street	South	13.0	20~~7~~8	1.~~06~~07	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	25~~2~~3	1.12	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	~~169~~170	0.~~75~~76	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	53~~5~~4	3.24	C
6	Delancey Street between Essex Street and Norfolk Street	South	15.0	89	0.40	A
6	Essex Street between Delancey Street and Rivington Street	East	4.0	~~270~~266	4.~~50~~43	C
6	Essex Street between Delancey Street and Broome Street	East	4.0	11~~2~~5	1.~~87~~92	B
6	Essex Street between Delancey Street and Broome Street	West	4.0	20~~6~~8	3.~~43~~47	C

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
PM Peak Period (cont'd)						
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	53~~5~~4	3.24	C
		South	12.8	89	0.46	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	66~~1~~4	4.~~41~~43	C
		South	~~10~~20.0	47	0.~~31~~16	A
	Norfolk Street between Delancey Street and Broome Street	West	4.0	32	0.53	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~10~~20.0	47	0.~~31~~16	A
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	49~~1~~3	3.~~27~~29	C
		South	~~8.0~~15.5	79	0.~~66~~34	~~B~~A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	24	0.15	A
		West	5.0	22	0.29	A
9	Delancey Street between Clinton Street and Suffolk Street	South	12.5~~.0~~	81	~~1.08~~0.43	~~B~~A
	Clinton Street between Delancey Street and Broome Street	East	3.0	53	1.18	B
		West	3.0	71	1.58	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	56	0.93	B
		South	5.0	41	0.55	B
11	Broome Street between Ludlow Street and Essex Street	North	3.0	65	1.44	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	~~48~~47	1.~~07~~04	B
		South	4.0	62	1.03	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	65	1.44	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	48	0.64	B
	Essex Street between Broome Street and Delancey Street	East	6.5	17~~1~~4	1.~~75~~78	B
		West	6.0	14~~1~~3	1.~~57~~59	B
	Essex Street between Broome Street and Grand Street	East	10.0	14~~4~~5	0.~~96~~97	B
		West	7.0	10~~8~~9	1.~~03~~04	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	47	0.63	B
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	27	0.72	B
		South	5.0	32	0.43	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	32	0.36	A
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	27	0.60	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	46	0.77	B
	Suffolk Street between Broome Street and Delancey Street	East	5.0	24	0.32	A
		West	5.0	22	0.29	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	23	0.22	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	46	1.02	B
	Broome Street between Clinton Street and Ridge Street	North	4.0	30	0.50	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	53	1.18	B
		West	2.5	71	1.89	B
	Clinton Street between Broome Street and Grand Street	West	5.0	62	0.83	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	21~~5~~8	1.~~79~~82	B

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
PM Peak Period (cont'd)						
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	19~~1~~2	1.~~63~~64	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	17~~2~~3	1.~~43~~44	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	12~~8~~9	0.~~71~~72	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	13~~3~~4	0.74	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	107	0.71	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	23	0.31	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	10~~7~~8	0.~~91~~92	B
	Clinton Street between Grand Street and Broome Street	West	4.0	62	1.03	B
Saturday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	15~~5~~7	1.~~67~~69	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~199~~201	2.~~14~~16	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	30~~0~~2	4.~~00~~03	C
3	Delancey Street between Allen Street and Orchard Street	South	13.0	21~~5~~6	1.~~10~~11	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	137	0.61	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	14~~2~~4	0.~~63~~64	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	466	2.82	B
		South	15.0	70	0.31	A
	Essex Street between Delancey Street and Rivington Street	East	4.0	31~~5~~3	5.~~25~~22	C
	Essex Street between Delancey Street and Broome Street	East	4.0	16~~2~~5	2.~~70~~75	B
		West	4.0	18~~1~~4	3.~~02~~07	C
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	466	2.82	B
		South	12.8	70	0.36	A
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	51~~6~~7	3.~~44~~45	C
		South	~~10~~20.0	51	0.~~34~~17	A
	Norfolk Street between Delancey Street and Broome Street	West	4.0	28	0.47	A
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~10~~20.0	51	0.~~34~~17	A
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	45~~6~~8	3.~~04~~05	C
		South	~~8.0~~15.5	39	0.~~33~~17	A
	Suffolk Street between Delancey Street and Broome Street	East	11.0	29	0.18	A
		West	5.0	21	0.28	A
9	Delancey Street between Clinton Street and Suffolk Street	South	12.5~~.0~~	41	0.~~55~~22	~~B~~A
	Clinton Street between Delancey Street and Broome Street	East	3.0	22	0.49	A
10	Broome Street between Allen Street and Orchard Street	West	3.0	46	1.02	B
		North	4.0	115	1.92	B
		South	5.0	79	1.05	B

Table 13-~~39~~44 (cont'd)
2022 No Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
Saturday Peak Period (cont'd)						
11	Broome Street between Ludlow Street and Essex Street	North	3.0	46	1.02	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	110	2.44	B
		South	4.0	12~~2~~3	2.~~03~~05	B
12	Broome Street between Essex Street and Ludlow Street	North	3.0	46	1.02	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	~~39~~40	0.~~52~~53	B
	Essex Street between Broome Street and Delancey Street	East	6.5	~~149~~153	1.~~53~~57	B
		West	6.0	14~~4~~7	1.~~60~~63	B
	Essex Street between Broome Street and Grand Street	East	10.0	11~~8~~9	0.79	B
		West	7.0	10~~4~~6	~~0.99~~1.01	B
13	Broome Street between Norfolk Street and Essex Street	North	5.0	39	0.52	B
	Broome Street between Norfolk Street and Suffolk Street	North	2.5	32	0.85	B
		South	5.0	23	0.31	A
	Norfolk Street between Broome Street and Delancey Street	West	6.0	28	0.31	A
14	Broome Street between Suffolk Street and Norfolk Street	North	3.0	32	0.71	B
	Broome Street between Suffolk Street and Clinton Street	North	4.0	21	0.35	A
	Suffolk Street between Broome Street and Delancey Street	East	5.0	29	0.39	A
		West	5.0	21	0.28	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	20	0.19	A
15	Broome Street between Clinton Street and Suffolk Street	North	3.0	21	0.47	A
	Broome Street between Clinton Street and Ridge Street	North	4.0	21	0.35	A
	Clinton Street between Broome Street and Delancey Street	East	3.0	22	0.49	A
		West	2.5	46	1.23	B
	Clinton Street between Broome Street and Grand Street	West	5.0	44	0.59	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	17~~8~~9	1.~~48~~49	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	~~159~~161	1.~~36~~38	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	13~~1~~3	1.~~09~~11	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	12~~2~~3	0.68	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	11~~8~~9	0.66	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	~~85~~86	0.57	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	20	0.27	A
21	Grand Street between Clinton Street and Suffolk Street	North	7.8	~~86~~87	0.74	B
	Clinton Street between Grand Street and Broome Street	West	4.0	44	0.73	B

Note: PMF = pedestrians per minute per foot

Table 13-~~40~~45
2022 No Action Condition Corner Analysis

Intersection No.	Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
			SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
1	Stanton Street and Essex Street	Southeast	99.~~5~~1	A	~~135.2~~133.7	A	68.~~5~~1	A	~~81.5~~80.9	A
		Southwest	142.6	A	~~166.6~~167.7	A	~~133.8~~135.5	A	74.~~8~~5	A
2	Rivington Street and Essex Street	Northeast	77.~~5~~2	A	~~131.5~~129.2	A	~~69.3~~68.4	A	57.~~6~~2	B
		Southeast	34.~~6~~5	C	70.~~6~~0	A	34.~~9~~6	C	45.~~8~~5	B
		Southwest	112.4	A	92.2	A	46.~~7~~8	B	58.~~3~~1	B
3	Delancey Street and Allen Street	Southeast	~~430.7~~427.2	A	28~~7~~4.4	A	~~200.9~~199.4	A	~~174.4~~173.3	A
		Southwest	~~428.7~~418.4	A	~~207.4~~204.9	A	~~215.5~~213.7	A	~~180.3~~179.7	A
4	Delancey Street and Orchard Street	Southeast	~~565.1~~558.3	A	~~184.8~~182.4	A	~~203.8~~201.2	A	121.~~7~~5	A
		Southwest	626.~~3~~2	A	~~189.8~~186.1	A	~~168.5~~166.9	A	148.~~9~~1	A
5	Delancey Street and Ludlow Street	Northeast	~~180.4~~272.8	A	~~122~~186.5	A	~~105.3~~160.8	A	~~107.0~~163.2	A
		Southeast	~~258.7~~257.2	A	~~151.6~~152.0	A	~~229.4~~232.2	A	206.~~3~~1	A
		Southwest	503.~~8~~4	A	~~171.0~~169.4	A	~~290.2~~287.9	A	208.~~4~~3	A
		Northwest	~~230.6~~315.2	A	~~132.6~~179.9	A	~~117.3~~160.6	A	1045.9	A
6	Delancey Street and Essex Street	Northeast	98.3	A	~~85.1~~84.2	A	78.~~4~~3	A	72.0	A
		Southeast	~~270.3~~268.5	A	~~194.7~~190.5	A	~~202.9~~199.8	A	~~147.6~~146.0	A
		Southwest	~~154.5~~153.9	A	11~~5~~4.4	A	~~152.0~~150.9	A	~~159.7~~158.2	A
		Northwest	~~80.3~~226.9	A	~~60~~176.6	A	~~66~~187.7	A	~~76.1~~215.0	A
7	Delancey Street and Norfolk Street	Northeast	~~158.8~~159.1	A	~~140.3~~139.9	A	~~98.8~~99.0	A	122.~~4~~1	A
		Southeast	~~442.4~~2048.0	A	~~567.7~~2571.2	A	~~327~~1515.1	A	~~417.9~~1941.3	A
		Southwest	633.~~0~~8	A	~~635~~627.7	A	~~415.9~~416.1	A	478.~~6~~7	A
		Northwest	168.~~6~~8	A	~~152.0~~151.3	A	109.~~1~~3	A	134.~~8~~7	A
8	Delancey Street and Suffolk Street	Northeast	131.~~8~~3	A	~~200.8~~198.6	A	~~133.2~~132.3	A	~~169.1~~167.7	A
		Southeast	~~546~~2171.3	A	~~594.4~~2319.2	A	~~311.3~~1242.1	A	~~307~~1247.8	A
		Southwest	~~447.4~~1994.3	A	~~463.1~~2027.4	A	~~423.3~~1879.2	A	~~349.2~~1572.0	A
		Northwest	62.~~8~~6	A	~~101.0~~99.6	A	~~68.1~~67.3	A	~~91.2~~90.3	A
9	Delancey Street and Clinton Street	Southwest	~~48.7~~213.0	~~B~~A	~~48.0~~215.8	~~B~~A	~~26~~133.0	~~C~~A	~~42.2~~200.5	~~B~~A
		Northwest	~~48.4~~166.9	~~B~~A	~~90.2~~289.7	A	~~49.0~~170.8	~~B~~A	~~75.9~~246.4	A
12	Broome Street and Essex Street	Northeast	~~119.1~~118.5	A	~~147.5~~144.1	A	~~140.4~~138.9	A	~~142.5~~141.7	A
		Southeast	40~~2~~0.0	A	~~468.4~~460.1	A	~~506.4~~503.1	A	~~440.2~~435.3	A
		Southwest	65.~~6~~4	A	~~82.2~~81.1	A	13~~2~~0.5	A	~~130.5~~126.6	A
		Northwest	65.~~4~~1	A	~~90.4~~89.1	A	~~113.5~~112.1	A	~~124.8~~122.3	A
13	Broome Street and Norfolk Street	Northeast	~~283.9~~276.8	A	296.9	A	314.5	A	383.0	A
		Southeast	502.7	A	~~558.4~~525.2	A	~~435.8~~415.3	A	~~572.1~~553.9	A
		Southwest	1551.4	A	~~1605.2~~1548.7	A	~~1801.4~~1730.5	A	~~1843.3~~1734.4	A
		Northwest	~~396.5~~387.6	A	485.7	A	424.2	A	~~394.0~~376.7	A
16	Grand Street and Allen Street	Northeast	74.~~7~~3	A	~~131.7~~129.1	A	10~~5~~3.4	A	~~84~~83.0	A
		Southeast	73.~~7~~9	A	~~102.5~~101.2	A	78.~~7~~3	A	~~58.1~~57.7	B
17	Grand Street and Orchard Street	Northeast	89.~~9~~2	A	16~~8~~6.7	A	~~95.4~~94.0	A	~~126.2~~125.1	A
		Northwest	85.~~7~~1	A	~~135.9~~134.5	A	~~88.6~~87.4	A	102.~~5~~1	A
18	Grand Street and Ludlow Street	Northeast	~~243.3~~239.7	A	~~304.8~~302.9	A	~~262.3~~260.8	A	~~255.8~~253.1	A
		Southeast	~~122.6~~121.9	A	~~160.5~~161.7	A	114.7	A	107.8	A
		Northwest	~~112.7~~111.3	A	~~218.3~~215.1	A	144.~~7~~0	A	~~126.4~~125.2	A
19	Grand Street and Essex Street	Northeast	~~268.0~~264.8	A	~~277.6~~274.3	A	~~226.8~~224.6	A	~~312.2~~306.6	A
		Southeast	~~212.4~~210.0	A	~~187.3~~183.5	A	~~202.2~~200.0	A	~~221.8~~219.2	A
		Southwest	~~129.1~~128.6	A	~~101.7~~99.4	A	11~~5~~4.0	A	~~104.9~~103.7	A
		Northwest	91.~~7~~1	A	~~105.2~~103.7	A	12~~4~~3.3	A	~~160.7~~156.6	A
20	Grand Street and Norfolk Street	Northeast	~~759.3~~753.9	A	~~664.8~~660.6	A	~~633.9~~630.1	A	~~619.7~~616.0	A
		Northwest	~~1820.4~~1807.3	A	15~~8~~79.0	A	~~1466.4~~1457.8	A	~~1456.4~~1448.1	A
21	Grand Street and Suffolk Street	Northeast	~~295.9~~293.7	A	~~366.4~~363.0	A	~~250.4~~248.7	A	27~~2~~0.3	A
		Northwest	32~~7~~4.4	A	~~357.4~~353.8	A	~~259.5~~257.6	A	~~317.6~~314.9	A
22	Grand Street and Clinton Street	Southwest	~~626.2~~622.5	A	~~483.8~~481.7	A	~~462.6~~463.3	A	~~528.1~~523.2	A
		Northwest	11~~6~~5.5	A	10~~7~~5.7	A	94.~~4~~6	A	~~99.9~~97.6	A

Note: SFP = square feet per pedestrian

Table 13-~~41~~46
2022 No Action Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles: AM 2-way Volume	AM SFP	AM LOS	Midday 2-way Volume	Midday SFP	Midday LOS	PM 2-way Volume	PM SFP	PM LOS	Saturday 2-way Volume	Saturday SFP	Saturday LOS
2	Rivington Street and Essex Street	East	24.0	11.0	279	34.6	C	127	87.6	A	214	49.9	B	196	55.4	B
3	Delancey Street and Allen Street	South[1]	44.0	20.0	65	116.7	A	111	109.4	A	136	92.9	A	171	74.9	A
4	Delancey Street and Orchard Street	South	25.0	22.0	57	423.8	A	171	141.6	A	177	134.1	A	203	116.2	A
5	Delancey Street and Ludlow Street	North	25.0	20.0	182	104.6	A	282	65.6	A	339	54.3	B	310	58.6	B
		South	26.0	22.0	75	313.5	A	210	109.5	A	113	209.4	A	148	156.0	A
6	Delancey Street and Essex Street	North	48.0	19.0	314	65.7	A	370	55.3	B	363	54.3	B	346	56.8	B
		East	110.0	14.0	106	52.7	B	139	39.6	C	127	39.8	C	157	34.5	C
		South	54.0	19.0	66	344.9	A	97	233.0	A	98	234.8	A	130	173.7	A
		West	95.0	14.0	202	33.2	C	301	21.7	D	169	40.6	B	149	46.1	B
7	Delancey Street and Norfolk Street	North	26.0	20.0	193	89.5	A	270	61.7	A	350	46.3	B	297	60.3	A
		South	24.0	10.0	24	404.6	A	33	292.1	A	57	169.3	A	41	236.1	A
		West	105.0	14.0	47	140.3	A	35	188.7	A	52	126.5	A	44	149.6	A
8	Delancey Street and Suffolk Street	North	26.0	20.0	541	37.1	C	361	56.7	B	499	39.3	C	376	55.0	B
		East[1]	56.0	20.0	33	386.7	A	23	555.6	A	69	184.5	A	69	182.3	A
		South	23.0	14.0	26	552.8	A	32	455.5	A	36	407.6	A	34	432.8	A
		West[1]	51.0	18.0	32	345.7	A	25	450.6	A	28	387.1	A	43	251.3	A
9	Delancey Street and Clinton Street	North	24.0	16.0	368	8.3	E	192	18.4	D	339	9.2	E	206	16.7	D
		South	26.0	17.0	50	376.5	A	40	476.2	A	78	242.3	A	50	379.4	A
		West (North of Median)	36.0	23.0	141	105.2	A	134	110.9	A	186	77.8	A	129	114.1	A
		West (South of Median)	53.0	23.0	81	180.5	A	87	168.1	A	134	108.3	A	96	152.6	A
12	Broome Street and Essex Street	North	54.0	11.0	26	282.2	A	23	320.3	A	32	228.7	A	44	166.3	A
		East	30.0	11.0	153	75.4	A	135	85.1	A	131	88.5	A	119	98.3	A
		South	54.0	15.0	41	239.3	A	34	293.9	A	23	435.5	A	32	310.2	A
13	Broome Street and Norfolk Street	North	25.0	12.0	26	472.1	A	19	649.8	A	20	605.2	A	21	575.9	A
		South	24.0	12.0	26	491.4	A	19	680.6	A	29	445.0	A	21	612.7	A
17	Grand Street and Orchard Street	North	24.0	13.0	215	39.6	C	85	108.2	A	196	44.6	B	140	62.4	A
18	Grand Street and Ludlow Street	North	24.0	15.0	152	70.8	A	96	116.2	A	124	88.8	A	154	69.6	A
19	Grand Street and Essex Street	North	54.0	15.0	112	97.5	A	123	87.4	A	136	75.1	A	83	134.5	A
20	Grand Street and Norfolk Street	North	24.0	14.0	99	72.5	A	121	57.9	B	131	48.3	B	126	51.8	B
21	Grand Street and Suffolk Street	North	25.0	13.0	102	129.1	A	81	163.0	A	115	112.1	A	95	137.4	A

Note: SFP = square feet per pedestrian
[1] Critical width (north/east or south/west of pedestrian refuge median) used for analysis street width

2022 WITH ACTION CONDITION

As part of the 2022 With Action condition, sidewalks would be reconfigured at various intersections adjacent to Sites 1–6, resulting in different sidewalk widths at these locations as compared to the existing and No Action conditions. The Delancey Street Safety Improvements plan measures described above in the "2022 No Action Condition" section were also accounted for in the 2022 With Action condition analyses. The new sidewalk widths as a result of the proposed actions are shown in **Figure 13-17**.

The project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, nearby parking locations, available transit services, and surrounding pedestrian facilities. Based on the "Level 2 Screening Assessment," peak 15-minute incremental pedestrian volumes were developed by dividing the hourly incremental volumes by four and accounting for peaking characteristics within the peak hours. These pedestrian volumes were added to the projected 2022 No Action volumes to generate the 2022 With Action pedestrian volumes for analysis. The peak hour project-generated pedestrian trips and the total 2022 With Action peak 15-minute pedestrian volumes are shown in maps provided at the end of the chapter.

The pedestrian analyses conducted for the 2022 With Action condition accounted for the project-generated pedestrian volumes and physical changes to the pedestrian environment described above. As presented in **Tables 13-~~42~~47** to **13-~~44~~49**, all sidewalk, corner reservoir, and crosswalk locations would continue to operate at acceptable levels (within mid-LOS D, with a maximum of 8.5 PMF in sidewalk platoon flows or a minimum of 19.5 SFP for corners and crosswalks) or incur degradations that, when compared to the No Action condition, do not exceed the *CEQR Technical Manual* sliding scale impact thresholds (see **Tables 13-~~11~~12** and **13-~~12~~13**), except for the ~~four~~ five analysis locations listed below, where potential significant adverse pedestrian impacts have been identified. Measures that can be implemented to mitigate these potential significant adverse pedestrian impacts are discussed in Chapter 21, "Mitigation Measures."

- The west crosswalk of Essex Street and Delancey Street, which would deteriorate to beyond mid-LOS D (~~18.4~~ 17.2 SFP) from a no action below mid-LOS D (~~22.4~~ 21.7 SFP) during the midday peak 15-minute period.
- The east crosswalk of Essex Street and Delancey Street, which would deteriorate to LOS E (14.5 SFP) from a no action LOS C (39.6 SFP), beyond mid-LOS D (15.4 SFP) from a no action LOS C (39.8 SFP), and to ~~beyond mid-~~LOS ~~D~~ E (~~18.5~~ 13.5 SFP) from a no action LOS ~~B~~ C (~~40.5~~ 34.5 SFP) during the midday, PM, and Saturday peak 15-minute periods, respectively.
- The north crosswalk of Clinton Street and Delancey Street, which would deteriorate to LOS E (14.9 SFP) from a no action beyond mid-LOS D (16.7 SFP) during the Saturday peak 15-minute period.
- The west sidewalk of Essex Street between Delancey Street and Broome Street, which would deteriorate to beyond mid-LOS D ~~LOS E~~ (~~11.1~~ 10.9 PMF) from a no action below mid-LOS D (~~6.3~~ 6.4 PMF) and to beyond mid-LOS D (~~9.2~~ 9.3 PMF) from a no action LOS C (~~4.5~~ 4.6 PMF) during the AM and midday peak 15-minute periods, respectively.
- The east sidewalk of Essex Street between Delancey Street and Rivington Street, which would deteriorate to beyond mid-LOS D (8.6 PMF) from a no action LOS C (3.7 PMF) and to beyond mid-LOS D (~~8.8~~ 9.8 PMF) from a no action LOS C (~~5.3~~ 5.2 PMF) during the midday and Saturday peak 15-minute periods, respectively.

0 100 FEET

SCALE

NOTES:

* The locations of **parking and loading entries** are only illustrative. The actual locations will be within the identified CURB CUT ZONES but not necessarily in the exact locations shown. CURB CUT ZONES indicate where curb cuts for loading and parking are permissible, but they are not intended to represent one continuous curb cut.

** The number of **loading berths** is illustrative only. The actual number of loading berths will be based on the amount of commercial floor area at each site, per the requirements of ZR36-62.

KEY

- Proposed Lot Lines
- Building Footprint
- Street Wall
- Entry Zone: Parking Only
- Entry Zone: Loading Only
- Entry Zone: Loading and Parking
- Potential Parking Entry
- Potential Loading Entry
- Proposed Publicly Accessible Open Space
- 15' Proposed sidewalk widths

Drawing based on Topographic Survey
Prepared by Control Point Associates Inc.
Dated July 8, 2011
Adjacent building outlines were included for reference purposes only.

FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Sidewalk Configurations

Figure 13-17

Subsequent to the issuance of the DGEIS, at NYCDOT's direction, the 25 percent linked-trip credit for pedestrian trips was eliminated and assignment of pedestrian trips to study area sidewalks and crosswalks was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in additional potential significant adverse impacts on sidewalk operating conditions. The pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the proposed actions' RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stair entrances, street furniture (e.g., hydrants, lamp posts, newsstands, bus stops, etc.), and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of that particular sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk widths to approximately 20 to 30 percent of the overall widths available at the two sidewalk locations on Essex Street. The combination of all these factors would result in the potential for significant adverse pedestrian impacts at the two Essex Street sidewalk locations in the future 2022 With Action condition.

However, it should be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the proposed actions' development program and design may not materialize to the full extent resulting in different travel patterns at the study area's pedestrian facilities.

Detailed descriptions of the 2022 With Action pedestrian levels of service for sidewalk, corners and crosswalks are provided in **Tables 13-~~45~~50** to **13-~~47~~52**.

Table 13-~~41~~47
~~2022~~ Pedestrian Sidewalk Level of Service Summary Comparison
No Action ~~Condition Crosswalk Analysis~~vs. With Action Conditions (2022)

	2022 No Action				2022 With Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	56	58	58	58	56	55	~~55~~54	~~55~~54
Overall LOS D	2	0	0	0	~~1~~2	3	~~3~~4	~~3~~4
Overall LOS E	0	0	0	0	~~1~~0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Number of analysis locations with significant impacts	-	-	-	-	1	~~1~~2	0	1
Note: Includes 58 sidewalk analysis locations.								

Table 13-~~43~~48
Pedestrian Corner Level of Service Summary Comparison
No Action vs. With Action Conditions (2022)

	2022 No Action				2022 With Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	52	52	52	52	52	52	~~52~~51	52
Overall LOS D	0	0	0	0	0	0	~~0~~1	0
Overall LOS E	0	0	0	0	0	0	0	0
Overall LOS F	0	0	0	0	0	0	0	0
Number of analysis locations with significant impacts	-	-	-	-	0	0	0	0
Note: Includes 52 corner analysis locations.								

Table 13-~~44~~49
Pedestrian Crosswalk Level of Service Summary Comparison
No Action vs. With Action Conditions (2022)

	2022 No Action				2022 With Action			
	Weekday Peak Hours			Saturday Peak Hour	Weekday Peak Hours			Saturday Peak Hour
	AM	Midday	PM		AM	Midday	PM	
Overall LOS A/B/C	29	28	29	29	29	27	~~27~~28	~~27~~26
Overall LOS D	0	~~1~~2	0	~~0~~1	0	2	~~2~~1	2
Overall LOS E	~~0~~1	~~1~~0	~~0~~1	~~1~~0	~~0~~1	1	~~0~~1	~~1~~2
Overall LOS F	~~1~~0	0	~~1~~0	0	~~1~~0	0	~~1~~0	0
Number of analysis locations with significant impacts	-	-	-	-	0	~~1~~2	~~0~~1	~~1~~2
Note: Includes 30 crosswalk analysis locations.								

Table 13-~~45~~50
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
			AM Peak Period			
1	Essex Street between Stanton Street and Rivington Street	East	6.2	~~228~~241	2.~~45~~59	B
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~260~~274	2.~~80~~95	B
	Essex Street between Rivington Street and Delancey Street	East	5.0	59~~82~~	7.~~76~~97	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	10~~0~~6	0.~~51~~54	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	11~~3~~9	0.~~50~~53	~~A~~B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	26~~8~~5	1.~~19~~27	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	413	2.50	B
		South	15.0	~~162~~266	~~0.72~~1.18	B
	Essex Street between Delancey Street and Rivington Street	East	4.0	~~314~~329	5.~~23~~48	C
	Essex Street between Delancey Street and Broome Street	East	4.0	~~210~~267	~~3.50~~4.45	C
		West	2.5	~~415~~407	~~11.07~~10.85	~~E~~D+
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	~~424~~413	2.~~57~~50	B
		South	13.8	~~136~~204	0.~~66~~99	B
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	7402	4.~~95~~68	C
		South	~~9~~19.0	~~106~~148	0.~~79~~52	B
	Norfolk Street between Delancey Street and Broome Street	West	7.0	~~86~~64	0.~~82~~61	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~8~~18.0	~~105~~134	0.~~88~~50	~~B~~A
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	5428	3.~~61~~52	C
		South	12.~~5.0~~	~~92~~108	~~1.23~~0.58	B
	Suffolk Street between Delancey Street and Broome Street	East	10.0	54	0.36	A
		West	7.0	~~46~~56	0.~~44~~53	~~A~~B
9	Delancey Street between Clinton Street and Suffolk Street	South	~~6.0~~13.5	~~76~~82	0.~~84~~40	~~B~~A
	Clinton Street between Delancey Street and Broome Street	East	7.0	~~48~~50	0.~~46~~48	A
		West	8.0	~~66~~49	0.~~55~~41	~~B~~A
10	Broome Street between Allen Street and Orchard Street	North	4.0	~~62~~65	1.~~03~~08	B
		South	5.0	~~50~~54	0.~~67~~72	B
11	Broome Street between Ludlow Street and Essex Street	North	6.0	~~83~~89	0.~~92~~99	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	10~~0~~3	2.~~22~~29	B
		South	4.0	~~62~~66	1.~~03~~10	B
12	Broome Street between Essex Street and Ludlow Street	North	6.0	~~89~~95	~~0.99~~1.06	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	~~176~~182	2.~~35~~43	B
	Essex Street between Broome Street and Delancey Street	East	8.5	~~3~~406	~~2.67~~3.18	~~B~~C
		West	6.0	~~291~~285	3.~~23~~17	C
	Essex Street between Broome Street and Grand Street	East	10.0	20~~1~~8	1.~~34~~39	B
		West	7.0	~~229~~237	2.~~18~~26	B
13	Broome Street between Norfolk Street and Essex Street	North	6.0	~~129~~164	1.~~43~~82	B
	Broome Street between Norfolk Street and Suffolk Street	North	5.0	~~105~~132	1.~~40~~76	B
		South	5.0	~~71~~82	~~0.95~~1.09	B
	Norfolk Street between Broome Street and Delancey Street	West	10.0	~~60~~52	0.~~40~~35	A

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
AM Peak Period (cont'd)						
14	Broome Street between Suffolk Street and Norfolk Street	North	6.0	~~98~~128	1.~~09~~42	B
	Broome Street between Suffolk Street and Clinton Street	North	8.0	74	0.62	B
	Suffolk Street between Broome Street and Delancey Street	East	6.0	~~49~~53	0.~~54~~59	B
		West	7.0	~~40~~53	0.~~38~~50	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	~~91~~107	~~0.87~~1.02	B
15	Broome Street between Clinton Street and Suffolk Street	North	7.0	~~63~~66	0.~~60~~63	B
	Broome Street between Clinton Street and Ridge Street	North	8.0	~~63~~55	0.~~53~~46	~~B~~A
	Clinton Street between Broome Street and Delancey Street	East	8.0	~~34~~41	0.~~28~~34	A
		West	8.0	~~57~~48	0.~~48~~40	A
	Clinton Street between Broome Street and Grand Street	West	8.0	~~72~~78	0.~~60~~65	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	2~~1~~27	1.~~81~~89	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	2453	2.~~08~~16	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	22~~3~~9	1.~~86~~91	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	18~~4~~9	1.~~02~~05	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	~~165~~171	0.~~92~~95	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	12~~5~~9	0.~~83~~86	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	~~57~~63	0.~~76~~84	B
21	Grand Street between Clinton Street and Suffolk Street	North	4.8	~~105~~119	1.~~46~~65	B
	Clinton Street between Grand Street and Broome Street	West	8.0	~~58~~63	0.~~48~~53	~~A~~B
Midday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	~~283~~321	3.~~04~~45	C
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~274~~321	~~2.95~~3.45	~~B~~C
	Essex Street between Rivington Street and Delancey Street	East	5.0	~~460~~515	6.~~13~~87	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	~~236~~251	1.~~21~~29	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	~~181~~197	0.~~80~~88	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	~~285~~316	1.~~27~~40	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	~~504~~517	3.~~05~~13	C
		South	15.0	~~210~~376	~~0.93~~1.67	B
	Essex Street between Delancey Street and Rivington Street	East	4.0	~~453~~515	~~7.55~~8.58	D+
	Essex Street between Delancey Street and Broome Street	East	4.0	~~34~~38	~~5.80~~7.30	~~C~~D
		West	2.5	34~~3~~9	9.~~15~~31	D+

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period (cont'd)						
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	51~~5~~7	3.~~12~~13	C
		South	13.8	~~175~~282	~~0.85~~1.36	B
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	~~532~~507	3.~~55~~38	C
		South	~~9~~19.0	~~141~~212	~~1.04~~0.74	B
	Norfolk Street between Delancey Street and Broome Street	West	7.0	~~116~~92	~~1.10~~0.88	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~8~~18.0	~~137~~181	~~1.14~~0.67	B
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	44~~9~~8	2.99	B
		South	12.5~~.0~~	193~~6~~	1.~~81~~03	B
	Suffolk Street between Delancey Street and Broome Street	East	10.0	~~66~~53	0.~~44~~35	A
		West	7.0	~~51~~59	0.~~49~~56	~~A~~B
9	Delancey Street between Clinton Street and Suffolk Street	South	~~6.0~~13.5	~~108~~132	~~1.20~~0.65	B
	Clinton Street between Delancey Street and Broome Street	East	7.0	~~93~~109	~~0.89~~1.04	B
		West	8.0	~~76~~63	0.~~63~~53	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	13~~2~~4	2.~~07~~20	B
		South	5.0	~~82~~95	1.~~09~~27	B
11	Broome Street between Ludlow Street and Essex Street	North	6.0	1~~2~~43	1.~~37~~59	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	~~76~~83	1.~~69~~84	B
		South	4.0	~~102~~113	1.~~70~~88	B
12	Broome Street between Essex Street and Ludlow Street	North	6.0	1~~36~~1	1.~~51~~79	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	~~255~~263	3.~~40~~51	C
	Essex Street between Broome Street and Delancey Street	East	8.5	~~420~~529	~~3.29~~4.15	C
		West	6.0	30~~7~~8	3.~~41~~42	C
	Essex Street between Broome Street and Grand Street	East	10.0	~~298~~339	~~1.99~~2.26	B
		West	7.0	~~286~~309	2.~~72~~94	B
13	Broome Street between Norfolk Street and Essex Street	North	6.0	~~187~~237	2.~~08~~63	B
	Broome Street between Norfolk Street and Suffolk Street	North	5.0	~~173~~201	2.~~31~~68	B
		South	5.0	~~78~~92	1.~~04~~23	B
	Norfolk Street between Broome Street and Delancey Street	West	10.0	~~82~~73	0.~~55~~49	~~B~~A
14	Broome Street between Suffolk Street and Norfolk Street	North	6.0	~~162~~191	~~1.80~~2.12	B
	Broome Street between Suffolk Street and Clinton Street	North	8.0	~~149~~155	1.~~24~~29	B
	Suffolk Street between Broome Street and Delancey Street	East	6.0	~~57~~59	0.~~63~~66	B
		West	7.0	~~41~~49	0.~~39~~47	A
	Suffolk Street between Broome Street and Grand Street	East	7.0	~~82~~100	0.~~78~~95	B
15	Broome Street between Clinton Street and Suffolk Street	North	7.0	1~~2~~39	1.~~23~~32	B
	Broome Street between Clinton Street and Ridge Street	North	8.0	14~~39~~	1.~~16~~19	B
	Clinton Street between Broome Street and Delancey Street	East	8.0	~~41~~51	0.~~34~~43	A
		West	8.0	~~68~~60	0.~~57~~50	~~B~~A
	Clinton Street between Broome Street and Grand Street	West	8.0	~~84~~93	0.~~70~~78	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	~~217~~239	1.~~81~~99	B

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Midday Peak Period (cont'd)						
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	~~193~~217	1.~~65~~85	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	~~193~~211	1.~~61~~76	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	2~~0~~38	1.~~16~~32	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	~~199~~232	1.~~11~~29	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	1~~5~~82	1.~~01~~21	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	~~43~~53	0.~~57~~71	B
21	Grand Street between Clinton Street and Suffolk Street	North	4.8	162~~5~~	~~1.74~~2.25	B
	Clinton Street between Grand Street and Broome Street	West	8.0	~~66~~79	0.~~55~~66	B
PM Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	~~280~~313	3.~~01~~37	C
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~352~~389	~~3.78~~4.18	C
	Essex Street between Rivington Street and Delancey Street	East	5.0	~~494~~537	~~6.59~~7.16	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	~~281~~297	1.~~44~~52	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	342~~6~~	1.~~45~~52	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	~~290~~321	1.~~29~~43	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	58~~6~~8	3.~~55~~56	C
		South	15.0	~~283~~487	~~1.26~~2.16	B
	Essex Street between Delancey Street and Rivington Street	East	4.0	~~450~~492	~~7.50~~8.20	D
	Essex Street between Delancey Street and Broome Street	East	4.0	~~299~~419	46.98	~~C~~D
		West	2.5	278~~4~~	7.~~57~~41	D
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	~~605~~588	3.~~67~~56	C
		South	13.8	~~232~~358	1.~~12~~73	B
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	~~819~~763	5.~~46~~09	C
		South	~~9~~19.0	~~168~~252	~~1.24~~0.88	B
	Norfolk Street between Delancey Street and Broome Street	West	7.0	~~131~~79	~~1.25~~0.75	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~8~~18.0	~~167~~220	~~1.39~~0.81	B
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	~~555~~539	3.~~70~~59	C
		South	12.5~~.0~~	~~177~~223	~~2.36~~1.19	B
	Suffolk Street between Delancey Street and Broome Street	East	10.0	~~83~~73	0.~~55~~49	~~B~~A
		West	7.0	~~63~~72	0.~~60~~69	B
9	Delancey Street between Clinton Street and Suffolk Street	South	~~6.0~~13.5	~~145~~162	~~1.61~~0.80	B
	Clinton Street between Delancey Street and Broome Street	East	7.0	~~98~~106	~~0.93~~1.01	B
		West	8.0	~~116~~94	0.~~97~~78	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	~~98~~104	1.~~63~~73	B
		South	5.0	~~87~~95	1.~~16~~27	B

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow PMF	Platoon Flow LOS
PM Peak Period (cont'd)						
11	Broome Street between Ludlow Street and Essex Street	North	6.0	~~148~~163	1.~~64~~81	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	~~90~~95	2.~~00~~11	B
		South	4.0	~~108~~116	1.~~80~~93	B
12	Broome Street between Essex Street and Ludlow Street	North	6.0	~~162~~183	~~1.80~~2.03	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	297	3.96	C
	Essex Street between Broome Street and Delancey Street	East	8.5	~~473~~609	~~3.71~~4.78	C
		West	6.0	~~212~~205	2.~~36~~28	B
	Essex Street between Broome Street and Grand Street	East	10.0	2~~5~~89	1.~~73~~93	B
		West	7.0	~~169~~188	1.~~61~~79	B
13	Broome Street between Norfolk Street and Essex Street	North	6.0	~~208~~263	2.~~31~~92	B
	Broome Street between Norfolk Street and Suffolk Street	North	5.0	~~173~~211	2.~~31~~81	B
		South	5.0	~~92~~111	1.~~23~~48	B
	Norfolk Street between Broome Street and Delancey Street	West	10.0	~~83~~62	0.~~55~~41	~~B~~A
14	Broome Street between Suffolk Street and Norfolk Street	North	6.0	~~160~~201	~~1.78~~2.23	B
	Broome Street between Suffolk Street and Clinton Street	North	8.0	~~148~~150	1.~~23~~25	B
	Suffolk Street between Broome Street and Delancey Street	East	6.0	~~72~~77	0.~~80~~86	B
		West	7.0	~~53~~68	0.~~50~~65	~~A~~B
	Suffolk Street between Broome Street and Grand Street	East	7.0	~~89~~111	~~0.85~~1.06	B
15	Broome Street between Clinton Street and Suffolk Street	North	7.0	132~~6~~	1.~~20~~26	B
	Broome Street between Clinton Street and Ridge Street	North	8.0	10~~9~~0	0.~~91~~83	B
	Clinton Street between Broome Street and Delancey Street	East	8.0	~~67~~77	0.~~56~~64	B
		West	8.0	~~102~~92	0.~~85~~77	B
	Clinton Street between Broome Street and Grand Street	West	8.0	~~94~~100	0.~~78~~83	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	~~284~~307	2.~~37~~56	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	~~260~~281	2.~~22~~40	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	~~219~~233	1.~~83~~94	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	~~196~~217	1.~~09~~21	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	~~204~~227	1.~~13~~26	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	~~185~~207	1.~~23~~38	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	~~40~~49	0.~~53~~65	B
21	Grand Street between Clinton Street and Suffolk Street	North	4.8	185~~3~~	2.~~13~~57	B
	Clinton Street between Grand Street and Broome Street	West	8.0	~~74~~84	0.~~62~~70	B

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period						
1	Essex Street between Stanton Street and Rivington Street	East	6.2	~~292~~333	3.~~14~~58	C
2	Essex Street between Rivington Street and Stanton Street	East	6.2	~~370~~419	~~3.98~~4.51	C
	Essex Street between Rivington Street and Delancey Street	East	5.0	~~511~~566	~~6.81~~7.55	D
3	Delancey Street between Allen Street and Orchard Street	South	13.0	~~304~~327	1.~~56~~68	B
4	Delancey Street between Orchard Street and Ludlow Street	South	15.0	~~226~~248	1.~~00~~10	B
5	Delancey Street between Ludlow Street and Essex Street	South	15.0	~~286~~331	1.~~27~~47	B
6	Delancey Street between Essex Street and Norfolk Street	North	11.0	~~529~~537	3.~~21~~25	C
		South	15.0	~~290~~518	~~1.29~~2.30	B
	Essex Street between Delancey Street and Rivington Street	East	4.0	5~~2~~85	~~8.80~~9.75	D+
	Essex Street between Delancey Street and Broome Street	East	4.0	~~360~~494	~~6.00~~8.23	~~C~~D
		West	2.5	27~~8~~7	7.~~41~~39	D
7	Delancey Street between Norfolk Street and Essex Street	North	11.0	~~544~~537	3.~~30~~25	C
		South	13.8	~~238~~367	1.~~15~~77	B
	Delancey Street between Norfolk Street and Suffolk Street	North	10.0	6~~7~~38	4.~~52~~25	C
		South	~~9~~19.0	~~194~~290	1.~~44~~02	B
	Norfolk Street between Delancey Street and Broome Street	West	7.0	~~140~~66	~~1.33~~0.63	B
8	Delancey Street between Suffolk Street and Norfolk Street	South	~~8~~18.0	~~192~~251	~~1.60~~0.93	B
	Delancey Street between Suffolk Street and Clinton Street	North	10.0	~~523~~516	3.~~49~~44	C
		South	12.5~~.0~~	~~154~~218	~~2.05~~1.16	B
	Suffolk Street between Delancey Street and Broome Street	East	10.0	~~94~~80	0.~~63~~53	B
		West	7.0	~~64~~75	0.~~61~~71	B
9	Delancey Street between Clinton Street and Suffolk Street	South	~~6.0~~13.5	1~~1~~36	~~1.29~~0.67	B
	Clinton Street between Delancey Street and Broome Street	East	7.0	~~70~~78	0.~~67~~74	B
		West	8.0	~~96~~80	0.~~80~~67	B
10	Broome Street between Allen Street and Orchard Street	North	4.0	~~163~~175	2.~~72~~92	B
		South	5.0	~~133~~147	1.~~77~~96	B
11	Broome Street between Ludlow Street and Essex Street	North	6.0	~~150~~174	1.~~67~~93	B
	Broome Street between Ludlow Street and Orchard Street	North	3.0	~~158~~170	3.~~51~~78	C
		South	4.0	~~176~~191	~~2.93~~3.18	~~B~~C
12	Broome Street between Essex Street and Ludlow Street	North	6.0	1~~6~~97	~~1.86~~2.19	B
	Broome Street between Essex Street and Norfolk Street	North	5.0	~~313~~306	4.~~17~~08	C
	Essex Street between Broome Street and Delancey Street	East	8.5	~~463~~627	~~3.63~~4.92	C
		West	6.0	22~~8~~3	2.~~53~~48	B
	Essex Street between Broome Street and Grand Street	East	10.0	~~247~~292	1.~~65~~95	B
		West	7.0	~~180~~208	1.~~71~~98	B
13	Broome Street between Norfolk Street and Essex Street	North	6.0	~~217~~266	2.~~41~~96	B
	Broome Street between Norfolk Street and Suffolk Street	North	5.0	~~199~~233	~~2.65~~3.11	~~B~~C
		South	5.0	~~95~~114	1.~~27~~52	B
	Norfolk Street between Broome Street and Delancey Street	West	10.0	~~91~~54	0.~~61~~36	~~B~~A

Table 13-~~45~~50 (cont'd)
2022 With Action Condition Sidewalk Analysis

Intersection No.	Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
					PMF	LOS
Saturday Peak Period (cont'd)						
14	Broome Street between Suffolk Street and Norfolk Street	North	6.0	~~184~~219	2.~~04~~43	B
	Broome Street between Suffolk Street and Clinton Street	North	8.0	143	1.19	B
	Suffolk Street between Broome Street and Delancey Street	East	6.0	~~75~~85	0.~~83~~94	B
		West	7.0	~~58~~72	0.~~55~~69	B
	Suffolk Street between Broome Street and Grand Street	East	7.0	~~91~~117	~~0.87~~1.11	B
15	Broome Street between Clinton Street and Suffolk Street	North	7.0	121~~5~~	1.~~10~~15	B
	Broome Street between Clinton Street and Ridge Street	North	8.0	~~111~~100	0.~~93~~83	B
	Clinton Street between Broome Street and Delancey Street	East	8.0	~~36~~46	0.~~30~~38	A
		West	8.0	~~83~~75	0.~~69~~63	B
	Clinton Street between Broome Street and Grand Street	West	8.0	~~81~~92	0.~~68~~77	B
16	Grand Street between Allen Street and Orchard Street	North	8.0	~~264~~293	2.~~20~~44	B
17	Grand Street between Ludlow Street and Orchard Street	North	7.8	2475	2.~~09~~35	B
	Grand Street between Ludlow Street and Essex Street	North	8.0	~~189~~207	1.~~58~~73	B
18	Grand Street between Essex Street and Norfolk Street	North	12.0	~~195~~227	1.~~08~~26	B
19	Grand Street between Norfolk Street and Suffolk Street	North	12.0	~~195~~231	1.~~08~~28	B
20	Grand Street between Suffolk Street and Clinton Street	North	10.0	~~173~~209	1.~~15~~39	B
	Suffolk Street between Grand Street and Broome Street	East	5.0	~~40~~49	0.~~53~~65	B
21	Grand Street between Clinton Street and Suffolk Street	North	4.8	184~~0~~	~~1.94~~2.56	B
	Clinton Street between Grand Street and Broome Street	West	8.0	~~61~~75	0.~~51~~63	B

Note: PMF = pedestrians per minute per foot
+ Denotes a significant adverse pedestrian impact

Table 13-~~46~~51
2022 With Action Condition Corner Analysis

Intersection No.	Location	Corner	AM Peak Period SFP	AM Peak Period LOS	Midday Peak Period SFP	Midday Peak Period LOS	PM Peak Period SFP	PM Peak Period LOS	Saturday Peak Period SFP	Saturday Peak Period LOS
1	Stanton Street and Essex Street	Southeast	~~81.9~~78.2	A	~~80.2~~68.4	A	~~51.6~~47.4	B	~~55.0~~48.5	B
		Southwest	~~124.3~~121.7	A	~~116.4~~109.8	A	~~103~~99.0	A	~~61.4~~58.7	~~A~~B
2	Rivington Street and Essex Street	Northeast	~~63.2~~60.5	A	~~65.5~~57.1	~~A~~B	~~46~~42.8	B	~~38.1~~34.6	C
		Southeast	~~30.2~~29.3	C	~~41.1~~36.5	~~B~~C	~~25.8~~23.9	~~C~~D	~~30.5~~27.7	C
		Southwest	~~96.4~~93.6	A	~~68.4~~63.8	A	~~39.8~~38.4	C	~~46.1~~43.7	B
3	Delancey Street and Allen Street	Southeast	~~319.7~~312.0	A	~~203.7~~189.8	A	15~~4~~7.0	A	~~132.7~~124.4	A
		Southwest	~~308.3~~295.5	A	~~152.4~~144.2	A	~~154.6~~146.8	A	12~~9~~1.4	A
4	Delancey Street and Orchard Street	Southeast	~~401.6~~380.8	A	~~147.3~~139.6	A	~~158.1~~149.4	A	~~99.7~~95.2	A
		Southwest	~~419.7~~398.9	A	~~146.7~~137.6	A	~~133.1~~126.4	A	~~115.8~~108.9	A
5	Delancey Street and Ludlow Street	Northeast	~~153.9~~227.3	A	~~97~~142.8	A	~~86.7~~127.5	A	~~84.3~~121.9	A
		Southeast	~~218.9~~204.2	A	~~125~~117.4	A	~~163.8~~150.2	A	~~143.0~~127.6	A
		Southwest	~~323.8~~311.0	A	~~125.1~~116.2	A	~~182.3~~167.9	A	~~137.1~~125.9	A
		Northwest	~~197.3~~266.0	A	~~109.2~~142.3	A	~~99.7~~132.5	A	~~88.4~~117.0	A
6	Delancey Street and Essex Street	Northeast	~~81.0~~78.2	A	~~56.0~~50.6	B	~~56.5~~52.8	B	~~50~~46.2	B
		Southeast	~~140.0~~108.6	A	~~79.3~~59.4	~~A~~B	~~81.9~~59.2	~~A~~B	~~65.0~~47.4	~~A~~B
		Southwest	~~120.7~~112.9	A	~~79~~71.7	A	~~96.4~~85.2	A	~~91.4~~78.1	A
		Northwest	~~74.2~~208.6	A	~~51.9~~149.2	~~B~~A	~~57.9~~161.2	~~B~~A	~~62.2~~172.6	A
7	Delancey Street and Norfolk Street	Northeast	~~141.4~~137.3	A	~~109.8~~102.9	A	~~83.9~~80.6	A	~~96.0~~89.5	A
		Southeast	~~274.1~~1027.3	A	~~228.9~~803.2	A	~~172.0~~625.5	A	~~167.9~~596.6	A
		Southwest	~~324.8~~275.2	A	~~227.4~~185.5	A	~~181.7~~150.2	A	~~168.0~~136.5	A
		Northwest	~~132.4~~131.7	A	~~99.7~~94.9	A	~~78.0~~76.5	A	~~84.3~~79.7	A
8	Delancey Street and Suffolk Street	Northeast	~~114.1~~122.3	A	~~144.7~~150.1	A	~~104~~112.6	A	~~123.1~~129.5	A
		Southeast	~~273.2~~997.7	A	~~190.8~~634.6	A	~~151.5~~539.0	A	~~135~~478.8	A
		Southwest	~~228.0~~962.1	A	~~155.0~~631.8	A	~~143.7~~604.9	A	~~122.0~~506.1	A
		Northwest	~~51.7~~54.3	B	~~64.8~~65.6	A	~~47.5~~50.0	B	56.~~1~~9	B
9	Delancey Street and Clinton Street	Southwest	~~185.7~~451.2	A	~~135.3~~294.5	A	~~106.9~~254.1	A	~~129.7~~293.0	A
		Northwest	~~45.0~~160.3	~~B~~A	~~74.0~~243.8	A	~~42.8~~156.2	~~B~~A	~~62.5~~210.3	A
12	Broome Street and Essex Street	Northeast	~~90.5~~80.1	A	~~67.4~~56.5	~~A~~B	~~62.5~~52.6	~~A~~B	~~57.4~~47.0	B
		Southeast	~~238.6~~206.0	A	~~178.0~~139.7	A	~~186.3~~144.1	A	~~158.4~~119.3	A
		Southwest	~~53.4~~51.2	B	~~48.1~~42.4	B	~~68~~59.0	~~A~~B	~~58.3~~48.2	B
		Northwest	~~70.6~~69.2	A	~~66.2~~61.7	A	~~72.8~~69.7	A	~~66~~61.7	A
13	Broome Street and Norfolk Street	Northeast	~~329.5~~273.6	A	~~210.0~~177.3	A	~~209.0~~172.1	A	~~196.3~~161.9	A
		Southeast	~~237.5~~198.1	A	~~186.1~~144.2	A	~~157.1~~125.2	A	~~152.4~~118.1	A
		Southwest	~~822.8~~823.9	A	~~635.1~~631.4	A	~~603.6~~617.3	A	~~533.9~~552.0	A
		Northwest	~~264.0~~233.5	A	~~172.8~~155.6	A	~~161.9~~148.0	A	~~142.9~~137.4	A
16	Grand Street and Allen Street	Northeast	~~68.3~~66.7	A	~~95~~87.5	A	~~82.7~~76.6	A	~~65.4~~60.6	A
		Southeast	~~66.1~~64.4	A	~~73.7~~67.4	A	~~61~~57.4	~~A~~B	~~45~~42.5	B
17	Grand Street and Orchard Street	Northeast	~~80.9~~78.3	A	~~113.5~~102.6	A	~~75.2~~69.9	A	~~89.0~~80.5	A
		Northwest	~~76.8~~74.4	A	~~96.0~~87.7	A	~~70.6~~65.8	A	~~74.9~~68.4	A
18	Grand Street and Ludlow Street	Northeast	~~204.3~~194.4	A	~~192.3~~173.9	A	~~181.0~~165.1	A	~~164.5~~146.0	A
		Southeast	~~107.7~~103.0	A	~~110.4~~101.8	A	~~88.4~~82.6	A	~~79.0~~72.7	A
		Northwest	~~98.8~~95.2	A	~~137.4~~123.3	A	~~106.6~~98.9	A	~~89.9~~81.7	A
19	Grand Street and Essex Street	Northeast	~~214.8~~211.9	A	~~185.2~~168.3	A	~~162~~153.6	A	~~193.7~~176.2	A
		Southeast	~~191.4~~186.8	A	~~155.7~~147.0	A	~~169.5~~161.3	A	~~176.1~~165.7	A
		Southwest	~~113.7~~111.0	A	~~81.5~~76.0	A	~~92.1~~86.6	A	~~81.8~~76.0	A
		Northwest	~~80.8~~78.1	A	~~76.0~~69.5	A	~~88.5~~81.3	A	~~98.5~~86.8	A
20	Grand Street and Norfolk Street	Northeast	~~580.4~~567.9	A	~~462.4~~400.8	A	~~443.3~~401.6	A	~~423~~368.8	A
		Northwest	~~1397.8~~1374.7	A	~~1111.6~~977.2	A	~~1040.8~~953.5	A	~~1006~~891.1	A
21	Grand Street and Suffolk Street	Northeast	~~260.1~~244.6	A	~~227.1~~184.7	A	~~184.6~~159.4	A	~~178.6~~146.7	A
		Northwest	~~216.9~~206.7	A	~~180.9~~149.0	A	~~149.3~~130.0	A	~~157.8~~129.4	A
22	Grand Street and Clinton Street	Southwest	~~576.9~~550.3	A	~~407.6~~373.4	A	~~404.1~~377.4	A	~~437.3~~391.2	A
		Northwest	~~233.4~~215.2	A	~~195.7~~163.0	A	~~179.1~~154.3	A	~~179~~145.3	A

Note: SFP = square feet per pedestrian

Table 13-~~47~~52
2022 With Action Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Cross-walk Width (feet)	AM 2-way Volume	AM SFP	AM LOS	Midday 2-way Volume	Midday SFP	Midday LOS	PM 2-way Volume	PM SFP	PM LOS	Saturday 2-way Volume	Saturday SFP	Saturday LOS
					Conditions with conflicting vehicles											
2	Rivington Street and Essex Street	East	24.0	11.0	~~341~~356	~~27.7~~26.4	C	~~291~~335	~~35.2~~30.0	C	~~349~~386	~~28.6~~ 25.4	C	~~357~~404	~~28.2~~ 24.4	C
3	Delancey Street and Allen Street	South[1]	44.0	20.0	~~95~~99	~~79.2~~75.9	A	~~168~~179	~~70.5~~66.9	A	~~193~~203	~~64.7~~ 61.4	A	~~238~~254	~~53.0~~ 49.5	B
4	Delancey Street and Orchard Street	South	25.0	22.0	~~96~~102	~~271.2~~ 233.9	A	~~243~~258	~~106.7~~ 91.9	A	~~251~~266	~~101.4~~ 87.3	A	~~292~~314	~~86.4~~ 73.1	A
5	Delancey Street and Ludlow Street	North	25.0	20.0	~~207~~213	~~99.8~~88.6	A	353~~2~~	~~60.3~~51.5	~~A~~B	~~390~~406	~~51.1~~ 44.6	B	~~372~~395	~~52.9~~ 45.1	B
		South	26.0	22.0	12~~1~~7	~~209.1~~ 181.9	A	~~289~~309	~~85.0~~72.1	A	~~197~~213	~~127.9~~ 107.7	A	2472	~~99.1~~ 81.6	A
6	Delancey Street and Essex Street	North	~~54~~48.0	19.0	33~~1~~6	~~59.5~~61.1	~~B~~A	~~419~~436	46.~~5~~4	B	4~~0~~14	~~46.4~~ 47.1	B	~~397~~409	47.~~1~~5	B
		East	110.0	14.0	187~~0~~	~~37.3~~29.2	C	360~~5~~	~~20.1~~14.5	~~D~~E+	~~269~~312	~~20.0~~ 15.4	D+	~~327~~381	~~18~~13.5	~~D~~E+
		South	54.0	19.0	~~134~~157	~~160.2~~ 142.5	A	22~~7~~7	~~92.5~~79.0	A	~~229~~281	~~93~~79.3	A	~~289~~360	~~72.2~~ 60.3	A
		West	~~110~~95.0	14.0	~~227~~233	~~30.1~~28.6	C	~~359~~374	~~18.4~~17.2	D+	~~225~~238	~~30.7~~ 28.3	C	242~~3~~	~~30.9~~ 27.8	C
7	Delancey Street and Norfolk Street	North	26.0	20.0	~~225~~233	~~79.8~~71.5	A	~~348~~370	~~49.8~~43.1	B	42~~3~~9	~~40.4~~ 35.6	~~B~~C	~~387~~413	~~47.9~~ 41.5	B
		South	24.0	10.0	~~95~~131	~~104~~69.6	A	~~147~~203	~~66.5~~43.9	~~A~~B	~~186~~253	~~52.3~~ 34.9	~~B~~C	~~196~~271	~~49~~32.0	~~B~~C
		West	105.0	14.0	~~90~~83	~~58.0~~78.8	~~B~~A	11~~1~~0	~~46.8~~59.2	B	~~140~~133	~~37.0~~ 48.8	~~C~~B	~~148~~151	~~34.8~~ 42.7	~~C~~B
8	Delancey Street and Suffolk Street	North	26.0	20.0	59~~6~~7	~~33.3~~35.2	C	~~447~~431	~~48.1~~46.6	B	59~~5~~9	34.~~7~~6	C	~~478~~456	~~45.3~~ 44.5	B
		East[1]	56.0	20.0	~~60~~47	~~211.3~~ 270.8	A	~~77~~73	~~141.5~~17 3.1	A	~~118~~104	~~92.0~~1 21.3	A	~~126~~117	~~85.0~~ 106.4	A
		South	23.0	14.0	~~83~~104	1516.7	A	~~128~~166	~~103.7~~ 70.6	A	~~138~~177	~~98.4~~ 67.3	A	~~153~~198	~~87.9~~ 59.6	~~A~~B
		West[1]	51.0	18.0	~~86~~78	~~129.7~~ 140.0	A	119	~~81.1~~92.3	A	~~129~~117	~~71.7~~ 90.8	A	15~~8~~9	~~57~~65.9	~~B~~A
9	Delancey Street and Clinton Street	North	24.0	16.0	37~~3~~5	~~6.4~~8.1	~~F~~E	2048	~~13.3~~16.8	~~E~~D	354~~9~~	68.8	~~F~~E	2227	~~12.1~~ 14.9	E+
		South	26.0	17.0	~~72~~73	~~297~~255.7	A	~~108~~126	~~198.4~~ 147.0	A	12~~3~~1	~~175.1~~ 141.8	A	~~96~~106	~~224.3~~ 175.8	A
		West (North of Median)	~~68~~36.0	23.0	157~~2~~	~~48.2~~94.0	~~B~~A	18~~5~~0	~~44.6~~81.5	~~B~~A	~~240~~222	~~33.8~~ 64.6	~~C~~A	~~188~~175	~~43.6~~ 83.1	~~B~~A
		West (South of Median)	~~68~~53.0	23.0	~~127~~114	~~65.1~~ 127.3	A	1632	~~50.4~~88.9	~~B~~A	2~~1~~07	~~37.6~~ 69.1	~~C~~A	1923	~~42.7~~ 74.4	~~B~~A
12	Broome Street and Essex Street	North	54.0	11.0	~~95~~97	~~74.9~~73.3	A	165~~7~~	~~44.4~~42.1	B	17~~3~~4	~~40.0~~ 39.7	C	~~217~~223	~~31.4~~ 30.5	C
		East	30.0	11.0	~~243~~285	~~45.3~~37.9	~~B~~C	~~307~~396	~~34.7~~25.9	C	~~307~~400	~~34.9~~ 25.8	C	~~321~~438	~~33~~23.2	C
		South	54.0	15.0	~~79~~87	~~122.9~~ 111.4	A	~~122~~146	~~79.7~~66.1	A	~~104~~127	~~93.8~~ 76.3	A	~~132~~165	~~73.0~~ 57.8	~~A~~B
13	Broome Street and Norfolk Street	North	25.0	12.0	1~~1~~38	~~85.3~~83.5	A	~~179~~211	~~53.9~~52.1	B	~~181~~221	48.~~9~~3	B	240~~1~~	~~39.3~~ 44.4	~~C~~B
		South	24.0	12.0	~~61~~74	~~205.4~~ 168.1	A	~~75~~96	~~167~~ 129.8	A	~~91~~115	~~137.7~~ 107.8	A	~~96~~121	~~129.2~~ 101.3	A
17	Grand Street and Orchard Street	North	24.0	13.0	254~~4~~	~~34.3~~32.8	C	~~162~~184	~~54.7~~47.6	B	~~262~~285	~~32.4~~ 29.5	C	2254	~~37.2~~ 32.6	C
18	Grand Street and Ludlow Street	North	24.0	15.0	~~181~~190	~~58~~55.7	B	1692	~~64.0~~55.7	~~A~~B	2190	~~56.4~~ 50.7	B	2365	~~43.9~~ 38.6	~~B~~C
19	Grand Street and Essex Street	North	54.0	15.0	1327	~~81.4~~78.2	A	~~170~~184	~~61.4~~56.6	~~A~~B	~~180~~192	~~52.2~~ 51.8	B	~~136~~154	~~79.7~~ 70.0	A

Table 13-~~47~~52 (cont'd)
2022 With Action Condition Crosswalk Analysis

Intersection No.	Location	Crosswalk	Street Width (feet)	Cross-walk Width (feet)	Conditions with conflicting vehicles											
					AM			Midday			PM			Saturday		
					2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS	2-way Volume	SFP	LOS
20	Grand Street and Norfolk Street	North	24.0	14.0	14~~0~~3	~~35.5~~45.7	~~C~~B	~~188~~219	~~25~~27.6	C	~~199~~221	~~23~~24.6	~~D~~C	~~202~~234	~~20.8~~ 24.0	D
21	Grand Street and Suffolk Street	North	25.0	13.0	~~155~~163	~~83.0~~78.5	A	217~~6~~	~~71.8~~57.2	~~A~~B	~~211~~245	~~58.6~~ 49.7	B	~~206~~254	~~60.3~~ 47.9	~~A~~B

Notes: SFP = square feet per pedestrian
[1] Critical width (north/east or south/west of pedestrian refuge median) used for analysis street width
+ Denotes a significant adverse pedestrian impact

I. VEHICULAR AND PEDESTRIAN SAFETY

Accident data for the study area intersections were obtained from NYSDOT for the most recent three-year period available, which is from February 29, 2008 through February 28, 2011. Although there subsequently have been accidents involving pedestrians at the study area intersections, the most recent three-year accident records released by NYSDOT only covers this period.

The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the *CEQR Technical Manual*, a high pedestrian accident location is one where there were five or more pedestrian/bicyclist-related accidents or 48 or more reportable and non-reportable accidents in any consecutive 12 months of the most recent three-year period for which data are available.

During this period, a total of 587 reportable and non-reportable accidents, 3 fatalities, 475 injuries, and 175 pedestrian/bicyclist-related accidents occurred at the study area intersections. A rolling total of accident data identifies ten study area intersections as high pedestrian accident locations in the 2008 to 2011 period. These intersections are Allen Street at Delancey Street, Clinton Street at Delancey Street, Essex Street at Delancey Street, Norfolk Street at Delancey Street, Suffolk Street at Delancey Street, Avenue A at Houston Street, Bowery at Houston Street, Allen Street at Grand Street, Clinton Street at Grand Street and Essex Street at Grand Street. **Table 13-~~48~~53** depicts total accident characteristics by intersection during the study period, as well as, a breakdown of pedestrian and bicycle accidents by year and location.

Table 13-~~49~~54 shows a detailed description of each pedestrian/bicyclist-related accident at the ten intersections listed above during the three year period.

As discussed earlier, following the issuance of the DGEIS, NYCDOT adopted and began implementing an area-wide plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor. The plan includes left turn prohibitions, sidewalk, expansions, corner "bump-outs" and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street.

ALLEN STREET AND DELANCEY STREET

During the three year period mentioned above, a total of 71 reportable and non-reportable accidents, 48 injuries, and 13 pedestrian/bicyclist-related accidents occurred at the Allen Street and Delancey Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Allen Street and Delancey Street is signalized and provides four high visibility crosswalks. Signs warning turning vehicles to yield to pedestrians in the crosswalk are present for northbound vehicles. In addition, there are countdown timers on all crosswalks. As discussed earlier, NYCDOT ~~is currently~~ ~~developing~~ implemented the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, the center median on Delancey Street, west of Allen Street was widened to reduce the pedestrian crossing distance at the west crosswalk by nine feet; a full time left-turn ban was enforced for the eastbound approach; and the signal timing was modified to allow more green time for pedestrians to cross Delancey Street. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions at this intersection could improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

Table 13-~~48~~53
Accident Summary

Intersection		Study Period						Accidents by Year							
North-South Roadway	East-West Roadway	All Accidents by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2008	2009	2010	2011			2008	2009	2010	2011	2008	2009	2010	2011
Clinton Street	Broome Street	2	4	1	0		3		1				1	1	
Essex Street	Broome Street	1	3	4	0		7	1	1				1	1	
Ludlow Street	Broome Street	2	2		0		1						1		
Norfolk Street	Broome Street	2	2	2	0		6	1	1	1			1		
Suffolk Street	Broome Street	2	1	1	0		4	1						1	
Allen Street	**Delancey Street**	32	23	14	2		48	2				6	4	1	
Clinton Street	**Delancey Street**	22	24	29	1		77		2			3	2	6	
Essex Street	**Delancey Street**	30	23	26	1	1	79	12	6	1		6	2	3	
Ludlow Street	Delancey Street	10	4	6	4		13	1	1	2	1	1		1	
Norfolk Street	**Delancey Street**	5	7	17	2		21		1	4	1	1		2	
Orchard Street	Delancey Street	6	15	7	3		26	1	1			1	3	2	
Suffolk Street	**Delancey Street**	8	14	15	2		54		2			1	4	2	
First Avenue	E. Houston Street	11	1	2	0		9	2				1	1	1	
Avenue A	**E. Houston Street**	7	3	5	0	1	10	2		3		1	1	1	
Bowery	**E. Houston Street**	16	10	14	0		31			5		5			
Allen Street	**Grand Street**	6	5	7	0		18	1	4	2				1	
Clinton Street	**Grand Street**	10	11	4	1	1	16	2	2	2	1	1	2		
E. Broadway	Grand Street	0	4	2	1		5		2						
Essex Street	**Grand Street**	5	8	6	0		16		1	2		1	4		
Ludlow Street	Grand Street	1	1	1	1		0								
Norfolk Street	Grand Street	2	1	1	0		4	2						1	
Suffolk Street	Grand Street	2	1	2	0		3					1			
Essex Street	Rivington Street	9	6	6	0		9	2		2				2	
Ludlow Street	Rivington Street	3	4	1	0		1	1							
Norfolk Street	Rivington Street	1	2	1	0		3	1	1					1	
Essex Street	Stanton Street	3	5	0	1		5		1		1		2		
Ludlow Street	Stanton Street	2	3	2	0		2	1						1	
Norfolk Street	Stanton Street	3	2	0	0		4	1	1			1	1		

Note: **Bold** intersections are high pedestrian accident locations.
Source: NYSDOT February 29, 2008 and February 28, 2011 accident data.

Table 13-~~49~~54
Vehicle, ~~and~~ Pedestrian, and Bicyclist Accident Details

Intersection	Year	Date	Time	Accident Class: Injured	Accident Class: Killed	Action of Vehicle	Action of Pedestrian	Cause of Accident: Left / Right Turns	Cause of Accident: Pedestrian Error/ Confusion	Cause of Accident: Driver Inattention	Cause of Accident: Other
Allen Street @ Delancey Street	2008	4/23	18:15 PM	X		Going straight – Northeast	Crossing against signal			X	
		7/14	14:20 PM	X		Going straight – West	Crossing against signal		X		
		8/1	15:08 PM	X		Unknown – East	Unknown				Unknown
		8/19	9:40 AM	X		Making left turn – East	Along highway with traffic	X	X		
		8/21	12:45 PM	X		Making left turn – South	Unknown	X			
		8/26	10:00 AM	X		Going straight – West	Along highway with traffic				Passing or lane usage improperly
		9/9	20:30 PM	X		Making left turn – Northeast	Unknown	X			
		12/7	15;20 PM	X		Going straight – North	Unknown				Unknown
	2009	5/2	2:35 AM	X		Making right turn – North	Crossing with signal	X		X	Failure to yield R.O.W.
		5/19	18:00 PM	X		Making left turn – South	Crossing against signal	X			
		9/8	14:30 PM	X		Going straight – West	Along highway with traffic				Unknown
		12/17	18:56 PM	X		Unknown	Crossing with signal				Unknown
	2010	7/15	17:30 PM	X		Unknown	Along highway with traffic				Unknown
Clinton Street @ Delancey Street	2008	7/30	9:00 AM	X		Making left turn – West	Along highway with traffic	X			
		8/12	3:30 AM	X		Going straight – East	Crossing with signal				Unknown
		8/18	15:15 PM	X		Going straight – East	Unknown				Unknown
	2009	4/4	17:55 PM	X		Going straight – West	Crossing against signal		X		
		9/28	10:00 AM	X		Going straight – West	Crossing		X		
		9/30	17:40 PM	X		Going straight – East	Crossing against signal				Unknown
		11/1	13:30 PM	X		Going straight – East	Unknown				Unknown
	2010	7/26	21:39 PM	X		Unknown	Crossing with signal				Unknown
		7/31	7:00 AM	X		Unknown	Along highway with traffic				Unknown
		8/24	9:15 AM	x		Unknown	Crossing with signal				Unknown
		8/29	23:50 PM	X		Unknown	Crossing with signal				Unknown
		9/1	2:17 AM	X		Unknown	Other actions in roadway				Unknown
		10/5	20:15 PM	X		Unknown	Unknown				Unknown

Table 13-~~49~~54 (cont'd)
Vehicle, ~~and~~ Pedestrian, and Bicyclist Accident Details

Intersection	Year	Date	Time	Accident Class		Action of Vehicle	Action of Pedestrian	Cause of Accident			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Essex Street @ Delancey Street	2008	3/15	22:59 PM	X		Going straight – West	Unknown				Failure to yield R.O.W.
		3/23	14:10 PM	X		Backing	Unknown				Backing unsafely
		4/9	19:10 PM	X		Going straight – South	Crossing with signal				Unknown
		5/3	8:00 AM	X		Going straight – South	Crossing with signal				Unknown
		5/3	18:10 PM	X		Going straight – East	Crossing against signal			X	
		5/30	8:42 AM	X		Going straight – South	Unknown				Unknown
		6/9	19:35 PM	x		Going straight – North	Crossing with signal				Unknown
		6/29	12:13 PM	X		Unknown	Crossing against signal		X		
		6/30	3:45 AM	X		Going straight – West	Crossing with signal		X		
		8/12	5:25 AM	X		Going straight – West	Crossing against signal		X		
		8/22	10:20 AM	X		Going straight – West	Crossing against signal				View obstructed/limited
		9/10	00:23 AM	X		Going straight – East	Other actions in roadway			X	
		9/17	10:19 AM	X		Going straight – West	Along highway with traffic		X		
		10/18	11:40 AM	X		Going straight – South	Crossing with signal				Other
		11/14	22:55 PM	X		Making right turn – North	Crossing with signal	X			
		11/21	21:07 PM	X		Going straight – West	Crossing with signal				Unknown
		11/22	7:20 AM	X		Making left turn – East	Crossing with signal	X			
		12/20	00:40 AM	X		Making right turn – North	Crossing against signal	X	X		Failure to yield R.O.W., Alcohol Involvement(ped)
	2009	4/10	8:25 AM	X		Making left turn – South	Crossing with signal	X			
		5/7	14:58 PM	X		Going straight – South	Emerge from behind parked vehicle				Unknown
		8/8	14:00 PM	X		Going straight – South	Along highway with traffic				Passing or lane usage improperly
		8/15	5:15 AM	X		Going straight- East	Crossing against signal		X		
		10/16	11:05 AM	X		Going straight – West	Along highway with traffic			X	
		10/17	20:10 PM	X		Going straight – East	Crossing against signal		X		
		10/19	14:28 PM	X		Making left turn – East	Crossing with signal	X	X	X	
		11/6	7:15 AM	X		Making left turn – Southeast	Working in roadway	X		X	
	2010	4/12	4:56 AM		X	Unknown	Crossing against signal		X		
		5/18	16:45 PM	X		Unknown	Unknown				Unknown
		6/30	9:10 AM	X		Unknown	Crossing against signal		X		
		8/14	5:15 AM	X		Unknown	Other actions in roadway				Unknown

Table 13-~~49~~54 (cont'd)
Vehicle, ~~and~~ Pedestrian, and Bicyclist Accident Details

Intersection	Year	Date	Time	Accident Class		Action of Vehicle	Action of Pedestrian	Cause of Accident			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Norfolk Street @ Delancey Street	2008	6/16	21:18 PM	X		Going straight – North	Crossing with signal				Unknown
	2009	2/15	3:55 AM	X		Going straight – West	Other actions in roadway		X		Failure to yield R.O.W.
	2010	1/21	19:40 PM	X		Unknown	Crossing against signal		X		
		5/15	4:00 AM	X		Unknown	Crossing with signal				Unknown
		8/4	6:45 PM	x		Unknown	Along highway with traffic				Unknown
		9/30	11:47 AM	X		Unknown	Crossing with signal				Unknown
		11/19	14:05 PM	X		Unknown	Getting on/off vehicle				Unknown
		12/3	4:00 AM	x		Unknown	Along highway with traffic				Unknown
	2011	1/21	16:17 PM	X		Unknown	Crossing with signal				Unknown
Suffolk Street @ Delancey Street	2008	10/10	16:25 PM	X		Making right turn – Southeast	Crossing	X		X	
	2009	5/2	14:30 PM	X		Making right turn – Unknown	Crossing with signal	X			
		6/10	10:40 AM	X		Making left turn – West	Along highway with traffic	X			
		8/19	17:10 PM	X		Going straight – West	Along highway with traffic				Unknown
		9/15	10:40 AM	X		Unknown	Unknown				Unknown
		12/2	17:30 PM	X		Unknown	Unknown				Unknown
		12/17	18:00 PM	X		Going straight – West	Along highway with traffic				Unknown
	2010	6/7	21:35 PM	X		Unknown	Emerge from behind parked vehicle		x		
		9/17	11:05 PM	X		Unknown	Along highway with traffic				Unknown
Avenue A @ E. Houston Street	2008	8/6	16:58 PM	X		Going straight – West	Along highway with traffic				Unknown
		9/22	20:10 PM	X		Making right turn – West	Crossing against signal	X			
		11/13	3:55 AM	X		Making left turn – Southwest	Crossing with signal	X			
	2009	7/31	11:04 AM	X		Making right turn – North	Crossing with signal	X		X	Failure to yield R.O.W.
	2010	1/21	20:30 PM	X		Going straight – North	Crossing				Unknown
		1/26	21:40 PM	X		Going straight – North	Crossing against signal				Unknown
		4/27	21:40 PM		X	Going straight – North	Crossing		X		
		8/8	10:30 AM	X		Unknown	Unknown				Unknown

Table 13-~~49~~54 (cont'd)
Vehicle, ~~and~~ Pedestrian, and Bicyclist Accident Details

Intersection	Year	Date	Time	Accident Class: Injured	Accident Class: Killed	Action of Vehicle	Action of Pedestrian	Cause of Accident: Left / Right Turns	Cause of Accident: Pedestrian Error/ Confusion	Cause of Accident: Driver Inattention	Cause of Accident: Other
Bowery @ E. Houston Street	2008	5/15	14:45 PM	X		Making right turn – North	Going straight – Northeast	X		X	
		5/19	21:40 PM	X		Making right turn – East	Crossing with signal	X			
		8/3	15:00 PM	X		Making right turn – North	Along highway with traffic	X			
		9/12	20:45 PM	X		Making right turn – West	Along highway with traffic	X	X		Pavement slippery
		11/20	15:30 PM	X		Going straight – South	Along highway with traffic				Passenger distraction
	2010	6/16	3:00 AM	X		Unknown	Crossing with signal				Unknown
		6/16	21:50 PM	X		Unknown	Crossing with signal				Unknown
		7/1	22:45 PM	X		Unknown	Emerge from behind parked vehicle				Unknown
		7/31	1:50 AM	x		Unknown	Other actions in roadway				Unknown
		8/22	5:05 AM	X		Unknown	Crossing against signal		X		
Allen Street @ Grand Street	2008	11/15	20:24 PM	X		Making left turn – North	Crossing with signal	X			Driver Inexperience, Failure to yield R.O.W.
	2009	5/18	10:23 AM	X		Making left turn – North	Crossing with signal	X			
		7/22	14:00 PM	X		Making left turn – Southwest	Crossing with signal	X			
		9/13	9:37 AM	X		Making left turn – Northeast	Unknown	x			Other (vehicle)
		11/26	18:09 PM	X		Making left turn – Northeast	Unknown	X	X		
	2010	1/14	10:46 AM	X		Unknown	Working in roadway				Unknown
		3/7	19:20 PM	X		Unknown	Crossing with signal				Unknown
		6/21	13:20 PM	X		Unknown	Along highway with traffic				Unknown
Clinton Street @ Grand Street	2008	8/25	15:00 PM	X		Making right turn – East	Along highway with traffic	X		X	
		10/10	8:20 AM	X		Going straight – East	Crossing with signal				Aggressive driving, Road rage
		11/12	20:00 PM	X		Going straight – East	Crossing with signal				Unknown
	2009	3/19	22:21 PM		x	Making right turn – South	Crossing with signal	X			Failure to yield R.O.W.
		6/26	8:00 AM	X		Going straight – North	Crossing with signal			X	Other (vehicle)
		6/26	20:29 PM	X		Going straight – South	Emerge from behind parked vehicle		X		
		12/23	21:05 PM	X		Going straight – West	Along highway with traffic				Unknown
	2010	1/8	16:15 PM	X		Making right turn – East	Crossing	X			
		3/3	9:30 AM	X		Unknown	Crossing with signal				Unknown
		8/27	19:24 PM	X		Unknown	Along highway with traffic				Unknown
	2011	2/16	11:30 AM	X		Unknown	Crossing with signal				Unknown

Table 13-~~49~~54 (cont'd)
Vehicle, ~~and~~ Pedestrian, and Bicyclist Accident Details

Intersection	Year	Date	Time	Accident Class		Action of Vehicle	Action of Pedestrian	Cause of Accident			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Essex Street @ Grand Street	2008	9/21	19:22 PM	X		Going straight – North	Crossing against signal		X		
	2009	4/7	13:50 PM	X		Backing	Crossing				Backing unsafely
		9/27	17:46 PM	X		Other – South	Overtaking – South				Passing or lane usage improperly
		10/19	20:20 PM	X		Parked	Along highway with traffic				Unknown
		10/31	11:10 AM	X		Going straight – North	Crossing against signal		X		
		12/10	10:32 AM	X		Unknown	Crossing with signal				Unknown
	2010	3/19	9:31 AM	X		Unknown	Unknown				Unknown
		11/21	13:15 PM	X		Unknown	Crossing with signal				Unknown

Source: NYSDOT February 29, 2008 and February 28, 2011 accident data.

CLINTON STREET AND DELANCEY STREET

During the three year period mentioned above, a total of 76 reportable and non-reportable accidents, 77 injuries, and 13 pedestrian/bicyclist-related accidents occurred at the Clinton Street and Delancey Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Clinton Street and Delancey Street is signalized and provides high-visibility crosswalks on the north, west and south legs (the eastern leg functions as a bicycle lane). As discussed earlier, NYCDOT ~~is currently~~ ~~developing~~ began implementation of the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, the northwest and southwest corners were extended by 32 feet and 15 feet, respectively, increasing the corner sidewalk storage space and reducing the pedestrian crossing distance at the west crosswalk by a total of 47 feet; a pedestrian plaza was created on the south side of Delancey Street between Suffolk Street and Clinton Street, replacing the existing Delancey Street service road and increasing the sidewalk width between 15 feet and 35 feet; a right-turn only lane restriction was implemented for the westbound Delancey Street service road, prohibiting vehicles traveling westbound on the Delancey Street service road to continue on the Delancey Street mainline; and signal timing was modified to allow more green time for pedestrians to cross Delancey Street. In addition, Clinton Street was converted to one-way northbound between Grand Street and Delancey Street, allowing vehicles to access the Williamsburg Bridge from Clinton Street. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions at this intersection could improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

ESSEX STREET AND DELANCEY STREET

During the three year period mentioned above, a total of 80 reportable and non-reportable accidents, 1 fatality, 79 injuries, and 30 pedestrian/bicyclist-related accidents occurred at the Essex Street and Delancey Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Essex Street and Delancey Street is signalized and provides high visibility crosswalks. In addition, countdown timers are present at all approaches. As discussed earlier, NYCDOT ~~is currently~~ ~~developing~~ began implementation of the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, the northwest corner was extended six feet to the east and 15 feet to the south, increasing the corner sidewalk storage space and reducing the pedestrian crossing distance by six feet and 15 feet for the north and west crosswalks, respectively; a right-turn only lane was installed for the westbound approach; and a full time left-turn ban was enforced for the southbound approach. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions at this intersection could improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

NORFOLK STREET AND DELANCEY STREET

During the three year period mentioned above, a total of 31 reportable and non-reportable accidents, 21 injuries, and 9 pedestrian/bicyclist-related accidents occurred at the Norfolk Street and Delancey Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Norfolk Street and Delancey Street is signalized and provides high visibility crosswalks to the north, west and south; there is no eastern crosswalk. Additionally, an Advance School Warning Sign is posted on the eastbound and westbound approaches. As discussed earlier, NYCDOT ~~is currently developing~~ began implementation of the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, the southeast corner was extended by 44 feet, increasing the corner sidewalk storage space; a pedestrian plaza was created on the south side of Delancey Street between Norfolk Street and Suffolk Street, replacing the existing Delancey Street service road and increasing the sidewalk width between 20 feet and 40 feet; and the signal timing was modified to allow more green time for pedestrians to cross Delancey Street. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions at this intersection could improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

SUFFOLK STREET AND DELANCEY STREET

During the three year period mentioned above, a total of 39 reportable and non-reportable accidents, 54 injuries, and 9 pedestrian/bicyclist-related accidents occurred at the Suffolk Street and Delancey Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Suffolk Street and Delancey Street is signalized and provides four high visibility crosswalks. In addition, countdown timers are present on the eastern and western crosswalks. As discussed earlier, NYCDOT began implementation of the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, the southwest corner was extended by 44 feet and the southeast corner was extended by 35 feet, increasing the corner sidewalk storage space and reducing the pedestrian crossing distance by 44 feet and 35 feet for the west and east crosswalks, respectively; a pedestrian plaza was created on the south side of Delancey Street between Norfolk Street and Clinton Street, replacing the existing Delancey Street service road and increasing the sidewalk width between 15 feet and 40 feet; and the signal timing was modified to allow more green time for pedestrians to cross Delancey Street. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions at this intersection could improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

AVENUE A AND HOUSTON STREET

During the three year period mentioned above, a total of 15 reportable and non-reportable accidents, 1 fatality, 10 injuries, and 8 pedestrian/bicyclist-related accidents occurred at the Avenue A and Houston Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Avenue A and Houston Street is signalized and provides one regular and three school crosswalks. Measures to increase pedestrian safety at this intersection could include the installation of crosswalk countdown timers on all the approaches to provide pedestrians with a better understanding of crossing times. In addition, the northern crosswalk and a portion of the southern crosswalk are heavily faded and could be restriped to provide better visibility.

BOWERY AND HOUSTON STREET

During the three year period mentioned above, a total of 40 reportable and non-reportable accidents, 31 injuries, and 10 pedestrian/bicyclist-related accidents occurred at the Bowery and Houston Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Bowery and Houston Street is signalized and provides four high-visibility crosswalks. In addition, signs warning turning vehicles to yield to pedestrians in the crosswalk are present on all approaches at this intersection. Measures to increase pedestrian safety at this intersection could include the installation of countdown timers for all crosswalks to provide pedestrians with a better understanding of crossing times.

ALLEN STREET AND GRAND STREET

During the three year period mentioned above, a total of 18 reportable and non-reportable accidents, 18 injuries, and 8 pedestrian/bicyclist-related accidents occurred at the Allen Street and Grand Street intersection. Based on the review of the accident history at the intersection of Allen Street and Grand Street, five out of eight pedestrian/bicyclist-related accidents were caused by vehicles making left turns. It seems probable that pedestrians involved in accidents were struck by turning vehicles while crossing the mid-intersection crosswalk. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Allen Street and Grand Street is signalized and provides four school crosswalks as well as one mid-intersection north/south crosswalk. In addition, Advance School Warning Signs are present at all approaches. Measures to increase pedestrian safety at this intersection could include the installation of crosswalk countdown timers on all the approaches to provide pedestrians with a better understanding of crossing times. In addition, the mid-intersection crosswalk could be removed, thereby prohibiting pedestrian access to the center of the intersection to avoid unnecessary conflict with turning vehicles.

CLINTON STREET AND GRAND STREET

During the three year period mentioned above, a total of 26 reportable and non-reportable accidents, 1 fatality, 16 injuries, and 10 pedestrian/bicyclist-related accidents occurred at the Clinton Street and Grand Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Clinton Street and Grand Street is signalized and provides two regular crosswalks and two school crosswalks. A School Advance Warning Sign is posted on the northbound approach and signs warning turning vehicles to yield to pedestrians in the crosswalk are present at the eastbound and westbound and northbound approaches to this intersection. As discussed earlier, NYCDOT ~~is currently~~ ~~developing~~ began implementation of the Delancey Street Safety Improvements ~~corridor safety~~ plan in June 2012 to improve pedestrian, bicycle, and vehicular safety conditions. As part of the safety plan, Clinton Street was converted to one-way northbound between Grand Street and Delancey Street; a full time left-turn ban was enforced for the eastbound approach; and the signal phasing was modified to include a leading pedestrian interval for the north and south crosswalks. With these measures in place, it is anticipated that pedestrian safety conditions at this intersection will improve. ~~Measures to increase pedestrian safety at this intersection could include the installation of countdown timers for all crosswalks to provide pedestrians with a better understanding of crossing times, and a sign reminding drivers to yield to pedestrians in the crosswalk at the southern approach.~~

ESSEX STREET AND GRAND STREET

During the three year period mentioned above, a total of 19 reportable and non-reportable accidents, 16 injuries, and 8 pedestrian/bicyclist-related accidents occurred at the Essex Street and Grand Street intersection. No prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents at this intersection. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Essex Street and Grand Street is signalized and provides four school crosswalks. In addition, Advance School Warning Signs are present at all approaches except the southbound approach. Measures to increase pedestrian safety at this intersection could include the installation of crosswalk countdown timers on all the approaches to provide pedestrians with a better understanding of crossing times, as well as installing the Advance School Warning Sign at the southbound approach.

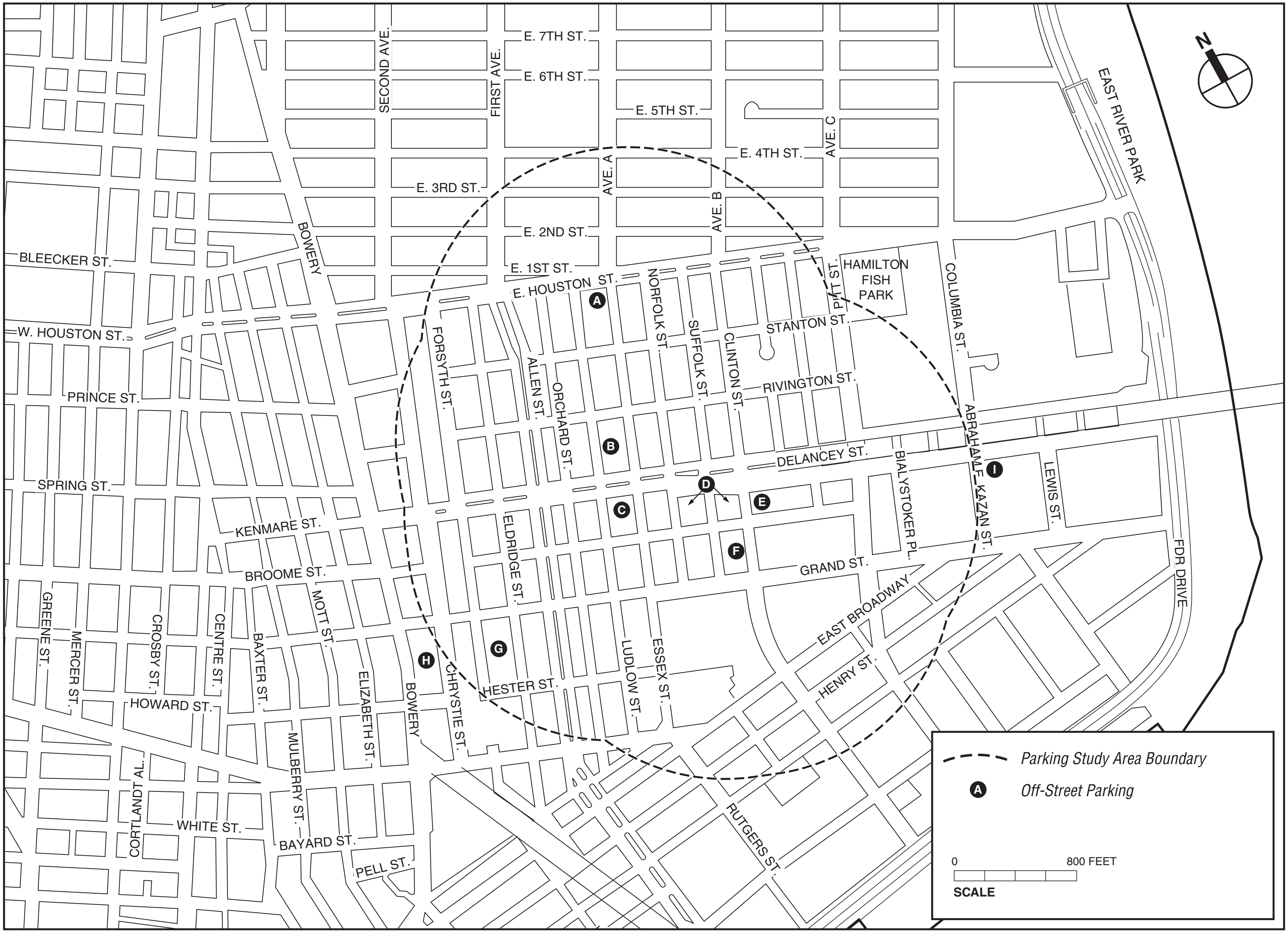
~~As mentioned above, NYCDOT is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions in the study area would improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

J. PARKING

2011 EXISTING CONDITIONS

A detailed inventory of on-street parking and off-street public parking lots and garages within approximately a quarter-mile of the project sites was conducted on a typical weekday and Saturday. This quarter-mile distance was used as an acceptable walking distance to from the project sites to parking. Overall, there are nine public parking lots or garages within or close to this quarter-mile area, as shown in **Figure 13-18.**

3.20.12



Parking Study Area
Figure 13-18

Table 13-~~50~~55 presents the capacity and occupancy of these off-street public parking facilities during the weekday AM, midday, PM, and Saturday peak periods. The overall occupancy of the public lots and garages in the general vicinity is approximately 63 to 66 percent during the weekday AM, midday, and Saturday peak periods, and approximately 56 percent during the weekday PM peak period. Only two of the garages in the study area exceed 90 percent occupancy during peak hours: the Delancey-Essex Municipal Garage (which is also Site 7 within the development area) which is 90 percent occupied during the weekday AM, midday, and Saturday peak periods; and 135-163 Delancey Street (Location D) which is 90 percent occupied during the weekday AM and midday peak periods, and 95 percent occupied during the weekday PM peak period. A total of approximately 600 to 650 spaces are available within the 10 public parking facilities during the weekday AM, midday, and Saturday peak parking periods, while about 770 spaces are available during the weekday PM peak period.

Table 13-~~50~~55
Inventory of Existing Public Parking Lots and Garages (Quarter-Mile Radius)

		Occupancy			
		Weekday			
Location	**Capacity**	**AM (7:00 - 9:30 AM)**	**Midday (11 AM – 2 PM)**	**Evening (4:00 – 6:30 PM)**	**Saturday (3 - 5 PM)**
A. 184 - 194 Ludlow – Lic. No. 926761	182	80	81	80	80
Essex Street between Houston Street and Stanton Street		44%	45%	44%	44%
B. Municipal Parking: Delancey – Essex	362	326	326	181	326
Essex Street between Rivington Street and Delancey Street		90%	90%	50%	90%
C. Municipal Parking: Broome – Ludlow	65	35	35	31	28
Ludlow Street between Delancey Street and Broome Street		54%	54%	48%	43%
D. 135 - 163 Delancey Street – Lic. No. 1220509	294	265	265	279	206
Broome St between Norfolk Street and Clinton Street		90%	90%	95%	70%
E. Broome Street Parking Lot LLC – Lic. No. 1234764	48	42	35	37	32
Broome Street between Clinton Street and Ridge Street		88%	73%	77%	67%
F. Suffolk Parking Inc. – Lic. No. 1226909	100	20	30	30	30
Suffolk Street between Broome Street and Grand Street		20%	30%	30%	30%
G. 59 Allen Street Garage Corp. – Lic. No. 1192853	200	150	150	100	140
Allen Street between Grand Street and Hester Street		75%	75%	50%	70%
H. MTP Operating Corp. – Lic. No. 1344945	50	10	35	20	40
Chrystie Street between Grand Street and Hester Street		20%	70%	40%	80%
I. Area Garage – Lic. No. 0429851	457	229	160	229	274
Delancey Street and Columbia Street		50%	35%	50%	60%
Total	**1,758**	**1,157**	**1,112**	**987**	**1,156**
Percent Occupied (%)		**65.8%**	**63.3%**	**56.1%**	**65.8%**

Note: As per the *CEQR Technical Manual*, garages/lots at 98 percent capacity or greater in the existing conditions are considered at capacity and no additional vehicles should be assigned to them.

The proposed actions would displace parking at Locations C, D, E, and F, and develop parking garages at the current Locations D and F. Location C is a 65 space municipal lot with a maximum occupancy of 35 spaces during the peak periods. Location D (which consists of two sites) has a capacity of 294 spaces with 95 percent maximum occupancy during the peak periods. The site located between Norfolk and Suffolk Streets provides monthly parking (with highly subsidized rates for the merchants of the Essex Street Market - $105 per month), and also allows parking for shoppers. The site located between Suffolk and Clinton Streets is partially occupied by long-term commercial vehicles (such as vans and single unit trucks). Location E allows public parking with a capacity of 48 spaces and maximum observed occupancy of 42 spaces during the peak periods. Location F allows public parking with hourly rates, and has a capacity of 100 spaces with a maximum observed occupancy of 30 spaces during the peak periods.

On-street parking regulations, capacities, and occupancies were also inventoried for the same quarter-mile radius on a block-by-block basis. The majority of streets within the study area have “No Parking” restrictions at certain times due to street cleaning restrictions. Metered spaces are found primarily along the commercial corridors such as Delancey Street, Houston Street, and Grand Street. There are a total of 3,616 legal on-street parking spaces within the entire parking study area, out of which approximately 87 percent are occupied during the weekday AM peak period. The occupancy increases to about 95 to 100 percent during the weekday midday, PM, and Saturday peak periods.

2022 NO ACTION CONDITION

To estimate future parking conditions, existing occupancies for public off-street parking facilities and for on-street parking were increased by the background traffic growth rate of approximately two percent. Vehicle trips generated by No Action project sites within the study area would park on-site, where parking is provided, or were otherwise assumed to park on-street.

Available on- and off-street parking is expected to decrease slightly under the No Action condition due to the projected increase of traffic in the area. Also, as a result of the Delancey Street Safety Improvements plan, there would be a loss of a total of approximately 15 parking spaces during the weekday peak periods, and a total of approximately 22 parking spaces on Saturday, along Delancey Street, Essex Street, and Grand Street. Under the No Action condition, approximately 89 percent of the on-street parking is expected to be occupied during the weekday AM peak parking period. The on-street occupancy would increase to approximately ~~almost~~ 100 percent during the weekday midday parking period and approximately 99 percent during the weekday PM peak parking period~~s~~, and would reach 98 ~~97~~ percent during the Saturday peak period. Off-street parking occupancy would increase slightly to 57 to 67 percent during the weekday and Saturday peak parking periods. As a result, overall off-street parking availability in the area would decrease slightly with a range of about 575 to750 available spaces during peak parking periods.

2022 WITH ACTION CONDITION

The proposed actions are expected to include up to 500 off-street parking spaces within Sites 2, 3, 4, and 5 to accommodate peak parking demand levels generated by the proposed actions as well as replace the number of public parking spaces that could be lost as a result of the proposed actions.

In the existing conditions, there are approximately 507 parking spaces (approximately 400 public spaces, and approximately 100 spaces being used by commercial vehicles such as vans and trucks) within surface lots that currently occupy Sites 3, 4, 5, and 6. Approximately 400 public spaces on these four sites would be displaced as part of the proposed actions. Vehicles currently parked on those sites may still be able to park on these development sites while some might need to find parking elsewhere in the surrounding area; some vehicles currently parking on these sites may not be able to be accommodated in the area or may choose to park elsewhere. This may be especially true for vehicles that are parked long-term on Site 4, which attracts trucks and other commercial vehicles that may not be accommodated within underground parking garages and longer-term parkers rather than the more typical daily in/out parkers. All existing trips to surface parking lots at the development sites have been retained in the street network. This may be somewhat conservative since some parkers may have shorter trips to other sites within the study area while others may have somewhat longer trips, and while others may no longer be made to the study area at all.

Parking demands during the weekday AM, midday, PM, and the Saturday peak traffic hours would be fully accommodated by the parking garages. The maximum project-generated capacity of 257 spaces would be reached during 9-10 AM and 2-3 PM on a typical weekday. The maximum accumulation of ~~254~~ 252 spaces for a Saturday would occur between 4-5 PM. There would be a surplus capacity of about 240 to 250 spaces which could accommodate a portion of the displaced parkers. Approximately 140 vehicles would need to find parking elsewhere in the area, and would likely park within the 375 to 625 off-street spaces that would be available within off-street lots/garages in the study area. **Tables 13-~~51~~56a and 13-~~51~~56b** provide the projected parking accumulation at the project garage for weekday and Saturday conditions.

~~Table 13-51a~~

~~Weekday Garage Parking Accumulation – 2022 With Action Condition~~

~~Time~~	~~Site 2 Garage~~			~~Site 3 Garage~~			~~Site 4 Garage~~			~~Site 5 Garage~~			~~Total Demand~~		
	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~
~~12 - 1 AM~~	~~2~~	~~1~~	~~55~~	~~1~~	~~1~~	~~35~~	~~2~~	~~2~~	~~72~~	~~1~~	~~1~~	~~48~~	~~6~~	~~5~~	~~210~~
~~1 - 2 AM~~	~~2~~	~~1~~	~~56~~	~~0~~	~~0~~	~~35~~	~~1~~	~~1~~	~~72~~	~~1~~	~~1~~	~~48~~	~~4~~	~~3~~	~~211~~
~~2 - 3 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~3 - 4 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~4 - 5 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~5 - 6 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~6 - 7 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~1~~	~~1~~	~~72~~	~~0~~	~~0~~	~~48~~	~~1~~	~~1~~	~~211~~
~~7 - 8 AM~~	~~7~~	~~10~~	~~53~~	~~1~~	~~5~~	~~31~~	~~3~~	~~9~~	~~66~~	~~3~~	~~5~~	~~46~~	~~14~~	~~29~~	~~196~~
~~8 - 9 AM~~	~~55~~	~~29~~	~~79~~	~~17~~	~~12~~	~~36~~	~~28~~	~~25~~	~~69~~	~~31~~	~~17~~	~~60~~	~~131~~	~~84~~	~~244~~
~~9 - 10 AM~~	~~44~~	~~31~~	~~92~~	~~14~~	~~15~~	~~35~~	~~24~~	~~23~~	~~71~~	~~26~~	~~27~~	~~59~~	~~108~~	~~96~~	~~257~~
~~10 - 11 AM~~	~~29~~	~~31~~	~~90~~	~~13~~	~~15~~	~~33~~	~~17~~	~~22~~	~~66~~	~~20~~	~~24~~	~~55~~	~~79~~	~~92~~	~~244~~
~~11 AM - 12 PM~~	~~40~~	~~38~~	~~92~~	~~17~~	~~17~~	~~33~~	~~23~~	~~25~~	~~64~~	~~29~~	~~30~~	~~54~~	~~109~~	~~110~~	~~243~~
~~12 - 1 PM~~	~~42~~	~~42~~	~~92~~	~~15~~	~~13~~	~~35~~	~~22~~	~~22~~	~~64~~	~~17~~	~~16~~	~~55~~	~~96~~	~~93~~	~~246~~
~~1 - 2 PM~~	~~54~~	~~50~~	~~96~~	~~18~~	~~17~~	~~36~~	~~28~~	~~26~~	~~66~~	~~24~~	~~23~~	~~56~~	~~124~~	~~117~~	~~254~~
~~2 - 3 PM~~	~~57~~	~~56~~	~~97~~	~~20~~	~~19~~	~~37~~	~~25~~	~~24~~	~~67~~	~~18~~	~~18~~	~~56~~	~~120~~	~~117~~	~~257~~
~~3 - 4 PM~~	~~43~~	~~47~~	~~93~~	~~14~~	~~15~~	~~36~~	~~20~~	~~22~~	~~65~~	~~14~~	~~14~~	~~56~~	~~91~~	~~98~~	~~250~~
~~4 - 5 PM~~	~~41~~	~~53~~	~~81~~	~~14~~	~~15~~	~~35~~	~~22~~	~~23~~	~~64~~	~~16~~	~~19~~	~~53~~	~~93~~	~~110~~	~~233~~
~~5 - 6 PM~~	~~54~~	~~80~~	~~55~~	~~18~~	~~23~~	~~30~~	~~31~~	~~37~~	~~56~~	~~21~~	~~35~~	~~39~~	~~124~~	~~176~~	~~180~~
~~6 - 7 PM~~	~~43~~	~~48~~	~~50~~	~~15~~	~~17~~	~~28~~	~~25~~	~~24~~	~~58~~	~~16~~	~~15~~	~~40~~	~~99~~	~~104~~	~~176~~
~~7 - 8 PM~~	~~43~~	~~36~~	~~57~~	~~14~~	~~10~~	~~32~~	~~21~~	~~14~~	~~66~~	~~15~~	~~9~~	~~46~~	~~93~~	~~69~~	~~201~~
~~8 - 9 PM~~	~~22~~	~~21~~	~~58~~	~~8~~	~~6~~	~~34~~	~~10~~	~~8~~	~~68~~	~~7~~	~~5~~	~~48~~	~~47~~	~~40~~	~~208~~
~~9 - 10 PM~~	~~12~~	~~20~~	~~50~~	~~5~~	~~7~~	~~32~~	~~7~~	~~9~~	~~66~~	~~4~~	~~7~~	~~45~~	~~28~~	~~43~~	~~193~~
~~10 - 11 PM~~	~~6~~	~~5~~	~~51~~	~~3~~	~~1~~	~~34~~	~~6~~	~~2~~	~~70~~	~~4~~	~~3~~	~~46~~	~~19~~	~~11~~	~~201~~
~~11 PM - 12 midnight~~	~~5~~	~~2~~	~~54~~	~~2~~	~~1~~	~~35~~	~~4~~	~~2~~	~~72~~	~~3~~	~~1~~	~~48~~	~~14~~	~~6~~	~~209~~
~~Daily Total~~	~~601~~	~~601~~	~~-~~	~~209~~	~~209~~	~~-~~	~~320~~	~~320~~	~~-~~	~~270~~	~~270~~	~~-~~	~~1,400~~	~~1,400~~	~~-~~
~~Overnight Demand~~	~~-~~	~~-~~	~~56~~	~~-~~	~~-~~	~~35~~	~~-~~	~~-~~	~~72~~	~~-~~	~~-~~	~~48~~	~~-~~	~~-~~	~~211~~

Table 13-56a[1]

Weekday Garage Parking Accumulation—2022 With Action Condition

Time	Site 2 Garage			Site 3 Garage			Site 4 Garage			Site 5 Garage			Total Demand		
	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.
12 - 1 AM	2	1	55	1	1	35	2	2	72	1	1	48	6	5	210
1 - 2 AM	2	1	56	0	0	35	1	1	72	1	1	48	4	3	211
2 - 3 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
3 - 4 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
4 - 5 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
5 - 6 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
6 - 7 AM	0	0	56	0	0	35	1	1	72	0	0	48	1	1	211
7 - 8 AM	7	10	53	1	5	31	3	9	66	3	5	46	14	29	196
8 - 9 AM	55	30	79	17	12	36	28	25	69	31	17	60	131	84	244
9 - 10 AM	44	31	92	14	15	35	24	23	71	26	27	59	108	96	257
10 - 11 AM	29	31	90	13	15	33	17	22	66	20	24	55	79	92	244
11 AM - 12 PM	40	38	92	17	17	33	23	25	64	29	30	54	109	110	243
12 - 1 PM	42	42	92	15	13	35	22	22	64	17	16	55	96	93	246
1 - 2 PM	54	51	96	18	17	36	28	26	66	24	23	56	124	117	254
2 - 3 PM	57	56	97	20	19	37	25	24	67	18	18	56	120	117	257
3 - 4 PM	43	47	93	14	15	36	20	22	65	14	14	56	91	98	250
4 - 5 PM	41	53	81	14	15	35	22	23	64	16	19	53	93	110	233
5 - 6 PM	54	81	54	18	23	30	31	37	56	21	35	39	124	176	179
6 - 7 PM	43	47	50	15	17	28	25	24	58	16	15	40	99	104	176
7 - 8 PM	43	36	57	14	10	32	21	14	66	15	9	46	93	69	201
8 - 9 PM	22	21	58	8	6	34	10	8	68	7	5	48	47	40	208
9 - 10 PM	12	20	50	5	7	32	7	9	66	4	7	45	28	43	193
10 - 11 PM	6	5	51	3	1	34	6	2	70	4	3	46	19	11	201
11 PM - 12 midnight	5	2	54	2	1	35	4	2	72	3	1	48	14	6	209
Daily Total	601	601	-	209	209	-	320	320	-	270	270	-	1,400	1,400	-
Overnight Demand	-	-	56	-	-	35	-	-	72	-	-	48	-	-	211

~~Table 13-51b~~

~~Saturday Garage Parking Accumulation—2022 With Action Condition~~

~~Time~~	~~Site 2 Garage~~			~~Site 3 Garage~~			~~Site 4 Garage~~			~~Site 5 Garage~~			~~Total Demand~~		
	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~	~~In~~	~~Out~~	~~Accum.~~
~~12 - 1 AM~~	~~1~~	~~0~~	~~55~~	~~0~~	~~0~~	~~35~~	~~1~~	~~1~~	~~72~~	~~0~~	~~0~~	~~48~~	~~2~~	~~1~~	~~210~~
~~1 - 2 AM~~	~~1~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~1~~	~~1~~	~~72~~	~~0~~	~~0~~	~~48~~	~~2~~	~~1~~	~~211~~
~~2 - 3 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~3 - 4 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~4 - 5 AM~~	~~0~~	~~0~~	~~56~~	~~0~~	~~0~~	~~35~~	~~0~~	~~0~~	~~72~~	~~0~~	~~0~~	~~48~~	~~0~~	~~0~~	~~211~~
~~5 - 6 AM~~	~~1~~	~~1~~	~~56~~	~~1~~	~~1~~	~~35~~	~~1~~	~~1~~	~~72~~	~~1~~	~~1~~	~~48~~	~~4~~	~~4~~	~~211~~
~~6 - 7 AM~~	~~0~~	~~1~~	~~55~~	~~0~~	~~2~~	~~33~~	~~1~~	~~2~~	~~71~~	~~0~~	~~1~~	~~47~~	~~1~~	~~6~~	~~206~~
~~7 - 8 AM~~	~~7~~	~~7~~	~~55~~	~~2~~	~~3~~	~~32~~	~~4~~	~~7~~	~~68~~	~~4~~	~~5~~	~~46~~	~~17~~	~~22~~	~~201~~
~~8 - 9 AM~~	~~25~~	~~11~~	~~69~~	~~6~~	~~4~~	~~34~~	~~13~~	~~9~~	~~72~~	~~14~~	~~7~~	~~53~~	~~58~~	~~31~~	~~228~~
~~9 - 10 AM~~	~~24~~	~~22~~	~~71~~	~~7~~	~~9~~	~~32~~	~~11~~	~~15~~	~~68~~	~~12~~	~~15~~	~~50~~	~~54~~	~~61~~	~~221~~
~~10 - 11 AM~~	~~28~~	~~26~~	~~73~~	~~9~~	~~10~~	~~31~~	~~14~~	~~17~~	~~65~~	~~13~~	~~17~~	~~46~~	~~64~~	~~70~~	~~215~~
~~11 AM - 12 noon~~	~~56~~	~~44~~	~~85~~	~~20~~	~~17~~	~~34~~	~~27~~	~~29~~	~~63~~	~~22~~	~~24~~	~~44~~	~~125~~	~~114~~	~~226~~
~~12 - 1 PM~~	~~40~~	~~41~~	~~84~~	~~13~~	~~14~~	~~33~~	~~21~~	~~24~~	~~60~~	~~14~~	~~16~~	~~42~~	~~88~~	~~95~~	~~219~~
~~1 - 2 PM~~	~~49~~	~~50~~	~~83~~	~~17~~	~~16~~	~~34~~	~~26~~	~~25~~	~~61~~	~~17~~	~~16~~	~~43~~	~~109~~	~~107~~	~~221~~
~~2 - 3 PM~~	~~50~~	~~49~~	~~84~~	~~19~~	~~16~~	~~37~~	~~27~~	~~23~~	~~65~~	~~18~~	~~15~~	~~46~~	~~114~~	~~103~~	~~232~~
~~3 - 4 PM~~	~~52~~	~~46~~	~~90~~	~~19~~	~~16~~	~~40~~	~~26~~	~~21~~	~~70~~	~~18~~	~~15~~	~~49~~	~~115~~	~~98~~	~~249~~
~~4 - 5 PM~~	~~60~~	~~57~~	~~93~~	~~21~~	~~20~~	~~41~~	~~30~~	~~29~~	~~70~~	~~23~~	~~22~~	~~50~~	~~134~~	~~130~~	~~254~~
~~5 - 6 PM~~	~~47~~	~~55~~	~~85~~	~~16~~	~~18~~	~~39~~	~~25~~	~~30~~	~~66~~	~~15~~	~~21~~	~~44~~	~~103~~	~~124~~	~~234~~
~~6 - 7 PM~~	~~45~~	~~49~~	~~81~~	~~15~~	~~14~~	~~40~~	~~24~~	~~21~~	~~69~~	~~15~~	~~14~~	~~45~~	~~99~~	~~98~~	~~235~~
~~7 - 8 PM~~	~~40~~	~~47~~	~~74~~	~~14~~	~~16~~	~~38~~	~~23~~	~~21~~	~~71~~	~~15~~	~~13~~	~~47~~	~~92~~	~~97~~	~~230~~
~~8 - 9 PM~~	~~33~~	~~42~~	~~65~~	~~12~~	~~14~~	~~36~~	~~19~~	~~18~~	~~72~~	~~12~~	~~11~~	~~48~~	~~76~~	~~85~~	~~221~~
~~9 - 10 PM~~	~~23~~	~~34~~	~~54~~	~~9~~	~~11~~	~~34~~	~~16~~	~~15~~	~~73~~	~~10~~	~~10~~	~~48~~	~~58~~	~~70~~	~~209~~
~~10 - 11 PM~~	~~6~~	~~6~~	~~54~~	~~3~~	~~2~~	~~35~~	~~4~~	~~5~~	~~72~~	~~3~~	~~3~~	~~48~~	~~16~~	~~16~~	~~209~~
~~11 PM - 12 midnight~~	~~3~~	~~3~~	~~54~~	~~1~~	~~1~~	~~35~~	~~1~~	~~1~~	~~72~~	~~1~~	~~1~~	~~48~~	~~6~~	~~6~~	~~209~~
~~Daily Total~~	~~591~~	~~591~~	~~-~~	~~204~~	~~204~~	~~-~~	~~315~~	~~315~~	~~-~~	~~227~~	~~227~~	~~-~~	~~1,227~~	~~1,337~~	~~-~~
~~Overnight Demand~~	~~-~~	~~-~~	~~56~~	~~-~~	~~-~~	~~35~~	~~-~~	~~-~~	~~72~~	~~-~~	~~-~~	~~48~~	~~-~~	~~-~~	~~211~~

[1] This table has been revised for the FGEIS.

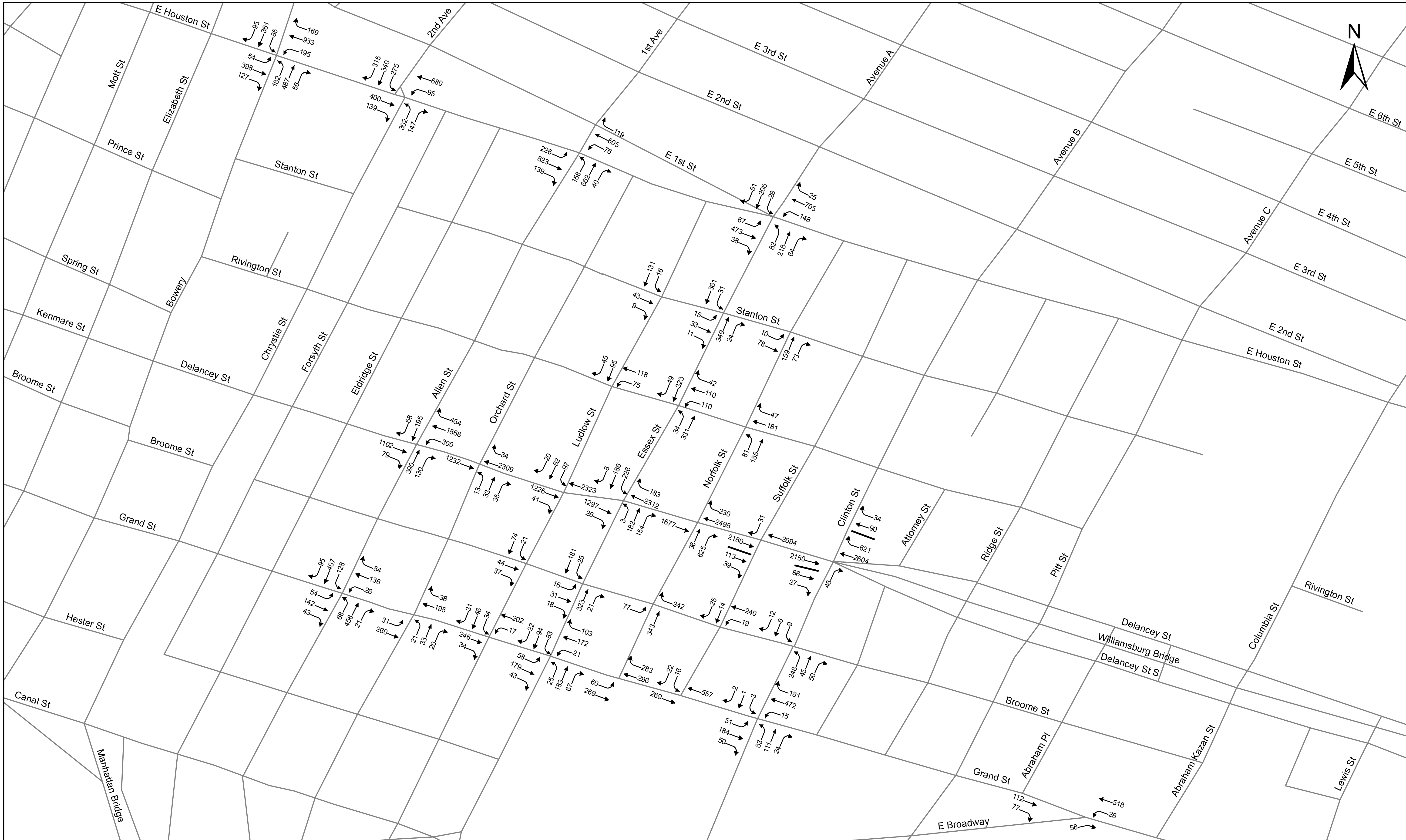
Table 13-56b[1]
Saturday Garage Parking Accumulation—2022 With Action Condition

Time	Site 2 Garage			Site 3 Garage			Site 4 Garage			Site 5 Garage			Total Demand		
	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.	In	Out	Accum.
12 - 1 AM	1	0	55	0	0	35	1	1	72	0	0	48	2	1	210
1 - 2 AM	1	0	56	0	0	35	1	1	72	0	0	48	2	1	211
2 - 3 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
3 - 4 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
4 - 5 AM	0	0	56	0	0	35	0	0	72	0	0	48	0	0	211
5 - 6 AM	1	1	56	1	1	35	1	1	72	1	1	48	4	4	211
6 - 7 AM	0	1	55	0	2	33	1	2	71	0	1	47	1	6	206
7 - 8 AM	7	7	55	2	3	32	4	7	68	4	5	46	17	22	201
8 - 9 AM	25	11	69	6	4	34	13	9	72	14	7	53	58	31	228
9 - 10 AM	24	22	71	7	9	32	11	15	68	12	15	50	54	61	221
10 - 11 AM	28	26	73	9	10	31	14	17	65	13	17	46	64	70	215
11 AM - 12 noon	56	44	85	20	17	34	27	29	63	22	24	44	125	114	226
12 - 1 PM	40	41	84	13	14	33	21	24	60	14	16	42	88	95	219
1 - 2 PM	49	50	83	17	16	34	26	25	61	17	16	43	109	107	221
2 - 3 PM	50	49	84	19	16	37	27	23	65	18	15	46	114	103	232
3 - 4 PM	52	46	90	19	16	40	26	21	70	18	15	49	115	98	249
4 - 5 PM	60	58	92	21	21	40	30	29	70	23	22	50	134	130	252
5 - 6 PM	48	55	85	16	17	39	25	30	66	15	21	44	103	124	234
6 - 7 PM	45	49	81	15	14	40	24	21	69	15	14	45	99	98	235
7 - 8 PM	40	47	74	14	16	38	23	21	71	15	13	47	92	97	230
8 - 9 PM	33	42	65	12	14	36	19	18	72	12	11	48	76	85	221
9 - 10 PM	23	34	54	9	11	34	16	15	73	10	10	48	58	70	209
10 - 11 PM	6	6	54	3	2	35	4	5	72	3	3	48	16	16	209
11 PM - 12 midnight	3	3	54	1	1	35	1	1	72	1	1	48	6	6	209
Daily Total	591	591	-	204	204	-	315	315	-	227	227	-	1,227	1,337	-
Overnight Demand	-	-	56	-	-	35	-	-	72	-	-	48	-	-	211

Among the proposed actions of the ULURP application are four special permits for public parking facilities on Sites 2, 3, 4 and 5. Consistent with the overall limit in the number of spaces that would be permitted under the LSGD, the DGEIS analyzed up to 500 off-street parking spaces in accordance with the *CEQR Technical Manual*. Given that the special permits would allow for flexibility with respect to the distribution of these spaces among Sites 2, 3, 4 and 5, an assessment was conducted to project conditions that could arise if the parking spaces were distributed only on two or three of the sites. That assessment found that the resulting conditions would be generally similar to those in the DGEIS and affected locations could require standard traffic improvements. Based on this analysis, it was determined that the streets providing access to the public parking garages would be adequate to handle traffic generated thereby. ✷

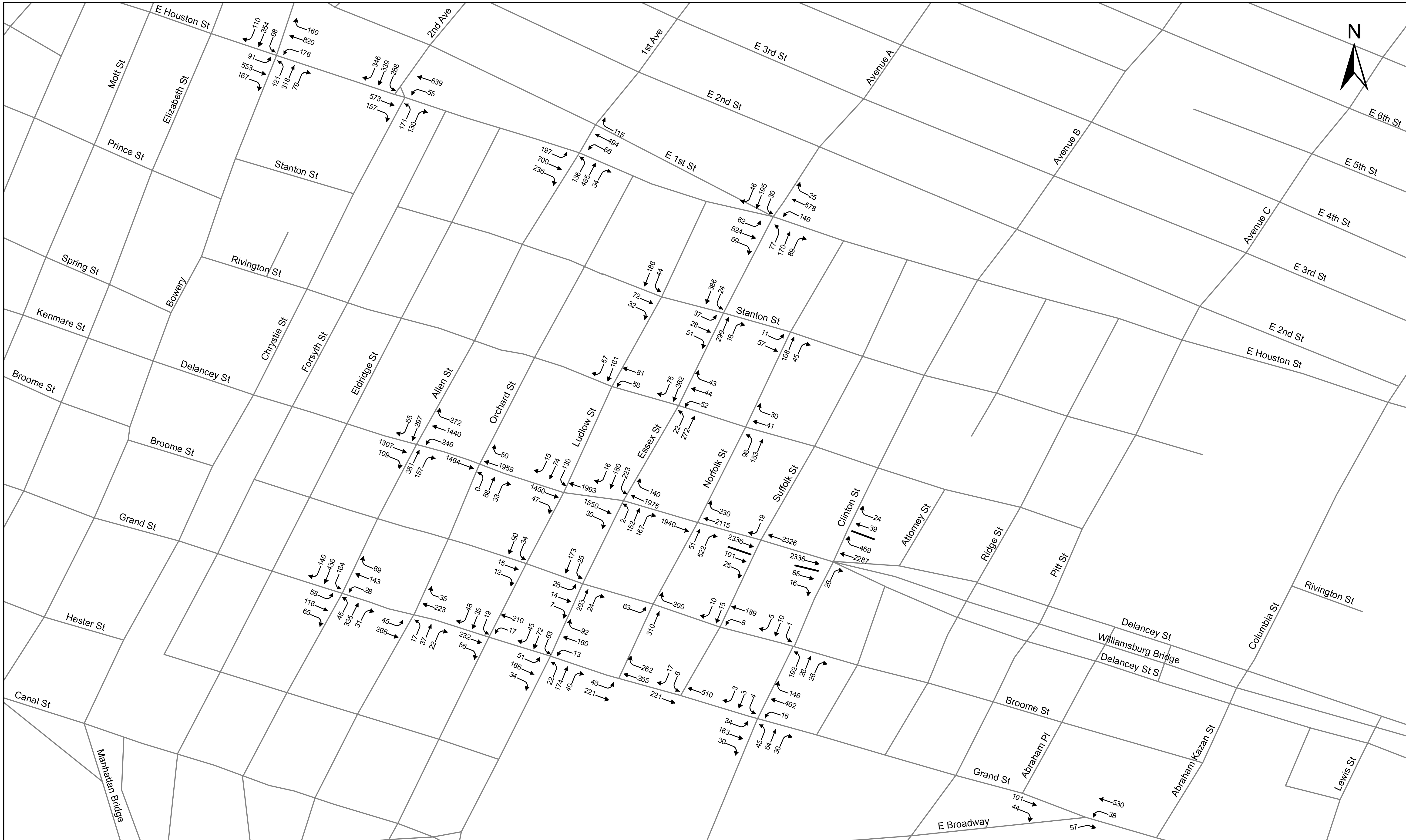
[1] This table has been revised for the FGEIS.

8.8.12_1



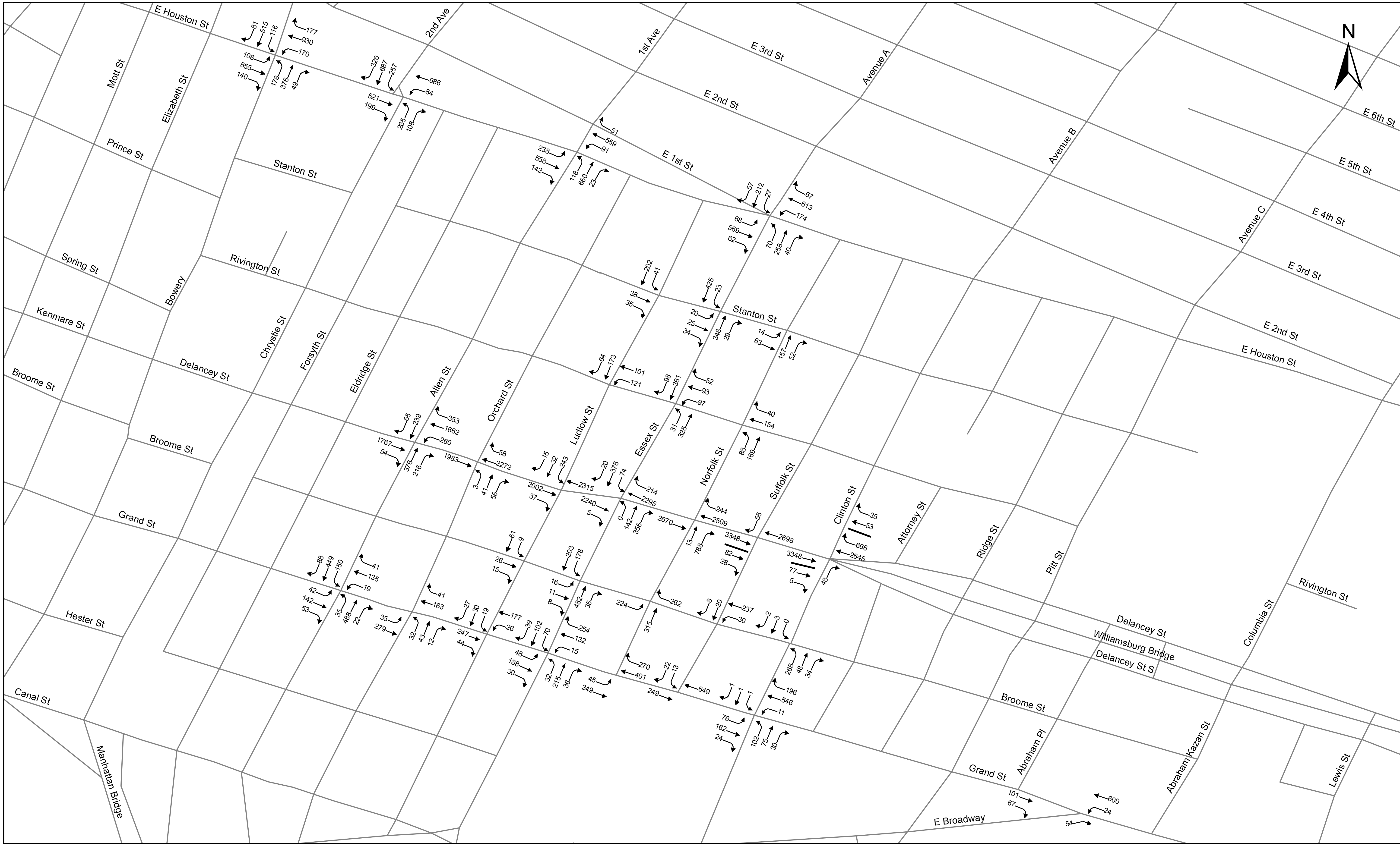
Existing Traffic Volumes
Weekday AM Peak Hour

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT



Existing Traffic Volumes
Weekday Midday Peak Hour

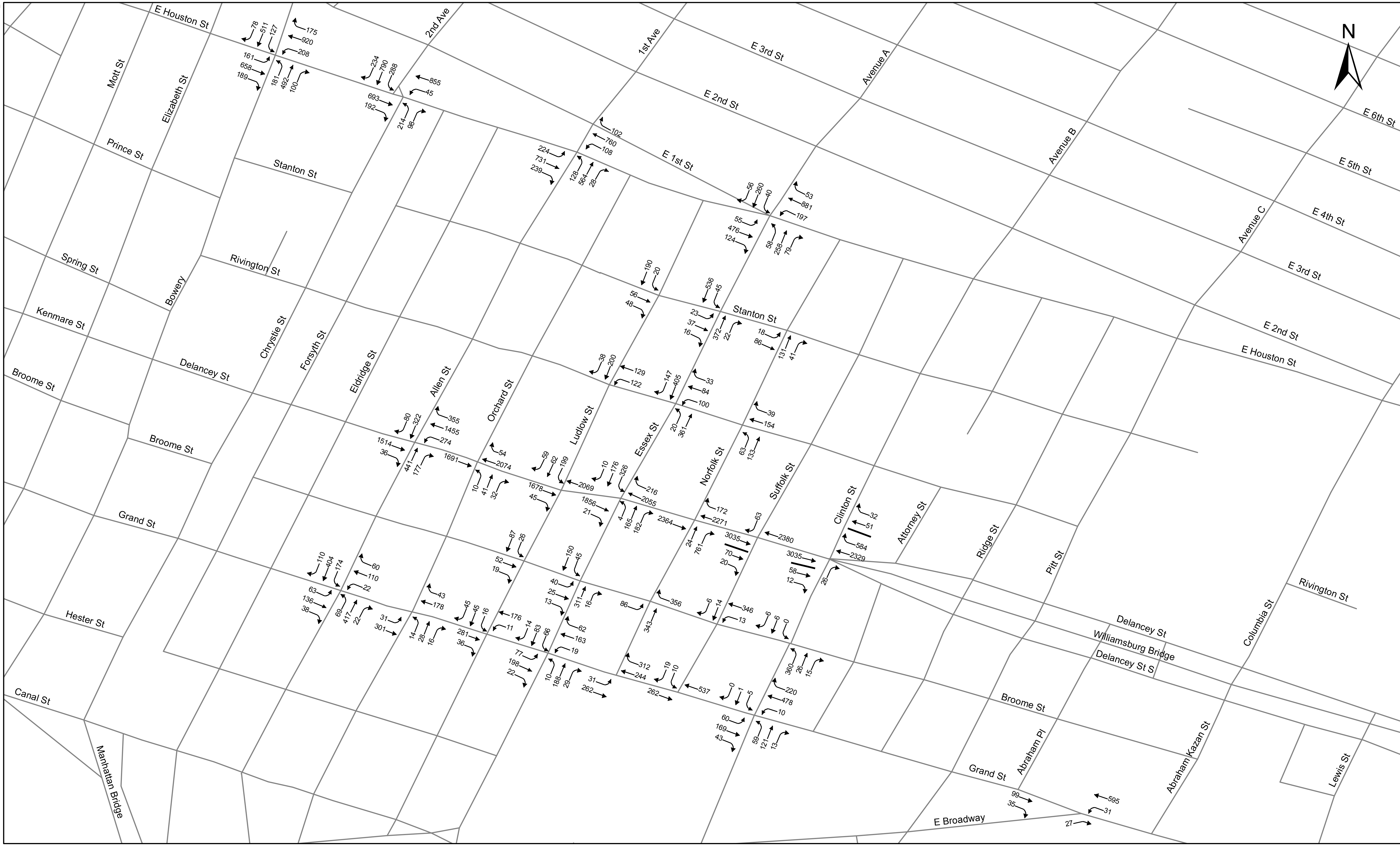
8.8.12_2



8.8.12_3

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Existing Traffic Volumes
Weekday PM Peak Hour

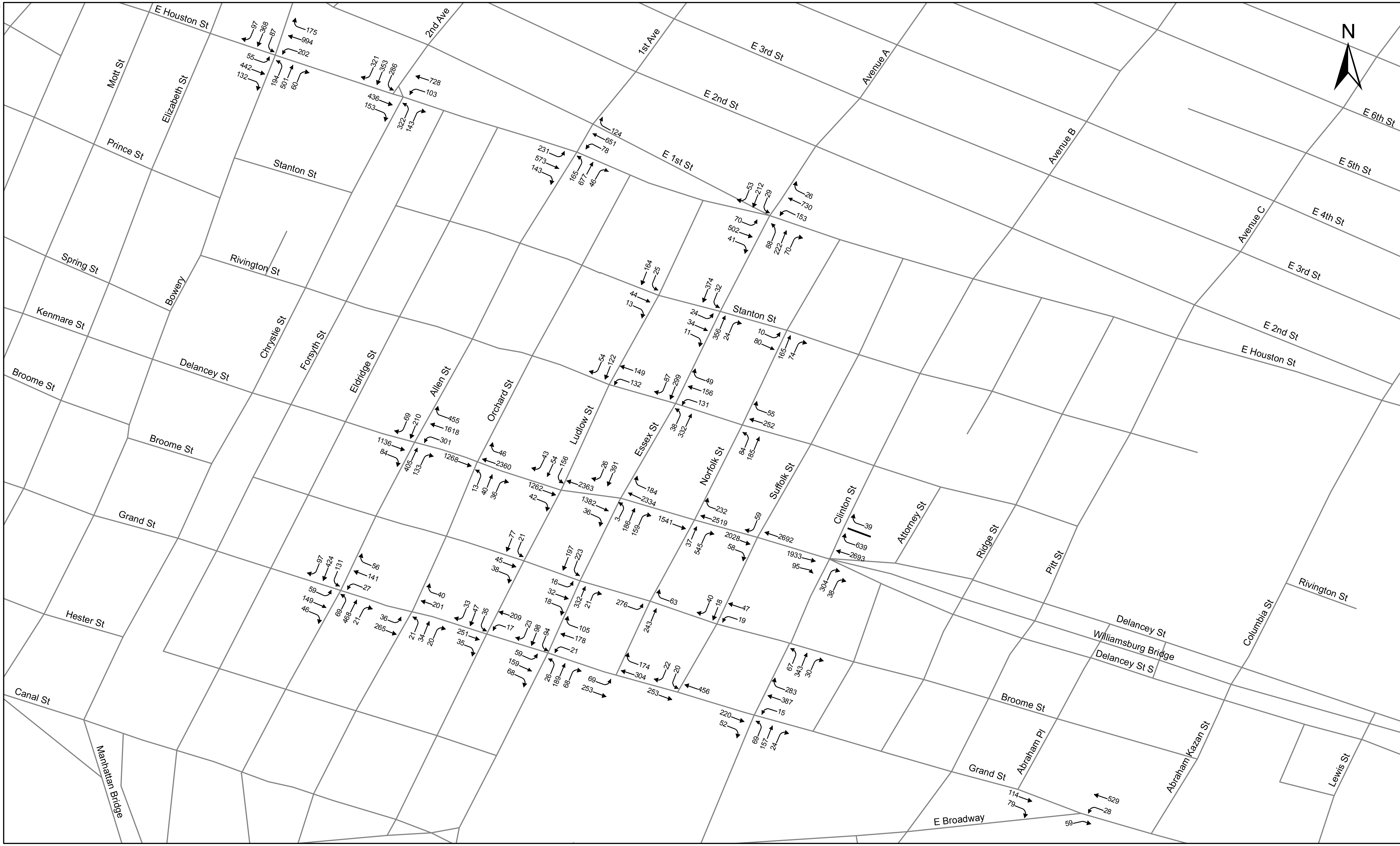


Existing Traffic Volumes
Saturday Peak Hour

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

8.8.12_4

8.8.12_5

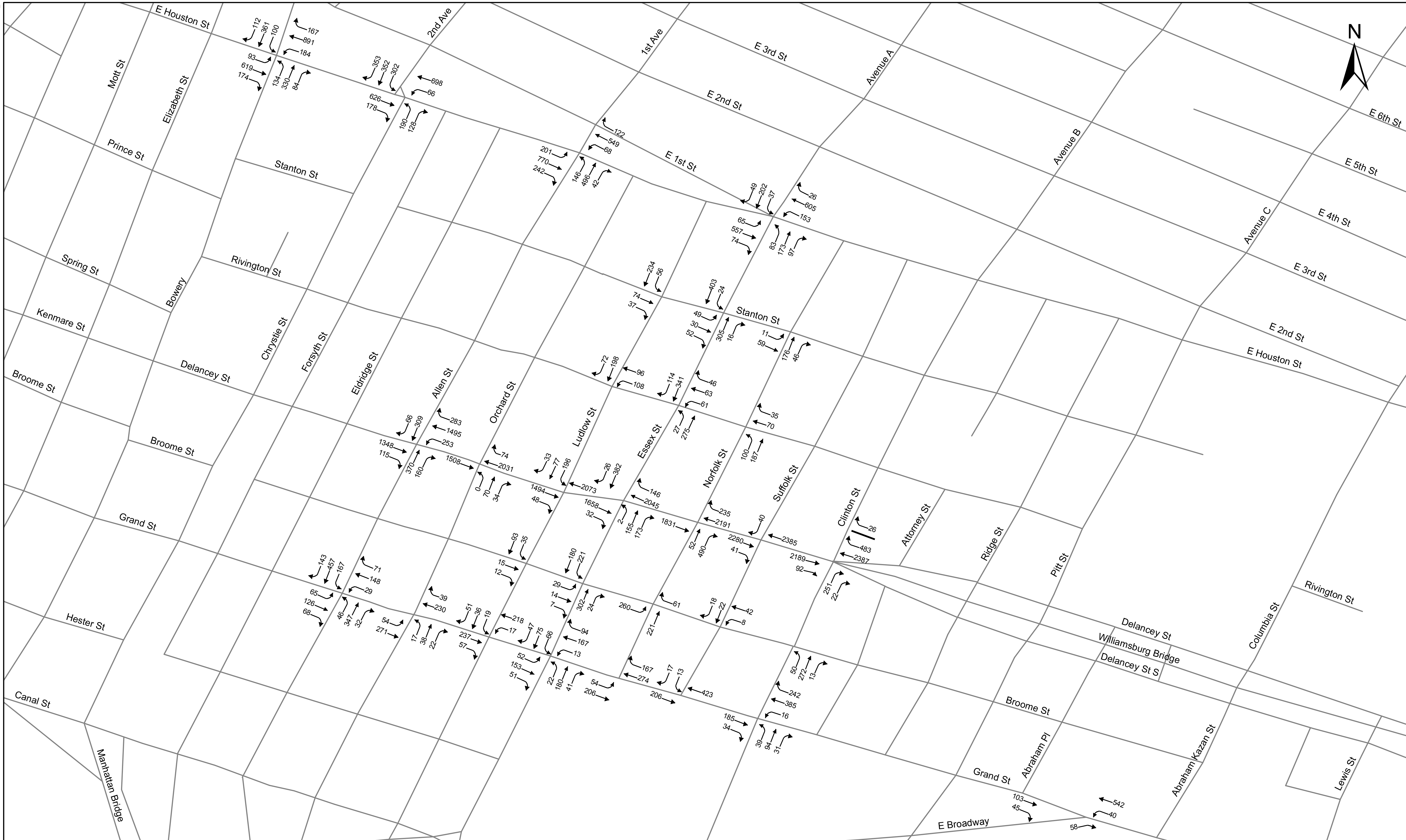


NOTE: This figure has been revised for the FGEIS.

2022 No Action Traffic Volumes
Weekday AM Peak Hour

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

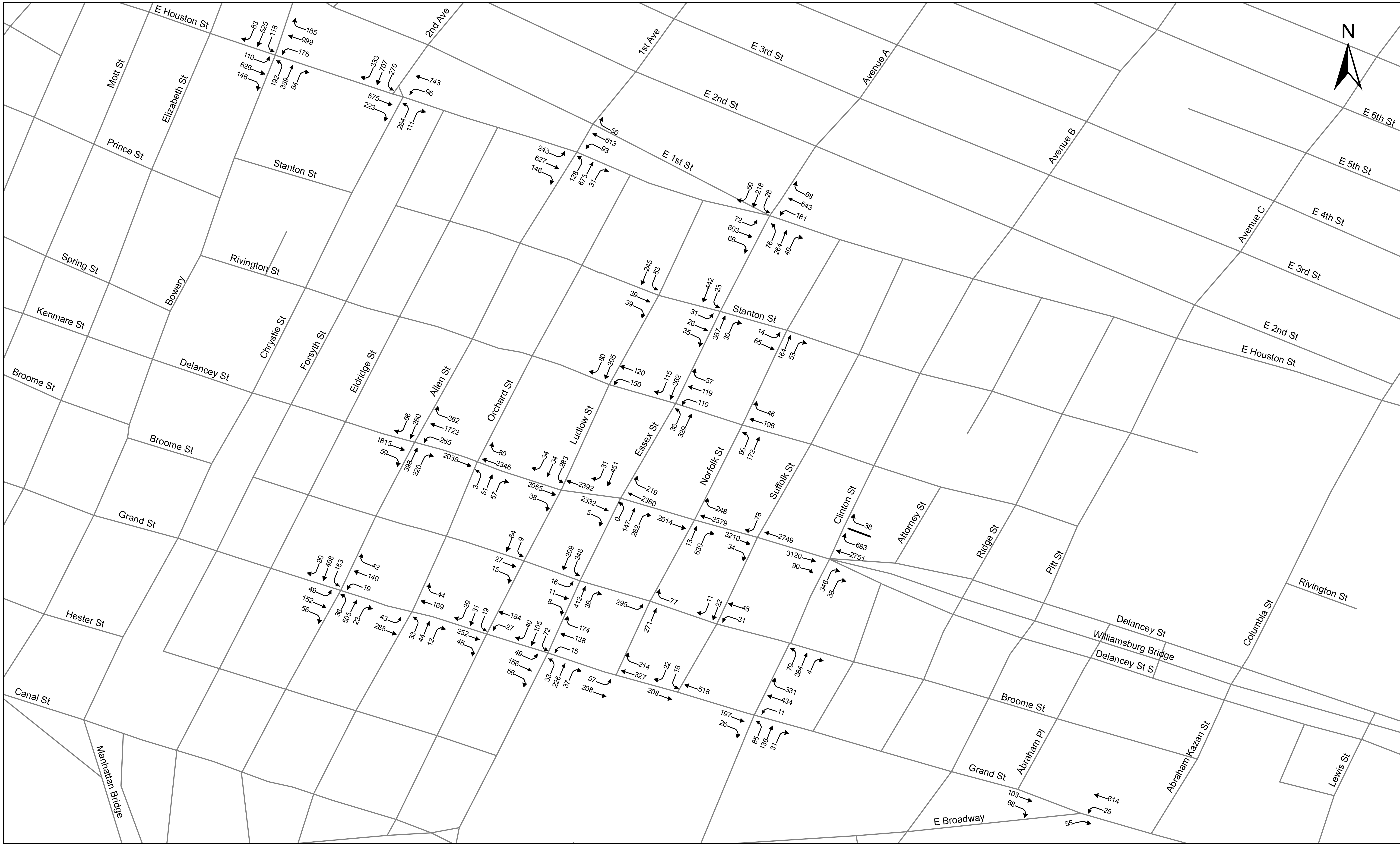
8.8.12_6



NOTE: This figure has been revised for the FGEIS.

2022 No Action Traffic Volumes
Weekday Midday Peak Hour

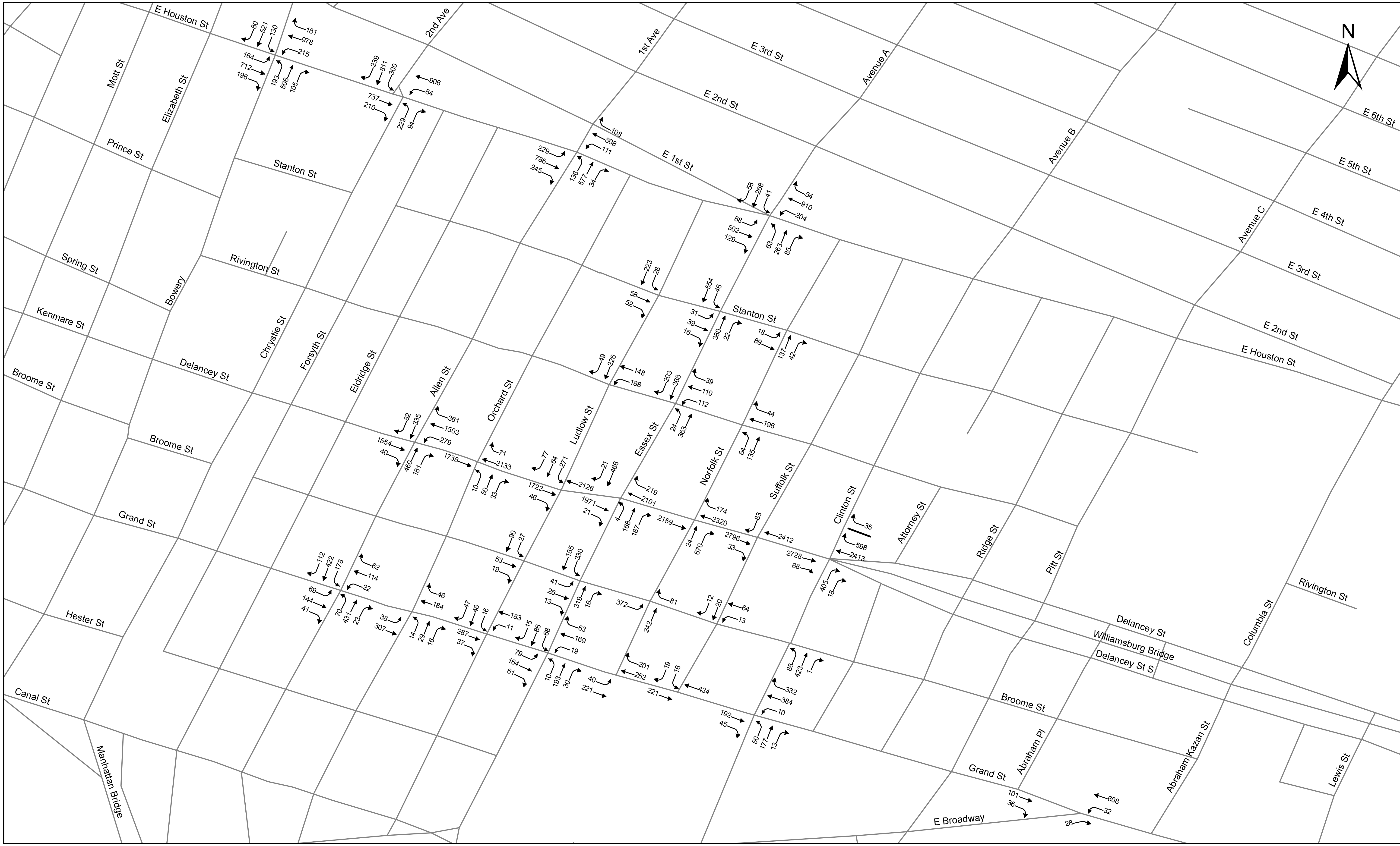
8.8.12_7



NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

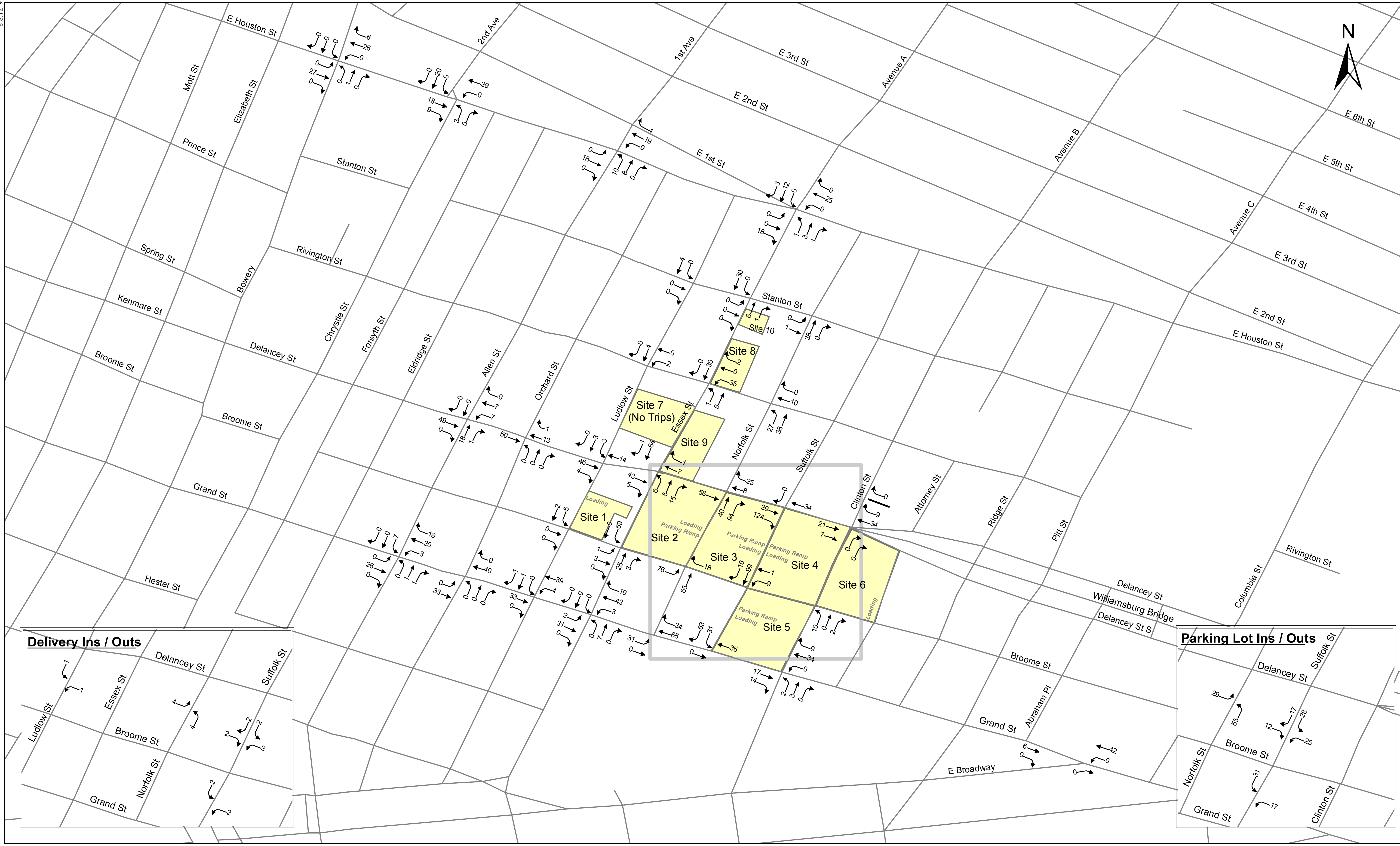
2022 No Action Traffic Volumes
Weekday PM Peak Hour



NOTE: This figure has been revised for the FGEIS.

2022 No Action Traffic Volumes
Saturday Peak Hour

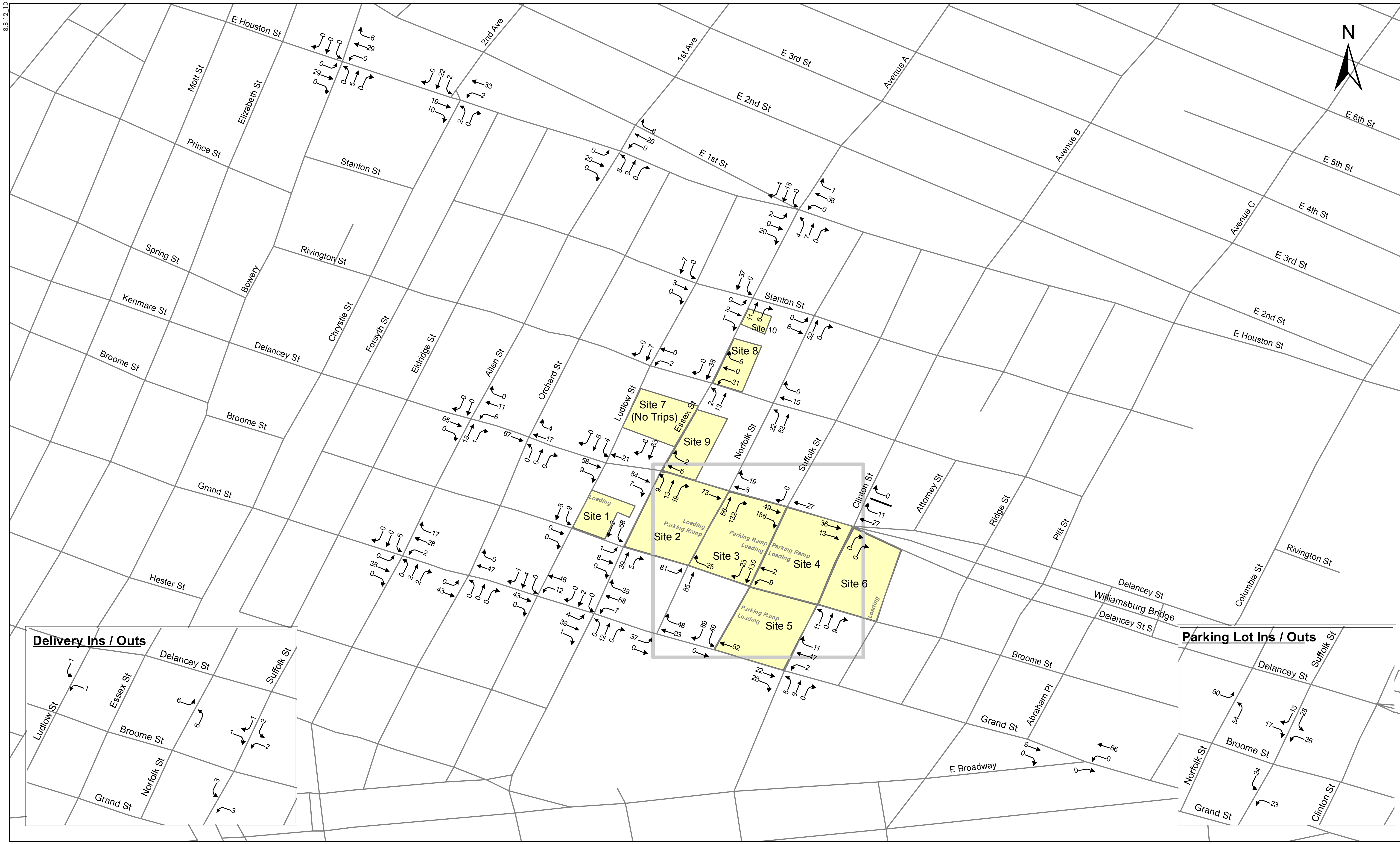
8.8.12.9



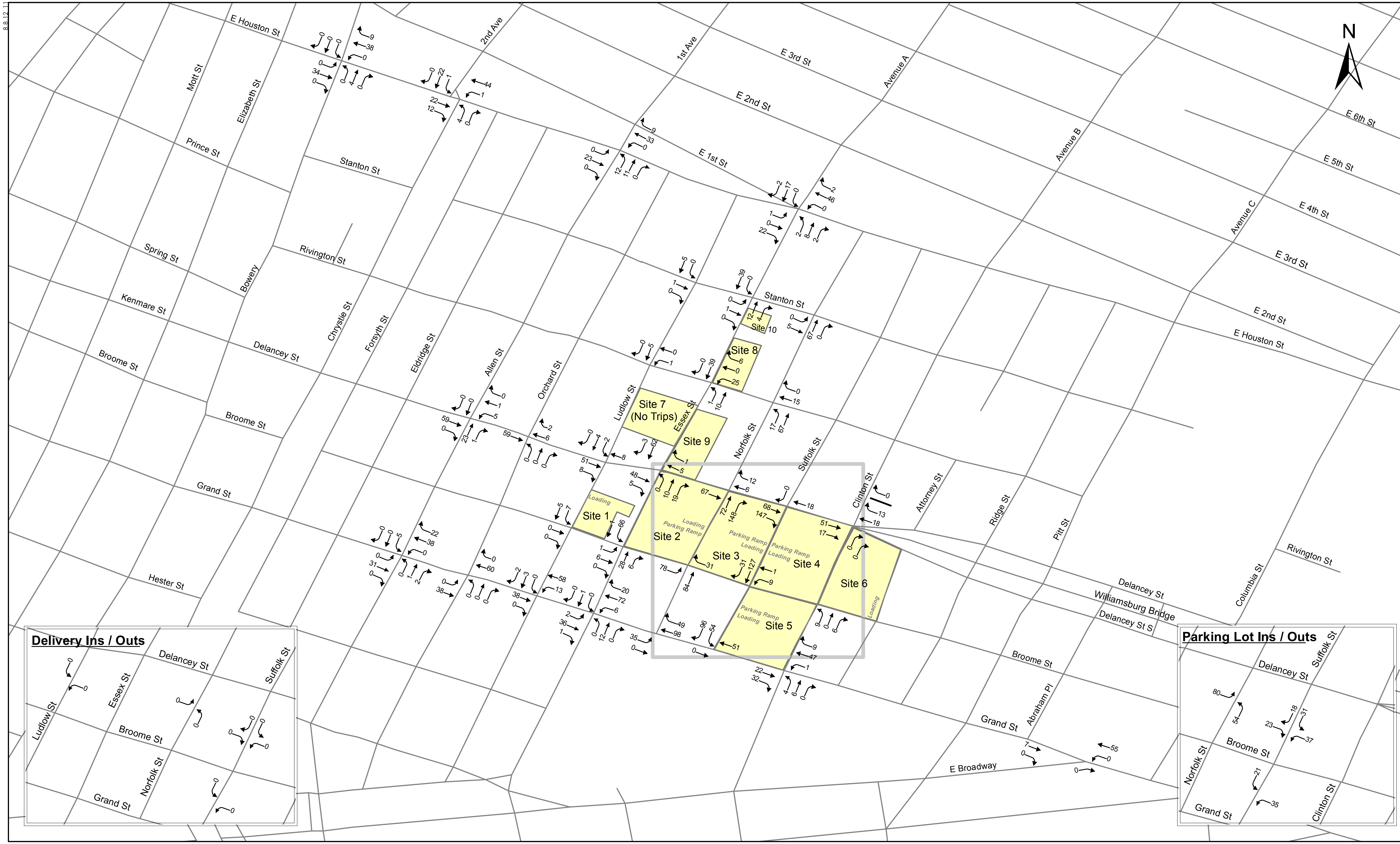
NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

2022 With Action Traffic Volume Increments
Weekday AM Peak Hour



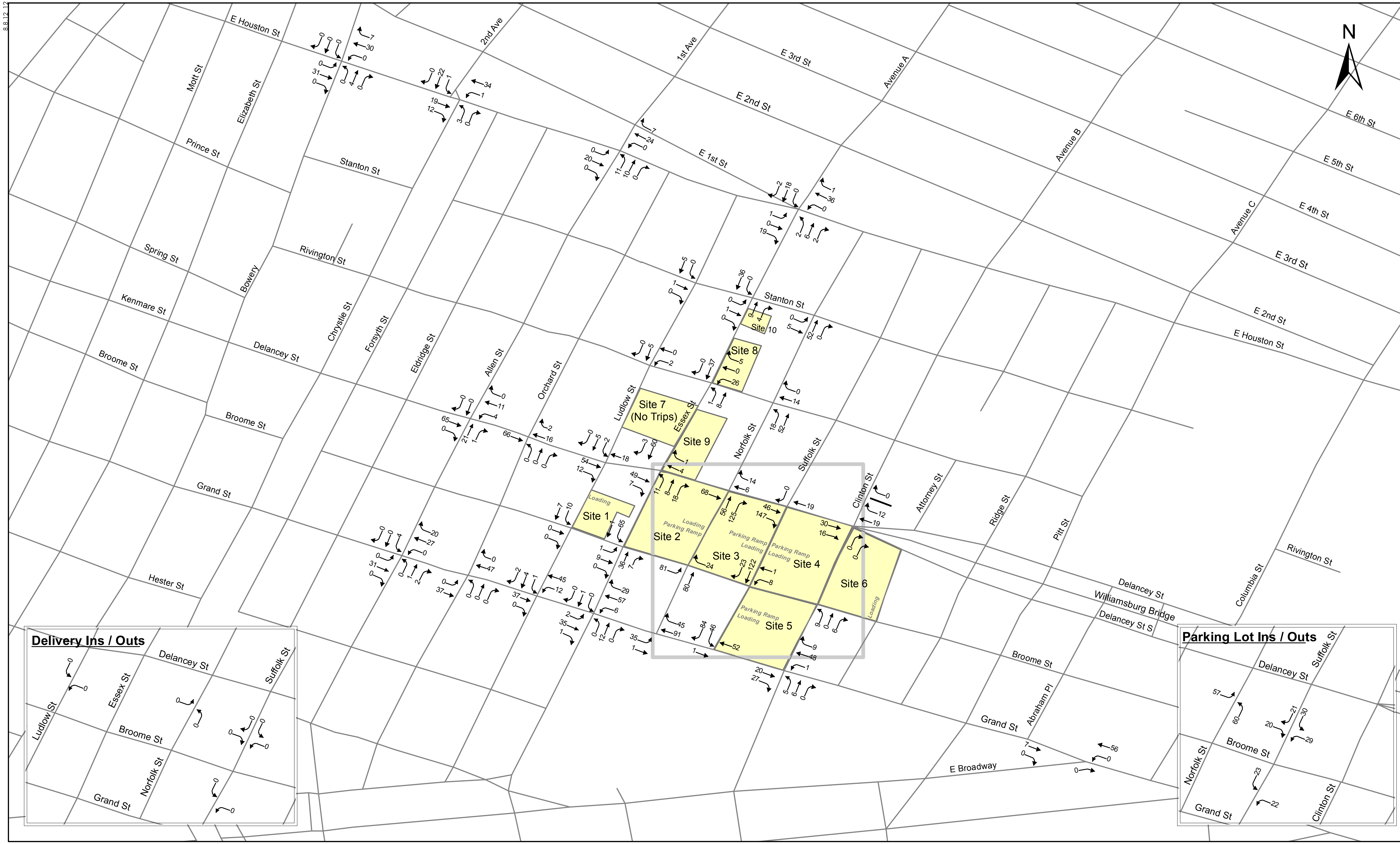
2022 With Action Traffic Volume Increments
Weekday Midday Peak Hour



NOTE: This figure has been revised for the FGEIS.

2022 With Action Traffic Volume Increments
Weekday PM Peak Hour

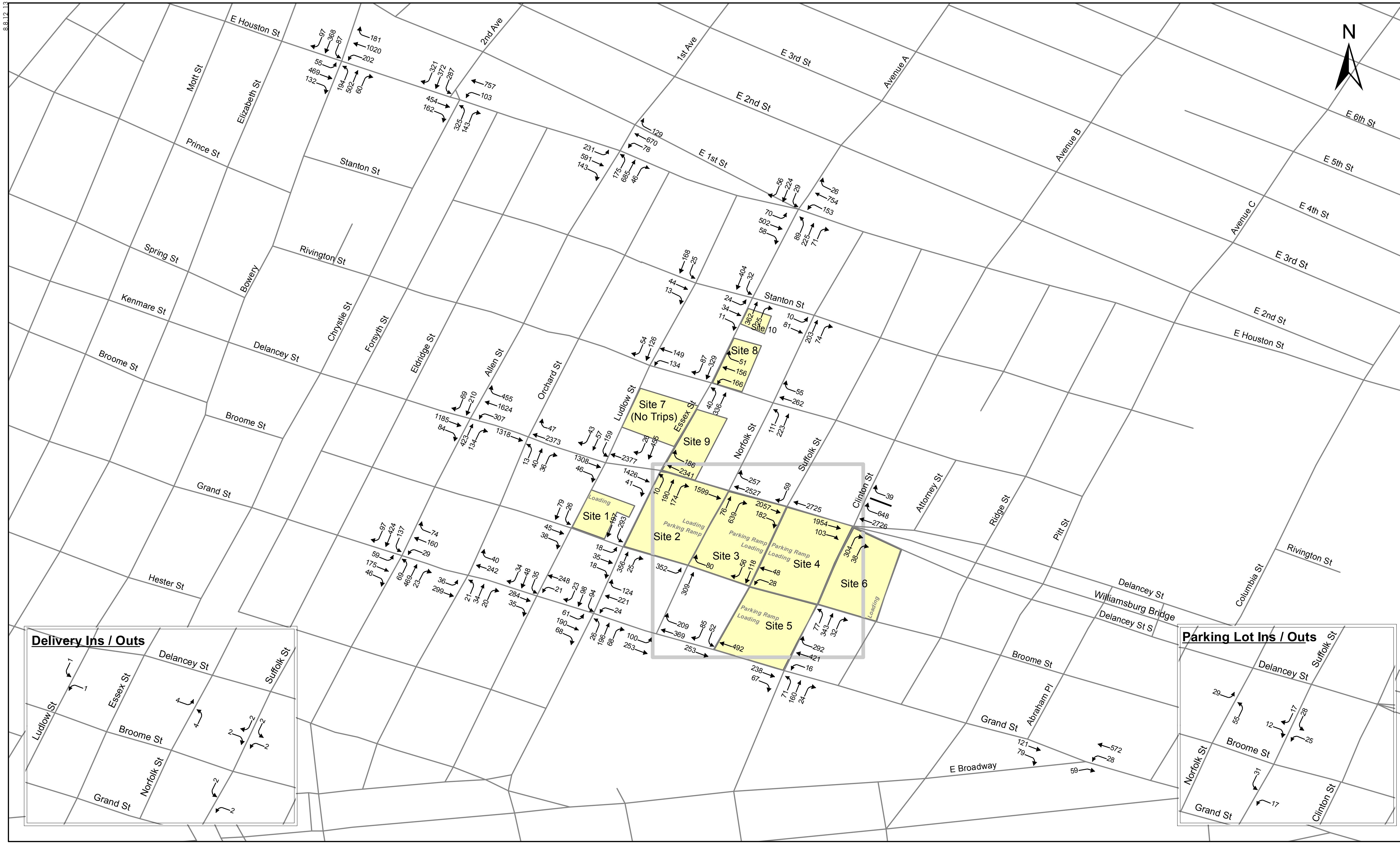
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT



NOTE: This figure has been revised for the FGEIS.

2022 With Action Traffic Volume Increments
Saturday Peak Hour

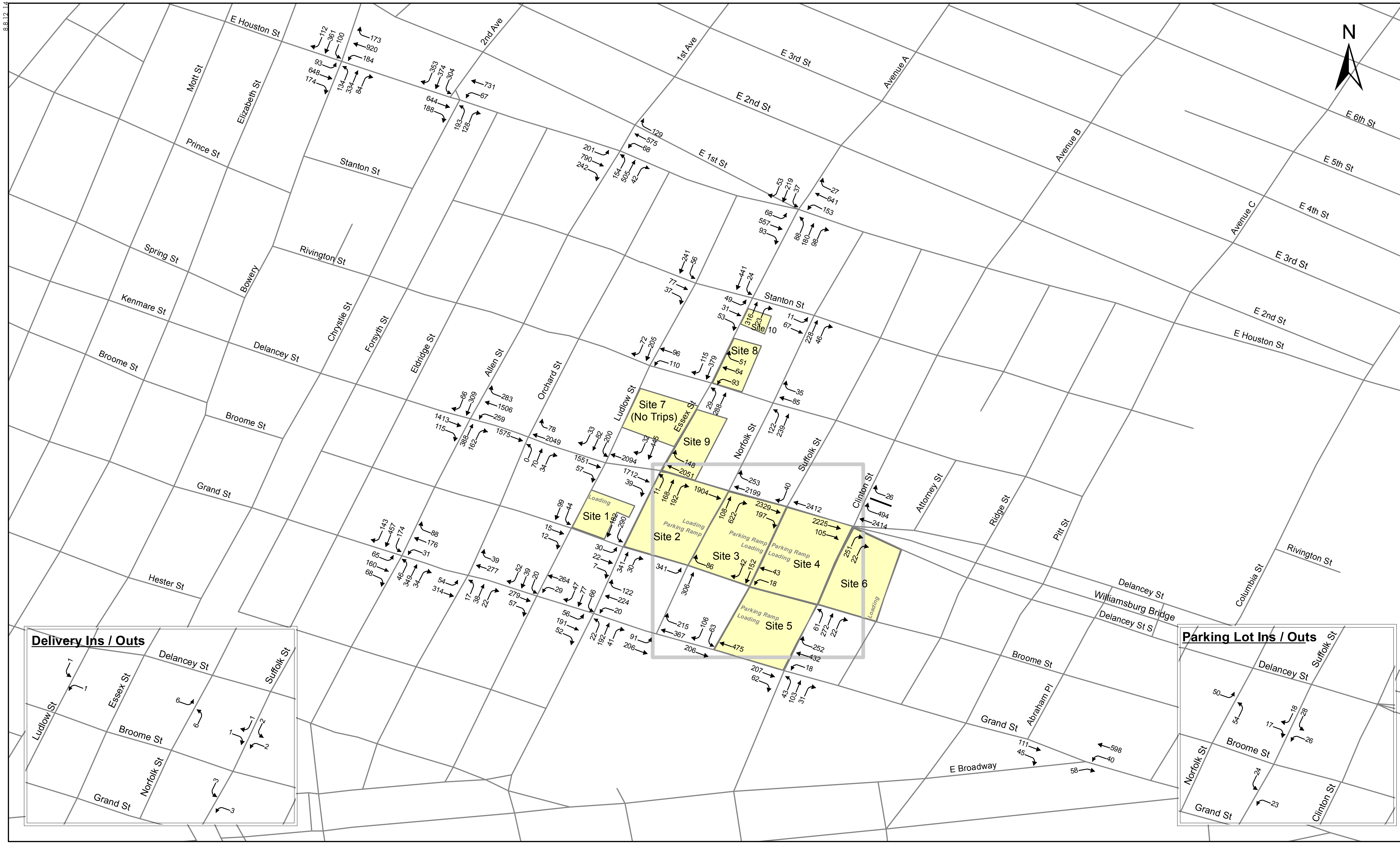
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT



NOTE: This figure has been revised for the FGEIS.

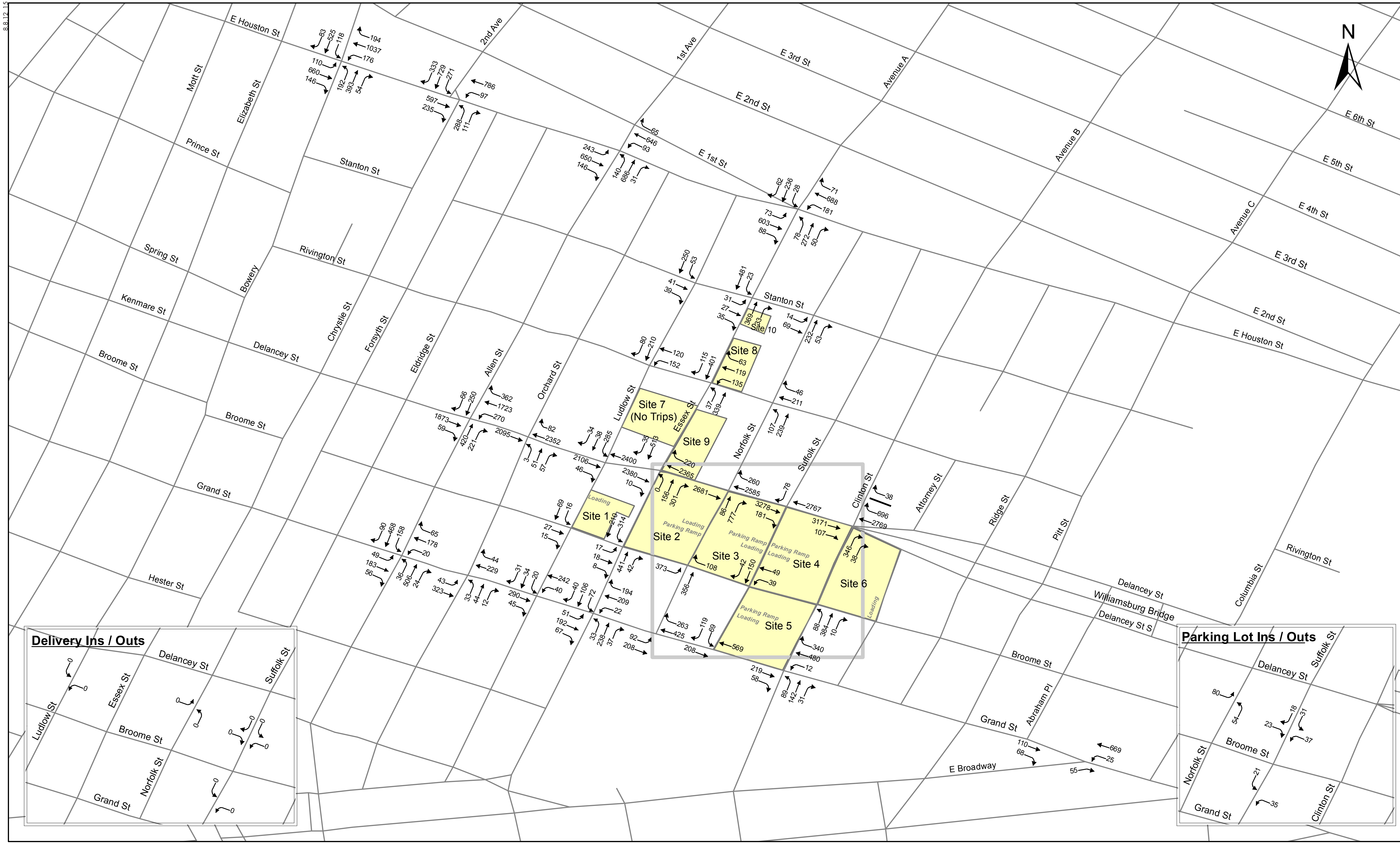
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

2022 With Action Traffic Volumes
Weekday AM Peak Hour



NOTE: This figure has been revised for the FGEIS.

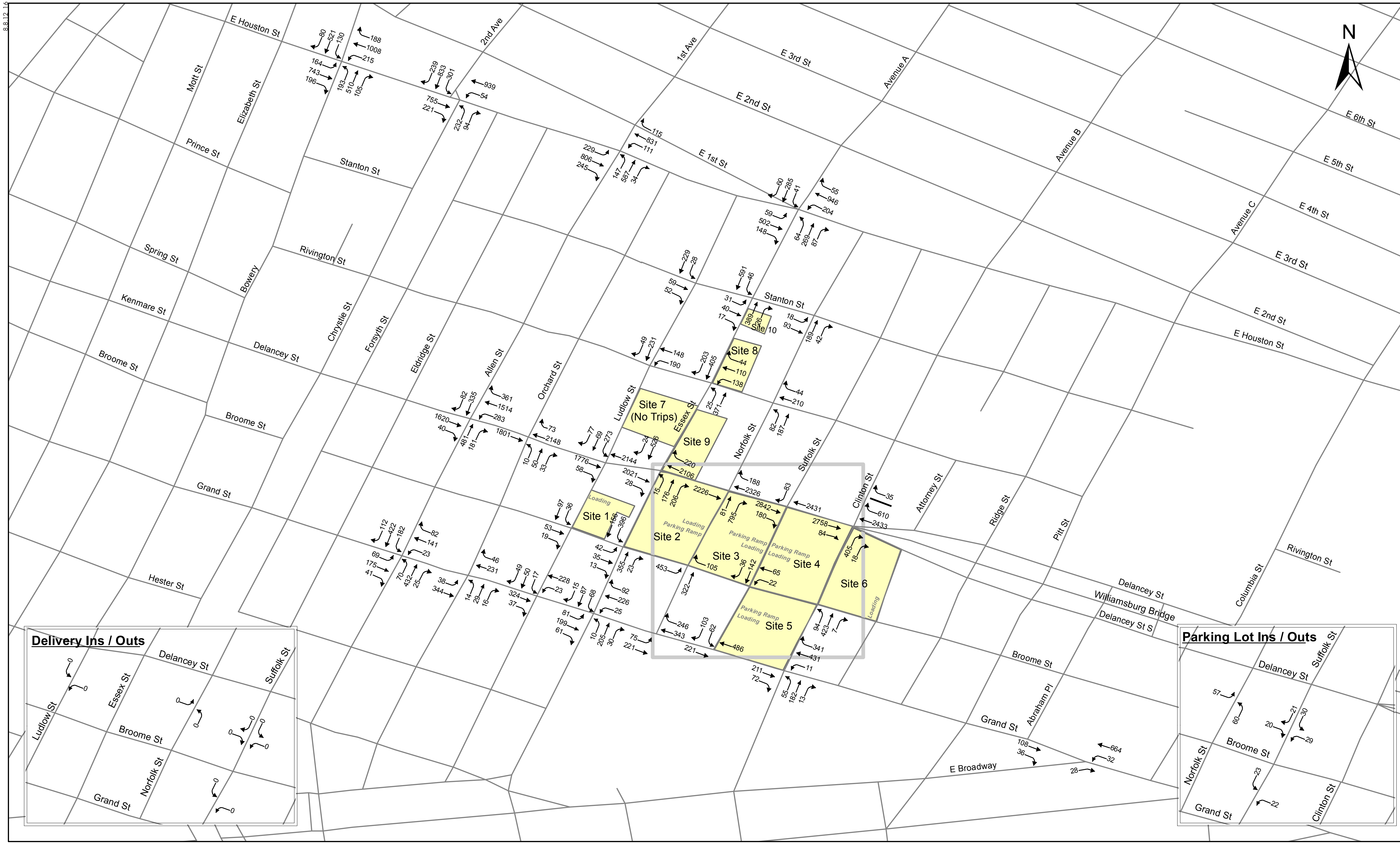
2022 With Action Traffic Volumes
Weekday Midday Peak Hour



NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

2022 With Action Traffic Volumes
Weekday PM Peak Hour

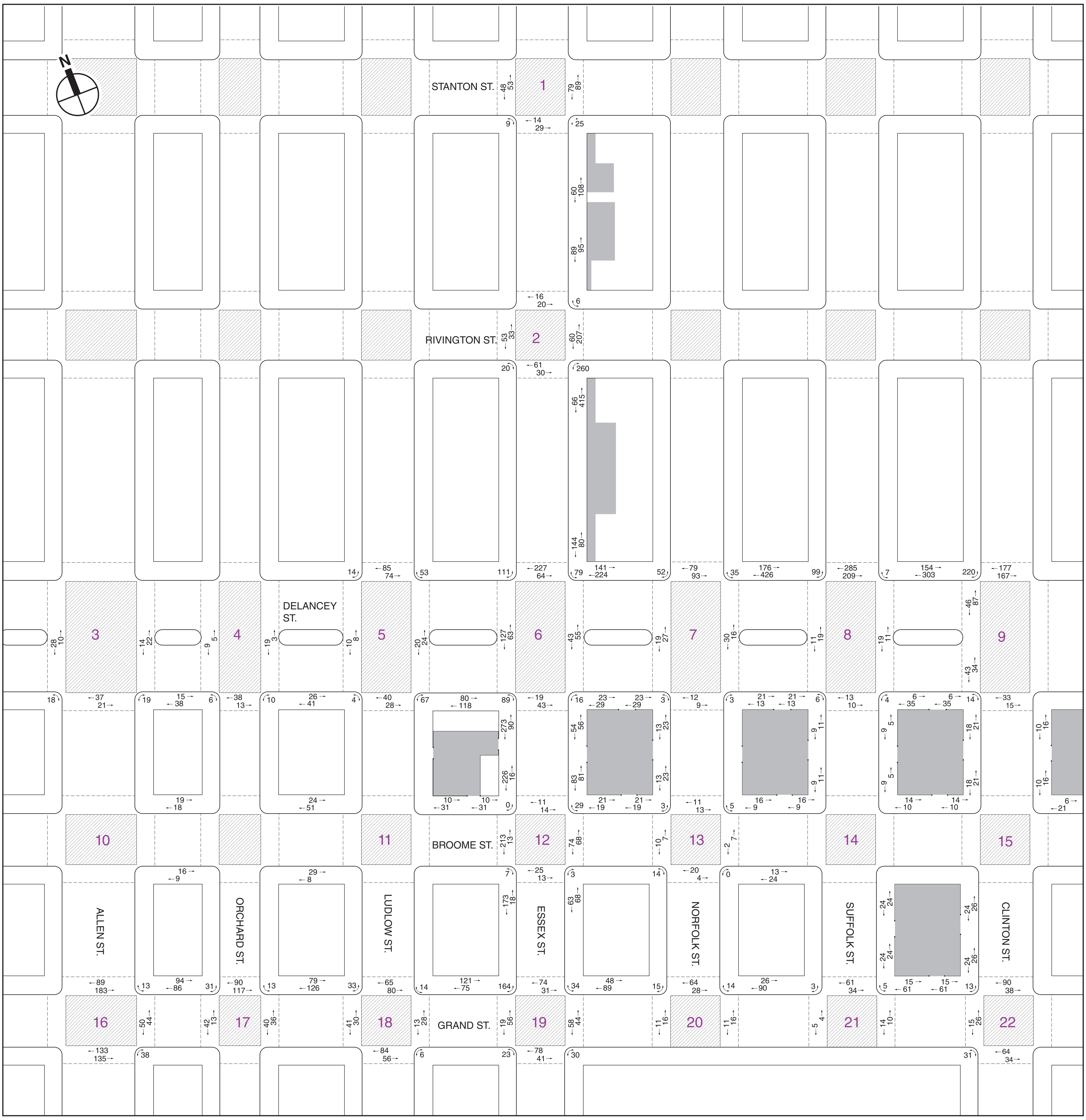


NOTE: This figure has been revised for the FGEIS.

2022 With Action Traffic Volumes
Saturday Peak Hour

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

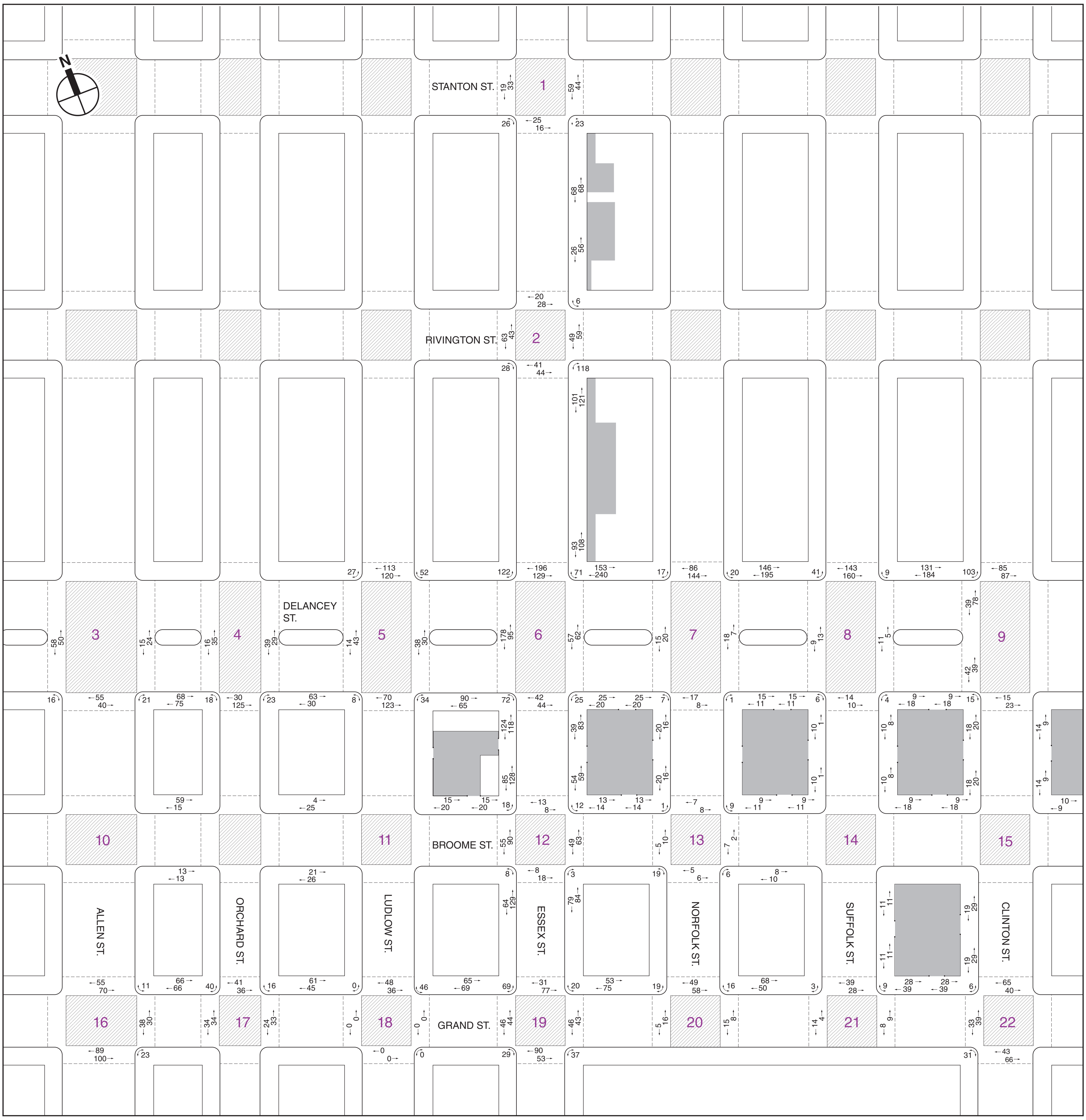
8.8.12_17



Proposed Development Parcels

2011 Existing Pedestrian Volumes
Weekday AM Peak 15 Minutes

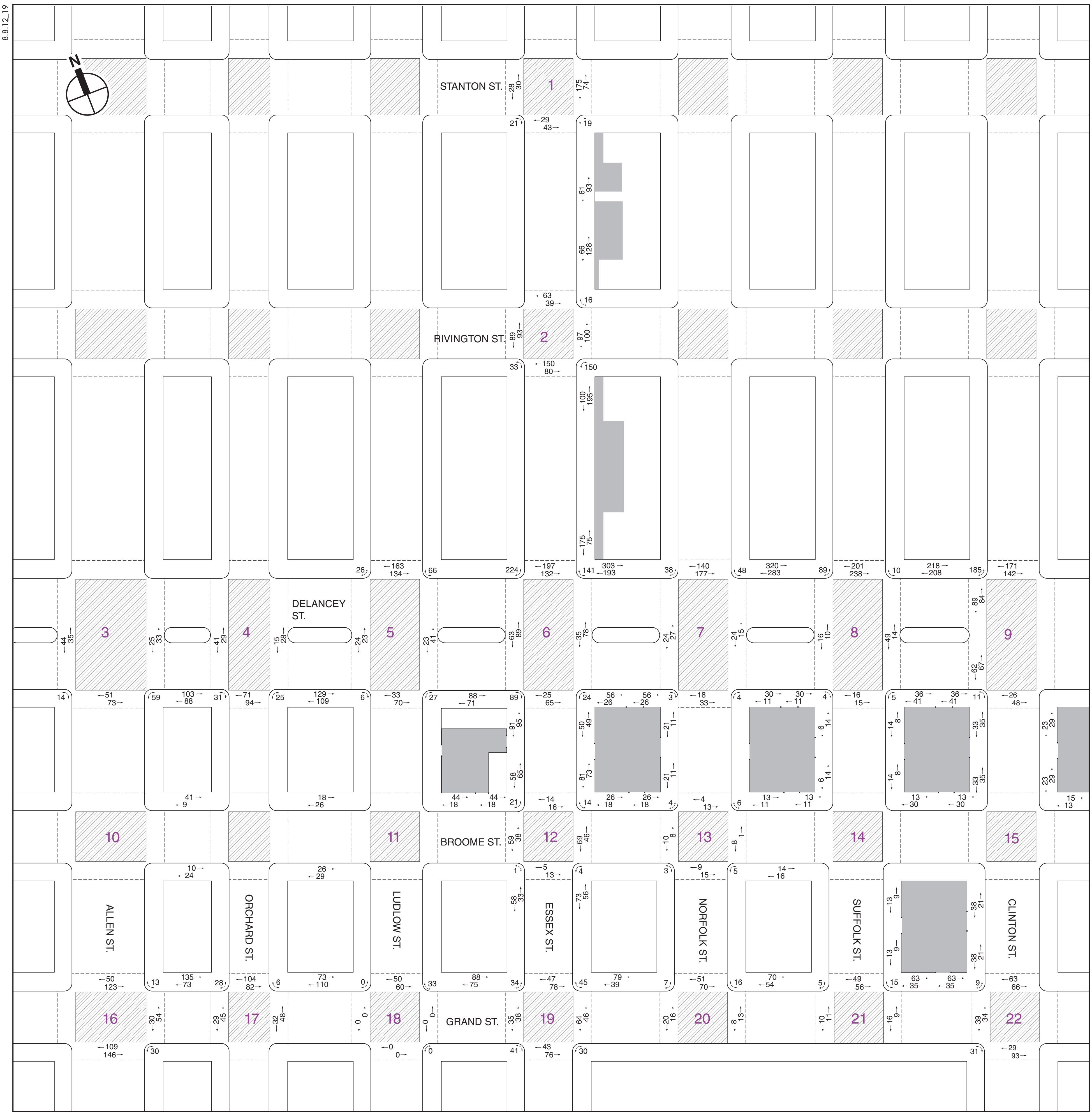
8.8.12_18



Proposed Development Parcels

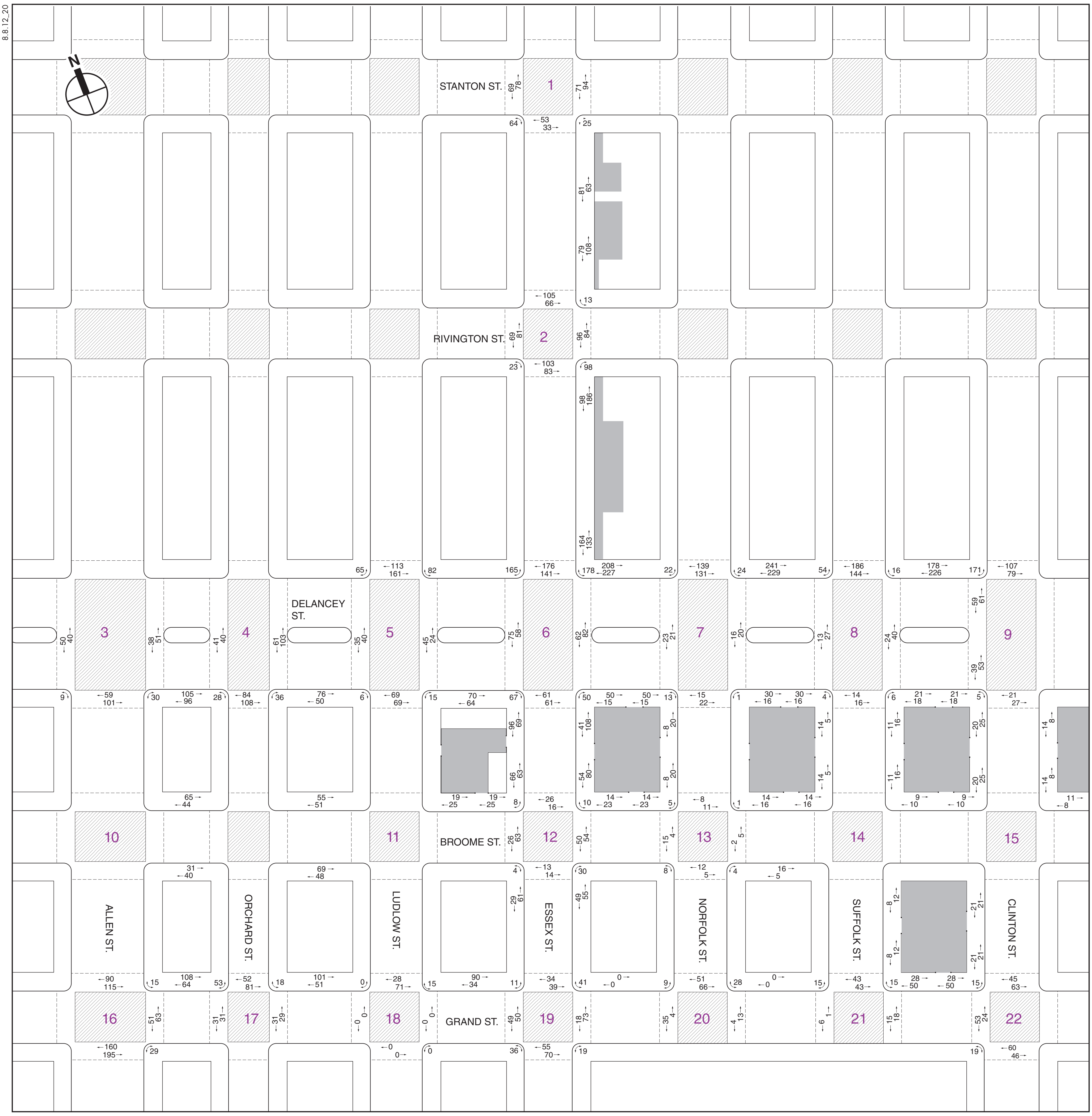
2011 Existing Pedestrian Volumes
Weekday Midday Peak 15 Minutes

8.8.12_19



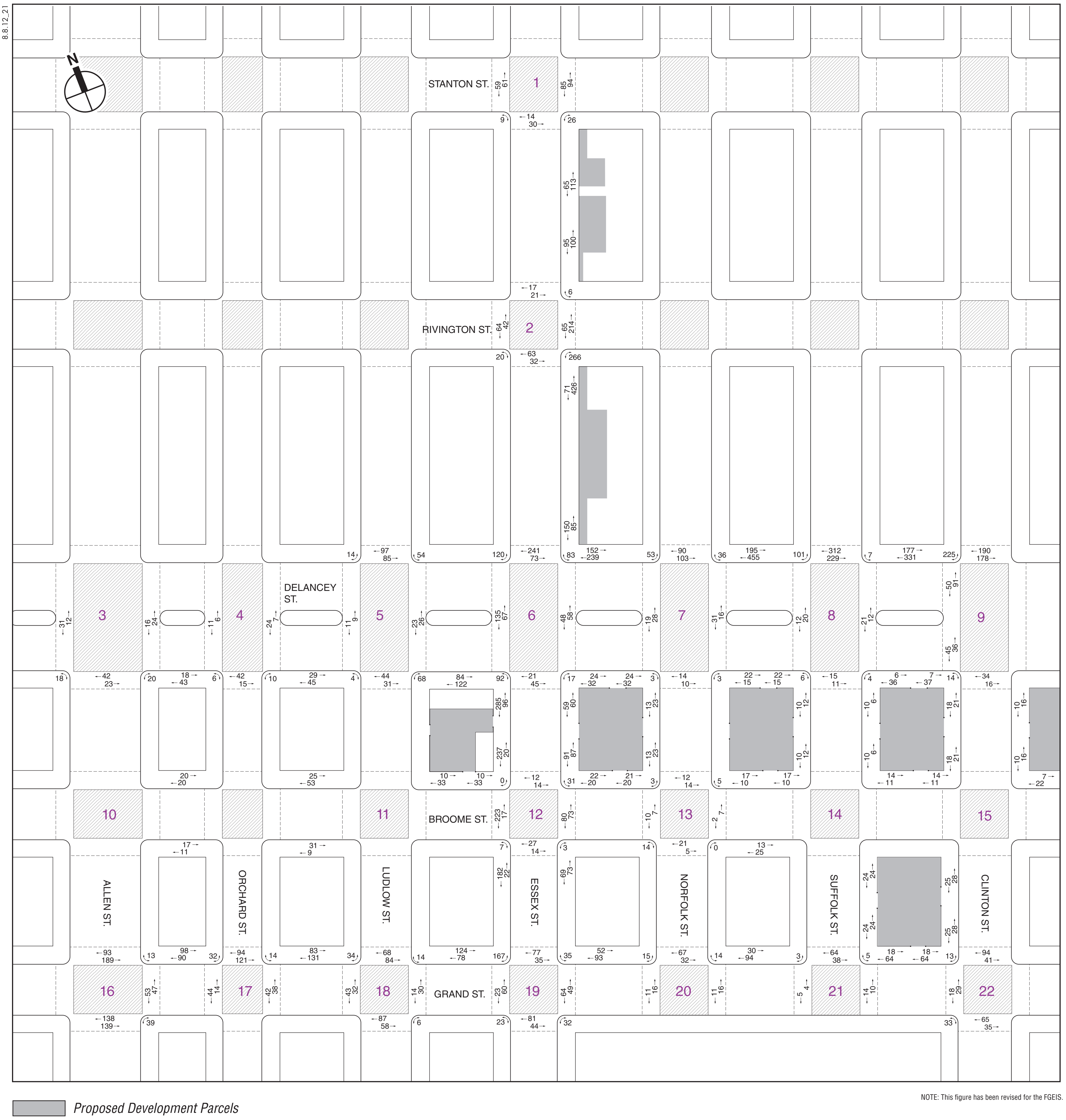
Proposed Development Parcels

2011 Existing Pedestrian Volumes
Weekday PM Peak 15 Minutes



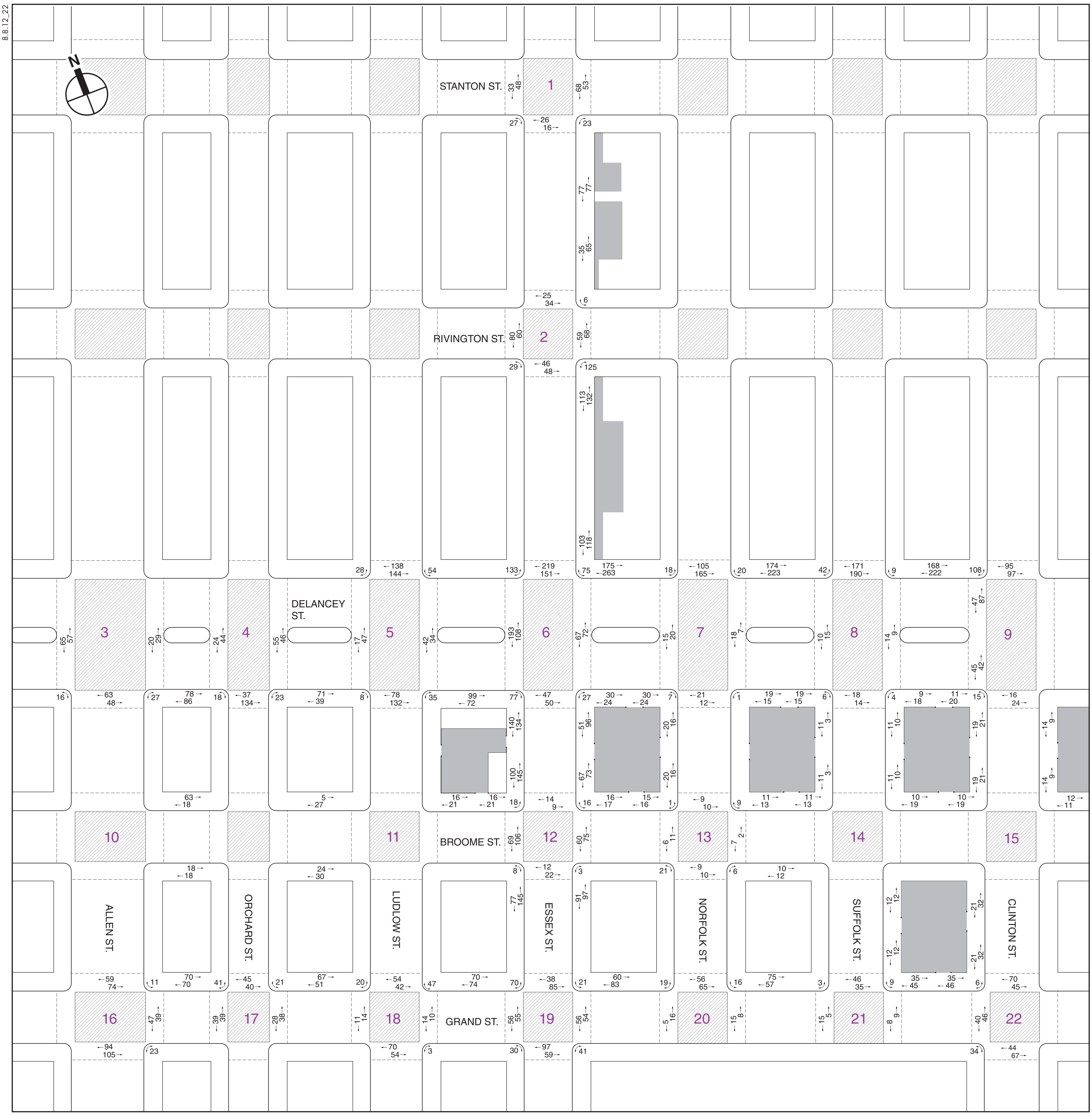
Proposed Development Parcels

2011 Existing Pedestrian Volumes
Saturday Peak 15 Minutes



SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

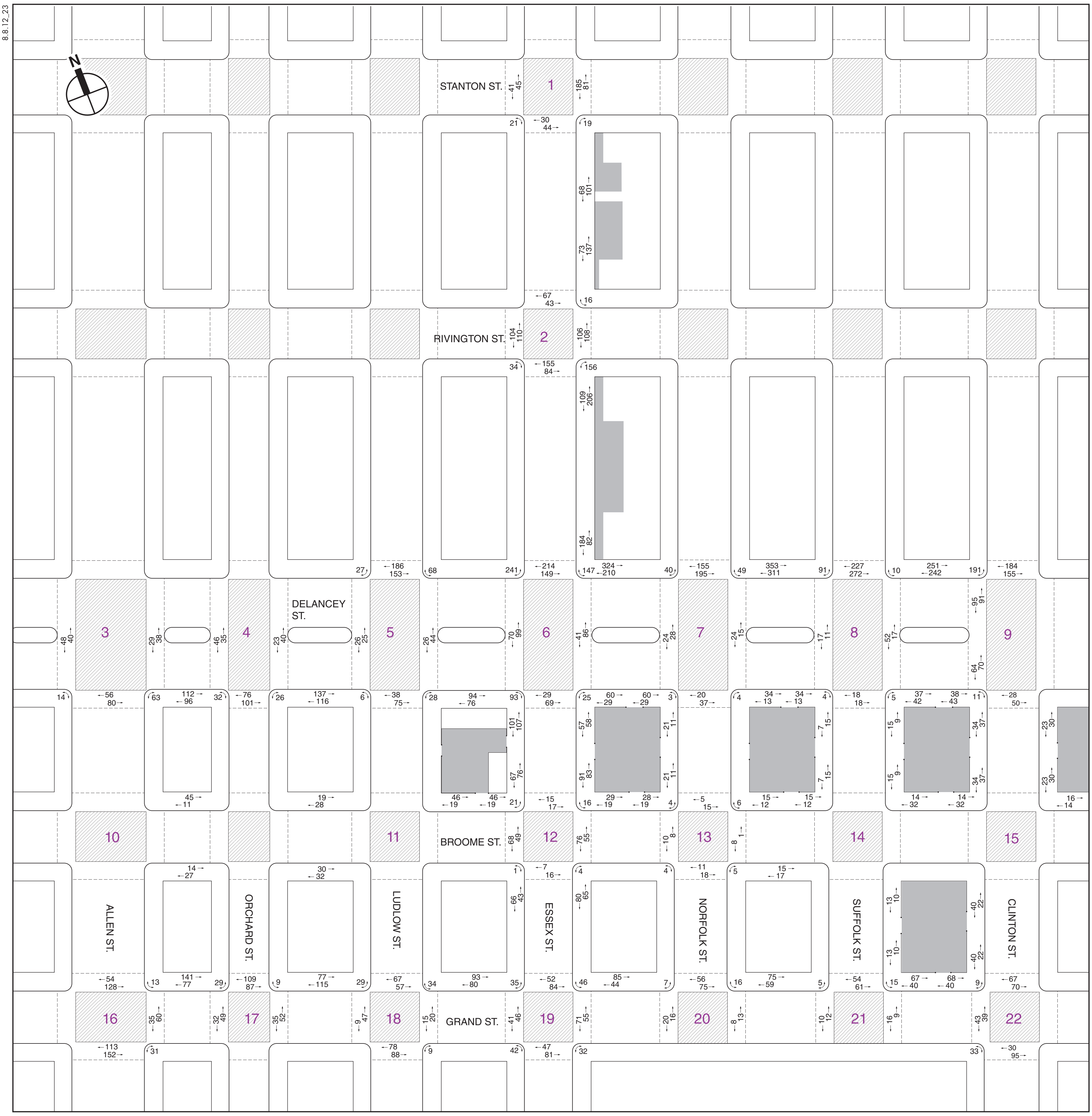
2022 No Action Pedestrian Volumes
Weekday AM Peak 15 Minutes



Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

2022 No Action Pedestrian Volumes
Weekday Midday Peak 15 Minutes

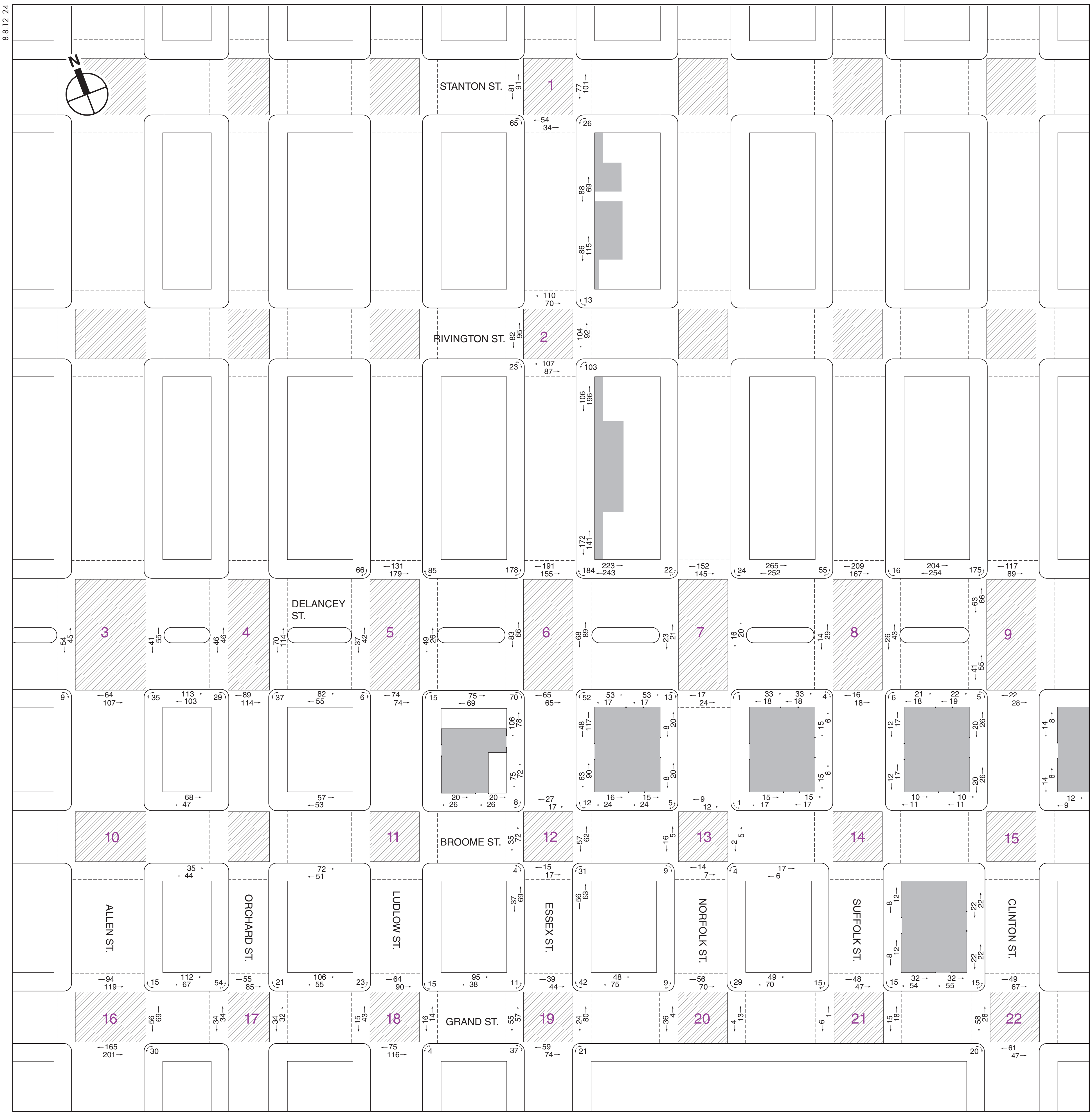


Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

2022 No Action Pedestrian Volumes
Weekday PM Peak 15 Minutes

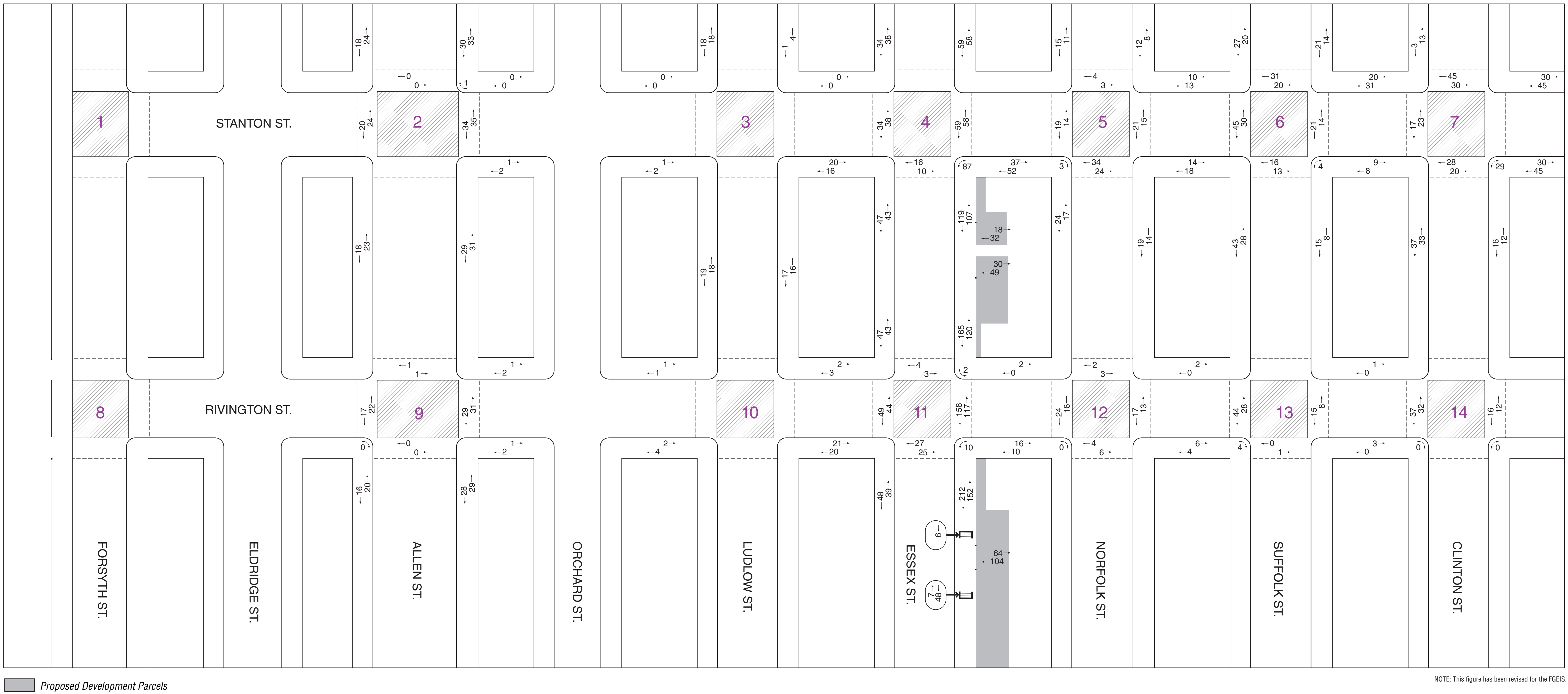
8.8.12_24



Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

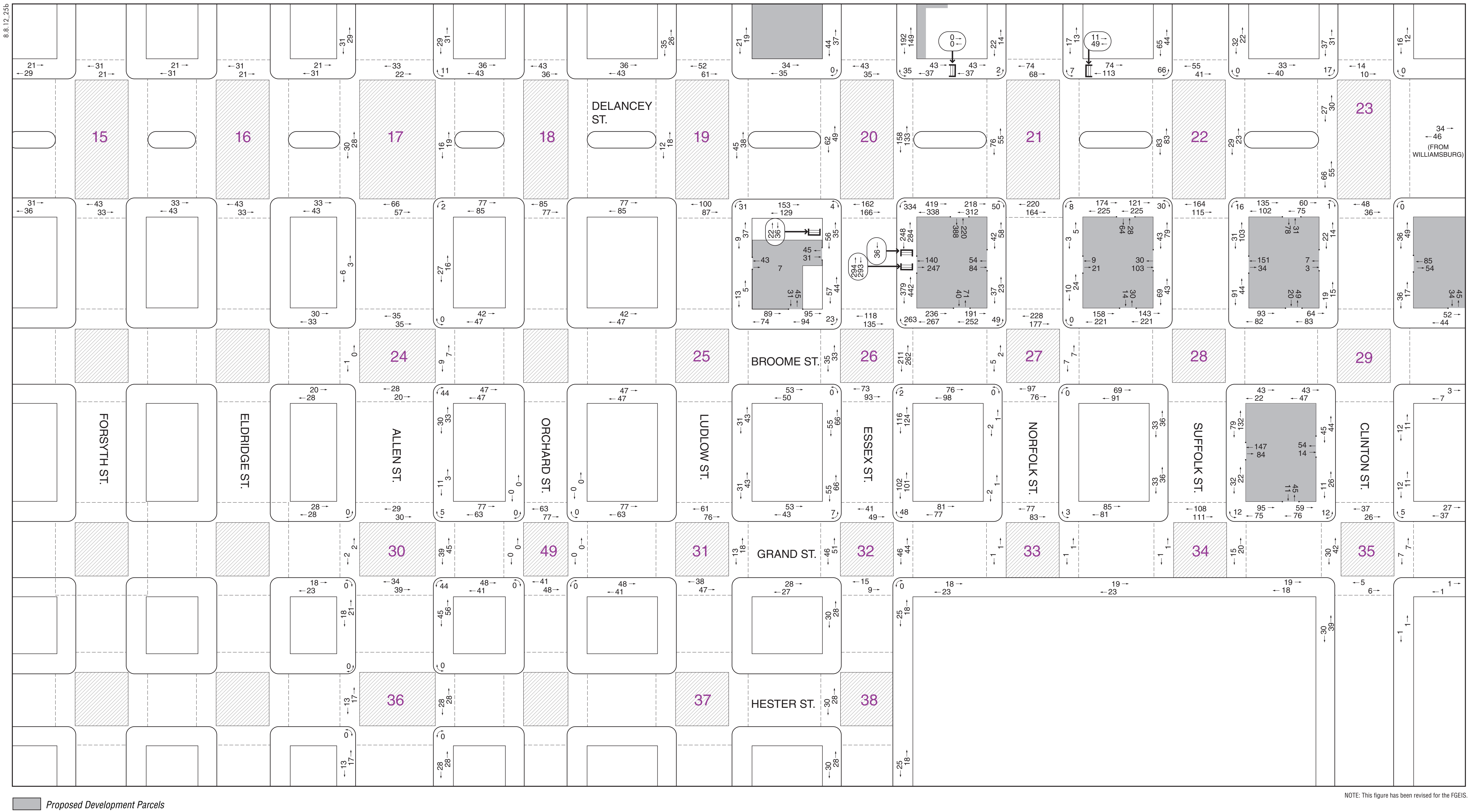
2022 No Action Pedestrian Volumes
Saturday Peak 15 Minutes



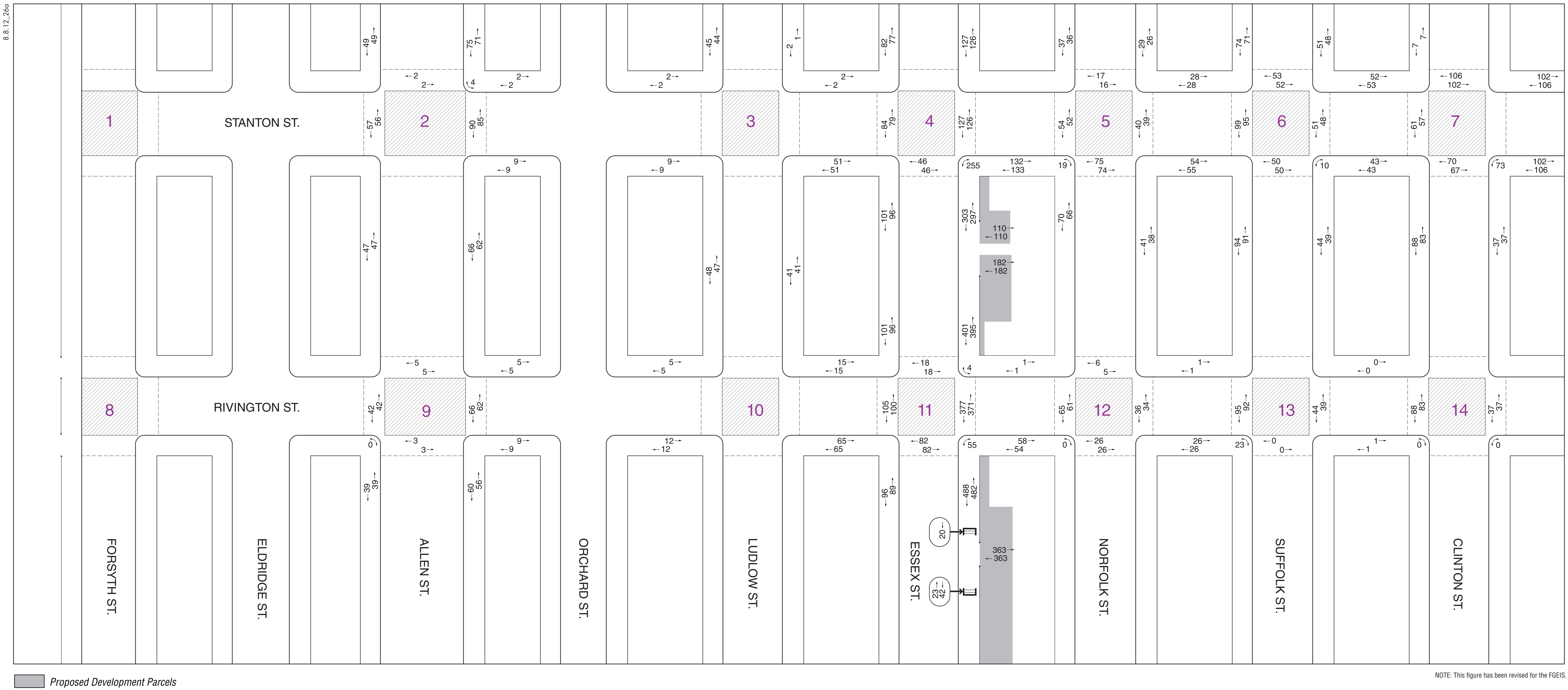
NOTE: This figure has been revised for the FGEIS.

8.8.12_25a

Projected Generated Pedestrian Volumes
Weekday AM Peak Hour



Projected Generated Pedestrian Volumes
Weekday AM Peak Hour



NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

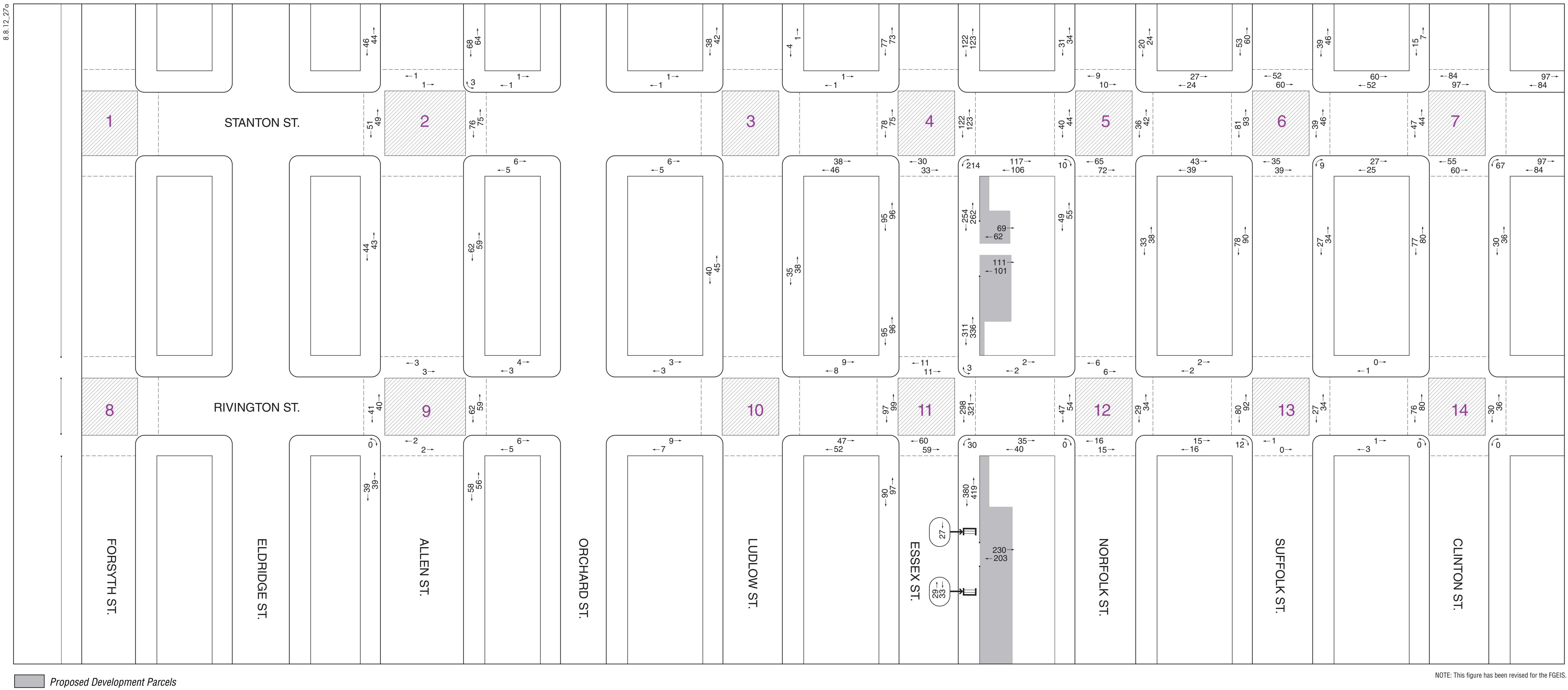
Projected Generated Pedestrian Volumes
Weekday Midday Peak Hour

Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Projected Generated Pedestrian Volumes
Weekday Midday Peak Hour



Projected Generated Pedestrian Volumes
Weekday PM Peak Hour

Proposed Development Parcels

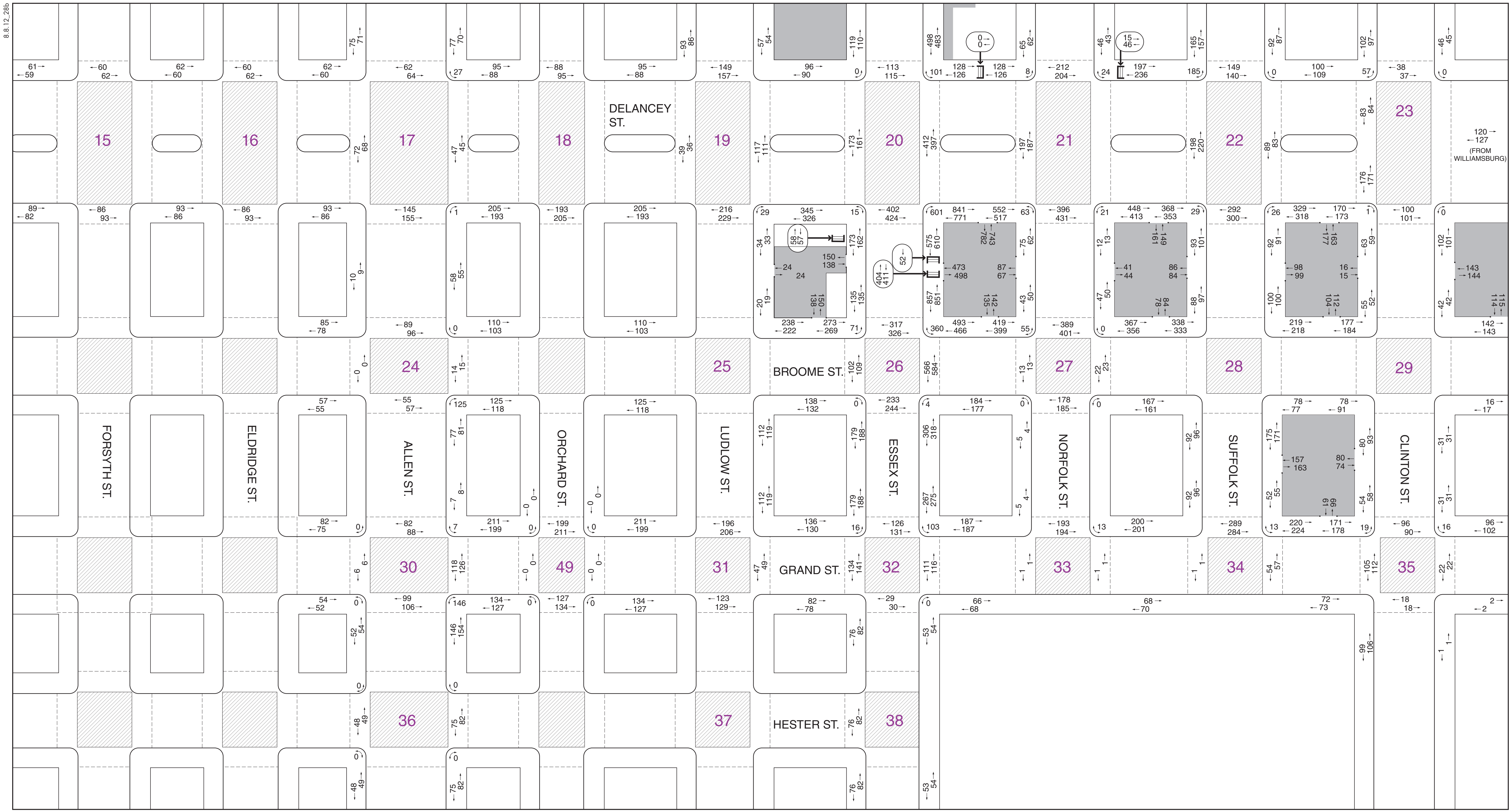
NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Projected Generated Pedestrian Volumes
Weekday PM Peak Hour

8.8.12_28a

Projected Generated Pedestrian Volumes
Saturday Midday Peak Hour

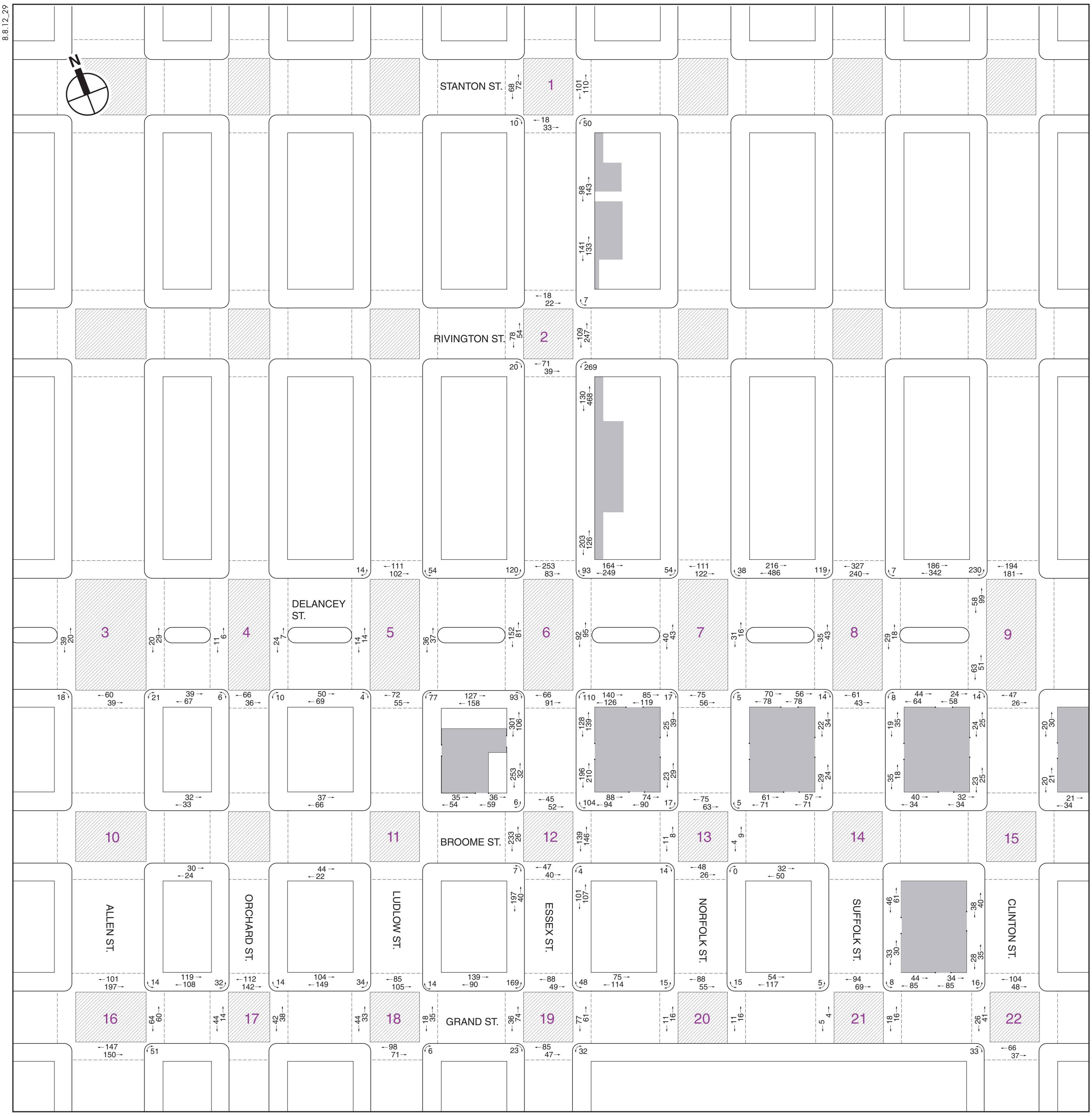


Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

Projected Generated Pedestrian Volumes
Saturday Midday Peak Hour



Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

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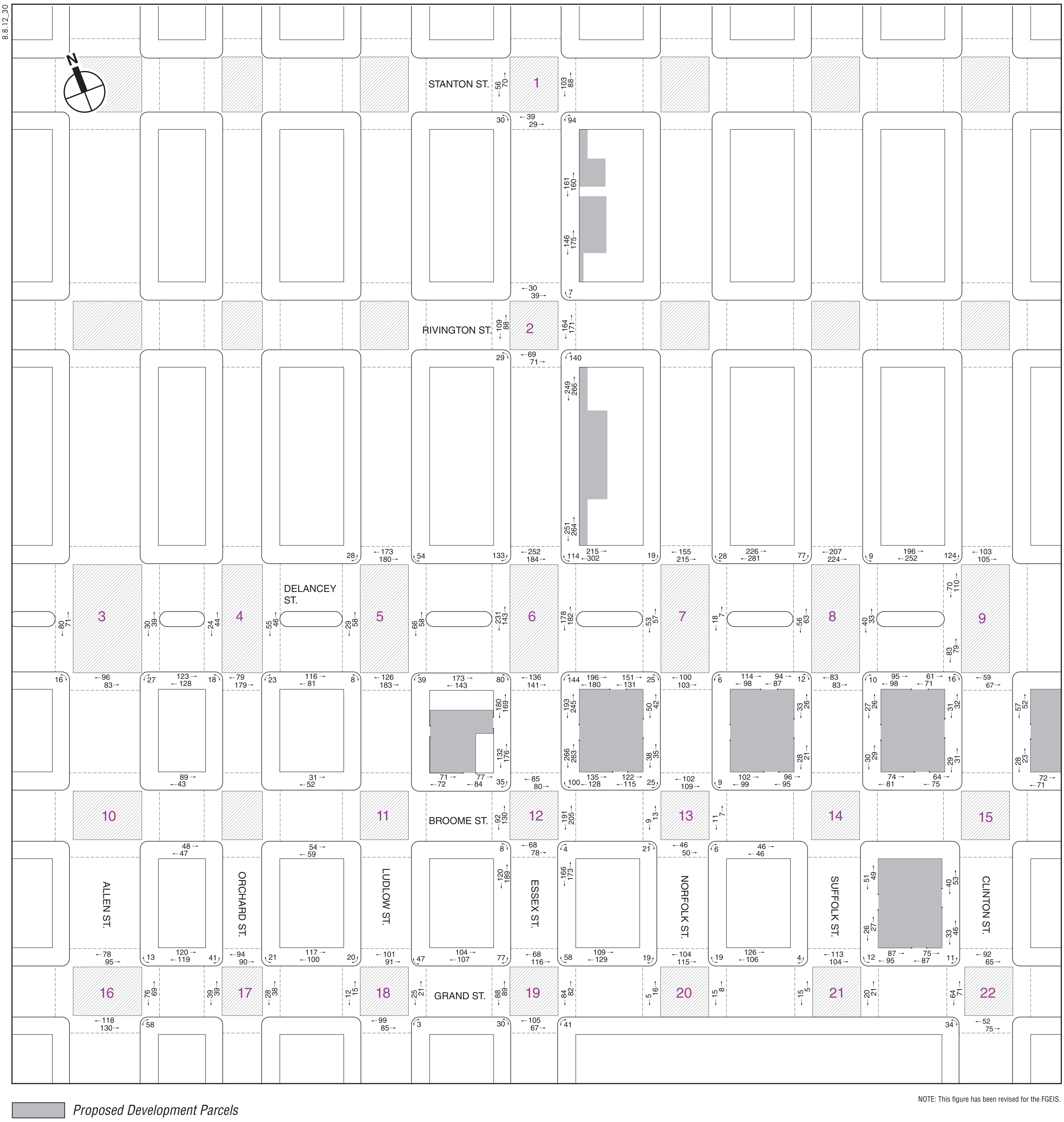
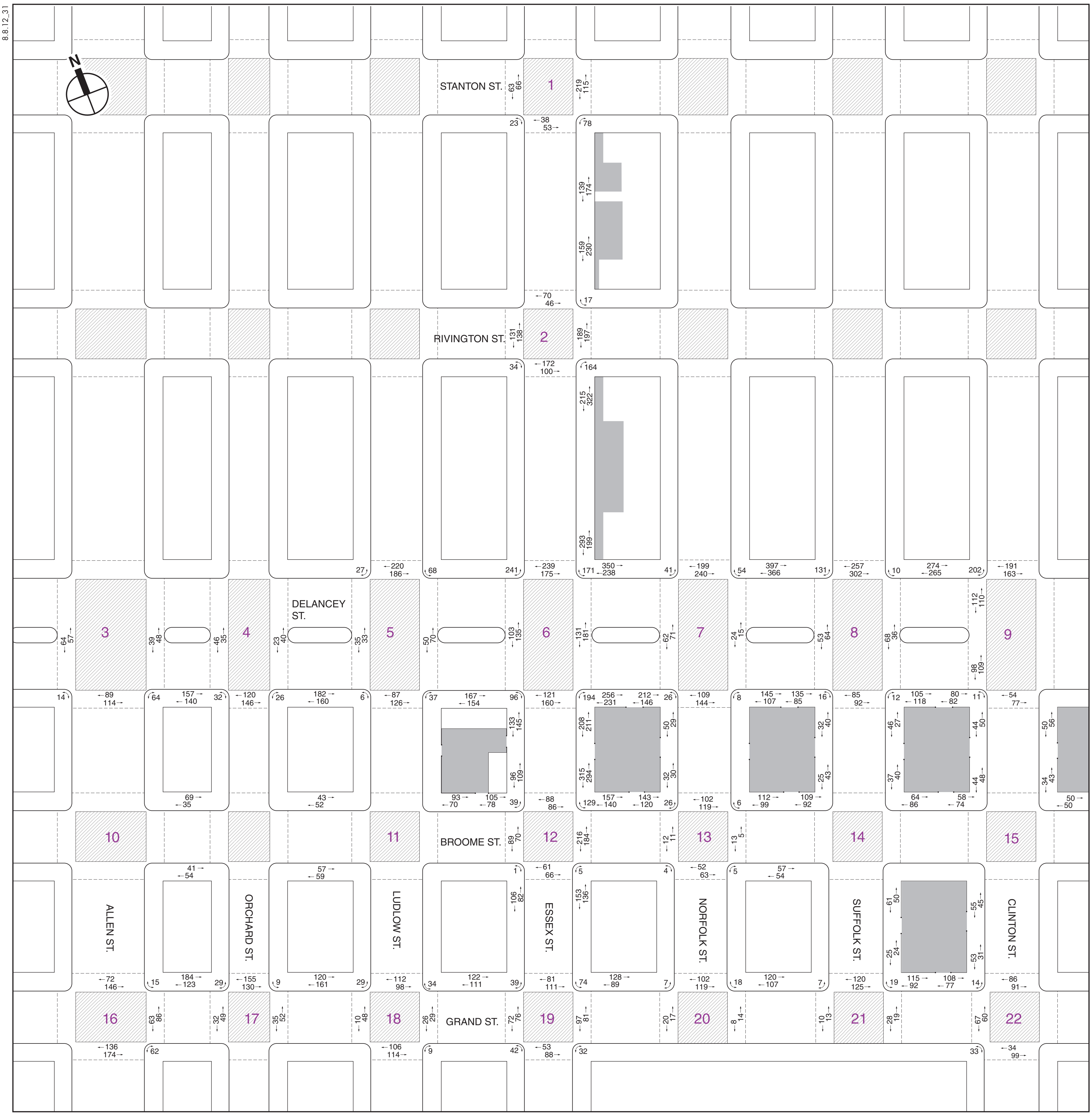
SEWARD PARK MIXED-USE DEVELOPMENT PROJECT

2022 With Action Pedestrian Volumes
Weekday AM Peak 15 Minutes



NOTE: This figure has been revised for the FGEIS.

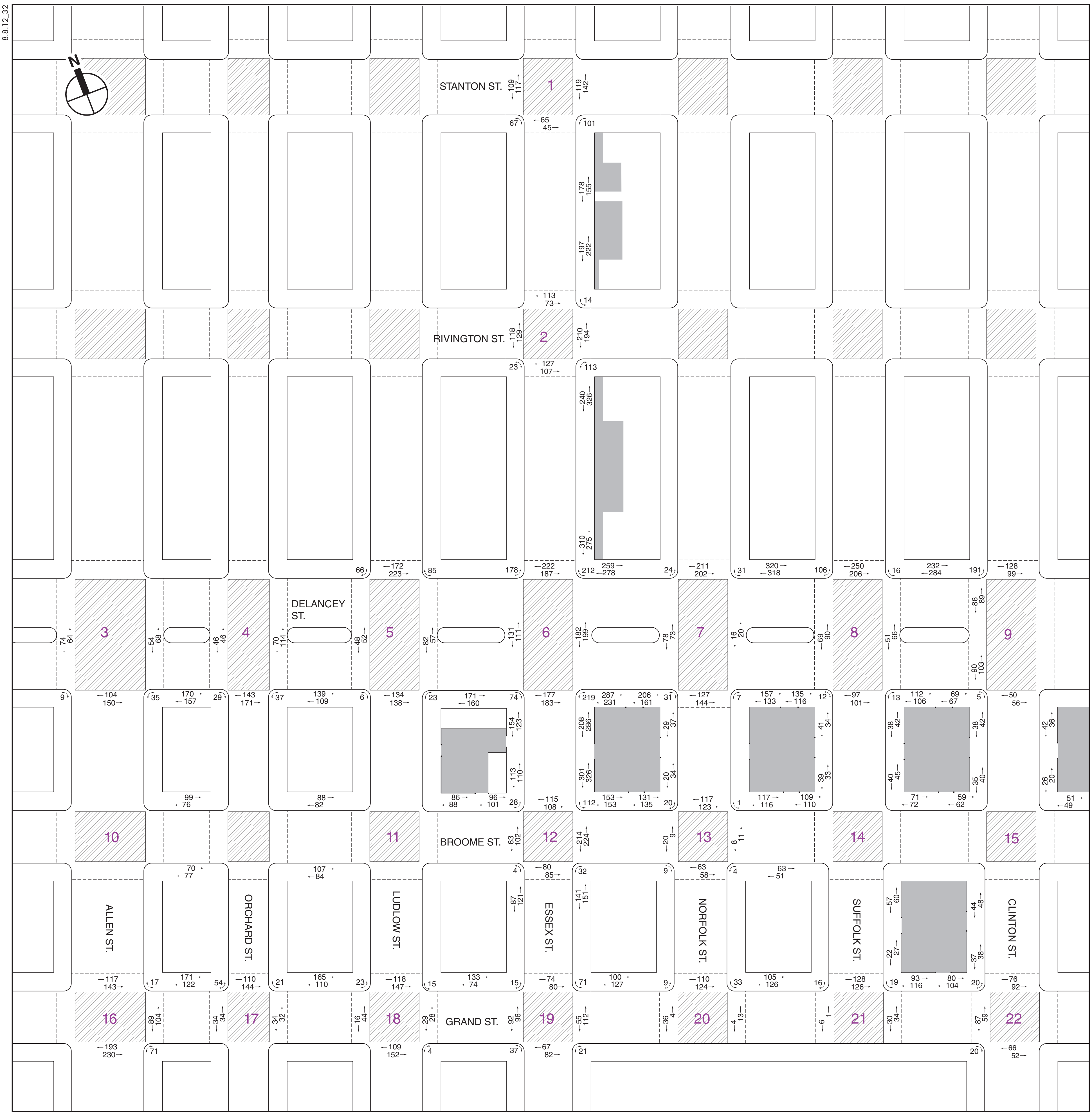
2022 With Action Pedestrian Volumes
Weekday Midday Peak 15 Minutes



Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

2022 With Action Pedestrian Volumes
Weekday PM Peak 15 Minutes



Proposed Development Parcels

NOTE: This figure has been revised for the FGEIS.

2022 With Action Pedestrian Volumes
Saturday Peak 15 Minutes

A. INTRODUCTION

The potential for air quality impacts from the proposed Seward Park Mixed-Use Development Project is examined in this chapter. Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at a development site, such as exhaust from fossil fuel-fired heating and hot water systems. Indirect impacts are impacts that are caused by emissions from on-road vehicle trips generated by the proposed actions or other changes to future traffic conditions due to a project.

The reasonable worst-case development scenario (RWCDS) for the proposed actions would result in more than 170 peak hour vehicle trips at locations within the study area and would therefore exceed the *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition) carbon monoxide (CO) screening threshold. In addition, the particulate matter emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual* would be exceeded in the 2022 analysis year. Therefore, a quantified assessment of the potential impacts on air quality from traffic generated by the proposed actions was conducted. The proposed actions would also include parking facilities and, therefore, an analysis was conducted to evaluate potential future CO concentrations in the vicinity of the proposed garage ventilation outlets.

The proposed actions could include natural gas burning heating and hot water systems. A refined stationary source analysis was conducted following the *CEQR Technical Manual* guidance to evaluate potential future pollutant concentrations with the heating and hot water systems.

PRINCIPAL CONCLUSIONS

As discussed below, the maximum predicted pollutant concentrations and concentration increments from mobile sources with the proposed actions would be below the corresponding guidance thresholds and ambient air quality standards. The proposed actions' parking facilities would also not result in any significant adverse air quality impacts. Based on a refined stationary source modeling analysis, there would be no potential for significant adverse air quality impacts from the heating and hot water systems for the proposed development. The only fossil fuel that would be used for heating and hot water systems at the development sites included in the proposed actions would be natural gas. ~~This requirement will be included in the developers Request for Proposals (RFP).~~ In addition, ~~the RFP will specify~~ heat and hot water system stack placement ~~requirements for~~ would be restricted at Sites 5 and 9. These ~~RFP~~ requirements could be modified or eliminated in the future if additional air quality modeling shows that the requirements are not needed to meet national and local ambient air quality standards and thresholds. Future modeling could rely on information that is expected to become available as the design for the proposed sites progresses. For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), the implementation of fuel use and stack placement requirements will be required to be implemented by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by the New York City Economic Development Corporation (NYCEDC), the implementation of fuel use and stack placement requirements will be required to be undertaken by the developer(s) through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

Therefore, there would be no potential for significant adverse impacts on air quality with the proposed actions.

B. POLLUTANTS FOR ANALYSIS

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of CO are predominantly influenced by mobile source emissions. Particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (nitric oxide, NO, and nitrogen dioxide, NO_2, collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and sources utilizing non-road diesel such as diesel trains, marine engines, and non-road vehicles (e.g., construction engines). On-road diesel vehicles currently contribute little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs. These pollutants are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act, and are referred to as 'criteria pollutants.'

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. Since CO is a reactive gas which does not persist in the atmosphere, CO concentrations can vary greatly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be predicted on a local, or microscale, basis.

The proposed actions would result in changes in traffic patterns and an increase in traffic volume in the study area. In addition, new parking facilities are proposed. Therefore, a mobile source analysis was conducted at intersections in the study area that would result in a greatest change in traffic conditions, as well as for proposed parking facilities near which the greatest change in CO concentrations is expected.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions. The proposed development would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted. A regional analysis of emissions of these pollutants from mobile sources associated with the proposed development was therefore not warranted.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated criteria pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary point sources, and not a local concern from mobile sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) However, with the promulgation of the 2010 1-hour average standard for NO_2, local sources such as vehicular emissions may become of greater concern for this pollutant.

In order to evaluate the effect of mobile source emissions due to the proposed development, predicted mobile source pollutant concentrations at affected roadways and intersections must be added to background concentrations. Community-scale monitors currently in operation can be used to represent background NO_2 conditions away from roadways, but there is substantial uncertainty regarding background concentrations at or near ground-level locations in close proximity to roadways. EPA estimates that concentrations near roadways may be anywhere from 30 to 100 percent higher than those measured at community-scale monitors. Furthermore, the existing EPA mobile source models are not capable of assessing the chemical transformation of emitted NO to NO_2 over relatively short distances (e.g., sidewalks, low-floor windows). In addition, existing EPA mobile source models are designed to provide only peak concentrations, which are not consistent with the statistical format of the 1-hour average NO_2 standard.

Given the current uncertainty regarding background concentrations at specific locations near roadways, and the lack of approved modeling protocols for the prediction of total maximum 1-hour daily 98th percentile NO_2 concentrations, as well as the lack of a benchmark for evaluating the significance of these incremental concentrations, no methodology exists that could provide reasonable predictions about concentrations from mobile sources due to the proposed development on the receptors at or near ground-level locations. The traffic associated with the proposed development is not expected to change NO_2 concentrations appreciably, since the vehicular traffic associated with the proposed development would be a small percentage of the total number of vehicles in the area. The amount of NO emitted that would rapidly transform to NO_2 in the immediate vicinity of roadways and intersections with traffic generated by the proposed development would be small. It is not known whether conditions in the future without the proposed actions will be within or in excess of the NAAQS in these near-road areas. Background concentrations are in fact expected to decrease over time and local sources would contribute an incremental amount of NO_2 to those background concentrations. The analysis limitations described above preclude the performance of an accurate quantitative assessment of the significance of the 1-hour NO_2 increments from the increase in traffic resulting from the proposed development.

Potential impacts on local NO_2 concentrations from the fuel combustion for the proposed development's heat and hot water boiler systems were evaluated following the *CEQR Technical Manual* and EPA guidance.

LEAD

Airborne lead emissions are currently associated principally with industrial sources. Lead in gasoline has been banned under the Clean Air Act. No significant sources of lead are associated with the proposed development and, therefore, analysis was not warranted.

RESPIRABLE PARTICULATE MATTER—PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOC; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions and from forest fires. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, all types of construction, agricultural activities, as well as wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}, which includes $PM_{2.5}$). $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source exhaust) or from precursor gases reacting in the atmosphere to form secondary PM.

Diesel-powered vehicles, especially heavy duty trucks and buses, are a significant source of respirable PM, most of which is $PM_{2.5}$; PM concentrations may, consequently, be locally elevated near roadways with high volumes of heavy diesel powered vehicles. The proposed development would result in traffic exceeding the $PM_{2.5}$ vehicle emission screening analysis thresholds as defined in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, the potential impacts from vehicle $PM_{2.5}$ emissions were analyzed. The proposed development's heating and hot water systems would use exclusively natural gas for which NO_2 is the primary pollutant of concern as per the *CEQR Technical Manual*. Therefore, an analysis of PM emissions from heating and hot water systems is not warranted.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). Monitored SO_2 concentrations in New York City do not exceed national standards. SO_2 is also of concern as a precursor to $PM_{2.5}$ and is regulated as a $PM_{2.5}$ precursor under the New Source Review permitting program for large sources. Due to the federal restrictions on the sulfur content in diesel fuel for on-road and non-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore, analysis of SO_2 from mobile and non-road sources was not warranted.

Natural gas would be burned in the heat and hot water systems of the proposed development. The sulfur content of natural gas is negligible; therefore, an analysis for SO_2 from the heat and hot water systems was not warranted.

NONCRITERIA POLLUTANTS

In addition to the criteria pollutants discussed above, non-criteria pollutants may be of concern. Non-criteria pollutants are emitted by a wide range of man-made and naturally occurring sources. These pollutants are sometimes referred to as hazardous air pollutants (HAP) and when emitted from mobile sources, as Mobile Source Air Toxics (MSATs). Emissions of non-criteria pollutants from industries are regulated by EPA. No major sources of non-criteria pollutants will be associated with the proposed actions; therefore an analysis of non-criteria pollutants was not warranted.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

As required by the CAA, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary and secondary standards are the same for NO_2 (annual), ozone, lead, and PM, and there is no secondary standard for CO and the 1-hour NO_2 standard. The NAAQS are presented in **Table 14-1**. The NAAQS for CO, annual NO_2, and 3-hour SO_2 have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended particulate matter (TSP), settleable particles, non-methane hydrocarbons (NMHC), 24-hour and annual SO_2, and ozone, which correspond to federal standards that have since been revoked or replaced, and for the noncriteria pollutants beryllium, fluoride, and hydrogen sulfide (H_2S).

EPA revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective as of May 2008.

EPA strengthened the primary and secondary standards for lead to 0.15 $\mu g/m^3$, effective January 12, 2009. EPA revised the averaging time to a rolling 3-month average and the form of the standard to not-to-exceed across a 3-year span.

EPA established a 1-hour average NO_2 standard of 0.100 ppm, effective April 12, 2010, in addition to the annual standard. The statistical form is the 3-year average of the 98th percentile of daily maximum 1-hour average concentration in a year.

EPA established a 1-hour average SO_2 standard of 0.075 ppm, replacing the 24-hour and annual primary standards, effective August 23, 2010. The statistical form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations.

Federal ambient air quality standards do not exist for noncriteria pollutants; however, the New York State Department of Environmental Conservation (NYSDEC) has issued standards for three noncriteria compounds. NYSDEC has also developed a guidance document DAR-1 (October 2010), which contains a compilation of annual and short term (1-hour) guideline concentrations for numerous other noncriteria compounds. The NYSDEC guidance thresholds represent ambient levels that are considered safe for public exposure.

Table 14-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m^3	ppm	µg/m^3
Carbon Monoxide (CO)				
8-Hour Average [1]	9	10,000	None	
1-Hour Average [1]	35	40,000		
Lead				
Rolling 3-Month Average [2]	NA	0.15	NA	0.15
Nitrogen Dioxide (NO_2)				
1-Hour Average [3]	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average [4]	0.075	150	0.075	150
Respirable Particulate Matter (PM_{10})				
24-Hour Average [1]	NA	150	NA	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean	NA	15	NA	15
24-Hour Average [5]	NA	35	NA	35
Sulfur Dioxide (SO_2) [6]				
1-Hour Average [7]	0.075	197	NA	NA
Maximum 3-Hour Average [1]	NA	NA	0.50	1,300

Notes:
ppm – parts per million (unit of measure for gases only)
µg/m^3 – micrograms per cubic meter (unit of measure for gases and particles, including lead)
NA – not applicable
All annual periods refer to calendar year.
Standards are defined in ppm. Approximately equivalent concentrations in µg/m3 are presented.
(1) Not to be exceeded more than once a year.
(2) EPA has lowered the NAAQS down from 1.5 µg/m^3, effective January 12, 2009.
(3) 3-year average of the annual 98th percentile daily maximum 1-hr average concentration. Effective April 12, 2010.
(4) 3-year average of the annual fourth highest daily maximum 8-hr average concentration.
(5) Not to be exceeded by the annual 98th percentile when averaged over 3 years.
(6) EPA revoked the 24-hour and annual primary standards, replacing them with a 1-hour average standard. Effective August 23, 2010.
(7) 3-year average of the annual 99th percentile daily maximum 1-hr average concentration.

Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines non-attainment areas (NAAs) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation

Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the Clean Air Act.

In 2002, EPA re-designated New York City as in attainment for CO. The Clean Air Act requires that a maintenance plan ensure continued compliance with the CO NAAQS for former NAAs. New York City is also committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period.

Manhattan has been designated as a moderate NAA for PM_{10}. On December 17, 2004, EPA took final action designating the five New York City counties and Nassau, Suffolk, Rockland, Westchester, and Orange Counties as a $PM_{2.5}$ NAA under the Clean Air Act due to exceedance of the annual average standard. Based on recent monitoring data (2007-2010), annual average concentrations of $PM_{2.5}$ in New York City no longer exceed the annual standard. EPA has determined that the area has attained the 1997 $PM_{2.5}$ NAAQS, effective December 15, 2010.

In October 2009 EPA finalized the designation of the New York City Metropolitan Area as nonattainment with the 2006 24-hour $PM_{2.5}$ NAAQS, effective in November 2009. The nonattainment area includes the same 10-county area originally designated as nonattainment with the 1997 annual $PM_{2.5}$ NAAQS. Based on recent monitoring data (2008-2010), 24-hour average concentrations of $PM_{2.5}$ in this area no longer exceed the annual standard. New York has submitted a “Clean Data” request to the USEPA. Any requirement to submit a SIP is stayed until EPA acts on New York’s request.

The five New York City counties, Nassau, Rockland, Suffolk, Westchester, and Lower Orange County Metropolitan Area (LOCMA) counties had been designated as a severe NAA for ozone (1-hour average standard). In November 1998, New York State submitted its *Phase II Alternative Attainment Demonstration for Ozone*, which was finalized and approved by EPA effective March 6, 2002, addressing attainment of the 1-hour ozone NAAQS by 2007. On January 25, 2012, EPA proposed to determine that the New York Metropolitan Area (NYMA) has attained the standard. Although this is not yet a redesignation to attainment status, this determination would remove further requirements under the 1-hour standard.

On April 15, 2004, EPA designated these same counties as moderate non-attainment for the 1997 8-hour average ozone standard. On February 8, 2008, NYSDEC submitted final revisions to the SIP to EPA to address the 1997 8-hour ozone standard. On January 25, 2012, EPA proposed to determine that the NYMA has attained the 1997 8-hour ozone NAAQS (0.08 ppm).

In March 2008 EPA strengthened the 8–hour ozone standards. ~~SIPs will be due three years after the final designations are made. On March 12, 2009, NYSDEC recommended that~~ EPA designated the counties of Suffolk, Nassau, Bronx, Kings, New York, Queens, Richmond, Rockland, and Westchester (NY portion of the New York–Northern New Jersey–Long Island, NY-NJ-CT NAA) ~~be designated~~ as a marginal NAA for the 2008 ozone NAAQS ~~(NY portion of the New York–Northern New Jersey–Long Island, NY-NJ-CT NAA).~~, effective July 20, 2012. SIPs are due in 2015. ~~EPA has agreed, under consent decree, to promulgate area designations for the 2008 ground-level ozone NAAQS no later than May 31, 2012.~~

New York City is currently in attainment of the annual-average NO_2 standard. EPA has designated the entire state of New York as “unclassifiable/attainment” in January 2012. Since additional monitoring is required for the 1-hour standard, areas will be reclassified once three years of monitoring data are available (2016 or 2017).

EPA has established a 1-hour SO_2 standard, replacing the former 24-hour and annual standards, effective August 23, 2010. Based on the available monitoring data, all New York State counties currently meet the 1-hour standard. Additional monitoring will be required. EPA plans to make final attainment designations ~~in June 2012~~ in the near future, based on 2008 to 2010 monitoring data and refined modeling. SIPs for nonattainment areas will be due by June 2014.

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and the *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[1] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table 14-1**) would be deemed to have a potential significant adverse impact. Similarly, for non-criteria pollutants, a predicted exceedance of the DAR-1 guideline concentrations would be considered a potential significant adverse impact.

In addition, in order to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in NAAs, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

DE MINIMIS CRITERIA REGARDING CO IMPACTS

New York City has developed *de minimis* criteria to assess the significance of the increase in CO concentrations that would result from the impact of proposed projects or actions on mobile sources, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in New York City are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Action 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Action) concentrations and the 8-hour standard, when No Action concentrations are below 8.0 ppm.

$PM_{2.5}$ INTERIM GUIDANCE CRITERIA

NYSDEC has published a policy to provide interim direction for evaluating $PM_{2.5}$ impacts.[2] This policy applies only to facilities applying for permits or major permit modifications under SEQRA that emit 15 tons of PM_{10} or more annually. The policy states that such a project will be deemed to have a potentially significant adverse impact if the project's maximum impacts are predicted to increase $PM_{2.5}$ concentrations by more than 0.3 $\mu g/m^3$ averaged annually or more than 5 $\mu g/m^3$ on a 24-hour basis. Projects that exceed either the annual or 24-hour threshold will

[1] *CEQR Technical Manual*, Chapter 17, section 400, ~~May 2010~~ 2012 Edition; and State Environmental Quality Review Regulations, 6 NYCRR § 617.7.

[2] CP33/Assessing and Mitigating Impacts of Fine Particulate Emissions, NYSDEC 12/29/2003.

be required to prepare an Environmental Impact Statement (EIS) to assess the severity of the impacts, to evaluate alternatives, and to employ reasonable and necessary mitigation measures to minimize the $PM_{2.5}$ impacts of the source to the maximum extent practicable.

In addition, New York City uses interim guidance criteria for evaluating the potential $PM_{2.5}$ impacts for projects subject to CEQR. The interim guidance criteria currently employed to determine the potential significant adverse $PM_{2.5}$ impacts under CEQR are as follows:

- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 5 $\mu g/m^3$ at a discrete receptor location would be considered a significant adverse impact on air quality under operational conditions (i.e., a permanent condition predicted to exist for many years regardless of the frequency of occurrence);
- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5 $\mu g/m^3$ would be considered a significant adverse impact on air quality based on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations;
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Actions under CEQR predicted to increase $PM_{2.5}$ concentrations by more than the above interim guidance criteria will be considered to have a potential significant adverse impact.

The annual emissions of PM_{10} associated with the proposed development are estimated to be well below the 15-ton-per-year threshold under NYSDEC's $PM_{2.5}$ policy guidance. The above CEQR interim guidance criteria were used to evaluate the significance of predicted impacts of the proposed development on $PM_{2.5}$ concentrations and determine the need to minimize particulate matter emissions from the proposed development.

D. METHODOLOGY

MOBILE SOURCES

The prediction of vehicle-generated emissions and their dispersion in an urban environment incorporates meteorological phenomena, traffic conditions, and physical configuration. Air pollutant dispersion models mathematically simulate how traffic, meteorology, and physical configuration combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to describe an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and since it is necessary to predict the RWCDS, most dispersion analyses predict conservatively high concentrations of pollutants, particularly under adverse meteorological conditions.

The mobile source analysis for the proposed actions employs a model approved by EPA that has been widely used for evaluating air quality impacts of projects in New York City, other parts of

New York State, and throughout the country. The modeling approach includes a series of conservative assumptions relating to meteorology, traffic, and background concentration levels resulting in a conservatively high estimate of expected pollutant concentrations that could ensue from the proposed actions. The assumptions used in the analysis are based on the *CEQR Technical Manual* guidance.

VEHICLE EMISSIONS

Engine Emissions

Vehicular CO, PM_{10}, and $PM_{2.5}$ engine emission factors were computed using the EPA mobile source emissions model, MOBILE6.2.[1] This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway types, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOBILE6.2 incorporate the most current guidance available from NYSDEC and the New York City Department of Environmental Protection (NYCDEP).

Vehicle classification data were based on field studies and data collected in the field. The general categories of vehicle types for specific roadways were further categorized into subcategories based on their prevalence within the fleet.[2] An ambient temperature of 50.0° Fahrenheit was used. The use of this temperature is recommended in the *CEQR Technical Manual* for Manhattan and is consistent with current NYCDEP guidance.

Appropriate credits were used to accurately reflect the inspection and maintenance program. The inspection and maintenance programs require inspections of automobiles and light trucks to determine if pollutant emissions from each vehicle exhaust system comply with emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State.

In accordance with the *CEQR Technical Manual* guidance, PM_{10} and $PM_{2.5}$ emission rates also include fugitive road dust in the analysis of local microscale impacts.[3] However, fugitive road dust was not included in the neighborhood scale $PM_{2.5}$ microscale analysis, since NYCDEP considers it to have an insignificant contribution on that scale.

Traffic Data

Traffic data for the air quality analysis were derived from existing traffic counts, projected future growth in traffic, and other information developed as part of the traffic analysis for the proposed actions (see Chapter 13, “Transportation”). Traffic data for the future without and with the proposed actions were employed in the respective air quality modeling scenarios. The weekday,

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[1] EPA, User’s Guide to MOBILE6.1 and MOBILE6.2: Mobile Source Emission Factor Model, EPA420-R-03-010, August 2003.

[2] The MOBILE6.2 emissions model utilizes 28 vehicle categories by size and fuel. Traffic counts and predictions are based on broader size categories, and then broken down according to the fleet-wide distribution of subcategories and fuel types (diesel, gasoline, or alternative).

[3] EPA, Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, December 2003.

midday (1:00 PM to 2:00 PM), and evening (5:15 PM to 6:15 PM) peak hour traffic volumes were analyzed. These time periods were selected for the mobile source analysis because they produce the maximum anticipated project-generated traffic and, therefore, have the greatest potential for significant air quality impacts.

For particulate matter, the peak midday and evening period traffic volumes were used as a baseline for determining off-peak volumes. Off-peak traffic volumes in the future with and without the proposed actions were determined by adjusting the peak period volumes by the 24-hour distributions of actual vehicle counts collected at appropriate locations.

Dispersion Model for Microscale Analyses

Maximum CO concentrations adjacent to the analysis sites resulting from vehicular emissions were predicted using the CAL3QHC model Version 2.0.[1] The CAL3QHC model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections. CAL3QHC predicts emissions and dispersion of CO from idling and moving vehicles. The queuing algorithm includes site-specific traffic parameters, such as signal timing and delay calculations (from the 2000 *Highway Capacity Manual* traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre-timed or actuated signal) characteristics to accurately predict the number of idling vehicles. The CAL3QHC model has been updated with an extended module, CAL3QHCR, which allows for the incorporation of hourly meteorological data into the modeling, instead of worst-case assumptions regarding meteorological parameters. This refined version of the model, CAL3QHCR, is employed if maximum predicted future CO concentrations are greater than the applicable ambient air quality standards or when *de minimis* thresholds are exceeded using the first level of CAL3QHC modeling.

To determine motor vehicle generated PM_{10} and $PM_{2.5}$ concentrations on sidewalks near the project site, the CAL3QHCR model was applied. This is a refined version of the CAL3QHC model Version 2.0.[2] The CAL3QHCR model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections. CAL3QHCR predicts emissions and dispersion of $PM_{2.5}$ from idling and moving vehicles. The queuing algorithm includes site-specific traffic parameters, such as signal timing and delay calculations (from the 2000 *Highway Capacity Manual* traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre-timed or actuated signal) characteristics to predict the number of idling vehicles. The CAL3QHCR model can utilize hourly traffic and meteorological data, and is therefore appropriate for calculating 24-hour and annual average concentrations.

Meteorology

In general, the transport and concentration of pollutants from vehicular sources are influenced by three principal meteorological factors: wind direction, wind speed, and atmospheric stability.

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[1] EPA, User's Guide to CAL3QHC, A Modeling Methodology for Predicted Pollutant Concentrations Near Roadway Intersections, Office of Air Quality, Planning Standards, Research Triangle Park, North Carolina, EPA-454/R-92-006.

[2] EPA, User's Guide to CAL3QHC, A Modeling Methodology for Predicted Pollutant Concentrations Near Roadway Intersections, Office of Air Quality, Planning Standards, Research Triangle Park, North Carolina, EPA-454/R-92-006.

Wind direction influences the direction in which pollutants are dispersed, and atmospheric stability accounts for the effects of vertical mixing in the atmosphere. These factors, therefore, influence the concentration at a particular prediction location (receptor). In applying the CAL3QHC model, the wind angle was varied to determine the wind direction resulting in the maximum concentrations at each receptor. Following the EPA guidelines,[1] CAL3QHC computations were performed using a wind speed of 1 meter per second, and the neutral stability class D. The 8-hour average CO concentrations were estimated by multiplying the predicted 1-hour average CO concentrations by a factor of 0.79 to account for persistence of meteorological conditions and fluctuations in traffic volumes. A surface roughness of 3.21 meters was chosen. At each receptor location, concentrations were calculated for all wind directions, and the highest predicted concentration was reported, regardless of frequency of occurrence. These assumptions ensured that worst-case meteorology was used to estimate impacts.

Using the CAL3QHCR model, hourly concentrations were predicted based on hourly traffic data and five years (2005-2009) of monitored hourly meteorological data. The data consist of surface data collected at LaGuardia Airport and upper air data collected at Brookhaven, New York. All hours were modeled, and the highest resulting concentration for each averaging period is presented.

Analysis Year

The microscale analyses were performed for 2022, the year by which the proposed development would be constructed. The analysis was performed both without the proposed actions (the No Action condition) and with the proposed actions (the With Action condition).

Background Concentrations

Background concentrations are those pollutant concentrations originating from distant sources that are not directly included in the modeling analysis, which directly accounts for vehicular emissions on the streets within 1,000 feet and in the line of sight of the analysis site. Background concentrations are added to modeling results to obtain total pollutant concentrations at an analysis site. The 1-hour and 8-hour CO background concentrations used in this analysis, which were based on the second-highest concentrations recorded at the DEC Queens College 2 monitoring station from 2006 to 2010, were 3.4 ppm and 2.0 ppm, respectively. The monitoring station at Queens College is the closest monitoring station to the project site that has available recorded data over a recent 5-year period.

The PM_{10} 24-hour background concentration of 52 $\mu g/m^3$ was based on the second-highest concentration, measured over the most recent three-year period for which complete data are available (2008–2010). The nearest NYSDEC monitoring site, at Division Street, was used. $PM_{2.5}$ impacts are assessed on an incremental basis and compared with the $PM_{2.5}$ interim guidance criteria. Therefore, a background concentration for $PM_{2.5}$ is not included.

Analysis Sites

Two intersections near the project site were selected for microscale analysis (see **Table 14-2**). Consistent with the *CEQR Technical Manual*, these sites were selected because they are the locations in the study area where the projected number of vehicles generated due to the proposed

[1] *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, EPA Office of Air Quality Planning and Standards, Publication EPA-454/R-92-005.

actions would exceed the *CEQR Technical Manual* threshold of 170 vehicles. Site 1 also has the highest level of project-generated traffic and, therefore, where the greatest air quality impacts and maximum changes in concentrations would be expected. The greatest number of overall project generated trips is expected during the weekday midday and PM peak periods. The potential impact from vehicle emissions of CO, PM_{10}, and $PM_{2.5}$ was analyzed for each of these intersections.

Table 14-2
Mobile Source Analysis Sites

Analysis Site	Location	Peak Periods Analyzed
1	Delancey Street at Norfolk Street	Midday and PM
2	Grand Street at Norfolk Street	Midday and PM

Receptor Placement

Multiple receptors (i.e., precise locations at which concentrations are predicted) were modeled at each of the selected sites; receptors were placed along the approach and departure links at spaced intervals. Receptors were placed at sidewalk or roadside locations near intersections with continuous public access and at elevated residential locations. Receptors in the analysis model for predicting annual average neighborhood-scale $PM_{2.5}$ concentrations were placed at a distance of 15 meters from the nearest moving lane at each analysis location, based on the *CEQR Technical Manual* procedure for neighborhood-scale corridor $PM_{2.5}$ modeling.

PARKING FACILITIES

The proposed actions would include a number of new accessory parking facilities on Sites 2–5, and they are assumed to be enclosed mechanically ventilated garages. Emissions from vehicles using the proposed garages could potentially affect ambient levels of CO in the immediate vicinity of the ventilation outlets. Projected parking facility capacity and the peak hour arrivals and departures were used to identify the parking facilities most likely to result in impacts on local air quality. The garages at Site 2 and the adjacent Site 3 were selected for the analysis. There are no mechanical designs for these proposed parking garages. Therefore, it was conservatively assumed that each of the proposed garages analyzed would have one vent that would exhaust air onto Norfolk Street, i.e., that the vents for the two garages analyzed would be facing each other, potentially affecting the same sidewalk receptors. Representative receptor locations on the proposed buildings were also modeled.

The analysis of emissions from the outlet vents and their dispersion was performed using the methodology set forth in the *CEQR Technical Manual*. The CO concentrations were determined for the time periods when overall garage usage would be the greatest, considering the hours when the greatest number of vehicles would exit the facility. Departing vehicles were assumed to be operating in a “cold-start” mode, emitting higher levels of CO than arriving vehicles. Traffic data for the parking garage analysis were based on analyses described in Chapter 13, “Transportation.”

Emissions from vehicles entering, parking, and exiting the garages were estimated using the EPA MOBILE6.2 mobile source emission model and an ambient temperature of 50°F, as referenced in the *CEQR Technical Manual*. For all arriving and departing vehicles, an average speed of 5 miles per hour was conservatively assumed for travel within the parking garages. In addition, all departing vehicles were assumed to idle for 1 minute before proceeding to the exit. The concentration of CO within the garages was calculated assuming a minimum ventilation rate, based on New York City Building Code requirements of 1 cubic foot per minute of fresh air per gross square foot of garage area. To determine compliance with the NAAQS, CO concentrations were predicted for the maximum 8-hour and 1-hour averaging periods.

To determine pollutant concentrations, the outlet vents were analyzed as "virtual point sources" using the methodology in EPA's *Workbook of Atmospheric Dispersion Estimates, AP-26*. This methodology estimates CO concentrations at various distances from an outlet vent by assuming that the concentration in the garage is equal to the concentration leaving the vent, and determining the appropriate initial horizontal and vertical dispersion coefficients at the vent faces.

A persistence factor of 0.79 was used to convert the calculated 1-hour average maximum concentrations to 8-hour averages, accounting for meteorological variability over the average 8-hour period. Background CO concentrations and concentrations from on-street traffic were added to the parking garage modeling results to obtain the total ambient CO levels.

STATIONARY SOURCES

HEATING AND HOT WATER SYSTEMS

The only fossil fuel that would be used for heating and hot water systems at the development sites included in the proposed actions would be natural gas, ~~Development pursuant to the proposed actions would use natural gas as fuel for heating and hot water systems,~~ which will be required through provisions in the LDA between HPD and the developer(s) for sites that may be under the jurisdiction of HPD, or through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s) for City properties that may be managed by NYCEDC.

Per the guidance presented in the *CEQR Technical Manual* for natural gas burning sources, NO_2 was the only pollutant considered in the dispersion analysis. Future concentrations of 1-hour average and annual average NO_2 resulting from the proposed heating and hot water system emissions were predicted using the EPA/AMS AERMOD dispersion model.[1]

AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatment of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of the interaction between the plume and terrain.

The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analyses of potential impacts from the exhaust stacks were made assuming stack tip downwash, urban

[1] EPA, AERMOD: Description Of Model Formulation, 454/R-03-004, September 2004; and

EPA, User's Guide for the AMS/EPA Regulatory Model AERMOD, 454/B-03-001, September 2004 and Addendum December 2006.

dispersion and surface roughness length, with and without building downwash, and elimination of calms.

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

The analysis was based on the maximum building envelopes for the nine development sites. The maximum building envelope is the three-dimensional space on the zoning lot within which a structure can be built, as permitted by applicable height, setback, and yard controls. The analysis was performed both with and without downwash in order to assess the worst-case impacts at elevated receptors close to the height of the sources, which would occur without downwash, as well as the worst-case impacts at lower elevations and ground level, which would occur with downwash.

For the analysis of the effect of the proposed development on 1-hour average NO_2 concentrations, the Plume Volume Molar Ratio Method (PVMRM) module was applied within AERMOD, following EPA's modeling guidance.[1] PVMRM analyzes chemical transformation of NO emitted from the stack to NO_2. The PVMRM module incorporates hourly background ozone concentrations to estimate NO_x transformation within the source plume. Ozone concentrations were obtained from the NYSDEC Queens College monitoring station, which is the station with recent ozone data nearest to the project site. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust was assumed for the proposed development's heat and hot water systems. This ratio is appropriate for boilers per EPA guidance.[2]

Total hourly NO_2 concentrations throughout the modeling period were determined by adding the hourly modeled concentrations to the detailed hourly ambient NO_2 concentrations measured at the Queens College monitoring station for each corresponding hour. Then, the highest combined daily 1-hour NO_2 concentration was determined at each receptor location for each day. The 8th highest daily concentration (98th percentile) for each modeled year at any receptor was calculated by the model. The 5-year average of the 8th highest concentrations was then compared with the 1-hour NO_2 NAAQS standard.

Meteorological Data

The meteorological data set consisted of five consecutive years of meteorological data: surface data collected at LaGuardia Airport (2006–2010) and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These

[1] EPA, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard, March 1, 2011.

[2] MACTEC for Alaska Department of Environmental Conservation, Evaluation of Bias in AERMOD-PVMRM, June 2005 http://www.epa.gov/scram001/7thconf/aermod/pvmrm_bias_eval.pdf; San Joaquin Valley, Recommended In-stack NO_2/NOx Ratios, http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

data were processed using the EPA AERMET program to develop data in a format that can be readily processed by the AERMOD model. The land uses around the site where meteorological

surface data were available were classified using categories defined in digital United States Geological Survey (USGS) maps to determine surface parameters used by the AERMET program.

Background Concentrations

As with mobile sources, to estimate the maximum expected pollutant concentration at a given location (receptor), the predicted impacts from stationary sources must be added to a background value that accounts for pollutant concentrations from other sources that are not directly accounted for in the model. The annual NO_2 background value used is 67.8 µg/m^3, based on the maximum annual average value measured at the Queens College 2 monitoring station, over the most recent five years for which hourly NO_2 data at that station were collected (2006-2010). For comparison with the 1-hour NO_2 standard, total hourly NO_2 concentrations throughout the modeling period were determined by adding the hourly modeled concentrations to the detailed hourly ambient NO_2 concentrations measured at the Queens College 2 monitoring station for each corresponding hour.

Receptor Placement

Discrete receptors (i.e., locations at which concentrations are calculated) were placed along the maximum building envelopes of the development sites (to approximate the facades of buildings constructed pursuant to the proposed actions) and on nearby buildings for the stationary source modeling analysis. The model receptor network consisted of operable windows, intake vents, and otherwise accessible locations such as terraces. Rows of receptors were placed in the model at spaced intervals at multiple elevations.

Emission Estimates and Stack Parameters

A project-specific heat and hot water system design is not available as this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) analyzes a RWCDS and not a specific building design or program. Therefore, fuel consumption was estimated based on procedures outlined in the *CEQR Technical Manual*. Emission rates for the heating and hot water systems for the development sites were projected using the proposed development size (square feet) by use, fuel consumption rates provided in the *CEQR Technical Manual* and EPA's *Compilation of Air Pollutant Emission Factors (AP-42)*[1] for combustion of natural gas. Typical stack parameters for exhaust velocity, diameter, and temperature were determined based on expected heat and hot water systems ratings associated with the calculated fuel usage rates. Emission rates and stack parameters are provided in **Table 14-3**.

[1] EPA, Compilation of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, http://www.epa.gov/ttn/chief/ap42.

Table 14-3
Emission Rates and Stack Parameters for Proposed Sites

Site No.	Total Residential (gsf)	Total Commercial (gsf)	Fuel Consumption (Mcf/year)	Annual NO_x (g/s)	Short Term NO_x (g/s)	Stack diameter (m)	Stack Velocity (m/s)	Stack Height (m)
1	74,951	65,731	7.36	1.06E-02	3.86E-02	0.3048	7.8	57.9
2	97,450	257,750	17.35	2.50E-02	9.11E-02	0.4572	7.2	96.0
3	168,239	86,019	13.73	1.97E-02	7.21E-02	0.4572	7.2	57.9
4	256,663	89,688	19.07	2.74E-02	1.00E-01	0.4572	7.2	88.4
5	229,603	81,855	17.13	2.46E-02	8.99E-02	0.4572	7.2	57.9
6	88,101	33,925	6.69	9.62E-03	3.51E-02	0.3048	7.8	57.9
8	37,862	8,790	2.61	3.76E-03	1.37E-02	0.3048	7.8	25.3
9	75,361	18,807	5.26	7.56E-03	2.76E-02	0.3048	7.8	37.5
10	20,402	6,240	1.48	2.12E-03	7.75E-03	0.3048	7.8	25.3

Notes:
The uses modeled as residential include residents and hotel uses. The uses modeled as commercial include retail, office, public market, and community facility.
Site 7 is not included as no new development is proposed on that site.
The exhaust temperature modeled for all proposed sites is 307.8 ºF.

E. EXISTING CONDITIONS

Representative criteria pollutant concentrations measured in recent years at NYSDEC air quality monitoring stations nearest to the project site are presented in **Table 14-4**. The values presented are consistent with the NAAQS format. For example, the 8-hour ozone concentration shown is the 3-year average of the 4th highest daily maximum 8-hour average concentrations. The concentrations were obtained from the 2010 New York State Ambient Air Quality Report, the most recent report available. As shown in **Table 14-4**, the recently monitored levels did not exceed the NAAQS.

Table 14-4
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	Queens College 2, Queens	ppm	8-hour	1.7	9
			1-hour	3.4	35
SO_2	Queens College 2, Queens[1]	µg/m³	3-hour	65	1,300
			1-hour	78.2	196
PM_{10}	Division Street, Manhattan	µg/m³	24-hour	43	150
$PM_{2.5}$	Division Street, Manhattan	µg/m³	Annual	10.9	15
			24-hour	28	35
NO_2	Queens College 2, Queens[2]	µg/m³	Annual	67.7	100
			1-hour	129.8	188
Lead	J.H.S. 126, Brooklyn	µg/m³	3-month	0.019	0.15
Ozone	Queens College 2, Queens	ppm	8-hour	0.074	0.075

Notes:
(1) The 1-hour value is based on a three-year average (2008-2010) of the 99th percentile of daily maximum 1-hour average concentrations.
(2) The 1-hour value is based on a three-year average (2008-2010) of the 98th percentile of daily maximum 1-hour average concentrations.
Source: NYSDEC, New York State Ambient Air Quality Report (2008-2010).

F. THE FUTURE WITHOUT THE PROPOSED ACTIONS

MOBILE SOURCES

CARBON MONOXIDE

CO concentrations without the proposed actions were determined for the 2022 With Action year using the methodology previously described. **Table 14-5** shows future maximum predicted 8-hour average CO concentrations, including background concentrations, at the analyzed intersections in 2022 without the proposed actions. The values shown are the highest predicted concentrations at any receptor location for each of the time periods analyzed.

As shown in **Table 14-5**, 2022 CO concentrations without the proposed actions are predicted to be well below the 8-hour CO standard of 9 ppm. These concentrations, and other mobile source concentrations and increments presented in this chapter are slightly higher than those presented in the DGEIS. These changes are the result of modifications to the traffic network circulation due to New York City Department of Transportation (NYCDOT) pedestrian improvement measures. These improvements were developed subsequent to the release of the DGEIS, as discussed in Chapter 13, "Transportation."

Table 14-5
Future (2022) Maximum Predicted 8-Hour Average
CO Concentrations Without the Proposed Actions (ppm)

Receptor Site	Location	Time Period	8-Hour Concentration
1	Delancey Street at Norfolk Street	PM	~~4.5~~ 4.7
2	Grand Street at Norfolk Street	PM	~~2.5~~ 2.6
Note: 8-hour standard (NAAQS) is 9 ppm.			

PARTICULATE MATTER

PM_{10} concentrations without the proposed actions were determined for the 2022 With Action year using the methodology previously described. **Table 14-6** presents the future maximum predicted PM_{10} 24-hour concentrations, including background concentrations, at the analyzed intersections in 2022 without the proposed actions. The values shown are the highest predicted concentrations for the receptor locations.

Table 14-6
Future (2022) Maximum Predicted 24-Hour Average
PM_{10} Concentrations Without the Proposed Actions (μg/m^3)

Receptor Site	Location	Concentration
1	Delancey Street at Norfolk Street	~~90.1~~ 88.2
2	Grand Street at Norfolk Street	~~57.5~~ 58.8
Note: NAAQS—24-hour average 150 μg/m^3.		

STATIONARY SOURCES

Without the proposed actions, there would be no new buildings constructed by 2022 on the project site.

Stationary source emissions from existing sources in the area would decrease with the phased implementation of State and local laws to restrict the use of No. 6 and No. 4 fuel oil for heating, and lower the sulfur content of No. 2 fuel oil. With the implementation of New York State and New York City regulations that would require the use of cleaner fuels for heat and hot water, an overall improvement in air quality is anticipated.

G. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

MOBILE SOURCES

CARBON MONOXIDE

CO concentrations with the proposed actions were determined for the 2022 With Action year using the methodology previously described. **Table 14-7** shows the future maximum predicted 8-hour average CO concentrations with and without the proposed actions at the intersections analyzed. (No 1-hour values are shown, since no exceedances of the NAAQS would occur and the *de minimis* criteria are only applicable to 8-hour concentrations; therefore, the 8-hour values are the most critical for impact assessment.) The values shown represent the highest predicted concentrations for any of the receptors analyzed and include the 8-hour CO ambient background concentration.

The results indicate that the proposed actions would not result in any violations of the 8-hour CO standard. In addition, the increments in 8-hour average CO concentrations are small and consequently would not exceed the *de minimis* CO criteria. (The *de minimis* criteria are described above in Section C, "Air Quality Regulations, Standards, and Benchmarks.")

Table 14-7
Future (2022) Maximum Predicted 8-Hour Average
CO Concentrations With and Without the Proposed Actions (ppm)

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)			
			Without the Project	With the Project	Increment	*De Minimis*
1	Delancey Street at Norfolk Street	PM	~~4.5~~ 4.7	~~4.7~~ 5.0	~~0.2~~ 0.3	~~2.3~~ 2.2
2	Grand Street at Norfolk Street	PM	~~2.5~~ 2.6	~~2.7~~ 2.6	~~0.2~~ 0.1	~~3.3~~ 3.2
Notes: 8-hour standard (NAAQS) is 9 ppm.						

PARTICULATE MATTER

Using the methodology previously described, PM_{10} concentrations with and without the proposed actions were determined for the 2022 With Action year. The values shown in **Table 14-8** are the highest predicted concentrations for all receptors analyzed and include the PM_{10} ambient background concentration. The results indicate that the vehicle trips generated by the proposed actions would not result in PM_{10} concentrations that would exceed the NAAQS.

Table 14-8
Future (2022) Maximum Predicted 24-Hour Average PM_{10} Concentrations With and Without the Proposed Actions (µg/m³)

Receptor Site	Location	No Build	Build
1	Delancey Street at Norfolk Street	~~90.1~~ 88.2	~~91.5~~ 89.9
2	Grand Street at Norfolk Street	~~57.5~~ 58.8	~~58.3~~ 59.6
Note: The National Ambient Air Quality Standard for PM_{10} is 150 µg/m³, for a 24-hour average.			

Future maximum predicted 24-hour and annual average $PM_{2.5}$ concentration increments were calculated so that they could be compared to the interim guidance criteria that would determine the potential significance of any impacts from the proposed actions. Based on this analysis, the maximum predicted localized 24-hour average and neighborhood-scale annual average incremental $PM_{2.5}$ concentrations are presented in **Table 14-9** and **Table 14-10**, respectively. $PM_{2.5}$ concentrations without the proposed actions are not presented, since impacts are assessed on an incremental basis.

Table 14-9
Maximum Predicted 24-Hour Average $PM_{2.5}$ Increments (µg/m³)

Receptor Site	Location	Increment
1	Delancey Street at Norfolk Street	~~0.4~~ 0.5
2	Grand Street at Norfolk Street	0.2
Note: $PM_{2.5}$ interim guidance criteria—24-hour average, 2 µg/m³ (5 µg/m³ not-to-exceed value).		

Table 14-10
Maximum Predicted Annual Average $PM_{2.5}$ Increments (µg/m³)

Receptor Site	Location	Increment
1	Delancey Street at Norfolk Street	~~0.005~~ 0.006
2	Grand Street at Norfolk Street	0.004
Note: $PM_{2.5}$ interim guidance criteria—annual (neighborhood scale), 0.1 µg/m³.		

The results show that the annual and daily (24-hour) $PM_{2.5}$ increments are predicted to be well below the interim guidance criteria. Therefore, there would be no potential for significant adverse impacts on air quality from vehicle trips generated by the proposed actions.

PARKING GARAGES

The CO levels from the proposed parking garages were predicted using the methodology set forth in the *CEQR Technical Manual*. Based on the projected parking demand developed for the proposed actions, the number of vehicles entering and exiting the garages would be greatest during the weekday PM (5 PM to 6 PM) and Saturday (4 PM to 5 PM) peak hours. Over the peak weekday 8-hours of garage usage, 12 PM to 8 PM, an average of 47 vehicles per hour would enter the proposed garage at Site 2, while an average of 52 vehicles per hour would exit. Over the same 8-hours, an average of 16 vehicles per hour would enter the proposed garage at Site 3, while an average of 17 vehicles per hour would exit. Over the peak Saturday 8-hours of garage usage, 11 AM to 7 PM, an average of 50 vehicles per hour would enter the proposed garage at Site 2, while an average of 49 vehicles per hour would exit. Over the same 8-hours, an average of 18 vehicles per hour would enter the proposed garage at Site 3, while an average of 16 vehicles per hour would exit. To account for emissions from local on-street traffic, the With

Action weekday PM peak hour traffic (~~1,032~~ 863 vehicles) and With Action Saturday peak hour traffic (~~953~~ 876 vehicles) along Norfolk Street, between Broome and Delancey Streets, were included in the analysis. The *CEQR Technical Manual* methodology was used to calculate concentrations.

The vent for each of the garages was modeled at a height of 10 feet above ground level, along Norfolk Street, between Broome and Delancey Streets. Pollutant levels were predicted at the height of the vents at a distance of 15 feet, accounting for the minimum vent to window distance requirements specified by the New York City Mechanical Code. Receptors (locations where CO levels were predicted) were also modeled along the Norfolk Street sidewalks.

The maximum predicted CO concentration from a single garage, with ambient background, and on-street traffic levels would be 6.4 ppm for the 1-hour period, and ~~3.8~~ 3.7 ppm for the 8-hour period. The maximum 1- and 8-hour contributions from the parking garage alone would be 2.6 ppm and 1.4 ppm, respectively. The maximum 1- and 8-hour contributions from on-street traffic would be 0.5 ppm for the 1-hour period, and 0.4 ppm for the 8-hour period. Maximum potential cumulative impacts from the two garages would be 6.6 ppm for the 1-hour period, and 3.9 ppm for the 8-hour period. These maximum predicted CO levels would be in compliance with the applicable CO federal ambient air quality standards and the CO *de minimis* criteria. As these results show, the proposed parking garages would not result in any significant adverse air quality impacts based on the RWCDS assumptions regarding the locations of the garage exhaust vents. Therefore, there would be no potential for significant adverse impacts on air quality with parking garage mechanical designs and exhaust locations that comply with applicable codes.

There would be no potential for significant adverse impacts from any mobile source emissions generated by the proposed actions. The proposed actions would not affect regional traffic or air quality and, therefore, the proposed actions would be consistent with the State Implementation Plan for each pollutant of concern.

STATIONARY SOURCES

A detailed dispersion analysis was performed to assess the potential for air quality impacts from the emissions from the heat and hot water systems at the development sites using the AERMOD model. This analysis determined the need for stack restrictions on Sites 9 and 5 as described below. Therefore, the following requirements will be ~~specified in the RFP~~ included in the provisions of the LDA between HPD and the developer(s) for sites that may be under the jurisdiction of HPD, or through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s) for City properties that may be managed by NYCEDC:

- Natural gas shall be used for fossil-fuel fired heating and hot water equipment on all of the proposed development sites.
- To preclude the potential for air quality impacts from natural gas-fired heating and hot water systems of a new building on Site 5, the stack(s) shall be located at the highest rooftop of the building and at least 90 feet away from the lot line facing Broome Street.
- To preclude the potential for air quality impacts on existing and proposed buildings on the same block as Site 9, stack(s) associated with natural gas-fired heat and hot water systems for the building on Site 9 shall be located at the highest rooftop of the building and at least 70 feet away from any building of a similar of greater height.

- In lieu of the requirements described above, an analysis demonstrating that national and local ambient air quality standards and thresholds would be met using an alternative stack configuration and/or a different fuel type may be performed. Such an analysis could consider information regarding emissions from the heating and hot water systems, emission controls, and projected heat and hot water demand specific to the proposed development. It is expected that such site specific information would become available as the design of the proposed sites progresses.

With the above requirements in place, the calculated concentrations for NO_2 are presented in **Table 14-11**, along with the relevant background concentrations, the total potential concentrations, and the applicable ambient standards. The annual average NO_2 impacts from the proposed development were conservatively calculated assuming that all of the NO emitted by the heat and hot water systems of the proposed development was fully transformed to NO_2 (100 percent conversion). The highest annual average concentration at any receptor over the 5-year modeling period is reported in **Table 14-11**. For the analysis of 1-hour impacts, the PVMRM module was applied and hourly background NO_2 data were added within the model. The highest combined daily 1-hour NO_2 concentration was determined at each receptor location for each day. The 8th highest (98th percentile) of the daily 1-hour maximum concentration for each modeled year was then calculated within the model. The 98th percentile concentrations were averaged over five years at each receptor, in accordance with EPA guidance for addressing the NO_2 1-hour standard and the maximum 5-year average value at any receptor is reported in **Table 14-11**.

Table 14-11
Potential Future NO_2 Concentrations
From the Heat and Hot Water Systems ($\mu g/m^3$)

Pollutant	Averaging Period	Project Increment	Background Concentration	Total Concentration	NAAQS
NO_2	Annual [1]	2.2	67.7	71	100
	1-hour [2]	N/A	N/A	132	188

Notes:
[1] Total hourly NO_2 concentrations throughout the modeling period were determined by adding the hourly modeled concentrations to the hourly ambient NO_2 concentrations for each corresponding hour. The total 1-hour concentration reported is the five-year average of the annual 98th percentile of the highest combined daily 1-hour NO_2 concentrations, in accordance with EPA guidance.
[2] The annual modeled NO_2 concentration was conservatively reported to be equal to the NO_x concentration. The increment presented is the highest concentration at any receptor over the five years modeled (2006-2010).

As shown in **Table 14-11**, the maximum potential increase in concentrations associated with the proposed development's heat and hot water systems when added to background concentrations would be less than the NAAQS. Therefore, the proposed development's heat and hot water systems would not have the potential for significant adverse impacts on air quality.

With the use of natural gas for fossil fuel-fired heating systems and the required locations of exhaust stacks for proposed buildings on Site 9 and Site 5, there would be no potential for significant adverse impacts on air quality from the proposed actions. ~~These requirements would be included in the developers RFP.~~ Prospective developers would be notified of the fuel and stack placement requirements through the RFP. As discussed, the legally binding LDA between HPD and a future developer(s) for sites that may be under the jurisdiction of HPD and the contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s) for City properties that may be managed by NYCEDC would ensure implementation of these requirements. ✷

Chapter 15: Greenhouse Gas Emissions

A. INTRODUCTION

As discussed in the *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition), increased concentrations of greenhouse gases (GHGs) in the atmosphere are changing the global climate, resulting in wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be felt at the local level. Through PlaNYC, the City has established sustainability initiatives and goals for both greatly reducing GHG emissions and adapting to climate change in the City. The goal to reduce citywide GHG emissions to 30 percent below 2005 levels by 2030 (the "GHG reduction goal") was codified by Local Law 22 of 2008, known as the New York City Climate Protection Act.[1] The *CEQR Technical Manual* recommends that any project resulting in 350,000 square feet or more of development and other energy-intense projects quantify project related GHG emissions and assess the project's consistency with the citywide GHG reduction goal.

The proposed actions would result in approximately 1.7 million gross square feet (gsf) of new development.[2] Accordingly, a GHG consistency assessment is provided. The GHG emissions that would be generated as a result of the proposed actions and measures that would be implemented to limit those emissions are presented in this chapter, along with an assessment of the proposed actions' consistency with the citywide GHG reduction goal.

PRINCIPAL CONCLUSIONS

Total potential GHG emissions associated with the operation of the proposed development are estimated to be 24,508 metric tons of CO_2 equivalent (CO_2e) per year, comprised of 13,615 metric tons CO_2e per year from building heating and electricity and 10,894 metric tons CO_2e per year from on-road emissions. Note that if the buildings were to be constructed elsewhere to accommodate the same uses as the proposed development, the emissions from the use of electricity, energy for heating and hot water, and vehicle use could equal or exceed those of the proposed development sites, depending on their location, access to transit, building type, availability of buildings for reuse, and energy efficiency measures.

Through a Request for Proposals (RFP) process, the City would look favorably upon proposals that enhance the energy-efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program or to incorporate measures which would achieve equivalent energy efficiency levels; in order to be certified, new multi-family buildings greater than four stories must be designed such that projects perform at least 15 percent better

[1] Administrative Code of the City of New York, §24-803.

[2] This number does not include below-grade parking space.

than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2007 energy code. In addition, all housing developments would also reduce construction and demolition waste by at least 25 percent.

All proposed buildings would likely produce heat and hot water using natural gas fired systems, which would produce lower GHG emissions than fuel oil. In addition, the proposed actions would support the City's transit-oriented development and sustainable transportation goal as the project site is well served by public transportation options, including both bus and subway services, is served by the city's bicycle lane network, and may also provide bicycle storage, showers and changing facilities. Further, the proposed actions would include a mix of uses, including residential and retail, and it is located in an area served by existing retail uses within walking distance.

Overall, the proposed actions would result in mixed-use development with energy efficient buildings. The proposed actions would also support the use of public transit and non-motorized commuting. The proposed design would include features aimed at reducing energy consumption and GHG emissions, and would, therefore, be consistent with the City's citywide GHG reduction goal.

B. POLLUTANTS OF CONCERN

GHGs are those gaseous constituents of the atmosphere, both natural and anthropogenic (resulting from human activity), that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere, and clouds. This property causes the general warming of the earth's atmosphere, or the "greenhouse effect." Water vapor, carbon dioxide (CO_2), nitrous oxide, methane, and ozone are the primary GHGs in the earth's atmosphere.

There are also a number of entirely anthropogenic GHGs in the atmosphere, such as halocarbons and other chlorine- and bromine-containing substances, which also damage the stratospheric ozone layer (contributing to the "ozone hole"). Since these compounds are being replaced and phased out due to the 1987 Montreal Protocol, there is no need to address them in project-related GHG assessments for most projects. Although ground level ozone is also a major GHG, it does not need to be assessed as such at the project level since it is a rapidly reacting chemical and efforts are ongoing to reduce ozone concentrations as a criteria pollutant (see Chapter 14, "Air Quality").

Similarly, water vapor plays an important role in global climate, but is not directly of concern as an emitted GHG since the negligible quantities resulting from anthropogenic sources are inconsequential.

CO_2 is the primary pollutant of concern from anthropogenic sources. Although not the GHG with the strongest effect per molecule, CO_2 is by far the most abundant and, therefore, the most influential GHG. CO_2 is emitted from any combustion process (both natural and anthropogenic), from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products, from volcanic eruptions, and from the decay of organic matter. CO_2 is removed ("sequestered") from the lower atmosphere by natural processes such as photosynthesis and uptake by the oceans. CO_2 is included in any analysis of GHG emissions.

Methane and nitrous oxide also play an important role since the removal processes for these compounds are limited, and they have a relatively high impact on global climate change as compared to an equal quantity of CO_2. Emissions of these compounds, therefore, are included in GHG emissions analyses when the potential for substantial emission of these gases exists.

The *CEQR Technical Manual* lists six GHGs that could potentially be analyzed in an EIS: CO_2, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This analysis focuses on CO_2, nitrous oxide, and methane. There are no significant direct or indirect sources of other GHGs associated with the proposed actions.

To present a complete inventory of all GHGs, component emissions are added together and presented as CO_2 equivalent (CO_2e) emissions—a unit representing the quantity of each GHG weighted by its effectiveness using CO_2 as a reference. This is achieved by multiplying the quantity of each GHG emitted by a factor called global warming potential (GWP). GWPs account for the lifetime and the radiative forcing of each chemical over a period of 100 years (e.g., CO_2 has a much shorter atmospheric lifetime than sulfur hexafluoride, and therefore has a much lower GWP). GWPs for the main GHGs discussed here are presented in **Table 15-1**, as provided in the *CEQR Technical Manual* Table 18-1. Note that in this analysis, any calculation including GWP is embedded in factors and models provided in the *CEQR Technical Manual*.

Table 15-1
Global Warming Potential (GWP) for Major GHGs

Greenhouse Gas	100-year Horizon GWP
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310
Hydrofluorocarbons (HFCs)	140 to 11,700
Perfluorocarbons (PFCs)	6,500 to 9,200
Sulfur Hexafluoride (SF_6)	23,900

Source: IPCC, Climate Change 1995—The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report, Table 4, 1996.

C. POLICY, REGULATIONS, STANDARDS, AND BENCHMARKS

Countries around the world have undertaken efforts to reduce emissions by implementing both global and local measures addressing energy consumption and production, land use, and other sectors. Although the U.S. has not ratified the international agreements which set emissions targets for GHGs, in a step toward the development of national climate change regulation, the U.S. has committed to reducing emissions to 17 percent lower than 2005 levels by 2020 and to 83 percent lower than 2005 levels by 2050 (pending legislation) via the Copenhagen Accord.[1] Without legislation focused on this goal, the U.S. Environmental Protection Agency (USEPA) is required to regulate GHGs under the Clean Air Act (CAA), and has already begun preparing regulations addressing newly manufactured vehicles and permitted large stationary sources. In addition, the American Recovery and Reinvestment Act of 2009 (ARRA, "economic stimulus package") funded actions and research that can lead to reduced GHG emissions, and the Energy Independence and Security Act of 2007 includes provisions for increasing the production of clean renewable fuels, increasing the efficiency of products, buildings, and vehicles, and for promoting research on GHG capture and storage options.

[1] Todd Stern, U.S. Special Envoy for Climate Change, letter to Mr. Yvo de Boer, UNFCCC, January 28, 2010.

There are also regional, state, and local efforts to reduce GHG emissions. In 2009, Governor Paterson issued Executive Order No. 24, establishing a goal of reducing GHG emissions in New York by 80 percent, compared to 1990 levels, by 2050, and creating a Climate Action Council tasked with preparing a climate action plan outlining the policies required to attain the GHG reduction goal (that effort is currently under way[1]). The 2009 New York State Energy Plan,[2] outlines the state's energy goals and provides strategies and recommendations for meeting those goals. The state's goals include:

- Implementing programs to reduce electricity use by 15 percent below 2015 forecasts;
- Updating the energy code and enacting product efficiency standards;
- Reducing vehicle miles traveled by expanding alternative transportation options; and
- Implementing programs to increase the proportion of electricity generated from renewable resources to 30 percent of electricity demand by 2015.

New York State has also developed regulations to cap and reduce CO_2 emissions from power plants to meet its commitment to the Regional Greenhouse Gas Initiative (RGGI). Under the RGGI agreement, the governors of 10 northeastern and mid-Atlantic states have committed to regulate the amount of CO_2 that power plants are allowed to emit. The regional emissions cap for power plants will be held constant through 2014, and then gradually reduced to 10 percent below the initial cap through 2018. The ten RGGI states and Pennsylvania have also announced plans to reduce GHG emissions from transportation, through the use of biofuel, alternative fuel, and efficient vehicles.

Many local governments worldwide, including New York City, are participating in the Cities for Climate Protection campaign and have committed to adopting policies and implementing quantifiable measures to reduce local GHG emissions, improve air quality, and enhance urban livability and sustainability. New York City's long-term sustainability program, PlaNYC 2030, includes GHG emissions reduction goals, specific initiatives that can result in emission reductions, and initiatives targeted at adaptation to climate change impacts. For certain projects subject to CEQR, an analysis of the GHG emissions associated with the proposed actions and an assessment of the project's consistency with the City's citywide emission reduction goal is required.

In December 2009, the New York City Council enacted four laws addressing energy efficiency in new and existing buildings, in accordance with PlaNYC. The laws require owners of existing buildings larger than 50,000 square feet to conduct energy efficiency audits every ten years, to optimize building energy efficiency, and to "benchmark" the building energy and water consumption annually, using a USEPA online tool. By 2025, commercial buildings over 50,000 square feet will also require lighting upgrades, including the installation of sensors and controls, more efficient light fixtures, and the installation of sub-meters, so that tenants can be provided with information on their electricity consumption. The legislation also creates a New York City Energy Code, which requires equipment installed during a renovation to meet current efficiency standards (in addition to the State code addressing new construction only).

A number of voluntary rating systems for energy efficiency and green building design have also been developed. For example, Leadership in Energy and Environmental Design (LEED) is a benchmark for the design, construction, and operation of high performance green buildings that

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[1] http://www.nyclimatechange.us/

[2] New York State, *2009 New York State Energy Plan*, December 2009.

includes energy efficiency components. Similarly, the Enterprise Green Communities Program is a voluntary program for sustainable development of affordable housing, and would be applied in this project. Another voluntary rating system is USEPA's *Energy Star*—a labeling program designed to identify and promote the construction of new energy efficient buildings, facilities, and homes and the purchase of energy efficient appliances, heating and cooling systems, office equipment, lighting, home electronics, and building envelopes.

D. METHODOLOGY

Although the contribution of any single project to climate change may be infinitesimal, the combined GHG emissions from all human activity are believed to have a severe adverse impact on global climate. While the increments of criteria pollutants and toxic air emissions are assessed in the context of health-based standards and local impacts, there are no established thresholds for assessing the significance of a project's contribution to climate change. As directed by the *CEQR Technical Manual*, this chapter does not present net increments as compared to the future without the proposed actions, since those would not represent the actual increment on a global scale; instead, the analysis focuses on the total GHG emissions potentially associated with the proposed actions and identifies measures that would be implemented and measures that are still under consideration to limit the emissions.

The analysis of GHG emissions that would be generated by the proposed actions is based on the methodology presented in the *CEQR Technical Manual*. Emissions of GHGs associated with the proposed actions have been quantified, including off-site emissions associated with on-site use of electricity, on-site emissions from heat and hot water systems, and emissions from vehicle use attributable to the proposed actions. GHG emissions that would result from construction associated with the proposed actions are discussed as well.

CO_2 is the primary pollutant of concern from anthropogenic emission sources and is accounted for in the analysis of emissions from all development projects. GHG emissions for gases other than CO_2 are included where practicable or in cases where they comprise a substantial portion of overall emissions. The various GHG emissions are added together and presented as metric tons of CO_2e emissions per year (see Section B, "Pollutants of Concern").

BUILDING OPERATIONAL EMISSIONS

Since detailed design information is not available because the design of specific buildings would follow the designation of a developer or developers pursuant to a future Request for Proposals process, emissions associated with electricity and fuel use were developed based on the proposed actions' development area (gross square feet) using data provided in the *CEQR Technical Manual* Table 18-3. For indoor parking areas, since an emission intensity is not provided in the *CEQR Technical Manual*, the energy intensity of 27,400 British Thermal Units (Btu) per gsf was assumed (2001 *CEQR Technical Manual* Table 3N-1) along with the electricity emission intensity of 35.902 kg CO_2e per million Btu (2012 *CEQR Technical Manual* Table 18-2).

MOBILE SOURCE EMISSIONS

The number of annual weekday motorized vehicle trips by mode (cars, taxis, trucks) that would be generated by the proposed actions was calculated using the transportation planning assumptions developed for the analysis presented in Chapter 13, "Transportation." The assumptions used in the calculation include average daily weekday person trips and delivery trips by proposed use, the percentage of vehicle trips by mode, and the average vehicle occupancy. Travel distances of the *CEQR Technical Manual* (Table 18-4) were used in the calculations of annual vehicle miles traveled by cars and trucks. An average one-way taxi trip of 2.32 miles, which is based on regional modeling for taxi trips with either Manhattan as the trip origin and/or destination, was provided by the Mayor's Office of Environmental Coordination. The average one-way truck trip was assumed to be 38 miles, as per the *CEQR Technical Manual*. Table 18-6 of the *CEQR Technical Manual* was used to determine the percentage of vehicle miles traveled by road type and the mobile GHG emissions calculator was used to obtain an estimate of car, taxi, and truck GHG emissions attributable to the proposed actions.

USEPA estimates that the well-to-pump GHG emissions of gasoline and diesel are approximately 22 percent of the tailpipe emissions.[1] Although upstream emissions (emissions associated with production, processing, and transportation) of all fuels can be substantial and are important to consider when comparing the emissions associated with the consumption of different fuels, fuel alternatives are not being considered for the proposed actions. As per the *CEQR Technical Manual* guidance, the well-to-pump emissions are not included in the analysis of the proposed actions.

The projected annual vehicle miles traveled, which form the basis for the GHG emissions calculations from mobile sources, are presented in **Table 15-2**.

Table 15-2
Total Vehicle Travel (vehicle-miles per year)

Roadway	Car	Taxi	Truck
Local	796,069	328,667	697,358
Arterial	1,736,878	717,093	1,521,508
Expressway	1,085,548	448,183	950,942

CONSTRUCTION EMISSIONS

Emissions associated with construction have not been estimated explicitly for the proposed actions, but analyses prepared for development projects in New York City[2] have shown that construction emissions (both direct and emissions embedded in the production of materials, including on-site construction equipment, delivery trucks, and upstream emissions from the production of steel, rebar, aluminum, and cement used for construction) would be equivalent to the total operational emissions from buildings energy over approximately 5 to 10 years.

EMISSIONS FROM SOLID WASTE MANAGEMENT

The proposed actions would not fundamentally change the City's solid waste management system. Therefore, as per the *CEQR Technical Manual*, the GHG emissions from solid waste generation, transportation, treatment, and disposal are not quantified.

[1] Environmental Protection Agency, *MOVES2004 Energy and Emission Inputs*, Draft Report, EPA420-P-05-003, March 2005.

[2] Examples include GHG analyses prepared for the EISs for Riverside Center, Domino Sugar Rezoning, and Western Rail Yard.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

GREENHOUSE GAS EMISSIONS

BUILDING OPERATIONAL EMISSIONS

The building areas, emission intensities, and resulting GHG emissions from the proposed actions are presented in detail in **Table 15-3**. Note that these are based on generic energy intensity rates, and do not include the specific design elements of the project or sustainability measures. See the following section for discussion of those measures.

Table 15-3
Building Operational Emissions

Use	Area (gsf)	GHG Intensity (Kg CO_2e / gsf / year)	GHG Emissions (metric ton CO_2e / year)
Residential	951,182	6.59	6,268
Retail	469,349	9.43	4,426
Public Market	29,152	9.43	275
Office	36,304	9.43	342
Cultural/ Community	114,000	11.42	1,302
Hotel	97,450	9.43	919
Sub-Level Parking[1]	314,502	0.98	309
Total	*2,011,939*	*6.88*	*13,842*

Sources: The GHG intensity for parking is calculated based on an energy intensity of 27,400 Btu/gsf/year (*CEQR Technical Manual*, 2001, Table 3N-1) assuming all energy use is electricity at an emission rate of 35.902 kg CO2e per million Btu (*CEQR Technical Manual*, 2012, Table 18-2). All other GHG Intensities are from the 2012 *CEQR Technical Manual*, Table 18-3.

Notes: [1] This parking area is a reasonable worst-case assumption for the maximum amount of below-grade space required to allow up to 500 parking spaces on up to four sites.

MOBILE SOURCE EMISSIONS

The detailed mobile source-related GHG emissions from the proposed actions are presented in **Table 15-4**.

Table 15-4
Mobile Source Emissions (metric tons CO_2e)

Roadway Type	Passenger Vehicle	Taxi	Truck	Total
Local	920	344	2,514	*3,778*
Arterial	1,222	452	3,384	*5,057*
Expressway	451	164	1,443	*2,058*
Total	*2,593*	*960*	*7,340*	*10,894*

CONSTRUCTION EMISSIONS

As described in Section D, "Methodology," emissions associated with construction have not been estimated explicitly for the proposed actions.

EMISSIONS FROM SOLID WASTE MANAGEMENT

As described in Chapter 11, "Solid Waste and Sanitation Services," the proposed actions would not fundamentally change the City's solid waste management system. Therefore, emissions from solid waste management were not quantified.

SUMMARY

Total potential GHG emissions associated with the operation of the proposed development are estimated to be 24,735 metric tons CO_2e per year, comprised of 13,842 metric tons CO_2e per year from building heating and electricity and 10,894 metric tons CO_2e per year from on-road emissions. Note that if the buildings were to be constructed elsewhere to accommodate the same uses as the proposed development, the emissions from the use of electricity, energy for heating and hot water, and vehicle use could equal or exceed those of the proposed actions, depending on their location, access to transit, building type, availability of buildings for reuse, and energy efficiency measures.

ASSESSMENT OF CONSISTENCY WITH THE GHG REDUCTION GOAL

The proposed actions would include sustainable design features that would, among other benefits, result in lower GHG emissions. These features are discussed in this section, assessing the consistency of the proposed actions with the GHG reduction goal outlined in the *CEQR Technical Manual*. Overall, as demonstrated below, the proposed actions would result in mixed-use development with energy efficient buildings and would likely use low-carbon fuel (natural gas). It would also support the use of public transit and non-motorized commuting. The proposed design would include features aimed at reducing energy consumption and GHG emissions, and would, therefore, be consistent with the City's citywide GHG reduction goal.

EFFICIENT BUILDINGS

Through a request for proposals process, the City would look favorably upon proposals that enhance the energy-efficiency of buildings, use fewer raw materials, make the best of natural light where appropriate, improve indoor air quality, and decrease the total impact on the natural and human environment. These designs would include features aimed at reducing energy consumption and greenhouse GHG emissions such as:

- Energy efficient building envelopes to reduce cooling and heating;
- High-efficiency HVAC systems, incinerators and/or generators;
- Window glazing to optimize energy performance by allowing for daylighting while managing both heat loss and solar heat gain; and
- Fuel from renewable sources or less GHG-intense fuels, such as natural gas, co-firing of biomass or use of biofuels or bioheat for heating fuel or in vehicles/equipment.

Housing developments on all sites are expected to be certified under the Enterprise Green Communities Program.

If a housing development cannot be certified under the Enterprise Green Communities Program because ASHRAE Standard 90.1-2007 does not apply to its construction methodology, the development would be designed and constructed to reduce construction and demolition waste and to incorporate sustainable design features that reduce energy consumption and greenhouse gas emissions in an amount equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities Program. For housing developments on City-owned sites that are managed by ~~the New York City Economic Development Corporation (~~NYCEDC~~)~~

and cannot comply with the Enterprise Green Communities Program because ASHRAE Standard 90.1-2007 does not apply to their construction methodology, consultation with the Mayor's Office of Environmental Coordination would be required to ensure that sustainability measures equivalent to that which would be necessary to achieve certification under the Enterprise Green Communities program are implemented.

For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), the Land Disposition Agreement (LDA) between HPD and the developer(s) would require a commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures. For housing developments on City-owned sites that are managed by the New York City Economic Development Corporation (NYCEDC), this commitment to certification under the Enterprise Green Communities program or to the incorporation of equivalent sustainability measures would be required through the provisions of a contract of sale or long-term lease, or other legally binding agreement between NYCEDC and the developer(s).

In order to be certified, new multi-family buildings greater than four stories must be designed such that projects perform at least 15 percent better than the ASHRAE 90.1-2007 energy code. This level of energy efficiency would be expected of all project housing components resulting in 15 percent less energy use when compared to the appropriate baseline, and would apply to the whole building, including all uses within each building. Regarding sites that do not include housing components, some increased level of efficiency can be expected given the preferences that will be expressed in the request for proposals, as described above, but the specifics are not known at this time. Mandatory energy efficiency measures required by the Enterprise Green Communities program include:

- Heating and cooling systems must be sized according to the Air Conditioning Contractors of America (ACCA) Manuals, Parts J, S, and D, or ASHRAE handbooks;
- If provided, clothes washers, dishwashers, and refrigerators must be Energy Star-labeled;
- Interior lighting should be either Energy Star Advanced Lighting Package (ALP) or lighting specified in EPA's Multifamily High Rise Buildings (MFHR) program;
- For common areas and for emergency lighting, lighting specified in EPA's MFHR program should be installed;
- For exterior lighting, either Energy Star compact fluorescents or LEDs, or lighting specified in EPA's MFHR program should be installed;
- All dwelling units must be equipped with individual or sub-metered electric meters; and
- Installation of water-conserving fixtures in all units and any common facilities per minimum requirements.

CLEAN POWER

The proposed buildings would likely produce heat and hot water using natural gas fired systems; natural gas has lower carbon content per unit of energy than other fuels, and thus reduces GHG emissions. Fuel from renewable sources, such as co-firing or biomass or use of biofuels or bioheat for heating fuel, may also be considered. In addition, as one of the optional considerations under the Enterprise Green Communities certification or equivalent for all housing developments, the incorporation of electric-generating renewable energy may be considered.

TRANSIT-ORIENTED DEVELOPMENT AND SUSTAINABLE TRANSPORTATION

The proposed actions would support the City's transit-oriented development and sustainable transportation goal. The proposed development would be supported by several subway lines, bus lines, and bike lanes located immediately adjacent to the project site, and the buildings developed may provide bicycle storage, showers, and changing facilities.

The proposed actions would include mixed uses, including residential and retail, and is located in an area served by existing retail uses within walking distance.

DIRECT CONSTRUCTION EMISSIONS

Construction would include an extensive diesel reduction program including diesel particle filters for large construction engines and other measures. These measures would reduce particulate matter emissions; while particulate matter is not included in the list of standard greenhouse gasses ("Kyoto gases"), recent studies have shown that black carbon—a constituent of particulate matter—may play an important role in climate change.

BUILDING MATERIALS

All housing developments would either be certified under the Enterprise Green Communities program or designed to achieve equivalent benefits. As such, all housing developments would reduce construction and demolition waste by at least 25 percent through recycling, salvaging, and/or diversion strategies (higher levels would achieve additional points). In addition, optional measures under the Enterprise Green Communities category of "Materials Beneficial to the Environment," which may be incorporated include:

- Use of recycled building materials;
- Use of products extracted, processed, and/or manufactured within 500 miles of the project; and
- Use of certified sustainable or salvaged wood products.

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Chapter 16: Noise

A. INTRODUCTION

The proposed actions would not generate sufficient traffic to have the potential to cause a significant noise impact (i.e., it would not result in a doubling of Noise Passenger Car Equivalents [Noise PCEs] that would be necessary to cause a 3 dBA increase in noise levels; see **Appendix D**). However, in order to address *City Environmental Quality Review (CEQR)* requirements and City of New York Department of Housing Preservation & Development (HPD) noise abatement guidelines—which are based on U.S. Department of Housing and Urban Development (HUD) criteria—for developments pursuant to the proposed actions, this chapter considers ambient noise levels adjacent to the project site. It also examines whether the publicly accessible open space proposed for Site 5 would meet CEQR noise level guidelines for open space.

PRINCIPAL CONCLUSIONS

The analysis concludes that, by adhering to specific design requirements (described below), development pursuant to the proposed actions would be expected to provide sufficient attenuation to achieve the CEQR interior noise level requirements and the HUD interior noise level guidelines.

B. NOISE FUNDAMENTALS

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

"A"-WEIGHTED SOUND LEVEL (DBA)

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in **Table 16-1**, the threshold of human hearing is defined as 0 dBA; quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

Table 16-1
Common Noise Levels

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

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

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

EFFECTS OF DISTANCE ON SOUND

Sound varies with distance. For example, highway traffic 50 feet away from a receptor (such as a person listening to the noise) typically produces sound levels of approximately 70 dBA. The same highway noise measures 66 dBA at a distance of 100 feet, assuming soft ground conditions. This decrease is known as “drop-off.” The outdoor drop-off rate for line sources, such as traffic, is a decrease of approximately 4.5 dBA (for soft ground) for every doubling of distance between the noise source and receiver (for hard ground the outdoor drop-off rate is 3 dBA for line sources). Assuming soft ground, for point sources, such as amplified rock music, the outdoor drop-off rate is a decrease of approximately 7.5 dBA for every doubling of distance between the noise source and receiver (for hard ground the outdoor drop-off rate is 6 dBA for point sources).

SOUND LEVEL DESCRIPTORS

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

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

The day-night sound level (L_{dn}) refers to a 24-hour average noise level with a 10 dB penalty applied to the noise levels during the hours between 10 PM and 7 AM, due to increased sensitivity to noise levels during these hours.

For purposes of the proposed actions, the L_{dn} and the 1-hour L_{10} descriptor ($L_{10(1)}$) have been selected as the noise descriptors to be used in this noise impact evaluation. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* (January 2012 edition) noise exposure guidelines for City environmental impact review classification, and the L_{dn} is the descriptor used to determine HUD noise abatement requirements.

C. NOISE STANDARDS AND CRITERIA

NEW YORK CEQR NOISE STANDARDS

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 16-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table 16-3**, “Required Attenuation Values to Achieve Acceptable Interior Noise Levels”). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for residential or hotel uses and 50 dBA for commercial uses and are determined based on exterior $L_{10(1)}$ noise levels.

HUD DEVELOPMENT GUIDELINES

HUD sets exterior noise standards for housing construction projects based on Day-Night Sound Level (i.e., L_{dn}) values (see **Table 16-4**, HUD Exterior Noise Standards). The L_{dn} refers to a 24-hour average noise level with a 10 dB penalty applied to the noise levels during the hours between 10 PM and 7 AM, due to increased sensitivity to noise levels during these hours. Noise attenuation values are designed to maintain an interior L_{dn} value of 45 dBA or lower for residential uses.

Table 16-2
Noise Exposure Guidelines For Use in City Environmental Impact Review[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	------- $L_{dn} \leq 60$ dBA -------	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA	------- $60 < L_{dn} \leq 65$ dBA -------	$65 < L_{10} \leq 80$ dBA	(I) $65 < L_{dn} \leq 70$ dBA, (II) $70 \leq L_{dn}$	$L_{10} > 80$ dBA	------- $L_{dn} \leq 75$ dBA -------
Residence, residential hotel, or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient public health facility		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
Commercial or office		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)		Same as Residential Day (7 AM-11 PM)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more; (ii) *CEQR Technical Manual* noise criteria for train noise are similar to the above aircraft noise standards: the noise category for train noise is found by taking the L_{dn} value for such train noise to be an L^{y}_{dn} (L_{dn} contour) value.

Table Notes:

1 Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

2 Tracts of land where serenity and quiet are extraordinarily important and serve an important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.

3 One may use FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

4 External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Source: New York City Department of Environmental Protection (adopted policy 1983).

Table 16-3
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

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

Notes: [A] The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms would be 5 dB~~(A)~~ less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

[B] Required attenuation values increase by 1 dB~~(A)~~ increments for L_{10} values greater than 80 dBA.

Source: New York City Department of Environmental Protection

Table 16-4
HUD Exterior Noise Standards

	Acceptable	Normally Unacceptable	Unacceptable
Noise Level With Proposed Project	$L_{dn} \leq 65$	$65 < L_{dn} \leq 75$	$75 < L_{dn}$
Source: U.S. Department of Housing and Urban Development			

For this analysis, L_{dn} levels were calculated using the following equation:

10*LOG[Energy sum of the 24 hourly equivalent sound levels with 10dB added between the hours of 10PM and 7AM] – 13.8

The equation listed above is used to calculate the L_{dn} when performing a continuous 24-hour measurement at the project site is feasible. First, 10 dB is added to the A-weighted sound levels measured between the hours of 10 PM and 7 AM (i.e., nighttime). The L_{dn} sound level is then computed from the adjusted nighttime sound levels along with the unadjusted daytime (i.e., 7 AM to 10 PM) values.

D. EXISTING NOISE LEVELS

MEASUREMENT PROGRAM

Existing noise levels at the project site were measured at eight locations (see **Figure 16-1**). At each location, noise levels were determined by either 20-minute spot measurements during four weekday time periods— AM (7:30 to 9:30 AM), midday (MD) (11:30 AM to 1:30 PM), PM (4:30 to 6:30 PM) peak periods, and a late-night period (10 PM to 7 AM)—or by a 24-hour continuous measurement. **Table 16-5** lists the receptor site locations and the type of measurement performed at each site.

Table 16-5
Noise Receptor Locations

Receptor Location	Location	Measurement
1	Grand Street between Suffolk and Clinton Streets	20-minute spot measurements during AM, MD, PM, and late-night periods
2	Suffolk Street between Grand and Broome Streets	
3	Broome Street between Suffolk and Clinton Streets	
4	Delancey Street between Clinton and Ridge Streets	
5	Suffolk Street between Broome and Delancey Streets	
6	Delancey Street between Essex and Norfolk Streets	
7	Essex Street between Rivington and Delancey Streets	
8	Delancey Street between Norfolk and Suffolk Streets	24-hour continuous measurement

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using Brüel & Kjær Sound Level Meters (SLMs) Type 2260 (S/Ns 2001692 and 2375602) and 2270 (S/N 2706757), Brüel & Kjær Sound Level Calibrators Type 4231 (S/Ns 2412436 and 1800102), Brüel & Kjær ½-inch microphones Type 4189 (S/Ns 2021267, 2378182, and 2675523). The Brüel & Kjær SLMs are Type 1 instruments according to ANSI Standard S1.4-1983 (R2006). For all receptor sites the instrument/microphone was mounted at a height of approximately 5 to 6 feet above the ground. Microphones were mounted at least approximately 5 feet away from any large reflecting surfaces. The SLMs were last

3.22.12

Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

Study Area Boundary (1/4-Mile Perimeter)

❶ Spot Noise Measurement Location

⑧ 24-Hour Noise Measurement Location

0 200 1000 FEET
SCALE

Noise Receptor Locations
Figure 16-1

factory calibrated on July 15, 2010, July 30, 2010, and February 23, 2011, respectively, which are valid for one year after the respective calibration dates. The calibration of the SLMs was field-checked before and after readings using the Brüel & Kjær Type 4231 sound level calibrator with the appropriate adaptors. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meters and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90} levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

NOISE SURVEY RESULTS

The results of the measurements of existing noise levels are summarized in **Table 16-6**. The L_{dn} values at receptor locations 1 through 7 were approximated based on the spot measured peak hour values.

Table 16-6
Summary of Measured Existing Noise Levels (in dBA)

Receptor Location	Measurement Location	Maximum L_{10} Value	L_{dn}
1	Grand Street between Suffolk and Clinton Streets	70.9	71.5[1]
2	Suffolk Street between Grand and Broome Streets	61.6	62.3[1]
3	Broome Street between Suffolk and Clinton Streets	65.4	65.5[1]
4	Delancey Street between Clinton and Ridge Streets	70.2	71.9[1]
5	Suffolk Street between Broome and Delancey Streets	65.7	65.8[1]
6	Delancey Street between Essex and Norfolk Streets	77.8	78.2[1]
7	Essex Street between Rivington and Delancey Streets	73.8	72.4[1]
8	Delancey Street between Norfolk and Suffolk Streets	71.9	73.8

Notes: Field measurements were performed on June 14, 15, and 16, 2011.
[1] The L_{dn} values at receptor locations 1 through 7 were approximated based on the spot measured peak hour values.

At all monitoring sites, traffic noise from adjacent streets was the dominant noise source. Measured noise levels are moderate to relatively high and reflect the level of vehicular activity on the adjacent streets. The highest L_{10} noise levels measured in the study area occurred along Delancey Street, ranging from the low to high 70s of dBA. These levels are not unusual for busy urban corridors, and are comparable to noise levels along other heavily trafficked multi-lane streets in New York City.

In terms of the CEQR criteria, the existing noise levels at receptor location 2 would be in the “acceptable” category, the existing noise levels at receptor locations 3 and 5 would be in the “marginally acceptable” category, and existing noise levels at receptor locations 1, 4, 6, 7, and 8 would be in the “marginally unacceptable” category. According to HUD criteria, the existing noise levels at receptor location 2 would be in the “acceptable” category, the existing noise levels at receptor locations 1, 3, 4, 5, 7, and 8 would be in the “normally unacceptable” category, and the existing noise levels at receptor location 6 would be in the “unacceptable” category.

E. NOISE ATTENUATION MEASURES

As shown in **Table 16-3**, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for noise sensitive land uses including residential or hotel uses and 50 dBA for commercial uses. HUD guidelines state that buildings must provide sufficient window/wall attenuation to result in L_{dn} values less than 45 dBA. Based on measured exterior noise levels and these CEQR and HUD criteria, the necessary attenuation for each façade of a development on each of the proposed development sites has been calculated. For development sites not immediately adjacent to a measurement location, a comparable measurement location was selected to represent the site based on existing traffic volumes along the adjacent street, the size of the adjacent street, and character of the block. The required attenuation levels at each of the development sites are shown in **Table 16-7**.

Table 16-7
Building Attenuation Requirements (in dBA)

Dev. Site	Block	Lot	Facade	Governing Noise Receptor	Attenuation Required for CEQR[1]	Attenuation Required for HUD[1]
			North	6	33	34
			East	7	28	31
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
1	409	56	West	7	28	31
			North	6	33	34
			East	7	28	31
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
2	352	1, 28	West	7	28	31
			North	8	28	29
			East	$4^{\cancel{4}\underline{3}}$	0^2	23
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
3	346	40	West	7	28	31
			North	8	28	29
			East	$4^{\cancel{4}\underline{3}}$	0^2	21
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
4	346	40	West	$4^{\cancel{4}\underline{3}}$	0^2	23
			North	$3^{\cancel{4}\underline{3}}$	0^2	23
			East	$2^{\cancel{4}\underline{3}}$	0^2	20
			South	$1^{\cancel{4}\underline{3}}$	28	27
5	346	40	West	7	28	31
			North	4	28	27
			East	$4^{\cancel{4}\underline{3}}$	0^2	23
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
6	347	71	West	$4^{\cancel{4}\underline{3}}$	0^2	23
			North	$3^{\cancel{4}\underline{3}}$	0^2	23
			East	$3^{\cancel{4}\underline{3}}$	0^2	23
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
8	354	1	West	7	28	31
			North	$3^{\cancel{4}\underline{3}}$	0^2	23
			East	$3^{\cancel{4}\underline{3}}$	0^2	23
			South	6	33	34
9	353	44	West	7	28	31
			North	$3^{\cancel{4}\underline{3}}$	0^2	23
			East	$3^{\cancel{4}\underline{3}}$	0^2	23
			South	$3^{\cancel{4}\underline{3}}$	0^2	23
10	354	12	West	7	28	31

Notes: [1]The CEQR attenuation requirements shown are for residential uses; commercial uses would require 5 dBA less attenuation. HUD attenuation regulations would not apply to commercial uses.
[2]The maximum measured L_{10} is below 70 dBA, and the *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L_{10} values below this level.
~~[3]This is the minimum window/wall attenuation required to satisfy both CEQR and HUD requirements, where applicable.~~
[3 ~~4~~]Attenuation requirements based on these locations are adjusted for future increases in traffic with the proposed project (see Appendix D). At all other locations future increases in traffic would be insubstantial.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade is composed of the wall, glazing, and any vents or louvers for HVAC systems in various ratios of area. To ensure that there would be no potential for significant adverse noise impacts, prospective developers would be notified of required attenuation measures ~~would be included in~~ through the Request for Proposals (RFPs) to be issued by the City and would be undertaken by the developer(s) selected pursuant to the RFP(s). For sites that may be under the jurisdiction of the City of New York Department of Housing Preservation & Development (HPD), these measures (including the provision for alternate means of ventilation) will be required by HPD through the Land Disposition Agreement (or loan agreements) between HPD and the selected developer(s). The RFP(s) and, for sites that may be under the jurisdiction of HPD, the LDA or loan documents would require that all buildings planned to be constructed on the nine development sites be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating greater than or equal to the attenuation requirements listed in **Table 16-7**. The OITC classification is defined by the ASTM International (ASTM E1332-10) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise.

By using these design guidelines and adhering to the measures in the RFP and, for sites that may be under the jurisdiction of HPD, the LDA or loan documents, development pursuant to the proposed actions would provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA L_{10} for residential, community facility, or hotel uses and 50 dBA L_{10} for commercial uses and the HUD interior noise level guideline of 45 dBA L_{dn} for residential and community facility use.

For sites that may be under the jurisdiction of the New York City Economic Development Corporation (NYCEDC), provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s) would require that all buildings planned to be constructed on the nine development sites be designed to provide a composite OITC rating greater than or equal to the attenuation requirements listed in **Table 16-7**. By using these design guidelines, development pursuant to the proposed actions would provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA L_{10} for residential, community facility, or hotel uses and 50 dBA L_{10} for commercial uses and, if HUD project funding is used on a site and requires it, the HUD interior noise level guidance of 45 dBA L_{dn} for residential and community facility use.

F. NOISE LEVELS AT OPEN SPACE AREAS

Noise levels within the new publicly accessible open space proposed for Site 5 would be above 55 dBA $L_{10(1)}$ and slightly above 65 dBA L_{dn}. This exceeds the recommended noise level for outdoor areas requiring serenity and quiet contained in the *CEQR Technical Manual* noise exposure guidelines (see **Table 16-2**) and falls in the “normally unacceptable” category according to HUD exterior noise exposure guidance. In the future with the proposed action, $L_{10(1)}$ values and L_{dn} values at the proposed open space (located on Broome Street between Suffolk and Clinton Streets) would be in the mid 60s dBA. There are no practical and feasible mitigation measures that could be implemented to reduce noise levels to below the respective CEQR and HUD 55 dBA $L_{10(1)}$ and 65 dBA L_{dn} guidelines within the proposed open space. Although noise levels in these new area would be above the guideline noise levels, they would be comparable to noise levels in a number of existing open space areas that are located adjacent to heavily trafficked roadways, including Hudson River Park, Riverside Park, Bryant Park, Fort Greene Park, and other urban open space areas. The guidelines are a worthwhile goal for outdoor areas requiring serenity and quiet. However, due to the level of activity present at most New York City open space areas and parks (except for areas far away from traffic and other typical urban activities) such a relatively low noise level is often not achieved.

G. MECHANICAL EQUIPMENT

In addition, it is assumed that the building mechanical systems (i.e., HVAC systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code, the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the proposed actions would not result in any significant increase in ambient noise levels. ✷

Chapter 17: Public Health

A. INTRODUCTION

The *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition) defines as its goal with respect to public health "to determine whether adverse impacts on public health may occur as a result of a proposed project, and if so, to identify measures to mitigate such effects." According to the *CEQR Technical Manual*, for most proposed projects, a public health analysis is not necessary. Where no significant unmitigated adverse impact is found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise, no public health analysis is warranted. If an unmitigated significant adverse impact is identified in one of these analysis areas, the lead agency may determine that a public health assessment is warranted for that specific technical area.

As described in the relevant analyses of this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS), upon completion of construction, the proposed actions would not result in significant adverse impacts in any of the technical areas related to public health. However, as discussed in Chapter 19, "Construction," the proposed actions would, at times, result in temporary unmitigated significant adverse noise impacts during construction. Therefore, this chapter examines the potential effects of construction-period noise impacts on public health.

PRINCIPAL CONCLUSIONS

As described in the preceding chapters of this ~~D~~FGEIS, the proposed actions would not result in significant adverse impacts in the following technical areas: air quality, water quality, hazardous materials, or operational noise.

While during some periods of construction, the proposed actions would result in significant adverse impacts related to noise as defined by CEQR thresholds, the predicted overall changes to noise levels would not be large enough to significantly affect public health. Therefore, the proposed actions would not result in significant adverse public health impacts.

B. PUBLIC HEALTH ASSESSMENT—CONSTRUCTION NOISE

As stated in Chapter 19, "Construction," the following criteria define a significant adverse noise impact:

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

The above CEQR noise thresholds are based on quality of life considerations and not on public health considerations. In terms of public health, significance is not determined based upon the incremental change in noise level, but is based principally upon the magnitude of the noise level and duration of exposure.

The analysis presented in Chapter 19, "Construction," shows that during the construction period, elevated noise levels are predicted to occur at ~~forty-five (45)~~ 13 locations of the ~~eighty-three (~~83~~)~~ receptor sites. Affected locations include residential, institutional, and open space areas adjacent to the proposed development sites and along routes expected to be traveled by construction-related vehicles to and from the project site. Most of those locations, however, have double-glazed windows and air-conditioning, and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA most of the time, which would be considered acceptable according to CEQR criteria, throughout most of the construction period. In addition, any projected development at 89 Ludlow Street, should it be operational during 2019 and 2020, would also be expected to experience elevated noise levels for two or more continuous years. However, as a newly constructed building, it would likely have double glazed windows and an alternate means of ventilation as well, providing at least 20 to 30 dBA of window/wall attenuation. Given the building attenuation provided by these existing and projected structures, additional receptor controls would be unlikely to fully mitigate the temporary construction noise impacts.

Affected locations that do not already have double-glazed windows and air conditioning may experience noise levels from construction that would result in interior $L_{10(1)}$ values greater than 45 dBA. Additional options for source and path controls would be incorporated into the construction methodology to the extent practicable and feasible. Thus, should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to ~~15~~ two locations would be expected to experience an unmitigated significant impact for certain limited periods during construction, and one location may experience a partially mitigated significant impact for certain limited periods during construction ~~staggered portions of the construction period~~. Although the CEQR thresholds for significant adverse environmental impact are predicted to be exceeded at certain locations during construction, the absolute value of these exceedances are not significant adverse public health impacts. As discussed above, the CEQR noise thresholds are based on quality of life considerations and not on public health considerations. The predicted absolute noise levels would be below the health-based noise threshold. Therefore, the proposed actions would not result in significant adverse public health impacts.

In addition, during existing conditions, the build condition, and during construction, noise levels at the new publicly accessible open space proposed for Site 5 would exceed the levels recommended for passive open spaces. While this is not desirable, there is no effective practical mitigation that could be implemented to avoid these levels during construction. Throughout the city, noise levels in many parks and open space areas that are located near heavily trafficked roadways and/or near construction sites, experience comparable, and sometimes higher, noise levels. ✷

Chapter 18: Neighborhood Character

A. INTRODUCTION

This chapter considers the effects of the proposed actions on neighborhood character. As defined in the *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition), neighborhood character is an amalgam of various elements that give neighborhoods their distinct "personality." These elements may include a neighborhood's land use, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, transportation, and/or noise. According to the *CEQR Technical Manual*, neighborhood character impacts are rare, and it would be under unusual circumstances that, in the absence of an impact in any of the relevant technical areas, a combination of moderate effects to the neighborhood would result in an impact to neighborhood character. Moreover, a significant impact identified in one of the technical areas that contribute to a neighborhood's character is not automatically equivalent to a significant impact on neighborhood character. Rather, it serves as an indication that neighborhood character may be significantly affected.

This chapter considers the effects of the proposed actions on the neighborhood character of the study area. The examination focuses on whether a defining feature of the neighborhood's character may be significantly affected. Since many of the relevant components of neighborhood character are considered in other sections of this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS), this chapter has been coordinated with those analyses.

PRINCIPAL CONCLUSIONS

Currently, the southern portion of the project site is generally inactive and aesthetically unappealing as it primarily includes surface parking uses surrounded by chain-link fencing. The inactivity in the southern portion of the project site is in stark contrast to the surrounding area, which is generally densely developed with a mix of residential, commercial, community facility and publicly accessible open space uses. In the future with the proposed actions, the character of the neighborhood would improve as the gaps in the streetscape of the neighborhood south of Delancey Street would be filled with new, active development. The proposed mix of local retail and destination retail stores in the RWCDS would complement the existing mix of commercial uses in the study area. The mix of uses would also bring a greater level of pedestrian activity to the project sites, making the neighborhood more inviting and appealing to live in and visit. The increased pedestrian activity that would result from the proposed actions would increase foot traffic and retail demand, benefitting existing retail stores in the area.

In addition to the ground floor retail that would activate the streets, the character of the project site would be improved with new street trees that would shade as well as visually enhance the neighborhood and with new publicly accessible open space on Site 5 that would bring passive and/or active recreational opportunities to the area. Also, the proposed mapping and demapping actions would make the mapped street pattern consistent with the pedestrian's current experience of those areas. The pedestrian environment would be further improved by the widened sidewalks adjacent to Sites 1 through 6.

The proposed actions would also enhance neighborhood character by the relocation and expansion of the Essex Street Market. The larger space would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors the first opportunity to relocate their business to the new market facility, when the new facility on Site 2 is complete and ready for occupancy.

Overall, the analysis concludes that the proposed actions would not create a significant adverse impact on neighborhood character. To the contrary, neighborhood character would be improved by replacing underutilized buildings and surface parking lots with new active, mixed-use development.

B. METHODOLOGY

An analysis of neighborhood character begins with a preliminary assessment to determine whether changes expected in other technical areas may affect a contributing element of neighborhood character. The preliminary assessment first identifies the defining features of the neighborhood, and then assesses whether the project has the potential to affect these defining features, either through the potential for significant adverse impacts or a combination of moderate effects. If the preliminary assessment concludes that the proposed actions have the potential to affect defining features of a neighborhood, a detailed assessment of neighborhood character may be appropriate. If needed, the detailed assessment would use the information from the preliminary assessment as a baseline and the future No-Action and future With-Action conditions are then projected and compared.

NEIGHBORHOOD CHARACTER COMPONENTS

The *CEQR Technical Manual* states that an assessment of neighborhood character is generally needed when a proposed project has the potential to result in significant adverse impacts in any of the following technical areas: land use, zoning, and public policy; socioeconomic conditions; open space; historic and cultural resources; urban design and visual resources; shadows; transportation; or noise. Even if a project does not have the potential to result in a significant adverse impact in any of the technical areas listed above, an assessment may be required if the project would result in a combination of moderate effects to several elements that cumulatively may affect neighborhood character. According to the *CEQR Technical Manual*, a "moderate" effect is generally defined as an effect considered reasonably close to the significant adverse impact threshold for a particular technical analysis area.

As described in the relevant chapters of this ~~D~~FGEIS, the proposed actions would not result in significant adverse impacts in the areas of land use, zoning, and public policy; socioeconomic conditions; open space; shadows; urban design; or noise. However, the proposed actions would result in significant adverse impacts in the areas of historic and cultural resources and transportation. Therefore, a preliminary assessment of neighborhood character impacts from the proposed actions is provided below.

As recommended in the *CEQR Technical Manual*, the study area for the analysis is consistent with the study areas in the relevant technical areas assessed under CEQR that contribute to the defining elements of the neighborhood.

C. PRELIMINARY ASSESSMENT

DEFINING FEATURES

PROJECT SITE

The character of the project site differs in the areas north and south of Delancey Street. The character of the project site south of Delancey Street is generally inactive and aesthetically unappealing as it is defined primarily by surface parking uses surrounded by chain-link fencing. There are few retail or other ground-floor building uses to draw pedestrians to the sites; and the streets themselves are unevenly paved, and the striping is faded. There are few street trees or street furniture adjacent to these sites. The concentration of surface parking uses and of the general inactivity in the southern portion of the project site is in stark contrast to the surrounding area, which is generally densely developed with a mix of residential, commercial, community facility and open space uses.

Unlike the character of the project site south of Delancey Street, the character north of Delancey Street is not notably different than the surrounding study area. The northern portion of the project site is active as Sites 9 and 10 have ground-floor uses, and all sites contain structures that are built to the lot line. The ground-floor uses on Sites 9 and 10 bring pedestrian and vehicular activity to Essex Street, which is lined with other ground-floor retail, commercial, and institutional uses. The subway station entrance and exit at Site 9 also brings pedestrian activity to this portion of the project site.

A defining feature of the project site is the Essex Street Market, which has been a commercial focal point in the Lower East Side neighborhood for many years. Originally occupying four buildings, the Essex Street Market is now located in one of the original buildings that were built in 1939. The market has been open since 1940 and it currently houses local merchants specializing in fresh and prepared food items such as fish, meat, cheese, baked goods, as well as general grocery items. In addition to serving the local neighborhood, the Essex Street Market has become a destination for people beyond the local area. The four market buildings also compose one of the two architectural resources located on the project site (the other is a former fire station on Site 5).

STUDY AREA

The study area is generally densely developed and contains a mix of residential, commercial, community facility, and open space uses.

Residential uses are located in walk-up tenements, mid-20th-century high-rise “tower-in-the-park” developments, and new mid- to high-rise apartment buildings. The study area has a substantial affordable housing stock, including the New York City Housing Authority (NYCHA)-owned Seward Park Extension development, Baruch Houses, 45 Allen Street, and Lower East Side Infill. Market-rate residential units are also common in the study area. The project site is adjacent to the Seward Park Houses, which voted in 2000 to end their limited equity rules and allow market-rate transactions. More recently, luxury condominiums have been built in the study area, including a 55-unit project at 38 Delancey Street, and the Ludlow, a 23-story luxury rental building at 188 Ludlow Street.

Although residential uses are prominent, the study area is also well known for its commercial uses. Historically, the study area has been home to a range of bustling commercial uses, from garment production to food production and eateries to pushcart vendors. Today, the area contains a broad mix of commercial uses including local delis and tailors; a growing number of restaurants, drinking establishments, art galleries, and fashion boutiques; wholesale and retail restaurant supply and lighting stores; and larger commercial establishments such as clothing stores and banks. Shoppers enjoy the ease of comparison shopping in an area where a large volume of similar products can be found in the space of a few blocks. More generally, retail stores throughout the Lower East Side and adjacent neighborhoods all benefit from the high volumes of foot traffic spurred by the co-location of stores offering similar goods and services that draw shoppers from throughout the region.

The study area also has a growing number of boutique hotels. The largest of these is the 21-story Hotel on Rivington at 107 Rivington Street between Ludlow and Essex Streets. A number of new, tall luxury hotels are currently under construction, including an 18-story mixed-use hotel/residential building at 180 Ludlow Street, the 16-story Allen Street Hotel at 139 Allen Street, the 24-story Hotel Indigo at 180 Orchard Street, and an 8-story Holiday Inn at 150 Delancey Street.

Community facilities are common in the study area. The community facilities include a number of large public schools, day care centers, outpatient medical facilities, and cultural institutions.

Another defining feature of the study area is Sara D. Roosevelt Park, which is a well-utilized 7.85-acre linear park that extends from Canal Street to East Houston Street between Chrystie and Forsyth Streets. This park includes playgrounds, basketball and handball courts, a soccer field, general open recreation areas, seating areas, walking paths, and restrooms.

While the street pattern in the study area is generally a grid system, a defining element of the study area is the presence of several superblocks within the portion of the study area south of Delancey Street. These superblocks, which are directly south of Delancey Street, interrupt the typical Manhattan grid pattern, creating longer walking intervals for pedestrians.

Most of the study area's vehicular and pedestrian traffic is focused in the area along and north of Delancey Street; south of Delancey Street, particularly around Sites 2-6, there is less vehicular or pedestrian traffic. In part, the higher pedestrian traffic north of Delancey Street and west of Ludlow Street south of Delancey Street is due to the greater amount of street-level retail and restaurant uses in these areas and the activity these uses generate. The major thoroughfares through the study area are Delancey, Allen, Essex, Broome, and Grand Streets. Delancey Street, which is currently being modified for safety improvements by the New York City Department of Transportation, runs in an east-west direction and carries vehicular, bicycle, and pedestrian traffic to the Williamsburg Bridge, the access point for which is at the eastern edge of the study area around Clinton Street. Today, the Williamsburg Bridge carries over 100,000 vehicles daily on eight lanes of roadway, in addition to the J, M, and Z lines of the New York City Subway, pedestrians and bicyclists.

Delancey, Grand, and Allen Streets, as the widest thoroughfares in the study area, also provide the most expansive view corridors in the study area and are defining views in the study area.

Views east along Delancey Street are of the Williamsburg Bridge. Views from Delancey Street looking south are more expansive because of the general lack of development on Sites 1–6. From this location, the large-scale housing complexes can be seen, as well as other large-scale housing complexes located outside of the study area. From the south side of Delancey Street looking north, views include the Blue Condo. Views north along Allen Street and a portion of Essex Street include the top of the Chrysler Building; views south along Allen Street continue for long distance, with no notable elements. There are few items of note in views along Grand Street, excepting the twin corner towers of St. Mary's R.C. Church. Views from Essex Street near Grand Street south include the top of the Manhattan-side anchorage of the Manhattan Bridge.

Another defining view in the study area is the view to the project site available to pedestrians, bicyclists, and drivers from the Williamsburg Bridge itself. From this location, viewers get a strong sense of how the visual character of the study area differs north and south of Delancey Street.

The historic districts that regulate development in portions of the study area are defining elements of the neighborhood. Beyond the boundaries of the project site, there are three historic districts and 16 individual architectural resources. The Lower East Side Historic District, which is mapped over the western portion of the study area between Essex Street and Allen Street, is historically significant for its association with immigration in America between 1820 and 1940. The following individual architectural resources are located within the portion of the historic district that falls within the project study area: the Eastern Dispensary; the Provident Loan Society of New York; Substation 409; 141 Ludlow Street; the New York Telephone Company Exchange; the Bank of the United States; the Lower East Side Tenement Museum; the E. Ridley and Sons Department Store; 339 Grand Street; and 345 Grand Street. While most of the buildings in this area are 19th-century, five- and six-story, brick and stone-clad tenements, several recent tall apartment, hotel, and dormitory buildings have been built in this area.

In addition to the Lower East Side Historic District, the potential Orchard Street Historic District overlaps the study area. This historic district is located wholly within the boundaries of the Lower East Side Historic District. Building types within the potential district include 19th-century tenements, 19th- and 20th-century commercial buildings, and a school. The following individual resources are located within the portion of the district that falls within the project study area: the Bank of the United States; the Lower East Side Tenement Museum; the E. Ridley and Sons Department Store; 339 Grand Street; and 345 Grand Street.

The potential Clinton, Rivington, Stanton Street Historic District overlaps with the north-eastern portion of the study area. The district includes 19th-century tenements, synagogues, a factory, a school, and commercial buildings. The following individual resources are located within the portion of the district that falls within the project study area: Public School 160 and Anshe Chesed Synagogue.

At the project site, traffic noise from adjacent streets was the dominant noise source. The highest noise levels in the study area occurred along Delancey Street. However, the levels are not unusual for busy urban corridors and are comparable to noise levels along other heavily trafficked multi-lane streets in New York City. In terms of *CEQR* criteria, the existing noise levels at the receptor location along secondary streets are either in the "acceptable" or "marginally acceptable" categories. The existing noise levels at receptor locations along major thoroughfares are in the "marginally unacceptable category."

Overall, the study area can be described by a diverse set of elements, including its mix of residential, commercial, community facility, and open space uses. The neighborhood contains a wide variety of residential uses, including walk-up tenements and higher-density residential development. As discussed above, it is well known for its commercial uses, including the growing number of hotels, restaurants, drinking establishments, art galleries, and fashion boutiques. Despite the influx of new residents and uses, the neighborhood continues to include substantial public housing and community facility uses. No one defining feature would be considered critical to the character of the neighborhood. Rather, the various localized features contribute to it.

POTENTIAL TO AFFECT THE DEFINING FEATURES OF THE NEIGHBORHOOD

LAND USE

The proposed actions would result in the addition of an approximately 1.7 million gross-square-foot mixed-use development. This amount of active new uses and development would result in a noticeable change in the character of the area. By replacing underutilized land that detracts from the character of the neighborhood with active residential (including 450 affordable units), commercial, community facility, and publicly accessible open space uses, the proposed actions would improve land use features that contribute to the neighborhood character. The mixture of uses within the proposed development would complement the study area as the development would provide for housing at a variety of income levels, a range of retail uses, open space, and community facilities. The proposed development would also knit together the area by incorporating a street grid, ground-level activity, and a publicly accessible open space, which would all improve the character of the neighborhood.

As discussed above, the study area has a substantial affordable housing stock. The proposed actions would respond to the community's need for new affordable housing through the provision of 450 new affordable units. Some of the affordable units could be set aside for senior citizen housing, which would also be compatible with existing land uses, and would help meet the growing demand for such housing in this neighborhood. The proposed development would also include 450 market-rate residential units, which would be consistent with the recent market-rate housing development within the study area.

The proposed commercial uses would be supportive of existing commercial uses, as well as consistent with recent development trends. Historically, the study area has been home to a range of bustling commercial uses, from garment production to food production and eateries to pushcart vendors. Today, the study area contains a broad mix of commercial uses, ranging from local delis and tailors, to a growing number of restaurants and drinking establishments, to larger commercial establishments, such as clothing stores, and banks. The proposed mix of local retail and destination retail stores in the RWCDS would complement the existing mix of commercial uses in the study area.

The proposed actions would enhance neighborhood character by the relocation and expansion of the Essex Street Market. The larger space would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors the first opportunity to relocate their business to the new market facility, when the new facility on Site 2 is complete and ready for occupancy.

While specific community facility uses are not yet defined, potential uses could include important community amenities such as daycare, educational, or social service functions. These uses would be compatible with existing community facility uses in the immediate area. The proposed publicly accessible open space would complement existing and proposed residential and commercial uses, and provide much needed passive and/or active open space opportunities.

The proposed uses would be expected to benefit the neighborhood character of the study area by replacing underutilized land that detracts from the character of the neighborhood with active residential, commercial, community facility, and publicly accessible open space uses.

SOCIOECONOMIC CONDITIONS

As discussed in Chapter 3, "Socioeconomic Conditions," the proposed actions would not result in significant adverse impacts for any of the issue areas—direct residential displacement, direct business displacement, indirect residential displacement, indirect business displacement, or adverse effects on specific industries.

The project-generated population would represent less than 5 percent of the future study area population, and therefore would not introduce a population that could substantially affect residential market conditions in the study area. In addition, the project's affordable housing would expand housing options available to the lower-income residents in the study area, and could balance the existing trend toward increased rents in the study area that would exist with or without the proposed actions.

As discussed above, the study area is well known for its commercial uses. There are approximately 40 business and institutional uses with an estimated 188 employees on the project site. As stated in Chapter 3, "Socioeconomic Conditions," with the proposed actions, it is assumed that the existing vendors within the Essex Street Market at the time of the move would have the first opportunity to relocate to the new Essex Street Market facility on Site 2; therefore, with the proposed actions, these businesses would not be directly displaced. In total, an estimated 107 employees at 14 businesses would be directly displaced under the proposed actions. This displacement would not result in significant adverse impacts on neighborhood character since the retail, parking, eating and drinking, and health care uses that would be displaced are common in the study area such that businesses and consumers would be able to find similar products and services elsewhere in the study area in the future with the proposed actions. The employment that would be lost would not be substantial, and the proposed actions would introduce many new employment opportunities in similar industry sectors. Although these businesses are valuable individually and collectively to the City's economy, their displacement from the project site would not result in a significant adverse impact on neighborhood character.

While the possibility of some limited indirect business displacement due to competition could not be ruled out, any displacement that might occur would not jeopardize the viability of any local retail strips, and would not result in adverse changes to neighborhood character. The proposed actions are not expected to alter the number of businesses and services that are located on retail corridors in the ½-Mile Local Trade Area, and vacancy rates are not expected to change in the future. Overall, the proposed actions would introduce new households, workers, and visitors to the area. The combination of new residents, workers, and visitors would increase foot traffic and increase retail demand, benefitting existing retail concentrations in the ½-Mile Local Trade Area.

Therefore, the proposed actions would not result in significant adverse impacts on neighborhood character due to socioeconomic conditions.

OPEN SPACE

The neighborhood's open spaces are a defining element that contributes to the neighborhood's character. The new resident and worker populations that would be introduced by the proposed actions would place additional demands on the study area's open spaces. In the residential study area, the open space ratios for the future with the proposed actions, as with existing conditions and the future without the proposed actions, would continue to fall short of the City's recommended open space ratio guidelines. However, the open space ratio for workers in the study area would still remain almost five times over the City's recommended guideline ratio. Because the open space ratios would remain substantially the same in the future with the proposed actions compared to the future without the proposed actions, and since the proposed actions would introduce new publicly accessible open space to partially offset the additional project-generated demand, the proposed actions would not result in any significant adverse impacts on open space resources in the residential study area. Therefore, the proposed actions would not result in significant adverse impacts on neighborhood character due to open space.

HISTORIC AND CULTURAL RESOURCES

As discussed above, one of the defining elements of the neighborhood is the Essex Street Market. Under the proposed actions, the four buildings of the Essex Street Market, which have been determined to be eligible for listing on the State and National Registers of Historic Places (S/NR), would be redeveloped. Therefore, the proposed development would have a direct significant adverse impact on each Essex Street Market building and on the four-building market complex as a whole, as well as on the former S/NR-eligible fire station on Site 5. Measures that could partially mitigate these significant adverse impacts are described in Chapter 21, "Mitigation Measures."

The historic districts that regulate development in the study area are also defining elements in the character of the neighborhood. While development of the proposed actions could have adverse physical impacts on the Lower East Side Historic District (S/NR), there are mechanisms to protect properties within New York City Historic Districts. *TPPN #10/88* requires a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With this required measure, significant adverse construction-related impacts would not occur to the contributing buildings within the Lower East Side Historic District (S/NR) that are located within 90 feet of project construction. Further, if Site 1 were to be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) by the developer through provisions in the Land Disposition Agreement (LDA) between the City of New York Department of Housing Preservation & Development (HPD) and the developer. In addition, the proposed development on Site 1 could likely have a significant adverse contextual and visual impact on the Lower East Side Historic District, as it would be taller than the majority of contributing historic district buildings within the study area. Potential mitigation measures for this potential significant adverse impact are discussed in Chapter 21, “Mitigation Measures.” While the proposed development on Site 1 could have a significant adverse contextual and visual impact on the historic district, it would not have a significant adverse impact on neighborhood character, which is characterized by the presence of two other historic districts and numerous individual resources.

The potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible) and the Williamsburg Bridge are also defining elements of the neighborhood. These are non-designated or listed resources. Construction under the proposed actions could potentially result in construction-related impacts on the resources. The resources would be afforded limited protection under DOB regulations applicable to all buildings located adjacent to construction sites (Section BC 3309); however, since the resources are not New York City Landmarks or listed National Register properties, they are not afforded special protections under *TPPN #10/88*. Additional protective measures afforded under *TPPN #10/88* would only become applicable if the Williamsburg Bridge and the potential historic district are designated or listed in the future prior to the initiation of adjacent construction or if the adjacent sites are developed under the jurisdiction of HPD. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s). If the bridge and potential historic district are not designated or listed and the adjacent sites are developed under the management of the New York City Economic Development Corporation, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions. The effect of the potential adverse impact would generally be limited to these sites, but they would not be widespread enough to affect neighborhood character. Therefore, the proposed actions would not have a significant adverse impact on neighborhood character resulting from its impact on historic resources.

URBAN DESIGN AND VISUAL RESOURCES

The proposed actions would improve the urban design features of the study area that contribute to the neighborhood character. The gaps in the streetscape of the neighborhood south of Delancey Street would be filled with new, active development. New street trees would shade as well as visually enhance the experience of walking around the project sites. Greater levels of pedestrian activity generated by the proposed uses on the sites—particularly ground-floor retail uses—would be self-reinforcing, making the project area more inviting and appealing to visit. New streetwalls would be created where they do not currently exist. The proposed actions would preserve existing streets, including those that had been demapped in the 1960s but were never taken out of functional use. In terms of building orientation and access, the projected new buildings would have retail and residential entrances on multiple sides to create pedestrian activity surrounding the sites, provide necessary access, and integrate with the existing neighborhood.

The building heights envisioned would not be out of character for the study area but would relate to the existing form of the neighborhood. Under the proposed actions, the development on each site would be within the limits of the maximum zoning envelope established by the Large Scale Development Plan. With a maximum building height of 24 stories (Sites 2 and 4 only), the proposed development would be compatible with the larger existing buildings in the area, such as the various Seward Park Extension towers. The setbacks of the anticipated towers would permit access to light and air. The lot coverage of the new buildings on Sites 1–6 would be greater than that of other large-scale developments south of Delancey Street, which are mainly set within large, landscaped sites, and would be more consistent with the lot coverage of the existing Essex Street Market buildings, tenements, and other lower-scale buildings in the study area to the north and west. Even though the density is consistent with the surrounding context, the new buildings may appear bulkier than the various existing larger-scale buildings noted above due to the greater lot coverage on these sites. The proposed actions would bring a greater level of active ground-floor uses to the portion of the study area south of Delancey Street and east of Essex Street, where the existing large housing developments currently do not provide many such uses. While the proposed actions would change the urban design of the study area, they are expected to benefit neighborhood character by improving the pedestrian experience and by activating currently underdeveloped and under-utilized sites.

The proposed actions would also allow for a modification of sign regulations. For the sites with the LSGD located in the C2 zoning district, the sign regulations of a C6-1 district may be made applicable for the frontages on Delancey and Grand Streets through CPC authorization. The potential changes in signage regulations would provide for larger and higher placed signage than is currently allowed in the C2 zoning district on Delancey and Grand Streets; however, these are among the main pedestrian and vehicular thoroughfares in the study area and thus are more appropriate locations for larger signage than other, more narrow or residential streets. In addition, this action requires a CPC finding that the modifications will be consistent with the location of commercial uses permitted within the LSGD and will not adversely affect residential uses in adjoining residential districts. Therefore, the modifications to sign regulations would not adversely affect neighborhood character.

In the future with the proposed actions, view corridors and visual resources could be enhanced, thus improving neighborhood character. The Delancey Street view corridor could be enhanced, as it could become more focused on the elements of the Williamsburg Bridge by the new development along the street, which would better frame these views. South of Delancey Street, the new buildings would be anticipated to improve the visual character of these sites, and thus the character of the view corridors, compared to the future without the proposed actions. While the Blue Condo building and large-scale housing complexes in the surrounding area would be less visible from vantage points south of Delancey Street; these developments north of Delancey Street would still be visible in many other study area views, rising above the lower-scale development in this portion of the study area. Views along Grand Street would now include the new development on Site 5, which—at up to approximately 190 feet tall to the top of mechanical bulkhead for the maximum zoning envelope—would be similar to the 187-foot-tall Seward Park Houses on the south side of the street. Views along Allen Street are not anticipated to be affected by the proposed actions.

A defining view of the study area is the view available to pedestrians, bicyclists, and drivers from the Williamsburg Bridge itself. From the Williamsburg Bridge, views to the development sites north of Delancey Street would not be notably different with the proposed actions compared to existing conditions, since these sites are not currently visible from this location and would be developed with smaller-scale buildings. Views to the development sites south of Delancey Street, however, would be notably altered. In many cases, the sites would go from hosting no buildings, to being fully occupied by structures. While significant, this change is not anticipated to be adverse. The change in views would not obstruct any visual resources, and views from this location are transitory.

Therefore, the proposed actions would not have a significant adverse impact on neighborhood character resulting from urban design and visual resources.

SHADOWS

As discussed in Chapter 6, "Shadows," the proposed actions would not result in significant adverse shadows impacts. While there would be no significant adverse shadows impacts, several of the study area's sun-sensitive resources, including the P.S. 142 Playground on Delancey Street, would receive incremental shadow. In addition, the proposed actions would result in incremental shadow impacts on three of the Schiff Mall medians, which are located along the center of Delancey Street and contain rose bushes and other plantings. The buildings that would actually be developed on Sites 1, 2, 3, and 4 would not be as large or bulky as the maximum zoning envelopes analyzed in this conservative study, and so the actual extent and duration of incremental shadow would likely be less than what is described in Chapter 6, "Shadows", and the roses may not actually be impacted. It has been determined that if a tower is constructed on these sites that would impact the roses, and if the roses are still there at the time of construction, then the roses would be replaced with shade tolerant planting as part of the project. Since these resources are not defining features of the neighborhood with respect to uniqueness or overall characterization of the area, the proposed actions would not create a significant adverse impact on neighborhood character resulting from shadows.

TRANSPORTATION

Vehicular traffic impacts in this neighborhood would be generally limited to Houston, Delancey, and Grand Streets. As discussed above, these major thoroughfares are already heavily trafficked, so that traffic increases would not affect neighborhood character.

While the proposed actions would not result in significant adverse impacts at the Essex Street/Delancey Street subway station during any analysis peak periods, the proposed actions would result in significant adverse impacts on bus line-haul levels on the southbound M9 and the westbound M14A during the AM peak period, and the northbound and southbound M9 during the PM peak period. Potential measures to mitigate the projected significant adverse bus line-haul impacts are described in Chapter 21, "Mitigation Measures." Since this is not a defining feature of the neighborhood, this would not create a significant adverse impact on neighborhood character.

Weekday and Saturday peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements at 22 area intersections. Under the RWCDS, significant adverse pedestrian impacts are anticipated for ~~four~~ five pedestrian analysis locations ~~at~~ along Delancey Street ~~and~~ at Essex and Clinton Streets including the west crosswalk of Delancey Street and Essex Street during the midday peak period, the east crosswalk of Delancey Street and Essex Street during the midday, PM and Saturday peak periods, the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, ~~and~~ the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period. Measures that can be implemented to mitigate these significant adverse pedestrian impacts are discussed in Chapter 21, "Mitigation Measures." While there would be increased activity, the resulting conditions would be similar to those seen in the high activity urban neighborhoods defining the study area and would not result in density of activity or service conditions that would be out of character with the study area or surrounding neighborhoods.

NOISE

While noise levels in the study area would increase in the future with the proposed actions—from increased traffic and building mechanical equipment—the magnitude of the increases would be generally imperceptible to most listeners and below the CEQR threshold for a significant adverse noise impact. Therefore, there would be no significant adverse impact on neighborhood character with respect to noise.

CONCLUSION

Overall, the proposed actions would result in a positive effect on the neighborhood character in the study area. Instead of underutilized buildings and surface parking lots surrounded by chain link fencing, the surrounding neighborhood would benefit from the new active, mixed-use development that would fill the gaps in the streetscape of the neighborhood south of Delancey Street. The proposed mix of local retail and destination retail stores in the RWCDS would complement the existing mix of commercial uses in the study area. The mix of uses would bring a greater level of pedestrian activity to the project site, making the neighborhood more inviting and appealing to visit. In addition, the increased pedestrian activity that would result from the proposed actions would increase foot traffic and retail demand, benefitting existing retail stores in the area.

The project site would be more inviting and appealing to visit with new street trees that would shade as well as visually enhance the neighborhood and with the new publicly accessible open space on Site 5 that would bring passive and/or active recreational opportunities to the area. The proposed mapping and demapping actions would make the mapped street pattern consistent with the pedestrian’s current experience of those areas. The pedestrian environment also would be improved by the widened sidewalks adjacent to Sites 1 through 6. Overall, the combined effect of changes to the defining elements would not create a significant adverse impact on neighborhood character. To the contrary, neighborhood character would be improved by replacing underutilized buildings and surface parking lots with new active, mixed-use development. ✷

Chapter 19: Construction

A. INTRODUCTION

This chapter summarizes a conceptual construction scenario for the Seward Park Mixed-Use Development Project and assesses the potential for significant adverse construction impacts. For construction activities of the scale and duration estimated for the proposed development, the *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition) calls for an assessment of construction-related impacts, with a focus on transportation, air quality, and noise, as well as consideration of other technical areas such as historic and cultural resources, hazardous materials, and open space. The assessment focuses on project construction activities within the project site. As described in Chapter 1, "Project Description," the project site encompasses the 10 City-owned sites located in Manhattan Community District 3 generally along Delancey and Essex Streets on the Lower East Side, the demapped sections of Broome and Suffolk Streets that would be mapped as City streets, and sections of Clinton and Delancey Streets that would be demapped. There would be no construction on Site 7 pursuant to the proposed actions and it would retain its current function as a municipal parking garage.

For each of the various technical areas presented below, appropriate construction analysis years were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods may differ for different analysis areas. Where appropriate, the analysis accounted for the effects of project elements that would be completed and operational during the selected construction analysis years.

While the anticipated construction durations have been developed with an experienced New York City construction manager, the discussion is only illustrative as specific means and methods will be chosen at the time of construction. At this time, there are no specific construction programs or designs for any development that is projected to result from the proposed actions. The construction durations are conservatively chosen to serve as the basis of the analyses in this chapter and are representative of the reasonable worst-case for potential impacts. The conceptual schedule represents a compressed and conservative potential timeline for construction, which shows overlapping construction activities and simultaneously operating construction equipment for development sites in proximity ~~of~~ to one another. Thus, the analysis captures the cumulative nature of construction impacts, which would result in the greatest impacts at nearby receptors.

PRINCIPAL CONCLUSIONS

TRANSPORTATION

Traffic

Construction activities would generate the highest amount of construction-related traffic in the third quarter of 2017. Construction-related traffic is expected to occur earlier than the commuter peak hours, typically at 6-7 AM and 3-4 PM, and the total number of vehicle trips generated during construction would be approximately 68 percent and 86 percent lower than the total number of vehicle trips generated by the completed development project during the AM and PM hours, respectively. Nevertheless, a detailed analysis of traffic conditions was completed for nine key intersections near the construction sites, and this analysis indicated that significant adverse traffic impacts could occur at just one ~~four of these~~ location~~s~~ during construction, ~~but~~ at lesser magnitudes than impacts identified under the With-Action condition. Where impacts during construction may occur, measures similar to the ones recommended to mitigate impacts of the proposed actions could be implemented early to aid in alleviating congested traffic conditions. Sidewalk and lane closures would be finalized as the maintenance and protection of traffic (MPT) plans are developed and reviewed with the New York City Department of Transportation (NYCDOT).

Parking

The majority of construction workers are expected to commute to the job site by public transportation; only 29 percent are expected to drive to work. There would be no parking provided for them at the construction sites but the overall peak parking demand for 80 spaces ~~would be able to park~~ could be accommodated in off-street parking facilities within a quarter-mile distance (about a five-minute walk) from the project site.

Transit

The study area is well served by public transit, including the F, J, M, and Z subway lines at the Essex Street-Delancey Street station. There are also several local bus routes, including the M9, M14A, M15, M21, and M22. Based on the number of projected construction workers being distributed among the various subway and bus routes, station entrances, and bus stops near the project area, 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 hours of 8-9 AM and 5-6 PM. Hence, there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips. Any temporary relocation of bus stops along bus routes that operate adjacent to the project area would be coordinated with and approved by NYCDOT and the New York City Transit (NYCT) to ensure proper access is maintained.

Pedestrians

Considering that pedestrian trips generated by construction workers would occur during hours outside of the typical commuter peak hours of 8-9 AM and 5-6 PM and would be distributed among numerous sidewalks and crosswalks in the area, the preliminary analysis found that there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. During the course of construction, sidewalks may be closed for varying periods of time to allow for certain construction activities but pedestrian circulation and access would be maintained through the use of temporary sidewalks or sidewalk bridges.

This sidewalk work would be coordinated with and approved by NYCDOT and the New York City Department of Buildings (NYCDOB).

AIR QUALITY

The proposed actions would not result in significant adverse impacts with respect to air quality. A detailed analysis of on-site and on-road emissions determined that annual-average nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}) concentrations would be below their corresponding National Ambient Air Quality Standards (NAAQS). Therefore, construction under the proposed actions would not cause or contribute to any significant adverse air quality impacts with respect to these standards.

Dispersion modeling determined that the maximum predicted incremental concentrations of particulate matter with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$) (using a worst-case emissions scenario) would exceed the City's applicable 24-hour interim guidance criterion of 2 micrograms per cubic meter ($\mu g/m^3$) at near-side sidewalk receptor locations and four residential locations. The occurrences of elevated 24-hour average concentrations for $PM_{2.5}$ would be limited in duration, frequency, and magnitude. Therefore, taking into account the limited duration and extent of these predicted exceedances, and the limited area-wide extent of the 24-hour impacts, it was concluded that no significant adverse air quality impacts for $PM_{2.5}$ would occur from the on-site construction sources.

Because background concentrations are not known and the analysis methodology for mobile and construction sources have not been developed for the new 1-hour NO_2 NAAQS, exceedances of the 1-hour NO_2 standard resulting from construction activities cannot be ruled out. Therefore, measures including diesel equipment reduction, utilization of newer equipment, and idling restriction, would be implemented to the extent feasible and practicable to minimize NO_x emissions from construction activities under the proposed actions.

NOISE AND VIBRATION

Noise

Development pursuant to the proposed actions would result in significant adverse impacts with respect to construction noise. This conclusion is based on a conservative analysis of the construction procedures, including peak quarterly levels assumed to represent each year of construction, a maximum amount of construction equipment assumed to be operational on each development site and at locations closest to nearby receptors, and a compressed construction schedule with a maximum amount of development sites under construction simultaneously.

Construction on the proposed development sites would include noise control measures as required by the New York City Noise Control Code, including both path and source controls. Even with these measures, the results of detailed construction analyses indicate that elevated noise levels are predicted to occur for two or more consecutive years at ~~forty-five (45)~~ 13 of the ~~eighty-three (83)~~ receptor sites analyzed. Affected locations include residential, institutional and open space areas adjacent to the proposed development sites and along routes expected to be traveled by construction-related vehicles to and from the project site. However, most affected buildings have double-glazed windows and air-conditioning, and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA, which would be considered acceptable according to CEQR criteria. At affected locations that do not already have double-glazed windows and air conditioning interior, $L_{10(1)}$ values resulting from construction may exceed 45 dBA. Additional options for source and path controls would be incorporated into the construction methodology to the extent practicable and feasible.

Thus, should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to ~~15~~ 3 locations could experience significant impacts for certain limited periods during construction. At the ~~four~~ two locations with the potential to experience construction noise impacts only at outdoor balconies, there would be no feasible or practicable mitigation to mitigate the construction noise impacts. Further assessment related to construction impacts at ~~Seward Park High School~~ ~~(~~350 Grand Street~~)~~ (Seward Park High School) resulting from construction at Sites 1, 2, and 3 will be conducted upon selection of a developer or developers for these sites, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the proposed actions (see "Noise Reduction Measures" below). If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated. If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing, and any available additional path and source controls still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the New York City School Construction Authority (SCA). ~~between DGEIS and FGEIS to refine the area of potential impact~~. ~~The project sponsors will also explore potential mitigation measures at the school between DGEIS and FGEIS.~~ ~~In the event that mitigation measures are not determined to be feasible and practicable, the impact would be unmitigated.~~ In the event that implementing such receptor controls is not practicable, as determined by the Office of the Deputy Mayor for Economic Development (ODMED) as lead agency in consultation with the City of New York Department of Housing Preservation & Development (HPD) and/or the New York City Economic Development Corporation (NYCEDC), the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in the FGEIS.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior~~ ~~L_{10}~~ ~~values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there are no practicable mitigation measures, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in~~

~~this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

Vibration

Development pursuant to the proposed actions is not expected to result in significant adverse construction impacts with respect to vibration. Use of construction equipment that would have the most potential to exceed the 65 VdB criterion within a distance of 230 feet of sensitive receptor locations (e.g., equipment used during pile driving) would be perceptible and annoying. Therefore, for limited time periods, perceptible vibration levels may be experienced by occupants and visitors to all of the buildings and locations on and immediately adjacent to the construction sites. However, the operations which would result in these perceptible vibration levels would only occur for finite periods of time at any particular location and, therefore, the resulting vibration levels, while perceptible, would not result in any significant adverse impacts.

OTHER TECHNICAL AREAS

Historic and Cultural Resources

Construction would involve subsurface disturbance to areas that have been identified as archaeologically sensitive by the Phase 1A studies. The Phase 1A recommended a Phase 1B archaeological investigation to determine the presence or absence of archaeological resources in the areas identified as archaeologically sensitive. These potential archaeological resources could include shaft features (i.e., privies, cisterns, or wells) associated with the residential occupation of these historic lots in the early to mid-19th century. The Phase 1A was submitted to the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A. With implementation of Phase 1B testing and continued consultation with LPC and/or OPRHP regarding the need for, and implementation of, any Phase 2 and 3 investigations, no significant adverse impacts on archaeological resources would result from construction.

Architectural resources are defined as buildings, structures, objects, sites or districts listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing based on the criteria defined below, National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts, and properties that have been found by the LPC to appear eligible for designation, considered for designation ("heard") by LPC at a public hearing, or calendared for consideration at such a hearing (these are "pending" NYCLs). The proposed actions could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. NYCDOB *Technical Policy and Procedure Notice* (*TPPN) #10/88,* applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. *TPPN #10/88* supplements the standard building protections afforded by the Building Code by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With these required measures, significant adverse construction-related impacts would not occur to the former Norfolk Street Baptist Church (NYCL, S/NR) or to the contributing buildings within the Lower

East Side Historic District (S/NR) that are located within 90 feet of project construction. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s).

For the non-designated or listed resources—the potential Clinton, Rivington, Station Street Historic District (NYCL-eligible, S/NR-eligible) and the Williamsburg Bridge (S/NR-eligible)—construction under the proposed actions could potentially result in construction-related impacts on the resources. Additional protective measures afforded under *TPPN #10/88* would only become applicable if those resources are designated or listed in the future prior to the initiation of adjacent construction or if the adjacent sites are developed under the jurisdiction of HPD. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s). If the resources are not designated or listed and the adjacent sites are developed under the management of NYCEDC, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions.

Hazardous Materials

The proposed actions would result in the demolition of existing structures and surface parking areas on Sites 1 through 6 and 8 through10 followed by subsurface disturbance associated with construction of new structures. Site 7 would not be redeveloped pursuant to the proposed actions and the existing parking garage would remain. The proposed actions would include appropriate health and safety/remedial measures, as warranted, that would precede or govern demolition, construction, and soil disturbance activities on the development sites. With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions.

Open Space

There are no publicly accessible open spaces within the project site, and no open space resources would be used for staging or other construction activities. The nearest open space is the 0.45-acre Broome Seward Park Extension, which is located on Broome Street between Clinton Street and Ridge Street, approximately 130 feet east of Site 6. At limited times, activities such as excavation and foundation construction may generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction fences around the project site would shield the park from construction activities. Construction under the proposed actions would not limit access to the park or other open space resources in the vicinity of the project site. Therefore, construction under the proposed actions would not result in significant adverse impacts on open space.

Socioeconomic Conditions

Construction activities could temporarily affect pedestrian and vehicular access. However, lane and/or sidewalk closures would not obstruct entrances to any existing businesses, and businesses are not expected to be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Utility service would be maintained to all businesses, although short term interruptions (i.e., hours) may occur when new equipment/infrastructure (e.g., a transformer, or a sewer or water line) is put into operation. Overall, construction activities associated with the proposed actions would not result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

Community Facilities

The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care. Construction of the proposed buildings would not block or restrict access to any facilities in the area, and would not materially affect emergency response times significantly. New York Police Department (NYPD) and Fire Department (FDNY) emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas. As discussed below (See “Noise and Vibration”), at limited times during the construction period, Seward Park High School would be expected to experience significant noise impacts ~~that may be considered unmitigated~~. Upon selection of a developer for each of Sites 1, 2, and 3, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the proposed actions (see “Noise Reduction Measures”). If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated. If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing, and any available additional path and source controls still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the SCA. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

~~For the predicted noise impact on the school, an additional assessment will be undertaken between the DGEIS and FGEIS to further refine the area of potential impact on the school and potential mitigation measures to minimize this significant construction noise impact will be further explored. It is important to note that the conceptual schedule on which the noise analysis was based represented a compressed and conservative potential timeline for construction that tended to show the most construction activity and most construction equipment operating simultaneously, which conditions would result in the largest increase in noise levels at the nearby receptors.~~

Land Use and Neighborhood Character

Construction activities would affect land use on the project site but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the site. There would also be noise, sometimes intrusive, from building construction as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as most construction activities would take place within the project site or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the project site. Overall, while the construction at the site would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

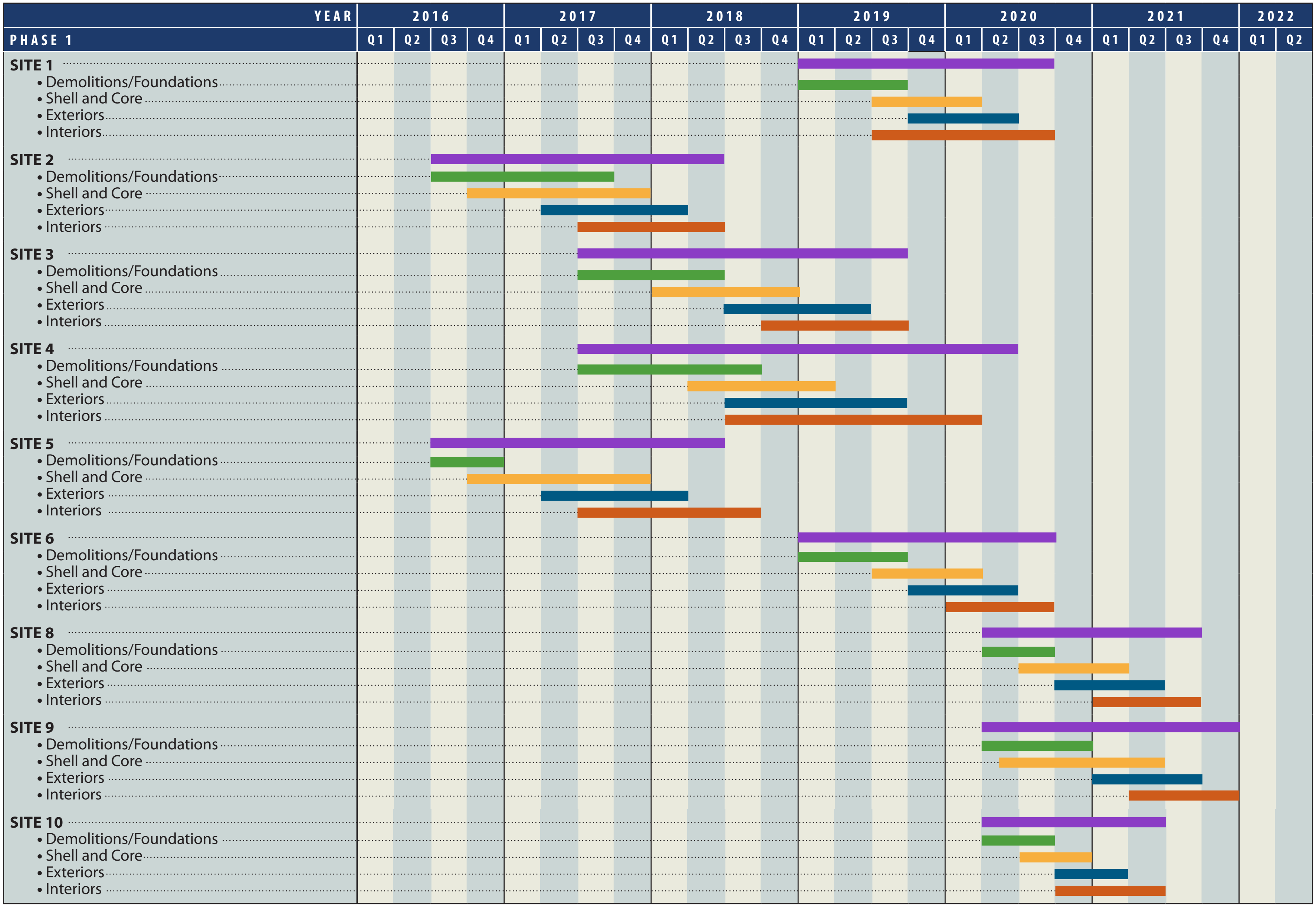
B. METHODOLOGY

The analyses in this chapter represent the reasonable worst-case development scenario (RWCDS) for each analysis area. The RWCDS can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods may differ for traffic, air quality, and noise. In each section, the methodologies to determine the period of RWCDS potential impacts are explained. For all construction-related analysis areas, the methodologies used to assess potential construction-related impacts can be found in the chapters for each analysis area addressing potential operational impacts. Additional details relevant only to the construction air quality and noise analysis methodologies are given in their respective analysis sections below.

This section describes the expected construction schedule, the construction methods to be used, and City, state, and federal regulations and policies that govern construction. This section also establishes the framework used for the assessment of potential impacts from construction. The construction timeline—determined by the timing of the various major construction stages associated with constructing a building—such as excavation and foundation, core and shell construction, and interior finishing—is described. The types of equipment are discussed, and the number of workers and truck deliveries estimated. The analyses use these data to determine the potential for significant adverse environmental impacts.

CONCEPTUAL CONSTRUCTION PHASING AND SCHEDULE

While the anticipated construction durations described below have been developed with an experienced New York City construction manager, the discussion is only illustrative as means and methods may be chosen at the time of construction. At this time, there are no specific construction programs or designs for any development that is projected to result from the proposed actions. The described construction durations are conservatively chosen to serve as the basis of the analyses in this chapter and are representative of the reasonable worst-case for potential impacts. The analyses conservatively account for overlapping construction activities for development sites in proximity ~~of~~ to one another to capture the cumulative nature of construction impacts. **Figure 19-1** and **Table 19-1** present a conceptual schedule of construction for the proposed buildings. In the conceptual construction schedule, construction is assumed to begin in 2016. However, due to the conservative nature of this conceptual schedule as explained above, construction may start at an earlier time. If the proposed actions are approved, complete build-out of the proposed development would occur over time with the last building being completed by approximately 2022.



This conceptual schedule represents a compressed and conservative timeline for a reasonable worst-case analysis to capture the maximum potential impacts.

Conceptual Construction Schedule

Figure 19-1

Table 19-1
Conceptual Construction Schedule

Reasonable Worst Case Development Scenario (RWCDS) Site	Start Month	Finish Month	Approximate duration (months)
Site 1	1st quarter 2019	3rd quarter 2020	21
Site 2	3rd quarter 2016	2nd quarter 2018	24
Site 3	3rd quarter 2017	3rd quarter 2019	27
Site 4	3rd quarter 2017	1st quarter 2020	33
Site 5	3rd quarter 2016	3rd quarter 2018	27
Site 6	1st quarter 2019	3rd quarter 2020	21
Site 7 [1]	--	--	--
Site 8	2nd quarter 2020	3rd quarter 2021	18
Site 9	2nd quarter 2020	4th quarter 2021	21
Site 10	2nd quarter 2020	2nd quarter 2021	15

Note:
[1] Site 7 would retain its current function as a municipal parking garage, which would continue to support the existing neighborhood uses, as well as the potential new development on the development sites. Therefore, Site 7 is not included in this analysis.
Source: Hunter Roberts Construction Group

Construction on Sites 2 and 5 would begin in the third quarter of 2016. Site 2 would be completed in approximately two years while Site 5 is expected to take about 27 months to complete. Construction on Sites 3 and 4 would begin in the third quarter of 2017, and would take about 27 months and 33 months to complete, respectively. At the beginning of 2019, construction would commence on Sites 1 and 6, and would be completed by the third quarter of 2020. By the second quarter of 2020, construction on Sites 10 would begin and would take approximately 15 months to complete. Construction on Sites 8 and 9 would also begin in the second quarter of 2020, and would be completed by the third quarter of 2021 and by the end of 2021, respectively.

CONSTRUCTION DESCRIPTION

OVERVIEW

Construction of mid-rise or large-scale buildings in New York City typically follows a general pattern. The first task is construction startup, which involves the siting of work trailers, installation of temporary power and communication lines, and the erection of site perimeter fencing. Then, if there is an existing building on the site, any potential hazardous materials (such as asbestos) are abated, and the building is then demolished with some of the materials recycled and the debris taken to a licensed disposal facility. Excavation and removal of the soils is next, followed by construction of the foundations. When the below-grade construction is completed, construction of the core and shell of the new building begins. The core is the central part of the building and is the main part of the structural system. It contains the elevators and the mechanical systems for heating, ventilation, and air conditioning (HVAC). The shell is the outside of the building. As the core and floor decks of the building are being erected, installation of the mechanical and electrical internal networks would start. As the building progresses upward, the exterior cladding is placed, and the interior fit out begins. During the busiest time of building construction, the upper core and structure is being built while mechanical/electrical connections, exterior cladding, and interior finishing are progressing on lower floors.

GENERAL CONSTRUCTION PRACTICES

Certain practices would be observed throughout the construction of the project buildings. Each construction manager would designate a contact person for community relations throughout the construction period. This person would serve as the contact for the community to voice concerns about construction activities, and would be available to meet with the community to resolve concerns or problems. New York City maintains a 24-hour-a-day telephone hotline (311) so that concerns can be registered with the city.

Governmental Coordination and Oversight

The following describes construction oversight by government agencies, which in New York City is extensive and involves a number of city, state, and federal agencies. **Table 19-2** shows the main agencies involved in construction oversight and the agencies' areas of responsibilities. Primary responsibilities lie with NYCDOB, which ensures that the construction meets the requirements of the Building Code and that the buildings are structurally, electrically, and mechanically safe. In addition, NYCDOB enforces safety regulations to protect both the workers and the public. The areas of oversight include installation and operation of the equipment, such as cranes and lifts, sidewalk sheds, and safety netting and scaffolding. The New York City Department of Environmental Protection (NYCDEP) enforces the Noise Code, reviews and approves Remedial Action Plans (RAPs)/ Construction Health and Safety Plans (CHASPs), regulates water disposal into the sewer system, and the removal of tanks. FDNY has primary oversight for compliance with the Fire Code and for the installation of tanks containing flammable materials. NYCDOT reviews and approves any traffic lane and sidewalk closures. NYCT is responsible for subway access and, if necessary, bus stop relocations. NYCT also coordinates construction work which could affect the subway system. LPC approves studies and monitoring plans to prevent damage to historic resources, both archaeological and architectural. New York City Department of Parks and Recreation is responsible for the oversight, enforcement, and permitting of the replacement of street trees that are lost due to construction. Section 5-102 et. seq. of the Laws of the City of New York requires a permit to remove any trees and the replacement of the trees as determined by calculating the size, condition, species, and location rating of the tree proposed for removal.

Table 19-2
Construction Oversight in New York City

Agency	Areas of Responsibility
New York City	
Department of Buildings	Primary oversight for Building Code and site safety
Department of Environmental Protection	Noise, hazardous materials, dewatering, tanks
Fire Department	Compliance with Fire Code, tanks
Department of Transportation	Lane and sidewalk closures
New York City Transit	Subway access, bus stop relocation
Landmarks Preservation Commission	Archaeological and architectural protection
Department of Parks and Recreation	Street trees
New York State	
Department of Labor	Workers/Asbestos workers
Department of Environmental Conservation	Hazardous materials and tanks
United States	
Environmental Protection Agency	Air emissions, noise, hazardous materials, poisons
Occupational Safety and Health Administration	Worker safety

NYSDEC regulates disposal of hazardous materials, and construction and operation of bulk petroleum and chemical storage tanks. The New York City Department of Labor (NYCDOL) licenses asbestos workers. On the federal level, the U.S. Environmental Protection Agency (EPA) has wide ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons. Much of the responsibility is delegated to the state level. The Occupational Safety and Health Administration (OSHA) sets standards for work site safety and the construction equipment.

Deliveries and Access

Access to the construction sites would be controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. Private worker vehicles would not be allowed into the construction area. Security guards and flaggers may be posted as necessary, and all persons and trucks would have to pass through security points. Workers or trucks without a need to be on the site would not be allowed entry. After work hours, the gates would be closed and locked. Security guards may patrol the construction sites after work hours and over the weekends to prevent unauthorized access.

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

Hours of Work

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

At limited times over the course of constructing a building, weekend work may be required to make up for weather delays or other unforeseen circumstances. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7:00 AM, and ending with site cleanup at 5:00 PM.

Some tasks may have to be continuous, and the work could extend to more than a typical 8-hour day. For example, in certain situations, concrete must be poured continuously to form one structure without joints. This type of concrete pour is usually associated with foundations and structural slabs at grade, which would require a minimum of 12 hours or more to complete.

Sidewalk and Lane Closures

During the course of construction, traffic lanes and sidewalks may be closed or protected for varying periods of time. Some street lanes and sidewalks may be continuously closed, and some lanes and sidewalks may be closed only intermittently to allow for certain construction activities. This work would be coordinated with and approved by the NYCDOT.

GENERAL CONSTRUCTION TASKS

Construction Startup Tasks

The following tasks are considered to be typical startup work to prepare a site for construction. The tasks could include, but are not limited to, the following items. The means and methods and order of completion of these tasks could change as necessary. Startup work generally involves the installation of public safety measures, such as fencing, sidewalk sheds, and Jersey barriers. The site is fenced off, typically with solid fencing to minimize interference between the persons passing by the site and the construction work. Separate gates for workers and for trucks are installed, and sidewalk shed and Jersey barriers are erected. Trailers for the construction engineers and managers are hauled to the site and installed. These trailers could be placed within the fence line, in curb lane, or over the sidewalk sheds. Also, portable toilets, dumpsters for trash, and water and fuel tankers are brought to the site and installed. Temporary utilities are connected to the construction trailers. During the startup period, permanent utility connections may be made, especially if the contractor has obtained early electric power for construction use, but utility connections may be made almost any time during the construction sequence. Construction startup tasks are normally completed within weeks.

Abatement, Demolition, and Remediation

The proposed actions would result in the demolition of surface parking areas on Sites 1–6. In addition, existing buildings on Sites 2, 5, 8, 9, and 10 would be demolished. These facilities would be abated of asbestos and any other hazardous materials within the existing buildings and structures, where applicable.

A New York City-certified asbestos investigator would inspect the buildings for asbestos-containing materials (ACMs), and those materials must be removed by a NYCDOL-licensed asbestos abatement contractor prior to interior demolition. Asbestos abatement is strictly regulated by NYCDEP, NYCDOL, EPA, and OSHA to protect the health and safety of construction workers and nearby residents and workers. Depending on the extent and type of ACMs, these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations, including the new February 2, 2011 NYCDEP regulations. These regulations specify abatement methods, including wet removal of ACMs that minimize asbestos fibers from becoming airborne, and containment measures. The areas of the building with ACMs would be isolated from the surrounding area with a containment system and a decontamination system. The types of these systems would depend on the type and quantity of ACMs, and may include hard barriers, isolation barriers, critical barriers, and caution tape. Specially trained and certified workers, wearing personal protective equipment, would remove the ACMs and place them in bags or containers lined with plastic sheeting for disposal at an asbestos-permitted landfill. Depending on the extent and type of ACMs, an independent third-party air-monitoring firm would collect air samples before, during, and after the asbestos abatement. These samples would be analyzed in a laboratory to ensure that regulated fiber levels are not exceeded. After the abatement is completed and the work areas have passed a visual inspection and monitoring, if applicable, the general demolition work can begin.

Any activities with the potential to disturb lead-based paint would be performed in accordance with the applicable OSHA regulation (OSHA 29 CFR 1926.62—*Lead Exposure in Construction*). When conducting demolition (unlike lead abatement work), lead-based paint is generally not stripped from surfaces. Structures may be disassembled or broken apart with most paint still intact. Dust control measures (spraying with water) would be used if necessary. The lead content of any resulting dust is therefore expected to be low. Work zone air monitoring for lead may be performed during certain activities with a high potential for releasing airborne lead-containing particulates in the immediate work zone, such as manual demolition of walls with lead paint or cutting of steel with lead-containing coatings. Such monitoring would be performed to ensure that workers performing these activities are properly protected against lead exposure.

Any suspected PCB-containing equipment (such as fluorescent light ballasts) that would be disturbed would be evaluated prior to disturbance. Unless labeling or test data indicate that the suspected PCB-containing equipment does not contain PCBs, it would be assumed to contain PCBs and removed and disposed of at properly licensed facilities in accordance with all applicable regulatory requirements.

All of these procedures related to the handling of ACM, lead-based paint, and potential PCB-containing equipment would be contained in the NYCDEP-approved CHASP.

General demolition is the next step, where necessary. Demolition would occur in accordance with NYCDOB guidelines/requirements. In general, the first step is to remove any economically salvageable materials. Then the building is deconstructed using large equipment. Typical demolition requires fencing around the building to prevent accidental dispersal of building materials into areas accessible to the general public. The demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. About 10 to 20 workers per day are expected to be on site, and typically two to four truckloads of debris would be removed per hour. The general demolition phase is expected to last one to two months per site.

Excavation and Foundation

Typically, soil excavation and foundation construction for a building takes approximately 6 to 15 months to complete, depending on the size of the development. Excavators would be used for the task of digging foundations. The soil would be loaded onto dump trucks for transport to a licensed disposal facility or for reuse on another construction site. Foundation work could include pile driving and pouring concrete footings and foundation. The excavation/foundation task could involve the use of excavators, cranes, pile drivers, concrete pumps, concrete trucks, generators, and hand tools. Anywhere from 10 to 70 workers would be on-site at any given time. About 10 to 20 trucks per day are expected for this phase of work.

Below-Grade Hazardous Materials

All construction subsurface soil disturbances would be performed in accordance with a NYCDEP-approved RAP and CHASP. At a minimum, the RAP would provide for the appropriate handling, stockpiling, testing, transportation, and disposal of excavated materials, as well as any unexpectedly encountered tanks, in accordance with all applicable federal, state, and local regulatory requirements. The RAP would also provide for vapor control measures such as vapor barriers. The CHASP would ensure that all subsurface disturbances are done in a manner protective of workers, the community, and the environment.

Dewatering

The excavated area could be subject to accumulating groundwater until the slab-on-grade is built. In addition to groundwater, rain and snow could collect in the excavation, and that water would have to be removed. If necessary, the water would be pretreated prior to discharge. The decanted water would then be discharged into the New York City sewer system. Discharge in the sewer system is governed by NYCDEP regulations.

NYCDEP has a formal procedure for issuing a Letter of Approval to discharge into the New York City sewer system. The authorization is issued by the NYCDEP Borough office if the discharge is less than 10,000 gallons per day; an additional approval by the Division of Connections & Permitting is needed if the discharge is more than 10,000 gallons per day. All chemical and physical testing of the water has to be done by a laboratory that is certified by the New York State Department of Health (NYSDOH). The design of the pretreatment system has to be signed by a New York State Professional Engineer or Registered Architect. For water discharged into New York City sewers, NYCDEP regulations specify the following maximum concentration of pollutants.

- Petroleum hydrocarbons 50 parts per million (ppm)
- Cadmium 2 ppm
- Hexavalent chromium 5 ppm
- Copper 5 ppm
- Amenable cyanide 0.2 ppm
- Lead 2 ppm
- Mercury 0.05 ppm
- Nickel 3 ppm
- Zinc 5 ppm
- pH between 5 to 12
- Temperature less than 150 degrees Fahrenheit (F)
- Flash Point greater than 140 degrees F
- Benzene 134 parts per billion (ppb)
- Ethylbenzene 380 ppb
- Methyl-Tert-Butyl-Ether (MTBE) 50 ppb
- Naphthalene 47 ppb
- Tetrachloroethylene (perc) 20 ppb
- Toluene 74 ppb
- Xylenes 74 ppb
- PCB 1 ppb
- Total Suspended Solids 350 ppm

Any groundwater discharged in the New York City system would meet these limits. NYCDEP can also impose project-specific limits, depending on the location of the project and contamination that has been found in nearby areas.

Core and Shell

In general, core and shell construction of the proposed buildings would last approximately 6 to 15 months, depending on the size of the building. Construction of the interior structure, or core, of the proposed buildings would include elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. This phase of work would also include construction of the building’s framework (installation of beams and columns), and floor decks. These activities would require the use of cranes, delivery trucks, concrete pumps, concrete trowels, welding equipment, and a variety of handheld tools. Temporary construction elevators (hoists) would also be constructed for the delivery of materials and vertical movement of workers during this stage where necessary. Each day, about 20 to 100 workers and about 5 to 15 truck deliveries would be required for the core and shell construction of each building.

Exteriors

Exterior construction involves the installation of the façade (exterior walls, windows, and cladding) and the roof. Exterior construction would take about 6 to 15 months. Cranes would be used to lift the façade into place, and welding machines and impact wrenches would secure the exterior to the superstructure. Anywhere from 15 to 55 workers and 5 to 15 trucks per day would be needed for the exterior construction.

Interiors

This stage would include the construction of interior partitions, installation of lighting fixtures, interior finishes (flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators. Mechanical and other interior work would overlap with the building core and shell construction. This activity would employ the greatest number of construction workers: with about 30 to 120 workers per day. In addition, anywhere from 5 to 10 truck deliveries would be expected per day at each building. Equipment used during interior construction would include hoists, delivery trucks, and a variety of small hand-held tools. However, this stage of construction is the quietest.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Construction is labor intensive, and the number of workers varies with the general construction task and the size of the building. Likewise, material deliveries generate many trucks, and the number also varies. **Table 19-3** shows the estimated numbers of workers and deliveries to the project site by calendar quarter for all construction based on the conceptual schedule outlined above. These represent the average number of daily workers and trucks within each quarter. The average number of workers would be about 305 per day throughout the construction period. The peak number of workers would be 566 per day in the third quarter of 2017. For truck trips, the average number of trucks would be 56 per day, and the peak would occur in the third quarter of 2017 with 109 trucks per day.

Table 19-3
Average Number of Daily Workers and Trucks by Quarter

Year	**2016**				**2017**				**2018**				**2019**			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	--	--	101	244	172	281	566	537	483	479	430	513	455	350	385	237
Trucks	--	--	35	57	36	55	109	92	81	76	75	72	79	65	64	38
Year	**2020**				**2021**				**Project**							
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Average		Peak					
Workers	362	218	241	121	168	190	114	58	305		566					
Trucks	47	59	59	42	41	36	14	4	56		109					

Note: This table represents estimated conditions in each quarter and may differ from the numbers discussed in some analysis sections. The analyses are based on RWCDS assumptions for that particular analysis area.
Source: Hunter Roberts Construction Group

C. EXISTING CONDITIONS

As described in Chapter 1, "Project Description," the project site contains a mix of parking, vacant and partially vacant commercial uses, and a residential building. Within the project area, Suffolk Street is demapped between Grand and Delancey Streets and Broome Street is demapped between Norfolk and Clinton Streets. Sites 1, 3, 4, and 6 are each entirely occupied by surface parking. Sites 2 and 5 also contain surface parking. The remainder of Site 2 is occupied by a former Essex Street Market building. Site 5 contains three buildings, including a residential building, a three-story building that is mostly vacant except for a ground-floor use, and a former fire station. The Site 7 municipal public parking garage would retain its current function. Site 9 contains the public Essex Street Market. Sites 8 and 10 contain former Essex Street Market buildings, and the building on Site 8 is vacant and used for storage of refuse generated by the market in the building on Site 9.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the future without the proposed actions (No Action condition), it is expected that existing uses on the projected development sites would remain. In addition, the future without the proposed actions would account for other development projects that are planned to be in place by 2022 absent the proposed actions.

E. PROBABLE IMPACTS OF THE PROPOSED ACTIONS

Similar to many large development projects in New York City, construction can be disruptive to the surrounding area for limited periods of time throughout the construction period. The following analyses describe potential construction impacts on transportation, air quality, noise and vibration, as well as other areas including historic and cultural resources, hazardous materials, open space, socioeconomic conditions, community facilities, and land use and neighborhood character

TRANSPORTATION

TRAFFIC AND PARKING

Construction activity would extend from 2016 to 2022 and would generate construction worker and truck traffic. Because of the lengthy duration of these activities, an evaluation of construction sequencing and worker/truck projections was completed in order to identify potential construction traffic impacts. As described below, the projected construction activities would yield less total traffic than projected for the proposed actions. However, significant adverse traffic impacts could still occur at some of the study area locations during construction, similar to the impacts identified in Chapter 13, “Transportation.” Therefore, a detailed traffic construction analysis was performed for nine critical intersections within the traffic study area, and the conclusions of this analysis are presented below.

CONSTRUCTION TRAFFIC PROJECTIONS

Average daily construction worker and truck activities by quarter were projected for six years of construction. These projections were further refined to account for worker modal splits and vehicle occupancy, and arrival and departure distribution.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarter of the peak construction year were used as the basis for estimating peak hour construction trips. Based on a schedule of commencing construction in 2016, the combined construction worker and truck traffic peak would occur in the third quarter of 2017. As shown in **Table 19-3**, the daily average numbers of construction workers and truck deliveries during the peak quarters was estimated at 566 workers and 109 truck deliveries per day. These estimates of construction activities are further discussed below.

Construction Worker Modal Splits

Based on the survey conducted at the construction site of the New York Times Building in 2006, it is anticipated that construction workers' travel within or commute to Manhattan would be primarily by public transportation (approximately 70 percent), with a smaller percentage by private auto (approximately 30 percent with an average auto occupancy rate of 2.04). The study area is well served by mass transit, and it is expected that most of the construction workers would commute via mass transit to and from the project site. Transit service within the study area includes the F, J, M, and Z subway lines and the M9, M14A, M15, M21, and M22 bus routes.

Peak Hour Construction Worker Vehicle and Truck Trips

Site activities would mostly take place during the typical construction shift of 7 AM to 3 PM. While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction worker travel would typically take place during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon, whereas each truck delivery was assumed to result in two truck trips during the same hour (one "in" and one "out").

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift (6-7 AM for arrivals and 3-4 PM for departures). For construction trucks, deliveries would occur throughout the day when the construction site is active. Construction truck deliveries typically peak during the hour before the regular day shift (25 percent of the daily total), overlapping with construction worker arrival traffic. Based on these assumptions, peak hour construction traffic was estimated for the entire construction period. The peak construction hourly trip projections for the third quarter of 2017 are summarized in **Table 19-4**.

Table 19-4
Peak Construction Vehicle Trip Projections – Third Quarter of 2017

Hour	AutoTrips		Truck Trips		Total VehicleTrips		
	In	Out	In	Out	In	Out	Total
6 AM - 7 AM	64	0	27	27	91	27	118
7 AM - 8 AM	16	0	11	11	27	11	38
8 AM - 9 AM	0	0	11	11	11	11	22
9 AM - 10 AM	0	0	11	11	11	11	22
10 AM - 11 AM	0	0	11	11	11	11	22
11- AM -12 PM	0	0	11	11	11	11	22
12 PM - 1 PM	0	0	11	11	11	11	22
1 PM - 2 PM	0	0	6	6	6	6	12
2 PM - 3 PM	0	4	5	5	5	9	14
3 PM - 4 PM	0	64	5	5	5	69	74
4 PM - 5 PM	0	12	0	0	0	12	12
5 PM - 6 PM	0	0	0	0	0	0	0
6 PM-7 PM	0	0	0	0	0	0	0

Note: Hourly construction worker and truck trips were derived from projected estimates of 566 workers and 109 trucks making two daily trips each (arrival and departure) in the third quarter of 2017. Numbers of construction worker vehicles were calculated using a 28.9-percent auto split with an auto-occupancy of 2.04.

TRAFFIC

As discussed above and shown in **Table 19-4**, construction activities would result in maximum combined auto and truck traffic of 118 and 74 vehicle trips during the 6-7 AM and 3-4 PM construction peak hours, respectively. In comparison, the proposed actions would generate 371, 527, and 540 vehicle trips during typical weekday AM (8-9 AM), midday (1-2 PM), and PM (5:15-6:15 PM) peak hours, respectively, as shown in **Table 19-5**.

Table 19-5
Comparison of Vehicle Trips—Construction Phase vs. With Action Conditions

Construction Phase (Third Quarter 2017)				With Action Conditions (2022 Proposed Action)			
Weekday Peak Period	In	Out	Total	Weekday Peak Period	In	Out	Total
6-7 AM Arrival Peak Hour	91	27	118	8 - 9 AM Peak Hour	209	162	371
3-4 PM Departure Peak Hour	5	69	74	1-2 PM Midday Peak Hour	267	260	527
				5:15 - 6:15 PM Peak Hour	244	296	540

Vehicle trips generated by construction activities were assigned to the roadway network, and nine critical study area intersections with a potential for significant impacts were selected for analysis during the AM and PM construction peak hours: East Houston Street and Essex Street/Avenue A; Delancey Street with Allen Street, Essex Street, Norfolk Street, Suffolk Street, and Clinton Street; Broome Street with Norfolk Street; and Grand Street with Allen Street and Essex Street.

Construction Peak Hour Traffic Volumes and Condition—Existing

Based on the Automatic Traffic Recorder (ATR) traffic volume data, background traffic volumes during the 6-7 AM construction peak hour are approximately 15 ~~68~~ percent lower than the 8-9 AM commuter peak hour. Therefore, there would likely be fewer significant traffic impacts during the peak construction hour of 6-7 AM since background traffic volumes are considerably lower at that hour.

During the 3-4 PM construction peak hour, background traffic volumes are typically comparable to the 5:15-6:15 PM commuter peak hour volumes. For the DGEIS analysis, ~~However,~~ due to the turn prohibitions that were ~~currently~~ in place between 4 and 7 PM, traffic patterns during the 3-4 PM construction peak hour were ~~are~~ comparable to the 1-2 PM midday peak hour rather than the ~~while traffic patterns at~~ 5:15-6:15 PM evening peak hour. ~~are not.~~ As a result of NYCDOT's Delancey Street Safety Improvements Plan that is currently being implemented, turn prohibitions would be in place at all times and traffic patterns during the weekday PM commuter peak hour would be similar to those of the PM construction peak hour. Hence, the weekday PM commuter peak hour is now a more appropriate basis of comparison for the PM construction peak hour, and the FGEIS analysis was revised to accommodate this change for the PM construction peak hour.

Based on a comparison of the ATR count data for these afternoon/evening hours, it was determined that weekday 5:15-6:15 PM ~~midday 1-2 PM~~ peak hour volumes were approximately three ~~18~~ percent higher ~~lower~~ than those at 3-4 PM and were therefore decreased ~~increased~~ by three ~~18~~ percent to develop the 3-4 PM construction peak hour volumes. During the 3-4 PM construction peak hour, the construction phase would generate less than one-sixth of the overall projected PM peak hour volume than when the proposed development is fully built out and operational. Traffic impacts are expected to be lower in magnitude during the 3-4 PM construction peak hour in comparison to the weekday PM peak hour.

Each of the nine intersections identified for analysis were evaluated. All nine intersections currently operate at an overall acceptable level of service during the 6-7 AM and 3-4 PM construction peak hours. ~~, and just one intersection—the intersection of Grand Street and Allen Street—operates at overall unacceptable LOS D during the 3-4 PM construction peak hour.~~ Of the approximately 45 traffic movements analyzed during the AM and PM construction peak hours, four ~~three~~ and ten ~~15~~ movements, respectively, operate at unacceptable levels of services (i.e., mid-LOS D or worse). Detailed descriptions of the existing conditions traffic levels of service are provided in **Table 19-6**.

Construction Peak Hour Traffic Volumes and Conditions—2017 No Action Without Construction

An annual background growth rate of 0.25 percent was assumed for the first five years (year 2011 to year 2016) and 0.125 percent for the remaining years (year 2016 to year 2017) as per the *CEQR Technical Manual* and was used to estimate the background volumes for the 2017 No Action without Construction condition. Of the 40 ~~34~~ No Action background development sites expected to be developed in the area, 30 ~~25~~ are considered small enough to be considered as part of the background growth or would not yet be built. The remaining ten ~~nine~~ No Action background development sites are expected to be completed by year 2017 and vehicle trips generated from these sites were assigned to the roadway network.

Under future No Action conditions in year 2017, all nine intersections would continue to operate at acceptable overall levels of service during the AM construction peak hour. During the PM construction peak hour, the intersection of Delancey Street and Clinton ~~Norfolk~~ Street would operate at overall LOS F ~~E~~, and the intersections of Delancey Street with Allen Street and with Essex Street~~, and Grand Street and Allen Street~~ would operate at unacceptable LOS D. The number of traffic movements operating at unacceptable levels of service would remain the same during the AM construction peak analysis hour and increase by one movement for ~~both~~ the PM construction peak analysis hours during the No Action condition. Detailed descriptions of the No Action Without Construction conditions traffic levels of service are provided in **Table 19-7**.

As mentioned earlier, ~~It should be noted that~~ NYCDOT ~~is currently developing~~ has developed an area wide plan to improve traffic and pedestrian safety along the Delancey Street corridor. Also, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. Details of these plans were ~~when~~ finalized following certification of the DGEIS ~~will be incorporated between the completion of the DGEIS and FGEISs~~ and have been incorporated as part of the FGEIS analysis.

Construction Peak Hour Traffic Volumes and Conditions—2017 With Action with Construction

Construction activities would generate 64 construction worker auto trips and 27 construction truck trips during the weekday AM peak hour, and 64 construction worker auto trips and 5 construction truck trips during the weekday PM peak hour. Construction trucks would be required to use NYCDOT-designated truck routes to get to the project site and would then use local streets to access the construction sites.

~~The intersections of East Houston Street with Essex Street/Avenue A, and Delancey Street with Essex Street and Norfolk Street would be significantly impacted during the weekday PM peak hour.~~ The intersection of Grand Street and Allen Street would be significantly impacted during ~~both~~ the weekday AM ~~and PM~~ peak hour~~s~~ and could be mitigated with one second shift in green time. None of the nine intersections analyzed would be significantly impacted during the weekday PM peak hour.

~~Table 19-6~~
~~2011 Existing Construction Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday PM (3:00 - 4:00 PM) Mvt.	V/C	Control Delay	LOS
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A									
East Houston Street	EB	L	0.34	14.3	B	L	0.45	14.0	B
		TR	0.35	21.7	C	TR	0.56	23.7	C
	WB	L	0.40	15.0	B	L	0.75	29.7	C
		TR	0.47	23.3	C	TR	0.53	24.2	C
Essex Street / Avenue A	NB	LTR	0.59	29.4	C	LTR	0.77	35.1	D
	SB	LTR	0.76	32.8	C	LTR	1.04	60.6	E
Overall Intersection		-	**0.62**	**24.2**	**C**	-	**0.74**	**30.3**	**C**
DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.77	31.0	C	TR	0.84	25.9	C
	WB	L	0.72	40.5	D	L	1.05	94.5	F
		TR	0.83	17.8	B	TR	0.89	18.6	B
Allen Street	NB	T	0.57	31.9	C	T	0.76	37.6	D
		R	0.48	33.7	C	R	0.87	59.1	E
	SB	TR	0.45	30.2	C	TR	0.81	37.3	D
Overall Intersection		-	**0.75**	**25.8**	**C**	-	**0.89**	**30.1**	**C**
DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.42	13.0	B	TR	0.77	18.4	B
	WB	TR	0.83	20.7	C	TR	1.04	41.4	D
Essex Street	NB	LTR	0.67	38.2	D	LTR	1.04	87.7	F
	SB	DefL	0.80	47.9	D	DefL	1.05	95.3	F
		TR	0.63	36.9	D	TR	0.86	54.6	D
Overall Intersection		-	**0.82**	**21.7**	**C**	-	**0.90**	**40.0**	**D**
DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	0.50	11.2	B	T	0.82	16.4	B
	WB	TR	0.76	14.3	B	TR	1.05	46.2	D
Norfolk Street	NB	TR	0.78	41.1	D	TR	0.92	56.2	E
		R	0.77	40.5	D	R	0.91	55.3	E
Overall Intersection		-	**0.77**	**16.9**	**B**	-	**1.00**	**35.3**	**D**
DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	T	0.65	14.6	B	TR	0.92	20.6	C
	WB	T	0.77	15.8	B	TR	0.88	17.3	B
Delancey Street Service Road	EB	TR	0.16	10.0	B	TR	0.17	8.6	A
Suffolk Street	SB	R	0.09	21.2	C	R	0.07	22.9	C
Overall Intersection		-	**0.52**	**15.1**	**B**	-	**0.64**	**18.7**	**B**
DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.52	8.9	A	T	0.84	13.8	B
Williamsburg Bridge	WB	T	0.87	17.5	B	T	1.02	37.2	D
		R	0.88	39.2	D	R	1.02	67.6	E
Delancey Street Service Road	EB	TR	0.11	6.4	A	TR	0.14	6.5	A
	WB	TR	0.73	48.3	D	TR	0.57	49.7	D
Clinton Street	NB	R	0.14	27.6	C	R	0.10	27.0	C
Overall Intersection		-	**0.67**	**19.8**	**B**	-	**0.77**	**29.0**	**C**
BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.10	10.1	B	L	0.10	10.1	B
	WB	R	0.34	12.7	B	R	0.37	13.2	B
Norfolk Street	NB	T	0.63	26.9	C	T	0.81	32.5	C
Overall Intersection		-	**0.45**	**19.8**	**B**	-	**0.54**	**23.5**	**C**
GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.78	32.2	C	LTR	1.05	63.2	E
	WB	LTR	0.64	35.9	D	LTR	0.98	71.9	E
Allen Street	NB	L	0.57	53.3	D	L	0.48	48.4	D
		TR	0.45	19.8	B	TR	0.53	21.3	C
	SB	L	0.71	56.9	E	L	1.05	101.2	F
		TR	0.47	20.0	B	TR	0.83	28.1	C
Overall Intersection		-	**0.61**	**28.2**	**C**	-	**0.87**	**45.0**	**D**
GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.61	23.9	C	LTR	0.76	29.8	C
	WB	LTR	0.59	19.5	B	LTR	0.72	22.2	C
Essex Street	NB	LTR	0.31	16.9	B	LTR	0.34	17.4	B
	SB	DefL	0.31	19.0	B	LTR	0.37	18.2	B
		TR	0.24	16.7	B	-	-	-	-
Overall Intersection		-	**0.46**	**19.7**	**B**	-	**0.57**	**22.3**	**C**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 19-6[1]
2011 Existing Construction Traffic Levels of Service

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday PM (3:00 - 4:00 PM) Mvt.	V/C	Control Delay	LOS
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A									
East Houston Street	EB	L	0.34	14.3	B	L	0.25	13.1	B
		TR	0.35	21.7	C	TR	0.45	22.8	C
	WB	L	0.40	15.0	B	L	0.75	26.6	C
		TR	0.47	23.3	C	TR	0.51	23.7	C
Essex Street / Avenue A	NB	LTR	0.59	29.4	C	LTR	0.66	31.1	C
	SB	LTR	0.77	33.1	C	LTR	0.88	38.8	D
Overall Intersection		-	**0.62**	**24.2**	**C**	-	**0.72**	**26.7**	**C**
DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.77	31.0	C	TR	0.88	28.7	C
	WB	L	0.72	40.5	D	L	0.90	68.2	E
		TR	0.83	17.8	B	TR	0.94	25.3	C
Allen Street	NB	T	0.57	31.9	C	T	0.60	32.4	C
		R	0.48	33.7	C	R	0.92	65.4	E
	SB	TR	0.45	30.2	C	TR	0.53	31.1	C
Overall Intersection		-	**0.75**	**25.8**	**C**	-	**0.93**	**31.4**	**C**
DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.42	13.0	B	TR	0.93	27.7	C
	WB	TR	0.83	20.7	C	TR	0.98	33.4	C
Essex Street	NB	LTR	0.67	38.2	D	LTR	0.94	58.0	E
	SB	DefL	0.80	47.9	D	LTR	0.91	51.6	D
		TR	0.63	36.9	D	-	-	-	-
Overall Intersection		-	**0.82**	**21.7**	**C**	-	**34.8**	**34.8**	**C**
DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	0.50	11.2	B	T	0.99	32.5	C
	WB	TR	0.76	14.3	B	TR	0.92	20.0	B
Norfolk Street	NB	TR	0.78	41.1	D	TR	0.95	58.7	E
		R	0.77	40.5	D	R	0.96	60.5	E
Overall Intersection		-	**0.77**	**16.9**	**B**	-	**0.98**	**30.4**	**C**
DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	T	0.65	14.6	B	T	1.00	28.3	C
	WB	T	0.77	15.8	B	T	0.79	14.7	B
Delancey Street Service Road	EB	TR	0.16	10.0	B	TR	0.12	8.3	A
Suffolk Street	SB	R	0.09	21.2	C	R	0.19	24.7	C
Overall Intersection		-	**0.52**	**15.1**	**B**	-	**0.73**	**21.9**	**C**
DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.52	8.9	A	T	0.99	28.3	C
Williamsburg Bridge (Inner Roadway)	WB	T	0.78	14.5	B	T	0.96	27.7	C
Williamsburg Bridge (Outer Roadway)		T	0.88	26.1	C	T	0.91	29.5	C
		R	0.88	39.2	D	R	1.00	61.6	E
Delancey Street Service Road	EB	TR	0.11	6.4	A	TR	0.08	6.1	A
	WB	TR	0.73	48.3	D	TR	0.69	52.6	D
Clinton Street	NB	R	0.14	27.6	C	R	0.15	27.6	C
Overall Intersection		-	**0.68**	**17.3**	**B**	-	**0.77**	**31.4**	**C**
BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.10	10.1	B	L	0.61	35.5	D
	WB	R	0.34	12.7	B	R	0.88	60.2	E
Norfolk Street	NB	T	0.63	26.9	C	T	0.60	26.0	C
Overall Intersection		-	**0.45**	**19.8**	**B**	-	**0.72**	**40.1**	**D**
GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.78	32.3	C	LTR	0.84	39.6	D
	WB	LTR	0.65	36.0	D	LTR	0.61	34.0	C
Allen Street	NB	L	0.57	53.3	D	L	0.27	40.2	D
		TR	0.45	19.8	B	TR	0.57	21.6	C
	SB	L	0.71	56.9	E	L	0.91	76.7	E
		TR	0.47	20.0	B	TR	0.59	21.7	C
Overall Intersection		-	**0.61**	**28.2**	**C**	-	**0.71**	**30.6**	**C**

[1] This table has been revised for the FGEIS.

Table 19-6, cont'd
2011 Existing Construction Traffic Levels of Service

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday PM (3:00 - 4:00 PM) Mvt.	V/C	Control Delay	LOS
GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.61	24.0	C	LTR	0.60	23.3	C
	WB	LTR	0.59	19.6	B	LTR	0.95	29.4	C
Essex Street	NB	LTR	0.31	16.9	B	LTR	0.34	17.3	B
	SB	DefL	0.31	19.0	B	LTR	0.32	17.3	B
		TR	0.24	16.7	B	-	-	-	-
Overall Intersection		-	**0.46**	**19.7**	**B**	-	**0.65**	**22.8**	**C**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

~~Table 19-7~~
~~2017 No Action Without Construction Traffic Levels of Service~~

~~INTERSECTION & APPROACH~~		~~Weekday AM (6:00 - 7:00 AM)~~ ~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Weekday PM (3:00 - 4:00 PM)~~ ~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~
~~**EAST HOUSTON STREET AND ESSEX STREET / AVENUE A**~~									
~~East Houston Street~~	~~EB~~	~~L~~	~~0.41~~	~~16.5~~	~~B~~	~~L~~	~~0.55~~	~~16.4~~	~~B~~
		~~TR~~	~~0.57~~	~~25.0~~	~~C~~	~~TR~~	~~0.93~~	~~32.9~~	~~C~~
	~~WB~~	~~L~~	~~0.48~~	~~17.3~~	~~B~~	~~L~~	~~0.98~~	~~69.7~~	~~E~~
		~~T~~	~~0.64~~	~~26.6~~	~~C~~	~~T~~	~~0.72~~	~~28.8~~	~~C~~
		~~R~~	~~0.09~~	~~19.6~~	~~B~~	~~R~~	~~0.12~~	~~20.0~~	~~C~~
~~Essex Street / Avenue A~~	~~NB~~	~~LTR~~	~~0.63~~	~~30.2~~	~~C~~	~~LTR~~	~~0.81~~	~~37.6~~	~~D~~
	~~SB~~	~~LTR~~	~~0.78~~	~~33.6~~	~~C~~	~~LTR~~	~~1.08~~	~~74.6~~	~~E~~
~~**Overall Intersection**~~		~~-~~	~~**0.69**~~	~~**26.5**~~	~~**C**~~	~~-~~	~~**1.00**~~	~~**39.5**~~	~~**D**~~
~~**DELANCEY STREET AND ALLEN STREET**~~									
~~Delancey Street~~	~~EB~~	~~TR~~	~~0.79~~	~~31.4~~	~~C~~	~~TR~~	~~0.99~~	~~42.7~~	~~D~~
	~~WB~~	~~L~~	~~0.74~~	~~42.0~~	~~D~~	~~L~~	~~0.84~~	~~47.0~~	~~D~~
		~~TR~~	~~0.86~~	~~18.9~~	~~B~~	~~TR~~	~~0.92~~	~~20.6~~	~~C~~
~~Allen Street~~	~~NB~~	~~T~~	~~0.59~~	~~32.3~~	~~C~~	~~T~~	~~0.79~~	~~39.0~~	~~D~~
		~~R~~	~~0.50~~	~~34.3~~	~~C~~	~~R~~	~~0.93~~	~~69.2~~	~~E~~
	~~SB~~	~~TR~~	~~0.46~~	~~30.4~~	~~C~~	~~TR~~	~~0.83~~	~~38.0~~	~~D~~
~~**Overall Intersection**~~		~~-~~	~~**0.78**~~	~~**26.6**~~	~~**C**~~	~~-~~	~~**0.93**~~	~~**34.2**~~	~~**C**~~
~~**DELANCEY STREET AND ESSEX STREET**~~									
~~Delancey Street~~	~~EB~~	~~TR~~	~~0.43~~	~~13.2~~	~~B~~	~~TR~~	~~0.80~~	~~19.1~~	~~B~~
	~~WB~~	~~TR~~	~~0.85~~	~~21.6~~	~~C~~	~~TR~~	~~1.07~~	~~55.7~~	~~E~~
~~Essex Street~~	~~NB~~	~~LTR~~	~~0.69~~	~~39.0~~	~~D~~	~~LTR~~	~~1.07~~	~~99.0~~	~~F~~
	~~SB~~	~~DefL~~	~~0.84~~	~~52.7~~	~~D~~	~~DefL~~	~~1.14~~	~~127.2~~	~~F~~
		~~TR~~	~~0.65~~	~~37.8~~	~~D~~	~~TR~~	~~0.89~~	~~58.2~~	~~E~~
~~**Overall Intersection**~~		~~-~~	~~**0.85**~~	~~**22.6**~~	~~**C**~~	~~-~~	~~**1.10**~~	~~**49.5**~~	~~**D**~~
~~**DELANCEY STREET AND NORFOLK STREET**~~									
~~Delancey Street~~	~~EB~~	~~T~~	~~0.52~~	~~11.4~~	~~B~~	~~T~~	~~0.84~~	~~17.2~~	~~B~~
	~~WB~~	~~TR~~	~~0.78~~	~~14.8~~	~~B~~	~~TR~~	~~1.15~~	~~89.3~~	~~F~~
~~Norfolk Street~~	~~NB~~	~~TR~~	~~0.80~~	~~42.3~~	~~D~~	~~TR~~	~~0.92~~	~~56.6~~	~~E~~
		~~R~~	~~0.78~~	~~41.6~~	~~D~~	~~R~~	~~0.94~~	~~61.3~~	~~E~~
~~**Overall Intersection**~~		~~-~~	~~**0.79**~~	~~**17.3**~~	~~**B**~~	~~-~~	~~**1.08**~~	~~**57.5**~~	~~**E**~~
~~**DELANCEY STREET AND SUFFOLK STREET**~~									
~~Delancey Street~~	~~EB~~	~~T~~	~~0.67~~	~~14.9~~	~~B~~	~~T~~	~~0.95~~	~~22.9~~	~~C~~
	~~WB~~	~~T~~	~~0.80~~	~~16.2~~	~~B~~	~~T~~	~~0.91~~	~~18.4~~	~~B~~
~~Delancey Street Service Road~~	~~EB~~	~~TR~~	~~0.16~~	~~10.0~~	~~B~~	~~TR~~	~~0.17~~	~~8.7~~	~~A~~
~~Suffolk Street~~	~~SB~~	~~R~~	~~0.10~~	~~21.3~~	~~C~~	~~R~~	~~0.07~~	~~23.0~~	~~C~~
~~**Overall Intersection**~~		~~-~~	~~**0.53**~~	~~**15.5**~~	~~**B**~~	~~-~~	~~**0.66**~~	~~**20.3**~~	~~**C**~~

~~Table 19-7 (cont'd)~~
~~2017 No Action Without Construction Traffic Levels of Service~~

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday PM (3:00 - 4:00 PM) Mvt.	V/C	Control Delay	LOS
DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.54	9.0	A	T	0.87	14.5	B
Williamsburg Bridge	WB	T	0.90	18.9	B	T	1.05	46.4	D
		R	0.90	42.1	D	R	1.05	73.7	E
Delancey Street Service Road	EB	TR	0.11	6.4	A	TR	0.14	6.5	A
	WB	TR	0.86	59.2	E	TR	0.78	68.9	E
Clinton Street	NB	R	0.15	27.6	C	R	0.10	27.0	C
Overall Intersection		-	**0.69**	**18.4**	**B**	-	**0.79**	**34.0**	**C**
BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.10	10.1	B	L	0.10	10.1	B
	WB	R	0.34	12.8	B	R	0.38	13.2	B
Norfolk Street	NB	T	0.65	27.2	C	T	0.83	33.3	C
Overall Intersection		-	**0.46**	**20.0**	**B**	-	**0.55**	**24.0**	**C**
GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.85	34.8	C	LTR	1.17	110.3	F
	WB	LTR	0.66	36.5	D	LTR	1.01	79.8	E
Allen Street	NB	L	0.53	49.8	D	L	0.46	46.8	D
		TR	0.45	19.7	B	TR	0.53	21.2	C
	SB	L	0.72	57.9	E	L	1.06	104.5	F
		TR	0.49	20.3	C	TR	0.87	30.2	C
Overall Intersection		-	**0.63**	**28.6**	**C**	-	**0.92**	**53.7**	**D**
GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.63	24.4	C	LTR	0.78	30.9	C
	WB	LTR	0.60	19.7	B	LTR	0.75	22.8	C
Essex Street	NB	LTR	0.32	17.1	B	LTR	0.36	17.6	B
	SB	DefL	0.33	19.5	B	LTR	0.40	18.7	B
		TR	0.25	16.8	B	-	-	-	-
Overall Intersection		-	**0.48**	**19.9**	**B**	-	**0.59**	**22.9**	**C**

~~**Notes:**~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~

Table 19-7[1]
2017 No Action Without Construction Traffic Levels of Service

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM) Mvt.	V/C	Control Delay	LOS	Weekday PM (3:00 - 4:00 PM) Mvt.	V/C	Control Delay	LOS
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A									
East Houston Street	EB	L	0.42	16.6	B	L	0.30	14.4	B
		TR	0.58	25.2	C	TR	0.75	28.4	C
	WB	L	0.49	17.4	B	L	0.93	65.9	E
		T	0.65	26.7	C	T	0.63	26.3	C
		R	0.09	19.6	B	R	0.25	21.9	C
Essex Street / Avenue A	NB	LTR	0.63	30.2	C	LTR	0.71	32.5	C
	SB	LTR	0.79	33.9	C	LTR	0.90	40.6	D
Overall Intersection		-	**0.75**	**26.6**	**C**	-	**0.90**	**32.8**	**C**
DELANCEY STREET AND ALLEN STREET									
Delancey Street	EB	TR	0.82	32.1	C	TR	1.07	69.9	E
	WB	L	0.69	38.9	D	L	0.67	40.0	D
		TR	0.91	23.2	C	TR	1.04	49.0	D
Allen Street	NB	T	0.56	31.0	C	T	0.60	31.8	C
		R	0.19	8.7	A	R	0.44	17.0	B
	SB	TR	0.46	29.6	C	TR	0.52	30.2	C
Overall Intersection		-	**0.81**	**27.6**	**C**	-	**0.91**	**52.5**	**D**

[1] This table has been revised for the FGEIS.

Table 19-7, cont'd
2017 No Action Without Construction Traffic Levels of Service

INTERSECTION & APPROACH		Weekday AM (6:00 - 7:00 AM)				Weekday PM (3:00 - 4:00 PM)			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
DELANCEY STREET AND ESSEX STREET									
Delancey Street	EB	TR	0.43	12.1	B	TR	0.93	25.7	C
	WB	T	0.98	35.2	D	T	1.05	52.8	D
Essex Street	NB	R	0.65	25.7	C	R	0.85	44.6	D
	SB	LT	0.59	39.3	D	LT	0.39	30.4	C
		R	0.68	46.0	D	R	1.32	205.1	F
Overall Intersection		-	**0.89**	**28.4**	**C**	-	**1.13**	**46.8**	**D**
DELANCEY STREET AND NORFOLK STREET									
Delancey Street	EB	T	0.48	12.6	B	T	1.02	42.6	D
	WB	TR	0.87	18.4	B	TR	0.97	25.7	C
Norfolk Street	NB	TR	0.62	30.7	C	TR	0.69	31.9	C
		R	0.60	30.2	C	R	0.69	32.2	C
Overall Intersection		-	**0.78**	**18.0**	**B**	-	**0.89**	**33.7**	**C**
DELANCEY STREET AND SUFFOLK STREET									
Delancey Street	EB	TR	0.63	14.3	B	TR	1.02	37.0	D
	WB	T	0.80	16.3	B	T	0.87	18.3	B
Suffolk Street	SB	R	0.18	22.5	C	R	0.25	23.4	C
Overall Intersection		-	**0.56**	**15.5**	**B**	-	**0.73**	**28.3**	**C**
DELANCEY STREET AND CLINTON STREET									
Delancey Street	EB	T	0.61	14.0	B	T	1.10	67.4	E
Williamsburg Bridge	WB	T	1.05	52.0	D	T	1.22	121.6	F
		R	0.72	20.6	C	R	0.88	31.0	C
Delancey Street Service Road	WB	R	1.75	443.6	F	R	1.78	481.6	F
Clinton Street	NB	R	0.85	47.2	D	R	0.96	62.4	E
Overall Intersection		-	**0.97**	**37.5**	**D**	-	**1.12**	**86.9**	**F**
BROOME STREET AND NORFOLK STREET									
Broome Street	EB	L	0.36	13.0	B	L	0.85	48.3	D
	WB	R	0.09	10.1	B	R	0.27	28.9	C
Norfolk Street	NB	T	0.44	23.9	C	T	0.52	24.6	C
Overall Intersection		-	**0.39**	**17.2**	**B**	-	**0.65**	**35.7**	**D**
GRAND STREET AND ALLEN STREET									
Grand Street	EB	LTR	0.73	28.2	C	LTR	0.86	39.4	D
	WB	LTR	0.57	29.6	C	LTR	0.59	31.5	C
Allen Street	NB	L	0.53	49.8	D	L	0.25	39.6	D
		TR	0.50	23.1	C	TR	0.64	25.5	C
	SB	L	0.72	57.9	E	L	0.76	54.5	D
		TR	0.55	23.9	C	TR	0.65	24.2	C
Overall Intersection		-	**0.63**	**28.7**	**C**	-	**0.74**	**30.5**	**C**
GRAND STREET AND ESSEX STREET									
Grand Street	EB	LTR	0.66	26.0	C	LTR	0.65	25.1	C
	WB	LTR	0.61	19.8	B	LTR	0.75	21.8	C
Essex Street	NB	LTR	0.32	17.1	B	LTR	0.36	17.5	B
	SB	DefL	0.36	20.3	C	LTR	0.34	17.6	B
		TR	0.26	17.0	B	-	-	-	-
Overall Intersection		-	**0.51**	**20.5**	**C**	-	**0.55**	**20.6**	**C**

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

~~Significant impacts at these analyzed intersections could be mitigated using standard mitigation measures typically implemented by the NYCDOT. Significant impacts could be mitigated at most locations with signal timing modifications except for the intersections of Delancey Street with Essex Street and Norfolk Street. At these two locations, mitigation measures may include installing "No Standing 11 AM to 7 PM Monday to Friday" regulations along the north curb of the westbound approach for 100 feet – entailing a loss of approximately three parking spaces at each intersection – in order to "daylight" the approach to the intersections in addition to signal timing modifications.~~ Detailed descriptions of the Construction traffic levels of service and all traffic mitigation measures are presented in **Tables 19-8 and 19-9**. ~~It should be noted that as a result of roadway and signal timing modifications currently being developed by NYCDOT, mitigation measures presented in the FGEIS may be different than those identified in the DGEIS.~~

~~Table 19-8~~
~~2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday AM Peak Hour Traffic Levels of Service~~

INTERSECTION & APPROACH		2017 No Build Mvt.	2017 No Build V/C	2017 No Build Control Delay	2017 No Build LOS	2017 Construction Mvt.	2017 Construction V/C	2017 Construction Control Delay	2017 Construction LOS	2017 Construction with Mitigation Mvt.	2017 Construction with Mitigation V/C	2017 Construction with Mitigation Control Delay	2017 Construction with Mitigation LOS	Mitigation Measures
EAST HOUSTON STREET														
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.41	16.5	B	L	0.41	16.6	B				-	Mitigation not required.
		TR	0.57	25.0	C	TR	0.59	25.4	C					
	WB	L	0.48	17.3	B	L	0.51	18.0	B					
		T	0.64	26.6	C	T	0.65	26.7	C					
		R	0.09	19.6	B	R	0.09	19.6	B					
Essex Street / Avenue A	NB	LTR	0.63	30.2	C	LTR	0.64	30.5	C					
	SB	LTR	0.78	33.6	C	LTR	0.80	34.4	C					
Overall Intersection			**0.69**	**26.5**	**C**	**-**	**0.70**	**26.8**	**C**					
DELANCEY STREET														
DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.79	31.4	C	TR	0.80	31.6	C				-	Mitigation not required.
	WB	L	0.74	42.0	D	L	0.78	45.1	D					
		TR	0.86	18.9	B	TR	0.86	18.9	B					
Allen Street	NB	T	0.59	32.3	C	T	0.59	32.4	C					
		R	0.50	34.3	C	R	0.50	34.3	C					
	SB	TR	0.46	30.4	C	TR	0.47	30.6	C					
Overall Intersection			**0.78**	**26.6**	**C**	**-**	**0.78**	**26.9**	**C**					
DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.43	13.2	B	TR	0.44	13.2	B				-	Mitigation not required.
	WB	TR	0.85	21.6	C	TR	0.86	22.1	C					
Essex Street	NB	LTR	0.69	39.0	D	LTR	0.71	39.7	D					
	SB	DefL	0.84	52.7	D	DefL	0.86	55.6	E					
		TR	0.65	37.8	D	TR	0.67	38.6	D					
Overall Intersection			**0.85**	**22.6**	**C**	**-**	**0.87**	**23.1**	**C**					
DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.52	11.4	B	T	0.52	11.4	B				-	Mitigation not required.
	WB	TR	0.78	14.8	B	TR	0.79	15.0	B					
Norfolk Street	NB	TR	0.80	42.3	D	TR	0.81	43.2	D					
		R	0.78	41.6	D	R	0.82	44.9	D					
Overall Intersection			**0.79**	**17.3**	**B**	**-**	**0.80**	**17.8**	**B**					
DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	0.67	14.9	B	T	0.67	15.0	B				-	Mitigation not required.
	WB	T	0.80	16.2	B	T	0.81	16.4	B					
Delancey Street Service Road	EB	TR	0.16	10.0	B	TR	0.19	10.2	B					
Suffolk Street	SB	R	0.10	21.3	C	R	0.10	21.3	C					
Overall Intersection			**0.53**	**15.5**	**B**	**-**	**0.54**	**15.6**	**B**					
DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.54	9.0	A	T	0.54	9.1	A				-	Mitigation not required.
Williamsburg Bridge	WB	T	0.90	18.9	B	T	0.91	19.7	B					
		R	0.90	42.1	D	R	0.91	43.0	D					
Delancey Street Service Road	EB	TR	0.11	6.4	A	TR	0.12	6.4	A					
	WB	TR	0.86	59.2	E	TR	0.86	59.2	E					
Clinton Street	NB	R	0.15	27.6	C	R	0.15	27.6	C					
Overall Intersection			**0.69**	**18.4**	**B**	**-**	**0.70**	**18.9**	**B**					
BROOME STREET														
BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.10	10.1	B	L	0.10	10.1	B				-	Mitigation not required.
	WB	R	0.34	12.8	B	R	0.35	12.9	B					
Norfolk Street	NB	T	0.65	27.2	C	T	0.67	27.7	C					
Overall Intersection			**0.46**	**20.0**	**B**	**-**	**0.47**	**20.3**	**C**					

~~Table 19-8 (cont'd)~~
~~2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday AM Peak Hour Traffic Levels of Service~~

~~INTERSECTION & APPROACH~~		~~2017 No Build~~ Mvt.	~~V/C~~	~~Control Delay~~	~~LOS~~	~~2017 Construction~~ Mvt.	~~V/C~~	~~Control Delay~~	~~LOS~~	~~2017 Construction with Mitigation~~ Mvt.	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mitigation Measures~~
~~GRAND STREET~~														
~~GRAND STREET AND ALLEN STREET~~														
~~Grand Street~~	~~EB~~	~~LTR~~	~~0.85~~	~~34.8~~	~~C~~	~~LTR~~	~~0.90~~	~~37.9~~	~~D~~	~~LTR~~	~~0.90~~	~~37.9~~	~~D~~	~~Modify signal timing: Shift 1s from the NB/SB phase to the SB-lead phase [SB-lead phase green time shifts from 10 s to 11 s; NB/SB green time shifts from 23 s to 22 s; signal timing during all other phases remain the same].~~
	~~WB~~	~~LTR~~	~~0.66~~	~~36.5~~	~~D~~	~~LTR~~	~~0.69~~	~~38.4~~	~~D~~	~~LTR~~	~~0.69~~	~~38.4~~	~~D~~	
~~Allen Street~~	~~NB~~	~~L~~	~~0.53~~	~~49.8~~	~~D~~	~~L~~	~~0.53~~	~~49.8~~	~~D~~	~~L~~	~~0.53~~	~~49.8~~	~~D~~	
		~~TR~~	~~0.45~~	~~19.7~~	~~B~~	~~TR~~	~~0.45~~	~~19.7~~	~~B~~	~~TR~~	~~0.46~~	~~20.5~~	~~C~~	
	~~SB~~	~~L~~	~~0.72~~	~~57.9~~	~~E~~	~~L~~	~~0.78~~	~~63.8~~	~~E~~	~~L~~	~~0.71~~	~~55.4~~	~~E~~	
		~~TR~~	~~0.49~~	~~20.3~~	~~C~~	~~TR~~	~~0.50~~	~~20.5~~	~~C~~	~~TR~~	~~0.50~~	~~20.5~~	~~C~~	
~~Overall Intersection~~			~~0.63~~	~~28.6~~	~~C~~	-	~~0.66~~	~~30.1~~	~~C~~	-	~~0.66~~	~~29.7~~	~~C~~	
~~GRAND STREET AND ESSEX STREET~~														
~~Grand Street~~	~~EB~~	~~LTR~~	~~0.63~~	~~24.4~~	~~C~~	~~LTR~~	~~0.67~~	~~25.9~~	~~C~~				-	~~Mitigation not required.~~
	~~WB~~	~~LTR~~	~~0.60~~	~~19.7~~	~~B~~	~~LTR~~	~~0.62~~	~~20.0~~	~~B~~					
~~Essex Street~~	~~NB~~	~~LTR~~	~~0.32~~	~~17.1~~	~~B~~	~~LTR~~	~~0.32~~	~~17.1~~	~~B~~					
	~~SB~~	~~DefL~~	~~0.33~~	~~19.5~~	~~B~~	~~DefL~~	~~0.33~~	~~19.6~~	~~B~~					
		~~TR~~	~~0.25~~	~~16.8~~	~~B~~	~~TR~~	~~0.25~~	~~16.8~~	~~B~~					
~~Overall Intersection~~			~~0.48~~	~~19.9~~	~~B~~	-	~~0.50~~	~~20.5~~	~~C~~					

~~Notes:~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~

Table 19-8[1]
2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday AM Peak Hour Traffic Levels of Service

INTERSECTION & APPROACH		2017 No Build Mvt.	V/C	Control Delay	LOS	2017 Construction Mvt.	V/C	Control Delay	LOS	2017 Construction with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
EAST HOUSTON STREET														
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.42	16.6	B	L	0.42	16.8	B					Mitigation not required.
		TR	0.58	25.2	C	TR	0.60	25.6	C					
	WB	L	0.49	17.4	B	L	0.51	18.1	B					
		T	0.65	26.7	C	T	0.65	26.8	C					
		R	0.09	19.6	B	R	0.09	19.6	B					
Essex Street / Avenue A	NB	LTR	0.63	30.2	C	LTR	0.64	30.5	C					
	SB	LTR	0.79	33.9	C	LTR	0.81	34.8	C					
Overall Intersection			**0.75**	**26.6**	**C**	-	**0.75**	**27.0**	**C**					
DELANCEY STREET														
DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.82	32.1	C	TR	0.83	32.3	C					Mitigation not required.
	WB	L	0.69	38.9	D	L	0.74	41.7	D					
		TR	0.91	23.2	C	TR	0.91	23.2	C					
Allen Street	NB	T	0.56	31.0	C	T	0.56	31.1	C					
		R	0.19	8.7	A	R	0.20	8.7	A					
	SB	TR	0.46	29.6	C	TR	0.47	29.7	C					
Overall Intersection			**0.81**	**27.6**	**C**	-	**0.81**	**27.9**	**C**					
DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.43	12.1	B	TR	0.43	12.1	B					Mitigation not required.
	WB	T	0.98	35.2	D	T	0.99	37.2	D					
		R	0.65	25.7	C	R	0.68	27.6	C					
Essex Street	NB	LT	0.59	39.3	D	LT	0.61	40.3	D					
		R	0.68	46.0	D	R	0.68	46.7	D					
	SB	TR	0.68	35.8	D	TR	0.69	36.1	D					
Overall Intersection			**0.89**	**28.4**	**C**	-	**0.90**	**29.6**	C					

[1] This table has been revised for the FGEIS.

Table 19-8 (cont'd) 2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday AM Peak Hour Traffic Levels of Service

INTERSECTION & APPROACH		2017 No Build				2017 Construction				2017 Construction with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.48	12.6	B	T	0.49	12.6	B					Mitigation not required.
	WB	TR	0.87	18.4	B	TR	0.88	18.7	B					
Norfolk Street	NB	TR	0.62	30.7	C	TR	0.64	31.4	C					
		R	0.60	30.2	C	R	0.64	31.7	C					
Overall Intersection			**0.78**	**18.0**	**B**	-	**0.79**	**18.4**	**B**					
DELANCEY STREET (cont'd)														
DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	0.63	14.3	B	TR	0.64	14.6	B					Mitigation not required.
	WB	TR	0.80	16.3	B	T	0.81	16.4	B					
Suffolk Street	SB	R	0.18	22.5	C	R	0.18	22.6	C					
Overall Intersection			**0.56**	**15.5**	**B**	-	**0.57**	**15.7**	**B**					
DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.61	14.0	B	T	0.62	14.0	B					Mitigation not required.
Williamsburg Bridge	WB	T	1.05	52.0	D	T	1.06	56.6	E					
		R	0.72	20.6	C	R	0.73	20.9	C					
Delancey Street Service Road	WB	R	1.75	443.6	F	R	1.75	443.6	F					
Clinton Street	NB	R	0.85	47.2	D	R	0.85	47.2	D					
Overall Intersection			**0.97**	**37.5**	**D**	**-**	**0.98**	**39.7**	**D**					
BROOME STREET														
BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.36	13.0	B	L	0.37	13.0	B					Mitigation not required.
	WB	R	0.09	10.1	B	R	0.10	10.2	B					
Norfolk Street	NB	T	0.44	23.9	C	T	0.48	24.4	C					
Overall Intersection			**0.39**	**17.2**	**B**	-	**0.41**	**17.6**	**B**					
GRAND STREET														
GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.73	28.2	C	LTR	0.77	29.2	C	LTR	0.77	29.2	C	Modify signal timing: Shift 1 s from the NB/SB phase to the SB-lead phase [SB-lead phase green time shifts from 10 s to 11 s; NB/SB green time shifts from 19 s to 18 s; signal timing during all other phases remain the same].
	WB	LTR	0.57	29.6	C	LTR	0.61	31.0	C	LTR	0.61	31.0	C	
Allen Street	NB	L	0.53	49.8	D	L	0.53	49.8	D	L	0.53	49.8	D	
		TR	0.50	23.1	C	TR	0.50	23.1	C	TR	0.52	24.1	C	
	SB	L	0.72	57.9	E	L	0.81	66.7	E	L	0.74	57.2	E	
		TR	0.55	23.9	C	TR	0.57	24.2	C	TR	0.57	24.2	C	
Overall Intersection			**0.63**	**28.7**	**C**	-	**0.65**	**30.1**	C	-	**0.65**	**29.6**	C	
GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.66	26.0	C	LTR	0.71	27.9	C					Mitigation not required.
	WB	LTR	0.61	19.8	B	LTR	0.63	20.2	C					
Essex Street	NB	LTR	0.32	17.1	B	LTR	0.32	17.1	B					
	SB	DefL	0.36	20.3	C	DefL	0.36	20.3	C					
		TR	0.26	17.0	B	TR	0.26	17.0	B					
Overall Intersection			**0.51**	**20.5**	**C**	-	**0.53**	**21.2**	C					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

Table 19-9

2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday PM Peak Hour Traffic Levels of Service

INTERSECTION & APPROACH		2017 No Build				2017 Construction				2017 Construction with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
EAST HOUSTON STREET														
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.55	16.4	B	L	0.56	16.5	B	L	0.56	17.2	B	Modify signal timing: Shift 1 s of green time from the EB/WB phase to the EBL/WBL lead phase and 1 s of green time from the EB/WB phase to the NB/SB phase [EBL/WBL lead phase green time shifts from 9 s to 10 s; EB/WB green time shifts from 32 s to 30 s; NB/SB green time shifts from 27 s to 28 s; the LPI phase remains the same].
		TR	0.93	32.9	C	TR	0.93	32.9	C	TR	0.99	43.0	D	
	WB	L	0.98	69.7	E	L	0.98	69.7	E	L	0.95	64.8	E	
		T	0.72	28.8	C	T	0.73	29.0	C	T	0.78	32.1	C	
		R	0.12	20.0	C	R	0.12	20.0	C	R	0.13	21.5	C	
Essex Street / Avenue A	NB	LTR	0.81	37.6	D	LTR	0.86	41.3	D	LTR	0.82	37.3	D	
	SB	LTR	1.08	74.6	E	LTR	1.10	82.8	F	LTR	1.03	56.5	E	
DELANCEY STREET														
DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.99	42.7	D	TR	0.99	43.0	D				-	Mitigation not required.
	WB	L	0.84	47.0	D	L	0.84	47.5	D					
		TR	0.92	20.6	C	TR	0.92	20.7	C					
Allen Street	NB	T	0.79	39.0	D	T	0.79	39.0	D					
		R	0.93	69.2	E	R	0.93	69.2	E					
	SB	TR	0.83	38.0	D	TR	0.83	38.0	D					
Overall Intersection			**0.93**	**34.2**	**C**	-	**0.93**	**34.4**	**C**					
DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.80	19.1	B	TR	0.80	19.2	B	TR	0.82	20.3	C	Installing "No Standing 11 AM - 7 PM Mon - Fri" regulation along the north curb of the WB approach for 100 feet from the intersection to provide daylighting.
	WB	TR	1.07	55.7	E	TR	1.07	56.0	E	TR	1.02	36.4	D	
Essex Street	NB	LTR	1.07	99.0	F	LTR	1.08	102.6	F	LTR	1.03	85.2	F	
	SB	DefL	1.14	127.2	F	DefL	1.16	134.2	F	DefL	1.13	121.2	F	Modify signal timing: Shift 1 s of green time from the EB/WB phase to the NB phase [EB/WB green time shifts from 48 s to 47 s; NB green time shifts from 25 s to 26 s; the LPI phase remains the same].
		TR	0.89	58.2	E	TR	0.94	67.1	E	TR	0.90	59.0	E	
Overall Intersection			**1.10**	**49.5**	**D**	-	**1.11**	**50.8**	**D**	-	**1.17**	**39.5**	**D**	
DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.84	17.2	B	T	0.84	17.2	B	T	0.86	18.4	B	Installing "No Standing 11 AM - 7 PM Mon - Fri" regulation along the north curb of the WB approach for 100 feet from the intersection to provide daylighting.
	WB	TR	1.15	89.3	F	TR	1.15	90.1	F	TR	1.10	66.4	E	
Norfolk Street	NB	TR	0.92	56.6	E	TR	0.97	67.4	E	TR	0.94	58.8	E	
		R	0.94	61.3	E	R	0.95	63.3	E	R	0.92	55.8	E	Modify signal timing: Shift 1 s of green time from the EB/WB phase to the NB phase [EB/WB green time shifts from 53 s to 52 s; NB green time shifts from 27 s to 28 s].
Overall Intersection			**1.08**	**57.5**	**E**	-	**1.09**	**58.6**	**E**	-	**1.04**	**46.5**	**D**	
DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	0.95	22.9	C	T	0.96	23.7	C				-	Mitigation not required.
	WB	T	0.91	18.4	B	T	0.91	18.4	B					
Delancey Street Service Road	EB	TR	0.17	8.7	A	TR	0.18	8.8	A					
Suffolk Street	SB	R	0.07	23.0	C	R	0.08	23.0	C					
Overall Intersection			**0.66**	**20.3**	**C**	-	**0.66**	**20.7**	**C**					
DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.87	14.5	B	T	0.87	14.8	B				-	Mitigation not required.
Williamsburg Bridge	WB	T	1.05	46.4	D	T	1.05	46.7	D					
		R	1.05	73.7	E	R	1.05	73.7	E					
Delancey Street Service Road	EB	TR	0.14	6.5	A	TR	0.14	6.6	A					
	WB	TR	0.78	68.9	E	TR	0.78	68.9	E					
Clinton Street	NB	R	0.10	27.0	C	R	0.10	27.0	C					
Overall Intersection			**0.79**	**34.0**	**C**	-	**0.79**	**34.2**	**C**					
BROOME STREET														
BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.10	10.1	B	L	0.12	10.3	B				-	Mitigation not required.
	WB	R	0.38	13.2	B	R	0.38	13.3	B					
Norfolk Street	NB	T	0.83	33.3	C	T	0.84	33.9	C					
Overall Intersection			**0.55**	**24.0**	**C**	-	**0.56**	**24.2**	**C**					
GRAND STREET														
GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	1.17	110.3	F	LTR	1.17	110.3	F	LTR	1.10	83.1	F	Modify signal timing: Shift 1 s from the NB/SB phase to the SB-lead phase and 1 s from the NB/SB phase to the EB/WB phase [SB-lead phase green time shifts from 10 s to 11 s; NB/SB green time shifts from 23 s to 22 s; EB/WB green time shifts from 27 s to 28 s; NB-lag phase green time remains the same].
	WB	LTR	1.01	79.8	E	LTR	1.03	86.2	F	LTR	0.99	74.1	E	
Allen Street	NB	L	0.46	46.8	D	L	0.46	46.8	D	L	0.46	46.8	D	
		TR	0.53	21.2	C	TR	0.53	21.2	C	TR	0.56	23.1	C	
	SB	L	1.06	104.5	F	L	1.07	107.8	F	L	0.98	79.6	E	
		TR	0.87	30.2	C	TR	0.88	30.6	C	TR	0.90	33.3	C	
Overall Intersection			**0.92**	**53.7**	**D**	-	**0.92**	**55.2**	**E**	-	**0.92**	**48.5**	**D**	

~~Table 19-9 (cont'd)~~
~~2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday PM Peak Hour Traffic Levels of Service~~

~~INTERSECTION & APPROACH~~		~~2017 No Build~~				~~2017 Construction~~				~~2017 Construction with Mitigation~~				
		~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mitigation Measures~~
~~GRAND STREET AND ESSEX STREET~~														
~~Grand Street~~	~~EB~~	~~LTR~~	~~0.78~~	~~30.9~~	~~C~~	~~LTR~~	~~0.82~~	~~34.3~~	~~C~~				-	
	~~WB~~	~~LTR~~	~~0.75~~	~~22.8~~	~~C~~	~~LTR~~	~~0.76~~	~~22.9~~	~~C~~					
~~Essex Street~~	~~NB~~	~~LTR~~	~~0.36~~	~~17.6~~	~~B~~	~~LTR~~	~~0.36~~	~~17.6~~	~~B~~					~~Mitigation not required.~~
	~~SB~~	~~LTR~~	~~0.40~~	~~18.7~~	~~B~~	~~LTR~~	~~0.40~~	~~18.8~~	~~B~~					
~~Overall Intersection~~			~~0.59~~	~~22.9~~	~~C~~	-	~~0.61~~	~~23.8~~	~~C~~					

~~Notes:~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~

Table 19-9[1]
2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday PM Peak Hour Traffic Levels of Service

INTERSECTION & APPROACH		2017 No Build				2017 Construction				2017 Construction with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
EAST HOUSTON STREET														
EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.30	14.4	B	L	0.30	14.5	B					
		TR	0.75	28.4	C	TR	0.75	28.4	C					
	WB	L	0.93	65.9	E	L	0.93	65.9	E					
		T	0.63	26.3	C	T	0.64	26.4	C					Mitigation not required.
		R	0.25	21.9	C	R	0.25	21.9	C					
Essex Street / Avenue A	NB	LTR	0.71	32.5	C	LTR	0.76	34.4	C					
	SB	LTR	0.90	40.6	D	LTR	0.92	42.3	D					
Overall Intersection			**0.90**	**32.8**	**D**	**-**	**0.90**	**33.3**	**C**					
DELANCEY STREET														
DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	1.07	69.9	E	TR	1.07	70.2	E					
	WB	L	0.67	40.0	D	L	0.67	40.4	D					
		TR	1.04	49.0	D	TR	1.04	49.2	D					
Allen Street	NB	T	0.60	31.8	C	T	0.60	31.8	C					Mitigation not required.
		R	0.44	17.0	B	R	0.44	17.0	B					
	SB	TR	0.52	30.2	C	TR	0.52	30.2	C					
Overall Intersection			**0.91**	**52.5**	**D**	-	**0.91**	**52.7**	**D**					
DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.93	25.7	C	TR	0.93	26.1	C					
	WB	T	1.05	52.8	D	T	1.05	53.2	D					
		R	0.85	44.6	D	R	0.85	44.6	D					
Essex Street	NB	LT	0.39	30.4	C	LT	0.40	30.7	C					Mitigation not required.
		R	1.32	205.1	F	R	1.32	205.1	F					
	SB	TR	0.68	34.6	C	TR	0.70	35.2	D					
Overall Intersection			**1.13**	**46.8**	D	-	**1.13**	**47.1**	**D**					
DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	1.02	42.6	D	T	1.02	43.1	D					
	WB	TR	0.97	25.7	C	TR	0.97	25.8	C					
Norfolk Street	NB	TR	0.69	31.9	C	TR	0.71	32.7	C					Mitigation not required.
		R	0.69	32.2	C	R	0.70	32.8	C					
Overall Intersection			**0.89**	**33.7**	**C**	-	**0.90**	**34.1**	**C**					
DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	1.02	37.0	D	TR	1.03	39.6	D					
	WB	T	0.87	18.3	B	T	0.88	18.4	B					Mitigation not required.
Suffolk Street	SB	R	0.25	23.4	C	R	0.26	23.6	C					
Overall Intersection			**0.73**	**28.3**	**C**	-	**0.74**	**29.7**	**C**					

[1] This table has been revised for the FGEIS.

Table 19-9, cont'd
2017 No Action Without Construction Vs. 2017 Construction Vs. 2017 Construction With Mitigation Weekday PM Peak Hour Traffic Levels of Service

INTERSECTION & APPROACH		2017 No Build Mvt.	V/C	Control Delay	LOS	2017 Construction Mvt.	V/C	Control Delay	LOS	2017 Construction with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	1.10	67.4	E	T	1.10	70.1	E					Mitigation not required.
Williamsburg Bridge	WB	T	1.22	121.6	F	T	1.22	122.1	F					
		R	0.88	31.0	C	R	0.88	31.0	C					
Delancey Street Service Road	WB	R	1.78	481.6	F	R	1.78	481.6	F					
Clinton Street	NB	R	0.96	62.4	E	R	0.98	65.4	E					
Overall Intersection			**1.12**	**86.9**	F	-	**1.13**	**88.4**	F					
BROOME STREET														
BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.85	48.3	D	L	0.88	51.7	D					Mitigation not required.
	WB	R	0.27	28.9	C	R	0.27	29.0	C					
Norfolk Street	NB	T	0.52	24.6	C	T	0.52	24.7	C					
Overall Intersection			**0.65**	**35.7**	D	-	**0.67**	**37.4**	D					
GRAND STREET														
GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.86	39.4	D	LTR	0.86	39.4	D					Mitigation not required.
	WB	LTR	0.59	31.5	C	LTR	0.60	31.9	C					
Allen Street	NB	L	0.25	39.6	D	L	0.25	39.6	D					
		TR	0.64	25.5	C	TR	0.64	25.5	C					
	SB	L	0.76	54.5	D	L	0.78	55.7	E					
		TR	0.65	24.2	C	TR	0.65	24.2	C					
Overall Intersection			**0.74**	**30.5**	C	-	**0.75**	**30.7**	C					
		Mvt.	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	**Mvt.**	**V/C**	**Control Delay**	**LOS**	
GRAND STREET (cont'd)														
GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.65	25.1	C	LTR	0.66	25.3	C					Mitigation not required.
	WB	LTR	0.75	21.8	C	LTR	0.75	21.9	C					
Essex Street	NB	LTR	0.36	17.5	B	LTR	0.36	17.6	B					
	SB	LTR	0.34	17.6	B	LTR	0.34	17.6	B					
Overall Intersection			**0.55**	**20.6**	**C**	-	**0.56**	**20.8**	**C**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.

DELIVERIES

Construction trucks would be required to use NYCDOT-designated truck routes, including the Williamsburg Bridge, Delancey Street, Allen Street, and East Houston Street. Trucks would then use local streets to access the construction sites. Trucks would service the construction sites at its designated loading zones.

CURB LANE CLOSURES AND STAGING

During construction, long-term parking lane closures may be required. In the case where a travel lane closure is necessary, the closure would not be in effect for the entire block length. Lane closures would be delineated such that there would be enough space for a travel lane at the intersection approach to maintain the roadway capacity. It is anticipated that sidewalk closures may be required to the extent practicable. Short-term roadway closures and temporary sidewalk narrowings could occur along the sides at development sites during the construction period. Sidewalk and lane closures will be finalized as the maintenance and protection of traffic (MPT) plans are developed and reviewed with NYCDOT.

All lane and sidewalk closures during construction would be coordinated with NYCDOT's Office of Construction Mitigation and Coordination (OCMC). Traffic control agents may need to be deployed at times to facilitate traffic flow near the project site.

PARKING

Construction workers would generate an estimated maximum daily parking demand for up to 80 spaces during the peak construction phase. This parking demand could be accommodated by the off-street spaces available within a quarter-mile radius. A small portion of worker auto trips (18 percent) would find parking within one to two blocks from the construction sites—in the municipal garage located on Essex Street north of Delancey Street, and in the municipal lot south of Delancey between Essex Street and Ludlow Street. The remaining 82 percent would be expected to park within a quarter-mile radius in the parking lot along Essex Street between East Houston Street and Stanton Street (28 percent), the parking garage along Allen Street south of Grand Street (27 percent), and the parking garage at the intersection of the Delancey Street service road and Columbia Street (27 percent).

TRANSIT

The study area is well served by public transit, including the F, J, M, and Z subway lines at the Essex Street-Delancey Street station. There are also several local bus routes, including the M9, M14A, M15, M21, and M22.

With nearly 30 percent of the construction workers projected to travel via auto, the bulk of the remaining 70 percent would travel to and from the project area via transit. During peak construction (maximum of 566 average daily construction workers, as shown in **Table 19-3**), this distribution would represent approximately 400 daily workers traveling by transit. With 80 percent of these workers arriving or departing during the construction peak hours, the total estimated number of peak hour transit trips would be approximately 320. Since these incremental construction transit trips would be distributed among the various available subway and bus services, no single transit element is expected to experience an increase of more than 200 peak hour transit riders, the recommended CEQR threshold for a detailed quantified analysis. Hence, there would not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips. Any temporary relocation of bus stops along bus routes that operate adjacent to the project area would be coordinated with and approved by NYCDOT and NYCT to ensure proper access is maintained.

PEDESTRIANS

For the same reasons provided on transit operations, a detailed pedestrian analysis would also not be warranted to address the projected demand from the travel of construction workers to and from the project area. With a maximum of 566 average daily construction workers, as shown in **Table 19-3**, there would be up to approximately 450 workers arriving or departing during the construction peak hours via various modes of transportation. Considering that these pedestrian trips would primarily occur outside of the typical commuter peak hours (8 to 9 AM and 5 to 6 PM), spread over four development sites, several nearby transit services, and a number of area parking facilities, and therefore be distributed among numerous sidewalks and crosswalks in the area, there would not be a potential for significant adverse pedestrian impacts attributable to the projected construction worker pedestrian trips. In addition, sidewalk protection or temporary sidewalks would be provided in accordance with NYCDOT requirements to maintain pedestrian access if needed.

AIR QUALITY

INTRODUCTION

Emissions from on-site construction equipment and on-road construction-related vehicles, and the effect of construction vehicles on background traffic congestion, have the potential to affect air quality. The analysis of potential impacts of the construction under the proposed actions on air quality includes a quantitative analysis of both on-site and on-road sources of air emissions, and the overall combined impact of both sources, where applicable.

In general, most construction engines are diesel-powered, and produce relatively high levels of nitrogen oxides (NO_x) and particulate matter (PM). Construction activities also emit fugitive dust. Although diesel engines emit much lower levels of carbon monoxide (CO) than gasoline engines, the stationary nature of construction emissions and the large quantity of engines could lead to elevated CO concentrations, and impacts on traffic could increase mobile source-related emissions of CO as well. Therefore, the pollutants analyzed for the construction period are nitrogen dioxide (NO_2), particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and CO. Since ultra-low-sulfur diesel (ULSD) would be used for all diesel engines used in the construction of the proposed buildings, sulfur oxides (SO_x) emitted from those construction activities would be negligible. For more details on air pollutants, see Chapter 14, “Air Quality.”

Construction activity in general and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine PM. To ensure that the construction under the proposed actions results in the lowest practicable diesel particulate matter (DPM) emissions, the following emissions reduction measures would be implemented to the extent feasible and practicable:

1. *Diesel Equipment Reduction.* Construction of the proposed buildings would minimize the use of diesel engines and use electric engines, to the extent feasible and practicable. Equipment that would use electric power instead of diesel engines could include, but would not be limited to, small compressors, and material/personnel hoists.
2. *Clean Fuel.* ULSD would be used exclusively for all diesel engines throughout the construction sites. This would enable the use of tailpipe reduction technologies (see below) and would directly reduce DPM and SO_x emissions.
3. *Best Available Tailpipe Reduction Technologies*. Nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract) including but not limited to concrete mixing and pumping trucks, would utilize the best available tailpipe (BAT) technology for reducing DPM emissions, to the extent feasible and practicable. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Diesel nonroad engines rated at 50 hp or greater would utilize DPFs, to the extent feasible and practicable, either installed on the engine by the original equipment manufacturer (OEM) or a retrofit DPF verified by EPA or the California Air Resources Board, and may

include active DPFs,[1] if necessary; or other technology proven to reduce DPM by at least 90 percent. This measure is expected to reduce site-wide tailpipe PM emissions by at least 90 percent.

4. *Utilization of Newer Equipment.* In addition to the tailpipe controls commitments, construction equipment rated Tier 2[2] or higher for all nonroad diesel engines with a power output of 50 hp or greater would be used to the extent feasible and practicable. The use of newer engine models with lower PM emissions is expected to reduce the likelihood of DPF plugging due to soot loading (i.e., clogging of DPF filters by accumulating particulate matter). In addition, while all engines undergo some deterioration over time, newer and better maintained engines will emit less PM than their older Tier or unregulated counterparts. Therefore, use of construction equipment rated Tier 2 or higher with lower tailpipe emission values would enhance this emissions reduction program and implementation of DPF systems as well as reduce maintenance frequency due to soot loading (i.e., less downtime for construction equipment to replace clogged DPF filters).

In addition, in order to reduce the resulting concentration increments at sensitive receptor locations (i.e., residences, parks), fugitive dust control plans will be implemented. For example, truck routes within the sites would be either watered as needed or, in cases where such routes may remain in the same place for an extended duration, the routes could be stabilized, covered with gravel, or temporarily paved to avoid the re-suspension of dust. Stabilized truck exit areas could be established for washing off the wheels of all trucks that exit the construction sites. In addition to regular cleaning by the City, streets adjacent to the sites could be cleaned frequently. All trucks hauling loose material would have their loads securely covered prior to leaving the sites. An on-site vehicular speed limit of 5 mph could be imposed. Water sprays would be used for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air. The fugitive dust emissions reduction program described above would provide at least a 50 percent reduction in particulate emissions from fugitive dust.

Additional measures would be taken to reduce pollutant emissions during construction of the proposed buildings in accordance with all applicable laws, regulations, and building codes. These include the restriction of on-site vehicle idle time to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.

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

[2] The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including particulate matter (PM), hydrocarbons (HC), oxides of nitrogen (NO_x) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

For properties that may be under the jurisdiction of HPD, emissions reduction measures would be required to be undertaken by the developer(s) through provisions in a Land Disposition Agreement, to be entered into at the time of closing. The Land Disposition Agreement would also require the use of a construction monitor, which would operate under the oversight of ODMED, to ensure such measures are implemented during construction activities.

For properties that may be under the jurisdiction of NYCEDC, emissions reduction measures, to the extent practicable and feasible, would be required to be undertaken by the developer(s) through provisions of a contract or other legally binding agreement between NYCEDC and the developer(s). The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of the Mayor's Office of Environmental Coordination, to ensure that the emissions reduction measures, to the extent practicable and feasible, are implemented during construction activities.

As discussed in Chapter 14, "Air Quality," EPA recently established a 1-hour average standard for NO_2. Great uncertainty exists as to 1-hour NO_2 background concentrations at ground level, especially near roadways, since these concentrations have not been measured. In addition, there are no clear methods to predict the rate of transformation of NO to NO_2 at ground-level given the level of existing data and models. Therefore, the significance of predicted construction impacts cannot be determined based on comparison with the new 1-hour NO_2 NAAQS since total 98th percentile values, including local area roadway contributions, cannot be estimated. In addition, methods for accurately predicting 1-hour NO_2 concentrations from construction activities have not been developed. However, exceedances of the 1-hour NO_2 standard resulting from construction activities cannot be ruled out and therefore, newer construction equipment would be used, where feasible and practicable, to reduce NO_x emissions. The electrification and idling restrictions mentioned above would also reduce NO_X emissions and NO_2 concentration levels.

METHODOLOGY

Chapter 14, "Air Quality," contains a review of the pollutants for analysis; applicable regulations, standards, and benchmarks; and general methodology for stationary and mobile source air quality analyses. Additional details relevant only to the construction air quality analysis methodology are presented in the following section.

The *CEQR Technical Manual* states that the significance of a likely consequence (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected. In terms of the magnitude of air quality impacts, an action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the NAAQS, or increase the concentration of $PM_{2.5}$ above the interim guidance thresholds, could have an adverse impact of significant magnitude. The factors identified above would then be considered in determining the overall significance of the potential impact.

On-Site Construction Activity Assessment

To determine which construction periods constitute the worst-case periods for the pollutants of concern (PM, CO, NO_2), construction-related emissions were calculated throughout the duration of construction on an annual and peak day basis for $PM_{2.5}$. $PM_{2.5}$ was selected for determining the worst-case periods for all pollutants as analyzed, because the ratio of $PM_{2.5}$ emissions to impact criteria is higher than for other pollutants. Therefore, initial estimates of $PM_{2.5}$ emissions throughout the construction years were used for determining the worst-case periods for analysis of all pollutants. Generally, emission patterns of PM_{10} and NO_2 would follow $PM_{2.5}$ emissions, since they are related to diesel engines by horsepower (hp). CO emissions may have a somewhat different pattern but generally would also be highest during periods when the most activity would occur. Based on the resulting multi-year profiles of annual average and peak day average emissions of $PM_{2.5}$, and the proximity of the construction activities to residences, academic buildings, and publicly accessible open spaces, a worst-case year and worst-case short-term period were identified for dispersion modeling of annual and short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods. Dispersion of the relevant air pollutants from the site during these periods was then analyzed, and the highest resulting concentrations are presented in the following sections. Broader conclusions regarding potential concentrations during other periods, which were not modeled, are presented as well, based on the multi-year emissions profiles and the worst-case period results.

The general methodology for stationary source modeling (regarding model selection, receptor placement, and meteorological data) presented in Chapter 14, "Air Quality," was followed for modeling dispersion of pollutants from on-site sources during the construction period.

The sizes, types, and number of construction equipment were estimated based on the construction activity schedule. Emission factors for NO_x, CO, PM_{10}, and $PM_{2.5}$ from on-site construction engines were developed using the EPA's NONROAD2008 Emission Model (NONROAD). Since emission factors for concrete pumps are not available from either the EPA MOBILE6.2 emission model (MOBILE6) or NONROAD, emission factors specifically developed for this type of application were used.[1] With respect to trucks, emission rates for NO_X, CO, PM_{10}, and $PM_{2.5}$ for truck engines were developed using MOBILE6.

As described in the introduction above, an emissions reduction program would be implemented to reduce air pollutant emissions during construction of the proposed buildings where feasible and practicable. Based on the project's commitments, emission factors for construction under the proposed actions were calculated assuming the exclusive use of ULSD, diesel engines of Tier 2 certification, and the application of DPFs on all nonroad diesel engines 50 hp or greater and on concrete delivery and pumping trucks; other trucks were assumed to have emissions consistent with the general truck fleet (all on-road diesel vehicles currently use ULSD, as mandated by federal regulations). $PM_{2.5}$ emission factors for engines retrofit with a DPF (i.e., all nonroad engines with a power output of 50 hp or greater and all concrete delivery trucks) were calculated as 10 percent of the NONROAD Tier 2 emission factors. The emission factors specifically developed for concrete pump trucks were also reduced by 90 percent to account for the DPFs. All personnel/material hoists and small hand tools would be electric and powered by either diesel generators or connected to grid power when it becomes available. Therefore, these engines would have no associated emissions.

In addition to engine emissions, fugitive dust emissions from operations (e.g., excavation and loading excavated materials into dump trucks) were calculated based on EPA procedures delineated in AP-42 Table 13.2.3-1. It was estimated that the planned control of fugitive

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[1] Concrete pumps are truck mounted and use the truck engine to power the pumps at high load. This application of truck engines is not addressed by the MOBILE6 model, and since it is not a non-road engine, it is not included in the NONROAD model. Emission factors were obtained from a study which developed factors specifically for this type of activity. *FEIS for the Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development*, CPC–NYCDCP, November 16, 2007.

emissions would reduce PM emissions from such processes by 50 percent. To avoid the re-suspension of dust, a watering program would be implemented for all demolition, excavation, and transfer of loose materials to and from trucks.

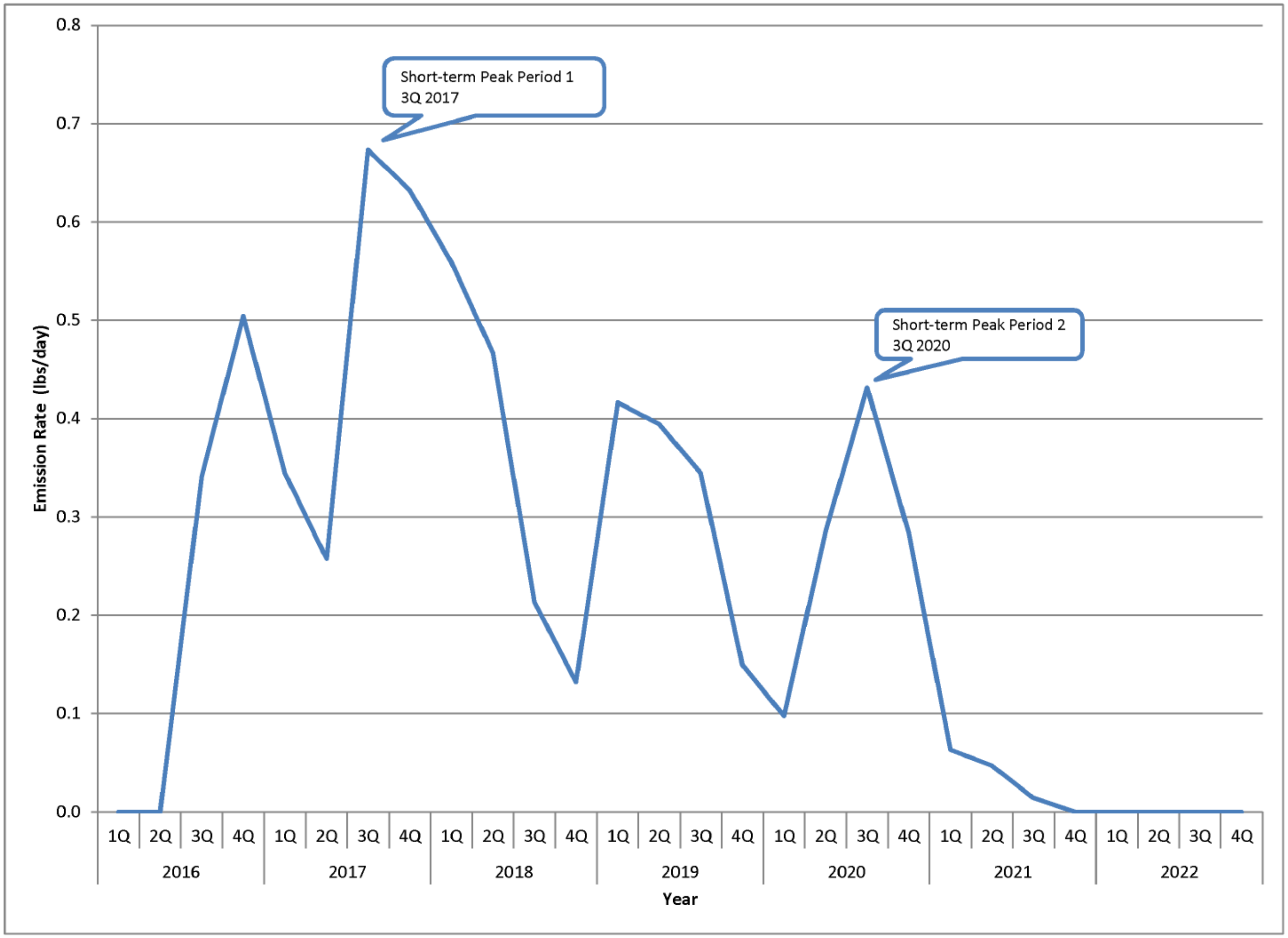
The resulting emission factors were used for the emissions and dispersion analyses. Average annual (running 12-month averages) and peak-day $PM_{2.5}$ engine emissions profiles for the entire duration of the construction were prepared by multiplying the above emission rates by the number of engines, the work hours per day, and fraction of the day each engine would be expected to work during each month. The resulting overall peak day and annual average emission profiles are presented in **Figures 19-2 and 19-3**.

Based on the $PM_{2.5}$ construction emissions profiles, two peak short-term and annual periods were selected for modeling, representing the RWCDS. The third quarter of 2017 and the year from the third quarter of 2017 to the second quarter of 2018, where construction would occur simultaneously at Sites 2, 3, 4, and 5, were identified as the worst-case short-term and annual periods, respectively, since the highest project-wide emissions were predicted in these periods. In addition, one short-term period (the third quarter of 2020) and one annual period (the year 2020) were also analyzed. Although overall construction emissions during this secondary period would be lower, this period would include simultaneous construction activities at Sites 8, 9, and 10, and will take place in close proximity to existing residential buildings. The selected analysis periods are indicated in **Figures 19-2 and 19-3**. The dispersion of pollutants during the worst-case short-term and annual periods was then modeled in detail to predict resulting maximum concentration increments from construction activity and total concentrations (including background concentrations) in the surrounding area.

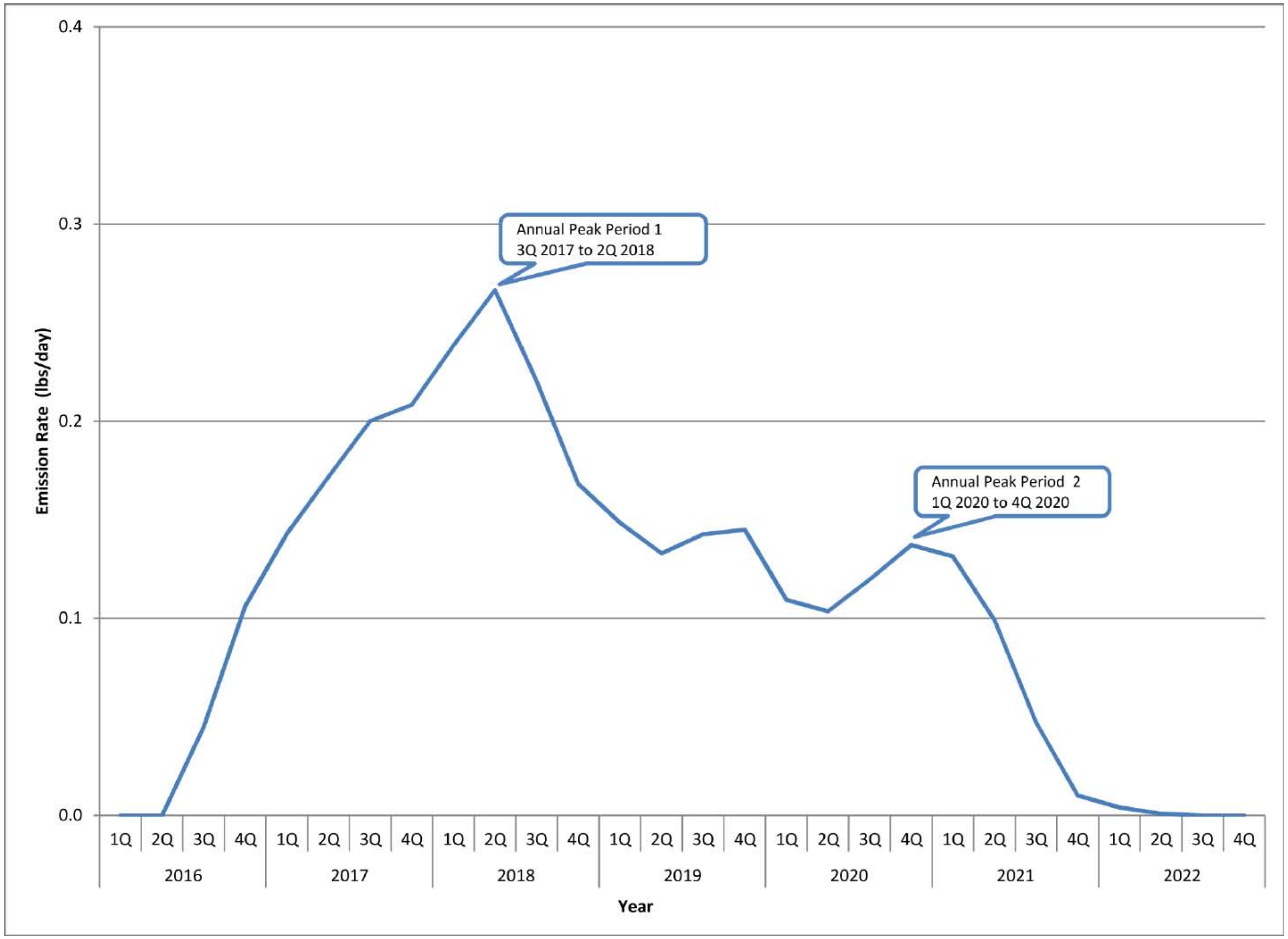
Although the modeled results are based on construction scenarios for specific sample periods, conclusions regarding other periods, such as the construction at Sites 1 and 6, were derived based on the fact that lower concentration increments from construction would generally be expected during periods with lower construction emissions. As presented in **Figures 19-2 and 19-3**, emissions during other periods would be lower than the peak emissions. However, since the worst-case short-term results may often be indicative of local impacts, similar maximum local impacts may occur at any stage at various locations but would not persist in any single location, since emission sources would not be located continuously at any single location throughout construction. Equipment would move throughout the site as construction progresses.

For the short-term model scenarios, predicting concentration averages for periods of 24 hours or less, all stationary sources, such as compressors, generators, or concrete trucks, which idle in a single location while unloading, were simulated as point sources. Other engines, which would move around the site on any given day, were simulated as area sources. For periods of 8 hours or less (less than the length of a shift), it was assumed that all engines would be active simultaneously. With the exception of tower cranes, all sources would move around the site throughout the year and were therefore simulated as area sources in the annual analyses.

Receptors (locations in the model where concentrations are predicted) were placed along the sidewalks surrounding the construction sites on both sides of the street at locations that would be publicly accessible, at residential and other sensitive uses at both ground-level and elevated locations (e.g., residential windows), and at open spaces. In addition, a ground-level receptor grid was placed to enable extrapolation of concentrations throughout the entire area at locations more distant from the construction sites. For the modeling of the secondary period, receptors were also placed on completed project elements at Sites 2, 3, 4, and 5.



Short Term (24-Hour Average)
$PM_{2.5}$ Construction Emissions Profile
Figure 19-2



Annual (Moving 12-Month Average)
$PM_{2.5}$ Construction Emissions Profile
Figure 19-3

Background Concentrations

Where needed to determine potential air quality impacts from the construction of the project, background ambient air quality data for criteria pollutants were added to the predicted off-site concentrations. The background data were obtained from nearby NYSDEC monitoring stations that best represented the area surrounding the site. Those monitoring years were 2006 through 2010. These background concentrations are provided below in **Table 19-10**. Short-term concentrations (i.e., 24- and 8-hour averages) represent the second highest concentration of the five year data set, with the exception of PM_{10}, which is based on three years of data, consistent with current NYCDEP guidance (2008-2010). The annual concentration represents the maximum value of the five year data set. For $PM_{2.5}$, background concentrations are not considered, since impacts are determined on an incremental basis only.

Table 19-10
Background Pollutant Concentrations

Pollutant	Monitoring Station	Averaging Period	Background Concentration ($\mu g/m^3$)	Ambient Standard ($\mu g/m^3$)
NO_2	Queens College 2	Annual	68	100
CO	Queens College 2	1-hr	3,894	40,000
		8-hr	2,290	10,000
PM_{10}	Division Street	24-hr	52	150
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2006–2010.				

Mobile Source Assessment

The general methodology for mobile source modeling presented in Chapter 14, “Air Quality,” was followed for intersection modeling during the construction period. The CAL3QHC model was used to perform mobile source CO computations, while CAL3QHCR, a refined version of the CAL3QHC model, was used to determine motor vehicle generated PM concentrations.

Based on the predicted traffic conditions, the traffic scenario for the third quarter of 2017 was determined to demonstrate the highest overall volumes of construction-related vehicles and traffic disruptions, such as street or lane closures; this period would generally represent the highest potentials for air quality impacts. The worst-case period was also used to demonstrate the highest predicted mobile source CO and PM increments for all other construction periods when added to the concurrent on-site emissions from construction equipment and activity; this is a conservative assumption, since concentration increments from mobile sources during periods with lower vehicle increments would be lower.

Location for mobile source analysis was selected based on the construction model scenarios and truck trip assignments analyzed for the assessment of traffic impacts during construction. The site was chosen with the objective of capturing the highest construction-related concentration increment, the highest expected increments at locations where background concentrations were predicted to be high in the No Action condition, and the mobile source increments in areas near the project site at intersections where relatively high increments are predicted from on-site construction activity. Based on those criteria, the intersection of Delancey Street and Norfolk Street was selected for CO and PM modeling, as presented in **Table 19-11**.

Table 19-11
Mobile Source Analysis Sites

Analysis Site	Intersection
1	Delancey Street and Norfolk Street

Cumulative Assessment

Since emissions from on-site construction equipment and on-road construction-related vehicles may contribute to concentration increments concurrently, a cumulative assessment was undertaken to determine the potential maximum effect of these sources combined. Total cumulative concentrations were estimated by combining the highest results from the on-site construction analysis with the construction related-mobile source concentrations at the nearest location. The mobile source and stationary source analyses are performed separately with different dispersion models, as appropriate for the different types of analyses. The combination of the highest results is therefore a conservatively high estimate of potential impacts, since it is likely that the highest results from different sources would occur under different meteorological conditions (e.g., different wind direction and speed), would not actually occur simultaneously, and would not necessarily occur when the highest background concentrations are present.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

Background Air Quality

In the future without the proposed actions, air quality is anticipated to be similar to that described for existing conditions. Land uses are expected to remain generally the same in this neighborhood in Manhattan. Since air quality regulations mandated by the Clean Air Act are anticipated to maintain or improve air quality in the region, it can be expected that air quality conditions in the future without the proposed actions would be similar to those that presently exist.

Mobile Source Assessment

CO

CO concentrations without the proposed actions were determined using the methodology previously described. **Table 19-12** shows future maximum predicted 8-hour average CO concentrations at the analysis intersection without the proposed actions. The value shown is the highest predicted concentration for the receptor locations for any of the time periods analyzed. As indicated in **Table 19-12**, the predicted 8-hour concentration of CO, including background, is below the corresponding ambient air quality standard.

Table 19-12
Maximum Predicted Future No Action
8-Hour Average Carbon Monoxide Concentrations

Analysis Site	Location	8-Hour Concentration (ppm)	NAAQS (ppm)
1	Delancey Street and Norfolk Street	~~4.2~~ 4.4	9
Note: An adjusted ambient background concentration of 2.0 ppm is included in the No Action values presented above.			

PM

Concentrations of PM_{10} and $PM_{2.5}$ from mobile sources without the proposed actions were also determined at the intersection of Delancey Street and Norfolk Street. Concentration of PM_{10} included a 24-hour averaging period and $PM_{2.5}$ included the 24-hour and annual averaging periods. As shown in **Table 19-13**, including a background concentration of 52 $\mu g/m^3$, the maximum PM_{10} 24-hour No Action concentration is predicted to be approximately 88 $\mu g/m^3$ and is below the applicable NAAQS of 150 $\mu g/m^3$. Note that $PM_{2.5}$ concentrations for the No Action condition are not presented, since impacts are assessed on an incremental basis.

Table 19-13
Maximum Predicted Future No Action
24-Hour Average PM_{10} Concentrations

Analysis Site	Location	24-Hour Concentration (μg/m³)	NAAQS (μg/m³)
1	Delancey Street and Norfolk Street	88	150
Note: An adjusted ambient background concentration of 52 μg/m³ is included in the No Action values presented above.			

THE FUTURE WITH THE PROPOSED ACTIONS

On-Site Construction Activity Assessment – Sites 2, 3, 4, and 5

Maximum predicted concentration increments from simultaneous construction activities at Sites 2, 3, 4, and 5, and overall concentrations including background concentrations, are presented in **Table 19-14**. For $PM_{2.5}$, monitored concentrations are not added to modeled concentrations from sources, since impacts are determined by comparing the predicted increment from the proposed actions as compared to the No Action condition with the interim guidance criteria. The total maximum combined concentrations, including mobile sources and construction, are presented in the "Cumulative Assessment" section, below.

Table 19-14
Maximum Predicted Pollutant Concentrations from Construction Site Sources—
Sites 2, 3, 4, and 5 (μg/m³)

Pollutant	Averaging Period	No Action	Proposed Actions	Increment	Interim Guidance Threshold	NAAQS
Residence, Academic Buildings or Open Space						
$PM_{2.5}$	24-hour[2]	—	—	1.3	2 [3]	35 [1]
	Annual Local[2]	—	—	0.09	0.3	15
PM_{10}	24-hour	52	56	4	—	150
NO_2	Annual	68	75	7	—	100
CO	1-hour	3.4 ppm	10.4 ppm	7.0 ppm	—	35 ppm
	8-hour	2.0 ppm	3.2 ppm	1.2 ppm	—	9 ppm
Sidewalks and Covered Walkways Adjacent to Construction						
$PM_{2.5}$	24-hour[2]	—	—	3.1 [4]	2 [3]	35 [1]
	Annual Local[2]	—	—	0.25	0.3	15
PM_{10}	24-hour	52	58	6	—	150
NO_2	Annual	68	89	21	—	100
CO	1-hour	3.4 ppm	23.1 ppm	19.7 ppm	—	35 ppm
	8-hour	2.0 ppm	7.2 ppm	5.2 ppm	—	9 ppm

Notes:
$PM_{2.5}$ concentration increments should be compared with threshold values. Total concentrations should be compared with the NAAQS.
1 EPA has reduced the 24-hour $PM_{2.5}$ standard from 65 μg/m³ to 35 μg/m³ and revoked the annual PM_{10} standard, effective December 18, 2006. A full discussion of the NAAQS can be found in Chapter 14, "Air Quality."
2 Monitored concentrations are not added to modeled $PM_{2.5}$ values.
3 NYCDEP is currently applying threshold criteria for assessing the significance of 24-hour average $PM_{2.5}$ impacts. The significance of temporary concentration increments greater than 2 μg/m³ is assessed in the context of the magnitude, frequency, duration, location and size of area affected by the concentration increment.
4 This value exceeds the interim guidance threshold level. See text for further discussion.

The maximum predicted total concentrations of PM_{10}, CO, and annual-average NO_2 are not expected to exceed the NAAQS.

From the on-site sources related to the construction, the maximum predicted 24-hour average $PM_{2.5}$ incremental concentration occurred at a near-side sidewalk receptor location immediately adjacent to the construction, as shown in **Appendix E-3**. The maximum frequency of predicted concentrations above 2.0 µg/m^3 at any near-side sidewalk locations would be nine occurrences in a single year (using five years of meteorological data). It should be noted that the maximum increments, predicted at sidewalks and covered walkways adjacent to construction, are overstated, since they do not include the effect of the solid fence and sidewalk protection on mixing. The location of the maximum 24-hour average increments would vary based on the location of the sources, which would move throughout the site over time. Therefore, continuous daily exposures would not be likely to occur at any one location. Based on the limited duration and extent of these predicted exceedances, the low frequency of occurrence, and the limited potential for exposure, this would not result in significant adverse impacts. The maximum predicted 24-hour average $PM_{2.5}$ concentration increments at sensitive receptor locations (e.g., residential buildings or open space locations) would not exceeded 2 µg/m^3.

The maximum predicted neighborhood-scale annual average $PM_{2.5}$ concentration would be 0.01 µg/m^3—lower than the interim guidance threshold level of 0.1 µg/m^3, and the maximum predicted local annual average $PM_{2.5}$ concentration would be less than the applicable interim guidance threshold.

On-Site Construction Activity Assessment – Sites 8, 9, and 10

Maximum predicted concentration increments from simultaneous construction activities at Sites 8, 9, and 10, and overall concentrations including background concentrations, are presented in **Table 19-15**. For $PM_{2.5}$, monitored concentrations are not added to modeled concentrations from sources, since impacts are determined by comparing the predicted increment from the proposed actions as compared to the No Action condition with the interim guidance criteria. The total maximum combined concentrations, including mobile sources and construction, are presented in the "Cumulative Assessment" section, below.

The maximum predicted total concentrations of PM_{10}, CO, and annual-average NO_2 are not expected to exceed the NAAQS.

From the on-site sources related to the construction, the maximum predicted 24-hour average $PM_{2.5}$ incremental concentration occurred at a residential location (127 Stanton Street) immediately adjacent to the construction activities at Site 10, as shown in **Appendix E-3**. The maximum frequency of predicted concentrations above 2.0 µg/m^3 at this location would only be five occurrences in a single year (using five years of meteorological data). The predicted 24-hour average $PM_{2.5}$ concentration increments would also exceed 2.0 µg/m^3 at five other residential locations: 125 Stanton Street, 135 Norfolk Street, 137 Norfolk Street, 151 Norfolk Street, and 153 Norfolk Street. These residential locations are either immediately adjacent to the construction activities at Site 8 or Site 10. The maximum frequency of predicted concentrations above 2.0 µg/m^3 at these locations would be nine occurrences in a single year (using five years of meteorological data) and an average of five occurrences in five years, at 151 Norfolk Street located directly east of Site 10. It should be noted that the maximum increments, predicted at locations adjacent to construction, are overstated, since they do not include the effect of the solid fence on mixing. The location of the maximum 24-hour average increments would vary based on the location of the sources, which would move throughout the site over time. Therefore, continuous daily exposures would not be likely to occur at any one location. Based on the limited duration and extent of these predicted exceedances, the low frequency of occurrence, and the limited potential for exposure, this would not result in significant adverse impacts.

Table 19-15
Maximum Predicted Pollutant Concentrations from Construction Site Sources—Sites 8, 9, and 10 ($\mu g/m^3$)

Pollutant	Averaging Period	No Action	Proposed Actions	Increment	Interim Guidance Threshold	NAAQS
Residence, Academic Buildings or Open Space						
$PM_{2.5}$	24-hour[2]	—	—	3.2 [4]	2 [3]	35 [1]
	Annual Local[2]	—	—	0.16	0.3	15
PM_{10}	24-hour	52	62	10	—	150
NO_2	Annual	68	75	7	—	100
CO	1-hour	3.4 ppm	28.1 ppm	24.7 ppm	—	35 ppm
	8-hour	2.0 ppm	6.0 ppm	4.0 ppm	—	9 ppm
Sidewalks and Covered Walkways Adjacent to Construction						
$PM_{2.5}$	24-hour[2]	—	—	3.1 [4]	2 [3]	35 [1]
	Annual Local[2]	—	—	0.18	0.3	15
PM_{10}	24-hour	52	63	11	—	150
NO_2	Annual	68	81	13	—	100
CO	1-hour	3.4 ppm	22.7 ppm	19.3 ppm	—	35 ppm
	8-hour	2.0 ppm	6.0 ppm	4.0 ppm	—	9 ppm

Notes:

$PM_{2.5}$ concentration increments should be compared with threshold values. Total concentrations should be compared with the NAAQS.

1 EPA has reduced the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ and revoked the annual PM_{10} standard, effective December 18, 2006. A full discussion of the NAAQS can be found in Chapter 14, "Air Quality."

2 Monitored concentrations are not added to modeled $PM_{2.5}$ values.

3 NYCDEP is currently applying threshold criteria for assessing the significance of 24-hour average $PM_{2.5}$ impacts. The significance of temporary concentration increments greater than 2 $\mu g/m^3$ is assessed in the context of the magnitude, frequency, duration, location and size of area affected by the concentration increment.

4 This value exceeds the interim guidance threshold level. See text for further discussion.

As shown in **Appendix E-3**, the maximum predicted 24-hour average $PM_{2.5}$ concentration increments would also exceeded 2 $\mu g/m^3$ at near-side sidewalk locations. The maximum frequency of predicted concentrations above 2.0 $\mu g/m^3$ at any near-side sidewalk locations would be ten occurrences in a single year (using five years of meteorological data). It should be noted that the maximum increments, predicted at sidewalks and covered walkways adjacent to construction, are overstated, since they do not include the effect of the solid fence and sidewalk protection on mixing. The location of the maximum 24-hour average increments would vary based on the location of the sources, which would move throughout the site over time. Therefore, continuous daily exposures would not be likely to occur at any one location. Based on the limited duration and extent of these predicted exceedances, the low frequency of occurrence, and the limited potential for exposure, this would not result in significant adverse impacts.

The maximum predicted neighborhood-scale annual average $PM_{2.5}$ concentration would be 0.01 $\mu g/m^3$—lower than the interim guidance threshold level of 0.1 $\mu g/m^3$, and the maximum predicted local annual average $PM_{2.5}$ concentration would be less than the applicable interim guidance threshold.

Mobile Source Assessment

A mobile source air quality analysis was conducted for the project during construction activities at the site for the peak construction traffic year of 2017. Localized pollutant impacts from the vehicles queuing at the selected intersection were analyzed for CO for the 8-hour averaging period. PM_{10} was analyzed for the 24-hour averaging period and $PM_{2.5}$ was analyzed for the 24-hour and annual averaging periods.

CO

CO concentrations with the proposed actions were determined using the methodology previously described. **Table 19-16** shows the future maximum predicted 8-hour average CO concentration with the proposed actions at the analysis intersection studied. (No 1-hour values are shown, since no exceedances of the NAAQS would occur and the *de minimis* criteria are only applicable to 8-hour concentrations; therefore, the 8-hour values are the most critical for impact assessment.) The values shown are the highest predicted concentrations for the time periods analyzed. In addition, the incremental increase in 8-hour average CO concentration is small, and consequently would not result in a violation of the CEQR *de minimis* CO criteria. Therefore, the proposed actions would not result in any significant CO air quality impacts in the With Action condition.

Table 19-16
Maximum Predicted Future No Action and With Action
8-Hour Average Carbon Monoxide Concentrations

Analysis Site	Location	No Action 8-Hour Concentration (ppm)	With Action 8-Hour Concentration (ppm)	NAAQS (ppm)
1	Delancey Street and Norfolk Street	~~4.2~~ 4.4	~~4.2~~ 4.5	9
Note:	An adjusted ambient background concentration of 2.0 ppm is included in the No Action values presented above.			

PM

Concentrations of PM_{10} and $PM_{2.5}$ from mobile sources with the proposed actions were also determined at the intersection of Delancey Street and Norfolk Street. **Table 19-17** shows the future maximum predicted 24-hour average PM_{10} concentration with the proposed actions. The value shown is the highest predicted concentration for all locations analyzed and includes the ambient background concentrations. The result indicates that the proposed actions would not result in any violations of the PM_{10} standard or any significant adverse impacts on air quality.

Table 19-17
Maximum Predicted Future No Action and With Action
24-Hour Average PM_{10} Concentrations

Analysis Site	Location	No Action 24-Hour Concentration (μg/m³)	With Action 24-Hour Concentration (μg/m³)	NAAQS (μg/m³)
1	Delancey Street and Norfolk Street	~~88.0~~ 88.2	~~88.1~~ 88.4	150
Note:	An adjusted ambient background concentration of 52 μg/m³ is included in the No Action values presented above.			

Future maximum predicted 24-hour and annual average $PM_{2.5}$ concentration increments were calculated so that they could be compared to the interim guidance criteria that would determine the potential significance of any impacts from the proposed actions. Based on this analysis, the maximum predicted localized 24-hour average and neighborhood-scale annual average incremental $PM_{2.5}$ concentrations are presented in **Tables 19-18** and **19-19**, respectively. The results show that the annual and daily (24-hour) $PM_{2.5}$ increments are predicted to be well below the interim guidance criteria and, therefore, the proposed actions would not result in significant $PM_{2.5}$ impacts at the analyzed receptor locations.

Table 19-18
Maximum Predicted Future
24-Hour Average $PM_{2.5}$ Concentrations

Analysis Site	Location	Increment (μg/m³)	Interim Guidance Threshold (μg/m³)
1	Delancey Street and Norfolk Street	~~0.03~~ 0.04	5/2
Note: $PM_{2.5}$ interim guidance criteria—24-hour average, 2 μg/m³ (5 μg/m³ not-to-exceed value).			

Table 19-19
Maximum Predicted Future
Annual Average $PM_{2.5}$ Concentrations

Analysis Site	Location	Increment (μg/m³)	Interim Guidance Threshold (μg/m³)
1	Delancey Street and Norfolk Street	~~0.001~~ 0.004	0.1
Note: $PM_{2.5}$ interim guidance criteria—annual (neighborhood scale) 0.1 μg/m³.			

Cumulative Assessment

A mobile source analysis of CO impacts for the intersection of Delancey Street and Norfolk Street indicated that a maximum predicted concentration would occur at receptors placed along the sidewalks adjacent to this intersection. The maximum predicted concentration of CO from stationary sources is 7.2 ppm, including background. Total cumulative concentration of CO for both mobile and stationary is estimated to be ~~8.6~~ 8.7 ppm, which is less than the applicable air quality standard of 9 ppm. Therefore, no significant adverse air quality impacts for CO are expected to occur due to the combined impacts of mobile and construction sources.

The maximum predicted concentration of PM_{10} from stationary sources is 63 μg/m³, including background. Cumulative concentrations from mobile and stationary sources (conservatively combining two different peak analysis periods) is estimated to be ~~96~~ 99 μg/m³, and would not exceed the applicable air quality standard of 150 μg/m³.

For $PM_{2.5}$, the mobile source concentrations was an order of magnitude or more lower than the stationary source concentrations, and would therefore have no significant affect when combined with the stationary source concentration contribution. Therefore, no significant adverse air quality impacts for either PM_{10} or $PM_{2.5}$ would occur due to the combined impacts of mobile and stationary sources.

CONCLUSIONS

A detailed analysis of the effects of on-site and on-road emissions determined that annual-average NO_2, CO, and PM_{10} concentrations would be below their corresponding NAAQS. Therefore, the proposed actions would not cause or contribute to any significant adverse air quality impacts with respect to these standards.

Dispersion modeling determined that the maximum predicted incremental concentrations of $PM_{2.5}$ (using a worst-case emissions scenario) would exceed the City's applicable 24-hour interim guidance criterion of 2 μg/m³ at near-side sidewalk receptor locations and four residential locations, where the likelihood of prolonged exposure is low. The occurrences of elevated 24-hour average concentrations for $PM_{2.5}$ would be limited in duration, frequency, and magnitude. Therefore, after taking into account the limited duration and extent of these predicted exceedances, and the limited area-wide extent of the 24-hour impacts, it is concluded that no significant adverse air quality impacts for $PM_{2.5}$ are expected from the on-site construction sources.

Because background concentrations are not known and the analysis methodology for mobile and stationary sources has not been developed for the new 1-hour NO_2 NAAQS, exceedances of the 1-hour NO_2 standard resulting from construction activities cannot be ruled out. Therefore, measures including diesel equipment reduction, utilization of newer equipment, and source location and idling restriction, would be implemented to the extent feasible and practicable to minimize NO_x emissions from construction activities under the proposed actions.

NOISE AND VIBRATION

INTRODUCTION

Potential impacts on community noise levels during construction of a proposed project can result from noise from construction equipment operation and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), 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. The most significant construction noise sources are expected to be impact equipment such as jackhammers, excavators with ram hoes, drill rigs, rock drills, impact wrenches, tower cranes, and paving breakers, as well as the movements of trucks.

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

Given the scope and duration of construction activities for the RWCDS, a quantified construction noise analysis was performed. The purpose of this analysis was to determine if significant adverse noise impacts would occur during construction, and if so, to examine the feasibility of implementing mitigation measures to reduce or eliminate such impacts.

CONSTRUCTION NOISE IMPACT CRITERIA

The *CEQR Technical Manual* states that significant noise impacts due to construction would occur “only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time.” This has been interpreted to mean that such impacts would occur only at sensitive receptors where the activity with the potential to create high noise levels would occur continuously for approximately two years or longer. In addition, the *CEQR Technical Manual* states that the impact criteria for vehicular sources, using the No Action noise level as the baseline, should be used for assessing construction impacts. As recommended in the *CEQR Technical Manual*, this study uses the criteria to define a significant adverse noise impact as follows:

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

NOISE ANALYSIS METHODOLOGY

Construction activities for the RWCDS would be expected to result in increased noise levels as a result of: (1) the operation of construction equipment on-site; and (2) the movement of construction-related vehicles (i.e., worker trips, and material and equipment trips) on the surrounding roadways. The effect of each of these noise sources was evaluated. The results presented below show the effects of construction activities (i.e., noise due to both on-site construction equipment and construction-related vehicle operation) and the total cumulative impacts due to operational effects (caused by project-generated vehicular trips) and construction effects (as construction proceeds on uncompleted components of the project).

Noise from the operation of construction equipment on-site at a specific receptor location near a construction site is calculated by computing the sum of the noise produced by all pieces of equipment operating at the construction site. For each piece of equipment, the noise level at a receptor site is a function of:

- The noise emission level of the equipment;
- A usage factor, which accounts for the percentage of time the equipment is operating at full power;
- The distance between the piece of equipment and the receptor;
- Topography and ground effects; and
- Shielding.

Similarly, noise levels due to construction-related traffic are a function of:

- The noise emission levels of the type of vehicle (e.g., auto, light-duty truck, heavy-duty truck, bus, etc.);
- Vehicular speed;
- The distance between the roadway and the receptor;
- Topography and ground effects; and
- Shielding.

CONSTRUCTION NOISE MODELING

Noise effects from construction activities were evaluated using the CadnaA model, a computerized model developed by DataKustik for noise prediction and assessment. The model can be used for the analysis of a wide variety of noise sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment), transportation sources (e.g., roads, highways, railroad lines, busways, airports), and other specialized sources (e.g., sporting facilities). The model takes into account the reference sound pressure levels of the noise sources at 50 feet, attenuation with distance, ground contours, reflections from barriers and structures, attenuation due to shielding, etc. The CadnaA model is based on the acoustic propagation standards promulgated in International Standard ISO 9613-2. This standard is currently under review for adoption by the American National Standards Institute (ANSI) as an American Standard. The CadnaA model is a state-of-the-art tool for noise analysis and is approved for construction noise level prediction by the *CEQR Technical Manual*.

Geographic input data used with the CadnaA model included CAD drawings that defined site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the geographic location and operational characteristics—including equipment usage rates (percentage of time operating at full power) for each piece of construction equipment operating at the project site, as well as noise control measures—were input to the model. In addition, reflections and shielding by barriers erected on the construction site, and shielding from both adjacent buildings and project buildings as they are constructed, were accounted for in the model. In addition, construction-related vehicles were assigned to the adjacent roadways. The model produced A-weighted $L_{eq(1)}$ noise levels at each receptor location for each analysis period, as well as the contribution from each noise source.

DETERMINATION OF NO ACTION AND NON-CONSTRUCTION NOISE LEVELS

Noise generated by construction activities is added to noise generated by non-construction traffic on adjacent roadways in order to determine the total noise levels at each receptor location. No Action levels would be expected to be similar to existing noise levels in the study area, because no substantial increases in traffic are predicted to occur in the No Action condition. Consequently, existing noise levels were conservatively used as the baseline noise levels for determining construction-generated noise level increases. Existing noise levels at the analysis receptors were determined by:

- Performing noise measurements at various at-grade locations;
- Calculating noise levels at the receptor sites and measurement locations using the CadnaA model with existing site geometry and existing traffic on adjacent roadways as inputs;
- Determining adjustment factors based on the difference between the measured and calculated existing noise levels at the measurement locations; and
- Applying the adjustment factors to the calculated existing noise levels at the construction noise receptors.

ANALYSIS PERIODS

As described above, construction activities are expected to take place over a period of about six years (i.e., from about 2016 through 2021). Except for unusual circumstances construction activities would occur on weekdays only. Therefore, construction noise analyses were performed only for the weekday periods.

As described above, the anticipated construction schedule and durations have been developed with an experienced New York City construction manager to serve as the basis of the analyses and are representative of the reasonable worst-case for potential impacts. The schedule also allowed for reasonable projections to be developed regarding the number of workers, types and number of pieces of equipment, and number of construction vehicles anticipated to be operating during each month of the construction period. An analysis was performed based on this construction schedule to determine the quarter during each year of the construction period (i.e., 2016-2021) when the maximum potential for significant noise impacts would occur. ~~This analysis conservatively assumed that the worst-case quarter of each year would represent the entire year, and the year was modeled according to its peak quarter~~. To be conservative, the noise analysis assumed that both peak on-site construction activities and peak construction-related traffic conditions occurred simultaneously.

Between the DGEIS and the FGEIS, the construction noise analysis was refined by calculating construction noise levels at the analyzed receptor sites during an additional "off-peak" quarter of each year of the construction period. This off-peak quarter represents the quarter with the minimum potential for noise impacts based on the number and type of equipment expected to be in use according to the conceptual construction schedule. Analysis of the peak quarter and the off-peak quarter provided a range of peak hourly construction noise levels for each year of the construction period. The analysis conservatively assumed that the worst-case quarter of each year would represent the subsequent quarters until the next analyzed quarter. The additional quarters analyzed between the DGEIS and FGEIS made it possible to more precisely determine the duration of any predicted exceedances of the CEQR criteria for significant noise level increase.

NOISE REDUCTION MEASURES

Any developer(s) constructing buildings on the projected development sites would be required to follow the requirements of the New York City Noise Control Code (NYC Noise Code) for construction noise control measures. Specific noise control measures will be described in a noise mitigation plan required under the NYC Noise Code. These measures could include a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the NYC Noise Code:

- Equipment that meets the sound level standards specified in Subchapter 5 of the New York City Noise Control Code would be utilized from the start of construction. **Table 19-20** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction of the RWCDS.
- As early in the construction period as logistics will allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders, water pumps, bench saws, and table saws (i.e., early electrification) to the extent feasible and practical.
- Where feasible and practical, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than three minutes at the construction site based upon New York City Local Law.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction, which go beyond typical construction techniques, would be implemented to the extent feasible and practical:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations. Once building foundations are completed, delivery trucks would operate behind construction fence, where possible;
- Noise barriers constructed from plywood or other materials would be utilized to provide shielding (e.g., the construction sites would have a minimum 12-foot barrier and, where logistics allow, truck deliveries would take place behind these barriers once building foundations are completed); and
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) would be used for certain dominant noise equipment to the extent feasible and practical, i.e., asphalt pavers, drill rigs, excavators with ram hoe, hoists, impact wrenches, jackhammers, power trowels, powder actuated devices, rivet busters, rock drills, concrete saws, and sledge hammers. These barriers were conservatively assumed to offer only a 10 dBA reduction in noise levels for each piece of equipment to which they are applied, as shown in **Table 19-20**. The details to construct portable noise barriers, enclosures, tents, etc. are based upon the instructions of NYCDEP Citywide Construction Noise Mitigation.

Table 19-20
Typical Construction Equipment Noise Emission Levels (dBA)

Equipment List	NYCDEP & FTA Typical Noise Level at 50 feet[1]	Noise Level with Path Controls at 50 feet[2]
Backhoe/Loader	80	
Compressors	58	
Concrete Pump	82	
Concrete Trowel	85	75
Cranes	85	75
Concrete Trucks	85	
Cranes (Tower Cranes)	85	75
Delivery Trucks	84	
Drill Rigs	84	74
Dump Trucks	84	
Excavator	85	
Generators	82	72
Hand Tool	59	
Hoist	72[3]	62
Impact Wrenches	85	75
Pile Driving Rig (Impact)	85	
Rebar Bender	80	
Welding Machines	73	

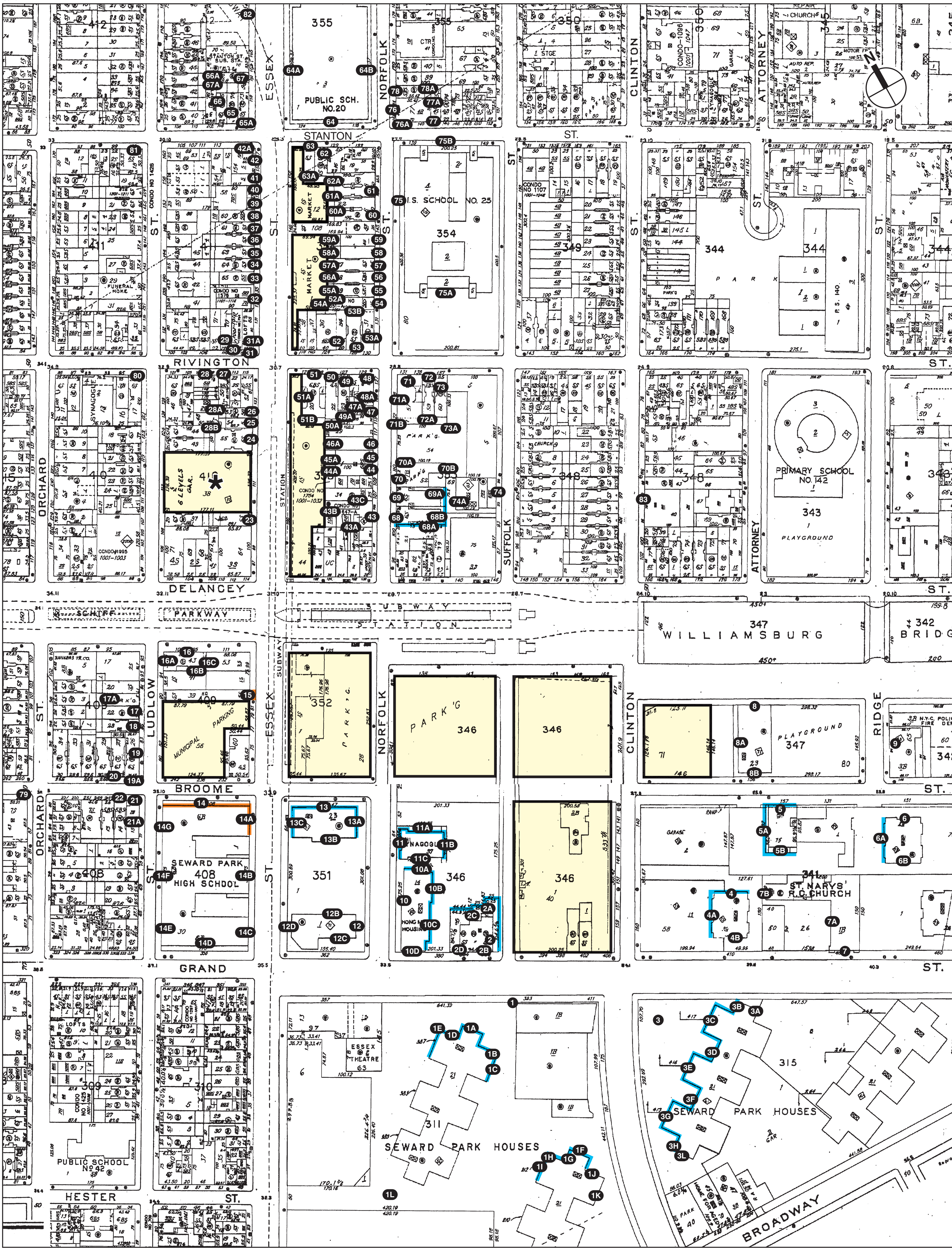
Notes:
1 Sources: Citywide Construction Noise Mitigation, Chapter 28, Department of Environmental Protection of New York City, 2007. Transit Noise and Vibration Impact Assessment, FTA, May 2006.
2 Path controls include portable noise barriers, enclosures, acoustical panels, and curtains, whichever feasible and practical.
3 Source: Kessler, Frederick M., “Noise Control for Construction Equipment and Construction Sites,” report for Hydro Quebec,

RECEPTOR SITES

Eight (8) noise measurement locations (i.e., sites M1 to M8) were selected to determine the baseline existing noise levels, and eighty-three (83) receptor locations (i.e., sites 1 to 83) close to the project area were selected as discrete noise receptor sites for the construction noise analysis. These receptors were either located directly adjacent to the project site or streets where construction trucks would pass. Each receptor site was the location of a residence or other noise-sensitive use. At some buildings, multiple building façades were analyzed. At high-rise buildings, noise receptors were selected at multiple elevations. At open space locations, receptors were selected at street level. **Figure 19-4** shows the locations of the 83 noise receptor sites, and **Table 19-21** lists the noise receptor sites and the associated land use at each site. The receptor sites selected for detailed analysis are representative of other noise receptors in the immediate project area and are the locations where maximum project impacts due to construction noise would be expected.

Table 19-21
Noise Receptor Locations

Receptor	Location	Associated Land Use
M1	Grand Street between Suffolk and Clinton Streets	Future Residential
M2	Suffolk Street between Grand and Broome Streets	Future Residential
M3	Broome Street between Suffolk and Clinton Streets	Future Residential
M4	Delancey Street between Clinton and Ridge Streets	Future Residential
M5	Suffolk Street between Broome and Delancey Streets	Future Residential
M6	Delancey Street between Essex and Norfolk Streets	Future Commercial
M7	Essex Street between Rivington and Delancey Streets	Future Residential
M8	Delancey Street between Norfolk and Suffolk Streets	Future Residential
1-1L	South of Grand Street between Essex and Clinton Streets	Residential/Open Space
2-2D	Suffolk Street between Grand and Broome Streets	Residential
3-3I	South of Grand Street East of Clinton Street	Residential
4-7C	East of Clinton Street between Broome and Grand Streets	Residential/Church
8-8B	East of Clinton Street between Delancey and Broome Streets	Residential
9	Pitt Street between Delancey and Broome Streets	Residential
10-11C	Norfolk Street between Broome and Grand Streets	Residential/Church
12-12D	Grand Street between Essex and Norfolk Streets	Residential
13-13C	Broome Street between Essex and Norfolk Streets	Residential
14-14G	Block bounded by Ludlow, Broome, Essex, and Grand Streets	School
15	Essex Street between Delancey and Broome Streets	Residential
16-16C	Southwest corner of Delancey and Ludlow Streets	Residential/Commercial
17-17A	Ludlow Street between Delancey and Broome Streets	Residential/Commercial
20	North of Broome Street between Ludlow and Orchard Streets	Residential/Commercial
21-21A	Ludlow Street between Broome and Grand Streets	Residential/Commercial
22	South of Broome Street between Ludlow and Orchard Streets	Residential/Commercial
23-26	Ludlow Street between Rivington and Delancey Streets	Residential/Commercial
27-28B	South of Rivington Street between Ludlow and Essex Streets	Residential/Commercial/Hotel
29-31A	North of Rivington Street between Ludlow and Essex Streets	Residential/Commercial
32-42A	Essex Street between Stanton and Rivington Streets	Residential/Commercial
43-47A	West of Norfolk Street between Rivington and Delancey Streets	Residential/Commercial
48-51B	South of Rivington Street between Essex and Norfolk Streets	Residential/Commercial
52-53B	North of Rivington Street between Essex and Norfolk Streets	Residential/Commercial
54-61A	Norfolk Street between Stanton and Rivington Streets	Residential/Commercial
62-63A	Stanton Street between Essex and Norfolk Streets	Residential/Commercial
64-64B	Block bounded by Houston, Norfolk, Stanton, and Essex Streets	School/Open Space
65-66A	Stanton Street between Ludlow and Essex Streets	Residential/Commercial
67-67A	Essex Street between Houston and Stanton Streets	Residential
68-70B	East of Norfolk Street between Rivington and Delancey Streets	Residential/Commercial
71-73A	Rivington Street between Norfolk and Suffolk Streets	Residential/Commercial



Proposed Development Sites

* Site 7 Would Not Be Redeveloped Under the Proposed Actions

1 Measured Noise Receptor

A Construction Noise Receptor

Significant Increase in Noise Level for 2+ Years

Temporary Significant Impact

NOTE: This figure has been revised for the FGEIS.

Noise Receptor Location

Figure 19-4

Table 19-21 (cont'd)
Noise Receptor Locations

Receptor	Location	Associated Land Use
74-74A	Suffolk Street between Rivington and Delancey Streets	Residential/Commercial
75-75B	Block bounded by Stanton, Suffolk, Rivington, and Norfolk Streets	School
76-76A	Northeast corner of Stanton and Norfolk Streets	Residential/Commercial
77-77A	Stanton Street between Norfolk and Suffolk Streets	Residential/Commercial
78-78A	Norfolk Street between Houston and Stanton Streets	Residential/Commercial
79	Broome Street between Allen and Orchard Streets	Residential/Commercial
80	Rivington Street between Orchard and Ludlow Streets	Residential/Commercial
81	Stanton Street between Orchard and Ludlow Streets	Residential/Commercial
82	Essex Street between Houston and Stanton Streets	Residential/Commercial
83	Clinton Street between Rivington and Delancey Streets	Residential/Commercial

CONSTRUCTION NOISE ANALYSIS RESULTS

Cumulative Analysis

Using the methodology described above, and considering the noise abatement measures ~~for~~ from source and path controls specified above, cumulative noise analyses were performed to determine maximum one-hour equivalent ($L_{eq(1)}$) noise levels that would be expected to occur during two quarters from each year of the construction period, including the quarter when peak construction activity would be expected and the quarter when the least construction activity would be expected. This resulted in a predicted range of peak hourly construction noise levels for each year of the construction period.

The noise analysis results in **Appendix E-4** show that predicted noise levels due to construction-related activities would result in increases in noise levels that would exceed the CEQR impact criteria during one or more ~~years~~ quarters at ~~seventy-one~~ ~~(71~~ 74~~)~~ of the ~~eighty-three (~~83~~)~~ receptor sites (i.e., 1-1J, 2-2D, 3A-3I, 4~~-4B~~ 4A, 5-5B, 6-6B, 7B, 8-8B, 10-10C, 11-11C, 13-13A, 13C, 14-14B, 14F-14G, 15, 16A-16C, 17-17A, 18, 19-19A, 20, 21-21A, 22, 23, 24, 25, 26, 27, 28-28B, 29, 30, 31-31A, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42-42A, 43-43C, 44-44A, 45-45A, 46-46A, 47A, 48, 49-49A, 50-50A, 51-51B, 52-52A, 53, 54-54A, 55-55A, 56-56A, 57-57A, ~~58-~~58A 59A, 60A, 61A, 62-62A, 63-63A, 64, 65-65A, 66-66A, 67A, 68-68B, 69-69A, ~~70~~, 70-70B, 71-71A, 72, 73-73A, 74-74A, 75A, and 80).

For impact determination purposes, the significance of adverse noise impacts is determined based on whether predicted incremental noise levels at sensitive receptor locations would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. While increases exceeding the CEQR impact criteria for ~~one year or less~~ less than two years may be noisy and intrusive, they are not considered to be significant adverse noise impacts.

The noise analysis results show that predicted noise levels would exceed the CEQR impact criteria during two or more consecutive years on one or more floors at ~~forty-five~~ ~~(45~~ 13~~)~~ of the ~~eighty-three~~ ~~(~~83~~)~~ receptor sites (i.e., 1~~-1J~~ 1I, 2-2~~D~~ A, 2C, 3B-3~~I~~ H, 4-4A, 5-5B, ~~6-~~6A, ~~7B, 8-8B,~~ 10A-10C, 11-11~~C~~B, 13-13A, 13C, 14-14~~B~~A, ~~14G, 15, 16B-16C, 17, 18, 19-19A, 20, 21-21A, 22, , 28-28B, 31-31A, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 43-43C, 45A, 46A, 50-50A, 51-51B, 54A, 59A, 65, 66,~~ and 68A-68B~~, 69-69A, 70, and 74A~~). **Figure 19-4** shows the locations and **Table 19-22** summarizes analysis results where predicted noise level increases exceed the CEQR impact criteria for two or more consecutive years (additional details of the construction analysis are presented in **Appendix E-4**).

As described above in the "Analysis Periods" section, the refined analysis, which included analyzing additional off-peak quarters between the DGEIS and FGEIS, made it possible to more precisely determine the duration of the predicted exceedances of the CEQR impact criteria. The refined analysis showed that at some analyzed receptor sites, exceedances of the CEQR impact criteria that may occur in two or more consecutive years would not occur *continuously* for two or more consecutive years, and while these receptors may experience construction noise levels that are readily noticeable and even intrusive, these noise level increases would be temporary and would not be considered a significant impact according to CEQR criteria. For instance, in the DGEIS, which analyzed only the peak quarter of each year, if an exceedance of CEQR impact criteria were predicted in the peak quarter of 2018 and the peak quarter of 2019, this receptor would be predicted to experience a significant impact, because the peak quarter of each year represented the entire year, and the exceedance would therefore be assumed to last for 2 years (throughout 2018 and 2019). However, if the refined analysis showed that this receptor would not experience an exceedance of CEQR impact criteria during an off-peak quarter between the two previously analyzed peak quarters, then the exceedance of the CEQR impact criteria would not be expected to occur continuously for two consecutive years, and the receptor would not be expected to experience a significant impact.

Construction of each proposed development site would be performed as is typical at construction sites in the vicinity of the proposed development. The conceptual schedule on which the noise analysis was based represented a compressed and conservative potential timeline for construction that tended to show the most construction activity and most construction equipment operating simultaneously, which conditions would result in the largest increase in noise levels at the nearby receptors.

As outlined above in the "Analysis Periods" section, the construction noise analysis was performed using the two quarters of each year that are ~~is~~ anticipated to result in the respective maximum and minimum peak hourly construction noise levels of the year. The analysis conservatively assumed that ~~this~~ the worst-case quarter would represent construction noise levels in the subsequent quarters, until the next analyzed quarter ~~throughout the entire year~~. During times of less intense construction activity, construction noise levels are anticipated to be less. For instance, pile driving at any particular development site would be expected to last only six to twelve months depending on the building, and even shorter durations for each pile location within the development site.

Consequently, an individual receptor location would experience pile driving noise for only a limited period of time out of the construction period. Similarly, excavators, impact wrenches, and other noise-intensive equipment would also not operate throughout the construction period, but would function in individual locations only for limited periods of time. Since these predicted construction noise level increases are not anticipated to occur at each receptor location for the entire duration from 2016 to 2021, a timeline discussion of the proposed construction activity and associated noise effects is provided below.

2016 to 2018

Construction activity anticipated to occur between 2016 and 2018 includes Site 2 demolitions/foundations, shell and core, exteriors and interiors, Site 3 demolitions/foundations, Site 4 demolitions/foundations and Site 5 demolitions/foundations, shell and core, exteriors and interiors. Sites 2, 3, 4, and 5 are bounded by Delancey Street to the north, Clinton Street to the east, Grand Street to the south, and Essex Street to the west. The predicted significant increases in noise levels associated with the construction activities outlined above would most likely be limited to locations adjacent to/in proximity to these development sites. Construction noise levels would be expected to be less at locations within the project study area that are farther away from these development sites.

Table 19-22
Locations Where Noise Increases Exceed CEQR Criteria for Two or More Consecutive Years

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Range of Increase(s) in dBA*	Impact Duration (year)	Associated Development Site(s)
Open Space on Grand Street at Suffolk Street	Open Space	n/a	n/a	1	n/a	3.1-~~3.8~~ 4.1	2016-2018	5
Residential Building south of Grand Street between Essex and Clinton Streets	Residential	18	North	1A, 1B, 1E	~~2nd to top~~ all	5.0-8.8	2016-2018	5
			East (northernmost section)	1C	~~7th~~ 5th to top	5.~~7~~ 4-10.1	2016-2018	5
			West (northernmost section)	1D	~~7th~~ 6th to top	5.~~4~~ 2-7.3	2016-2018	5
Residential Building at the northwest corner of Clinton Street and East Broadway	Residential	18	North	1F, 1H, ~~1I~~	~~7th~~ 5th to top	5.1-8.5	2016-2018	5
			West (northernmost section)	1G	~~7th~~ 5th to top	5.~~6~~ 5-9.8	2016-2018	5
384 Grand Street	Residential	6	East	2	all	3.0-12.2	2016-2019	2, 3, 4, 5
			North	2A, 2C	all	4.5-14.0	2016-2019	2, 3, 4, 5
			~~West~~	~~2D~~	~~top~~	~~3.2-3.7~~	~~2016-2018~~	~~2, 3, 4, 5~~
Residential Building at the southeast corner of Clinton and Grand Streets	Residential	19	North	3B	~~7th~~ 5th to top	~~4.7~~ 3.0-8.4	2016-2017	5
			West (northernmost section)	3C, 3D	~~5th~~ 2nd to top	3.~~3~~ 2-~~8.5~~ 9.2	2016-2018	5
			West (middle section)	3E, 3F	~~7th~~ 2nd to top	5.~~3~~ 0-9.5	2016-2018	5
			West (southernmost section)	3G, 3H	~~11th~~ 5th to top	5.~~2~~ 1-9.3	2016-2018	5, 6
			~~South~~	~~3I~~	~~top~~	~~5.6-6.9~~	~~2016-2018~~	~~5~~
410 Grand Street	Residential	24	North	4	3rd to top	5.1-12.3	2016-2020	4, 5, 6
			West	4A	all	5.0-11.2	2016-2019	4, 5, 6
157 Broome Street	Residential	7	North	5	all	5.~~3~~ 1-14.7	2016-2019	4, 5, 6
			West	5A	2nd to top	6.~~1~~ 0-13.5	2016-2019	4, 5, 6
			South	5B	6th to top	5.1-8.9	2016-2019	4, 5, 6
131 Broome Street	Residential	24	~~North~~	~~6~~	~~7th to top~~	~~5.3-8.1~~	~~2016-2019~~	~~4, 5, 6~~
			West	6A	6th to top	5.1-11.7	2016-2019	4, 5, 6
~~440 Grand Street~~	~~Institutional~~	~~5~~	~~West~~	~~7B~~	~~3rd to top~~	~~5.7-7.5~~	~~2017-2018~~	~~4, 5, 6~~

Table 19-22 (cont'd)
Locations Where Noise Increases Exceed CEQR Criteria for Two or More Consecutive Years

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Range of Increase(s) in dBA*	Impact Duration (year)	Associated Development Site(s)
			~~North~~	~~8~~	~~2nd to top~~	~~3.0-5.9~~	~~2017-2019~~	~~4, 5, 6~~
			~~West~~	~~8A~~	~~2nd to top~~	~~3.4-10.2~~	~~2017-2019~~	~~4, 5, 6~~
~~150 Broome Street~~	~~Residential~~	~~23~~	~~South~~	~~8B~~	~~3rd to top~~	~~5.0-11.2~~	~~2016-2019~~	~~4, 5, 6~~
			~~West~~	~~10~~	~~7th to top~~	~~3.0-3.7~~	~~2017-2018~~	~~2, 3, 4, 5~~
			North	10A	~~3rd to top~~ all	4.~~0~~ 5-10.6	2016-2019	2, 3, 4, 5
			East (northernmost section)	10B	all	~~4.5~~ 5.1-9.6	2016-2019	2, 3, 4, 5
50 Norfolk Street	Residential	13	East (southernmost section)	10C	~~2nd to top~~ all	3.0-7.~~3~~ 5	2016-2019	2, 3, 4, 5
			West	11	3rd to top	3.1-6.9	2016-2018	2, 3, 4, 5
			North	11A	all	3.1-11.6	2016-2019	2, 3, 4, 5
			East	11B	all	4.8-11.4	2016-2019	2, 3, 4, 5
60 Norfolk Street	Institutional	7	~~South~~	~~11C~~	~~5th to top~~	~~5.0-7.2~~	~~2016-2017~~	~~2, 3, 4, 5~~
			North	13	all	3.1-10.4 5	2016-2019	1, 2, 3, 4, 5
			East	13A	2nd to top	~~4~~3.1-9.5	2016-2019	1, 2, 3, 4, 5
65 Norfolk Street	Residential	20	West	13C	3rd to top	3.1-7.~~1~~2	2016-2019	1, 2, 3, 4, 5
			North	14	all	5.~~5~~2-17.5	2016-2019	1, 2, 3
			East (northernmost section)	14A	~~5th~~ 3rd to top	3.3-6.9	2016-2018	2, 3
			~~East (middle section)~~	~~14B~~	~~9th to top~~	~~3.0-3.7~~	~~2016-2017~~	~~2, 3~~
350 Grand Street	Institutional (Seward Park High School/Urban Assembly Academy of Government and Law)	10	~~West (northernmost section)~~	~~14G~~	~~4th to top~~	~~4.1-11.1~~	~~2019-2020~~	~~1~~
~~83 Essex Street~~	~~Residential/ Commercial~~	4	~~East~~	~~15~~	~~2nd to top~~	~~3.1-7.5~~	~~2016-2017~~	~~2~~
			~~South~~	~~16B~~	~~all~~	~~5.1-10.0~~	~~2016-2017~~	~~2~~
~~101 Delancey Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~16C~~	~~top~~	~~3.2-4.2~~	~~2016-2017~~	~~2~~
~~89 Ludlow Street~~	~~Future Residential/ Commercial~~	~~n/a~~	~~East~~	~~17~~	~~3rd to top~~	~~3.4-10.6~~	~~2019-2020~~	~~1~~
~~87 Ludlow Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~17~~	~~3rd to top~~	~~3.4-10.6~~	~~2019-2020~~	~~1~~
~~85 Ludlow Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~18~~	~~2nd to top~~	~~4.1-13.1~~	~~2019-2020~~	~~1~~
~~246 Broome Street~~	~~Residential/ Commercial~~	~~7~~	~~South~~	~~19~~	~~all~~	~~5.2-14.0~~	~~2019-2020~~	~~1~~

Table 19-22 (cont'd)
Locations Where Noise Increases Exceed CEQR Criteria for Two or More Consecutive Years

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Range of Increase(s) in dBA*	Impact Duration (year)	Associated Development Site(s)
			~~East~~	~~19A~~	~~5th to top~~	~~5.6-10.4~~	~~2019-2020~~	~~1~~
~~248 Broome Street~~	~~Residential/ Commercial~~	~~7~~	~~South~~	~~20~~	~~top~~	~~5.3-7.9~~	~~2019-2020~~	~~1, 9~~
			~~North~~	~~21~~	~~3rd to top~~	~~5.4-14.8~~	~~2019-2020~~	~~1~~
~~243 Broome Street~~	~~Residential/ Commercial~~		~~East~~	~~21A~~	~~4th to top~~	~~5.1-12.3~~	~~2019-2020~~	~~1~~
~~245 Broome Street~~	~~Residential/ Commercial~~	~~6~~	~~North~~	~~22~~	~~2nd to top~~	~~5.2-12.9~~	~~2019-2020~~	~~1~~
			~~North~~	~~28~~	~~8th to top~~	~~5.2-12.1~~	~~2020-2021~~	~~8, 9~~
			~~East~~	~~28A~~	~~8th to top~~	~~3.1-8.5~~	~~2020-2021~~	~~8, 9~~
~~107 Rivington Street~~	~~Hotel~~	~~22~~		~~28B~~	~~12th to top~~	~~3.0-11.5~~	~~2020-2021~~	~~8, 9~~
			~~South~~	~~31~~	~~2nd to top~~	~~4.1-10.1~~	~~2020-2021~~	~~8, 9~~
~~114 Rivington Street~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~31A~~	~~4th to top~~	~~3.3-6.4~~	~~2020-2021~~	~~8, 9~~
~~133 Essex Street~~	~~Residential/ Commercial~~	~~9~~	~~East~~	~~32~~	~~5th to top~~	~~3.0-7.9~~	~~2020-2021~~	~~8, 9, 10~~
~~137 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~33~~	~~5th to top~~	~~3.0-4.7~~	~~2020-2021~~	~~8, 9, 10~~
~~139 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~34~~	~~5th to top~~	~~3.1-4.7~~	~~2020-2021~~	~~8, 9, 10~~
~~141 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~35~~	~~5th to top~~	~~3.1-4.9~~	~~2020-2021~~	~~8, 9, 10~~
~~143 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~36~~	~~5th to top~~	~~3.2-4.7~~	~~2020-2021~~	~~8, 9, 10~~
~~145 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~37~~	~~4th to top~~	~~3.2-6.0~~	~~2020-2021~~	~~8, 9, 10~~
~~147 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~38~~	~~4th to top~~	~~3.5-6.0~~	~~2020-2021~~	~~8, 9, 10~~
~~149 Essex Street~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~39~~	~~4th to top~~	~~3.4-7.2~~	~~2020-2021~~	~~8, 9, 10~~
~~151 Essex Street~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~40~~	~~4th to top~~	~~3.1-6.8~~	~~2020-2021~~	~~8, 9, 10~~
~~153 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~41~~	~~top~~	~~3.3-5.2~~	~~2020-2021~~	~~8, 9, 10~~
			~~East~~	~~43~~	~~11th to top~~	~~3.1-5.5~~	~~2017-2018~~	~~2, 3~~
			~~South~~	~~43A~~	~~5th to top~~	~~3.2-9.3~~	~~2017-2018~~	~~2, 3~~
			~~West~~	~~46B~~	~~11th to top~~	~~4.7-17.1~~	~~2020-2021~~	~~9~~
~~103 Norfolk Street~~	~~Residential/ Commercial~~	~~18~~	~~North~~	~~43C~~	~~16th to top~~	~~6.3-8.4~~	~~2020-2021~~	~~9~~
~~111 Norfolk Street~~	~~Residential~~	~~7~~	~~West~~	~~45A~~	~~top~~	~~5.8-19.0~~	~~2020-2021~~	~~9~~
~~113 Norfolk Street~~	~~Residential~~	~~8~~	~~West~~	~~46A~~	~~6th to top~~	~~5.0-17.9~~	~~2020-2021~~	~~9~~
~~125 Rivington Street~~	~~Residential/ Commercial~~	~~6~~	~~North~~	~~50~~	~~top~~	~~7.1-12.0~~	~~2020-2021~~	~~8, 9~~
~~123 Rivington Street~~	~~Residential/ Commercial~~	~~7~~	~~North~~	~~51~~	~~2nd to top~~	~~5.1-12.7~~	~~2020-2021~~	~~9~~

Table 19-22 (cont'd)
Locations Where Noise Increases Exceed CEQR Criteria for Two or More Consecutive Years

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Range of Increase(s) in dBA*	Impact Duration (year)	Associated Development Site(s)
			~~West~~	~~51A~~	~~6th to top~~	~~8.3-19.3~~	~~2020-2021~~	~~9~~
			~~South~~	~~51B~~	~~4th to top~~	~~5.1-20.2~~	~~2020-2021~~	~~9~~
~~133 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~54A~~	~~6th to top~~	~~3.5-19.1~~	~~2020-2021~~	~~8, 9, 10~~
~~143 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~59A~~	~~all~~	~~7.5-20.6~~	~~2020-2021~~	~~8, 10~~
~~118 Stanton Street~~	~~Residential/ Commercial~~	~~6~~	~~South~~	~~65~~	~~4th to top~~	~~5.0-9.5~~	~~2020-2021~~	~~8, 10~~
~~116 Stanton Street~~	~~Residential~~	~~6~~	~~South~~	~~66~~	~~5th to top~~	~~5.1-8.3~~	~~2020-2021~~	~~8, 10~~
102 Norfolk Street	Residential/ Commercial	7	~~West~~	~~68~~	~~5th to top~~	~~3.1-4.1~~	~~2017-2018~~	~~2, 3~~
			South	68A	4th to top	3.5-8.0	2016-2018	2, 3
			East	68B	4th to top	5.5-11.3	2016-2018	2, 3
~~106 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~69~~	~~6th to top~~	~~3.1-3.7~~	~~2017-2018~~	~~2, 3~~
			~~East~~	~~69A~~	~~6th to top~~	~~5.8-10.0~~	~~2017-2018~~	~~2, 3~~
~~108 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~70~~	~~top~~	~~3.2~~	~~2017-2018~~	~~2, 3~~
~~99 Suffolk Street~~	~~Residential/ Commercial~~	~~8~~	~~West~~	~~74A~~	~~top~~	~~5.3-5.8~~	~~2016-2018~~	~~2, 3~~

Notes: * Range of increases values were taken from predicted noise levels compared with existing noise levels.

2018 to 2020

Construction activity anticipated to occur between 2018 and 2020 includes Site 1 demolitions/foundations, shell and core, exteriors and interiors, Site 2 exterior and interiors, Site 3 demolitions/foundations, shell and core, exteriors and interiors, Site 4 demolitions/foundations, shell and core, exteriors and interiors, Site 5 exteriors and interiors and Site 6 demolitions/foundations, shell and core and exteriors. Sites 1, 2, 3, 4, 5, and 6 are bounded by Delancey Street to the north, Attorney Street to the east, Grand Street to the south, and Ludlow Street to the west. The predicted significant increases in noise levels associated with the construction activities outlined above would most likely be limited to locations adjacent to/in proximity to these development sites. Construction noise levels would be expected to be less at locations within the project study area that are farther away from these development sites.

2020 to 2021

Construction activity anticipated to occur between 2020 and 2021 includes Site 1 shell and core, exteriors and interiors, Site 4 interiors, Site 6 shell and core and exteriors, Site 8 demolitions/foundations, shell and core, exteriors and interiors, Site 9 demolitions/foundations, shell and core, exteriors and interiors and Site 10 demolitions/foundations, shell and core, exteriors and interiors. Sites 1, 4, and 6 are bounded by Delancey Street to the north, Attorney Street to the east, Broome Street to the south and Ludlow Street to the west. Sites 8, 9, and 10 are bounded by Stanton Street to the north, Norfolk Street to the east, Delancey Street to the south and Essex Street to the west. The predicted significant increases in noise levels associated with the construction activities outlined above would most likely be limited to locations adjacent to/in proximity to these development sites. Construction noise levels would be expected to be less at locations within the project study area that are farther away from these development sites.

At ~~these~~ locations predicted to experience an~~, the~~ exceedance of the CEQR impact criteria, the exceedances would be due principally to noise generated by on-site construction activities (rather than construction-related traffic). As previously discussed, this noise analysis examined the reasonable worst-case peak hourly noise levels that would result from construction in an analyzed quarter, and consequently is conservative in predicting significant increase in noise levels. Typically, the loudest hourly noise level during ~~the most intense~~ each quarter of construction would not persist throughout the entire quarter ~~year~~. Furthermore, this analysis is based on a conceptual site plan and construction schedule. It is possible that the actual construction may be of lesser magnitude, or that construction on multiple development sites may not overlap, in which case construction noise would be less intense than the analysis predicts.

Most buildings listed in **Table 19-22** have double-glazed windows and alternate ventilation (i.e., air conditioners). For buildings with double-glazed windows and window air conditioners, interior noise levels would be approximately 20 to 25 dBA less than exterior noise levels, and for buildings with double-glazed windows and well-sealed through-the-wall/sleeve/PTAC air conditioners interior noise levels would be approximately 25 to 30 dBA less than exterior noise levels. The typical attenuation provided by double-glazed windows and the alternate ventilation outlined above would be expected to 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, although these structures have double-glazed windows and alternate ventilation, during some limited time periods construction activities may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for these uses.

At 89 Ludlow Street, a projected development site in the No Action condition (see No. 39c on Figure 2-3 in Chapter 2, "Land Use, Zoning and Public Policy"), if a residential building is operational during 2019 and 2020, it could experience exceedances of CEQR impact criteria for 24 continuous months. However, since any development at this location would include a newly constructed building, it would be expected to include double-glazed windows and alternate ventilation (i.e., air conditioners) and therefore provide at least 20 to 30 dBA of window/wall attenuation. Although this structure would have double-glazed windows and alternate ventilation, during some limited time periods construction activities may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for residential use.

Based on the locations outlined above in **Table 19-22** where predicted noise level increases exceed the CEQR impact criteria for two or more consecutive years, a visual survey was performed to identify which locations may not currently have double-glazed windows and/or a means of alternative ventilation, and which locations may have balconies, whose exterior space would have the potential to experience impact. For the visual survey, each façade of each building predicted to experience two or more consecutive years of significant noise level increase was inspected and photographed wherever possible from a publicly accessible location. The window types were determined based on the condition, thickness, and material of the window frame, as well as the size of the individual glass panes and the general condition of the glass. The type of alternate means of ventilation was determined by the size, shape and number of visible air conditioners or louvers on the building façades, as well as any visible cooling towers, air-handlers, or other identifiable HVAC equipment on the building roof that was visible from publicly accessible locations or aerial photographs. At locations where a determination about windows or HVAC equipment was not possible based on features visible from publicly accessible locations or aerial photographs, the building was assumed not to have double glazed windows or an alternate means of ventilation. **Table 19-23** identifies ~~fifteen (15)~~ three locations that would experience interior noise levels exceeding CEQR's acceptability guideline for residential use and/or substantially elevated noise levels for at least 24 continuous months at an exterior location. Of the ~~fifteen (15)~~ three locations with predicted noise impacts that would experience interior noise levels exceeding CEQR's acceptability guideline for residential use, one location is at a high school and the other ~~14~~ 2 locations are at ~~mixed use~~ residential~~/commercial~~ uses. At these locations, typical attenuation provided by single-paned windows would range from 5 dBA for an open window condition (i.e., no alternate means of ventilation) to 20 dBA (i.e., with an alternate means of ventilation/closed-window condition). This level of attenuation would not be expected to 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).

Table 19-23
Predicted Noise Impact Locations

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Impact Duration (year)	Range of Increase(s) in dBA*	# of Impacted Single-Glazed Windows	Air-Conditioning
Balconies of Residential Building south of Grand Street between Essex and Clinton Streets	Residential	18	North	1A, 1B, 1E	~~2nd to top~~ all	2016-2018	5.0-8.8	n/a	
			East (northernmost section)	1C	~~7th~~ 5th to top	2016-2018	5.~~7~~ 4-10.1		
			West (northernmost section)	1D	~~7th~~ 6th to top	2016-2018	5.4 2-7.3		
Balconies of Residential Building at the southeast corner of Clinton and Grand Streets	Residential	19	North	3B	~~7th~~ 5th to top	2016-2017	~~4.7~~ 3.0-8.4	n/a	
			West (northernmost section)	3C, 3D	~~5th~~ 2nd to top	2016-2018	3.~~3~~ 2-~~8.5~~ 9.2		
			West (middle section)	3E, 3F	~~7th~~ 2nd to top	2016-2018	5.~~3~~ 0-9.5		
			West (southernmost section)	3G, 3H	~~11th~~ 5th to top	2016-2018	5.~~2~~ 1-9.3		
			~~South~~	~~3I~~	~~top~~	~~2016-2018~~	~~5.6-6.9~~		
350 Grand Street	Institutional (Seward Park High School/ Urban Assembly Academy of Government and Law)	10	North	14	All	2016-2019	5.~~5~~ 2-17.5	111	Existing Window A/C
			East (northernmost section)	14A	~~5th~~ 3rd to top	2016-2018	3.3-6.9	110	
			~~East (middle section)~~	~~14B~~	~~9th to top~~	~~2016-2017~~	~~3.0-3.7~~	~~192~~	
			~~West (northernmost section)~~	~~14G~~	~~4th to top~~	~~2019-2020~~	~~4.1-11.1~~	~~156~~	
~~83 Essex Street~~	~~Residential/ Commercial~~	~~4~~	~~East~~	~~15~~	~~2nd to top~~	~~2016-2017~~	~~3.1-7.5~~	~~9~~	~~None visible~~
~~101 Delancey Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~16C~~	~~Top~~	~~2016-2017~~	~~3.2-4.2~~	~~Not Visible~~	~~Not Visible~~
			~~South~~	~~16B~~	~~All~~	~~2016-2017~~	~~5.1-10.0~~	~~Not Visible~~	~~Not Visible~~

Table 19-23 (cont'd)
Predicted Noise Impact Locations

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Impact Duration (year)	Range of Increase(s) in dBA*	# of Impacted Single-Glazed Windows	Air-Conditioning
~~87 Ludlow Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~17~~	~~3rd to top~~	~~2019-2020~~	~~3.4-10.6~~	~~5~~	~~Existing Window A/C~~
~~249-255 Broome Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~North~~	~~21~~	~~3rd to top~~	~~2019-2020~~	~~5.4-14.8~~	~~43~~	~~Existing Window A/C~~
~~141 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~35~~	~~5th to top~~	~~2020-2021~~	~~3.1-4.9~~	~~6~~	~~Existing Window A/C~~
~~145 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~37~~	~~4th to top~~	~~2020-2021~~	~~3.2-6.0~~	~~2~~	~~Existing Window A/C~~
~~149 Essex Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~39~~	~~4th to top~~	~~2020-2021~~	~~3.4-7.2~~	~~18~~	~~Existing PTAC~~
~~Balconies of 153 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~41~~	~~top~~	~~2020-2021~~	~~3.3-5.2~~	~~n/a~~	
~~Balconies of 113 Norfolk Street~~	~~Residential~~	~~8~~	~~West~~	~~46A~~	~~6th to top~~	~~2020-2021~~	~~5.0-17.9~~	~~n/a~~	
~~123 Rivington Street~~	~~Residential/ Commercial~~	~~7~~	~~South~~	~~51B~~	~~4th to top~~	~~2020-2021~~	~~5.1-20.2~~	~~5~~	~~Existing Window A/C~~
~~133 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~54A~~	~~6th to top~~	~~2020-2021~~	~~3.5-19.1~~	~~3~~	~~None visible~~
~~106 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~69~~	~~6th to top~~	~~2017-2018~~	~~3.1-3.7~~	~~30~~	~~Existing Window A/C~~

Note: * Range of increases values were taken from predicted noise levels compared to existing noise levels.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior L_{10} values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there are no practicable mitigation measures, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

The refined construction analysis performed between the DGEIS and FGEIS predicted construction noise impacts at fewer windows at Seward Park High School and a shorter duration of impacts. The remaining impacts at the school are a result of noise generated by construction of Sites 1, 2, and 3.

Upon selection of a developer for each of these development sites, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the project (see “Noise Reduction Measures”). ODMED, as lead agency, and HPD and/or NYCEDC will review the additional analyses.

If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated.

If the additional analysis—taking into account the detailed information on construction methodology, timing and sequencing and any available additional path and source controls—still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the SCA. Potential receptor controls to be considered may include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air conditioning, so that the impacted façades of the school can maintain a maximum interior noise environment of 45dBA under closed-window conditions. These measures would have the potential to mitigate the impacts at Seward Park High School. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

For properties that may be under the jurisdiction of HPD or developed through a HPD program, additional mitigation (source and path control measures) identified in the refined and/or additional analyses would be required to be undertaken by the developer(s) through provisions in a Land Disposition Agreement, to be entered into at the time of closing. The Land Disposition Agreement would require the use of a construction monitor, which would operate under the oversight of ODMED, to ensure such measures are implemented during construction activities. In the event it is determined that receptor controls will be implemented at the school, the developer(s) would be required to fund and install the measures (in coordination with ODMED, HPD, and SCA) at the affected façades of the school prior to the commencement of construction at the site(s) causing the noise impact.

For properties that may be under the jurisdiction of NYCEDC, noise control measures identified in the refined and/or additional analyses, including receptor controls if determined practicable, would be required to be undertaken by the developer(s) through provisions of a contract or other legally binding agreement between NYCEDC and the developer(s). The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMED, to ensure that such measures are implemented during construction activities.

~~At limited times during the construction period, Seward Park High School (350 Grand Street) would be expected to experience significant noise impacts that may be considered unmitigated. The west, north, and east façades of the school building may experience elevated noise as a result of the proposed actions. The DFGEIS discloses worst-case construction-related noise impacts at the school. However, it is possible that based on further assessment of conditions at~~

~~the school, certain façades (or portions thereof) may be less affected (or not be affected at all) by project-related construction noise. Further assessment related to construction impacts at the school will be conducted between the DGEIS and the FGEIS to refine the area of potential impact. Some potential receptor controls that could be used to mitigate the impacts include the installation of interior storm windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. The project sponsors will explore potential mitigation measures between DGEIS and FGEIS. In the event that mitigation measures are not determined feasible and practicable, the impact would be unmitigated.~~

In addition, at the residential building south of Grand Street between Essex and Clinton Streets, the residential building at the southeast corner of Clinton and Grand Streets~~, 243 Broome Street, 149 Essex Street, 153 Essex Street, and 113 Norfolk Street~~, balconies on various floors may experience significant noise impacts due to construction for limited portions of the construction period. However, it should be noted that even during the portions of the construction period that would generate the most noise at these balconies, the balconies could still be enjoyed without the effects of construction noise outside of the hours that construction would occur, e.g. during night-time and on weekends. At these outdoor balconies, there would be no feasible or practicable mitigation to mitigate the construction noise impacts. Therefore these balconies would be considered to experience unmitigated significant noise impacts as a result of construction.

Proposed buildings that would be completed and occupied before construction is completed at other project development sites would also experience exterior noise levels due to construction activities in the mid-60-to-mid-70 dBA range. These predicted noise levels are based on modeling the worst-case hour of the worst-case quarter of each year of construction, based on a schedule of equipment and activity provided by the construction managers. The predicted noise levels would likely not persist at such a high level throughout the day or throughout the year. However, the design of all project buildings would include building façades providing not less than 18 – 34 dBA of attenuation, and alternate means of ventilation (i.e., air conditioners) that does not degrade the acoustical performance of the façade. During the time period when these proposed buildings would be occupied, and construction would still be underway at other proposed development sites (approximately two years according to the conceptual construction schedule on which the construction noise analysis is based), interior noise levels would, during some times, exceed 45 dBA $L_{10(1)}$ (the CEQR acceptable interior noise level criteria for residential uses). Such exceedances may be intrusive, but would be only temporary and of limited duration. Consequently, they would not result in any significant impacts.

On-site, construction activities would produce $L_{10(1)}$ noise levels at open space areas ranging from approximately ~~65.0 to 69.4~~ 59.8 to 65.6 dBA, which would exceed the levels recommended by CEQR for passive open spaces (55 dBA L_{10}). (Noise levels in these areas exceed CEQR recommended values for existing and No Action conditions.) While this is not desirable, there is no effective practical mitigation[1] that could be implemented to avoid these levels during construction. Noise levels in many parks and open space areas throughout the city, which are located near heavily trafficked roadways and/or near construction sites, experience comparable, and sometimes higher, noise levels.

[1] Noise barriers would not be practical because of security concerns.

VIBRATION

Introduction

Construction activities have the potential to result in vibration levels that may in turn result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. In general, vibratory levels at a receiver are a function of the source strength (which in turn is dependent upon the construction equipment and methods utilized), the distance between the equipment and the receiver, the characteristics of the transmitting medium, and the construction of the receiver building. Construction equipment operation causes ground vibrations that spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of the case of fragile and possibly historically significant structures or buildings, generally construction activities do not reach the levels that can cause architectural or structural damage, but can achieve levels that may be perceptible in buildings close to a construction site. An assessment has been prepared to quantify potential vibration impacts of construction activities on structures and residences near the project site.

Construction Vibration Criteria

For purposes of assessing potential structural or architectural damage, the determination of a significant impact was based on the vibration impact criterion used by LPC of a peak particle velocity (PPV) of 0.50 inches/second. For non-fragile buildings, vibration levels below 0.60 inches/second would not be expected to result in any structural or architectural damage.

For purposes of evaluating potential annoyance or interference with vibration-sensitive activities, vibration levels greater than 65 vibration decibels (VdB) would have the potential to result in significant adverse impacts if they were to occur for a prolonged period of time.

Analysis Methodology

For purposes of assessing potential structural or architectural damage, the following formula was used:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV_{equip} is the peak particle velocity in in/sec of the equipment at the receiver location;

PPV_{ref} is the reference vibration level in in/sec at 25 feet; and

D is the distance from the equipment to the received location in feet.

For purposes of assessing potential annoyance or interference with vibration sensitive activities, the following formula was used:

$$L_v(D) = L_v(ref) - 30\log(D/25)$$

where: $L_v(D)$ is the vibration level in VdB of the equipment at the receiver location;

$L_v(ref)$ is the reference vibration level in VdB at 25 feet; and

D is the distance from the equipment to the receiver location in feet.

Table 19-24 shows vibration source levels for typical construction equipment.

Table 19-24
Vibration Source Levels for Construction Equipment

Equipment	PPV_{ref} (in/sec)	Approximate L_v (ref) (VdB)
Pile Driver (Impact)	0.644-1.518	104-112
Clam Shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall in rock)	0.017	75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.		

Construction Vibration Analysis Results

The buildings and structures of most concern with regard to the potential for structural or architectural damage due to vibration are the buildings along Grand, Broome, and Delancey Streets between Ludlow Street and Pitt Street; buildings along Rivington and Stanton Streets between Ludlow Street and Norfolk Street; buildings along Ludlow Street between Rivington Street and Grand Street; buildings along Essex and Norfolk Streets between Grand Street and Stanton Street; and buildings along Suffolk and Clinton between Grand Street and Delancey Street, all of which are adjacent to the project construction sites. Vibration levels at all of these buildings and structures would be well below the 0.50 inches/second PPV limit. At all other locations, the distance between construction equipment and receiving buildings or structures is large enough to avoid vibratory levels that would approach the levels that would have the potential to result in architectural or structural damage.

In terms of potential vibration levels that would be perceptible and annoying, the pieces of equipment that would have the most potential for producing levels that exceed the 65 VdB limit are pile drivers. They would produce perceptible vibration levels (i.e., vibration levels exceeding 65 VdB) at receptor locations within a distance of approximately 230 feet. However, the operation would only occur for limited periods of time at a particular location and, therefore, would not result in any significant adverse impacts. In no case are significant adverse impacts from vibrations expected to occur.

OTHER TECHNICAL AREAS

HISTORIC AND CULTURAL RESOURCES

Architectural resources are defined as buildings, structures, objects, sites or districts listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing based on the criteria defined below, National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts, and properties that have been found by the LPC to appear eligible for designation, considered for designation ("heard") by LPC at a public hearing, or calendared for consideration at such a hearing (these are "pending" NYCLs). Chapter 7, "Historic and Cultural Resources," provides a detailed assessment of potential impacts on architectural and archaeological resources. This section summarizes potential impacts during construction.

Construction would involve subsurface disturbance to areas that have been identified as archaeologically sensitive by the Phase 1A studies. The Phase 1A archaeological documentary study prepared for the project site recommended a Phase 1B archaeological investigation to determine the presence or absence of archaeological resources in the areas identified as archaeologically sensitive. The Phase 1A was submitted to LPC and OPRHP for review and comment. In letters dated January 23, 2012 and January 31, 2012, LPC and OPRHP, respectively, concurred with the findings of the Phase 1A. Therefore, further investigation in the form of Phase 1B archaeological testing would be conducted in any of the sensitive areas that would be affected by construction. The Phase 1B testing would determine the presence or absence of archaeological resources such as domestic shaft features (i.e., privies, cisterns, or wells) or other archaeological resources dating to the early to mid-19th century. The Phase 1B survey would be undertaken as part of the proposed actions and completed prior to the start of construction in consultation with LPC and/or OPRHP. A Phase 1B testing protocol would be prepared and submitted to LPC and/or OPRHP for review and comment before the Phase 1B survey would begin. If no archaeological resources were encountered during the Phase 1B survey, a final report summarizing the results of the Phase 1B testing would be prepared and submitted to LPC and/or OPRHP for review and comment. Should any intact archaeological resources be identified during the course of the Phase 1B survey, further testing (i.e., a Phase 2 survey) could be necessary to assess the horizontal and vertical extent of any recovered archaeological resources, as well as their potential significance (S/NR-eligibility). Any identified archaeological resources would be properly documented and evaluated in consultation with LPC and/or OPRHP. A Phase 2 survey would therefore determine if further investigation in the form of Phase 3 data recovery is warranted. With implementation of Phase 1B testing and continued consultation with LPC and/or OPRHP regarding the need for, and implementation of, any Phase 2 or 3 investigations, there would be no significant adverse impacts on archaeological resources.

At this time, it is not known which sites will be disposed of by which project sponsors, and there will be no specific, defined development projects on each site until a developer or developers are selected pursuant to a Request for Proposals (RFP) process. Further archaeological investigation (Phase 1B and possible subsequent studies) will be required to be undertaken by the developer(s) after selection. For sites that may be under the jurisdiction of HPD, remedial measures including Phase 1B testing and continued consultation with LPC and/or OPRHP will be required to be undertaken by the developer(s) through provisions in the LDA between HPD and the developer(s). For City properties that may be managed by NYCEDC, remedial measures including Phase 1B testing and continued consultation with LPC will be required to be undertaken by the developer(s) through the provisions of a contract or other legally binding agreement between NYCEDC and the developer(s).

Development under the proposed actions could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. The five architectural resources that could experience adverse construction-related impacts are:

- The Lower East Side Historic District (S/NR). The three contributing historic district buildings at 75 Essex Street (the Eastern Dispensary, NYCL-eligible, S/NR-eligible), 83 Essex Street, and 90 Ludlow Street are located adjacent to Site 1, and the following eight contributing historic district buildings are located within 90 feet of Site 1: Seward Park High School; 85, 87, 91, and 94 Ludlow Street; 246-248 Broome Street; and 95 and 101 Delancey

Street. The buildings at 246-248 Broome Street and 85 and 87 Ludlow Street are also located within the potential Orchard Street Historic District (NYCL-eligible). In total, eleven historic district buildings are located within 90 feet of project construction.

- The Eastern Dispensary (NYCL-eligible, S/NR-eligible) is located adjacent to Site 1, as described above.
- The potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible). The two buildings at 121-123 and 125 Rivington Street are adjacent to Site 9 and within 90 feet of Site 8; the three buildings at 127 and 129 Rivington Street and 121 Norfolk Street are located within 90 feet of Site 9; the three buildings at 133, 135, and 137 Norfolk Street are adjacent to Site 8; and the two buildings at 128 and 130 Rivington Street are located within 90 feet of Site 8. In total, ten historic district buildings are located within 90 feet of project construction.
- The former Norfolk Street Baptist Church (NYCL, S/NR) is located within 90 feet of Site 3.
- The Williamsburg Bridge (S/NR-eligible) is located within 90 feet of Site 6.

There are two mechanisms to protect buildings in New York City from potential damage caused by adjacent construction. All buildings are provided some protection from accidental damage through NYCDOB controls that govern the protection of adjacent properties from construction activities under Building Code Section BC 3309: Protection of Adjoining Property. For all construction work, Building Code Section BC 3309 serves to protect all adjacent properties from excavation, filling, and foundation operations and from construction above the roof of the adjacent properties by requiring certain inspection and protection measures.

The second protective measure applies to New York City Landmarks, properties within New York City Historic Districts, and National Register-listed properties. For these structures, *TPPN #10/88* applies. *TPPN #10/88* supplements the standard building protections afforded by Building Code Section BC 3309 by requiring a monitoring program to reduce the likelihood of construction damage to adjacent New York City Landmarks and National Register-listed properties (within 90 feet) and to detect at an early stage the beginnings of damage so that construction procedures can be changed. With these required measures, significant adverse construction-related impacts would not occur to the former Norfolk Street Baptist Church (NYCL, S/NR) or to the contributing buildings within the Lower East Side Historic District (S/NR) that are located within 90 feet of project construction, including the Eastern Dispensary. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s).

For the non-designated or listed resources—the Williamsburg Bridge (S/NR-eligible) and the buildings within the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)—construction under the proposed actions could potentially result in construction-related impacts on the resources. The resources would be afforded limited protection under DOB regulations applicable to all buildings located adjacent to construction sites (Section BC 3309); however, since the resources are not New York City Landmarks or listed National Register properties, they are not afforded special protections under *TPPN #10/88*. Additional protective measures afforded under *TPPN #10/88* would only become applicable if the Williamsburg Bridge and the potential historic district are designated or listed in the future prior to the initiation of adjacent construction or if the adjacent sites are developed under the jurisdiction of HPD. Further, for sites that may be developed under the jurisdiction of HPD, Construction Protection Plans to protect historic resources within 90 feet of construction will be likely required to be developed and implemented in coordination with OPRHP by the developer(s) through provisions in the LDA between HPD and the developer(s). If the bridge and potential historic district are not designated or listed and the adjacent sites are developed under the management of NYCEDC, they would not be subject to *TPPN #10/88* and may, therefore, be adversely impacted by adjacent development resulting from the proposed actions.

HAZARDOUS MATERIALS

To identify any potential environmental concerns from past or current on- and off-site operations, the following reports were reviewed: a September 2008 *Phase I Environmental Site Assessment* (ESA) for Sites 1 to 9 prepared by H2M in conformance with the requirements of ASTM E-1527-00 and a September 2010 Phase I ESA for Site 10 prepared by GIANCO Environmental Services in conformance with ASTM E-1527-05. Both ESAs evaluated sites for potential impacts due to hazardous materials by reviewing: (1) historical aerial photographs, topographic maps and Sanborn fire insurance maps; (2) environmental regulatory databases for the sites and buffer areas; and (3) City directories of historic occupants. Additional information included site reconnaissance to identify environmental conditions and current occupants or operations/activities.

The 2008 Phase I identified three *Recognized Environmental Conditions*, i.e., per ASTM E1527-00, "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products." These related to:

- Out of service fuel oil underground storage tanks (USTs) at Sites 3 and 5;
- A vaulted 1,500 gallon fuel oil aboveground storage tank (AST) at Site 5; and
- Potential vapor intrusion issues at Sites 1 through 9 due to possible historical releases from the many nearby USTs, ASTs and dry cleaners and/or a historical manufactured gas plant (MGP) located on Hester Street (for which no remediation is currently required by New York State).

Site 5 was also identified as associated with a facility that previously generated lead and chromium wastes that were sent for off-site disposal. The 2010 Phase I conducted separately for Site 10 did not identify any *Recognized Environmental Conditions*. Both Phase Is also identified that, due to their age, existing structures on the project site may include asbestos-containing materials (ACM) and/or lead-based paint.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to the RFP process. Since there are no site-specific proposals at this time, certain parameters necessary for a subsurface investigation (i.e., depth to foundation, building footprint, presence/absence of a cellar level) are unknown. Subsequent investigation, including soil and groundwater testing (and potential remediation), would be undertaken by the developer(s) after selection. For sites that may be under the HPD jurisdiction, these measures will be required to be undertaken by the developer(s) through provisions in the LDA between HPD and the developer(s). For City properties that may be managed by NYCEDC, these measures will be required to be undertaken by the developer(s) through the provisions of a contract or other legally binding agreement between NYCEDC and the developer(s).

At all of the sites where ground disturbance is expected to occur as a result of future development activities (i.e., at all sites except Site 7) the proposed actions could have the potential for environmental impacts due to the potential presence of hazardous materials. Although the proposed actions could result in demolition and construction activities that could increase pathways for human exposure (to workers and the community), the possibility of impacts would be reduced by the measures identified below, which will be included in the LDA between HPD and the developer(s) or the contract or other legally binding agreement between NYEDC and the developer(s).

For demolition:

- All known petroleum tanks, prior to any demolition activities with the potential to disturb these tanks, would be closed and removed, along with any contaminated soil, in accordance with applicable requirements including NYSDEC spill reporting and tank registration requirements. If additional tanks are discovered, they would be properly registered, if required, with NYSDEC and/or FDNY.
- Unless information exists to indicate that suspect ACMs do not contain asbestos, prior to demolition an asbestos survey would be completed and all ACMs that would be disturbed by the demolition would be removed and disposed of in accordance with local, state, and federal requirements.
- Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Unless labeling or laboratory testing data indicates that suspected PCB-containing fluorescent lighting fixtures, transformers, other electrical equipment, lifts, and elevators do not contain PCBs, and that fluorescent lights do not contain mercury, disposal would be performed in accordance with applicable federal, state, and local requirements.
- Disposal of any chemicals (such as cleaning fluids) would be in accordance with applicable requirements.

For excavation:

- Prior to any new construction, further investigation would be performed on each site to determine the presence and nature of contaminants of concern. Specifically, a *Site Investigation Work Plan and Health and Safety Plan*, the scope of which would include laboratory analysis of soil and groundwater samples and would be pre-approved by NYCDEP, would be implemented. Depending on the Site Investigation results, one or more Remedial Action Plans (RAPs) and Construction Health and Safety Plans (CHASPs) would be prepared and submitted to NYCDEP (and the New York State Department of Environmental Conservation, if necessary) for approval. The RAP would govern all soil disturbance and would include procedures for: removal of petroleum storage tanks; handling, stockpiling, testing, transportation and disposal of excavated materials, including any unexpectedly encountered contaminated soil and petroleum storage tanks; appropriate clean fill importation criteria and criteria for allowable reuse of excavated site soils (whether in the uppermost layer of landscaped areas or elsewhere), and, if necessary, the design of engineering controls to address vapor intrusion (such as a vapor barrier) to be included beneath a newly constructed building. The CHASP would ensure that subsurface disturbance is performed in a manner protective of workers, the community, and the environment with appropriate air monitoring, dust control, etc.

- During any required dewatering, water would be discharged to the sewer system in accordance with NYCDEP requirements. If necessary, the water would be pretreated prior to discharge.
- As with demolition, any tanks unexpectedly encountered would be closed and removed, along with any contaminated soil, in accordance with applicable requirements including NYSDEC spill reporting requirements. If historical tanks are discovered, they would be properly registered, if required, with NYSDEC and/or FDNY.

With the implementation of these measures prior to and/or during demolition and excavation, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions and subsequent development of the project site.

OPEN SPACE

There are no publicly accessible open spaces within the project site, and no open space resources would be used for staging or other construction activities. The nearest open space is the 0.45-acre Broome Seward Park Extension, which is located on Broome Street between Clinton Street and Ridge Street, approximately 130 feet east of Site 6. At limited times, activities such as excavation and foundation construction may generate noise that could impair the enjoyment of nearby open space users, but such noise effects would be temporary. Construction fences around the project site would shield the park from construction activities. Construction under the proposed actions would not limit access to the park or other open space resources in the vicinity of the project site. Therefore, construction under the proposed actions would not result in significant adverse impacts on open space.

SOCIOECONOMIC CONDITIONS

Construction activities could temporarily affect pedestrian and vehicular access. However, lane and/or sidewalk closures would not obstruct entrances to any existing businesses, and businesses are not expected to be significantly affected by any temporary reductions in the amount of pedestrian foot traffic or vehicular delays that could occur as a result of construction activities. Utility service would be maintained to all businesses, although short term interruptions (i.e., hours) may occur when new equipment/infrastructure (e.g., a transformer, or a sewer or water line) is put into operation. Overall, construction activities associated with the proposed actions would not result in any significant adverse impacts on surrounding businesses.

Construction would create direct benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction also would contribute to increased tax revenues for the City and State, including those from personal income taxes.

COMMUNITY FACILITIES

No community facilities would be directly affected by construction activities for an extended duration. The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care. Construction of the proposed buildings would not block or restrict access to any facilities in the area, and would not materially affect emergency response times significantly. NYPD and FDNY emergency services and response times would not be materially affected due to the geographic distribution of the police and fire facilities and their respective coverage areas. As discussed above (See "Noise and Vibration"), at limited times during the construction period, Seward Park High School would be expected to experience significant noise impacts that may be considered unmitigated. It is important to note that the conceptual schedule on which the noise analysis was based represented a compressed and conservative potential timeline for construction that tended to show the most construction activity and most construction equipment operating simultaneously, which conditions would result in the largest increase in noise levels at the nearby receptors.

LAND USE AND NEIGHBORHOOD CHARACTER

Construction activities would affect land use on the project site but would not alter surrounding land uses. As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks and construction workers coming to the site. There would also be noise, sometimes intrusive, from building construction as well as trucks and other vehicles backing up, loading, and unloading. These disruptions would be temporary in nature and would have limited effects on land uses within the study area, particularly as most construction activities would take place within the project site or within portions of sidewalks, curbs, and travel lanes of public streets immediately adjacent to the project site. Overall, while the construction at the site would be evident to the local community, the limited duration of construction would not result in significant or long-term adverse impacts on local land use patterns or the character of the nearby area.

RODENT CONTROL

Construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction the contractor would carry out a maintenance program, as necessary. Signage would be posted, and coordination would be maintained with appropriate public agencies. Only EPA- and NYSDEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. ✷

A. INTRODUCTION

Consistent with City Environmental Review (CEQR) requirements, this chapter of this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) examines alternatives to the Seward Park Mixed-Use Development Project.

CEQR requires the examination of a No Action Alternative, in which a proposed project would not be undertaken. The technical chapters of this ~~D~~FGEIS have described the No Action Alternative (referred to as "the future without the proposed actions") and have used it as the basis to assess the potential impacts and associated mitigation for the proposed actions. In addition to the No Action Alternative required for examination under CEQR, this chapter examines an Essex Street Market Alternative and a No Unmitigated Significant Impacts Alternative.

This analysis first examines the No Action Alternative, which describes the conditions that would exist if the proposed actions were not implemented. The second alternative is the Essex Street Market Alternative, in which the existing public Essex Street Market remains in its current facility on Site 9 and there is no additional development on that site. The third alternative is the No Unmitigated Significant Impacts Alternative, which examines alternatives that would avoid unmitigated significant adverse impacts in the areas of historic and cultural resources, traffic, and construction.

B. NO ACTION ALTERNATIVE

DESCRIPTION

Consideration of the No Action Alternative is mandated by both CEQR and SEQRA and is intended to provide the lead and involved agencies with an assessment of the expected environmental impacts of no action on their part. As described in Chapter 1, "Project Description," in "the future without the proposed actions," or the "No Build" condition, it is expected that existing uses on the projected development sites would remain. In addition, the future without the proposed actions would account for other development projects that are planned to be in place by 2022 absent the proposed actions.

NO ACTION ALTERNATIVE COMPARED WITH THE PROPOSED ACTIONS

The effects of the No Action Alternative in comparison to those of the proposed actions are summarized below.

LAND USE, ZONING, AND PUBLIC POLICY

Like the proposed actions, the No Action Alternative would not result in any significant adverse impacts to land use, zoning, or public policy. Under the No Action Alternative, existing conditions on the project site would not change. Most of the project site would continue to be used as surface parking and would continue to be underutilized. Existing zoning on the project site and existing public policies are expected to remain in force.

The No Action Alternative would not have a positive effect on land use by creating an active new mixed-use development with publicly accessible open space on underutilized sites. The No Action Alternative would not introduce new housing, retail, publicly accessible open space, community facility uses, and a relocated Essex Street Market assumed in the RWCDS that would bring activity to the proposed development sites and would serve both residents of the surrounding area and the larger community. In addition, the No Action Alternative would not support and further the objectives of applicable public policies, including the Mayor’s New Housing Marketplace Plan, nearby business improvement districts, and PlaNYC 2030. The No Action Alternative would also not support Manhattan Community Board 3’s redevelopment guidelines as it would not introduce affordable or market rate housing, commercial development, publicly accessible open space, parking, or community facilities.

SOCIOECONOMIC CONDITIONS

The No Action Alternative, like the proposed actions, would not result in significant adverse impacts to socioeconomic conditions. Under the No Action Alternative, it is expected that existing uses on the projected development sites would remain, and the effects of the proposed actions on socioeconomic conditions would not occur. Unlike the proposed actions, which would displace approximately nine residents who are living in seven dwelling units located in a City-owned rental building at 400 Grand Street (Site 5), this alternative would not result in the direct displacement of any residents. Also unlike with the proposed actions, in which an estimated 14 businesses and 107 employees could be displaced without specific plans or provisions for their relocation within the study area, no businesses would be directly displaced under the No Action Alternative. Neither the No Action Alternative nor the proposed actions would result in significant adverse impacts due to indirect residential displacement. Under the No Action Alternative, the potential for indirect displacement of some existing retail establishments that may occur with the proposed actions would not occur. However, the No Action Alternative would not result in the increased foot traffic in the study area that would benefit existing retail stores, restaurants and galleries in the study area as the proposed actions would. Like the proposed actions, the No Action Alternative would not result in significant adverse impacts with respect to indirect business displacement due to retail market saturation, nor would it have adverse effects on specific industries in the City. Unlike the proposed actions, the No Action Alternative would not provide new market rate and affordable housing. Under a reasonable worst-case development scenario, it is assumed that the proposed actions would result in approximately 951,000 gsf of residential development (comprising 900 dwelling units, of which 50 percent is expected to be affordable units).

COMMUNITY FACILITIES AND SERVICES

Neither the No Action Alternative nor the Proposed Actions would have significant adverse impacts on public schools, child care facilities, police protection, fire protection, health care, or library services. However, unlike the proposed actions, the No Action alternative would not result in the relocation of the Downtown Health Center, a clinic at 150 Essex Street (on Site 10) that is run by CHN.

The No Action Alternative would not generate any new school-age children, while the proposed actions would introduce new elementary and intermediate students. Thus, the proposed actions would increase the demand for seating at local schools; however, based on a detailed analysis of seating capacity for the local public school districts, the proposed actions would not substantially increase the elementary school utilization rate, and intermediate schools would operate with surplus capacity. Therefore, neither the proposed actions nor the No Action Alternative would result in any significant adverse impacts on public schools.

Unlike the proposed actions, the No Action Alternative would not generate children under the age of six who would be eligible for publicly-funded child care programs. However, while child care facilities in the study area would operate above capacity with the proposed actions, the increase due to the proposed actions would not result in a significant adverse impact on child care facilities. Therefore, neither the proposed actions nor the No Action Alternative would result in any significant adverse impacts on child care facilities.

Under this alternative, there would not be the approximately 114,000 gsf of community facility or cultural uses proposed by the project.

OPEN SPACE

Like the proposed actions, the No Action Alternative would not remove or alter any existing publicly accessible open spaces, nor would they result in any significant adverse shadow, noise, or air quality impacts on any open spaces. In addition, neither the No Action Alternative nor the proposed actions would result in indirect significant adverse impact on open spaces in either the commercial (¼-mile) or residential (1/2-mile) study areas. However, the No Action Alternative would not increase the supply of publicly accessible open space in the study area by creating a new 10,000-square-foot (approximately 0.23 acres) publicly accessible open space on Site 5, as would occur with the proposed actions.

SHADOWS

Under the No Action Alternative, the project development sites would not be redeveloped, and therefore there would be no change with respect to shadows. Neither the No Action Alternative nor the proposed actions would result in adverse shadow impacts on any sun-sensitive resource. However, unlike the proposed actions, three of the Schiff Mall medians, which are located along the center of Delancey Street between Ludlow and Suffolk Streets and contain rose bushes and other plantings, and the P.S. 142 Playground on Delancey Street would not experience incremental shadows with the No Action Alternative.

HISTORIC AND CULTURAL RESOURCES

Under the No Action Alternative, the development sites would not be redeveloped, and there would be no potential for significant adverse impact to archaeological or architectural resources. Unlike the proposed actions, the No Action Alternative would not result in significant adverse direct impacts on two architectural resources from development on Sites 2, 5, 8, 9, and 10. The No Action Alternative would also not have the potential for adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, since there would be no development on Site 1, unlike with the proposed actions, the No Action Alternative would not result in significant adverse visual and contextual impacts on two architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

Like the proposed actions, the No Action Alternative would not have significant adverse impacts on the urban design, view corridors and visual resources of the 400-foot study area. However, unlike the proposed actions, the No Action Alternative would not improve the pedestrian experience by activating currently underdeveloped and under-utilized sites which are surrounded by chain link fencing. Unlike the proposed actions, the No Action Alternative would not serve to fill in the gaps in the streetscape of the neighborhood with new development south of Delancey Street. In addition, the No Action Alternative would not include new street trees that would shade as well as visually enhance the pedestrian experience.

HAZARDOUS MATERIALS

Like the proposed actions, the No Action Alternative would not result in any significant adverse impacts with respect to hazardous materials. Under the No Action Alternative, the project site is expected to continue in its current uses, which do not currently present a hazard to people or the environment.

WATER AND SEWER INFRASTRUCTURE

While the No Action alternative would generate less demand on New York City's water supply, wastewater and sanitary sewage treatment systems than the proposed actions, neither the proposed actions nor the No Action Alternative would result in any significant adverse impacts on the City's water supply, wastewater or stormwater conveyance and treatment infrastructure.

The No Action Alternative would result in a higher rate of stormwater runoff from the project site as compared to the proposed actions, as it would not benefit from the incorporation of select best management practices (BMPs).

SOLID WASTE AND SANITATION SERVICES

Unlike the proposed actions, the No Action Alternative would not generate additional solid waste; however neither the No Action Alternative nor the proposed actions would result in significant adverse impacts on solid waste and sanitation services.

ENERGY

Unlike the proposed actions, the No Action Alternative would not increase demand on electricity. However, the increase in electricity demand generated by the proposed actions would be insignificant relative to the capacity of these systems and the current levels of service in the Con Edison service area. Therefore, neither the No Action Alternative nor the proposed actions would result in significant adverse impacts with respect to the transmission or generation of energy.

TRANSPORTATION

Under the No Action Alternative, it is expected that existing uses on the projected development sites would remain. Although the No Action Alternative would not generate any new vehicular trips, traffic volumes in the study area would be expected to increase as a result of background growth and planned development in the study area. The overall levels of service would be expected to deteriorate slightly for the No Action Alternative as compared to the existing conditions since traffic increases from background growth and other developments in the area would be relatively modest. Under this alternative, all subway station stairways and control area elements would continue to operate at acceptable levels, except for the northeast stairway (S-6) at the Delancey Street and Norfolk Street entrance, and all analyzed bus routes would continue to operate within their guideline capacities. All sidewalk, corner reservoir, and crosswalk analysis locations would continue to operate at acceptable mid-level of service (LOS) D or better, except at the north crosswalk of Clinton Street and Delancey Street.

The No Action Alternative would not result in the significant adverse traffic impacts at the ~~nine~~ 13 intersections in the weekday AM peak hour, ~~seven~~ 11 in the weekday midday peak hour, ~~18~~ 15 in the weekday PM peak hour, and ~~10~~ 14 in the Saturday peak hour identified under the proposed actions. However, as discussed in Chapter 21, “Mitigation Measures,” the majority of the intersections analyzed would either not be significantly impacted as a ~~impacts that would~~ result of ~~from~~ the proposed actions or they could be mitigated with readily implementable traffic improvement measures, including signal timing and phasing changes, parking regulation changes to gain or widen a travel lane at key intersections, and lane restriping.

The significant adverse pedestrian impacts anticipated for the proposed actions at the intersections of Delancey Street and Essex Street and Delancey Street and Clinton Street would not occur with the No Action Alternative. Furthermore, the significant adverse transit impacts anticipated for the Proposed Actions on the M9 and M14A bus routes would also not occur with the No Action Alternative. Neither the No Action Alternative nor the proposed actions would result in any significant adverse impacts with respect to parking.

AIR QUALITY

Under the No Action Alternative, the increase in carbon monoxide (CO) concentrations resulting from traffic generated by the proposed actions and from the proposed parking garage would not occur. The No Action Alternative would also not result in incremental emissions from new heat and hot water systems. However, with the proposed actions, any incremental emissions from mobile sources would be below the corresponding guidance thresholds and ambient air quality standards, and there would be no potential for significant adverse air quality impacts from heating and hot water systems for the proposed development. Therefore, neither the No Action Alternative nor the proposed actions would result in significant adverse air quality impacts.

GREENHOUSE GAS EMISSIONS

Under the No Action Alternative, it is expected that existing uses on the projected development sites would remain. Therefore, unlike the proposed actions, there would be no change in greenhouse gas emissions associated with this alternative.

NOISE

Like the proposed actions, the No Action Alternative would not generate sufficient traffic to have the potential to cause a significant adverse noise impact.

NEIGHBORHOOD CHARACTER

Like the proposed actions, the No Action Alternative would not result in any significant adverse impacts with respect to neighborhood character. However, the No Action Alternative would not introduce the mix of uses proposed by the proposed actions, which would bring a greater level of pedestrian activity to the project sites, making the neighborhood more inviting and appealing to live in and visit. The increased pedestrian activity resulting from the proposed actions, which would benefit existing retail stores in the area, would also not occur under the No Action Alternative. Unlike the proposed actions, the No Action Alternative would not create a new publicly accessible open space on Site 5 that would bring passive and/or active recreational opportunities to the area. Also, the No Action Alternative would not implement the proposed mapping and demapping actions, which would make the mapped street pattern consistent with drivers' and pedestrians' current experience of those areas. Under the No Action Alternative, certain sidewalks would not be widened as under the proposed actions. The No Action Alternative would not enhance neighborhood character by the relocation and expansion of the Essex Street Market, which would create entrepreneurship opportunities for additional vendors and would continue to allow for a variety of vendor price points.

CONSTRUCTION

Under the No Action Alternative, no construction would occur on the project site. Thus, there would not be the potential for impacts of construction with respect to transportation, air quality, noise and vibration, historic and cultural resources, hazardous materials, open space, socioeconomic conditions, community facilities and land use and neighborhood character. Specifically, the No Action Alternative would not result in significant adverse construction traffic impacts at four intersections identified under the proposed actions.

Under the proposed actions, the results of detailed construction analyses indicate that elevated construction noise levels are predicted to occur for two or more consecutive years at ~~forty-five (45)~~ 13 of the ~~eighty-three (83)~~ receptor sites analyzed including residential, institutional and open space areas adjacent to the proposed development sites and along routes expected to be traveled by construction-related vehicles to and from the project site. As stated in Chapter 19, "Construction," the proposed actions would result in significant adverse construction noise impacts at up to ~~15~~ 3 of the ~~45~~ 13 receptor locations. The No Action Alternative would not result in these construction noise impacts at ~~15~~ 3 receptor locations.

Unlike the proposed actions, the No Action Alternative would not have the potential for adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities, close enough to potentially experience adverse construction-related impacts from ground-borne construction-period vibrations, falling debris, subsidence, collapse, or damage from construction machinery. In addition, the potential for construction-related impacts on the non-designated or listed resources—the potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible) and the Williamsburg Bridge (S/NR-eligible)—would also not occur under the No Action Alternative.

Under the No Action Alternative, the direct economic benefits resulting from expenditures on labor, materials, and services, and indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity would not be realized. The No Action Alternative would also not contribute to increased tax revenues for the City and State, including those from personal income taxes.

PUBLIC HEALTH

The No Action Alternative, like the proposed actions, would not result in any significant adverse public health impacts associated with construction or operation of the new development on the development project sites.

C. ESSEX STREET MARKET ALTERNATIVE

DESCRIPTION

DEVELOPMENT PROGRAM

The Essex Street Market Alternative retains the existing public Essex Street Market in its current facility on Site 9, with no new development on that site. Site 2 would be redeveloped as under the proposed actions with the space allocated for the market under the proposed actions used instead for retail, although market uses would not be precluded. At other sites, this Alternative assumes the same uses and same floor area as the proposed actions. Overall, the Essex Street Market Alternative would provide approximately 1.60 million gross square feet of development, approximately 6 percent less total development than with the proposed actions (see **Table 20-1**). Similar to the proposed actions, the Essex Street Market Alternative would introduce an approximately 97,500-square-foot hotel, approximately 36,300 gsf of non-specific commercial uses, and 114,000 gsf of community facility or cultural uses. However, the Essex Street Market Alternative would introduce less residential and retail space compared with the proposed actions. The Essex Street Market Alternative would introduce 875,800 gsf of residential space, approximately 8 percent lower than the 951,000 gsf of residential space that would be introduced by the proposed actions. This alternative would introduce 479,700 gsf of retail space, which is 4 percent less space than the retail and public market space that would be introduced by the proposed actions.

Table 20-1
Comparison of the Essex Street Market Alternative and the Proposed Actions

Development Program	Essex Street Market Alternative	Proposed Actions
Residential	875,821	951,182
Retail	479,694	469,349
Hotel	97,450	97,450
Other Commercial	36,304	36,304
Public Market	0	29,152
Community Facility	114,000	114,000
Total	**1,603,269**	**1,697,437**

Notes: Under the Essex Street Market Alternative, the retail space includes 29,152 sf that could be used for public market space.

Like the proposed actions, the Essex Street Market Alternative assumes that half of all units on the project site would be affordable housing units. However, as less residential space would be introduced in the future with the Essex Street Market alternative, fewer total units and therefore fewer affordable housing units would be introduced with this alternative compared with the proposed actions.

As discussed above, the Essex Street Market Alternative would retain the existing Essex Street Market on Site 9, with no new development on that site. Under this alternative, the market would continue to be approximately 15,000 sf, which is 14,000 square feet less than the market that would be introduced by the proposed actions. In addition, the physical limitations of the existing market would remain. The facility would continue to be not fully compliant with the Americans with Disabilities Act and have insufficient storage capabilities, garbage handling, and climate control. It is currently anticipated that the market would continue to accommodate approximately 23 vendors. However, addressing these physical shortcomings in the future may require changes to the facility's operations. In addition, this alternative would not include the expanded common gathering areas for public seating and market events.

In the existing condition, garbage from the Essex Street Market is stored on Site 8. With the Essex Street Market Alternative, Site 8 would be redeveloped and would no longer store garbage from the Essex Street Market. Therefore, under this alternative, the Essex Street Market would need to find another garbage handling solution, such as other nearby storage or removing vendor stalls to accommodate a garbage storage room onsite.

Building above the existing market was determined to be infeasible as it would require temporarily closing the existing market to construct columns through the existing structure and would temporarily displace vendors during the construction period. In addition, the new columns and potential spaces (such as a lobby and elevator and mechanical core) for the new structure above would reduce the area available for public market uses and could potentially reduce the number of vendors.

It is assumed that on all sites other than Site 9 the Essex Street Market Alternative would include the same sustainable, green components as those analyzed in the proposed actions.

SITE PLAN AND URBAN DESIGN

The site plan, bulk and massing of buildings under the Essex Street Market Alternative would be the same as the proposed actions. However, with this alternative, no new development would occur on Site 9 as the existing Essex Street Market building would be retained.

ESSEX STREET MARKET ALTERNATIVE COMPARED WITH THE PROPOSED ACTIONS

LAND USE, ZONING, AND PUBLIC POLICY

Neither the Essex Street Market Alternative nor the proposed actions would result in any significant adverse impacts to land use, zoning, or public policy.

Land Use

Both the proposed actions and the Essex Street Market Alternative would have a positive effect on land use by creating an active new mixed-use development with publicly accessible open space on underutilized sites. The new housing, retail, publicly accessible open space, and community facility uses would bring activity to the proposed development sites and would serve both residents of the surrounding area and the larger community. The new uses introduced by the proposed actions and the Essex Street Market Alternative would be compatible with the existing and anticipated future mix of residential, retail, and commercial uses in the surrounding area. The height and bulk of the proposed development would complement the existing built fabric and help knit together surrounding neighborhoods. Therefore, the proposed actions and the Essex Street Market Alternative would not result in any significant adverse land use impacts.

Zoning

Development of the Essex Street Market Alternative would require the same approvals as the proposed actions. The proposed actions and the Essex Street Market Alternative would include a Large Scale General Development (LSGD) special permit for Sites 1 through 6, which would allow the proposed development to better integrate the programming of its proposed uses, and would provide flexibility in design and massing. Like the proposed actions, a new C2-5 commercial overlay zone on Sites 3, 4, 5, and 6 would be mapped under the Essex Street Market Alternative. The proposed commercial overlay zones would be compatible with existing commercial zoning in adjacent areas. The retail uses that could be introduced as a result of the zoning change would be compatible with existing retail uses and the mixed-use character of the study area. The zoning relief (such as height and setback waivers) that would be sought would facilitate the development that would improve land use conditions on the project site and complement the surrounding study area. Therefore, neither the proposed actions nor the Essex Street Market Alternative would result in significant adverse zoning impacts.

Public Policy

The proposed actions and the Essex Street Market Alternative would support and further the objectives of applicable public policies, including the Mayor's New Housing Marketplace Plan, nearby business improvement districts, and PlaNYC 2030. Although this alternative would increase the supply of affordable housing available in New York City, which is consistent with City housing policy, fewer dwelling units would be introduced by the Essex Street Market Alternative than the proposed actions. The Essex Street Market Alternative, therefore, would provide fewer affordable housing units than the proposed actions, and would meet the City housing policy objective to a lesser extent.

SOCIOECONOMIC CONDITIONS

Like the proposed actions, the Essex Street Market Alternative would not result in significant adverse impacts related to socioeconomic conditions.

Direct Residential Displacement

Similar to the proposed actions, approximately nine residents who are living in a City-owned rental building at 400 Grand Street (Site 5) would be directly displaced under the Essex Street Market Alternative. The amount of displacement falls well below the CEQR threshold of 500 displaced residents; therefore the direct displacement resulting from the proposed actions and the Essex Street Market Alternative would not be of a scale large enough to alter the demographics and socioeconomic character of the neighborhood.

Indirect Residential Displacement

Similar to the proposed actions, the Essex Street Market Alternative would not result in significant adverse impacts due to indirect residential displacement. The Essex Street Market Alternative would introduce fewer residential units than the proposed actions. Similar to the proposed actions, the population that would be introduced by the Essex Street Market Alternative would represent less than 5 percent of the future study area population, and therefore would not introduce a population that could substantially affect residential market conditions in the ¼-mile study area.

Direct Business and Institutional Displacement

Similar to the proposed actions, an estimated 14 businesses and 107 employees would be displaced without specific plans or provisions for their relocation within the study area. As detailed in the socioeconomic assessment for the proposed actions, the potential displacement of these uses would not constitute a significant adverse impact as defined by CEQR. The retail, parking, eating and drinking, and health care uses that would be displaced are common in the study area such that businesses and consumers would be able to find similar products and services elsewhere in the study area in the future with the proposed actions. The employment that would be lost would not be substantial based on *CEQR Technical Manual* standards, and the proposed actions would introduce many new employment opportunities in similar industry sectors. In addition, the businesses that could be displaced are not the subject of any regulations or public policy that seeks to preserve a specific type of business or institutional use. Although these businesses are valuable individually and collectively to the City's economy, their displacement from the project site would not substantially alter the neighborhood's economic activities. Therefore, neither the Essex Street Market Alternative nor the proposed actions would result in significant adverse impacts due to direct business displacement.

Indirect Business Displacement due to Increased Rents

The Essex Street Market Alternative would introduce the same mix of uses as the proposed actions—uses that are currently present and well-established in the study areas and that are projected to be in place in the future without the proposed actions. Similar to the proposed actions, this alternative would introduce some office space; however, like the proposed actions, the amount of office space would not be enough of a new economic activity to alter economic patterns. Under both the Essex Street Market Alternative and the proposed actions, there would be a substantial increase in the number of residents and daytime workers, thereby providing significant numbers of new customers for the existing and proposed business uses.

Indirect Business Displacement due to Retail Market Saturation

Similar to the proposed actions, the Essex Street Market Alternative would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition.

The Essex Street Market Alternative would introduce 479,694 square feet of retail space, which is 4 percent lower or 18,807 square feet less retail (including the public market space) than the proposed actions. Similar to the proposed actions, this Alternative is not expected to alter the number of businesses and services that are located on retail corridors in the ½-Mile Local Trade Area, and vacancy rates are not expected to change in the future. While the possibility of some limited indirect business displacement due to competition could not be ruled out, any displacement that might occur would not jeopardize the viability of any local retail strips. Therefore, the proposed actions and the Essex Street Market Alternative would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition.

Adverse Effects on Specific Industries

Similar to the proposed actions, the Essex Street Market Alternative would not have a significant adverse impact on specific industries. This Alternative would displace the same businesses as the proposed actions, but the displaced businesses are not critical to the viability of any City industries.

COMMUNITY FACILITIES AND SERVICES

With a smaller population, the Essex Street Market Alternative would place proportionately less demand on community services than the proposed actions. Neither the Essex Street Market Alternative nor the proposed actions would have significant adverse impacts on police protection, fire protection, or health care.

Similar to the proposed actions, the Essex Street Market Alternative would result in the relocation of the Downtown Health Center, a clinic at 150 Essex Street (on Site 10) that is run by the Community Healthcare Network (CHN). As under the proposed actions, because CHN would be relocated in the immediate area, it is expected that it would be able to serve the same population and the extent of service disruption would be minimal. Therefore, the relocation of CHN would not be considered a significant adverse impact under either the proposed actions or the Essex Street Market Alternative.

With respect to potential indirect effects, the Essex Street Market Alternative would introduce fewer new residents than the proposed actions. Therefore, like the proposed actions, the Essex Street Market Alternative would not result in significant adverse impacts on public elementary or intermediate schools, or on child care facilities.

OPEN SPACE

The Essex Street Market Alternative would result in the same direct effects as the proposed actions. As noted above, it is assumed that the Essex Street Alternative would add 10,000 square feet of publicly accessible open space on Site 5.

With respect to indirect effects, since the Essex Street Market Alternative would introduce fewer residents and workers to the area, the demands on open space would be less. Like the proposed actions, with the Essex Street Market Alternative, the passive open space ratios for workers would remain above DCP guidelines. In the residential study area, the open space ratios for the future with the Essex Street Market Alternative, as with the proposed actions and with existing conditions, would continue to fall short of the City's recommended open space ratio guidelines. However, the open space ratios would remain substantially the same with the Essex Street Market compared to the proposed actions, and since both the proposed actions and this alternative would introduce new publicly accessible open space to partially offset the additional project-generated demand, the Essex Street Market would not result in any significant adverse impacts on open space resources in the residential study area.

SHADOWS

As described above, the site plan, bulk, and massing of the Essex Street Market Alternative would be essentially the same, in terms of the location of buildings and open space, as that currently considered for the proposed actions. However, under the Essex Street Market Alternative, the existing building on Site 9 would remain and no further development would occur on this site.

Like the proposed actions, the Essex Street Market Alternative would not result in significant adverse shadow impacts. While both would result in shadows on three of the Schiff Mall medians, which are located along the center of Delancey Street between Ludlow and Suffolk Streets and contain rose bushes and other plantings, and on the P.S. 142 Playground on Delancey Street, no significant adverse shadows impacts would occur at these locations. In addition, like the proposed actions, the publicly accessible open space on Site 5 would also experience project-generated shadow with the Essex Street Market Alternative. However, pursuant to CEQR, shadows cast on the project's proposed open space are not considered significant. Several other sun-sensitive resources in the study area would receive short durations of incremental shadow and would not be adversely impacted by the proposed actions or by the Essex Street Market Alternative.

HISTORIC RESOURCES

Archaeological Resources

The Essex Street Market Alternative and the proposed actions would have the same potential for impacts with regard to architectural resources. Like the proposed actions, the Essex Street Market Alternative would result in development on Sites 2 through 6, where a December 2011 Phase 1 Archaeological Documentary Study concluded that 50 historic lots were sensitive for historic-period archaeological resources. Therefore, like the proposed actions, development that would occur in the future with this alternative would require further archaeological investigation by the developer(s) after the Request for Proposals (RFP) process.

Architectural Resources

The Essex Street Market Alternative would result in many of the same impacts on architectural resources as the proposed actions. Like under the proposed actions, the Essex Street Market Alternative would result in significant adverse impacts from development on Sites 2, 5, 8, and 10. Also, both the Essex Street Market Alternative and the proposed actions could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities. In addition, development on Site 1 could result in significant adverse visual and contextual impacts on two architectural resources. However, this Alternative would partially avoid the significant adverse impact on the Essex Street Market as it would retain the existing market building on Site 9.

URBAN DESIGN AND VISUAL RESOURCES

The site plan, bulk, and massing of buildings under the Essex Street Market Alternative would be the same as with the proposed actions except at Site 9 where the existing building would remain. Therefore, like the proposed actions, the Essex Street Market Alternative would not have significant adverse impacts on the urban design or visual resources in the study area.

HAZARDOUS MATERIALS

Like the proposed actions, the Essex Street Market Alternative would include appropriate health and safety/remedial measures that would precede or govern demolition, construction, and soil disturbance activities on the development sites. With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to result from the proposed actions or from the Essex Street Market Alternative. Following construction, there would be no potential for significant adverse impacts from the proposed actions or from the Essex Street Market Alternative.

WATER AND SEWER INFRASTRUCTURE

Neither the proposed actions nor the Essex Street Market Alternatives would result in any significant adverse impacts on the City's water supply, wastewater treatment and stormwater conveyance infrastructure. Like the proposed actions, the Essex Street Market Alternative would generate increased demands on New York City's water supply and wastewater treatment and stormwater conveyance infrastructure; however, the demand generated by the Essex Street Market Alternative would be less than under the proposed actions.

Both the proposed actions and the Essex Street Market Alternative would result in an increase to the overall volume of stormwater runoff and the peak stormwater runoff rates from the project site. However, with the incorporation of select best management practices (BMPs), the peak stormwater runoff rates would be reduced from the future without the proposed actions, and therefore, both the proposed actions and the Essex Street Market Alternative would not have a significant impact on the downstream City combined sewer system or the City sewage treatment system.

SOLID WASTE AND SANITATION SERVICES

Overall, the demand generated by the Essex Street Market Alternative would be approximately 10 percent less than with the proposed actions: the quantity of solid waste would decrease from a maximum of 111 tons per week under the proposed actions to 100 tons per week for the Essex Street Market Alternative. Like the proposed actions, the Essex Street Market Alternative would not result in a substantial increase in solid waste that would overburden available waste management capacity and would not be inconsistent with the City's SWMP or other policies. Therefore, similar to the proposed actions, the Essex Street Market Alternative would not result in significant adverse impacts on solid waste and sanitation services.

ENERGY

Neither the Essex Street Market Alternative nor the proposed actions would result in significant adverse impacts with respect to the transmission or generation of energy. Like the proposed actions, the Essex Street Market Alternative would generate increased demands on New York City's energy services. However, the Essex Street Market Alternative would demand less energy than the proposed actions, which include development on Site 9. Therefore, the Essex Street Market Alternative would result in lower energy consumption than the proposed actions.

TRANSPORTATION

Travel demand estimates were conducted for the Essex Street Market Alternative. Based on the trip generation assumptions detailed in Chapter 13, "Transportation," the Essex Street Market Alternative would generate ~~2,703~~ 3,005, ~~5,423~~ 6,441, ~~5,191~~ 6,007, and ~~5,885~~ 7,010 person trips and 357, 522, 520, and 482 vehicle-trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In comparison, the proposed actions would generate ~~2,904~~ 3,245, ~~5,379~~ 6,375, ~~5,477~~ 6,355, and ~~6,204~~ 7,403 person trips and 371, 527, 540, and 496 vehicle trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. As summarized in **Tables 20-2 and 20-3**, the Essex Street Market Alternative would result in up to ~~31~~9 393 fewer peak hour person-trips and up to 20 fewer peak hour vehicle-trips. Overall, the Essex Street

Market Alternative is expected to generate one percent to four percent fewer peak hour vehicle-trips compared to the proposed actions. Thus, with the Essex Street Market Alternative, there would be no significant reduction in impacts or the ability to provide mitigation.

Table 20-2
Person-Trip Comparisons: Essex Street Alternative vs. Proposed Actions

	Auto		Taxi		Subway		Bus		Walk		Total		Total
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In+Out
AM Peak Hour													
ESM	189	108	88	50	367	398	111	95	~~686~~ 859	~~611~~ 740	~~1,441~~ 1,614	~~1,262~~ 1,391	~~2,703~~ 3,005
PA	191	114	91	54	376	425	117	103	~~763~~ 960	~~670~~ 814	~~1,538~~ 1,735	~~1,366~~ 1,510	~~2,904~~ 3,245
Diff.	-2	-6	-3	-4	-9	-27	-6	-8	~~-77~~ -101	~~-59~~ -74	~~-97~~ -121	~~-104~~ -119	~~-201~~ -240
Midday Peak Hour													
ESM	204	187	138	129	450	414	198	185	~~1,803~~ 2,325	~~1,715~~ 2,211	~~2,793~~ 3,315	~~2,630~~ 3,126	~~5,423~~ 6,441
PA	205	188	137	129	454	419	196	184	~~1,770~~ 2,278	~~1,697~~ 2,185	~~2,762~~ 3,270	~~2,617~~ 3,105	~~5,379~~ 6,375
Diff.	-1	-1	1	0	-4	-5	2	1	~~33~~ 47	~~18~~ 26	~~31~~ 45	~~13~~ 21	~~44~~ 66
PM Peak Hour													
ESM	183	261	106	125	611	624	179	199	~~1,416~~ 1,808	~~1,487~~ 1,911	~~2,495~~ 2,887	~~2,696~~ 3,120	~~5,191~~ 6,007
PA	190	265	109	129	638	641	189	208	~~1,512~~ 1,932	~~1,596~~ 2,054	~~2,638~~ 3,058	~~2,839~~ 3,297	~~5,477~~ 6,355
Diff.	-7	-4	-3	-4	-27	-17	-10	-9	~~-96~~ -124	~~-109~~ -143	~~-143~~ -171	~~-143~~ -177	~~-286~~ -348
Saturday													
ESM	217	205	127	118	555	528	221	210	~~1,898~~ 2,474	~~1,806~~ 2,355	~~3,018~~ 3,594	~~2,867~~ 3,416	~~5,885~~ 7,010
PA	223	210	131	123	576	548	231	219	~~2,021~~ 2,636	~~1,922~~ 2,506	~~3,182~~ 3,797	~~3,022~~ 3,606	~~6,204~~ 7,403
Diff.	-6	-5	-4	-5	-21	-20	-10	-9	~~-123~~ -162	~~-116~~ -151	~~-164~~ -203	~~-155~~ -190	~~-319~~ -393

Table 20-3
Vehicle-Trip Comparisons: Essex Street Alternative vs. Proposed Actions

	Auto		Taxi		Truck		Total Trips		Total Trips
	In	Out	In	Out	In	Out	In	Out	In+Out
AM Peak Hour									
ESM	130	79	63	63	11	11	204	153	357
PA	131	84	67	67	11	11	209	162	371
Diff.	-1	-5	-4	-4	0	0	-5	-9	-14
Midday Peak Hour									
ESM	124	116	127	127	14	14	265	257	522
PA	124	117	129	129	14	14	267	260	527
Diff.	0	-1	-2	-2	0	0	-2	-3	-5
PM Peak Hour									
ESM	120	172	114	114	0	0	234	286	520
PA	124	176	120	120	0	0	244	296	540
Diff.	-4	-4	-6	-6	0	0	-10	-10	-20
Saturday									
ESM	131	125	113	113	0	0	244	238	482
PA	134	130	116	116	0	0	250	246	496
Diff.	-3	-5	-3	-3	0	0	-6	-8	-14

The Essex Street Market Alternative would generate 36, 9, 44, and 41 fewer subway trips than the proposed actions during the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours, respectively. Like the proposed actions, the Essex Street Market is not expected to result in any significant adverse impacts to the subway elements analyzed.

During the weekday AM, weekday PM, and Saturday midday peak hours, the Essex Street Market Alternative would generate 14, 19, and 19 fewer bus riders than the proposed actions, respectively. There would be 3 more bus riders than the proposed actions during the weekday midday peak hour. The Essex Street Market Alternative is expected to result in the proposed action's significant adverse impacts on the M9 and M14A bus line haul capacities in the study area. Like the proposed actions, potential mitigation measures for bus operations as a result of this alternative could include increasing bus line haul capacities for affected routes during affected peak hours.

During the weekday AM, weekday PM, and Saturday midday peak hours, the Essex Street Market Alternative would generate ~~136~~ 175, ~~205~~ 267, and ~~239~~ 313 fewer pedestrian trips than the proposed actions, respectively. This alternative would generate ~~51~~ 73 more pedestrian trips than the proposed actions during the weekday midday peak hour. The Essex Street Market Alternative would result in the same significant adverse impacts to the west sidewalk on Essex Street between Delancey Street and Broome Street during the weekday AM and midday peak hours; the west crosswalk of Delancey Street and Essex Street during the weekday midday peak hour; the east sidewalk on Essex Street between Delancey Street and Rivington Street during the weekday midday and Saturday peak hours; ~~and~~ the east crosswalk of Delancey Street and Essex Street during the weekday midday, weekday PM and Saturday peak hours; and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak hour. Potential mitigation measures for congested pedestrian conditions as a result of this alternative would be the same under the proposed actions and under the Essex Street Market Alternative.

AIR QUALITY

The Essex Street Market Alternative would generate fewer vehicle trips than the proposed actions. Consequently, like the proposed actions, the maximum predicted pollutant concentrations and concentration increments from mobile sources with the Essex Street Market Alternative would be below the corresponding guidance thresholds and ambient air quality standards. The parking facilities that would be introduced with the Essex Street Market Alternative would be the same as the proposed actions. Therefore, like the proposed actions, the parking facilities that would be introduced with the Essex Street Market Alternative would also not result in any significant adverse air quality impacts.

With the exception of Site 9, the site plan, bulk, and massing of buildings under the Essex Street Market Alternative would be the same as with the proposed actions. As with the proposed actions, the only fossil fuel that would be used for heating and hot water systems at the development sites with the Essex Street Market Alternative would be natural gas. In addition, similar to the proposed actions, the RFP ~~will~~ would specify stack placement requirements for Site 5, which would be required through provisions in a Land Disposition Agreement between the City of New York Department of Housing Preservation & Development and the developer(s) or through provisions in a contract of sale or long-term lease or other legally binding agreement between the New York City Economic Development Corporation and the developer(s). As with the proposed actions, the fuel use and stack placement requirements could be modified or eliminated in the future if additional air quality modeling shows that the requirements are not needed to meet national and local ambient air quality standards and thresholds. Future modeling could rely on information that is expected to become available as the design for the proposed sites progresses. However, the stack placement requirements for Site 9 identified for the proposed actions, would not apply with the Essex Street Market Alternative.

GREENHOUSE GAS EMISSIONS

Similar to the proposed actions, the Essex Street Market Alternative would result in mixed-use development with energy efficient buildings and would likely include the utilization of low-carbon fuel (natural gas). Development under the proposed actions and this alternative would support the use of public transit and non-motorized commuting. The proposed design would include features aimed at reducing energy consumption and GHG emissions on all sites as described in Chapter 15, "Greenhouse Gas Emissions," and would, therefore, be consistent with the City's citywide GHG reduction goal. However, with the Essex Street Market Alternative, the existing Essex Street Market would remain on Site 9 and would not undergo energy efficiency improvements, but would also not require energy and materials for construction of a new market. This Alternative would also result in less development, and therefore the energy and emissions associated with construction and operation of Site 9 would not occur; however, that demand would be accommodated elsewhere (not as part of this project), and may be more or less energy efficient than under the proposed actions.

NOISE

As discussed in the traffic section above, the Essex Street Market Alternative is expected to generate fewer vehicle trips than the proposed actions during all time periods. Therefore, the Essex Street Market Alternative, like the proposed actions, would not generate sufficient traffic to have the potential to cause a significant noise impact.

With the Essex Street Market Alternative and the proposed actions, noise levels within the new publicly accessible open space proposed for Site 5 would exceed the noise level for outdoor areas requiring serenity and quiet contained in the *CEQR Technical Manual* noise exposure guidelines and there would be no practical and feasible mitigation measures that could be implemented to reduce noise levels to below the 55 dBA $L_{10(1)}$ guideline within the proposed open space.

Under the proposed actions and the Essex Street Market Alternative, the proposed buildings' mechanical systems (i.e., HVAC systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code, the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. Therefore, the proposed actions and the Essex Street Market Alternative would not result in any significant increase in ambient noise levels.

CONSTRUCTION

With the Essex Street Market Alternative, there would be no new development on Site 9; therefore, there would be a reduction in the amount of materials needed and fewer construction workers as compared with the proposed actions. In the conceptual construction schedule for the proposed actions, construction on Sites 8, 9, and 10 would begin in the second quarter of 2020 and would end by the fourth quarter of 2021. With this alternative, there would continue to be construction during this time period; however, the level of construction activity would be reduced. This reduction in activity would not materially affect the construction-related analysis assumptions and conclusions presented for the proposed actions. Therefore, similar to the proposed actions, the Essex Street Alternative would not result in any significant adverse impacts with respect to air quality.

As stated in Chapter 19, "Construction," construction activities would generate the highest amount of construction-related traffic in the third quarter of 2017. Since construction of Site 9 would not begin until the second quarter of 2020, this alternative would not change the traffic analysis. Like the proposed actions, the Essex Street Market Alternative would not result in significant transit or pedestrian impacts attributable to the projected construction worker transit.

As stated in Chapter 19, "Construction," construction activities would result in significant noise impacts at some residential receptors adjacent to the proposed development sites. Since the construction of Site 9 would not begin until 2020 according to the conceptual construction schedule on which the construction noise analysis was based, the conclusions of the construction noise analysis for the years 2016 through 2019 would be unchanged. During 2020 and 2021, construction activities and equipment would be decreased without the construction of Site 9 occurring, and depending on the specific location, noise levels would be the same to somewhat lower as compared to the levels shown in Chapter 19. Consequently, the Essex Street Market Alternative would be expected to result in the same or possibly slightly fewer significant adverse construction noise impacts as the proposed actions.

Since the Essex Street Market Alternative would involve construction on all development sites other than Site 9, like the proposed actions, it could have adverse physical impacts on five architectural resources that are located within 90 feet of proposed construction activities.

PUBLIC HEALTH

Neither the Essex Street Market Alternative nor the proposed actions would result in significant adverse impacts on public health associated with construction or operation of the new development on the project sites.

NEIGHBORHOOD CHARACTER

The site plan, bulk, and massing of buildings under the Essex Street Market Alternative would be the same as with the proposed actions except at Site 9 where the existing building would remain. Taking into consideration the effects of the project on the contributing features and compatibility of the proposed uses, neither the proposed actions nor the Essex Street Market Alternative would have a significant adverse impact on neighborhood character.

D. NO UNMITIGATED SIGNIFICANT IMPACTS ALTERNATIVE

DESCRIPTION

The proposed actions would result in some partial or unmitigated impacts with respect to historic and cultural resources, traffic, pedestrians and construction. Therefore, as required by the *CEQR Technical Manual*, alternatives were developed to explore modifications to the proposed actions and reasonable worst-case development scenario that would allow for the mitigation of these impacts.

HISTORIC AND CULTURAL RESOURCES

The proposed actions would result in the demolition of the four Essex Street Market Buildings and the former fire station at 185 Broome Street. The demolition of these buildings—which have been determined eligible for listing on the State and National Registers of Historic Places (S/NR)—would constitute a significant adverse impact on architectural resources. Although mitigation would be undertaken in consultation with the New York City Landmarks Preservation Commission (LPC) and/or the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), the demolition of these structures would be considered an impact that can not be fully mitigated.

The No Unmitigated Significant Impacts Alternative would avoid demolition of these five buildings. Leaving them in place would preclude any new development on Sites 8, 9, and 10 and would reduce the footprint of new development on Sites 2 and 5. With no new development on Sites 8, 9, and 10, this alternative would have 133,625 square feet less residential development than the proposed actions and fewer units, both affordable and market rate. Overall, residential development under this alternative could be even less, since the development footprint on Site 5 would be reduced. Further, a smaller development on Site 2 would result in less commercial space compared to the proposed actions. In addition, because the fire station partially occupies the location of the proposed publicly accessible open space on Site 5, the design of the proposed open space would be constrained under this alternative, and it would likely be less than 10,000 square feet.

The proposed actions would also likely result in a significant adverse visual and contextual impact on the Lower East Side Historic District (S/NR), even though the new building on Site 1 would be constructed on a parking lot that is a non-contributing feature of the district. There is no specific design for a new development on Site 1, but in accordance with the maximum building envelope, the proposed building could have a portion as tall as 190 feet to the top of the mechanical bulkhead as permitted by the maximum building envelope that would be established by the LSGD, and the reasonable worst-case development scenario assumes that a 120-foot-tall (approximately 10-story) building would be constructed on Site 1. Therefore, this building would be substantially taller than the contributing historic district buildings within the project study area, most of which are shorter than 68 feet. Further, the proposed building could adversely impact the visual prominence and setting of the 67-foot-tall Eastern Dispensary (New York City Landmark-eligible, S/NR-eligible), as it would be located immediately behind that historic resource and the reasonable worst-case development scenario building would be 53 feet taller than the historic resource. Since there is no specific design for the proposed development on Site 1, the measure identified to eliminate or partially mitigate these significant adverse visual and contextual impacts is continued consultation with LPC and/or OPRHP regarding the final design of this new building. To fully mitigate these significant adverse impacts, it is expected that a new building on Site 1 would need to be more consistent with the scale of surrounding, contributing historic district buildings, of which the tallest is the adjacent 95-foot tall Seward Park High School. Reducing the height of the new building would reduce the amount of residential and/or commercial space on the site.

Therefore, the No Unmitigated Significant Impacts Alternative would retain the four Essex Street Market buildings on Sites 2, 8, 9, and 10 and the former fire station on Site 5 and would reduce the scale of the building on Site 1. Overall, this alternative would greatly reduce the number of residential units that could be provided, preventing the proposed actions from providing 900 units, of which 450 would be affordable units. This alternative would also reduce the amount of commercial space that could be provided, compromising another of the proposed actions' goals.

TRAFFIC

The proposed actions would result in significant adverse traffic impacts at intersections within the study area that can not be fully mitigated with practical traffic capacity improvement measures. Because of existing congestion at a number of intersections, even a minimal increase in traffic could result in unmitigated impacts at some locations. A sensitivity analysis determined that the addition of just ~~four~~ two vehicle trips turning right along the ~~southbound~~ northbound approach of Essex Street at the intersection with Delancey Street during the PM peak period would create a significant adverse impact that can not be fully mitigated. Thus, almost any new development on the project site would result in unmitigated significant adverse traffic impacts, and no reasonable alternative could be developed to completely avoid such impacts without substantially compromising the goals of the proposed actions.

PEDESTRIANS

The proposed actions would result in potential significant adverse pedestrian impacts at the west sidewalk of Essex Street between Delancey and Broome Streets and the east sidewalk of Essex Street between Delancey and Rivington Streets. The potential significant adverse pedestrian impact at the west sidewalk of Essex Street could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 8 inches. For the east sidewalk of Essex Street, the potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 7 inches. However, these mitigation measures are not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways would preclude any widening towards the building lines. Although widening the sidewalks by extending them into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impacts would be unmitigated.

The pedestrian analysis for the With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairs, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of that particular sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk widths to approximately 20 to 30 percent of the overall widths available at the two sidewalk locations on Essex Street. The combination of all these factors would result in the potential for significant adverse pedestrian impacts at the two Essex Street sidewalks in the future With Action condition. However, it should be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels, since the project's development program and design may not materialize to the full extent resulting in different travel patterns at the study area's pedestrian facilities.

A sensitivity analysis determined that even the addition of just one pedestrian trip to the levels in the No Action condition during the AM peak period could result in a significant adverse impact that cannot be mitigated. Thus, any new development in the With Action on the project site would result in potential unmitigated significant adverse sidewalk impacts, and no reasonable alternative could be developed to completely avoid such impacts.

CONSTRUCTION

Construction of the proposed development would be expected to result in substantially elevated noise levels for two or more continuous years at ~~45~~ 13 locations within the study area. However, most affected buildings have double-glazed windows and air-conditioning, and would consequently be expected to experience interior $L_{10(1)}$ values less than 45 dBA, which would be considered acceptable according to CEQR criteria. Of these ~~45~~ 13 sites, up to ~~15~~ 3 locations, including 350 Grand Street (Seward Park High School) and the outdoor balconies of two residential buildings south of Grand Street near Clinton Street, are expected for certain limited periods of the construction period to experience significant impacts ~~that may be considered unmitigated~~. As stated in Chapter 19, "Construction," a detailed construction noise analysis or analyses will be undertaken by the developer(s) of Sites 1, 2, and 3 before construction begins at those sites, and potential additional mitigation measures will be considered by this analysis or analyses if they are deemed necessary. This revised analysis or analyses will result in measures that fully or partially mitigate predicted construction noise impacts at 350 Grand Street (Seward Park High School). The impacts at the residential balcony locations would be considered unmitigated. The~~se~~ ~~unmitigated~~ impacts at 350 Grand Street (Seward Park High School) would be avoided if construction were not undertaken on Sites 1, 2, or 3. The unmitigated impacts at the residential balconies would be avoided if construction were not undertaken on Site 5. ~~8, 9, and 10; h~~ However, this would fail to meet the goal of the proposed actions to provide 900 residential units, of which 450 would be affordable units, and to provide commercial and retail development as part of a thriving, financially viable, mixed-use development. ~~As stated in Chapter 21, "Mitigation Measures," further exploration of the feasibility and practicability of mitigation measures will be conducted between DGEIS and FGEIS This alternative analysis will similarly look at options based on this further exploration of possible mitigation measures taking into account the practicability relative to project goals and may be revised to reflect this additional work.~~ ✷

Chapter 21: Mitigation Measures

A. INTRODUCTION

The preceding chapters of this Final ~~Draft~~ Generic Environmental Impact Statement (~~D~~FGEIS) discuss the potential for significant adverse environmental impacts resulting from the proposed Seward Park Mixed-Use Development Project. Such potential impacts were identified in the areas of historic and cultural resources, transportation, and construction. Measures have been examined to minimize or eliminate these anticipated impacts. These mitigation measures are discussed below.

B. HISTORIC AND CULTURAL RESOURCES

As described in Chapter 7, "Historic and Cultural Resources," the proposed actions, through redevelopment, would have significant adverse direct impacts on two architectural resources that have been determined eligible for listing on the State and National Registers of Historic Places (S/NR)—the Essex Street Market and the former fire station at 185 Broome Street. In addition, new development on Site 1 could have significant adverse visual and contextual impacts on the S/NR-listed Lower East Side Historic District and the S/NR-eligible Eastern Dispensary, which also appears to be eligible for New York City Landmark (NYCL) designation.

In accordance with CEQR guidelines, the New York City Economic Development Corporation (NYCEDC) and the City of New York Department of Housing Preservation & Development (HPD) are undertaking ongoing consultation with the New York City Landmarks Preservation Commission (LPC) regarding the development of mitigation measures for these significant adverse impacts. In addition, because construction financing may come from New York State and/or the United States Department of Housing and Urban Development, NYCEDC and HPD are undertaking ongoing consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law) and, acting in its capacity as the State Historic Preservation Office, Section 106 of the National Historic Preservation Act of 1966.

Should there be any State or Federal permitting or funding for development on Sites 1, 2, 5, 8, 9 and 10, HPD and NYCEDC shall continue to consult with OPRHP regarding impacts from development on Site 1 (indirect impacts to the NYCL- and S/NR-eligible Eastern Dispensary and the S/NR-listed Lower East Side Historic District), Site 2 (the proposed demolition of an S/NR-eligible Essex Street Market building), Site 5 (the proposed demolition of a S/NR-eligible fire station), and Sites 8, 9, and 10 (the proposed demolition of the S/NR-eligible Essex Street Market buildings and indirect impacts to the adjacent NYCL- and S/NR-eligible Clinton, Rivington, Stanton Street Historic District). Furthermore, consultation shall include an evaluation of any prudent and feasible alternatives specific to the affected historic properties and project goals and objectives. If no prudent and feasible alternatives specific to the historic properties and project goals and objectives are identified, HPD and/or NYCEDC will enter into a formal agreement with OPRHP to identify proper mitigation measures. LPC shall be a signatory to the formal agreement with regard to any potential effects to NYCL designated and eligible properties and districts.

Potential mitigation measures that could partially mitigate the impact of the demolition of the Essex Street Market and former fire station may include, to the extent practicable and feasible:

- Historic American Buildings Survey (HABS) documentation. HABS Level I documentation of all four buildings of the Essex Street Market and the former fire station could be conducted by a recognized professional credentialed for preparing such reports, to be submitted to LPC, OPRHP, the New York Historical Society, the Museum of the City of New York, and/or other repositories.
- A site commemoration plan. A permanent interpretive exhibit or exhibits about the Essex Street Market and the former fire station could be developed and installed in the new Essex Street Market facility on Site 2 or in another appropriate location near the project site. This exhibit could document the history of the Essex Street Market and former fire station and could encompass the larger history of the project site neighborhood.
- Architectural salvage. Surveys of the Essex Street Market and former fire station could be conducted to determine if any significant exterior or interior architectural elements could be removed and incorporated into the proposed development.
- Design of the new buildings on Sites 2, 8, 9, and/or 10 to reference the design of the Essex Street Market. This could include incorporating references to such architectural elements of the market buildings as the strip windows and the incised lettering above the entrances.

As described above, NYCEDC and HPD will continue to consult with LPC and/or OPRHP regarding the compatibility of the proposed development on Site 1 with the S/NR-listed Lower East Side District, in which it is located, and with the S/NR-eligible and NYCL-eligible Eastern Dispensary. Submission of the preliminary design of the proposed building on Site 1 to LPC and/or OPRHP for review and comment following a developer's Request for Proposals (RFP) process (described below) is proposed as a means to eliminate or partially mitigate the potential contextual and visual impact on the historic district and Eastern Dispensary from the proposed development on Site 1. If LPC and/or OPRHP determine that the preliminary design of the proposed building on Site 1 would result in a significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary and no design changes, which are feasible and practicable given NYCEDC and HPD's goals and objectives, are identified to eliminate or fully mitigate this impact, it would constitute an unmitigable significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary. Although the historic and cultural resources analysis (See Chapter 7, "Historic and Cultural Resources") concluded that the proposed developments on Sites 8, 9, and 10 would not have significant adverse visual and contextual impacts on the adjacent potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible), should there be any State or Federal permitting or funding for development on those sites, HPD and NYCEDC shall consult with OPRHP regarding the compatibility of the proposed developments on Sites 8, 9, and 10 with the historic district.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to an RFP process. For sites that may be under the jurisdiction of HPD, mitigation, which could include design review of Site 1 with LPC and/or OPRHP, would, to the extent practicable and feasible, either be undertaken by HPD or required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by NYCEDC, mitigation, which could include design review of Site 1 with LPC and/or OPRHP, would, to the extent practicable and feasible, either be undertaken by NYCEDC or required to be undertaken by the developer(s) through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

As noted above, construction financing for some portions of the proposed development may come from HUD and, under the Code of Federal Regulations Title 24-Housing and Urban Development, Part 58, HPD assumes the responsibilities for environmental review, decision-making, and action that would otherwise apply to HUD. Accordingly, HPD is required to conduct environmental reviews under the laws and reviews that apply to HUD programs and policies, including the National Environmental Policy Act and related Federal Laws, Executive Orders, and Rules, including the National Historic Preservation Act. Since it is not known at this time which sites will be disposed of by which project sponsors, it is expected that, if warranted, HPD would enter into a formal agreement with OPRHP, LPC, and potentially the Advisory Council on Historic Preservation regarding the assessment of effects on historic and cultural resources related to the HUD construction financing and the development and implementation of mitigation for any identified adverse effects.

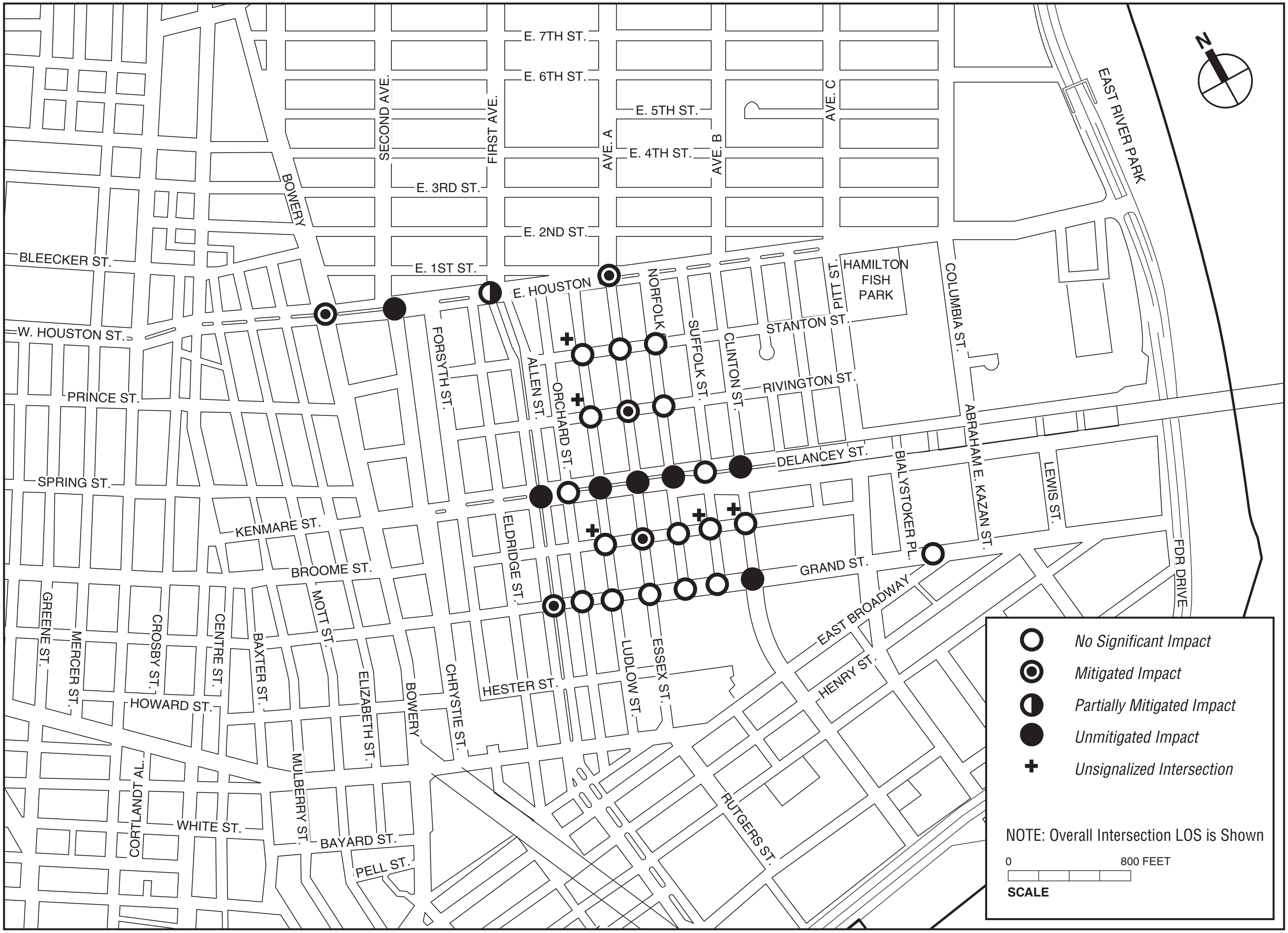
C. TRANSPORTATION

TRAFFIC

As discussed in Chapter 13, "Transportation," the proposed actions would result in significant adverse traffic impacts at a number of locations in the traffic study area. This section describes the mitigation measures that could reduce or eliminate significant impacts, and ~~or~~ indicates whether impacts would remain unmitigated (**Figures 21-1 through 21-4** provide a graphic overview of these findings). **Table 21-1** summarizes the significant adverse traffic impacts and whether they could be fully or partially mitigated with the implementation of traffic improvement measures. Details of the intersection capacity analyses and all traffic mitigation measures (e.g., signal timing changes, parking regulation changes, lane reconfigurations, etc.) are summarized in levels of service (LOS) tables presented at the end of the chapter.

Following issuance of the Draft Generic Environmental Impact Statement (DGEIS), NYCDOT began implementation of ~~is currently developing~~ an area-wide Delancey Street Safety Improvements plan to improve ~~traffic and pedestrian~~ pedestrian, bicycle, and vehicular safety conditions along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner "bump-outs" and signal timing changes along Delancey Street to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These ~~C~~changes to the study area's transportation network ~~resulting from these changes will be~~ have been incorporated as part of the ~~between the DGEIS and FGEIS, should the plan be adopted prior to the release of the~~ FGEIS. As a result, mitigation measures presented in the FGEIS at a number of analysis locations ~~may be~~ are different than those identified in the DGEIS. Some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the FGEIS due to the safety oriented changes in the roadway network described above, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs.

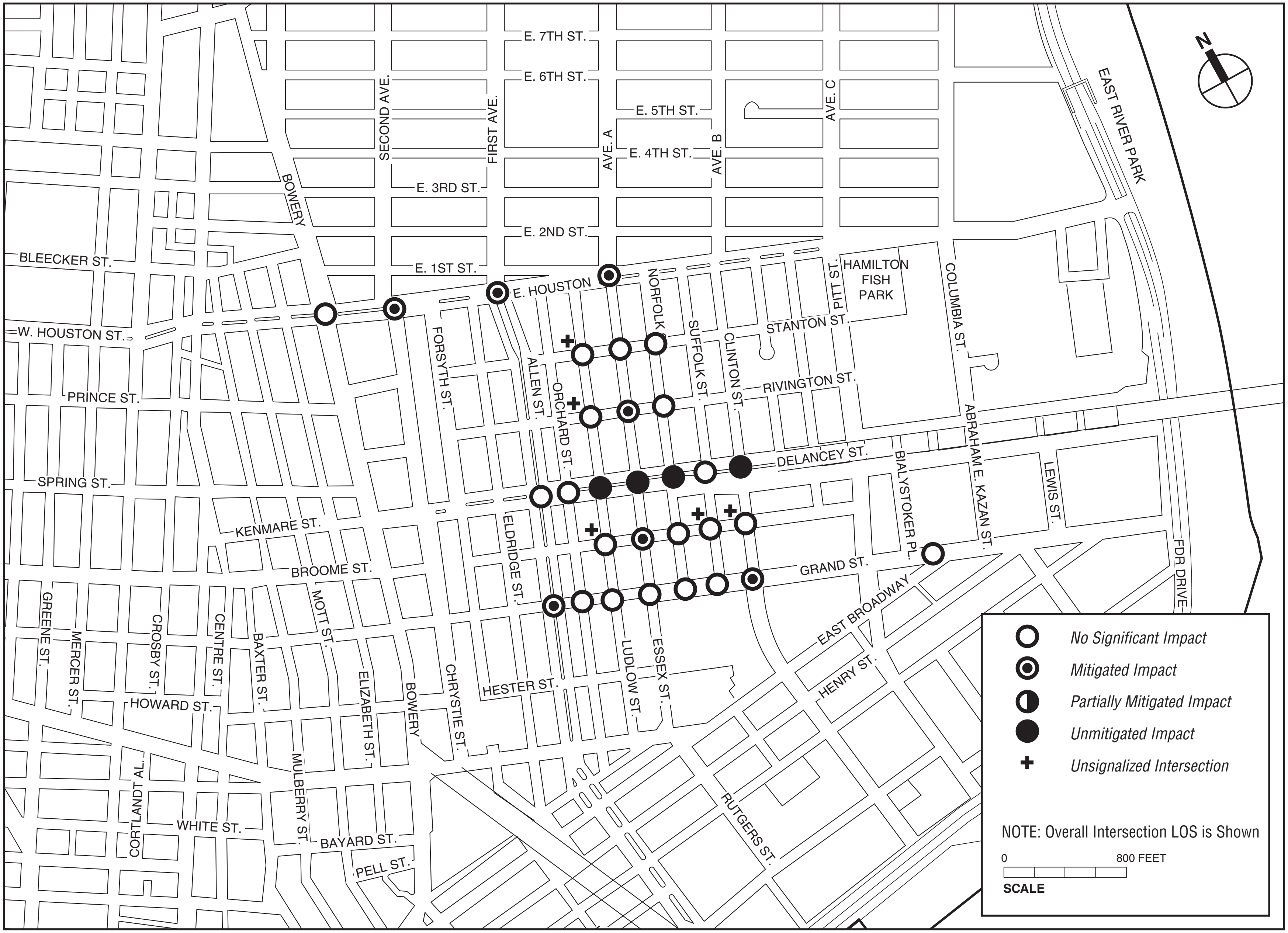
8.7.12



NOTE: This figure has been revised for the FGEIS.

Traffic Mitigation Overview
Weekday AM Peak Hour
Figure 21-1

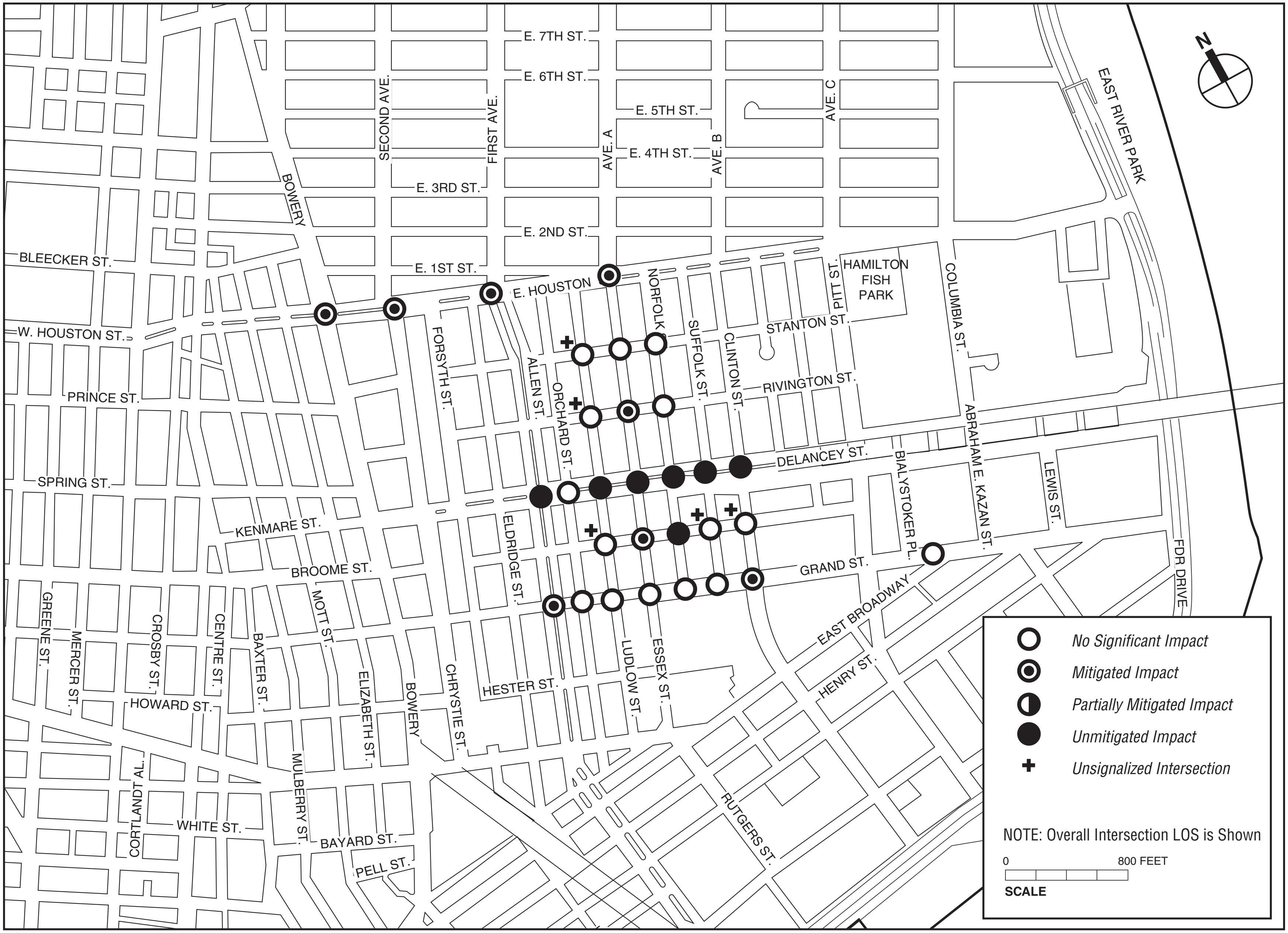
8.7.12



NOTE: This figure has been revised for the FGEIS.

Traffic Mitigation Overview
Weekday Midday Peak Hour
Figure 21-2

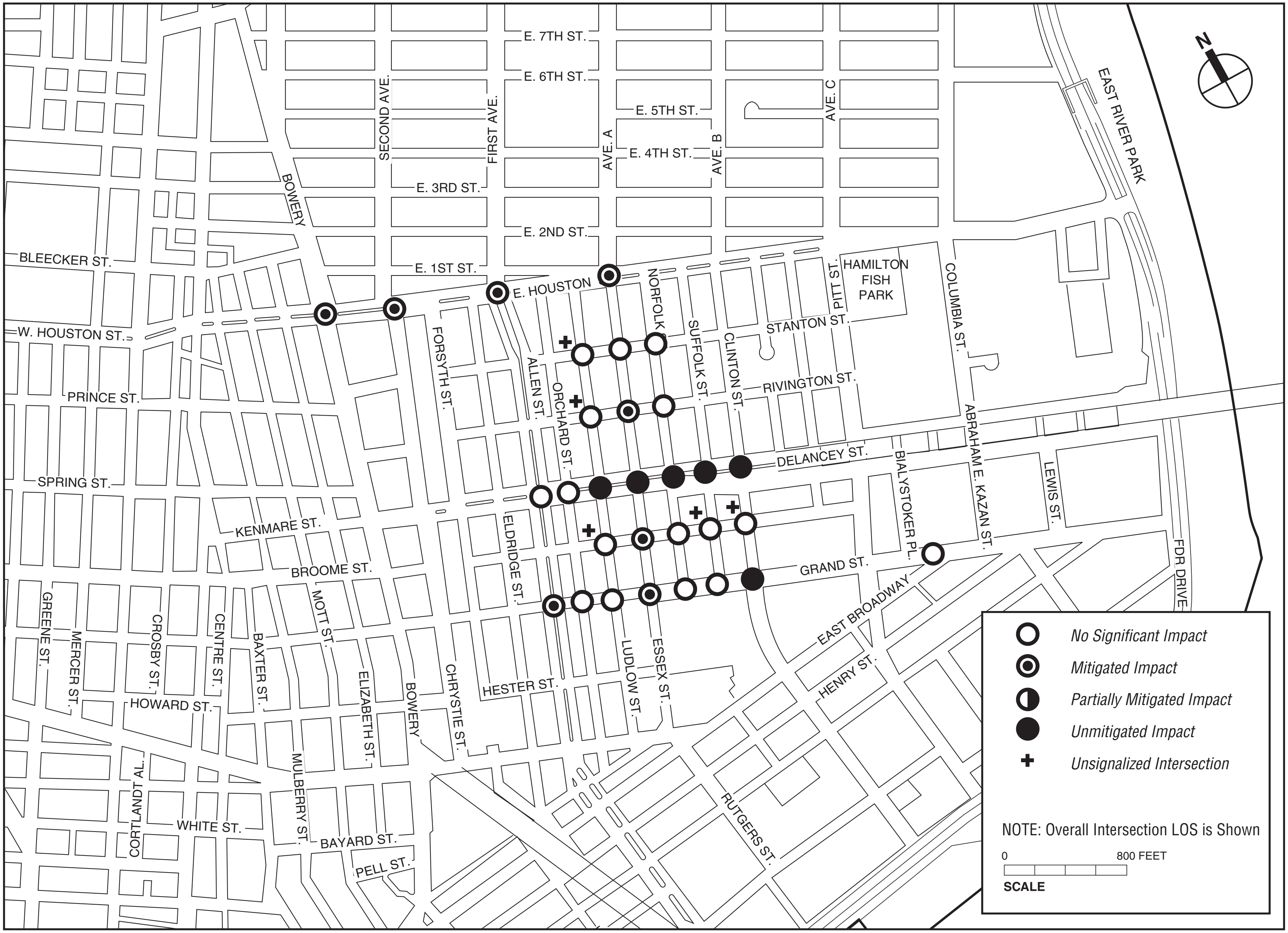
8.7.12



NOTE: This figure has been revised for the FGEIS.

Traffic Mitigation Overview
Weekday PM Peak Hour
Figure 21-3

8.7.12



NOTE: This figure has been revised for the FGEIS.

Traffic Mitigation Overview
Saturday Peak Hour
Figure 21-4

Table 21-1
Traffic Impact Mitigation Summary

Intersections	Weekday Peak Hours AM	Weekday Peak Hours Midday	Weekday Peak Hours PM	Saturday Peak Hour
No significant impact	~~21~~ 17	~~23~~ 19	~~12~~ 15	~~20~~ 16
Impact could be fully mitigated	~~6~~ 5	~~6~~ 7	~~12~~ 8	8
Impact could be partially mitigated	~~0~~ 1	0	~~1~~ 0	~~1~~ 0
Unmitigated impact	~~3~~ 7	~~1~~ 4	~~5~~ 7	~~1~~ 6

The major overall finding of the traffic mitigation analysis is that the majority of the 30 intersections analyzed would either not be significantly impacted or could be mitigated with readily implementable traffic improvement measures, including signal timing and phasing changes, parking regulation changes to gain or widen a travel lane at key intersections, and lane restriping. These measures represent some of the standard traffic capacity improvements that are typically implemented by the New York City Department of Transportation (NYCDOT).

As shown in **Table 21-1**, in the weekday AM peak hour, ~~three~~ seven of the 30 intersections would remain unmitigated, and one intersection could only be partially mitigated; in the weekday midday peak hour, ~~one~~ four intersections would remain unmitigated; in the weekday PM peak hour, ~~five~~ seven intersections would remain unmitigated~~, and one intersection could only be partially mitigated~~; and in the Saturday peak hour, ~~one~~ six intersections would remain unmitigated~~, and one intersection could be partially mitigated~~.

~~Six~~ Ten of the thirty intersections have significant adverse traffic impacts that would result from the proposed actions and could not be fully mitigated in at least one peak hour, including:

- East Houston Street and Chrystie Street/Second Avenue (unmitigated during the weekday AM peak hour).
- East Houston Street and Allen Street/First Avenue (~~unmitigated~~ could be partially mitigated during the weekday AM ~~and PM~~ peak hours).
- Delancey Street and Allen Street (~~could be partially mitigated~~ unmitigated during the weekday AM and PM peak hour).
- Delancey Street and Ludlow Street (unmitigated during all four peak hours).
- Delancey Street and Essex Street (unmitigated during all four peak hours).
- Delancey Street and Norfolk Street (unmitigated during all four peak hours ~~could be partially mitigated during the Saturday peak hour; unmitigated during the weekday PM peak hour~~).
- Delancey Street and Suffolk Street (unmitigated during the weekday PM and Saturday peak hours).
- Delancey Street and Clinton Street (unmitigated during ~~the weekday AM and PM~~ all four peak hours).
- Broome Street and Norfolk Street (unmitigated during the weekday PM peak hour).
- Grand Street and Clinton Street (unmitigated during the weekday AM and Saturday peak hours).

Six ~~Five~~ of these intersections are along Delancey Street, which is characterized by heavy volumes approaching and leaving the Williamsburg Bridge.

Traffic mitigation measures needed for each intersection are described below; details of signal timing modifications are summarized in the LOS tables presented at the end of the chapter.

DELANCEY STREET CORRIDOR

Five ~~Three~~ of the seven intersections analyzed along Delancey Street would be significantly impacted during the weekday AM and Saturday peak hours, four would be significantly impacted during the weekday midday peak hour, and six would be significantly impacted during the weekday PM peak hour. ~~Of the six impacted intersections along Delancey Street, only the intersection of Delancey Street and Ludlow Street could be fully mitigated in each peak hour with traffic capacity improvements. The other impacted intersections that could not be mitigated during all peak hours are as follows: Delancey Street and Allen Street could only be partially mitigated during the weekday PM peak hour; Delancey Street and Essex Street could not be mitigated during all peak hours; Delancey Street and Norfolk Street could only be partially mitigated in the Saturday peak hour, and could not be mitigated during the weekday PM peak hour; Delancey Street and Suffolk Street could not be mitigated during the weekday PM peak hour; and Delancey Street and Clinton Street could not be mitigated during the weekday AM and PM peak hours.~~ Typical traffic improvement measures, such as signal timing changes and lane restriping, would not be deemed feasible for implementation due to the safety plan being implemented along the Delancey Street corridor, and as a result, none of the six impacted intersections along Delancey Street could be mitigated. The prohibition of parking along Delancey Street at certain times of the day was considered but is not recommended due to the commercial character of Delancey Street and the scarce parking currently available along the corridor.

Delancey Street and Allen Street

Significant impacts would occur at this location during the weekday ~~midday~~ AM and PM peak hours. These impacts could not be ~~fully~~ mitigated. ~~during the weekday midday peak hour, and only partially mitigated during the weekday PM peak hour by modifying the signal phasing to allow the northbound right turn movement during the westbound lead phase. This measure would be in place at all times and the signal timing would remain the same.~~

Delancey Street and Ludlow Street

Significant impacts would occur at this intersection during all four peak hours ~~the weekday midday and PM, and Saturday peak hours~~, and could ~~be fully~~ not be mitigated ~~by modifying the signal timing~~.

Delancey Street and Essex Street

This intersection would have significant impacts during all four peak hours, and could not be mitigated.

Delancey Street and Norfolk Street

This intersection would have significant impacts during all peak hours, and could ~~be fully mitigated during the weekday AM and midday peak hours by installing "No Standing 11 AM to 2 PM Monday to Friday" regulations along the north curb of the westbound approach for 100 feet (entailing a loss of approximately three parking spaces during the weekday midday peak period) to provide daylighting to widen the westbound lane, and by modifying the signal timing. These mitigation measures could only partially mitigate impacts at this intersection during the Saturday peak hour. Significant impacts during the weekday PM peak hour could~~ not be mitigated.

Delancey Street and Suffolk Street

Significant impacts during the weekday PM and Saturday peak hours could not be mitigated.

Delancey Street and Clinton Street

Significant impacts during ~~the weekday AM and PM~~ all four peak hours could not be mitigated.

BROOME STREET CORRIDOR

Significant impacts would occur at one ~~two~~ of the five intersections analyzed along Broome Street during all peak hours, and at two intersections during the weekday PM peak hour. Impacts at the intersection of Broome Street and Essex Street would occur during all four peak hours and could be fully mitigated with signal timing and phasing modifications. Impacts at ~~both of~~ the~~se~~ intersection~~s~~ of Broome Street and Norfolk Street would occur during the weekday PM peak hour and could not be ~~fully~~ mitigated~~ with signal timing and phasing modifications~~.

Broome Street and Essex Street

Significant impacts that would occur during ~~the weekday PM~~ all four peak hours at this intersection could be fully mitigated by modifying the signal phasing to include a southbound lead phase. (The existing traffic signal operates in two phases—an eastbound phase followed by a northbound/southbound phase). ~~The sidewalk along the west side of Essex Street could be extended eight inches to the east to mitigate pedestrian impacts; this would not affect vehicular operations at this intersection.~~

Broome Street and Norfolk Street

Significant impacts would occur at this intersection during the weekday PM peak hour and could not be ~~fully~~ mitigated ~~by modifying the signal timing~~.

GRAND STREET CORRIDOR

Significant impacts would occur at two of the eight intersections analyzed along Grand Street during the weekday AM, ~~and~~ midday, and PM peak hours, and at ~~five intersections during the weekday PM peak hour, and at~~ three intersections during the Saturday peak hour. Impacts at these intersections could be fully mitigated with traffic capacity improvements except at the intersection of Grand Street and Clinton Street during the weekday AM and Saturday peak hours.

Grand Street and Allen Street

Significant impacts would occur at this intersection during all four peak hours and could be mitigated by ~~installing "No Standing 11 AM to 2 PM Monday to Friday" regulations along the north curb of the westbound approach for the entire block (entailing a loss of approximately two parking spaces over a distance of approximately 85 feet during the weekday midday peak period) to provide daylighting to widen the westbound lane, and by modifying the signal timing. A second option to mitigate the intersection during all peak hours would involve the modification of~~ modifying the signal phasing as follows: an eastbound/westbound phase; a northbound/southbound exclusive left turn phase (pedestrians would not be allowed to cross during this phase); and a northbound/southbound phase (left turns would not be permitted). The existing traffic signal operates as follows: an eastbound/westbound phase; a southbound phase (pedestrians are not allowed to cross the east crosswalk during this phase); a northbound/southbound phase (left turns are not permitted); and a northbound phase (pedestrians are not allowed to cross the west crosswalk during this phase). ~~Either of these two options could fully mitigate projected impacts.~~

Grand Street and Essex Street

This intersection would be significantly impacted during the ~~weekday PM~~ Saturday peak hour and could be fully mitigated by modifying the signal timing at this location ~~installing "No Standing Anytime" regulations along the north curb of the westbound approach for 100 feet from the intersection (entailing a loss of approximately five parking spaces) to allow for two moving lanes. The westbound approach curb lane could be restriped from a 10-foot wide parking lane to a 10-foot wide right turn lane~~.

~~*Grand Street and Norfolk Street*~~

~~This intersection would be significantly impacted during all four peak analysis hours and could be fully mitigated by installing "No Standing Anytime" regulations along the north curb of the westbound approach for 100 feet from the intersection (entailing a loss of approximately three parking spaces) to allow for two moving lanes. The westbound approach curb lane could be restriped from a 10-foot wide parking lane to a 10-foot wide right turn lane.~~

~~*Grand Street and Suffolk Street*~~

~~Significant impacts at this intersection during the weekday PM peak hour could be fully mitigated by modifying the signal timing.~~

Grand Street and Clinton Street

Significant impacts at this intersection would occur during ~~the weekday PM and Saturday~~ all four peak hours. Impacts at this intersection could be fully mitigated ~~installing "No Standing 4 PM to 7 PM Monday to Friday" regulations along the south curb of the eastbound approach for the entire block (approximately 165 feet), entailing a loss of approximately five parking spaces during the weekday PM peak hour to reduce the effects of parking friction along the approach, and by modifying the signal timing~~ during the weekday midday and PM peak hours by modifying the signal timing. As part of this measure, installation of a pedestrian countdown signal would be required as per NYCDOT's standards. Significant impacts during the weekday AM and Saturday peak hours could not be mitigated.

RIVINGTON STREET CORRIDOR

Of the three intersections analyzed along Rivington Street, the intersection of Rivington Street and Essex Street would be significantly impacted during ~~the weekday AM and PM~~ all four peak hours. Significant impacts could be fully mitigated ~~during both peak hours~~ by installing "No Standing 10 AM to 7 PM Saturday" regulations along the west curb of the southbound approach for approximately 250 feet, entailing a loss of approximately seven parking spaces, restriping the northbound and southbound approaches, and modifying the signal timing ~~modifications~~. The northbound approach centerline could be shifted six feet to the east and the approach could be restriped from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot travel lane and one 9-foot wide parking lane (the sidewalk along the east side of Essex Street could be extended seven inches to the west to mitigate pedestrian impacts). The southbound receiving side could be restriped from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot travel lane, and one 10-foot wide parking lane. The southbound approach centerline could be shifted six feet to the east and the approach could be restriped from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot wide travel lane, and one 10-foot wide parking lane, which could operate as a travel lane in the Saturday peak period. The northbound receiving side could be restriped from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane, and one 10-foot wide parking lane. The lane restriping along northbound and southbound Rivington Street could be similar to the restriping proposed by NYCDOT at the intersection of Essex Street and Delancey Street as part of the Delancey Street Safety Improvements plan.

EAST HOUSTON STREET CORRIDOR

Three of the four intersections along East Houston Street would be significantly impacted during the weekday ~~AM peak hour, and only one intersection would be significantly impacted during the weekday~~ midday peak hour. All four intersections analyzed along East Houston Street would be significantly impacted during the weekday AM, PM~~,~~ and Saturday peak hours. Significant impacts could be fully mitigated with signal timing modifications at two ~~three~~ of the four intersections; the intersection of East Houston Street and Chrystie Street/Second Avenue would be unmitigatable, and the intersection of East Houston Street and Allen Street/First Avenue could not be fully mitigated during the weekday AM ~~and PM~~ peak hour~~s~~.

East Houston Street and Bowery

Significant impacts would occur at this location during the weekday AM and PM, and Saturday peak hours, and could be fully mitigated by modifying the signal timing.

East Houston Street and Chrystie Street/Second Avenue

Significant impacts would occur at this location during ~~the weekday PM and Saturday~~ all four peak hours, and could be fully mitigated during the weekday midday, PM, and Saturday peak hours by modifying the signal timing. Significant impacts could not be mitigated during the weekday AM peak hour.

East Houston Street and Allen Street/First Avenue

This intersection would be significantly impacted during the weekday AM, midday, ~~and~~ PM, and Saturday peak hours, and could be fully mitigated ~~during the Saturday peak hour~~ by modifying the signal timing during all peak hours except for the weekday AM peak hour. Significant impacts at this intersection during the weekday AM ~~and PM~~ peak hour~~s~~ could ~~not~~ only be ~~fully~~ partially mitigated.

East Houston Street and Essex Street/Avenue A

Significant impacts would occur at this location during all peak hours and could be fully mitigated by modifying the signal timing.

IMPLEMENTATION

Each of the traffic capacity improvements described above fall within the jurisdiction of NYCDOT for implementation. The implementation of these measures would result in the loss of approximately ~~eight metered parking or "standing" spaces during the weekday AM peak period,~~ 13 spaces during the weekday midday peak period, 13 spaces during the weekday PM peak period, and seven ~~eight~~ parking spaces along Essex Street between Rivington Street and Stanton

Street during the Saturday peak period. ~~Delancey Street would lose three parking spaces between Norfolk Street and Suffolk Street, and Grand Street would lose up to 10 parking spaces between Allen Street and Clinton Street.~~ No designated truck loading/unloading zones or bus layover space would be affected by the proposed parking modifications for mitigation. If it is determined that on-street parking should be retained at locations where such mitigation was assumed, additional unmitigated traffic impacts could result.

TRANSIT

As discussed in Chapter 13, "Transportation," the proposed actions would result in significant adverse bus line haul impacts on the M9 bus route during both the AM and PM peak periods and the M14A bus route during the AM peak period. Potential measures to mitigate these impacts are described below.

BUS LINE HAUL

The proposed actions would result in significant adverse bus line haul impacts on the M9 and M14A routes as the projected passenger volumes in the future with the proposed actions condition would exceed the NYCT guideline capacity during the following peak periods:

- Southbound M9 bus route during the AM and PM peak periods;
- Northbound M9 bus route during the PM peak period; and
- Westbound M14A bus route during the AM peak period.

Table 21-2 provides a comparison of existing service and the number of buses required to fully mitigate the identified significant adverse line haul impacts along the M9 and M14A bus routes. While NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted, these service adjustments are subject to the agencies' fiscal and operational constraints and, if implemented, are expected to take place over time.

Table 21-2
2022 Mitigated Future With The Proposed Actions Condition (Capacity Improvement): Bus Line Haul Levels

Route	Peak Period	Northbound/Eastbound Buses per Hour		Southbound/Westbound Buses per Hour	
		Existing	Mitigation	Existing	Mitigation
M9	AM	8	n/a	6	8
	PM	5	7	4	5
M14A	AM	7	n/a	8	9

Notes: The M9 bus route operates standard buses with a guideline capacity of 54 passengers per bus.
The M14A bus route operates articulated buses with a guideline capacity of 85 passengers per bus.

SUBWAYS

~~Although no potential significant adverse subway station impacts have so far been determined,~~ Subsequent to the publication of the DGEIS, at the direction of the Metropolitan Transportation Authority-New York City Transit, analyses of the following interior transfer and platform stairways and an escalator ~~will be~~ were undertaken for the FGEIS:

- Station escalator at Essex Street between Delancey Street and Broome Street on the east sidewalk (E328)

- PL3(PL4):A61~~)~~ - platform stair at ~~uptown~~ Manhattan bound J/M/Z platform connecting to Uptown F platform;
- P9(P10):N525~~)~~ ~~-~~stairway leading to uptown F train platform;
- PL2&PL9 (leading to PL11B on uptown F train platform) – Brooklyn bound J/M/Z platform; and
- PL18 (connecting to downtown F train platform) - Brooklyn bound J/M/Z platform.

~~As part of incorporating these stairway elements in the subway analyses, the distribution of project generated subway trips will be refined to reflect the connectivity of the interior and platform stairways with the street-level stairways analyzed in the DGEIS.~~

~~The above amendments to the analysis may result in significant adverse subway station impacts that are being conservatively disclosed in this DGEIS. Should the results of the analyses identify significant adverse impacts, measures to increase capacity would be recommended to mitigate such impacts. The practicability and feasibility of such mitigation measures will be further assessed in the FGEIS.~~

As discussed in Chapter 13, "Transportation," the analysis results show that the proposed actions would not result in any significant subway impacts.

PEDESTRIANS

As discussed in Chapter 13, "Transportation," the proposed actions would result in significant adverse pedestrian impacts at ~~four~~ five pedestrian analysis locations ~~at~~ along Delancey Street ~~and~~ at Essex and Clinton Streets including the west crosswalk of Delancey Street and Essex Street during the midday peak period, the east crosswalk of Delancey Street and Essex Street during the midday, PM and Saturday peak periods, the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, ~~and~~ the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period.

Potential measures to mitigate these impacts are described below, and the mitigated conditions are summarized in **Table 21-3**.

Delancey Street and Essex Street

Crosswalks

- The west crosswalk at this intersection would deteriorate from below mid-LOS D (~~22.4~~ 21.7 SFP) to beyond mid-LOS D (~~18.4~~ 17.2 SFP) during the midday peak period. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 14 feet to ~~15~~ 16 feet.
- The east crosswalk at this intersection would deteriorate from LOS C (39.6 SFP), LOS C (39.8 SFP) and LOS ~~B~~ C (~~40.5~~ 34.5 SFP) to LOS E (14.5 SFP), LOS D (15.4 SFP) and LOS ~~D~~ E (~~18.5~~ 13.5 SFP) during the midday, PM and Saturday peak periods, respectively. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 14 feet to ~~15~~ 20 feet.

Table 21-3
2022 No Action, With Action, and Mitigated With Action Conditions
Pedestrian Level of Service Analysis

Location	Mitigation Measures	No Action SFP/PMF	No Action LOS	With Action SFP/PMF	With Action LOS	Mitigated With Action SFP/PMF	Mitigated With Action LOS
Weekday AM Peak 15-Minutes							
Delancey Street and Essex Street – SW sidewalk	Widening sidewalk by ~~2 feet~~ ~~3~~ 8 inches to ~~15~~ 13 feet ~~3~~ 8 inches	~~6.3~~ 6.4	D	~~11.1~~ 10.9	~~E~~ D	~~8.4~~ 8.5	D
Weekday Midday Peak 15-Minutes							
Delancey Street and Essex Street – SW sidewalk	Widening sidewalk by ~~2 feet~~ ~~3~~ 8 inches to ~~15~~ 13 feet ~~3~~ 8 inches	~~4.5~~ 4.6	C	~~9.2~~ 9.3	D	~~6.9~~ 7.3	D
Delancey Street and Essex Street – NE sidewalk	Widening sidewalk by 7 inches to 13 feet 7 inches	3.7	C	8.6	D	7.5	D
Delancey Street and Essex Street – West Crosswalk	Widening crosswalk by ~~1~~ 2 ~~foot~~ feet to ~~15~~ 16 feet	~~22.4~~ 21.7	D	~~18.4~~ 17.2	D	19.9	D
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by 6 feet to 20 feet	39.6	C	14.5	E	21.1	D
Weekday PM Peak 15-Minutes							
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by 6 feet to 20 feet	39.8	C	15.4	D	22.5	D
Saturday Peak 15-Minutes							
Delancey Street and Essex Street – NE sidewalk	Widening sidewalk by ~~2~~ 7 inches to 13 feet ~~2~~ 7 inches	~~5.3~~ 5.2	C	~~8.8~~ 9.8	D	~~8.4~~ 8.5	D
Delancey Street and Essex Street – East Crosswalk	Widening crosswalk by ~~1~~ 6 ~~foot~~ feet to ~~15~~ 20 feet	~~40.5~~ 34.5	~~B~~ C	~~18.5~~ 13.5	~~D~~ E	~~19.9~~ 19.7	D
Delancey Street and Clinton Street – North Crosswalk	Widening crosswalk by 1 foot to 17 feet	16.7	D	14.9	E	16.0	D

Note: SFP = square feet per pedestrian; PMF = pedestrians per minute per foot.

Sidewalks

- The west sidewalk of Essex Street between Delancey Street and Broome Street would deteriorate from below mid-LOS D (~~6.3~~ 6.4 PMF) and LOS C (~~4.5~~ 4.6 PMF) to ~~LOS E~~ beyond mid-LOS D (~~11.1~~ 10.9 PMF) and LOS D (~~9.2~~ 9.3 PMF) during the AM and midday peak periods, respectively. As discussed in Chapter 13, "Transportation," subsequent to the issuance of the DGEIS, at NYCDOT's direction, the assignment of pedestrian trips to study area sidewalks and crosswalks was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in a potential significant adverse impact at this sidewalk location. The pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the proposed actions' RWCDS full build-out. In addition, the pedestrian analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stair entrances, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of this sidewalk segment following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective sidewalk width to approximately 20 percent of the overall width. The combination of all these factors resulted in the potential for a significant adverse sidewalk impact at this location in the future 2022 With Action condition. This potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 8 inches. However, this mitigation measure is not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of a subway stairway would preclude any widening towards the west side. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impact would be unmitigated.

It should be further noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the proposed actions' development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at this location.

- The east sidewalk of Essex Street between Delancey Street and Rivington Street would deteriorate from LOS C (3.7 PMF) and LOS C (~~5.3~~ 5.2 PMF) to LOS D (8.6 PMF) and LOS D (~~8.8~~ 9.8 PMF) during the midday and Saturday peak periods, respectively. As discussed in Chapter 13, "Transportation," subsequent to the issuance of the DGEIS, at NYCDOT's direction, the assignment of pedestrian trips to study area sidewalks and crosswalks was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in a potential significant adverse impact at this sidewalk location. In addition, the pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the proposed actions' RWCDS full build-out. The sidewalk analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stair entrances, street furniture, and "shy-distances" throughout the entire length of this sidewalk segment following the *2000 Highway Capacity Manual* guidelines. This assumption reduced the effective sidewalk width to approximately 30 percent of the overall width. The combination of all these factors resulted in the potential for a significant adverse sidewalk impact at this location in the future 2022 With Action condition. This potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 7 inches. However, this mitigation measure is not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways abutting the proposed development site (Site 9) would preclude any widening towards the east side. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impact would be unmitigated.

  It should be further noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the proposed actions' development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at this location.

Delancey Street and Clinton Street

The north crosswalk at this intersection would deteriorate from LOS D (16.7 SFP) to LOS E (14.9 SFP) during the Saturday peak period. This significant adverse pedestrian impact could be fully mitigated by restriping the width of this crosswalk from its existing width of 16 feet to 17 feet.

EFFECTS OF TRAFFIC MITIGATION MEASURES ON PEDESTRIAN OPERATIONS

As described above, intersection operations would alter with the implementation of the recommended traffic mitigation measures. These measures would include changes to existing signal timings and lane utilizations. A review of the effects of these changes on pedestrian circulation and service levels at intersection corners and crosswalks showed that they would not alter the conclusions made for the pedestrian impact analyses, nor would they result in the potential for any additional significant adverse pedestrian impacts.

~~As mentioned above, NYCDOT is currently developing a Delancey Street corridor plan to improve traffic and pedestrian safety. Once this plan is finalized and implemented, it is expected that the pedestrian safety conditions in the study area would improve. Details related to this plan would be included in the FGEIS should the plan be adopted prior to the release of the FGEIS.~~

Following the issuance of the DGEIS, as noted previously, NYCDOT adopted and began implementing an area-wide Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety along the Delancey Street corridor including left turn prohibitions, sidewalk expansions, corner "bump-outs" and signal timing changes to shorten pedestrian crossing distances and to provide pedestrians more green time to safely cross Delancey Street, reconfiguration of Clinton Street south of Delancey Street to allow vehicular traffic to access the Williamsburg Bridge from northbound Clinton Street, and other measures to promote pedestrian and bicycle safety, which will result in traffic pattern changes at several intersections. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area's transportation network were incorporated as part of the FGEIS.

EFFECTS OF TRAFFIC MITIGATION MEASURES ON AIR QUALITY

Chapter 14, "Air Quality," concluded that there would be no potential for any significant adverse air quality impacts and no air quality mitigation would be required. However, an analysis is warranted of the proposed actions' potential effects on air quality with the implementation of the traffic mitigation measures discussed above.

The tables below present the effect that proposed traffic mitigation measures would have on maximum predicted pollutant concentrations with the proposed actions. Since the proposed traffic mitigation measures include two options for one of the intersections within the receptor Site 2 study area, results for both options are presented. **Tables 21-4** and **21-5** summarize the maximum 8-hour average CO and 24-hour average PM_{10} concentrations, respectively, each with and without mitigation measures in place. **Tables 21-6** and **21-7** summarize the maximum predicted 24-hour and annual average $PM_{2.5}$ concentration increments, respectively, with and without mitigation measures in place.

The values shown are the highest predicted concentrations for the analyzed receptor locations. The results show that with the proposed traffic mitigation measures, as with the proposed actions, concentrations of PM_{10} with the proposed actions would be below the National Ambient Air Quality Standards (NAAQS) and would not exceed the *de minimis* threshold for CO or the $PM_{2.5}$ interim guidance criteria. Therefore, there would be no potential for a significant adverse impact on air quality with the implementation of the traffic mitigation measures. There would also be no potential for a cumulative adverse impact on air quality with the implementation of the traffic mitigation measure and other sources of emissions, discussed in the Chapter 14, "Air Quality."

Table 21-4
Future (2022) Maximum Predicted 8-Hour Average Carbon Monoxide With Action and With Action-Traffic Mitigation Concentrations (parts per million)

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)	
			With Action	With Action-Mitigation
1	Delancey Street at Norfolk Street	PM	~~4.7~~ 5.0	~~4.7~~ 5.0
2	Grand Street at Norfolk Street (Mitigation Option 1)	PM	~~2.7~~ 2.6	~~2.9~~ 2.6
2	Grand Street at Norfolk Street (Mitigation Option 2)	PM		~~2.9~~ 2.6

Note: National Ambient Air Quality Standards—8-hour, 9 ppm.

Table 21-5
Future (2022) Maximum Predicted 24-Hour Average PM_{10} With Action and With Action-Traffic Mitigation Concentrations ($\mu g/m^3$)

Receptor Site	Location	24-Hour Concentration	
		With Action	With Action-Mitigation
1	Delancey Street at Norfolk Street	~~91.5~~ 89.9	~~91.5~~ 89.9
2	Grand Street at Norfolk Street (Mitigation Option 1)	~~58.3~~ 59.6	~~59.2~~ 59.6
2	Grand Street at Norfolk Street (Mitigation Option 2)		~~59.2~~ 59.6

Note: National Ambient Air Quality Standards—24-hour, 150 $\mu g/m^3$.

Table 21-6
Future (2022) Maximum Predicted 24-Hour Average $PM_{2.5}$ With Action and With Action-Traffic Mitigation Increments ($\mu g/m^3$)

Receptor Site	Location	24-Hour Concentration Increments	
		With Action	With Action-Mitigation
1	Delancey Street at Norfolk Street	~~0.4~~ 0.5	~~0.4~~ 0.5
2	Grand Street at Norfolk Street (Mitigation Option 1)	0.2	~~0.5~~ 0.2
2	Grand Street at Norfolk Street (Mitigation Option 2)		~~0.5~~ 0.2

Note: $PM_{2.5}$ interim guidance criteria—24-hour average, 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value).

Table 21-7
Future (2022) Maximum Predicted Annual Average $PM_{2.5}$ With Action and With Action-Traffic Mitigation Increments ($\mu g/m^3$)

Receptor Site	Location	Annual Concentration Increments	
		With Action	With Action-Mitigation
1	Delancey Street at Norfolk Street	~~0.005~~ 0.006	~~0.005~~ 0.006
2	Grand Street at Norfolk Street (Mitigation Option 1)	0.004	~~0.006~~ 0.004
2	Grand Street at Norfolk Street (Mitigation Option 2)		~~0.006~~ 0.004

Note: $PM_{2.5}$ interim guidance criteria—annual average (neighborhood scale), 0.1 $\mu g/m^3$.

D. CONSTRUCTION

TRAFFIC

The highest amount of construction traffic associated with construction pursuant to the proposed actions is anticipated in the third quarter of 2017. The total number of vehicle trips generated during construction would be approximately 68 percent and 86 percent lower than the total number of vehicle trips generated by the completed development during the weekday AM and PM peak hours, respectively. Nevertheless, because existing and No Action traffic conditions at some study area intersections through which construction-related traffic would travel would operate at unacceptable levels during commuter peak hours, it is possible that significant adverse traffic impacts could occur at some of these locations during construction at some times. A detailed analysis of traffic conditions was completed for nine key intersections near the construction sites, and this analysis indicated that significant adverse traffic impacts could occur at ~~four~~ one of these locations during construction, but at lesser magnitudes than impacts identified under the With Action condition. Where impacts during construction may occur, measures similar to the ones recommended to mitigate impacts of the proposed actions (described above) could be implemented early to alleviate congested traffic conditions.

NOISE

Construction of the proposed development would be required to include measures to reduce noise levels during construction as required by the New York City Noise Control Code. Even with these measures, an analysis based on a conceptual worst-case construction activity and equipment schedule determined that noise levels due to construction activities would result in significant adverse noise impacts at some sensitive receptors (i.e., residential/school buildings) immediately adjacent to some of the proposed development sites. Construction activities would be expected to result in substantially elevated noise levels for two or more continuous years at ~~forty-five (45)~~ 13 locations within the study area. Most of those locations, however, have double-glazed windows and an alternate means of ventilation. For buildings with double-glazed windows and window air conditioners, interior noise levels would be approximately 20 to 25 dBA less than exterior noise levels, and for buildings with double-glazed windows and well-sealed through-the-wall/sleeve/PTAC air conditioners interior noise levels would be approximately 25 to 30 dBA less than exterior noise levels. The typical attenuation provided by double-glazed windows and the alternate ventilation outlined above would be expected to 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). The projected development at 89 Ludlow Street (see No. 39c on Figure 2-3 in Chapter 2, “Land Use, Zoning and Public Policy) that would also be expected to experience substantially elevated noise levels for two or more continuous years would likely, as a newly constructed building, have double glazed windows and an alternate means of ventilation as well, providing at least 20 to 30 dBA of window/wall attenuation. Given the building attenuation provided by these existing and projected structures, additional receptor controls would be unlikely to fully mitigate the temporary construction noise impacts. Although these structures have double-glazed windows and alternate ventilation, during some limited time periods construction activities may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for these uses.

A visual survey was performed to identify which locations may not currently have double-glazed windows and/or a means of alternate ventilation, and which locations may have balconies, whose exterior space would have the potential to experience impact. At locations without double-glazed windows and/or a means of alternate ventilation, typical attenuation provided by single-paned windows would range from 5 dBA for an open window condition (i.e., no alternate means of ventilation) to 20 dBA (i.e., with an alternate means of ventilation/closed-window condition). This level of attenuation would not be expected to 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). Construction activities would be expected to result at various times in significant adverse noise impacts at these ~~15~~ 3 locations, which are shown in **Table 21-8**.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior L_{10} values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. These measures would have the potential to partially mitigate the impacts at these 10 locations. However, such measures would represent a substantial additional cost to the proposed development, and in balancing the goals of the proposed actions to provide substantial affordable residential units, additional receptor controls would not be practicable and feasible mitigation. Thus, should the developments sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 locations would be expected to experience an unmitigated significant adverse impact at various times.~~

The refined construction analysis performed between the DGEIS and FGEIS predicted construction noise impacts at fewer windows at Seward Park High School and a shorter duration of impacts. The remaining impacts at the school are a result of noise generated by construction of Sites 1, 2, and 3.

Upon selection of a developer for each of these development sites, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the project. The Office of the Deputy Mayor for Economic Development (ODMED), as lead agency, and HPD and/or NYCEDC will review the additional analyses.

If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated.

If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing and any available additional path and source controls, still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the New York City School Construction Authority (SCA). Potential receptor controls to be considered may include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air conditioning, so that the impacted façades of the school can maintain a maximum interior noise environment of 45dBA under closed-window conditions. These measures would have the potential

Table 21-8
Predicted Noise Impact Locations

Building/Location	Associated Land Use	Total Stories	Façade	Associated Receptor(s)	Impacted Floor(s)	Impact Duration (year)	Range of Increase(s) in dBA*	# of Impacted Single-Glazed Windows	Air-Conditioning
Balconies of Residential Building south of Grand Street between Essex and Clinton Streets	Residential	18	North	1A, 1B, 1E	All ~~2nd to top~~	2016-2018	5.0-8.8	n/a	
			East (northernmost section)	1C	~~7th~~ 5th to top	2016-2018	~~5.7~~ 5.4-10.1		
			West (northernmost section)	1D	~~7th~~ 5th to top	2016-2018	~~5.4~~ 5.2-7.3		
Balconies of Residential Building at the southeast corner of Clinton and Grand Streets	Residential	19	North	3B	~~7th~~ 5th to top	2016-2017	~~4.7~~ 3.0-8.4	n/a	
			West (northernmost section)	3C, 3D	~~5th~~ 2nd to top	2016-2018	~~3.3-8.5~~ 3.2-9.2		
			West (middle section)	3E, 3F	~~7th~~ 2nd to top	2016-2018	~~5.3~~ 5.0-9.5		
			West (southernmost section)	3G, 3H	~~11th~~ 5th to top	2016-2018	~~5.2~~ 5.1-9.3		
			~~South~~	~~3I~~	~~top~~	~~2016-2018~~	~~5.6-6.9~~		
350 Grand Street	Institutional (Seward Park High School/ Urban Assembly Academy of Government and Law)	10	North	14	All	2016-2019	~~5.5~~ 5.2-17.5	111	Existing Window A/C
			East (northernmost section)	14A	~~5th~~ 3rd to top	2016-2018	3.3-6.9	110	
			~~East (middle section)~~	~~14B~~	~~9th to top~~	~~2016-2017~~	~~3.0-3.7~~	~~192~~	
			~~West (northernmost section)~~	~~14G~~	~~4th to top~~	~~2019-2020~~	~~4.1-11.1~~	~~156~~	
~~83 Essex Street~~	~~Residential/ Commercial~~	4	~~East~~	~~15~~	~~2nd to top~~	~~2016-2017~~	~~3.1-7.5~~	~~9~~	~~None visible~~
~~101 Delancey Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~16C~~	~~Top~~	~~2016-2017~~	~~3.2-4.2~~	~~Not Visible~~	~~Not Visible~~
			~~South~~	~~16B~~	~~All~~	~~2016-2017~~	~~5.1-10.0~~	~~Not Visible~~	~~Not Visible~~
~~87 Ludlow Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~17~~	~~3rd to top~~	~~2019-2020~~	~~3.4-10.6~~	~~5~~	~~Existing Window A/C~~
~~249-255 Broome Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~North~~	~~21~~	~~3rd to top~~	~~2019-2020~~	~~5.4-14.8~~	~~43~~	~~Existing Window A/C~~
~~141 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~35~~	~~5th to top~~	~~2020-2021~~	~~3.1-4.9~~	~~6~~	~~Existing Window A/C~~
~~145 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~37~~	~~4th to top~~	~~2020-2021~~	~~3.2-6.0~~	~~2~~	~~Existing Window A/C~~
~~149 Essex Street (indoor and balconies)~~	~~Residential/ Commercial~~	~~7~~	~~East~~	~~39~~	~~4th to top~~	~~2020-2021~~	~~3.4-7.2~~	~~18~~	~~Existing PTAC~~
~~Balconies of 153 Essex Street~~	~~Residential/ Commercial~~	~~6~~	~~East~~	~~41~~	~~top~~	~~2020-2021~~	~~3.3-5.2~~	~~n/a~~	
~~Balconies of 113 Norfolk Street~~	~~Residential~~	~~8~~	~~West~~	~~46A~~	~~6th to top~~	~~2020-2021~~	~~5.0-17.9~~	~~n/a~~	
~~123 Rivington Street~~	~~Residential/ Commercial~~	~~7~~	~~South~~	~~51B~~	~~4th to top~~	~~2020-2021~~	~~5.1-20.2~~	~~5~~	~~Existing Window A/C~~
~~133 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~54A~~	~~6th to top~~	~~2020-2021~~	~~3.5-19.1~~	~~3~~	~~None visible~~
~~106 Norfolk Street~~	~~Residential/ Commercial~~	~~7~~	~~West~~	~~69~~	~~6th to top~~	~~2017-2018~~	~~3.1-3.7~~	~~30~~	~~Existing Window A/C~~

Note: * Range of increases values were taken from predicted noise levels compared to existing noise levels.

to mitigate the impacts at Seward Park High School. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

For properties that may be under the jurisdiction of HPD or developed through an HPD program, additional mitigation (source and path control measures) identified in the refined and/or additional analyses would be required to be undertaken by the developer(s) through provisions in a Land Disposition Agreement to be entered into at the time of closing. The Land Disposition Agreement would also require the use of a construction monitor, which would operate under the oversight of ODMED, to ensure such measures are implemented during construction activities. In the event it is determined that receptor controls will be implemented at the school, the developer(s) would be required to fund and install the measures (in coordination with ODMED, HPD and SCA) at the affected facades of the school prior to the commencement of construction at the site(s) causing the noise impact.

For properties that may be under the jurisdiction of NYCEDC, noise control measures identified in the refined and/or additional analyses, including receptor controls if determined to be practicable, would be required to be undertaken by the developer(s) through provisions of a contract or other legally binding agreement between NYCEDC and the developer(s). The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMED, to ensure that such measures are implemented during construction activities.

~~At limited times during the construction period, Seward Park High School (350 Grand Street) would be expected to experience significant noise impacts that would be considered unmitigated. The west, north, and east facades of the school building may experience elevated noise as a result of the Proposed Project. The DGEIS discloses worst-case construction-related noise impacts at the school. However, it is possible that based on further assessment of conditions at the school, certain facades (or portions thereof) may be less affected (or not be affected at all) by project-related construction noise. Further assessment related to construction impacts at the school will be conducted between DGEIS and FGEIS to refine the area of potential impact. Some potential receptor controls that could be used to mitigate the impacts include the installation of interior storm windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. The project sponsors will explore potential mitigation measures between DGEIS and FGEIS. In the event that mitigation measures are not determined feasible and practicable, the impact would be unmitigated.~~

Additionally, at the ~~four (4)~~ two buildings that have the potential to experience noise impacts only at outdoor balconies at various floors, there would be no feasible or practicable mitigation to mitigate the construction noise impacts at the balconies. Therefore these balconies would be considered to experience unmitigated significant noise impacts as a result of construction.

Construction activities at the other receptor sites in the study area would at times produce noise levels which would be noisy and intrusive, but due to their limited duration, they would not produce significant noise impacts.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.28	30.4	C	L	0.28	30.7	C	L	0.30	31.3	C	Modify signal timing: Shift 1 s of green time from EBL / WBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; EBL / WBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.68	29.2	C	TR	0.71	29.9	C	TR	0.69	28.6	C	
	WB	L	0.68	29.9	C	L	0.69	30.9	C	L	0.71	31.3	C	
		TR	1.04	54.6	D	TR	1.07	66.1	E	TR	1.03	51.9	D	
Bowery	NB	L	0.84	42.3	D	L	0.84	42.3	D	L	0.84	42.3	D	
		TR	0.91	40.3	D	TR	0.92	40.6	D	TR	0.92	40.6	D	
	SB	L	0.32	26.2	C	L	0.32	26.2	C	L	0.32	26.2	C	
		TR	0.92	42.5	D	TR	0.92	42.5	D	TR	0.92	42.5	D	
Overall Intersection		-	**0.97**	**42.5**	**D**	-	**0.97**	**46.7**	**D**	-	**0.98**	**41.6**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.56	29.3	C	T	0.59	29.7	C					Mitigation not required.
		R	0.79	46.1	D	R	0.83	50.7	D					
	WB	L	0.68	42.9	D	L	0.71	45.5	D					
		T	0.74	31.6	C	T	0.77	32.4	C					
Chrystie Street / Second Avenue	NB	L	0.85	39.9	D	L	0.86	40.4	D					
		LR	0.87	42.5	D	LR	0.87	42.5	D					
	SB	L	0.78	38.8	D	L	0.78	38.8	D					
		LT	0.75	35.0	D	LT	0.79	35.8	D					
		R	1.01	64.0	E	R	1.01	64.0	E					
Overall Intersection		-	**0.87**	**38.5**	**D**	-	**0.89**	**39.2**	**D**					
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	1.12	102.6	F	L	1.12	101.6	F					**Unmitigatable Impact**
		T	0.79	29.7	C	T	0.82	30.4	C					
		R	0.82	37.6	D	R	0.82	37.6	D					
	WB	L	0.43	28.0	C	L	0.43	28.8	C					
		TR	1.04	67.8	E	TR	1.07	78.3	E					
Allen Street	NB	L	0.62	32.6	C	L	0.66	33.6	C					
		T	0.97	49.0	D	T	0.98	51.3	D					
		R	0.35	28.5	C	R	0.35	28.5	C					
Overall Intersection		-	**1.13**	**52.1**	**D**	-	**1.17**	**55.5**	**E**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	2022 No Action V/C	2022 No Action Control Delay	2022 No Action LOS	2022 With Action Mvt.	2022 With Action V/C	2022 With Action Control Delay	2022 With Action LOS	2022 With Action with Mitigation Mvt.	2022 With Action with Mitigation V/C	2022 With Action with Mitigation Control Delay	2022 With Action with Mitigation LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.56	21.1	C	L	0.58	22.1	C	L	0.58	22.7	C	Modify signal timing: Shift 1 s of green time from EB / WB phase to the NB / SB phase [EB / WB green time shifts from 32 s to 31 s; NB / SB green time shifts from 27s to 28s; signal timing during all other phases remain the same].
		TR	0.68	27.1	C	TR	0.71	27.8	C	TR	0.73	29.1	C	
	WB	L	0.63	22.4	C	L	0.65	23.0	C	L	0.67	24.8	C	
		T	0.76	29.8	C	T	0.79	30.8	C	T	0.81	32.6	C	
		R	0.11	19.9	B	R	0.11	19.9	B	R	0.11	20.6	C	
Essex Street / Avenue A	NB	LTR	0.77	35.0	C	LTR	0.79	35.9	D	LTR	0.76	33.5	C	
	SB	LTR	0.96	48.4	D	LTR	1.01	59.2	E	LTR	0.95	45.5	D	
Overall Intersection		-	**0.81**	**31.4**	**C**	-	**0.84**	**33.6**	**C**	-	**0.83**	**32.4**	**C**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.23	22.4	C					Mitigation not required.
Essex Street	NB	TR	0.33	12.0	B	TR	0.33	12.0	B					
	SB	LT	0.39	12.4	B	LT	0.42	12.8	B					
Overall Intersection		-	**0.33**	**13.1**	**B**	-	**0.35**	**13.3**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.23	16.4	B	LT	0.23	16.4	B					Mitigation not required.
Norfolk Street	NB	TR	0.45	19.6	B	TR	0.52	21.2	C					
Overall Intersection		-	**0.34**	**18.5**	**B**	-	**0.38**	**19.7**	**B**					
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.89	49.3	D	LTR	1.03	80.2	F	LTR	0.93	52.6	D	Modify signal timing: Shift 3 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 34 s; NB / SB green time shifts from 49 s to 46 s].
Essex Street	NB	LT	0.35	11.9	B	LT	0.36	11.9	B	LT	0.38	13.8	B	
	SB	TR	0.33	12.0	B	TR	0.36	12.3	B	TR	0.38	14.2	B	
Overall Intersection		-	**0.56**	**23.0**	**C**	-	**0.62**	**33.3**	**C**	-	**0.61**	**26.0**	**C**	
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.54	21.8	C	TR	0.56	22.2	C					Mitigation not required.
Norfolk Street	NB	LT	0.47	18.3	B	LT	0.59	20.0	C					
Overall Intersection		-	**0.51**	**19.9**	**B**	-	**0.57**	**20.9**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.94	36.4	D	TR	0.98	41.3	D	TR	0.98	41.3	D	Mitigation not required.
	WB	L	0.88	55.3	E	L	0.90	58.1	E	L	0.90	58.1	E	Modify signal phasing: Allow the NB-right turn movement during the WB-lead phase. Signal timing remains the same during all peak hours. **[Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday midday peak period.]**
		TR	1.02	41.4	D	TR	1.03	44.1	D	TR	1.03	44.1	D	
Allen Street	NB	T	0.70	35.1	D	T	0.73	36.1	D	TR	0.73	36.1	D	
		R	0.60	37.7	D	R	0.63	39.5	D	R	0.23	8.6	A	
	SB	TR	0.55	32.0	C	TR	0.56	32.2	C	TR	0.56	32.2	C	
Overall Intersection		-	**0.92**	**39.6**	**D**	-	**0.94**	**42.6**	**D**	-	**0.94**	**41.7**	**D**	
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.41	9.7	A	T	0.43	9.8	A					Mitigation not required.
	WB	TR	0.78	14.7	B	TR	0.79	14.8	B					
Orchard Street	NB	LTR	0.26	26.2	C	LTR	0.26	26.2	C					
Overall Intersection		-	**0.61**	**13.3**	**B**	-	**0.61**	**13.4**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.43	10.1	B	TR	0.45	10.3	B					Mitigation not required.
	WB	T	0.75	13.4	B	T	0.75	13.5	B					
Ludlow Street	SB	LTR	0.72	41.5	D	LTR	0.77	45.8	D					
Overall Intersection		-	**0.74**	**13.9**	**B**	-	**0.76**	**14.2**	**B**					
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.51	14.1	B	TR	0.53	14.3	B					**Unmitigatable Impact**
	WB	TR	1.01	41.6	D	TR	1.02	42.8	D					
Essex Street	NB	LTR	0.82	46.9	D	LTR	0.92	60.4	E					
	SB	DefL	1.08	108.3	F	DefL	1.34	209.8	F					
		TR	0.76	44.7	D	TR	0.89	58.4	E					
Overall Intersection		-	**1.04**	**37.2**	**D**	-	**1.14**	**45.4**	**D**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.61	12.6	B	T	0.64	13.0	B	T	0.70	16.1	B	Modify signal timing: Shift 4 s of green time from EB / WB phase to the NB phase [EB / WB green time shifts from 53 s to 49 s; NB green time shifts from 27 s to 31 s].
	WB	TR	0.93	19.0	B	TR	0.95	20.3	C	TR	1.03	38.5	D	
Norfolk Street	NB	TR	0.95	61.9	E	TR	1.07	93.6	F	TR	0.93	53.8	D	
		R	0.93	58.7	E	R	1.08	97.2	F	R	0.94	56.0	E	
Overall Intersection		-	**0.94**	**22.4**	**C**	-	**0.99**	**29.1**	**C**	-	**0.99**	**33.0**	**C**	

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service Table 21-9 (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	0.79	17.4	B	T	0.80	17.6	B					Mitigation not required.
	WB	T	0.94	20.0	B	T	0.96	20.6	C					
Delancey Street Service Road	EB	TR	0.19	10.3	B	TR	0.44	13.0	B					
Suffolk Street	SB	R	0.11	21.5	C	R	0.14	22.1	C					
Overall Intersection		**-**	**0.63**	**18.6**	**B**	**-**	**0.65**	**18.9**	**B**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.64	10.1	B	T	0.64	10.2	B					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	1.07	54.1	D	T	1.08	59.4	E					
		R	1.07	82.0	F	R	1.08	86.3	F					
Delancey Street Service Road	EB	TR	0.14	6.5	A	TR	0.16	6.7	A					
	WB	TR	1.01	88.5	F	TR	1.01	88.5	F					
Clinton Street	NB	R	0.17	28.0	C	R	0.17	28.0	C					
Overall Intersection		**-**	**0.82**	**39.8**	**D**	**-**	**0.83**	**42.7**	**D**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.17	21.3	C	LTR	0.20	21.8	C	LTR	0.20	21.8	C	Mitigation not required.
Essex Street	NB	TR	0.30	11.6	B	TR	0.32	11.9	B	TR	0.48	23.5	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 31 s of green time, SB-lead phase will have 11 s of green time, and NB / SB phase will have 33 s of green [each phase will have 3 s amber and 2 s all red]. [Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday PM peak period.]
	SB	L	0.11	10.4	B	L	0.25	12.3	B	L	0.21	11.3	B	
		T	0.26	11.4	B	T	0.26	11.4	B	T	0.26	11.4	B	
Overall Intersection		**-**	**0.25**	**12.6**	**B**	**-**	**0.27**	**12.8**	**B**	**-**	**0.37**	**19.0**	**B**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.12	10.3	B	L	0.18	10.8	B					Mitigation not required.
	WB	R	0.41	13.7	B	R	0.43	14.1	B					
Norfolk Street	NB	T	0.77	30.4	C	T	0.92	40.0	D					
Overall Intersection		**-**	**0.55**	**21.9**	**C**	**-**	**0.62**	**27.2**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	1.05	66.9	E	LTR	1.16	112.5	F	LTR	1.01	52.7	D	**Option 1** Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase; shift 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 27 s to 30 s; SB-lead phase green time shifts from 10 s to 11 s, NB / SB green time shifts from 23 s to 19 s, NB-lead phase green time remains the same].
	WB	LTR	0.79	45.1	D	LTR	0.95	68.2	E	LTR	0.84	47.2	D	
Allen Street	NB	L	0.63	55.7	E	L	0.63	55.7	E	L	0.63	55.7	E	
		TR	0.53	21.0	C	TR	0.54	21.2	C	TR	0.60	25.1	C	
	SB	L	0.86	73.7	E	L	0.90	81.2	F	L	0.82	66.2	E	
		TR	0.58	21.8	C	TR	0.58	21.8	C	TR	0.63	24.9	C	
Overall Intersection		**-**	**0.76**	**37.0**	**D**	**-**	**0.81**	**49.5**	**D**	**-**	**0.80**	**37.2**	**D**	
										LTR	0.93	36.4	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 27 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 23 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 11 s of green time; NBTR / SBTR phase will have 32 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.79	40.2	D	
										L	0.57	50.5	D	
										TR	0.64	27.3	C	
										L	0.82	66.2	E	
										TR	0.69	28.5	C	
										-	**0.81**	**35.0**	**C**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.63	21.1	C	LT	0.69	22.6	C					Mitigation not required.
	WB	TR	0.50	20.9	C	TR	0.58	22.8	C					
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B					
Overall Intersection		**-**	**0.39**	**20.3**	**C**	**-**	**0.42**	**21.9**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.59	22.5	C	TR	0.66	24.6	C					Mitigation not required.
	WB	LT	0.34	17.3	B	LT	0.41	18.3	B					
Ludlow Street	SB	LTR	0.28	17.4	B	LTR	0.29	17.5	B					
Overall Intersection		**-**	**0.44**	**19.7**	**B**	**-**	**0.48**	**21.1**	**C**					

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.76	30.1	C	LTR	0.86	38.1	D	LTR	0.87	40.1	D	Mitigation not required.
	WB	LTR	0.72	21.7	C	LTR	0.88	26.3	C	LT	0.44	17.6	B	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane. **[Measures reflect geometric improvements needed to mitigate the intersection during the weekday PM peak period.]**
		-	-	-	-	-	-	-	-	R	0.43	17.8	B	
Essex Street	NB	LTR	0.38	17.9	B	LTR	0.40	18.2	B	LTR	0.40	18.2	B	
	SB	DefL	0.40	21.5	C	DefL	0.43	22.9	C	DefL	0.43	22.9	C	
		TR	0.29	17.5	B	TR	0.30	17.6	B	TR	0.30	17.6	B	
Overall Intersection		-	**0.58**	**22.5**	**C**	-	**0.66**	**26.5**	**C**	-	**0.65**	**24.4**	**C**	
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.31	15.0	B	L	0.56	23.9	C	L	0.31	14.2	B	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.
		T	0.54	17.1	B	T	0.54	17.1	B	T	0.54	17.1	B	
	WB	TR	1.02	49.2	D	TR	1.19	115.9	F	T	0.53	15.3	B	
		-	-	-	-	-	-	-	-	R	0.63	17.6	B	
Overall Intersection		-	**1.01**	**37.0**	**D**	-	**1.19**	**80.9**	**F**	-	**0.63**	**16.4**	**B**	
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.49	15.9	B	T	0.49	15.9	B					Mitigation not required.
	WB	T	0.89	30.8	C	T	0.95	39.4	D					
Suffolk Street	SB	LR	0.10	19.2	B	LR	0.34	22.7	C					
Overall Intersection		-	**0.56**	**25.3**	**C**	-	**0.70**	**30.5**	**C**					
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	LTR	0.73	26.9	C	LTR	0.81	32.7	C					Mitigation not required.
	WB	L	0.05	11.8	B	L	0.06	11.8	B					
		T	0.70	21.0	C	T	0.75	22.7	C					
		R	0.68	25.7	C	R	0.75	30.2	C					
Clinton Street	NB	LTR	0.67	29.3	C	LTR	0.72	31.4	C					
	SB	LTR	0.02	17.0	B	LTR	0.04	17.2	B					
Overall Intersection		-	**0.70**	**24.5**	**C**	-	**0.77**	**27.6**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.16	7.1	A	T	0.17	7.2	A					Mitigation not required.
	WB	LT	0.76	15.5	B	LT	0.81	17.7	B					
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A					
Overall Intersection		**-**	**0.76**	**13.9**	**B**	**-**	**0.81**	**15.7**	**B**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	8.0	A	TR	-	8.0	A					Mitigation not required.
Ludlow Street	SB	LT	-	9.2	A	LT	-	9.2	A					
Overall Intersection		**-**	**-**	**8.9**	**A**	**-**	**-**	**8.9**	**A**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	10.3	B	LT	-	10.3	B					Mitigation not required.
Ludlow Street	SB	TR	-	9.4	A	TR	-	9.5	A					
Overall Intersection		**-**	**-**	**9.9**	**A**	**-**	**-**	**10.0**	**A**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	10.5	B	TR	-	10.7	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.5	A					
Overall Intersection		**-**	**-**	**1.8**	**A**	**-**	**-**	**6.0**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.3	A	LT	-	7.4	A					Mitigation not required.
Suffolk Street	SB	TR	-	10.9	B	TR	-	13.9	B					
Overall Intersection		**-**	**-**	**1.8**	**A**	**-**	**-**	**5.2**	**A**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.6	A					Mitigation not required.
	SB	LTR	-	8.8	A	LTR	-	8.8	A					
Overall Intersection		**-**	**-**	**6.0**	**A**	**-**	**-**	**5.9**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service[1]

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.28	30.5	C	L	0.28	30.9	C	L	0.30	31.4	C	Modify signal timing: Shift 1 s of green time from EBL / WBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; EBL / WBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.69	29.4	C	TR	0.72	30.1	C	TR	0.69	28.8	C	
	WB	L	0.69	30.4	C	L	0.71	31.4	C	L	0.73	32.0	C	
		TR	1.05	58.3	E	TR	1.08	69.9	E	TR	1.04	54.8	D	
Bowery	NB	L	0.86	44.0	D	L	0.86	44.0	D	L	0.86	44.0	D	
		TR	0.92	41.3	D	TR	0.93	41.4	D	TR	0.93	41.4	D	
	SB	L	0.32	26.3	C	L	0.32	26.4	C	L	0.32	26.4	C	
		TR	0.92	42.8	D	TR	0.92	42.8	D	TR	0.92	42.8	D	
Overall Intersection		-	**0.97**	**44.1**	**D**	-	**0.98**	**48.3**	**D**	-	**0.99**	**42.9**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.57	29.4	C	T	0.59	29.8	C					**Unmitigatable Impact**
		R	0.82	49.4	D	R	0.87	55.6	E					
	WB	L	0.72	45.7	D	L	0.74	48.4	D					
		T	0.74	31.7	C	T	0.77	32.5	C					
Chrystie Street / Second Avenue	NB	L	0.89	42.3	D	L	0.89	42.7	D					
		LR	0.83	40.5	D	LR	0.84	40.7	D					
	SB	L	0.78	38.8	D	L	0.78	38.8	D					
		LT	0.76	35.1	D	LT	0.79	35.9	D					
		R	1.01	64.0	E	R	1.01	64.0	E					
Overall Intersection		-	**0.90**	**39.0**	**D**	-	**0.91**	**39.8**	**D**					
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.90	42.4	D	L	0.90	42.2	D	L	0.93	46.1	D	**Partially Mitigated** Modify signal timing: Shift 1 s of green time from EBL/WBL lag phase to the NB phase [EBL / WBL green time shifts from 15 s to 14 s; NB green time shifts from 22 s to 23 s; signal timing during all other phases remain the same].
		T	0.86	33.1	C	T	0.89	34.3	C	T	0.89	34.3	C	
		R	0.90	47.0	D	R	0.90	47.0	D	R	0.90	47.0	D	
	WB	L	0.36	24.8	C	L	0.36	25.3	C	L	0.37	26.2	C	
		TR	1.13	101.3	F	TR	1.16	114.7	F	TR	1.16	114.7	F	
Allen Street	NB	L	0.70	37.6	D	L	0.74	39.3	D	L	0.71	37.0	D	
		T	1.10	90.7	F	T	1.11	95.9	F	T	1.06	77.2	E	
		R	0.41	32.5	C	R	0.41	32.5	C	R	0.39	31.2	C	
Overall Intersection		-	**1.13**	**66.0**	**E**	-	**1.13**	**71.2**	**E**	-	**1.13**	**67.2**	**E**	

[1] This table has been revised for the FGEIS.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.57	21.6	C	L	0.59	22.5	C	L	0.59	23.1	C	Modify signal timing: Shift 1 s of green time from EB / WB phase to the NB / SB phase [EB / WB green time shifts from 32 s to 31 s; NB / SB green time shifts from 27 s to 28 s; signal timing during all other phases remain the same].
		TR	0.69	27.3	C	TR	0.72	28.0	C	TR	0.74	29.4	C	
	WB	L	0.64	22.7	C	L	0.65	23.4	C	L	0.67	25.0	C	
		T	0.77	30.0	C	T	0.79	30.9	C	T	0.82	32.8	C	
		R	0.11	19.9	B	R	0.11	19.9	B	R	0.11	20.6	C	
Essex Street / Avenue A	NB	LTR	0.77	35.0	C	LTR	0.79	36.0	D	LTR	0.76	33.5	C	
	SB	LTR	0.97	50.5	D	LTR	1.02	63.1	E	LTR	0.96	47.6	D	
Overall Intersection		-	**0.87**	**31.8**	**C**	-	**0.91**	**34.3**	**C**	-	**0.89**	**32.9**	**C**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.23	22.4	C	LTR	0.23	22.4	C					Mitigation not required.
Essex Street	NB	TR	0.33	12.0	B	TR	0.33	12.0	B					
	SB	LT	0.39	12.4	B	LT	0.42	12.7	B					
Overall Intersection		-	**0.33**	**13.1**	**B**	-	**0.34**	**13.3**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.23	16.4	B	LT	0.23	16.4	B					Mitigation not required.
Norfolk Street	NB	TR	0.45	19.7	B	TR	0.52	21.2	C					
Overall Intersection		-	**0.34**	**18.6**	**B**	-	**0.38**	**19.7**	**B**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach	2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS													
RIVINGTON STREET													
7. RIVINGTON STREET AND ESSEX STREET													
Rivington Street	WB	LTR	1.07	92.4	F	LTR	1.22	148.0	F	LTR	1.07	88.4	Shift the NB approach centerline six feet to the east and restripe the NB approach from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 10-foot wide parking lane. Restripe the SB receiving side from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot wide travel lane, and one 10-foot wide parking lane. Shift the SB approach centerline six feet to the east and restripe the SB approach from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 11-foot wide travel lane, one 12-foot wide travel lane, and one 10-foot wide parking lane (which would operate as a travel lane during the Saturday peak hour). Restripe the NB receiving side from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 10-foot wide parking lane. Modify signal timing: Shift 4 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 35 s; NB / SB green time shifts from 49 s to 45 s].
Essex Street	NB	LT	0.35	11.9	B	LT	0.36	12.0	B	LT	0.71	20.4	
	SB	TR	0.35	12.2	B	TR	0.38	12.6	B	TR	0.39	14.8	
Overall Intersection	-	**0.63**	**39.4**	**D**	-	**0.70**	**60.1**	**E**	-	**0.87**	**42.4**	**D**	
8. RIVINGTON STREET AND NORFOLK STREET													
Rivington Street WB	TR	0.69	26.4	C	TR	0.71	27.1	C					Mitigation not required.
Norfolk Street NB	LT	0.45	18.1	B	LT	0.58	19.8	B					
Overall Intersection	-	**0.57**	**22.5**	**C**	-	**0.64**	**23.4**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.98	40.4	D	TR	1.02	50.6	D					**Unmitigatable Impact**
	WB	L	0.82	48.0	D	L	0.84	49.9	D					
		TR	1.08	64.6	E	TR	1.09	68.5	E					
Allen Street	NB	T	0.67	33.4	C	T	0.70	34.3	C					
		R	0.23	9.0	A	R	0.24	9.1	A					
	SB	TR	0.55	31.1	C	TR	0.56	31.3	C					
Overall Intersection		-	**0.96**	**49.6**	**D**	-	**0.97**	**54.5**	**D**					
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.45	12.0	B	T	0.46	12.2	B					Mitigation not required.
	WB	TR	0.86	19.4	B	TR	0.87	19.6	B					
Orchard Street	NB	LTR	0.22	22.7	C	LTR	0.22	22.7	C					
Overall Intersection		-	**0.62**	**17.0**	**B**	-	**0.63**	**17.1**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.47	12.5	B	TR	0.49	12.8	B					**Unmitigatable Impact**
	WB	T	1.14	85.3	F	T	1.15	88.3	F					
Ludlow Street	SB	LTR	0.78	42.0	D	LTR	0.85	49.4	D					
Overall Intersection		-	**1.01**	**57.5**	**E**	-	**1.04**	**59.3**	**E**					
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.51	12.9	B	TR	0.53	13.2	B					**Unmitigatable Impact**
	WB	T	1.17	99.9	F	T	1.17	101.2	F					
Essex Street		R	0.76	34.3	C	R	0.80	39.0	D					
	NB	LT	0.69	44.5	D	LT	0.76	49.9	D					
		R	0.80	57.7	E	R	0.97	91.5	F					
	SB	TR	0.82	42.2	D	TR	0.93	54.7	D					
Overall Intersection		-	**1.06**	**62.0**	**E**	-	**1.11**	**64.8**	**E**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.57	13.7	B	T	0.59	13.9	B					**Unmitigatable Impact**
	WB	TR	1.03	37.8	D	TR	1.05	45.8	D					
Norfolk Street	NB	TR	0.74	35.7	D	TR	0.89	48.3	D					
		R	0.71	34.6	C	R	0.88	48.3	D					
Overall Intersection		-	**0.92**	**29.3**	**C**	-	**0.99**	**35.5**	**D**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	0.74	16.3	B	TR	0.82	18.3	B					Mitigation not required.
	WB	T	0.94	20.0	C	T	0.96	20.6	C					
Suffolk Street	SB	R	0.21	23.0	C	R	0.25	24.0	C					
Overall Intersection		-	**0.67**	**18.4**	**B**	-	**0.69**	**19.6**	**B**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.72	15.7	B	T	0.73	15.9	B					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	1.24	132.0	F	T	1.26	138.8	F					
		R	0.86	28.8	C	R	0.87	29.9	C					
Delancey Street Service Road	WB	R	2.05	571.1	F	R	2.05	571.1	F					
Clinton Street	NB	R	1.01	75.8	E	R	1.01	75.8	E					
Overall Intersection		-	**1.15**	**78.9**	**E**	-	**1.16**	**82.2**	**F**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.17	21.3	C	LTR	0.20	21.9	C	LTR	0.24	25.3	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 27 s of green time, SB-lead phase will have 19 s of green time, and NB / SB phase will have 29 s of green [each phase will have 3 s amber and 2 s all red].
Essex Street	NB	TR	0.30	11.6	B	TR	0.32	11.9	B	TR	0.55	27.5	C	
	SB	L	0.92	44.6	D	L	1.32	179.4	F	L	0.83	23.8	C	
		T	0.33	12.3	B	T	0.33	12.3	B	T	0.31	10.0	A	
Overall Intersection		-	**0.63**	**21.7**	**C**	-	**0.88**	**66.9**	**E**	-	**0.57**	**22.5**	**C**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.43	14.0	B	L	0.72	22.6	C					Mitigation not required.
	WB	R	0.11	10.2	B	R	0.18	11.1	B					
Norfolk Street	NB	T	0.53	25.1	C	T	0.67	27.8	C					
Overall Intersection		-	**0.47**	**18.2**	**B**	-	**0.70**	**23.5**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.88	33.5	C	LTR	0.97	42.4	D	LTR	0.97	42.4	D	**Option 1** Modify signal timing: Shift 1 s from the NB / SB phase to SB-lead phase [SB-lead phase green time shifts from 10 s to 11 s; NB / SB green time shifts from 19 s to 18 s; signal timing during all other phases remain the same].
	WB	LTR	0.69	34.5	C	LTR	0.82	43.8	D	LTR	0.82	43.8	D	
Allen Street	NB	L	0.63	55.7	E	L	0.63	55.7	E	L	0.63	55.7	E	
		TR	0.59	24.9	C	TR	0.60	25.1	C	TR	0.62	26.2	C	
	SB	L	0.86	73.7	E	L	0.90	80.0	F	L	0.82	65.5	E	
		TR	0.65	26.0	C	TR	0.65	26.0	C	TR	0.65	26.0	C	
Overall Intersection		-	**0.75**	**32.8**	**C**	-	**0.79**	**36.4**	**D**	-	**0.79**	**35.6**	**D**	
										LTR	0.93	36.4	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 31 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 19 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 12 s of green time; NBTR / SBTR phase will have 31 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.80	40.4	D	
										L	0.53	46.5	D	
										TR	0.66	28.6	C	
										L	0.75	56.1	E	
										TR	0.72	29.9	C	
										-	**0.81**	**34.8**	**C**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.63	21.1	C	LT	0.69	22.6	C					Mitigation not required.
	WB	TR	0.50	21.0	C	TR	0.58	22.9	C					
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B					
Overall Intersection		-	**0.39**	**20.4**	**C**	-	**0.42**	**21.9**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.59	22.6	C	TR	0.66	24.7	C					Mitigation not required.
	WB	LT	0.34	17.3	B	LT	0.41	18.3	B					
Ludlow Street	SB	LTR	0.28	17.4	B	LTR	0.29	17.6	B					
Overall Intersection		-	**0.44**	**19.8**	**B**	-	**0.48**	**21.1**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.80	33.4	C	LTR	0.89	43.3	D					Mitigation not required.
	WB	LTR	0.72	21.8	C	LTR	0.89	27.0	C					
		LTR	0.38	17.9	B	LTR	0.42	18.5	B					
Essex Street	NB	DefL	0.45	22.9	C	DefL	0.49	25.0	C					
	SB	TR	0.31	17.7	B	TR	0.35	18.7	B					
		LTR	0.80	33.4	C	LTR	0.89	43.3	D					
Overall Intersection		-	**0.62**	**23.6**	**C**	-	**0.69**	**28.4**	**C**					
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.21	12.6	B	L	0.35	14.9	B					Mitigation not required.
		T	0.49	16.2	B	T	0.49	16.2	B					
	WB	T	0.43	14.1	B	T	0.53	15.3	B					
		R	0.28	12.5	B	R	0.34	13.1	B					
Overall Intersection		-	**0.50**	**14.3**	**B**	-	**0.54**	**15.0**	**B**					
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.45	15.2	B	T	0.45	15.2	B					Mitigation not required.
	WB	T	0.71	20.5	C	T	0.76	22.6	C					
Suffolk Street	SB	LR	0.11	19.3	B	LR	0.37	23.3	C					
Overall Intersection		-	**0.46**	**18.5**	**B**	-	**0.60**	**20.5**	**C**					
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	TR	0.50	17.8	B	LTR	0.58	19.6	B					**Unmitigatable Impact** Install pedestrian countdown signals to accommodate signal timing modifications during the weekday PM peak period.
	WB	L	0.06	11.9	B	L	0.07	12.0	B					
		T	0.58	18.1	B	T	0.63	19.2	B					
		R	1.00	65.8	E	R	1.13	106.2	F					
Clinton Street	NB	LTR	0.75	36.8	D	LTR	0.76	37.8	D					
Overall Intersection		-	**0.90**	**33.2**	**C**	-	**0.99**	**42.8**	**D**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday AM Peak Hour Traffic Levels of Service(cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.16	7.1	A	T	0.17	7.2	A					Mitigation not required.
	WB	LT	0.76	15.5	B	LT	0.81	17.8	B					
East Broadway	NB	R	-	10.2	B	R	-	10.3	B					
Overall Intersection		-	**0.76**	**13.6**	**B**	-	**0.82**	**15.4**	**B**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	8.0	A	TR	-	8.0	A					Mitigation not required.
Ludlow Street	SB	LT	-	9.2	A	LT	-	9.2	A					
Overall Intersection		-	**-**	**8.9**	**A**	-	**-**	**9.0**	**A**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	12.3	B	LT	-	12.4	B					Mitigation not required.
Ludlow Street	SB	TR	-	10.0	A	TR	-	10.1	B					
Overall Intersection		-	**-**	**11.5**	**B**	-	**-**	**11.6**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	10.5	B	TR	-	10.7	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.5	A	LT	-	7.5	A					
Overall Intersection		-	**-**	**5.9**	**A**	-	**-**	**6.0**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.6	A	LT	-	7.6	A					Mitigation not required.
Suffolk Street	SB	TR	-	10.6	B	TR	-	14.2	B					
Overall Intersection		-	**-**	**6.1**	**A**	-	**-**	**10.6**	**B**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	7.9	A	LTR	-	7.9	A					Mitigation not required.
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.3**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.43	32.5	C	L	0.43	32.7	C					Mitigation not required.
		TR	0.77	31.2	C	TR	0.80	32.1	C					
	WB	L	0.79	42.1	D	L	0.80	43.5	D					
		TR	0.89	34.6	C	TR	0.92	36.7	D					
Bowery	NB	L	0.50	29.2	C	L	0.50	29.2	C					
		TR	0.74	35.0	C	TR	0.75	35.3	D					
	SB	L	0.41	25.4	C	L	0.41	25.6	C					
		TR	0.82	38.0	D	TR	0.82	38.0	D					
Overall Intersection		-	**0.90**	**34.2**	**C**	-	**0.90**	**35.2**	**D**					
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.77	33.9	C	T	0.79	34.7	C					Mitigation not required.
		R	0.70	39.9	D	R	0.74	41.8	D					
	WB	L	0.58	45.4	D	L	0.63	50.4	D					
		T	0.66	30.5	C	T	0.69	31.2	C					
Chrystie Street / Second Avenue	NB	L	0.55	35.1	D	L	0.56	35.3	D					
		LR	0.60	38.2	D	LR	0.60	38.2	D					
	SB	L	0.84	36.6	D	L	0.85	36.7	D					
		LT	0.86	35.3	D	LT	0.90	36.4	D					
		R	1.14	100.0	F	R	1.14	100.0	F					
Overall Intersection		-	**0.82**	**42.2**	**D**	-	**0.83**	**42.7**	**D**					
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.81	33.5	C	L	0.83	34.8	C					Mitigation not required.
		T	0.88	30.9	C	T	0.91	31.7	C					
		R	1.29	165.2	F	R	1.29	165.2	F					
	WB	L	0.27	26.2	C	L	0.27	26.9	C					
		TR	0.87	38.9	D	TR	0.91	43.3	D					
Allen Street	NB	L	0.46	29.4	C	L	0.48	29.9	C					
		T	0.77	34.9	C	T	0.78	35.5	D					
		R	0.29	28.0	C	R	0.29	28.0	C					
Overall Intersection		-	**0.97**	**47.0**	**D**	-	**0.99**	**48.3**	**D**					

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.42	14.3	B	L	0.45	14.8	B	L	0.47	15.6	B	Modify signal timing: Shift 1 s of green time from EB / WB phase to the NB / SB phase [EB / WB green time shifts from 32 s to 31 s; NB / SB green time shifts from 27 s to 28 s; signal timing during all other phases remain the same].
		TR	0.80	27.8	C	TR	0.83	28.7	C	TR	0.86	30.2	C	
	WB	L	0.74	31.0	C	L	0.76	32.6	C	L	0.78	35.6	D	
		T	0.62	26.2	C	T	0.65	27.0	C	T	0.67	28.2	C	
		R	0.10	19.8	B	R	0.11	19.9	B	R	0.11	20.6	C	
Essex Street / Avenue A	NB	LTR	0.77	35.3	D	LTR	0.81	37.2	D	LTR	0.77	34.4	C	
	SB	LTR	1.06	68.3	E	LTR	1.15	101.6	F	LTR	1.07	71.5	E	
Overall Intersection		**-**	**0.85**	**33.6**	**C**	**-**	**0.91**	**39.4**	**D**	**-**	**0.90**	**35.8**	**D**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.48	27.7	C	LTR	0.50	28.3	C					Mitigation not required.
Essex Street	NB	TR	0.25	11.2	B	TR	0.27	11.4	B					
	SB	LT	0.36	12.0	B	LT	0.39	12.4	B					
Overall Intersection		**-**	**0.40**	**14.5**	**B**	**-**	**0.43**	**14.7**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.19	15.9	B	LT	0.21	16.1	B					Mitigation not required.
Norfolk Street	NB	TR	0.51	20.6	C	TR	0.63	23.8	C					
Overall Intersection		**-**	**0.35**	**19.3**	**B**	**-**	**0.42**	**21.8**	**C**					
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.64	32.4	C	LTR	0.80	41.9	D					Mitigation not required.
Essex Street	NB	LT	0.28	11.3	B	LT	0.30	11.4	B					
	SB	TR	0.42	13.1	B	TR	0.45	13.5	B					
Overall Intersection		**-**	**0.50**	**16.7**	**B**	**-**	**0.58**	**19.5**	**B**					
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.20	16.2	B	TR	0.22	16.5	B					Mitigation not required.
Norfolk Street	NB	LT	0.63	20.9	C	LT	0.82	26.5	C					
Overall Intersection		**-**	**0.41**	**20.0**	**B**	**-**	**0.52**	**24.6**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.82	27.9	C	TR	0.86	29.3	C	TR	0.86	29.3	C	Modify signal phasing: Allow the NB-right turn movement during the WB-lead phase. Signal timing remains the same during all peak hours.
	WB	L	0.75	41.9	D	L	0.77	43.1	D	L	0.77	43.1	D	
		TR	0.79	14.9	B	TR	0.80	15.2	B	TR	0.80	15.2	B	
Allen Street	NB	T	0.67	34.7	C	T	0.71	35.7	D	TR	0.71	35.7	D	
		R	0.79	50.6	D	R	0.87	61.4	E	R	0.37	15.5	B	
	SB	TR	0.71	33.8	C	TR	0.71	33.9	C	TR	0.71	33.9	C	
Overall Intersection		-	**0.79**	**25.4**	**C**	-	**0.84**	**26.6**	**C**	-	**0.79**	**24.9**	**C**	
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.57	11.4	B	T	0.59	11.7	B					Mitigation not required.
	WB	TR	0.72	13.6	B	TR	0.72	13.8	B					
Orchard Street	NB	LTR	0.34	27.9	C	LTR	0.34	27.9	C					
Overall Intersection		-	**0.59**	**13.1**	**B**	-	**0.60**	**13.3**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.58	11.7	B	TR	0.61	12.1	B	TR	0.63	13.5	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the SB phase [EB / WB green time shifts from 54 s to 52 s; SB green time shifts from 26 s to 28 s].
	WB	T	0.73	13.2	B	T	0.74	13.4	B	T	0.77	14.9	B	
Ludlow Street	SB	LTR	1.00	84.2	F	LTR	1.10	114.2	F	LTR	1.01	85.5	F	
Overall Intersection		-	**0.82**	**17.7**	**B**	-	**0.86**	**20.0**	**B**	-	**0.85**	**19.4**	**B**	
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.68	16.5	B	TR	0.71	17.0	B					**Unmitigatable Impact**
	WB	TR	0.96	23.6	C	TR	0.97	24.4	C					
Essex Street	NB	LTR	0.77	41.8	D	LTR	0.97	68.0	E					
	SB	DefL	1.10	116.6	F	DefL	1.46	260.7	F					
		TR	0.76	44.4	D	TR	0.90	60.2	E					
Overall Intersection		-	**1.02**	**27.6**	**C**	-	**1.17**	**39.0**	**D**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.72	14.2	B	T	0.76	15.0	B	T	0.82	18.8	B	Install "No Standing 11 AM - 2 PM Mon - Fri" regulation along the north curb of the WB approach for 100-feet from the intersection to provide daylighting. Modify signal timing: Shift 4 s of green time from EB / WB phase to the NB phase [EB / WB greentime shifts from 53 s to 49 s; NB green time shifts from 27 s to 31 s].
	WB	TR	0.98	27.9	C	TR	1.01	33.5	C	TR	1.02	38.8	D	
Norfolk Street		TR	0.77	40.3	D	TR	1.00	71.9	E	TR	0.87	44.4	D	
	NB	R	0.82	44.7	D	R	1.01	76.6	E	R	0.88	46.8	D	
Overall Intersection		-	**0.93**	**24.2**	**C**	-	**1.01**	**31.9**	**C**	-	**0.96**	**31.9**	**C**	

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	0.81	16.1	B	T	0.83	16.4	B					Mitigation not required.
	WB	T	0.78	14.8	B	T	0.79	15.0	B					
Delancey Street Service Road	EB	TR	0.14	8.5	A	TR	0.45	11.5	B					
Suffolk Street	SB	R	0.06	22.8	C	R	0.08	23.2	C					
Overall Intersection		-	**0.56**	**15.3**	**B**	-	**0.58**	**15.5**	**B**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.74	11.6	B	T	0.75	11.8	B					Mitigation not required.
Williamsburg Bridge	WB	T	0.89	18.3	B	T	0.90	19.0	B					
		R	0.89	40.8	D	R	0.91	43.3	D					
Delancey Street Service Road	EB	TR	0.12	6.4	A	TR	0.16	6.7	A					
	WB	TR	0.69	59.2	E	TR	0.73	62.8	E					
Clinton Street	NB	R	0.09	26.8	C	R	0.09	26.8	C					
Overall Intersection		-	**0.67**	**17.8**	**B**	-	**0.68**	**18.4**	**B**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.19	21.8	C	LTR	0.19	21.8	C	Mitigation not required.
Essex Street	NB	TR	0.28	11.4	B	TR	0.32	11.9	B	TR	0.48	23.6	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 31 s of green time, SB-lead phase will have 11 s of green time, and NB / SB phase will have 33 s of green [each phase will have 3 s amber and 2 s all red].[Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday PM peak period.]
	SB	L	0.10	10.2	B	L	0.28	12.7	B	L	0.23	11.5	B	
		T	0.25	11.3	B	T	0.25	11.3	B	T	0.25	11.3	B	
Overall Intersection		-	**0.22**	**12.1**	**B**	-	**0.27**	**12.7**	**B**	-	**0.37**	**19.1**	**B**	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
BROOME STREET														
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.09	10.0	B	L	0.15	10.6	B					Mitigation not required.
	WB	R	0.32	12.5	B	R	0.36	13.0	B					
Norfolk Street	NB	T	0.71	28.8	C	T	0.91	39.0	D					
Overall Intersection		-	**0.47**	**21.2**	**C**	-	**0.57**	**27.1**	**C**					
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	1.14	97.5	F	LTR	1.31	172.7	F	LTR	1.12	87.8	F	**Option 1** Install "No Standing 11 AM - 2 PM Mon - Fri" regulation along the north curb of the WB approach for 85-feet from the intersection to provide daylighting. Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase; shift 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 27 s to 30 s; SB-lead phase green time shifts from 10 s to 11 s, NB / SB green time shifts from 23 s to 19 s, NB-lead phase green time remains the same].
	WB	LTR	0.90	57.9	E	LTR	1.09	106.2	F	LTR	0.75	36.1	D	
Allen Street	NB	L	0.39	44.2	D	L	0.39	44.2	D	L	0.39	44.2	D	
		TR	0.45	19.9	B	TR	0.46	20.1	C	TR	0.52	23.7	C	
	SB	L	1.07	111.1	F	L	1.11	125.3	F	L	1.01	91.8	F	
		TR	0.74	24.9	C	TR	0.75	24.9	C	TR	0.82	29.4	C	
Overall Intersection		-	**0.84**	**47.8**	**D**	-	**0.90**	**70.7**	**E**	-	**0.88**	**44.5**	**D**	
										LTR	1.02	49.1	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 27 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 23 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 11 s of green time; NBTR / SBTR phase will have 32 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.91	53.5	D	
										L	0.35	41.8	D	
										TR	0.55	25.7	C	
										L	1.01	91.8	F	
										TR	0.90	37.0	D	
										-	**0.97**	**44.3**	**D**	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.71	21.7	C	LT	0.85	25.5	C					Mitigation not required.
	WB	TR	0.55	21.8	C	TR	0.65	25.0	C					
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B					
Overall Intersection		-	0.43	21.0	C	-	0.50	24.3	C					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.66	24.5	C	TR	0.76	28.4	C					Mitigation not required.
	WB	LT	0.37	17.8	B	LT	0.48	19.6	B					
Ludlow Street	SB	LTR	0.27	17.2	B	LTR	0.29	17.5	B					
Overall Intersection		-	0.46	20.8	C	-	0.52	23.3	C					
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.65	25.0	C	LTR	0.78	30.8	C	LTR	0.77	30.5	C	Mitigation not required.
	WB	LTR	0.64	20.5	C	LTR	0.90	28.8	C	LT	0.46	17.9	B	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.[Measures reflect geometric improvements needed to mitigate the intersection during the weekday PM peak period.]
		-	-	-	-	-	-	-	-	R	0.44	18.1	B	
Essex Street	NB	LTR	0.30	16.9	B	LTR	0.33	17.2	B	LTR	0.33	17.2	B	
	SB	LTR	0.33	17.6	B	LTR	0.37	18.4	B	LTR	0.37	18.4	B	
Overall Intersection		-	0.49	20.2	C	-	0.64	24.9	C	-	0.57	21.3	C	
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.23	13.5	B	L	0.53	23.0	C	L	0.29	13.8	B	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.
		T	0.43	15.2	B	T	0.44	15.3	B	T	0.44	15.3	B	
	WB	TR	0.97	39.3	D	TR	1.22	128.2	F	T	0.51	15.2	B	
		-	-	-	-	-	-	-	-	R	0.67	19.1	B	
Overall Intersection		-	0.98	31.0	C	-	1.23	92.9	F	-	0.67	16.4	B	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.38	14.3	B	T	0.38	14.4	B					Mitigation not required.
	WB	T	0.85	27.6	C	T	0.95	38.4	D					
Suffolk Street	SB	LR	0.06	18.7	B	LR	0.39	23.6	C					
Overall Intersection		-	**0.53**	**23.6**	**C**	-	**0.72**	**30.5**	**C**					
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	LTR	0.55	19.6	B	LTR	0.68	24.3	C					Mitigation not required.
	WB	L	0.06	11.8	B	L	0.07	12.0	B					
		T	0.72	21.8	C	T	0.79	24.8	C					
		R	0.47	17.8	B	R	0.55	20.3	C					
Clinton Street	NB	LTR	0.46	24.2	C	LTR	0.53	26.3	C					
	SB	LTR	0.03	17.1	B	LTR	0.06	17.4	B					
Overall Intersection		-	**0.60**	**20.8**	**C**	-	**0.68**	**23.9**	**C**					
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.13	6.9	A	T	0.14	6.9	A					Mitigation not required.
	WB	LT	0.82	17.2	B	LT	0.90	21.9	C					
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A					
Overall Intersection		-	**0.82**	**15.7**	**B**	-	**0.90**	**19.7**	**B**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	9.0	A	TR	-	9.0	A					Mitigation not required.
Ludlow Street	SB	LT	-	10.8	B	LT	-	10.9	B					
Overall Intersection		-	-	**10.3**	**B**	-	-	**10.3**	**B**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	9.7	A	LT	-	9.7	A					Mitigation not required.
Ludlow Street	SB	TR	-	10.2	B	TR	-	10.3	B					
Overall Intersection		-	-	**10.0**	**A**	-	-	**10.1**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	14.0	B	TR	-	14.5	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.4	A	LT	-	7.5	A					
Overall Intersection		-	-	**1.3**	**A**	-	-	**4.6**	**A**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
UNSIGNALIZED INTERSECTIONS														
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.3	A	LT	-	7.3	A					Mitigation not required.
Suffolk Street	SB	TR	-	10.2	B	TR	-	12.2	B					
Overall Intersection		-	-	**1.3**	**A**	-	-	**5.5**	**A**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	8.7	A	LTR	-	8.8	A					Mitigation not required.
	SB	LTR	-	9.3	A	LTR	-	9.3	A					
Overall Intersection		-	-	**6.4**	**A**	-	-	**5.9**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service[1]

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.43	32.5	C	L	0.43	32.7	C					Mitigation not required.
		TR	0.78	31.6	C	TR	0.81	32.4	C					
	WB	L	0.82	44.2	D	L	0.83	46.1	D					
		TR	0.90	35.2	D	TR	0.93	37.6	D					
Bowery	NB	L	0.53	30.1	C	L	0.53	30.1	C					
		TR	0.76	35.6	D	TR	0.76	35.8	D					
	SB	L	0.41	25.7	C	L	0.41	25.8	C					
		TR	0.82	38.2	D	TR	0.82	38.2	D					
Overall Intersection		-	**0.91**	**34.7**	**C**	-	**0.91**	**35.8**	**D**					
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.77	34.0	C	T	0.79	34.8	C	T	0.76	33.0	C	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase [EB / WB green time shifts from 26 s to 27 s; NB phase green time shifts from 21 s to 20 s; SB phase green time remains the same].
		R	0.75	42.7	D	R	0.80	46.2	D	R	0.76	42.3	D	
	WB	L	0.68	53.7	D	L	0.73	61.2	E	L	0.68	52.4	D	
		T	0.66	30.5	C	T	0.69	31.2	C	T	0.66	29.9	C	
Chrystie Street / Second Avenue	NB	L	0.60	36.5	D	L	0.61	36.8	D	L	0.64	38.9	D	
		LR	0.57	37.2	D	LR	0.57	37.2	D	LR	0.60	39.3	D	
	SB	L	0.84	36.6	D	L	0.85	36.7	D	L	0.85	36.7	D	
		LT	0.86	35.4	D	LT	0.90	36.5	D	LT	0.90	36.5	D	
		R	1.14	100.0	F	R	1.14	100.0	F	R	1.14	100.0	F	
Overall Intersection		-	**0.82**	**42.6**	**D**	-	**0.83**	**43.3**	**D**	-	**0.83**	**42.4**	**D**	
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.69	28.7	C	L	0.69	29.4	C	L	0.71	29.9	C	Modify signal timing: Shift 1 s of green time from EBL/WBL lag phase to the EB/WB phase [EB/WB green time shifts from 27 s to 28 s; EBL/WBL green time shifts from 15 s to 14 s; signal timing during all other phases remain the same].
		T	0.96	36.3	D	T	0.98	39.6	D	T	0.95	34.7	C	
		R	1.41	220.9	F	R	1.41	220.9	F	R	1.35	191.7	F	
	WB	L	0.22	23.8	C	L	0.22	24.1	C	L	0.23	24.4	C	
		TR	0.95	50.8	D	TR	1.00	60.9	E	TR	0.96	51.4	D	
Allen Street	NB	L	0.51	32.8	C	L	0.54	33.4	C	L	0.54	33.4	D	
		T	0.87	43.3	D	T	0.89	44.7	D	T	0.89	44.7	D	
		R	0.33	31.4	C	R	0.33	31.4	C	R	0.33	31.4	C	
Overall Intersection		-	**1.07**	**58.3**	**E**	-	**1.08**	**61.7**	**E**	-	**1.08**	**55.2**	**E**	

[1] This table has been revised for the FGEIS.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.43	14.5	B	L	0.47	15.0	B	L	0.50	16.5	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the NB / SB phase [EB / WB green time shifts from 32 s to 30 s; NB / SB green time shifts from 27 s to 29 s; signal timing during all other phases remain the same].
		TR	0.80	28.0	C	TR	0.84	28.9	C	TR	0.90	32.5	C	
	WB	L	0.74	31.3	C	L	0.76	33.3	C	L	0.81	39.6	D	
		T	0.62	26.4	C	T	0.66	27.2	C	T	0.70	29.8	C	
		R	0.10	19.8	B	R	0.11	19.9	B	R	0.12	21.4	C	
Essex Street / Avenue A	NB	LTR	0.77	35.3	D	LTR	0.81	37.6	D	LTR	0.74	32.4	C	
	SB	LTR	1.08	74.6	E	LTR	1.16	109.2	F	LTR	1.03	53.5	D	
Overall Intersection		-	**0.94**	**34.6**	**C**	-	**0.99**	**40.6**	**D**	-	**0.97**	**34.3**	**C**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.48	27.8	C	LTR	0.51	28.7	C					Mitigation not required.
Essex Street	NB	TR	0.25	11.2	B	TR	0.27	11.4	B					
	SB	LT	0.36	12.0	B	LT	0.39	12.4	B					
Overall Intersection		-	**0.41**	**14.5**	**B**	-	**0.43**	**14.8**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.19	15.9	B	LT	0.22	16.2	B					Mitigation not required.
Norfolk Street	NB	TR	0.52	20.8	C	TR	0.64	23.9	C					
Overall Intersection		-	**0.36**	**19.4**	**B**	-	**0.43**	**21.9**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.71	35.3	D	LTR	0.89	51.8	D	LTR	0.82	40.9	D	Shift the NB approach centerline six feet to the east and restripe the NB approach from one10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 9-foot wide parking lane (the sidewalk along the east curb of Essex Street would be extended seven inches to the west to mitigate pedestrian impacts). Restripe the SB receiving side from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot wide travel lane, and one 10-foot wide parking lane. Shift the SB approach centerline six feet to the east and restripe the SB approach from one10-foot wide travel lane and one 17-foot wide travel lane with parking to one 11-foot wide travel lane, one 12-foot wide travel lane, and one 10-foot wide parking lane (which would operate as a travel lane during the Saturday peak hour). Restripe the NB receiving side from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one10-foot wide parking lane. Modify signal timing: Shift 4 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 35 s; NB / SB green time shifts from 49 s to 45 s].
Essex Street	NB	LT	0.29	11.4	B	LT	0.31	11.5	B	LT	0.60	18.1	B	
	SB	TR	0.44	13.5	B	TR	0.48	14.0	B	TR	0.49	16.3	B	
Overall Intersection		-	**0.54**	**17.9**	**B**	-	**0.64**	**22.8**	**C**	-	**0.70**	**23.1**	**C**	
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.26	17.1	B	TR	0.30	17.6	B					Mitigation not required.
Norfolk Street	NB	LT	0.61	20.7	C	LT	0.81	26.0	C					
Overall Intersection		-	**0.44**	**19.7**	**B**	-	**0.55**	**23.9**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.77	26.4	C	TR	0.80	27.4	C					Mitigation not required.
	WB	L	0.71	39.7	D	L	0.73	40.5	D					
		TR	0.85	17.0	B	TR	0.86	17.5	B					
Allen Street	NB	T	0.65	33.1	C	T	0.68	34.0	C					
		R	0.36	15.8	B	R	0.38	16.2	B					
	SB	TR	0.68	32.5	C	TR	0.69	32.6	C					
Overall Intersection		-	**0.80**	**24.0**	**C**	-	**0.81**	**24.7**	**C**					
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.62	14.2	B	T	0.64	14.6	B					Mitigation not required.
	WB	TR	0.72	15.9	B	TR	0.73	16.1	B					
Orchard Street	NB	LTR	0.30	24.0	C	LTR	0.30	24.0	C					
Overall Intersection		-	**0.56**	**15.4**	**B**	-	**0.57**	**15.6**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.63	14.6	B	TR	0.66	15.1	B					**Unmitigatable Impact**
	WB	T	1.02	36.8	D	T	1.04	40.5	D					
Ludlow Street	SB	LTR	1.01	79.7	E	LTR	1.14	124.2	F					
Overall Intersection		-	**1.02**	**31.4**	**C**	-	**1.08**	**37.0**	**D**					
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.67	15.2	B	TR	0.70	15.7	B					**Unmitigatable Impact**
	WB	T	1.03	37.7	D	T	1.03	38.8	D					
Essex Street		R	0.70	18.2	B	R	0.80	22.9	C					
	NB	LT	0.54	36.1	D	LT	0.65	40.6	D					
		R	0.91	74.3	E	R	1.40	249.0	F					
	SB	TR	0.76	38.8	D	TR	0.90	49.2	D					
Overall Intersection		-	**0.99**	**30.5**	**C**	-	**1.15**	**39.3**	**D**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.69	15.4	B	T	0.72	15.9	B					**Unmitigatable Impact**
	WB	TR	1.00	32.8	C	TR	1.02	39.2	D					
Norfolk Street		TR	0.64	31.5	C	TR	0.88	46.8	D					
	NB	R	0.67	33.0	C	R	0.88	48.8	D					
Overall Intersection		-	**0.88**	**26.2**	**C**	-	**0.97**	**31.9**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	0.83	18.2	B	TR	0.94	23.9	C					Mitigation not required.
	WB	T	0.84	17.8	B	T	0.85	18.1	B					
Suffolk Street	SB	R	0.12	21.4	C	R	0.16	22.3	C					
Overall Intersection		-	**0.57**	**18.1**	**B**	-	**0.65**	**21.1**	**C**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.86	19.1	B	T	0.88	19.8	B					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	1.04	50.2	D	T	1.05	54.3	D					
		R	0.71	20.3	C	R	0.73	21.0	C					
Delancey Street Service Road	WB	R	0.68	93.4	F	R	0.82	132.7	F					
Clinton Street	NB	R	0.73	36.4	D	R	0.73	36.4	D					
Overall Intersection		-	**0.92**	**33.6**	**C**	-	**0.93**	**35.8**	**D**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.19	21.8	C	LTR	0.22	25.2	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 27 s of green time, SB-lead phase will have 19 s of green time, and NB / SB phase will have 29 s of green [each phase will have 3 s amber and 2 s all red].
Essex Street	NB	TR	0.28	11.4	B	TR	0.32	11.9	B	TR	0.55	27.7	C	
	SB	L	0.83	31.5	C	L	1.41	219.4	F	L	0.87	27.3	C	
		T	0.30	11.9	B	T	0.31	12.0	B	T	0.28	9.7	A	
Overall Intersection		-	**0.56**	**18.0**	**B**	-	**0.94**	**80.3**	**F**	-	**0.60**	**23.9**	**C**	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
BROOME STREET														
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.37	12.9	B	L	0.69	21.4	C					Mitigation not required.
	WB	R	0.10	10.2	B	R	0.20	11.4	B					
Norfolk Street	NB	T	0.49	24.6	C	T	0.68	28.1	C					
Overall Intersection		-	**0.41**	**17.4**	**B**	-	**0.68**	**23.1**	**C**					
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	1.11	87.6	F	LTR	1.28	158.9	F	LTR	1.10	79.5	E	**Option 1** Install "No Standing 11 AM - 2 PM Mon - Fri" regulation along the north curb of the WB approach for 85-feet from the intersection to provide daylighting. Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase and 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 28 s to 31 s; SB-lead phase green time shifts from 12 s to 13 s, NB / SB green time shifts from 20 s to 16 s, NB-lead phase green time remains the same].
	WB	LTR	0.87	52.3	D	LTR	1.05	92.2	F	LTR	0.73	34.2	C	
Allen Street	NB	L	0.39	44.2	D	L	0.39	44.2	D	L	0.39	44.2	D	
		TR	0.49	22.5	C	TR	0.50	22.8	C	TR	0.57	26.8	C	
	SB	L	0.89	64.8	E	L	0.93	70.7	E	L	0.85	57.8	E	
		TR	0.77	26.3	C	TR	0.77	26.4	C	TR	0.85	31.6	C	
Overall Intersection		-	**0.85**	**42.5**	**D**	-	**0.91**	**62.3**	**E**	-	**0.89**	**41.3**	**D**	
										LTR	1.10	79.5	E	**Option 2** Install "No Standing 11 AM - 2 PM Mon - Fri" regulation along the north curb of the WB approach for 85-feet from the interesction to provide daylighting. Modify signal phasing: The existing signal phasing [EB / WB phase has 28 s of green; SB-lead phase has 12 s of green; NBTR / SBTR phase has 20 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 31 s of green time; NBL / SBL phase will have 13 s of green time; NBTR / SBTR phase will have 31 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.73	34.2	C	
										L	0.30	38.1	D	
										TR	0.57	26.8	C	
										L	0.85	57.8	E	
										TR	0.94	41.9	D	
										-	**0.99**	**44.7**	**D**	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.71	21.7	C	LT	0.85	25.3	C					Mitigation not required.
	WB	TR	0.55	21.9	C	TR	0.65	25.0	C					
Orchard Street	NB	LTR	0.15	15.4	B	LTR	0.15	15.4	B					
Overall Intersection		-	**0.43**	**21.1**	**C**	-	**0.50**	**24.2**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.68	25.4	C	TR	0.78	29.7	C					Mitigation not required.
	WB	LT	0.37	17.8	B	LT	0.47	19.5	B					
Ludlow Street	SB	LTR	0.27	17.2	B	LTR	0.29	17.5	B					
Overall Intersection		-	**0.48**	**21.3**	**C**	-	**0.53**	**23.9**	**C**					
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.68	26.1	C	LTR	0.80	32.6	C					Mitigation not required.
	WB	LTR	0.64	20.6	C	LTR	0.90	28.9	C					
Essex Street	NB	LTR	0.30	16.9	B	LTR	0.33	17.2	B					
	SB	LTR	0.34	17.8	B	LTR	0.38	18.5	B					
Overall Intersection		-	**0.51**	**20.6**	**C**	-	**0.64**	**25.4**	**C**					
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.15	11.8	B	L	0.31	14.2	B					Mitigation not required.
		T	0.39	14.6	B	T	0.39	14.6	B					
	WB	T	0.38	13.5	B	T	0.51	15.2	B					
		R	0.30	12.7	B	R	0.38	13.6	B					
Overall Intersection		-	**0.40**	**13.5**	**B**	-	**0.52**	**14.6**	**B**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.34	13.9	B	T	0.34	13.9	B					Mitigation not required.
	WB	T	0.69	19.8	B	T	0.77	22.9	C					
Suffolk Street	SB	LR	0.07	18.9	B	LR	0.45	24.8	C					
Overall Intersection		-	**0.43**	**17.9**	**B**	-	**0.64**	**21.2**	**C**					
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	TR	0.46	17.1	B	LTR	0.59	20.3	C	LTR	0.54	17.2	B	Modify signal timing: Shift 3 s from the NB phase to EB/WB [EB/WB green time shifts from 45 s to 48 s; NB green time shifts from 28 s to 25 s; LPI phase signal timing remains the same]. Install pedestrian countdown signals to accommodate signal timing modifications during the weekday PM peak period.
	WB	L	0.07	12.0	B	L	0.08	12.2	B	L	0.07	10.6	B	
		T	0.60	18.8	B	T	0.68	20.7	C	T	0.63	17.7	B	
		R	0.74	27.1	C	R	1.00	66.7	E	R	0.88	39.7	D	
Clinton Street	NB	LTR	0.51	29.7	C	LTR	0.55	31.1	C	LTR	0.58	34.5	C	
Overall Intersection		-	**0.65**	**22.0**	**C**	-	**0.83**	**32.2**	**C**	-	**0.78**	**24.8**	**C**	
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.13	6.9	A	T	0.14	6.9	A					Mitigation not required.
	WB	LT	0.85	18.6	B	LT	0.92	24.6	C					
East Broadway	NB	R	-	12.1	B	R	-	12.2	B					
Overall Intersection		-	**0.85**	**16.5**	**B**	-	**0.92**	**21.3**	**C**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	9.0	A	TR	-	9.0	A					Mitigation not required.
Ludlow Street	SB	LT	-	10.8	B	LT	-	11.0	B					
Overall Intersection		-	**-**	**10.3**	**B**	-	**-**	**10.4**	**B**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	10.9	B	LT	-	11.0	B					Mitigation not required.
Ludlow Street	SB	TR	-	10.7	B	TR	-	10.9	B					
Overall Intersection		-	**-**	**10.8**	**B**	-	**-**	**10.9**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	14.0	B	TR	-	14.5	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.4	A	LT	-	7.5	A					
Overall Intersection		-	**-**	**4.4**	**A**	-	**-**	**4.6**	**A**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday Midday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
UNSIGNALIZED INTERSECTIONS														
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.8	A	LT	-	7.8	A					Mitigation not required.
Suffolk Street	SB	TR	-	10.6	B	TR	-	14.2	B					
Overall Intersection		-	**-**	**5.3**	**A**	-	**-**	**11.2**	**B**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	8.1	A	LTR	-	8.2	A					Mitigation not required.
Overall Intersection		-	**-**	**1.2**	**A**	-	**-**	**1.4**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
[yellow box] Denotes a significant impact.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.41	33.1	C	L	0.41	33.5	C	L	0.43	34.5	C	Modify signal timing: Shift 1 s of green time from EBL / WBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; EBL / WBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.74	30.2	C	TR	0.77	31.0	C	TR	0.74	29.5	C	
	WB	L	0.70	39.8	D	L	0.71	41.3	D	L	0.74	43.3	D	
		TR	1.04	64.3	E	TR	1.09	79.6	E	TR	1.05	65.7	E	
Bowery	NB	L	0.80	50.1	D	L	0.80	50.1	D	L	0.80	50.1	D	
		TR	0.68	33.0	C	TR	0.68	33.1	C	TR	0.68	33.1	C	
	SB	L	0.48	26.8	C	L	0.48	27.0	C	L	0.48	27.0	C	
		TR	1.00	53.8	D	TR	1.00	53.8	D	TR	1.00	53.8	D	
Overall Intersection		-	**0.95**	**47.1**	**D**	-	**0.95**	**52.5**	**D**	-	**0.96**	**47.7**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.72	32.4	C	T	0.74	33.2	C	T	0.72	31.7	C	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase and 1 s of green time from NB phase to the SB phase [EB / WB green time shifts from 26 s to 27 s; NB phase green time shifts from 21 s to 19 s; SB phase green time shifts from 20 s to 21s].
		R	1.07	105.1	F	R	1.14	125.7	F	R	1.09	106.4	F	
	WB	L	0.84	75.1	E	L	0.90	88.6	F	L	0.85	74.5	E	
		T	0.64	30.1	C	T	0.68	30.9	C	T	0.65	29.7	C	
Chrystie Street / Second Avenue	NB	L	0.68	37.3	D	L	0.69	37.6	D	L	0.76	42.7	D	
		LR	0.68	39.0	D	LR	0.68	39.0	D	LR	0.75	44.7	D	
	SB	L	1.06	77.3	E	L	1.06	78.5	E	L	1.00	58.8	E	
		LT	1.12	92.3	F	LT	1.15	107.1	F	LT	1.01	83.3	F	
		R	1.07	77.8	E	R	1.07	77.8	E	R	1.02	61.4	E	
Overall Intersection		-	**0.97**	**59.4**	**E**	-	**1.01**	**64.6**	**E**	-	**1.01**	**54.9**	**D**	
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.85	44.2	D	L	0.88	48.0	D					**Unmitigatable Impact**
		T	0.84	33.0	C	T	0.87	34.5	C					
		R	0.90	53.4	D	R	0.90	53.4	D					
	WB	L	0.36	27.6	C	L	0.37	28.6	C					
		TR	0.83	35.0	C	TR	0.88	38.7	D					
Allen Street	NB	L	0.39	28.1	C	L	0.43	28.7	C					
		T	0.99	56.0	E	T	1.01	60.2	E					
		R	0.19	26.1	C	R	0.19	26.1	C					
Overall Intersection		-	**0.95**	**40.8**	**D**	-	**0.97**	**43.4**	**D**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.30	14.6	B	L	0.33	15.3	B	L	0.32	15.9	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the EBL / WBL lead phase and 1 s of green time from EB / WB phase to the NB / SB phase [EBL / WBL lead phase green time shifts from 9 s to 11 s; EB / WB green time shifts from 32 s to 29 s; NB / SB green time shifts from 27 s to 28 s; LPI remains the same].
		TR	0.77	29.0	C	TR	0.81	30.4	C	TR	0.90	37.4	D	
	WB	L	1.00	83.9	F	L	1.02	90.5	F	L	0.99	67.1	E	
		T	0.65	26.7	C	T	0.70	27.8	C	T	0.77	32.1	C	
		R	0.26	22.0	C	R	0.27	22.2	C	R	0.30	24.9	C	
Essex Street / Avenue A	NB	LTR	0.74	33.7	C	LTR	0.77	35.1	D	LTR	0.74	32.8	C	
	SB	LTR	0.96	48.7	D	LTR	1.03	65.5	E	LTR	0.97	48.4	D	
Overall Intersection		-	**0.99**	**36.0**	**D**	-	**1.04**	**39.5**	**D**	-	**1.05**	**38.1**	**D**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.28	23.3	C	LTR	0.29	23.4	C					Mitigation not required.
Essex Street	NB	TR	0.32	11.9	B	TR	0.34	12.1	B					
	SB	LT	0.39	12.3	B	LT	0.42	12.6	B					
Overall Intersection		-	**0.35**	**13.2**	**B**	-	**0.37**	**13.4**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.16	15.5	B	LT	0.17	15.6	B					Mitigation not required.
Norfolk Street	NB	TR	0.41	18.9	B	TR	0.54	21.3	C					
Overall Intersection		-	**0.29**	**17.8**	**B**	-	**0.35**	**19.8**	**B**					
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.75	37.6	D	LTR	0.86	47.8	D	LTR	0.83	43.5	D	Modify signal timing: Shift 1 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 32 s; NB / SB green time shifts from 49 s to 48 s].
Essex Street	NB	LT	0.33	11.5	B	LT	0.35	11.7	B	LT	0.36	12.2	B	
	SB	TR	0.44	13.4	B	TR	0.48	13.8	B	TR	0.49	14.6	B	
Overall Intersection		-	**0.56**	**18.4**	**B**	-	**0.63**	**21.4**	**C**	-	**0.63**	**20.8**	**C**	
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.45	19.8	B	TR	0.47	20.1	C					Mitigation not required.
Norfolk Street	NB	LT	0.56	19.2	B	LT	0.75	22.7	C					
Overall Intersection		-	**0.50**	**19.5**	**B**	-	**0.61**	**21.7**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	1.08	72.0	E	TR	1.11	85.6	F	TR	1.11	85.6	F	**Partially Mitigated.**
	WB	L	0.73	43.9	D	L	0.75	44.8	D	L	0.75	44.8	D	Modify signal phasing: Allow the NB-right turn movement during the WB-lead phase. Signal timing remains the same during all peak hours. **[Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday midday peak period.]**
		TR	1.01	39.6	D	TR	1.02	42.4	D	TR	1.02	42.4	D	
Allen Street	NB	T	0.66	33.8	C	T	0.70	34.8	C	TR	0.70	34.8	C	
		R	1.00	84.9	F	R	1.11	119.0	F	R	0.48	17.2	B	
	SB	TR	0.56	31.7	C	TR	0.56	31.7	C	TR	0.56	31.7	C	
Overall Intersection		**-**	**1.01**	**53.0**	**D**	**-**	**1.05**	**60.9**	**E**	**-**	**0.92**	**56.6**	**E**	
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.66	12.3	B	T	0.68	12.6	B					Mitigation not required.
	WB	TR	0.82	15.6	B	TR	0.82	15.7	B					
Orchard Street	NB	LTR	0.33	27.4	C	LTR	0.33	27.4	C					
Overall Intersection		**-**	**0.66**	**14.4**	**B**	**-**	**0.66**	**14.6**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.70	13.3	B	TR	0.73	13.8	B	TR	0.75	15.4	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the SB phase [EB / WB green time shifts from 54 s to 52 s; SB green time shifts from 26 s to 28 s].
	WB	T	0.79	14.1	B	T	0.79	14.1	B	T	0.82	15.8	B	
Ludlow Street	SB	LTR	1.25	168.9	F	LTR	1.32	200.4	F	LTR	1.22	156.4	F	
Overall Intersection		**-**	**0.94**	**24.0**	**C**	**-**	**0.97**	**26.3**	**C**	**-**	**0.96**	**25.0**	**C**	
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	1.00	39.4	D	TR	1.03	46.3	D					**Unmitigatable Impact**
	WB	TR	1.05	54.8	D	TR	1.06	56.9	E					
Essex Street	NB	LTR	1.02	75.7	E	LTR	1.20	140.1	F					
	SB	LTR	1.00	70.7	E	LTR	1.15	119.3	F					
Overall Intersection		**-**	**1.04**	**51.9**	**D**	**-**	**1.11**	**65.7**	**E**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	1.06	53.4	D	T	1.08	63.3	E					**Unmitigatable Impact**
	WB	TR	1.00	29.0	C	TR	1.01	32.7	C					
Norfolk Street	NB	TR	1.01	71.5	E	TR	1.27	166.4	F					
		R	1.02	74.4	E	R	1.27	165.4	F					
Overall Intersection		**-**	**1.04**	**45.1**	**D**	**-**	**1.15**	**66.0**	**E**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	1.07	52.7	D	T	1.08	59.3	E					**Unmitigatable Impact**
	WB	T	0.85	16.0	B	T	0.85	16.1	B					
Delancey Street Service Road	EB	TR	0.13	8.3	A	TR	0.41	10.6	B					
Suffolk Street	SB	R	0.21	25.0	C	R	0.28	26.9	C					
Overall Intersection		-	**0.78**	**35.4**	**D**	-	**0.81**	**38.4**	**D**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	1.06	48.7	D	T	1.07	54.7	D					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	1.07	55.1	E	T	1.08	57.9	E					
		R	1.07	80.0	F	R	1.09	86.8	F					
Delancey Street Service Road	EB	TR	0.09	6.2	A	TR	0.14	6.5	A					
	WB	TR	0.93	83.1	F	TR	0.93	82.9	F					
Clinton Street	NB	R	0.16	27.7	C	R	0.16	27.7	C					
Overall Intersection		-	**0.82**	**53.9**	**D**	-	**0.83**	**58.3**	**E**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.18	21.8	C	LTR	0.18	21.8	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 31 s of green time, SB-lead phase will have 11 s of green time, and NB / SB phase will have 33 s of green [each phase will have 3 s amber and 2 s all red].
Essex Street	NB	TR	0.43	12.9	B	TR	0.47	13.4	B	TR	0.71	27.6	C	
	SB	L	0.84	23.1	C	L	1.22	126.1	F	L	0.97	44.5	D	
		T	0.29	11.3	B	T	0.31	11.4	B	T	0.31	11.4	B	
Overall Intersection		-	**0.57**	**14.9**	**B**	-	**0.82**	**38.7**	**D**	-	**0.65**	**27.7**	**C**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.65	36.7	D	L	0.85	48.1	D	L	0.78	40.6	D	Modify signal timing: Shift 2 s of green time from NB phase to the EB / WB phase [EB / WB green time shifts from 49 s to 51 s; NB green time shifts from 31 s to 29 s].
	WB	R	0.93	68.8	E	R	1.04	95.6	F	R	0.96	71.0	E	
Norfolk Street	NB	T	0.64	26.7	C	T	0.81	31.1	C	T	0.87	35.2	D	
Overall Intersection		-	**0.77**	**43.6**	**D**	-	**0.91**	**55.7**	**E**	-	**0.91**	**47.8**	**D**	

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.98	57.5	E	LTR	1.12	100.5	F	LTR	0.97	52.3	D	**Option 1** Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase; shift 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 27 s to 30 s; SB-lead phase green time shifts from 10 s to 11 s, NB / SB green time shifts from 23 s to 19 s, NB-lead phase green time remains the same].
	WB	LTR	0.65	35.6	D	LTR	0.87	52.2	D	LTR	0.78	40.1	D	
Allen Street	NB	L	0.26	39.8	D	L	0.26	39.8	D	L	0.26	39.8	D	
		TR	0.59	21.9	C	TR	0.60	22.1	C	TR	0.67	26.3	C	
	SB	L	0.95	86.0	F	L	0.98	92.8	F	L	0.89	71.7	E	
		TR	0.64	22.7	C	TR	0.64	22.7	C	TR	0.70	26.1	C	
Overall Intersection		-	**0.78**	**34.6**	**C**	-	**0.84**	**44.8**	**D**	-	**0.82**	**36.1**	**D**	
										LTR	0.89	39.4	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 27 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 23 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 11 s of green time; NBTR / SBTR phase will have 32 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.73	35.0	D	
										L	0.24	28.3	D	
										TR	0.71	28.9	C	
										L	0.89	71.7	E	
										TR	0.77	30.3	C	
										-	**0.84**	**35.4**	**D**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.68	22.4	C	LT	0.76	24.6	C					Mitigation not required.
	WB	TR	0.46	20.0	C	TR	0.57	22.7	C					
Orchard Street	NB	LTR	0.17	15.7	B	LTR	0.17	15.7	B					
Overall Intersection		-	**0.43**	**20.7**	**C**	-	**0.47**	**22.8**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.60	22.4	C	TR	0.68	24.5	C					Mitigation not required.
	WB	LT	0.34	17.1	B	LT	0.47	18.9	B					
Ludlow Street	SB	LTR	0.18	15.9	B	LTR	0.20	16.1	B					
Overall Intersection		-	**0.39**	**19.6**	**B**	-	**0.44**	**21.2**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	2022 No Action V/C	2022 No Action Control Delay	2022 No Action LOS	2022 With Action Mvt.	2022 With Action V/C	2022 With Action Control Delay	2022 With Action LOS	2022 With Action with Mitigation Mvt.	2022 With Action with Mitigation V/C	2022 With Action with Mitigation Control Delay	2022 With Action with Mitigation LOS	Mitigation Measures
GRAND STREET														
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.65	24.8	C	LTR	0.76	29.7	C	LTR	0.71	26.9	C	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.
	WB	LTR	1.02	43.9	D	LTR	1.24	134.9	F	LT	0.39	16.9	B	
		-	-	-	-	-	-	-	-	R	0.90	27.1	C	
Essex Street	NB	LTR	0.38	17.8	B	LTR	0.40	18.2	B	LTR	0.40	18.2	B	
	SB	LTR	0.35	17.8	B	LTR	0.40	18.7	B	LTR	0.40	18.7	B	
Overall Intersection		-	**0.70**	**28.1**	**C**	-	**0.82**	**63.5**	**E**	-	**0.65**	**21.9**	**C**	
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.25	14.1	B	L	0.57	25.9	C	L	0.34	15.4	B	Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes. Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.
		T	0.45	15.3	B	T	0.47	15.6	B	T	0.47	15.6	B	
	WB	TR	1.05	52.3	D	TR	1.27	144.8	F	T	0.65	16.5	B	
		-	-	-	-	-	-	-	-	R	0.56	15.5	B	
Overall Intersection		-	**1.05**	**40.1**	**D**	-	**1.26**	**104.7**	**F**	-	**0.65**	**15.9**	**B**	
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.38	14.2	B	T	0.40	14.5	B	T	0.38	12.5	B	Modify signal timing: Shift 3 s of green time from SB phase to the EB / WB phase [EB / WB green time shifts from 47 s to 50 s; SB green time shifts from 33 s to 30 s].
	WB	T	0.99	44.7	D	T	1.07	67.0	E	T	1.00	45.5	D	
Suffolk Street	SB	LR	0.08	19.0	B	LR	0.41	23.8	C	LR	0.45	27.1	C	
Overall Intersection		-	**0.62**	**35.7**	**D**	-	**0.79**	**48.5**	**D**	-	**0.80**	**35.2**	**D**	
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	LTR	0.90	48.2	D	LTR	1.16	123.2	F	LTR	0.92	48.6	D	Install "No Standing 4 PM to 7 PM Mon - Fri" regulation along the south curb of the EB approach for 165-feet to reduce parking friction along the approach. Modify signal timing: Shift 2 s of green time from NB / SB phase to the EB / WB phase [EB / WB green time shifts from 45 s to 47 s; NB / SB green time shifts from 35 s to 33 s].
	WB	L	0.04	11.6	B	L	0.04	11.6	B	L	0.04	10.6	B	
		T	0.78	23.0	C	T	0.84	26.1	C	T	0.81	22.8	C	
		R	0.75	28.3	C	R	0.79	31.9	C	R	0.75	27.3	C	
Clinton Street	NB	LTR	0.69	30.8	C	LTR	0.79	37.4	D	LTR	0.84	44.4	D	
	SB	LTR	0.01	16.9	B	LTR	0.05	17.3	B	LTR	0.05	18.6	B	
Overall Intersection		-	**0.81**	**30.4**	**C**	-	**1.00**	**50.1**	**D**	-	**0.89**	**32.6**	**C**	
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.12	6.8	A	T	0.13	6.9	A					Mitigation not required.
	WB	LT	0.88	19.1	B	LT	0.95	25.6	C					
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A					
Overall Intersection		-	**0.88**	**17.5**	**B**	-	**0.95**	**23.3**	**C**					

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	7.9	A	TR	-	7.9	A					Mitigation not required.
Ludlow Street	SB	LT	-	9.7	A	LT	-	9.8	A					
Overall Intersection		-	-	**9.4**	**A**	-	-	**9.4**	**A**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	10.8	B	LT	-	10.9	B					Mitigation not required.
Ludlow Street	SB	TR	-	11.0	B	TR	-	11.1	B					
Overall Intersection		-	-	**10.9**	**B**	-	-	**11.0**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	10.9	B	TR	-	11.1	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A					
Overall Intersection		-	-	**5.5**	**A**	-	-	**5.3**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	15.0	B	LT	-	15.5	C					Mitigation not required.
Suffolk Street	SB	TR	-	12.0	B	TR	-	15.8	C					
Overall Intersection		-	-	**2.5**	**A**	-	-	**6.8**	**A**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	9.4	A	LTR	-	9.7	A					Mitigation not required.
	SB	LTR	-	9.4	A	LTR	-	9.4	A					
Overall Intersection		-	-	**7.1**	**A**	-	-	**6.9**	**A**					

~~**Notes:**~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~
~~Denotes a significant impact.~~

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service[1]

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.41	33.2	C	L	0.41	33.5	C	L	0.43	34.5	C	Modify signal timing: Shift 1 s of green time from EBL / WBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; EBL / WBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.75	30.5	C	TR	0.78	31.3	C	TR	0.76	29.8	C	
	WB	L	0.71	41.0	D	L	0.73	42.5	D	L	0.75	44.6	D	
		TR	1.05	67.6	E	TR	1.09	83.1	F	TR	1.06	68.7	E	
Bowery	NB	L	0.83	53.0	D	L	0.83	53.0	D	L	0.83	53.0	D	
		TR	0.69	33.3	C	TR	0.70	33.4	C	TR	0.70	33.4	C	
	SB	L	0.49	27.1	C	L	0.49	27.2	C	L	0.49	27.2	C	
		TR	1.01	55.0	D	TR	1.01	55.0	D	TR	1.01	55.0	D	
Overall Intersection		-	**0.96**	**48.7**	**D**	-	**0.96**	**54.2**	**D**	-	**0.97**	**49.2**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.72	32.5	C	T	0.75	33.3	C	T	0.72	31.7	C	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase and 1 s of green time from NB phase to the SB phase [EB / WB green time shifts from 26 s to 27 s; NB phase green time shifts from 21 s to 19 s; SB phase green time shifts from 20 s to 21 s].
		R	1.15	128.8	F	R	1.21	153.3	F	R	1.16	130.9	F	
	WB	L	0.94	94.1	F	L	0.99	110.0	F	L	0.93	91.1	F	
		T	0.64	30.1	C	T	0.68	30.9	C	T	0.65	29.7	C	
Chrystie Street / Second Avenue	NB	L	0.71	38.5	D	L	0.72	38.8	D	L	0.79	44.6	D	
		LR	0.68	39.0	D	LR	0.68	39.2	D	LR	0.75	44.7	D	
	SB	L	1.06	77.3	E	L	1.06	78.5	E	L	1.00	58.8	E	
		LT	1.12	93.6	F	LT	1.15	108.4	F	LT	1.10	84.5	F	
		R	1.07	77.8	E	R	1.07	77.8	E	R	1.02	61.4	E	
Overall Intersection		-	**1.01**	**62.2**	**E**	-	**1.05**	**67.9**	**E**	-	**1.05**	**57.8**	**E**	
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.71	33.6	C	L	0.71	34.4	C	L	0.77	38.1	D	Modify signal timing: Shift 1 s of green time from EBL/WBL lag phase to the EB/WB phase and 1 s of green time from EBL/WBL lag phase to the NB phase [EB / WB green time shifts from 27 s to 28 s; EBL/WBL green time shifts from 15 s to 13 s; NB green time shifts from 22 s to 23 s; LPI remains the same].
		T	0.91	39.1	D	T	0.94	42.7	D	T	0.91	38.2	D	
		R	0.98	73.7	E	R	0.98	73.7	E	R	0.94	61.5	E	
	WB	L	0.30	24.9	C	L	0.30	25.6	C	L	0.32	26.6	C	
		TR	0.90	42.4	D	TR	0.96	50.7	D	TR	0.93	44.3	D	
Allen Street	NB	L	0.44	31.1	C	L	0.48	31.9	C	L	0.46	30.7	C	
		T	1.13	103.5	F	T	1.15	111.2	F	T	1.10	90.5	F	
		R	0.22	29.0	C	R	0.22	29.0	C	R	0.20	28.0	C	
Overall Intersection		-	**0.98**	**56.2**	**E**	-	**1.10**	**61.0**	**E**	-	**0.99**	**52.8**	**D**	

[1] This table has been revised for the FGEIS.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.32	14.9	B	L	0.34	15.5	B	L	0.33	16.0	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the EBL / WBL lead phase and 1 s of green time from EB / WB phase to the NB / SB phase [EBL / WBL lead phase green time shifts from 9 s to 11 s; EB / WB green time shifts from 32 s to 29 s; NB / SB green time shifts from 27 s to 28 s; LPI remains the same].
		TR	0.78	29.3	C	TR	0.82	30.8	C	TR	0.91	38.3	D	
	WB	L	1.00	85.1	F	L	1.03	92.1	F	L	1.00	69.6	E	
		T	0.66	26.9	C	T	0.71	28.0	C	T	0.78	32.4	C	
		R	0.26	22.0	C	R	0.27	22.2	C	R	0.30	24.9	C	
Essex Street / Avenue A	NB	LTR	0.74	33.8	C	LTR	0.78	35.2	D	LTR	0.74	32.9	C	
	SB	LTR	0.98	51.9	D	LTR	1.05	69.9	E	LTR	0.98	51.5	D	
Overall Intersection		-	**0.99**	**36.6**	**D**	-	**1.05**	**40.4**	**D**	-	**1.06**	**39.1**	**D**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.29	23.5	C	LTR	0.30	23.7	C					Mitigation not required.
Essex Street	NB	TR	0.32	11.9	B	TR	0.34	12.1	B					
	SB	LT	0.39	12.3	B	LT	0.42	12.6	B					
Overall Intersection		-	**0.35**	**13.3**	**B**	-	**0.37**	**13.5**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.16	15.5	B	LT	0.17	15.6	B					Mitigation not required.
Norfolk Street	NB	TR	0.42	18.9	B	TR	0.55	21.5	C					
Overall Intersection		-	**0.29**	**17.9**	**B**	-	**0.36**	**20.0**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.85	45.4	D	LTR	0.97	65.4	E	LTR	0.88	46.2	D	Shift the NB approach centerline six feet to the east and restripe the NB approach from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 9-foot wide parking lane (the sidewalk along the east curb of Essex Street would be extended seven inches to the west to mitigate pedestrian impacts). Restripe the SB receiving side from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot wide travel lane, and one 10-foot wide parking lane. Shift the SB approach centerline six feet to the east and restripe the SB approach from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 11-foot wide travel lane, one 12-foot wide travel lane, and one 10-foot wide parking lane (which would operate as a travel lane during the Saturday peak hour). Restripe the NB receiving side from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 10-foot wide parking lane. Modify signal timing: Shift 4 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 35 s; NB / SB green time shifts from 49 s to 45 s].
Essex Street	NB	LT	0.33	11.5	B	LT	0.35	11.6	B	LT	0.68	18.0	B	
	SB	TR	0.45	13.6	B	TR	0.49	14.0	B	TR	0.50	16.4	B	
Overall Intersection		-	**0.61**	**21.1**	**C**	-	**0.67**	**26.9**	**C**	-	**0.77**	**24.8**	**C**	
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.52	21.4	C	TR	0.55	21.9	C					Mitigation not required.
Norfolk Street	NB	LT	0.55	19.2	B	LT	0.75	22.8	C					
Overall Intersection		-	**0.54**	**20.3**	**C**	-	**0.65**	**22.4**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	1.11	87.6	F	TR	1.15	102.0	F					**Unmitigatable Impact**
	WB	L	0.69	41.4	D	L	0.71	42.2	D					
		TR	1.08	64.3	E	TR	1.09	69.0	E					
Allen Street	NB	T	0.63	32.3	C	T	0.66	33.2	C					
		R	0.46	17.4	B	R	0.49	18.0	B					
	SB	TR	0.54	30.6	C	TR	0.55	30.7	C					
Overall Intersection		-	**0.95**	**65.2**	**E**	-	**0.96**	**72.7**	**E**					
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.72	15.3	B	T	0.74	15.7	B					Mitigation not required.
	WB	TR	0.83	18.0	B	TR	0.83	18.1	B					
Orchard Street	NB	LTR	0.28	23.6	C	LTR	0.28	23.6	C					
Overall Intersection		-	**0.62**	**16.9**	**B**	-	**0.63**	**17.1**	**B**					
11. DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.76	16.7	B	TR	0.79	17.3	B					**Unmitigatable Impact**
	WB	T	1.10	68.3	E	T	1.11	69.9	E					
Ludlow Street	SB	LTR	1.09	105.3	F	LTR	1.20	145.0	F					
Overall Intersection		-	**1.10**	**47.4**	**D**	-	**1.14**	**50.9**	**D**					
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.97	30.7	C	TR	0.99	35.4	D					**Unmitigatable Impact**
	WB	T	1.09	68.9	E	T	1.09	69.8	E					
		R	0.89	51.5	D	R	0.98	74.5	E					
Essex Street	NB	T	0.40	30.7	C	LT	0.43	31.2	C					
		R	1.38	228.7	F	R	1.94	478.4	F					
	SB	TR	0.71	35.5	D	TR	0.81	39.8	D					
Overall Intersection		-	**1.18**	**56.9**	**E**	-	**1.37**	**72.5**	**E**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	1.06	56.8	E	T	1.09	67.2	E					**Unmitigatable Impact**
	WB	TR	1.01	34.0	C	TR	1.03	38.9	D					
Norfolk Street	NB	TR	0.72	33.1	C	TR	0.94	52.2	D					
		R	0.71	33.3	C	R	0.97	59.3	E					
Overall Intersection		-	**0.93**	**43.8**	**D**	-	**1.04**	**53.1**	**D**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	1.07	53.6	D	TR	1.18	101.5	F					**Unmitigatable Impact**
	WB	T	0.91	19.5	B	T	0.92	19.8	B					
Suffolk Street	SB	R	0.26	23.6	C	R	0.34	25.8	C					
Overall Intersection		-	**0.76**	**37.6**	**D**	-	**0.86**	**64.3**	**E**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	1.14	87.3	F	T	1.17	98.0	F					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	1.27	143.8	F	T	1.27	147.3	F					
		R	0.92	35.5	D	R	0.93	38.3	D					
Delancey Street Service Road	WB	R	1.83	499.7	F	R	1.83	499.7	F					
Clinton Street	NB	R	1.00	72.5	E	R	1.00	72.5	E					
Overall Intersection		-	**1.17**	**105.6**	**F**	-	**1.17**	**111.9**	**F**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.13	20.9	C	LTR	0.18	21.8	C	LTR	0.21	25.2	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 27 s of green time, SB-lead phase will have 19 s of green time, and NB / SB phase will have 29 s of green [each phase will have 3 s amber and 2 s all red].
Essex Street	NB	TR	0.37	12.2	B	TR	0.41	12.7	B	TR	0.72	30.9	C	
	SB	L	1.05	59.0	E	L	1.55	273.0	F	L	0.93	21.6	C	
		T	0.36	11.8	B	T	0.36	11.9	B	T	0.33	9.7	A	
Overall Intersection		-	**0.70**	**24.9**	**C**	-	**1.02**	**90.7**	**F**	-	**0.66**	**23.4**	**C**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.88	52.0	D	L	1.58	308.7	F					**Unmitigatable Impact**
	WB	R	0.28	29.2	C	R	0.56	39.2	D					
Norfolk Street	NB	T	0.54	24.9	C	T	0.71	28.0	C					
Overall Intersection		-	**0.68**	**37.5**	**D**	-	**1.07**	**151.3**	**F**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.90	42.8	D	LTR	1.02	65.5	E	LTR	0.93	45.3	D	**Option 1** Modify signal timing: Shift 2 s from the NB/SB phase to EB/WB phase [EB/WB green time shifts from 29 s to 31 s; NB / SB green time shifts from 19 s to 17 s; signal timing during all other phrases remain the same].
	WB	LTR	0.61	32.1	C	LTR	0.81	43.6	D	LTR	0.76	37.6	D	
Allen Street	NB	L	0.26	39.8	D	L	0.26	39.8	D	L	0.26	39.8	D	
		TR	0.66	26.1	C	TR	0.67	26.3	C	TR	0.71	28.8	C	
	SB	L	0.79	57.1	E	L	0.82	59.5	E	L	0.82	59.5	E	
		TR	0.68	24.9	C	TR	0.68	24.9	C	TR	0.72	27.4	C	
Overall Intersection		-	**0.77**	**31.6**	**C**	-	**0.83**	**37.4**	**D**	-	**0.82**	**34.8**	**C**	
										LTR	0.90	39.9	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 29 s of green; SB-lead phase has 12 s of green; NBTR / SBTR phase has 19 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 12 s of green time; NBTR / SBTR phase will have 31 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.73	35.2	D	
										L	0.22	36.9	D	
										TR	0.73	30.2	C	
										L	0.82	59.5	E	
										TR	0.80	32.2	C	
										-	**0.84**	**35.5**	**D**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.68	22.4	C	LT	0.76	24.6	C					Mitigation not required.
	WB	TR	0.46	20.1	C	TR	0.57	22.7	C					
Orchard Street	NB	LTR	0.17	15.7	B	LTR	0.17	15.7	B					
Overall Intersection		-	**0.43**	**20.7**	**C**	-	**0.47**	**22.8**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.60	22.5	C	TR	0.68	24.7	C					Mitigation not required.
	WB	LT	0.34	17.1	B	LT	0.47	18.8	B					
Ludlow Street	SB	LTR	0.18	15.9	B	LTR	0.20	16.2	B					
Overall Intersection		-	**0.39**	**19.7**	**B**	-	**0.44**	**21.3**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
GRAND STREET														
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.68	26.2	C	LTR	0.77	30.8	C					
	WB	LTR	0.78	22.6	C	LTR	1.00	38.0	D					
Essex Street	NB	LTR	0.38	17.8	B	LTR	0.40	18.2	B					
	SB	LTR	0.35	17.8	B	LTR	0.38	18.3	B					
Overall Intersection		-	**0.58**	**21.3**	**C**	-	**0.70**	**27.8**	**C**					
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.17	12.0	B	L	0.33	14.7	B					
		T	0.37	14.0	B	T	0.37	14.0	B					
	WB	T	0.41	13.5	B	T	0.54	14.9	B					
		R	0.31	12.6	B	R	0.38	13.2	B					
Overall Intersection		-	**0.42**	**13.3**	**B**	-	**0.54**	**14.3**	**B**					
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.31	13.3	B	T	0.31	13.3	B					
	WB	T	0.77	21.8	C	T	0.84	25.5	C					
Suffolk Street	SB	LR	0.09	19.0	B	LR	0.47	25.3	C					
Overall Intersection		-	**0.49**	**19.4**	**B**	-	**0.69**	**22.9**	**C**					
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	TR	0.41	16.1	B	LTR	0.54	18.9	B	LTR	0.49	15.3	B	Modify signal timing: Shift 4 s from the NB phase to EB/WB [EB/WB green time shifts from 45 s to 49 s; NB green time shifts from 28 s to 24 s; LPI phase signal timing remains the same]. Install pedestrian countdown signals to accommodate signal timing modifications during the weekday PM peak period.
	WB	L	0.04	11.6	B	L	0.05	11.7	B	L	0.04	9.7	A	
		T	0.63	18.7	B	T	0.69	20.2	C	T	0.63	16.5	B	
		R	1.19	127.8	F	R	1.30	171.7	F	R	1.17	115.0	F	
Clinton Street	NB	LTR	0.72	35.2	D	LTR	0.75	36.6	D	LTR	0.77	41.9	D	
Overall Intersection		**-**	**1.01**	**49.0**	**D**	-	**1.08**	**58.8**	**E**	-	**1.04**	**44.6**	**D**	
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.12	6.8	A	T	0.13	6.8	A					Mitigation not required.
	WB	LT	0.88	19.1	B	LT	0.95	26.0	C					
East Broadway	NB	R	-	16.5	C	R	-	16.7	B					
Overall Intersection		-	**0.88**	**17.5**	**B**	-	**0.95**	**23.1**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Weekday PM Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	7.9	A	TR	-	8.0	A					Mitigation not required.
Ludlow Street	SB	LT	-	9.7	A	LT	-	9.8	A					
Overall Intersection		-	**-**	**9.4**	**A**	-	**-**	**9.4**	**A**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	11.5	B	LT	-	11.6	B					Mitigation not required.
Ludlow Street	SB	TR	-	11.2	B	TR	-	11.4	B					
Overall Intersection		-	**-**	**11.3**	**B**	-	**-**	**11.5**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	10.9	B	TR	-	11.1	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A					
Overall Intersection		-	**-**	**5.4**	**A**	-	**-**	**5.4**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	15.5	C	LT	-	15.7	C					Mitigation not required.
Suffolk Street	SB	TR	-	11.9	B	TR	-	16.4	C					
Overall Intersection		-	**-**	**7.6**	**A**	-	**-**	**13.2**	**B**					
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	8.4	A	LTR	-	8.5	A					Mitigation not required.
Overall Intersection		-	**-**	**1.4**	**A**	-	**-**	**1.5**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.69	39.6	D	L	0.69	39.8	D	L	0.69	39.5	D	Modify signal timing: Shift 1 s of green time from NBL / SBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; NBL / SBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.87	33.6	C	TR	0.90	35.0	D	TR	0.87	32.6	C	
	WB	L	0.85	50.0	D	L	0.85	50.1	D	L	0.85	49.5	D	
		TR	1.01	50.6	D	TR	1.04	60.2	E	TR	1.00	49.2	D	
Bowery	NB	L	0.73	37.5	D	L	0.73	37.5	D	L	0.77	40.1	D	
		TR	0.97	45.5	D	TR	0.98	46.7	D	TR	0.98	46.7	D	
	SB	L	0.57	32.8	C	L	0.57	32.9	C	L	0.60	34.3	C	
		TR	1.02	54.3	D	TR	1.02	54.3	D	TR	1.02	54.3	D	
Overall Intersection		-	**0.98**	**44.8**	**D**	-	**1.00**	**48.1**	**D**	-	**1.00**	**44.5**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.86	35.9	D	T	0.88	37.1	D	T	0.85	34.6	C	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase and 1 s of green time from NB phase to the SB phase [EB / WB green time shifts from 26 s to 27 s; NB phase green time shifts from 21 s to 19 s; and SB phase green time shifts from 20 s to 21 s].
		R	0.93	56.1	E	R	0.98	67.6	E	R	0.95	58.0	E	
	WB	L	0.71	55.7	E	L	0.73	57.1	E	L	0.73	56.5	E	
		T	0.92	38.7	D	T	0.95	42.3	D	T	0.91	37.8	D	
Chrystie Street / Second Avenue	NB	L	0.51	33.8	C	L	0.52	34.0	C	L	0.57	37.1	D	
		LR	0.60	37.6	D	LR	0.60	37.7	D	LR	0.67	42.5	D	
	SB	L	1.29	169.0	F	L	1.31	179.0	F	L	1.24	146.4	F	
		LT	1.28	163.6	F	LT	1.31	174.2	F	LT	1.25	146.4	F	
		R	0.98	46.9	D	R	0.98	46.9	D	R	0.94	40.1	D	
Overall Intersection		-	**0.94**	**76.2**	**E**	-	**0.95**	**81.0**	**F**	-	**0.95**	**70.2**	**E**	
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.82	40.7	D	L	0.82	40.7	D	L	0.82	40.6	D	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; NB phase green time shifts from 25 s to 24 s].
		T	0.89	32.9	C	T	0.91	34.1	C	T	0.88	31.8	C	
		R	1.27	160.2	F	R	1.27	160.2	F	R	1.22	137.6	F	
	WB	L	0.44	31.9	C	L	0.44	32.1	C	L	0.44	31.6	C	
		TR	1.13	98.3	F	TR	1.17	114.9	F	TR	1.13	97.9	F	
Allen Street	NB	L	0.38	27.7	C	L	0.41	28.2	C	L	0.43	29.2	C	
		T	0.82	36.0	D	T	0.84	36.7	D	T	0.87	39.6	D	
		R	0.24	26.8	C	R	0.24	26.8	C	R	0.26	27.8	C	
Overall Intersection		-	**1.00**	**64.6**	**E**	-	**1.00**	**70.1**	**E**	-	**0.99**	**62.9**	**E**	

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.34	15.7	B	L	0.34	16.1	B	L	0.32	16.6	B	Modify signal timing: Shift 1 s of green time from EB / WB phase to the EBL / WBL lead phase and 1 s of green time from EB / WB phase to the NB / SB phase [EBL / WBL lead phase green time shifts from 9 s to 10 s; EB / WB green time shifts from 32 s to 30 s; NB / SB green time shifts from 27 s to 28 s; LPI remains the same].
		TR	0.80	27.8	C	TR	0.83	28.7	C	TR	0.89	32.0	C	
	WB	L	0.88	40.2	D	L	0.90	43.7	D	L	0.90	44.5	D	
		T	0.84	32.2	C	T	0.87	34.1	C	T	0.93	40.8	D	
		R	0.14	20.2	C	R	0.15	20.2	C	R	0.16	21.7	C	
Essex Street / Avenue A	NB	LTR	0.70	32.6	C	LTR	0.73	33.4	C	LTR	0.69	31.6	C	
	SB	LTR	1.08	72.8	E	LTR	1.14	98.1	F	LTR	1.07	68.0	E	
Overall Intersection		**-**	**0.90**	**36.4**	**D**	**-**	**0.94**	**41.2**	**D**	**-**	**0.92**	**40.1**	**D**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.24	22.4	C	LTR	0.24	22.5	C					Mitigation not required.
Essex Street	NB	TR	0.30	11.7	B	TR	0.32	11.9	B					
	SB	LT	0.53	14.0	B	LT	0.57	14.4	B					
Overall Intersection		**-**	**0.42**	**13.8**	**B**	**-**	**0.44**	**14.2**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.22	16.1	B	LT	0.23	16.2	B					Mitigation not required.
Norfolk Street	NB	TR	0.39	18.6	B	TR	0.51	20.9	C					
Overall Intersection		**-**	**0.30**	**17.7**	**B**	**-**	**0.37**	**19.4**	**B**					
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.70	35.0	C	LTR	0.82	43.7	D					Mitigation not required.
Essex Street	NB	LT	0.33	11.6	B	LT	0.34	11.7	B					
	SB	TR	0.85	35.1	D	TR	0.91	40.6	D					
Overall Intersection		**-**	**0.78**	**27.6**	**C**	**-**	**0.87**	**32.4**	**C**					
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.47	20.0	B	TR	0.49	20.4	C					Mitigation not required.
Norfolk Street	NB	LT	0.42	17.8	B	LT	0.60	20.4	C					
Overall Intersection		**-**	**0.44**	**18.9**	**B**	**-**	**0.54**	**20.4**	**C**					

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.87	29.3	C	TR	0.91	31.2	C	TR	0.91	31.2	C	Mitigation not required.
	WB	L	0.76	40.8	D	L	0.78	41.5	D	L	0.78	41.5	D	Modify signal phasing: Allow the NB-right turn movement during the WB-lead phase. Signal timing remains the same during all peak hours. **[Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday midday peak period.]**
		TR	0.82	15.5	B	TR	0.83	15.9	B	TR	0.83	15.9	B	
Allen Street	NB	T	0.74	36.8	D	T	0.77	38.2	D	TR	0.77	38.2	D	
		R	0.85	58.4	E	R	0.87	62.3	E	R	0.36	15.4	B	
	SB	TR	0.77	35.7	D	TR	0.77	35.9	D	TR	0.77	35.9	D	
Overall Intersection		-	**0.84**	**26.8**	**C**	-	**0.86**	**28.0**	**C**	-	**0.83**	**26.3**	**C**	
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.58	11.4	B	T	0.60	11.7	B					Mitigation not required.
	WB	TR	0.77	14.6	B	TR	0.78	14.8	B					
Orchard Street	NB	LTR	0.29	26.7	C	LTR	0.29	26.7	C					
Overall Intersection		-	**0.61**	**13.6**	**B**	-	**0.62**	**13.8**	**B**					
11 .DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.58	11.7	B	TR	0.61	12.1	B	TR	0.63	13.5	B	Modify signal timing: Shift 2 s of green time from EB / WB phase to the SB phase [EB / WB green time shifts from 54 s to 52 s; SB green time shifts from 26 s to 28 s].
	WB	T	0.68	12.3	B	T	0.69	12.4	B	T	0.72	13.8	B	
Ludlow Street	SB	LTR	1.15	130.5	F	LTR	1.25	168.3	F	LTR	1.15	128.0	F	
Overall Intersection		-	**0.84**	**21.5**	**C**	-	**0.87**	**24.6**	**C**	-	**0.87**	**22.7**	**C**	
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.88	25.3	C	TR	0.90	26.7	C					**Unmitigatable Impact**
	WB	TR	1.02	39.6	D	TR	1.03	41.8	D					
Essex Street	NB	LTR	0.74	38.2	D	LTR	0.91	54.7	D					
	SB	DefL	1.10	101.9	F	DefL	1.34	198.8	F					
		TR	0.65	36.7	D	TR	0.77	43.0	D					
Overall Intersection		-	**1.07**	**37.6**	**D**	-	**1.18**	**47.1**	**D**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.77	14.9	B	T	0.81	15.6	B	T	0.87	19.7	B	**Partially Mitigated.** Modify signal timing: Shift 4 s of green time from EB / WB phase to the NB phase [EB / WB green time shifts from 53 s to 49 s; NB green time shifts from 27 s to 31 s].
	WB	TR	0.93	21.2	C	TR	0.95	22.9	C	TR	1.03	41.9	D	
Norfolk Street	NB	TR	0.95	63.0	E	TR	1.11	106.0	F	TR	0.97	60.4	E	
		R	0.93	59.8	E	R	1.13	114.2	F	R	0.98	65.4	E	
Overall Intersection		-	**0.94**	**24.0**	**C**	-	**1.01**	**33.1**	**C**	-	**1.01**	**36.2**	**D**	

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)~~

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	T	0.99	27.3	C	T	1.00	29.5	C					Mitigation not required.
	WB	T	0.75	14.3	B	T	0.75	14.4	B					
Delancey Street Service Road	EB	TR	0.11	8.2	A	TR	0.41	10.9	B					
Suffolk Street	SB	R	0.25	25.5	C	R	0.33	28.0	C					
Overall Intersection		-	**0.74**	**21.4**	**C**	-	**0.78**	**22.4**	**C**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	0.93	15.1	B	T	0.94	15.5	B					Mitigation not required.
Williamsburg Bridge	WB	T	0.84	15.4	B	T	0.85	15.7	B					
		R	0.97	54.1	D	R	0.99	57.4	E					
Delancey Street Service Road	EB	TR	0.08	6.2	A	TR	0.15	6.6	A					
	WB	TR	0.72	57.4	E	TR	0.74	59.8	E					
Clinton Street	NB	R	0.09	26.7	C	R	0.09	26.7	C					
Overall Intersection		-	**0.70**	**19.3**	**B**	-	**0.70**	**19.8**	**B**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.18	21.4	C	LTR	0.25	22.6	C	LTR	0.25	22.6	C	Mitigation not required.
Essex Street	NB	TR	0.25	11.2	B	TR	0.29	11.6	B	TR	0.43	22.8	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 31 s of green time, SB-lead phase will have 11 s of green time, and NB / SB phase will have 33 s of green [each phase will have 3 s amber and 2 s all red]. **[Measures reflect signal phasing improvements needed to mitigate the intersection during the weekday PM peak period.]**
	SB	L	0.15	10.7	B	L	0.32	13.3	B	L	0.26	11.8	B	
		T	0.22	11.0	B	T	0.22	11.0	B	T	0.22	11.0	B	
Overall Intersection		-	**0.22**	**12.5**	**B**	-	**0.29**	**13.1**	**B**	-	**0.39**	**18.7**	**B**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.12	10.3	B	L	0.19	10.9	B					Mitigation not required.
	WB	R	0.58	17.1	B	R	0.62	18.1	B					
Norfolk Street	NB	T	0.71	27.7	C	T	0.88	33.3	C					
Overall Intersection		-	**0.63**	**21.0**	**C**	-	**0.72**	**24.1**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.96	53.4	D	LTR	1.11	97.3	F	LTR	0.96	49.4	D	**Option 1** Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase; shift 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 27 s to 30 s; SB-lead phase green time shifts from 10 s to 11 s, NB / SB green time shifts from 23 s to 19 s, NB-lead phase green time remains the same].
	WB	LTR	0.68	36.9	D	LTR	0.85	50.1	D	LTR	0.76	39.0	D	
Allen Street	NB	L	0.55	49.7	D	L	0.55	49.7	D	L	0.55	49.7	D	
		TR	0.47	20.1	C	TR	0.48	20.2	C	TR	0.53	23.8	C	
	SB	L	1.06	112.3	F	L	1.08	119.4	F	L	0.98	89.4	F	
		TR	0.60	21.9	C	TR	0.60	21.9	C	TR	0.66	25.0	C	
Overall Intersection		**-**	**0.72**	**38.1**	**D**	**-**	**0.79**	**48.3**	**D**	**-**	**0.77**	**37.8**	**D**	
										LTR	0.88	37.4	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 27 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 23 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 11 s of green time; NBTR / SBTR phase will have 32 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.71	34.2	C	
										L	0.50	45.9	D	
										TR	0.57	25.8	C	
										L	0.98	89.4	F	
										TR	0.72	28.8	C	
										-	**0.83**	**36.7**	**D**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.70	22.2	C	LT	0.78	24.1	C					Mitigation not required.
	WB	TR	0.50	20.9	C	TR	0.59	23.2	C					
Orchard Street	NB	LTR	0.14	15.4	B	LTR	0.14	15.4	B					
Overall Intersection		**-**	**0.42**	**21.1**	**C**	**-**	**0.46**	**23.1**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.58	21.6	C	TR	0.66	23.6	C					Mitigation not required.
	WB	LT	0.35	17.8	B	LT	0.47	20.0	B					
Ludlow Street	SB	LTR	0.24	16.6	B	LTR	0.26	16.9	B					
Overall Intersection		**-**	**0.41**	**19.5**	**B**	**-**	**0.46**	**21.2**	**C**					

~~2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)~~

~~Intersection & Approach~~		~~2022 No Action~~				~~2022 With Action~~				~~2022 With Action with Mitigation~~				~~Mitigation Measures~~
		~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	
~~SIGNALIZED INTERSECTIONS~~														
~~GRAND STREET~~														
~~21. GRAND STREET AND ESSEX STREET~~														
~~Grand Street~~	~~EB~~	~~LTR~~	~~0.71~~	~~27.1~~	~~C~~	~~LTR~~	~~0.84~~	~~35.4~~	~~D~~	~~LTR~~	~~0.89~~	~~42.1~~	~~D~~	~~Mitigation not required.~~
	~~WB~~	~~LTR~~	~~0.54~~	~~18.7~~	~~B~~	~~LTR~~	~~0.76~~	~~22.4~~	~~C~~	~~LT~~	~~0.42~~	~~17.3~~	~~B~~	~~Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes.~~
		-	-	-	-	-	-	-	-	~~R~~	~~0.34~~	~~16.7~~	~~B~~	
~~Essex Street~~	~~NB~~	~~LTR~~	~~0.24~~	~~16.1~~	~~B~~	~~LTR~~	~~0.26~~	~~16.3~~	~~B~~	~~LTR~~	~~0.26~~	~~16.3~~	~~B~~	~~Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.~~
	~~SB~~	~~LTR~~	~~0.26~~	~~16.5~~	~~B~~	~~LTR~~	~~0.29~~	~~16.9~~	~~B~~	~~LTR~~	~~0.29~~	~~16.9~~	~~B~~	
~~Overall Intersection~~		-	**~~0.49~~**	**~~20.4~~**	**~~C~~**	-	**~~0.56~~**	**~~24.4~~**	**~~C~~**	-	**~~0.59~~**	**~~24.9~~**	**~~C~~**	**~~[Measures reflect geometric improvements needed to mitigate the intersection during the weekday PM peak period.]~~**
~~22. GRAND STREET AND NORFOLK STREET~~														
~~Grand Street~~	~~EB~~	~~L~~	~~0.15~~	~~12.1~~	~~B~~	~~L~~	~~0.39~~	~~17.4~~	~~B~~	~~L~~	~~0.20~~	~~12.3~~	~~B~~	~~Install "No Standing Anytime" regulation along the north curb of the WB approach for 100-feet from the intersection to allow for two moving lanes.~~
		~~T~~	~~0.42~~	~~14.7~~	~~B~~	~~T~~	~~0.42~~	~~14.8~~	~~B~~	~~T~~	~~0.42~~	~~14.8~~	~~B~~	
	~~WB~~	~~TR~~	~~0.93~~	~~32.2~~	~~C~~	~~TR~~	~~1.15~~	~~98.2~~	~~F~~	~~T~~	~~0.46~~	~~14.4~~	~~B~~	~~Restripe the WB approach from one 11-foot travel lane, one 5-foot bike lane, and one 10-foot parking lane to one 11-foot left-through lane, one 5-foot bike lane, and one 10-foot right turn lane.~~
		-	-	-	-	-	-	-	-	~~R~~	~~0.67~~	~~18.4~~	~~B~~	
~~Overall Intersection~~		-	**~~0.94~~**	**~~26.3~~**	**~~C~~**	-	**~~1.15~~**	**~~72.1~~**	**~~E~~**	-	**~~0.67~~**	**~~15.8~~**	**~~B~~**	
~~23. GRAND STREET AND SUFFOLK STREET~~														
~~Grand Street~~	~~EB~~	~~T~~	~~0.41~~	~~14.7~~	~~B~~	~~T~~	~~0.42~~	~~14.8~~	~~B~~					~~Mitigation not required.~~
	~~WB~~	~~T~~	~~0.88~~	~~29.2~~	~~C~~	~~T~~	~~0.96~~	~~40.7~~	~~D~~					
~~Suffolk Street~~	~~SB~~	~~LR~~	~~0.07~~	~~18.7~~	~~B~~	~~LR~~	~~0.32~~	~~22.2~~	~~C~~					
~~Overall Intersection~~		-	**~~0.54~~**	**~~24.5~~**	**~~C~~**	-	**~~0.70~~**	**~~31.5~~**	**~~C~~**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	LTR	0.77	30.7	C	LTR	0.92	48.8	D	LTR	0.88	41.0	D	Modify signal timing: Shift 1 s of green time from NB / SB phase to the EB / WB phase [EB / WB green time shifts from 45 s to 46 s; NB / SB green time shifts from 35 s to 34 s].
	WB	L	0.04	11.7	B	L	0.05	11.7	B	L	0.05	11.2	B	
		T	0.71	20.9	C	T	0.78	23.3	C	T	0.76	22.0	C	
		R	0.71	25.2	C	R	0.83	34.9	C	R	0.80	31.2	C	
Clinton Street	NB	LTR	0.52	24.8	C	LTR	0.59	27.1	C	LTR	0.61	28.6	C	
	SB	LTR	0.01	16.9	B	LTR	0.05	17.3	B	LTR	0.05	18.0	B	
Overall Intersection		-	**0.66**	**24.5**	**C**	-	**0.78**	**31.6**	**C**	-	**0.76**	**28.8**	**C**	
25. GRAND STREET AND EAST BROADWAY														
Grand Street	EB	T	0.12	6.8	A	T	0.13	6.9	A					Mitigation not required.
	WB	LT	0.81	16.7	B	LT	0.88	20.0	B					
East Broadway	NB	R	0.00	6.1	A	R	0.00	6.1	A					
Overall Intersection		-	**0.81**	**15.3**	**B**	-	**0.87**	**18.1**	**B**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	8.5	A	TR	-	8.5	A					Mitigation not required.
Ludlow Street	SB	LT	-	10.8	B	LT	-	10.9	B					
Overall Intersection		-	-	**10.2**	**B**	-	-	**10.2**	**B**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	11.8	B	LT	-	11.9	B					Mitigation not required.
Ludlow Street	SB	TR	-	12.4	B	TR	-	12.5	B					
Overall Intersection		-	-	**12.1**	**B**	-	-	**12.2**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	12.2	B	TR	-	12.7	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A					
Overall Intersection		-	-	**5.6**	**A**	-	-	**5.6**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.2	A	LT	-	7.2	A					Mitigation not required.
Suffolk Street	SB	TR	-	11.9	B	TR	-	15.2	C					
Overall Intersection		-	-	**0.9**	**A**	-	-	**4.7**	**A**					

~~**2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)**~~

~~Intersection & Approach~~		~~2022 No Action~~				~~2022 With Action~~				~~2022 With Action with Mitigation~~				~~Mitigation Measures~~
		~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	~~Mvt.~~	~~V/C~~	~~Control Delay~~	~~LOS~~	
~~**UNSIGNALIZED INTERSECTIONS**~~														
~~**30. BROOME STREET AND CLINTON STREET**~~														
~~Broome Street~~	~~NB~~	~~LTR~~	-	~~10.0~~	~~B~~	~~LTR~~	-	~~10.2~~	~~B~~					~~Mitigation not required.~~
	~~SB~~	~~LTR~~	-	~~8.1~~	~~A~~	~~LTR~~	-	~~8.1~~	~~A~~					
~~**Overall Intersection**~~		**-**	**-**	~~**8.6**~~	~~**A**~~	**-**	**-**	~~**8.3**~~	~~**A**~~					

~~**Notes:**~~
~~(1) Control delay is measured in seconds per vehicle.~~
~~(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.~~
~~Denotes a significant impact.~~

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service[1]

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
1. EAST HOUSTON STREET AND BOWERY														
East Houston Street	EB	L	0.69	39.7	D	L	0.69	39.8	D	L	0.69	39.6	D	Modify signal timing: Shift 1 s of green time from NBL / SBL lag phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; NBL / SBL lag phase green time shifts from 8 s to 7 s; signal timing during all other phases remain the same].
		TR	0.88	34.0	C	TR	0.91	35.6	D	TR	0.88	33.0	C	
	WB	L	0.86	50.9	D	L	0.85	51.1	D	L	0.85	50.5	D	
		TR	1.01	52.8	D	TR	1.05	62.7	E	TR	1.01	51.1	D	
Bowery	NB	L	0.74	38.2	D	L	0.74	38.2	D	L	0.79	40.9	D	
		TR	0.98	47.0	D	TR	0.98	48.1	D	TR	0.98	48.1	D	
	SB	L	0.57	32.9	C	L	0.57	33.0	C	L	0.60	34.5	C	
		TR	1.02	54.7	D	TR	1.02	54.7	D	TR	1.02	54.7	D	
Overall Intersection		-	**0.99**	**45.9**	**D**	-	**1.02**	**49.3**	**D**	-	**1.01**	**45.5**	**D**	
2. EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE														
East Houston Street	EB	T	0.86	36.0	D	T	0.88	37.3	D	T	0.85	34.7	C	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase and 1 s of green time from NB phase to the SB phase [EB / WB green time shifts from 26 s to 27 s; NB phase green time shifts from 21 s to 19 s; and SB phase green time shifts from 20 s to 21 s].
		R	0.97	65.0	E	R	1.03	78.4	E	R	0.99	66.5	E	
	WB	L	0.81	68.8	E	L	0.81	68.8	E	L	0.81	68.3	E	
		T	0.92	38.8	D	T	0.95	42.5	D	T	0.92	37.9	D	
Chrystie Street / Second Avenue	NB	L	0.53	34.3	C	L	0.54	34.5	C	L	0.62	38.7	D	
		LR	0.58	36.9	D	LR	0.59	37.0	D	LR	0.62	40.3	D	
	SB	L	1.29	169.0	F	L	1.31	179.0	F	L	1.24	146.4	F	
		LT	1.29	164.9	F	LT	1.31	175.5	F	LT	1.25	147.6	F	
		R	0.98	46.9	D	R	0.98	46.9	D	R	0.94	40.1	D	
Overall Intersection		-	**0.95**	**77.2**	**E**	-	**0.98**	**82.2**	**F**	-	**0.97**	**71.2**	**E**	
3. EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE														
East Houston Street	EB	L	0.82	40.7	D	L	0.82	40.8	D	L	0.82	40.6	D	Modify signal timing: Shift 1 s of green time from NB phase to the EB / WB phase [EB / WB green time shifts from 29 s to 30 s; NB phase green time shifts from 25 s to 24 s; signal timing during all other phases remain the same].
		T	0.90	33.3	C	T	0.92	34.7	C	T	0.89	32.2	C	
		R	1.27	160.2	F	R	1.27	160.2	F	R	1.22	137.6	F	
	WB	L	0.44	32.0	C	L	0.44	32.2	C	L	0.44	31.7	C	
		TR	1.14	103.6	F	TR	1.18	120.0	F	TR	1.14	102.2	F	
Allen Street	NB	L	0.38	27.7	C	L	0.41	28.1	C	L	0.42	29.1	C	
		T	0.82	36.0	D	T	0.84	36.7	D	T	0.87	39.6	D	
		R	0.24	26.8	C	R	0.24	26.8	C	R	0.26	27.8	C	
Overall Intersection		-	**1.08**	**66.3**	**E**	-	**1.08**	**71.9**	**E**	-	**0.99**	**64.4**	**E**	

[1] This table has been revised for the FGEIS.

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
EAST HOUSTON STREET														
4. EAST HOUSTON STREET AND ESSEX STREET / AVENUE A														
East Houston Street	EB	L	0.34	15.8	B	L	0.35	16.2	B	L	0.33	16.7	B	Modify signal timing: Shift 1 s of green time from EB / WB phase to the EBL / WBL lead phase and 1 s of green time from EB / WB phase to the NB / SB phase [EBL / WBL lead phase green time shifts from 9 s to 10 s; EB / WB green time shifts from 32 s to 30 s; NB / SB green time shifts from 27 s to 28 s; LPI remains the same].
		TR	0.81	28.1	C	TR	0.85	29.0	C	TR	0.90	32.6	C	
	WB	L	0.88	40.8	D	L	0.90	44.4	D	L	0.90	44.6	D	
		T	0.84	32.5	C	T	0.88	34.5	C	T	0.94	41.5	D	
		R	0.14	20.2	C	R	0.15	20.2	C	R	0.16	21.7	C	
Essex Street / Avenue A	NB	LTR	0.70	32.6	C	LTR	0.73	33.4	C	LTR	0.69	31.5	C	
	SB	LTR	1.09	77.8	E	LTR	1.15	103.6	F	LTR	1.08	72.6	E	
Overall Intersection		-	**0.91**	**37.3**	**D**	-	**0.96**	**42.1**	**D**	-	**1.01**	**41.1**	**D**	
STANTON STREET														
5. STANTON STREET AND ESSEX STREET														
Stanton Street	EB	LTR	0.24	22.4	C	LTR	0.25	22.5	C					Mitigation not required.
Essex Street	NB	TR	0.30	11.7	B	TR	0.32	11.9	B					
	SB	LT	0.53	14.0	B	LT	0.57	14.5	B					
Overall Intersection		-	**0.42**	**13.9**	**B**	-	**0.44**	**14.2**	**B**					
6. STANTON STREET AND NORFOLK STREET														
Stanton Street	EB	LT	0.22	16.1	B	LT	0.23	16.2	B					Mitigation not required.
Norfolk Street	NB	TR	0.39	18.7	B	TR	0.52	21.1	C					
Overall Intersection		-	**0.31**	**17.7**	**B**	-	**0.37**	**19.5**	**B**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
RIVINGTON STREET														
7. RIVINGTON STREET AND ESSEX STREET														
Rivington Street	WB	LTR	0.80	40.8	D	LTR	0.92	56.3	E	LTR	0.86	45.2	D	Shift the NB approach centerline six feet to the east and restripe the NB approach from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 9-foot wide parking lane (the sidewalk along the east curb of Essex Street would be extended seven inches to the west to mitigate pedestrian impacts). Restripe the SB receiving side from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 12-foot wide travel lane, one 11-foot wide travel lane, and one 10-foot wide parking lane. Shift the SB approach centerline six feet to the east and restripe the SB approach from one 10-foot wide travel lane and one 17-foot wide travel lane with parking to one 11-foot wide travel lane, one 12-foot wide travel lane, and one 10-foot wide parking lane (which would operate as a travel lane during the Saturday peak hour). Restripe the NB receiving side from one 10-foot wide travel lane and one 18-foot wide travel lane with parking to one 12-foot wide travel lane and one 10-foot wide parking lane. Install "No Standing 10 AM to 7 PM Saturday" regulations along the west curb of the SB approach for 250-ft. from the intersection to allow for two moving lanes. Modify signal timing: Shift 3 s of green time from NB / SB phase to the WB phase [WB green time shifts from 31 s to 34 s; NB / SB green time shifts from 49 s to 46 s].
Essex Street	NB	LT	0.33	11.7	B	LT	0.34	11.7	B	LT	0.36	13.5	B	
	SB	TR	0.92	42.2	D	TR	0.98	52.6	D	T	0.48	24.0	C	
										R	0.81	36.9	D	
Overall Intersection		-	**0.86**	**32.5**	**C**	-	**0.95**	**41.4**	**D**	-	**0.83**	**27.8**	**C**	
8. RIVINGTON STREET AND NORFOLK STREET														
Rivington Street	WB	TR	0.57	22.4	C	TR	0.60	23.2	C					Mitigation not required.
Norfolk Street	NB	LT	0.41	17.6	B	LT	0.58	20.1	C					
Overall Intersection		-	**0.49**	**20.3**	**C**	-	**0.59**	**21.7**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
9. DELANCEY STREET AND ALLEN STREET														
Delancey Street	EB	TR	0.82	27.3	C	TR	0.85	28.4	C					Mitigation not required.
	WB	L	0.73	38.8	D	L	0.74	39.3	D					
		TR	0.88	17.7	B	TR	0.89	18.4	B					
Allen Street	NB	T	0.71	34.9	C	T	0.74	36.0	D					
		R	0.37	16.0	B	R	0.37	16.1	B					
	SB	TR	0.75	34.1	C	TR	0.75	34.3	C					
Overall Intersection		-	**0.84**	**25.1**	**C**	-	**0.85**	**25.9**	**C**					
10. DELANCEY STREET AND ORCHARD STREET														
Delancey Street	EB	T	0.63	14.2	B	T	0.65	14.5	B					Mitigation not required.
	WB	TR	0.77	16.9	B	TR	0.78	17.1	B					
Orchard Street	NB	LTR	0.25	23.1	C	LTR	0.25	23.1	C					
Overall Intersection		-	**0.58**	**15.9**	**B**	-	**0.58**	**16.2**	**B**					
11 .DELANCEY STREET AND LUDLOW STREET														
Delancey Street	EB	TR	0.63	14.5	B	TR	0.66	15.0	B					**Unmitigatable Impact**
	WB	T	0.95	20.6	C	T	0.96	21.0	C					
Ludlow Street	SB	LTR	1.15	124.3	F	LTR	1.29	180.5	F					
Overall Intersection		-	**1.03**	**27.7**	**C**	-	**1.08**	**33.3**	**C**					
12. DELANCEY STREET AND ESSEX STREET														
Delancey Street	EB	TR	0.87	23.6	C	TR	0.90	25.0	C					**Unmitigatable Impact**
	WB	T	1.03	41.0	D	T	1.03	41.8	D					
		R	0.87	28.3	C	R	0.97	45.2	D					
	NB	LT	0.51	33.6	C	LT	0.65	39.5	D					
		R	0.95	83.0	F	R	1.46	274.0	F					
Essex Street	SB	TR	0.83	41.5	D	TR	0.94	53.2	D					
Overall Intersection		-	**0.99**	**34.8**	**C**	-	**1.12**	**45.3**	**D**					
13. DELANCEY STREET AND NORFOLK STREET														
Delancey Street	EB	T	0.73	15.7	B	T	0.75	16.1	B					**Unmitigatable Impact**
	WB	TR	0.95	24.1	C	TR	0.96	26.1	C					
Norfolk Street	NB	TR	0.75	36.1	D	TR	0.92	53.4	D					
		R	0.72	35.4	D	R	0.93	55.1	E					
Overall Intersection		-	**0.87**	**22.3**	**C**	-	**0.95**	**26.5**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
DELANCEY STREET														
14. DELANCEY STREET AND SUFFOLK STREET														
Delancey Street	EB	TR	0.95	23.6	C	TR	1.06	50.1	D					**Unmitigatable Impact**
	WB	T	0.80	17.1	B	T	0.81	17.2	B					
Suffolk Street	SB	R	0.29	24.0	C	R	0.38	26.7	C					
Overall Intersection		-	**0.70**	**20.7**	**C**	-	**0.80**	**35.4**	**D**					
15. DELANCEY STREET AND CLINTON STREET														
Delancey Street	EB	T	1.03	36.4	D	T	1.05	43.2	D					**Unmitigatable Impact**
Williamsburg Bridge	WB	T	0.98	32.8	C	T	0.99	34.5	C					
		R	0.78	23.1	C	R	0.79	23.9	C					
Delancey Street Service Road	WB	R	0.66	72.2	E	R	0.79	101.4	F					
Clinton Street	NB	R	1.09	97.2	F	R	1.09	97.2	F					
Overall Intersection		-	**1.05**	**38.4**	**D**	-	**1.06**	**42.4**	**D**					
BROOME STREET														
16. BROOME STREET AND ESSEX STREET														
Broome Street	EB	LTR	0.18	21.4	C	LTR	0.25	22.6	C	LTR	0.29	26.2	C	Modify signal phasing: Add a new lead phase for the SB approach. The existing signal phasing [EB phase has 31 s of green time; NB / SB phase has 49 s of green time] would be modified to the following: EB phase will have 27 s of green time, SB-lead phase will have 19 s of green time, and NB / SB phase will have 29 s of green [each phase will have 3 s amber and 2 s all red].
Essex Street	NB	TR	0.25	11.2	B	TR	0.29	11.6	B	TR	0.50	26.6	C	
	SB	L	1.05	73.2	E	L	1.71	352.4	F	L	1.04	74.4	E	
		T	0.26	11.6	B	T	0.27	11.6	B	T	0.25	9.4	A	
Overall Intersection		-	**0.71**	**35.7**	**D**	-	**1.15**	**149.0**	**F**	-	**0.80**	**43.0**	**D**	
17. BROOME STREET AND NORFOLK STREET														
Broome Street	EB	L	0.53	15.7	B	L	0.94	44.7	D					Mitigation not required.
	WB	R	0.14	10.5	B	R	0.26	12.1	B					
Norfolk Street	NB	T	0.49	24.1	C	T	0.65	26.5	C					
Overall Intersection		-	**0.52**	**18.1**	**B**	-	**0.83**	**34.0**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action				2022 With Action				2022 With Action with Mitigation				Mitigation Measures
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
GRAND STREET														
18. GRAND STREET AND ALLEN STREET														
Grand Street	EB	LTR	0.96	54.1	D	LTR	1.11	98.8	F	LTR	0.96	49.9	D	**Option 1** Modify signal timing: Shift 3 s of green time from NB / SB phase to the EB / WB phase and 1 s from the NB / SB phase to SB-lead phase [EB / WB green time shifts from 27 s to 30 s; SB-lead phase green time shifts from 10 s to 11 s, NB / SB green time shifts from 23 s to 19 s, NB-lead phase green time remains the same].
	WB	LTR	0.68	37.0	D	LTR	0.86	50.8	D	LTR	0.77	39.3	D	
Allen Street	NB	L	0.55	49.7	D	L	0.55	49.7	D	L	0.55	49.7	D	
		TR	0.47	20.1	C	TR	0.48	20.2	C	TR	0.53	23.8	C	
	SB	L	1.06	112.3	F	L	1.08	119.4	F	L	0.98	89.4	F	
		TR	0.60	21.9	C	TR	0.60	21.9	C	TR	0.66	25.0	C	
Overall Intersection		-	**0.73**	**38.2**	**D**	-	**0.79**	**48.7**	**D**	-	**0.77**	**38.0**	**D**	
										LTR	0.88	37.6	D	**Option 2** Modify signal phasing: The existing signal phasing [EB / WB phase has 27 s of green; SB-lead phase has 10 s of green; NBTR / SBTR phase has 23 s of green; NB-lag phase has 10 s of green] would be modified to the following: EB / WB phase will have 32 s of green time; NBL / SBL phase will have 12 s of green time; NBTR / SBTR phase will have 31 s of green time [each phase will have 3 s amber and 2 s all red]. Pedestrians are not allowed to cross during the NBL / SBL phase.
										LTR	0.72	34.5	C	
										L	0.45	42.9	D	
										TR	0.59	26.9	C	
										L	0.90	69.6	E	
										TR	0.75	30.4	C	
										-	**0.83**	**35.5**	**D**	
19. GRAND STREET AND ORCHARD STREET														
Grand Street	EB	LT	0.70	22.2	C	LT	0.78	24.1	C					Mitigation not required.
	WB	TR	0.50	21.0	C	TR	0.59	23.4	C					
Orchard Street	NB	LTR	0.14	15.4	B	LTR	0.14	15.4	B					
Overall Intersection		-	**0.42**	**21.1**	**C**	-	**0.46**	**23.1**	**C**					
20. GRAND STREET AND LUDLOW STREET														
Grand Street	EB	TR	0.58	21.7	C	TR	0.66	23.8	C					Mitigation not required.
	WB	LT	0.35	17.8	B	LT	0.47	20.0	B					
Ludlow Street	SB	LTR	0.24	16.6	B	LTR	0.26	16.9	B					
Overall Intersection		-	**0.41**	**19.5**	**B**	-	**0.46**	**21.3**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
21. GRAND STREET AND ESSEX STREET														
Grand Street	EB	LTR	0.78	31.4	C	LTR	0.91	45.3	D	LTR	0.88	40.1	D	Modify signal timing: Shift 1 s of green time from NB / SB phase to the EB / WB phase [EB / WB green time shifts from 40 s to 41 s; NB/SB green time shifts from 40 s to 39 s].
	WB	LTR	0.54	18.7	B	LTR	0.77	22.5	C	LTR	0.75	21.5	C	
Essex Street	NB	LTR	0.24	16.1	B	LTR	0.26	16.3	B	LTR	0.27	17.0	B	
	SB	LTR	0.26	16.5	B	LTR	0.29	16.9	B	LTR	0.29	17.7	B	
Overall Intersection		-	**0.52**	**21.9**	**C**	-	**0.60**	**27.6**	**C**	-	**0.59**	**25.9**	**C**	
22. GRAND STREET AND NORFOLK STREET														
Grand Street	EB	L	0.10	11.2	B	L	0.23	12.8	B					Mitigation not required.
		T	0.35	13.7	B	T	0.35	13.7	B					
	WB	T	0.34	13.0	B	T	0.46	14.4	B					
		R	0.31	12.8	B	R	0.38	13.5	B					
Overall Intersection		-	**0.34**	**13.0**	**B**	-	**0.46**	**13.8**	**B**					
23. GRAND STREET AND SUFFOLK STREET														
Grand Street	EB	T	0.34	13.7	B	T	0.34	13.7	B					Mitigation not required.
	WB	T	0.69	19.7	B	T	0.77	22.6	C					
Suffolk Street	SB	LR	0.08	18.9	B	LR	0.40	23.6	C					
Overall Intersection		-	**0.44**	**17.8**	**B**	-	**0.62**	**20.7**	**C**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	V/C	Control Delay	LOS	2022 With Action Mvt.	V/C	Control Delay	LOS	2022 With Action with Mitigation Mvt.	V/C	Control Delay	LOS	Mitigation Measures
SIGNALIZED INTERSECTIONS														
GRAND STREET														
24. GRAND STREET AND CLINTON STREET														
Grand Street	EB	TR	0.45	16.8	B	LTR	0.57	19.5	B					**Unmitigatable Impact** Install pedestrian countdown signals to accommodate signal timing modifications during the weekday PM peak period.
	WB	L	0.05	11.7	B	L	0.05	11.8	B					
		T	0.57	17.9	B	T	0.64	19.4	B					
		R	1.01	63.7	E	R	1.36	200.0	F					
Clinton Street	NB	LTR	0.65	33.1	C	LTR	0.68	34.3	C					
Overall Intersection		-	**0.88**	**33.1**	**C**	-	**1.10**	**68.2**	**E**					
25. GRAND STREET AND EAST BROADWAY														

Grand Street	EB	T	0.12	6.8	A	T	0.13	6.9	A					Mitigation not required.
	WB	LT	0.81	16.7	B	LT	0.88	20.2	C					
East Broadway	NB	R	-	11.5	B	R	-	11.6	B					
Overall Intersection		-	**0.81**	**15.1**	**B**	-	**0.88**	**18.1**	**B**					
UNSIGNALIZED INTERSECTIONS														
26. STANTON STREET AND LUDLOW STREET														
Stanton Street	EB	TR	-	8.5	A	TR	-	8.6	A					Mitigation not required.
Ludlow Street	SB	LT	-	10.8	B	LT	-	11.0	B					
Overall Intersection		-	**-**	**10.2**	**B**	-	**-**	**10.3**	**B**					
27. RIVINGTON STREET AND LUDLOW STREET														
Rivington Street	WB	LT	-	14.4	B	LT	-	14.6	B					Mitigation not required.
Ludlow Street	SB	TR	-	13.4	B	TR	-	13.7	B					
Overall Intersection		-	**-**	**13.9**	**B**	-	**-**	**14.2**	**B**					
28. BROOME STREET AND LUDLOW STREET														
Broome Street	EB	TR	-	12.2	B	TR	-	12.7	B					Mitigation not required.
Ludlow Street	SB	LT	-	7.3	A	LT	-	7.3	A					
Overall Intersection		-	**-**	**5.5**	**A**	-	**-**	**5.6**	**A**					
29. BROOME STREET AND SUFFOLK STREET														
Broome Street	WB	LT	-	7.7	A	LT	-	7.7	A					Mitigation not required.
Suffolk Street	SB	TR	-	11.1	B	TR	-	14.9	B					
Overall Intersection		-	**-**	**4.3**	**A**	-	**-**	**10.8**	**B**					

2022 No Action vs. 2022 With Action vs. 2022 Mitigation Saturday Peak Hour Traffic Levels of Service (cont'd)

Intersection & Approach		2022 No Action Mvt.	2022 No Action V/C	2022 No Action Control Delay	2022 No Action LOS	2022 With Action Mvt.	2022 With Action V/C	2022 With Action Control Delay	2022 With Action LOS	2022 With Action with Mitigation Mvt.	2022 With Action with Mitigation V/C	2022 With Action with Mitigation Control Delay	2022 With Action with Mitigation LOS	Mitigation Measures
UNSIGNALIZED INTERSECTIONS														
30. BROOME STREET AND CLINTON STREET														
Broome Street	NB	LTR	-	8.5	A	LTR	-	8.5	A					Mitigation not required.
Overall Intersection		-	**-**	**1.3**	**A**	-	**-**	**1.4**	**A**					

Notes:
(1) Control delay is measured in seconds per vehicle.
(2) Overall intersection V/C ratio is the critical lane groups' V/C ratio.
Denotes a significant impact.

✷

A. INTRODUCTION

Unavoidable significant adverse impacts are defined as those that meet the following two criteria:

- There are no reasonably practicable mitigation measures to eliminate the impact; and
- There are no reasonable alternatives to the proposed actions that would meet the purpose and need for the actions, eliminate the impact, and not cause other or similar significant adverse impacts.

As described in Chapter 21, "Mitigation Measures," a number of the potential impacts identified for the proposed actions could be mitigated. However, as described below, in some cases, impacts from the proposed actions would not be fully mitigated.

B. HISTORIC AND CULTURAL RESOURCES

As described in Chapter 7, "Historic and Cultural Resources," the proposed actions, through redevelopment, would have significant adverse direct impacts on two architectural resources that have been determined eligible for listing on the State and National Registers of Historic Places (S/NR)—the Essex Street Market and the former fire station at 185 Broome Street. In addition, new development on Site 1 could have significant adverse visual and contextual impacts on the S/NR-listed Lower East Side Historic District and the S/NR-eligible Eastern Dispensary, which also appears to be eligible for New York City Landmark (NYCL) designation.

As described in Chapter 21, "Mitigation Measures," the New York City Economic Development Corporation (NYCEDC) and the City of New York Department of Housing Preservation & Development (HPD) are undertaking continuing consultation with the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) regarding the development of mitigation measures for these significant adverse impacts. Potential mitigation measures that could partially mitigate the impact of the demolition of the Essex Street Market and former fire station may include, to the extent practicable and feasible: preparation of Historic American Buildings Survey documentation of all four buildings of the Essex Street Market and the former fire station; a permanent interpretive exhibit or exhibits about the Essex Street Market and the former fire station, which could be developed and installed in the new Essex Street Market facility on Site 2 or in another appropriate location near the project site; architectural salvage if any significant exterior or interior architectural elements could be removed and incorporated into the proposed development; and design of the new buildings on Sites 2, 8, 9, and/or 10 to reference the design of the Essex Street Market, which could include incorporating references to such architectural elements of the market buildings as the strip windows and the incised lettering above the entrances.

In addition, NYCEDC and HPD will continue to consult with LPC and/or OPRHP regarding the compatibility of the proposed development on Site 1 with the S/NR-listed Lower East Side District, in which it is located, and with the S/NR-eligible and NYCL-eligible Eastern Dispensary. Submission of the preliminary design of the proposed building on Site 1 to LPC and/or OPRHP for review and comment following a developer's Request for Proposals (RFP) process (described below) is proposed as a means to eliminate or partially mitigate the potential contextual and visual impact on the historic district and Eastern Dispensary from the proposed development on Site 1. If LPC and/or OPRHP determine that the preliminary design of the proposed building on Site 1 would result in a significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary and no design changes, which are feasible and practicable given NYCEDC and HPD's goals and objectives, are identified to eliminate or fully mitigate this impact, it would constitute an unmitigable significant adverse impact on the Lower East Side Historic District and/or the Eastern Dispensary.

At this time, there are no specific development proposals for Sites 1 through 6 and 8 through 10, and future developers will be selected pursuant to an RFP process. For sites that may be under the jurisdiction of HPD, mitigation would, to the extent practicable and feasible, either be undertaken by HPD or required to be undertaken by the developer(s) through provisions in the Land Disposition Agreement (LDA) between HPD and the developer(s). For City properties that may be managed by NYCEDC, mitigation would, to the extent practicable and feasible, either be undertaken by NYCEDC or required to be undertaken by the developer(s) through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s).

C. TRANSPORTATION.

As discussed in Chapter 13, "Transportation," the proposed actions would result in significant adverse traffic impacts at locations within the traffic study area. The vast majority of the locations that would be significantly impacted could be mitigated using standard traffic improvements such as signal timing and phasing changes, parking regulation changes to gain or widen a travel lane at key intersections, and lane restriping.

Following the issuance of the Draft Generic Environmental Impact Statement (DGEIS), the New York City Department of Transportation (NYCDOT) adopted and began implementing an area-wide Delancey Street Safety Improvements plan to improve pedestrian, bicycle, and vehicular safety conditions along the Delancey Street corridor. Some significantly impacted intersections that were mitigated in the DGEIS would be unmitigated in the Final Generic Environmental Impact Statement (FGEIS) due to these safety oriented changes, particularly along Delancey Street where vehicular traffic capacity would be reduced in order to enhance overall pedestrian, bicycle, and vehicular traffic safety in response to community needs. In addition, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. These changes to the study area's transportation network were incorporated as part of the FGEIS.

Under the proposed actions, a maximum of ten ~~six~~ intersections would experience unmitigable impacts in the 2022 With Action year (but not in all peak hours). Of these ten ~~six~~ intersections, one intersection, the intersection of East Houston Street ~~Delancey Street~~ and Allen Street/First Avenue, could be partially mitigated. At this intersection, traffic improvements would be able to mitigate one, but not all, of the impacted movements during the weekday AM peak hour. The nine ~~five~~ other intersections that would remain unmitigated are the intersections of: East

Houston Street and Chrystie Street/Second ~~Allen Street/First~~ Avenue;~~, and~~ Delancey Street with Allen Street, Ludlow Street, Essex Street, Norfolk Street, Suffolk Street and Clinton Street; Broome Street and Norfolk Street; and Grand Street and Clinton Street. Specific peak hours affected are described in detail in Chapter 21, "Mitigation Measures."

~~The New York City Department of Transportation (NYCDOT) is currently developing an areawide plan to improve traffic and pedestrian safety in the study area. Also, signal timing modifications are being proposed by NYCDOT along Allen Street to improve service along the M15 bus line. Details of these plans, when finalized, will be incorporated between the completion of the Draft Generic Environmental Impact Statement (DGEIS) and Final Generic Environmental Impact Statement (FGEIS) should the plans be adopted prior to release of the FGEIS. As a result, mitigation measures and findings presented in the FGEIS may be different than those identified in the DGEIS.~~

Under the proposed actions, up to two sidewalks could experience unmitigable impacts in the 2022 With-Action year (but not in all peak hours). These potential significant impacts would occur at the west sidewalk of Essex Street between Delancey and Broome Streets and the east sidewalk of Essex Street between Delancey and Rivington Streets. As discussed in Chapter 13, "Transportation" and Chapter 21, "Mitigation Measures," subsequent to the issuance of the DGEIS, at NYCDOT's direction, the pedestrian trip assignment was revised to direct more pedestrian trips on Essex Street. These changes resulted in increased project-generated pedestrian trips on Essex Street's sidewalks and crosswalks, and subsequently in potential significant adverse impacts at these sidewalk locations. In addition, the pedestrian analysis for the 2022 With Action condition was performed by incorporating the pedestrian activities generated by the project's RWCDS full build-out. The sidewalk analysis used the narrowest pedestrian walking paths by reducing the available sidewalk widths from obstructions created by subway stairways, street furniture, and "shy-distances" (i.e., the space left between pedestrians and curbs/building façades) throughout the entire length of these sidewalk segments, following the *2000 Highway Capacity Manual* guidelines. These assumptions reduced the effective widths to approximately 20 to 30 percent of the overall widths available at these two sidewalk locations. The combination of all these factors resulted in the potential for significant adverse sidewalk impacts at these locations in the future 2022 With Action condition.

For the east sidewalk of Essex Street between Delancey and Rivington Streets, the potential significant adverse pedestrian impact could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 7 inches. The potential significant adverse pedestrian impact at the west sidewalk of Essex Street between Delancey and Broome Streets could be fully mitigated by widening the sidewalk from its existing width of 13 feet to 13 feet and 8 inches. However, these mitigation measures to widen the sidewalks by 7 and 8 inches are not feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways would preclude any widening towards the west side. Although widening the sidewalk by extending in to the roadbed is a potential mitigation measure, NYCDOT does not typically undertake such widening except for extending corners by providing bulbouts; thus, the potential significant adverse sidewalk impacts would be unmitigated.

It should also be noted that the pedestrian analysis presents a RWCDS assessment of future pedestrian levels since the project's development program and design may not be fully realized as assumed in the RWCDS in the future conditions, resulting in different travel patterns at these locations.

D. CONSTRUCTION

As described in Chapter 19, "Construction," construction of the proposed development would be required to include measures to reduce noise levels during construction as required by the New York City Noise Control Code. Even with these measures, a conservative analysis based on a conceptual worst-case construction activity and equipment schedule determined that noise levels due to construction activities would result in significant adverse noise impacts at some sensitive receptors (i.e., residential/school buildings) immediately adjacent to some of the proposed development sites. Construction activities would be expected to result at various times in significant adverse noise impacts at ~~15~~ 3 locations including 350 Grand Avenue (Seward Park High School) and the outdoor balconies of two residential buildings south of Grand Street near Clinton Street.

~~Some potential receptor controls that could be used to mitigate the impacts at the 10 residential/commercial locations where interior L_{10} values would be expected to exceed the value considered acceptable by CEQR criteria include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. Such measures may affect the ability to achieve project goals with regard to the development of affordable housing and/or other project amenities; however, further exploration of the measures will be conducted between DGEIS and FGEIS to determine the practicability and feasibility of implementing these measures to minimize or avoid the potential significant adverse impacts, taking into account the practicability relative to project goals. Should it be determined that there are no practicable mitigation measures, taking into account project goals, and should the development sites be developed and constructed as conservatively presented in this conceptual schedule, up to 10 residential/commercial locations would be expected to experience an unmitigated significant adverse impact at various times.~~

The refined construction analysis performed between the DGEIS and FGEIS predicted construction noise impacts at fewer windows at Seward Park High School and a shorter duration of impacts. The remaining impacts at the school are a result of noise generated by construction of Sites 1, 2, and 3.

Upon selection of a developer for each of these development sites, an additional construction noise analysis shall be completed by the developer(s) of each site, taking into consideration: (1) the specific development project(s) to be constructed; (2) the anticipated construction timeline and sequencing in relation to the other project sites; (3) the proposed construction means and methodologies, and any new available technologies that exist at the time of construction to reduce construction noise; and (4) the path and source controls, which are to be implemented in conjunction with the project. The Office of the Deputy Mayor for Economic Development (ODMED), as lead agency, and HPD and/or NYCEDC will review the additional analyses.

If the additional analyses find that construction at any of the three development sites would continue to have the potential to result in significant noise impacts at Seward Park High School, the developer(s) of the site(s) with the potential to result in significant noise impacts will investigate whether additional path and source controls may be available to mitigate the potential significant impact and the extent to which the impact would be mitigated.

If the additional analysis, taking into account the detailed information on construction methodology, timing and sequencing and any available additional path and source controls, still shows the potential for significant noise impacts at Seward Park High School resulting from construction at one of the development sites, the developer of that site will explore potential receptor controls for the school facility in consultation with the New York City School Construction Authority (SCA). Potential receptor controls to be considered may include the installation of interior storm windows at locations with single-glazed windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air conditioning, so that the impacted façades of the school can maintain a maximum interior noise environment of 45dBA under closed-window conditions. These measures would have the potential to mitigate the impacts at Seward Park High School. In the event that implementing such receptor controls is not practicable, as determined by ODMED as lead agency in consultation with HPD and/or NYCEDC, the proposed actions would result in a partially mitigated impact on Seward Park High School, as set forth in this FGEIS.

For properties that may be under the jurisdiction of HPD or developed through an HPD program, additional mitigation (source and path control measures) identified in the refined and/or additional analyses would be required to be undertaken by the developer(s) through provisions in a Land Disposition Agreement, to be entered into at the time of closing. The Land Disposition Agreement would also require the use of a construction monitor, which would operate under the oversight of ODMED, to ensure such measures are implemented during construction activities. In the event it is determined that receptor controls will be implemented at the school, the developer(s) would be required to fund and install the measures (in coordination with ODMED, HPD and SCA) at the affected facades of the school prior to the commencement of construction at the site(s) causing the noise impact.

For properties that may be under the jurisdiction of NYCEDC, noise control measures identified in the refined and/or additional analyses, including receptor controls if determined practicable, would be required to be undertaken by the developer(s) through provisions of a contract or other legally binding agreement between NYCEDC and the developer(s). The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMED, to ensure that such measures are implemented during construction activities.

~~At limited times during the construction period, Seward Park High School (350 Grand Street) would be expected to experience significant noise impacts that may be considered unmitigated. The west, north, and east facades of the school building may experience elevated noise as a result of the proposed actions. The DGEIS discloses worst-case construction-related noise impacts at the school. However, it is possible that based on further assessment of conditions at the school, certain facades (or portions thereof) may be less affected (or not be affected at all) by project-related construction noise. Further assessment related to construction impacts at the school will be conducted between DGEIS and FGEIS to refine the area of potential impact. Some potential receptor controls that could be used to mitigate the impacts include the installation of interior storm windows, replacement of single-glazed windows with acoustically rated windows, improvements in the sealing of the existing windows, and/or the provision of air-conditioning so that the impacted structures can maintain a closed-window condition. The project sponsors will explore potential mitigation measures between DGEIS and FGEIS. In the event that mitigation measures are not determined feasible and practicable, the impact would be unmitigated.~~

In addition, at the ~~four (4)~~ two residential buildings that have the potential to experience noise impacts only at outdoor balconies at various floors, there would be no feasible or practicable mitigation to mitigate the construction noise impacts at the balconies. Therefore these balconies would be considered to experience unmitigated significant noise impacts as a result of construction.

Thus, should the development sites be developed and constructed as conservatively presented in the conceptual schedule in Chapter 19, “Construction,” up to ~~15~~ 3 locations could experience significant impacts for certain limited periods during construction. ✷

Chapter 23: Growth-Inducing Aspects of the Proposed Actions

The term "growth-inducing aspects" generally refers to the potential for a proposed project to trigger additional development in areas outside the project site that would otherwise not have such development without the proposed project. The *City Environmental Quality Review (CEQR) Technical Manual* (January 2012 edition) indicates that an analysis of the growth-inducing aspects of a proposed project is appropriate when the project:

- Adds substantial new land use, new residents, or new employment that could induce additional development of a similar kind or of support uses, such as retail establishments to serve new residential uses; and/or
- Introduces or greatly expands infrastructure capacity.

The proposed actions would be limited to the project site, which would be developed with mixed-income residential, commercial, community or cultural uses, parking, and publicly accessible open space. As discussed in Chapter 2, "Land Use, Zoning, and Public Policy," the proposed actions would be expected to improve land use conditions in the study area by replacing underutilized sites with new development that would integrate with, and knit together, surrounding communities. While the new uses would contribute to growth in the City and State economies, they would not be expected to induce additional notable growth outside the project site. It is anticipated that the consumer needs of the new residential and worker populations would largely be satisfied by a combination of the new retail uses that would be included as part of the proposed actions and the existing retail stores in the area. The area already contains a broad mix of commercial uses including local delis and tailors; and a growing number of restaurants and drinking establishments. It is possible that development resulting from the proposed actions and other developments in the area could prompt some new retail development from those looking to capitalize on the area's increased consumer base. Induced commercial development, if it were to occur, would be limited and would likely include stores catering to the new residential and worker populations, such as food stores, restaurants, beauty salons and dry cleaners.

In addition, the proposed actions would not include the introduction or expansion of infrastructure capacity (e.g., sewers, central water supply) that would result in indirect development.

Therefore, the proposed actions would not induce significant new growth in the surrounding area. ✷

Chapter 24: Irreversible and Irretrievable Commitments of Resources

There are a number of resources, both natural and built, that would be expended in the construction and operation of the proposed development pursuant to the proposed actions. These resources include the materials used in construction; energy in the form of fuel and electricity consumed during construction and operation of the reasonable worst-case development scenario (RWCDS); and the human effort (i.e., time and labor) required to develop, construct, and operate various components of the proposed actions.

The resources are considered irretrievably committed because their reuse for some purpose other than the proposed actions would be highly unlikely. The proposed actions constitute an irreversible and irretrievable commitment of the project site as a land resource, thereby rendering land use for other purposes infeasible, at least in the near term.

These commitments of land resources and materials are weighed against the benefits of the proposed actions. The proposed actions would transform several underutilized City-owned properties into a thriving, financially viable, mixed-use development. The proposed actions would provide affordable and market-rate housing units, commercial and retail uses, community facilities and other neighborhood amenities (e.g., parking, a new and expanded facility for the public Essex Street Market, and publicly accessible open space). The mix of uses would bring a greater level of pedestrian activity to the project site, making the neighborhood more inviting and appealing to live in and visit. In addition, the increased pedestrian activity that would result from the proposed actions would increase foot traffic and retail demand, benefitting existing retail stores in the area.

The proposed development includes relocating the existing Essex Street Market to a new, larger facility, which would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control. The City would give existing vendors the first opportunity to relocate their business to the new market facility on Site 2, when the facility is complete and ready for occupancy.

In addition, the proposed actions would replace underutilized sites with new development that would integrate with, and knit together, surrounding communities. ✷

A. INTRODUCTION

This chapter of the Final Generic Environmental Impact Statement (FGEIS) summarizes and responds to the substantive oral and written comments received during the public comment period for the Draft Generic Environmental Impact Statement (DGEIS) for the Seward Park Mixed-Use Development Project. The public hearing on the DGEIS was held concurrently with the hearing on the project's Uniform Land Use Review Procedure (ULURP) draft applications on July 11, 2012 at Spector Hall at the New York City Department of City Planning located at 22 Reade Street, New York, NY 10007. The comment period for the DGEIS remained open until 5:00 PM on Monday, July 23, 2012. In addition, this chapter responds to substantive comments contained in Manhattan Community Board 3's ULURP resolution dated June 1, 2012 and in the Manhattan Borough President's recommendations dated July 5, 2012, both undertaken pursuant to ULURP.

Section B identifies the organizations and individuals who provided relevant comments on the DGEIS. Section C contains a summary of these relevant comments and a response to each. These summaries convey the substance of the comments made, but do not necessarily quote the comments verbatim.

B. LIST OF ORGANIZATIONS AND INDIVIDUALS WHO COMMENTED ON THE DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

ELECTED OFFICIALS

1. Brian Cook, Director of Land Use, Planning and Development for the Manhattan Borough President, oral testimony July 11, 2012 (Cook)
2. Scott M. Stringer, Borough President of Manhattan, Manhattan Borough President Recommendation dated July 5, 2012 (Stringer)

MANHATTAN COMMUNITY BOARD 3

3. Dominic Berg, former Chair of Manhattan Community Board 3, oral and written testimony dated July 11, 2012 (Berg)
4. Linda Jones, Co-Chair of Manhattan Community Board 3's Land Use, Zoning, and Public and Private Housing Committee, oral and written testimony dated July 11, 2012 (Jones)

* This chapter is new to the FGEIS.

5. Gigi Li, Chair of Manhattan Community Board 3, oral testimony dated July 11, 2012 (Li)
6. Manhattan Community Board 3 Resolution dated June 1, 2012 (CB3 Resolution)

INTERESTED INDIVIDUALS AND ORGANIZATIONS

7. Gilbert Alicea, oral testimony dated July 11, 2012 (Alicea)
8. Walter Arevalo, oral testimony dated July 11, 2012 (Arevalo)
9. Liang Chen, oral testimony dated July 11, 2012 (Chen)
10. Harriet Cohen, Chair of Seward Park Area Redevelopment Coalition, oral and written testimony dated July 11, 2012 (Cohen)
11. Lisa Davis, written testimony dated July 10, 2012 co-signed by Diane Daniels, Francisca Cruz, Rosa Brobeck, Anthony Feliciano, Eduardo Valenti, Gloria Caban, Guillermina Pizarro, Julio Huerta, Gilbert Alicea (Davis, et al.)
12. Denise Dawson-Seña, representing Reverend Afiya Diane Dawson, oral and written testimony dated July 11, 2012 (Dawson-Seña)
13. Tito Delgado, oral testimony dated July 11, 2012 (Delgado)
14. Yolanda Donato, Workers' Center of the National Mobilization Against Sweatshops, oral testimony dated July 11, 2012 (Donato)
15. Philip Freedman, Retail, Wholesale and Department Store Union, oral and written testimony dated July 11, 2012 (Freedman)
16. Lucille Garrasquero, oral and written testimony dated July 11, 2012 (Garrasquero)
17. Jose Gonzalez, oral testimony dated July 11, 2012 (Gonzalez)
18. Herman Hewitt, President, Lower East Side People's Mutual Housing Association, oral testimony dated July 11, 2012 (Hewitt)
19. Jinny Khanduja, Citizens Housing and Planning Council, oral testimony dated July 11, 2012 (Khanduja)
20. Soo Young Lee, oral testimony dated July 11, 2012 (S. Lee)
21. Wah Lee, Chinese Staff and Workers Association, oral testimony dated July 11, 2012 (W. Lee)
22. Brett Leitner, oral testimony dated July 11, 2012 (Leitner)
23. Tal Lev, oral testimony dated July 11, 2012 (Lev)
24. Fran Marino, St. Mary's Church, oral testimony dated July 11, 2012 (Marino)
25. Richard Moses, President, Lower East Side Preservation Initiative, written comments dated July 19, 2012 (Moses)
26. Valerio Orselli, Executive Director of Cooper Square Mutual Housing Association, oral and written testimony dated July 11, 2012 (Orselli)
27. Joyce Ravitz, Chairperson of Cooper Square Committee, oral and written testimony dated July 11, 2012 (Ravitz)

28. Sara Romanoski, East Village Community Coalition, oral testimony dated July 11, 2012 (Romanoski)
29. Emilie Rosenblatt, Good Old Lower East Side, oral testimony dated July 11, 2012 (Rosenblatt)
30. Maritza Silva-Farrell, Alliance for a Greater New York, oral and written testimony dated July 11, 2012 (Silva-Farrell)
31. Xi Yan So, oral testimony dated July 11, 2012 (So)
32. Mei Rang Song, oral testimony dated July 11, 2012 (Song)
33. Benjamin Tirado, oral testimony dated July 11, 2012 (Tirado)
34. Walmart-Free NYC Coalition, written testimony dated July 18, 2012 (Walmart-Free)
35. Yana Walton, Retail Action Project, oral testimony dated July 11, 2012 (Walton)
36. Xiu Hua Xu, oral testimony dated July 11, 2012 (Xu)
37. Quan Yan, oral testimony dated July 11, 2012 (Yan)
38. Stephanie Yazgi, Walmart Free NYC Coalition, oral and written testimony dated July 11, 2012 (Yazgi)
39. Bob Zuckerman, Executive Director of the Lower East Side Business Improvement District, oral testimony dated July 11, 2012 (Zuckerman)

C. COMMENTS AND RESPONSES

PROJECT REVIEW PROCESS AND PUBLIC PARTICIPATION

Comment 1: The public hearing was not well announced in the community. (W. Lee, Song, Donato, S. Lee, Rosenblatt)

Response: The noticing of the public hearing for the draft ULURP applications and DGEIS was done in conformance with all applicable rules and regulations on the ULURP and CEQR process. The public hearing was calendared at the City Planning Commission's public meeting on Wednesday, June 20, 2012. In accordance with CEQR requirements, the public notice appeared in the *City Record* on June 27 and June 28, 2012 and in the *New York Daily News* on June 27, 2012. The public notice was posted on the website of the Mayor's Office of Environmental Coordination on June 21, 2012. The notice also was placed on NYCEDC's website in English and Spanish on June 29, 2012.

Comment 2: On May 22nd after three-and-a-half years of debate, discussions and public input from members of the community, Community Board 3 voted unanimously to support the Seward Park Mixed-Use Development Project with conditions. But I would like to say that the plan before you represents the kind of responsible and balanced development that the communities surrounding the Seward Park sites would like to see come to fruition. (Li, Berg, Jones)

Response: Comment noted.

COMMUNITY FACILITIES

Comment 3: The proposed project should also include a community center and child care facilities. (W. Lee, Yan, Gonzalez)

Response: A community center and child care facilities would not be precluded from future development as part of the proposed actions.

Comment 4: The Request for Proposals (RFP) must expressly prohibit dormitories. The City will not select a developer to develop dormitories. (CB3 Resolution)

Response: Although this comment is outside the scope of the GEIS, it is noted that the City committed to Community Board 3 that the RFP will expressly prohibit dormitories, and the City will not select a developer to build dormitories.

SOCIOECONOMIC CONDITIONS

Comment 5: The proposed project should provide affordable space for small businesses. (So, Xu)

Response: The reasonable worst-case development scenario (RWCDS) studied approximately 632,300 gross square feet (gsf) of commercial uses, which could include offices, a relocated Essex Street Market, and retail such as local and neighborhood services and some retail stores with a larger draw. As described in Chapter 3, "Socioeconomic Conditions," of the GEIS, the retail mix selected for the purposes of analysis provides a range of retail goods, price points, and store sizes that could be expected under zoning in the future with the proposed actions. The new, larger public market would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points.

Comment 6: If this plan goes through, there's going to be massive displacement through luxury development in our community. We all know that when there's a luxury building that comes into our neighborhood, everything around it starts to get more expensive, including our rents, to the point that we can no longer live there. (S. Lee)

Response: The analysis of potential indirect residential displacement in the DGEIS and this FGEIS follows *City Environmental Quality Review (CEQR) Technical Manual* step-by-step methodology in determining that the population introduced by the proposed actions would not result in significant adverse impacts due to indirect residential displacement. Since the population increase would be less than 5 percent of the total study area population, it would not be expected to introduce a population that could substantially affect residential market conditions. In addition, by allocating half of the residential component in the proposed actions to affordable housing, the proposed actions could balance the ongoing upward momentum of rents in the area caused by current trends and future project site redevelopment. The 450 affordable housing units would also expand housing options available to the lower-income residents in the study area, protecting them against indirect displacement in the future.

Comment 7: The RWCDS in the DGEIS states that the worst-case scenario for the commercial and retail portion of the project is "a large-scale department store or discount department store." Many big box stores and supercenters, including Walmart, for example, are not adequately characterized as discount department stores, but rather as general merchandise stores. Under the current proposal for SPURA, a big box store would be able to locate in SPURA, which is a worst-case development scenario not accounted for in the DGEIS.

According to the NAICS coding system, which identifies industry types, "general merchandise stores" is the broadest category. "Department stores" and discount department stores" are subcategories of general merchandise stores, which means that the impact of a general merchandise store would be more unique and more widespread than for a department or discount department store.

In addition, we fear that the opening of a Walmart will not necessarily lead to increased consumer spending, but rather create a reallocation of sales amongst retailers in the area that would extend beyond the ½-mile indicated in the study. Devastating to the local urban retail landscape, this is a worst-case scenario that is not at all captured or addressed by the DGEIS.

Based on this finding, we request that the DGEIS be amended to include an accurate RWCDS. (Walmart-Free)

Response: At this time, no retail tenants have been identified. In the future with the proposed actions, retail uses would be determined by what is allowed under zoning.

In order to provide a conservative analysis, Chapter 3, "Socioeconomic Conditions," of the GEIS, assumes that that the retail program could include, in addition to various small and mid-size retail stores, a 125,000-gsf department or discount department store, a 115,000-gsf home improvement store, and a 65,000-gsf grocery store. This retail mix was selected for the purposes of analysis because it provides the range of retail goods, price points, and store sizes that could be expected under zoning in the future with the proposed actions. While the analysis does not use the term "big box store," it considers the types of retail and store formats that fall within what is typically defined as a big box store.

The categorization of a “big box store” as either a general merchandise store or as a discount department store would not change the analysis in the DGEIS. The preliminary analysis of indirect business displacement due to retail market saturation analyzes capture rates in the Primary Trade Area, which is defined as a 2-Mile perimeter around the project site. The capture rate estimates for shoppers’ goods stores includes general merchandise stores (as noted in Table 3-8 in Chapter 3, “Socioeconomic Conditions”) in addition to furniture and home furnishings stores; electronics and appliance stores; clothing and clothing accessories stores; sporting goods, hobby, book, and music stores; office supply, stationary, and gift stores; and used merchandise stores.

The consideration of a ½-Mile Local Trade Area in the detailed analysis presented in the DGEIS and this FGEIS does not imply that retail sales are expected to be drawn only from this ½-mile area. As stated in the chapter, large-scale department or discount department stores tend to draw sales from a broad trade area. They are not relying on a particular local residential population for their customer base and therefore do not typically have the potential to result in significant adverse impacts due to indirect business displacement from retail market saturation of the local market. Nonetheless, discount department stores and other forms of potential retail would be expected to draw frequent, repeat visits from customers of existing retail concentrations within a more local area, and therefore a detailed analysis is conducted of a ½-Mile Local Trade Area. The detailed analysis states that although there could be some overlap between products offered at existing and proposed project shoppers’ goods stores (which analyzed a large scale 125,000-square-foot department or discount department store), concentrations of existing shoppers’ goods stores distinguish themselves in different ways (e.g., focus on tourists, a focus on ethnic populations, a concentration of a particular type of product). Therefore, many of these stores would not be in direct competition with stores expected from the proposed actions. The categorization of a big box store as a general merchandise store or as a discount department store would not change the detailed analysis that was prepared in the DGEIS.

RESIDENTIAL DEVELOPMENT AND AFFORDABLE HOUSING COMPONENT

Comment 8: The applicants have publicly committed to make the affordable units permanent. To date, however, this commitment has not been codified in the application materials. Given that permanency protects diverse housing for future generations and ensures city residents continue to benefit from this project, the application materials should be updated to reflect this commitment. (Stringer, CB3 Resolution)

Response: The term of housing affordability is not a land use or GEIS issue and, therefore, is outside the scope of the ULURP application and the GEIS. The commitment to permanent affordability will be recorded in the Council and Mayoral approvals of the UDAAP application.

Comment 9: The language of the ULURP documents must include a guarantee that each residential development built (with the exception of senior housing) must have apartments to accommodate all income groups outlined in the plan. In addition, all of the affordable units must be integrated with the market rate housing without discernible differentiation by location, unit mix, size, and material or design quality; there may, however, be differentiation by unit finishings. (CB3 Resolution)

The affordable housing may be built in stages, provided that the ratio of affordable units is never less than 50 percent of all residential units built in any phase. Therefore, the City must guarantee that they will not build only commercial development in any phase of construction. (CB3 Resolution, Gonzalez, Rosenblatt)

Response: Comment noted.

Comment 10: The proposed project includes a significant amount of public benefits and economic generators. The RFP and proposed actions, however, do not prescribe when the affordable housing units need to be constructed. The recent economic downturn has demonstrated that projects can become stalled, and if the affordable housing is not included in the early phase of the project, then the chances of it not being developed are potentially higher. Measures should be taken to ensure that the potential benefits of this project are realized throughout the project’s phasing. As such, the RFP should indicate a preference for developments providing significant affordable housing at every stage of the project. (Stringer, Alicea)

Response: The delivery of affordable housing is an essential aspect of the proposed project. The ULURP language will be amended to ensure that there will always be sufficient square footage available across the project sites within the General Large-Scale Development to produce the desired housing program. In addition, property tax incentives exist that strongly encourage the integration of affordable housing units into each residential development.

Comment 11: The applicants should continue to work with the community on the amount of housing constructed, and to determine the feasibility of increasing the number of affordable units. (Stringer, Dawson-Seña)

Response: Comment noted.

Comment 12: The proposed development should contain 100 percent affordable housing. (W. Lee, So, Song, Xu, Donato)

We would like to see where the market rate housing would be 40 percent of the units. The affordable units should be 60 percent, and the low-income division under the affordable rate should gain the 10 percent that could come from the middle-income division, which should be joined to the market-rate division. (Davis, et al.)

The affordable housing in the plan should be low-income housing and more low and moderate income housing. The affordable housing should be 50 percent low- to moderate and 50 percent middle-income to market rate. Units should be affordable to a variety of incomes within the income ranges, not just the upper limits of each. (Alicea, Orselli, Rosenblatt, Cohen, Marino, Hewitt, Yan)

Response: The proposed program that includes 50 percent of the residential units categorized as affordable units and 50 percent as market rate units is consistent with the project guidelines developed by Manhattan Community Board 3 over an approximately three-year period in a process that included a range of community stakeholders and public input. Further, the proposed project balances a number of project goals, including providing an integrated mixed-income housing program and a thriving, financially viable, mixed-use development.

Comment 13: There should be more low-income housing for seniors. (Alicea, Rosenblatt, Marino)

Response: The proposed project specifies that 10 percent of the total number of residential units (of which 50 percent are categorized as affordable) be dedicated to senior housing, and this program component will be a City commitment specified in the UDAAP Summary included as part of the ULURP application, and it will also be a requirement in the project RFP. In addition, this provision for senior housing is consistent with the project guidelines developed by Manhattan Community Board 3 over an approximately three-year period in a process that included a range of community stakeholders and public input. However, for analysis purposes, the DGEIS and this FGEIS did not assume a senior housing component in the RWCDS, since that would not be the conservative assumption regarding demand for public school seats or publicly-funded day care services. Nothing in the DGEIS or FGEIS analyses would preclude senior housing from being built as part of the project.

Comment 14: The site can likely accommodate a minimum of 1,000 units, thus generating more affordable housing. (Orselli)

We believe that limiting the number of residential units is unnecessary and we would welcome a higher limit or removal of the limit entirely. (Khanduja)

Response: Comment noted.

Comment 15: There should be a Lower East Side community land trust that would retain ownership of the city-owned land and lease it to the developers. The community land trust can then monitor the restrictions designed to protect the affordability of the proposed housing. (Marino)

Response: Comment noted.

Comment 16: The percentage of commercial development seems to us unnecessarily high. In a neighborhood that has lacked adequate housing to meet demand for many decades, we believe there's a higher need for development of housing and we would have welcomed a ratio that is more in favor of residential development. (Khanduja)

Response: The proposed project balances a number of project goals, including providing an integrated mixed-income housing program and a thriving, financially viable, mixed-use development.

Comment 17: By limiting the number of residential units overall and requiring 50 percent of permanently affordable units, the land use plan, as it stands, effectively restricts the development of smaller units for single adults. We also believe that there's a greater need for housing that accommodates smaller households. (Khanduja)

Response: Comment noted.

FORMER SITE TENANTS

Comment 18: The applicants should follow through on commitments to work with community groups, the community board, elected officials and city agencies to identify former site tenants and notify them of their right to occupy affordable units subject to income requirements. The City in partnership with CB3, must conduct extensive and credible outreach to identify, locate and notify all qualifying former site tenants about the proposed new housing development on the project site, their continued right to return to the site, and the application process for priority inclusion in the new housing that is built. (Stringer, CB3 Resolution, Rosenblatt, Jones, Cohen, Marino, Orselli, Ravitz)

Response: The City is working in an ongoing manner with Community Board 3 regarding identification of and outreach to former site tenants of the Seward Park Extension Urban Renewal Area in order to be able to inform people about the housing opportunities for which they may be eligible.

RETAIL STORES

Comment 19: To encourage retail diversity, reduce traffic impacts, maintain the character of the neighborhood and promote the vitality of small businesses in the area, the project should limit the size of the certain use groups to prevent stores of unlimited size. While some flexibility may be desired for specific uses like supermarkets and cinemas, the flexibility should not be extended carte blanche to all uses. The applicants should craft an RFP that favors development proposals that limit retail store sizes to 30,000 square feet with the exception of neighborhood-oriented uses such as grocery stores. A 30,000 square feet restriction would still allow stores large enough to take up nearly an entire floor plate of the proposed buildings (minus circulation, mechanicals, etc.) without significantly altering the neighborhood's character. (Stringer, CB3 Resolution, Rosenblatt, Cohen, Marino, Yazgi, Silva-Farrell, Orselli, Walton, Ravitz, Romanoski)

Response: Comment noted.

Comment 20: The selected developers should be required to choose local stores over national big box retailers and to specify that they won't choose Walmart as a tenant. If Walmart were to try to enter New York City through the project, it would not only devastate and drive down wages for retail workers across the city, but the city would also likely have to contend with a host of environmental issues such as increased traffic and carbon emissions. (Yazgi, Silva-Farrell, Freedman, Walton, Ravitz, Romanoski, Arevalo, Dawson-Seña)

Response: Specific tenants for the proposed development have not been identified, and the selection of tenants is outside the scope of a CEQR analysis.

In order to provide a conservative analysis, the GEIS assumes that that the retail program could include, in addition to various small and mid-size retail stores, a 125,000-gsf department or discount department store, a 115,000-gsf home improvement store, and a 65,000-gsf grocery store. This retail mix was selected for the purposes of analysis because it provides the range of retail goods, price points, and store sizes that could be expected under zoning in the future with the proposed actions. While the analysis does not use the term "big box store," it considers the types of retail and store formats that fall within what is typically defined as a big box store. Further, the GEIS assesses the traffic and air quality impacts from the proposed program. The consideration of a project's effects on wages is beyond the scope of a CEQR analysis.

PUBLIC SCHOOLS

Comment 21: School overcrowding continues to be an ongoing concern in Manhattan. As the Borough President has found through three separate reports on the subject of overcrowding, the city's process of identifying needs for school seats is highly flawed. As a result, many of Manhattan's communities have felt that agencies like the Department of Education (DOE) do not proactively address overcrowding and only respond after significant public outrage.

The DGEIS shows that many existing elementary schools are at or near capacity. The study also projects that the elementary schools in the area will be well over capacity in the next ten years even without the proposed project. This is in part due to Community School District 1 (CSD1) being one of the fastest growing school districts in the city.

As this project does not *significantly* add to the projected overcrowding problem, the creation of a new school is not legally required mitigation. However, this site is one of the few city-owned properties with the potential for locating a new school. Public services, such as schools must keep pace as more housing is built and the city continues to grow.

The proposed development anticipates up to 600,000 square feet of community facilities, more than enough square footage to construct a public school. While DOE does not currently believe there is a need to place a school on the site, the DGEIS demonstrates that the need will exist in the near future. Therefore, as part of the development approvals, the city should develop a means to evaluate school overcrowding as construction commences, and reserve land until the final phase of the project that could be developed with a public school. With appropriate thresholds in place, if the utilization rate demonstrated by the DGEIS is realized, then a new school can be incorporated into the development plan before construction is completed. This safeguard will give the project some flexibility without completely discarding the opportunity of building a school on publicly owned land. (Stringer, W. Lee, Yan, Rosenblatt, Cohen, Marino, Orselli, Dawson-Seña, Ravitz, Hewitt, Leitner)

Response: The RWCDS does not include a school. However, the GEIS studied 114,000 square feet of community facility uses, and a school would not be precluded from development on the project site as a community facility use.

Using methodologies outlined in the *CEQR Technical Manual,* the proposed actions would not result in significant adverse impacts on elementary schools. Although elementary schools within the three sub-districts analyzed would operate with a shortage of seats in 2022, the proposed actions would introduce a small number of students relative to the overall enrollment of the study area. Because the proposed actions would increase the elementary school utilization rate by less than five percentage points, the proposed actions would not result in a significant adverse impact on elementary schools in any of the sub-districts analyzed. Therefore, the proposed actions would not result in a significant adverse impact on elementary schools.

Comment 22: CB3 finds that there is a demonstrable need for a shared District 1 and District 2 Pre-K to 8th grade school to be built as part of the Seward Park Mixed-Use Development Project. The project site straddles the current boundary of Community School Districts 1 and 2. (CB3 Resolution, Jones, Leitner)

A middle school has to be part of the proposed project. (Lev)

Response: The RWCDS does not include a school. However, the DGEIS and this FGEIS studied 114,000 square feet of community facility uses, and a school would not be precluded from development on the project site as a community facility use.

Following methodologies in the *CEQR Technical Manual*, the study area for the analysis of elementary and intermediate schools is the school districts' sub-district in which the project is located. The proposed project site is located in three sub-districts: Sub-districts 1 and 2 of CSD 1 and Sub-district 1 of CSD 2. The analysis considers the potential for impacts on each sub-district, based on the number of units that the proposed project would introduce into the sub-district, and concludes that the proposed actions would not result in significant adverse impacts on elementary and intermediate schools. Therefore, no mitigation (such as a new public school) is required.

LOCAL HIRING AND WAGES

Comment 23: The applicant should follow through on commitments to create an enforcement mechanism for local hiring goals and work with local employment training agencies to ensure local residents benefit from the new jobs created by the project. (Stringer, Yazgi)

Response: The project will utilize the HireNYC program, which connects the City's job seekers and workforce development organizations to economic development projects. Through the program, a developer or business operator agrees to make good-faith efforts to achieve hiring, retention, advancement, and training goals put forth in the project RFP, and in exchange they are able to connect to the public workforce system and receive no-cost business and hiring services. The program works with City agencies and their community partners to market the program and opportunity to local geographies.

Comment 24: Every effort must be made to reach a goal of 50 percent of all jobs being given to CB3 residents, with prevailing wages for construction jobs and living wage for permanent jobs. Of the 50 percent, 25 percent must be new positions, not positions transferred from other sites. Should such efforts be made in consultation with the task force [see below] and it appears that meeting the 50 percent goal is not achievable, agreement can be reached between the task force and the developer as to another reasonable goal. If the project proceeds in phases, each and every phase must commit both in effort and in results to these local hiring provisions. (CB3 Resolution, Rosenblatt, Cohen, Marino, Silva-Farrell, Orselli, Ravitz, Dawson-Seña)

Response: Comment noted.

Comment 25: Issued RFPs should require that the winning developer(s) will provide funding for each phase of development to the Lower East Side Employment Network to support the ongoing monitoring and training of local candidates. This is similar to CB11's requirement on the East 125th Street project. (CB3 Resolution)

Response: Comment noted.

Comment 26: The RFP should specify that selected developers bring in tenants and employers, including for the construction jobs, with a proven track record of supporting workers' rights, good wages, and affordable benefits. A restrictive covenant should be signed that requires all businesses in the project to pay the prevailing wage in construction and building service workers, and a living wage, as defined by $10/hour with benefits or $11.50/hour without benefits to all other workers. (Yazgi, Silva-Farrell, Freedman, Walton, Ravitz)

Response: Comment noted.

MULTIPLE DEVELOPERS

Comment 27: Pending the successful completion of the ULURP process, the applicants have committed to design the RFP to select either a single or multiple developers. However, there are several advantages to selecting multiple developers, given the scale of the proposed project. First, the project would have multiple funding streams, which would prevent construction work from being completely stalled as a result of potential financial setbacks of a single developer. Second, multiple developers could create a more interesting combination of building forms with a wider range of designs and built materials. A variety of buildings would be more fitting for the existing neighborhood as it reflects the mixture of building types in the immediate surrounding area. Lastly, selecting multiple developers would provide greater opportunity to engage local community development corporations (CDC) that have experience developing affordable and supportive housing and working in the specific neighborhood. To achieve the aforementioned benefits and advantages of selecting multiple developers for a project this size, the selection criteria in the RFP should be designed to favor multiple developers. If for any reason a single large developer is selected, the RFP should favor developers that not only have reliable funding streams, but plan on having other advantages found with multiple developers such as varied building form and the inclusion of local CDCs that have experience in the community. Preference should also be given to Lower East Side and/or other local non-profit developers. The cumulative effect of their proposals and subsequent actions must result in a development that adheres to CB3's guidelines and underlying principles. A single developer will have too much leverage against the City and will be able to seek modifications of the RFP from the city as the negotiation process moves forward as seen in numerous other developments throughout NYC. (Stringer, CB3 Resolution)

Response: Comment noted.

ESSEX STREET MARKET

Comment 28: The Essex Street Market vendors must be charged approximately the same or similar rent that they are paying at the time of moving for the same amount of space in the new facility. The applicants should continue to work with the Essex Street Market vendors to assess the impacts of relocation to ensure a potential move of the market does not displace small businesses. If the cost proves prohibitive to vendors, the applicants should either reassess the market's relocation or explore the feasibility of covering the associated costs, or find other partners or otherwise make available additional resources so that the vendors will not be responsible for paying for their own moving costs. (Stringer, CB3 Resolution, Rosenblatt, Jones, Cohen, Marino, Silva-Farrell, Orselli, Ravitz, Romanoski, Zuckerman, Dawson-Seña)

Response: If a new Essex Street Market facility is built, vendors at the existing facility would be given the opportunity to relocate their businesses to the new market building. The rent schedules in the new market building would be commensurate with rents and planned increases at the time of the move. NYCEDC will continue to work closely with the vendors as the larger project moves forward, meeting with them over the summer of 2012 to discuss relocation costs and logistics and gathering vendor input for market facility design.

Comment 29: We urge the City Planning Commission to adopt the Essex Street Market alternative outlined in the EIS which preserves the market in its current location. We are not convinced of the need to relocate the market to site 2 in the southeast corner of Delancey and Essex Streets. The existing site is functional and has been so for the last 70 years and it shows its vitality at this location. It tells the history of push cart peddlers in the competitive small business environment that characterizes the neighborhood. The physical limitations of the existing site we believe can be resolved through physical modifications that are part of this expansion and demolition. (Romanoski)

Response: As described in the DGEIS and this FGEIS, the existing Essex Street Market has several physical limitations such as insufficient storage capabilities, garbage handling, and climate control. Addressing these physical shortcomings in the future may require changes to the existing facility's operations. The new, larger public market would create entrepreneurship opportunities for additional vendors and would allow for a variety of vendor price points. A new facility would be an opportunity for capital investment in the market to address many of the physical limitations of the existing facility. The new market facility would have an improved internal layout, better connections with the street, and expanded common gathering areas for public seating and market events. In addition, the new facility would be energy efficient, be fully compliant with the Americans with Disabilities Act, and have improved storage capabilities, garbage handling, and climate control.

As described in the DGEIS and this FGEIS, potential mitigation measures that could partially mitigate the significant adverse historic resources impact of the demolition of the Essex Street Market may include, to the extent practicable and feasible: a site commemoration plan; architectural salvage; and design of the new buildings on Sites 2, 8, 9, and/or 10 to reference the design of the Essex Street Market.

Comment 30: Authors of the report state preservation would reduce overall development and conclude that the maximum number of housing units would be diminished. We do not believe this projection is an inevitability of preserving the Essex Street Market. We trust that the displacements of the units on that site can be disbursed also around the site. (Romanoski)

Response: The floor area that could be developed on Site 9 is not transferrable to any of the project's other development sites under the actions in this ULURP and, therefore, if the site is not redeveloped, that development square footage would not be realized and the project's overall development square footage would be reduced. As the RWCDS is based on the full development potential of all nine development sites, and its program components (including total residential square footage) are a balance of the commercial, residential and community facility uses as set forth in the CB3 guidelines, removing Site 9 from the development proposal would reduce the project's overall development square footage and, therefore, the total square footage that could be developed as residential.

HISTORIC RESOURCES

Comment 31: We do not believe it is appropriate for state and federal funds to be used to demolish or significantly damage a historic site that is either listed or deemed eligible for listing in the State or National Register of Historic Places. (Moses)

Response: At this time, no specific state or federal funding has been identified or allocated for the proposed project. As described in Chapter 1, "Project Description," of the DGEIS and this FGEIS, construction financing for the residential buildings may come from a variety of private and public (local, state, and federal) sources, including, but not limited to funding from the City of New York Department of Housing Preservation & Development (HPD), the New York City Housing Development Corporation, the United States Department of Housing and Urban

Development, New York State Homes & Community Renewal and the New York State Housing Finance Agency. Accordingly, the historic and cultural resources analysis in the DGEIS and this FGEIS has been prepared in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law) and Section 106 of the National Historic Preservation Act of 1966, so that the analysis may be used as the basis for further review of the proposed actions pursuant to Section 106. It was also prepared in accordance with CEQR guidelines and the State Environmental Quality Review Act (SEQRA).

Neither the State Historic Preservation Act of 1980 (SHPA) nor the National Historic Preservation Act of 1966 (NHPA) preclude a state or federal agency from funding a project that demolishes or significantly damages a historic site. The SHPA was established as a counterpart to the National Historic Preservation Act of 1966 and declares historic preservation to be public policy and in the public interest of New York State. The act created the New York State Register of Historic Places, the official list of sites, buildings, structures, areas or objects significant in the history, architecture, archeology or culture of the state, its communities or the nation. SHPA requires that state agencies consider the effect of their actions on properties listed on or determined eligible for listing on the State Register of Historic Places (SR). This includes consulting with the State Historic Preservation Officer (SHPO) of OPRHP for actions that may cause any change, beneficial or adverse, in the character of a property that is listed on or determined eligible for listing on the SR. It also requires state agencies to avoid or mitigate adverse impacts on such properties to the fullest extent practicable, and to fully explore all feasible and prudent alternatives that would avoid or mitigate adverse impacts on such properties.

Section 106 of the NHPA, as implemented by federal regulations appearing at 36 CFR Part 800, mandates that federal agencies consider the effect of their actions on any properties listed on or determined eligible for listing on the National Register of Historic Places (NR). Federal agency preservation officers, in consultation with the SHPO, must determine whether a proposed action would have any effects on the characteristics of a site that qualify it for the State and National Registers and, if the analysis indicates that the proposed actions would have an adverse effect on a historic property, to seek ways to avoid, minimize, or mitigate effects on historic properties.

In accordance with Section 14.09 and Section 106, potential mitigation measures that could partially mitigate the impact of the demolition of the Essex Street Market and former fire station, to the extent practicable and feasible, were identified in Chapter 21, “Mitigation Measures,” of the DGEIS and this FGEIS. In addition, the GEIS included the assessment of an alternative that retained the four Essex Street Market buildings and the former fire station.

Comment 32: Several types of mitigation have been proposed for the identified significant adverse historic resources impact. We strongly assert that mitigation for demolition typically does not come close to balancing the loss of the cultural/historic resource. Mitigations such as creating museum exhibits on a demolished building's history within the new structure, and preserving a section of the building's façade and building the new structure behind it (i.e., facadism) do not address historic preservation concerns or values. (Moses)

Response: As described in Chapter 7, "Historic and Cultural Resources," of the DGEIS and this FGEIS, the project sponsors are undertaking continuing consultation with LPC, in accordance with CEQR guidelines, regarding the development of mitigation for the significant adverse historic resources impacts and the evaluation of alternatives that may avoid or fully mitigate these significant adverse impacts. Further, because construction financing may come from HUD and/or New York State, the project sponsors are also undertaking continuing consultation with OPRHP pursuant to Section 106 and Section 14.09. The mitigation measures identified in Chapter 21, "Mitigation Measures," of the GEIS are potential mitigation measures subject to continuing consultation with LPC and OPRHP.

Comment 33: The best way to minimize impacts to the area's historic districts—either listed or considered eligible—is for the scale and materials of the new buildings to be sensitive to the surrounding historic sites. This does not mean that the new buildings should slavishly imitate the style of the historic buildings, or resort to apologetically bland generic designs. Conversely, it is most appropriate for the new design to be robustly modern, and to develop a dialogue with the historic buildings in the spirit of the robust architecture of the neighborhood's historic structures. (Moses)

Response: Comment noted.

REAR YARD WAIVER

Comment 34: CB3 recommends that the ULURP document include an action to waive the rear yard requirement for the three sites located north of Delancey Street (Sites 8, 9, and 10). Although the document assumes that these three sites will produce approximately 100 residential units, they are very narrow, no deeper than 70 feet at the widest point, making them difficult to redevelop for residential use. Most of these three sites are in a C4-4A zone, which requires a rear yard. We fear that a building of only 40 or 50 feet in depth will be expensive to build, will make awkwardly designed dwelling units, or may never yield the desired housing. A waiver of the rear yard requirement would make these sites more suitable for housing development. (CB3 Resolution)

Response: Although this topic is outside the scope of the GEIS, it is noted that the three sites north of Delancey Street have sufficient depth to be developed with buildings that have a single-loaded corridor and a 20-foot rear yard and, as such, a waiver of the rear yard requirement is not warranted.

PUBLIC AMENITY PHASING

Comment 35: Regarding the production of community spaces, open spaces, and other "amenities," if the project proceeds in phases as a result of the RFP process, these amenities cannot be "back-ended" to the final phases and the developer(s) must verify the provision of these amenities on a phasing schedule acceptable to CB3. (CB3 Resolution)

Response: Comment noted.

TASK FORCE

Comment 36: The City of New York must ensure that representatives selected by CB3 (no less than 3 members and no more than 7 appointed by the CB3 Chairperson) participate fully and transparently on a task force (similar to what was established for Manhattan Community Board 11 on the East 125th Street project) to provide input in the drafting of the RFP(s) which results from the ULURP action. This task force will meet at a minimum on a bi-monthly recurring basis with City officials.

The task force should be led by and include the above-mentioned CB3 members, as well as one representative from each of the members of the City Council Districts represented in CB3 and one from the Manhattan Borough President, as well as representatives of two local stakeholder groups as appointed by the CB3 Chair. The majority of members of the task force will be composed of CB3 members.

The City should commit to continuing its partnership with the community on the Seward Park Mixed-Use Development Project, including the community's participation within the City's RFP process as follows:

- Prior to releasing the RFP, the City will meet with the task force to request their priority goals. This will include, but not be limited to, a discussion about preferences for ground-floor and retail uses. The task force will review final RFP goals and selection criteria prior to the City's release of the RFP.
- One of the selection criteria in the RFP will be that the task force preferences will be considered in final selection.
- Upon receipt of developer proposals, the City will provide summaries—with identifying information removed—to the task force of viable responses and discuss the proposals. The task force will provide feedback as to which

proposal(s) and aspects of proposal(s) it considers to best meet the community goals. As noted, this feedback will be formally considered as part of the selection criteria.

- Prior to final selection, the City will discuss the proposed selection with the task force.
- Issued RFPs will state that developers will be required to work with the task force during the development, construction, leasing and operation of the project phase(s) in order to ensure ongoing dialogue between the Developer and the community.

The City of New York must ensure that the task force will have the ability to examine and review the RFP(s) regarding compliance with CB3 project goals. The task force will rank proposals in priority order and the City will make all diligent efforts to comply with those recommendations. In addition, CB3 requires written assurances from the City that the RFP will be consistent with the conditions laid out within this approval and will include the attached original CB3 Guidelines passed in January 2011 and June 2011. (CB3 Resolution)

Response: Although this topic is outside the scope of the GEIS, it is noted that the City has committed to the following:

- Prior to releasing the RFP, the City will meet with a task force designated by Community Board 3 to request their priority goals. This will include, but not be limited to, a discussion about preferences for ground-floor and retail uses. The task force will review final RFP goals and selection criteria prior to the City's release of the RFP.
- One of the selection criteria in the RFP will be that the task force preferences will be considered in final selection.
- Upon receipt of developer proposals, the City will provide summaries—with identifying information removed—to the task force of viable responses and discuss the proposals. The task force will provide feedback as to which proposal(s) and aspects of proposal(s) it considers to best meet the community goals. As noted, this feedback will be formally considered as part of the selection criteria.
- Prior to final selection, the City will discuss the proposed selection with the task force.

LOCAL DEVELOPER TEAMING

Comment 37: Issued RFPs will require that all major developers must partner with local nonprofit developers, as has been agreed to by the City in other projects. In addition, those nonprofit partners must be required to build a substantial amount of affordable housing (not less than 20 percent of units). (CB3 Resolution)

Response: Comment noted.

PEDESTRIAN SAFETY

Comment 38: There should be a pedestrian bridge across Delancey Street. (Gonzalez)

Response: A pedestrian bridge is not included as part of the proposed actions. As described in the FGEIS, in June 2012, the New York City Department of Transportation began implementation of the Delancey Street Safety Improvements plan to improve traffic and pedestrian safety along the Delancey Street corridor. Once this plan is fully implemented, it is expected that the pedestrian safety conditions at the high accident locations along the Delancey Street corridor would improve.

✷

Appendix A: Proposed Zoning Text

Seward Park Text Amendment

March 16, 2012

Matter in <u>underline</u> is new, to be added;
Matter in ~~strikeout~~ is old, to be deleted;
Matter within #   # is defined in Section 12-10;
* * * indicates where unchanged text remains in the Zoning Resolution

Article VII
Chapter 4
Special Permits by the City Planning Commission

74-74
Large-Scale General Development

*   *   *

74-743
Special provisions for bulk modification

(a) For a #large-scale general development#, the City Planning Commission may permit:

(1) distribution of total allowable #floor area#, #rooming units#, #dwelling units#, #lot coverage# and total required #open space# under the applicable district regulations within a #large-scale general development# without regard for #zoning lot lines# or district boundaries, subject to the following limitations:

(i) no distribution of #bulk# across the boundary of two districts shall be permitted for a #use# utilizing such #bulk# unless such #use# is permitted in both districts;

(ii) when a #large-scale general development# is located partially in a #Residence District# or in a C1, C2, C3 or C4-1 District and partially in other #Commercial# or #Manufacturing Districts#, no transfer of commercial #floor area# to a #Residence District# or to a C1, C2, C3 or C4-1 District from other districts shall be permitted~~;~~<u>, except that for a #large-scale general development# located partially or wholly within the former Seward Park Extension Urban Renewal Area, a transfer of commercial #floor area# from a C6 District to a C2 District may be permitted;</u>

(2) location of #buildings# without regard for the applicable #yard#, #court#, distance between #buildings#, or height and setback regulations;

*   *   *

(10) for a #large-scale general development# located partially or wholly within the former Seward Park Extension Urban Renewal Area, waiver of the planting requirements of Section 23-892 (In R6 through R10 Districts), provided the area between the #street line# and the #street walls# of the #building# and their prolongations is to be improved as a publicly accessible widened sidewalk.

*   *   *

(b) In order to grant a special permit pursuant to this Section for any #large-scale general development#, the Commission shall find that:

(1) the distribution of #floor area#, #open space#, #dwelling units#, #rooming units# and the location of #buildings#, primary business entrances and #show windows# will result in a better site plan and a better relationship among #buildings# and open areas to adjacent #streets#, surrounding development, adjacent open areas and shore lines than would be possible without such distribution and will thus benefit both the occupants of the #large-scale general development#, the neighborhood and the City as a whole;

(2) the distribution of #floor area# and location of #buildings# will not unduly increase the #bulk# of #buildings# in any one #block# or unduly obstruct access of light and air to the detriment of the occupants or users of #buildings# in the #block# or nearby #blocks# or of people using the public #streets#;

*   *   *

(4) considering the size of the proposed #large-scale general development#, the #streets# providing access to such #large-scale general development# will be adequate to handle traffic resulting therefrom;

(5) when the Commission has determined that the #large-scale general development# requires significant addition to existing public facilities serving the area, the applicant has submitted to the Commission a plan and timetable to provide such required additional facilities. Proposed facilities that are incorporated into the City's capital budget may be included as part of such plan and timetable;

*   *   *

The Commission may prescribe additional conditions and safeguards to improve the quality of the #large-scale general development# and to minimize adverse effects on the character of the surrounding area.

For a phased construction program of a multi-#building# complex, the Commission may, at the time of granting a special permit, require additional information, including but not limited to a proposed time schedule for carrying out the proposed #large-scale general development#, a phasing plan showing the distribution of #bulk# and #open space# and, in the case of a site plan providing for common #open space#, common open areas or common parking areas, a maintenance plan for such space or areas and surety for continued availability of such space or areas to the people they are intended to serve.

*   *   *

74-744
Modification of use regulations

(a) #Use# modifications

(1) Waterfront and related #commercial uses#

*   *   *

(2) Automotive sales and service #uses#

*   *   *

<u>(3) Retail Establishments</u>

<u>For a #large-scale general development# located partially or wholly within the former Seward Park Extension Urban Renewal Area, the City Planning Commission may modify applicable district regulations to allow Use Groups 10, 11A and 12A except for arenas or auditoriums, skating rinks, public auction rooms, trade expositions and stadiums, provided the Commission finds that:</u>

<u>(i) such #uses# will not impair the character of future #uses# or development of the surrounding area; and</u>

<u>(ii) the #streets# providing access to such #uses# will be adequate to handle the traffic generated thereby.</u>

*   *   *

(b) Location of #commercial uses#

For any #large-scale general development#, the City Planning Commission may permit #residential# and non-#residential uses# to be arranged within a #building# without regard for the regulations set forth in Section 32-42 (Location within Buildings), provided the Commission shall find:

(1) the #commercial uses# are located in a portion of the #mixed building# that has separate access to the outside with no opening of any kind to the #residential# portion of the #building# at any #story#;

(2) the #commercial uses# are not located directly over any #story# containing #dwelling units#; and

(3) the modifications shall not have any adverse effect on the #uses# located within the #building#.

(c) Modifications of #sign# regulations

(1) In all #Commercial# or #Manufacturing Districts#, the City Planning Commission may, for #developments# or #enlargements# subject to the provisions of paragraphs (a)(1), (a)(2) or (a)(3) of Section 74-743 (Special provisions for bulk modification), permit the modification of the applicable provisions of Sections 32-64 (Surface Area and Illumination Provisions), 32-65 (Permitted Projection or Height of Signs), 32-66 (Additional Regulations for Signs Near Certain Parks and Designated Arterial Highways), 42-53 (Surface Area and Illumination Provisions), 42-54 (Permitted Projection or Height of Signs), 42-55 (Additional Regulations for Signs Near Certain Parks and Designated Arterial Highways) and the limitations on the location of #signs# in Sections 32-51 and 42-44 (Limitations on Business Entrances, Show Windows or Signs), provided the Commission finds that such modification will result in a better site plan.

(2) For a #large-scale general development# located partially or wholly within the former Seward Park Extension Urban Renewal Area, the City Planning Commission, by authorization, may make the #sign# regulations of a C6-1 District applicable to those portions of such #large-scale general development# within a C2 District, and in addition, may modify the provisions of Section 32-68 (Permitted Signs on Residential or Mixed Buildings) to allow #signs accessory# to non-#residential uses# above the level of the finished floor of the third #story#, provided such #signs# do not exceed a height of 40 feet above #curb level#. In order to grant such authorizations, the Commission shall find that such modifications are consistent with the amount, type and location of #commercial uses# that the Commission finds appropriate within such #large-scale general development#.

The Commission may prescribe appropriate conditions and safeguards to minimize adverse effects on the character of the development.

*   *   *

(END)

Appendix B: Socioeconomic Conditions

Table B-1
Retail Survey

Project Site Immediate Surroundings
Bounded by Stanton Street, Pitt Street, East Broadway, Canal Street, and Allen Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**219**	**24.8%**	**CONVENIENCE GOODS**	**90**	**10.2%**
General Merchandise			**Food and Beverage**		
Department (except discount)			Supermarkets and other grocery	5	
Discount department			Convenience stores	25	
Warehouse clubs and supercenters			Meat markets	3	
All other general merchandise	11		Fish and seafood markets	2	
Clothing and Clothing Accessories			Fruit and vegetable markets	1	
Men’s clothing	28		Other specialty food stores	26	
Women’s clothing	31		Beer, wine, and liquor stores	7	
Children’s clothing	3		**Health and Personal Care**		
Family clothing	3		Pharmacies and drug stores	9	
Accessories	6		Beauty supplies and perfume	3	
Other clothing	16		Other health and personal care		
Shoes	11		**Other Convenience Goods**		
Jewelry	5		Florists	3	
Luggage and leather goods	3		Tobacco stores	1	
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands	5	
Furniture	3		Pet and pet supplies stores		
Floor covering	2		Other miscellaneous convenience goods		
Window treatment	1		**NEIGHBORHOOD SERVICES**	**183**	**20.7%**
All other home furnishings	10		Taxi and limousine services	2	
Electronics and Appliance			Banks	12	
Appliance, television, and other electronics	18		Check cashing	4	
Computer and software			Pawn shops	6	
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores	4	
Sporting goods	7		Fitness and recreational sports centers	2	
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)	2	
Sewing, needlework, and piece	9		Personal & household goods repair (appliance, garden equipment, footwear, etc.)	18	
Musical instrument and supplies			Hair, nail, and skin services	48	
Books	1		Funeral homes and funeral services	1	
Tape, compact disc, and record			Laundromats	9	
Miscellaneous Store Retailers			Drycleaning and laundry services	6	
Optical goods	7		Photofinishing	2	
Office supplies and stationary			Parking lots and garages	11	
Gift, novelty, and souvenier			Medical or dental offices	8	
Used merchandise	10		All other professional offices (travel, tax, etc.)	22	
Art dealers	25		Other neighborhood services (palm reading, etc.)	26	
Other miscellaneous shopping goods	9		**EATING AND DRINKING PLACES**	**174**	**19.7%**
BLDING MTR'LS & GARDEN SUPPLY	**7**	**0.8%**	Full-service restaurants	69	
Home centers			Limited-service eating places	62	
Paint and wallpaper	2		Special food services (e.g., caterers)	1	
Hardware	1		Drinking places (alcoholic beverages)	42	
Other building material dealers	4		**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**211**	**23.9%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	203		Automotive parts, accessories, and tires	0	
Under renovation, no tenant specified	3		Gasoline stations		
Under renovation, future tenant specified	5		Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**884**	**100.0%**	Neighborhood Services	183	20.7%
Shopping Goods	219	24.8%	Eating and Drinking Places	174	19.7%
Blding Mtr'ls & Garden Supply	7	0.8%	Auto-Related Trade	0	0.0%
Convenience Goods	90	10.2%	Vacant Storefronts	211	23.9%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-2
Retail Survey
Avenue B from Tompkins Square Park to East Houston Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**3**	**5.2%**	**CONVENIENCE GOODS**	**13**	**22.4%**
General Merchandise	**0**		**Food and Beverage**	**8**	
Department (except discount)			Supermarkets and other grocery		
Discount department			Convenience stores	6	
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories	**0**		Fruit and vegetable markets		
Men’s clothing			Other specialty food stores		
Women’s clothing			Beer, wine, and liquor stores	2	
Children’s clothing			**Health and Personal Care**	**3**	
Family clothing			Pharmacies and drug stores	1	
Accessories			Beauty supplies and perfume	1	
Other clothing			Other health and personal care	1	
Shoes			**Other Convenience Goods**	**2**	
Jewelry			Florists		
Luggage and leather goods			Tobacco stores	1	
Furniture, Home Furnishings, Equipment	**2**		Newsdealers and newsstands		
Furniture	1		Pet and pet supplies stores	1	
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**11**	**19.0%**
All other home furnishings	1		Taxi and limousine services		
Electronics and Appliance	**0**		Banks	2	
Appliance, television, and other electronics			Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music	**0**		Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services	3	
Books			Funeral homes and funeral services		
Tape, compact disc, and record			Laundromats	2	
Miscellaneous Store Retailers	**1**		Drycleaning and laundry services	2	
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier			Medical or dental offices		
Used merchandise	1		All other professional offices (travel, tax, etc.)	2	
Art delaers			Other neighborhood services (palm reading, etc.)		
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**17**	**29.3%**
BLDING MTR'LS & GARDEN SUPPLY	**0**	**0.0%**	Full-service restaurants	7	
Home centers			Limited-service eating places	6	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware			Drinking places (alcoholic beverages)	4	
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**14**	**24.1%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	14		Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified			Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**58**		Neighborhood Services	11	19.0%
Shopping Goods	3	5.2%	Eating and Drinking Places	17	29.3%
Blding Mtr’ls & Garden Supply	0	0.0%	Auto-Related Trade	0	0.0%
Convenience Goods	13	22.4%	Vacant Storefronts	14	24.1%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-3
Retail Survey
2nd Avenue between East Houston Street and East 6th Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**8**	**10.0%**	**CONVENIENCE GOODS**	**10**	**12.5%**
General Merchandise	**0**		**Food and Beverage**	**7**	
Department (except discount)			Supermarkets and other grocery	1	
Discount department			Convenience stores	6	
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories	**2**		Fruit and vegetable markets		
Men's clothing			Other specialty food stores		
Women's clothing	1		Beer, wine, and liquor stores		
Children's clothing			**Health and Personal Care**	**2**	
Family clothing			Pharmacies and drug stores	2	
Accessories			Beauty supplies and perfume		
Other clothing			Other health and personal care		
Shoes			**Other Convenience Goods**	**1**	
Jewelry	1		Florists	1	
Luggage and leather goods			Tobacco stores		
Furniture, Home Furnishings, Equipment	**0**		Newsdealers and newsstands		
Furniture			Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**10**	**12.5%**
All other home furnishings			Taxi and limousine services		
Electronics and Appliance	**0**		Banks	2	
Appliance, television, and other electronics			Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music	**2**		Photocopy stores		
Sporting goods	1		Fitness and recreational sports centers		
Hobby, toy, and games	1		Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)	1	
Musical instrument and supplies			Hair, nail, and skin services	1	
Books			Funeral homes and funeral services	1	
Tape, compact disc, and record			Laundromats	2	
Miscellaneous Store Retailers	**4**		Drycleaning and laundry services	1	
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier	2		Medical or dental offices		
Used merchandise	1		All other professional offices (travel, tax, etc.)	1	
Art dealers	1		Other neighborhood services (palm reading, etc.)	1	
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**30**	**37.5%**
BLDING MTR'LS & GARDEN SUPPLY	**2**	**2.5%**	Full-service restaurants	23	
Home centers			Limited-service eating places	1	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware	1		Drinking places (alcoholic beverages)	6	
Other building material dealers	1		**AUTO-RELATED TRADE**	**2**	**2.5%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**18**	**22.5%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	7		Automotive parts, accessories, and tires		
Under renovation, no tenant specified	8		Gasoline stations	1	
Under renovation, future tenant specified	3		Car rental		
			Automotive repair and maintenance	1	
STOREFRONT SUMMARY					
Total Storefronts	**80**		Neighborhood Services	10	12.5%
Shopping Goods	8	10.0%	Eating and Drinking Places	30	37.5%
Bldg Mtr'ls & Garden Supply	2	2.5%	Auto-Related Trade	2	2.5%
Convenience Goods	10	12.5%	Vacant Storefronts	18	22.5%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-4
Retail Survey
East 7th Street between Avenue A and Second Avenue

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**15**	**22.7%**	**CONVENIENCE GOODS**	**5**	**7.6%**
General Merchandise	**0**		**Food and Beverage**	**3**	
Department (except discount)			Supermarkets and other grocery		
Discount department			Convenience stores	2	
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories	**10**		Fruit and vegetable markets		
Men's clothing			Other specialty food stores	1	
Women's clothing	4		Beer, wine, and liquor stores		
Children's clothing			**Health and Personal Care**	**1**	
Family clothing			Pharmacies and drug stores		
Accessories	2		Beauty supplies and perfume		
Other clothing	1		Other health and personal care	1	
Shoes			**Other Convenience Goods**	**1**	
Jewelry	3		Florists		
Luggage and leather goods			Tobacco stores	1	
Furniture, Home Furnishings, Equipment	**1**		Newsdealers and newsstands		
Furniture			Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**16**	**24.2%**
All other home furnishings	1		Taxi and limousine services		
Electronics and Appliance	**1**		Banks		
Appliance, television, and other electronics	1		Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music	**1**		Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)	1	
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)	1	
Musical instrument and supplies	1		Hair, nail, and skin services	11	
Books			Funeral homes and funeral services	1	
Tape, compact disc, and record			Laundromats		
Miscellaneous Store Retailers	**2**		Drycleaning and laundry services	2	
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier			Medical or dental offices		
Used merchandise	2		All other professional offices (travel, tax, etc.)		
Art dealers			Other neighborhood services (palm reading, etc.)		
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**26**	**39.4%**
BLDING MTR'LS & GARDEN SUPPLY	**1**	**1.5%**	Full-service restaurants	15	
Home centers			Limited-service eating places	6	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware	1		Drinking places (alcoholic beverages)	5	
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**3**	**4.5%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	3		Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified			Car rental		
			Automotive repair and maintenance		

STOREFRONT SUMMARY

Total Storefronts	**66**		Neighborhood Services	16	24.2%
Shopping Goods	15	22.7%	Eating and Drinking Places	26	39.4%
Blding Mtr'ls & Garden Supply	1	1.5%	Auto-Related Trade	0	0.0%
Convenience Goods	5	7.6%	Vacant Storefronts	3	4.5%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-5
Retail Survey
Bowery between Grand Street and Stanton Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**6**	**10.9%**	**CONVENIENCE GOODS**	**1**	**1.8%**
General Merchandise			**Food and Beverage**		
Department (except discount)			Supermarkets and other grocery		
Discount department			Convenience stores		
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories			Fruit and vegetable markets		
Men’s clothing			Other specialty food stores		
Women’s clothing	1		Beer, wine, and liquor stores		
Children’s clothing			**Health and Personal Care**		
Family clothing			Pharmacies and drug stores		
Accessories	1		Beauty supplies and perfume		
Other clothing			Other health and personal care	1	
Shoes			**Other Convenience Goods**		
Jewelry			Florists		
Luggage and leather goods			Tobacco stores		
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture			Pet and pet supplies stores		
Floor covering	2		Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**4**	**7.3%**
All other home furnishings			Taxi and limousine services		
Electronics and Appliance			Banks	2	
Appliance, television, and other electronics	1		Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services		
Books			Funeral homes and funeral services		
Tape, compact disc, and record			Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services		
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier			Medical or dental offices	1	
Used merchandise			All other professional offices (travel, tax, etc.)		
Art dealers	1		Other neighborhood services (palm reading, etc.)	1	1.8%
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**4**	**7.3%**
BLDING MTR'LS & GARDEN SUPPLY	**24**	**43.6%**	Full-service restaurants	2	
Home centers			Limited-service eating places		
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware	3		Drinking places (alcoholic beverages)	2	
Other building material dealers	21		**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**16**	**29.1%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	15		Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified	1		Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**55**	**100.0%**	Neighborhood Services	4	7.3%
Shopping Goods	6	10.9%	Eating and Drinking Places	4	7.3%
Bldng Mtr’ls & Garden Supply	24	43.6%	Auto-Related Trade	0	0.0%
Convenience Goods	1	1.8%	Vacant Storefronts	16	29.1%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-6
Retail Survey
Mott Street between Spring Street and East Houston Street; Prince Street between Centre Street and Bowery

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**52**	**59.1%**	**CONVENIENCE GOODS**	**3**	**3.4%**
General Merchandise			**Food and Beverage**		
Department (except discount)			Supermarkets and other grocery	1	
Discount department			Convenience stores		
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories			Fruit and vegetable markets		
Men's clothing	6		Other specialty food stores		
Women's clothing	24		Beer, wine, and liquor stores		
Children's clothing			**Health and Personal Care**		
Family clothing	4		Pharmacies and drug stores	1	
Accessories	4		Beauty supplies and perfume	1	
Other clothing	1		Other health and personal care		
Shoes	3		**Other Convenience Goods**		
Jewelry	4		Florists		
Luggage and leather goods			Tobacco stores		
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture			Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**9**	**10.2%**
All other home furnishings			Taxi and limousine services		
Electronics and Appliance			Banks		
Appliance, television, and other electronics			Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores	1	
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services	5	
Books	1		Funeral homes and funeral services		
Tape, compact disc, and record			Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services	1	
Optical goods	1		Photofinishing		
Office supplies and stationary			Parking lots and garages	1	
Gift, novelty, and souvenier			Medical or dental offices	1	
Used merchandise	3		All other professional offices (travel, tax, etc.)		
Art dealers	1		Other neighborhood services (palm reading, etc.)		
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**15**	**17.0%**
BLDING MTR'LS & GARDEN SUPPLY	**1**	**1.1%**	Full-service restaurants	9	
Home centers			Limited-service eating places	6	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware	1		Drinking places (alcoholic beverages)		
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**8**	**9.1%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	7		Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified	1		Car rental		
			Automotive repair and maintenance		

STOREFRONT SUMMARY					
Total Storefronts	**88**	**100.0%**	Neighborhood Services	9	10.2%
Shopping Goods	52	59.1%	Eating and Drinking Places	15	17.0%
Blding Mtr'ls & Garden Supply	1	1.1%	Auto-Related Trade	0	0.0%
Convenience Goods	3	3.4%	Vacant Storefronts	8	9.1%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-7
Retail Survey
Grand Street between Allen Street and Mott Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**23**	**22.3%**	**CONVENIENCE GOODS**	**28**	**27.2%**
General Merchandise			**Food and Beverage**		
Department (except discount)	2		Supermarkets and other grocery	3	
Discount department			Convenience stores	7	
Warehouse clubs and supercenters			Meat markets	1	
All other general merchandise	3		Fish and seafood markets	2	
Clothing and Clothing Accessories			Fruit and vegetable markets	2	
Men’s clothing			Other specialty food stores	3	
Women’s clothing			Beer, wine, and liquor stores		
Children’s clothing			**Health and Personal Care**		
Family clothing	2		Pharmacies and drug stores	6	
Accessories			Beauty supplies and perfume		
Other clothing			Other health and personal care	4	
Shoes	1		**Other Convenience Goods**		
Jewelry	1		Florists		
Luggage and leather goods	1		Tobacco stores		
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture	2		Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**25**	**24.3%**
All other home furnishings	1		Taxi and limousine services		
Electronics and Appliance			Banks	4	
Appliance, television, and other electronics	5		Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)	2	
Sewing, needlework, and piece	1		Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services	7	
Books			Funeral homes and funeral services		
Tape, compact disc, and record	1		Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services		
Optical goods	1		Photofinishing	1	
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier	1		Medical or dental offices	2	
Used merchandise			All other professional offices (travel, tax, etc.)	5	
Art dealers			Other neighborhood services (palm reading, etc.)	4	
Other miscellaneous shopping goods	1		**EATING AND DRINKING PLACES**	**19**	**18.4%**
BLDING MTR'LS & GARDEN SUPPLY	**1**	**1.0%**	Full-service restaurants	7	
Home centers			Limited-service eating places	12	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware	1		Drinking places (alcoholic beverages)		
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**7**	**6.8%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	6		Automotive parts, accessories, and tires		
Under renovation, no tenant specified	1		Gasoline stations		
Under renovation, future tenant specified			Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**103**	**100.0%**	Neighborhood Services	25	24.3%
Shopping Goods	23	22.3%	Eating and Drinking Places	19	18.4%
Blding Mtr’ls & Garden Supply	1	1.0%	Auto-Related Trade	0	0.0%
Convenience Goods	28	27.2%	Vacant Storefronts	7	6.8%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-8
Retail Survey
East Broadway between Catherine Street and Market Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**28**	**23.7%**	**CONVENIENCE GOODS**	**20**	**16.9%**
General Merchandise			**Food and Beverage**		
Department (except discount)	2		Supermarkets and other grocery		
Discount department			Convenience stores	5	
Warehouse clubs and supercenters			Meat markets	1	
All other general merchandise	3		Fish and seafood markets	1	
Clothing and Clothing Accessories			Fruit and vegetable markets		
Men's clothing			Other specialty food stores	5	
Women's clothing			Beer, wine, and liquor stores		
Children's clothing			**Health and Personal Care**		
Family clothing	3		Pharmacies and drug stores	3	
Accessories	1		Beauty supplies and perfume	1	
Other clothing	2		Other health and personal care	1	
Shoes	1		**Other Convenience Goods**		
Jewelry	3		Florists	3	
Luggage and leather goods			Tobacco stores		
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture	1		Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**57**	**48.3%**
All other home furnishings	1		Taxi and limousine services		
Electronics and Appliance			Banks	4	
Appliance, television, and other electronics	5		Check cashing	2	
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores	1	
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)	2	
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)	1	
Musical instrument and supplies			Hair, nail, and skin services	12	
Books	1		Funeral homes and funeral services		
Tape, compact disc, and record	3		Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services		
Optical goods	1		Photofinishing	1	
Office supplies and stationary	1		Parking lots and garages		
Gift, novelty, and souvenier			Medical or dental offices	10	
Used merchandise			All other professional offices (travel, tax, etc.)	20	
Art dealers			Other neighborhood services (palm reading, etc.)	4	
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**11**	**9.3%**
BLDING MTR'LS & GARDEN SUPPLY	**0**	**0.0%**	Full-service restaurants	6	
Home centers			Limited-service eating places	4	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware			Drinking places (alcoholic beverages)	1	
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**2**	**1.7%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	2		Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified			Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**118**	**100.0%**	Neighborhood Services	57	48.3%
Shopping Goods	28	23.7%	Eating and Drinking Places	11	9.3%
Blding Mtr'ls & Garden Supply	0	0.0%	Auto-Related Trade	0	0.0%
Convenience Goods	20	16.9%	Vacant Storefronts	2	1.7%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-9
Retail Survey
Canal Street between Bowery and Mulberry Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**29**	**44.6%**	**CONVENIENCE GOODS**	**5**	**7.7%**
General Merchandise			**Food and Beverage**		
Department (except discount)			Supermarkets and other grocery		
Discount department			Convenience stores		
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories			Fruit and vegetable markets	1	
Men’s clothing			Other specialty food stores	1	
Women’s clothing			Beer, wine, and liquor stores		
Children’s clothing			**Health and Personal Care**		
Family clothing			Pharmacies and drug stores	3	
Accessories			Beauty supplies and perfume		
Other clothing			Other health and personal care		
Shoes	1		**Other Convenience Goods**		
Jewelry	26		Florists		
Luggage and leather goods			Tobacco stores		
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture			Pet and pet supplies stores		
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**25**	**38.5%**
All other home furnishings			Taxi and limousine services		
Electronics and Appliance			Banks	8	
Appliance, television, and other electronics			Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services	4	
Books			Funeral homes and funeral services		
Tape, compact disc, and record			Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services		
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier	2		Medical or dental offices	4	
Used merchandise			All other professional offices (travel, tax, etc.)	9	
Art dealers			Other neighborhood services (palm reading, etc.)		
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**2**	**3.1%**
BLDING MTR'LS & GARDEN SUPPLY	**0**	**0.0%**	Full-service restaurants		
Home centers			Limited-service eating places	2	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware			Drinking places (alcoholic beverages)		
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**4**	**6.2%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	2		Automotive parts, accessories, and tires		
Under renovation, no tenant specified	1		Gasoline stations		
Under renovation, future tenant specified	1		Car rental		
			Automotive repair and maintenance		

STOREFRONT SUMMARY

Total Storefronts	**65**	**100.0%**	Neighborhood Services	25	38.5%
Shopping Goods	29	44.6%	Eating and Drinking Places	2	3.1%
Blding Mtr'ls & Garden Supply	0	0.0%	Auto-Related Trade	0	0.0%
Convenience Goods	5	7.7%	Vacant Storefronts	4	6.2%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Table B-10
Retail Survey
Mulberry Street between Canal Street and Broome Street

Category	Establishments No.	Establishments Percent	Category	Establishments No.	Establishments Percent
SHOPPING GOODS	**21**	**33.9%**	**CONVENIENCE GOODS**	**4**	**6.5%**
General Merchandise			**Food and Beverage**		
Department (except discount)			Supermarkets and other grocery		
Discount department			Convenience stores		
Warehouse clubs and supercenters			Meat markets		
All other general merchandise			Fish and seafood markets		
Clothing and Clothing Accessories			Fruit and vegetable markets		
Men's clothing			Other specialty food stores	1	
Women's clothing			Beer, wine, and liquor stores		
Children's clothing			**Health and Personal Care**		
Family clothing	1		Pharmacies and drug stores		
Accessories	7		Beauty supplies and perfume	1	
Other clothing			Other health and personal care		
Shoes			**Other Convenience Goods**		
Jewelry	1	1.6%	Florists		
Luggage and leather goods			Tobacco stores	1	
Furniture, Home Furnishings, Equipment			Newsdealers and newsstands		
Furniture			Pet and pet supplies stores	1	
Floor covering			Other miscellaneous convenience goods		
Window treatment			**NEIGHBORHOOD SERVICES**	**1**	**1.6%**
All other home furnishings			Taxi and limousine services		
Electronics and Appliance			Banks		
Appliance, television, and other electronics			Check cashing		
Computer and software			Pawn shops		
Camera and photographic supplies			Video tape and disc rentals		
Sporting Goods, Hobby, Books, Music			Photocopy stores		
Sporting goods			Fitness and recreational sports centers		
Hobby, toy, and games			Electronics repair (computer, stereo, etc.)		
Sewing, needlework, and piece			Personal & household goods repair (appliance, garden equipment, footwear, etc.)		
Musical instrument and supplies			Hair, nail, and skin services	1	
Books			Funeral homes and funeral services		
Tape, compact disc, and record			Laundromats		
Miscellaneous Store Retailers			Drycleaning and laundry services		
Optical goods			Photofinishing		
Office supplies and stationary			Parking lots and garages		
Gift, novelty, and souvenier	12	19.4%	Medical or dental offices		
Used merchandise			All other professional offices (travel, tax, etc.)		
Art dealers			Other neighborhood services (palm reading, etc.)		
Other miscellaneous shopping goods			**EATING AND DRINKING PLACES**	**34**	**54.8%**
BLDING MTR'LS & GARDEN SUPPLY	**0**	**0.0%**	Full-service restaurants	32	
Home centers			Limited-service eating places	1	
Paint and wallpaper			Special food services (e.g., caterers)		
Hardware			Drinking places (alcoholic beverages)	1	
Other building material dealers			**AUTO-RELATED TRADE**	**0**	**0.0%**
Lawn and garden equipment & supplies			Automobile dealers		
VACANT STOREFRONTS	**2**	**3.2%**	Other motor vehicle dealers (motorcycle, boat, etc)		
Boarded-up	2	3.2%	Automotive parts, accessories, and tires		
Under renovation, no tenant specified			Gasoline stations		
Under renovation, future tenant specified			Car rental		
			Automotive repair and maintenance		
STOREFRONT SUMMARY					
Total Storefronts	**62**	**100.0%**	Neighborhood Services	1	1.6%
Shopping Goods	21	33.9%	Eating and Drinking Places	34	54.8%
Blding Mtr'ls & Garden Supply	0	0.0%	Auto-Related Trade	0	0.0%
Convenience Goods	4	6.5%	Vacant Storefronts	2	3.2%

Source: AKRF, Inc. field surveys conducted in October and November 2011.

Appendix C: Historic and Cultural Resources Agency Correspondence

Landmarks Preservation Commission
1 Centre Street
9th Floor North
New York, NY 10007
Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: ECONOMIC DEVELOPMENT CORP. / 11DME012M
Project: SEWARD PARK
Date received: 8/3/2011

Comments: Archaeological review only.

LPC review of archaeological sensitivity models and historic maps indicates that there is potential for the recovery of remains from 19th Century occupation for the following Borough, Block and Lot location(s) within the study area: 1003460040 [AKA 1003470001, 1003470036, 1003460001], 1003470071, 1003520028. Accordingly, the Commission recommends that an archaeological documentary study be performed for these location(s) to clarify these initial findings and provide the threshold for the next level of review, if such review is necessary (see CEQR Technical Manual 2010). There are no further archeological concerns for the following Borough, Block and Lot location(s) within the study area: 1003520001, 1003530044, 1003540001, 1003540012, 1004090056; and construction within streetbeds as described in the project.

In addition, the LPC has reviewed the EAS dated 8/12/11 which should be updated to note the findings above. The Commission has also reviewed the Seward Park Draft Scope dated 8/12/11 and notes that Task 7 should be revised for archaeology to state that if the documentary study which will be prepared for the above referenced lots determines that the lots have the potential to contain significant archaeological resources which may be impacted by future development, and the LPC concurs, then subsequent archaeology will be completed as outlined in the CEQR Technical Manual 2010.

Gina Santucci 8/16/2011

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 26165_FSO_DNP_08152011.doc

Landmarks Preservation Commission
1 Centre Street
9th Floor North
New York, NY 10007
Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ARCHAEOLOGY

Project number: ECONOMIC DEVELOPMENT CORP. / 11DME012M
Project: SEWARD PARK
Date received: 1/12/2012

Comments: The LPC is in receipt of the, "Phase 1A Archaeological Documentary Study for Seward Park Mixed Use Development Project, B 346, Lot 40; B 347, Lot 71; Block 352, Lots 1 and 28; Block 353, Lot 44; Block 354, Lots 1 and 12; Block 409, Lot 56; and Block 410, Lot 38, Lower East Side, New York, New York," prepared by AKRF, Inc and dated December 2011.

We concur that archaeological field testing should be completed in portions of Development Sites 2, 3, 4, 5, and 6. The scope for such work should be submitted to the LPC for review and approval before it occurs. Please submit two bound copies of the report to the LPC. In addition, the LPC has reviewed the Preliminary Draft EIS dated January 10, 2012 and concurs with the text pertaining to archaeological resources.

Amanda Sutphin 1/23/2012

SIGNATURE DATE
Amanda Sutphin, Director of Archaeology

File Name: 26165_FSO_ALS_01232012.doc

NYC Landmarks Preservation Commission
1 Centre Street
9th Floor North
New York, NY 10007
Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: ECONOMIC DEVELOPMENT CORP. / 11DME012M
Project: SEWARD PARK
Date received: 1/11/2012

Comments:

The LPC is in receipt of the Historic and Cultural Resources chapter of the PDEIS dated 1/10/2012.

The text is acceptable for archaeological resources. See also attached the comments on the documentary study.

Regarding architectural resources, in order to complete the review, please submit the Mitigation Chapter and the proposed new construction plans and illustrations. Additionally, Engine Co. 17 appears S/NR eligible. Also in the radius: Ridley Department Store, 315 Grand St., LPC heard and S/NR eligible.

Gina Santucci

1/23/2012

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 26165_FSO_GS_01232012.doc

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

RESOURCE EVALUATION

DATE: January 12, 2012 STAFF: Kathy Howe

PROPERTY: various (Lower East Side) MCD: Manhattan

PROJECT REF: 12PR00119 COUNTY: New York

****

ELIGIBLE PROPERTIES:
In addition to the "Known Architectural Resources" (previously determined NR eligible or NR listed properties) in the project area, the following properties appear to meet the criteria for listing on the State and National Registers:

Former Engine Company 17 and Hook & Ladder Company 18, 185 Broome St. (06101.018340). Built in 1937 by the WPA and designed by James T. Treacy, this former fire station meets Criterion C as a representative example of Art Deco civic architecture.

Clinton, Rivington, Stanton Street Historic District (06101.018348)
The Clinton, Rivington, Stanton Street Historic District on the Lower East Side is roughly bounded by Essex, East Houston, Attorney, and Delancey Streets. The district includes nineteenth-century tenements, synagogues, a school, a factory, and commercial buildings. It is significant under Criterion A for its association with the history of immigration in America. The historic district is also significant under Criterion C for its architecture, which reflects the changing character of urban architecture for the poor. Most of the buildings embody the distinctive characteristics of tenement house design and construction. In addition to tenements some of the district's key resources include P.S. 160 at 107 Suffolk St.; Anshe Chesed Synagogue at 172-176 Norfolk St.; and Streit's Matzo Factory at 148-154 Rivington St.

St. Mary's Roman Catholic Church and Rectory, 438-400 Grand St. (06101.018344)
St. Mary's is one of New York City's oldest Catholic churches dating back to the founding of the parish in 1826 and the construction of a Greek Revival church in 1833. The church was remodeled in its current Romanesque style in 1864 by architect Patrick

C. Keely. The twin-towered brick church meets Criterion C as an outstanding example of Romanesque Revival ecclesiastical design. Located west of the church is a contributing brick rectory.

INELIGIBLE PROPERTIES:
Based on the information currently available, the following properties do <u>not</u> appear to meet the criteria for listing on the State and National Registers:

400 Grand St. (06101.018338)

402 Grand St. (06101.018339)

Williamsburg Bridge Railway Terminal (06101.018343)

384-388 Grand St. (06101.018341)

157 Broome St. (06101.018342)

125-127 Stanton St. (06101.018346)

Loew's Delancey, 140-146 Delancey St. (06101.018345)

170-174 Delancey St. (06101.018347)

Please contact Kathy Howe at 518-237-8643 ext. 3266 with any questions. Be sure to use the project reference number (PR) in all future correspondence.

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New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation • Peebles Island, PO Box 189, Waterford, New York 12188-0189
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Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

March 21, 2012

Marilyn Lee
Assistant Vice-President, Planning
New York City Economic Development Corporation
110 Williams Street
New York, NY 10038

Re: HPD
Seward Park Mixed-Use Development Project
Lower East Side, Delancey, Essex and Broome Sites
New York County
12PR00119 (11DME012M)

Dear Ms. Lee:

Thank you for continuing to consult with the New York Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted Historic and Cultural Resources, the Alternatives and Mitigation Chapters of the proposed Draft Environmental Impact Statement (DEIS) in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law).

Based upon our review we have no substantive comments regarding the reviewed DEIS chapters. Please be aware that if the development of any portion of the project involves any federal funding or permits, then the project must be reviewed under Section 106 of the National Historic Preservation Act of 1966. If there are no federal actions, but New York State is involved in funding or permits, then the project must be reviewed under the New York State Historic Preservation Act of 1980. At this time, the proposed project plans are not developed to the point where our office can provide an impact or effect determination. In this case, we expect that the project will require some type of permit or funding which would trigger review by our office. As such, we offer the following comments to assist in future submissions:

1. We would like to see further details regarding the redevelopment plans for sites 2, 9, 8 and 10 as all four contain portions of the historic Essex Street Market.
    a. We understand that current plans include demolition of these historic market buildings. Please be aware that demolition of an historic building under either state or federal preservation laws is considered an Adverse Effect which can only move after a full evaluation of any prudent and feasible alternatives specific to these buildings and the project needs. If no prudent and feasible alternatives are identified then we could enter into a formal agreement which would identify proper mitigation measures.
    b. In addition, at sites 8, 9 and 10 we would like to review any proposed new construction as the sites are directly adjacent to an historic district. At a minimum, new construction at these sites would likely require a construction protection plan for the nearby historic resources.
2. We would like to see further details regarding the proposed redevelopment at site 5. This site contains one historic resource, the firehouse. In this case, we understand current plans call for the demolition of this structure. As above, please keep in mind that demolition of an historic building under either state or federal preservation laws is considered an Adverse Effect.
    a. We would like to review further details of the development work on site 1 as the site is located next to an historic structure and across the street from an historic district. At a minimum, new construction at this site would likely require a construction protection plan for the nearby historic resources.

In each of the instances notes above we would likely ask for the following when they become available:

1. Plans and specifications for all proposed work. Preliminary, renderings, sketches or pre-final documents are preferred.
2. Clear color photographs illustrating all areas to be effected by work. Photographs should be keyed to a site or building plan indicating the location and direction of each image.

If you have any questions, I can be reached at (518) 237-8643, ext. 3282. .

Sincerely,

Beth A. Cumming
Historic Site Restoration Coordinator
e-mail: Beth.cumming@parks.ny.gov

via e-mail

Appendix D: Noise

WD AM

NB Volumes

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					35	88					253	69	21		26			88
N		356	163		338	190		332	352		46	458	34		189			113
NRT		24	74					21			51	21	20		68			24
SLT	25	32			331		21	26			9	131		35	85		16	3
S	164	372		122	52		77	188		14	6	424		47	98			1
SRT				54				16		26	12	97		33	23		22	2
ELT		24	10					32	79			59	36		59	61		52
E	44	34	80				45	18				149	265	251	183	275	275	188
ERT	13	11					38					46		35	44			51
WLT				80	117					19		27			105	304		15
W				123	116	188				245		141	21		178	291	573	483
WRT					43	48			247			56	40		21			185
NB PCEs	751	2798	1074	1167	3350	1685	534	2101	2191	920	1314	5344	1258	1134	3329	2694	2584	3646

PG Auto

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						22												2
N		1	23			23		14	40			1			3			
NRT								2										
SLT							2	21				4					12	
S		22			22													3
SRT																	36	
ELT									25	10	10				1	19		
E								2		7	3	15	20	20	19			10
ERT										77	4							3
WLT					27							1			1			0
W						6				26	26	10	25	25	27	38	23	21
WRT									11		6	14		2	11	21		4

PG Taxi

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						5					2							3
N		3	14		3	14		9	25			1			4			1
NRT		2						2			2	1						
SLT							2	10		5		1					9	1
S	1	11		1	11		3			29	2			1				4
SRT														1			21	
ELT									13						1	9		1
E			2					2				8	11	11	10	1	1	6
ERT																		3
WLT				1	6					2				3	3			
W						2						7	12	11	13	22	17	14
WRT					1				5			4			6	16		2

PG Truck

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					1	2												
N		1	1		1	1		1	4									
NRT																		
SLT							1	1		1		1					6	
S										6	1							1
SRT																		
ELT								1	1									
E												2	3	3	3	3		
ERT																		
WLT				1	2							2						
W												2	4	4	4	5		
WRT									1						1	1		
PCE Increment	0.1%	2.1%	5.5%	1.9%	4.5%	7.8%	5.0%	5.8%	10.9%	32.0%	5.7%	3.8%	16.4%	18.7%	7.7%	11.3%	9.2%	2.7%
dB increment	0.0	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.4	1.2	0.2	0.2	0.7	0.7	0.3	0.5	0.4	0.1

WD MD

NB Volumes

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					22	105					196	46	17		22			50
N		305	173		277	188		303	319		27	347	38		181			65
NRT		16	46					24			27	32	22		41			31
SLT	56	24			80		35	26			1	167		19	65		6	4
S	234	401		198	373		93	179		15	10	457		36	75			3
SRT				72						10	5	143		51	47		17	3
ELT		49	11					29	64			65	54		52	49		35
E	73	29	58				15	14				126	271	237	169	226	226	166
ERT	37	52					12	7				68		57	35			31
WLT				64	58					193		29			13	270		16
W				86	49	46				8		148	230		167	274	526	473
WRT					44	31			204			71	39		94			149
NB PCEs	1282	3014	1032	1392	3146	1369	504	2074	2067	741	1007	5732	2102	1194	3183	2566	2444	3341

PG Auto

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						14					4							2
N		4	27		2	27		17	43			1			5			1
NRT								3				1						
SLT							4	17				3					16	
S		20			20						9							1
SRT																	45	8
ELT									24	19					1	18		
E								4		16		16	19	19	18			10
ERT										76								6
WLT					18							0			3			0
W						5				15		10	23	23	29	45	25	23
WRT					2				14			12		6	14	25		3

PG Taxi

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					1	8					3							5
N		7	24		13	24		21	41			2			7			1
NRT		8						3			8	1			1			
SLT							5	18		49		2			1		15	1
S	3	22		3	22		4	2		8	8			1	1			7
SRT											1			4			37	
ELT									22						3	15		4
E	1		8					3				16	20	20	17	4	4	10
ERT		1																5
WLT				1	10					3				6	4			2
W						4						13	19	18	23	42	31	26
WRT					2				8			7			14	26		6

PG Truck

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						2												
N			2		1	2		1	2									
NRT																		
SLT							1	1		7		2					7	
S										1	2							2
SRT																		
ELT								1	6									
E												3	6	6	5	5		
ERT																		
WLT				1	2							4						
W												2	5	5	6	6		
WRT									1							1		
PCE Increment	0.3%	2.1%	9.6%	1.7%	4.7%	11.8%	6.5%	7.1%	16.0%	46.5%	7.2%	5.3%	14.2%	26.4%	11.3%	16.1%	12.7%	4.8%
dB increment	0.0	0.1	0.4	0.1	0.2	0.5	0.3	0.3	0.6	1.7	0.3	0.2	0.6	1.0	0.5	0.6	0.5	0.2

WD PM

NB Volumes

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					36	90					270	26	33		33			108
N		357	162		334	174		499	324		49	506	44		226			77
NRT		30	53					36			35	23	12		37			31
SLT	53	23			371		9	182			0	153		19	72		13	1
S	245	440		205	104		64	209		20	3	468		31	105			1
SRT				80				16		8	2	90		29	40		22	1
ELT		31	14					11	229			49	43		49	46		78
E	39	26	64				27	8				152	285	252	192	254	254	165
ERT	39	35					15					56		45	31			25
WLT				134	99					31		19			15	412		200
W				107	100	163				242		140	169	184	138	278	668	559
WRT					53	41			267			42	44	27	259			11
NB PCEs	666	1676	534	1053	2076	947	206	1707	1633	680	646	3186	1272	1186	2377	2162	2086	2681

PG Auto

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						9					11							1
N		5	42		3	42		15	44			1			6			1
NRT								3										
SLT							3	32			14	3					19	1
S		20			20			6										13
SRT															6		62	
ELT									39	37					0	18		6
E								3		23		16	19	19	18	6	6	12
ERT										39								7
WLT					15							0			2			0
W						8				9		21	37	37	46	60	23	22
WRT					3				23			16		8	12	25		4

PG Taxi

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					1	8					5							4
N		6	24		9	24		12	7			1			6			1
NRT		5						3			5	2			1			0
SLT							6	25		7	1	2		1	4		11	2
S	5	19		1	19		4	4		40	9			4	1			7
SRT														2			33	0
ELT								1	32						2	17		5
E	1	1	5					3				16	20	20	18	6	6	8
ERT																		4
WLT				5	10					5				21	4			1
W						5						16	23	5	26	38	29	24
WRT					2				7			7			8	25		4

PG Truck

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT																		
N																		
NRT																		
SLT																		
S																		
SRT																		
ELT																		
E																		
ERT																		
WLT																		
W																		
WRT																		
PCE Increment	0.9%	3.3%	13.3%	0.6%	4.0%	10.1%	6.3%	6.3%	9.3%	23.5%	7.0%	3.2%	7.8%	9.9%	6.7%	9.0%	9.1%	4.7%
dB increment	0.0	0.1	0.5	0.0	0.2	0.4	0.3	0.3	0.4	0.9	0.3	0.1	0.3	0.4	0.3	0.4	0.4	0.2

Sat MD

NB Volumes

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					20	68					367	70	14		10			64
N		380	135		368	137		319	352		27	431	29		194			123
NRT		22	42					16			15	23	16		30			13
SLT	28	46			416		27	46			0	178		16	68		10	5
S	223	552		226	153		90	155		14	6	422		46	86			1
SRT				49						6	6	112		47	15		19	0
ELT		31	18					41	88			69	38		79	32		61
E	57	38	86				53	26				144	307	287	202	268	268	172
ERT	52	16					19	13				41		37	22			44
WLT				127	105					13		22			19	252		10
W				134	88	160				353		114	46		169	321	553	489
WRT					34	40			363			62	184		63			224
NB PCEs	592	1999	585	928	2199	840	314	1214	1639	726	938	3133	1191	756	1815	1629	1579	2331

PG Auto

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT						13					5							2
N		2	31			31		19	43			1			6			1
NRT					1			3										
SLT							5	17				3					15	1
S		20			20						11							10
SRT																	51	
ELT									26	62					0	20		
E								5		15		17	20	20	20			10
ERT																		5
WLT					17							0			2			0
W						5				5		15	29	29	36	54	25	24
WRT					2				15			13		7	16	23		4

PG Taxi

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT					1	8					2							4
N		6	21		8	21		16	38			1			1			1
NRT		5						3			5	2			1			0
SLT							7	15		40	1	2		2			10	2
S	4	18		4	19		5	1		8	10			1				8
SRT														4			33	0
ELT								1	22						2	15		2
E	1		5					4				14	19	17	16	3	3	7
ERT		1													0			4
WLT				2	3					2				17	4			1
W						4						12	17	5	22	23	28	24
WRT					9				8			7			12	37		4

PG Truck

	Ludlow and Stanton	Essex and Stanton	Norfolk and Stanton	Ludlow and Rivington	Essex and Rivington	Norfolk and Rivington	Ludlow and Broome	Essex and Broome	Norfolk and Broome	Suffolk and Broome	Clinton and Broome	Allen and Grand	Orchard and Grand	Ludlow and Grand	Essex and Grand	Norfolk and Grand	Suffolk and Grand	Clinton and Grand
NLT																		
N																		
NRT																		
SLT																		
S																		
SRT																		
ELT																		
E																		
ERT																		
WLT																		
W																		
WRT																		
PCE Increment	0.8%	2.6%	9.7%	0.6%	3.6%	9.8%	5.4%	6.9%	9.3%	18.2%	3.6%	2.8%	7.1%	13.5%	7.6%	10.7%	10.5%	4.9%
dB increment	0.0	0.1	0.4	0.0	0.2	0.4	0.2	0.3	0.4	0.7	0.2	0.1	0.3	0.5	0.3	0.4	0.4	0.2

NB Vehicle Mix

Essex St N

	Car	MT	HT	Bus
AM	251	16	4	21
MD	151	23	1	12
PM	465	13		14
Sat MD	296	17	1	9

Essex St S

	Car	MT	HT	Bus
AM	336	11	7	21
MD	297	19	8	11
PM	357	5	1	10
Sat MD	348	6		8

Delancey St W

	Car	MT	HT	Bus
AM	2175	138	39	35
MD	1974	96	51	29
PM	1980	35	16	40
Sat MD	1944	38	18	20

Delancey St E

	Car	MT	HT	Bus
AM	1010	70	23	21
MD	888	107	19	10
PM	1452	109	11	16
Sat MD	1111	44	7	12

Seward Park

June 14, 2011

SiteID	Location		L_{eq}	L_1	L_{10}	L_{50}	L_{90}	L_{Min}	L_{Max}	Ldn	CEQR Att. Required	HUD Att. Required
1	Grand Street between Suffolk and Clinton Streets	AM	65.2	73.9	68.9	62.4	56.5	53.2	79.2	71.5	28	27.0
		MD	64.6	73.8	68.2	61.4	56.6	54.9	77.1			
		PM	65.1	75.5	67.9	61.5	58.2	55.8	79.0			
		LN	67.4	78.9	70.9	60.6	53.0	50.7	83.3			
2	Suffolk Street between Grand and Broome Streets	AM	62.8	73.1	61.6	58.2	55.9	54.4	84.8	62.3	0	18.0
		MD	58.0	64.4	59.6	57.0	55.3	53.1	71.8			
		PM	59.7	68.3	61.6	57.8	55.7	53.5	75.1			
		LN	57.6	67.2	58.7	55.4	51.8	49.5	76.3			
3	Broome Street between Suffolk and Clinton Streets	AM	59.9	66.2	62.9	58.2	55.5	53.8	70.9	65.5	0	21.0
		MD	58.9	67.8	61.5	57.0	54.1	51.7	72.9			
		PM	61.4	66.6	62.9	59.0	56.8	54.4	85.3			
		LN	61.3	69.7	65.4	57.9	52.3	49.3	74.7			
4	Delancey Street between Clinton and Ridge Streets	AM	65.3	72.4	67.8	62.4	58.8	56.8	83.3	71.9	28	27.0
		MD	65.1	74.0	67.4	63.6	57.4	53.8	79.5			
		PM	65.1	71.1	67.6	64.7	57.9	54.2	77.6			
		LN	67.8	73.3	70.2	67.7	60.2	56.5	79.3			
5	Suffolk Street between Broome and Delancey Streets	AM	63.4	70.8	65.7	61.3	58.2	55.0	82.8	65.8	0	21.0
		MD	62.2	70.9	64.7	60.4	57.4	54.5	75.8			
		PM	60.7	69.6	62.0	58.6	55.4	52.8	81.8			
		LN	61.2	68.8	63.5	59.5	53.7	51.5	78.0			
6	Delancey Street between Essex and Norfolk Streets	AM	70.6	79.1	74.0	67.5	61.8	59.5	84.9	78.2	33	34.0
		MD	74.5	83.5	77.8	71.3	64.7	60.9	90.8			
		PM	72.2	81.9	75.2	69.1	64.9	62.0	86.5			
		LN	73.8	84.3	76.4	70.7	62.9	59.6	89.0			
7	Essex Street between Rivington and Delancey Streets	AM	71.0	80.0	73.2	67.7	63.3	59.6	91.5	72.4	31	28.0
		MD	71.6	81.1	73.8	67.9	63.5	59.9	90.3			
		PM	70.5	79.6	73.2	68.2	64.4	60.2	87.1			
		LN	67.1	75.7	70.1	64.8	61.8	59.6	81.6			
8	Delancey Street between Norfolk and Suffolk Streets	AM	66.4	73.0	68.6	64.6	58.1	55.3	86.2	73.8	28	29.0
		MD	69.0	78.1	71.9	66.5	60.2	56.8	86.5			
		PM	68.8	77.1	69.8	65.1	59.0	55.6	93.4			
		LN	67.7	75.7	70.4	66.6	59.6	54.9	81.0			

Start date	Start time	LAeq	LAS1	LAS10	LAS50	LAS90	LASmin	LASmax	Ldn
06/15/2011	07:00:00 AM	66.6	74.2	69.4	65.2	59.6	56.1	83.1	73.8
06/15/2011	08:00:00 AM	66.8	76.0	69.2	64.6	60.5	57.1	83.2	
06/15/2011	09:00:00 AM	67.1	75.0	69.9	65.1	61.1	57.8	84.0	
06/15/2011	10:00:00 AM	66.5	73.9	69.5	65.0	60.3	56.9	81.1	
06/15/2011	11:00:00 AM	66.8	76.6	69.0	64.4	59.7	55.4	85.5	
06/15/2011	12:00:00 PM	67.0	74.8	70.0	65.5	59.7	56.9	81.4	
06/15/2011	01:00:00 PM	69.4	76.2	71.4	66.4	59.8	57.1	96.3	
06/15/2011	02:00:00 PM	68.4	76.6	71.0	66.5	60.6	57.5	88.3	
06/15/2011	03:00:00 PM	69.0	78.1	71.9	66.5	60.2	56.8	86.5	
06/15/2011	04:00:00 PM	68.7	77.5	71.2	66.4	61.2	57.8	87.1	
06/15/2011	05:00:00 PM	66.4	74.9	68.9	64.6	59.2	55.6	83.6	
06/15/2011	06:00:00 PM	68.8	77.1	69.8	65.1	59.0	55.6	93.4	
06/15/2011	07:00:00 PM	66.4	73.0	68.6	64.6	58.1	55.3	86.2	
06/15/2011	08:00:00 PM	67.1	75.7	69.8	65.7	58.5	55.5	82.0	
06/15/2011	09:00:00 PM	67.5	76.1	70.2	65.7	58.7	54.5	86.1	
06/15/2011	10:00:00 PM	67.2	76.2	69.8	65.8	58.7	53.9	81.7	
06/15/2011	11:00:00 PM	67.7	75.7	70.4	66.6	59.6	54.9	81.0	
06/16/2011	12:00:00 AM	67.4	75.1	69.7	66.2	59.4	54.4	84.0	
06/16/2011	01:00:00 AM	67.5	76.0	69.6	65.2	56.0	52.4	92.9	
06/16/2011	02:00:00 AM	66.8	74.9	69.4	65.0	56.7	52.2	86.8	
06/16/2011	03:00:00 AM	66.3	73.7	69.5	64.6	56.1	51.5	81.8	
06/16/2011	04:00:00 AM	67.0	76.0	69.9	64.9	56.5	51.7	86.3	
06/16/2011	05:00:00 AM	68.3	75.6	71.5	66.7	58.0	54.1	83.3	
06/16/2011	06:00:00 AM	67.5	76.3	70.5	65.3	59.5	55.7	84.3	

Appendix E: Construction

Appendix E-1

Truck and Workforce Projections

Seward Park
Truck Projection

	2016				2017				2018				2019				2020				2021				2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Site 1																												
Demolitions/Foundations													9	9	9													
Shell and Core															6	6	6											
Exteriors																9	9	9										
Interiors																	5	5	5									
Site 2																												
Demolitions/Foundations			14	14	14	14	14																					
Shell and Core				9	9	9	9	9																				
Exteriors						8	8	8	8																			
Interiors							11	8	8	8																		
Site 3																												
Demolitions/Foundations							17	17	17	17																		
Shell and Core									11	11	11	11																
Exteriors											13	13	13	13														
Interiors												11	11	11	11													
Site 4																												
Demolitions/Foundations							18	18	18	18	18																	
Shell and Core										14	14	14	14															
Exteriors											11	11	11	11	11													
Interiors												12	12	12	12	12	12											
Site 5																												
Demolitions/Foundations			21	21																								
Shell and Core				13	13	13	13	13																				
Exteriors						11	11	11	11																			
Interiors							8	8	8	8	8																	
Site 6																												
Demolitions/Foundations													9	9	9													
Shell and Core															6	6	6											
Exteriors																5	5	5										
Interiors																	4	4	4									
Site 8																												
Demolitions/Foundations																		19	19									
Shell and Core																			5	5	5							
Exteriors																				14	14	14						
Interiors																					4	4	4					
Site 9																												
Demolitions/Foundations																		10	10	10								
Shell and Core																			5	5	5	5						
Exteriors																					6	6	6					
Interiors																						4	4	4				
Site 10																												
Demolitions/Foundations																		7	7									
Shell and Core																			4	4								
Exteriors																				4	4							
Interiors																					3	3						
Average Daily Trucks per Quarter			35	57	36	55	**109**	92	81	76	75	72	79	65	64	38	47	59	59	42	41	36	14	4	0	0	0	0

Seward Park
Workforce Projection

	2016				2017				2018				2019				2020				2021				2022			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Site 1																												
Demolitions/Foundations													16	16	16													
Shell and Core															49	49	49											
Exteriors																30	30	30										
Interiors																	71	71	71									
Site 2																												
Demolitions/Foundations			29	29	29	29	29																					
Shell and Core				71	71	71	71	71																				
Exteriors						54	54	54	54																			
Interiors							119	119	119	119																		
Site 3																												
Demolitions/Foundations							36	36	36	36																		
Shell and Core									89	89	89	89																
Exteriors											54	54	54	54														
Interiors												118	118	118	118													
Site 4																												
Demolitions/Foundations							34	34	34	34	34																	
Shell and Core										106	106	106	106															
Exteriors											52	52	52	52	52													
Interiors												94	94	94	94	94	94											
Site 5																												
Demolitions/Foundations			72	72																								
Shell and Core				72	72	72	72	72																				
Exteriors						55	55	55	55																			
Interiors							96	96	96	96	96																	
Site 6																												
Demolitions/Foundations													16	16	16													
Shell and Core															40	40	40											
Exteriors																24	24	24										
Interiors																	53	53	53									
Site 8																												
Demolitions/Foundations																		14	14									
Shell and Core																			23	23	23							
Exteriors																				14	14	14						
Interiors																					30	30	30					
Site 9																												
Demolitions/Foundations																		17	17	17								
Shell and Core																			32	32	32	32						
Exteriors																					26	26	26					
Interiors																						58	58	58				
Site 10																												
Demolitions/Foundations																		9	9									
Shell and Core																			22	22								
Exteriors																				13	13							
Interiors																					29	29						
Average Daily Workers per Quarter			101	244	172	281	**566**	537	483	479	430	513	455	350	385	237	362	218	241	121	168	190	114	58	0	0	0	0

Appendix E-2
Construction Traffic

Weekday Construction Auto Trips

Auto 28.9%
Auto Occupancy 2.04

Auto Trips				Regular Shift																							
Time	Regular Shift Workers			2016				2017				2018				2019				2020				2021			
				1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Temporal	In / Out		0	0	101	244	172	281	566	537	483	479	430	513	455	350	385	237	362	218	241	121	168	190	114	58
05:00 AM - 06:00 AM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM - 07:00 AM	80%	In	100%	0	0	11	28	19	32	64	61	55	54	49	58	52	40	44	27	41	25	27	14	19	21	13	7
		Out	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	11	28	19	32	64	61	55	54	49	58	52	40	44	27	41	25	27	14	19	21	13	7
07:00 AM - 08:00 AM	20%	In	100%	0	0	3	7	5	8	16	15	14	14	12	15	13	10	11	7	10	6	7	3	5	5	3	2
		Out	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	3	7	5	8	16	15	14	14	12	15	13	10	11	7	10	6	7	3	5	5	3	2
08:00 AM - 09:00 AM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM - 10:00 AM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM - 11:00 AM	0%	In	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM - 12:00 PM	0%	In	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM - 01:00 PM	0%	In	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM - 02:00 PM	0%	In	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	50%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM - 03:00 PM	5%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	1	2	1	2	4	4	3	3	3	4	3	2	3	2	3	2	2	1	1	1	1	0
		Total	**100%**	0	0	1	2	1	2	4	4	3	3	3	4	3	2	3	2	3	2	2	1	1	1	1	0
03:00 PM - 04:00 PM	80%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	11	28	19	32	64	61	55	54	49	58	52	40	44	27	41	25	27	14	19	21	13	7
		Total	**100%**	0	0	11	28	19	32	64	61	55	54	49	58	52	40	44	27	41	25	27	14	19	21	13	7
04:00 PM - 05:00 PM	15%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
		Total	**100%**	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
05:00 PM - 06:00 PM	0%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM - 07:00 PM	0%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM - 08:00 PM	0%	In	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	**100%**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	200%	In		0	0	14	35	24	40	80	76	69	68	61	73	65	50	55	34	51	31	34	17	24	26	16	9
		Out		0	0	14	35	24	40	80	76	68	67	61	73	65	49	55	34	52	32	34	18	24	26	16	8
		Total		0	0	28	70	48	80	160	152	137	135	122	146	130	99	110	68	103	63	68	35	48	52	32	17

Weekday Construction Truck Trips

Truck Trips				Regular Shift																							
	Regular Shift Trucks			2016				2017				2018				2019				2020				2021			
				1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Time	Temporal	In / Out		0	0	35	57	36	55	109	92	81	76	75	72	79	65	64	38	47	59	59	42	41	36	14	4
05:00 AM - 06:00 AM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM - 07:00 AM	25%	In	100%	0	0	9	14	9	14	27	23	20	19	19	18	20	16	16	10	12	15	15	10	10	9	4	1
		Out	100%	0	0	9	14	9	14	27	23	20	19	19	18	20	16	16	10	12	15	15	10	10	9	4	1
		Total		0	0	18	28	18	28	54	46	40	38	38	36	40	32	32	20	24	30	30	20	20	18	8	2
07:00 AM - 08:00 AM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
08:00 AM - 09:00 AM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
09:00 AM - 10:00 AM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
10:00 AM - 11:00 AM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
11:00 AM - 12:00 PM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
12:00 PM - 01:00 PM	10%	In	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Out	100%	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
		Total		0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
01:00 PM - 02:00 PM	5%	In	100%	0	0	2	3	2	3	6	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Out	100%	0	0	2	3	2	3	6	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Total		0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
02:00 PM - 03:00 PM	5%	In	100%	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Out	100%	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Total		0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
03:00 PM - 04:00 PM	5%	In	100%	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Out	100%	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
		Total		0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
04:00 PM - 05:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM - 06:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM - 07:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM - 08:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		In		0	0	39	59	39	59	109	92	80	79	79	72	80	67	61	40	48	60	60	40	40	39	13	1
		Out		0	0	39	59	39	59	109	92	80	79	79	72	80	67	61	40	48	60	60	40	40	39	13	1
		Total		0	0	78	118	78	118	218	184	160	158	158	144	160	134	122	80	96	120	120	80	80	78	26	2

PCE 2.00

Truck PCE Trips				Regular Shift																							
	Regular Shift Trucks			2016				2017				2018				2019				2020				2021			
				1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Time	Temporal	In / Out																									
05:00 AM - 06:00 AM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM - 07:00 AM	25%	In	100%	0	0	18	28	18	28	54	46	40	38	38	36	40	32	32	20	24	30	30	20	20	18	8	2
		Out	100%	0	0	18	28	18	28	54	46	40	38	38	36	40	32	32	20	24	30	30	20	20	18	8	2
		Total		0	0	36	56	36	56	108	92	80	76	76	72	80	64	64	40	48	60	60	40	40	36	16	4
07:00 AM - 08:00 AM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
08:00 AM - 09:00 AM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
09:00 AM - 10:00 AM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
10:00 AM - 11:00 AM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
11:00 AM - 12:00 PM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
12:00 PM - 01:00 PM	10%	In	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Out	100%	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
		Total		0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
01:00 PM - 02:00 PM	5%	In	100%	0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Out	100%	0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Total		0	0	8	12	8	12	24	20	16	16	16	16	16	12	12	8	8	12	12	8	8	8	4	0
02:00 PM - 03:00 PM	5%	In	100%	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Out	100%	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Total		0	0	8	12	8	12	20	20	16	16	16	16	16	12	12	8	8	12	12	8	8	8	4	0
03:00 PM - 04:00 PM	5%	In	100%	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Out	100%	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
		Total		0	0	8	12	8	12	20	20	16	16	16	16	16	12	12	8	8	12	12	8	8	8	4	0
04:00 PM - 05:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM - 06:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM - 07:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM - 08:00 PM	0%	In	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Out	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		In		0	0	78	118	78	118	218	184	160	158	158	144	160	134	122	80	96	120	120	80	80	78	26	2
		Out		0	0	78	118	78	118	218	184	160	158	158	144	160	134	122	80	96	120	120	80	80	78	26	2
		Total		0	0	156	236	156	236	436	368	320	316	316	288	320	268	244	160	192	240	240	160	160	156	52	4

Weekday Construction Vehicle Trips

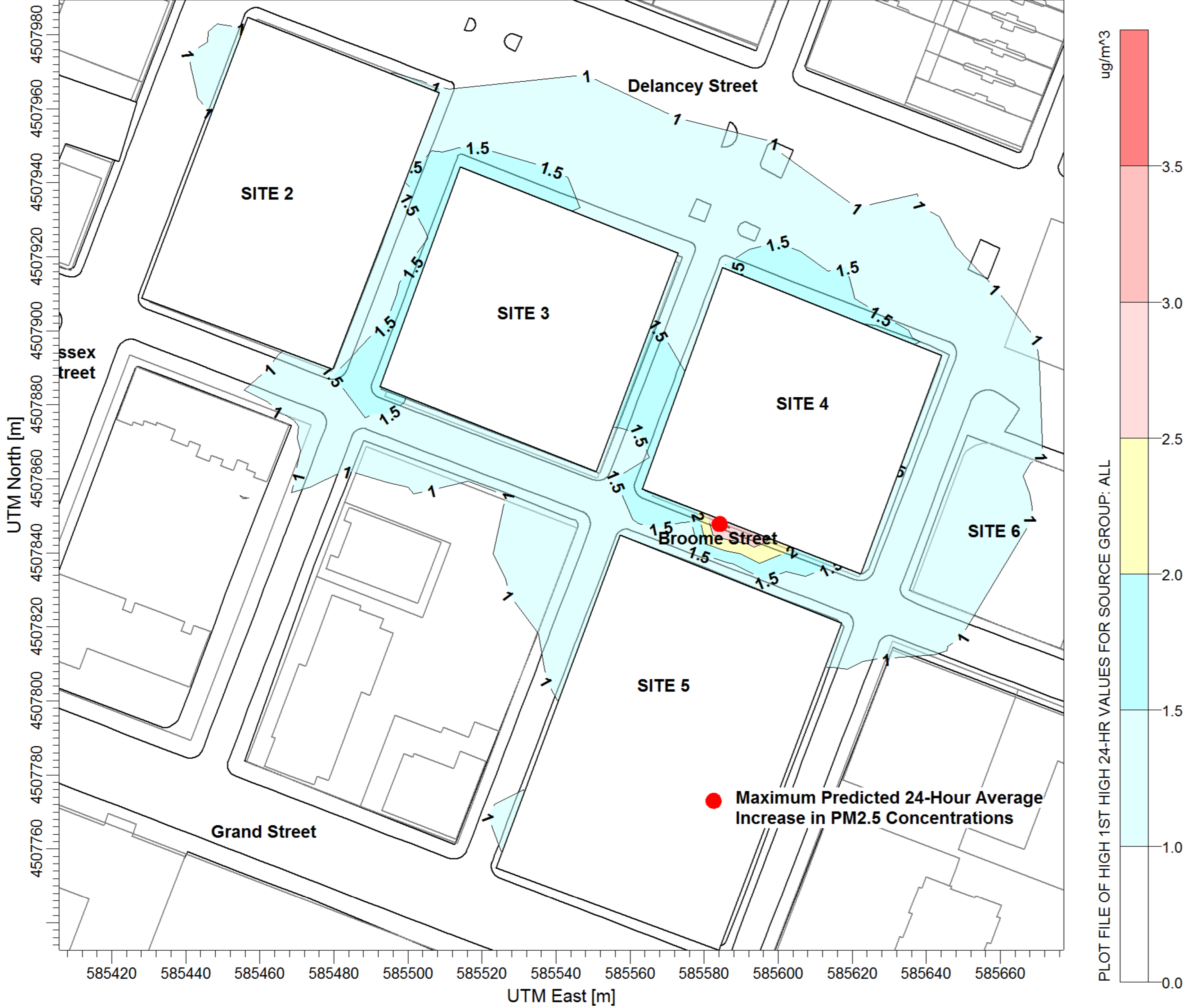
Vehicle Trips		Regular Shift																							
		2016				2017				2018				2019				2020				2021			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Time	In / Out																								
05:00 AM - 06:00 AM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM - 07:00 AM	In	0	0	20	42	28	46	91	84	75	73	68	76	72	56	60	37	53	40	42	24	29	30	17	8
	Out	0	0	9	14	9	14	27	23	20	19	19	18	20	16	16	10	12	15	15	10	10	9	4	1
	Total	0	0	29	56	37	60	118	107	95	92	87	94	92	72	76	47	65	55	57	34	39	39	21	9
07:00 AM - 08:00 AM	In	0	0	7	13	9	14	27	24	22	22	20	22	21	17	17	11	15	12	13	7	9	9	4	2
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	11	19	13	20	38	33	30	30	28	29	29	24	23	15	20	18	19	11	13	13	5	2
08:00 AM - 09:00 AM	In	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
09:00 AM - 10:00 AM	In	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
10:00 AM - 11:00 AM	In	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
11:00 AM - 12:00 PM	In	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
12:00 PM - 01:00 PM	In	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Out	0	0	4	6	4	6	11	9	8	8	8	7	8	7	6	4	5	6	6	4	4	4	1	0
	Total	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
01:00 PM - 02:00 PM	In	0	0	2	3	2	3	6	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
	Out	0	0	2	3	2	3	6	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
	Total	0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
02:00 PM - 03:00 PM	In	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
	Out	0	0	3	5	3	5	9	9	7	7	7	8	7	5	6	4	5	5	5	3	3	3	2	0
	Total	0	0	5	8	5	8	14	14	11	11	11	12	11	8	9	6	7	8	8	5	5	5	3	0
03:00 PM - 04:00 PM	In	0	0	2	3	2	3	5	5	4	4	4	4	4	3	3	2	2	3	3	2	2	2	1	0
	Out	0	0	13	31	21	35	69	66	59	58	53	62	56	43	47	29	43	28	30	16	21	23	14	7
	Total	0	0	15	34	23	38	74	71	63	62	57	66	60	46	50	31	45	31	33	18	23	25	15	7
04:00 PM - 05:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
	Total	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
05:00 PM - 06:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM - 07:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM - 08:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	In	0	0	53	94	63	99	189	168	149	147	140	145	145	117	116	74	99	91	94	57	64	65	29	10
	Out	0	0	53	94	63	99	189	168	148	146	140	145	145	116	116	74	100	92	94	58	64	65	29	9
	Total	0	0	106	188	126	198	378	336	297	293	280	290	290	233	232	148	199	183	188	115	128	130	58	19

Vehicle PCE Trips		Regular Shift																							
		2016				2017				2018				2019				2020				2021			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Time	In / Out																								
05:00 AM - 06:00 AM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM - 07:00 AM	In	0	0	29	56	37	60	118	107	95	92	87	94	92	72	76	47	65	55	57	34	39	39	21	9
	Out	0	0	18	28	18	28	54	46	40	38	38	36	40	32	32	20	24	30	30	20	20	18	8	2
	Total	0	0	47	84	55	88	172	153	135	130	125	130	132	104	108	67	89	85	87	54	59	57	29	11
07:00 AM - 08:00 AM	In	0	0	11	19	13	20	38	33	30	30	28	29	29	24	23	15	20	18	19	11	13	13	5	2
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	19	31	21	32	60	51	46	46	44	43	45	38	35	23	30	30	31	19	21	21	7	2
08:00 AM - 09:00 AM	In	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
09:00 AM - 10:00 AM	In	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
10:00 AM - 11:00 AM	In	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
11:00 AM - 12:00 PM	In	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
12:00 PM - 01:00 PM	In	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Out	0	0	8	12	8	12	22	18	16	16	16	14	16	14	12	8	10	12	12	8	8	8	2	0
	Total	0	0	16	24	16	24	44	36	32	32	32	28	32	28	24	16	20	24	24	16	16	16	4	0
01:00 PM - 02:00 PM	In	0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
	Out	0	0	4	6	4	6	12	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
	Total	0	0	8	12	8	12	24	20	16	16	16	16	16	12	12	8	8	12	12	8	8	8	4	0
02:00 PM - 03:00 PM	In	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
	Out	0	0	5	8	5	8	14	14	11	11	11	12	11	8	9	6	7	8	8	5	5	5	3	0
	Total	0	0	9	14	9	14	24	24	19	19	19	20	19	14	15	10	11	14	14	9	9	9	5	0
03:00 PM - 04:00 PM	In	0	0	4	6	4	6	10	10	8	8	8	8	8	6	6	4	4	6	6	4	4	4	2	0
	Out	0	0	15	34	23	38	74	71	63	62	57	66	60	46	50	31	45	31	33	18	23	25	15	7
	Total	0	0	19	40	27	44	84	81	71	70	65	74	68	52	56	35	49	37	39	22	27	29	17	7
04:00 PM - 05:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
	Total	0	0	2	5	4	6	12	11	10	10	9	11	10	7	8	5	8	5	5	3	4	4	2	1
05:00 PM - 06:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM - 07:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM - 08:00 PM	In	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	In	0	0	92	153	102	158	298	260	229	226	219	217	225	184	177	114	147	151	154	97	104	104	42	11
	Out	0	0	92	153	102	158	298	260	228	225	219	217	225	183	177	114	148	152	154	98	104	104	42	10
	Total	0	0	184	306	204	316	596	520	457	451	438	434	450	367	354	228	295	303	308	195	208	208	84	21

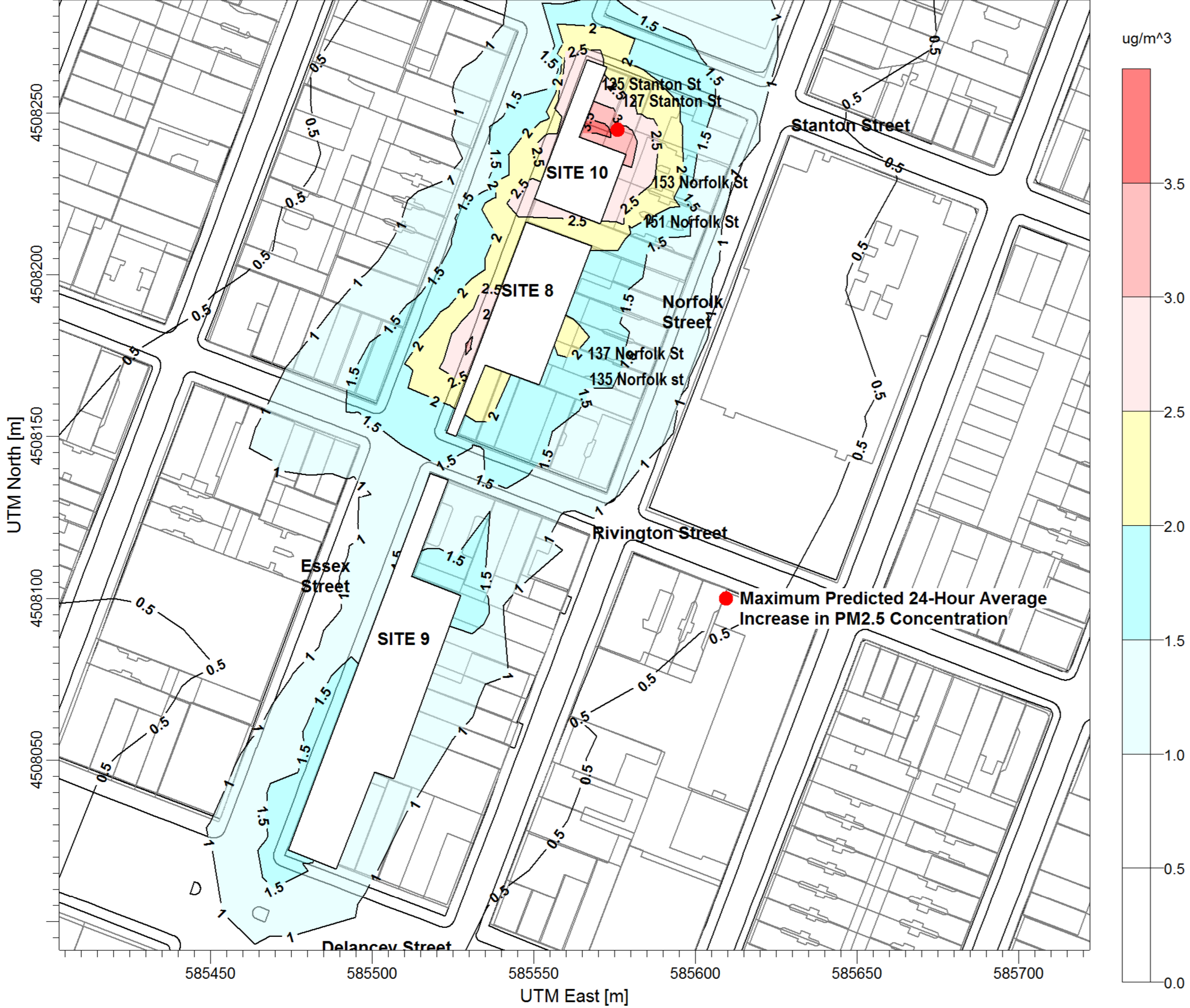
Hour	Auto Trips			Truck Trips			Total					
							Vehicle Trips			PCE Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Weekday (3rd Quarter of 2017)												
5 AM – 6 AM	0	0	0	0	0	0	0	0	0	0	0	0
6 AM - 7 AM	64	0	64	27	27	54	91	27	118	118	54	172
7 AM - 8 AM	16	0	16	11	11	22	27	11	38	38	22	60
8 AM - 9 AM	0	0	0	11	11	22	11	11	22	22	22	44
9 AM - 10 AM	0	0	0	11	11	22	11	11	22	22	22	44
10 AM - 11 AM	0	0	0	11	11	22	11	11	22	22	22	44
11 AM - Noon	0	0	0	11	11	22	11	11	22	22	22	44
Noon - 1 PM	0	0	0	11	11	22	11	11	22	22	22	44
1 PM - 2 PM	0	0	0	6	6	12	6	6	12	12	12	24
2 PM - 3 PM	0	4	4	5	5	10	5	9	14	10	14	24
3 PM - 4 PM	0	64	64	5	5	10	5	69	74	10	74	84
4 PM - 5 PM	0	12	12	0	0	0	0	12	12	0	12	12
5 PM - 6 PM	0	0	0	0	0	0	0	0	0	0	0	0
6 PM - 7 PM	0	0	0	0	0	0	0	0	0	0	0	0
7 PM - 8 PM	0	0	0	0	0	0	0	0	0	0	0	0

Notes: Hourly construction worker and truck trips were derived from an estimated quarterly average number of construction workers and truck deliveries per day, with each truck delivery resulting in two daily trips (arrival and departure).

Appendix E-3
Construction Air Quality



Delancey Street
SITE 2
SITE 3
SITE 4
SITE 5
SITE 6
ssex
treet
Broome Street
Grand Street
Maximum Predicted 24-Hour Average
Increase in PM2.5 Concentrations
UTM North [m]
UTM East [m]
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL
ug/m^3
0.0
1.0
1.5
2.0
2.5
3.0
3.5
585420
585440
585460
585480
585500
585520
585540
585560
585580
585600
585620
585640
585660
4507760
4507780
4507800
4507820
4507840
4507860
4507880
4507900
4507920
4507940
4507960
4507980



ug/m^3
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
125 Stanton St
127 Stanton St
Stanton Street
SITE 10
153 Norfolk St
151 Norfolk St
SITE 8
Norfolk Street
137 Norfolk St
135 Norfolk st
Rivington Street
Essex Street
SITE 9
Maximum Predicted 24-Hour Average Increase in PM2.5 Concentration
Delancey Street
UTM North [m]
4508250
4508200
4508150
4508100
4508050
UTM East [m]
585450
585500
585550
585600
585650
585700

Appendix E-4
Construction Noise

Construction Noise Results (in dBA)

Seward Park

Construction Duration

CadnaA Receptor Sites	Elevation (floor)	Existing Leq(1)	Existing L10	2016 Q3 Leq Const	2016 Q3 Leq Total	2016 Q3 Leq Change	2016 Q3 Exceed?	2016 Q3 L10 Total	2016 Q4 Leq Const	2016 Q4 Leq Total	2016 Q4 Leq Change	2016 Q4 Exceed?	2016 Q4 L10 Total	2017 Q2 Leq Const	2017 Q2 Leq Total	2017 Q2 Leq Change	2017 Q2 Exceed?	2017 Q2 L10 Total
1	1	62.3	66.0	62.4	65.4	3.1	YES	69.1	62.6	65.5	3.2	YES	69.2	63.9	66.2	3.9	YES	69.9
1A	1	55.6	59.3	57.3	59.5	3.9		63.2	57.6	59.7	4.1		63.4	59.3	60.8	5.2	YES	64.5
1A	2	57.0	60.7	58.6	60.9	3.9		64.6	58.9	61.1	4.1		64.8	60.3	62.0	5.0		65.7
1A	3	58.3	62.0	60.4	62.5	4.2		66.2	60.7	62.7	4.4		66.4	60.9	62.8	4.5		66.5
1A	4	58.7	62.4	61.9	63.6	4.9		67.3	62.3	63.9	5.2	YES	67.6	61.5	63.3	4.6		67.0
1A	5	59.0	62.7	63.2	64.6	5.6	YES	68.3	63.6	64.9	5.9	YES	68.6	62.1	63.8	4.8		67.5
1A	6	59.1	62.8	63.2	64.6	5.5	YES	68.3	63.9	65.1	6.0	YES	68.8	62.3	64.0	4.9		67.7
1A	11	59.1	62.8	65.3	66.2	7.1	YES	69.9	65.8	66.6	7.5	YES	70.3	62.9	64.4	5.3	YES	68.1
1A	16	58.7	62.4	65.7	66.5	7.8	YES	70.2	66.2	66.9	8.2	YES	70.6	64.0	65.1	6.4	YES	68.8
1A	18	58.6	62.3	65.5	66.3	7.7	YES	70.0	66.0	66.7	8.1	YES	70.4	63.8	64.9	6.3	YES	68.6
1B	1	54.7	58.4	56.6	58.8	4.1		62.5	56.8	58.9	4.2		62.6	57.9	59.6	4.9		63.3
1B	2	54.7	58.4	57.8	59.5	4.8		63.2	58.0	59.7	5.0		63.4	59.0	60.4	5.7	YES	64.1
1B	3	54.7	58.4	59.8	61.0	6.3	YES	64.7	60.0	61.1	6.4	YES	64.8	60.1	61.2	6.5	YES	64.9
1B	4	55.1	58.8	61.7	62.6	7.5	YES	66.3	62.0	62.8	7.7	YES	66.5	60.8	61.8	6.7	YES	65.5
1B	5	55.5	59.2	60.7	61.8	6.3	YES	65.5	61.1	62.2	6.7	YES	65.9	61.1	62.2	6.7	YES	65.9
1B	6	56.0	59.7	62.5	63.4	7.4	YES	67.1	63.0	63.8	7.8	YES	67.5	61.3	62.4	6.4	YES	66.1
1B	11	57.4	61.1	64.4	65.2	7.8	YES	68.9	65.0	65.7	8.3	YES	69.4	61.9	63.2	5.8	YES	66.9
1B	16	57.3	61.0	64.9	65.6	8.3	YES	69.3	65.4	66.0	8.7	YES	69.7	63.0	64.0	6.7	YES	67.7
1B	18	57.2	60.9	64.7	65.4	8.2	YES	69.1	65.3	65.9	8.7	YES	69.6	62.8	63.9	6.7	YES	67.6
1C	1	54.7	58.4	49.0	55.7	1.0		59.4	49.4	55.8	1.1		59.5	53.9	57.3	2.6		61.0
1C	2	54.7	58.4	50.2	56.0	1.3		59.7	50.6	56.1	1.4		59.8	55.2	58.0	3.3		61.7
1C	3	54.7	58.4	53.8	57.3	2.6		61.0	54.2	57.5	2.8		61.2	56.0	58.4	3.7		62.1
1C	4	54.7	58.4	57.1	59.1	4.4		62.8	57.5	59.3	4.6		63.0	56.5	58.7	4.0		62.4
1C	5	54.7	58.4	58.5	60.0	5.3	YES	63.7	59.0	60.4	5.7	YES	64.1	57.7	59.5	4.8		63.2
1C	6	54.7	58.4	59.6	60.8	6.1	YES	64.5	60.1	61.2	6.5	YES	64.9	57.7	59.5	4.8		63.2
1C	11	54.7	58.4	63.7	64.2	9.5	YES	67.9	64.3	64.7	10.1	YES	68.4	60.0	61.1	6.4	YES	64.8
1C	16	54.7	58.4	63.3	63.9	9.2	YES	67.6	64.1	64.6	9.9	YES	68.3	59.7	60.9	6.2	YES	64.6
1C	18	54.7	58.4	63.2	63.8	9.1	YES	67.5	63.9	64.4	9.7	YES	68.1	59.5	60.7	6.1	YES	64.4
1D	1	55.7	59.4	54.9	58.3	2.6		62.0	55.0	58.4	2.7		62.1	57.8	59.9	4.2		63.6
1D	2	56.9	60.6	55.9	59.4	2.5		63.1	56.1	59.5	2.6		63.2	58.3	60.7	3.8		64.4
1D	3	58.1	61.8	57.1	60.6	2.5		64.3	57.3	60.7	2.6		64.4	59.0	61.6	3.5		65.3
1D	4	58.8	62.5	58.0	61.4	2.6		65.1	58.2	61.5	2.7		65.2	59.7	62.3	3.5		66.0
1D	5	58.9	62.6	61.1	63.1	4.2		66.8	61.4	63.3	4.4		67.0	59.8	62.4	3.5		66.1
1D	6	59.0	62.7	62.6	64.2	5.2	YES	67.9	62.8	64.3	5.3	YES	68.0	60.0	62.5	3.5		66.2
1D	11	59.0	62.7	62.9	64.4	5.4	YES	68.1	63.2	64.6	5.6	YES	68.3	60.7	62.9	3.9		66.6

CadnaA Receptor Sites	Elevation (floor)	2017 Q3 Leq Const	2017 Q3 Leq Total	2017 Q3 Leq Change	2017 Q3 Exceed?	2017 Q3 L10 Total	2018 Q1 Leq Const	2018 Q1 Leq Total	2018 Q1 Leq Change	2018 Q1 Exceed?	2018 Q1 L10 Total	2018 Q4 Leq Const	2018 Q4 Leq Total	2018 Q4 Leq Change	2018 Q4 Exceed?	2018 Q4 L10 Total
1	1	63.3	65.8	3.5	YES	69.5	62.0	65.2	2.9		68.9	60.5	64.5	2.2		68.2
1A	1	59.2	60.8	5.2	YES	64.5	57.6	59.7	4.1		63.4	55.0	58.3	2.7		62.0
1A	2	60.2	61.9	4.9		65.6	59.3	61.3	4.3		65.0	56.0	59.5	2.5		63.2
1A	3	61.0	62.9	4.6		66.6	60.0	62.2	3.9		65.9	56.8	60.6	2.3		64.3
1A	4	60.6	62.8	4.1		66.5	60.7	62.8	4.1		66.5	57.8	61.3	2.6		65.0
1A	5	61.2	63.2	4.2		66.9	61.2	63.2	4.2		66.9	58.2	61.6	2.6		65.3
1A	6	61.8	63.7	4.6		67.4	61.8	63.7	4.6		67.4	58.8	62.0	2.9		65.7
1A	11	64.3	65.4	6.3	YES	69.1	65.1	66.1	7.0	YES	69.8	60.2	62.7	3.6		66.4
1A	16	65.5	66.3	7.6	YES	70.0	66.1	66.8	8.1	YES	70.5	60.6	62.8	4.1		66.5
1A	18	65.4	66.2	7.6	YES	69.9	65.4	66.2	7.6	YES	69.9	60.7	62.8	4.2		66.5
1B	1	57.7	59.5	4.8		63.2	55.5	58.1	3.4		61.8	54.0	57.4	2.7		61.1
1B	2	58.2	59.8	5.1	YES	63.5	56.3	58.6	3.9		62.3	54.7	57.7	3.0		61.4
1B	3	59.3	60.6	5.9	YES	64.3	57.2	59.1	4.5		62.8	55.2	58.0	3.3		61.7
1B	4	60.3	61.4	6.3	YES	65.1	58.1	59.9	4.8		63.6	56.0	58.6	3.5		62.3
1B	5	59.7	61.1	5.6	YES	64.8	58.7	60.4	4.9		64.1	56.5	59.0	3.5		62.7
1B	6	60.4	61.7	5.7	YES	65.4	59.6	61.2	5.2	YES	64.9	56.9	59.5	3.5		63.2
1B	11	62.8	63.9	6.5	YES	67.6	62.5	63.7	6.3	YES	67.4	58.3	60.9	3.5		64.6
1B	16	64.6	65.3	8.0	YES	69.0	64.2	65.0	7.7	YES	68.7	59.0	61.2	3.9		64.9
1B	18	64.5	65.2	8.0	YES	68.9	64.1	64.9	7.7	YES	68.6	59.0	61.2	4.0		64.9
1C	1	50.3	56.0	1.4		59.7	47.8	55.5	0.8		59.2	48.2	55.6	0.9		59.3
1C	2	50.9	56.2	1.5		59.9	48.3	55.6	0.9		59.3	48.4	55.6	0.9		59.3
1C	3	53.1	57.0	2.3		60.7	48.5	55.6	0.9		59.3	48.9	55.7	1.0		59.4
1C	4	53.8	57.3	2.6		61.0	52.3	56.7	2.0		60.4	49.0	55.7	1.0		59.4
1C	5	54.3	57.5	2.8		61.2	52.8	56.8	2.2		60.5	49.0	55.7	1.0		59.4
1C	6	56.1	58.5	3.8		62.2	54.2	57.5	2.8		61.2	48.5	55.6	0.9		59.3
1C	11	60.4	61.4	6.8	YES	65.1	58.8	60.2	5.5	YES	63.9	50.5	56.1	1.4		59.8
1C	16	60.5	61.5	6.8	YES	65.2	59.0	60.4	5.7	YES	64.1	51.2	56.3	1.6		60.0
1C	18	60.3	61.4	6.7	YES	65.1	58.9	60.3	5.6	YES	64.0	52.4	56.7	2.0		60.4
1D	1	57.8	59.9	4.2		63.6	55.8	58.8	3.1		62.5	55.1	58.4	2.7		62.1
1D	2	57.8	60.4	3.5		64.1	56.8	59.9	3.0		63.6	56.2	59.6	2.7		63.3
1D	3	58.2	61.2	3.1		64.9	56.9	60.6	2.5		64.3	57.3	60.7	2.6		64.4
1D	4	58.7	61.8	3.0		65.5	58.1	61.5	2.7		65.2	58.0	61.4	2.6		65.1
1D	5	59.9	62.4	3.5		66.1	58.7	61.8	2.9		65.5	58.5	61.7	2.8		65.4
1D	6	60.6	62.9	3.9		66.6	59.5	62.3	3.3		66.0	59.1	62.1	3.1		65.8
1D	11	62.3	64.0	5.0		67.7	62.9	64.4	5.4	YES	68.1	60.5	62.8	3.8		66.5

CadnaA Receptor Sites	Elevation (floor)	2019 Q1 Leq Const	2019 Q1 Leq Total	2019 Q1 Leq Change	2019 Q1 Exceed?	2019 Q1 L10 Total	2019 Q4 Leq Const	2019 Q4 Leq Total	2019 Q4 Leq Change	2019 Q4 Exceed?	2019 Q4 L10 Total	2020 Q2 Leq Const	2020 Q2 Leq Total	2020 Q2 Leq Change	2020 Q2 Exceed?	2020 Q2 L10 Total
1	1	60.2	64.4	2.1		68.1	58.0	63.7	1.4		67.4	57.9	63.6	1.3		67.3
1A	1	54.1	57.9	2.3		61.6	52.6	57.4	1.8		61.1	52.1	57.2	1.6		60.9
1A	2	55.1	59.2	2.2		62.9	53.7	58.7	1.7		62.4	53.2	58.5	1.5		62.2
1A	3	56.0	60.3	2.0		64.0	54.7	59.9	1.6		63.6	54.3	59.8	1.5		63.5
1A	4	57.1	61.0	2.3		64.7	54.9	60.2	1.5		63.9	54.5	60.1	1.4		63.8
1A	5	57.3	61.2	2.2		64.9	55.1	60.5	1.5		64.2	54.7	60.4	1.4		64.1
1A	6	57.8	61.5	2.4		65.2	55.2	60.6	1.5		64.3	54.8	60.5	1.4		64.2
1A	11	59.2	62.2	3.1		65.9	55.1	60.6	1.5		64.3	54.6	60.4	1.3		64.1
1A	16	59.3	62.0	3.3		65.7	54.9	60.2	1.5		63.9	54.1	60.0	1.3		63.7
1A	18	59.3	62.0	3.4		65.7	55.4	60.3	1.7		64.0	54.0	59.9	1.3		63.6
1B	1	53.5	57.1	2.5		60.8	48.6	55.6	1.0		59.3	48.4	55.6	0.9		59.3
1B	2	53.9	57.3	2.6		61.0	49.5	55.8	1.2		59.5	49.3	55.8	1.1		59.5
1B	3	54.3	57.5	2.8		61.2	50.1	56.0	1.3		59.7	49.9	55.9	1.2		59.6
1B	4	55.1	58.1	3.0		61.8	50.2	56.3	1.2		60.0	50.0	56.3	1.2		60.0
1B	5	55.6	58.6	3.1		62.3	50.4	56.7	1.2		60.4	50.2	56.6	1.1		60.3
1B	6	55.8	58.9	2.9		62.6	50.3	57.0	1.0		60.7	50.0	57.0	1.0		60.7
1B	11	57.0	60.2	2.8		63.9	50.7	58.2	0.8		61.9	50.3	58.2	0.8		61.9
1B	16	57.5	60.4	3.1		64.1	51.6	58.3	1.0		62.0	50.2	58.1	0.8		61.8
1B	18	57.6	60.4	3.2		64.1	52.4	58.4	1.2		62.1	50.3	58.0	0.8		61.7
1C	1	48.3	55.6	0.9		59.3	43.8	55.0	0.3		58.7	43.5	55.0	0.3		58.7
1C	2	48.5	55.6	0.9		59.3	44.5	55.1	0.4		58.8	44.1	55.0	0.4		58.7
1C	3	48.5	55.6	0.9		59.3	44.6	55.1	0.4		58.8	43.9	55.0	0.3		58.7
1C	4	48.7	55.7	1.0		59.4	42.7	54.9	0.3		58.6	41.3	54.9	0.2		58.6
1C	5	48.7	55.7	1.0		59.4	42.6	54.9	0.3		58.6	40.8	54.8	0.2		58.5
1C	6	48.2	55.6	0.9		59.3	40.4	54.8	0.2		58.5	35.1	54.7	0.0		58.4
1C	11	50.0	55.9	1.3		59.6	43.0	55.0	0.3		58.7	36.0	54.7	0.1		58.4
1C	16	50.8	56.2	1.5		59.9	45.3	55.1	0.5		58.8	37.5	54.8	0.1		58.5
1C	18	52.1	56.6	1.9		60.3	48.0	55.5	0.8		59.2	40.5	54.8	0.2		58.5
1D	1	53.9	57.9	2.2		61.6	52.8	57.5	1.8		61.2	52.5	57.4	1.7		61.1
1D	2	55.1	59.1	2.2		62.8	53.9	58.7	1.8		62.4	53.6	58.6	1.7		62.3
1D	3	56.2	60.3	2.2		64.0	55.0	59.8	1.7		63.5	54.7	59.7	1.6		63.4
1D	4	57.3	61.1	2.3		64.8	55.7	60.5	1.7		64.2	55.4	60.4	1.6		64.1
1D	5	57.8	61.4	2.5		65.1	56.0	60.7	1.8		64.4	55.8	60.6	1.7		64.3
1D	6	58.3	61.7	2.7		65.4	56.2	60.8	1.8		64.5	55.9	60.7	1.7		64.4
1D	11	59.5	62.3	3.3		66.0	56.3	60.9	1.9		64.6	55.9	60.7	1.7		64.4

CadnaA Receptor Sites	Elevation (floor)	2020 Q4 Leq Const	2020 Q4 Leq Total	2020 Q4 Leq Change	2020 Q4 Exceed?	2020 Q4 L10 Total	2021 Q1 Leq Const	2021 Q1 Leq Total	2021 Q1 Leq Change	2021 Q1 Exceed?	2021 Q1 L10 Total	2021 Q4 Leq Const	2021 Q4 Leq Total	2021 Q4 Leq Change	2021 Q4 Exceed?	2021 Q4 L10 Total
1	1	57.9	63.6	1.3		67.3	57.9	63.6	1.3		67.3	61.5	64.9	2.6		68.6
1A	1	52.0	57.2	1.6		60.9	52.0	57.2	1.6		60.9	55.3	58.5	2.9		62.2
1A	2	53.2	58.5	1.5		62.2	53.2	58.5	1.5		62.2	56.5	59.8	2.8		63.5
1A	3	54.3	59.8	1.5		63.5	54.3	59.8	1.5		63.5	57.7	61.0	2.7		64.7
1A	4	54.5	60.1	1.4		63.8	54.5	60.1	1.4		63.8	58.0	61.4	2.7		65.1
1A	5	54.6	60.3	1.3		64.0	54.6	60.3	1.3		64.0	58.1	61.6	2.6		65.3
1A	6	54.8	60.5	1.4		64.2	54.8	60.5	1.4		64.2	58.2	61.7	2.6		65.4
1A	11	54.5	60.4	1.3		64.1	54.5	60.4	1.3		64.1	57.9	61.6	2.5		65.3
1A	16	53.9	59.9	1.2		63.6	54.0	60.0	1.3		63.7	57.2	61.0	2.3		64.7
1A	18	53.8	59.8	1.2		63.5	53.9	59.9	1.3		63.6	57.0	60.9	2.3		64.6
1B	1	48.3	55.6	0.9		59.3	48.3	55.6	0.9		59.3	51.6	56.4	1.7		60.1
1B	2	49.2	55.8	1.1		59.5	49.2	55.8	1.1		59.5	52.6	56.8	2.1		60.5
1B	3	49.9	55.9	1.2		59.6	49.9	55.9	1.2		59.6	53.4	57.1	2.4		60.8
1B	4	50.0	56.3	1.2		60.0	50.0	56.3	1.2		60.0	53.7	57.5	2.4		61.2
1B	5	50.1	56.6	1.1		60.3	50.1	56.6	1.1		60.3	53.8	57.7	2.2		61.4
1B	6	50.0	57.0	1.0		60.7	50.0	57.0	1.0		60.7	53.8	58.0	2.0		61.7
1B	11	50.2	58.2	0.8		61.9	50.4	58.2	0.8		61.9	54.3	59.1	1.7		62.8
1B	16	50.2	58.1	0.8		61.8	50.4	58.1	0.8		61.8	54.1	59.0	1.7		62.7
1B	18	50.2	58.0	0.8		61.7	50.4	58.0	0.8		61.7	53.9	58.9	1.7		62.6
1C	1	43.2	55.0	0.3		58.7	43.1	55.0	0.3		58.7	46.3	55.3	0.6		59.0
1C	2	43.9	55.0	0.3		58.7	43.8	55.0	0.3		58.7	47.1	55.4	0.7		59.1
1C	3	43.7	55.0	0.3		58.7	43.6	55.0	0.3		58.7	47.4	55.4	0.7		59.1
1C	4	41.0	54.9	0.2		58.6	40.9	54.9	0.2		58.6	45.5	55.2	0.5		58.9
1C	5	40.4	54.8	0.2		58.5	40.2	54.8	0.2		58.5	45.6	55.2	0.5		58.9
1C	6	33.7	54.7	0.0		58.4	33.4	54.7	0.0		58.4	43.2	55.0	0.3		58.7
1C	11	34.9	54.7	0.0		58.4	36.2	54.7	0.1		58.4	46.7	55.3	0.6		59.0
1C	16	35.6	54.7	0.1		58.4	36.8	54.7	0.1		58.4	46.5	55.3	0.6		59.0
1C	18	35.9	54.7	0.1		58.4	36.9	54.7	0.1		58.4	46.5	55.3	0.6		59.0
1D	1	52.2	57.3	1.6		61.0	52.2	57.3	1.6		61.0	55.4	58.6	2.9		62.3
1D	2	53.4	58.5	1.6		62.2	53.4	58.5	1.6		62.2	56.7	59.8	2.9		63.5
1D	3	54.6	59.7	1.6		63.4	54.6	59.7	1.6		63.4	57.9	61.0	2.9		64.7
1D	4	55.3	60.4	1.6		64.1	55.3	60.4	1.6		64.1	58.6	61.7	2.9		65.4
1D	5	55.6	60.6	1.7		64.3	55.6	60.6	1.7		64.3	58.8	61.9	3.0		65.6
1D	6	55.8	60.7	1.7		64.4	55.8	60.7	1.7		64.4	59.0	62.0	3.0		65.7
1D	11	55.7	60.7	1.7		64.4	55.7	60.7	1.7		64.4	58.7	61.9	2.9		65.6

3A	11	59.1	62.8	59.7	62.4	3.3		66.1	60.7	63.0	3.9		66.7	59.7	62.4	3.3		66.1	58.8	62.0	2.9		65.7	54.9	60.5	1.4		64.2	45.2	59.3	0.2		63.0	49.3	59.5	0.4		63.2	53.7	60.2	1.1		63.9	48.0	59.4	0.3		63.1	41.6	59.2	0.1		62.9	42.1	59.2	0.1		62.9	45.6	59.3	0.2		63.0
3A	16	57.8	61.5	62.0	63.4	5.6	YES	67.1	62.7	63.9	6.1	YES	67.6	59.8	61.9	4.1		65.6	59.3	61.6	3.8		65.3	56.2	60.1	2.3		63.8	48.3	58.3	0.5		62.0	52.8	59.0	1.2		62.7	54.6	59.5	1.7		63.2	48.6	58.3	0.5		62.0	43.2	57.9	0.1		61.6	44.1	58.0	0.2		61.7	46.5	58.1	0.3		61.8
3A	19	57.1	60.8	62.0	63.2	6.1	YES	66.9	62.6	63.7	6.6	YES	67.4	59.8	61.7	4.6		65.4	60.1	61.9	4.8		65.6	57.1	60.1	3.0		63.8	49.7	57.8	0.7		61.5	53.0	58.5	1.4		62.2	54.7	59.1	2.0		62.8	48.9	57.7	0.6		61.4	44.2	57.3	0.2		61.0	45.2	57.4	0.3		61.1	47.2	57.5	0.4		61.2
3B	1	61.8	65.5	56.6	62.9	1.1		66.6	56.9	63.0	1.2		66.7	59.1	63.7	1.9		67.4	58.4	63.4	1.6		67.1	56.6	62.9	1.1		66.6	47.6	62.0	0.2		65.7	48.9	62.0	0.2		65.7	49.4	62.0	0.2		65.7	47.1	61.9	0.1		65.6	42.0	61.8	0.0		65.5	41.7	61.8	0.0		65.5	46.5	61.9	0.1		65.6
3B	2	63.6	67.3	57.6	64.6	1.0		68.3	58.1	64.7	1.1		68.4	61.0	65.5	1.9		69.2	59.5	65.0	1.4		68.7	57.4	64.5	0.9		68.2	47.9	63.7	0.1		67.4	49.2	63.8	0.2		67.5	49.6	63.8	0.2		67.5	47.6	63.7	0.1		67.4	42.8	63.6	0.0		67.3	42.6	63.6	0.0		67.3	47.4	63.7	0.1		67.4
3B	3	63.7	67.4	59.2	65.0	1.3		68.7	59.7	65.2	1.5		68.9	62.2	66.0	2.3		69.7	60.5	65.4	1.7		69.1	58.5	64.8	1.1		68.5	48.1	63.8	0.1		67.5	49.3	63.9	0.2		67.6	50.9	63.9	0.2		67.6	47.9	63.8	0.1		67.5	43.1	63.7	0.0		67.4	42.9	63.7	0.0		67.4	47.8	63.8	0.1		67.5
3B	4	63.6	67.3	60.0	65.2	1.6		68.9	60.6	65.4	1.8		69.1	62.8	66.2	2.6		69.9	60.8	65.4	1.8		69.1	58.4	64.7	1.1		68.4	48.2	63.7	0.1		67.4	49.4	63.8	0.2		67.5	51.0	63.8	0.2		67.5	48.3	63.7	0.1		67.4	43.3	63.6	0.0		67.3	43.0	63.6	0.0		67.3	48.2	63.7	0.1		67.4
3B	5	63.4	67.1	61.0	65.4	2.0		69.1	61.6	65.6	2.2		69.3	63.4	66.4	3.0	YES	70.1	61.9	65.7	2.3		69.4	59.8	65.0	1.6		68.7	48.4	63.5	0.1		67.2	49.6	63.6	0.2		67.3	51.1	63.6	0.2		67.3	48.7	63.5	0.1		67.2	43.5	63.4	0.0		67.1	43.3	63.4	0.0		67.1	48.6	63.5	0.1		67.2
3B	6	63.1	66.8	61.9	65.6	2.5		69.3	62.6	65.9	2.8		69.6	63.7	66.4	3.3	YES	70.1	62.5	65.8	2.7		69.5	60.8	65.1	2.0		68.8	48.6	63.3	0.2		67.0	49.9	63.3	0.2		67.0	51.3	63.4	0.3		67.1	48.8	63.3	0.2		67.0	43.8	63.2	0.1		66.9	43.6	63.1	0.0		66.8	49.1	63.3	0.2		67.0
3B	11	61.2	64.9	64.4	66.1	4.9	YES	69.8	65.3	66.7	5.5	YES	70.4	64.4	66.1	4.9	YES	69.8	64.0	65.8	4.6	YES	69.5	61.7	64.5	3.3		68.2	50.2	61.5	0.3		65.2	51.5	61.6	0.4		65.3	52.3	61.7	0.5		65.4	49.4	61.5	0.3		65.2	45.2	61.3	0.1		65.0	45.8	61.3	0.1		65.0	50.3	61.5	0.3		65.2
3B	16	59.7	63.4	66.1	67.0	7.3	YES	70.7	66.7	67.5	7.8	YES	71.2	64.4	65.7	6.0	YES	69.4	64.4	65.7	6.0	YES	69.4	62.2	64.1	4.4		67.8	52.7	60.5	0.8		64.2	53.2	60.6	0.9		64.3	54.1	60.8	1.1		64.5	50.2	60.2	0.5		63.9	46.4	59.9	0.2		63.6	47.6	60.0	0.3		63.7	50.9	60.2	0.5		63.9
3B	19	59.0	62.7	66.1	66.9	7.9	YES	70.6	66.7	67.4	8.4	YES	71.1	64.3	65.4	6.4	YES	69.1	64.8	65.8	6.8	YES	69.5	62.9	64.4	5.4	YES	68.1	53.9	60.2	1.2		63.9	53.6	60.1	1.1		63.8	54.2	60.2	1.2		63.9	50.6	59.6	0.6		63.3	47.1	59.3	0.3		63.0	48.6	59.4	0.4		63.1	51.5	59.7	0.7		63.4
3C	1	60.5	64.2	58.0	62.4	1.9		66.1	58.4	62.6	2.1		66.3	59.7	63.1	2.6		66.8	59.0	62.8	2.3		66.5	56.6	62.0	1.5		65.7	51.7	61.0	0.5		64.7	52.1	61.1	0.6		64.8	47.4	60.7	0.2		64.4	45.7	60.6	0.1		64.3	44.7	60.6	0.1		64.3	44.5	60.6	0.1		64.3	50.1	60.9	0.4		64.6
3C	2	62.4	66.1	59.5	64.2	1.8		67.9	60.0	64.4	2.0		68.1	61.7	65.1	2.7		68.8	59.9	64.3	1.9		68.0	57.7	63.7	1.3		67.4	52.6	62.8	0.4		66.5	53.0	62.9	0.5		66.6	48.1	62.6	0.2		66.3	46.5	62.5	0.1		66.2	45.5	62.5	0.1		66.2	45.4	62.5	0.1		66.2	51.0	62.7	0.3		66.4
3C	3	62.7	66.4	60.8	64.9	2.2		68.6	61.3	65.1	2.4		68.8	62.8	65.8	3.1	YES	69.5	60.0	64.6	1.9		68.3	59.6	64.4	1.7		68.1	52.8	63.1	0.4		66.8	53.4	63.2	0.5		66.9	48.9	62.9	0.2		66.6	47.6	62.8	0.1		66.5	45.9	62.8	0.1		66.5	45.8	62.8	0.1		66.5	51.6	63.0	0.3		66.7
3C	4	62.8	66.5	61.6	65.3	2.5		69.0	62.3	65.6	2.8		69.3	63.4	66.1	3.3	YES	69.8	60.6	64.8	2.0		68.5	60.5	64.8	2.0		68.5	53.1	63.2	0.4		66.9	53.8	63.3	0.5		67.0	49.2	63.0	0.2		66.7	48.0	62.9	0.1		66.6	46.1	62.9	0.1		66.6	46.0	62.9	0.1		66.6	52.2	63.2	0.4		66.9
3C	5	62.8	66.5	62.5	65.7	2.9		69.4	63.2	66.0	3.2	YES	69.7	64.1	66.5	3.7	YES	70.2	61.9	65.4	2.6		69.1	61.8	65.3	2.5		69.0	53.4	63.3	0.5		67.0	54.1	63.3	0.5		67.0	49.6	63.0	0.2		66.7	48.4	63.0	0.2		66.7	46.4	62.9	0.1		66.6	46.3	62.9	0.1		66.6	52.6	63.2	0.4		66.9
3C	6	62.7	66.4	63.5	66.1	3.4	YES	69.8	64.2	66.5	3.8	YES	70.2	64.5	66.7	4.0	YES	70.4	63.0	65.9	3.2	YES	69.6	62.1	65.4	2.7		69.1	53.7	63.2	0.5		66.9	54.5	63.3	0.6		67.0	50.1	62.9	0.2		66.6	48.8	62.9	0.2		66.6	46.7	62.8	0.1		66.5	46.6	62.8	0.1		66.5	52.9	63.1	0.4		66.8
3C	11	61.2	64.9	66.7	67.8	6.6	YES	71.5	67.3	68.3	7.1	YES	72.0	65.2	66.7	5.5	YES	70.4	65.0	66.5	5.3	YES	70.2	64.3	66.0	4.8	YES	69.7	55.3	62.2	1.0		65.9	56.8	62.5	1.3		66.2	52.2	61.7	0.5		65.4	51.1	61.6	0.4		65.3	47.9	61.4	0.2		65.1	48.1	61.4	0.2		65.1	53.6	61.9	0.7		65.6
3C	16	60.4	64.1	67.1	67.9	7.5	YES	71.6	67.7	68.4	8.0	YES	72.1	65.2	66.4	6.0	YES	70.1	65.5	66.7	6.3	YES	70.4	65.2	66.4	6.0	YES	70.1	57.0	62.0	1.6		65.7	58.2	62.4	2.0		66.1	52.9	61.1	0.7		64.8	52.0	61.0	0.6		64.7	48.8	60.7	0.3		64.4	50.0	60.8	0.4		64.5	54.2	61.3	0.9		65.0
3C	19	59.9	63.6	67.0	67.8	7.9	YES	71.5	67.6	68.3	8.4	YES	72.0	65.1	66.2	6.3	YES	69.9	65.9	66.9	7.0	YES	70.6	65.8	66.8	6.9	YES	70.5	57.9	62.0	2.1		65.7	59.2	62.6	2.7		66.3	54.9	61.1	1.2		64.8	54.4	61.0	1.1		64.7	49.4	60.3	0.4		64.0	51.3	60.5	0.6		64.2	54.2	60.9	1.0		64.6
3D	1	54.7	58.4	54.6	57.6	3.0		61.3	55.0	57.9	3.2		61.6	57.8	59.5	4.8		63.2	56.9	58.9	4.3		62.6	53.9	57.3	2.6		61.0	46.9	55.3	0.7		59.0	48.3	55.6	0.9		59.3	46.0	55.2	0.6		58.9	42.4	54.9	0.2		58.6	40.4	54.8	0.2		58.5	40.2	54.8	0.2		58.5	45.9	55.2	0.5		58.9
3D	2	54.7	58.4	55.3	58.0	3.3		61.7	55.8	58.3	3.6		62.0	58.2	59.8	5.1	YES	63.5	56.2	58.5	3.8		62.2	55.0	57.9	3.2		61.6	47.3	55.4	0.7		59.1	48.8	55.7	1.0		59.4	46.6	55.3	0.6		59.0	43.2	55.0	0.3		58.7	41.5	54.9	0.2		58.6	41.3	54.9	0.2		58.6	46.9	55.3	0.7		59.0
3D	3	54.7	58.4	56.0	58.4	3.7		62.1	56.7	58.8	4.1		62.5	58.6	60.1	5.4	YES	63.8	56.7	58.8	4.1		62.5	56.0	58.4	3.7		62.1	47.6	55.5	0.8		59.2	50.1	56.0	1.3		59.7	47.2	55.4	0.7		59.1	43.7	55.0	0.3		58.7	42.1	54.9	0.2		58.6	42.0	54.9	0.2		58.6	47.6	55.5	0.8		59.2
3D	4	54.7	58.4	58.2	59.8	5.1	YES	63.5	58.8	60.2	5.5	YES	63.9	59.9	61.0	6.3	YES	64.7	57.5	59.3	4.6		63.0	57.1	59.1	4.4		62.8	47.9	55.5	0.8		59.2	50.6	56.1	1.4		59.8	47.9	55.5	0.8		59.2	44.1	55.1	0.4		58.8	42.6	55.0	0.3		58.7	42.5	55.0	0.3		58.7	48.3	55.6	0.9		59.3
3D	5	55.3	59.0	59.4	60.8	5.5	YES	64.5	60.0	61.3	6.0	YES	65.0	60.7	61.8	6.5	YES	65.5	58.6	60.3	5.0		64.0	58.3	60.1	4.8		63.8	48.2	56.1	0.8		59.8	51.1	56.7	1.4		60.4	48.9	56.2	0.9		59.9	44.6	55.7	0.4		59.4	43.2	55.6	0.3		59.3	43.0	55.5	0.2		59.2	48.9	56.2	0.9		59.9
3D	6	55.6	59.3	59.1	60.7	5.1	YES	64.4	60.0	61.3	5.7	YES	65.0	60.4	61.6	6.0	YES	65.3	58.6	60.4	4.8		64.1	57.8	59.8	4.2		63.5	48.9	56.4	0.8		60.1	51.7	57.1	1.5		60.8	49.1	56.5	0.9		60.2	44.9	56.0	0.4		59.7	43.5	55.9	0.3		59.6	43.4	55.9	0.3		59.6	49.3	56.5	0.9		60.2
3D	11	55.6	59.3	62.5	63.3	7.7	YES	67.0	63.2	63.9	8.3	YES	67.6	61.8	62.7	7.1	YES	66.4	61.3	62.3	6.7	YES	66.0	60.8	61.9	6.3	YES	65.6	50.4	56.7	1.1		60.4	54.1	57.9	2.3		61.6	49.7	56.6	1.0		60.3	46.2	56.1	0.5		59.8	44.7	55.9	0.3		59.6	44.8	55.9	0.3		59.6	50.1	56.7	1.1		60.4
3D	16	55.4	59.1	63.2	63.9	8.5	YES	67.6	63.9	64.5	9.1	YES	68.2	61.8	62.7	7.3	YES	66.4	61.6	62.5	7.1	YES	66.2	61.3	62.3	6.9	YES	66.0	52.6	57.2	1.8		60.9	56.0	58.7	3.3		62.4	50.6	56.6	1.2		60.3	47.9	56.1	0.7		59.8	45.7	55.8	0.4		59.5	46.3	55.9	0.5		59.6	50.6	56.6	1.2		60.3
3D	19	55.2	58.9	63.1	63.8	8.6	YES	67.5	63.8	64.4	9.2	YES	68.1	61.8	62.7	7.5	YES	66.4	62.0	62.8	7.6	YES	66.5	62.0	62.8	7.6	YES	66.5	54.3	57.8	2.6		61.5	57.3	59.4	4.2		63.1	50.9	56.6	1.4		60.3	48.5	56.0	0.8		59.7	46.3	55.7	0.5		59.4	47.9	55.9	0.7		59.6	50.6	56.5	1.3		60.2
3E	1	56.6	60.3	57.1	59.9	3.3		63.6	57.6	60.1	3.5		63.8	58.3	60.5	3.9		64.2	57.5	60.1	3.5		63.8	54.2	58.6	2.0		62.3	49.4	57.4	0.8		61.1	50.5	57.6	1.0		61.3	51.3	57.7	1.1		61.4	44.9	56.9	0.3		60.6	41.1	56.7	0.1		60.4	40.7	56.7	0.1		60.4	48.8	57.3	0.7		61.0
3E	2	57.8	61.5	58.3	61.1	3.3		64.8	58.9	61.4	3.6		65.1	60.5	62.4	4.6		66.1	57.3	60.6	2.8		64.3	55.0	59.6	1.8		63.3	50.0	58.5	0.7		62.2	51.2	58.7	0.9		62.4	51.8	58.8	1.0		62.5	45.8	58.1	0.3		61.8	43.0	57.9	0.1		61.6	42.8	57.9	0.1		61.6	50.2	58.5	0.7		62.2
3E	3	58.8	62.5	59.7	62.3	3.5		66.0	60.3	62.6	3.8		66.3	61.3	63.2	4.4		66.9	58.5	61.7	2.9		65.4	57.4	61.2	2.4		64.9	50.5	59.4	0.6		63.1	52.9	59.8	1.0		63.5	52.2	59.7	0.9		63.4	46.5	59.0	0.2		62.7	44.0	58.9	0.1		62.6	43.9	58.9	0.1		62.6	51.3	59.5	0.7		63.2
3E	4	59.7	63.4	61.6	63.8	4.1		67.5	62.2	64.1	4.4		67.8	62.5	64.3	4.6		68.0	59.1	62.4	2.7		66.1	58.8	62.3	2.6		66.0	51.0	60.2	0.5		63.9	53.6	60.7	1.0		64.4	52.7	60.5	0.8		64.2	47.1	59.9	0.2		63.6	44.9	59.8	0.1		63.5	44.8	59.8	0.1		63.5	52.1	60.4	0.7		64.1
3E	5	60.0	63.7	63.1	64.8	4.8		68.5	63.6	65.2	5.2	YES	68.9	63.1	64.8	4.8		68.5	59.9	63.0	3.0		66.7	59.5	62.8	2.8		66.5	51.5	60.6	0.6		64.3	54.2	61.0	1.0		64.7	53.4	60.9	0.9		64.6	47.6	60.2	0.2		63.9	45.5	60.2	0.2		63.9	45.5	60.2	0.2		63.9	52.6	60.7	0.7		64.4
3E	6	60.2	63.9	63.4	65.1	4.9	YES	68.8	64.2	65.7	5.5	YES	69.4	63.5	65.2	5.0	YES	68.9	61.4	63.9	3.7		67.6	60.7	63.5	3.3		67.2	52.1	60.8	0.6		64.5	54.8	61.3	1.1		65.0	53.8	61.1	0.9		64.8	48.1	60.5	0.3		64.2	46.3	60.4	0.2		64.1	46.2	60.4	0.2		64.1	53.1	61.0	0.8		64.7
3E	11	59.9	63.6	66.6	67.4	7.5	YES	71.1	67.2	67.9	8.0	YES	71.6	64.3	65.6	5.7	YES	69.3	63.9	65.4	5.5	YES	69.1	62.9	64.7	4.8		68.4	53.3	60.8	0.9		64.5	57.4	61.8	1.9		65.5	55.4	61.2	1.3		64.9	49.5	60.3	0.4		64.0	47.7	60.2	0.3		63.9	47.8	60.2	0.3		63.9	53.7	60.8	0.9		64.5
3E	16	59.6	63.3	66.5	67.3	7.7	YES	71.0	67.2	67.9	8.3	YES	71.6	64.3	65.6	6.0	YES	69.3	64.5	65.7	6.1	YES	69.4	63.6	65.1	5.5	YES	68.8	56.1	61.2	1.6		64.9	59.3	62.5	2.9		66.2	56.7	61.4	1.8		65.1	51.6	60.2	0.6		63.9	49.0	60.0	0.4		63.7	50.3	60.1	0.5		63.8	54.0	60.7	1.1		64.4
3E	19	59.4	63.1	66.5	67.3	7.9	YES	71.0	67.2	67.9	8.5	YES	71.6	64.2	65.4	6.0	YES	69.1	65.0	66.1	6.7	YES	69.8	64.4	65.6	6.2	YES	69.3	57.4	61.5	2.1		65.2	61.4	63.5	4.1		67.2	57.5	61.6	2.2		65.3	53.9	60.5	1.1		64.2	49.9	59.9	0.5		63.6	51.2	60.0	0.6		63.7	53.9	60.5	1.1		64.2
3F	1	54.7	58.4	56.1	58.5	3.8		62.2	56.7	58.8	4.1		62.5	57.2	59.1	4.5		62.8	55.5	58.1	3.4		61.8	51.8	56.5	1.8		60.2	47.4	55.4	0.7		59.1	48.7	55.7	1.0		59.4	48.6	55.6	1.0		59.3	41.9	54.9	0.2		58.6	39.3	54.8	0.1		58.5	38.8	54.8	0.1		58.5	47.0	55.4	0.7		59.1
3F	2	54.7	58.4	57.1	59.1	4.4		62.8	57.8	59.5	4.8		63.2	59.1	60.4	5.8	YES	64.1	55.8	58.3	3.6		62.0	53.2	57.0	2.3		60.7	47.9	55.5	0.8		59.2	49.2	55.8	1.1		59.5	49.2	55.8	1.1		59.5	43.1	55.0	0.3		58.7	41.2	54.9	0.2		58.6	40.9	54.9	0.2		58.6	48.3	55.6	0.9		59.3
3F	3	54.9	58.6	58.4	60.0	5.1	YES	63.7	59.0	60.4	5.5	YES	64.1	59.7	60.9	6.0	YES	64.6	57.0	59.1	4.2		62.8	54.6	57.8	2.9		61.5	48.4	55.8	0.9		59.5	50.3	56.2	1.3		59.9	49.7	56.0	1.1		59.7	43.9	55.2	0.3		58.9	42.2	55.1	0.2		58.8	42.0	55.1	0.2		58.8	49.3	56.0	1.1		59.7
3F	4	55.5	59.2	60.1	61.4	5.9	YES	65.1	60.7	61.8	6.3	YES	65.5	60.9	62.0	6.5	YES	65.7	57.0	59.3	3.8		63.0	55.7	58.6	3.1		62.3	48.8	56.3	0.8		60.0	50.8	56.8	1.3		60.5	50.5	56.7	1.2		60.4	44.5	55.8	0.3		59.5	43.0	55.7	0.2		59.4	42.9	55.7	0.2		59.4	50.0	56.6	1.1		60.3
3F	5	56.0	59.7	61.6	62.7	6.7	YES	66.4	62.2	63.1	7.1	YES	66.8	61.5	62.6	6.6	YES	66.3	58.1	60.2	4.2		63.9	57.7	59.9	3.9		63.6	49.3	56.8	0.8		60.5	51.4	57.3	1.3		61.0	50.8	57.1	1.1		60.8	45.2	56.3	0.3		60.0	43.9	56.3	0.3		60.0	43.8	56.3	0.3		60.0	50.7	57.1	1.1		60.8
3F	6	56.5	60.2	62.4	63.4	6.9	YES	67.1	63.0	63.9	7.4	YES	67.6	61.8	62.9	6.4	YES	66.6	59.0	60.9	4.4		64.6	58.4	60.6	4.1		64.3	49.8	57.3	0.8		61.0	51.9	57.8	1.3		61.5	51.2	57.6	1.1		61.3	45.7	56.8	0.3		60.5	44.6	56.8	0.3		60.5	44.5	56.8	0.3		60.5	51.1	57.6	1.1		61.3
3F	11	57.5	61.2	65.1	65.8	8.3	YES	69.5	65.8	66.4	8.9	YES	70.1	62.3	63.5	6.0	YES	67.2	61.6	63.0	5.5	YES	66.7	60.1	62.0	4.5		65.7	51.6	58.5	1.0		62.2	53.9	59.1	1.6		62.8	52.9	58.8	1.3		62.5	47.4	57.9	0.4		61.6	46.5	57.8	0.3		61.5	46.7	57.8	0.3		61.5	52.4	58.7	1.2		62.4
3F	16	57.4	61.1	65.6	66.2	8.8	YES	69.9	66.3	66.8	9.4	YES	70.5	63.1	64.1	6.7	YES	67.8	63.0	64.1	6.7	YES	67.8	62.0	63.3	5.9	YES	67.0	54.3	59.1	1.7		62.8	56.0	59.8	2.4		63.5	53.6	58.9	1.5		62.6	48.3	57.9	0.5		61.6	48.2	57.9	0.5		61.6	49.5	58.1	0.7		61.8	52.6	58.6	1.2		62.3
3F	19	57.4	61.1	65.5	66.1	8.7	YES	69.8	66.4	66.9	9.5	YES	70.6	63.0	64.1	6.7	YES	67.8	63.5	64.5	7.1	YES	68.2	62.7	63.8	6.4	YES	67.5	55.9	59.7	2.3		63.4	57.4	60.4	3.0		64.1	54.2	59.1	1.7		62.8	49.3	58.0	0.6		61.7	49.4	58.0	0.6		61.7	50.5	58.2	0.8		61.9	52.6	58.6	1.2		62.3
3G	1	55.4	59.1	52.9	57.3	1.9		61.0	53.4	57.5	2.1		61.2	55.5	58.5	3.1		62.2	54.2	57.9	2.5		61.6	52.9	57.3	1.9		61.0	45.8	55.9	0.5		59.6	48.3	56.2	0.8		59.9	49.7	56.4	1.0		60.1	44.1	55.7	0.3		59.4	37.5	55.5	0.1		59.2	36.9	55.5	0.1		59.2	48.7	56.2	0.8		59.9
3G	2	56.8	60.5	54.8	58.9	2.1		62.6	55.3	59.1	2.3		62.8	56.5	59.7	2.9		63.4	55.3	59.1	2.3		62.8	54.2	58.7	1.9		62.4	46.6	57.2	0.4		60.9	48.9	57.5	0.7		61.2	50.2	57.7	0.9		61.4	45.1	57.1	0.3		60.8	39.9	56.9	0.1		60.6	39.6	56.9	0.1		60.6	50.5	57.7	0.9		61.4
3G	3	57.1	60.8	57.1	60.1	3.0		63.8	57.6	60.4	3.3		64.1	58.4	60.8	3.7		64.5	56.4	59.8	2.7		63.5	54.9	59.1	2.0		62.8	47.3	57.5	0.4		61.2	50.3	57.9	0.8		61.6	50.6	58.0	0.9		61.7	46.2	57.4	0.3		61.1	41.2	57.2	0.1		60.9	41.1	57.2	0.1		60.9	51.0	58.1	1.0		61.8
3G	4	57.2	60.9	58.3	60.8	3.6		64.5	58.8	61.1	3.9		64.8	59.8	61.7	4.5		65.4	57.4	60.3	3.1		64.0	55.6	59.5	2.3		63.2	47.9	57.7	0.5		61.4	50.9	58.1	0.9		61.8	51.1	58.2	1.0		61.9	46.5	57.6	0.4		61.3	42.1	57.3	0.1		61.0	41.9	57.3	0.1		61.0	51.2	58.2	1.0		61.9
3G	5	57.4	61.1	59.6	61.6	4.2		65.3	60.1	62.0	4.6		65.7	60.5	62.2	4.8		65.9	57.6	60.5	3.1		64.2	56.4	59.9	2.5		63.6	48.5	57.9	0.5		61.6	52.0	58.5	1.1		62.2	51.5	58.4	1.0		62.1	46.9	57.8	0.4		61.5	43.0	57.6	0.2		61.3	42.9	57.6	0.2		61.3	51.5	58.4	1.0		62.1
3G	6	57.4	61.1	60.6	62.3	4.9		66.0	61.1	62.6	5.2	YES	66.3	60.7	62.4	5.0		66.1	57.3	60.4	3.0		64.1	56.3	59.9	2.5		63.6	49.3	58.0	0.6		61.7	52.7	58.7	1.3		62.4	51.8	58.5	1.1		62.2	47.3	57.8	0.4		61.5	43.7	57.6	0.2		61.3	43.6	57.6	0.2		61.3	51.4	58.4	1.0		62.1
3G	11	57.5	61.2	63.6	64.6	7.1	YES	68.3	64.3	65.1	7.6	YES	68.8	61.4	62.9	5.4	YES	66.6	60.9	62.5	5.0	YES	66.2	59.1	61.4	3.9		65.1	50.5	58.3	0.8		62.0	53.6	59.0	1.5		62.7	53.5	59.0	1.5		62.7	48.5	58.0	0.5		61.7	45.8	57.8	0.3		61.5	45.8	57.8	0.3		61.5	51.9	58.6	1.1		62.3
3G	16	57.0	60.7	64.4	65.1	8.1	YES	68.8	65.3	65.9	8.9	YES	69.6	62.0	63.2	6.2	YES	66.9	62.1	63.3	6.3	YES	67.0	60.7	62.2	5.2	YES	65.9	53.4	58.6	1.6		62.3	56.3	59.7	2.7		63.4	54.3	58.9	1.9		62.6	49.2	57.7	0.7		61.4	47.5	57.5	0.5		61.2	47.8	57.5	0.5		61.2	51.9	58.2	1.2		61.9
3G	19	56.8	60.5	64.6	65.3	8.5	YES	69.0	65.5	66.0	9.2	YES	69.7	61.9	63.1	6.3	YES	66.8	62.5	63.5	6.7	YES	67.2	61.5	62.8	6.0	YES	66.5	54.7	58.9	2.1		62.6	57.1	60.0	3.2		63.7	54.7	58.9	2.1		62.6	50.6	57.7	0.9		61.4	48.4	57.4	0.6		61.1	49.2	57.5	0.7		61.2	51.9	58.0	1.2		61.7
3H	1	54.7	58.4	50.1	56.0	1.3		59.7	50.5	56.1	1.4		59.8	52.9	56.9	2.2		60.6	50.5	56.1	1.4		59.8	47.3	55.4	0.7		59.1	42.5	55.0	0.3		58.7	42.5	55.0	0.3		58.7	39.7	54.8	0.1		58.5	38.8	54.8	0.1		58.5	37.7	54.8	0.1		58.5	37.0	54.8	0.1		58.5	49.1	55.8	1.1		59.5
3H	2	56.7	60.4	52.3	58.0	1.3		61.7	52.6	58.1	1.4		61.8	54.0	58.6	1.9		62.3	51.4	57.8	1.1		61.5	48.4	57.3	0.6		61.0	43.4	56.9	0.2		60.6	43.5	56.9	0.2		60.6	41.3	56.8	0.1		60.5	40.6	56.8	0.1		60.5	39.8	56.8	0.1		60.5	39.5	56.8	0.1		60.5	51.4	57.8	1.1		61.5
3H	3	57.1	60.8	54.7	59.1	2.0		62.8	54.9	59.1	2.0		62.8	55.7	59.5	2.4		63.2	52.4	58.4	1.3		62.1	49.8	57.8	0.7		61.5	44.0	57.3	0.2		61.0	44.1	57.3	0.2		61.0	42.3	57.2	0.1		60.9	41.6	57.2	0.1		60.9	41.0	57.2	0.1		60.9	40.7	57.2	0.1		60.9	51.9	58.2	1.1		61.9
3H	4	57.0	60.7	55.6	59.4	2.4		63.1	55.9	59.5	2.5		63.2	56.5	59.8	2.8		63.5	53.1	58.5	1.5		62.2	51.0	58.0	1.0		61.7	44.5	57.2	0.2		60.9	44.5	57.2	0.2		60.9	42.9	57.2	0.2		60.9	42.3	57.1	0.1		60.8	41.8	57.1	0.1		60.8	41.6	57.1	0.1		60.8	52.0	58.2	1.2		61.9
3H	5	56.8	60.5	56.7	59.8	3.0		63.5	57.0	59.9	3.1		63.6	57.4	60.1	3.3		63.8	54.6	58.8	2.0		62.5	53.2	58.4	1.6		62.1	45.2	57.1	0.3		60.8	45.4	57.1	0.3		60.8	43.5	57.0	0.2		60.7	43.0	57.0	0.2		60.7	42.6	57.0	0.2		60.7	42.4	57.0	0.2		60.7	51.9	58.0	1.2		61.7
3H	6	56.6	60.3	58.4	60.6	4.0		64.3	58.6	60.7	4.1		64.4	57.6	60.1	3.5		63.8	55.4	59.1	2.5		62.8	53.9	58.5	1.9		62.2	46.5	57.0	0.4		60.7	45.9	57.0	0.4		60.7	44.1	56.8	0.2		60.5	43.6	56.8	0.2		60.5	43.3	56.8	0.2		60.5	43.2	56.8	0.2		60.5	51.9	57.9	1.3		61.6
3H	11	55.7	59.4	60.6	61.8	6.1	YES	65.5	61.0	62.1	6.4	YES	65.8	58.5	60.3	4.6		64.0	57.6	59.8	4.1		63.5	54.7	58.2	2.5		61.9	48.6	56.5	0.8		60.2	47.5	56.3	0.6		60.0	46.4	56.2	0.5		59.9	46.0	56.1	0.4		59.8	45.9	56.1	0.4		59.8	45.9	56.1	0.4		59.8	51.7	57.2	1.5		60.9
3H	16	54.9	58.6	62.5	63.2	8.3	YES	66.9	63.1	63.7	8.8	YES	67.4	60.4	61.5	6.6	YES	65.2	60.1	61.2	6.3	YES	64.9	58.4	60.0	5.1	YES	63.7	50.2	56.2	1.3		59.9	48.8	55.9	1.0		59.6	48.1	55.7	0.8		59.4	46.9	55.5	0.6		59.2	47.3	55.6	0.7		59.3	47.1	55.6	0.7		59.3	51.5	56.5	1.6		60.2
3H	19	54.7	58.4	62.7	63.3	8.7	YES	67.0	63.4	63.9	9.3	YES	67.6	60.3	61.4	6.7	YES	65.1	60.5	61.5	6.8	YES	65.2	59.3	60.6	5.9	YES	64.3	52.2	56.6	1.9		60.3	50.7	56.1	1.5		59.8	49.1	55.7	1.1		59.4	47.3	55.4	0.7		59.1	47.6	55.5	0.8		59.2	47.5	55.4	0.8		59.1	51.4	56.3	1.7		60.0
3I	1	54.7	58.4	48.2	55.6	0.9		59.3	48.7	55.7	1.0		59.4	51.4	56.3	1.7		60.0	49.9	55.9	1.2		59.6	47.8	55.5	0.8		59.2	44.6	55.1	0.4		58.8	42.2	54.9	0.2		58.6	38.6	54.8	0.1		58.5	37.5	54.8	0.1		58.5	36.5	54.7	0.1		58.4	35.7	54.7	0.1		58.4	48.4	55.6	0.9		59.3
3I	2	55.9	59.6	49.7	56.8	0.9		60.5	50.1	56.9	1.0		60.6	52.8	57.6	1.7		61.3	50.4	57.0	1.1		60.7	49.3	56.8	0.9		60.5	45.1	56.2	0.3		59.9	43.0	56.1	0.2		59.8	39.9	56.0	0.1		59.7	38.9	56.0	0.1		59.7	38.2	56.0	0.1		59.7	37.7	56.0	0.1		59.7	50.4	57.0	1.1		60.7
3I	3	56.2	59.9	52.3	57.7	1.5		61.4	52.5	57.7	1.5		61.4	54.3	58.4	2.2		62.1	50.9	57.3	1.1		61.0	50.2	57.2	1.0		60.9	45.5	56.6	0.4		60.3	43.4	56.4	0.2		60.1	40.7	56.3	0.1		60.0	39.9	56.3	0.1		60.0	39.2	56.3	0.1		60.0	38.9	56.3	0.1		60.0	50.8	57.3	1.1		61.0
3I	4	56.2	59.9	53.2	58.0	1.8		61.7	53.5	58.1	1.9		61.8	55.0	58.7	2.5		62.4	51.7	57.5	1.3		61.2	51.0	57.3	1.1		61.0	45.9	56.6	0.4		60.3	43.7	56.4	0.2		60.1	41.2	56.3	0.1		60.0	40.5	56.3	0.1		60.0	39.9	56.3	0.1		60.0	39.6	56.3	0.1		60.0	50.9	57.3	1.1		61.0
3I	5	56.2	59.9	55.3	58.8	2.6		62.5	55.5	58.9	2.7		62.6	55.2	58.7	2.5		62.4	52.5	57.7	1.5		61.4	52.0	57.6	1.4		61.3	46.4	56.6	0.4		60.3	44.4	56.5	0.3		60.2	41.7	56.4	0.2		60.1	41.0	56.3	0.1		60.0	40.6	56.3	0.1		60.0	40.4	56.3	0.1		60.0	50.8	57.3	1.1		61.0
3I	6	56.0	59.7	56.2	59.1	3.1		62.8	56.4	59.2	3.2		62.9	56.3	59.2	3.2		62.9	54.3	58.2	2.2		61.9	53.5	57.9	1.9		61.6	47.3	56.5	0.5		60.2	44.8	56.3	0.3		60.0	42.2	56.2	0.2		59.9	41.5	56.2	0.2		59.9	41.2	56.1	0.1		59.8	41.1	56.1	0.1		59.8	50.8	57.1	1.1		60.8
3I	11	54.9	58.6	58.9	60.4	5.5	YES	64.1	59.3	60.6	5.7	YES	64.3	56.9	59.0	4.1		62.7	56.2	58.6	3.7		62.3	55.8	58.4	3.5		62.1	49.3	56.0	1.1		59.7	46.5	55.5	0.6		59.2	43.9	55.2	0.3		58.9	43.3	55.2	0.3		58.9	43.1	55.2	0.3		58.9	43.1	55.2	0.3		58.9	50.0	56.1	1.2		59.8
3I	16	54.7	58.4	59.6	60.8	6.1	YES	64.5	60.0	61.1	6.4	YES	64.8	57.6	59.4	4.7		63.1	57.2	59.1	4.5		62.8	57.4	59.3	4.6		63.0	50.2	56.0	1.3		59.7	47.7	55.5	0.8		59.2	45.7	55.2	0.5		58.9	44.7	55.1	0.4		58.8	44.5	55.1	0.4		58.8	44.6	55.1	0.4		58.8	49.8	55.9	1.2		59.6
3I	19	54.7	58.4	60.1	61.2	6.5	YES	64.9	60.5	61.5	6.8	YES	65.2	57.7	59.5	4.8		63.2	58.7	60.1	5.5	YES	63.8	59.0	60.4	5.7	YES	64.1	51.3	56.3	1.6		60.0	48.6	55.6	1.0		59.3	46.4	55.3	0.6		59.0	45.1	55.1	0.5		58.8	45.2	55.1	0.5		58.8	45.0	55.1	0.4		58.8	49.7	55.9	1.2		59.6
4	1	54.7	58.4	45.5	55.2	0.5		58.9	46.4	55.3	0.6		59.0	51.7	56.4	1.8		60.1	52.7	56.8	2.1		60.5	49.3	55.8	1.1		59.5	50.0	55.9	1.3		59.6	53.3	57.1	2.4		60.8	54.8	57.7	3.1		61.4	48.0	55.5	0.8		59.2	34.3	54.7	0.0		58.4	32.2	54.7	0.0		58.4	33.8	54.7	0.0		58.4
4	2	54.7	58.4	48.2	55.6	0.9		59.3	49.0	55.7	1.0		59.4	53.7	57.2	2.6		60.9	55.5	58.1	3.4		61.8	52.6	56.8	2.1		60.5	52.3	56.7	2.0		60.4	55.7	58.2	3.6		61.9	54.9	57.8	3.1		61.5	48.9	55.7	1.0		59.4	35.9	54.7	0.1		58.4	34.5	54.7	0.0		58.4	37.4	54.8	0.1		58.5
4	3	54.7	58.4	55.4	58.1	3.4		61.8	56.0	58.4	3.7		62.1	62.0	62.7	8.1	YES	66.4	60.5	61.5	6.8	YES	65.2	60.7	61.7	7.0	YES	65.4	55.4	58.1	3.4		61.8	58.6	60.1	5.4	YES	63.8	55.6	58.2	3.5		61.9	50.4	56.1	1.4		59.8	39.2	54.8	0.1		58.5	38.7	54.8	0.1		58.5	42.4	54.9	0.2		58.6
4	4	54.7	58.4	58.9	60.3	5.6	YES	64.0	59.4	60.7	6.0	YES	64.4	62.9	63.5	8.8	YES	67.2	61.9	62.7	8.0	YES	66.4	62.5	63.2	8.5	YES	66.9	55.4	58.1	3.4		61.8	60.1	61.2	6.5	YES	64.9	56.5	58.7	4.0		62.4	51.4	56.3	1.7		60.0	40.6	54.8	0.2		58.5	40.3	54.8	0.2		58.5	45.4	55.2	0.5		58.9
4	5	54.7	58.4	59.5	60.7	6.1	YES	64.4	60.2	61.3	6.6	YES	65.0	63.3	63.9	9.2	YES	67.6	63.1	63.7	9.0	YES	67.4	64.3	64.7	10.1	YES	68.4	56.3	58.6	3.9		62.3	61.1	62.0	7.3	YES	65.7	57.4	59.3	4.6		63.0	52.7	56.8	2.1		60.5	41.4	54.9	0.2		58.6	41.2	54.9	0.2		58.6	47.0	55.4	0.7		59.1
4	6	54.7	58.4	61.2	62.1	7.4	YES	65.8	62.2	62.9	8.2	YES	66.6	63.3	63.9	9.2	YES	67.6	63.3	63.9	9.2	YES	67.6	65.1	65.5	10.8	YES	69.2	57.3	59.2	4.5		62.9	62.6	63.2	8.6	YES	66.9	58.3	59.9	5.2	YES	63.6	54.1	57.4	2.7		61.1	41.7	54.9	0.2		58.6	41.6	54.9	0.2		58.6	47.8	55.5	0.8		59.2
4	11	54.7	58.4	66.0	66.3	11.6	YES	70.0	66.5	66.8	12.1	YES	70.5	63.7	64.2	9.5	YES	67.9	65.2	65.6	10.9	YES	69.3	66.6	66.9	12.2	YES	70.6	59.0	60.4	5.7	YES	64.1	64.9	65.3	10.6	YES	69.0	62.4	63.1	8.4	YES	66.8	59.3	60.6	5.9	YES	64.3	44.5	55.1	0.4		58.8	46.1	55.2	0.6		58.9	50.2	56.0	1.3		59.7
4	16	55.8	59.5	65.6	66.0	10.2	YES	69.7	66.1	66.5	10.7	YES	70.2	63.6	64.3	8.5	YES	68.0	66.2	66.6	10.8	YES	70.3	67.0	67.3	11.5	YES	71.0	60.2	61.5	5.7	YES	65.2	65.3	65.8	10.0	YES	69.5	63.3	64.0	8.2	YES	67.7	58.9	60.6	4.8		64.3	45.7	56.2	0.4		59.9	47.2	56.4	0.6		60.1	51.3	57.1	1.3		60.8
4	21	56.0	59.7	65.2	65.7	9.7	YES	69.4	65.8	66.2	10.2	YES	69.9	63.3	64.0	8.0	YES	67.7	66.9	67.2	11.2	YES	70.9	67.3	67.6	11.6	YES	71.3	60.7	62.0	6.0	YES	65.7	65.0	65.5	9.5	YES	69.2	62.8	63.6	7.6	YES	67.3	58.3	60.3	4.3		64.0	47.5	56.6	0.6		60.3	49.3	56.8	0.8		60.5	51.3	57.3	1.3		61.0
4	24	56.0	59.7	64.9	65.4	9.4	YES	69.1	65.6	66.1	10.1	YES	69.8	63.1	63.9	7.9	YES	67.6	66.4	66.8	10.8	YES	70.5	67.4	67.7	11.7	YES	71.4	60.7	62.0	6.0	YES	65.7	64.8	65.3	9.3	YES	69.0	62.5	63.4	7.4	YES	67.1	57.9	60.1	4.1		63.8	48.6	56.7	0.7		60.4	50.2	57.0	1.0		60.7	51.4	57.3	1.3		61.0
4A	3	54.7	58.4	61.9	62.7	8.0	YES	66.4	62.4	63.1	8.4	YES	66.8	65.4	65.8	11.1	YES	69.5	59.9	61.0	6.4	YES	64.7	59.5	60.7	6.1	YES	64.4	53.3	57.1	2.4		60.8	55.8	58.3	3.6		62.0	53.4	57.1	2.4		60.8	49.3	55.8	1.1		59.5	38.6	54.8	0.1		58.5	38.0	54.8	0.1		58.5	44.4	55.1	0.4		58.8
4A	4	55.6	59.3	64.9	65.4	9.8	YES	69.1	65.4	65.8	10.2	YES	69.5	66.0	66.4	10.8	YES	70.1	61.5	62.5	6.9	YES	66.2	62.0	62.9	7.3	YES	66.6	53.9	57.8	2.2		61.5	56.9	59.3	3.7		63.0	54.1	57.9	2.3		61.6	50.2	56.7	1.1		60.4	39.7	55.7	0.1		59.4	39.3	55.7	0.1		59.4	47.0	56.2	0.6		59.9
4A	5	57.5	61.2	66.8	67.3	9.8	YES	71.0	67.3	67.7	10.2	YES	71.4	66.6	67.1	9.6	YES	70.8	62.6	63.8	6.3	YES	67.5	63.2	64.2	6.7	YES	67.9	54.5	59.3	1.8		63.0	57.8	60.7	3.2		64.4	54.9	59.4	1.9		63.1	51.3	58.4	0.9		62.1	40.3	57.6	0.1		61.3	39.9	57.6	0.1		61.3	49.5	58.1	0.6		61.8
4A	6	59.6	63.3	68.8	69.3	9.7	YES	73.0	69.4	69.8	10.2	YES	73.5	66.7	67.5	7.9	YES	71.2	64.6	65.8	6.2	YES	69.5	64.1	65.4	5.8	YES	69.1	55.4	61.0	1.4		64.7	59.0	62.3	2.7		66.0	55.6	61.1	1.5		64.8	52.5	60.4	0.8		64.1	40.6	59.7	0.1		63.4	40.3	59.7	0.1		63.4	51.8	60.3	0.7		64.0
4A	11	60.4	64.1	70.8	71.2	10.8	YES	74.9	71.3	71.6	11.2	YES	75.3	67.1	67.9	7.5	YES	71.6	67.3	68.1	7.7	YES	71.8	66.0	67.1	6.7	YES	70.8	57.0	62.0	1.6		65.7	63.3	65.1	4.7	YES	68.8	60.2	63.3	2.9		67.0	56.4	61.9	1.5		65.6	40.3	60.4	0.0		64.1	42.6	60.5	0.1		64.2	54.0	61.3	0.9		65.0
4A	16	60.2	63.9	70.4	70.8	10.6	YES	74.5	70.9	71.3	11.1	YES	75.0	66.8	67.7	7.5	YES	71.4	68.3	68.9	8.7	YES	72.6	66.5	67.4	7.2	YES	71.1	58.4	62.4	2.2		66.1	63.9	65.4	5.2	YES	69.1	61.5	63.9	3.7		67.6	57.9	62.2	2.0		65.9	42.1	60.3	0.1		64.0	44.5	60.3	0.1		64.0	53.4	61.0	0.8		64.7
4A	21	59.8	63.5	69.9	70.3	10.5	YES	74.0	70.5	70.9	11.1	YES	74.6	66.6	67.4	7.6	YES	71.1	68.6	69.1	9.3	YES	72.8	68.1	68.7	8.9	YES	72.4	60.1	63.0	3.2		66.7	64.2	65.5	5.7	YES	69.2	61.3	63.6	3.8		67.3	57.6	61.8	2.0		65.5	45.1	59.9	0.1		63.6	47.8	60.1	0.3		63.8	52.8	60.6	0.8		64.3
4A	24	59.6	63.3	69.6	70.0	10.4	YES	73.7	70.2	70.6	11.0	YES	74.3	66.4	67.2	7.6	YES	70.9	68.5	69.0	9.4	YES	72.7	68.3	68.8	9.2	YES	72.5	60.5	63.1	3.5		66.8	64.1	65.4	5.8	YES	69.1	61.1	63.4	3.8		67.1	57.3	61.6	2.0		65.3	47.3	59.8	0.2		63.5	49.7	60.0	0.4		63.7	52.7	60.4	0.8		64.1
4B	1	60.2	63.9	45.6	60.3	0.1		64.0	46.4	60.4	0.2		64.1	44.1	60.3	0.1		64.0	45.9	60.4	0.2		64.1	45.3	60.3	0.1		64.0	41.6	60.3	0.1		64.0	44.7	60.3	0.1		64.0	41.9	60.3	0.1		64.0	40.6	60.2	0.0		63.9	39.5	60.2	0.0		63.9	39.0	60.2	0.0		63.9	42.2	60.3	0.1		64.0
4B	2	62.5	66.2	48.1	62.7	0.2		66.4	48.6	62.7	0.2		66.4	45.5	62.6	0.1		66.3	46.5	62.6	0.1		66.3	47.3	62.6	0.1		66.3	42.7	62.5	0.0		66.2	45.4	62.6	0.1		66.3	43.0	62.5	0.0		66.2	41.9	62.5	0.0		66.2	41.2	62.5	0.0		66.2	40.8	62.5	0.0		66.2	44.5	62.6	0.1		66.3
4B	3	62.4	66.1	53.8	63.0	0.6		66.7	53.9	63.0	0.6		66.7	52.9	62.9	0.5		66.6	51.4	62.7	0.3		66.4	50.0	62.6	0.2		66.3	44.6	62.5	0.1		66.2	46.6	62.5	0.1		66.2	44.7	62.5	0.1		66.2	43.7	62.5	0.1		66.2	43.1	62.5	0.1		66.2	42.9	62.4	0.0		66.1	47.8	62.5	0.1		66.2
4B	4	63.4	67.1	57.2	64.3	0.9		68.0	57.3	64.4	1.0		68.1	55.4	64.0	0.6		67.7	54.2	63.9	0.5		67.6	53.8	63.9	0.5		67.6	45.1	63.5	0.1		67.2	47.1	63.5	0.1		67.2	45.2	63.5	0.1		67.2	44.3	63.5	0.1		67.2	43.8	63.4	0.0		67.1	43.6	63.4	0.0		67.1	49.2	63.6	0.2		67.3
4B	5	63.2	66.9	59.8	64.8	1.6		68.5	59.9	64.9	1.7		68.6	55.6	63.9	0.7		67.6	54.2	63.7	0.5		67.4	53.8	63.7	0.5		67.4	45.1	63.3	0.1		67.0	47.3	63.3	0.1		67.0	45.3	63.3	0.1		67.0	44.3	63.3	0.1		67.0	43.8	63.2	0.0		66.9	43.6	63.2	0.0		66.9	49.7	63.4	0.2		67.1
4B	6	63.0	66.7	60.3	64.9	1.9		68.6	60.6	65.0	2.0		68.7	56.0	63.8	0.8		67.5	54.3	63.5	0.5		67.2	53.9	63.5	0.5		67.2	45.2	63.1	0.1		66.8	47.4	63.1	0.1		66.8	45.4	63.1	0.1		66.8	44.4	63.1	0.1		66.8	43.9	63.1	0.1		66.8	43.7	63.1	0.1		66.8	50.0	63.2	0.2		66.9
4B	11	61.4	65.1	62.5	65.0	3.6		68.7	62.7	65.1	3.7	YES	68.8	55.3	62.4	1.0		66.1	55.3	62.4	1.0		66.1	55.4	62.4	1.0		66.1	45.0	61.5	0.1		65.2	48.2	61.6	0.2		65.3	45.8	61.5	0.1		65.2	44.7	61.5	0.1		65.2	43.4	61.5	0.1		65.2	43.4	61.5	0.1		65.2	49.7	61.7	0.3		65.4
4B	16	59.9	63.6	62.4	64.3	4.4		68.0	62.6	64.5	4.6		68.2	57.4	61.8	1.9		65.5	55.5	61.2	1.3		64.9	55.5	61.2	1.3		64.9	45.7	60.1	0.2		63.8	48.8	60.2	0.3		63.9	46.6	60.1	0.2		63.8	45.4	60.1	0.2		63.8	44.4	60.0	0.1		63.7	44.4	60.0	0.1		63.7	49.9	60.3	0.4		64.0
4B	21	58.7	62.4	62.1	63.7	5.0	YES	67.4	62.3	63.9	5.2	YES	67.6	57.1	61.0	2.3		64.7	56.4	60.7	2.0		64.4	56.3	60.7	2.0		64.4	47.0	59.0	0.3		62.7	49.1	59.2	0.5		62.9	47.0	59.0	0.3		62.7	46.0	58.9	0.2		62.6	45.2	58.9	0.2		62.6	45.1	58.9	0.2		62.6	50.0	59.2	0.5		62.9
4B	24	58.1	61.8	61.5	63.1	5.0	YES	66.8	61.8	63.3	5.2	YES	67.0	57.1	60.6	2.5		64.3	57.1	60.6	2.5		64.3	57.1	60.6	2.5		64.3	48.2	58.5	0.4		62.2	49.5	58.7	0.6		62.4	47.1	58.4	0.3		62.1	45.9	58.4	0.3		62.1	45.0	58.3	0.2		62.0	45.7	58.3	0.2		62.0	49.6	58.7	0.6		62.4
5	1	54.7	57.7	53.4	57.1	2.4		60.1	53.8	57.3	2.6		60.3	55.8	58.3	3.6		61.3	59.9	61.0	6.4	YES	64.0	63.3	63.9	9.2	YES	66.9	54.4	57.5	2.9		60.5	61.5	62.3	7.6	YES	65.3	59.8	61.0	6.3	YES	64.0	49.6	55.9	1.2		58.9	48.9	55.7	1.0		58.7	49.0	55.7	1.0		58.7	51.9	56.5	1.8		59.5
5	2	54.7	57.7	54.1	57.4	2.7		60.4	54.6	57.6	3.0		60.6	57.1	59.1	4.4		62.1	60.5	61.5	6.8	YES	64.5	64.0	64.5	9.8	YES	67.5	55.4	58.1	3.4		61.1	63.6	64.1	9.4	YES	67.1	61.1	62.0	7.3	YES	65.0	50.2	56.0	1.3		59.0	49.4	55.8	1.1		58.8	49.5	55.8	1.2		58.8	52.5	56.7	2.1		59.7
5	3	54.7	57.7	55.5	58.1	3.4		61.1	55.9	58.3	3.7		61.3	59.2	60.5	5.8	YES	63.5	61.1	62.0	7.3	YES	65.0	64.3	64.7	10.1	YES	67.7	56.1	58.5	3.8		61.5	65.7	66.0	11.4	YES	69.0	62.9	63.5	8.8	YES	66.5	54.2	57.5	2.8		60.5	50.0	55.9	1.3		58.9	50.1	56.0	1.3		59.0	53.1	57.0	2.3		60.0
5	4	54.7	57.7	57.0	59.0	4.3		62.0	57.4	59.3	4.6		62.3	59.8	61.0	6.3	YES	64.0	62.1	62.8	8.1	YES	65.8	65.2	65.6	10.9	YES	68.6	56.6	58.8	4.1		61.8	67.2	67.4	12.8	YES	70.4	63.4	63.9	9.3	YES	66.9	54.4	57.5	2.9		60.5	50.5	56.1	1.4		59.1	50.5	56.1	1.4		59.1	53.6	57.2	2.5		60.2
5	5	54.7	57.7	58.1	59.7	5.1	YES	62.7	58.5	60.0	5.3	YES	63.0	60.1	61.2	6.5	YES	64.2	63.4	63.9	9.3	YES	66.9	66.9	67.2	12.5	YES	70.2	56.7	58.8	4.1		61.8	68.7	68.9	14.2	YES	71.9	64.3	64.7	10.1	YES	67.7	54.7	57.7	3.0		60.7	51.0	56.2	1.6		59.2	51.0	56.2	1.6		59.2	54.1	57.4	2.7		60.4
5	6	54.7	57.7	59.0	60.4	5.7	YES	63.4	59.4	60.7	6.0	YES	63.7	60.6	61.6	6.9	YES	64.6	63.9	64.4	9.7	YES	67.4	67.3	67.5	12.9	YES	70.5	57.3	59.2	4.5		62.2	69.1	69.3	14.6	YES	72.3	66.9	67.2	12.5	YES	70.2	55.0	57.9	3.2		60.9	51.5	56.4	1.7		59.4	51.5	56.4	1.7		59.4	54.6	57.6	3.0		60.6
5	7	54.7	57.7	60.9	61.8	7.2	YES	64.8	61.2	62.1	7.4	YES	65.1	61.2	62.1	7.4	YES	65.1	64.6	65.0	10.3	YES	68.0	67.8	68.0	13.3	YES	71.0	57.5	59.3	4.6		62.3	69.2	69.4	14.7	YES	72.4	66.4	66.7	12.0	YES	69.7	55.0	57.9	3.2		60.9	51.8	56.5	1.8		59.5	51.8	56.5	1.8		59.5	55.0	57.9	3.2		60.9
5A	1	54.7	57.7	50.3	56.0	1.4		59.0	50.8	56.2	1.5		59.2	53.0	56.9	2.3		59.9	57.4	59.3	4.6		62.3	57.7	59.5	4.8		62.5	54.5	57.6	2.9		60.6	59.5	60.7	6.1	YES	63.7	58.9	60.3	5.6	YES	63.3	47.7	55.5	0.8		58.5	39.1	54.8	0.1		57.8	38.2	54.8	0.1		57.8	40.3	54.8	0.2		57.8
5A	2	54.7	57.7	52.8	56.8	2.2		59.8	53.3	57.1	2.4		60.1	57.2	59.1	4.5		62.1	60.7	61.7	7.0	YES	64.7	59.4	60.7	6.0	YES	63.7	56.4	58.6	4.0		61.6	61.4	62.2	7.6	YES	65.2	60.1	61.2	6.5	YES	64.2	48.8	55.7	1.0		58.7	39.8	54.8	0.1		57.8	39.1	54.8	0.1		57.8	41.6	54.9	0.2		57.9
5A	3	54.7	57.7	57.0	59.0	4.3		62.0	57.3	59.2	4.5		62.2	60.7	61.7	7.0	YES	64.7	62.7	63.3	8.7	YES	66.3	64.2	64.7	10.0	YES	67.7	56.7	58.8	4.1		61.8	64.6	65.0	10.3	YES	68.0	61.3	62.2	7.5	YES	65.2	50.0	55.9	1.3		58.9	41.7	54.9	0.2		57.9	41.3	54.9	0.2		57.9	44.0	55.0	0.4		58.0
5A	4	54.7	57.7	59.4	60.7	6.0	YES	63.7	59.8	61.0	6.3	YES	64.0	63.1	63.7	9.0	YES	66.7	64.1	64.6	9.9	YES	67.6	66.4	66.7	12.0	YES	69.7	57.3	59.2	4.5		62.2	65.8	66.1	11.4	YES	69.1	63.1	63.7	9.0	YES	66.7	51.7	56.4	1.8		59.4	42.8	54.9	0.3		57.9	42.5	54.9	0.3		57.9	45.7	55.2	0.5		58.2
5A	5	54.7	57.7	60.0	61.1	6.4	YES	64.1	60.5	61.5	6.8	YES	64.5	63.5	64.0	9.3	YES	67.0	65.0	65.4	10.7	YES	68.4	67.7	67.9	13.2	YES	70.9	57.6	59.4	4.7		62.4	68.0	68.2	13.5	YES	71.2	63.5	64.0	9.3	YES	67.0	57.2	59.1	4.4		62.1	43.5	55.0	0.3		58.0	43.3	55.0	0.3		58.0	46.9	55.4	0.7		58.4
5A	6	55.1	58.1	61.8	62.6	7.5	YES	65.6	62.4	63.1	8.0	YES	66.1	64.0	64.5	9.4	YES	67.5	65.8	66.2	11.1	YES	69.2	68.4	68.6	13.5	YES	71.6	58.0	59.8	4.7		62.8	68.4	68.6	13.5	YES	71.6	64.2	64.7	9.6	YES	67.7	57.9	59.7	4.6		62.7	44.1	55.4	0.3		58.4	43.9	55.4	0.3		58.4	47.9	55.9	0.8		58.9
5A	7	55.6	58.6	63.1	63.8	8.2	YES	66.8	63.6	64.2	8.6	YES	67.2	64.1	64.7	9.1	YES	67.7	66.2	66.6	11.0	YES	69.6	68.9	69.1	13.5	YES	72.1	56.8	59.3	3.7		62.3	68.5	68.7	13.1	YES	71.7	65.5	65.9	10.3	YES	68.9	58.1	60.0	4.4		63.0	44.7	55.9	0.3		58.9	44.6	55.9	0.3		58.9	49.2	56.5	0.9		59.5
5B	1	54.7	57.7	48.8	55.7	1.0		58.7	49.1	55.7	1.1		58.7	55.1	57.9	3.2		60.9	55.8	58.3	3.6		61.3	50.3	56.0	1.4		59.0	41.9	54.9	0.2		57.9	45.7	55.2	0.5		58.2	43.4	55.0	0.3		58.0	39.2	54.8	0.1		57.8	34.7	54.7	0.0		57.7	33.3	54.7	0.0		57.7	35.6	54.7	0.1		57.7
5B	2	54.7	57.7	50.6	56.1	1.4		59.1	50.9	56.2	1.5		59.2	54.2	57.5	2.8		60.5	56.1	58.5	3.8		61.5	50.5	56.1	1.4		59.1	46.1	55.2	0.6		58.2	47.8	55.5	0.8		58.5	44.1	55.0	0.4		58.0	40.0	54.8	0.1		57.8	36.1	54.7	0.1		57.7	35.2	54.7	0.0		57.7	37.7	54.8	0.1		57.8
5B	3	54.7	57.7	53.3	57.1	2.4		60.1	53.7	57.2	2.6		60.2	57.9	59.6	4.9		62.6	56.6	58.8	4.1		61.8	51.1	56.3	1.6		59.3	47.5	55.4	0.8		58.4	48.2	55.6	0.9		58.6	44.4	55.1	0.4		58.1	41.0	54.9	0.2		57.9	36.7	54.7	0.1		57.7	36.0	54.7	0.1		57.7	38.8	54.8	0.1		57.8
5B	4	54.7	57.7	56.6	58.8	4.1		61.8	57.1	59.1	4.4		62.1	58.6	60.1	5.4	YES	63.1	58.1	59.7	5.1	YES	62.7	53.9	57.3	2.6		60.3	47.8	55.5	0.8		58.5	48.3	55.6	0.9		58.6	44.6	55.1	0.4		58.1	41.4	54.9	0.2		57.9	37.2	54.8	0.1		57.8	36.7	54.7	0.1		57.7	40.0	54.8	0.1		57.8
5B	5	54.7	57.7	56.2	58.5	3.8		61.5	56.8	58.9	4.2		61.9	59.5	60.7	6.1	YES	63.7	58.9	60.3	5.6	YES	63.3	57.1	59.1	4.4		62.1	48.1	55.5	0.9		58.5	49.4	55.8	1.1		58.8	44.8	55.1	0.4		58.1	41.7	54.9	0.2		57.9	37.4	54.8	0.1		57.8	37.0	54.7	0.1		57.7	40.9	54.9	0.2		57.9
5B	6	54.7	57.7	57.5	59.3	4.6		62.3	58.1	59.7	5.1	YES	62.7	60.1	61.2	6.5	YES	64.2	59.3	60.6	5.9	YES	63.6	58.1	59.7	5.1	YES	62.7	49.3	55.8	1.1		58.8	50.3	56.0	1.4		59.0	46.3	55.3	0.6		58.3	42.2	54.9	0.2		57.9	37.8	54.8	0.1		57.8	37.3	54.8	0.1		57.8	41.7	54.9	0.2		57.9
5B	7	54.7	57.7	59.9	61.0	6.4	YES	64.0	60.3	61.4	6.7	YES	64.4	61.1	62.0	7.3	YES	65.0	61.3	62.2	7.5	YES	65.2	63.0	63.6	8.9	YES	66.6	55.1	57.9	3.2		60.9	58.7	60.1	5.5	YES	63.1	57.3	59.2	4.5		62.2	51.4	56.3	1.7		59.3	41.0	54.9	0.2		57.9	40.8	54.8	0.2		57.8	44.8	55.1	0.4		58.1
6	1	54.7	57.7	48.0	55.5	0.8		58.5	48.3	55.6	0.9		58.6	48.1	55.5	0.9		58.5	50.6	56.1	1.4		59.1	52.6	56.8	2.1		59.8	50.5	56.1	1.4		59.1	51.1	56.3	1.6		59.3	50.7	56.1	1.5		59.1	46.2	55.3	0.6		58.3	46.7	55.3	0.6		58.3	48.0	55.5	0.8		58.5	48.5	55.6	0.9		58.6
6	2	54.7	57.7	48.4	55.6	0.9		58.6	48.6	55.6	1.0		58.6	49.4	55.8	1.1		58.8	52.0	56.6	1.9		59.6	55.3	58.0	3.3		61.0	50.7	56.1	1.5		59.1	53.4	57.1	2.4		60.1	51.1	56.3	1.6		59.3	46.7	55.3	0.6		58.3	47.3	55.4	0.7		58.4	49.0	55.7	1.0		58.7	49.0	55.7	1.0		58.7
6	3	54.7	57.7	49.0	55.7	1.0		58.7	49.3	55.8	1.1		58.8	50.3	56.0	1.4		59.0	53.8	57.3	2.6		60.3	57.1	59.1	4.4		62.1	50.7	56.1	1.5		59.1	55.1	57.9	3.2		60.9	51.5	56.4	1.7		59.4	47.1	55.4	0.7		58.4	47.9	55.5	0.8		58.5	49.4	55.8	1.1		58.8	49.5	55.8	1.2		58.8
6	4	54.7	57.7	49.5	55.8	1.2		58.8	49.7	55.9	1.2		58.9	50.7	56.1	1.5		59.1	54.6	57.6	3.0		60.6	57.3	59.2	4.5		62.2	51.4	56.3	1.7		59.3	54.7	57.7	3.0		60.7	52.8	56.8	2.2		59.8	49.5	55.8	1.2		58.8	48.5	55.6	0.9		58.6	49.7	55.9	1.2		58.9	50.0	55.9	1.3		58.9
6	5	54.7	57.7	50.7	56.1	1.5		59.1	50.9	56.2	1.5		59.2	52.6	56.8	2.1		59.8	55.8	58.3	3.6		61.3	59.1	60.4	5.8	YES	63.4	52.1	56.6	1.9		59.6	55.8	58.3	3.6		61.3	53.2	57.0	2.3		60.0	49.8	55.9	1.2		58.9	49.0	55.7	1.0		58.7	50.1	56.0	1.3		59.0	50.6	56.1	1.4		59.1
6	6	54.7	57.7	51.3	56.3	1.6		59.3	51.5	56.4	1.7		59.4	53.6	57.2	2.5		60.2	57.3	59.2	4.5		62.2	59.9	61.0	6.4	YES	64.0	52.8	56.8	2.2		59.8	57.3	59.2	4.5		62.2	53.6	57.2	2.5		60.2	50.2	56.0	1.3		59.0	49.9	55.9	1.2		58.9	50.5	56.1	1.4		59.1	51.3	56.3	1.6		59.3
6	11	54.7	57.7	55.0	57.9	3.2		60.9	55.3	58.0	3.3		61.0	57.3	59.2	4.5		62.2	59.6	60.8	6.1	YES	63.8	61.9	62.7	8.0	YES	65.7	54.7	57.7	3.0		60.7	59.2	60.5	5.8	YES	63.5	55.3	58.0	3.3		61.0	52.3	56.7	2.0		59.7	52.1	56.6	1.9		59.6	53.2	57.0	2.3		60.0	54.1	57.4	2.7		60.4
6	16	54.7	57.7	56.5	58.7	4.0		61.7	57.2	59.1	4.5		62.1	57.9	59.6	4.9		62.6	60.3	61.4	6.7	YES	64.4	62.1	62.8	8.1	YES	65.8	55.8	58.3	3.6		61.3	60.1	61.2	6.5	YES	64.2	57.1	59.1	4.4		62.1	53.1	57.0	2.3		60.0	53.7	57.2	2.6		60.2	54.4	57.5	2.9		60.5	55.2	58.0	3.3		61.0
6	21	54.7	57.7	57.3	59.2	4.5		62.2	58.0	59.7	5.0		62.7	57.8	59.5	4.8		62.5	60.9	61.8	7.2	YES	64.8	62.1	62.8	8.1	YES	65.8	55.8	58.3	3.6		61.3	60.3	61.4	6.7	YES	64.4	57.0	59.0	4.3		62.0	53.0	56.9	2.3		59.9	53.7	57.2	2.6		60.2	54.3	57.5	2.8		60.5	55.0	57.9	3.2		60.9
6	24	54.7	57.7	57.8	59.5	4.8		62.5	58.5	60.0	5.3	YES	63.0	57.8	59.5	4.8		62.5	61.2	62.1	7.4	YES	65.1	62.1	62.8	8.1	YES	65.8	56.0	58.4	3.7		61.4	60.3	61.4	6.7	YES	64.4	56.8	58.9	4.2		61.9	52.9	56.9	2.2		59.9	53.8	57.3	2.6		60.3	54.8	57.7	3.1		60.7	54.9	57.8	3.1		60.8
6A	1	54.7	57.7	46.8	55.3	0.7		58.3	47.2	55.4	0.7		58.4	50.2	56.0	1.3		59.0	51.9	56.5	1.8		59.5	50.3	56.0	1.4		59.0	49.7	55.9	1.2		58.9	50.4	56.1	1.4		59.1	53.3	57.1	2.4		60.1	45.0	55.1	0.4		58.1	44.5	55.1	0.4		58.1	44.1	55.0	0.4		58.0	46.8	55.3	0.7		58.3
6A	2	54.7	57.7	48.9	55.7	1.0		58.7	49.2	55.8	1.1		58.8	53.1	57.0	2.3		60.0	54.4	57.5	2.9		60.5	51.9	56.5	1.8		59.5	50.6	56.1	1.4		59.1	51.0	56.2	1.6		59.2	54.0	57.4	2.7		60.4	46.1	55.2	0.6		58.2	45.4	55.2	0.5		58.2	45.1	55.1	0.5		58.1	47.8	55.5	0.8		58.5
6A	3	54.7	57.7	50.1	56.0	1.3		59.0	50.4	56.1	1.4		59.1	54.5	57.6	2.9		60.6	55.8	58.3	3.6		61.3	56.1	58.5	3.8		61.5	51.3	56.3	1.6		59.3	53.2	57.0	2.3		60.0	54.3	57.5	2.8		60.5	46.5	55.3	0.6		58.3	46.0	55.2	0.6		58.2	45.6	55.2	0.5		58.2	48.3	55.6	0.9		58.6
6A	4	54.7	57.7	51.5	56.4	1.7		59.4	51.8	56.5	1.8		59.5	54.9	57.8	3.1		60.8	56.5	58.7	4.0		61.7	56.7	58.8	4.1		61.8	52.8	56.8	2.2		59.8	54.1	57.4	2.7		60.4	54.6	57.6	3.0		60.6	46.9	55.3	0.7		58.3	46.4	55.3	0.6		58.3	46.1	55.2	0.6		58.2	48.8	55.7	1.0		58.7
6A	5	54.7	57.7	52.8	56.8	2.2		59.8	53.2	57.0	2.3		60.0	55.7	58.2	3.6		61.2	57.2	59.1	4.5		62.1	57.5	59.3	4.6		62.3	53.7	57.2	2.6		60.2	54.7	57.7	3.0		60.7	54.9	57.8	3.1		60.8	47.3	55.4	0.7		58.4	46.8	55.3	0.7		58.3	46.6	55.3	0.6		58.3	49.2	55.8	1.1		58.8
6A	6	54.7	57.7	53.7	57.2	2.6		60.2	54.2	57.5	2.8		60.5	57.2	59.1	4.5		62.1	58.1	59.7	5.1	YES	62.7	58.4	59.9	5.3	YES	62.9	54.7	57.7	3.0		60.7	55.3	58.0	3.3		61.0	55.0	57.9	3.2		60.9	47.8	55.5	0.8		58.5	47.2	55.4	0.7		58.4	47.3	55.4	0.7		58.4	49.6	55.9	1.2		58.9
6A	11	54.7	57.7	59.6	60.8	6.1	YES	63.8	60.2	61.3	6.6	YES	64.3	61.4	62.2	7.6	YES	65.2	63.6	64.1	9.4	YES	67.1	64.9	65.3	10.6	YES	68.3	56.9	58.9	4.3		61.9	59.4	60.7	6.0	YES	63.7	57.2	59.1	4.5		62.1	49.4	55.8	1.1		58.8	49.3	55.8	1.1		58.8	48.8	55.7	1.0		58.7	51.4	56.3	1.7		59.3
6A	16	54.7	57.7	61.0	61.9	7.2	YES	64.9	61.9	62.7	8.0	YES	65.7	61.7	62.5	7.8	YES	65.5	64.3	64.7	10.1	YES	67.7	65.7	66.0	11.4	YES	69.0	57.8	59.5	4.8		62.5	62.1	62.8	8.1	YES	65.8	58.2	59.8	5.1	YES	62.8	51.6	56.4	1.7		59.4	49.8	55.9	1.2		58.9	49.1	55.7	1.1		58.7	51.9	56.5	1.8		59.5
6A	21	54.7	57.7	61.6	62.4	7.7	YES	65.4	62.5	63.2	8.5	YES	66.2	61.7	62.5	7.8	YES	65.5	64.7	65.1	10.4	YES	68.1	66.1	66.4	11.7	YES	69.4	58.4	59.9	5.3	YES	62.9	62.3	63.0	8.3	YES	66.0	59.5	60.7	6.1	YES	63.7	51.5	56.4	1.7		59.4	50.0	55.9	1.3		58.9	49.6	55.9	1.2		58.9	51.8	56.5	1.8		59.5
6A	24	54.7	57.7	62.4	63.1	8.4	YES	66.1	63.2	63.8	9.1	YES	66.8	61.5	62.3	7.6	YES	65.3	65.1	65.5	10.8	YES	68.5	66.1	66.4	11.7	YES	69.4	58.4	59.9	5.3	YES	62.9	62.6	63.2	8.6	YES	66.2	59.3	60.6	5.9	YES	63.6	51.4	56.3	1.7		59.3	50.7	56.1	1.5		59.1	51.5	56.4	1.7		59.4	51.6	56.4	1.7		59.4
6B	1	54.7	57.7	41.6	54.9	0.2		57.9	42.8	54.9	0.3		57.9	51.3	56.3	1.6		59.3	52.2	56.6	1.9		59.6	44.5	55.1	0.4		58.1	42.4	54.9	0.2		57.9	43.7	55.0	0.3		58.0	41.2	54.9	0.2		57.9	35.5	54.7	0.1		57.7	32.9	54.7	0.0		57.7	31.0	54.7	0.0		57.7	30.5	54.7	0.0		57.7
6B	2	54.7	57.7	43.1	55.0	0.3		58.0	44.3	55.1	0.4		58.1	52.4	56.7	2.0		59.7	52.4	56.7	2.0		59.7	46.7	55.3	0.6		58.3	43.9	55.0	0.3		58.0	44.7	55.1	0.4		58.1	41.8	54.9	0.2		57.9	37.5	54.8	0.1		57.8	35.4	54.7	0.1		57.7	34.5	54.7	0.0		57.7	36.5	54.7	0.1		57.7

6B	3	54.7	57.7	44.5	55.1	0.4		58.1	45.4	55.2	0.5		58.2	53.4	57.1	2.4
6B	4	54.7	57.7	47.2	55.4	0.7		58.4	47.9	55.5	0.8		58.5	53.7	57.2	2.6
6B	5	54.7	57.7	48.0	55.5	0.8		58.5	48.7	55.7	1.0		58.7	54.2	57.5	2.8
6B	6	54.7	57.7	48.3	55.6	0.9		58.6	49.3	55.8	1.1		58.8	54.9	57.8	3.1
6B	11	54.7	57.7	52.9	56.9	2.2		59.9	53.4	57.1	2.4		60.1	55.2	58.0	3.3
6B	16	54.7	57.7	54.0	57.4	2.7		60.4	55.1	57.9	3.2		60.9	55.2	58.0	3.3
6B	21	54.7	57.7	54.8	57.7	3.1		60.7	56.0	58.4	3.7		61.4	55.3	58.0	3.3
6B	24	54.7	57.7	56.1	58.5	3.8		61.5	57.2	59.1	4.5		62.1	56.7	58.8	4.1
7	1	62.3	66.0	43.0	62.4	0.1		66.1	43.8	62.4	0.1		66.1	48.1	62.5	0.2
7	2	63.2	66.9	43.8	63.2	0.0		66.9	44.6	63.3	0.1		67.0	48.7	63.4	0.2
7	3	63.1	66.8	50.2	63.3	0.2		67.0	50.5	63.3	0.2		67.0	51.8	63.4	0.3
7	4	62.8	66.5	50.3	63.0	0.2		66.7	50.5	63.0	0.2		66.7	51.9	63.1	0.3
7	5	62.3	66.0	51.1	62.6	0.3		66.3	51.4	62.6	0.3		66.3	52.2	62.7	0.4
7	6	61.9	65.6	51.2	62.3	0.4		66.0	51.4	62.3	0.4		66.0	52.2	62.3	0.4
7	7	61.6	65.3	52.1	62.1	0.5		65.8	52.3	62.1	0.5		65.8	52.9	62.1	0.5
7A	1	54.7	58.4	43.0	55.0	0.3		58.7	43.7	55.0	0.3		58.7	48.8	55.7	1.0
7A	2	56.5	60.2	46.3	56.9	0.4		60.6	46.8	56.9	0.4		60.6	52.7	58.0	1.5
7A	3	57.7	61.4	48.8	58.2	0.5		61.9	49.2	58.3	0.6		62.0	53.4	59.1	1.4
7A	4	58.1	61.8	50.2	58.8	0.7		62.5	50.5	58.8	0.7		62.5	53.9	59.5	1.4
7A	5	58.5	62.2	53.0	59.6	1.1		63.3	53.2	59.6	1.1		63.3	55.6	60.3	1.8
7A	6	58.6	62.3	53.4	59.7	1.1		63.4	53.7	59.8	1.2		63.5	55.5	60.3	1.7
7A	7	58.3	62.0	53.6	59.6	1.3		63.3	54.0	59.7	1.4		63.4	56.1	60.3	2.0
7B	1	54.7	58.4	54.6	57.6	3.0		61.3	54.8	57.7	3.1		61.4	57.9	59.6	4.9
7B	2	55.1	58.8	56.4	58.8	3.7		62.5	56.6	58.9	3.8		62.6	60.2	61.4	6.3 YES
7B	3	56.5	60.2	57.9	60.3	3.8		64.0	58.2	60.4	3.9		64.1	61.0	62.3	5.8 YES
7B	4	57.5	61.2	57.3	60.4	2.9		64.1	57.9	60.7	3.2		64.4	61.5	63.0	5.5 YES
7B	5	58.0	61.7	57.3	60.7	2.7		64.4	58.2	61.1	3.1		64.8	62.1	63.5	5.5 YES
8	1	61.4	63.9	59.1	63.4	2.0		65.9	59.1	63.4	2.0		65.9	59.6	63.6	2.2
8	2	61.9	64.4	59.6	63.9	2.0		66.4	59.7	63.9	2.0		66.4	60.4	64.2	2.3
8	3	62.2	64.7	59.7	64.1	1.9		66.6	59.8	64.2	2.0		66.7	60.5	64.4	2.2
8	4	62.3	64.8	59.5	64.1	1.8		66.6	59.6	64.2	1.9		66.7	60.5	64.5	2.2
8	5	62.5	65.0	59.2	64.2	1.7		66.7	59.4	64.2	1.7		66.7	60.5	64.6	2.1
8	6	62.6	65.1	59.1	64.2	1.6		66.7	59.2	64.2	1.6		66.7	60.4	64.6	2.0
8	11	63.4	65.9	58.9	64.7	1.3		67.2	59.2	64.8	1.4		67.3	60.7	65.3	1.9
8	16	63.7	66.2	58.4	64.8	1.1		67.3	58.9	64.9	1.2		67.4	60.4	65.4	1.7
8	21	63.3	65.8	58.3	64.5	1.2		67.0	59.1	64.7	1.4		67.2	59.9	64.9	1.6
8	22	63.3	65.8	58.2	64.5	1.2		67.0	59.1	64.7	1.4		67.2	59.9	64.9	1.6
8	23	63.3	65.8	58.3	64.5	1.2		67.0	59.3	64.8	1.5		67.3	60.0	65.0	1.7
8A	1	61.5	64.0	54.9	62.4	0.9		64.9	55.3	62.4	0.9		64.9	57.9	63.1	1.6
8A	2	62.2	64.7	55.9	63.1	0.9		65.6	56.2	63.2	1.0		65.7	59.4	64.0	1.8

13A	2	65.3	64.1	61.7	66.9	1.6		65.7	62.5	67.1	1.8		65.9	66.0	68.7	3.4	YES	67.5	66.9	69.2	3.9	YES	68.0	69.1	70.6	5.3	YES	69.4	65.0	68.2	2.9	
13A	3	65.3	64.1	62.9	67.3	2.0		66.1	64.2	67.8	2.5		66.6	68.3	70.1	4.8	YES	68.9	69.4	70.8	5.5	YES	69.6	71.3	72.3	7.0	YES	71.1	65.7	68.5	3.2	YES
13A	4	65.2	64.0	63.0	67.2	2.0		66.0	65.4	68.3	3.1	YES	67.1	68.8	70.4	5.2	YES	69.2	71.0	72.0	6.8	YES	70.8	72.3	73.1	7.9	YES	71.9	66.7	69.0	3.8	YES
13A	5	65.0	63.8	63.2	67.2	2.2		66.0	66.0	68.5	3.5	YES	67.3	68.7	70.2	5.2	YES	69.0	71.2	72.1	7.1	YES	70.9	73.4	74.0	9.0	YES	72.8	67.1	69.2	4.2	YES
13A	6	64.8	63.6	63.9	67.4	2.6		66.2	67.8	69.6	4.8	YES	68.4	68.5	70.0	5.2	YES	68.8	71.6	72.4	7.6	YES	71.2	73.6	74.1	9.3	YES	72.9	68.4	70.0	5.2	YES
13A	11	64.3	63.1	64.1	67.2	2.9		66.0	67.8	69.4	5.1	YES	68.2	67.9	69.5	5.2	YES	68.3	72.2	72.9	8.6	YES	71.7	73.3	73.8	9.5	YES	72.6	68.8	70.1	5.8	YES
13A	16	63.8	62.6	65.4	67.7	3.9	YES	66.5	67.9	69.3	5.5	YES	68.1	67.0	68.7	4.9	YES	67.5	72.2	72.8	9.0	YES	71.6	72.4	73.0	9.2	YES	71.8	68.6	69.8	6.0	YES
13A	20	63.2	62.0	65.3	67.4	4.2	YES	66.2	67.5	68.9	5.7	YES	67.7	66.3	68.0	4.8	YES	66.8	71.6	72.2	9.0	YES	71.0	71.6	72.2	9.0	YES	71.0	67.9	69.2	6.0	YES
13B	1	58.6	57.4	53.3	59.7	1.1		58.5	54.0	59.9	1.3		58.7	55.2	60.2	1.6		59.0	55.9	60.5	1.9		59.3	54.4	60.0	1.4		58.8	53.2	59.7	1.1	
13B	2	60.0	58.8	54.6	61.1	1.1		59.9	55.1	61.2	1.2		60.0	56.2	61.5	1.5		60.3	56.8	61.7	1.7		60.5	55.4	61.3	1.3		60.1	54.5	61.1	1.1	
13B	3	61.1	59.9	55.6	62.2	1.1		61.0	56.0	62.3	1.2		61.1	57.2	62.6	1.5		61.4	57.7	62.7	1.6		61.5	56.9	62.5	1.4		61.3	55.5	62.2	1.1	
13B	4	61.4	60.2	56.0	62.5	1.1		61.3	56.4	62.6	1.2		61.4	57.5	62.9	1.5		61.7	58.3	63.1	1.7		61.9	57.3	62.8	1.4		61.6	55.9	62.5	1.1	
13B	5	61.6	60.4	56.2	62.7	1.1		61.5	56.7	62.8	1.2		61.6	57.7	63.1	1.5		61.9	58.9	63.5	1.9		62.3	58.5	63.3	1.7		62.1	56.2	62.7	1.1	
13B	6	61.9	60.7	56.5	63.0	1.1		61.8	56.9	63.1	1.2		61.9	58.0	63.4	1.5		62.2	59.0	63.7	1.8		62.5	58.9	63.7	1.8		62.5	56.6	63.0	1.1	
13B	11	61.8	60.6	58.5	63.5	1.7		62.3	59.3	63.7	1.9		62.5	60.1	64.0	2.2		62.8	61.2	64.5	2.7		63.3	59.3	63.7	1.9		62.5	56.6	62.9	1.1	
13B	16	61.2	60.0	60.9	64.1	2.9		62.9	61.6	64.4	3.2		63.2	60.7	64.0	2.8		62.8	61.3	64.3	3.1		63.1	59.1	63.3	2.1		62.1	56.1	62.4	1.2	
13B	20	60.2	59.0	62.5	64.5	4.3		63.3	63.0	64.8	4.6		63.6	61.2	63.7	3.5		62.5	61.9	64.1	3.9		62.9	58.6	62.5	2.3		61.3	55.1	61.4	1.2	
13C	1	67.2	66.0	61.9	68.3	1.1		67.1	62.3	68.4	1.2		67.2	64.8	69.2	2.0		68.0	64.3	69.0	1.8		67.8	61.2	68.2	1.0		67.0	56.9	67.6	0.4	
13C	2	68.0	66.8	64.8	69.7	1.7		68.5	65.2	69.8	1.8		68.6	67.6	70.8	2.8		69.6	67.2	70.6	2.6		69.4	63.9	69.4	1.4		68.2	57.7	68.4	0.4	
13C	3	68.0	66.8	68.5	71.3	3.3	YES	70.1	69.0	71.5	3.5	YES	70.3	71.2	72.9	4.9	YES	71.7	70.7	72.6	4.6	YES	71.4	67.3	70.7	2.7		69.5	57.7	68.4	0.4	
13C	4	67.7	66.5	69.5	71.7	4.0	YES	70.5	70.2	72.1	4.4	YES	70.9	71.9	73.3	5.6	YES	72.1	71.4	72.9	5.2	YES	71.7	67.8	70.8	3.1	YES	69.6	57.6	68.1	0.4	
13C	5	67.4	66.2	68.6	71.1	3.7	YES	69.9	69.7	71.7	4.3	YES	70.5	71.8	73.1	5.7	YES	71.9	71.2	72.7	5.3	YES	71.5	66.5	70.0	2.6		68.8	57.4	67.8	0.4	
13C	6	67.1	65.9	70.2	71.9	4.8	YES	70.7	71.0	72.5	5.4	YES	71.3	73.3	74.2	7.1	YES	73.0	72.9	73.9	6.8	YES	72.7	68.6	70.9	3.8	YES	69.7	57.3	67.5	0.4	
13C	11	65.9	64.7	70.8	72.0	6.1	YES	70.8	71.6	72.6	6.7	YES	71.4	72.2	73.1	7.2	YES	71.9	72.0	73.0	7.1	YES	71.8	68.7	70.5	4.6	YES	69.3	57.0	66.4	0.5	
13C	16	65.0	63.8	68.1	69.8	4.8	YES	68.6	69.3	70.7	5.7	YES	69.5	70.2	71.3	6.3	YES	70.1	69.8	71.0	6.0	YES	69.8	66.1	68.6	3.6	YES	67.4	55.3	65.4	0.4	
13C	20	64.6	63.4	67.1	69.0	4.4	YES	67.8	68.4	69.9	5.3	YES	68.7	69.0	70.3	5.7	YES	69.1	68.6	70.1	5.5	YES	68.9	65.0	67.8	3.2	YES	66.6	54.8	65.0	0.4	
14	1	56.2	59.2	57.0	59.6	3.4		62.6	57.9	60.1	3.9		63.1	62.2	63.2	7.0	YES	66.2	62.1	63.1	6.9	YES	66.1	60.8	62.1	5.9	YES	65.1	53.5	58.1	1.9	
14	2	57.0	60.0	58.0	60.5	3.5		63.5	59.0	61.1	4.1		64.1	63.6	64.5	7.5	YES	67.5	63.8	64.6	7.6	YES	67.6	62.2	63.3	6.3	YES	66.3	54.7	59.0	2.0	
14	3	57.5	60.5	59.0	61.3	3.8		64.3	60.3	62.1	4.6		65.1	64.9	65.6	8.1	YES	68.6	65.3	66.0	8.5	YES	69.0	62.9	64.0	6.5	YES	67.0	56.0	59.8	2.3	
14	4	57.6	60.6	60.0	62.0	4.4		65.0	61.8	63.2	5.6	YES	66.2	66.9	67.4	9.8	YES	70.4	66.9	67.4	9.8	YES	70.4	63.3	64.3	6.7	YES	67.3	57.0	60.3	2.7	
14	5	57.6	60.6	61.3	62.8	5.2	YES	65.8	63.9	64.8	7.2	YES	67.8	67.5	67.9	10.3	YES	70.9	67.6	68.0	10.4	YES	71.0	64.8	65.6	8.0	YES	68.6	57.5	60.6	3.0	
14	6	57.6	60.6	62.6	63.8	6.2	YES	66.8	64.6	65.4	7.8	YES	68.4	67.7	68.1	10.5	YES	71.1	67.8	68.2	10.6	YES	71.2	65.7	66.3	8.7	YES	69.3	58.6	61.1	3.5	
14	7	57.7	60.7	65.7	66.3	8.6	YES	69.3	67.3	67.8	10.1	YES	70.8	68.3	68.7	11.0	YES	71.7	68.5	68.8	11.1	YES	71.8	66.7	67.2	9.5	YES	70.2	59.7	61.8	4.1	
14	8	58.1	61.1	64.5	65.4	7.3	YES	68.4	66.6	67.2	9.1	YES	70.2	69.4	69.7	11.6	YES	72.7	69.6	69.9	11.8	YES	72.9	67.1	67.6	9.5	YES	70.6	60.2	62.3	4.2	
14	9	58.6	61.6	66.7	67.3	8.7	YES	70.3	68.2	68.7	10.1	YES	71.7	69.6	69.9	11.3	YES	72.9	69.7	70.0	11.4	YES	73.0	67.6	68.1	9.5	YES	71.1	60.6	62.7	4.1	
14	10	59.0	62.0	67.5	68.1	9.1	YES	71.1	68.8	69.2	10.2	YES	72.2	69.8	70.1	11.1	YES	73.1	69.9	70.2	11.2	YES	73.2	67.8	68.3	9.3	YES	71.3	60.8	63.0	4.0	
14A	1	65.3	64.1	59.7	66.4	1.1		65.2	60.2	66.5	1.2		65.3	63.7	67.6	2.3		66.4	63.3	67.4	2.1		66.2	59.1	66.2	0.9		65.0	57.0	65.9	0.6	
14A	2	65.9	64.7	61.2	67.2	1.3		66.0	61.7	67.3	1.4		66.1	65.5	68.7	2.8		67.5	65.1	68.5	2.6		67.3	60.6	67.0	1.1		65.8	58.0	66.6	0.7	
14A	3	66.0	64.8	63.9	68.1	2.1		66.9	64.5	68.3	2.3		67.1	67.9	70.1	4.1	YES	68.9	67.3	69.7	3.7	YES	68.5	61.9	67.4	1.4		66.2	58.0	66.6	0.6	
14A	4	65.8	64.6	63.4	67.8	2.0		66.6	64.4	68.2	2.4		67.0	69.9	71.3	5.5	YES	70.1	69.5	71.0	5.2	YES	69.8	63.1	67.7	1.9		66.5	58.8	66.6	0.8	
14A	5	65.6	64.4	67.0	69.4	3.8	YES	68.2	67.9	69.9	4.3	YES	68.7	70.2	71.5	5.9	YES	70.3	69.9	71.3	5.7	YES	70.1	66.2	68.9	3.3	YES	67.7	59.2	66.5	0.9	
14A	6	65.4	64.2	66.7	69.1	3.7	YES	67.9	67.5	69.6	4.2	YES	68.4	70.4	71.6	6.2	YES	70.4	70.0	71.3	5.9	YES	70.1	64.3	67.9	2.5		66.7	59.5	66.4	1.0	
14A	7	65.2	64.0	67.9	69.8	4.6	YES	68.6	68.9	70.4	5.2	YES	69.2	70.4	71.5	6.3	YES	70.3	70.1	71.3	6.1	YES	70.1	64.8	68.0	2.8		66.8	59.9	66.3	1.1	
14A	8	64.8	63.6	67.2	69.2	4.4	YES	68.0	68.4	70.0	5.2	YES	68.8	70.5	71.5	6.7	YES	70.3	70.3	71.4	6.6	YES	70.2	65.5	68.2	3.4	YES	67.0	60.4	66.1	1.3	
14A	9	64.7	63.5	68.7	70.2	5.5	YES	69.0	69.7	70.9	6.2	YES	69.7	70.7	71.7	7.0	YES	70.5	70.6	71.6	6.9	YES	70.4	66.7	68.8	4.1	YES	67.6	60.8	66.2	1.5	
14A	10	64.6	63.4	68.6	70.1	5.5	YES	68.9	69.5	70.7	6.1	YES	69.5	70.4	71.4	6.8	YES	70.2	70.5	71.5	6.9	YES	70.3	66.8	68.8	4.2	YES	67.6	61.8	66.4	1.8	
14B	1	65.3	64.1	58.2	66.1	0.8		64.9	58.5	66.1	0.8		64.9	61.1	66.7	1.4		65.5	60.4	66.5	1.2		65.3	57.6	66.0	0.7		64.8	55.9	65.8	0.5	
14B	2	65.8	64.6	59.1	66.6	0.8		65.4	59.4	66.7	0.9		65.5	62.0	67.3	1.5		66.1	61.3	67.1	1.3		65.9	58.2	66.5	0.7		65.3	56.4	66.3	0.5	
14B	3	65.8	64.6	61.3	67.1	1.3		65.9	61.6	67.2	1.4		66.0	63.7	67.9	2.1		66.7	63.1	67.7	1.9		66.5	58.6	66.6	0.8		65.4	56.7	66.3	0.5	
14B	4	65.6	64.4	60.5	66.8	1.2		65.6	60.9	66.9	1.3		65.7	64.3	68.0	2.4		66.8	63.0	67.5	1.9		66.3	59.1	66.5	0.9		65.3	56.8	66.1	0.5	
14B	5	65.3	64.1	61.6	66.8	1.5		65.6	62.0	67.0	1.7		65.8	65.1	68.2	2.9		67.0	64.1	67.8	2.5		66.6	59.7	66.4	1.1		65.2	56.9	65.9	0.6	
14B	6	64.8	63.6	62.5	66.8	2.0		65.6	63.0	67.0	2.2		65.8	65.6	68.2	3.4	YES	67.0	64.7	67.8	3.0		66.6	60.4	66.1	1.3		64.9	57.0	65.5	0.7	
14B	7	64.6	63.4	63.2	67.0	2.4		65.8	63.8	67.2	2.6		66.0	65.8	68.3	3.7	YES	67.1	64.9	67.8	3.2	YES	66.6	61.3	66.3	1.7		65.1	57.1	65.3	0.7	
14B	8	64.2	63.0	63.2	66.7	2.5		65.5	64.0	67.1	2.9		65.9	65.7	68.0	3.8	YES	66.8	64.9	67.6	3.4	YES	66.4	61.8	66.2	2.0		65.0	57.0	65.0	0.8	
14B	9	64.0	62.8	63.2	66.6	2.6		65.4	64.1	67.1	3.1	YES	65.9	65.7	67.9	3.9	YES	66.7	64.9	67.5	3.5	YES	66.3	61.8	66.0	2.0		64.8	57.1	64.8	0.8	
14B	10	63.8	62.6	63.4	66.6	2.8		65.4	64.3	67.1	3.3	YES	65.9	65.8	67.9	4.1	YES	66.7	65.1	67.5	3.7	YES	66.3	61.9	66.0	2.2		64.8	57.1	64.6	0.8	
14C	1	65.8	64.6	58.3	66.5	0.7		65.3	58.5	66.5	0.7		65.3	59.9	66.8	1.0		65.6	59.4	66.7	0.9		65.5	58.5	66.5	0.7		65.3	58.1	66.5	0.7	
14C	2	66.6	65.4	59.5	67.4	0.8		66.2	59.6	67.4	0.8		66.2	60.9	67.6	1.0		66.4	60.5	67.6	1.0		66.4	59.8	67.4	0.8		66.2	59.3	67.3	0.7	
14C	3	66.6	65.4	60.8	67.6	1.0		66.4	60.9	67.6	1.0		66.4	61.5	67.8	1.2		66.6	61.0	67.7	1.1		66.5	60.1	67.5	0.9		66.3	59.5	67.4	0.8	
14C	4	66.4	65.2	60.1	67.3	0.9		66.1	60.2	67.3	0.9		66.1	62.1	67.8	1.4		66.6	61.0	67.5	1.1		66.3	60.4	67.4	1.0		66.2	59.4	67.2	0.8	
14C	5	66.1	64.9	60.4	67.1	1.0		65.9	60.5	67.2	1.1		66.0	62.8	67.8	1.7		66.6	61.5	67.4	1.3		66.2	60.4	67.1	1.0		65.9	59.3	66.9	0.8	
14C	6	65.5	64.3	60.9	66.8	1.3		65.6	61.2	66.9	1.4		65.7	63.2	67.5	2.0		66.3	62.2	67.2	1.7		66.0	60.3	66.6	1.1		65.4	59.1	66.4	0.9	
14C	7	65.1	63.9	61.0	66.5	1.4		65.3	61.4	66.6	1.5		65.4	63.4	67.3	2.2		66.1	62.4	67.0	1.9		65.8	60.9	66.5	1.4		65.3	59.1	66.1	1.0	
14C	8	64.7	63.5	61.7	66.5	1.8		65.3	62.1	66.6	1.9		65.4	63.4	67.1	2.4		65.9	62.5	66.7	2.0		65.5	61.1	66.3	1.6		65.1	59.1	65.8	1.1	
14C	9	64.2	63.0	61.4	66.0	1.8		64.8	61.9	66.2	2.0		65.0	63.4	66.8	2.6		65.6	62.4	66.4	2.2		65.2	61.0	65.9	1.7		64.7	59.0	65.3	1.1	
14C	10	63.9	62.7	61.3	65.8	1.9		64.6	61.8	66.0	2.1		64.8	63.3	66.6	2.7		65.4	62.4	66.2	2.3		65.0	61.0	65.7	1.8		64.5	58.9	65.1	1.2	
14D	1	62.1	65.8	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.9	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9	
14D	2	62.7	66.4	62.3	65.5	2.8		69.2	62.4	65.6	2.9		69.3	62.4	65.6	2.9		69.3	62.4	65.6	2.9		69.3	62.4	65.6	2.9		69.3	62.3	65.5	2.8	
14D	3	62.8	66.5	62.3	65.6	2.8		69.3	62.3	65.6	2.8		69.3	62.3	65.6	2.8		69.3	62.3	65.6	2.8		69.3	62.3	65.6	2.8		69.3	62.2	65.5	2.7	
14D	4	62.5	66.2	61.9	65.2	2.7		68.9	61.9	65.2	2.7		68.9	61.9	65.2	2.7		68.9	62.0	65.3	2.8		69.0	61.9	65.2	2.7		68.9	61.9	65.2	2.7	
14D	5	62.1	65.8	61.5	64.8	2.7		68.5	61.5	64.8	2.7		68.5	61.5	64.8	2.7		68.5	61.5	64.8	2.7		68.5	61.5	64.8	2.7		68.5	61.4	64.8	2.7	
14D	6	61.7	65.4	61.1	64.4	2.7		68.1	61.1	64.4	2.7		68.1	61.2	64.5	2.8		68.2	61.2	64.5	2.8		68.2	61.0	64.4	2.7		68.1	60.9	64.3	2.6	
14D	7	61.3	65.0	60.7	64.0	2.7		67.7	60.8	64.1	2.8		67.8	61.0	64.2	2.9		67.9	60.9	64.1	2.8		67.8	60.6	64.0	2.7		67.7	60.5	63.9	2.6	
14D	8	60.8	64.5	60.4	63.6	2.8		67.3	60.4	63.6	2.8		67.3	60.7	63.8	3.0		67.5	60.5	63.7	2.9		67.4	60.1	63.5	2.7		67.2	60.0	63.4	2.6	
14D	9	60.5	64.2	59.8	63.2	2.7		66.9	59.9	63.2	2.7		66.9	60.0	63.3	2.8		67.0	60.0	63.3	2.8		67.0	59.8	63.2	2.7		66.9	59.6	63.1	2.6	
14D	10	60.1	63.8	59.4	62.8	2.7		66.5	59.5	62.8	2.7		66.5	59.6	62.9	2.8		66.6	59.6	62.9	2.8		66.6	59.4	62.8	2.7		66.5	59.1	62.6	2.5	
14E	1	64.3	63.1	57.0	65.0	0.7		63.8	57.1	65.1	0.8		63.9	57.0	65.0	0.7		63.8	57.1	65.1	0.8		63.9	57.1	65.1	0.8		63.9	57.0	65.0	0.7	
14E	2	65.4	64.2	58.8	66.3	0.9		65.1	58.8	66.3	0.9		65.1	58.8	66.3	0.9		65.1	58.9	66.3	0.9		65.1	58.8	66.3	0.9		65.1	58.8	66.3	0.9	
14E	3	65.4	64.2	59.0	66.3	0.9		65.1	59.0	66.3	0.9		65.1	59.0	66.3	0.9		65.1	59.0	66.3	0.9		65.1	59.0	66.3	0.9		65.1	59.0	66.3	0.9	
14E	4	65.1	63.9	58.9	66.0	0.9		64.8	58.9	66.0	0.9		64.8	58.9	66.0	0.9		64.8	58.9	66.0	0.9		64.8	58.9	66.0	0.9		64.8	58.9	66.0	0.9	
14E	5	64.8	63.6	58.7	65.8	1.0		64.6	58.7	65.8	1.0		64.6	58.7	65.8	1.0		64.6	58.7	65.8	1.0		64.6	58.7	65.8	1.0		64.6	58.6	65.7	0.9	
14E	6	64.5	63.3	58.5	65.5	1.0		64.3	58.5	65.5	1.0		64.3	58.5	65.5	1.0		64.3	58.5	65.5	1.0		64.3	58.5	65.5	1.0		64.3	58.4	65.5	1.0	
14E	7	64.3	63.1	58.2	65.3	1.0		64.1	58.3	65.3	1.0		64.1	58.2	65.3	1.0		64.1	58.3	65.3	1.0		64.1	58.3	65.3	1.0		64.1	58.2	65.3	1.0	
14E	8	64.0	62.8	58.0	65.0	1.0		63.8	58.0	65.0	1.0		63.8	58.0	65.0	1.0		63.8	58.1	65.0	1.0		63.8	58.0	65.0	1.0		63.8	57.9	65.0	1.0	
14E	9	63.8	62.6	57.9	64.8	1.0		63.6	58.0	64.8	1.0		63.6	57.9	64.8	1.0		63.6	58.0	64.8	1.0		63.6	58.0	64.8	1.0		63.6	57.9	64.8	1.0	
14E	10	63.6	62.4	57.7	64.6	1.0		63.4	57.7	64.6	1.0		63.4	57.7	64.6	1.0		63.4	57.8	64.6	1.0		63.4	57.8	64.6	1.0		63.4	57.7	64.6	1.0	
14F	1	60.2	59.0	47.9	60.4	0.2		59.2	48.5	60.5	0.3		59.3	48.2	60.5	0.3		59.3	49.1	60.5	0.3		59.3	48.7	60.5	0.3		59.3	47.3	60.4	0.2	
14F	2	60.9	59.7	48.7	61.2	0.3		60.0	49.3	61.2	0.3		60.0	48.9	61.2	0.3		60.0	49.7	61.2	0.3		60.0	49.3	61.2	0.3		60.0	48.2	61.1	0.2	
14F	3	60.8	59.6	49.5	61.1	0.3		59.9	50.1	61.2	0.4		60.0	49.7	61.1	0.3		59.9	50.4	61.2	0.4		60.0	50.1	61.2	0.4		60.0	49.1	61.1	0.3	
14F	4	60.7	59.5	50.3	61.1	0.4		59.9	50.8	61.1	0.4		59.9	50.6	61.1	0.4		59.9	51.1	61.2	0.5		60.0	51.0	61.1	0.4		59.9	50.0	61.1	0.4	
14F	5	60.4	59.2	50.7	60.8	0.4		59.6	51.1	60.9	0.5		59.7	50.9	60.9	0.5		59.7	51.4	60.9	0.5		59.7	51.4	60.9	0.5		59.7	50.4	60.8	0.4	
14F	6	60.1	58.9	50.8	60.6	0.5		59.4	51.2	60.6	0.5		59.4	51.0	60.6	0.5		59.4	51.5	60.7	0.6		59.5	51.8	60.7	0.6		59.5	50.5	60.6	0.5	
14F	7	59.8	58.6	50.7	60.3	0.5		59.1	51.2	60.4	0.6		59.2	51.1	60.3	0.5		59.1	51.3	60.4	0.6		59.2	50.9	60.3	0.5		59.1	50.5	60.3	0.5	
14F	8	59.6	58.4	50.7	60.1	0.5		58.9	51.0	60.2	0.6		59.0	51.0	60.2	0.6		59.0	51.3	60.2	0.6		59.0	50.9	60.1	0.5		58.9	50.4	60.1	0.5	
14F	9	59.6	58.4	51.3	60.2	0.6		59.0	51.6	60.2	0.6		59.0	51.6	60.2	0.6		59.0	51.8	60.3	0.7		59.1	51.5	60.2	0.6		59.0	51.1	60.2	0.6	
14F	10	59.6	58.4	51.5	60.2	0.6		59.0	51.7	60.3	0.7		59.1	51.8	60.3	0.7		59.1	52.0	60.3	0.7		59.1	51.8	60.3	0.7		59.1	51.4	60.2	0.6	
14G	1	60.6	59.4	46.2	60.8	0.2		59.6	47.4	60.8	0.2		59.6	50.6	61.0	0.4		59.8	51.5	61.1	0.5		59.9	50.0	61.0	0.4		59.8	47.2	60.8	0.2	
14G	2	61.2	60.0	48.0	61.4	0.2		60.2	49.0	61.5	0.3		60.3	51.1	61.6	0.4		60.4	52.5	61.7	0.5		60.5	50.2	61.5	0.3		60.3	47.7	61.4	0.2	
14G	3	61.0	59.8	48.3	61.2	0.2		60.0	49.3	61.3	0.3		60.1	51.8	61.5	0.5		60.3	53.0	61.6	0.6		60.4	50.3	61.4	0.4		60.2	48.0	61.2	0.2	
14G	4	60.7	59.5	48.9	61.0	0.3		59.8	49.8	61.0	0.3		59.8	52.9	61.4	0.7		60.2	53.5	61.5	0.8		60.3	48.5	61.0	0.3		59.8	48.9	61.0	0.3	
14G	5	60.4	59.2	49.5	60.7	0.3		59.5	50.3	60.8	0.4		59.6	53.4	61.2	0.8		60.0	54.1	61.3	0.9		60.1	48.8	60.7	0.3		59.5	50.8	60.9	0.5	
14G	6	60.2	59.0	50.2	60.6	0.4		59.4	50.9	60.7	0.5		59.5	54.1	61.2	1.0		60.0	54.9	61.3	1.1		60.1	49.4	60.5	0.3		59.3	49.7	60.6	0.4	
14G	7	59.9	58.7	50.8	60.4	0.5		59.2	51.5	60.5	0.6		59.3	54.2	60.9	1.0		59.7	55.0	61.1	1.2		59.9	49.2	60.3	0.4		59.1	48.1	60.2	0.3	
14G	8	59.8	58.6	49.0	60.1	0.3		58.9	50.0	60.2	0.4		59.0	51.3	60.4	0.6		59.2	51.2	60.4	0.6		59.2	50.5	60.3	0.5		59.1	48.0	60.1	0.3	
14G	9	59.6	58.4	49.5	60.0	0.4		58.8	50.4	60.1	0.5		58.9	51.5	60.2	0.6		59.0	51.8	60.3	0.7		59.1	50.7	60.1	0.5		58.9	48.0	59.9	0.3	
14G	10	59.7	58.5	50.1	60.2	0.5		59.0	50.9	60.2	0.5		59.0	51.8	60.4	0.7		59.2	52.0	60.4	0.7		59.2	49.4	60.1	0.4		58.9	48.4	60.0	0.3	
15	1	65.4	67.7	63.7	67.6	2.2		69.9	64.2	67.9	2.5		70.2	66.5	69.0	3.6	YES	71.3	65.5	68.5	3.1	YES	70.8	59.1	66.3	0.9		68.6	56.5	65.9	0.5	
15	2	66.3	68.6	66.9	69.6	3.3	YES	71.9	67.5	70.0	3.7	YES	72.3	69.7	71.3	5.0	YES	73.6	68.9	70.8	4.5	YES	73.1	60.2	67.3	1.0		69.6	57.5	66.8	0.5	
15	3	66.7	69.0	70.9	72.3	5.6	YES	74.6	71.3	72.6	5.9	YES	74.9	74.2	74.9	8.2	YES	77.2	73.3	74.2	7.5	YES	76.5	61.6	67.9	1.2		70.2	57.7	67.2	0.5	
15	4	66.9	69.2	72.7	73.7	6.8	YES	76.0	73.5	74.4	7.5	YES	76.7	74.2	74.9	8.0	YES	77.2	73.3	74.2	7.3	YES	76.5	63.4	68.5	1.6		70.8	57.6	67.4	0.5	
16	1	66.7	70.1	59.7	67.5	0.8		70.9	59.8	67.5	0.8		70.9	61.8	67.9	1.2		71.3	60.4	67.6	0.9		71.0	59.2	67.4	0.7		70.8	59.0	67.4	0.7	
16	2	67.7	71.1	60.7	68.5	0.8		71.9	60.9	68.5	0.8		71.9	62.9	68.9	1.2		72.3	61.2	68.6	0.9		72.0	60.1	68.4	0.7		71.8	59.9	68.4	0.7	
16	3	68.1	71.5	61.0	68.9	0.8		72.3	61.3	68.9	0.8		72.3	63.3	69.3	1.2		72.7	61.6	69.0	0.9		72.4	60.2	68.8	0.7		72.2	60.1	68.7	0.6	
16	4	68.0	71.4	61.3	68.8	0.8		72.2	61.6	68.9	0.9		72.3	64.0	69.5	1.5		72.9	62.1	69.0	1.0		72.4	60.1	68.7	0.7		72.1	60.0	68.6	0.6	
16	5	67.9	71.3	61.4	68.8	0.9		72.2	61.8	68.9	1.0		72.3	65.8	70.0	2.1		73.4	62.6	69.0	1.1		72.4	60.0	68.6	0.7		72.0	59.8	68.5	0.6	
16	6	67.8	71.2	61.7	68.8	1.0		72.2	62.4	68.9	1.1		72.3	66.0	70.0	2.2		73.4	63.0	69.0	1.2		72.4	59.8	68.4	0.6		71.8	59.5	68.4	0.6	
16A	1	63.1	66.5	54.6	63.7	0.6		67.1	54.8	63.7	0.6		67.1	54.6	63.7	0.6		67.1	54.8	63.7	0.6		67.1	54.5	63.7	0.6		67.1	54.0	63.6	0.5	
16A	2	64.2	67.6	56.0	64.8	0.6		68.2	56.2	64.8	0.6		68.2	56.0	64.8	0.6		68.2	56.2	64.8	0.6		68.2	55.8	64.8	0.6		68.2	55.5	64.7	0.5	
16A	3	64.6	68.0	56.6	65.2	0.6		68.6	56.8	65.3	0.7		68.7	56.6	65.2	0.6		68.6	56.8	65.3	0.7		68.7	56.2	65.2	0.6		68.6	55.9	65.1	0.5	
16A	4	64.7	68.1	56.6	65.3	0.6		68.7	56.9	65.4	0.7		68.8	57.0	65.4	0.7		68.8	57.0	65.4	0.7		68.8	56.3	65.3	0.6		68.7	56.1	65.3	0.6	
16A	5	64.6	68.0	56.6	65.2	0.6		68.6	56.9	65.3	0.7		68.7	57.1	65.3	0.7		68.7	57.2	65.3	0.7		68.7	56.3	65.2	0.6		68.6	56.0	65.2	0.6	
16A	6	64.4	67.8	56.2	65.0	0.6		68.4	56.6	65.1	0.7		68.5	57.3	65.2	0.8		68.6	57.2	65.2	0.8		68.7	56.1	65.0	0.6		68.4	55.9	65.0	0.6	
16B	4	54.7	58.1	57.3	59.2	4.5		62.6	58.1	59.7	5.1	YES	63.1	61.6	62.4	7.7	YES	65.8	60.4	61.4	6.8	YES	64.8	52.3	56.7	2.0		60.1	48.5	55.6	0.9	
16B	5	55.5	58.9	59.7	61.1	5.6	YES	64.5	60.8	61.9	6.4	YES	65.3	65.2	65.6	10.1	YES	69.0	63.1	63.8	8.3	YES	67.2	53.5	57.6	2.1		61.0	50.4	56.7	1.2	
16B	6	55.4	58.8	61.5	62.5	7.1	YES	65.9	62.9	63.6	8.2	YES	67.0	67.3	67.6	12.2	YES	71.0	64.9	65.4	10.0	YES	68.8	54.2	57.9	2.5		61.3	50.9	56.7	1.3	
16C	4	63.2	66.6	61.0	65.2	2.0		68.6	62.0	65.7	2.5		69.1	64.7	67.0	3.8	YES	70.4	63.5	66.4	3.2	YES	69.8	56.9	64.1	0.9		67.5	55.2	63.8	0.6	
16C	5	64.8	68.2	63.6	67.3	2.5		70.7	64.6	67.7	2.9		71.1	68.3	69.9	5.1	YES	73.3	66.3	68.6	3.8	YES	72.0	58.2	65.7	0.9		69.1	57.1	65.5	0.7	
16C	6	65.2	68.6	64.7	68.0	2.8		71.4	66.2	68.7	3.5	YES	72.1	69.0	70.5	5.3	YES	73.9	67.5	69.5	4.3	YES	72.9	58.6	66.1	0.9		69.5	57.4	65.9	0.7	
17	1	61.6	63.9	52.1	62.1	0.5		64.4	52.9	62.1	0.5		64.4	57.6	63.1	1.5		65.4	58.0	63.2	1.6		65.5	52.5	62.1	0.5		64.4	47.4	61.8	0.2	
17	2	61.8	64.1	53.5	62.4	0.6		64.7	54.3	62.5	0.7		64.8	58.5	63.5	1.7		65.8	59.3	63.7	1.9		66.0	52.9	62.3	0.5		64.6	48.6	62.0	0.2	
17	3	61.6	63.9	54.2	62.3	0.7		64.6	55.3	62.5	0.9		64.8	59.7	63.8	2.2		66.1	60.4	64.1	2.5		66.4	53.3	62.2	0.6		64.5	49.4	61.9	0.3	
17	4	61.6	63.9	55.0	62.5	0.9		64.8	56.2	62.7	1.1		65.0	60.5	64.1	2.5		66.4	61.2	64.4	2.8		66.7	53.8	62.3	0.7		64.6	50.7	61.9	0.3	
17	5	61.6	63.9	55.9	62.6	1.0		64.9	57.3	63.0	1.4		65.3	62.1	64.9	3.3		67.2	62.5	65.1	3.5	YES	67.4	54.3	62.3	0.7		64.6	51.5	62.0	0.4	
17	6	62.1	64.4	56.8	63.2	1.1		65.5	58.3	63.6	1.5		65.9	62.8	65.5	3.4	YES	67.8	62.8	65.5	3.4	YES	67.8	54.8	62.8	0.7		65.1	52.3	62.5	0.4	
17A	1	54.7	57.0	50.0	55.9	1.3		58.2	51.0	56.2	1.6		58.5	53.8	57.3	2.6		59.6	54.9	57.8	3.1		60.1	49.9	55.9	1.2		58.2	40.6	54.8	0.2	
17A	2	54.7	57.0	50.7	56.2	1.5		58.5	51.9	56.5	1.8		58.8	54.5	57.6	2.9		59.9	56.4	58.6	3.9		60.9	50.0	56.0	1.3		58.3	40.8	54.9	0.2	
17A	3	54.7	57.0	51.5	56.4	1.7		58.7	52.8	56.9	2.2		59.2	56.0	58.4	3.7		60.7	57.6	59.4	4.7		61.7	50.0	56.0	1.3		58.3	41.3	54.9	0.2	
17A	4	54.8	57.1	52.2	56.7	1.9		59.0	53.9	57.4	2.6		59.7	57.7	59.5	4.7		61.8	58.3	59.9	5.1	YES	62.2	50.5	56.2	1.4		58.5	42.7	55.1	0.3	
17A	5	57.2	59.5	52.5	58.5	1.3		60.8	54.2	59.0	1.8		61.3	59.5	61.5	4.3		63.8	60.0	61.8	4.6		64.1	51.4	58.2	1.0		60.5	45.8	57.5	0.3	
17A	6	62.1	64.4	54.3	62.8	0.7		65.1	56.0	63.1	1.0		65.4	60.5	64.4	2.3		66.7	60.9	64.6	2.5		66.9	53.9	62.7	0.6		65.0	52.0	62.5	0.4	
18	1	61.0	63.3	52.2	61.5	0.5		63.8	53.0	61.6	0.6		63.9	57.9	62.7	1.7		65.0	58.5	62.9	1.9		65.2	52.2	61.5	0.5		63.8	46.0	61.1	0.1	
18	2	61.1	63.4	53.6	61.8	0.7		64.1	54.5	62.0	0.9		64.3	58.8	63.1	2.0		65.4	59.6	63.4	2.3		65.7	52.5	61.7	0.6		64.0	47.1	61.3	0.2	
18	3	60.9	63.2	54.2	61.7	0.8		64.0	55.4	62.0	1.1		64.3	59.7	63.4	2.5		65.7	60.4	63.7	2.8		66.0	52.9	61.5	0.6		63.8	47.8	61.1	0.2	
18	4	60.7	63.0	54.9	61.7	1.0		64.0	56.3	62.0	1.3		64.3	60.9	63.8	3.1		66.1	61.2	64.0	3.3		66.3	53.3	61.4	0.7		63.7	48.6	61.0	0.3	
18	5	60.8	63.1	55.7	62.0	1.2		64.3	57.4	62.4	1.6		64.7	62.5	64.7	3.9		67.0	62.8	64.9	4.1		67.2	53.8	61.6	0.8		63.9	51.0	61.2	0.4	
18	6	61.0	63.3	56.5	62.3	1.3		64.6	58.3	62.9	1.9		65.2	63.0	65.1	4.1	YES	67.4	63.0	65.1	4.1	YES	67.4	54.4	61.9	0.9		64.2	51.5	61.5	0.5	

13A	2	67.0	63.3	67.4	2.1		66.2	61.3	66.8	1.5		65.6	61.3	66.8	1.5		65.6	61.1	66.7	1.4		65.5	61.1	66.7	1.4		65.5	63.3	67.4	2.1		66.2
13A	3	67.3	63.9	67.7	2.4		66.5	61.3	66.8	1.5		65.6	61.2	66.7	1.4		65.5	61.1	66.7	1.4		65.5	61.1	66.7	1.4		65.5	63.3	67.4	2.1		66.2
13A	4	67.8	64.5	67.9	2.7		66.7	61.1	66.6	1.4		65.4	61.0	66.6	1.4		65.4	60.9	66.6	1.4		65.4	60.9	66.6	1.4		65.4	63.0	67.2	2.0		66.0
13A	5	68.0	64.7	67.9	2.9		66.7	60.8	66.4	1.4		65.2	60.7	66.4	1.4		65.2	60.5	66.3	1.3		65.1	60.6	66.3	1.3		65.1	62.7	67.0	2.0		65.8
13A	6	68.8	67.1	69.1	4.3	YES	67.9	60.5	66.2	1.4		65.0	60.4	66.1	1.3		64.9	60.2	66.1	1.3		64.9	60.3	66.1	1.3		64.9	62.4	66.8	2.0		65.6
13A	11	68.9	66.8	68.7	4.4	YES	67.5	59.5	65.5	1.2		64.3	58.9	65.4	1.1		64.2	58.5	65.3	1.0		64.1	59.0	65.4	1.1		64.2	60.8	65.9	1.6		64.7
13A	16	68.6	66.0	68.0	4.2	YES	66.8	59.0	65.0	1.2		63.8	57.8	64.8	1.0		63.6	57.3	64.7	0.9		63.5	57.9	64.8	1.0		63.6	59.6	65.2	1.4		64.0
13A	20	68.0	65.3	67.4	4.2	YES	66.2	58.3	64.4	1.2		63.2	57.0	64.1	0.9		62.9	56.5	64.0	0.8		62.8	56.3	64.0	0.8		62.8	58.7	64.5	1.3		63.3
13B	1	58.5	53.5	59.8	1.2		58.6	53.0	59.7	1.1		58.5	52.7	59.6	1.0		58.4	52.6	59.6	1.0		58.4	52.4	59.5	0.9		58.3	54.5	60.0	1.4		58.8
13B	2	59.9	54.7	61.1	1.1		59.9	54.3	61.0	1.0		59.8	54.1	61.0	1.0		59.8	53.9	61.0	1.0		59.8	53.9	61.0	1.0		59.8	56.0	61.5	1.5		60.3
13B	3	61.0	55.7	62.2	1.1		61.0	55.4	62.1	1.0		60.9	55.1	62.1	1.0		60.9	55.0	62.1	1.0		60.9	55.0	62.1	1.0		60.9	57.2	62.6	1.5		61.4
13B	4	61.3	56.0	62.5	1.1		61.3	55.8	62.5	1.1		61.3	55.5	62.4	1.0		61.2	55.4	62.4	1.0		61.2	55.4	62.4	1.0		61.2	57.6	62.9	1.5		61.7
13B	5	61.5	56.3	62.7	1.1		61.5	56.0	62.7	1.1		61.5	55.7	62.6	1.0		61.4	55.7	62.6	1.0		61.4	55.6	62.6	1.0		61.4	57.9	63.1	1.5		61.9
13B	6	61.8	56.7	63.0	1.1		61.8	56.4	63.0	1.1		61.8	56.0	62.9	1.0		61.7	56.0	62.9	1.0		61.7	56.0	62.9	1.0		61.7	58.3	63.5	1.6		62.3
13B	11	61.7	56.8	63.0	1.2		61.8	56.5	62.9	1.1		61.7	56.0	62.8	1.0		61.6	55.9	62.8	1.0		61.6	55.9	62.8	1.0		61.6	58.3	63.4	1.6		62.2
13B	16	61.2	56.5	62.5	1.3		61.3	56.0	62.3	1.1		61.1	55.3	62.2	1.0		61.0	55.3	62.2	1.0		61.0	55.2	62.2	1.0		61.0	57.7	62.8	1.6		61.6
13B	20	60.2	55.8	61.5	1.3		60.3	55.1	61.4	1.2		60.2	54.3	61.2	1.0		60.0	54.2	61.2	1.0		60.0	54.1	61.2	1.0		60.0	56.5	61.7	1.5		60.5
13C	1	66.4	60.2	68.0	0.8		66.8	59.6	67.9	0.7		66.7	56.9	67.6	0.4		66.4	57.7	67.7	0.5		66.5	59.4	67.9	0.7		66.7	59.5	67.9	0.7		66.7
13C	2	67.2	61.4	68.9	0.9		67.7	60.7	68.7	0.7		67.5	57.8	68.4	0.4		67.2	58.2	68.4	0.4		67.2	59.9	68.6	0.6		67.4	60.3	68.7	0.7		67.5
13C	3	67.2	63.5	69.3	1.3		68.1	61.5	68.9	0.9		67.7	58.2	68.4	0.4		67.2	59.0	68.5	0.5		67.3	59.9	68.6	0.6		67.4	60.3	68.7	0.7		67.5
13C	4	66.9	62.8	68.9	1.2		67.7	61.7	68.7	1.0		67.5	58.3	68.2	0.5		67.0	58.9	68.2	0.5		67.0	59.9	68.4	0.7		67.2	60.1	68.4	0.7		67.2
13C	5	66.6	65.1	69.4	2.0		68.2	62.3	68.6	1.2		67.4	58.2	67.9	0.5		66.7	58.8	68.0	0.6		66.8	59.8	68.1	0.7		66.9	59.9	68.1	0.7		66.9
13C	6	66.3	66.2	69.7	2.6		68.5	64.2	68.9	1.8		67.7	58.1	67.6	0.5		66.4	58.6	67.7	0.6		66.5	59.8	67.8	0.7		66.6	59.6	67.8	0.7		66.6
13C	11	65.2	67.6	69.8	3.9	YES	68.6	65.3	68.6	2.7		67.4	59.9	66.9	1.0		65.7	59.1	66.7	0.8		65.5	60.2	66.9	1.0		65.7	58.4	66.6	0.7		65.4
13C	16	64.2	68.2	69.9	4.9	YES	68.7	65.2	68.1	3.1	YES	66.9	60.9	66.4	1.4		65.2	59.1	66.0	1.0		64.8	59.7	66.1	1.1		64.9	56.9	65.6	0.6		64.4
13C	20	63.8	68.2	69.8	5.2	YES	68.6	64.4	67.5	2.9		66.3	61.0	66.2	1.6		65.0	59.6	65.8	1.2		64.6	59.5	65.8	1.2		64.6	56.1	65.2	0.6		64.0
14	1	61.1	65.7	66.2	10.0	YES	69.2	63.2	64.0	7.8	YES	67.0	53.4	58.0	1.8		61.0	49.0	57.0	0.8		60.0	48.6	56.9	0.7		59.9	50.7	57.3	1.1		60.3
14	2	62.0	68.8	69.1	12.1	YES	72.1	64.7	65.4	8.4	YES	68.4	54.1	58.8	1.8		61.8	49.8	57.8	0.8		60.8	49.6	57.7	0.7		60.7	51.9	58.2	1.2		61.2
14	3	62.8	71.2	71.4	13.9	YES	74.4	66.6	67.1	9.6	YES	70.1	54.9	59.4	1.9		62.4	50.7	58.3	0.8		61.3	50.5	58.3	0.8		61.3	53.0	58.8	1.3		61.8
14	4	63.3	74.1	74.2	16.6	YES	77.2	68.7	69.0	11.4	YES	72.0	57.1	60.4	2.8		63.4	50.9	58.4	0.8		61.4	50.8	58.4	0.8		61.4	53.3	59.0	1.4		62.0
14	5	63.6	74.8	74.9	17.3	YES	77.9	70.5	70.7	13.1	YES	73.7	57.4	60.5	2.9		63.5	51.0	58.5	0.9		61.5	51.0	58.5	0.9		61.5	53.5	59.0	1.4		62.0
14	6	64.1	74.5	74.6	17.0	YES	77.6	72.3	72.4	14.8	YES	75.4	58.1	60.9	3.3		63.9	51.1	58.5	0.9		61.5	51.1	58.5	0.9		61.5	53.5	59.0	1.4		62.0
14	7	64.8	75.1	75.2	17.5	YES	78.2	72.4	72.5	14.8	YES	75.5	58.3	61.0	3.3		64.0	51.2	58.6	0.9		61.6	52.0	58.7	1.0		61.7	53.6	59.1	1.4		62.1
14	8	65.3	75.1	75.2	17.1	YES	78.2	72.5	72.7	14.6	YES	75.7	58.6	61.4	3.3		64.4	51.3	58.9	0.8		61.9	52.5	59.2	1.1		62.2	53.6	59.4	1.3		62.4
14	9	65.7	74.9	75.0	16.4	YES	78.0	72.0	72.2	13.6	YES	75.2	59.3	62.0	3.4		65.0	51.8	59.4	0.8		62.4	53.6	59.8	1.2		62.8	53.6	59.8	1.2		62.8
14	10	66.0	74.7	74.8	15.8	YES	77.8	71.8	72.0	13.0	YES	75.0	59.8	62.4	3.4		65.4	52.3	59.8	0.8		62.8	55.0	60.5	1.5		63.5	53.7	60.1	1.1		63.1
14A	1	64.7	56.5	65.8	0.5		64.6	55.3	65.7	0.4		64.5	55.9	65.8	0.5		64.6	57.8	66.0	0.7		64.8	58.9	66.2	0.9		65.0	57.5	66.0	0.7		64.8
14A	2	65.4	57.6	66.5	0.6		65.3	55.9	66.3	0.4		65.1	56.5	66.4	0.5		65.2	58.2	66.6	0.7		65.4	59.4	66.8	0.9		65.6	58.2	66.6	0.7		65.4
14A	3	65.4	58.0	66.6	0.6		65.4	56.0	66.4	0.4		65.2	56.8	66.5	0.5		65.3	59.2	66.8	0.8		65.6	59.8	66.9	0.9		65.7	58.4	66.7	0.7		65.5
14A	4	65.4	58.3	66.5	0.7		65.3	56.3	66.3	0.5		65.1	57.0	66.3	0.5		65.1	58.8	66.6	0.8		65.4	59.7	66.8	1.0		65.6	58.3	66.5	0.7		65.3
14A	5	65.3	58.7	66.4	0.8		65.2	56.5	66.1	0.5		64.9	57.1	66.2	0.6		65.0	59.3	66.5	0.9		65.3	59.8	66.6	1.0		65.4	58.2	66.3	0.7		65.1
14A	6	65.2	59.0	66.3	0.9		65.1	56.4	65.9	0.5		64.7	57.2	66.0	0.6		64.8	59.8	66.5	1.1		65.3	59.8	66.5	1.1		65.3	58.1	66.1	0.7		64.9
14A	7	65.1	59.2	66.2	1.0		65.0	56.4	65.7	0.5		64.5	57.4	65.9	0.7		64.7	60.4	66.4	1.2		65.2	59.8	66.3	1.1		65.1	58.0	66.0	0.8		64.8
14A	8	64.9	59.6	65.9	1.1		64.7	56.4	65.4	0.6		64.2	57.3	65.5	0.7		64.3	60.5	66.2	1.4		65.0	60.0	66.0	1.2		64.8	58.0	65.6	0.8		64.4
14A	9	65.0	60.0	66.0	1.3		64.8	56.9	65.4	0.7		64.2	57.9	65.5	0.8		64.3	60.4	66.1	1.4		64.9	60.2	66.0	1.3		64.8	57.9	65.5	0.8		64.3
14A	10	65.2	60.8	66.1	1.5		64.9	56.8	65.3	0.7		64.1	58.0	65.5	0.9		64.3	60.4	66.0	1.4		64.8	60.2	65.9	1.3		64.7	57.8	65.4	0.8		64.2
14B	1	64.6	56.0	65.8	0.5		64.6	55.4	65.7	0.4		64.5	55.9	65.8	0.5		64.6	57.3	65.9	0.6		64.7	58.1	66.1	0.8		64.9	57.6	66.0	0.7		64.8
14B	2	65.1	56.5	66.3	0.5		65.1	56.0	66.2	0.4		65.0	56.4	66.3	0.5		65.1	57.6	66.4	0.6		65.2	58.5	66.5	0.7		65.3	58.2	66.5	0.7		65.3
14B	3	65.1	56.8	66.3	0.5		65.1	56.1	66.2	0.4		65.0	56.8	66.3	0.5		65.1	58.7	66.6	0.8		65.4	58.8	66.6	0.8		65.4	58.4	66.5	0.7		65.3
14B	4	64.9	56.8	66.1	0.5		64.9	56.4	66.1	0.5		64.9	57.0	66.2	0.6		65.0	58.2	66.3	0.7		65.1	59.1	66.5	0.9		65.3	58.5	66.4	0.8		65.2
14B	5	64.7	56.9	65.9	0.6		64.7	56.7	65.9	0.6		64.7	57.2	65.9	0.6		64.7	58.8	66.2	0.9		65.0	59.2	66.3	1.0		65.1	58.5	66.1	0.8		64.9
14B	6	64.3	57.0	65.5	0.7		64.3	56.8	65.4	0.6		64.2	57.3	65.5	0.7		64.3	59.2	65.9	1.1		64.7	59.2	65.9	1.1		64.7	58.4	65.7	0.9		64.5
14B	7	64.1	57.1	65.3	0.7		64.1	57.0	65.3	0.7		64.1	57.4	65.4	0.8		64.2	59.7	65.8	1.2		64.6	59.2	65.7	1.1		64.5	58.5	65.6	1.0		64.4
14B	8	63.8	57.1	65.0	0.8		63.8	57.2	65.0	0.8		63.8	57.4	65.0	0.8		63.8	59.7	65.5	1.3		64.3	59.3	65.4	1.2		64.2	58.4	65.2	1.0		64.0
14B	9	63.6	57.2	64.8	0.8		63.6	57.3	64.8	0.8		63.6	57.4	64.9	0.9		63.7	59.8	65.4	1.4		64.2	59.3	65.3	1.3		64.1	58.3	65.0	1.0		63.8
14B	10	63.4	57.4	64.7	0.9		63.5	57.3	64.7	0.9		63.5	57.5	64.7	0.9		63.5	59.8	65.3	1.5		64.1	59.3	65.1	1.3		63.9	58.2	64.9	1.1		63.7
14C	1	65.3	58.0	66.5	0.7		65.3	57.0	66.3	0.5		65.1	57.4	66.4	0.6		65.2	58.1	66.5	0.7		65.3	58.7	66.6	0.8		65.4	59.6	66.7	0.9		65.5
14C	2	66.1	59.1	67.3	0.7		66.1	58.3	67.2	0.6		66.0	58.5	67.2	0.6		66.0	59.1	67.3	0.7		66.1	59.6	67.4	0.8		66.2	60.9	67.6	1.0		66.4
14C	3	66.2	59.4	67.4	0.8		66.2	58.4	67.2	0.6		66.0	58.8	67.3	0.7		66.1	59.4	67.4	0.8		66.2	59.9	67.4	0.8		66.2	61.0	67.7	1.1		66.5
14C	4	66.0	59.3	67.2	0.8		66.0	58.5	67.1	0.7		65.9	58.8	67.1	0.7		65.9	59.5	67.2	0.8		66.0	60.0	67.3	0.9		66.1	61.0	67.5	1.1		66.3
14C	5	65.7	59.2	66.9	0.8		65.7	58.3	66.8	0.7		65.6	58.7	66.8	0.7		65.6	59.6	67.0	0.9		65.8	59.9	67.0	0.9		65.8	60.8	67.2	1.1		66.0
14C	6	65.2	59.1	66.4	0.9		65.2	58.0	66.2	0.7		65.0	58.5	66.3	0.8		65.1	59.7	66.5	1.0		65.3	59.6	66.5	1.0		65.3	60.4	66.7	1.2		65.5
14C	7	64.9	59.1	66.1	1.0		64.9	57.8	65.8	0.7		64.6	58.4	65.9	0.8		64.7	59.9	66.2	1.1		65.0	59.6	66.2	1.1		65.0	60.2	66.3	1.2		65.1
14C	8	64.6	59.0	65.7	1.0		64.5	57.7	65.5	0.8		64.3	58.2	65.6	0.9		64.4	59.8	65.9	1.2		64.7	59.5	65.8	1.1		64.6	59.9	65.9	1.2		64.7
14C	9	64.1	58.7	65.3	1.1		64.1	57.2	65.0	0.8		63.8	57.7	65.1	0.9		63.9	59.5	65.5	1.3		64.3	59.1	65.4	1.2		64.2	59.3	65.4	1.2		64.2
14C	10	63.9	58.6	65.0	1.1		63.8	57.0	64.7	0.8		63.5	57.6	64.8	0.9		63.6	59.4	65.2	1.3		64.0	59.0	65.1	1.2		63.9	59.0	65.1	1.2		63.9
14D	1	68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	61.8	65.0	2.9		68.7	64.5	66.5	4.4	YES	70.2
14D	2	69.2	62.3	65.5	2.8		69.2	62.3	65.5	2.8		69.2	62.3	65.5	2.8		69.2	62.3	65.5	2.8		69.2	62.3	65.5	2.8		69.2	65.0	67.0	4.3	YES	70.7
14D	3	69.2	62.3	65.6	2.8		69.3	62.2	65.5	2.7		69.2	62.2	65.5	2.7		69.2	62.2	65.5	2.7		69.2	62.2	65.5	2.7		69.2	65.0	67.0	4.2	YES	70.7
14D	4	68.9	61.9	65.2	2.7		68.9	61.9	65.2	2.7		68.9	61.9	65.2	2.7		68.9	61.8	65.2	2.7		68.9	61.9	65.2	2.7		68.9	64.6	66.7	4.2	YES	70.4
14D	5	68.5	61.4	64.8	2.7		68.5	61.4	64.8	2.7		68.5	61.4	64.8	2.7		68.5	61.4	64.8	2.7		68.5	61.4	64.8	2.7		68.5	64.1	66.2	4.1	YES	69.9
14D	6	68.0	61.0	64.4	2.7		68.1	60.9	64.3	2.6		68.0	60.9	64.3	2.6		68.0	60.9	64.3	2.6		68.0	61.0	64.4	2.7		68.1	63.6	65.8	4.1	YES	69.5
14D	7	67.6	60.5	63.9	2.6		67.6	60.5	63.9	2.6		67.6	60.5	63.9	2.6		67.6	60.5	63.9	2.6		67.6	60.6	64.0	2.7		67.7	63.2	65.4	4.1	YES	69.1
14D	8	67.1	60.0	63.4	2.6		67.1	60.0	63.4	2.6		67.1	60.0	63.4	2.6		67.1	60.0	63.4	2.6		67.1	60.1	63.5	2.7		67.2	62.7	64.9	4.1		68.6
14D	9	66.8	59.6	63.1	2.6		66.8	59.6	63.1	2.6		66.8	59.5	63.0	2.5		66.7	59.5	63.0	2.5		66.7	59.6	63.1	2.6		66.8	62.3	64.5	4.0		68.2
14D	10	66.3	59.2	62.7	2.6		66.4	59.1	62.6	2.5		66.3	59.1	62.6	2.5		66.3	59.0	62.6	2.5		66.3	59.0	62.6	2.5		66.3	61.8	64.0	3.9		67.7
14E	1	63.8	58.5	65.3	1.0		64.1	59.0	65.4	1.1		64.2	57.6	65.1	0.8		63.9	56.9	65.0	0.7		63.8	56.9	65.0	0.7		63.8	59.6	65.6	1.3		64.4
14E	2	65.1	60.2	66.5	1.1		65.3	60.3	66.6	1.2		65.4	59.5	66.4	1.0		65.2	58.8	66.3	0.9		65.1	58.8	66.3	0.9		65.1	61.5	66.9	1.5		65.7
14E	3	65.1	60.4	66.6	1.2		65.4	60.5	66.6	1.2		65.4	59.7	66.4	1.0		65.2	58.9	66.3	0.9		65.1	58.9	66.3	0.9		65.1	61.7	66.9	1.5		65.7
14E	4	64.8	60.4	66.4	1.3		65.2	60.5	66.4	1.3		65.2	59.7	66.2	1.1		65.0	58.8	66.0	0.9		64.8	58.8	66.0	0.9		64.8	61.6	66.7	1.6		65.5
14E	5	64.5	60.3	66.1	1.3		64.9	60.6	66.2	1.4		65.0	59.4	65.9	1.1		64.7	58.6	65.7	0.9		64.5	58.6	65.7	0.9		64.5	61.3	66.4	1.6		65.2
14E	6	64.3	60.8	66.0	1.5		64.8	60.5	66.0	1.5		64.8	59.4	65.7	1.2		64.5	58.4	65.5	1.0		64.3	58.4	65.5	1.0		64.3	61.1	66.1	1.6		64.9
14E	7	64.1	60.9	65.9	1.6		64.7	60.4	65.8	1.5		64.6	59.3	65.5	1.2		64.3	58.2	65.3	1.0		64.1	58.2	65.3	1.0		64.1	60.9	65.9	1.6		64.7
14E	8	63.8	61.9	66.1	2.1		64.9	61.6	66.0	2.0		64.8	60.8	65.7	1.7		64.5	57.9	65.0	1.0		63.8	57.9	65.0	1.0		63.8	60.6	65.6	1.6		64.4
14E	9	63.6	61.9	66.0	2.2		64.8	61.7	65.9	2.1		64.7	60.9	65.6	1.8		64.4	57.9	64.8	1.0		63.6	57.9	64.8	1.0		63.6	60.6	65.5	1.7		64.3
14E	10	63.4	61.9	65.8	2.2		64.6	61.7	65.8	2.2		64.6	60.9	65.5	1.9		64.3	57.6	64.6	1.0		63.4	57.7	64.6	1.0		63.4	60.3	65.3	1.7		64.1
14F	1	59.2	55.3	61.4	1.2		60.2	58.6	62.5	2.3		61.3	52.8	60.9	0.7		59.7	46.8	60.4	0.2		59.2	46.7	60.4	0.2		59.2	49.1	60.5	0.3		59.3
14F	2	59.9	56.7	62.3	1.4		61.1	59.4	63.2	2.3		62.0	54.4	61.8	0.9		60.6	47.7	61.1	0.2		59.9	47.7	61.1	0.2		59.9	50.2	61.3	0.4		60.1
14F	3	59.9	57.3	62.4	1.6		61.2	59.4	63.2	2.4		62.0	55.0	61.8	1.0		60.6	48.7	61.1	0.3		59.9	48.7	61.1	0.3		59.9	51.2	61.3	0.5		60.1
14F	4	59.9	58.5	62.7	2.0		61.5	59.5	63.2	2.5		62.0	55.8	61.9	1.2		60.7	49.7	61.0	0.3		59.8	49.7	61.0	0.3		59.8	52.2	61.3	0.6		60.1
14F	5	59.6	60.1	63.3	2.9		62.1	60.4	63.4	3.0		62.2	56.4	61.9	1.5		60.7	50.1	60.8	0.4		59.6	50.1	60.8	0.4		59.6	52.6	61.1	0.7		59.9
14F	6	59.4	62.8	64.7	4.6		63.5	63.2	64.9	4.8		63.7	61.2	63.7	3.6		62.5	50.1	60.5	0.4		59.3	50.2	60.5	0.4		59.3	52.7	60.8	0.7		59.6
14F	7	59.1	62.9	64.6	4.8		63.4	63.1	64.8	5.0		63.6	61.3	63.6	3.8		62.4	50.2	60.3	0.5		59.1	50.2	60.3	0.5		59.1	52.7	60.6	0.8		59.4
14F	8	58.9	63.1	64.7	5.1	YES	63.5	62.9	64.6	5.0		63.4	61.5	63.7	4.1		62.5	50.3	60.1	0.5		58.9	50.3	60.1	0.5		58.9	52.8	60.4	0.8		59.2
14F	9	59.0	63.2	64.8	5.2	YES	63.6	63.1	64.7	5.1	YES	63.5	61.7	63.8	4.2		62.6	51.0	60.2	0.6		59.0	51.0	60.2	0.6		59.0	53.5	60.6	1.0		59.4
14F	10	59.0	63.4	64.9	5.3	YES	63.7	63.1	64.7	5.1	YES	63.5	61.8	63.8	4.2		62.6	51.3	60.2	0.6		59.0	51.3	60.2	0.6		59.0	53.8	60.6	1.0		59.4
14G	1	59.6	60.9	63.8	3.2		62.6	60.6	63.6	3.0		62.4	58.0	62.5	1.9		61.3	44.0	60.7	0.1		59.5	46.0	60.7	0.1		59.5	45.3	60.7	0.1		59.5
14G	2	60.2	63.2	65.3	4.1	YES	64.1	62.5	64.9	3.7		63.7	60.7	64.0	2.8		62.8	44.5	61.3	0.1		60.1	47.1	61.4	0.2		60.2	45.9	61.3	0.1		60.1
14G	3	60.0	65.8	67.0	6.0	YES	65.8	64.1	65.8	4.8	YES	64.6	62.6	64.9	3.9		63.7	45.1	61.1	0.1		59.9	48.1	61.2	0.2		60.0	46.5	61.2	0.2		60.0
14G	4	59.8	66.5	67.5	6.8	YES	66.3	65.3	66.6	5.9	YES	65.4	63.5	65.3	4.6	YES	64.1	45.8	60.8	0.1		59.6	48.6	61.0	0.3		59.8	47.1	60.9	0.2		59.7
14G	5	59.7	68.8	69.4	9.0	YES	68.2	68.0	68.7	8.3	YES	67.5	67.0	67.9	7.5	YES	66.7	46.7	60.6	0.2		59.4	48.9	60.7	0.3		59.5	47.6	60.6	0.2		59.4
14G	6	59.4	69.1	69.6	9.4	YES	68.4	68.1	68.8	8.6	YES	67.6	66.7	67.6	7.4	YES	66.4	47.4	60.4	0.2		59.2	50.2	60.6	0.4		59.4	48.2	60.5	0.3		59.3
14G	7	59.0	69.3	69.8	9.9	YES	68.6	67.9	68.5	8.6	YES	67.3	66.5	67.4	7.5	YES	66.2	47.9	60.2	0.3		59.0	50.2	60.3	0.4		59.1	48.8	60.2	0.3		59.0
14G	8	58.9	69.6	70.0	10.2	YES	68.8	67.7	68.4	8.6	YES	67.2	66.2	67.1	7.3	YES	65.9	47.2	60.0	0.2		58.8	47.4	60.0	0.2		58.8	49.3	60.2	0.4		59.0
14G	9	58.7	70.3	70.7	11.1	YES	69.5	67.4	68.1	8.5	YES	66.9	65.9	66.8	7.2	YES	65.6	47.5	59.9	0.3		58.7	47.8	59.9	0.3		58.7	49.6	60.0	0.4		58.8
14G	10	58.8	70.2	70.6	10.9	YES	69.4	67.2	67.9	8.2	YES	66.7	65.6	66.6	6.9	YES	65.4	47.9	60.0	0.3		58.8	48.1	60.0	0.3		58.8	49.9	60.1	0.4		58.9
15	1	68.2	58.7	66.2	0.8		68.5	57.3	66.0	0.6		68.3	58.2	66.2	0.8		68.5	60.9	66.7	1.3		69.0	62.7	67.3	1.9		69.6	59.6	66.4	1.0		68.7
15	2	69.1	61.7	67.6	1.3		69.9	58.3	66.9	0.6		69.2	58.9	67.0	0.7		69.3	61.5	67.5	1.2		69.8	63.4	68.1	1.8		70.4	60.3	67.3	1.0		69.6
15	3	69.5	62.4	68.1	1.4		70.4	58.8	67.4	0.7		69.7	59.2	67.4	0.7		69.7	62.6	68.1	1.4		70.4	63.6	68.4	1.7		70.7	60.5	67.6	0.9		69.9
15	4	69.7	63.7	68.6	1.7		70.9	59.3	67.6	0.7		69.9	59.5	67.6	0.7		69.9	62.4	68.2	1.3		70.5	63.7	68.6	1.7		70.9	60.4	67.8	0.9		70.1
16	1	70.8	59.3	67.4	0.7		70.8	59.1	67.4	0.7		70.8	59.7	67.5	0.8		70.9	60.7	67.7	1.0		71.1	63.5	68.4	1.7		71.8	61.4	67.8	1.1		71.2
16	2	71.8	60.1	68.4	0.7		71.8	60.0	68.4	0.7		71.8	60.5	68.5	0.8		71.9	61.6	68.7	1.0		72.1	64.2	69.3	1.6		72.7	62.3	68.8	1.1		72.2
16	3	72.1	60.4	68.8	0.7		72.2	60.3	68.8	0.7		72.2	60.7	68.8	0.7		72.2	62.0	69.1	1.0		72.5	64.3	69.6	1.5		73.0	62.5	69.2	1.1		72.6
16	4	72.0	60.3	68.7	0.7		72.1	60.2	68.7	0.7		72.1	60.7	68.7	0.7		72.1	62.3	69.0	1.0		72.4	64.5	69.6	1.6		73.0	62.4	69.1	1.1		72.5
16	5	71.9	60.1	68.6	0.7		72.0	59.9	68.5	0.6		71.9	60.7	68.7	0.8		72.1	63.2	69.2	1.3		72.6	64.5	69.5	1.6		72.9	62.2	68.9	1.0		72.3
16	6	71.8	59.9	68.5	0.7		71.9	59.8	68.4	0.6		71.8	61.1	68.6	0.8		72.0	63.8	69.3	1.5		72.7	64.8	69.6	1.8		73.0	62.0	68.8	1.0		72.2
16A	1	67.0	61.1	65.2	2.1		68.6	61.3	65.3	2.2		68.7	57.7	64.2	1.1		67.6	54.1	63.6	0.5		67.0	54.9	63.7	0.6		67.1	56.2	63.9	0.8		67.3
16A	2	68.1	63.6	66.9	2.7		70.3	62.6	66.5	2.3		69.9	60.0	65.6	1.4		69.0	55.5	64.7	0.5		68.1	56.4	64.9	0.7		68.3	57.8	65.1	0.9		68.5
16A	3	68.5	66.1	68.4	3.8	YES	71.8	65.1	67.9	3.3	YES	71.3	63.5	67.1	2.5		70.5	56.0	65.2	0.6		68.6	57.0	65.3	0.7		68.7	58.3	65.5	0.9		68.9
16A	4	68.7	67.8	69.5	4.8	YES	72.9	64.7	67.7	3.0	YES	71.1	63.5	67.2	2.5		70.6	56.2	65.3	0.6		68.7	57.4	65.4	0.7		68.8	58.4	65.6	0.9		69.0
16A	5	68.6	68.5	70.0	5.4	YES	73.4	64.6	67.6	3.0	YES	71.0	63.5	67.1	2.5		70.5	56.5	65.2	0.6		68.6	57.7	65.4	0.8		68.8	58.4	65.5	0.9		68.9
16A	6	68.4	69.5	70.7	6.3	YES	74.1	64.9	67.7	3.3	YES	71.1	63.4	66.9	2.5		70.3	56.4	65.0	0.6		68.4	57.7	65.2	0.8		68.6	58.2	65.3	0.9		68.7
16B	4	59.0	55.7	58.2	3.6		61.6	56.5	58.7	4.0		62.1	53.2	57.0	2.3		60.4	51.1	56.3	1.6		59.7	51.7	56.4	1.8		59.8	46.1	55.2	0.6		58.6
16B	5	60.1	57.8	59.8	4.3		63.2	59.7	61.1	5.6	YES	64.5	53.3	57.5	2.0		60.9	52.9	57.4	1.9		60.8	52.1	57.1	1.6		60.5	48.6	56.3	0.8		59.7
16B	6	60.1	59.7	61.1	5.7	YES	64.5	64.9	65.4	10.0	YES	68.8	53.3	57.5	2.1		60.9	52.6	57.2	1.8		60.6	52.1	57.1	1.7		60.5	49.0	56.3	0.9		59.7
16C	4	67.2	58.9	64.6	1.4		68.0	58.3	64.4	1.2		67.8	57.9	64.3	1.1		67.7	62.5	65.9	2.7		69.3	64.5	66.9	3.7	YES	70.3	57.1	64.2	1.0		67.6
16C	5	68.9	60.6	66.2	1.4		69.6	60.7	66.2	1.4		69.6	59.3	65.9	1.1		69.3	63.6	67.3	2.5		70.7	64.1	67.5	2.7		70.9	59.1	65.8	1.0		69.2
16C	6	69.3	61.8	66.8	1.6		70.2	64.0	67.7	2.5		71.1	59.7	66.3	1.1		69.7	63.8	67.6	2.4		71.0	64.2	67.7	2.5		71.1	59.4	66.2	1.0		69.6
17	1	64.1	63.0	65.4	3.8	YES	67.7	63.1	65.4	3.8	YES	67.7	57.8	63.1	1.5		65.4	48.3	61.8	0.2		64.1	51.4	62.0	0.4		64.3	48.6	61.8	0.2		64.1
17	2	64.3	66.0	67.4	5.6	YES	69.7	65.9	67.3	5.5	YES	69.6	60.0	64.0	2.2		66.3	49.2	62.0	0.2		64.3	52.9	62.3	0.5		64.6	49.5	62.0	0.2		64.3
17	3	64.2	69.0	69.7	8.1	YES	72.0	67.5	68.5	6.9	YES	70.8	63.5	65.7	4.1	YES	68.0	49.9	61.9	0.3		64.2	54.2	62.3	0.7		64.6	50.1	61.9	0.3		64.2
17	4	64.2	70.9	71.4	9.8	YES	73.7	69.4	70.1	8.5	YES	72.4	66.3	67.6	6.0	YES	69.9	51.3	62.0	0.4		64.3	54.8	62.4	0.8		64.7	50.6	61.9	0.3		64.2
17	5	64.3	71.8	72.2	10.6	YES	74.5	70.8	71.3	9.7	YES	73.6	67.8	68.7	7.1	YES	71.0	52.2	62.1	0.5		64.4	57.9	63.1	1.5		65.4	51.1	62.0	0.4		64.3
17	6	64.8	71.4	71.9	9.8	YES	74.2	70.5	71.1	9.0	YES	73.4	63.6	65.9	3.8	YES	68.2	53.1	62.6	0.5		64.9	59.5	64.0	1.9		66.3	51.9	62.5	0.4		64.8
17A	1	57.1	53.1	57.0	2.3		59.3	60.9	61.8	7.2	YES	64.1	49.8	55.9	1.2		58.2	41.7	54.9	0.2		57.2	45.8	55.2	0.5		57.5	35.1	54.7	0.0		57.0
17A	2	57.2	56.2	58.5	3.8		60.8	61.4	62.2	7.5	YES	64.5	51.8	56.5	1.8		58.8	41.8	54.9	0.2		57.2	47.4	55.4	0.7		57.7	36.1	54.8	0.1		57.1
17A	3	57.2	57.3	59.2	4.5		61.5	62.1	62.8	8.1	YES	65.1	53.4	57.1	2.4		59.4	42.3	54.9	0.2		57.2	50.0	56.0	1.3		58.3	37.6	54.8	0.1		57.1
17A	4	57.4	58.9	60.3	5.5	YES	62.6	63.1	63.7	8.9	YES	66.0	52.7	56.9	2.1		59.2	45.2	55.3	0.5		57.6	53.6	57.3	2.5		59.6	40.1	54.9	0.1		57.2
17A	5	59.8	60.9	62.4	5.2	YES	64.7	60.2	62.0	4.8		64.3	53.4	58.7	1.5		61.0	52.0	58.3	1.1		60.6	58.9	61.1	3.9		63.4	46.3	57.5	0.3		59.8
17A	6	64.8	63.6	65.9	3.8	YES	68.2	64.7	66.6	4.5	YES	68.9	55.9	63.0	0.9		65.3	54.4	62.8	0.7		65.1	61.1	64.6	2.5		66.9	53.0	62.6	0.5		64.9
18	1	63.4	63.5	65.4	4.4	YES	67.7	65.5	66.8	5.8	YES	69.1	62.0	64.5	3.5		66.8	46.8	61.2	0.2		63.5	49.5	61.3	0.3		63.6	47.1	61.2	0.2		63.5
18	2	63.6	66.6	67.7	6.6	YES	70.0	68.7	69.4	8.3	YES	71.7	65.5	66.8	5.7	YES	69.1	47.5	61.3	0.2		63.6	51.1	61.5	0.4		63.8	47.9	61.3	0.2		63.6
18	3	63.4	70.0	70.5	9.6	YES	72.8	70.4	70.9	10.0	YES	73.2	68.0	68.8	7.9	YES	71.1	48.1	61.1	0.2		63.4	52.7	61.5	0.6		63.8	48.4	61.1	0.2		63.4
18	4	63.3	73.6	73.8	13.1	YES	76.1	72.8	73.1	12.4	YES	75.4	71.2	71.6	10.9	YES	73.9	49.8	61.0	0.3		63.3	53.5	61.5	0.8		63.8	48.6	61.0	0.3		63.3
18	5	63.5	73.1	73.3	12.5	YES	75.6	73.7	73.9	13.1	YES	76.2	72.0	72.3	11.5	YES	74.6	50.9	61.2	0.4		63.5	55.7	62.0	1.2		64.3	49.3	61.1	0.3		63.4
18	6	63.8	72.2	72.5	11.5	YES	74.8	73.2	73.5	12.5	YES	75.8	69.9	70.4	9.4	YES	72.7	52.2	61.5	0.5		63.8	58.3	62.9	1.9		65.2	49.7	61.3	0.3		63.6

19	1	60.6	62.9	52.2	61.2	0.6		63.5	52.8	61.3	0.7
19	2	60.8	63.1	53.0	61.5	0.7		63.8	53.6	61.6	0.8
19	3	60.6	62.9	53.6	61.4	0.8		63.7	54.7	61.6	1.0
19	4	60.4	62.7	54.8	61.5	1.1		63.8	55.9	61.7	1.3
19	5	60.4	62.7	55.7	61.7	1.3		64.0	56.9	62.0	1.6
19	6	60.5	62.8	56.2	61.9	1.4		64.2	57.6	62.3	1.8
19	7	60.8	63.1	56.9	62.3	1.5		64.6	58.3	62.7	1.9
19A	1	55.7	58.7	48.3	56.4	0.7		59.4	49.0	56.5	0.8
19A	2	56.0	59.0	48.7	56.7	0.7		59.7	50.0	57.0	1.0
19A	3	55.6	58.6	50.2	56.7	1.1		59.7	51.6	57.1	1.5
19A	4	55.1	58.1	50.7	56.4	1.3		59.4	52.3	56.9	1.8
19A	5	54.7	57.7	51.3	56.3	1.6		59.3	53.0	56.9	2.2
19A	6	54.7	57.7	52.0	56.6	1.9		59.6	53.9	57.3	2.6
19A	7	54.7	57.7	53.2	57.0	2.3		60.0	55.1	57.9	3.2
20	1	55.1	58.1	45.6	55.6	0.5		58.6	46.5	55.7	0.6
20	2	55.5	58.5	45.9	56.0	0.5		59.0	47.9	56.2	0.7
20	3	55.1	58.1	48.1	55.9	0.8		58.9	49.9	56.2	1.1
20	4	54.7	57.7	48.7	55.7	1.0		58.7	50.7	56.1	1.5
20	5	54.7	57.7	49.2	55.8	1.1		58.8	51.5	56.4	1.7
20	6	54.7	57.7	49.9	55.9	1.2		58.9	52.4	56.7	2.0
20	7	54.7	57.7	51.0	56.2	1.6		59.2	53.5	57.1	2.5
21	1	56.3	59.3	52.0	57.7	1.4		60.7	52.4	57.8	1.5
21	2	56.4	59.4	52.5	57.9	1.5		60.9	53.0	58.0	1.6
21	3	56.0	59.0	53.3	57.9	1.9		60.9	53.8	58.0	2.0
21	4	55.5	58.5	53.9	57.8	2.3		60.8	54.5	58.0	2.5
21	5	55.1	58.1	54.9	58.0	2.9		61.0	55.4	58.3	3.2
21	6	54.9	57.9	55.5	58.2	3.3		61.2	56.1	58.6	3.7
21A	1	56.2	59.2	50.8	57.3	1.1		60.3	51.3	57.4	1.2
21A	2	56.3	59.3	51.4	57.5	1.2		60.5	52.0	57.7	1.4
21A	3	55.9	58.9	51.9	57.4	1.5		60.4	52.6	57.6	1.7
21A	4	55.4	58.4	52.5	57.2	1.8		60.2	53.1	57.4	2.0
21A	5	55.0	58.0	53.0	57.1	2.1		60.1	53.7	57.4	2.4
21A	6	54.7	57.7	53.6	57.2	2.5		60.2	54.2	57.5	2.8
22	1	55.6	58.6	52.1	57.2	1.6		60.2	52.5	57.3	1.7
22	2	55.9	58.9	52.7	57.6	1.7		60.6	53.1	57.7	1.8
22	3	55.5	58.5	53.2	57.5	2.0		60.5	53.6	57.7	2.2
22	4	55.0	58.0	53.8	57.5	2.5		60.5	54.3	57.7	2.7
22	5	54.7	57.7	54.5	57.6	2.9		60.6	55.0	57.9	3.2
22	6	54.7	57.7	55.1	57.9	3.2		60.9	55.6	58.2	3.5
23	1	68.3	70.5	57.9	68.7	0.4		70.9	58.3	68.7	0.4
23	2	69.0	71.2	58.9	69.4	0.4		71.6	59.3	69.4	0.4
23	3	69.2	71.4	60.3	69.7	0.5		71.9	60.8	69.8	0.6
23	4	69.2	71.4	61.3	69.9	0.7		72.1	61.9	69.9	0.7
23	5	68.9	71.1	61.7	69.7	0.8		71.9	62.4	69.8	0.9
23	6	68.7	70.9	60.5	69.3	0.6		71.5	61.4	69.4	0.7
24	1	67.6	69.8	56.0	67.9	0.3		70.1	56.2	67.9	0.3
24	2	68.3	70.5	56.7	68.6	0.3		70.8	56.9	68.6	0.3
24	3	68.3	70.5	57.3	68.6	0.3		70.8	57.7	68.7	0.4
24	4	68.1	70.3	58.4	68.5	0.4		70.7	58.7	68.6	0.5
24	5	67.8	70.0	58.4	68.3	0.5		70.5	58.9	68.3	0.5
24	6	67.4	69.6	57.2	67.8	0.4		70.0	58.0	67.9	0.5
25	1	68.1	70.3	56.0	68.4	0.3		70.6	56.2	68.4	0.3
25	2	68.6	70.8	56.6	68.9	0.3		71.1	56.8	68.9	0.3
25	3	68.6	70.8	57.1	68.9	0.3		71.1	57.5	68.9	0.3
25	4	68.3	70.5	58.2	68.7	0.4		70.9	58.4	68.7	0.4
25	5	67.9	70.1	58.1	68.3	0.4		70.5	58.5	68.4	0.5
25	6	67.5	69.7	56.9	67.9	0.4		70.1	57.6	67.9	0.4
26	1	70.5	72.7	57.4	70.7	0.2		72.9	57.6	70.7	0.2
26	2	71.0	73.2	57.9	71.2	0.2		73.4	58.1	71.2	0.2
26	3	70.9	73.1	58.1	71.1	0.2		73.3	58.4	71.1	0.2
26	4	70.3	72.5	58.6	70.6	0.3		72.8	58.8	70.6	0.3
26	5	69.8	72.0	58.0	70.1	0.3		72.3	58.4	70.1	0.3
26	6	69.4	71.6	57.4	69.7	0.3		71.9	57.9	69.7	0.3
27	1	59.2	62.2	45.1	59.4	0.2		62.4	45.7	59.4	0.2
27	2	59.7	62.7	46.4	59.9	0.2		62.9	46.9	59.9	0.2
27	3	59.4	62.4	47.2	59.7	0.3		62.7	47.6	59.7	0.3
28	1	59.0	62.0	43.0	59.1	0.1		62.1	43.8	59.1	0.1
28	2	59.3	62.3	44.1	59.4	0.1		62.4	44.7	59.4	0.1
28	3	59.0	62.0	45.0	59.2	0.2		62.2	45.5	59.2	0.2
28	4	58.5	61.5	45.1	58.7	0.2		61.7	45.5	58.7	0.2
28	5	58.0	61.0	45.4	58.2	0.2		61.2	45.8	58.3	0.3
28	6	57.5	60.5	45.7	57.8	0.3		60.8	46.0	57.8	0.3
28	7	57.0	60.0	45.5	57.3	0.3		60.3	45.9	57.3	0.3
28	8	56.6	59.6	45.0	56.9	0.3		59.9	45.4	56.9	0.3
28	9	56.2	59.2	45.0	56.5	0.3		59.5	45.4	56.5	0.3
28	10	55.8	58.8	45.0	56.1	0.3		59.1	45.6	56.2	0.4
28	11	55.2	58.2	44.8	55.6	0.4		58.6	45.5	55.6	0.4
28	12	54.7	57.7	45.0	55.1	0.4		58.1	45.9	55.2	0.5
28	13	54.7	57.7	45.2	55.1	0.5		58.1	46.1	55.2	0.6
28	14	54.7	57.7	45.1	55.1	0.5		58.1	46.0	55.2	0.6
28	15	54.7	57.7	45.2	55.1	0.5		58.1	46.1	55.2	0.6
28	16	54.7	57.7	45.5	55.2	0.5		58.2	46.3	55.3	0.6
28	17	54.7	57.7	45.6	55.2	0.5		58.2	46.4	55.3	0.6
28	18	54.7	57.7	45.6	55.2	0.5		58.2	46.5	55.3	0.6
28	19	54.7	57.7	45.9	55.2	0.5		58.2	46.7	55.3	0.6
28	20	54.7	57.7	46.1	55.2	0.6		58.2	46.9	55.3	0.7
28	21	54.7	57.7	46.1	55.2	0.6		58.2	46.9	55.3	0.7
28	22	54.7	57.7	46.3	55.3	0.6		58.3	47.1	55.4	0.7
28A	1	54.7	56.9	40.5	54.8	0.2		57.0	42.5	54.9	0.3
28A	7	59.5	61.7	49.9	60.0	0.5		62.2	50.8	60.0	0.5
28A	8	61.3	63.5	54.8	62.2	0.9		64.4	55.7	62.4	1.1
28A	9	61.7	63.9	56.6	62.9	1.2		65.1	57.4	63.1	1.4
28A	10	62.2	64.4	56.3	63.2	1.0		65.4	57.3	63.4	1.2
28A	11	62.6	64.8	56.9	63.6	1.0		65.8	58.0	63.9	1.3
28A	12	61.4	63.6	58.1	63.1	1.7		65.3	59.1	63.4	2.0
28A	13	61.6	63.8	58.2	63.2	1.6		65.4	59.5	63.7	2.1
28A	14	61.9	64.1	58.4	63.5	1.6		65.7	59.8	64.0	2.1
28A	15	61.8	64.0	58.7	63.5	1.7		65.7	60.1	64.0	2.2
28A	16	62.3	64.5	58.9	63.9	1.6		66.1	60.3	64.4	2.1
28A	17	62.6	64.8	59.1	64.2	1.6		66.4	60.5	64.7	2.1
28A	18	62.9	65.1	59.4	64.5	1.6		66.7	60.7	64.9	2.0
28A	19	62.6	64.8	59.4	64.3	1.7		66.5	60.8	64.8	2.2
28A	20	62.8	65.0	59.4	64.4	1.6		66.6	60.7	64.9	2.1
28A	21	62.7	64.9	59.4	64.4	1.7		66.6	60.8	64.9	2.2
28A	22	62.6	64.8	59.2	64.2	1.6		66.4	60.7	64.8	2.2
28B	1	54.7	56.9	40.6	54.8	0.2		57.0	42.2	54.9	0.2
28B	7	54.7	56.9	52.3	56.7	2.0		58.9	53.1	57.0	2.3
28B	8	55.1	57.3	54.1	57.6	2.5		59.8	55.3	58.2	3.1
28B	9	57.2	59.4	56.6	59.9	2.7		62.1	57.7	60.5	3.3
28B	10	59.6	61.8	56.8	61.4	1.8		63.6	57.8	61.8	2.2
28B	11	61.1	63.3	58.7	63.1	2.0		65.3	59.6	63.4	2.3
28B	12	61.6	63.8	58.5	63.3	1.7		65.5	59.8	63.8	2.2
28B	13	61.3	63.5	58.6	63.2	1.9		65.4	60.0	63.7	2.4
28B	14	61.9	64.1	58.8	63.6	1.7		65.8	60.2	64.1	2.2
28B	15	62.3	64.5	59.0	64.0	1.7		66.2	60.4	64.5	2.2
28B	16	62.6	64.8	59.4	64.3	1.7		66.5	60.7	64.8	2.2
28B	17	62.9	65.1	59.5	64.5	1.6		66.7	60.9	65.0	2.1
28B	18	63.3	65.5	59.6	64.8	1.5		67.0	60.9	65.3	2.0
28B	19	63.5	65.7	59.8	65.0	1.5		67.2	61.1	65.5	2.0
28B	20	63.6	65.8	59.9	65.1	1.5		67.3	61.2	65.6	2.0
28B	21	63.8	66.0	60.0	65.3	1.5		67.5	61.3	65.7	1.9
28B	22	63.9	66.1	60.1	65.4	1.5		67.6	61.5	65.9	2.0
29	1	59.0	62.0	44.9	59.2	0.2		62.2	45.6	59.2	0.2
29	2	59.5	62.5	46.4	59.7	0.2		62.7	46.9	59.7	0.2
29	3	59.3	62.3	47.2	59.6	0.3		62.6	47.6	59.6	0.3
29	4	59.0	62.0	47.8	59.3	0.3		62.3	48.1	59.3	0.3
30	1	59.4	62.4	46.4	59.6	0.2		62.6	47.0	59.6	0.2
30	2	60.1	63.1	48.2	60.4	0.3		63.4	48.6	60.4	0.3
30	3	59.9	62.9	48.7	60.2	0.3		63.2	49.1	60.2	0.3
30	4	59.6	62.6	49.6	60.0	0.4		63.0	50.0	60.1	0.5
30	5	59.1	62.1	49.8	59.6	0.5		62.6	50.5	59.7	0.6
31	1	60.6	63.6	51.0	61.1	0.5		64.1	51.4	61.1	0.5
31	2	61.1	64.1	52.0	61.6	0.5		64.6	52.3	61.6	0.5
31	3	60.9	63.9	53.3	61.6	0.7		64.6	53.6	61.6	0.7
31	4	60.5	63.5	54.3	61.4	0.9		64.4	54.6	61.5	1.0
31	5	60.2	63.2	54.9	61.3	1.1		64.3	55.3	61.4	1.2
31	6	59.8	62.8	54.1	60.8	1.0		63.8	54.6	60.9	1.1
31	7	59.4	62.4	54.7	60.7	1.3		63.7	55.1	60.8	1.4
31A	1	68.1	70.3	55.1	68.3	0.2		70.5	55.3	68.3	0.2
31A	2	68.7	70.9	55.6	68.9	0.2		71.1	55.7	68.9	0.2
31A	3	68.6	70.8	55.8	68.8	0.2		71.0	55.9	68.8	0.2
31A	4	68.2	70.4	56.2	68.5	0.3		70.7	56.4	68.5	0.3
31A	5	67.8	70.0	55.2	68.0	0.2		70.2	55.4	68.0	0.2
31A	6	67.4	69.6	55.1	67.6	0.2		69.8	55.4	67.7	0.3
31A	7	66.3	68.5	54.8	66.6	0.3		68.8	55.3	66.6	0.3
32	1	67.5	69.7	54.8	67.7	0.2		69.9	54.9	67.7	0.2

32	2	68.2	70.4	55.3	68.4	0.2		70.6	55.4	68.4	0.2		70.6	56.3	68.5	0.3		70.7	56.2	68.5	0.3	
32	3	68.2	70.4	55.5	68.4	0.2		70.6	55.6	68.4	0.2		70.6	56.9	68.5	0.3		70.7	56.7	68.5	0.3	
32	4	67.9	70.1	55.6	68.1	0.2		70.3	55.8	68.2	0.3		70.4	56.9	68.2	0.3		70.4	56.7	68.2	0.3	
32	5	67.5	69.7	54.8	67.7	0.2		69.9	55.1	67.7	0.2		69.9	56.6	67.8	0.3		70.0	56.3	67.8	0.3	
32	6	67.1	69.3	54.7	67.3	0.2		69.5	55.0	67.4	0.3		69.6	57.2	67.5	0.4		69.7	57.1	67.5	0.4	
32	7	65.6	67.8	54.0	65.9	0.3		68.1	54.5	65.9	0.3		68.1	57.1	66.2	0.6		68.4	56.9	66.1	0.5	
32	8	65.1	67.3	54.1	65.4	0.3		67.6	54.6	65.5	0.4		67.7	57.4	65.8	0.7		68.0	57.1	65.7	0.6	
32	9	64.7	66.9	54.7	65.1	0.4		67.3	55.3	65.2	0.5		67.4	58.1	65.6	0.9		67.8	57.7	65.5	0.8	
33	1	69.7	71.9	56.4	69.9	0.2		72.1	56.5	69.9	0.2		72.1	57.0	69.9	0.2		72.1	57.1	69.9	0.2	
33	2	70.5	72.7	57.1	70.7	0.2		72.9	57.2	70.7	0.2		72.9	57.7	70.7	0.2		72.9	57.7	70.7	0.2	
33	3	70.4	72.6	57.1	70.6	0.2		72.8	57.2	70.6	0.2		72.8	58.0	70.6	0.2		72.8	57.9	70.6	0.2	
33	4	70.0	72.2	57.1	70.2	0.2		72.4	57.2	70.2	0.2		72.4	58.0	70.3	0.3		72.5	57.9	70.3	0.3	
33	5	69.6	71.8	56.4	69.8	0.2		72.0	56.6	69.8	0.2		72.0	57.6	69.9	0.3		72.1	57.5	69.9	0.3	
33	6	69.2	71.4	56.1	69.4	0.2		71.6	56.4	69.4	0.2		71.6	57.9	69.5	0.3		71.7	58.0	69.5	0.3	
34	1	69.7	71.9	56.4	69.9	0.2		72.1	56.4	69.9	0.2		72.1	56.9	69.9	0.2		72.1	57.0	69.9	0.2	
34	2	70.4	72.6	57.0	70.6	0.2		72.8	57.1	70.6	0.2		72.8	57.6	70.6	0.2		72.8	57.6	70.6	0.2	
34	3	70.3	72.5	57.0	70.5	0.2		72.7	57.1	70.5	0.2		72.7	57.7	70.5	0.2		72.7	57.6	70.5	0.2	
34	4	70.0	72.2	57.0	70.2	0.2		72.4	57.1	70.2	0.2		72.4	58.0	70.3	0.3		72.5	57.9	70.3	0.3	
34	5	69.6	71.8	56.4	69.8	0.2		72.0	56.5	69.8	0.2		72.0	57.4	69.9	0.3		72.1	57.4	69.9	0.3	
34	6	69.2	71.4	56.1	69.4	0.2		71.6	56.3	69.4	0.2		71.6	57.6	69.5	0.3		71.7	57.6	69.5	0.3	
35	1	67.3	69.5	54.4	67.5	0.2		69.7	54.5	67.5	0.2		69.7	55.3	67.6	0.3		69.8	55.3	67.6	0.3	
35	2	68.0	70.2	55.0	68.2	0.2		70.4	55.1	68.2	0.2		70.4	55.9	68.3	0.3		70.5	55.8	68.3	0.3	
35	3	68.0	70.2	55.0	68.2	0.2		70.4	55.1	68.2	0.2		70.4	56.1	68.3	0.3		70.5	56.0	68.3	0.3	
35	4	67.7	69.9	55.2	67.9	0.2		70.1	55.4	67.9	0.2		70.1	56.8	68.0	0.3		70.2	56.6	68.0	0.3	
35	5	67.3	69.5	54.5	67.5	0.2		69.7	54.7	67.5	0.2		69.7	56.0	67.6	0.3		69.8	55.9	67.6	0.3	
35	6	66.9	69.1	54.3	67.1	0.2		69.3	54.6	67.1	0.2		69.3	56.3	67.3	0.4		69.5	56.2	67.3	0.4	
36	1	69.6	71.8	56.2	69.8	0.2		72.0	56.3	69.8	0.2		72.0	56.8	69.8	0.2		72.0	56.8	69.8	0.2	
36	2	70.4	72.6	56.9	70.6	0.2		72.8	57.0	70.6	0.2		72.8	57.5	70.6	0.2		72.8	57.5	70.6	0.2	
36	3	70.3	72.5	56.9	70.5	0.2		72.7	57.0	70.5	0.2		72.7	57.6	70.5	0.2		72.7	57.6	70.5	0.2	
36	4	69.9	72.1	56.9	70.1	0.2		72.3	57.0	70.1	0.2		72.3	57.8	70.2	0.3		72.4	57.8	70.2	0.3	
36	5	69.5	71.7	56.2	69.7	0.2		71.9	56.4	69.7	0.2		71.9	57.2	69.7	0.2		71.9	57.2	69.7	0.2	
36	6	69.1	71.3	55.9	69.3	0.2		71.5	56.1	69.3	0.2		71.5	57.2	69.4	0.3		71.6	57.3	69.4	0.3	
37	1	67.3	69.5	54.3	67.5	0.2		69.7	54.4	67.5	0.2		69.7	55.1	67.6	0.3		69.8	55.1	67.6	0.3	
37	2	68.0	70.2	54.8	68.2	0.2		70.4	55.0	68.2	0.2		70.4	55.7	68.2	0.2		70.4	55.7	68.2	0.2	
37	3	67.9	70.1	54.9	68.1	0.2		70.3	55.0	68.1	0.2		70.3	55.9	68.2	0.3		70.4	55.8	68.2	0.3	
37	4	67.7	69.9	55.0	67.9	0.2		70.1	55.2	67.9	0.2		70.1	56.3	68.0	0.3		70.2	56.2	68.0	0.3	
37	5	67.3	69.5	54.4	67.5	0.2		69.7	54.6	67.5	0.2		69.7	55.7	67.6	0.3		69.8	55.6	67.6	0.3	
37	6	66.9	69.1	54.1	67.1	0.2		69.3	54.4	67.1	0.2		69.3	55.8	67.2	0.3		69.4	55.8	67.2	0.3	
38	1	67.0	69.2	54.0	67.2	0.2		69.4	54.2	67.2	0.2		69.4	54.9	67.3	0.3		69.5	54.9	67.3	0.3	
38	2	67.8	70.0	54.6	68.0	0.2		70.2	54.8	68.0	0.2		70.2	55.5	68.0	0.2		70.2	55.5	68.0	0.2	
38	3	67.8	70.0	54.7	68.0	0.2		70.2	54.8	68.0	0.2		70.2	55.7	68.1	0.3		70.3	55.6	68.1	0.3	
38	4	67.5	69.7	54.8	67.7	0.2		69.9	55.0	67.7	0.2		69.9	55.9	67.8	0.3		70.0	55.9	67.8	0.3	
38	5	67.1	69.3	54.2	67.3	0.2		69.5	54.4	67.3	0.2		69.5	55.6	67.4	0.3		69.6	55.5	67.4	0.3	
38	6	66.8	69.0	54.0	67.0	0.2		69.2	54.2	67.0	0.2		69.2	55.6	67.1	0.3		69.3	55.6	67.1	0.3	
39	1	67.1	69.3	54.0	67.3	0.2		69.5	54.2	67.3	0.2		69.5	54.8	67.3	0.2		69.5	54.9	67.4	0.3	
39	2	67.8	70.0	54.6	68.0	0.2		70.2	54.7	68.0	0.2		70.2	55.4	68.0	0.2		70.2	55.4	68.0	0.2	
39	3	67.8	70.0	54.6	68.0	0.2		70.2	54.8	68.0	0.2		70.2	55.6	68.1	0.3		70.3	55.5	68.0	0.2	
39	4	67.5	69.7	54.8	67.7	0.2		69.9	54.9	67.7	0.2		69.9	55.8	67.8	0.3		70.0	55.8	67.8	0.3	
39	5	67.1	69.3	54.2	67.3	0.2		69.5	54.3	67.3	0.2		69.5	55.5	67.4	0.3		69.6	55.4	67.4	0.3	
39	6	66.7	68.9	53.9	66.9	0.2		69.1	54.2	66.9	0.2		69.1	55.5	67.0	0.3		69.2	55.5	67.0	0.3	
39	7	65.2	67.4	52.9	65.4	0.2		67.6	53.3	65.5	0.3		67.7	55.8	65.7	0.5		67.9	55.8	65.7	0.5	
40	1	67.2	69.4	54.1	67.4	0.2		69.6	54.2	67.4	0.2		69.6	54.8	67.4	0.2		69.6	54.8	67.4	0.2	
40	2	67.9	70.1	54.6	68.1	0.2		70.3	54.7	68.1	0.2		70.3	55.4	68.1	0.2		70.3	55.4	68.1	0.2	
40	3	67.9	70.1	54.6	68.1	0.2		70.3	54.8	68.1	0.2		70.3	55.5	68.1	0.2		70.3	55.5	68.1	0.2	
40	4	67.6	69.8	54.7	67.8	0.2		70.0	54.8	67.8	0.2		70.0	55.8	67.9	0.3		70.1	55.8	67.9	0.3	
40	5	67.2	69.4	54.1	67.4	0.2		69.6	54.3	67.4	0.2		69.6	55.4	67.5	0.3		69.7	55.3	67.5	0.3	
40	6	66.7	68.9	53.8	66.9	0.2		69.1	54.1	66.9	0.2		69.1	55.3	67.0	0.3		69.2	55.3	67.0	0.3	
40	7	65.3	67.5	52.9	65.5	0.2		67.7	53.2	65.6	0.3		67.8	55.3	65.7	0.4		67.9	55.3	65.7	0.4	
41	1	67.6	69.8	54.3	67.8	0.2		70.0	54.4	67.8	0.2		70.0	54.9	67.8	0.2		70.0	55.0	67.8	0.2	
41	2	68.1	70.3	54.7	68.3	0.2		70.5	54.8	68.3	0.2		70.5	55.4	68.3	0.2		70.5	55.4	68.3	0.2	
41	3	68.0	70.2	54.7	68.2	0.2		70.4	54.8	68.2	0.2		70.4	55.4	68.2	0.2		70.4	55.5	68.2	0.2	
41	4	67.7	69.9	54.6	67.9	0.2		70.1	54.8	67.9	0.2		70.1	55.6	68.0	0.3		70.2	55.6	68.0	0.3	
41	5	67.3	69.5	54.1	67.5	0.2		69.7	54.2	67.5	0.2		69.7	55.2	67.6	0.3		69.8	55.2	67.6	0.3	
41	6	66.9	69.1	53.8	67.1	0.2		69.3	54.0	67.1	0.2		69.3	55.3	67.2	0.3		69.4	55.2	67.2	0.3	
42	1	67.5	69.7	54.0	67.7	0.2		69.9	54.1	67.7	0.2		69.9	54.6	67.7	0.2		69.9	54.7	67.7	0.2	
42	2	68.0	70.2	54.4	68.2	0.2		70.4	54.5	68.2	0.2		70.4	55.0	68.2	0.2		70.4	55.1	68.2	0.2	
42	3	67.9	70.1	54.3	68.1	0.2		70.3	54.4	68.1	0.2		70.3	55.1	68.1	0.2		70.3	55.2	68.1	0.2	
42	4	67.5	69.7	54.1	67.7	0.2		69.9	54.2	67.7	0.2		69.9	55.2	67.7	0.2		69.9	55.3	67.8	0.3	
42	5	67.1	69.3	53.8	67.3	0.2		69.5	54.0	67.3	0.2		69.5	54.9	67.4	0.3		69.6	54.9	67.4	0.3	
42	6	66.8	69.0	53.5	67.0	0.2		69.2	53.7	67.0	0.2		69.2	54.9	67.1	0.3		69.3	54.8	67.1	0.3	
42A	1	59.6	62.6	49.0	60.0	0.4		63.0	49.1	60.0	0.4		63.0	48.9	60.0	0.4		63.0	49.4	60.0	0.4	
42A	2	60.5	63.5	50.5	60.9	0.4		63.9	50.6	60.9	0.4		63.9	50.5	60.9	0.4		63.9	51.0	61.0	0.5	
42A	3	60.4	63.4	50.7	60.8	0.4		63.8	50.8	60.9	0.5		63.9	50.7	60.8	0.4		63.8	51.2	60.9	0.5	
42A	4	60.0	63.0	50.6	60.5	0.5		63.5	50.8	60.5	0.5		63.5	50.7	60.5	0.5		63.5	51.2	60.5	0.5	
42A	5	59.7	62.7	50.5	60.2	0.5		63.2	50.7	60.2	0.5		63.2	50.8	60.2	0.5		63.2	51.1	60.3	0.6	
42A	6	59.3	62.3	50.4	59.8	0.5		62.8	50.5	59.8	0.5		62.8	51.4	60.0	0.7		63.0	51.7	60.0	0.7	
43	1	66.0	64.8	57.9	66.6	0.6		65.4	58.1	66.7	0.7		65.5	60.2	67.0	1.0		65.8	60.4	67.1	1.1	
43	2	66.3	65.1	58.3	66.9	0.6		65.7	58.8	67.0	0.7		65.8	60.8	67.4	1.1		66.2	61.0	67.4	1.1	
43	3	66.0	64.8	58.7	66.7	0.7		65.5	59.3	66.8	0.8		65.6	62.4	67.6	1.6		66.4	62.6	67.6	1.6	
43	4	65.9	64.7	58.8	66.7	0.8		65.5	59.6	66.8	0.9		65.6	62.6	67.6	1.7		66.4	62.8	67.6	1.7	
43	5	65.6	64.4	58.0	66.3	0.7		65.1	58.6	66.4	0.8		65.2	61.4	67.0	1.4		65.8	63.0	67.5	1.9	
43	6	65.1	63.9	59.2	66.1	1.0		64.9	60.2	66.3	1.2		65.1	61.8	66.8	1.7		65.6	63.7	67.5	2.4	
43	11	64.9	63.7	60.0	66.1	1.2		64.9	62.3	66.8	1.9		65.6	63.6	67.3	2.4		66.1	66.1	68.6	3.7	YES
43	16	64.1	62.9	60.0	65.5	1.4		64.3	62.6	66.4	2.3		65.2	62.8	66.5	2.4		65.3	67.0	68.8	4.7	YES
43	18	63.8	62.6	60.4	65.4	1.6		64.2	62.8	66.3	2.5		65.1	62.9	66.4	2.6		65.2	66.9	68.6	4.8	YES
43A	5	56.9	55.7	58.2	60.6	3.7		59.4	59.2	61.2	4.3		60.0	61.7	62.9	6.0	YES	61.7	62.3	63.4	6.5	YES
43A	6	61.5	60.3	60.7	64.1	2.6		62.9	62.1	64.8	3.3		63.6	64.0	65.9	4.4	YES	64.7	64.8	66.5	5.0	YES
43A	11	67.1	65.9	64.2	68.9	1.8		67.7	66.0	69.6	2.5		68.4	67.9	70.5	3.4	YES	69.3	67.7	70.4	3.3	YES
43A	16	67.0	65.8	64.2	68.8	1.8		67.6	66.5	69.8	2.8		68.6	67.6	70.3	3.3	YES	69.1	68.5	70.8	3.8	YES
43A	18	66.7	65.5	64.2	68.6	1.9		67.4	66.5	69.6	2.9		68.4	67.4	70.1	3.4	YES	68.9	68.5	70.7	4.0	YES
43B	3	54.7	56.9	50.4	56.1	1.4		58.3	51.0	56.2	1.6		58.4	50.2	56.0	1.3		58.2	51.3	56.3	1.6	
43B	4	59.1	61.3	56.0	60.8	1.7		63.0	56.4	61.0	1.9		63.2	58.3	61.7	2.6		63.9	58.5	61.8	2.7	
43B	5	62.0	64.2	57.7	63.4	1.4		65.6	58.1	63.5	1.5		65.7	59.4	63.9	1.9		66.1	59.7	64.0	2.0	
43B	6	63.3	65.5	58.8	64.6	1.3		66.8	60.0	65.0	1.7		67.2	61.2	65.4	2.1		67.6	60.9	65.3	2.0	
43B	11	66.2	68.4	63.0	67.9	1.7		70.1	64.5	68.4	2.2		70.6	66.0	69.1	2.9		71.3	64.0	68.2	2.0	
43B	16	65.9	68.1	63.0	67.7	1.8		69.9	64.8	68.4	2.5		70.6	66.1	69.0	3.1	YES	71.2	64.1	68.1	2.2	
43B	18	65.5	67.7	62.9	67.4	1.9		69.6	64.9	68.2	2.7		70.4	65.9	68.7	3.2	YES	70.9	64.1	67.9	2.4	
43C	3	54.7	53.5	44.3	55.1	0.4		53.9	45.6	55.2	0.5		54.0	44.9	55.1	0.4		53.9	47.2	55.4	0.7	
43C	4	54.7	53.5	46.5	55.3	0.6		54.1	47.6	55.5	0.8		54.3	47.3	55.4	0.7		54.2	49.0	55.7	1.0	
43C	5	54.7	53.5	47.7	55.5	0.8		54.3	48.7	55.7	1.0		54.5	48.5	55.6	0.9		54.4	50.0	56.0	1.3	
43C	6	57.7	56.5	49.6	58.3	0.6		57.1	50.3	58.4	0.7		57.2	49.9	58.4	0.7		57.2	52.1	58.8	1.1	
43C	11	60.2	59.0	49.5	60.6	0.4		59.4	50.2	60.6	0.4		59.4	50.5	60.6	0.4		59.4	51.4	60.7	0.5	
43C	16	61.2	60.0	50.0	61.5	0.3		60.3	50.8	61.6	0.4		60.4	50.7	61.6	0.4		60.4	52.0	61.7	0.5	
43C	18	61.3	60.1	50.9	61.7	0.4		60.5	51.8	61.8	0.5		60.6	51.7	61.8	0.5		60.6	53.1	61.9	0.6	
44	1	64.6	63.4	55.0	65.1	0.5		63.9	55.1	65.1	0.5		63.9	55.3	65.1	0.5		63.9	56.3	65.2	0.6	
44	2	64.8	63.6	55.4	65.3	0.5		64.1	55.5	65.3	0.5		64.1	55.8	65.3	0.5		64.1	57.5	65.5	0.7	
44	3	64.6	63.4	55.4	65.1	0.5		63.9	55.5	65.1	0.5		63.9	56.9	65.3	0.7		64.1	59.2	65.7	1.1	
44	4	64.2	63.0	55.4	64.7	0.5		63.5	55.6	64.8	0.6		63.6	57.4	65.0	0.8		63.8	59.9	65.6	1.4	
44	5	63.8	62.6	55.6	64.4	0.6		63.2	55.8	64.4	0.6		63.2	57.9	64.8	1.0		63.6	59.8	65.3	1.5	
44	6	63.4	62.2	55.7	64.1	0.7		62.9	56.0	64.1	0.7		62.9	57.9	64.5	1.1		63.3	60.4	65.2	1.8	
44	7	63.1	61.9	56.3	63.9	0.8		62.7	56.9	64.0	0.9		62.8	58.5	64.4	1.3		63.2	61.3	65.3	2.2	
44A	1	54.7	56.9	42.2	54.9	0.2		57.1	43.9	55.0	0.3		57.2	43.8	55.0	0.3		57.2	45.3	55.1	0.5	
44A	2	54.7	56.9	43.4	55.0	0.3		57.2	44.9	55.1	0.4		57.3	44.7	55.1	0.4		57.3	46.5	55.3	0.6	
44A	3	54.7	56.9	50.2	56.0	1.3		58.2	50.9	56.2	1.5		58.4	53.3	57.1	2.4		59.3	53.0	56.9	2.3	
44A	4	58.3	60.5	55.9	60.3	2.0		62.5	56.4	60.5	2.2		62.7	58.8	61.6	3.3		63.8	57.4	60.9	2.6	
44A	5	61.4	63.6	58.4	63.2	1.8		65.4	58.8	63.3	1.9		65.5	60.6	64.0	2.6		66.2	59.9	63.7	2.3	
44A	6	62.5	64.7	59.1	64.1	1.6		66.3	59.6	64.3	1.8		66.5	61.7	65.1	2.6		67.3	60.9	64.8	2.3	
44A	7	63.7	65.9	60.9	65.5	1.8		67.7	61.5	65.7	2.0		67.9	62.6	66.2	2.5		68.4	61.6	65.8	2.1	
45	1	64.2	63.0	54.7	64.7	0.5		63.5	54.8	64.7	0.5		63.5	54.9	64.7	0.5		63.5	56.3	64.9	0.7	
45	2	64.5	63.3	55.0	65.0	0.5		63.8	55.2	65.0	0.5		63.8	55.4	65.0	0.5		63.8	57.6	65.3	0.8	
45	3	64.2	63.0	55.0	64.7	0.5		63.5	55.1	64.7	0.5		63.5	56.4	64.9	0.7		63.7	59.0	65.3	1.1	
45	4	63.8	62.6	55.0	64.3	0.5		63.1	55.2	64.4	0.6		63.2	56.9	64.6	0.8		63.4	59.7	65.2	1.4	
45	5	63.5	62.3	55.0	64.1	0.6		62.9	55.2	64.1	0.6		62.9	57.2	64.4	0.9		63.2	59.6	65.0	1.5	
45	6	63.1	61.9	54.8	63.7	0.6		62.5	55.1	63.7	0.6		62.5	57.1	64.1	1.0		62.9	59.8	64.8	1.7	
45	7	62.7	61.5	55.1	63.4	0.7		62.2	55.7	63.5	0.8		62.3	57.6	63.9	1.2		62.7	60.5	64.7	2.0	
45A	1	54.7	56.9	44.4	55.1	0.4		57.3	46.0	55.2	0.6		57.4	44.4	55.1	0.4		57.3	46.2	55.3	0.6	
45A	2	54.7	56.9	44.7	55.1	0.4		57.3	46.4	55.3	0.6		57.5	44.6	55.1	0.4		57.3	46.3	55.3	0.6	
45A	3	54.7	56.9	45.5	55.2	0.5		57.4	47.1	55.4	0.7		57.6	45.1	55.1	0.5		57.3	47.0	55.4	0.7	
45A	4	54.7	56.9	46.8	55.3	0.7		57.5	48.3	55.6	0.9		57.8	46.4	55.3	0.6		57.5	47.9	55.5	0.8	
45A	5	54.7	56.9	47.7	55.5	0.8		57.7	49.1	55.7	1.1		57.9	47.8	55.5	0.8		57.7	49.0	55.7	1.0	
45A	6	57.6	59.8	48.3	58.1	0.5		60.3	49.6	58.2	0.6		60.4	49.0	58.2	0.6		60.4	49.9	58.3	0.7	
45A	7	58.3	60.5	48.9	58.8	0.5		61.0	50.4	59.0	0.7		61.2	50.5	59.0	0.7		61.2	50.8	59.0	0.7	
46	1	64.4	63.2	54.8	64.9	0.5		63.7	54.9	64.9	0.5		63.7	54.9	64.9	0.5		63.7	57.2	65.2	0.8	
46	2	64.6	63.4	55.0	65.1	0.5		63.9	55.1	65.1	0.5		63.9	55.2	65.1	0.5		63.9	57.7	65.4	0.8	
46	3	64.2	63.0	54.8	64.7	0.5		63.5	54.9	64.7	0.5		63.5	56.1	64.8	0.6		63.6	58.4	65.2	1.0	
46	4	63.8	62.6	54.5	64.3	0.5		63.1	54.6	64.3	0.5		63.1	56.3	64.5	0.7		63.3	59.0	65.0	1.2	
46	5	63.4	62.2	54.3	63.9	0.5		62.7	54.4	63.9	0.5		62.7	56.3	64.2	0.8		63.0	59.0	64.7	1.3	
46	6	62.9	61.7	54.0	63.4	0.5		62.2	54.1	63.4	0.5		62.2	56.3	63.8	0.9		62.6	58.8	64.3	1.4	
46	7	62.6	61.4	54.1	63.2	0.6		62.0	54.3	63.2	0.6		62.0	56.7	63.6	1.0		62.4	59.3	64.3	1.7	
46	8	62.3	61.1	55.5	63.1	0.8		61.9	56.2	63.3	1.0		62.1	58.1	63.7	1.4		62.5	60.9	64.7	2.4	
46A	1	54.7	56.9	43.9	55.0	0.3		57.2	45.1	55.1	0.5		57.3	45.0	55.1	0.4		57.3	45.5	55.2	0.5	
46A	2	54.7	56.9	45.7	55.2	0.5		57.4	46.8	55.3	0.7		57.5	47.4	55.4	0.7		57.6	47.8	55.5	0.8	
46A	3	54.7	56.9	49.9	55.9	1.2		58.1	51.2	56.3	1.6		58.5	53.7	57.2	2.6		59.4	53.4	57.1	2.4	
46A	4	56.3	58.5	52.2	57.7	1.4		59.9	54.0	58.3	2.0		60.5	56.2	59.3	3.0		61.5	54.5	58.5	2.2	
46A	5	59.6	61.8	54.7	60.8	1.2		63.0	56.2	61.2	1.6		63.4	57.9	61.8	2.2		64.0	57.2	61.6	2.0	
46A	6	60.6	62.8	55.4	61.7	1.1		63.9	56.9	62.1	1.5		64.3	58.9	62.8	2.2		65.0	58.3	62.6	2.0	

46A	7	61.3	63.5	55.3	62.3	1.0		64.5	57.0	62.7	1.4		64.9	58.9	63.3	2.0		65.5	58.0	63.0	1.7		65.2	50.7	61.7	0.4		63.9	48.5	61.5	0.2		63.7	50.2	61.6	0.3		63.8	54.0	62.0	0.7		64.2	72.9	73.2	11.9	YES	75.4	80.0	80.1	18.8	YES	82.3	66.7	67.8	6.5	YES	70.0	39.5	61.3	0.0		63.5
46A	8	62.4	64.6	56.4	63.4	1.0		65.6	57.8	63.7	1.3		65.9	58.2	63.8	1.4		66.0	57.0	63.5	1.1		65.7	51.6	62.7	0.3		64.9	49.9	62.6	0.2		64.8	51.5	62.7	0.3		64.9	54.6	63.1	0.7		65.3	72.5	72.9	10.5	YES	75.1	79.4	79.5	17.1	YES	81.7	69.9	70.6	8.2	YES	72.8	42.0	62.4	0.0		64.6
47	1	65.7	64.5	55.9	66.1	0.4		64.9	56.0	66.1	0.4		64.9	56.0	66.1	0.4		64.9	57.1	66.3	0.6		65.1	59.0	66.5	0.8		65.3	57.2	66.3	0.6		65.1	56.5	66.2	0.5		65.0	55.9	66.1	0.4		64.9	56.8	66.2	0.5		65.0	57.3	66.3	0.6		65.1	58.2	66.4	0.7		65.2	60.4	66.8	1.1		65.6
47	2	65.8	64.6	56.0	66.2	0.4		65.0	56.1	66.2	0.4		65.0	56.1	66.2	0.4		65.0	57.3	66.4	0.6		65.2	59.3	66.7	0.9		65.5	57.4	66.4	0.6		65.2	56.6	66.3	0.5		65.1	55.9	66.2	0.4		65.0	57.0	66.3	0.5		65.1	57.3	66.4	0.6		65.2	59.1	66.6	0.8		65.4	60.4	66.9	1.1		65.7
47	3	65.2	64.0	55.4	65.6	0.4		64.4	55.5	65.6	0.4		64.4	56.6	65.8	0.6		64.6	57.7	65.9	0.7		64.7	59.8	66.3	1.1		65.1	57.1	65.8	0.6		64.6	56.1	65.7	0.5		64.5	55.3	65.6	0.4		64.4	56.6	65.8	0.6		64.6	56.9	65.8	0.6		64.6	60.3	66.4	1.2		65.2	59.7	66.3	1.1		65.1
47	4	64.6	63.4	54.8	65.0	0.4		63.8	54.9	65.0	0.4		63.8	56.3	65.2	0.6		64.0	57.6	65.4	0.8		64.2	60.0	65.9	1.3		64.7	57.0	65.3	0.7		64.1	55.8	65.1	0.5		63.9	54.7	65.0	0.4		63.8	56.1	65.2	0.6		64.0	56.5	65.2	0.6		64.0	60.6	66.1	1.5		64.9	59.0	65.7	1.1		64.5
47	5	64.0	62.8	54.4	64.5	0.5		63.3	54.5	64.5	0.5		63.3	56.1	64.7	0.7		63.5	57.9	65.0	1.0		63.8	60.3	65.5	1.5		64.3	57.5	64.9	0.9		63.7	55.9	64.6	0.6		63.4	54.4	64.5	0.5		63.3	55.9	64.6	0.6		63.4	56.3	64.7	0.7		63.5	62.1	66.2	2.2		65.0	58.3	65.0	1.0		63.8
47A	1	54.7	53.5	42.4	54.9	0.2		53.7	44.1	55.0	0.4		53.8	42.8	54.9	0.3		53.7	45.1	55.1	0.5		53.9	43.8	55.0	0.3		53.8	39.1	54.8	0.1		53.6	41.5	54.9	0.2		53.7	37.9	54.8	0.1		53.6	50.6	56.1	1.4		54.9	51.6	56.4	1.7		55.2	50.7	56.1	1.5		54.9	36.4	54.7	0.1		53.5
47A	2	54.7	53.5	42.5	54.9	0.3		53.7	44.3	55.1	0.4		53.9	42.9	55.0	0.3		53.8	45.2	55.1	0.5		53.9	43.8	55.0	0.3		53.8	39.3	54.8	0.1		53.6	41.5	54.9	0.2		53.7	38.2	54.8	0.1		53.6	50.9	56.2	1.5		55.0	51.7	56.4	1.8		55.2	51.6	56.4	1.7		55.2	37.4	54.8	0.1		53.6
47A	3	54.7	53.5	43.2	55.0	0.3		53.8	44.9	55.1	0.4		53.9	43.4	55.0	0.3		53.8	45.5	55.2	0.5		54.0	43.9	55.0	0.3		53.8	39.7	54.8	0.1		53.6	41.6	54.9	0.2		53.7	38.5	54.8	0.1		53.6	51.0	56.2	1.6		55.0	51.9	56.5	1.8		55.3	53.4	57.1	2.4		55.9	38.4	54.8	0.1		53.6
47A	4	54.7	53.5	43.3	55.0	0.3		53.8	45.1	55.1	0.5		53.9	43.7	55.0	0.3		53.8	45.7	55.2	0.5		54.0	44.3	55.1	0.4		53.9	40.2	54.8	0.2		53.6	41.8	54.9	0.2		53.7	38.8	54.8	0.1		53.6	51.0	56.2	1.6		55.0	52.3	56.7	2.0		55.5	57.5	59.3	4.6		58.1	38.7	54.8	0.1		53.6
47A	5	54.7	53.5	43.9	55.0	0.3		53.8	45.4	55.2	0.5		54.0	43.8	55.0	0.3		53.8	46.1	55.2	0.6		54.0	44.7	55.1	0.4		53.9	43.1	55.0	0.3		53.8	43.7	55.0	0.3		53.8	40.3	54.8	0.2		53.6	51.1	56.3	1.6		55.1	54.0	57.4	2.7		56.2	61.8	62.6	7.9	YES	61.4	39.2	54.8	0.1		53.6
48	1	60.6	63.6	49.2	60.9	0.3		63.9	49.4	60.9	0.3		63.9	49.3	60.9	0.3		63.9	50.0	61.0	0.4		64.0	49.6	60.9	0.3		63.9	49.5	60.9	0.3		63.9	49.4	60.9	0.3		63.9	48.8	60.9	0.3		63.9	53.5	61.4	0.8		64.4	53.6	61.4	0.8		64.4	62.9	64.9	4.3		67.9	57.0	62.2	1.6		65.2
48	2	60.7	63.7	49.8	61.0	0.3		64.0	50.1	61.1	0.4		64.1	50.0	61.1	0.4		64.1	50.7	61.1	0.4		64.1	50.2	61.1	0.4		64.1	50.5	61.1	0.4		64.1	50.1	61.1	0.4		64.1	49.5	61.0	0.3		64.0	54.2	61.6	0.9		64.6	54.0	61.5	0.8		64.5	63.3	65.2	4.5	YES	68.2	57.1	62.3	1.6		65.3
48	3	60.1	63.1	49.8	60.5	0.4		63.5	50.1	60.5	0.4		63.5	50.1	60.5	0.4		63.5	50.9	60.6	0.5		63.6	50.3	60.5	0.4		63.5	51.0	60.6	0.5		63.6	50.4	60.5	0.4		63.5	49.5	60.5	0.4		63.5	55.6	61.4	1.3		64.4	54.1	61.1	1.0		64.1	64.0	65.5	5.4	YES	68.5	56.5	61.7	1.6		64.7
48	4	59.4	62.4	49.6	59.8	0.4		62.8	50.0	59.9	0.5		62.9	50.0	59.9	0.5		62.9	51.1	60.0	0.6		63.0	50.4	59.9	0.5		62.9	51.5	60.1	0.7		63.1	50.6	59.9	0.5		62.9	49.4	59.8	0.4		62.8	56.0	61.0	1.6		64.0	54.8	60.7	1.3		63.7	65.0	66.1	6.7	YES	69.1	55.9	61.0	1.6		64.0
48	5	58.8	61.8	49.4	59.3	0.5		62.3	49.7	59.3	0.5		62.3	49.7	59.3	0.5		62.3	51.3	59.5	0.7		62.5	50.6	59.4	0.6		62.4	52.0	59.6	0.8		62.6	50.8	59.4	0.6		62.4	49.6	59.3	0.5		62.3	56.4	60.8	2.0		63.8	56.0	60.6	1.8		63.6	66.1	66.8	8.0	YES	69.8	55.1	60.3	1.5		63.3
48	6	58.2	61.2	49.2	58.7	0.5		61.7	49.5	58.7	0.5		61.7	49.7	58.8	0.6		61.8	50.8	58.9	0.7		61.9	50.7	58.9	0.7		61.9	50.0	58.8	0.6		61.8	49.0	58.7	0.5		61.7	49.8	58.8	0.6		61.8	56.8	60.6	2.4		63.6	58.6	61.4	3.2		64.4	67.5	68.0	9.8	YES	71.0	54.4	59.7	1.5		62.7
48	7	57.7	60.7	49.5	58.3	0.6		61.3	49.9	58.4	0.7		61.4	50.1	58.4	0.7		61.4	51.1	58.6	0.9		61.6	52.8	58.9	1.2		61.9	49.5	58.3	0.6		61.3	49.2	58.3	0.6		61.3	48.5	58.2	0.5		61.2	57.4	60.6	2.9		63.6	61.7	63.2	5.5	YES	66.2	66.8	67.3	9.6	YES	70.3	53.9	59.2	1.5		62.2
48A	1	65.7	64.5	55.6	66.1	0.4		64.9	55.7	66.1	0.4		64.9	55.7	66.1	0.4		64.9	56.7	66.2	0.5		65.0	58.1	66.4	0.7		65.2	56.9	66.2	0.5		65.0	56.2	66.2	0.5		65.0	55.6	66.1	0.4		64.9	56.5	66.2	0.5		65.0	56.9	66.2	0.5		65.0	57.7	66.3	0.6		65.1	60.2	66.8	1.1		65.6
48A	2	65.9	64.7	55.7	66.3	0.4		65.1	55.8	66.3	0.4		65.1	55.8	66.3	0.4		65.1	56.9	66.4	0.5		65.2	58.3	66.6	0.7		65.4	57.1	66.4	0.5		65.2	56.3	66.4	0.5		65.2	55.6	66.3	0.4		65.1	56.8	66.4	0.5		65.2	57.0	66.4	0.5		65.2	58.1	66.6	0.7		65.4	60.2	66.9	1.0		65.7
48A	3	65.3	64.1	55.1	65.7	0.4		64.5	55.2	65.7	0.4		64.5	56.1	65.8	0.5		64.6	57.2	65.9	0.6		64.7	58.9	66.2	0.9		65.0	56.8	65.9	0.6		64.7	55.9	65.8	0.5		64.6	55.0	65.7	0.4		64.5	56.3	65.8	0.5		64.6	56.5	65.8	0.5		64.6	58.5	66.1	0.8		64.9	59.5	66.3	1.0		65.1
48A	4	64.6	63.4	54.5	65.0	0.4		63.8	54.5	65.0	0.4		63.8	55.7	65.1	0.5		63.9	57.0	65.3	0.7		64.1	59.1	65.7	1.1		64.5	56.7	65.3	0.7		64.1	55.5	65.1	0.5		63.9	54.3	65.0	0.4		63.8	55.9	65.1	0.5		63.9	56.0	65.2	0.6		64.0	59.9	65.9	1.3		64.7	58.8	65.6	1.0		64.4
48A	5	64.0	62.8	53.9	64.4	0.4		63.2	54.0	64.4	0.4		63.2	55.4	64.6	0.6		63.4	57.2	64.8	0.8		63.6	59.4	65.3	1.3		64.1	57.1	64.8	0.8		63.6	55.6	64.6	0.6		63.4	53.7	64.4	0.4		63.2	55.5	64.6	0.6		63.4	55.6	64.6	0.6		63.4	60.4	65.6	1.6		64.4	58.1	65.0	1.0		63.8
48A	6	63.4	62.2	53.5	63.8	0.4		62.6	53.7	63.8	0.4		62.6	55.3	64.0	0.6		62.8	57.5	64.4	1.0		63.2	59.9	65.0	1.6		63.8	57.2	64.3	0.9		63.1	55.8	64.1	0.7		62.9	53.8	63.9	0.5		62.7	55.1	64.0	0.6		62.8	55.8	64.1	0.7		62.9	62.1	65.8	2.4		64.6	57.4	64.4	1.0		63.2
48A	7	62.9	61.7	53.4	63.4	0.5		62.2	53.6	63.4	0.5		62.2	55.5	63.6	0.7		62.4	57.9	64.1	1.2		62.9	60.4	64.8	1.9		63.6	57.5	64.0	1.1		62.8	56.0	63.7	0.8		62.5	53.3	63.4	0.5		62.2	54.5	63.5	0.6		62.3	55.6	63.6	0.7		62.4	57.1	63.9	1.0		62.7	56.9	63.9	1.0		62.7
49	1	60.1	63.1	46.4	60.3	0.2		63.3	47.0	60.3	0.2		63.3	46.5	60.3	0.2		63.3	47.6	60.3	0.2		63.3	47.2	60.3	0.2		63.3	46.2	60.3	0.2		63.3	46.6	60.3	0.2		63.3	45.7	60.3	0.2		63.3	54.9	61.2	1.1		64.2	54.3	61.1	1.0		64.1	64.7	66.0	5.9	YES	69.0	56.0	61.5	1.4		64.5
49	2	60.4	63.4	47.6	60.6	0.2		63.6	48.1	60.6	0.2		63.6	47.7	60.6	0.2		63.6	48.7	60.7	0.3		63.7	48.2	60.7	0.3		63.7	47.6	60.6	0.2		63.6	47.9	60.6	0.2		63.6	47.1	60.6	0.2		63.6	56.1	61.8	1.4		64.8	54.7	61.4	1.0		64.4	65.1	66.4	6.0	YES	69.4	56.3	61.8	1.4		64.8
49	3	59.9	62.9	48.1	60.2	0.3		63.2	48.6	60.2	0.3		63.2	48.2	60.2	0.3		63.2	49.2	60.3	0.4		63.3	48.6	60.2	0.3		63.2	48.4	60.2	0.3		63.2	48.6	60.2	0.3		63.2	47.6	60.1	0.2		63.1	57.7	61.9	2.0		64.9	55.3	61.2	1.3		64.2	65.3	66.4	6.5	YES	69.4	55.9	61.4	1.5		64.4
49	4	59.3	62.3	48.2	59.6	0.3		62.6	48.7	59.7	0.4		62.7	48.4	59.6	0.3		62.6	49.4	59.7	0.4		62.7	48.9	59.7	0.4		62.7	49.0	59.7	0.4		62.7	49.0	59.7	0.4		62.7	47.8	59.6	0.3		62.6	58.4	61.9	2.6		64.9	56.3	61.1	1.8		64.1	66.2	67.0	7.7	YES	70.0	55.2	60.7	1.4		63.7
49	5	58.7	61.7	48.6	59.1	0.4		62.1	49.1	59.2	0.5		62.2	48.6	59.1	0.4		62.1	50.0	59.2	0.5		62.2	49.3	59.2	0.5		62.2	50.3	59.3	0.6		62.3	49.8	59.2	0.5		62.2	48.4	59.1	0.4		62.1	59.0	61.9	3.2		64.9	57.8	61.3	2.6		64.3	67.6	68.1	9.4	YES	71.1	54.5	60.1	1.4		63.1
49	6	58.1	61.1	48.9	58.6	0.5		61.6	49.4	58.6	0.5		61.6	49.3	58.6	0.5		61.6	50.7	58.8	0.7		61.8	49.4	58.6	0.5		61.6	50.4	58.8	0.7		61.8	48.9	58.6	0.5		61.6	48.3	58.5	0.4		61.5	60.5	62.5	4.4		65.5	60.9	62.7	4.6		65.7	68.3	68.7	10.6	YES	71.7	53.9	59.5	1.4		62.5
49A	1	54.7	53.5	42.2	54.9	0.2		53.7	43.7	55.0	0.3		53.8	42.2	54.9	0.2		53.7	43.8	55.0	0.3		53.8	42.9	55.0	0.3		53.8	40.1	54.8	0.1		53.6	41.7	54.9	0.2		53.7	39.2	54.8	0.1		53.6	52.0	56.6	1.9		55.4	52.5	56.7	2.1		55.5	50.9	56.2	1.5		55.0	40.0	54.8	0.1		53.6
49A	2	54.7	53.5	41.9	54.9	0.2		53.7	43.0	55.0	0.3		53.8	42.7	54.9	0.3		53.7	44.5	55.1	0.4		53.9	43.4	55.0	0.3		53.8	40.9	54.9	0.2		53.7	42.3	54.9	0.2		53.7	40.2	54.8	0.2		53.6	52.6	56.8	2.1		55.6	52.6	56.8	2.1		55.6	51.3	56.3	1.6		55.1	42.3	54.9	0.2		53.7
49A	3	54.7	53.5	42.6	54.9	0.3		53.7	43.8	55.0	0.3		53.8	43.4	55.0	0.3		53.8	45.1	55.1	0.5		53.9	43.6	55.0	0.3		53.8	41.2	54.9	0.2		53.7	42.3	54.9	0.2		53.7	40.3	54.8	0.2		53.6	52.2	56.6	1.9		55.4	52.1	56.6	1.9		55.4	51.9	56.5	1.8		55.3	42.7	54.9	0.3		53.7
49A	4	54.7	53.5	42.7	54.9	0.3		53.7	44.0	55.0	0.4		53.8	43.6	55.0	0.3		53.8	45.3	55.1	0.5		53.9	44.3	55.1	0.4		53.9	41.7	54.9	0.2		53.7	42.6	54.9	0.3		53.7	40.3	54.8	0.2		53.6	52.3	56.7	2.0		55.5	52.1	56.6	1.9		55.4	53.5	57.1	2.5		55.9	42.6	54.9	0.3		53.7
49A	5	54.7	53.5	43.1	55.0	0.3		53.8	44.4	55.1	0.4		53.9	43.8	55.0	0.3		53.8	45.5	55.2	0.5		54.0	44.8	55.1	0.4		53.9	42.4	54.9	0.2		53.7	43.0	55.0	0.3		53.8	40.3	54.8	0.2		53.6	51.9	56.5	1.8		55.3	52.8	56.8	2.2		55.6	57.4	59.3	4.6		58.1	42.5	54.9	0.3		53.7
49A	6	54.7	53.5	43.2	55.0	0.3		53.8	44.6	55.1	0.4		53.9	44.5	55.1	0.4		53.9	46.4	55.3	0.6		54.1	46.9	55.3	0.7		54.1	43.0	55.0	0.3		53.8	43.3	55.0	0.3		53.8	41.7	54.9	0.2		53.7	54.3	57.5	2.8		56.3	56.7	58.8	4.1		57.6	65.5	65.8	11.2	YES	64.6	42.7	54.9	0.3		53.7
50	1	60.3	63.3	46.3	60.5	0.2		63.5	46.8	60.5	0.2		63.5	46.2	60.5	0.2		63.5	47.6	60.5	0.2		63.5	47.2	60.5	0.2		63.5	45.8	60.5	0.2		63.5	46.6	60.5	0.2		63.5	45.5	60.4	0.1		63.4	56.3	61.8	1.5		64.8	59.1	62.8	2.5		65.8	66.1	67.1	6.8	YES	70.1	56.1	61.7	1.4		64.7
50	2	60.5	63.5	47.2	60.7	0.2		63.7	47.7	60.7	0.2		63.7	47.1	60.7	0.2		63.7	48.5	60.8	0.3		63.8	47.9	60.7	0.2		63.7	46.9	60.7	0.2		63.7	47.5	60.7	0.2		63.7	46.6	60.7	0.2		63.7	57.5	62.3	1.8		65.3	59.6	63.1	2.6		66.1	66.6	67.6	7.1	YES	70.6	56.3	61.9	1.4		64.9
50	3	60.2	63.2	48.1	60.5	0.3		63.5	48.5	60.5	0.3		63.5	48.1	60.5	0.3		63.5	49.3	60.5	0.3		63.5	48.6	60.5	0.3		63.5	48.0	60.5	0.3		63.5	48.4	60.5	0.3		63.5	47.6	60.4	0.2		63.4	59.6	62.9	2.7		65.9	60.2	63.2	3.0		66.2	67.3	68.1	7.9	YES	71.1	55.9	61.6	1.4		64.6
50	4	59.5	62.5	48.1	59.8	0.3		62.8	48.6	59.8	0.3		62.8	48.1	59.8	0.3		62.8	49.3	59.9	0.4		62.9	48.7	59.8	0.3		62.8	48.3	59.8	0.3		62.8	48.6	59.8	0.3		62.8	47.6	59.8	0.3		62.8	60.6	63.1	3.6		66.1	60.7	63.2	3.7		66.2	67.5	68.1	8.6	YES	71.1	55.2	60.9	1.4		63.9
50	5	58.9	61.9	48.3	59.3	0.4		62.3	48.9	59.3	0.4		62.3	48.3	59.3	0.4		62.3	49.8	59.4	0.5		62.4	49.1	59.3	0.4		62.3	49.7	59.4	0.5		62.4	49.7	59.4	0.5		62.4	48.4	59.3	0.4		62.3	61.5	63.4	4.5		66.4	60.2	62.6	3.7		65.6	69.1	69.5	10.6	YES	72.5	54.5	60.2	1.3		63.2
50	6	58.4	61.4	48.9	58.9	0.5		61.9	49.4	58.9	0.5		61.9	49.5	58.9	0.5		61.9	51.5	59.2	0.8		62.2	49.9	59.0	0.6		62.0	51.0	59.1	0.7		62.1	50.3	59.0	0.6		62.0	49.7	58.9	0.5		61.9	65.6	66.4	8.0	YES	69.4	62.8	64.1	5.7	YES	67.1	70.1	70.4	12.0	YES	73.4	53.8	59.7	1.3		62.7
50A	1	54.7	56.9	41.4	54.9	0.2		57.1	42.6	54.9	0.3		57.1	43.3	55.0	0.3		57.2	44.6	55.1	0.4		57.3	44.0	55.0	0.4		57.2	40.9	54.9	0.2		57.1	42.1	54.9	0.2		57.1	41.9	54.9	0.2		57.1	61.5	62.3	7.6	YES	64.5	79.3	79.3	24.6	YES	81.5	54.3	57.5	2.8		59.7	39.1	54.8	0.1		57.0
50A	2	54.7	56.9	43.7	55.0	0.3		57.2	44.9	55.1	0.4		57.3	45.3	55.1	0.5		57.3	46.5	55.3	0.6		57.5	44.9	55.1	0.4		57.3	42.3	54.9	0.2		57.1	43.1	55.0	0.3		57.2	46.2	55.3	0.6		57.5	64.5	64.9	10.3	YES	67.1	82.5	82.5	27.8	YES	84.7	55.2	58.0	3.3		60.2	39.7	54.8	0.1		57.0
50A	3	54.7	56.9	46.4	55.3	0.6		57.5	48.2	55.6	0.9		57.8	51.0	56.2	1.6		58.4	51.1	56.3	1.6		58.5	48.1	55.5	0.9		57.7	48.3	55.6	0.9		57.8	46.5	55.3	0.6		57.5	51.7	56.4	1.8		58.6	71.2	71.3	16.6	YES	73.5	82.3	82.3	27.6	YES	84.5	56.2	58.5	3.8		60.7	39.8	54.8	0.1		57.0
50A	4	55.1	57.3	50.3	56.3	1.2		58.5	52.6	57.0	1.9		59.2	55.1	58.1	3.0		60.3	53.9	57.6	2.5		59.8	52.0	56.8	1.7		59.0	47.7	55.8	0.7		58.0	46.2	55.6	0.5		57.8	52.7	57.1	2.0		59.3	74.6	74.6	19.5	YES	76.8	82.0	82.0	26.9	YES	84.2	57.6	59.5	4.4		61.7	39.9	55.2	0.1		57.4
50A	5	58.4	60.6	53.2	59.5	1.1		61.7	54.9	60.0	1.6		62.2	57.9	61.2	2.8		63.4	57.2	60.9	2.5		63.1	54.1	59.8	1.4		62.0	46.4	58.7	0.3		60.9	47.7	58.8	0.4		61.0	53.4	59.6	1.2		61.8	75.7	75.8	17.4	YES	78.0	81.6	81.6	23.2	YES	83.8	59.6	62.1	3.7		64.3	40.0	58.5	0.1		60.7
50A	6	59.5	61.7	55.6	61.0	1.5		63.2	57.1	61.5	2.0		63.7	59.1	62.3	2.8		64.5	58.7	62.1	2.6		64.3	55.4	60.9	1.4		63.1	47.6	59.8	0.3		62.0	49.1	59.9	0.4		62.1	54.3	60.6	1.1		62.8	75.6	75.7	16.2	YES	77.9	81.1	81.1	21.6	YES	83.3	62.8	64.5	5.0		66.7	40.4	59.6	0.1		61.8
51	1	60.5	63.5	46.9	60.7	0.2		63.7	47.3	60.7	0.2		63.7	47.1	60.7	0.2		63.7	48.0	60.7	0.2		63.7	47.6	60.7	0.2		63.7	46.5	60.7	0.2		63.7	47.0	60.7	0.2		63.7	46.7	60.7	0.2		63.7	60.9	63.7	3.2		66.7	61.2	63.9	3.4		66.9	68.2	68.9	8.4	YES	71.9	56.1	61.8	1.3		64.8
51	2	61.0	64.0	48.5	61.2	0.2		64.2	48.8	61.3	0.3		64.3	48.7	61.2	0.2		64.2	49.4	61.3	0.3		64.3	49.0	61.3	0.3		64.3	48.1	61.2	0.2		64.2	48.4	61.2	0.2		64.2	48.1	61.2	0.2		64.2	63.9	65.7	4.7	YES	68.7	61.9	64.5	3.5		67.5	68.7	69.4	8.4	YES	72.4	56.5	62.3	1.3		65.3
51	3	60.5	63.5	49.3	60.8	0.3		63.8	49.6	60.8	0.3		63.8	49.4	60.8	0.3		63.8	50.0	60.9	0.4		63.9	49.6	60.8	0.3		63.8	48.6	60.8	0.3		63.8	48.8	60.8	0.3		63.8	48.3	60.8	0.3		63.8	66.7	67.6	7.1	YES	70.6	62.6	64.7	4.2		67.7	69.4	69.9	9.4	YES	72.9	56.0	61.8	1.3		64.8
51	4	60.1	63.1	49.7	60.5	0.4		63.5	50.0	60.5	0.4		63.5	49.8	60.5	0.4		63.5	50.5	60.6	0.5		63.6	50.0	60.5	0.4		63.5	49.6	60.5	0.4		63.5	49.5	60.5	0.4		63.5	48.8	60.4	0.3		63.4	68.8	69.3	9.2	YES	72.3	64.5	65.8	5.7	YES	68.8	70.2	70.6	10.5	YES	73.6	55.4	61.4	1.3		64.4
51	5	59.8	62.8	49.6	60.2	0.4		63.2	49.9	60.2	0.4		63.2	49.8	60.2	0.4		63.2	50.6	60.3	0.5		63.3	50.0	60.2	0.4		63.2	50.8	60.3	0.5		63.3	50.6	60.3	0.5		63.3	49.4	60.2	0.4		63.2	69.7	70.1	10.3	YES	73.1	65.2	66.3	6.5	YES	69.3	70.3	70.7	10.9	YES	73.7	54.7	61.0	1.2		64.0
51	6	59.3	62.3	49.5	59.7	0.4		62.7	49.8	59.8	0.5		62.8	49.9	59.8	0.5		62.8	50.7	59.9	0.6		62.9	49.8	59.8	0.5		62.8	49.4	59.7	0.4		62.7	49.6	59.7	0.4		62.7	49.0	59.7	0.4		62.7	71.6	71.8	12.5	YES	74.8	67.0	67.7	8.4	YES	70.7	70.8	71.1	11.8	YES	74.1	54.0	60.4	1.1		63.4
51	7	58.9	61.9	50.2	59.4	0.5		62.4	50.8	59.5	0.6		62.5	51.8	59.7	0.8		62.7	52.0	59.7	0.8		62.7	50.2	59.4	0.5		62.4	49.9	59.4	0.5		62.4	50.1	59.4	0.5		62.4	50.0	59.4	0.5		62.4	71.4	71.6	12.7	YES	74.6	67.4	68.0	9.1	YES	71.0	71.0	71.3	12.4	YES	74.3	53.5	60.0	1.1		63.0
51A	1	54.7	57.7	39.8	54.8	0.1		57.8	41.3	54.9	0.2		57.9	41.9	54.9	0.2		57.9	43.3	55.0	0.3		58.0	42.0	54.9	0.2		57.9	38.7	54.8	0.1		57.8	40.2	54.8	0.2		57.8	37.2	54.8	0.1		57.8	66.0	66.3	11.6	YES	69.3	69.7	69.8	15.2	YES	72.8	53.6	57.2	2.5		60.2	38.4	54.8	0.1		57.8
51A	2	54.7	57.7	41.1	54.9	0.2		57.9	42.4	54.9	0.2		57.9	42.3	54.9	0.2		57.9	44.6	55.1	0.4		58.1	42.7	54.9	0.3		57.9	40.3	54.8	0.2		57.8	40.9	54.9	0.2		57.9	37.9	54.8	0.1		57.8	70.6	70.7	16.0	YES	73.7	71.2	71.3	16.6	YES	74.3	54.0	57.4	2.7		60.4	38.4	54.8	0.1		57.8
51A	3	54.7	57.7	43.8	55.0	0.3		58.0	44.7	55.1	0.4		58.1	44.4	55.1	0.4		58.1	47.8	55.5	0.8		58.5	45.5	55.2	0.5		58.2	47.5	55.4	0.8		58.4	43.1	55.0	0.3		58.0	40.1	54.8	0.1		57.8	73.9	74.0	19.3	YES	77.0	68.4	68.6	13.9	YES	71.6	54.6	57.6	3.0		60.6	38.1	54.8	0.1		57.8
51A	4	54.8	57.8	49.2	55.9	1.1		58.9	49.7	56.0	1.2		59.0	50.5	56.2	1.4		59.2	51.5	56.5	1.7		59.5	50.1	56.1	1.3		59.1	50.6	56.2	1.4		59.2	47.7	55.6	0.8		58.6	48.2	55.7	0.9		58.7	73.2	73.3	18.5	YES	76.3	68.3	68.5	13.7	YES	71.5	55.9	58.4	3.6		61.4	37.6	54.9	0.1		57.9
51A	5	57.4	60.4	51.1	58.3	0.9		61.3	51.4	58.4	1.0		61.4	52.3	58.6	1.2		61.6	53.3	58.8	1.4		61.8	52.0	58.5	1.1		61.5	49.4	58.0	0.6		61.0	49.5	58.1	0.7		61.1	50.1	58.1	0.7		61.1	72.5	72.6	15.2	YES	75.6	68.2	68.5	11.1	YES	71.5	58.5	61.0	3.6		64.0	37.4	57.4	0.0		60.4
51A	6	59.6	62.6	53.1	60.5	0.9		63.5	53.3	60.5	0.9		63.5	54.0	60.7	1.1		63.7	54.2	60.7	1.1		63.7	54.3	60.7	1.1		63.7	51.4	60.2	0.6		63.2	51.5	60.2	0.6		63.2	52.3	60.3	0.7		63.3	71.5	71.8	12.2	YES	74.8	68.2	68.8	9.2	YES	71.8	67.2	67.9	8.3	YES	70.9	38.1	59.6	0.0		62.6
51A	7	59.7	62.7	54.1	60.8	1.1		63.8	54.6	60.9	1.2		63.9	55.9	61.2	1.5		64.2	55.9	61.2	1.5		64.2	52.8	60.5	0.8		63.5	51.6	60.3	0.6		63.3	51.9	60.4	0.7		63.4	53.4	60.6	0.9		63.6	71.2	71.5	11.8	YES	74.5	68.6	69.1	9.4	YES	72.1	70.5	70.8	11.1	YES	73.8	40.1	59.7	0.0		62.7
51B	1	54.7	57.7	42.9	55.0	0.3		58.0	44.5	55.1	0.4		58.1	42.6	54.9	0.3		57.9	43.9	55.0	0.3		58.0	42.4	54.9	0.2		57.9	39.9	54.8	0.1		57.8	41.2	54.9	0.2		57.9	38.4	54.8	0.1		57.8	62.7	63.3	8.7	YES	66.3	82.4	82.4	27.7	YES	85.4	54.1	57.4	2.7		60.4	39.6	54.8	0.1		57.8
51B	2	54.7	57.7	45.4	55.2	0.5		58.2	46.7	55.3	0.6		58.3	45.9	55.2	0.5		58.2	46.8	55.3	0.7		58.3	43.9	55.0	0.3		58.0	43.2	55.0	0.3		58.0	43.1	55.0	0.3		58.0	41.7	54.9	0.2		57.9	68.2	68.4	13.7	YES	71.4	84.9	84.9	30.2	YES	87.9	55.1	57.9	3.2		60.9	39.7	54.8	0.1		57.8
51B	3	54.7	57.7	52.5	56.7	2.1		59.7	53.2	57.0	2.3		60.0	56.6	58.8	4.1		61.8	56.6	58.8	4.1		61.8	50.3	56.0	1.4		59.0	50.6	56.1	1.4		59.1	48.9	55.7	1.0		58.7	50.2	56.0	1.3		59.0	72.6	72.7	18.0	YES	75.7	84.1	84.1	29.4	YES	87.1	56.5	58.7	4.0		61.7	39.5	54.8	0.1		57.8
51B	4	54.7	57.7	54.7	57.7	3.0		60.7	55.9	58.3	3.7		61.3	58.2	59.8	5.1	YES	62.8	57.7	59.5	4.8		62.5	51.7	56.4	1.8		59.4	51.6	56.4	1.7		59.4	50.2	56.0	1.3		59.0	51.4	56.3	1.7		59.3	74.8	74.8	20.2	YES	77.8	83.3	83.3	28.6	YES	86.3	58.1	59.7	5.1	YES	62.7	39.5	54.8	0.1		57.8
51B	5	54.7	57.7	55.4	58.1	3.4		61.1	56.8	58.9	4.2		61.9	59.6	60.8	6.1	YES	63.8	59.2	60.5	5.8	YES	63.5	52.9	56.9	2.2		59.9	47.8	55.5	0.8		58.5	48.6	55.6	1.0		58.6	52.2	56.6	1.9		59.6	75.9	75.9	21.3	YES	78.9	82.4	82.4	27.7	YES	85.4	60.3	61.4	6.7	YES	64.4	39.5	54.8	0.1		57.8
51B	6	57.0	60.0	57.0	60.0	3.0		63.0	58.2	60.7	3.7		63.7	61.2	62.6	5.6	YES	65.6	60.6	62.2	5.2	YES	65.2	55.7	59.4	2.4		62.4	50.1	57.8	0.8		60.8	50.9	58.0	1.0		61.0	53.8	58.7	1.7		61.7	73.4	73.5	16.5	YES	76.5	81.5	81.5	24.5	YES	84.5	63.5	64.4	7.4	YES	67.4	39.7	57.1	0.1		60.1
51B	7	57.1	60.1	57.8	60.5	3.4		63.5	59.1	61.2	4.1		64.2	61.1	62.6	5.5	YES	65.6	60.6	62.2	5.1	YES	65.2	54.3	58.9	1.8		61.9	50.9	58.0	0.9		61.0	51.7	58.2	1.1		61.2	54.7	59.1	2.0		62.1	74.6	74.7	17.6	YES	77.7	80.7	80.7	23.6	YES	83.7	69.5	69.7	12.6	YES	72.7	40.9	57.2	0.1		60.2
52	1	59.9	62.9	46.4	60.1	0.2		63.1	47.0	60.1	0.2		63.1	46.0	60.1	0.2		63.1	47.0	60.1	0.2		63.1	46.6	60.1	0.2		63.1	45.6	60.1	0.2		63.1	46.0	60.1	0.2		63.1	45.4	60.1	0.2		63.1	54.6	61.0	1.1		64.0	55.1	61.1	1.2		64.1	65.9	66.9	7.0	YES	69.9	55.7	61.3	1.4		64.3
52	2	60.2	63.2	47.6	60.4	0.2		63.4	48.0	60.5	0.3		63.5	47.2	60.4	0.2		63.4	48.1	60.5	0.3		63.5	47.6	60.4	0.2		63.4	46.9	60.4	0.2		63.4	47.2	60.4	0.2		63.4	46.7	60.4	0.2		63.4	55.6	61.5	1.3		64.5	57.4	62.0	1.8		65.0	66.6	67.5	7.3	YES	70.5	56.1	61.6	1.4		64.6
52	3	59.8	62.8	48.2	60.1	0.3		63.1	48.7	60.1	0.3		63.1	48.0	60.1	0.3		63.1	48.8	60.1	0.3		63.1	48.3	60.1	0.3		63.1	47.6	60.1	0.3		63.1	47.8	60.1	0.3		63.1	47.4	60.0	0.2		63.0	56.9	61.6	1.8		64.6	58.1	62.0	2.2		65.0	67.5	68.2	8.4	YES	71.2	55.8	61.3	1.5		64.3
52	4	59.3	62.3	48.6	59.7	0.4		62.7	49.0	59.7	0.4		62.7	48.3	59.6	0.3		62.6	49.1	59.7	0.4		62.7	48.5	59.6	0.3		62.6	47.9	59.6	0.3		62.6	48.0	59.6	0.3		62.6	47.7	59.6	0.3		62.6	57.4	61.5	2.2		64.5	59.0	62.2	2.9		65.2	66.3	67.1	7.8	YES	70.1	55.2	60.7	1.4		63.7
52	5	58.8	61.8	49.1	59.2	0.4		62.2	49.5	59.3	0.5		62.3	48.6	59.2	0.4		62.2	49.4	59.3	0.5		62.3	48.8	59.2	0.4		62.2	48.5	59.2	0.4		62.2	48.4	59.2	0.4		62.2	48.1	59.2	0.4		62.2	57.9	61.4	2.6		64.4	60.2	62.6	3.8		65.6	66.5	67.2	8.4	YES	70.2	54.7	60.2	1.4		63.2
52	6	58.5	61.5	51.3	59.3	0.8		62.3	51.6	59.3	0.8		62.3	50.3	59.1	0.6		62.1	51.1	59.2	0.7		62.2	49.4	59.0	0.5		62.0	50.1	59.1	0.6		62.1	49.8	59.0	0.5		62.0	50.6	59.2	0.7		62.2	58.8	61.7	3.2		64.7	60.2	62.4	3.9		65.4	68.3	68.7	10.2	YES	71.7	54.2	59.9	1.4		62.9
52A	1	54.7	57.7	39.2	54.8	0.1		57.8	40.7	54.8	0.2		57.8	39.8	54.8	0.1		57.8	42.5	54.9	0.3		57.9	41.4	54.9	0.2		57.9	37.9	54.8	0.1		57.8	39.6	54.8	0.1		57.8	37.1	54.8	0.1		57.8	51.1	56.3	1.6		59.3	51.1	56.3	1.6		59.3	48.7	55.7	1.0		58.7	35.7	54.7	0.1		57.7
52A	2	54.7	57.7	39.7	54.8	0.1		57.8	41.2	54.9	0.2		57.9	40.4	54.8	0.2		57.8	42.9	55.0	0.3		58.0	41.6	54.9	0.2		57.9	38.6	54.8	0.1		57.8	40.2	54.8	0.1		57.8	37.9	54.8	0.1		57.8	51.2	56.3	1.6		59.3	51.3	56.3	1.6		59.3	49.1	55.7	1.1		58.7	37.6	54.8	0.1		57.8
52A	3	54.7	57.7	40.0	54.8	0.1		57.8	41.5	54.9	0.2		57.9	40.7	54.8	0.2		57.8	43.1	55.0	0.3		58.0	41.9	54.9	0.2		57.9	39.1	54.8	0.1		57.8	40.5	54.8	0.1		57.8	38.1	54.8	0.1		57.8	51.2	56.3	1.6		59.3	51.5	56.4	1.7		59.4	49.6	55.9	1.2		58.9	38.2	54.8	0.1		57.8
52A	4	54.7	57.7	40.3	54.8	0.2		57.8	41.8	54.9	0.2		57.9	40.9	54.9	0.2		57.9	43.2	55.0	0.3		58.0	42.0	54.9	0.2		57.9	39.1	54.8	0.1		57.8	40.5	54.8	0.2		57.8	38.2	54.8	0.1		57.8	51.5	56.4	1.7		59.4	51.6	56.4	1.7		59.4	50.1	56.0	1.3		59.0	38.2	54.8	0.1		57.8
52A	5	54.7	57.7	40.4	54.8	0.2		57.8	41.8	54.9	0.2		57.9	40.9	54.9	0.2		57.9	43.1	55.0	0.3		58.0	41.9	54.9	0.2		57.9	39.3	54.8	0.1		57.8	40.6	54.8	0.2		57.8	38.1	54.8	0.1		57.8	52.0	56.6	1.9		59.6	52.1	56.6	1.9		59.6	52.2	56.6	1.9		59.6	38.3	54.8	0.1		57.8
52A	6	54.7	57.7	41.2	54.9	0.2		57.9	42.6	54.9	0.3		57.9	42.1	54.9	0.2		57.9	43.9	55.0	0.3		58.0	42.6	54.9	0.3		57.9	42.1	54.9	0.2		57.9	42.4	54.9	0.2		57.9	39.7	54.8	0.1		57.8	53.0	56.9	2.3		59.9	54.8	57.7	3.1		60.7	63.1	63.7	9.0	YES	66.7	38.7	54.8	0.1		57.8
53	1	60.0	63.0	48.0	60.3	0.3		63.3	48.4	60.3	0.3		63.3	47.9	60.3	0.3		63.3	48.7	60.3	0.3		63.3	48.3	60.3	0.3		63.3	47.8	60.3	0.3		63.3	48.0	60.3	0.3		63.3	47.6	60.2	0.2		63.2	53.7	60.9	0.9		63.9	53.2	60.8	0.8		63.8	62.1	64.2	4.2		67.2	56.2	61.5	1.5		64.5
53	2	60.3	63.3	49.1	60.6	0.3		63.6	49.5	60.6	0.3		63.6	49.1	60.6	0.3		63.6	49.7	60.7	0.4		63.7	49.3	60.6	0.3		63.6	49.0	60.6	0.3		63.6	49.2	60.6	0.3		63.6	48.8	60.6	0.3		63.6	54.4	61.3	1.0		64.3	53.7	61.2	0.9		64.2	63.0	64.9	4.6		67.9	56.6	61.8	1.5		64.8
53	3	59.9	62.9	49.2	60.3	0.4		63.3	49.5	60.3	0.4		63.3	49.4	60.3	0.4		63.3	50.0	60.3	0.4		63.3	49.8	60.3	0.4		63.3	49.3	60.3	0.4		63.3	49.5	60.3	0.4		63.3	49.1	60.2	0.3		63.2	55.2	61.2	1.3		64.2	54.1	60.9	1.0		63.9	64.4	65.7	5.8	YES	68.7	56.2	61.4	1.5		64.4
53	4	59.4	62.4	49.3	59.8	0.4		62.8	49.6	59.8	0.4		62.8	49.5	59.8	0.4		62.8	50.1	59.9	0.5		62.9	49.8	59.9	0.5		62.9	49.7	59.8	0.4		62.8	49.7	59.8	0.4		62.8	49.3	59.8	0.4		62.8	55.4	60.9	1.5		63.9	55.0	60.7	1.3		63.7	65.1	66.1	6.7	YES	69.1	55.7	60.9	1.5		63.9
53	5	58.9	61.9	49.2	59.3	0.4		62.3	49.5	59.4	0.5		62.4	49.5	59.4	0.5		62.4	50.2	59.4	0.5		62.4	49.9	59.4	0.5		62.4	50.7	59.5	0.6		62.5	50.5	59.5	0.6		62.5	50.1	59.4	0.5		62.4	55.6	60.6	1.7		63.6	56.6	60.9	2.0		63.9	64.7	65.7	6.8	YES	68.7	55.1	60.4	1.5		63.4
53	6	58.4	61.4	49.4	58.9	0.5		61.9	49.7	58.9	0.5		61.9	49.9	59.0	0.6		62.0	51.1	59.1	0.7		62.1	50.7	59.1	0.7		62.1	52.0	59.3	0.9		62.3	51.4	59.2	0.8		62.2	51.6	59.2	0.8		62.2	55.9	60.3	1.9		63.3	56.8	60.7	2.3		63.7	66.5	67.1	8.7	YES	70.1	54.6	59.9	1.5		62.9
53A	1	65.1	63.9	55.1	65.5	0.4		64.3	55.1	65.5	0.4		64.3	55.1	65.5	0.4		64.3	56.0	65.6	0.5		64.4	57.3	65.8	0.7		64.6	56.2	65.6	0.5		64.4	55.6	65.6	0.5		64.4	55.0	65.5	0.4		64.3	56.0	65.6	0.5		64.4	56.2	65.6	0.5		64.4	56.6	65.7	0.6		64.5	58.2	65.9	0.8		64.7
53A	2	65.1	63.9	54.8	65.5	0.4		64.3	54.9	65.5	0.4		64.3	54.9	65.5	0.4		64.3	55.9	65.6	0.5		64.4	57.5	65.8	0.7		64.6	56.1	65.6	0.5		64.4	55.4	65.5	0.4		64.3	54.8	65.5	0.4		64.3	56.0	65.6	0.5		64.4	56.1	65.6	0.5		64.4	57.1	65.7	0.6		64.5	58.1	65.9	0.8		64.7
53A	3	64.6	63.4	54.2	65.0	0.4		63.8	54.2	65.0	0.4		63.8	55.0	65.1	0.5		63.9	56.1	65.2	0.6		64.0	57.6	65.4	0.8		64.2	55.8	65.1	0.5		63.9	54.9	65.0	0.4		63.8	54.1	65.0	0.4		63.8	55.5	65.1	0.5		63.9	55.7	65.1	0.5		63.9	56.2	65.2	0.6		64.0	57.5	65.4	0.8		64.2
53A	4	64.0	62.8	53.5	64.4	0.4		63.2	53.5	64.4	0.4		63.2	54.5	64.5	0.5		63.3	55.9	64.6	0.6		63.4	57.7	64.9	0.9		63.7	55.7	64.6	0.6		63.4	54.5	64.5	0.5		63.3	53.4	64.4	0.4		63.2	55.0	64.5	0.5		63.3	55.1	64.5	0.5		63.3	55.1	64.5	0.5		63.3	56.8	64.8	0.8		63.6
53A	5	63.5	62.3	52.9	63.9	0.4		62.7	53.0	63.9	0.4		62.7	54.2	64.0	0.5		62.8	55.9	64.2	0.7		63.0	57.8	64.5	1.0		63.3	56.0	64.2	0.7		63.0	54.5	64.0	0.5		62.8	52.8	63.9	0.4		62.7	54.7	64.0	0.5		62.8	54.8	64.0	0.5		62.8	55.2	64.1	0.6		62.9	56.2	64.2	0.7		63.0
53A	6	63.0	61.8	52.6	63.4	0.4		62.2	52.7	63.4	0.4		62.2	54.2	63.5	0.5		62.3	56.2	63.8	0.8		62.6	58.2	64.2	1.2		63.0	55.7	63.7	0.7		62.5	54.5	63.6	0.6		62.4	52.9	63.4	0.4		62.2	54.6	63.6	0.6		62.4	56.9	64.0	1.0		62.8	60.0	64.8	1.8		63.6	55.6	63.7	0.7		62.5
53B	1	54.7	53.5	40.1	54.8	0.1		53.6	41.8	54.9	0.2		53.7	40.2	54.8	0.2		53.6	43.5	55.0	0.3		53.8	42.3	54.9	0.2		53.7	38.5	54.8	0.1		53.6	41.2	54.9	0.2		53.7	37.3	54.8	0.1		53.6	51.2	56.3	1.6		55.1	51.1	56.3	1.6		55.1	50.4	56.1	1.4		54.9	32.6	54.7	0.0		53.5
54	1	64.6	63.4	55.1	65.1	0.5		63.9	55.1	65.1	0.5		63.9	55.1	65.1	0.5		63.9	55.9	65.1	0.5		63.9	57.1	65.3	0.7		64.1	56.1	65.2	0.6		64.0	55.5	65.1	0.5		63.9	55.0	65.1	0.5		63.9	56.1	65.2	0.6		64.0	56.4	65.2	0.6		64.0	56.6	65.2	0.6		64.0	58.0	65.5	0.9		64.3
54	2	64.4	63.2	54.8	64.9	0.5		63.7	54.9	64.9	0.5		63.7	54.9	64.9	0.5		63.7	55.8	65.0	0.6		63.8	57.1	65.1	0.7		63.9	56.1	65.0	0.6		63.8	55.4	64.9	0.5		63.7	54.8	64.9	0.5		63.7	56.0	65.0	0.6		63.8	56.4	65.0	0.6		63.8	57.2	65.2	0.8		64.0	57.8	65.3	0.9		64.1
54	3	63.9	62.7	54.2	64.3	0.4		63.1	54.2	64.3	0.4		63.1	54.9	64.4	0.5		63.2	55.9	64.5	0.6		63.3	56.9	64.7	0.8		63.5	55.7	64.5	0.6		63.3	54.9	64.4	0.5		63.2	54.2	64.3	0.4		63.1	55.5	64.5	0.6		63.3	55.7	64.5	0.6		63.3	56.2	64.6	0.7		63.4	57.2	64.7	0.8		63.5
54	4	63.3	62.1	53.5	63.7	0.4		62.5	53.6	63.7	0.4		62.5	54.4	63.8	0.5		62.6	55.6	64.0	0.7		62.8	57.0	64.2	0.9		63.0	55.7	64.0	0.7		62.8	54.6	63.8	0.5		62.6	53.6	63.7	0.4		62.5	54.9	63.9	0.6		62.7	55.0	63.9	0.6		62.7	55.1	63.9	0.6		62.7	56.5	64.1	0.8		62.9
54	5	62.8	61.6	52.9	63.2	0.4		62.0	53.0	63.2	0.4		62.0	54.0	63.3	0.5		62.1	55.5	63.5	0.7		62.3	57.1	63.8	1.0		62.6	55.7	63.6	0.8		62.4	54.3	63.4	0.6		62.2	53.3	63.3	0.5		62.1	54.5	63.4	0.6		62.2	54.5	63.4	0.6		62.2	55.0	63.5	0.7		62.3	55.9	63.6	0.8		62.4
54	6	62.3	61.1	52.5	62.7	0.4		61.5	52.6	62.7	0.4		61.5	53.8	62.9	0.6		61.7	55.7	63.2	0.9		62.0	57.6	63.6	1.3		62.4	55.5	63.1	0.8		61.9	54.3	62.9	0.6		61.7	53.1	62.8	0.5		61.6	54.2	62.9	0.6		61.7	55.8	63.2	0.9		62.0	57.1	63.4	1.1		62.2	55.3	63.1	0.8		61.9
54	7	62.0	60.8	52.4	62.5	0.5		61.3	52.5	62.5	0.5		61.3	54.1	62.7	0.7		61.5	55.9	63.0	1.0		61.8	58.6	63.6	1.6		62.4	55.7	62.9	0.9		61.7	54.4	62.7	0.7		61.5	53.7	62.6	0.6		61.4	54.7	62.7	0.7		61.5	61.3	64.7	2.7		63.5	62.4	65.2	3.2	YES	64.0	54.9	62.8	0.8		61.6
54A	1	54.7	53.5	38.6	54.8	0.1		53.6	40.0	54.8	0.1		53.6	38.7	54.8	0.1		53.6	41.8	54.9	0.2		53.7	40.6	54.8	0.2		53.6	37.9	54.8	0.1		53.6	39.6	54.8	0.1		53.6	36.8	54.7	0.1		53.5	58.6	60.1	5.4	YES	58.9	58.0	59.7	5.0		58.5	50.7	56.1	1.5		54.9	30.8	54.7	0.0		53.5
54A	2	54.7	53.5	38.8	54.8	0.1		53.6	40.0	54.8	0.1		53.6	39.2	54.8	0.1		53.6	42.2	54.9	0.2		53.7	41.0	54.9	0.2		53.7	38.7	54.8	0.1		53.6	40.3	54.8	0.2		53.6	39.7	54.8	0.1		53.6	73.0	73.1	18.4	YES	71.9	60.2	61.3	6.6	YES	60.1	54.6	57.6	3.0		56.4	31.2	54.7	0.0		53.5
54A	3	54.7	53.5	41.8	54.9	0.2		53.7	42.5	54.9	0.3		53.7	42.4	54.9	0.2		53.7	44.1	55.0	0.4		53.8	43.0	55.0	0.3		53.8	41.5	54.9	0.2		53.7	42.2	54.9	0.2		53.7	42.8	54.9	0.3		53.7	73.7	73.8	19.1	YES	72.6	61.6	62.4	7.7	YES	61.2	55.3	58.0	3.3		56.8	31.7	54.7	0.0		53.5
54A	4	57.2	56.0	45.0	57.5	0.3		56.3	45.3	57.5	0.3		56.3	45.3	57.5	0.3		56.3	46.3	57.5	0.3		56.3	45.5	57.5	0.3		56.3	44.6	57.4	0.2		56.2	45.0	57.5	0.3		56.3	44.4	57.4	0.2		56.2	73.5	73.6	16.4	YES	72.4	64.3	65.1	7.9	YES	63.9	56.0	59.7	2.5		58.5	32.4	57.2	0.0		56.0
54A	5	58.9	57.7	46.5	59.1	0.2		57.9	46.8	59.2	0.3		58.0	46.8	59.2	0.3		58.0	47.4	59.2	0.3		58.0	46.7	59.2	0.3		58.0	46.0	59.1	0.2		57.9	46.3	59.1	0.2		57.9	46.0	59.1	0.2		57.9	73.3	73.5	14.6	YES	72.3	71.8	72.0	13.1	YES	70.8	57.1	61.1	2.2		59.9	33.4	58.9	0.0		57.7
54A	6	62.1	60.9	49.6	62.3	0.2		61.1	49.8	62.3	0.2		61.1	50.8	62.4	0.3		61.2	50.3	62.4	0.3		61.2	49.5	62.3	0.2		61.1	49.2	62.3	0.2		61.1	49.3	62.3	0.2		61.1	49.7	62.3	0.2		61.1	73.0	73.3	11.2	YES	72.1	77.6	77.7	15.6	YES	76.5	63.1	65.6	3.5	YES	64.4	35.0	62.1	0.0		60.9
54A	7	62.5	61.3	51.7	62.8	0.3		61.6	52.0	62.9	0.4		61.7	54.6	63.2	0.7		62.0	53.8	63.0	0.5		61.8	51.2	62.8	0.3		61.6	53.1	63.0	0.5		61.8	52.2	62.9	0.4		61.7	52.2	62.9	0.4		61.7	72.3	72.7	10.2	YES	71.5	76.5	76.7	14.2	YES	75.5	64.7	66.7	4.2	YES	65.5	38.3	62.5	0.0		61.3
55	1	64.6	63.4	55.2	65.1	0.5		63.9	55.2	65.1	0.5		63.9	55.2	65.1	0.5		63.9	56.0	65.2	0.6		64.0	57.1	65.3	0.7		64.1	56.2	65.2	0.6		64.0	55.6	65.1	0.5		63.9	55.1	65.1	0.5		63.9	56.5	65.2	0.6		64.0	57.0	65.3	0.7		64.1	56.7	65.3	0.7		64.1	58.1	65.5	0.9		64.3
55	2	64.5	63.3	55.0	65.0	0.5		63.8	55.1	65.0	0.5		63.8	55.0	65.0	0.5		63.8	55.9	65.1	0.6		63.9	57.1	65.2	0.7		64.0	56.1	65.1	0.6		63.9	55.5	65.0	0.5		63.8	55.0	65.0	0.5		63.8	56.5	65.1	0.6		63.9	57.1	65.2	0.7		64.0	57.6	65.3	0.8		64.1	57.9	65.4	0.9		64.2
55	3	63.9	62.7	54.4	64.4	0.5		63.2	54.4	64.4	0.5		63.2	55.0	64.4	0.5		63.2	55.9	64.5	0.6		63.3	56.9	64.7	0.8		63.5	55.8	64.5	0.6		63.3	55.0	64.4	0.5		63.2	54.4	64.4	0.5		63.2	56.0	64.6	0.7		63.4	56.3	64.6	0.7		63.4	57.2	64.7	0.8		63.5	57.3	64.8	0.9		63.6
55	4	63.3	62.1	53.7	63.8	0.5		62.6	53.7	63.8	0.5		62.6	54.5	63.8	0.5		62.6	55.7	64.0	0.7		62.8	56.9	64.2	0.9		63.0	55.8	64.0	0.7		62.8	54.7	63.9	0.6		62.7	53.8	63.8	0.5		62.6	55.5	64.0	0.7		62.8	55.8	64.0	0.7		62.8	54.6	63.8	0.5		62.6	56.6	64.1	0.8		62.9
55	5	62.8	61.6	53.1	63.2	0.4		62.0	53.2	63.3	0.5		62.1	54.1	63.3	0.5		62.1	55.5	63.5	0.7		62.3	57.0	63.8	1.0		62.6	56.0	63.6	0.8		62.4	54.7	63.4	0.6		62.2	53.3	63.3	0.5		62.1	55.0	63.5	0.7		62.3	55.9	63.6	0.8		62.4	54.7	63.4	0.6		62.2	56.0	63.6	0.8		62.4
55	6	62.3	61.1	52.7	62.8	0.5		61.6	52.8	62.8	0.5		61.6	53.9	62.9	0.6		61.7	55.7	63.2	0.9		62.0	57.4	63.5	1.2		62.3	55.4	63.1	0.8		61.9	54.3	62.9	0.6		61.7	53.3	62.8	0.5		61.6	55.2	63.1	0.8		61.9	65.8	67.4	5.1	YES	66.2	63.6	66.0	3.7	YES	64.8	55.4	63.1	0.8		61.9
55A	1	54.7	53.5	38.9	54.8	0.1		53.6	40.4	54.8	0.2		53.6	38.4	54.8	0.1		53.6	41.9	54.9	0.2		53.7	40.8	54.8	0.2		53.6	37.0	54.7	0.1		53.5	39.4	54.8	0.1		53.6	38.7	54.8	0.1		53.6	61.7	62.5	7.8	YES	61.3	59.1	60.4	5.8	YES	59.2	52.1	56.6	1.9		55.4	30.9	54.7	0.0		53.5
55A	2	54.7	53.5	39.5	54.8	0.1		53.6	41.0	54.9	0.2		53.7	39.1	54.8	0.1		53.6	42.2	54.9	0.2		53.7	41.1	54.9	0.2		53.7	38.1	54.8	0.1		53.6	40.1	54.8	0.1		53.6	41.5	54.9	0.2		53.7	69.0	69.2	14.5	YES	68.0	60.8	61.7	7.1	YES	60.5	52.5	56.7	2.1		55.5	31.4	54.7	0.0		53.5
55A	3	54.7	53.5	41.5	54.9	0.2		53.7	42.6	54.9	0.3		53.7	41.7	54.9	0.2		53.7	43.7	55.0	0.3		53.8	42.6	54.9	0.3		53.7	40.3	54.8	0.2		53.6	41.4	54.9	0.2		53.7	43.9	55.0	0.3		53.8	73.2	73.3	18.6	YES	72.1	63.2	63.8	9.1	YES	62.6	53.2	57.0	2.3		55.8	32.0	54.7	0.0		53.5
55A	4	57.0	55.8	44.6	57.2	0.2		56.0	45.2	57.3	0.3		56.1	45.0	57.3	0.3		56.1	46.0	57.3	0.3		56.1	45.2	57.3	0.3		56.1	44.1	57.2	0.2		56.0	44.5	57.2	0.2		56.0	44.1	57.2	0.2		56.0	74.4	74.5	17.5	YES	73.3	67.6	68.0	11.0	YES	66.8	53.8	58.7	1.7		57.5	32.8	57.0	0.0		55.8
55A	5	58.4	57.2	45.9	58.6	0.2		57.4	46.3	58.7	0.3		57.5	46.1	58.6	0.2		57.4	47.0	58.7	0.3		57.5	46.3	58.7	0.3		57.5	45.7	58.6	0.2		57.4	45.8	58.6	0.2		57.4	45.4	58.6	0.2		57.4	74.2	74.3	15.9	YES	73.1	74.0	74.1	15.7	YES	72.9	54.3	59.8	1.4		58.6	33.9	58.4	0.0		57.2
55A	6	60.0	58.8	47.9	60.3	0.3		59.1	48.2	60.3	0.3		59.1	48.2	60.3	0.3		59.1	49.7	60.4	0.4		59.2	48.6	60.3	0.3		59.1	51.2	60.5	0.5		59.3	50.2	60.4	0.4		59.2	48.5	60.3	0.3		59.1	73.9	74.1	14.1	YES	72.9	77.1	77.2	17.2	YES	76.0	56.9	61.7	1.7		60.5	35.9	60.0	0.0		58.8
56	1	64.5	63.3	55.1	65.0	0.5		63.8	55.1	65.0	0.5		63.8	55.1	65.0	0.5		63.8	55.9	65.1	0.6		63.9	56.9	65.2	0.7		64.0	56.1	65.1	0.6		63.9	55.5	65.0	0.5		63.8	55.0	65.0	0.5		63.8	56.4	65.1	0.6		63.9	57.3	65.3	0.8		64.1	56.7	65.2	0.7		64.0	58.0	65.4	0.9		64.2
56	2	64.4	63.2	55.0	64.9	0.5		63.7	55.1	64.9	0.5		63.7	55.1	64.9	0.5		63.7	55.9	65.0	0.6		63.8	57.0	65.1	0.7		63.9	56.2	65.0	0.6		63.8	55.6	64.9	0.5		63.7	55.0	64.9	0.5		63.7	56.7	65.1	0.7		63.9	57.6	65.2	0.8		64.0	58.0	65.3	0.9		64.1	58.0	65.3	0.9		64.1
56	3	63.9	62.7	54.4	64.4	0.5		63.2	54.5	64.4	0.5		63.2	55.0	64.4	0.5		63.2	55.9	64.5	0.6		63.3	56.7	64.7	0.8		63.5	55.9	64.5	0.6		63.3	55.2	64.4	0.5		63.2	54.4	64.4	0.5		63.2	56.2	64.6	0.7		63.4	57.2	64.7	0.8		63.5	57.8	64.9	1.0		63.7	57.3	64.8	0.9		63.6
56	4	63.3	62.1	53.8	63.8	0.5		62.6	53.8	63.8	0.5		62.6	54.5	63.8	0.5		62.6	55.6	64.0	0.7		62.8	56.8	64.2	0.9		63.0	55.8	64.0	0.7		62.8	54.8	63.9	0.6		62.7	53.8	63.8	0.5		62.6	55.6	64.0	0.7		62.8	56.6	64.1	0.8		62.9	54.8	63.9	0.6		62.7	56.7	64.2	0.9		63.0
56	5	62.7	61.5	53.2	63.2	0.5		62.0	53.3	63.2	0.5		62.0	54.2	63.3	0.6		62.1	55.5	63.5	0.8		62.3	56.9	63.7	1.0		62.5	55.9	63.5	0.8		62.3	54.8	63.4	0.7		62.2	53.3	63.2	0.5		62.0	55.2	63.4	0.7		62.2	55.9	63.5	0.8		62.3	54.9	63.4	0.7		62.2	56.0	63.5	0.8		62.3
56	6	62.3	61.1	52.8	62.8	0.5		61.6	53.0	62.8	0.5		61.6	54.0	62.9	0.6		61.7	55.6	63.1	0.8		61.9	57.2	63.5	1.2		62.3	55.4	63.1	0.8		61.9	54.3	62.9	0.6		61.7	53.3	62.8	0.5		61.6	56.0	63.2	0.9		62.0	66.5	67.9	5.6	YES	66.7	64.9	66.8	4.5	YES	65.6	55.5	63.1	0.8		61.9
56A	1	54.7	53.5	40.0	54.8	0.1		53.6	41.4	54.9	0.2		53.7	39.5	54.8	0.1		53.6	42.1	54.9	0.2		53.7	40.9	54.9	0.2		53.7	36.8	54.7	0.1		53.5	39.4	54.8	0.1		53.6	38.8	54.8	0.1		53.6	61.7	62.5	7.8	YES	61.3	57.9	59.6	4.9		58.4	51.1	56.3	1.6		55.1	31.3	54.7	0.0		53.5
56A	2	54.7	53.5	40.6	54.8	0.2		53.6	42.0	54.9	0.2		53.7	40.2	54.8	0.2		53.6	42.5	54.9	0.3		53.7	41.4	54.9	0.2		53.7	38.0	54.8	0.1		53.6	40.0	54.8	0.1		53.6	41.9	54.9	0.2		53.7	68.8	69.0	14.3	YES	67.8	59.6	60.8	6.1	YES	59.6	51.5	56.4	1.7		55.2	31.8	54.7	0.0		53.5
56A	3	54.7	53.5	42.3	54.9	0.2		53.7	43.4	55.0	0.3		53.8	42.3	54.9	0.2		53.7	43.8	55.0	0.3		53.8	42.5	54.9	0.3		53.7	40.2	54.8	0.2		53.6	41.5	54.9	0.2		53.7	44.2	55.0	0.4		53.8	73.0	73.1	18.4	YES	71.9	62.7	63.3	8.7	YES	62.1	52.2	56.6	1.9		55.4	32.4	54.7	0.0		53.5
56A	4	57.0	55.8	45.4	57.3	0.3		56.1	46.0	57.3	0.3		56.1	45.7	57.3	0.3		56.1	46.5	57.4	0.4		56.2	45.5	57.3	0.3		56.1	44.0	57.2	0.2		56.0	44.7	57.2	0.2		56.0	46.6	57.4	0.4		56.2	74.5	74.6	17.6	YES	73.4	68.3	68.6	11.6	YES	67.4	53.4	58.6	1.6		57.4	33.2	57.0	0.0		55.8
56A	5	58.4	57.2	46.8	58.7	0.3		57.5	47.3	58.7	0.3		57.5	47.0	58.7	0.3		57.5	47.6	58.7	0.3		57.5	46.6	58.7	0.3		57.5	45.4	58.6	0.2		57.4	46.0	58.6	0.2		57.4	48.1	58.8	0.4		57.6	74.3	74.4	16.0	YES	73.2	72.5	72.7	14.3	YES	71.5	55.0	60.0	1.6		58.8	34.7	58.4	0.0		57.2
56A	6	60.0	58.8	49.0	60.3	0.3		59.1	49.4	60.4	0.4		59.2	49.6	60.4	0.4		59.2	51.0	60.5	0.5		59.3	49.2	60.3	0.3		59.1	51.9	60.6	0.6		59.4	50.8	60.5	0.5		59.3	51.3	60.5	0.5		59.3	74.1	74.3	14.3	YES	73.1	75.9	76.0	16.0	YES	74.8	59.4	62.7	2.7		61.5	37.4	60.0	0.0		58.8
57	1	64.2	63.0	54.9	64.7	0.5		63.5	54.9	64.7	0.5		63.5	54.9	64.7	0.5		63.5	55.7	64.8	0.6		63.6	56.7	64.9	0.7		63.7	56.0	64.8	0.6		63.6	55.4	64.7	0.5		63.5	54.9	64.7	0.5		63.5	56.3	64.9	0.7		63.7	56.9	64.9	0.7		63.7	56.7	64.9	0.7		63.7	57.8	65.1	0.9		63.9
57	2	64.4	63.2	55.0	64.9	0.5		63.7	55.0	64.9	0.5		63.7	55.0	64.9	0.5		63.7	55.8	65.0	0.6		63.8	56.9	65.1	0.7		63.9	56.2	65.0	0.6		63.8	55.6	64.9	0.5		63.7	55.0	64.9	0.5		63.7	56.6	65.1	0.7		63.9	57.4	65.2	0.8		64.0	58.0	65.3	0.9		64.1	57.9	65.3	0.9		64.1
57	3	63.8	62.6	54.5	64.3	0.5		63.1	54.5	64.3	0.5		63.1	55.0	64.3	0.5		63.1	55.9	64.5	0.7		63.3	56.7	64.6	0.8		63.4	56.0	64.5	0.7		63.3	55.3	64.4	0.6		63.2	54.5	64.3	0.5		63.1	56.1	64.5	0.7		63.3	57.5	64.7	0.9		63.5	58.1	64.8	1.0		63.6	57.4	64.7	0.9		63.5
57	4	63.2	62.0	53.9	63.7	0.5		62.5	53.9	63.7	0.5		62.5	54.5	63.7	0.5		62.5	55.6	63.9	0.7		62.7	56.7	64.1	0.9		62.9	55.8	63.9	0.7		62.7	54.9	63.8	0.6		62.6	53.9	63.7	0.5		62.5	55.6	63.9	0.7		62.7	56.3	64.0	0.8		62.8	54.6	63.8	0.6		62.6	56.7	64.1	0.9		62.9
57	5	62.7	61.5	53.3	63.2	0.5		62.0	53.4	63.2	0.5		62.0	54.1	63.3	0.6		62.1	55.4	63.4	0.7		62.2	56.8	63.7	1.0		62.5	55.9	63.5	0.8		62.3	54.8	63.4	0.7		62.2	53.4	63.2	0.5		62.0	55.2	63.4	0.7		62.2	55.5	63.5	0.8		62.3	54.7	63.3	0.6		62.1	56.1	63.6	0.9		62.4
57	6	62.3	61.1	53.1	62.8	0.5		61.6	53.2	62.8	0.5		61.6	54.0	62.9	0.6		61.7	55.6	63.1	0.8		61.9	57.0	63.4	1.1		62.2	55.4	63.1	0.8		61.9	54.4	63.0	0.7		61.8	53.4	62.8	0.5		61.6	55.7	63.2	0.9		62.0	65.1	66.9	4.6	YES	65.7	64.5	66.5	4.2	YES	65.3	55.6	63.1	0.8		61.9
57A	1	54.7	53.5	39.6	54.8	0.1		53.6	41.1	54.9	0.2		53.7	39.3	54.8	0.1		53.6	42.0	54.9	0.2		53.7	40.8	54.8	0.2		53.6	36.7	54.7	0.1		53.5	39.4	54.8	0.1		53.6	37.3	54.8	0.1		53.6	62.6	63.2	8.6	YES	62.0	57.9	59.6	4.9		58.4	52.9	56.9	2.2		55.7	31.4	54.7	0.0		53.5
57A	2	54.7	53.5	40.2	54.8	0.2		53.6	41.7	54.9	0.2		53.7	40.0	54.8	0.1		53.6	42.4	54.9	0.2		53.7	41.4	54.9	0.2		53.7	38.4	54.8	0.1		53.6	40.5	54.8	0.2		53.6	39.8	54.8	0.1		53.6	70.2	70.3	15.6	YES	69.1	59.3	60.6	5.9	YES	59.4	54.2	57.5	2.8		56.3	31.9	54.7	0.0		53.5
57A	3	54.7	53.5	42.2	54.9	0.2		53.7	43.2	55.0	0.3		53.8	42.4	54.9	0.2		53.7	43.9	55.0	0.3		53.8	42.8	54.9	0.3		53.7	41.5	54.9	0.2		53.7	42.7	54.9	0.3		53.7	45.3	55.1	0.5		53.9	74.9	74.9	20.3	YES	73.7	61.7	62.5	7.8	YES	61.3	54.7	57.7	3.0		56.5	32.5	54.7	0.0		53.5
57A	4	57.1	55.9	45.5	57.4	0.3		56.2	46.0	57.4	0.3		56.2	46.0	57.4	0.3		56.2	46.8	57.5	0.4		56.3	45.6	57.4	0.3		56.2	44.7	57.3	0.2		56.1	45.4	57.4	0.3		56.2	47.6	57.6	0.5		56.4	75.5	75.6	18.5	YES	74.4	66.1	66.6	9.5	YES	65.4	55.3	59.3	2.2		58.1	33.4	57.1	0.0		55.9
57A	5	58.6	57.4	47.1	58.9	0.3		57.7	47.5	58.9	0.3		57.7	47.4	58.9	0.3		57.7	48.1	59.0	0.4		57.8	47.2	58.9	0.3		57.7	46.4	58.9	0.3		57.7	46.8	58.9	0.3		57.7	49.2	59.1	0.5		57.9	75.2	75.3	16.7	YES	74.1	71.0	71.2	12.6	YES	70.0	56.6	60.7	2.1		59.5	34.6	58.6	0.0		57.4
57A	6	60.3	59.1	49.1	60.6	0.3		59.4	49.5	60.6	0.3		59.4	50.0	60.7	0.4		59.5	51.5	60.8	0.5		59.6	49.6	60.7	0.4		59.5	52.3	60.9	0.6		59.7	51.1	60.8	0.5		59.6	52.2	60.9	0.6		59.7	74.9	75.0	14.7	YES	73.8	75.7	75.8	15.5	YES	74.6	59.1	62.8	2.5		61.6	37.8	60.3	0.0		59.1

58	1	63.3	62.1	54.0	63.8	0.5		62.6	54.0	63.8	0.5		62.6	54.0	63.8	0.5	
58	2	63.6	62.4	54.3	64.1	0.5		62.9	54.3	64.1	0.5		62.9	54.3	64.1	0.5	
58	3	63.3	62.1	54.0	63.8	0.5		62.6	54.0	63.8	0.5		62.6	54.1	63.8	0.5	
58	4	62.8	61.6	53.4	63.3	0.5		62.1	53.5	63.3	0.5		62.1	53.8	63.3	0.5	
58	5	62.2	61.0	52.9	62.7	0.5		61.5	53.0	62.7	0.5		61.5	53.3	62.7	0.5	
58	6	61.8	60.6	52.6	62.3	0.5		61.1	52.7	62.3	0.5		61.1	53.4	62.4	0.6	
58	7	61.7	60.5	52.5	62.2	0.5		61.0	52.6	62.2	0.5		61.0	53.7	62.3	0.6	
58A	1	54.7	53.5	37.0	54.7	0.1		53.5	38.7	54.8	0.1		53.6	38.0	54.8	0.1	
58A	2	54.7	53.5	38.2	54.8	0.1		53.6	39.6	54.8	0.1		53.6	39.3	54.8	0.1	
58A	3	54.7	53.5	41.7	54.9	0.2		53.7	42.2	54.9	0.2		53.7	42.9	55.0	0.3	
58A	4	58.2	57.0	45.7	58.4	0.2		57.2	46.0	58.5	0.3		57.3	46.9	58.5	0.3	
58A	5	59.9	58.7	47.6	60.1	0.2		58.9	47.8	60.2	0.3		59.0	48.5	60.2	0.3	
58A	6	62.9	61.7	50.3	63.1	0.2		61.9	50.5	63.1	0.2		61.9	51.3	63.2	0.3	
58A	7	63.2	62.0	51.1	63.5	0.3		62.3	51.3	63.5	0.3		62.3	52.6	63.6	0.4	
59	1	63.4	62.2	54.1	63.9	0.5		62.7	54.1	63.9	0.5		62.7	54.1	63.9	0.5	
59	2	63.8	62.6	54.4	64.3	0.5		63.1	54.4	64.3	0.5		63.1	54.4	64.3	0.5	
59	3	63.4	62.2	54.1	63.9	0.5		62.7	54.1	63.9	0.5		62.7	54.3	63.9	0.5	
59	4	62.9	61.7	53.6	63.4	0.5		62.2	53.7	63.4	0.5		62.2	54.1	63.4	0.5	
59	5	62.4	61.2	53.1	62.9	0.5		61.7	53.2	62.9	0.5		61.7	53.7	62.9	0.5	
59	6	62.0	60.8	52.8	62.5	0.5		61.3	52.8	62.5	0.5		61.3	53.6	62.6	0.6	
59	7	61.7	60.5	52.5	62.2	0.5		61.0	52.6	62.2	0.5		61.0	53.6	62.3	0.6	
59A	1	54.7	53.5	39.0	54.8	0.1		53.6	40.9	54.9	0.2		53.7	39.0	54.8	0.1	
59A	2	54.7	53.5	39.3	54.8	0.1		53.6	40.9	54.9	0.2		53.7	39.1	54.8	0.1	
59A	3	54.7	53.5	39.3	54.8	0.1		53.6	40.7	54.8	0.2		53.6	39.6	54.8	0.1	

69A	1	54.7	57.0	41.7	54.9	0.2		57.2	43.2	55.0	0.3		57.3	42.3	54.9	0.2		57.2	46.5	55.3	0.6		57.6	46.7	55.3	0.6		57.6	42.9	55.0	0.3		57.3	43.1	55.0	0.3		57.3	38.3	54.8	0.1		57.1	44.3	55.1	0.4		57.4	46.8	55.3	0.7		57.6	46.3	55.3	0.6		57.6	35.0	54.7	0.0		57.0
69A	2	54.7	57.0	42.8	54.9	0.3		57.2	44.4	55.1	0.4		57.4	42.9	55.0	0.3		57.3	47.8	55.5	0.8		57.8	48.1	55.5	0.9		57.8	44.3	55.1	0.4		57.4	44.0	55.0	0.4		57.3	38.6	54.8	0.1		57.1	44.7	55.1	0.4		57.4	46.9	55.3	0.7		57.6	47.2	55.4	0.7		57.7	36.1	54.7	0.1		57.0
69A	3	54.7	57.0	44.6	55.1	0.4		57.4	45.8	55.2	0.5		57.5	44.5	55.1	0.4		57.4	49.7	55.9	1.2		58.2	51.9	56.5	1.8		58.8	47.6	55.5	0.8		57.8	45.3	55.1	0.5		57.4	39.2	54.8	0.1		57.1	44.9	55.1	0.4		57.4	47.3	55.4	0.7		57.7	48.8	55.7	1.0		58.0	37.5	54.8	0.1		57.1
69A	4	54.7	57.0	48.1	55.5	0.9		57.8	48.8	55.7	1.0		58.0	48.4	55.6	0.9		57.9	53.5	57.1	2.5		59.4	57.4	59.3	4.6		61.6	48.4	55.6	0.9		57.9	46.0	55.2	0.6		57.5	40.4	54.8	0.2		57.1	45.4	55.2	0.5		57.5	48.2	55.6	0.9		57.9	50.8	56.2	1.5		58.5	40.1	54.8	0.1		57.1
69A	5	54.7	57.0	48.1	55.5	0.9		57.8	48.9	55.7	1.0		58.0	52.8	56.8	2.2		59.1	57.7	59.5	4.8		61.8	61.9	62.7	8.0	YES	65.0	49.5	55.8	1.2		58.1	47.1	55.4	0.7		57.7	42.1	54.9	0.2		57.2	45.9	55.2	0.5		57.5	49.9	55.9	1.2		58.2	52.6	56.8	2.1		59.1	42.5	54.9	0.3		57.2
69A	6	54.7	57.0	49.1	55.7	1.1		58.0	50.4	56.1	1.4		58.4	54.0	57.4	2.7		59.7	59.2	60.5	5.8	YES	62.8	63.5	64.0	9.4	YES	66.3	51.9	56.5	1.8		58.8	48.9	55.7	1.0		58.0	44.2	55.0	0.4		57.3	46.6	55.3	0.6		57.6	50.6	56.1	1.4		58.4	54.4	57.5	2.9		59.8	44.6	55.1	0.4		57.4
69A	7	54.7	57.0	50.6	56.1	1.4		58.4	51.7	56.4	1.8		58.7	55.9	58.3	3.7		60.6	61.1	62.0	7.3	YES	64.3	64.2	64.7	10.0	YES	67.0	55.7	58.2	3.6		60.5	52.4	56.7	2.0		59.0	48.2	55.6	0.9		57.9	48.3	55.6	0.9		57.9	51.7	56.4	1.8		58.7	57.3	59.2	4.5		61.5	48.2	55.6	0.9		57.9
70	1	63.3	65.6	56.3	64.1	0.8		66.4	56.6	64.1	0.8		66.4	57.4	64.3	1.0		66.6	57.3	64.3	1.0		66.6	56.0	64.0	0.7		66.3	56.2	64.1	0.8		66.4	55.7	64.0	0.7		66.3	54.8	63.9	0.6		66.2	55.3	63.9	0.6		66.2	56.0	64.0	0.7		66.3	56.3	64.1	0.8		66.4	59.2	64.7	1.4		67.0
70	2	63.7	66.0	56.9	64.5	0.8		66.8	57.3	64.6	0.9		66.9	58.0	64.7	1.0		67.0	57.8	64.7	1.0		67.0	56.6	64.5	0.8		66.8	56.6	64.5	0.8		66.8	56.0	64.4	0.7		66.7	55.1	64.3	0.6		66.6	55.7	64.3	0.6		66.6	56.4	64.4	0.7		66.7	57.2	64.6	0.9		66.9	59.6	65.1	1.4		67.4
70	3	63.5	65.8	57.4	64.5	1.0		66.8	57.8	64.5	1.0		66.8	58.9	64.8	1.3		67.1	58.8	64.8	1.3		67.1	58.2	64.6	1.1		66.9	56.6	64.3	0.8		66.6	55.9	64.2	0.7		66.5	54.9	64.1	0.6		66.4	55.5	64.1	0.6		66.4	56.5	64.3	0.8		66.6	57.5	64.5	1.0		66.8	59.3	64.9	1.4		67.2
70	4	63.1	65.4	57.9	64.2	1.1		66.5	58.4	64.4	1.3		66.7	59.4	64.6	1.5		66.9	59.6	64.7	1.6		67.0	59.7	64.7	1.6		67.0	57.2	64.1	1.0		66.4	56.5	64.0	0.9		66.3	54.5	63.7	0.6		66.0	55.2	63.8	0.7		66.1	56.7	64.0	0.9		66.3	57.6	64.2	1.1		66.5	58.9	64.5	1.4		66.8
70	5	62.8	65.1	58.2	64.1	1.3		66.4	58.9	64.3	1.5		66.6	60.9	65.0	2.2		67.3	61.0	65.0	2.2		67.3	60.5	64.8	2.0		67.1	57.4	63.9	1.1		66.2	56.4	63.7	0.9		66.0	54.5	63.4	0.6		65.7	55.0	63.5	0.7		65.8	57.3	63.9	1.1		66.2	58.2	64.1	1.3		66.4	58.4	64.1	1.3		66.4
70	6	62.4	64.7	57.8	63.7	1.3		66.0	58.9	64.0	1.6		66.3	61.6	65.0	2.6		67.3	61.6	65.0	2.6		67.3	61.7	65.1	2.7		67.4	57.5	63.6	1.2		65.9	56.4	63.4	1.0		65.7	54.1	63.0	0.6		65.3	54.6	63.1	0.7		65.4	57.9	63.7	1.3		66.0	59.6	64.2	1.8		66.5	57.8	63.7	1.3		66.0
70	7	62.2	64.5	58.1	63.6	1.4		65.9	59.5	64.1	1.9		66.4	62.0	65.1	2.9		67.4	62.2	65.2	3.0	YES	67.5	62.3	65.3	3.1	YES	67.6	58.2	63.7	1.5		66.0	56.6	63.3	1.1		65.6	54.0	62.8	0.6		65.1	54.7	62.9	0.7		65.2	57.9	63.6	1.4		65.9	61.3	64.8	2.6		67.1	57.6	63.5	1.3		65.8
70A	1	56.0	58.3	48.6	56.7	0.7		59.0	49.2	56.8	0.8		59.1	50.0	57.0	1.0		59.3	51.0	57.2	1.2		59.5	49.5	56.9	0.9		59.2	49.4	56.9	0.9		59.2	49.6	56.9	0.9		59.2	47.7	56.6	0.6		58.9	49.6	56.9	0.9		59.2	51.5	57.3	1.3		59.6	52.2	57.5	1.5		59.8	51.9	57.4	1.4		59.7
70A	2	57.5	59.8	50.0	58.2	0.7		60.5	50.5	58.3	0.8		60.6	50.9	58.4	0.9		60.7	51.9	58.6	1.1		60.9	50.5	58.3	0.8		60.6	50.6	58.3	0.8		60.6	50.7	58.3	0.8		60.6	49.1	58.1	0.6		60.4	50.9	58.4	0.9		60.7	52.2	58.6	1.1		60.9	54.1	59.1	1.6		61.4	53.4	58.9	1.4		61.2
70A	3	57.8	60.1	50.5	58.5	0.7		60.8	51.0	58.6	0.8		60.9	51.4	58.7	0.9		61.0	52.3	58.9	1.1		61.2	51.1	58.6	0.8		60.9	51.1	58.6	0.8		60.9	51.2	58.7	0.9		61.0	49.6	58.4	0.6		60.7	51.1	58.6	0.8		60.9	52.6	58.9	1.1		61.2	55.7	59.9	2.1		62.2	53.8	59.3	1.5		61.6
70A	4	57.8	60.1	50.9	58.6	0.8		60.9	51.3	58.7	0.9		61.0	51.5	58.7	0.9		61.0	52.5	58.9	1.1		61.2	51.2	58.7	0.9		61.0	51.5	58.7	0.9		61.0	51.5	58.7	0.9		61.0	49.6	58.4	0.6		60.7	51.1	58.6	0.8		60.9	54.7	59.5	1.7		61.8	59.1	61.5	3.7		63.8	53.7	59.2	1.4		61.5
70A	5	57.6	59.9	51.3	58.5	0.9		60.8	51.8	58.6	1.0		60.9	51.7	58.6	1.0		60.9	52.8	58.8	1.2		61.1	51.4	58.5	0.9		60.8	51.2	58.5	0.9		60.8	51.1	58.5	0.9		60.8	49.7	58.3	0.7		60.6	51.0	58.5	0.9		60.8	55.8	59.8	2.2		62.1	60.2	62.1	4.5		64.4	53.5	59.0	1.4		61.3
70A	6	57.4	59.7	51.3	58.4	1.0		60.7	51.7	58.4	1.0		60.7	51.7	58.4	1.0		60.7	52.2	58.5	1.1		60.8	51.3	58.4	1.0		60.7	51.0	58.3	0.9		60.6	50.6	58.2	0.8		60.5	49.9	58.1	0.7		60.4	51.0	58.3	0.9		60.6	56.6	60.0	2.6		62.3	61.3	62.8	5.4	YES	65.1	53.2	58.8	1.4		61.1
70A	7	57.3	59.6	52.1	58.4	1.1		60.7	52.7	58.6	1.3		60.9	52.8	58.6	1.3		60.9	53.6	58.8	1.5		61.1	52.6	58.6	1.3		60.9	51.4	58.3	1.0		60.6	51.0	58.2	0.9		60.5	50.8	58.2	0.9		60.5	51.1	58.2	0.9		60.5	56.0	59.7	2.4		62.0	62.7	63.8	6.5	YES	66.1	53.0	58.7	1.4		61.0
70B	1	54.7	57.0	42.7	54.9	0.3		57.2	44.3	55.1	0.4		57.4	42.7	54.9	0.3		57.2	45.7	55.2	0.5		57.5	44.7	55.1	0.4		57.4	46.5	55.3	0.6		57.6	43.8	55.0	0.3		57.3	39.6	54.8	0.1		57.1	45.7	55.2	0.5		57.5	48.0	55.5	0.8		57.8	47.8	55.5	0.8		57.8	38.4	54.8	0.1		57.1
70B	2	54.7	57.0	43.0	55.0	0.3		57.3	44.5	55.1	0.4		57.4	43.0	55.0	0.3		57.3	46.2	55.3	0.6		57.6	44.9	55.1	0.4		57.4	47.2	55.4	0.7		57.7	44.3	55.1	0.4		57.4	39.9	54.8	0.1		57.1	45.8	55.2	0.5		57.5	48.2	55.6	0.9		57.9	49.4	55.8	1.1		58.1	39.3	54.8	0.1		57.1
70B	3	54.7	57.0	43.4	55.0	0.3		57.3	44.9	55.1	0.4		57.4	44.5	55.1	0.4		57.4	46.9	55.3	0.7		57.6	45.9	55.2	0.5		57.5	48.2	55.6	0.9		57.9	45.3	55.1	0.5		57.4	40.3	54.8	0.2		57.1	46.1	55.2	0.6		57.5	48.7	55.7	1.0		58.0	52.1	56.6	1.9		58.9	40.3	54.8	0.2		57.1
70B	4	54.7	57.0	44.5	55.1	0.4		57.4	45.8	55.2	0.5		57.5	45.9	55.2	0.5		57.5	47.9	55.5	0.8		57.8	46.7	55.3	0.6		57.6	49.6	55.9	1.2		58.2	46.3	55.3	0.6		57.6	41.3	54.9	0.2		57.2	46.3	55.3	0.6		57.6	49.7	55.9	1.2		58.2	54.2	57.5	2.8		59.8	41.2	54.9	0.2		57.2
70B	5	54.7	57.0	45.7	55.2	0.5		57.5	46.8	55.3	0.7		57.6	48.1	55.5	0.9		57.8	51.6	56.4	1.7		58.7	57.9	59.6	4.9		61.9	51.5	56.4	1.7		58.7	48.8	55.7	1.0		58.0	42.4	54.9	0.2		57.2	46.6	55.3	0.6		57.6	51.3	56.3	1.6		58.6	56.1	58.5	3.8		60.8	42.1	54.9	0.2		57.2
70B	6	54.7	57.0	46.8	55.3	0.7		57.6	47.9	55.5	0.8		57.8	49.8	55.9	1.2		58.2	53.4	57.1	2.4		59.4	59.2	60.5	5.8	YES	62.8	54.9	57.8	3.1		60.1	53.2	57.0	2.3		59.3	44.3	55.1	0.4		57.4	46.8	55.3	0.7		57.6	52.3	56.7	2.0		59.0	58.3	59.9	5.2	YES	62.2	42.5	54.9	0.3		57.2
70B	7	54.7	57.0	48.8	55.7	1.0		58.0	50.0	55.9	1.3		58.2	51.6	56.4	1.7		58.7	54.8	57.7	3.1		60.0	60.0	61.1	6.4	YES	63.4	56.5	58.7	4.0		61.0	54.2	57.5	2.8		59.8	48.3	55.6	0.9		57.9	47.6	55.5	0.8		57.8	54.6	57.6	3.0		59.9	61.0	61.9	7.2	YES	64.2	43.3	55.0	0.3		57.3
71	1	62.3	65.3	51.6	62.7	0.4		65.7	51.7	62.7	0.4		65.7	51.7	62.7	0.4		65.7	52.0	62.7	0.4		65.7	52.0	62.7	0.4		65.7	51.9	62.7	0.4		65.7	51.9	62.7	0.4		65.7	51.8	62.7	0.4		65.7	53.6	62.8	0.5		65.8	55.5	63.1	0.8		66.1	63.2	65.8	3.5	YES	68.8	55.9	63.2	0.9		66.2
71	2	62.4	65.4	52.4	62.8	0.4		65.8	52.5	62.8	0.4		65.8	52.4	62.8	0.4		65.8	52.7	62.8	0.4		65.8	52.7	62.8	0.4		65.8	52.6	62.8	0.4		65.8	52.5	62.8	0.4		65.8	52.4	62.8	0.4		65.8	54.4	63.0	0.6		66.0	55.7	63.2	0.8		66.2	63.4	65.9	3.5	YES	68.9	56.6	63.4	1.0		66.4
71	3	61.8	64.8	52.4	62.3	0.5		65.3	52.5	62.3	0.5		65.3	52.5	62.3	0.5		65.3	52.8	62.3	0.5		65.3	52.7	62.3	0.5		65.3	52.7	62.3	0.5		65.3	52.5	62.3	0.5		65.3	52.4	62.3	0.5		65.3	54.5	62.5	0.7		65.5	56.2	62.9	1.1		65.9	64.3	66.2	4.4	YES	69.2	56.6	62.9	1.1		65.9
71	4	61.2	64.2	52.1	61.7	0.5		64.7	52.3	61.7	0.5		64.7	52.2	61.7	0.5		64.7	52.5	61.7	0.5		64.7	52.5	61.7	0.5		64.7	52.2	61.7	0.5		64.7	52.2	61.7	0.5		64.7	52.0	61.7	0.5		64.7	55.0	62.1	0.9		65.1	57.8	62.8	1.6		65.8	65.1	66.6	5.4	YES	69.6	56.3	62.4	1.2		65.4
71	5	60.5	63.5	51.8	61.0	0.5		64.0	52.0	61.1	0.6		64.1	51.9	61.1	0.6		64.1	52.2	61.1	0.6		64.1	52.3	61.1	0.6		64.1	51.9	61.1	0.6		64.1	51.9	61.1	0.6		64.1	51.6	61.0	0.5		64.0	55.1	61.6	1.1		64.6	58.8	62.7	2.2		65.7	66.2	67.2	6.7	YES	70.2	55.9	61.8	1.3		64.8
71	6	60.0	63.0	51.5	60.6	0.6		63.6	51.7	60.6	0.6		63.6	51.6	60.6	0.6		63.6	51.9	60.6	0.6		63.6	51.9	60.6	0.6		63.6	51.5	60.6	0.6		63.6	51.6	60.6	0.6		63.6	51.3	60.5	0.5		63.5	55.1	61.2	1.2		64.2	59.2	62.6	2.6		65.6	66.5	67.4	7.4	YES	70.4	55.5	61.3	1.3		64.3
71	7	59.5	62.5	51.5	60.1	0.6		63.1	51.8	60.2	0.7		63.2	51.8	60.2	0.7		63.2	52.3	60.3	0.8		63.3	52.3	60.3	0.8		63.3	52.1	60.2	0.7		63.2	51.9	60.2	0.7		63.2	51.1	60.1	0.6		63.1	55.3	60.9	1.4		63.9	61.8	63.8	4.3		66.8	66.6	67.4	7.9	YES	70.4	55.1	60.8	1.3		63.8
71A	1	64.7	67.0	55.9	65.2	0.5		67.5	56.1	65.3	0.6		67.6	57.1	65.4	0.7		67.7	57.6	65.5	0.8		67.8	57.0	65.4	0.7		67.7	56.9	65.4	0.7		67.7	56.5	65.3	0.6		67.6	55.9	65.2	0.5		67.5	56.4	65.3	0.6		67.6	56.8	65.4	0.7		67.7	58.2	65.6	0.9		67.9	60.4	66.1	1.4		68.4
71A	2	64.8	67.1	55.9	65.3	0.5		67.6	56.1	65.3	0.5		67.6	57.1	65.5	0.7		67.8	57.7	65.6	0.8		67.9	57.0	65.5	0.7		67.8	57.0	65.5	0.7		67.8	56.6	65.4	0.6		67.7	55.9	65.3	0.5		67.6	56.6	65.4	0.6		67.7	56.9	65.5	0.7		67.8	58.8	65.8	1.0		68.1	60.4	66.1	1.3		68.4
71A	3	64.3	66.6	55.4	64.8	0.5		67.1	55.7	64.9	0.6		67.2	56.8	65.0	0.7		67.3	57.7	65.2	0.9		67.5	57.7	65.2	0.9		67.5	57.0	65.0	0.7		67.3	56.6	65.0	0.7		67.3	55.3	64.8	0.5		67.1	56.1	64.9	0.6		67.2	56.5	65.0	0.7		67.3	61.0	66.0	1.7		68.3	59.7	65.6	1.3		67.9
71A	4	63.6	65.9	54.8	64.1	0.5		66.4	55.2	64.2	0.6		66.5	56.5	64.4	0.8		66.7	57.3	64.5	0.9		66.8	57.3	64.5	0.9		66.8	56.3	64.3	0.7		66.6	55.8	64.3	0.7		66.6	54.8	64.1	0.5		66.4	55.6	64.2	0.6		66.5	56.6	64.4	0.8		66.7	63.3	66.5	2.9		68.8	59.0	64.9	1.3		67.2
71A	5	63.0	65.3	54.2	63.5	0.5		65.8	54.8	63.6	0.6		65.9	57.1	64.0	1.0		66.3	58.1	64.2	1.2		66.5	57.4	64.1	1.1		66.4	56.5	63.9	0.9		66.2	55.7	63.7	0.7		66.0	54.5	63.6	0.6		65.9	55.2	63.7	0.7		66.0	57.4	64.1	1.1		66.4	63.7	66.4	3.4	YES	68.7	58.3	64.3	1.3		66.6
71A	6	62.5	64.8	53.8	63.0	0.5		65.3	54.6	63.2	0.7		65.5	57.5	63.7	1.2		66.0	58.5	64.0	1.5		66.3	58.0	63.8	1.3		66.1	57.1	63.6	1.1		65.9	56.0	63.4	0.9		65.7	54.3	63.1	0.6		65.4	55.0	63.2	0.7		65.5	57.9	63.8	1.3		66.1	65.5	67.3	4.8	YES	69.6	57.7	63.7	1.2		66.0
71A	7	62.1	64.4	53.6	62.7	0.6		65.0	54.7	62.8	0.7		65.1	57.6	63.4	1.3		65.7	59.0	63.8	1.7		66.1	58.6	63.7	1.6		66.0	58.2	63.6	1.5		65.9	56.8	63.2	1.1		65.5	54.4	62.8	0.7		65.1	55.1	62.9	0.8		65.2	59.9	64.1	2.0		66.4	65.6	67.2	5.1	YES	69.5	57.2	63.3	1.2		65.6
71B	1	58.3	60.6	50.3	58.9	0.6		61.2	50.6	59.0	0.7		61.3	52.1	59.2	0.9		61.5	52.3	59.3	1.0		61.6	50.6	59.0	0.7		61.3	50.4	59.0	0.7		61.3	50.4	59.0	0.7		61.3	49.8	58.9	0.6		61.2	51.4	59.1	0.8		61.4	52.1	59.2	0.9		61.5	52.5	59.3	1.0		61.6	54.1	59.7	1.4		62.0
71B	2	59.1	61.4	51.3	59.8	0.7		62.1	51.6	59.8	0.7		62.1	53.3	60.1	1.0		62.4	53.4	60.1	1.0		62.4	51.3	59.8	0.7		62.1	51.2	59.8	0.7		62.1	51.1	59.7	0.6		62.0	50.6	59.7	0.6		62.0	52.0	59.9	0.8		62.2	52.6	60.0	0.9		62.3	53.4	60.1	1.0		62.4	55.0	60.5	1.4		62.8
71B	3	59.3	61.6	51.8	60.0	0.7		62.3	52.1	60.1	0.8		62.4	55.9	60.9	1.6		63.2	55.9	60.9	1.6		63.2	52.4	60.1	0.8		62.4	51.5	60.0	0.7		62.3	51.3	59.9	0.6		62.2	50.8	59.9	0.6		62.2	52.2	60.1	0.8		62.4	52.6	60.1	0.8		62.4	54.0	60.4	1.1		62.7	55.1	60.7	1.4		63.0
71B	4	59.1	61.4	52.1	59.9	0.8		62.2	52.4	59.9	0.8		62.2	56.1	60.9	1.8		63.2	56.4	61.0	1.9		63.3	53.1	60.1	1.0		62.4	52.3	59.9	0.8		62.2	52.1	59.9	0.8		62.2	50.8	59.7	0.6		62.0	52.3	59.9	0.8		62.2	52.5	60.0	0.9		62.3	54.8	60.5	1.4		62.8	54.9	60.5	1.4		62.8
71B	5	58.9	61.2	52.4	59.8	0.9		62.1	53.0	59.9	1.0		62.2	56.8	61.0	2.1		63.3	57.0	61.1	2.2		63.4	53.5	60.0	1.1		62.3	53.2	59.9	1.0		62.2	52.7	59.8	0.9		62.1	50.9	59.5	0.6		61.8	52.1	59.7	0.8		62.0	52.5	59.8	0.9		62.1	55.8	60.6	1.7		62.9	54.6	60.3	1.4		62.6
71B	6	58.7	61.0	52.8	59.7	1.0		62.0	53.6	59.9	1.2		62.2	57.2	61.0	2.3		63.3	57.5	61.2	2.5		63.5	54.1	60.0	1.3		62.3	54.7	60.2	1.5		62.5	53.5	59.8	1.1		62.1	51.6	59.5	0.8		61.8	52.0	59.5	0.8		61.8	52.5	59.6	0.9		61.9	57.2	61.0	2.3		63.3	54.3	60.0	1.3		62.3
71B	7	58.5	60.8	53.9	59.8	1.3		62.1	54.9	60.1	1.6		62.4	58.6	61.6	3.1		63.9	58.8	61.7	3.2		64.0	55.8	60.4	1.9		62.7	56.3	60.5	2.0		62.8	54.6	60.0	1.5		62.3	52.0	59.4	0.9		61.7	52.1	59.4	0.9		61.7	53.6	59.7	1.2		62.0	59.6	62.1	3.6		64.4	54.0	59.8	1.3		62.1
72	1	59.4	62.4	45.6	59.6	0.2		62.6	46.1	59.6	0.2		62.6	45.8	59.6	0.2		62.6	46.8	59.6	0.2		62.6	46.5	59.6	0.2		62.6	46.9	59.6	0.2		62.6	46.9	59.6	0.2		62.6	47.0	59.6	0.2		62.6	49.0	59.8	0.4		62.8	54.0	60.5	1.1		63.5	60.0	62.7	3.3		65.7	48.7	59.8	0.4		62.8
72	2	59.3	62.3	47.2	59.6	0.3		62.6	47.6	59.6	0.3		62.6	47.1	59.6	0.3		62.6	47.7	59.6	0.3		62.6	47.4	59.6	0.3		62.6	47.6	59.6	0.3		62.6	47.5	59.6	0.3		62.6	48.2	59.6	0.3		62.6	49.9	59.8	0.5		62.8	55.1	60.7	1.4		63.7	60.2	62.8	3.5		65.8	50.4	59.8	0.5		62.8
72	3	58.7	61.7	47.7	59.0	0.3		62.0	48.1	59.1	0.4		62.1	47.7	59.0	0.3		62.0	48.2	59.1	0.4		62.1	47.9	59.0	0.3		62.0	48.2	59.1	0.4		62.1	47.9	59.0	0.3		62.0	48.6	59.1	0.4		62.1	50.3	59.3	0.6		62.3	55.0	60.2	1.5		63.2	61.1	63.1	4.4		66.1	51.0	59.4	0.7		62.4
72	4	58.0	61.0	47.9	58.4	0.4		61.4	48.3	58.4	0.4		61.4	47.9	58.4	0.4		61.4	48.4	58.5	0.5		61.5	48.3	58.4	0.4		61.4	47.6	58.4	0.4		61.4	48.0	58.4	0.4		61.4	47.4	58.4	0.4		61.4	50.5	58.7	0.7		61.7	56.9	60.5	2.5		63.5	61.5	63.1	5.1	YES	66.1	51.2	58.8	0.8		61.8
72	5	57.5	60.5	48.0	58.0	0.5		61.0	48.3	58.0	0.5		61.0	47.9	58.0	0.5		61.0	48.4	58.0	0.5		61.0	48.3	58.0	0.5		61.0	47.7	57.9	0.4		60.9	48.0	58.0	0.5		61.0	47.5	57.9	0.4		60.9	50.7	58.3	0.8		61.3	57.8	60.7	3.2		63.7	62.1	63.4	5.9	YES	66.4	51.3	58.4	0.9		61.4
72	6	57.0	60.0	48.3	57.5	0.5		60.5	48.7	57.6	0.6		60.6	48.4	57.6	0.6		60.6	48.9	57.6	0.6		60.6	48.7	57.6	0.6		60.6	48.7	57.6	0.6		60.6	48.6	57.6	0.6		60.6	47.7	57.5	0.5		60.5	51.0	58.0	1.0		61.0	57.2	60.1	3.1		63.1	62.3	63.4	6.4	YES	66.4	51.3	58.0	1.0		61.0
72A	1	54.7	57.0	43.6	55.0	0.3		57.3	44.5	55.1	0.4		57.4	44.1	55.0	0.4		57.3	45.7	55.2	0.5		57.5	46.8	55.3	0.7		57.6	45.5	55.2	0.5		57.5	45.8	55.2	0.5		57.5	42.8	54.9	0.3		57.2	47.6	55.5	0.8		57.8	50.0	55.9	1.3		58.2	49.6	55.9	1.2		58.2	46.0	55.2	0.6		57.5
72A	2	54.7	57.0	45.3	55.1	0.5		57.4	46.1	55.2	0.6		57.5	45.0	55.1	0.4		57.4	46.6	55.3	0.6		57.6	47.8	55.5	0.8		57.8	46.4	55.3	0.6		57.6	46.5	55.3	0.6		57.6	44.0	55.0	0.4		57.3	48.1	55.5	0.9		57.8	50.6	56.1	1.4		58.4	51.0	56.2	1.6		58.5	47.5	55.4	0.8		57.7
72A	3	54.7	57.0	46.2	55.3	0.6		57.6	46.9	55.3	0.7		57.6	46.6	55.3	0.6		57.6	47.9	55.5	0.8		57.8	49.8	55.9	1.2		58.2	47.5	55.4	0.8		57.7	47.4	55.4	0.7		57.7	45.0	55.1	0.4		57.4	48.6	55.6	1.0		57.9	51.1	56.3	1.6		58.6	52.5	56.7	2.1		59.0	48.6	55.6	1.0		57.9
72A	4	54.7	57.0	46.9	55.3	0.7		57.6	47.6	55.5	0.8		57.8	47.6	55.5	0.8		57.8	48.9	55.7	1.0		58.0	51.7	56.4	1.8		58.7	48.9	55.7	1.0		58.0	48.5	55.6	0.9		57.9	45.6	55.2	0.5		57.5	49.2	55.8	1.1		58.1	51.8	56.5	1.8		58.8	53.8	57.3	2.6		59.6	49.1	55.7	1.1		58.0
72A	5	54.7	57.0	47.8	55.5	0.8		57.8	48.4	55.6	0.9		57.9	48.8	55.7	1.0		58.0	50.2	56.0	1.3		58.3	52.9	56.9	2.2		59.2	51.2	56.3	1.6		58.6	50.0	55.9	1.3		58.2	46.3	55.3	0.6		57.6	49.4	55.8	1.1		58.1	52.8	56.8	2.2		59.1	55.2	58.0	3.3		60.3	49.3	55.8	1.1		58.1
72A	6	54.7	57.0	48.8	55.7	1.0		58.0	49.5	55.8	1.2		58.1	50.3	56.0	1.4		58.3	51.7	56.4	1.8		58.7	53.6	57.2	2.5		59.5	54.6	57.6	3.0		59.9	53.1	57.0	2.3		59.3	47.5	55.4	0.8		57.7	49.6	55.9	1.2		58.2	53.4	57.1	2.4		59.4	57.5	59.3	4.6		61.6	49.4	55.8	1.1		58.1
73	1	59.1	62.1	44.7	59.3	0.2		62.3	45.4	59.3	0.2		62.3	44.9	59.3	0.2		62.3	46.2	59.3	0.2		62.3	46.0	59.3	0.2		62.3	47.8	59.4	0.3		62.4	47.4	59.4	0.3		62.4	43.7	59.2	0.1		62.2	47.7	59.4	0.3		62.4	54.2	60.3	1.2		63.3	60.1	62.6	3.5		65.6	47.0	59.4	0.3		62.4
73	2	59.0	62.0	45.5	59.2	0.2		62.2	46.1	59.2	0.2		62.2	45.8	59.2	0.2		62.2	46.7	59.2	0.2		62.2	46.5	59.2	0.2		62.2	48.2	59.3	0.3		62.3	47.6	59.3	0.3		62.3	44.8	59.2	0.2		62.2	48.6	59.4	0.4		62.4	55.5	60.6	1.6		63.6	61.2	63.2	4.2		66.2	48.4	59.4	0.4		62.4
73	3	58.4	61.4	46.3	58.7	0.3		61.7	46.9	58.7	0.3		61.7	46.6	58.7	0.3		61.7	47.4	58.7	0.3		61.7	47.3	58.7	0.3		61.7	47.7	58.8	0.4		61.8	46.7	58.7	0.3		61.7	45.7	58.6	0.2		61.6	49.2	58.9	0.5		61.9	56.0	60.4	2.0		63.4	60.7	62.7	4.3		65.7	49.4	58.9	0.5		61.9
73	4	57.8	60.8	46.7	58.1	0.3		61.1	47.2	58.2	0.4		61.2	46.9	58.1	0.3		61.1	47.6	58.2	0.4		61.2	47.7	58.2	0.4		61.2	46.3	58.1	0.3		61.1	46.7	58.1	0.3		61.1	46.1	58.1	0.3		61.1	49.5	58.4	0.6		61.4	56.8	60.3	2.5		63.3	61.7	63.2	5.4	YES	66.2	49.8	58.4	0.6		61.4
73	5	57.2	60.2	46.8	57.6	0.4		60.6	47.3	57.6	0.4		60.6	47.0	57.6	0.4		60.6	47.6	57.7	0.5		60.7	47.4	57.6	0.4		60.6	46.5	57.6	0.4		60.6	46.8	57.6	0.4		60.6	46.3	57.5	0.3		60.5	49.7	57.9	0.7		60.9	58.2	60.7	3.5		63.7	61.4	62.8	5.6	YES	65.8	50.0	58.0	0.8		61.0
73	6	56.8	59.8	47.2	57.3	0.5		60.3	47.7	57.3	0.5		60.3	47.7	57.3	0.5		60.3	48.2	57.4	0.6		60.4	47.9	57.3	0.5		60.3	47.3	57.3	0.5		60.3	47.1	57.2	0.4		60.2	46.5	57.2	0.4		60.2	50.0	57.6	0.8		60.6	57.8	60.3	3.5		63.3	62.0	63.1	6.3	YES	66.1	50.1	57.6	0.8		60.6
73A	1	54.7	57.0	44.5	55.1	0.4		57.4	45.5	55.2	0.5		57.5	44.2	55.0	0.4		57.3	46.2	55.3	0.6		57.6	45.6	55.2	0.5		57.5	44.9	55.1	0.4		57.4	45.1	55.1	0.5		57.4	43.1	55.0	0.3		57.3	47.6	55.5	0.8		57.8	48.2	55.6	0.9		57.9	50.4	56.1	1.4		58.4	46.2	55.3	0.6		57.6
73A	2	54.7	57.0	45.3	55.1	0.5		57.4	46.2	55.3	0.6		57.6	45.1	55.1	0.5		57.4	47.0	55.4	0.7		57.7	46.3	55.3	0.6		57.6	46.3	55.3	0.6		57.6	46.1	55.2	0.6		57.5	44.1	55.0	0.4		57.3	48.0	55.5	0.8		57.8	48.6	55.6	1.0		57.9	51.9	56.5	1.8		58.8	47.6	55.5	0.8		57.8
73A	3	54.7	57.0	46.2	55.3	0.6		57.6	47.0	55.4	0.7		57.7	46.5	55.3	0.6		57.6	48.0	55.5	0.8		57.8	47.4	55.4	0.7		57.7	48.0	55.5	0.8		57.8	47.3	55.4	0.7		57.7	45.1	55.1	0.5		57.4	48.6	55.6	1.0		57.9	49.1	55.7	1.1		58.0	53.3	57.1	2.4		59.4	48.8	55.7	1.0		58.0
73A	4	54.7	57.0	46.9	55.3	0.7		57.6	47.7	55.5	0.8		57.8	47.5	55.4	0.8		57.7	49.1	55.7	1.1		58.0	48.4	55.6	0.9		57.9	51.2	56.3	1.6		58.6	50.5	56.1	1.4		58.4	45.7	55.2	0.5		57.5	49.1	55.7	1.1		58.0	49.5	55.8	1.2		58.1	54.1	57.4	2.7		59.7	49.3	55.8	1.1		58.1
73A	5	54.7	57.0	47.7	55.5	0.8		57.8	48.6	55.6	1.0		57.9	48.9	55.7	1.0		58.0	50.9	56.2	1.5		58.5	52.0	56.6	1.9		58.9	53.1	57.0	2.3		59.3	52.3	56.7	2.0		59.0	46.3	55.3	0.6		57.6	49.3	55.8	1.1		58.1	50.0	55.9	1.3		58.2	55.5	58.1	3.4		60.4	49.7	55.9	1.2		58.2
73A	6	54.7	57.0	48.8	55.7	1.0		58.0	50.0	55.9	1.3		58.2	50.3	56.0	1.4		58.3	52.4	56.7	2.0		59.0	53.0	56.9	2.3		59.2	55.1	57.9	3.2		60.2	53.4	57.1	2.4		59.4	47.3	55.4	0.7		57.7	49.5	55.8	1.2		58.1	51.4	56.3	1.7		58.6	59.1	60.4	5.8	YES	62.7	49.7	55.9	1.2		58.2
74	1	57.8	60.1	52.2	58.9	1.1		61.2	52.6	58.9	1.1		61.2	54.3	59.4	1.6		61.7	56.6	60.3	2.5		62.6	59.7	61.9	4.1		64.2	54.8	59.6	1.8		61.9	54.5	59.5	1.7		61.8	47.2	58.2	0.4		60.5	48.4	58.3	0.5		60.6	48.3	58.3	0.5		60.6	48.6	58.3	0.5		60.6	49.0	58.3	0.5		60.6
74	2	58.3	60.6	52.6	59.3	1.0		61.6	53.0	59.4	1.1		61.7	54.3	59.8	1.5		62.1	56.9	60.7	2.4		63.0	60.2	62.4	4.1		64.7	55.4	60.1	1.8		62.4	55.1	60.0	1.7		62.3	48.0	58.7	0.4		61.0	48.8	58.8	0.5		61.1	48.7	58.8	0.5		61.1	49.2	58.8	0.5		61.1	49.7	58.9	0.6		61.2
74	3	58.5	60.8	54.6	60.0	1.5		62.3	54.9	60.1	1.6		62.4	55.3	60.2	1.7		62.5	57.7	61.1	2.6		63.4	61.3	63.1	4.6		65.4	56.4	60.6	2.1		62.9	56.2	60.5	2.0		62.8	49.1	59.0	0.5		61.3	49.2	59.0	0.5		61.3	49.2	59.0	0.5		61.3	50.0	59.1	0.6		61.4	50.3	59.1	0.6		61.4
74	4	58.7	61.0	54.3	60.0	1.3		62.3	54.6	60.1	1.4		62.4	55.6	60.4	1.7		62.7	59.1	61.9	3.2		64.2	62.2	63.8	5.1	YES	66.1	57.1	61.0	2.3		63.3	56.9	60.9	2.2		63.2	50.9	59.4	0.7		61.7	49.7	59.2	0.5		61.5	49.5	59.2	0.5		61.5	51.0	59.4	0.7		61.7	51.0	59.4	0.7		61.7
74	5	59.1	61.4	54.0	60.3	1.2		62.6	54.4	60.4	1.3		62.7	55.4	60.6	1.5		62.9	58.9	62.0	2.9		64.3	63.2	64.6	5.5	YES	66.9	56.3	60.9	1.8		63.2	56.1	60.9	1.8		63.2	53.9	60.2	1.1		62.5	50.4	59.6	0.5		61.9	49.9	59.6	0.5		61.9	52.2	59.9	0.8		62.2	51.6	59.8	0.7		62.1
74	6	59.4	61.7	54.8	60.7	1.3		63.0	55.1	60.8	1.4		63.1	56.2	61.1	1.7		63.4	59.7	62.6	3.2		64.9	64.1	65.4	6.0	YES	67.7	57.0	61.4	2.0		63.7	56.7	61.3	1.9		63.6	52.6	60.2	0.8		62.5	50.9	60.0	0.6		62.3	50.3	59.9	0.5		62.2	50.8	60.0	0.6		62.3	52.2	60.2	0.8		62.5
74	7	59.6	61.9	55.7	61.1	1.5		63.4	56.1	61.2	1.6		63.5	56.6	61.4	1.8		63.7	60.7	63.2	3.6		65.5	64.5	65.7	6.1	YES	68.0	58.5	62.1	2.5		64.4	58.1	61.9	2.3		64.2	53.2	60.5	0.9		62.8	51.1	60.2	0.6		62.5	50.7	60.1	0.5		62.4	51.4	60.2	0.6		62.5	52.7	60.4	0.8		62.7
74	8	59.9	62.2	56.4	61.5	1.6		63.8	56.9	61.7	1.8		64.0	57.3	61.8	1.9		64.1	61.8	64.0	4.1		66.3	64.8	66.0	6.1	YES	68.3	60.0	63.0	3.1		65.3	59.0	62.5	2.6		64.8	53.6	60.8	0.9		63.1	51.8	60.5	0.6		62.8	51.4	60.5	0.6		62.8	52.6	60.6	0.7		62.9	53.4	60.8	0.9		63.1
74A	1	54.7	57.0	42.9	55.0	0.3		57.3	44.5	55.1	0.4		57.4	41.2	54.9	0.2		57.2	46.8	55.3	0.7		57.6	47.4	55.4	0.7		57.7	45.4	55.2	0.5		57.5	44.4	55.1	0.4		57.4	39.4	54.8	0.1		57.1	44.1	55.0	0.4		57.3	46.2	55.3	0.6		57.6	44.5	55.1	0.4		57.4	34.1	54.7	0.0		57.0
74A	2	54.7	57.0	44.0	55.0	0.4		57.3	45.3	55.1	0.5		57.4	41.2	54.9	0.2		57.2	47.0	55.4	0.7		57.7	48.1	55.5	0.9		57.8	46.4	55.3	0.6		57.6	44.8	55.1	0.4		57.4	39.6	54.8	0.1		57.1	44.1	55.0	0.4		57.3	46.4	55.3	0.6		57.6	46.8	55.3	0.7		57.6	34.7	54.7	0.0		57.0
74A	3	54.7	57.0	45.6	55.2	0.5		57.5	46.7	55.3	0.6		57.6	41.8	54.9	0.2		57.2	47.4	55.4	0.7		57.7	48.9	55.7	1.0		58.0	47.0	55.4	0.7		57.7	45.2	55.1	0.5		57.4	40.1	54.8	0.1		57.1	44.3	55.1	0.4		57.4	47.0	55.4	0.7		57.7	47.8	55.5	0.8		57.8	35.4	54.7	0.1		57.0
74A	4	54.7	57.0	49.1	55.7	1.1		58.0	49.8	55.9	1.2		58.2	43.1	55.0	0.3		57.3	47.6	55.5	0.8		57.8	50.5	56.1	1.4		58.4	47.7	55.5	0.8		57.8	45.7	55.2	0.5		57.5	41.0	54.9	0.2		57.2	44.5	55.1	0.4		57.4	48.3	55.6	0.9		57.9	49.8	55.9	1.2		58.2	36.3	54.7	0.1		57.0
74A	5	54.7	57.0	50.7	56.1	1.5		58.4	51.3	56.3	1.6		58.6	44.6	55.1	0.4		57.4	48.4	55.6	0.9		57.9	51.2	56.3	1.6		58.6	48.7	55.7	1.0		58.0	47.0	55.4	0.7		57.7	42.3	54.9	0.2		57.2	44.7	55.1	0.4		57.4	50.0	55.9	1.3		58.2	53.1	57.0	2.3		59.3	37.4	54.8	0.1		57.1
74A	6	54.7	57.0	52.7	56.8	2.1		59.1	53.4	57.1	2.4		59.4	48.1	55.5	0.9		57.8	50.9	56.2	1.5		58.5	52.8	56.8	2.2		59.1	49.3	55.8	1.1		58.1	46.2	55.3	0.6		57.6	42.6	54.9	0.3		57.2	45.7	55.2	0.5		57.5	51.5	56.4	1.7		58.7	57.3	59.2	4.5		61.5	38.9	54.8	0.1		57.1
74A	7	54.7	57.0	55.4	58.1	3.4		60.4	56.0	58.4	3.7		60.7	50.9	56.2	1.5		58.5	52.6	56.8	2.1		59.1	53.9	57.3	2.6		59.6	52.8	56.8	2.2		59.1	49.5	55.8	1.2		58.1	46.9	55.3	0.7		57.6	46.4	55.3	0.6		57.6	53.2	57.0	2.3		59.3	61.0	61.9	7.2	YES	64.2	41.2	54.9	0.2		57.2
74A	8	54.7	57.0	57.8	59.5	4.8		61.8	58.5	60.0	5.3	YES	62.3	57.7	59.5	4.8		61.8	59.1	60.4	5.8	YES	62.7	58.5	60.0	5.3	YES	62.3	57.7	59.5	4.8		61.8	54.5	57.6	2.9		59.9	49.3	55.8	1.1		58.1	49.8	55.9	1.2		58.2	56.3	58.6	3.9		60.9	62.7	63.3	8.7	YES	65.6	45.4	55.2	0.5		57.5
75	1	65.6	67.9	57.4	66.2	0.6		68.5	57.4	66.2	0.6		68.5	57.5	66.2	0.6		68.5	57.8	66.3	0.7		68.6	57.8	66.3	0.7		68.6	57.7	66.3	0.7		68.6	57.5	66.2	0.6		68.5	57.4	66.2	0.6		68.5	58.2	66.3	0.7		68.6	58.4	66.4	0.8		68.7	57.9	66.3	0.7		68.6	60.4	66.7	1.1		69.0
75	2	65.7	68.0	57.5	66.3	0.6		68.6	57.5	66.3	0.6		68.6	57.6	66.3	0.6		68.6	57.9	66.4	0.7		68.7	57.8	66.4	0.7		68.7	57.9	66.4	0.7		68.7	57.6	66.3	0.6		68.6	57.5	66.3	0.6		68.6	58.3	66.4	0.7		68.7	58.8	66.5	0.8		68.8	58.3	66.4	0.7		68.7	60.5	66.8	1.1		69.1
75	3	65.0	67.3	56.8	65.6	0.6		67.9	56.9	65.6	0.6		67.9	57.0	65.6	0.6		67.9	57.3	65.7	0.7		68.0	57.3	65.7	0.7		68.0	57.3	65.7	0.7		68.0	57.0	65.6	0.6		67.9	56.8	65.6	0.6		67.9	57.8	65.8	0.8		68.1	58.9	66.0	1.0		68.3	58.3	65.8	0.8		68.1	59.8	66.1	1.1		68.4
75	4	64.3	66.6	56.1	64.9	0.6		67.2	56.2	64.9	0.6		67.2	56.7	65.0	0.7		67.3	57.1	65.1	0.8		67.4	57.0	65.0	0.7		67.3	56.8	65.0	0.7		67.3	56.4	65.0	0.7		67.3	56.2	64.9	0.6		67.2	57.3	65.1	0.8		67.4	59.3	65.5	1.2		67.8	58.8	65.4	1.1		67.7	59.1	65.4	1.1		67.7
75	5	63.7	66.0	55.5	64.3	0.6		66.6	55.6	64.3	0.6		66.6	56.3	64.4	0.7		66.7	56.9	64.5	0.8		66.8	56.6	64.5	0.8		66.8	57.0	64.5	0.8		66.8	56.4	64.4	0.7		66.7	55.8	64.4	0.7		66.7	56.5	64.5	0.8		66.8	59.9	65.2	1.5		67.5	58.5	64.8	1.1		67.1	58.4	64.8	1.1		67.1
75A	1	54.7	57.7	43.0	55.0	0.3		58.0	43.4	55.0	0.3		58.0	43.4	55.0	0.3		58.0	44.5	55.1	0.4		58.1	44.4	55.1	0.4		58.1	46.4	55.3	0.6		58.3	46.4	55.3	0.6		58.3	43.7	55.0	0.3		58.0	47.6	55.5	0.8		58.5	49.8	55.9	1.2		58.9	59.9	61.0	6.4	YES	64.0	45.6	55.2	0.5		58.2
75A	2	54.7	57.7	44.0	55.0	0.4		58.0	44.3	55.1	0.4		58.1	44.4	55.1	0.4		58.1	45.4	55.2	0.5		58.2	45.3	55.1	0.5		58.1	47.5	55.4	0.8		58.4	47.2	55.4	0.7		58.4	45.1	55.1	0.5		58.1	48.0	55.5	0.8		58.5	50.6	56.1	1.4		59.1	59.6	60.8	6.1	YES	63.8	46.8	55.3	0.7		58.3
75A	3	54.7	57.7	45.2	55.1	0.5		58.1	45.5	55.2	0.5		58.2	45.8	55.2	0.5		58.2	46.6	55.3	0.6		58.3	46.5	55.3	0.6		58.3	48.6	55.6	1.0		58.6	48.0	55.5	0.8		58.5	46.8	55.3	0.7		58.3	48.5	55.6	0.9		58.6	51.3	56.3	1.6		59.3	60.8	61.7	7.1	YES	64.7	48.0	55.5	0.8		58.5
75A	4	54.7	57.7	45.8	55.2	0.5		58.2	46.1	55.2	0.6		58.2	46.6	55.3	0.6		58.3	47.4	55.4	0.7		58.4	47.9	55.5	0.8		58.5	49.9	55.9	1.2		58.9	49.0	55.7	1.0		58.7	48.0	55.5	0.8		58.5	48.7	55.7	1.0		58.7	52.2	56.6	1.9		59.6	60.8	61.7	7.1	YES	64.7	48.6	55.6	1.0		58.6
75A	5	54.7	57.7	46.3	55.3	0.6		58.3	46.5	55.3	0.6		58.3	47.2	55.4	0.7		58.4	48.2	55.6	0.9		58.6	48.7	55.7	1.0		58.7	51.0	56.2	1.6		59.2	48.9	55.7	1.0		58.7	49.2	55.8	1.1		58.8	49.0	55.7	1.0		58.7	56.8	58.9	4.2		61.9	62.3	63.0	8.3	YES	66.0	49.0	55.7	1.0		58.7
75B	1	59.6	62.6	43.6	59.7	0.1		62.7	44.3	59.7	0.1		62.7	43.0	59.7	0.1		62.7	44.5	59.7	0.1		62.7	44.0	59.7	0.1		62.7	43.2	59.7	0.1		62.7	43.8	59.7	0.1		62.7	42.9	59.7	0.1		62.7	47.5	59.9	0.3		62.9	55.3	61.0	1.4		64.0	48.6	59.9	0.3		62.9	44.7	59.7	0.1		62.7
75B	2	59.7	62.7	44.6	59.8	0.1		62.8	45.2	59.9	0.2		62.9	44.2	59.8	0.1		62.8	45.4	59.9	0.2		62.9	45.0	59.8	0.1		62.8	44.9	59.8	0.1		62.8	45.1	59.8	0.1		62.8	44.5	59.8	0.1		62.8	48.6	60.0	0.3		63.0	56.3	61.3	1.6		64.3	49.8	60.1	0.4		63.1	46.2	59.9	0.2		62.9
75B	3	59.2	62.2	45.8	59.4	0.2		62.4	46.2	59.4	0.2		62.4	45.4	59.4	0.2		62.4	46.6	59.4	0.2		62.4	46.2	59.4	0.2		62.4	46.9	59.4	0.2		62.4	46.8	59.4	0.2		62.4	46.3	59.4	0.2		62.4	49.1	59.6	0.4		62.6	53.3	60.2	1.0		63.2	50.6	59.8	0.6		62.8	47.6	59.5	0.3		62.5
75B	4	58.6	61.6	46.0	58.8	0.2		61.8	46.5	58.9	0.3		61.9	45.9	58.8	0.2		61.8	47.4	58.9	0.3		61.9	47.0	58.9	0.3		61.9	48.7	59.0	0.4		62.0	48.0	59.0	0.4		62.0	47.7	58.9	0.3		61.9	49.6	59.1	0.5		62.1	52.9	59.6	1.0		62.6	54.4	60.0	1.4		63.0	47.8	58.9	0.3		61.9
75B	5	58.0	61.0	46.3	58.2	0.3		61.3	46.8	58.3	0.3		61.3	47.0	58.3	0.3		61.3	49.0	58.5	0.5		61.5	48.4	58.5	0.5		61.5	50.5	58.7	0.7		61.7	49.2	58.5	0.5		61.5	48.5	58.5	0.5		61.5	49.8	58.6	0.6		61.6	58.8	61.4	3.4		64.4	56.1	60.2	2.2		63.2	47.9	58.4	0.4		61.4
76	1	62.5	64.8	54.8	63.2	0.7		65.5	54.8	63.2	0.7		65.5	54.9	63.2	0.7		65.5	55.3	63.3	0.8		65.6	55.2	63.2	0.7		65.5	55.2	63.2	0.7		65.5	55.0	63.2	0.7		65.5	54.8	63.2	0.7		65.5	55.6	63.3	0.8		65.6	57.9	63.8	1.3		66.1	55.6	63.3	0.8		65.6	57.7	63.7	1.2		66.0
76	2	62.6	64.9	54.8	63.3	0.7		65.6	54.8	63.3	0.7		65.6	54.9	63.3	0.7		65.6	55.3	63.3	0.7		65.6	55.3	63.3	0.7		65.6	55.2	63.3	0.7		65.6	55.0	63.3	0.7		65.6	54.8	63.3	0.7		65.6	55.7	63.4	0.8		65.7	58.4	64.0	1.4		66.3	55.8	63.4	0.8		65.7	57.7	63.8	1.2		66.1
76	3	62.2	64.5	54.2	62.8	0.6		65.1	54.3	62.9	0.7		65.2	54.4	62.9	0.7		65.2	54.9	62.9	0.7		65.2	54.8	62.9	0.7		65.2	54.7	62.9	0.7		65.2	54.5	62.9	0.7		65.2	54.2	62.8	0.6		65.1	58.2	63.7	1.5		66.0	58.9	63.9	1.7		66.2	55.7	63.1	0.9		65.4	57.2	63.4	1.2		65.7
76	4	61.6	63.9	53.6	62.2	0.6		64.5	53.6	62.2	0.6		64.5	54.2	62.3	0.7		64.6	54.8	62.4	0.8		64.7	54.3	62.3	0.7		64.6	54.6	62.4	0.8		64.7	54.0	62.3	0.7		64.6	53.5	62.2	0.6		64.5	58.1	63.2	1.6		65.5	59.9	63.8	2.2		66.1	56.0	62.7	1.1		65.0	56.5	62.8	1.2		65.1
76A	1	57.5	60.5	46.1	57.8	0.3		60.8	46.4	57.8	0.3		60.8	46.0	57.8	0.3		60.8	46.7	57.8	0.3		60.8	46.6	57.8	0.3		60.8	46.1	57.8	0.3		60.8	46.2	57.8	0.3		60.8	45.8	57.8	0.3		60.8	49.2	58.1	0.6		61.1	56.5	60.0	2.5		63.0	49.9	58.2	0.7		61.2	48.5	58.0	0.5		61.0
76A	2	57.8	60.8	47.6	58.2	0.4		61.2	47.8	58.2	0.4		61.2	47.6	58.2	0.4		61.2	48.1	58.2	0.4		61.2	47.9	58.2	0.4		61.2	47.7	58.2	0.4		61.2	47.8	58.2	0.4		61.2	47.5	58.2	0.4		61.2	50.1	58.5	0.7		61.5	57.6	60.7	2.9		63.7	51.4	58.7	0.9		61.7	50.2	58.5	0.7		61.5
76A	3	57.3	60.3	47.8	57.8	0.5		60.8	48.0	57.8	0.5		60.8	47.8	57.8	0.5		60.8	48.3	57.8	0.5		60.8	48.2	57.8	0.5		60.8	48.2	57.8	0.5		60.8	48.1	57.8	0.5		60.8	47.8	57.8	0.5		60.8	52.2	58.5	1.2		61.5	57.3	60.3	3.0		63.3	52.6	58.6	1.3		61.6	50.4	58.1	0.8		61.1
76A	4	56.8	59.8	47.8	57.3	0.5		60.3	48.0	57.3	0.5		60.3	48.0	57.3	0.5		60.3	48.5	57.4	0.6		60.4	48.5	57.4	0.6		60.4	49.3	57.5	0.7		60.5	48.8	57.4	0.6		60.4	48.5	57.4	0.6		60.4	52.2	58.1	1.3		61.1	58.8	60.9	4.1		63.9	54.7	58.9	2.1		61.9	50.4	57.7	0.9		60.7
77	1	57.5	60.5	42.5	57.6	0.1		60.6	43.1	57.7	0.2		60.7	42.1	57.6	0.1		60.6	43.1	57.7	0.2		60.7	42.7	57.6	0.1		60.6	41.9	57.6	0.1		60.6	42.2	57.6	0.1		60.6	41.5	57.6	0.1		60.6	47.8	57.9	0.4		60.9	55.5	59.6	2.1		62.6	49.1	58.1	0.6		61.1	43.9	57.7	0.2		60.7
77	2	57.6	60.6	43.8	57.8	0.2		60.8	44.3	57.8	0.2		60.8	43.5	57.8	0.2		60.8	44.3	57.8	0.2		60.8	44.0	57.8	0.2		60.8	43.6	57.8	0.2		60.8	43.7	57.8	0.2		60.8	43.3	57.8	0.2		60.8	48.5	58.1	0.5		61.1	56.7	60.2	2.6		63.2	50.2	58.3	0.7		61.3	45.7	57.9	0.3		60.9
77	3	57.0	60.0	44.7	57.2	0.2		60.2	45.1	57.3	0.3		60.3	44.5	57.2	0.2		60.2	45.1	57.3	0.3		60.3	44.9	57.3	0.3		60.3	44.8	57.3	0.3		60.3	44.8	57.3	0.3		60.3	44.5	57.2	0.2		60.2	49.6	57.7	0.7		60.7	56.9	60.0	3.0		63.0	51.8	58.1	1.1		61.1	46.7	57.4	0.4		60.4
77	4	56.3	59.3	44.9	56.6	0.3		59.6	45.3	56.6	0.3		59.6	44.9	56.6	0.3		59.6	45.7	56.7	0.4		59.7	45.5	56.6	0.3		59.6	46.4	56.7	0.4		59.7	46.1	56.7	0.4		59.7	45.8	56.7	0.4		59.7	50.3	57.3	1.0		60.3	57.7	60.1	3.8		63.1	54.8	58.6	2.3		61.6	46.9	56.8	0.5		59.8
77A	1	54.7	57.7	39.0	54.8	0.1		57.8	40.0	54.8	0.1		57.8	38.7	54.8	0.1		57.8	40.8	54.8	0.2		57.8	40.2	54.8	0.2		57.8	38.2	54.8	0.1		57.8	39.2	54.8	0.1		57.8	37.6	54.8	0.1		57.8	46.8	55.3	0.7		58.3	46.8	55.3	0.7		58.3	44.8	55.1	0.4		58.1	39.1	54.8	0.1		57.8
77A	2	54.7	57.7	40.2	54.8	0.2		57.8	40.9	54.9	0.2		57.9	40.0	54.8	0.1		57.8	41.6	54.9	0.2		57.9	41.1	54.9	0.2		57.9	39.8	54.8	0.1		57.8	40.4	54.8	0.2		57.8	39.2	54.8	0.1		57.8	47.3	55.4	0.7		58.4	47.1	55.4	0.7		58.4	45.6	55.2	0.5		58.2	41.2	54.9	0.2		57.9
77A	3	54.7	57.7	40.8	54.8	0.2		57.8	41.4	54.9	0.2		57.9	40.6	54.8	0.2		57.8	42.1	54.9	0.2		57.9	41.7	54.9	0.2		57.9	40.9	54.9	0.2		57.9	41.2	54.9	0.2		57.9	39.9	54.8	0.1		57.8	47.4	55.4	0.7		58.4	47.5	55.4	0.8		58.4	46.5	55.3	0.6		58.3	42.0	54.9	0.2		57.9
77A	4	54.7	57.7	41.0	54.9	0.2		57.9	41.7	54.9	0.2		57.9	41.1	54.9	0.2		57.9	42.7	54.9	0.3		57.9	42.4	54.9	0.2		57.9	42.9	55.0	0.3		58.0	42.5	54.9	0.3		57.9	40.5	54.8	0.2		57.8	48.2	55.6	0.9		58.6	50.0	55.9	1.3		58.9	49.6	55.9	1.2		58.9	42.3	54.9	0.2		57.9
78	1	61.8	64.1	54.8	62.6	0.8		64.9	54.8	62.6	0.8		64.9	54.9	62.6	0.8		64.9	55.3	62.7	0.9		65.0	55.2	62.7	0.9		65.0	55.2	62.7	0.9		65.0	55.0	62.6	0.8		64.9	54.8	62.6	0.8		64.9	57.7	63.2	1.4		65.5	58.0	63.3	1.5		65.6	55.7	62.8	1.0		65.1	57.8	63.3	1.5		65.6
78	2	62.1	64.4	54.9	62.9	0.8		65.2	54.9	62.9	0.8		65.2	55.0	62.9	0.8		65.2	55.4	62.9	0.8		65.2	55.3	62.9	0.8		65.2	55.3	62.9	0.8		65.2	55.1	62.9	0.8		65.2	54.9	62.9	0.8		65.2	58.2	63.6	1.5		65.9	58.8	63.8	1.7		66.1	56.0	63.1	1.0		65.4	57.9	63.5	1.4		65.8
78	3	61.7	64.0	54.4	62.4	0.7		64.7	54.4	62.4	0.7		64.7	54.5	62.5	0.8		64.8	55.0	62.5	0.8		64.8	54.9	62.5	0.8		64.8	54.9	62.5	0.8		64.8	54.6	62.5	0.8		64.8	54.4	62.4	0.7		64.7	58.1	63.3	1.6		65.6	59.8	63.9	2.2		66.2	56.2	62.8	1.1		65.1	57.4	63.1	1.4		65.4
78	4	61.1	63.4	53.7	61.8	0.7		64.1	53.8	61.8	0.7		64.1	54.3	61.9	0.8		64.2	54.8	62.0	0.9		64.3	54.4	61.9	0.8		64.2	54.5	62.0	0.9		64.3	54.1	61.9	0.8		64.2	53.7	61.8	0.7		64.1	58.5	63.0	1.9		65.3	60.1	63.6	2.5		65.9	56.4	62.4	1.3		64.7	56.7	62.4	1.3		64.7
78	5	60.7	63.0	53.1	61.4	0.7		63.7	53.2	61.4	0.7		63.7	54.0	61.5	0.8		63.8	54.5	61.6	0.9		63.9	54.3	61.6	0.9		63.9	54.5	61.6	0.9		63.9	53.8	61.5	0.8		63.8	53.4	61.4	0.7		63.7	60.7	63.7	3.0		66.0	60.1	63.4	2.7		65.7	57.2	62.3	1.6		64.6	56.1	62.0	1.3		64.3
78A	1	54.7	57.7	36.6	54.7	0.1		57.7	38.0	54.8	0.1		57.8	35.8	54.7	0.1		57.7	39.3	54.8	0.1		57.8	38.4	54.8	0.1		57.8	37.1	54.8	0.1		57.8	37.5	54.8	0.1		57.8	33.5	54.7	0.0		57.7	46.2	55.3	0.6		58.3	44.9	55.1	0.4		58.1	42.6	54.9	0.3		57.9	29.6	54.7	0.0		57.7
78A	2	54.7	57.7	36.9	54.7	0.1		57.7	38.2	54.8	0.1		57.8	36.0	54.7	0.1		57.7	39.7	54.8	0.1		57.8	38.8	54.8	0.1		57.8	39.7	54.8	0.1		57.8	38.5	54.8	0.1		57.8	34.3	54.7	0.0		57.7	46.2	55.3	0.6		58.3	45.6	55.2	0.5		58.2	43.1	55.0	0.3		58.0	30.5	54.7	0.0		57.7
78A	3	54.7	57.7	37.4	54.8	0.1		57.8	38.6	54.8	0.1		57.8	36.6	54.7	0.1		57.7	40.5	54.8	0.2		57.8	39.8	54.8	0.1		57.8	42.8	54.9	0.3		57.9	40.5	54.8	0.2		57.8	36.0	54.7	0.1		57.7	46.2	55.3	0.6		58.3	47.4	55.4	0.7		58.4	45.0	55.1	0.4		58.1	31.6	54.7	0.0		57.7
78A	4	54.7	57.7	38.8	54.8	0.1		57.8	39.8	54.8	0.1		57.8	38.3	54.8	0.1		57.8	43.3	55.0	0.3		58.0	42.2	54.9	0.2		57.9	46.7	55.3	0.6		58.3	44.8	55.1	0.4		58.1	41.4	54.9	0.2		57.9	46.2	55.3	0.6		58.3	52.6	56.8	2.1		59.8	50.5	56.1	1.4		59.1	33.1	54.7	0.0		57.7
78A	5	54.7	57.7	39.0	54.8	0.1		57.8	39.9	54.8	0.1		57.8	41.7	54.9	0.2		57.9	47.3	55.4	0.7		58.4	46.2	55.3	0.6		58.3	50.9	56.2	1.5		59.2	48.5	55.6	0.9		58.6	45.6	55.2	0.5		58.2	46.7	55.3	0.6		58.3	54.6	57.6	3.0		60.6	51.2	56.3	1.6		59.3	35.2	54.7	0.0		57.7
AAAA	1	62.9	65.4	61.3	[redacted]			67.7	61.5	[redacted]			67.8	62.4	[redacted]			68.2	63.6	[redacted]			68.8	66.6	[redacted]			70.6	52.1	[redacted]			65.7	79.2	[redacted]			81.8	50.6	[redacted]			65.6	48.2	[redacted]			65.5	59.3	[redacted]			67.0	60.1	[redacted]			67.2	62.2	[redacted]			68.1
AAAA	2	63.6	66.1	61.9	[redacted]			68.3	62.0	[redacted]			68.4	63.5	[redacted]			69.1	65.0	[redacted]			69.9	68.1	[redacted]			71.9	58.3	[redacted]			67.2	80.8	[redacted]			83.4	57.9	[redacted]			67.1	56.6	[redacted]			66.9	59.7	[redacted]			67.6	60.5	[redacted]			67.8	62.7	[redacted]			68.7
AAAA	3	64.1	66.6	62.3	[redacted]			68.8	62.5	[redacted]			68.9	63.9	[redacted]			69.5	66.6	[redacted]			71.0	70.0	[redacted]			73.5	60.2	[redacted]			68.1	80.4	[redacted]			83.0	59.8	[redacted]			68.0	59.6	[redacted]			67.9	59.5	[redacted]			67.9	60.4	[redacted]			68.1	62.5	[redacted]			68.9
AAAA	4	64.6	67.1	63.0	[redacted]			69.4	63.3	[redacted]			69.5	64.1	[redacted]			69.9	67.1	[redacted]			71.5	70.7	[redacted]			74.2	60.0	[redacted]			68.4	80.0	[redacted]			82.6	59.6	[redacted]			68.3	59.3	[redacted]			68.2	59.2	[redacted]			68.2	60.3	[redacted]			68.5	62.2	[redacted]			69.1
AAAA	5	65.0	67.5	63.7	[redacted]			69.9	64.0	[redacted]			70.0	64.3	[redacted]			70.2	68.5	[redacted]			72.6	71.7	[redacted]			75.0	59.9	[redacted]			68.7	79.6	[redacted]			82.2	59.6	[redacted]			68.6	59.0	[redacted]			68.5	58.9	[redacted]			68.5	60.2	[redacted]			68.7	61.9	[redacted]			69.2
AAAA	6	65.2	67.7	64.2	[redacted]			70.2	64.5	[redacted]			70.4	64.5	[redacted]			70.4	69.1	[redacted]			73.1	72.2	[redacted]			75.5	59.9	[redacted]			68.8	79.2	[redacted]			81.9	59.4	[redacted]			68.7	58.8	[redacted]			68.6	58.7	[redacted]			68.6	60.1	[redacted]			68.9	61.6	[redacted]			69.3
AAAA	7	65.4	67.9	64.7	[redacted]			70.6	65.1	[redacted]			70.8	64.8	[redacted]			70.6	69.4	[redacted]			73.4	72.3	[redacted]			75.6	60.0	[redacted]			69.0	78.7	[redacted]			81.4	59.5	[redacted]			68.9	58.5	[redacted]			68.7	58.4	[redacted]			68.7	60.1	[redacted]			69.0	61.3	[redacted]			69.3
AAAA	8	65.5	68.0	65.2	[redacted]			70.9	65.6	[redacted]			71.1	64.9	[redacted]			70.7	69.4	[redacted]			73.4	72.5	[redacted]			75.8	60.2	[redacted]			69.1	78.3	[redacted]			81.0	59.8	[redacted]			69.0	58.3	[redacted]			68.8	58.2	[redacted]			68.7	60.1	[redacted]			69.1	61.0	[redacted]			69.3
AAAA01	1	54.7	57.2	57.8	[redacted]			62.0	58.1	[redacted]			62.2	60.6	[redacted]			64.1	62.4	[redacted]			65.6	66.3	[redacted]			69.1	54.0	[redacted]			59.9	76.1	[redacted]			78.6	73.3	[redacted]			75.9	48.1	[redacted]			58.0	50.4	[redacted]			58.6	51.1	[redacted]			58.8	53.1	[redacted]			59.5
AAAA01	2	54.7	57.2	58.6	[redacted]			62.6	59.0	[redacted]			62.9	62.0	[redacted]			65.2	63.9	[redacted]			66.9	67.5	[redacted]			70.2	55.3	[redacted]			60.5	78.0	[redacted]			80.5	73.4	[redacted]			76.0	50.2	[redacted]			58.5	51.8	[redacted]			59.0	52.4	[redacted]			59.2	54.5	[redacted]			60.1
AAAA01	3	55.6	58.1	60.0	[redacted]			63.8	60.4	[redacted]			64.1	62.9	[redacted]			66.1	64.9	[redacted]			67.9	68.2	[redacted]			70.9	56.5	[redacted]			61.6	77.9	[redacted]			80.4	72.9	[redacted]			75.5	52.2	[redacted]			59.7	53.0	[redacted]			60.0	53.5	[redacted]			60.2	55.7	[redacted]			61.2
AAAA01	4	56.0	58.5	61.6	[redacted]			65.2	62.0	[redacted]			65.5	63.5	[redacted]			66.7	66.3	[redacted]			69.2	70.1	[redacted]			72.8	57.4	[redacted]			62.3	78.1	[redacted]			80.6	72.7	[redacted]			75.3	53.1	[redacted]			60.3	53.2	[redacted]			60.3	53.7	[redacted]			60.5	55.9	[redacted]			61.5
AAAA01	5	56.2	58.7	62.1	[redacted]			65.6	62.5	[redacted]			65.9	63.8	[redacted]			67.0	67.2	[redacted]			70.0	70.6	[redacted]			73.3	58.5	[redacted]			63.0	78.0	[redacted]			80.5	72.4	[redacted]			75.0	54.4	[redacted]			60.9	53.2	[redacted]			60.5	53.6	[redacted]			60.6	55.8	[redacted]			61.5
AAAA01	6	56.3	58.8	63.1	[redacted]			66.4	63.5	[redacted]			66.8	64.2	[redacted]			67.4	67.6	[redacted]			70.4	70.9	[redacted]			73.5	59.2	[redacted]			63.5	77.7	[redacted]			80.2	72.0	[redacted]			74.6	54.9	[redacted]			61.2	53.2	[redacted]			60.5	53.8	[redacted]			60.7	55.8	[redacted]			61.6
AAAA01	7	56.4	58.9	63.9	[redacted]			67.1	64.4	[redacted]			67.5	64.4	[redacted]			67.5	68.6	[redacted]			71.4	71.1	[redacted]			73.7	60.1	[redacted]			64.1	77.5	[redacted]			80.0	71.8	[redacted]			74.4	55.4	[redacted]			61.4	53.1	[redacted]			60.6	53.9	[redacted]			60.8	55.7	[redacted]			61.6
AAAA01	8	56.6	59.1	65.1	[redacted]			68.2	65.5	[redacted]			68.5	64.8	[redacted]			67.9	69.1	[redacted]			71.8	71.6	[redacted]			74.2	59.2	[redacted]			63.6	77.2	[redacted]			79.7	71.3	[redacted]			73.9	56.3	[redacted]			62.0	53.1	[redacted]			60.7	53.9	[redacted]			61.0	55.7	[redacted]			61.7

AAAA01	9	56.8	59.3	64.8	[redacted]	67.9	65.3	[redacted]	68.4	65.0	[redacted]	68.1	69.4	[redacted]	72.1	71.6	[redacted]	74.2	59.9	[redacted]	64.1	76.9	[redacted]	79.4	70.9	[redacted]	73.6	57.8	[redacted]	62.8	53.1	[redacted]	60.8	53.9	[redacted]	61.1	55.6	[redacted]	61.8
AAAA01	10	56.9	59.4	65.2	[redacted]	68.3	65.8	[redacted]	68.8	65.1	[redacted]	68.2	69.7	[redacted]	72.4	71.8	[redacted]	74.4	60.3	[redacted]	64.4	76.7	[redacted]	79.2	70.5	[redacted]	73.2	59.8	[redacted]	64.1	52.9	[redacted]	60.9	54.0	[redacted]	61.2	55.4	[redacted]	61.7
AAAA01	11	57.6	60.1	65.8	[redacted]	68.9	66.4	[redacted]	69.4	65.2	[redacted]	68.4	69.8	[redacted]	72.6	72.0	[redacted]	74.7	61.1	[redacted]	65.2	76.4	[redacted]	79.0	70.3	[redacted]	73.0	62.4	[redacted]	66.1	52.8	[redacted]	61.3	54.1	[redacted]	61.7	55.3	[redacted]	62.1
AAAA01	16	59.5	62.0	66.1	[redacted]	69.5	66.7	[redacted]	70.0	65.1	[redacted]	68.7	70.1	[redacted]	73.0	71.8	[redacted]	74.5	62.6	[redacted]	66.8	75.1	[redacted]	77.7	73.9	[redacted]	76.6	66.6	[redacted]	69.9	52.8	[redacted]	62.8	54.1	[redacted]	63.1	54.8	[redacted]	63.3
AAAA02	1	54.7	57.7	56.8	[redacted]	61.9	57.3	[redacted]	62.2	59.7	[redacted]	63.9	62.5	[redacted]	66.2	67.2	[redacted]	70.4	53.5	[redacted]	60.1	79.9	[redacted]	82.9	73.6	[redacted]	76.7	60.2	[redacted]	64.3	42.7	[redacted]	57.9	42.4	[redacted]	57.9	48.2	[redacted]	58.6
AAAA02	2	54.7	57.7	57.9	[redacted]	62.6	58.4	[redacted]	62.9	62.1	[redacted]	65.8	64.5	[redacted]	67.9	68.8	[redacted]	72.0	54.5	[redacted]	60.6	81.9	[redacted]	84.9	73.6	[redacted]	76.7	61.5	[redacted]	65.3	43.6	[redacted]	58.0	43.3	[redacted]	58.0	49.7	[redacted]	58.9
AAAA02	3	54.7	57.7	60.9	[redacted]	64.8	61.3	[redacted]	65.2	63.4	[redacted]	66.9	66.6	[redacted]	69.9	70.5	[redacted]	73.6	55.5	[redacted]	61.1	81.4	[redacted]	84.4	73.1	[redacted]	76.2	62.1	[redacted]	65.8	44.0	[redacted]	58.0	43.7	[redacted]	58.0	50.7	[redacted]	59.1
AAAA02	4	54.7	57.7	61.5	[redacted]	65.3	62.2	[redacted]	65.9	63.9	[redacted]	67.4	67.0	[redacted]	70.2	71.3	[redacted]	74.4	56.0	[redacted]	61.4	81.1	[redacted]	84.1	72.7	[redacted]	75.8	62.4	[redacted]	66.1	44.3	[redacted]	58.1	44.1	[redacted]	58.0	51.1	[redacted]	59.3
AAAA02	5	54.7	57.7	63.3	[redacted]	66.9	63.7	[redacted]	67.2	64.4	[redacted]	67.8	67.8	[redacted]	71.0	71.5	[redacted]	74.6	56.8	[redacted]	61.9	80.6	[redacted]	83.6	72.3	[redacted]	75.4	62.5	[redacted]	66.2	44.6	[redacted]	58.1	44.4	[redacted]	58.1	51.3	[redacted]	59.3
AAAA02	6	54.7	57.7	65.4	[redacted]	68.8	65.9	[redacted]	69.2	64.6	[redacted]	68.0	68.9	[redacted]	72.1	72.5	[redacted]	75.6	57.8	[redacted]	62.5	80.1	[redacted]	83.1	71.5	[redacted]	74.6	59.4	[redacted]	63.7	44.9	[redacted]	58.1	44.7	[redacted]	58.1	51.8	[redacted]	59.5
AAAA02	7	54.7	57.7	64.8	[redacted]	68.2	65.5	[redacted]	68.8	65.0	[redacted]	68.4	69.4	[redacted]	72.5	72.7	[redacted]	75.8	59.0	[redacted]	63.4	79.6	[redacted]	82.6	71.5	[redacted]	74.6	59.2	[redacted]	63.5	45.2	[redacted]	58.1	45.1	[redacted]	58.1	52.0	[redacted]	59.6
AAAA02	8	54.7	57.7	65.9	[redacted]	69.2	66.4	[redacted]	69.7	65.2	[redacted]	68.6	69.7	[redacted]	72.8	72.9	[redacted]	76.0	60.2	[redacted]	64.3	79.2	[redacted]	82.2	71.1	[redacted]	74.2	59.0	[redacted]	63.4	45.6	[redacted]	58.2	45.5	[redacted]	58.2	52.2	[redacted]	59.6
AAAA03	1	58.8	61.1	59.3	[redacted]	64.4	59.7	[redacted]	64.6	60.4	[redacted]	65.0	62.5	[redacted]	66.3	68.1	[redacted]	70.9	52.6	[redacted]	62.0	84.3	[redacted]	86.6	74.6	[redacted]	77.0	74.1	[redacted]	76.5	47.9	[redacted]	61.4	47.8	[redacted]	61.4	56.3	[redacted]	63.0
AAAA03	2	59.4	61.7	60.5	[redacted]	65.3	60.8	[redacted]	65.5	62.7	[redacted]	66.7	66.3	[redacted]	69.4	72.1	[redacted]	74.6	54.4	[redacted]	62.9	85.3	[redacted]	87.6	74.5	[redacted]	76.9	74.0	[redacted]	76.4	49.0	[redacted]	62.1	48.9	[redacted]	62.1	56.9	[redacted]	63.6
AAAA03	3	59.7	62.0	62.6	[redacted]	66.7	62.9	[redacted]	66.9	63.0	[redacted]	67.0	69.7	[redacted]	72.4	75.1	[redacted]	77.5	55.5	[redacted]	63.4	84.6	[redacted]	86.9	73.8	[redacted]	76.3	73.9	[redacted]	76.4	49.9	[redacted]	62.4	49.8	[redacted]	62.4	57.0	[redacted]	63.9
AAAA03	4	59.8	62.1	64.2	[redacted]	67.8	64.5	[redacted]	68.1	64.0	[redacted]	67.7	71.1	[redacted]	73.7	77.0	[redacted]	79.4	56.7	[redacted]	63.8	83.7	[redacted]	86.0	73.5	[redacted]	76.0	73.6	[redacted]	76.1	50.4	[redacted]	62.6	50.4	[redacted]	62.6	56.9	[redacted]	63.9
AAAA03	5	59.9	62.2	64.8	[redacted]	68.3	65.2	[redacted]	68.6	64.7	[redacted]	68.2	71.7	[redacted]	74.3	76.9	[redacted]	79.3	57.8	[redacted]	64.3	82.8	[redacted]	85.1	73.1	[redacted]	75.6	73.2	[redacted]	75.7	50.6	[redacted]	62.7	50.6	[redacted]	62.7	56.7	[redacted]	63.9
AAAA03	6	59.8	62.1	66.0	[redacted]	69.2	66.5	[redacted]	69.6	65.1	[redacted]	68.5	72.7	[redacted]	75.2	76.6	[redacted]	79.0	58.1	[redacted]	64.3	81.9	[redacted]	84.2	72.6	[redacted]	75.1	72.7	[redacted]	75.2	50.5	[redacted]	62.6	50.5	[redacted]	62.6	56.4	[redacted]	63.7
AAAA03	7	59.9	62.2	66.0	[redacted]	69.3	66.6	[redacted]	69.7	65.4	[redacted]	68.8	72.7	[redacted]	75.2	76.3	[redacted]	78.7	58.4	[redacted]	64.5	81.2	[redacted]	83.5	72.1	[redacted]	74.7	72.3	[redacted]	74.8	50.6	[redacted]	62.7	50.8	[redacted]	62.7	56.3	[redacted]	63.8
AAAA03	8	59.9	62.2	66.1	[redacted]	69.3	66.8	[redacted]	69.9	65.6	[redacted]	68.9	73.9	[redacted]	76.4	76.0	[redacted]	78.4	58.7	[redacted]	64.7	80.5	[redacted]	82.8	71.1	[redacted]	73.7	71.5	[redacted]	74.1	50.7	[redacted]	62.7	50.9	[redacted]	62.7	56.1	[redacted]	63.7
AAAA04	9	54.7	57.2	65.4	[redacted]	68.3	65.8	[redacted]	68.6	65.1	[redacted]	68.0	69.8	[redacted]	72.4	72.7	[redacted]	75.3	59.7	[redacted]	63.4	79.4	[redacted]	81.9	53.8	[redacted]	59.8	49.8	[redacted]	58.4	46.4	[redacted]	57.8	52.1	[redacted]	59.1	46.2	[redacted]	57.8
AAAA04	10	64.7	67.2	65.4	[redacted]	70.6	65.8	[redacted]	70.8	65.0	[redacted]	70.4	69.9	[redacted]	73.5	72.6	[redacted]	75.8	59.9	[redacted]	68.4	78.9	[redacted]	81.6	57.6	[redacted]	68.0	55.3	[redacted]	67.7	54.5	[redacted]	67.6	57.8	[redacted]	68.0	56.8	[redacted]	67.9
AAAA04	11	64.8	67.3	65.4	[redacted]	70.6	65.9	[redacted]	70.9	65.0	[redacted]	70.4	70.1	[redacted]	73.7	72.5	[redacted]	75.7	60.2	[redacted]	68.6	78.3	[redacted]	81.0	59.0	[redacted]	68.3	58.9	[redacted]	68.3	57.4	[redacted]	68.0	59.7	[redacted]	68.5	59.9	[redacted]	68.5
AAAA04	16	64.8	67.3	65.5	[redacted]	70.7	66.2	[redacted]	71.1	64.8	[redacted]	70.3	70.4	[redacted]	74.0	72.1	[redacted]	75.3	63.2	[redacted]	69.6	76.3	[redacted]	79.1	63.2	[redacted]	69.6	64.9	[redacted]	70.4	57.1	[redacted]	68.0	59.3	[redacted]	68.4	58.7	[redacted]	68.3
AAAA05	9	54.7	57.2	65.4	[redacted]	68.3	65.9	[redacted]	68.7	65.1	[redacted]	68.0	69.5	[redacted]	72.1	72.2	[redacted]	74.8	59.2	[redacted]	63.0	78.7	[redacted]	81.2	67.5	[redacted]	70.2	63.4	[redacted]	66.4	37.0	[redacted]	57.2	35.5	[redacted]	57.2	33.9	[redacted]	57.2
AAAA05	10	54.7	57.2	65.7	[redacted]	68.5	66.2	[redacted]	69.0	65.1	[redacted]	68.0	69.8	[redacted]	72.4	72.3	[redacted]	74.9	60.1	[redacted]	63.7	78.3	[redacted]	80.8	68.1	[redacted]	70.8	64.1	[redacted]	67.1	38.0	[redacted]	57.3	37.1	[redacted]	57.3	39.1	[redacted]	57.3
AAAA05	11	54.7	57.2	65.9	[redacted]	68.7	66.5	[redacted]	69.3	65.1	[redacted]	68.0	70.0	[redacted]	72.6	72.3	[redacted]	74.9	59.7	[redacted]	63.4	78.0	[redacted]	80.5	68.1	[redacted]	70.8	63.7	[redacted]	66.7	37.8	[redacted]	57.3	36.7	[redacted]	57.2	42.5	[redacted]	57.4
AAAA05	16	57.0	59.5	66.2	[redacted]	69.2	66.9	[redacted]	69.8	65.1	[redacted]	68.2	70.2	[redacted]	72.9	72.1	[redacted]	74.7	62.8	[redacted]	66.3	76.3	[redacted]	78.9	71.2	[redacted]	73.9	67.6	[redacted]	70.5	39.7	[redacted]	59.6	39.9	[redacted]	59.6	45.5	[redacted]	59.8
AAAA06	9	54.7	57.7	66.2	[redacted]	69.5	66.8	[redacted]	70.1	65.6	[redacted]	68.9	70.7	[redacted]	73.8	73.9	[redacted]	77.0	58.0	[redacted]	62.7	81.7	[redacted]	84.7	59.8	[redacted]	64.0	53.8	[redacted]	60.3	39.4	[redacted]	57.8	38.7	[redacted]	57.8	41.8	[redacted]	57.9
AAAA06	10	54.7	57.7	66.1	[redacted]	69.4	66.8	[redacted]	70.1	65.6	[redacted]	68.9	71.0	[redacted]	74.1	73.7	[redacted]	76.8	58.7	[redacted]	63.1	80.9	[redacted]	83.9	60.9	[redacted]	64.8	55.4	[redacted]	61.1	44.8	[redacted]	58.1	44.6	[redacted]	58.1	50.7	[redacted]	59.1
AAAA06	11	54.7	57.7	66.0	[redacted]	69.3	66.8	[redacted]	70.1	65.7	[redacted]	69.0	71.7	[redacted]	74.8	73.6	[redacted]	76.7	59.5	[redacted]	63.7	80.2	[redacted]	83.2	61.8	[redacted]	65.6	58.6	[redacted]	63.1	46.0	[redacted]	58.2	45.9	[redacted]	58.2	52.1	[redacted]	59.6
AAAA06	16	54.7	57.7	66.0	[redacted]	69.3	67.0	[redacted]	70.2	65.5	[redacted]	68.8	71.8	[redacted]	74.9	72.9	[redacted]	76.0	62.4	[redacted]	66.1	77.3	[redacted]	80.3	66.4	[redacted]	69.7	63.1	[redacted]	66.7	47.0	[redacted]	58.4	46.9	[redacted]	58.3	52.8	[redacted]	59.8
AAAA07	9	54.7	57.0	66.0	[redacted]	68.6	66.6	[redacted]	69.2	65.6	[redacted]	68.2	72.6	[redacted]	75.0	75.2	[redacted]	77.5	58.3	[redacted]	62.2	81.7	[redacted]	84.0	56.9	[redacted]	61.2	61.4	[redacted]	64.5	44.7	[redacted]	57.4	46.1	[redacted]	57.5	43.7	[redacted]	57.3
AAAA07	10	58.4	60.7	66.0	[redacted]	69.0	66.8	[redacted]	69.7	65.6	[redacted]	68.7	73.4	[redacted]	75.8	75.0	[redacted]	77.4	58.7	[redacted]	63.9	81.0	[redacted]	83.3	61.6	[redacted]	65.6	64.6	[redacted]	67.8	50.6	[redacted]	61.4	51.6	[redacted]	61.5	53.6	[redacted]	61.9
AAAA07	11	59.5	61.8	66.1	[redacted]	69.3	66.8	[redacted]	69.8	65.6	[redacted]	68.9	73.2	[redacted]	75.7	74.7	[redacted]	77.1	59.1	[redacted]	64.6	80.3	[redacted]	82.6	64.1	[redacted]	67.7	67.5	[redacted]	70.4	51.1	[redacted]	62.4	51.9	[redacted]	62.5	54.6	[redacted]	63.0
AAAA07	16	59.6	61.9	66.1	[redacted]	69.3	67.1	[redacted]	70.1	65.5	[redacted]	68.8	72.7	[redacted]	75.2	73.6	[redacted]	76.1	62.7	[redacted]	66.7	77.4	[redacted]	79.8	67.4	[redacted]	70.4	66.2	[redacted]	69.4	52.5	[redacted]	62.7	52.2	[redacted]	62.6	54.9	[redacted]	63.2
BBBB	1	54.7	57.7	76.1	[redacted]	79.1	77.1	[redacted]	80.1	59.4	[redacted]	63.7	63.2	[redacted]	66.8	68.2	[redacted]	71.4	60.5	[redacted]	64.5	61.8	[redacted]	65.6	58.4	[redacted]	62.9	56.7	[redacted]	61.8	52.7	[redacted]	59.8	52.7	[redacted]	59.8	57.5	[redacted]	62.3
BBBB	2	55.5	58.5	80.0	[redacted]	83.0	80.7	[redacted]	83.7	61.6	[redacted]	65.6	67.0	[redacted]	70.3	72.4	[redacted]	75.5	61.5	[redacted]	65.5	62.6	[redacted]	66.4	59.3	[redacted]	63.8	57.7	[redacted]	62.7	54.1	[redacted]	60.9	54.1	[redacted]	60.9	59.3	[redacted]	63.8
BBBB	3	55.9	58.9	81.0	[redacted]	84.0	81.6	[redacted]	84.6	63.1	[redacted]	66.9	69.5	[redacted]	72.7	74.8	[redacted]	77.9	65.1	[redacted]	68.6	65.7	[redacted]	69.1	60.3	[redacted]	64.6	58.5	[redacted]	63.4	55.2	[redacted]	61.6	55.2	[redacted]	61.6	60.1	[redacted]	64.5
BBBB	4	56.0	59.0	80.2	[redacted]	83.2	80.9	[redacted]	83.9	70.7	[redacted]	73.8	71.0	[redacted]	74.1	76.3	[redacted]	79.3	65.7	[redacted]	69.1	66.4	[redacted]	69.8	61.2	[redacted]	65.3	59.0	[redacted]	63.8	55.5	[redacted]	61.8	55.5	[redacted]	61.8	60.2	[redacted]	64.6
BBBB	5	55.9	58.9	79.5	[redacted]	82.5	80.2	[redacted]	83.2	71.5	[redacted]	74.6	72.3	[redacted]	75.4	76.9	[redacted]	79.9	66.7	[redacted]	70.0	67.3	[redacted]	70.6	61.1	[redacted]	65.2	59.4	[redacted]	64.0	55.5	[redacted]	61.7	55.5	[redacted]	61.7	60.1	[redacted]	64.5
BBBB	6	54.8	57.8	78.9	[redacted]	81.9	79.6	[redacted]	82.6	71.5	[redacted]	74.6	72.5	[redacted]	75.6	77.1	[redacted]	80.1	66.7	[redacted]	70.0	67.2	[redacted]	70.4	61.6	[redacted]	65.4	59.9	[redacted]	64.1	55.6	[redacted]	61.2	55.6	[redacted]	61.2	60.0	[redacted]	64.1
BBBB	7	54.7	57.7	78.3	[redacted]	81.3	79.1	[redacted]	82.1	71.3	[redacted]	74.4	73.4	[redacted]	76.5	77.3	[redacted]	80.3	67.8	[redacted]	71.0	68.2	[redacted]	71.4	62.2	[redacted]	65.9	60.1	[redacted]	64.2	55.6	[redacted]	61.2	55.7	[redacted]	61.2	59.8	[redacted]	64.0
BBBB	8	55.2	58.2	77.7	[redacted]	80.7	78.5	[redacted]	81.5	71.2	[redacted]	74.3	73.7	[redacted]	76.8	77.1	[redacted]	80.1	68.3	[redacted]	71.5	68.6	[redacted]	71.8	63.0	[redacted]	66.7	60.2	[redacted]	64.4	55.7	[redacted]	61.5	55.8	[redacted]	61.5	59.6	[redacted]	63.9
BBBB01	1	66.5	65.3	75.7	[redacted]	75.0	77.9	[redacted]	77.0	58.5	[redacted]	65.9	54.1	[redacted]	65.5	52.3	[redacted]	65.5	45.8	[redacted]	65.3	55.9	[redacted]	65.7	53.9	[redacted]	65.5	50.0	[redacted]	65.4	38.1	[redacted]	65.3	37.1	[redacted]	65.3	60.6	[redacted]	66.3
BBBB01	2	66.5	65.3	78.1	[redacted]	77.2	80.2	[redacted]	79.2	59.9	[redacted]	66.2	56.7	[redacted]	65.7	60.8	[redacted]	66.3	47.8	[redacted]	65.4	57.2	[redacted]	65.8	54.0	[redacted]	65.5	50.7	[redacted]	65.4	38.8	[redacted]	65.3	38.1	[redacted]	65.3	60.5	[redacted]	66.3
BBBB01	3	66.0	64.8	78.0	[redacted]	77.1	79.7	[redacted]	78.7	63.5	[redacted]	66.7	58.1	[redacted]	65.5	63.3	[redacted]	66.7	49.5	[redacted]	64.9	59.5	[redacted]	65.7	54.6	[redacted]	65.1	51.6	[redacted]	65.0	40.1	[redacted]	64.8	39.5	[redacted]	64.8	59.9	[redacted]	65.8
BBBB01	4	65.4	64.2	77.7	[redacted]	76.7	79.2	[redacted]	78.2	76.9	[redacted]	76.0	58.0	[redacted]	64.9	61.6	[redacted]	65.7	48.0	[redacted]	64.3	60.4	[redacted]	65.4	55.3	[redacted]	64.6	52.5	[redacted]	64.4	40.5	[redacted]	64.2	40.0	[redacted]	64.2	59.1	[redacted]	65.1
BBBB01	5	64.7	63.5	77.4	[redacted]	76.4	78.8	[redacted]	77.8	77.0	[redacted]	76.0	58.4	[redacted]	64.4	62.4	[redacted]	65.5	47.1	[redacted]	63.6	61.1	[redacted]	65.1	56.1	[redacted]	64.1	52.9	[redacted]	63.8	40.8	[redacted]	63.5	40.3	[redacted]	63.5	58.4	[redacted]	64.4
BBBB01	6	64.1	62.9	77.1	[redacted]	76.1	78.4	[redacted]	77.4	76.1	[redacted]	75.2	59.6	[redacted]	64.2	62.7	[redacted]	65.3	47.5	[redacted]	63.0	61.6	[redacted]	64.8	56.8	[redacted]	63.6	53.4	[redacted]	63.3	41.0	[redacted]	62.9	40.7	[redacted]	62.9	57.7	[redacted]	63.8
BBBB01	7	62.6	61.4	76.8	[redacted]	75.8	78.0	[redacted]	76.9	74.9	[redacted]	73.9	60.8	[redacted]	63.6	62.9	[redacted]	64.6	47.9	[redacted]	61.5	60.7	[redacted]	63.6	58.3	[redacted]	62.8	55.5	[redacted]	62.2	41.3	[redacted]	61.4	40.9	[redacted]	61.4	55.8	[redacted]	62.2
BBBB01	8	62.4	61.2	76.6	[redacted]	75.6	77.7	[redacted]	76.6	73.7	[redacted]	72.8	63.2	[redacted]	64.6	63.3	[redacted]	64.7	48.4	[redacted]	61.4	62.3	[redacted]	64.2	59.0	[redacted]	62.8	56.0	[redacted]	62.1	41.6	[redacted]	61.2	41.4	[redacted]	61.2	55.0	[redacted]	61.9
BBBB02	1	62.0	65.7	80.1	[redacted]	83.9	80.5	[redacted]	84.3	71.6	[redacted]	75.8	71.6	[redacted]	75.8	71.6	[redacted]	75.8	50.8	[redacted]	66.0	50.6	[redacted]	66.0	49.5	[redacted]	65.9	49.4	[redacted]	65.9	49.2	[redacted]	65.9	49.1	[redacted]	65.9	56.2	[redacted]	66.7
BBBB02	2	63.0	66.7	80.0	[redacted]	83.8	80.5	[redacted]	84.3	71.6	[redacted]	75.9	71.6	[redacted]	75.9	71.6	[redacted]	75.9	52.2	[redacted]	67.0	52.0	[redacted]	67.0	50.6	[redacted]	66.9	50.5	[redacted]	66.9	50.4	[redacted]	66.9	50.4	[redacted]	66.9	57.3	[redacted]	67.7
BBBB02	3	63.1	66.8	79.9	[redacted]	83.7	80.4	[redacted]	84.2	71.1	[redacted]	75.4	71.1	[redacted]	75.4	71.1	[redacted]	75.4	53.1	[redacted]	67.2	53.0	[redacted]	67.2	51.6	[redacted]	67.1	51.5	[redacted]	67.1	51.4	[redacted]	67.1	51.4	[redacted]	67.1	57.8	[redacted]	67.9
BBBB02	4	63.0	66.7	79.9	[redacted]	83.7	80.3	[redacted]	84.1	72.7	[redacted]	76.8	70.9	[redacted]	75.3	70.9	[redacted]	75.3	53.4	[redacted]	67.2	53.2	[redacted]	67.1	51.9	[redacted]	67.0	51.8	[redacted]	67.0	51.7	[redacted]	67.0	51.7	[redacted]	67.0	57.9	[redacted]	67.9
BBBB02	5	62.7	66.4	80.3	[redacted]	84.1	80.7	[redacted]	84.5	72.6	[redacted]	76.7	70.7	[redacted]	75.0	70.6	[redacted]	75.0	53.4	[redacted]	66.9	53.2	[redacted]	66.9	51.8	[redacted]	66.7	51.8	[redacted]	66.7	51.7	[redacted]	66.7	51.7	[redacted]	66.7	57.6	[redacted]	67.6
BBBB02	6	61.9	65.6	79.9	[redacted]	83.7	80.3	[redacted]	84.1	72.5	[redacted]	76.6	70.4	[redacted]	74.7	70.3	[redacted]	74.6	53.4	[redacted]	66.2	53.1	[redacted]	66.1	51.7	[redacted]	66.0	51.6	[redacted]	66.0	51.6	[redacted]	66.0	51.5	[redacted]	66.0	57.1	[redacted]	66.8
BBBB02	7	61.4	65.1	79.6	[redacted]	83.4	80.1	[redacted]	83.9	72.3	[redacted]	76.3	70.1	[redacted]	74.3	70.0	[redacted]	74.3	53.2	[redacted]	65.7	52.9	[redacted]	65.7	51.3	[redacted]	65.5	51.2	[redacted]	65.5	51.2	[redacted]	65.5	51.1	[redacted]	65.5	56.6	[redacted]	66.3
BBBB02	8	61.0	64.7	79.2	[redacted]	83.0	79.7	[redacted]	83.5	72.0	[redacted]	76.0	69.7	[redacted]	73.9	69.7	[redacted]	73.9	53.4	[redacted]	65.4	52.9	[redacted]	65.3	51.3	[redacted]	65.1	51.2	[redacted]	65.1	51.1	[redacted]	65.1	51.1	[redacted]	65.1	56.4	[redacted]	66.0
BBBB03	1	57.0	59.3	78.1	[redacted]	80.4	80.6	[redacted]	82.9	75.8	[redacted]	78.2	74.2	[redacted]	76.6	67.7	[redacted]	70.4	62.7	[redacted]	66.0	62.6	[redacted]	66.0	61.3	[redacted]	65.0	61.2	[redacted]	64.9	61.1	[redacted]	64.8	61.1	[redacted]	64.8	63.8	[redacted]	66.9
BBBB03	2	57.5	59.8	80.0	[redacted]	82.3	82.3	[redacted]	84.6	77.0	[redacted]	79.3	74.5	[redacted]	76.9	69.6	[redacted]	72.2	62.9	[redacted]	66.3	62.7	[redacted]	66.1	61.2	[redacted]	65.0	61.1	[redacted]	65.0	61.1	[redacted]	65.0	61.1	[redacted]	65.0	63.7	[redacted]	66.9
BBBB03	3	57.6	59.9	79.8	[redacted]	82.1	81.6	[redacted]	83.9	78.6	[redacted]	80.9	74.6	[redacted]	77.0	70.1	[redacted]	72.6	63.2	[redacted]	66.6	63.0	[redacted]	66.4	60.7	[redacted]	64.7	60.6	[redacted]	64.7	60.4	[redacted]	64.5	60.4	[redacted]	64.5	63.1	[redacted]	66.5
BBBB03	4	57.8	60.1	79.5	[redacted]	81.8	81.0	[redacted]	83.3	79.8	[redacted]	82.1	74.9	[redacted]	77.3	71.3	[redacted]	73.8	64.1	[redacted]	67.3	63.9	[redacted]	67.2	60.1	[redacted]	64.4	59.9	[redacted]	64.3	59.8	[redacted]	64.2	59.8	[redacted]	64.2	62.5	[redacted]	66.1
BBBB03	5	58.0	60.3	79.2	[redacted]	81.5	80.5	[redacted]	82.8	79.3	[redacted]	81.6	75.2	[redacted]	77.6	71.7	[redacted]	74.2	64.4	[redacted]	67.6	64.1	[redacted]	67.4	59.4	[redacted]	64.1	59.3	[redacted]	64.0	59.2	[redacted]	64.0	59.2	[redacted]	64.0	61.9	[redacted]	65.7
BBBB03	6	58.0	60.3	78.8	[redacted]	81.1	80.0	[redacted]	82.3	78.3	[redacted]	80.6	75.5	[redacted]	77.9	71.8	[redacted]	74.3	64.6	[redacted]	67.8	64.2	[redacted]	67.4	58.8	[redacted]	63.7	58.7	[redacted]	63.7	58.6	[redacted]	63.6	58.6	[redacted]	63.6	61.3	[redacted]	65.3
BBBB03	7	58.1	60.4	78.4	[redacted]	80.7	79.5	[redacted]	81.8	77.3	[redacted]	79.7	76.3	[redacted]	78.7	72.0	[redacted]	74.5	64.3	[redacted]	67.5	63.9	[redacted]	67.2	58.4	[redacted]	63.6	58.3	[redacted]	63.5	58.2	[redacted]	63.5	58.2	[redacted]	63.5	60.8	[redacted]	65.0
BBBB03	8	58.1	60.4	78.1	[redacted]	80.4	79.1	[redacted]	81.4	76.4	[redacted]	78.8	77.8	[redacted]	80.1	72.5	[redacted]	75.0	64.7	[redacted]	67.9	64.1	[redacted]	67.4	58.1	[redacted]	63.4	58.0	[redacted]	63.4	57.8	[redacted]	63.3	57.8	[redacted]	63.3	60.4	[redacted]	64.7
BBBB04	9	54.7	57.7	78.5	[redacted]	81.5	79.5	[redacted]	82.5	75.3	[redacted]	78.3	77.6	[redacted]	80.6	61.1	[redacted]	65.0	60.3	[redacted]	64.4	60.4	[redacted]	64.4	57.5	[redacted]	62.3	48.8	[redacted]	58.7	38.3	[redacted]	57.8	42.7	[redacted]	57.9	38.8	[redacted]	57.8
BBBB04	10	54.7	57.7	78.0	[redacted]	81.0	78.9	[redacted]	81.9	74.5	[redacted]	77.5	77.5	[redacted]	80.5	71.8	[redacted]	74.9	64.8	[redacted]	68.2	66.7	[redacted]	70.0	61.2	[redacted]	65.1	56.5	[redacted]	61.7	47.3	[redacted]	58.4	51.4	[redacted]	59.3	50.6	[redacted]	59.1
BBBB04	11	54.7	57.7	77.4	[redacted]	80.4	78.4	[redacted]	81.4	73.8	[redacted]	76.9	78.4	[redacted]	81.4	73.4	[redacted]	76.5	65.4	[redacted]	68.8	69.3	[redacted]	72.4	64.8	[redacted]	68.2	62.4	[redacted]	66.1	50.1	[redacted]	59.0	52.7	[redacted]	59.8	54.7	[redacted]	60.7
BBBB04	16	54.7	57.7	75.3	[redacted]	78.3	76.3	[redacted]	79.3	71.3	[redacted]	74.4	75.5	[redacted]	78.5	73.0	[redacted]	76.1	66.7	[redacted]	70.0	69.2	[redacted]	72.4	64.8	[redacted]	68.2	59.2	[redacted]	63.5	51.4	[redacted]	59.3	53.5	[redacted]	60.1	54.8	[redacted]	60.7
BBBB05	9	54.7	53.5	77.5	[redacted]	76.3	78.7	[redacted]	77.5	75.8	[redacted]	74.6	81.4	[redacted]	80.2	59.0	[redacted]	59.2	51.2	[redacted]	55.1	55.8	[redacted]	57.3	56.2	[redacted]	57.3	49.4	[redacted]	54.6	37.9	[redacted]	53.6	37.5	[redacted]	53.6	40.3	[redacted]	53.6
BBBB05	10	57.2	56.0	77.2	[redacted]	76.0	78.3	[redacted]	77.1	74.8	[redacted]	73.7	81.8	[redacted]	80.6	62.3	[redacted]	62.3	51.9	[redacted]	57.1	61.7	[redacted]	61.8	59.2	[redacted]	60.1	54.9	[redacted]	58.0	41.5	[redacted]	56.1	41.5	[redacted]	56.1	46.2	[redacted]	56.3
BBBB05	11	58.5	57.3	76.9	[redacted]	75.8	78.0	[redacted]	76.8	74.0	[redacted]	72.9	80.6	[redacted]	79.4	64.9	[redacted]	64.6	52.1	[redacted]	58.2	63.9	[redacted]	63.8	60.1	[redacted]	61.2	56.8	[redacted]	59.5	42.2	[redacted]	57.4	42.1	[redacted]	57.4	48.8	[redacted]	57.7
BBBB05	16	60.0	58.8	75.4	[redacted]	74.3	76.3	[redacted]	75.2	71.1	[redacted]	70.2	74.7	[redacted]	73.6	70.7	[redacted]	69.9	55.7	[redacted]	60.2	64.3	[redacted]	64.5	61.9	[redacted]	62.9	56.1	[redacted]	60.3	43.3	[redacted]	58.9	43.7	[redacted]	58.9	52.0	[redacted]	59.4
BBBB06	9	54.7	58.4	79.0	[redacted]	82.7	79.5	[redacted]	83.2	72.1	[redacted]	75.9	71.1	[redacted]	74.9	55.8	[redacted]	62.0	48.2	[redacted]	59.3	47.8	[redacted]	59.2	42.7	[redacted]	58.6	41.8	[redacted]	58.6	41.0	[redacted]	58.6	40.8	[redacted]	58.5	43.9	[redacted]	58.7
BBBB06	10	56.5	60.2	78.6	[redacted]	82.3	79.1	[redacted]	82.8	71.9	[redacted]	75.7	70.4	[redacted]	74.3	60.1	[redacted]	65.4	52.1	[redacted]	61.5	51.5	[redacted]	61.4	47.2	[redacted]	60.7	46.9	[redacted]	60.7	46.7	[redacted]	60.6	46.7	[redacted]	60.6	51.5	[redacted]	61.4
BBBB06	11	59.8	63.5	78.2	[redacted]	82.0	78.7	[redacted]	82.5	71.6	[redacted]	75.6	71.7	[redacted]	75.7	62.2	[redacted]	67.9	53.5	[redacted]	64.4	53.1	[redacted]	64.3	50.5	[redacted]	64.0	50.4	[redacted]	64.0	50.3	[redacted]	64.0	50.3	[redacted]	64.0	55.1	[redacted]	64.8
BBBB06	16	58.5	62.2	76.3	[redacted]	80.1	76.9	[redacted]	80.7	70.3	[redacted]	74.3	71.7	[redacted]	75.6	68.9	[redacted]	73.0	54.2	[redacted]	63.6	53.5	[redacted]	63.4	50.9	[redacted]	62.9	50.4	[redacted]	62.8	50.3	[redacted]	62.8	50.3	[redacted]	62.8	54.6	[redacted]	63.7
BBBB07	9	54.7	53.5	81.2	[redacted]	80.0	81.6	[redacted]	80.4	74.5	[redacted]	73.3	74.2	[redacted]	73.0	69.8	[redacted]	68.7	60.6	[redacted]	60.4	57.9	[redacted]	58.4	48.9	[redacted]	54.5	45.4	[redacted]	54.0	44.2	[redacted]	53.8	44.2	[redacted]	53.8	46.1	[redacted]	54.0
BBBB07	10	58.2	57.0	80.5	[redacted]	79.3	81.0	[redacted]	79.8	74.1	[redacted]	73.0	74.6	[redacted]	73.5	71.9	[redacted]	70.9	63.0	[redacted]	63.0	60.9	[redacted]	61.6	54.0	[redacted]	58.4	52.4	[redacted]	58.0	52.1	[redacted]	58.0	52.2	[redacted]	58.0	55.0	[redacted]	58.7
BBBB07	11	60.2	59.0	79.9	[redacted]	78.7	80.4	[redacted]	79.2	73.7	[redacted]	72.7	74.9	[redacted]	73.8	72.6	[redacted]	71.6	64.0	[redacted]	64.3	61.9	[redacted]	62.9	56.0	[redacted]	60.4	55.0	[redacted]	60.1	54.8	[redacted]	60.1	54.8	[redacted]	60.1	57.7	[redacted]	60.9
BBBB07	16	62.1	60.9	77.1	[redacted]	76.0	77.7	[redacted]	76.6	71.6	[redacted]	70.9	73.3	[redacted]	72.4	70.7	[redacted]	70.1	65.2	[redacted]	65.7	63.2	[redacted]	64.5	57.8	[redacted]	62.3	57.6	[redacted]	62.2	57.7	[redacted]	62.2	57.8	[redacted]	62.3	60.4	[redacted]	63.1
BBBB08	9	54.7	53.5	80.2	[redacted]	79.0	80.8	[redacted]	79.6	74.3	[redacted]	73.1	75.6	[redacted]	74.4	70.2	[redacted]	69.1	63.0	[redacted]	62.4	60.7	[redacted]	60.5	45.4	[redacted]	54.0	45.1	[redacted]	53.9	42.0	[redacted]	53.7	41.8	[redacted]	53.7	39.3	[redacted]	53.6
BBBB08	10	54.7	53.5	79.7	[redacted]	78.5	80.3	[redacted]	79.1	73.8	[redacted]	72.7	75.3	[redacted]	74.1	70.6	[redacted]	69.5	64.6	[redacted]	63.8	62.9	[redacted]	62.3	47.3	[redacted]	54.2	47.4	[redacted]	54.2	43.8	[redacted]	53.8	43.7	[redacted]	53.8	43.5	[redacted]	53.8
BBBB08	11	54.7	53.5	79.1	[redacted]	77.9	79.8	[redacted]	78.6	73.5	[redacted]	72.4	75.7	[redacted]	74.5	71.3	[redacted]	70.2	65.3	[redacted]	64.5	63.3	[redacted]	62.7	49.1	[redacted]	54.5	49.3	[redacted]	54.6	47.9	[redacted]	54.3	47.9	[redacted]	54.3	49.5	[redacted]	54.6
BBBB08	16	55.7	54.5	76.8	[redacted]	75.6	77.6	[redacted]	76.4	71.6	[redacted]	70.5	74.0	[redacted]	72.9	70.9	[redacted]	69.8	66.6	[redacted]	65.7	64.7	[redacted]	64.0	54.2	[redacted]	56.8	51.8	[redacted]	56.0	51.7	[redacted]	56.0	52.0	[redacted]	56.0	52.9	[redacted]	56.3
BBBB09	9	54.7	57.7	79.7	[redacted]	82.7	80.5	[redacted]	83.5	74.4	[redacted]	77.4	74.9	[redacted]	77.9	65.1	[redacted]	68.5	61.3	[redacted]	65.2	59.4	[redacted]	63.7	46.2	[redacted]	58.3	43.1	[redacted]	58.0	44.3	[redacted]	58.1	46.6	[redacted]	58.3	38.3	[redacted]	57.8
BBBB09	10	54.7	57.7	79.1	[redacted]	82.1	79.9	[redacted]	82.9	74.1	[redacted]	77.1	74.0	[redacted]	77.1	66.3	[redacted]	69.6	63.2	[redacted]	66.8	61.8	[redacted]	65.6	48.2	[redacted]	58.6	45.4	[redacted]	58.2	48.1	[redacted]	58.5	49.5	[redacted]	58.8	41.2	[redacted]	57.9
BBBB09	11	54.7	57.7	78.5	[redacted]	81.5	79.4	[redacted]	82.4	73.7	[redacted]	76.8	75.3	[redacted]	78.3	67.7	[redacted]	70.9	63.7	[redacted]	67.2	62.2	[redacted]	65.9	47.9	[redacted]	58.5	46.4	[redacted]	58.3	48.8	[redacted]	58.7	50.0	[redacted]	58.9	44.6	[redacted]	58.1
BBBB09	16	54.7	57.7	76.4	[redacted]	79.4	77.2	[redacted]	80.2	71.8	[redacted]	74.9	74.8	[redacted]	77.8	71.9	[redacted]	75.0	65.6	[redacted]	68.9	64.4	[redacted]	67.8	52.2	[redacted]	59.6	51.3	[redacted]	59.3	52.4	[redacted]	59.7	53.3	[redacted]	60.1	52.8	[redacted]	59.8
CCCC	1	66.6	68.8	61.1	[redacted]	69.9	61.3	[redacted]	69.9	59.4	[redacted]	69.6	76.8	[redacted]	79.4	80.7	[redacted]	83.1	51.5	[redacted]	68.9	52.3	[redacted]	69.0	47.2	[redacted]	68.9	57.9	[redacted]	69.4	57.9	[redacted]	69.4	60.2	[redacted]	69.7	60.4	[redacted]	69.7
CCCC	2	67.9	70.1	62.0	[redacted]	71.1	62.3	[redacted]	71.2	63.8	[redacted]	71.5	79.4	[redacted]	81.9	80.2	[redacted]	82.7	59.2	[redacted]	70.7	59.4	[redacted]	70.7	58.8	[redacted]	70.6	59.0	[redacted]	70.6	59.0	[redacted]	70.6	60.9	[redacted]	70.9	61.6	[redacted]	71.0
CCCC	3	68.1	70.3	62.8	[redacted]	71.4	63.1	[redacted]	71.5	64.5	[redacted]	71.9	79.1	[redacted]	81.7	80.2	[redacted]	82.7	59.6	[redacted]	70.9	59.7	[redacted]	70.9	59.1	[redacted]	70.8	59.3	[redacted]	70.8	59.4	[redacted]	70.9	61.2	[redacted]	71.1	61.9	[redacted]	71.2
CCCC	4	68.1	70.3	63.8	[redacted]	71.7	64.2	[redacted]	71.8	65.1	[redacted]	72.1	78.9	[redacted]	81.5	80.1	[redacted]	82.6	59.7	[redacted]	70.9	59.9	[redacted]	70.9	59.3	[redacted]	70.8	59.4	[redacted]	70.9	59.5	[redacted]	70.9	61.4	[redacted]	71.1	62.0	[redacted]	71.3
CCCC	5	67.9	70.1	64.7	[redacted]	71.8	65.1	[redacted]	71.9	66.1	[redacted]	72.3	78.7	[redacted]	81.3	79.9	[redacted]	82.4	59.9	[redacted]	70.7	60.0	[redacted]	70.8	59.2	[redacted]	70.7	59.4	[redacted]	70.7	59.5	[redacted]	70.7	61.5	[redacted]	71.0	61.9	[redacted]	71.1
CCCC	6	67.7	69.9	65.4	[redacted]	71.9	65.8	[redacted]	72.1	66.5	[redacted]	72.4	78.5	[redacted]	81.1	79.7	[redacted]	82.2	59.9	[redacted]	70.6	59.9	[redacted]	70.6	59.1	[redacted]	70.5	59.3	[redacted]	70.5	59.5	[redacted]	70.5	61.7	[redacted]	70.9	61.8	[redacted]	70.9
CCCC	7	67.4	69.6	65.5	[redacted]	71.8	66.0	[redacted]	72.0	66.6	[redacted]	72.2	78.2	[redacted]	80.8	79.4	[redacted]	81.9	60.1	[redacted]	70.3	59.9	[redacted]	70.3	59.1	[redacted]	70.2	59.1	[redacted]	70.2	59.4	[redacted]	70.2	61.7	[redacted]	70.6	61.6	[redacted]	70.6
CCCC	8	67.1	69.3	65.6	[redacted]	71.6	66.2	[redacted]	71.9	66.6	[redacted]	72.1	77.9	[redacted]	80.5	79.1	[redacted]	81.6	60.5	[redacted]	70.2	59.9	[redacted]	70.1	58.9	[redacted]	69.9	59.0	[redacted]	69.9	59.6	[redacted]	70.0	61.9	[redacted]	70.5	61.5	[redacted]	70.4
CCCC01	1	58.1	60.4	59.7	[redacted]	64.3	60.1	[redacted]	64.5	60.3	[redacted]	64.6	80.9	[redacted]	83.2	86.0	[redacted]	88.3	50.1	[redacted]	61.0	58.8	[redacted]	63.8	54.7	[redacted]	62.0	60.7	[redacted]	64.9	47.8	[redacted]	60.8	47.7	[redacted]	60.8	56.6	[redacted]	62.7
CCCC01	2	58.5	60.8	61.0	[redacted]	65.2	61.4	[redacted]	65.5	62.7	[redacted]	66.4	82.8	[redacted]	85.1	85.5	[redacted]	87.8	53.9	[redacted]	62.1	66.5	[redacted]	69.4	63.3	[redacted]	66.8	63.3	[redacted]	66.8	49.1	[redacted]	61.3	49.0	[redacted]	61.3	57.1	[redacted]	63.2
CCCC01	3	58.6	60.9	63.0	[redacted]	66.6	63.4	[redacted]	66.9	63.5	[redacted]	67.0	81.8	[redacted]	84.1	84.8	[redacted]	87.1	54.9	[redacted]	62.4	69.0	[redacted]	71.7	65.1	[redacted]	68.3	65.1	[redacted]	68.3	49.9	[redacted]	61.4	49.9	[redacted]	61.4	57.1	[redacted]	63.2
CCCC01	4	58.5	60.8	64.7	[redacted]	67.9	65.1	[redacted]	68.3	64.3	[redacted]	67.6	80.9	[redacted]	83.2	83.8	[redacted]	86.1	55.9	[redacted]	62.7	72.0	[redacted]	74.5	68.7	[redacted]	71.4	68.8	[redacted]	71.5	50.0	[redacted]	61.4	50.0	[redacted]	61.4	56.8	[redacted]	63.0
CCCC01	5	58.4	60.7	65.6	[redacted]	68.7	66.1	[redacted]	69.1	65.1	[redacted]	68.2	80.2	[redacted]	82.5	82.8	[redacted]	85.1	56.2	[redacted]	62.7	73.7	[redacted]	76.1	69.3	[redacted]	71.9	69.3	[redacted]	71.9	50.1	[redacted]	61.3	50.1	[redacted]	61.3	56.5	[redacted]	62.9
CCCC01	6	58.3	60.6	66.4	[redacted]	69.3	67.0	[redacted]	69.8	65.6	[redacted]	68.6	79.6	[redacted]	81.9	81.9	[redacted]	84.2	56.4	[redacted]	62.8	73.7	[redacted]	76.1	69.7	[redacted]	72.3	69.8	[redacted]	72.4	50.2	[redacted]	61.2	50.2	[redacted]	61.2	56.2	[redacted]	62.7
CCCC01	7	58.0	60.3	66.7	[redacted]	69.5	67.3	[redacted]	70.1	65.9	[redacted]	68.9	79.0	[redacted]	81.3	81.1	[redacted]	83.4	56.6	[redacted]	62.7	74.7	[redacted]	77.1	69.7	[redacted]	72.3	69.8	[redacted]	72.4	50.3	[redacted]	61.0	50.3	[redacted]	61.0	56.0	[redacted]	62.4
CCCC01	8	57.8	60.1	66.7	[redacted]	69.5	67.4	[redacted]	70.2	66.0	[redacted]	68.9	78.5	[redacted]	80.8	80.5	[redacted]	82.8	57.3	[redacted]	62.9	73.9	[redacted]	76.3	67.6	[redacted]	70.3	67.7	[redacted]	70.4	50.3	[redacted]	60.8	50.3	[redacted]	60.8	55.7	[redacted]	62.2
CCCC02	1	57.9	60.9	61.0	[redacted]	65.7	61.4	[redacted]	66.0	58.8	[redacted]	64.4	78.6	[redacted]	81.6	82.9	[redacted]	85.9	55.0	[redacted]	62.7	57.3	[redacted]	63.6	54.0	[redacted]	62.4	53.3	[redacted]	62.2	49.4	[redacted]	61.5	49.2	[redacted]	61.4	58.4	[redacted]	64.2
CCCC02	2	58.3	61.3	64.6	[redacted]	68.5	65.1	[redacted]	68.9	63.9	[redacted]	68.0	81.0	[redacted]	84.0	83.1	[redacted]	86.1	56.0	[redacted]	63.3	60.0	[redacted]	65.2	58.9	[redacted]	64.6	54.0	[redacted]	62.7	50.6	[redacted]	62.0	50.5	[redacted]	62.0	58.9	[redacted]	64.6
CCCC02	3	58.0	61.0	68.6	[redacted]	72.0	69.0	[redacted]	72.3	65.6	[redacted]	69.3	80.8	[redacted]	83.8	82.9	[redacted]	85.9	56.7	[redacted]	63.4	63.1	[redacted]	67.3	58.3	[redacted]	64.2	54.6	[redacted]	62.6	51.8	[redacted]	61.9	51.7	[redacted]	61.9	58.9	[redacted]	64.5
CCCC02	4	57.5	60.5	69.4	[redacted]	72.7	70.0	[redacted]	73.2	66.7	[redacted]	70.2	80.7	[redacted]	83.7	82.6	[redacted]	85.6	56.8	[redacted]	63.2	63.8	[redacted]	67.7	59.7	[redacted]	64.7	54.8	[redacted]	62.4	52.1	[redacted]	61.6	52.0	[redacted]	61.6	58.6	[redacted]	64.1
CCCC02	5	57.0	60.0	69.6	[redacted]	72.8	70.2	[redacted]	73.4	67.8	[redacted]	71.1	80.3	[redacted]	83.3	82.2	[redacted]	85.2	57.1	[redacted]	63.1	64.2	[redacted]	68.0	59.8	[redacted]	64.6	55.0	[redacted]	62.1	52.3	[redacted]	61.3	52.2	[redacted]	61.2	58.3	[redacted]	63.7
CCCC02	6	56.4	59.4	69.5	[redacted]	72.7	70.2	[redacted]	73.4	68.0	[redacted]	71.3	80.0	[redacted]	83.0	81.8	[redacted]	84.8	57.4	[redacted]	62.9	62.8	[redacted]	66.7	59.8	[redacted]	64.4	55.1	[redacted]	61.8	52.3	[redacted]	60.8	52.2	[redacted]	60.8	58.0	[redacted]	63.3
CCCC02	7	55.9	58.9	69.2	[redacted]	72.4	70.2	[redacted]	73.4	68.0	[redacted]	71.3	79.6	[redacted]	82.6	81.3	[redacted]	84.3	58.0	[redacted]	63.1	63.3	[redacted]	67.0	59.8	[redacted]	64.3	55.2	[redacted]	61.6	52.3	[redacted]	60.5	52.2	[redacted]	60.4	57.7	[redacted]	62.9
CCCC02	8	55.5	58.5	69.2	[redacted]	72.4	70.2	[redacted]	73.3	68.0	[redacted]	71.2	79.2	[redacted]	82.2	80.9	[redacted]	83.9	60.0	[redacted]	64.3	64.8	[redacted]	68.3	59.9	[redacted]	64.2	55.3	[redacted]	61.4	52.2	[redacted]	60.2	52.1	[redacted]	60.1	57.4	[redacted]	62.6
CCCC03	1	59.8	62.1	64.9	[redacted]	68.4	65.0	[redacted]	68.4	60.6	[redacted]	65.5	83.4	[redacted]	85.7	85.9	[redacted]	88.2	78.3	[redacted]	80.7	76.7	[redacted]	79.1	73.2	[redacted]	75.7	63.5	[redacted]	67.3	63.5	[redacted]	67.3	63.5	[redacted]	67.3	65.2	[redacted]	68.6
CCCC03	2	60.5	62.8	65.3	[redacted]	68.8	65.5	[redacted]	69.0	64.4	[redacted]	68.2	84.1	[redacted]	86.4	85.8	[redacted]	88.1	77.7	[redacted]	80.1	76.7	[redacted]	79.1	71.0	[redacted]	73.7	63.7	[redacted]	67.7	63.7	[redacted]	67.7	63.7	[redacted]	67.7	65.4	[redacted]	68.9
CCCC03	3	61.0	63.3	66.1	[redacted]	69.6	66.4	[redacted]	69.8	65.9	[redacted]	69.4	83.7	[redacted]	86.0	85.5	[redacted]	87.8	77.0	[redacted]	79.4	76.6	[redacted]	79.0	67.1	[redacted]	70.4	63.2	[redacted]	67.5	63.2	[redacted]	67.5	63.2	[redacted]	67.5	64.9	[redacted]	68.7
CCCC03	4	61.4	63.7	67.2	[redacted]	70.5	67.5	[redacted]	70.8	67.4	[redacted]	70.7	83.2	[redacted]	85.5	85.0	[redacted]	87.3	76.6	[redacted]	79.0	76.5	[redacted]	78.9	64.8	[redacted]	68.7	62.5	[redacted]	67.3	62.6	[redacted]	67.4	62.6	[redacted]	67.4	64.3	[redacted]	68.4
CCCC03	5	61.8	64.1	67.7	[redacted]	71.0	68.1	[redacted]	71.3	68.6	[redacted]	71.7	82.9	[redacted]	85.2	84.7	[redacted]	87.0	76.2	[redacted]	78.7	76.1	[redacted]	78.6	64.1	[redacted]	68.4	61.9	[redacted]	67.2	61.9	[redacted]	67.2	62.1	[redacted]	67.3	63.7	[redacted]	68.2
CCCC03	6	61.9	64.2	67.7	[redacted]	71.0	68.3	[redacted]	71.5	68.6	[redacted]	71.7	82.3	[redacted]	84.6	85.1	[redacted]	87.4	76.0	[redacted]	78.5	75.9	[redacted]	78.4	63.0	[redacted]	67.8	61.3	[redacted]	66.9	61.4	[redacted]	67.0	61.5	[redacted]	67.0	63.1	[redacted]	67.9
CCCC03	7	62.0	64.3	68.2	[redacted]	71.4	68.8	[redacted]	71.9	68.5	[redacted]	71.7	81.7	[redacted]	84.0	84.5	[redacted]	86.8	75.9	[redacted]	78.4	75.9	[redacted]	78.4	62.5	[redacted]	67.6	60.8	[redacted]	66.8	60.8	[redacted]	66.8	61.1	[redacted]	66.9	62.6	[redacted]	67.6
CCCC03	8	62.0	64.3	68.2	[redacted]	71.4	68.8	[redacted]	71.9	68.5	[redacted]	71.7	81.2	[redacted]	83.6	83.0	[redacted]	85.3	76.6	[redacted]	79.0	76.6	[redacted]	79.0	62.0	[redacted]	67.3	60.2	[redacted]	66.5	60.4	[redacted]	66.6	60.8	[redacted]	66.8	62.1	[redacted]	67.4
CCCC04	9	54.7	56.9	65.9	[redacted]	68.4	66.6	[redacted]	69.1	66.5	[redacted]	69.0	78.7	[redacted]	80.9	79.1	[redacted]	81.3	55.9	[redacted]	60.6	54.9	[redacted]	60.0	49.7	[redacted]	58.1	49.1	[redacted]	58.0	51.6	[redacted]	58.6	57.7	[redacted]	61.7	48.8	[redacted]	57.9
CCCC04	10	67.2	69.4	66.2	[redacted]	72.0	66.9	[redacted]	72.3	66.6	[redacted]	72.1	78.4	[redacted]	80.9	78.8	[redacted]	81.3	60.4	[redacted]	70.2	60.0	[redacted]	70.2	58.8	[redacted]	70.0	59.0	[redacted]	70.0	60.3	[redacted]	70.2	63.2	[redacted]	70.9	61.3	[redacted]	70.4
CCCC04	11	68.3	70.5	66.2	[redacted]	72.6	66.9	[redacted]	72.9	66.6	[redacted]	72.8	78.1	[redacted]	80.8	78.4	[redacted]	81.0	61.3	[redacted]	71.3	61.1	[redacted]	71.3	59.9	[redacted]	71.1	60.3	[redacted]	71.1	61.3	[redacted]	71.3	63.7	[redacted]	71.8	62.5	[redacted]	71.5
CCCC04	16	67.2	69.4	66.0	[redacted]	71.9	67.0	[redacted]	72.3	66.6	[redacted]	72.1	76.8	[redacted]	79.5	76.9	[redacted]	79.6	71.4	[redacted]	75.0	71.3	[redacted]	74.9	59.2	[redacted]	70.0	59.9	[redacted]	70.1	61.1	[redacted]	70.4	63.6	[redacted]	71.0	61.7	[redacted]	70.5
CCCC04	21	66.0	68.2	66.1	[redacted]	71.3	67.2	[redacted]	71.9	66.2	[redacted]	71.3	75.5	[redacted]	78.2	75.5	[redacted]	78.2	70.8	[redacted]	74.3	70.6	[redacted]	74.1	58.4	[redacted]	68.9	59.4	[redacted]	69.1	60.8	[redacted]	69.4	63.2	[redacted]	70.0	60.8	[redacted]	69.4
CCCC04	26	64.8	67.0	65.7	[redacted]	70.5	66.8	[redacted]	71.1	65.9	[redacted]	70.6	74.4	[redacted]	77.1	74.3	[redacted]	77.0	69.2	[redacted]	72.8	69.0	[redacted]	72.6	57.5	[redacted]	67.7	58.4	[redacted]	67.9	60.7	[redacted]	68.4	62.9	[redacted]	69.2	59.8	[redacted]	68.2
CCCC05	9	54.7	57.0	66.7	[redacted]	69.3	67.4	[redacted]	69.9	65.7	[redacted]	68.3	79.6	[redacted]	81.9	80.0	[redacted]	82.3	54.5	[redacted]	59.9	62.0	[redacted]	65.0	58.2	[redacted]	62.1	56.9	[redacted]	61.2	39.9	[redacted]	57.1	39.9	[redacted]	57.1	40.6	[redacted]	57.1
CCCC05	10	54.7	57.0	66.7	[redacted]	69.3	67.4	[redacted]	69.9	66.0	[redacted]	68.6	79.0	[redacted]	81.3	79.5	[redacted]	81.8	57.5	[redacted]	61.6	72.4	[redacted]	74.8	66.3	[redacted]	68.9	66.0	[redacted]	68.6	49.2	[redacted]	58.1	49.2	[redacted]	58.1	53.0	[redacted]	59.2
CCCC05	11	54.9	57.2	66.7	[redacted]	69.3	67.5	[redacted]	70.0	66.0	[redacted]	68.6	78.6	[redacted]	80.9	79.0	[redacted]	81.3	58.0	[redacted]	62.0	72.7	[redacted]	75.1	67.3	[redacted]	69.8	66.7	[redacted]	69.3	50.3	[redacted]	58.5	50.3	[redacted]	58.5	54.1	[redacted]	59.8
CCCC05	16	57.0	59.3	66.5	[redacted]	69.3	67.7	[redacted]	70.4	66.3	[redacted]	69.1	76.7	[redacted]	79.0	77.0	[redacted]	79.3	71.5	[redacted]	74.0	74.4	[redacted]	76.8	70.2	[redacted]	72.7	66.4	[redacted]	69.2	49.9	[redacted]	60.1	49.9	[redacted]	60.1	54.2	[redacted]	61.1
CCCC05	21	56.4	58.7	66.4	[redacted]	69.1	67.7	[redacted]	70.3	66.0	[redacted]	68.8	75.4	[redacted]	77.8	75.6	[redacted]	78.0	70.8	[redacted]	73.3	73.4	[redacted]	75.8	69.0	[redacted]	71.5	64.7	[redacted]	67.6	49.7	[redacted]	59.5	49.6	[redacted]	59.5	53.6	[redacted]	60.5
CCCC05	26	55.9	58.2	66.3	[redacted]	69.0	67.5	[redacted]	70.1	65.8	[redacted]	68.5	74.3	[redacted]	76.7	74.4	[redacted]	76.8	68.9	[redacted]	71.4	71.9	[redacted]	74.3	67.5	[redacted]	70.1	63.2	[redacted]	66.2	49.2	[redacted]	59.0	49.0	[redacted]	59.0	52.9	[redacted]	60.0
CCCC06	9	54.7	57.7	68.2	[redacted]	71.4	69.3	[redacted]	72.4	67.2	[redacted]	70.4	79.9	[redacted]	82.9	80.5	[redacted]	83.5	62.6	[redacted]	66.2	63.4	[redacted]	66.9	57.0	[redacted]	62.0	51.6	[redacted]	59.4	40.1	[redacted]	57.8	39.8	[redacted]	57.8	41.2	[redacted]	57.9
CCCC06	10	54.7	57.7	68.2	[redacted]	71.4	69.3	[redacted]	72.4	67.4	[redacted]	70.6	79.4	[redacted]	82.4	80.0	[redacted]	83.0	63.0	[redacted]	66.6	64.7	[redacted]	68.1	58.1	[redacted]	62.7	53.6	[redacted]	60.2	47.6	[redacted]	58.5	47.5	[redacted]	58.4	52.3	[redacted]	59.7
CCCC06	11	54.7	57.7	68.2	[redacted]	71.4	69.3	[redacted]	72.4	67.3	[redacted]	70.5	79.0	[redacted]	82.0	79.5	[redacted]	82.5	63.3	[redacted]	66.9	66.2	[redacted]	69.5	60.9	[redacted]	64.8	55.4	[redacted]	61.1	48.7	[redacted]	58.7	48.7	[redacted]	58.7	53.2	[redacted]	60.0
CCCC06	16	54.7	57.7	67.9	[redacted]	71.1	69.3	[redacted]	72.4	67.3	[redacted]	70.5	77.3	[redacted]	80.3	77.4	[redacted]	80.4	74.5	[redacted]	77.5	75.1	[redacted]	78.1	66.0	[redacted]	69.3	64.2	[redacted]	67.7	49.6	[redacted]	58.9	49.6	[redacted]	58.9	54.3	[redacted]	60.5
CCCC06	21	54.7	57.7	67.5	[redacted]	70.7	68.8	[redacted]	72.0	67.0	[redacted]	70.2	75.9	[redacted]	78.9	75.8	[redacted]	78.8	71.5	[redacted]	74.6	72.9	[redacted]	76.0	65.5	[redacted]	68.8	63.4	[redacted]	66.9	49.0	[redacted]	58.7	49.1	[redacted]	58.7	53.3	[redacted]	60.1
CCCC06	26	54.7	57.7	67.3	[redacted]	70.5	68.5	[redacted]	71.7	66.5	[redacted]	69.8	74.7	[redacted]	77.7	74.6	[redacted]	77.6	68.8	[redacted]	72.0	71.1	[redacted]	74.2	64.9	[redacted]	68.3	62.5	[redacted]	66.2	48.8	[redacted]	58.7	49.3	[redacted]	58.8	52.4	[redacted]	59.7
CCCC07	1	54.7	57.7	60.7	[redacted]	64.7	61.0	[redacted]	64.9	50.5	[redacted]	59.1	82.5	[redacted]	85.5	83.4	[redacted]	86.4	71.6	[redacted]	74.7	71.6	[redacted]	74.7	66.7	[redacted]	70.0	44.9	[redacted]	58.1	39.3	[redacted]	57.8	36.9	[redacted]	57.7	31.8	[redacted]	57.7
CCCC07	9	54.7	57.7	67.6	[redacted]	70.8	68.4	[redacted]	71.6	66.7	[redacted]	70.0	80.3	[redacted]	83.3	80.7	[redacted]	83.7	74.4	[redacted]	77.4	74.2	[redacted]	77.2	64.9	[redacted]	68.3	45.4	[redacted]	58.2	40.9	[redacted]	57.9	40.4	[redacted]	57.8	38.7	[redacted]	57.8
CCCC07	10	54.7	57.7	67.6	[redacted]	70.8	68.5	[redacted]	71.7	66.7	[redacted]	70.0	79.9	[redacted]	82.9	80.3	[redacted]	83.3	74.6	[redacted]	77.6	74.4	[redacted]	77.4	64.6	[redacted]	68.0	46.1	[redacted]	58.2	42.2	[redacted]	57.9	43.1	[redacted]	58.0	42.0	[redacted]	57.9
CCCC07	11	54.7	57.7	67.6	[redacted]	70.8	68.6	[redacted]	71.8	66.8	[redacted]	70.1	79.5	[redacted]	82.5	79.9	[redacted]	82.9	74.7	[redacted]	77.7	74.4	[redacted]	77.4	64.2	[redacted]	67.7	47.5	[redacted]	58.4	44.9	[redacted]	58.1	45.4	[redacted]	58.2	46.2	[redacted]	58.3

CCCC07	16	54.7	57.7	67.3	[redacted]	70.5	68.5	[redacted]	71.7	66.9	[redacted]	70.2	77.7	[redacted]	80.7	77.9	[redacted]	80.9	74.2	[redacted]
CCCC07	21	54.7	57.7	67.2	[redacted]	70.4	68.5	[redacted]	71.7	66.6	[redacted]	69.9	76.2	[redacted]	79.2	76.2	[redacted]	79.2	72.3	[redacted]
CCCC07	26	54.7	57.7	66.7	[redacted]	70.0	68.0	[redacted]	71.2	66.3	[redacted]	69.6	74.9	[redacted]	77.9	74.7	[redacted]	77.7	70.1	[redacted]
CCCC08	9	54.7	56.9	67.2	[redacted]	69.7	67.9	[redacted]	70.3	67.0	[redacted]	69.5	80.7	[redacted]	82.9	80.9	[redacted]	83.1	72.6	[redacted]
CCCC08	10	54.7	56.9	67.2	[redacted]	69.7	67.9	[redacted]	70.3	67.1	[redacted]	69.6	80.2	[redacted]	82.4	80.5	[redacted]	82.7	72.9	[redacted]
CCCC08	11	54.7	56.9	67.1	[redacted]	69.6	67.9	[redacted]	70.3	67.2	[redacted]	69.7	79.9	[redacted]	82.1	80.1	[redacted]	82.3	72.9	[redacted]
CCCC08	16	54.7	56.9	67.1	[redacted]	69.6	68.3	[redacted]	70.7	67.5	[redacted]	69.9	78.2	[redacted]	80.4	78.0	[redacted]	80.2	75.8	[redacted]
CCCC08	21	54.7	56.9	66.9	[redacted]	69.4	68.0	[redacted]	70.4	66.9	[redacted]	69.4	76.6	[redacted]	78.9	76.3	[redacted]	78.6	73.5	[redacted]
CCCC08	26	54.7	56.9	66.4	[redacted]	68.9	67.7	[redacted]	70.1	66.6	[redacted]	69.1	75.2	[redacted]	77.5	74.9	[redacted]	77.2	71.0	[redacted]
CCCC09	9	54.7	56.9	67.5	[redacted]	69.9	68.1	[redacted]	70.5	67.9	[redacted]	70.3	82.2	[redacted]	84.4	81.5	[redacted]	83.7	71.7	[redacted]
CCCC09	10	61.8	64.0	67.3	[redacted]	70.6	68.1	[redacted]	71.2	68.0	[redacted]	71.2	81.4	[redacted]	83.7	80.9	[redacted]	83.2	72.9	[redacted]
CCCC09	11	63.6	65.8	67.3	[redacted]	71.1	68.4	[redacted]	71.9	68.1	[redacted]	71.6	80.8	[redacted]	83.1	80.4	[redacted]	82.7	73.4	[redacted]
CCCC09	16	64.7	66.9	67.5	[redacted]	71.6	68.6	[redacted]	72.3	68.1	[redacted]	72.0	78.6	[redacted]	81.0	78.1	[redacted]	80.5	80.0	[redacted]
CCCC09	21	64.0	66.2	67.1	[redacted]	71.0	68.2	[redacted]	71.8	67.7	[redacted]	71.5	76.8	[redacted]	79.2	76.3	[redacted]	78.8	74.8	[redacted]
CCCC09	26	63.2	65.4	66.6	[redacted]	70.5	67.8	[redacted]	71.3	67.2	[redacted]	70.9	75.3	[redacted]	77.8	74.9	[redacted]	77.4	71.4	[redacted]
DDDD	1	67.8	70.0	62.2	[redacted]	71.1	62.6	[redacted]	71.2	62.6	[redacted]	71.2	78.0	[redacted]	80.6	80.8	[redacted]	83.2	52.5	[redacted]
DDDD	2	69.5	71.7	63.7	[redacted]	72.7	64.1	[redacted]	72.8	66.8	[redacted]	73.6	80.7	[redacted]	83.2	80.5	[redacted]	83.1	62.6	[redacted]
DDDD	3	70.1	72.3	65.5	[redacted]	73.6	66.1	[redacted]	73.8	68.3	[redacted]	74.5	80.4	[redacted]	83.0	80.4	[redacted]	83.0	63.3	[redacted]
DDDD	4	70.4	72.6	66.2	[redacted]	74.0	66.9	[redacted]	74.2	69.6	[redacted]	75.2	80.1	[redacted]	82.8	80.4	[redacted]	83.0	63.3	[redacted]
DDDD	5	70.5	72.7	66.8	[redacted]	74.3	67.6	[redacted]	74.5	70.0	[redacted]	75.5	79.9	[redacted]	82.6	80.2	[redacted]	82.9	63.3	[redacted]
DDDD	6	70.4	72.6	67.3	[redacted]	74.3	68.7	[redacted]	74.9	70.4	[redacted]	75.6	79.7	[redacted]	82.4	80.1	[redacted]	82.8	63.3	[redacted]
DDDD	7	70.3	72.5	68.3	[redacted]	74.6	69.5	[redacted]	75.1	70.5	[redacted]	75.6	79.4	[redacted]	82.1	79.9	[redacted]	82.6	63.0	[redacted]
DDDD	8	70.1	72.3	68.3	[redacted]	74.5	69.5	[redacted]	75.0	70.6	[redacted]	75.6	79.1	[redacted]	81.8	79.7	[redacted]	82.4	63.3	[redacted]
DDDD01	1	62.0	64.3	65.4	[redacted]	69.3	65.5	[redacted]	69.4	63.1	[redacted]	67.9	79.7	[redacted]	82.1	80.9	[redacted]	83.3	64.7	[redacted]
DDDD01	2	62.6	64.9	65.6	[redacted]	69.7	65.8	[redacted]	69.8	65.6	[redacted]	69.7	82.2	[redacted]	84.5	81.4	[redacted]	83.8	68.9	[redacted]
DDDD01	3	63.1	65.4	66.1	[redacted]	70.2	66.4	[redacted]	70.4	68.0	[redacted]	71.5	82.4	[redacted]	84.8	82.7	[redacted]	85.0	71.9	[redacted]
DDDD01	4	63.6	65.9	66.5	[redacted]	70.6	66.9	[redacted]	70.9	68.6	[redacted]	72.1	82.0	[redacted]	84.4	82.4	[redacted]	84.8	73.6	[redacted]
DDDD01	5	63.8	66.1	67.1	[redacted]	71.1	67.6	[redacted]	71.4	69.1	[redacted]	72.5	81.7	[redacted]	84.1	82.2	[redacted]	84.6	73.5	[redacted]
DDDD01	6	63.9	66.2	67.3	[redacted]	71.2	67.9	[redacted]	71.7	69.1	[redacted]	72.5	81.5	[redacted]	83.9	81.9	[redacted]	84.3	74.4	[redacted]
DDDD01	7	63.9	66.2	67.9	[redacted]	71.7	68.5	[redacted]	72.1	69.1	[redacted]	72.5	81.0	[redacted]	83.4	81.5	[redacted]	83.9	74.6	[redacted]
DDDD01	8	63.8	66.1	68.0	[redacted]	71.7	68.7	[redacted]	72.2	69.3	[redacted]	72.7	80.5	[redacted]	82.9	81.0	[redacted]	83.4	74.5	[redacted]
DDDD02	1	60.7	63.7	62.6	[redacted]	67.8	63.0	[redacted]	68.0	61.9	[redacted]	67.4	77.3	[redacted]	80.4	83.5	[redacted]	86.5	55.2	[redacted]
DDDD02	2	60.9	63.9	63.6	[redacted]	68.5	64.2	[redacted]	68.9	67.2	[redacted]	71.1	81.2	[redacted]	84.2	83.5	[redacted]	86.5	59.7	[redacted]
DDDD02	3	60.6	63.6	65.4	[redacted]	69.6	66.1	[redacted]	70.2	69.0	[redacted]	72.6	81.7	[redacted]	84.7	83.2	[redacted]	86.2	62.1	[redacted]
DDDD02	4	60.1	63.1	66.4	[redacted]	70.3	67.3	[redacted]	71.1	70.0	[redacted]	73.4	81.3	[redacted]	84.3	82.9	[redacted]	85.9	62.3	[redacted]
DDDD02	5	59.6	62.6	67.3	[redacted]	71.0	68.1	[redacted]	71.7	70.5	[redacted]	73.8	80.9	[redacted]	83.9	82.5	[redacted]	85.5	62.1	[redacted]
DDDD02	6	59.1	62.1	67.9	[redacted]	71.4	69.4	[redacted]	72.8	71.0	[redacted]	74.3	80.6	[redacted]	83.6	82.1	[redacted]	85.1	62.0	[redacted]
DDDD02	7	58.7	61.7	68.1	[redacted]	71.6	69.7	[redacted]	73.0	71.2	[redacted]	74.4	80.2	[redacted]	83.2	81.7	[redacted]	84.7	62.3	[redacted]
DDDD02	8	58.3	61.3	69.2	[redacted]	72.5	70.5	[redacted]	73.8	71.3	[redacted]	74.5	79.9	[redacted]	82.9	81.2	[redacted]	84.2	63.8	[redacted]
DDDD03	1	70.3	72.6	66.3	[redacted]	74.1	66.8	[redacted]	74.2	61.9	[redacted]	73.2	91.2	[redacted]	93.5	91.7	[redacted]	94.0	90.5	[redacted]
DDDD03	2	70.3	72.6	67.9	[redacted]	74.6	68.8	[redacted]	74.9	70.9	[redacted]	75.9	89.9	[redacted]	92.2	90.2	[redacted]	92.5	88.6	[redacted]
DDDD03	3	69.8	72.1	71.3	[redacted]	75.9	72.8	[redacted]	76.9	75.2	[redacted]	78.6	87.0	[redacted]	89.4	87.6	[redacted]	90.0	85.2	[redacted]
DDDD03	4	69.2	71.5	72.0	[redacted]	76.1	73.5	[redacted]	77.2	75.3	[redacted]	78.6	85.2	[redacted]	87.6	86.4	[redacted]	88.8	82.9	[redacted]
DDDD03	5	68.7	71.0	71.8	[redacted]	75.8	73.8	[redacted]	77.3	75.1	[redacted]	78.3	83.8	[redacted]	86.2	86.1	[redacted]	88.5	81.2	[redacted]
DDDD03	6	68.3	70.6	71.7	[redacted]	75.6	73.8	[redacted]	77.2	74.8	[redacted]	78.0	82.8	[redacted]	85.3	84.8	[redacted]	87.2	79.8	[redacted]
DDDD03	7	67.8	70.1	71.5	[redacted]	75.3	74.3	[redacted]	77.5	74.6	[redacted]	77.7	82.0	[redacted]	84.5	83.6	[redacted]	86.0	78.8	[redacted]
DDDD03	8	67.4	69.7	71.5	[redacted]	75.2	74.1	[redacted]	77.2	74.3	[redacted]	77.4	81.4	[redacted]	83.9	82.7	[redacted]	85.1	78.3	[redacted]
DDDD04	9	54.9	57.1	69.0	[redacted]	71.4	70.1	[redacted]	72.5	70.5	[redacted]	72.8	80.0	[redacted]	82.2	79.7	[redacted]	81.9	56.8	[redacted]
DDDD04	10	67.0	69.2	69.1	[redacted]	73.4	70.2	[redacted]	74.1	70.5	[redacted]	74.3	79.7	[redacted]	82.2	79.4	[redacted]	81.9	61.3	[redacted]
DDDD04	11	66.9	69.1	69.0	[redacted]	73.3	70.1	[redacted]	74.0	70.6	[redacted]	74.4	79.4	[redacted]	81.9	79.1	[redacted]	81.6	62.8	[redacted]
DDDD04	16	65.7	67.9	68.4	[redacted]	72.5	69.8	[redacted]	73.4	70.2	[redacted]	73.7	77.9	[redacted]	80.4	77.4	[redacted]	79.9	72.5	[redacted]
DDDD05	9	54.7	57.0	67.9	[redacted]	70.4	69.0	[redacted]	71.5	69.2	[redacted]	71.7	81.4	[redacted]	83.7	80.6	[redacted]	82.9	68.9	[redacted]
DDDD05	10	59.3	61.6	68.2	[redacted]	71.0	69.3	[redacted]	72.0	69.3	[redacted]	72.0	81.0	[redacted]	83.3	80.2	[redacted]	82.5	71.9	[redacted]
DDDD05	11	61.5	63.8	68.3	[redacted]	71.4	69.4	[redacted]	72.4	69.6	[redacted]	72.5	80.7	[redacted]	83.1	79.8	[redacted]	82.2	73.1	[redacted]
DDDD05	16	63.1	65.4	68.4	[redacted]	71.8	69.5	[redacted]	72.7	69.3	[redacted]	72.5	78.7	[redacted]	81.1	78.0	[redacted]	80.4	75.2	[redacted]
DDDD06	9	54.7	57.7	69.7	[redacted]	72.8	70.9	[redacted]	74.0	71.2	[redacted]	74.3	81.0	[redacted]	84.0	81.2	[redacted]	84.2	60.7	[redacted]
DDDD06	10	54.7	57.7	69.7	[redacted]	72.8	70.9	[redacted]	74.0	71.2	[redacted]	74.3	80.6	[redacted]	83.6	80.7	[redacted]	83.7	63.1	[redacted]
DDDD06	11	54.7	57.7	69.5	[redacted]	72.6	70.7	[redacted]	73.8	71.3	[redacted]	74.4	80.3	[redacted]	83.3	80.2	[redacted]	83.2	64.1	[redacted]
DDDD06	16	54.7	57.7	69.0	[redacted]	72.2	70.7	[redacted]	73.8	70.6	[redacted]	73.7	78.5	[redacted]	81.5	78.1	[redacted]	81.1	73.2	[redacted]
DDDD07	9	54.7	57.0	70.8	[redacted]	73.2	73.1	[redacted]	75.5	74.0	[redacted]	76.4	82.7	[redacted]	85.0	82.1	[redacted]	84.4	70.6	[redacted]
DDDD07	10	60.5	62.8	70.8	[redacted]	73.5	73.2	[redacted]	75.7	73.8	[redacted]	76.3	82.0	[redacted]	84.3	81.5	[redacted]	83.8	72.6	[redacted]
DDDD07	11	62.7	65.0	70.6	[redacted]	73.6	73.0	[redacted]	75.7	73.6	[redacted]	76.2	81.4	[redacted]	83.8	81.0	[redacted]	83.4	74.7	[redacted]
DDDD07	16	64.8	67.1	70.1	[redacted]	73.5	72.1	[redacted]	75.1	72.6	[redacted]	75.6	79.0	[redacted]	81.5	78.6	[redacted]	81.1	75.5	[redacted]
EEEE	1	70.2	73.6	90.2	[redacted]	93.6	90.4	[redacted]	93.8	90.3	[redacted]	93.7	76.3	[redacted]	80.7	54.7	[redacted]	73.7	62.2	[redacted]
EEEE	2	71.2	74.6	89.3	[redacted]	92.8	89.6	[redacted]	93.1	89.6	[redacted]	93.1	76.9	[redacted]	81.3	61.6	[redacted]	75.1	63.0	[redacted]
EEEE	3	71.4	74.8	87.0	[redacted]	90.5	87.5	[redacted]	91.0	87.4	[redacted]	90.9	76.9	[redacted]	81.4	64.1	[redacted]	75.5	63.3	[redacted]
EEEE	4	71.3	74.7	84.8	[redacted]	88.4	85.6	[redacted]	89.2	85.2	[redacted]	88.8	76.9	[redacted]	81.4	64.9	[redacted]	75.6	63.3	[redacted]
EEEE	5	71.2	74.6	83.1	[redacted]	86.8	84.2	[redacted]	87.8	83.5	[redacted]	87.1	76.7	[redacted]	81.2	65.3	[redacted]	75.6	63.2	[redacted]
EEEE	6	70.9	74.3	81.7	[redacted]	85.4	82.9	[redacted]	86.6	82.1	[redacted]	85.8	76.7	[redacted]	81.1	64.9	[redacted]	75.3	63.0	[redacted]
EEEE	7	70.6	74.0	80.5	[redacted]	84.3	81.9	[redacted]	85.6	81.0	[redacted]	84.8	76.4	[redacted]	80.8	64.0	[redacted]	74.9	62.7	[redacted]
EEEE	8	70.3	73.7	79.5	[redacted]	83.4	81.1	[redacted]	84.8	80.0	[redacted]	83.8	76.2	[redacted]	80.6	64.2	[redacted]	74.7	62.7	[redacted]
EEEE01	1	67.8	70.1	76.0	[redacted]	78.9	81.0	[redacted]	83.5	80.4	[redacted]	82.9	79.8	[redacted]	82.4	65.1	[redacted]	72.0	67.4	[redacted]
EEEE01	2	68.1	70.4	75.7	[redacted]	78.7	80.9	[redacted]	83.4	80.4	[redacted]	82.9	80.0	[redacted]	82.6	73.4	[redacted]	76.8	69.5	[redacted]
EEEE01	3	67.7	70.0	75.6	[redacted]	78.6	80.7	[redacted]	83.2	80.2	[redacted]	82.7	80.4	[redacted]	82.9	77.5	[redacted]	80.2	72.7	[redacted]
EEEE01	4	67.4	69.7	75.7	[redacted]	78.6	80.4	[redacted]	82.9	79.9	[redacted]	82.4	80.9	[redacted]	83.4	78.6	[redacted]	81.2	74.5	[redacted]
EEEE01	5	67.0	69.3	76.3	[redacted]	79.1	80.3	[redacted]	82.8	79.4	[redacted]	81.9	80.1	[redacted]	82.6	77.5	[redacted]	80.2	72.8	[redacted]
EEEE01	6	66.6	68.9	76.2	[redacted]	79.0	80.0	[redacted]	82.5	79.0	[redacted]	81.5	80.4	[redacted]	82.9	78.0	[redacted]	80.6	73.5	[redacted]
EEEE01	7	66.2	68.5	76.1	[redacted]	78.8	79.6	[redacted]	82.1	78.6	[redacted]	81.1	80.0	[redacted]	82.5	77.6	[redacted]	80.2	73.3	[redacted]
EEEE01	8	65.9	68.2	75.9	[redacted]	78.6	79.2	[redacted]	81.7	78.1	[redacted]	80.7	79.6	[redacted]	82.1	77.2	[redacted]	79.8	73.0	[redacted]
EEEE02	1	55.5	58.5	81.4	[redacted]	84.4	83.2	[redacted]	86.2	80.2	[redacted]	83.2	80.0	[redacted]	83.0	57.5	[redacted]	62.6	59.5	[redacted]
EEEE02	2	56.2	59.2	81.2	[redacted]	84.2	83.0	[redacted]	86.0	80.4	[redacted]	83.4	80.0	[redacted]	83.0	62.5	[redacted]	66.4	60.4	[redacted]
EEEE02	3	56.5	59.5	81.0	[redacted]	84.0	82.8	[redacted]	85.8	80.1	[redacted]	83.1	79.8	[redacted]	82.8	65.7	[redacted]	69.2	60.9	[redacted]
EEEE02	4	56.4	59.4	80.4	[redacted]	83.4	82.3	[redacted]	85.3	80.0	[redacted]	83.0	79.7	[redacted]	82.7	67.1	[redacted]	70.5	61.1	[redacted]
EEEE02	5	56.2	59.2	80.3	[redacted]	83.3	82.2	[redacted]	85.2	79.8	[redacted]	82.8	79.5	[redacted]	82.5	68.2	[redacted]	71.5	61.3	[redacted]
EEEE02	6	55.9	58.9	79.5	[redacted]	82.5	81.5	[redacted]	84.5	79.5	[redacted]	82.5	79.3	[redacted]	82.3	68.6	[redacted]	71.8	61.3	[redacted]
EEEE02	7	55.7	58.7	78.9	[redacted]	81.9	81.0	[redacted]	84.0	79.1	[redacted]	82.1	79.1	[redacted]	82.1	68.6	[redacted]	71.8	61.7	[redacted]
EEEE02	8	55.4	58.4	78.4	[redacted]	81.4	80.5	[redacted]	83.5	78.8	[redacted]	81.8	78.9	[redacted]	81.9	68.7	[redacted]	71.9	62.5	[redacted]
EEEE03	1	65.5	67.8	86.5	[redacted]	88.8	86.8	[redacted]	89.1	84.1	[redacted]	86.5	83.9	[redacted]	86.3	72.5	[redacted]	75.6	59.0	[redacted]
EEEE03	2	66.1	68.4	85.7	[redacted]	88.0	86.4	[redacted]	88.7	83.8	[redacted]	86.2	83.6	[redacted]	86.0	72.5	[redacted]	75.7	59.7	[redacted]
EEEE03	3	66.9	69.2	83.6	[redacted]	86.0	84.6	[redacted]	87.0	82.8	[redacted]	85.2	82.5	[redacted]	84.9	72.5	[redacted]	75.9	59.7	[redacted]
EEEE03	4	68.4	70.7	81.9	[redacted]	84.4	83.2	[redacted]	85.6	82.1	[redacted]	84.6	81.6	[redacted]	84.1	72.4	[redacted]	76.2	59.5	[redacted]
EEEE03	5	68.2	70.5	80.7	[redacted]	83.2	82.1	[redacted]	84.6	81.3	[redacted]	83.8	80.9	[redacted]	83.4	72.3	[redacted]	76.0	59.1	[redacted]
EEEE03	6	68.1	70.4	79.6	[redacted]	82.2	81.3	[redacted]	83.8	80.6	[redacted]	83.1	80.2	[redacted]	82.8	72.1	[redacted]	75.9	58.9	[redacted]
EEEE03	7	67.9	70.2	78.8	[redacted]	81.4	80.6	[redacted]	83.1	80.0	[redacted]	82.6	79.5	[redacted]	82.1	71.8	[redacted]	75.6	58.5	[redacted]
EEEE03	8	67.6	69.9	78.2	[redacted]	80.9	80.0	[redacted]	82.5	79.5	[redacted]	82.1	79.0	[redacted]	81.6	71.5	[redacted]	75.3	58.1	[redacted]
EEEE04	9	58.1	61.5	78.7	[redacted]	82.1	80.5	[redacted]	83.9	79.3	[redacted]	82.7	76.4	[redacted]	79.9	60.8	[redacted]	66.1	55.5	[redacted]
EEEE04	10	68.1	71.5	78.0	[redacted]	81.8	79.9	[redacted]	83.6	78.6	[redacted]	82.4	76.0	[redacted]	80.1	63.9	[redacted]	72.9	60.6	[redacted]
EEEE04	11	68.5	71.9	77.4	[redacted]	81.3	79.3	[redacted]	83.0	78.0	[redacted]	81.9	75.7	[redacted]	79.9	64.2	[redacted]	73.3	61.2	[redacted]
EEEE04	16	67.8	71.2	74.9	[redacted]	79.1	77.0	[redacted]	80.9	75.7	[redacted]	79.8	74.8	[redacted]	79.0	64.2	[redacted]	72.8	61.1	[redacted]
EEEE04	21	66.5	69.9	73.1	[redacted]	77.4	75.3	[redacted]	79.2	74.0	[redacted]	78.1	74.2	[redacted]	78.3	63.8	[redacted]	71.8	60.6	[redacted]
EEEE04	26	65.4	68.8	71.6	[redacted]	75.9	73.9	[redacted]	77.9	72.6	[redacted]	76.8	73.1	[redacted]	77.2	64.8	[redacted]	71.5	59.3	[redacted]
EEEE04	28	65.1	68.5	71.1	[redacted]	75.5	73.4	[redacted]	77.4	72.1	[redacted]	76.3	72.7	[redacted]	76.8	65.7	[redacted]	71.8	58.5	[redacted]
EEEE05	9	54.7	57.0	76.0	[redacted]	78.3	79.1	[redacted]	81.4	78.0	[redacted]	80.3	79.2	[redacted]	81.5	66.2	[redacted]	68.8	66.7	[redacted]
EEEE05	10	62.8	65.1	75.8	[redacted]	78.3	78.7	[redacted]	81.1	77.7	[redacted]	80.1	78.8	[redacted]	81.2	72.8	[redacted]	75.5	69.1	[redacted]
EEEE05	11	64.4	66.7	75.5	[redacted]	78.1	78.4	[redacted]	80.9	77.3	[redacted]	79.8	78.4	[redacted]	80.9	74.8	[redacted]	77.5	70.9	[redacted]
EEEE05	16	66.2	68.5	74.2	[redacted]	77.1	76.8	[redacted]	79.5	75.6	[redacted]	78.4	76.7	[redacted]	79.4	74.3	[redacted]	77.2	72.0	[redacted]
EEEE05	21	65.2	67.5	72.9	[redacted]	75.9	75.3	[redacted]	78.0	74.1	[redacted]	76.9	75.2	[redacted]	77.9	72.6	[redacted]	75.6	70.2	[redacted]
EEEE05	26	64.6	66.9	71.9	[redacted]	74.9	74.2	[redacted]	77.0	72.9	[redacted]	75.8	74.1	[redacted]	76.9	71.7	[redacted]	74.8	68.8	[redacted]
EEEE05	28	64.2	66.5	71.5	[redacted]	74.5	73.7	[redacted]	76.5	72.4	[redacted]	75.3	73.6	[redacted]	76.4	71.2	[redacted]	74.3	68.3	[redacted]
EEEE06	9	54.7	57.7	79.0	[redacted]	82.0	81.0	[redacted]	84.0	79.1	[redacted]	82.1	79.0	[redacted]	82.0	69.4	[redacted]	72.5	60.7	[redacted]
EEEE06	11	54.7	57.7	77.7	[redacted]	80.7	79.9	[redacted]	82.9	78.2	[redacted]	81.2	78.2	[redacted]	81.2	70.4	[redacted]	73.5	62.4	[redacted]
EEEE06	16	54.7	57.7	75.6	[redacted]	78.6	77.8	[redacted]	80.8	76.3	[redacted]	79.3	76.9	[redacted]	79.9	70.0	[redacted]	73.1	63.9	[redacted]
EEEE06	21	54.7	57.7	73.9	[redacted]	77.0	76.1	[redacted]	79.1	74.6	[redacted]	77.6	75.5	[redacted]	78.5	70.1	[redacted]	73.2	65.1	[redacted]
EEEE06	26	54.7	57.7	72.5	[redacted]	75.6	74.7	[redacted]	77.7	73.2	[redacted]	76.3	74.2	[redacted]	77.2	70.3	[redacted]	73.4	64.6	[redacted]
EEEE06	28	54.7	57.7	71.9	[redacted]	75.0	74.2	[redacted]	77.2	72.7	[redacted]	75.8	73.7	[redacted]	76.8	70.3	[redacted]	73.4	64.9	[redacted]
EEEE07	9	60.4	62.7	79.9	[redacted]	82.2	81.6	[redacted]	83.9	79.0	[redacted]	81.4	78.4	[redacted]	80.8	58.6	[redacted]	64.9	51.1	[redacted]
EEEE07	10	65.0	67.3	79.1	[redacted]	81.6	80.8	[redacted]	83.2	78.5	[redacted]	81.0	77.9	[redacted]	80.4	63.7	[redacted]	69.7	55.1	[redacted]
EEEE07	11	66.0	68.3	78.4	[redacted]	80.9	80.2	[redacted]	82.7	78.0	[redacted]	80.6	77.4	[redacted]	80.0	62.5	[redacted]	69.9	56.3	[redacted]
EEEE07	16	66.2	68.5	75.6	[redacted]	78.4	77.7	[redacted]	80.3	76.0	[redacted]	78.7	75.7	[redacted]	78.5	66.4	[redacted]	71.6	56.3	[redacted]
EEEE07	21	65.5	67.8	73.6	[redacted]	76.5	75.8	[redacted]	78.5	74.3	[redacted]	77.1	74.3	[redacted]	77.1	67.2	[redacted]	71.7	55.5	[redacted]
EEEE07	26	64.8	67.1	72.2	[redacted]	75.2	74.4	[redacted]	77.2	72.9	[redacted]	75.8	73.4	[redacted]	76.3	70.2	[redacted]	73.6	54.9	[redacted]
EEEE07	28	64.5	66.8	71.6	[redacted]	74.7	73.9	[redacted]	76.7	72.3	[redacted]	75.3	73.0	[redacted]	75.9	67.9	[redacted]	71.8	54.6	[redacted]
FFFF	1	60.3	62.6	54.9	[redacted]	63.7	55.4	[redacted]	63.8	59.2	[redacted]	65.1	59.5	[redacted]	65.2	53.2	[redacted]	63.4	44.1	[redacted]
FFFF	2	60.7	63.0	55.8	[redacted]	64.2	56.5	[redacted]	64.4	60.2	[redacted]	65.8	60.6	[redacted]	66.0	53.4	[redacted]	63.7	47.5	[redacted]
FFFF	3	60.6	62.9	57.3	[redacted]	64.6	58.0	[redacted]	64.8	62.1	[redacted]	66.7	62.1	[redacted]	66.7	53.8	[redacted]	63.7	48.9	[redacted]
FFFF	4	60.5	62.8	58.1	[redacted]	64.8	59.1	[redacted]	65.2	63.0	[redacted]	67.2	62.8	[redacted]	67.1	54.4	[redacted]	63.8	50.4	[redacted]
FFFF	5	60.5	62.8	59.2	[redacted]	65.2	60.2	[redacted]	65.7	63.9	[redacted]	67.8	64.0	[redacted]	67.9	55.1	[redacted]	63.9	51.8	[redacted]
FFFF	6	60.6	62.9	60.0	[redacted]	65.6	61.0	[redacted]	66.1	64.5	[redacted]	68.3	64.5	[redacted]	68.3	55.8	[redacted]	64.1	54.7	[redacted]
FFFF	7	60.8	63.1	60.6	[redacted]	66.0	62.4	[redacted]	67.0	64.9	[redacted]	68.6	65.0	[redacted]	68.7	56.4	[redacted]	64.4	55.5	[redacted]
FFFF	8	61.1	63.4	60.7	[redacted]	66.2	62.6	[redacted]	67.2	64.8	[redacted]	68.6	64.9	[redacted]	68.7	57.4	[redacted]	64.9	55.6	[redacted]
FFFF01	1	54.7	57.0	54.0	[redacted]	59.7	55.0	[redacted]	60.2	59.2	[redacted]	62.8	59.9	[redacted]	63.3	50.9	[redacted]	58.5	41.1	[redacted]
FFFF01	2	54.7	57.0	55.6	[redacted]	60.5	56.8	[redacted]	61.2	60.8	[redacted]	64.0	61.6	[redacted]	64.7	51.4	[redacted]	58.6	41.1	[redacted]
FFFF01	3	54.7	57.0	56.9	[redacted]	61.2	58.3	[redacted]	62.2	62.3	[redacted]	65.3	62.9	[redacted]	65.8	52.2	[redacted]	58.9	41.7	[redacted]
FFFF01	4	54.7	57.0	58.3	[redacted]	62.2	60.0	[redacted]	63.4	65.3	[redacted]	68.0	65.5	[redacted]	68.1	53.0	[redacted]	59.2	42.6	[redacted]
FFFF01	5	56.7	59.0	60.7	[redacted]	64.5	62.2	[redacted]	65.6	66.5	[redacted]	69.2	66.7	[redacted]	69.4	54.8	[redacted]	61.2	43.7	[redacted]
FFFF01	6	63.7	66.0	63.4	[redacted]	68.9	65.0	[redacted]	69.7	68.4	[redacted]	72.0	67.4	[redacted]	71.2	57.0	[redacted]	66.8	45.6	[redacted]
FFFF01	7	63.1	65.4	65.0	[redacted]	69.5	66.5	[redacted]	70.4	68.7	[redacted]	72.1	67.8	[redacted]	71.4	57.5	[redacted]	66.5	47.3	[redacted]
FFFF01	8	63.9	66.2	67.4	[redacted]	71.3	68.3	[redacted]	71.9	69.4	[redacted]	72.8	68.6	[redacted]	72.2	58.5	[redacted]	67.3	49.2	[redacted]
FFFF01	9	64.5	66.8	67.1	[redacted]	71.3	68.2	[redacted]	72.0	69.2	[redacted]	72.8	68.5	[redacted]	72.3	59.6	[redacted]	68.0	54.6	[redacted]
FFFF01	10	65.0	67.3	67.7	[redacted]	71.9	68.7	[redacted]	72.5	69.7	[redacted]	73.3	69.2	[redacted]	72.9	60.4	[redacted]	68.6	55.1	[redacted]
FFFF01	11	65.3	67.6	68.5	[redacted]	72.5	69.4	[redacted]	73.1	69.8	[redacted]	73.4	69.5	[redacted]	73.2	61.1	[redacted]	69.0	56.5	[redacted]
FFFF01	16	65.5	67.8	68.1	[redacted]	72.3	69.1	[redacted]	73.0	69.5	[redacted]	73.3	69.6	[redacted]	73.3	63.2	[redacted]	69.8	58.2	[redacted]
FFFF02	1	65.3	67.6	63.6	[redacted]	69.8	64.0	[redacted]	70.0	66.6	[redacted]	71.3	66.0	[redacted]	71.0	59.7	[redacted]	68.7	45.0	[redacted]
FFFF02	2	66.0	68.3	66.6	[redacted]	71.6	67.2	[redacted]	72.0	70.0	[redacted]	73.8	69.6	[redacted]	73.5	60.9	[redacted]	69.5	57.6	[redacted]
FFFF02	3	66.1	68.4	69.3	[redacted]	73.3	70.0	[redacted]	73.8	73.2	[redacted]	76.3	72.5	[redacted]	75.7	62.7	[redacted]	70.0	57.7	[redacted]
FFFF02	4	66.1	68.4	72.9	[redacted]	76.0	73.6	[redacted]	76.6	74.9	[redacted]	77.7	74.5	[redacted]	77.4	65.0	[redacted]	70.9	57.5	[redacted]

CCCC07	16	77.2	74.0	[redacted]	77.1	62.8	[redacted]	66.4	50.9	[redacted]	59.2	50.2	[redacted]	59.0	50.4	[redacted]	59.1	52.6	[redacted]	59.8
CCCC07	21	75.4	72.4	[redacted]	75.5	61.6	[redacted]	65.4	52.4	[redacted]	59.7	52.3	[redacted]	59.7	55.2	[redacted]	61.0	54.3	[redacted]	60.5
CCCC07	26	73.2	70.5	[redacted]	73.6	60.8	[redacted]	64.7	52.7	[redacted]	59.8	54.9	[redacted]	60.8	55.3	[redacted]	61.0	54.5	[redacted]	60.6
CCCC08	9	74.9	72.5	[redacted]	74.8	63.0	[redacted]	65.8	43.0	[redacted]	57.2	39.5	[redacted]	57.0	38.8	[redacted]	57.0	37.1	[redacted]	57.0
CCCC08	10	75.2	72.7	[redacted]	75.0	62.6	[redacted]	65.5	43.6	[redacted]	57.2	40.7	[redacted]	57.1	40.6	[redacted]	57.1	39.9	[redacted]	57.0
CCCC08	11	75.2	72.7	[redacted]	75.0	62.3	[redacted]	65.2	44.7	[redacted]	57.3	42.6	[redacted]	57.2	42.5	[redacted]	57.2	43.3	[redacted]	57.2
CCCC08	16	78.1	75.6	[redacted]	77.9	60.8	[redacted]	64.0	49.4	[redacted]	58.0	48.9	[redacted]	57.9	48.7	[redacted]	57.9	51.3	[redacted]	58.5
CCCC08	21	75.8	73.2	[redacted]	75.5	59.7	[redacted]	63.1	50.8	[redacted]	58.4	50.3	[redacted]	58.3	50.6	[redacted]	58.3	52.7	[redacted]	59.0
CCCC08	26	73.3	70.8	[redacted]	73.1	58.8	[redacted]	62.4	50.9	[redacted]	58.4	50.7	[redacted]	58.4	50.7	[redacted]	58.4	52.6	[redacted]	59.0
CCCC09	9	74.0	71.2	[redacted]	73.5	60.5	[redacted]	63.7	47.2	[redacted]	57.6	50.2	[redacted]	58.2	56.7	[redacted]	61.0	46.8	[redacted]	57.6
CCCC09	10	75.4	71.9	[redacted]	74.5	61.1	[redacted]	66.7	55.3	[redacted]	64.9	57.1	[redacted]	65.3	62.0	[redacted]	67.1	57.1	[redacted]	65.3
CCCC09	11	76.1	72.1	[redacted]	74.9	61.8	[redacted]	68.0	58.3	[redacted]	66.9	59.6	[redacted]	67.3	62.6	[redacted]	68.4	59.7	[redacted]	67.3
CCCC09	16	82.4	79.7	[redacted]	82.1	62.1	[redacted]	68.8	60.5	[redacted]	68.3	61.8	[redacted]	68.7	63.5	[redacted]	69.4	62.0	[redacted]	68.8
CCCC09	21	77.4	74.2	[redacted]	76.8	60.8	[redacted]	67.9	59.8	[redacted]	67.6	60.9	[redacted]	67.9	62.9	[redacted]	68.7	60.8	[redacted]	67.9
CCCC09	26	74.2	70.8	[redacted]	73.7	59.6	[redacted]	67.0	59.4	[redacted]	66.9	60.6	[redacted]	67.3	62.5	[redacted]	68.1	59.7	[redacted]	67.0
DDDD	1	70.1	51.2	[redacted]	70.1	47.7	[redacted]	70.0	60.5	[redacted]	70.7	60.7	[redacted]	70.8	62.9	[redacted]	71.2	62.8	[redacted]	71.2
DDDD	2	72.5	62.3	[redacted]	72.5	61.8	[redacted]	72.4	62.2	[redacted]	72.4	62.4	[redacted]	72.5	64.1	[redacted]	72.8	64.6	[redacted]	72.9
DDDD	3	73.1	63.0	[redacted]	73.1	62.5	[redacted]	73.0	62.9	[redacted]	73.1	63.1	[redacted]	73.1	64.7	[redacted]	73.4	65.2	[redacted]	73.5
DDDD	4	73.4	63.2	[redacted]	73.4	62.8	[redacted]	73.3	63.1	[redacted]	73.3	63.4	[redacted]	73.4	65.0	[redacted]	73.7	65.4	[redacted]	73.8
DDDD	5	73.5	63.2	[redacted]	73.4	62.8	[redacted]	73.4	63.2	[redacted]	73.4	63.4	[redacted]	73.5	65.1	[redacted]	73.8	65.4	[redacted]	73.9
DDDD	6	73.4	63.1	[redacted]	73.3	62.7	[redacted]	73.3	63.1	[redacted]	73.3	63.4	[redacted]	73.4	65.2	[redacted]	73.8	65.3	[redacted]	73.8
DDDD	7	73.2	62.8	[redacted]	73.2	62.5	[redacted]	73.2	63.0	[redacted]	73.2	63.4	[redacted]	73.3	65.3	[redacted]	73.7	65.1	[redacted]	73.7
DDDD	8	73.1	62.7	[redacted]	73.0	62.3	[redacted]	73.0	62.8	[redacted]	73.0	63.5	[redacted]	73.2	65.4	[redacted]	73.6	64.9	[redacted]	73.5
DDDD01	1	68.9	64.9	[redacted]	69.0	51.3	[redacted]	64.7	66.2	[redacted]	69.9	66.2	[redacted]	69.9	66.2	[redacted]	69.9	67.8	[redacted]	71.1
DDDD01	2	72.1	68.9	[redacted]	72.1	58.1	[redacted]	66.2	66.2	[redacted]	70.1	66.2	[redacted]	70.1	66.2	[redacted]	70.1	67.9	[redacted]	71.3
DDDD01	3	74.7	71.9	[redacted]	74.7	64.6	[redacted]	69.2	65.5	[redacted]	69.8	65.5	[redacted]	69.8	65.5	[redacted]	69.8	67.3	[redacted]	71.0
DDDD01	4	76.3	73.6	[redacted]	76.3	65.1	[redacted]	69.7	64.8	[redacted]	69.6	64.8	[redacted]	69.6	64.8	[redacted]	69.6	66.6	[redacted]	70.7
DDDD01	5	76.2	73.5	[redacted]	76.2	64.5	[redacted]	69.5	64.1	[redacted]	69.3	64.1	[redacted]	69.3	64.2	[redacted]	69.3	65.9	[redacted]	70.3
DDDD01	6	77.1	74.4	[redacted]	77.1	63.8	[redacted]	69.2	63.4	[redacted]	69.0	63.4	[redacted]	69.0	63.5	[redacted]	69.0	65.3	[redacted]	70.0
DDDD01	7	77.3	74.6	[redacted]	77.3	63.0	[redacted]	68.8	62.8	[redacted]	68.7	62.8	[redacted]	68.7	63.0	[redacted]	68.8	64.7	[redacted]	69.6
DDDD01	8	77.2	74.5	[redacted]	77.2	62.5	[redacted]	68.5	62.3	[redacted]	68.4	62.3	[redacted]	68.4	62.4	[redacted]	68.5	64.2	[redacted]	69.3
DDDD02	1	64.8	55.2	[redacted]	64.8	50.6	[redacted]	64.1	59.9	[redacted]	66.3	59.8	[redacted]	66.3	59.8	[redacted]	66.3	62.7	[redacted]	67.8
DDDD02	2	66.4	60.0	[redacted]	66.5	56.9	[redacted]	65.4	60.3	[redacted]	66.6	60.3	[redacted]	66.6	60.3	[redacted]	66.6	63.1	[redacted]	68.1
DDDD02	3	67.4	62.3	[redacted]	67.5	60.6	[redacted]	66.6	60.5	[redacted]	66.6	60.4	[redacted]	66.5	60.4	[redacted]	66.5	63.2	[redacted]	68.1
DDDD02	4	67.3	62.6	[redacted]	67.5	60.5	[redacted]	66.3	60.3	[redacted]	66.2	60.2	[redacted]	66.2	60.2	[redacted]	66.2	62.9	[redacted]	67.7
DDDD02	5	67.0	62.9	[redacted]	67.6	60.6	[redacted]	66.1	60.0	[redacted]	65.8	59.9	[redacted]	65.8	59.9	[redacted]	65.8	62.6	[redacted]	67.4
DDDD02	6	66.8	63.1	[redacted]	67.6	60.4	[redacted]	65.8	59.7	[redacted]	65.4	59.6	[redacted]	65.4	59.6	[redacted]	65.4	62.3	[redacted]	67.0
DDDD02	7	66.9	63.5	[redacted]	67.7	60.4	[redacted]	65.6	59.4	[redacted]	65.1	59.3	[redacted]	65.0	59.3	[redacted]	65.0	62.0	[redacted]	66.7
DDDD02	8	67.9	64.5	[redacted]	68.4	60.3	[redacted]	65.4	59.1	[redacted]	64.7	59.0	[redacted]	64.7	59.0	[redacted]	64.7	61.7	[redacted]	66.3
DDDD03	1	92.8	75.6	[redacted]	79.0	50.4	[redacted]	72.6	66.9	[redacted]	74.2	66.9	[redacted]	74.2	66.9	[redacted]	74.2	69.2	[redacted]	75.1
DDDD03	2	91.0	75.6	[redacted]	79.0	59.5	[redacted]	72.9	66.9	[redacted]	74.2	66.9	[redacted]	74.2	66.9	[redacted]	74.2	69.2	[redacted]	75.1
DDDD03	3	87.6	75.7	[redacted]	79.0	64.0	[redacted]	73.1	66.2	[redacted]	73.7	66.2	[redacted]	73.7	66.3	[redacted]	73.7	68.5	[redacted]	74.5
DDDD03	4	85.4	75.5	[redacted]	78.7	64.4	[redacted]	72.7	65.5	[redacted]	73.0	65.5	[redacted]	73.0	65.5	[redacted]	73.0	67.8	[redacted]	73.9
DDDD03	5	83.7	75.2	[redacted]	78.4	64.7	[redacted]	72.5	64.8	[redacted]	72.5	64.8	[redacted]	72.5	64.8	[redacted]	72.5	67.1	[redacted]	73.3
DDDD03	6	82.4	74.8	[redacted]	78.0	64.1	[redacted]	72.0	64.1	[redacted]	72.0	64.1	[redacted]	72.0	64.2	[redacted]	72.0	66.4	[redacted]	72.8
DDDD03	7	81.4	74.3	[redacted]	77.5	63.5	[redacted]	71.5	63.5	[redacted]	71.5	63.5	[redacted]	71.5	63.7	[redacted]	71.5	65.8	[redacted]	72.2
DDDD03	8	80.9	74.0	[redacted]	77.2	62.9	[redacted]	71.0	62.9	[redacted]	71.0	63.0	[redacted]	71.0	63.3	[redacted]	71.1	65.2	[redacted]	71.7
DDDD04	9	61.2	53.8	[redacted]	59.6	48.3	[redacted]	58.0	49.4	[redacted]	58.2	53.0	[redacted]	59.3	56.5	[redacted]	61.0	49.8	[redacted]	58.3
DDDD04	10	70.2	60.1	[redacted]	70.0	58.9	[redacted]	69.8	59.8	[redacted]	70.0	61.3	[redacted]	70.2	62.9	[redacted]	70.6	61.5	[redacted]	70.3
DDDD04	11	70.5	60.9	[redacted]	70.1	58.9	[redacted]	69.7	59.8	[redacted]	69.9	61.5	[redacted]	70.2	62.8	[redacted]	70.5	61.5	[redacted]	70.2
DDDD04	16	75.5	67.0	[redacted]	71.6	57.9	[redacted]	68.6	59.6	[redacted]	68.9	61.9	[redacted]	69.4	62.4	[redacted]	69.6	60.3	[redacted]	69.0
DDDD05	9	71.4	68.8	[redacted]	71.3	47.2	[redacted]	57.7	44.7	[redacted]	57.4	44.5	[redacted]	57.4	46.4	[redacted]	57.6	44.6	[redacted]	57.4
DDDD05	10	74.4	71.8	[redacted]	74.3	53.0	[redacted]	62.5	52.4	[redacted]	62.4	52.3	[redacted]	62.4	53.3	[redacted]	62.6	54.5	[redacted]	62.8
DDDD05	11	75.7	72.9	[redacted]	75.5	55.3	[redacted]	64.7	55.8	[redacted]	64.8	55.7	[redacted]	64.8	56.2	[redacted]	64.9	57.9	[redacted]	65.4
DDDD05	16	77.8	72.5	[redacted]	75.3	58.7	[redacted]	66.7	58.8	[redacted]	66.8	58.8	[redacted]	66.8	59.0	[redacted]	66.8	60.9	[redacted]	67.4
DDDD06	9	64.7	60.2	[redacted]	64.3	52.8	[redacted]	59.8	48.1	[redacted]	58.5	46.0	[redacted]	58.2	45.8	[redacted]	58.2	48.0	[redacted]	58.5
DDDD06	10	66.7	63.0	[redacted]	66.6	56.1	[redacted]	61.5	53.8	[redacted]	60.3	53.3	[redacted]	60.1	53.2	[redacted]	60.0	55.8	[redacted]	61.3
DDDD06	11	67.6	63.4	[redacted]	66.9	56.9	[redacted]	61.9	54.5	[redacted]	60.6	54.0	[redacted]	60.4	54.0	[redacted]	60.4	56.6	[redacted]	61.8
DDDD06	16	76.3	68.3	[redacted]	71.5	59.5	[redacted]	63.7	54.9	[redacted]	60.8	54.4	[redacted]	60.5	54.4	[redacted]	60.5	57.2	[redacted]	62.1
DDDD07	9	73.0	63.8	[redacted]	66.6	47.0	[redacted]	57.7	47.0	[redacted]	57.7	48.3	[redacted]	57.9	55.5	[redacted]	60.4	46.3	[redacted]	57.6
DDDD07	10	75.2	66.1	[redacted]	69.5	54.1	[redacted]	63.7	54.7	[redacted]	63.8	55.8	[redacted]	64.1	59.4	[redacted]	65.3	55.9	[redacted]	64.1
DDDD07	11	77.3	68.9	[redacted]	72.1	56.8	[redacted]	66.0	57.1	[redacted]	66.1	58.0	[redacted]	66.3	60.4	[redacted]	67.0	58.9	[redacted]	66.5
DDDD07	16	78.2	70.5	[redacted]	73.8	58.4	[redacted]	68.0	60.2	[redacted]	68.4	60.9	[redacted]	68.6	61.8	[redacted]	68.9	61.7	[redacted]	68.8
EEEE	1	74.2	62.0	[redacted]	74.2	61.9	[redacted]	74.2	63.0	[redacted]	74.4	63.5	[redacted]	74.4	66.8	[redacted]	75.2	64.5	[redacted]	74.6
EEEE	2	75.2	62.8	[redacted]	75.2	62.7	[redacted]	75.2	64.1	[redacted]	75.4	64.9	[redacted]	75.5	67.4	[redacted]	76.1	65.5	[redacted]	75.6
EEEE	3	75.4	63.1	[redacted]	75.4	63.0	[redacted]	75.4	64.6	[redacted]	75.6	65.7	[redacted]	75.8	67.9	[redacted]	76.4	65.7	[redacted]	75.8
EEEE	4	75.3	63.1	[redacted]	75.3	62.9	[redacted]	75.3	64.8	[redacted]	75.6	65.8	[redacted]	75.8	68.2	[redacted]	76.4	65.7	[redacted]	75.8
EEEE	5	75.2	62.9	[redacted]	75.2	62.8	[redacted]	75.2	65.1	[redacted]	75.6	66.6	[redacted]	75.9	68.4	[redacted]	76.4	65.5	[redacted]	75.6
EEEE	6	75.0	62.7	[redacted]	74.9	62.5	[redacted]	74.9	66.3	[redacted]	75.6	67.6	[redacted]	76.0	68.6	[redacted]	76.3	65.3	[redacted]	75.4
EEEE	7	74.7	62.5	[redacted]	74.6	62.2	[redacted]	74.6	66.3	[redacted]	75.4	67.7	[redacted]	75.8	68.8	[redacted]	76.2	65.0	[redacted]	75.1
EEEE	8	74.4	62.3	[redacted]	74.3	62.0	[redacted]	74.3	66.3	[redacted]	75.2	67.9	[redacted]	75.7	69.6	[redacted]	76.4	64.7	[redacted]	74.8
EEEE01	1	72.9	65.4	[redacted]	72.1	63.9	[redacted]	71.6	64.2	[redacted]	71.7	64.2	[redacted]	71.7	64.3	[redacted]	71.7	66.5	[redacted]	72.5
EEEE01	2	74.2	66.4	[redacted]	72.6	63.8	[redacted]	71.8	64.3	[redacted]	71.9	64.4	[redacted]	71.9	64.4	[redacted]	71.9	66.6	[redacted]	72.7
EEEE01	3	76.2	68.2	[redacted]	73.3	63.1	[redacted]	71.3	63.8	[redacted]	71.5	63.8	[redacted]	71.5	63.9	[redacted]	71.5	66.1	[redacted]	72.3
EEEE01	4	77.6	69.5	[redacted]	73.9	62.5	[redacted]	70.9	63.1	[redacted]	71.1	63.2	[redacted]	71.1	63.3	[redacted]	71.1	65.4	[redacted]	71.8
EEEE01	5	76.1	68.0	[redacted]	72.8	61.9	[redacted]	70.5	62.5	[redacted]	70.6	62.6	[redacted]	70.6	62.6	[redacted]	70.6	64.8	[redacted]	71.3
EEEE01	6	76.6	68.8	[redacted]	73.1	61.2	[redacted]	70.0	61.9	[redacted]	70.2	62.0	[redacted]	70.2	62.0	[redacted]	70.2	64.2	[redacted]	70.9
EEEE01	7	76.4	69.2	[redacted]	73.3	60.7	[redacted]	69.6	61.4	[redacted]	69.7	61.4	[redacted]	69.7	61.4	[redacted]	69.7	63.7	[redacted]	70.4
EEEE01	8	76.1	68.7	[redacted]	72.8	60.3	[redacted]	69.3	60.9	[redacted]	69.4	60.9	[redacted]	69.4	60.9	[redacted]	69.4	63.2	[redacted]	70.1
EEEE02	1	64.0	58.8	[redacted]	63.5	56.7	[redacted]	62.2	56.2	[redacted]	61.9	56.0	[redacted]	61.8	55.9	[redacted]	61.7	58.7	[redacted]	63.4
EEEE02	2	64.8	59.5	[redacted]	64.2	57.4	[redacted]	62.9	56.7	[redacted]	62.5	56.6	[redacted]	62.4	56.5	[redacted]	62.4	59.2	[redacted]	64.0
EEEE02	3	65.2	60.1	[redacted]	64.7	57.6	[redacted]	63.1	57.0	[redacted]	62.8	56.8	[redacted]	62.7	56.7	[redacted]	62.6	59.4	[redacted]	64.2
EEEE02	4	65.4	60.2	[redacted]	64.7	57.7	[redacted]	63.1	56.8	[redacted]	62.6	56.5	[redacted]	62.5	56.5	[redacted]	62.5	59.1	[redacted]	64.0
EEEE02	5	65.5	60.3	[redacted]	64.7	57.3	[redacted]	62.8	56.5	[redacted]	62.4	56.2	[redacted]	62.2	56.1	[redacted]	62.2	58.7	[redacted]	63.6
EEEE02	6	65.4	60.1	[redacted]	64.5	57.2	[redacted]	62.6	56.2	[redacted]	62.1	55.8	[redacted]	61.9	55.8	[redacted]	61.9	58.4	[redacted]	63.3
EEEE02	7	65.7	60.6	[redacted]	64.8	57.2	[redacted]	62.5	56.0	[redacted]	61.9	55.5	[redacted]	61.6	55.5	[redacted]	61.6	58.0	[redacted]	63.0
EEEE02	8	66.3	61.4	[redacted]	65.4	57.6	[redacted]	62.6	55.9	[redacted]	61.7	55.2	[redacted]	61.3	55.2	[redacted]	61.3	57.7	[redacted]	62.7
EEEE03	1	68.7	62.4	[redacted]	69.5	59.8	[redacted]	68.8	60.2	[redacted]	68.9	60.1	[redacted]	68.9	63.0	[redacted]	69.7	62.0	[redacted]	69.4
EEEE03	2	69.3	64.4	[redacted]	70.6	60.6	[redacted]	69.5	61.3	[redacted]	69.6	62.1	[redacted]	69.9	63.4	[redacted]	70.3	62.6	[redacted]	70.0
EEEE03	3	70.0	67.8	[redacted]	72.7	60.9	[redacted]	70.2	61.1	[redacted]	70.2	62.6	[redacted]	70.6	63.5	[redacted]	70.8	62.6	[redacted]	70.6
EEEE03	4	71.2	68.7	[redacted]	73.9	61.6	[redacted]	71.5	61.5	[redacted]	71.5	62.7	[redacted]	71.7	63.1	[redacted]	71.8	62.5	[redacted]	71.7
EEEE03	5	71.0	69.6	[redacted]	74.3	63.7	[redacted]	71.8	62.4	[redacted]	71.5	62.7	[redacted]	71.6	63.2	[redacted]	71.7	62.1	[redacted]	71.5
EEEE03	6	70.9	69.7	[redacted]	74.3	65.3	[redacted]	72.2	62.6	[redacted]	71.5	62.6	[redacted]	71.5	63.3	[redacted]	71.6	61.8	[redacted]	71.3
EEEE03	7	70.7	69.6	[redacted]	74.1	66.0	[redacted]	72.4	62.8	[redacted]	71.4	62.7	[redacted]	71.3	63.8	[redacted]	71.6	61.5	[redacted]	71.1
EEEE03	8	70.4	69.5	[redacted]	74.0	66.3	[redacted]	72.3	63.1	[redacted]	71.2	63.0	[redacted]	71.2	64.0	[redacted]	71.5	61.1	[redacted]	70.8
EEEE04	9	63.4	53.7	[redacted]	62.8	51.0	[redacted]	62.3	59.1	[redacted]	65.0	62.3	[redacted]	67.1	64.9	[redacted]	69.1	52.8	[redacted]	62.6
EEEE04	10	72.2	60.0	[redacted]	72.1	59.5	[redacted]	72.1	64.1	[redacted]	73.0	66.3	[redacted]	73.7	66.9	[redacted]	74.0	62.2	[redacted]	72.5
EEEE04	11	72.6	60.6	[redacted]	72.6	60.1	[redacted]	72.5	64.2	[redacted]	73.3	66.8	[redacted]	74.1	67.1	[redacted]	74.3	62.8	[redacted]	72.9
EEEE04	16	72.0	60.5	[redacted]	71.9	59.6	[redacted]	71.8	64.7	[redacted]	72.9	66.6	[redacted]	73.7	66.8	[redacted]	73.7	62.3	[redacted]	72.3
EEEE04	21	70.9	59.8	[redacted]	70.7	58.5	[redacted]	70.5	63.9	[redacted]	71.8	66.6	[redacted]	73.0	66.0	[redacted]	72.7	61.1	[redacted]	71.0
EEEE04	26	69.8	59.0	[redacted]	69.7	57.6	[redacted]	69.5	63.5	[redacted]	71.0	65.7	[redacted]	72.0	65.2	[redacted]	71.7	60.3	[redacted]	70.0
EEEE04	28	69.4	58.2	[redacted]	69.3	57.3	[redacted]	69.2	63.5	[redacted]	70.8	65.4	[redacted]	71.7	64.9	[redacted]	71.4	59.9	[redacted]	69.6
EEEE05	9	69.3	61.8	[redacted]	64.9	46.5	[redacted]	57.6	47.0	[redacted]	57.7	47.0	[redacted]	57.7	48.4	[redacted]	57.9	47.2	[redacted]	57.7
EEEE05	10	72.3	65.1	[redacted]	69.4	54.9	[redacted]	65.8	56.1	[redacted]	65.9	56.1	[redacted]	65.9	56.3	[redacted]	66.0	58.3	[redacted]	66.4
EEEE05	11	74.1	67.0	[redacted]	71.2	57.2	[redacted]	67.5	57.5	[redacted]	67.5	57.5	[redacted]	67.5	57.6	[redacted]	67.5	59.8	[redacted]	68.0
EEEE05	16	75.3	68.8	[redacted]	73.0	60.0	[redacted]	69.4	59.9	[redacted]	69.4	60.0	[redacted]	69.4	60.0	[redacted]	69.4	62.3	[redacted]	70.0
EEEE05	21	73.7	66.8	[redacted]	71.4	59.0	[redacted]	68.4	58.7	[redacted]	68.4	58.8	[redacted]	68.4	58.8	[redacted]	68.4	61.1	[redacted]	68.9
EEEE05	26	72.5	65.8	[redacted]	70.6	58.0	[redacted]	67.8	57.8	[redacted]	67.7	58.1	[redacted]	67.8	58.1	[redacted]	67.8	60.2	[redacted]	68.2
EEEE05	28	72.0	65.4	[redacted]	70.2	57.3	[redacted]	67.3	57.3	[redacted]	67.3	57.7	[redacted]	67.4	57.7	[redacted]	67.4	59.6	[redacted]	67.8
EEEE06	9	64.7	54.6	[redacted]	60.6	55.4	[redacted]	61.1	48.1	[redacted]	58.5	43.5	[redacted]	58.0	42.9	[redacted]	58.0	40.4	[redacted]	57.8
EEEE06	11	66.1	59.0	[redacted]	63.4	60.1	[redacted]	64.2	50.2	[redacted]	59.0	47.5	[redacted]	58.4	47.2	[redacted]	58.4	48.5	[redacted]	58.6
EEEE06	16	67.4	63.6	[redacted]	67.1	60.4	[redacted]	64.4	52.7	[redacted]	59.8	51.4	[redacted]	59.3	51.4	[redacted]	59.3	53.6	[redacted]	60.2
EEEE06	21	68.5	66.1	[redacted]	69.4	60.2	[redacted]	64.3	53.0	[redacted]	59.9	52.0	[redacted]	59.6	51.9	[redacted]	59.5	54.2	[redacted]	60.5
EEEE06	26	68.0	65.6	[redacted]	68.9	59.8	[redacted]	64.0	53.0	[redacted]	59.9	52.0	[redacted]	59.6	52.0	[redacted]	59.6	54.3	[redacted]	60.5
EEEE06	28	68.3	65.7	[redacted]	69.0	59.5	[redacted]	63.7	52.8	[redacted]	59.8	51.7	[redacted]	59.4	51.6	[redacted]	59.4	54.0	[redacted]	60.4
EEEE07	9	63.2	64.5	[redacted]	68.2	64.3	[redacted]	68.1	60.1	[redacted]	65.6	56.9	[redacted]	64.3	62.2	[redacted]	66.7	52.5	[redacted]	63.4
EEEE07	10	67.7	68.8	[redacted]	72.6	65.8	[redacted]	70.7	61.8	[redacted]	69.0	60.4	[redacted]	68.6	63.6	[redacted]	69.7	57.7	[redacted]	68.0
EEEE07	11	68.7	68.8	[redacted]	72.9	66.5	[redacted]	71.6	62.7	[redacted]	70.0	61.1	[redacted]	69.5	63.8	[redacted]	70.3	58.9	[redacted]	69.1
EEEE07	16	68.9	68.8	[redacted]	73.0	66.5	[redacted]	71.7	64.0	[redacted]	70.5	63.6	[redacted]	70.4	63.7	[redacted]	70.4	59.0	[redacted]	69.3
EEEE07	21	68.2	68.5	[redacted]	72.6	65.2	[redacted]	70.7	63.6	[redacted]	70.0	63.1	[redacted]	69.8	63.3	[redacted]	69.8	58.1	[redacted]	68.5
EEEE07	26	67.5	67.9	[redacted]	71.9	64.1	[redacted]	69.8	62.8	[redacted]	69.2	62.7	[redacted]	69.2	62.7	[redacted]	69.2	57.5	[redacted]	67.8
EEEE07	28	67.2	67.6	[redacted]	71.6	63.7	[redacted]	69.4	62.7	[redacted]	69.0	62.6	[redacted]	69.0	62.5	[redacted]	68.9	57.2	[redacted]	67.5
FFFF	1	62.7	84.0	[redacted]	86.3	78.0	[redacted]	80.4	77.8	[redacted]	80.2	45.8	[redacted]	62.8	50.5	[redacted]	63.0	46.4	[redacted]	62.8
FFFF	2	63.2	85.3	[redacted]	87.6	78.1	[redacted]	80.5	77.7	[redacted]	80.1	46.3	[redacted]	63.2	50.4	[redacted]	63.4	47.1	[redacted]	63.2
FFFF	3	63.2	84.3	[redacted]	86.6	77.9	[redacted]	80.3	77.4	[redacted]	79.8	46.4	[redacted]	63.1	51.5	[redacted]	63.4	47.8	[redacted]	63.1
FFFF	4	63.2	83.3	[redacted]	85.6	77.2	[redacted]	79.6	76.3	[redacted]	78.7	47.2	[redacted]	63.0	52.8	[redacted]	63.5	48.6	[redacted]	63.1
FFFF	5	63.3	82.4	[redacted]	84.7	78.0	[redacted]	80.4	75.6	[redacted]	78.0	47.9	[redacted]	63.0	56.0	[redacted]	64.1	49.5	[redacted]	63.1
FFFF	6	63.9	81.5	[redacted]	83.8	79.7	[redacted]	82.1	74.9	[redacted]	77.4	48.3	[redacted]	63.1	49.0	[redacted]	63.2	50.2	[redacted]	63.3
FFFF	7	64.2	80.8	[redacted]	83.1	79.1	[redacted]	81.5	74.3	[redacted]	76.8	49.1	[redacted]	63.4	50.2	[redacted]	63.5	50.8	[redacted]	63.5
FFFF	8	64.5	80.1	[redacted]	82.5	78.2	[redacted]	80.6	73.7	[redacted]	76.2	49.8	[redacted]	63.7	50.5	[redacted]	63.8	51.3	[redacted]	63.8
FFFF01	1	57.2	75.9	[redacted]	78.2	51.8	[redacted]	58.8	48.2	[redacted]	57.9	43.5	[redacted]	57.3	45.2	[redacted]	57.4	33.8	[redacted]	57.0
FFFF01	2	57.2	75.6	[redacted]	77.9	52.3	[redacted]	59.0	48.5	[redacted]	57.9	43.5	[redacted]	57.3	45.3	[redacted]	57.4	34.6	[redacted]	57.0
FFFF01	3	57.2	75.6	[redacted]	77.9	52.9	[redacted]	59.2	48.7	[redacted]	58.0	43.5	[redacted]	57.3	45.4	[redacted]	57.5	35.7	[redacted]	57.0
FFFF01	4	57.2	76.4	[redacted]	78.7	53.6	[redacted]	59.5	49.1	[redacted]	58.0	45.6	[redacted]	57.5	48.7	[redacted]	58.0	38.2	[redacted]	57.1
FFFF01	5	59.2	77.7	[redacted]	80.0	54.1	[redacted]	60.9	52.3	[redacted]	60.3	59.2	[redacted]	63.4	64.0	[redacted]	67.0	49.2	[redacted]	59.7
FFFF01	6	66.1	77.6	[redacted]	80.1	54.7	[redacted]	66.5	56.3	[redacted]	66.7	63.1	[redacted]	68.7	64.3	[redacted]	69.3	55.2	[redacted]	66.6
FFFF01	7	65.5	77.4	[redacted]	79.9	55.4	[redacted]	66.1	56.2	[redacted]	66.2	62.4	[redacted]	68.1	62.4	[redacted]	68.1	54.8	[redacted]	66.0
FFFF01	8	66.3	77.2	[redacted]	79.7	57.8	[redacted]	67.2	57.1	[redacted]	67.0	62.4	[redacted]	68.5	62.7	[redacted]	68.7	55.9	[redacted]	66.8
FFFF01	9	67.2	76.9	[redacted]	79.4	72.1	[redacted]	75.1	58.3	[redacted]	67.7	62.8	[redacted]	69.0	62.9	[redacted]	69.1	56.5	[redacted]	67.4
FFFF01	10	67.7	76.6	[redacted]	79.2	73.6	[redacted]	76.5	59.6	[redacted]	68.4	63.0	[redacted]	69.4	63.0	[redacted]	69.4	57.0	[redacted]	67.9
FFFF01	11	68.1	76.2	[redacted]	78.8	73.2	[redacted]	76.2	61.0	[redacted]	69.0	63.0	[redacted]	69.6	63.0	[redacted]	69.6	57.3	[redacted]	68.2
FFFF01	16	68.5	74.8	[redacted]	77.6	70.5	[redacted]	74.0	67.5	[redacted]	71.9	63.3	[redacted]	69.8	63.0	[redacted]	69.7	57.5	[redacted]	68.4
FFFF02	1	67.6	73.0	[redacted]	76.0	51.7	[redacted]	67.8	48.2	[redacted]	67.7	60.6	[redacted]	68.9	62.0	[redacted]	69.3	59.8	[redacted]	68.7
FFFF02	2	68.9	74.7	[redacted]	77.5	58.8	[redacted]	69.1	58.8	[redacted]	69.1	61.3	[redacted]	69.6	62.6	[redacted]	69.9	60.3	[redacted]	69.3
FFFF02	3	69.0	75.5	[redacted]	78.3	59.1	[redacted]	69.2	59.1	[redacted]	69.2	62.1	[redacted]	69.9	62.8	[redacted]	70.1	60.4	[redacted]	69.4
FFFF02	4	69.0	75.5	[redacted]	78.3	59.3	[redacted]	69.2	59.3	[redacted]	69.2	61.7	[redacted]	69.7	63.0	[redacted]	70.1	60.2	[redacted]	69.4

FFFF02	5	66.0	68.3	73.6	[redacted]			76.6	74.3	[redacted]			77.2	75.2	[redacted]			78.0	74.9	[redacted]			77.7	66.9	[redacted]			71.8	57.4	[redacted]			68.9	75.4	[redacted]			78.2	60.1	[redacted]			69.3	59.4	[redacted]			69.2	62.7	[redacted]			70.0	63.0	[redacted]			70.1	59.9	[redacted]			69.3
FFFF02	6	65.9	68.2	72.8	[redacted]			75.9	73.6	[redacted]			76.6	74.6	[redacted]			77.4	74.2	[redacted]			77.1	63.3	[redacted]			70.1	57.5	[redacted]			68.8	74.9	[redacted]			77.7	69.3	[redacted]			73.2	60.1	[redacted]			69.2	63.4	[redacted]			70.1	62.8	[redacted]			69.9	59.6	[redacted]			69.1
FFFF02	7	65.7	68.0	72.7	[redacted]			75.8	73.5	[redacted]			76.5	74.4	[redacted]			77.2	74.0	[redacted]			76.9	64.4	[redacted]			70.4	57.9	[redacted]			68.7	74.5	[redacted]			77.3	69.4	[redacted]			73.2	60.4	[redacted]			69.1	63.5	[redacted]			70.0	62.9	[redacted]			69.8	59.2	[redacted]			68.9
FFFF02	8	65.4	67.7	72.8	[redacted]			75.8	73.7	[redacted]			76.6	74.4	[redacted]			77.2	74.1	[redacted]			76.9	66.4	[redacted]			71.2	58.3	[redacted]			68.5	72.9	[redacted]			75.9	69.4	[redacted]			73.2	60.4	[redacted]			68.9	63.7	[redacted]			69.9	63.1	[redacted]			69.7	59.0	[redacted]			68.6
FFFF03	1	54.8	57.1	62.0	[redacted]			65.1	62.5	[redacted]			65.5	64.8	[redacted]			67.5	63.6	[redacted]			66.4	54.7	[redacted]			60.1	45.3	[redacted]			57.6	74.0	[redacted]			76.4	59.0	[redacted]			62.7	46.0	[redacted]			57.6	48.2	[redacted]			58.0	49.1	[redacted]			58.1	49.8	[redacted]			58.3
FFFF03	2	56.8	59.1	64.3	[redacted]			67.3	64.9	[redacted]			67.8	67.5	[redacted]			70.2	66.3	[redacted]			69.1	56.1	[redacted]			61.8	49.8	[redacted]			59.9	75.9	[redacted]			78.3	61.4	[redacted]			65.0	48.0	[redacted]			59.6	49.9	[redacted]			59.9	50.4	[redacted]			60.0	51.8	[redacted]			60.3
FFFF03	3	56.9	59.2	66.5	[redacted]			69.3	67.3	[redacted]			70.0	70.3	[redacted]			72.8	69.1	[redacted]			71.7	57.0	[redacted]			62.3	55.0	[redacted]			61.4	76.3	[redacted]			78.6	62.3	[redacted]			65.7	50.6	[redacted]			60.1	50.1	[redacted]			60.0	50.5	[redacted]			60.1	51.8	[redacted]			60.4
FFFF03	4	56.7	59.0	67.9	[redacted]			70.5	68.8	[redacted]			71.4	72.0	[redacted]			74.4	70.6	[redacted]			73.1	58.0	[redacted]			62.7	55.0	[redacted]			61.2	76.7	[redacted]			79.0	64.4	[redacted]			67.4	50.7	[redacted]			60.0	50.1	[redacted]			59.9	50.4	[redacted]			59.9	51.7	[redacted]			60.2
FFFF03	5	56.4	58.7	69.8	[redacted]			72.3	70.9	[redacted]			73.4	72.3	[redacted]			74.7	71.1	[redacted]			73.5	59.0	[redacted]			63.2	55.0	[redacted]			61.1	76.5	[redacted]			78.8	67.7	[redacted]			70.3	50.7	[redacted]			59.7	49.8	[redacted]			59.6	50.1	[redacted]			59.6	51.3	[redacted]			59.9
FFFF03	6	56.0	58.3	72.4	[redacted]			74.8	73.1	[redacted]			75.5	73.1	[redacted]			75.5	72.2	[redacted]			74.6	59.2	[redacted]			63.2	55.2	[redacted]			60.9	76.4	[redacted]			78.7	72.9	[redacted]			75.3	50.5	[redacted]			59.4	49.4	[redacted]			59.2	49.6	[redacted]			59.2	50.9	[redacted]			59.5
FFFF03	7	55.7	58.0	72.3	[redacted]			74.7	73.0	[redacted]			75.4	73.0	[redacted]			75.4	72.1	[redacted]			74.5	60.0	[redacted]			63.7	56.9	[redacted]			61.7	75.7	[redacted]			78.0	72.9	[redacted]			75.3	51.0	[redacted]			59.3	50.0	[redacted]			59.0	50.5	[redacted]			59.1	50.6	[redacted]			59.2
FFFF03	8	55.9	58.2	71.1	[redacted]			73.5	71.9	[redacted]			74.3	71.7	[redacted]			74.1	71.4	[redacted]			73.8	60.7	[redacted]			64.2	58.3	[redacted]			62.6	75.6	[redacted]			77.9	72.8	[redacted]			75.2	52.7	[redacted]			59.9	52.9	[redacted]			60.0	53.3	[redacted]			60.1	51.0	[redacted]			59.4
FFFF04	1	54.7	57.7	48.3	[redacted]			58.6	50.0	[redacted]			58.9	51.3	[redacted]			59.3	52.1	[redacted]			59.6	48.7	[redacted]			58.7	46.9	[redacted]			58.3	85.4	[redacted]			88.4	84.9	[redacted]			87.9	48.7	[redacted]			58.7	40.9	[redacted]			57.9	41.5	[redacted]			57.9	31.6	[redacted]			57.7
FFFF04	2	54.7	57.7	48.6	[redacted]			58.6	50.5	[redacted]			59.1	51.9	[redacted]			59.5	52.6	[redacted]			59.8	48.8	[redacted]			58.7	47.6	[redacted]			58.5	85.1	[redacted]			88.1	84.2	[redacted]			87.2	48.9	[redacted]			58.7	41.1	[redacted]			57.9	41.7	[redacted]			57.9	32.0	[redacted]			57.7
FFFF04	3	54.7	57.7	49.5	[redacted]			58.8	51.4	[redacted]			59.3	54.8	[redacted]			60.7	54.4	[redacted]			60.5	49.5	[redacted]			58.8	48.2	[redacted]			58.6	83.4	[redacted]			86.4	81.8	[redacted]			84.8	49.0	[redacted]			58.7	41.4	[redacted]			57.9	42.2	[redacted]			57.9	32.6	[redacted]			57.7
FFFF04	4	54.7	57.7	49.8	[redacted]			58.9	51.8	[redacted]			59.5	55.4	[redacted]			61.1	55.2	[redacted]			61.0	50.2	[redacted]			59.0	49.2	[redacted]			58.8	82.4	[redacted]			85.4	80.4	[redacted]			83.4	48.1	[redacted]			58.5	41.8	[redacted]			57.9	43.3	[redacted]			58.0	33.3	[redacted]			57.7
FFFF04	5	54.7	57.7	53.2	[redacted]			60.0	54.7	[redacted]			60.7	56.7	[redacted]			61.8	56.5	[redacted]			61.7	51.1	[redacted]			59.3	50.1	[redacted]			59.0	81.3	[redacted]			84.3	78.9	[redacted]			81.9	48.3	[redacted]			58.6	43.4	[redacted]			58.0	47.0	[redacted]			58.4	34.3	[redacted]			57.7
FFFF04	6	54.7	57.7	54.1	[redacted]			60.4	55.4	[redacted]			61.1	57.0	[redacted]			62.0	56.9	[redacted]			61.9	54.1	[redacted]			60.4	50.9	[redacted]			59.2	80.5	[redacted]			83.5	80.3	[redacted]			83.3	48.6	[redacted]			58.6	44.9	[redacted]			58.1	50.1	[redacted]			59.0	36.0	[redacted]			57.7
FFFF04	7	54.7	57.7	56.0	[redacted]			61.4	57.1	[redacted]			62.1	57.9	[redacted]			62.6	58.4	[redacted]			62.9	55.1	[redacted]			60.9	53.6	[redacted]			60.2	79.9	[redacted]			82.9	79.6	[redacted]			82.6	50.1	[redacted]			59.0	47.4	[redacted]			58.4	53.4	[redacted]			60.1	39.9	[redacted]			57.8
FFFF04	8	54.7	57.7	60.4	[redacted]			64.4	61.4	[redacted]			65.2	63.0	[redacted]			66.6	63.6	[redacted]			67.1	60.3	[redacted]			64.4	58.2	[redacted]			62.8	79.1	[redacted]			82.1	77.8	[redacted]			80.8	51.9	[redacted]			59.5	52.2	[redacted]			59.6	57.7	[redacted]			62.5	46.3	[redacted]			58.3
FFFF04	9	54.7	57.7	64.7	[redacted]			68.1	65.8	[redacted]			69.1	66.1	[redacted]			69.4	66.4	[redacted]			69.7	62.7	[redacted]			66.3	59.4	[redacted]			63.7	78.1	[redacted]			81.1	76.8	[redacted]			79.8	54.4	[redacted]			60.5	54.9	[redacted]			60.8	59.6	[redacted]			63.8	50.0	[redacted]			58.9
FFFF04	10	54.7	57.7	67.5	[redacted]			70.7	68.7	[redacted]			71.9	68.8	[redacted]			72.0	68.6	[redacted]			71.8	63.3	[redacted]			66.9	60.0	[redacted]			64.1	77.7	[redacted]			80.7	75.8	[redacted]			78.8	56.2	[redacted]			61.5	58.3	[redacted]			62.9	62.2	[redacted]			65.9	52.5	[redacted]			59.7
FFFF04	11	54.7	57.7	68.7	[redacted]			71.9	69.8	[redacted]			72.9	69.8	[redacted]			72.9	70.0	[redacted]			73.1	64.4	[redacted]			67.8	60.2	[redacted]			64.3	76.9	[redacted]			79.9	74.9	[redacted]			77.9	57.8	[redacted]			62.5	60.1	[redacted]			64.2	62.7	[redacted]			66.3	53.3	[redacted]			60.1
FFFF04	16	58.4	61.4	68.8	[redacted]			72.2	70.0	[redacted]			73.3	70.3	[redacted]			73.6	70.7	[redacted]			73.9	67.1	[redacted]			70.6	61.4	[redacted]			66.2	74.9	[redacted]			78.0	70.9	[redacted]			74.1	63.4	[redacted]			67.6	62.2	[redacted]			66.7	61.4	[redacted]			66.2	56.4	[redacted]			63.5
FFFF05	1	54.7	57.7	53.6	[redacted]			60.2	54.0	[redacted]			60.4	57.9	[redacted]			62.6	58.0	[redacted]			62.7	55.4	[redacted]			61.1	47.5	[redacted]			58.4	80.0	[redacted]			83.0	66.4	[redacted]			69.7	54.6	[redacted]			60.6	46.0	[redacted]			58.2	45.6	[redacted]			58.2	47.3	[redacted]			58.4
FFFF05	2	54.9	57.9	54.4	[redacted]			60.7	55.2	[redacted]			61.1	58.9	[redacted]			63.4	59.0	[redacted]			63.4	55.4	[redacted]			61.2	50.1	[redacted]			59.1	81.3	[redacted]			84.3	67.1	[redacted]			70.4	55.3	[redacted]			61.1	46.6	[redacted]			58.5	46.3	[redacted]			58.5	48.2	[redacted]			58.7
FFFF05	3	54.8	57.8	55.7	[redacted]			61.3	56.7	[redacted]			61.9	61.4	[redacted]			65.3	60.2	[redacted]			64.3	56.8	[redacted]			61.9	51.1	[redacted]			59.3	81.0	[redacted]			84.0	67.1	[redacted]			70.3	55.5	[redacted]			61.2	47.2	[redacted]			58.5	47.0	[redacted]			58.5	49.1	[redacted]			58.8
FFFF05	4	54.7	57.7	56.6	[redacted]			61.8	57.6	[redacted]			62.4	62.6	[redacted]			66.3	61.6	[redacted]			65.4	58.1	[redacted]			62.7	52.1	[redacted]			59.6	80.7	[redacted]			83.7	67.4	[redacted]			70.6	55.5	[redacted]			61.1	47.7	[redacted]			58.5	47.6	[redacted]			58.5	49.8	[redacted]			58.9
FFFF05	5	54.7	57.7	57.6	[redacted]			62.4	58.7	[redacted]			63.1	63.2	[redacted]			66.8	62.1	[redacted]			65.8	58.6	[redacted]			63.1	53.8	[redacted]			60.3	80.4	[redacted]			83.4	68.9	[redacted]			72.1	55.4	[redacted]			61.1	48.0	[redacted]			58.5	47.9	[redacted]			58.5	50.1	[redacted]			59.0
FFFF05	6	54.7	57.7	60.0	[redacted]			64.1	61.0	[redacted]			64.9	65.0	[redacted]			68.4	64.5	[redacted]			67.9	59.4	[redacted]			63.7	55.2	[redacted]			61.0	80.1	[redacted]			83.1	76.5	[redacted]			79.5	55.4	[redacted]			61.1	48.1	[redacted]			58.5	48.0	[redacted]			58.5	50.3	[redacted]			59.0
FFFF05	7	54.7	57.7	61.2	[redacted]			65.1	62.4	[redacted]			66.1	65.3	[redacted]			68.7	64.8	[redacted]			68.2	59.6	[redacted]			63.8	56.2	[redacted]			61.5	79.8	[redacted]			82.8	76.3	[redacted]			79.3	55.7	[redacted]			61.2	48.0	[redacted]			58.5	48.1	[redacted]			58.5	50.3	[redacted]			59.0
FFFF05	8	57.9	60.2	62.1	[redacted]			65.8	63.2	[redacted]			66.6	65.9	[redacted]			68.8	65.5	[redacted]			68.5	60.7	[redacted]			64.8	56.7	[redacted]			62.7	79.3	[redacted]			81.6	75.8	[redacted]			78.2	56.8	[redacted]			62.7	48.2	[redacted]			60.6	48.2	[redacted]			60.6	50.4	[redacted]			60.9
FFFF06	9	54.7	57.0	62.4	[redacted]			65.4	64.1	[redacted]			66.9	66.1	[redacted]			68.7	65.4	[redacted]			68.1	59.3	[redacted]			62.9	52.0	[redacted]			58.9	82.2	[redacted]			84.5	80.4	[redacted]			82.7	60.9	[redacted]			64.1	44.3	[redacted]			57.4	46.7	[redacted]			57.6	42.7	[redacted]			57.2
FFFF06	10	58.0	60.3	62.7	[redacted]			66.3	64.3	[redacted]			67.5	65.3	[redacted]			68.3	65.6	[redacted]			68.6	59.7	[redacted]			64.2	55.2	[redacted]			62.1	81.5	[redacted]			83.8	80.7	[redacted]			83.0	64.6	[redacted]			67.8	48.9	[redacted]			60.8	49.6	[redacted]			60.9	49.5	[redacted]			60.9
FFFF06	11	59.6	61.9	63.3	[redacted]			67.1	64.8	[redacted]			68.2	66.4	[redacted]			69.5	66.0	[redacted]			69.2	60.7	[redacted]			65.5	55.3	[redacted]			63.3	80.9	[redacted]			83.2	80.0	[redacted]			82.3	66.2	[redacted]			69.4	50.1	[redacted]			62.4	50.5	[redacted]			62.4	51.0	[redacted]			62.5
FFFF06	16	61.1	63.4	65.2	[redacted]			68.9	66.4	[redacted]			69.8	66.9	[redacted]			70.2	67.3	[redacted]			70.5	62.6	[redacted]			67.2	57.6	[redacted]			65.0	77.7	[redacted]			80.1	74.9	[redacted]			77.4	67.8	[redacted]			70.9	52.2	[redacted]			63.9	52.1	[redacted]			63.9	53.0	[redacted]			64.0
FFFF07	9	54.7	57.0	68.2	[redacted]			70.7	69.2	[redacted]			71.7	69.2	[redacted]			71.7	68.6	[redacted]			71.1	59.6	[redacted]			63.1	52.6	[redacted]			59.1	79.5	[redacted]			81.8	78.3	[redacted]			80.6	59.6	[redacted]			63.1	56.5	[redacted]			61.0	60.4	[redacted]			63.7	42.0	[redacted]			57.2
FFFF07	10	56.4	58.7	67.8	[redacted]			70.4	68.9	[redacted]			71.4	69.2	[redacted]			71.7	68.7	[redacted]			71.2	60.5	[redacted]			64.2	55.0	[redacted]			61.1	79.1	[redacted]			81.4	78.2	[redacted]			80.5	61.1	[redacted]			64.7	61.6	[redacted]			65.0	64.2	[redacted]			67.2	49.3	[redacted]			59.5
FFFF07	11	61.8	64.1	68.5	[redacted]			71.6	69.4	[redacted]			72.4	69.6	[redacted]			72.6	69.4	[redacted]			72.4	60.9	[redacted]			66.7	56.7	[redacted]			65.3	78.5	[redacted]			80.9	77.8	[redacted]			80.2	62.9	[redacted]			67.7	63.5	[redacted]			68.0	64.4	[redacted]			68.6	53.6	[redacted]			64.7
FFFF07	16	64.2	66.5	68.4	[redacted]			72.1	69.4	[redacted]			72.8	69.9	[redacted]			73.2	70.1	[redacted]			73.4	65.1	[redacted]			70.0	58.6	[redacted]			67.6	75.5	[redacted]			78.1	74.1	[redacted]			76.8	68.5	[redacted]			72.2	64.8	[redacted]			69.8	64.5	[redacted]			69.7	56.5	[redacted]			67.2
FFFF08	9	54.7	57.0	68.1	[redacted]			70.6	69.2	[redacted]			71.7	69.6	[redacted]			72.0	69.2	[redacted]			71.7	61.1	[redacted]			64.3	52.1	[redacted]			58.9	79.5	[redacted]			81.8	80.0	[redacted]			82.3	59.6	[redacted]			63.1	53.6	[redacted]			59.5	57.5	[redacted]			61.6	40.8	[redacted]			57.1
FFFF08	10	54.7	57.0	68.3	[redacted]			70.8	69.3	[redacted]			71.7	69.7	[redacted]			72.1	69.4	[redacted]			71.8	61.7	[redacted]			64.8	54.9	[redacted]			60.1	79.3	[redacted]			81.6	80.3	[redacted]			82.6	61.5	[redacted]			64.6	58.0	[redacted]			62.0	61.5	[redacted]			64.6	46.3	[redacted]			57.6
FFFF08	11	59.4	61.7	68.5	[redacted]			71.3	69.5	[redacted]			72.2	69.6	[redacted]			72.3	69.7	[redacted]			72.4	62.2	[redacted]			66.3	57.4	[redacted]			63.8	78.9	[redacted]			81.2	79.6	[redacted]			81.9	66.7	[redacted]			69.7	61.1	[redacted]			65.6	61.7	[redacted]			66.0	52.0	[redacted]			62.4
FFFF08	16	64.0	66.3	68.7	[redacted]			72.3	69.8	[redacted]			73.1	70.1	[redacted]			73.4	70.4	[redacted]			73.6	66.0	[redacted]			70.4	59.4	[redacted]			67.6	75.9	[redacted]			78.5	74.7	[redacted]			77.4	65.9	[redacted]			70.4	62.5	[redacted]			68.6	62.0	[redacted]			68.4	56.2	[redacted]			67.0
FFFF09	9	54.7	57.7	63.2	[redacted]			66.8	64.1	[redacted]			67.6	67.2	[redacted]			70.4	66.4	[redacted]			69.7	60.6	[redacted]			64.6	54.1	[redacted]			60.4	80.7	[redacted]			83.7	82.4	[redacted]			85.4	68.8	[redacted]			72.0	41.5	[redacted]			57.9	41.7	[redacted]			57.9	39.3	[redacted]			57.8
FFFF09	10	54.7	57.7	64.5	[redacted]			67.9	65.4	[redacted]			68.8	67.3	[redacted]			70.5	66.7	[redacted]			70.0	61.0	[redacted]			64.9	55.8	[redacted]			61.3	80.4	[redacted]			83.4	82.8	[redacted]			85.8	69.8	[redacted]			72.9	45.5	[redacted]			58.2	45.5	[redacted]			58.2	46.7	[redacted]			58.3
FFFF09	11	54.7	57.7	64.6	[redacted]			68.0	65.6	[redacted]			68.9	67.5	[redacted]			70.7	67.1	[redacted]			70.3	61.3	[redacted]			65.2	56.1	[redacted]			61.5	79.9	[redacted]			82.9	81.6	[redacted]			84.6	65.8	[redacted]			69.1	47.7	[redacted]			58.5	47.6	[redacted]			58.5	49.4	[redacted]			58.8
FFFF09	16	54.7	57.7	66.4	[redacted]			69.7	67.5	[redacted]			70.7	68.5	[redacted]			71.7	68.7	[redacted]			71.9	62.9	[redacted]			66.5	58.5	[redacted]			63.0	77.5	[redacted]			80.5	74.8	[redacted]			77.8	63.6	[redacted]			67.1	50.0	[redacted]			58.9	50.0	[redacted]			58.9	52.2	[redacted]			59.6
79	1	59.3	62.3	50.0	59.8	0.5		62.8	50.2	59.8	0.5		62.8	50.2	59.8	0.5		62.8	50.5	59.8	0.5		62.8	52.4	60.1	0.8		63.1	52.0	60.0	0.7		63.0	54.7	60.6	1.3		63.6	52.5	60.1	0.8		63.1	50.6	59.8	0.5		62.8	49.9	59.8	0.5		62.8	50.4	59.8	0.5		62.8	52.3	60.1	0.8		63.1
79	2	60.1	63.1	51.6	60.7	0.6		63.7	51.8	60.7	0.6		63.7	51.8	60.7	0.6		63.7	52.2	60.8	0.7		63.8	53.9	61.0	0.9		64.0	53.3	60.9	0.8		63.9	55.7	61.4	1.3		64.4	54.6	61.2	1.1		64.2	52.1	60.7	0.6		63.7	51.5	60.7	0.6		63.7	52.1	60.7	0.6		63.7	54.0	61.1	1.0		64.1
79	3	60.0	63.0	52.4	60.7	0.7		63.7	52.6	60.7	0.7		63.7	52.6	60.7	0.7		63.7	53.1	60.8	0.8		63.8	54.5	61.1	1.1		64.1	54.3	61.0	1.0		64.0	56.2	61.5	1.5		64.5	55.4	61.3	1.3		64.3	53.0	60.8	0.8		63.8	52.4	60.7	0.7		63.7	53.1	60.8	0.8		63.8	54.9	61.2	1.2		64.2
79	4	59.7	62.7	52.8	60.5	0.8		63.5	52.9	60.5	0.8		63.5	53.4	60.6	0.9		63.6	53.8	60.7	1.0		63.7	55.5	61.1	1.4		64.1	54.6	60.9	1.2		63.9	56.7	61.5	1.8		64.5	56.1	61.3	1.6		64.3	53.5	60.6	0.9		63.6	52.7	60.5	0.8		63.5	53.5	60.6	0.9		63.6	55.2	61.0	1.3		64.0
79	5	59.3	62.3	52.9	60.2	0.9		63.2	53.1	60.2	0.9		63.2	53.8	60.4	1.1		63.4	54.1	60.4	1.1		63.4	55.8	60.9	1.6		63.9	54.8	60.6	1.3		63.6	58.2	61.8	2.5		64.8	56.1	61.0	1.7		64.0	54.0	60.4	1.1		63.4	52.9	60.2	0.9		63.2	54.2	60.5	1.2		63.5	55.3	60.8	1.5		63.8
79	6	59.0	62.0	53.1	60.0	1.0		63.0	53.2	60.0	1.0		63.0	53.9	60.2	1.2		63.2	54.2	60.2	1.2		63.2	55.9	60.7	1.7		63.7	55.0	60.5	1.5		63.5	58.8	61.9	2.9		64.9	57.3	61.2	2.2		64.2	54.3	60.3	1.3		63.3	53.0	60.0	1.0		63.0	55.2	60.5	1.5		63.5	55.4	60.6	1.6		63.6
79	7	58.9	61.9	53.3	60.0	1.1		63.0	53.5	60.0	1.1		63.0	54.4	60.2	1.3		63.2	54.7	60.3	1.4		63.3	56.1	60.7	1.8		63.7	54.9	60.4	1.5		63.4	58.8	61.9	3.0		64.9	57.7	61.4	2.5		64.4	54.5	60.2	1.3		63.2	53.3	60.0	1.1		63.0	56.3	60.8	1.9		63.8	55.5	60.5	1.6		63.5
79	8	59.0	62.0	53.8	60.1	1.1		63.1	54.1	60.2	1.2		63.2	55.3	60.5	1.5		63.5	55.6	60.6	1.6		63.6	56.3	60.9	1.9		63.9	55.2	60.5	1.5		63.5	59.0	62.0	3.0		65.0	58.8	61.9	2.9		64.9	54.9	60.4	1.4		63.4	54.4	60.3	1.3		63.3	58.8	61.9	2.9		64.9	55.7	60.7	1.7		63.7
80	1	61.2	64.2	40.9	61.2	0.0		64.2	41.7	61.2	0.0		64.2	40.6	61.2	0.0		64.2	42.1	61.3	0.1		64.3	42.0	61.3	0.1		64.3	40.1	61.2	0.0		64.2	41.5	61.2	0.0		64.2	40.9	61.2	0.0		64.2	51.6	61.7	0.5		64.7	47.2	61.4	0.2		64.4	58.8	63.2	2.0		66.2	42.4	61.3	0.1		64.3
80	2	61.2	64.2	41.7	61.2	0.0		64.2	42.6	61.3	0.1		64.3	41.0	61.2	0.0		64.2	42.3	61.3	0.1		64.3	42.0	61.3	0.1		64.3	40.5	61.2	0.0		64.2	41.8	61.2	0.0		64.2	41.5	61.2	0.0		64.2	52.3	61.7	0.5		64.7	47.4	61.4	0.2		64.4	59.2	63.3	2.1		66.3	42.9	61.3	0.1		64.3
80	3	60.6	63.6	42.3	60.7	0.1		63.7	43.1	60.7	0.1		63.7	41.5	60.7	0.1		63.7	42.6	60.7	0.1		63.7	42.2	60.7	0.1		63.7	41.0	60.6	0.0		63.6	42.4	60.7	0.1		63.7	42.3	60.7	0.1		63.7	52.8	61.3	0.7		64.3	48.0	60.8	0.2		63.8	59.4	63.1	2.5		66.1	43.5	60.7	0.1		63.7
80	4	59.9	62.9	42.9	60.0	0.1		63.0	43.6	60.0	0.1		63.0	42.0	60.0	0.1		63.0	43.1	60.0	0.1		63.0	42.6	60.0	0.1		63.0	41.5	60.0	0.1		63.0	44.0	60.0	0.1		63.0	43.1	60.0	0.1		63.0	52.9	60.7	0.8		63.7	48.8	60.2	0.3		63.2	61.0	63.5	3.6		66.5	44.1	60.0	0.1		63.0
80	5	59.3	62.3	43.0	59.4	0.1		62.4	43.5	59.4	0.1		62.4	42.5	59.4	0.1		62.4	43.4	59.4	0.1		62.4	43.0	59.4	0.1		62.4	42.0	59.4	0.1		62.4	45.7	59.5	0.2		62.5	42.7	59.4	0.1		62.4	53.3	60.3	1.0		63.3	50.3	59.8	0.5		62.8	61.7	63.7	4.4		66.7	44.7	59.4	0.1		62.4
80	6	58.8	61.8	43.0	58.9	0.1		61.9	43.4	58.9	0.1		61.9	42.7	58.9	0.1		61.9	43.7	58.9	0.1		61.9	43.4	58.9	0.1		61.9	42.5	58.9	0.1		61.9	43.5	58.9	0.1		61.9	43.3	58.9	0.1		61.9	53.8	60.0	1.2		63.0	53.5	59.9	1.1		62.9	62.6	64.1	5.3	YES	67.1	45.3	59.0	0.2		62.0
80	7	58.1	61.1	44.7	58.3	0.2		61.3	45.3	58.3	0.2		61.3	46.0	58.4	0.3		61.4	47.5	58.5	0.4		61.5	46.2	58.4	0.3		61.4	45.5	58.3	0.2		61.3	44.9	58.3	0.2		61.3	45.0	58.3	0.2		61.3	54.3	59.6	1.5		62.6	55.6	60.0	1.9		63.0	62.9	64.1	6.0	YES	67.1	45.7	58.3	0.2		61.3
81	1	57.8	60.8	39.9	57.9	0.1		60.9	40.7	57.9	0.1		60.9	39.9	57.9	0.1		60.9	40.9	57.9	0.1		60.9	40.2	57.9	0.1		60.9	39.0	57.9	0.1		60.9	40.1	57.9	0.1		60.9	39.3	57.9	0.1		60.9	46.9	58.1	0.3		61.1	50.2	58.5	0.7		61.5	48.0	58.2	0.4		61.2	40.9	57.9	0.1		60.9
81	2	57.9	60.9	40.3	58.0	0.1		61.0	41.1	58.0	0.1		61.0	40.4	58.0	0.1		61.0	41.2	58.0	0.1		61.0	40.6	58.0	0.1		61.0	39.6	58.0	0.1		61.0	40.5	58.0	0.1		61.0	39.8	58.0	0.1		61.0	47.1	58.2	0.3		61.2	52.0	58.9	1.0		61.9	49.0	58.4	0.5		61.4	41.6	58.0	0.1		61.0
81	3	57.4	60.4	40.4	57.5	0.1		60.5	41.1	57.5	0.1		60.5	40.5	57.5	0.1		60.5	41.3	57.5	0.1		60.5	40.6	57.5	0.1		60.5	39.7	57.5	0.1		60.5	40.5	57.5	0.1		60.5	39.9	57.5	0.1		60.5	47.3	57.8	0.4		60.8	54.0	59.0	1.6		62.0	51.0	58.3	0.9		61.3	41.7	57.5	0.1		60.5
81	4	56.8	59.8	40.4	56.9	0.1		59.9	41.2	56.9	0.1		59.9	40.7	56.9	0.1		59.9	41.4	56.9	0.1		59.9	40.7	56.9	0.1		59.9	39.9	56.9	0.1		59.9	40.7	56.9	0.1		59.9	40.2	56.9	0.1		59.9	47.6	57.3	0.5		60.3	56.4	59.6	2.8		62.6	54.9	59.0	2.2		62.0	41.8	56.9	0.1		59.9
81	5	56.2	59.2	40.7	56.3	0.1		59.3	41.3	56.3	0.1		59.3	41.3	56.3	0.1		59.3	41.9	56.4	0.2		59.4	41.2	56.3	0.1		59.3	40.8	56.3	0.1		59.3	41.3	56.3	0.1		59.3	41.1	56.3	0.1		59.3	48.1	56.8	0.6		59.8	57.6	60.0	3.8		63.0	57.0	59.6	3.4		62.6	42.4	56.4	0.2		59.4
81	6	55.7	58.7	40.9	55.8	0.1		58.8	41.3	55.9	0.2		58.9	41.3	55.9	0.2		58.9	42.0	55.9	0.2		58.9	41.5	55.9	0.2		58.9	42.1	55.9	0.2		58.9	42.7	55.9	0.2		58.9	43.8	56.0	0.3		59.0	48.8	56.5	0.8		59.5	57.7	59.8	4.1		62.8	57.9	59.9	4.2		62.9	42.9	55.9	0.2		58.9
82	1	66.8	65.6	53.2	67.0	0.2		65.8	53.4	67.0	0.2		65.8	53.8	67.0	0.2		65.8	53.7	67.0	0.2		65.8	53.1	67.0	0.2		65.8	53.1	67.0	0.2		65.8	53.1	67.0	0.2		65.8	52.9	67.0	0.2		65.8	56.6	67.2	0.4		66.0	58.9	67.5	0.7		66.3	58.2	67.4	0.6		66.2	55.8	67.1	0.3		65.9
82	2	67.1	65.9	53.5	67.3	0.2		66.1	53.6	67.3	0.2		66.1	54.1	67.3	0.2		66.1	54.0	67.3	0.2		66.1	53.4	67.3	0.2		66.1	53.5	67.3	0.2		66.1	53.4	67.3	0.2		66.1	53.3	67.3	0.2		66.1	57.0	67.5	0.4		66.3	59.0	67.7	0.6		66.5	58.4	67.6	0.5		66.4	56.1	67.4	0.3		66.2
82	3	66.7	65.5	53.2	66.9	0.2		65.7	53.3	66.9	0.2		65.7	53.8	66.9	0.2		65.7	53.8	66.9	0.2		65.7	53.1	66.9	0.2		65.7	53.4	66.9	0.2		65.7	53.1	66.9	0.2		65.7	53.0	66.9	0.2		65.7	57.7	67.2	0.5		66.0	59.1	67.4	0.7		66.2	58.4	67.3	0.6		66.1	55.7	67.0	0.3		65.8
82	4	66.1	64.9	52.7	66.3	0.2		65.1	52.9	66.3	0.2		65.1	53.5	66.3	0.2		65.1	53.5	66.3	0.2		65.1	52.6	66.3	0.2		65.1	52.8	66.3	0.2		65.1	52.6	66.3	0.2		65.1	52.6	66.3	0.2		65.1	58.6	66.8	0.7		65.6	59.2	66.9	0.8		65.7	58.1	66.7	0.6		65.5	55.1	66.4	0.3		65.2
83	1	68.3	70.6	49.9	68.4	0.1		70.7	50.2	68.4	0.1		70.7	51.6	68.4	0.1		70.7	52.5	68.4	0.1		70.7	55.6	68.5	0.2		70.8	50.1	68.4	0.1		70.7	53.7	68.4	0.1		70.7	50.6	68.4	0.1		70.7	50.6	68.4	0.1		70.7	47.1	68.3	0.0		70.6	46.8	68.3	0.0		70.6	49.6	68.4	0.1		70.7
83	2	68.4	70.7	50.7	68.5	0.1		70.8	51.1	68.5	0.1		70.8	52.3	68.5	0.1		70.8	53.2	68.5	0.1		70.8	56.0	68.6	0.2		70.9	50.5	68.5	0.1		70.8	54.1	68.6	0.2		70.9	51.0	68.5	0.1		70.8	51.1	68.5	0.1		70.8	47.4	68.4	0.0		70.7	47.2	68.4	0.0		70.7	50.0	68.5	0.1		70.8
83	3	67.8	70.1	52.5	67.9	0.1		70.2	52.8	67.9	0.1		70.2	52.6	67.9	0.1		70.2	53.9	68.0	0.2		70.3	57.3	68.2	0.4		70.5	51.1	67.9	0.1		70.2	56.5	68.1	0.3		70.4	53.9	68.0	0.2		70.3	53.9	68.0	0.2		70.3	47.6	67.8	0.0		70.1	47.6	67.8	0.0		70.1	50.1	67.9	0.1		70.2
83	4	67.1	69.4	53.1	67.3	0.2		69.6	53.5	67.3	0.2		69.6	53.0	67.3	0.2		69.6	54.6	67.3	0.2		69.6	57.8	67.6	0.5		69.9	52.5	67.2	0.1		69.5	55.7	67.4	0.3		69.7	51.5	67.2	0.1		69.5	51.2	67.2	0.1		69.5	47.9	67.2	0.1		69.5	48.3	67.2	0.1		69.5	50.2	67.2	0.1		69.5

Seward Park Construction

Noise Receptor Sites	Elevation (floor)	Governing Measurement Loc	dBA							
			ExAM Leq at Meas	ExAM L10 at Meas	Cadna ExAM Leq	Adjustment Factor at Meas Loc	Min Level (avg Meas L90)	Existing Leq	L10 Difference	Existing L10
M1	1	1	65.2	68.9	64.9	0.3	54.7	65.2	3.7	68.9
M2	1	2	62.8	61.6	58.8	4.0	54.7	62.8	-1.2	61.6
M3	1	3	59.9	62.9	61.4	-1.5	54.7	59.9	3.0	62.9
M4	1	4	65.3	67.8	58.7	6.6	54.7	65.3	2.5	67.8
M5	1	5	63.4	65.7	60.6	2.8	54.7	63.4	2.3	65.7
M6	1	6	70.6	74.0	70.0	0.6	54.7	70.6	3.4	74.0
M7	1	7	71.0	73.2	66.5	4.5	54.7	71.0	2.2	73.2
M8	1	8	66.4	68.6	64.9	1.5	54.7	66.4	2.2	68.6
1	1	1	[redacted]	[redacted]	62.0	0.3	54.7	62.3	3.7	66.0
1A	1	1	[redacted]	[redacted]	55.3	0.3	54.7	55.6	3.7	59.3
1A	2	1	[redacted]	[redacted]	56.7	0.3	54.7	57.0	3.7	60.7
1A	3	1	[redacted]	[redacted]	58.0	0.3	54.7	58.3	3.7	62.0
1A	4	1	[redacted]	[redacted]	58.4	0.3	54.7	58.7	3.7	62.4
1A	5	1	[redacted]	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
1A	6	1	[redacted]	[redacted]	58.8	0.3	54.7	59.1	3.7	62.8
1A	11	1	[redacted]	[redacted]	58.8	0.3	54.7	59.1	3.7	62.8
1A	16	1	[redacted]	[redacted]	58.4	0.3	54.7	58.7	3.7	62.4
1A	18	1	[redacted]	[redacted]	58.3	0.3	54.7	58.6	3.7	62.3
1B	1	1	[redacted]	[redacted]	51.6	0.3	54.7	54.7	3.7	58.4
1B	2	1	[redacted]	[redacted]	52.9	0.3	54.7	54.7	3.7	58.4
1B	3	1	[redacted]	[redacted]	54.2	0.3	54.7	54.7	3.7	58.4
1B	4	1	[redacted]	[redacted]	54.8	0.3	54.7	55.1	3.7	58.8
1B	5	1	[redacted]	[redacted]	55.2	0.3	54.7	55.5	3.7	59.2
1B	6	1	[redacted]	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
1B	11	1	[redacted]	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
1B	16	1	[redacted]	[redacted]	57.0	0.3	54.7	57.3	3.7	61.0
1B	18	1	[redacted]	[redacted]	56.9	0.3	54.7	57.2	3.7	60.9
1C	1	1	[redacted]	[redacted]	46.8	0.3	54.7	54.7	3.7	58.4
1C	2	1	[redacted]	[redacted]	48.3	0.3	54.7	54.7	3.7	58.4
1C	3	1	[redacted]	[redacted]	49.8	0.3	54.7	54.7	3.7	58.4
1C	4	1	[redacted]	[redacted]	49.6	0.3	54.7	54.7	3.7	58.4
1C	5	1	[redacted]	[redacted]	50.3	0.3	54.7	54.7	3.7	58.4
1C	6	1	[redacted]	[redacted]	50.4	0.3	54.7	54.7	3.7	58.4
1C	11	1	[redacted]	[redacted]	53.5	0.3	54.7	54.7	3.7	58.4
1C	16	1	[redacted]	[redacted]	53.3	0.3	54.7	54.7	3.7	58.4
1C	18	1	[redacted]	[redacted]	53.3	0.3	54.7	54.7	3.7	58.4
1D	1	1	[redacted]	[redacted]	55.4	0.3	54.7	55.7	3.7	59.4
1D	2	1	[redacted]	[redacted]	56.6	0.3	54.7	56.9	3.7	60.6
1D	3	1	[redacted]	[redacted]	57.8	0.3	54.7	58.1	3.7	61.8
1D	4	1	[redacted]	[redacted]	58.5	0.3	54.7	58.8	3.7	62.5
1D	5	1	[redacted]	[redacted]	58.6	0.3	54.7	58.9	3.7	62.6
1D	6	1	[redacted]	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
1D	11	1	[redacted]	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
1D	16	1	[redacted]	[redacted]	58.4	0.3	54.7	58.7	3.7	62.4
1D	18	1	[redacted]	[redacted]	58.3	0.3	54.7	58.6	3.7	62.3
1E	1	1	[redacted]	[redacted]	55.3	0.3	54.7	55.6	3.7	59.3
1E	2	1	[redacted]	[redacted]	56.4	0.3	54.7	56.7	3.7	60.4
1E	3	1	[redacted]	[redacted]	57.5	0.3	54.7	57.8	3.7	61.5
1E	4	1	[redacted]	[redacted]	58.3	0.3	54.7	58.6	3.7	62.3
1E	5	1	[redacted]	[redacted]	58.5	0.3	54.7	58.8	3.7	62.5
1E	6	1	[redacted]	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
1E	11	1	[redacted]	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
1E	16	1	[redacted]	[redacted]	58.4	0.3	54.7	58.7	3.7	62.4
1E	18	1	[redacted]	[redacted]	58.2	0.3	54.7	58.5	3.7	62.2
1F	1	1	[redacted]	[redacted]	49.7	0.3	54.7	54.7	3.7	58.4
1F	2	1	[redacted]	[redacted]	52.1	0.3	54.7	54.7	3.7	58.4
1F	3	1	[redacted]	[redacted]	53.4	0.3	54.7	54.7	3.7	58.4
1F	4	1	[redacted]	[redacted]	53.9	0.3	54.7	54.7	3.7	58.4
1F	5	1	[redacted]	[redacted]	54.2	0.3	54.7	54.7	3.7	58.4
1F	6	1	[redacted]	[redacted]	54.3	0.3	54.7	54.7	3.7	58.4
1F	11	1	[redacted]	[redacted]	55.0	0.3	54.7	55.3	3.7	59.0
1F	16	1	[redacted]	[redacted]	55.2	0.3	54.7	55.5	3.7	59.2
1F	18	1	[redacted]	[redacted]	55.0	0.3	54.7	55.3	3.7	59.0
1G	1	1	[redacted]	[redacted]	42.3	0.3	54.7	54.7	3.7	58.4
1G	2	1	[redacted]	[redacted]	46.7	0.3	54.7	54.7	3.7	58.4
1G	3	1	[redacted]	[redacted]	49.2	0.3	54.7	54.7	3.7	58.4
1G	4	1	[redacted]	[redacted]	50.6	0.3	54.7	54.7	3.7	58.4
1G	5	1	[redacted]	[redacted]	51.4	0.3	54.7	54.7	3.7	58.4
1G	6	1	[redacted]	[redacted]	51.9	0.3	54.7	54.7	3.7	58.4
1G	11	1	[redacted]	[redacted]	53.9	0.3	54.7	54.7	3.7	58.4
1G	16	1	[redacted]	[redacted]	55.1	0.3	54.7	55.4	3.7	59.1

1G	18	1	[redacted]	55.2	0.3	54.7	55.5	3.7	59.2
1H	1	1	[redacted]	45.1	0.3	54.7	54.7	3.7	58.4
1H	2	1	[redacted]	47.6	0.3	54.7	54.7	3.7	58.4
1H	3	1	[redacted]	49.5	0.3	54.7	54.7	3.7	58.4
1H	4	1	[redacted]	50.5	0.3	54.7	54.7	3.7	58.4
1H	5	1	[redacted]	51.2	0.3	54.7	54.7	3.7	58.4
1H	6	1	[redacted]	51.7	0.3	54.7	54.7	3.7	58.4
1H	11	1	[redacted]	53.5	0.3	54.7	54.7	3.7	58.4
1H	16	1	[redacted]	54.4	0.3	54.7	54.7	3.7	58.4
1H	18	1	[redacted]	54.4	0.3	54.7	54.7	3.7	58.4
1I	1	1	[redacted]	44.1	0.3	54.7	54.7	3.7	58.4
1I	2	1	[redacted]	46.2	0.3	54.7	54.7	3.7	58.4
1I	3	1	[redacted]	47.4	0.3	54.7	54.7	3.7	58.4
1I	4	1	[redacted]	48.2	0.3	54.7	54.7	3.7	58.4
1I	5	1	[redacted]	48.9	0.3	54.7	54.7	3.7	58.4
1I	6	1	[redacted]	49.4	0.3	54.7	54.7	3.7	58.4
1I	11	1	[redacted]	51.6	0.3	54.7	54.7	3.7	58.4
1I	16	1	[redacted]	53.0	0.3	54.7	54.7	3.7	58.4
1I	18	1	[redacted]	53.2	0.3	54.7	54.7	3.7	58.4
1J	1	1	[redacted]	54.5	0.3	54.7	54.8	3.7	58.5
1J	2	1	[redacted]	56.6	0.3	54.7	56.9	3.7	60.6
1J	3	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
1J	4	1	[redacted]	57.2	0.3	54.7	57.5	3.7	61.2
1J	5	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
1J	6	1	[redacted]	57.0	0.3	54.7	57.3	3.7	61.0
1J	11	1	[redacted]	56.6	0.3	54.7	56.9	3.7	60.6
1J	16	1	[redacted]	56.4	0.3	54.7	56.7	3.7	60.4
1J	18	1	[redacted]	56.2	0.3	54.7	56.5	3.7	60.2
1K	1	1	[redacted]	55.1	0.3	54.7	55.4	3.7	59.1
1K	2	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
1K	3	1	[redacted]	57.3	0.3	54.7	57.6	3.7	61.3
1K	4	1	[redacted]	57.3	0.3	54.7	57.6	3.7	61.3
1K	5	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
1K	6	1	[redacted]	57.0	0.3	54.7	57.3	3.7	61.0
1K	11	1	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
1K	16	1	[redacted]	54.5	0.3	54.7	54.8	3.7	58.5
1K	18	1	[redacted]	54.0	0.3	54.7	54.7	3.7	58.4
1L	1	1	[redacted]	50.4	0.3	54.7	54.7	3.7	58.4
2	1	2	[redacted]	57.6	4.0	54.7	61.6	-1.2	60.4
2	2	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
2	3	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
2	4	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
2	5	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
2	6	2	[redacted]	59.0	4.0	54.7	63.0	-1.2	61.8
2A	1	2	[redacted]	56.2	4.0	54.7	60.2	-1.2	59.0
2A	2	2	[redacted]	56.8	4.0	54.7	60.8	-1.2	59.6
2A	3	2	[redacted]	57.0	4.0	54.7	61.0	-1.2	59.8
2A	4	2	[redacted]	57.1	4.0	54.7	61.1	-1.2	59.9
2A	5	2	[redacted]	57.3	4.0	54.7	61.3	-1.2	60.1
2A	6	2	[redacted]	57.6	4.0	54.7	61.6	-1.2	60.4
2B	1	2	[redacted]	64.3	4.0	54.7	68.3	-1.2	67.1
2B	2	2	[redacted]	65.3	4.0	54.7	69.3	-1.2	68.1
2B	3	2	[redacted]	65.2	4.0	54.7	69.2	-1.2	68.0
2B	4	2	[redacted]	65.0	4.0	54.7	69.0	-1.2	67.8
2B	5	2	[redacted]	64.6	4.0	54.7	68.6	-1.2	67.4
2B	6	2	[redacted]	64.0	4.0	54.7	68.0	-1.2	66.8
2C	1	2	[redacted]	54.1	4.0	54.7	58.1	-1.2	56.9
2C	2	2	[redacted]	54.6	4.0	54.7	58.6	-1.2	57.4
2C	3	2	[redacted]	55.0	4.0	54.7	59.0	-1.2	57.8
2C	4	2	[redacted]	55.3	4.0	54.7	59.3	-1.2	58.1
2C	5	2	[redacted]	55.7	4.0	54.7	59.7	-1.2	58.5
2C	6	2	[redacted]	56.1	4.0	54.7	60.1	-1.2	58.9
2D	1	2	[redacted]	57.9	4.0	54.7	61.9	-1.2	60.7
2D	2	2	[redacted]	59.9	4.0	54.7	63.9	-1.2	62.7
2D	3	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
2D	4	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
2D	5	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
2D	6	2	[redacted]	59.9	4.0	54.7	63.9	-1.2	62.7
3	1	1	[redacted]	60.5	0.3	54.7	60.8	3.7	64.5
3A	1	1	[redacted]	59.1	0.3	54.7	59.4	3.7	63.1
3A	2	1	[redacted]	60.8	0.3	54.7	61.1	3.7	64.8
3A	3	1	[redacted]	61.0	0.3	54.7	61.3	3.7	65.0
3A	4	1	[redacted]	60.9	0.3	54.7	61.2	3.7	64.9
3A	5	1	[redacted]	60.8	0.3	54.7	61.1	3.7	64.8
3A	6	1	[redacted]	60.5	0.3	54.7	60.8	3.7	64.5
3A	11	1	[redacted]	58.8	0.3	54.7	59.1	3.7	62.8

3A	16	1	[redacted]	57.5	0.3	54.7	57.8	3.7	61.5
3A	19	1	[redacted]	56.8	0.3	54.7	57.1	3.7	60.8
3B	1	1	[redacted]	61.5	0.3	54.7	61.8	3.7	65.5
3B	2	1	[redacted]	63.3	0.3	54.7	63.6	3.7	67.3
3B	3	1	[redacted]	63.4	0.3	54.7	63.7	3.7	67.4
3B	4	1	[redacted]	63.3	0.3	54.7	63.6	3.7	67.3
3B	5	1	[redacted]	63.1	0.3	54.7	63.4	3.7	67.1
3B	6	1	[redacted]	62.8	0.3	54.7	63.1	3.7	66.8
3B	11	1	[redacted]	60.9	0.3	54.7	61.2	3.7	64.9
3B	16	1	[redacted]	59.4	0.3	54.7	59.7	3.7	63.4
3B	19	1	[redacted]	58.7	0.3	54.7	59.0	3.7	62.7
3C	1	1	[redacted]	60.2	0.3	54.7	60.5	3.7	64.2
3C	2	1	[redacted]	62.1	0.3	54.7	62.4	3.7	66.1
3C	3	1	[redacted]	62.4	0.3	54.7	62.7	3.7	66.4
3C	4	1	[redacted]	62.5	0.3	54.7	62.8	3.7	66.5
3C	5	1	[redacted]	62.5	0.3	54.7	62.8	3.7	66.5
3C	6	1	[redacted]	62.4	0.3	54.7	62.7	3.7	66.4
3C	11	1	[redacted]	60.9	0.3	54.7	61.2	3.7	64.9
3C	16	1	[redacted]	60.1	0.3	54.7	60.4	3.7	64.1
3C	19	1	[redacted]	59.6	0.3	54.7	59.9	3.7	63.6
3D	1	1	[redacted]	51.7	0.3	54.7	54.7	3.7	58.4
3D	2	1	[redacted]	52.7	0.3	54.7	54.7	3.7	58.4
3D	3	1	[redacted]	53.6	0.3	54.7	54.7	3.7	58.4
3D	4	1	[redacted]	54.4	0.3	54.7	54.7	3.7	58.4
3D	5	1	[redacted]	55.0	0.3	54.7	55.3	3.7	59.0
3D	6	1	[redacted]	55.3	0.3	54.7	55.6	3.7	59.3
3D	11	1	[redacted]	55.3	0.3	54.7	55.6	3.7	59.3
3D	16	1	[redacted]	55.1	0.3	54.7	55.4	3.7	59.1
3D	19	1	[redacted]	54.9	0.3	54.7	55.2	3.7	58.9
3E	1	1	[redacted]	56.3	0.3	54.7	56.6	3.7	60.3
3E	2	1	[redacted]	57.5	0.3	54.7	57.8	3.7	61.5
3E	3	1	[redacted]	58.5	0.3	54.7	58.8	3.7	62.5
3E	4	1	[redacted]	59.4	0.3	54.7	59.7	3.7	63.4
3E	5	1	[redacted]	59.7	0.3	54.7	60.0	3.7	63.7
3E	6	1	[redacted]	59.9	0.3	54.7	60.2	3.7	63.9
3E	11	1	[redacted]	59.6	0.3	54.7	59.9	3.7	63.6
3E	16	1	[redacted]	59.3	0.3	54.7	59.6	3.7	63.3
3E	19	1	[redacted]	59.1	0.3	54.7	59.4	3.7	63.1
3F	1	1	[redacted]	52.9	0.3	54.7	54.7	3.7	58.4
3F	2	1	[redacted]	53.9	0.3	54.7	54.7	3.7	58.4
3F	3	1	[redacted]	54.6	0.3	54.7	54.9	3.7	58.6
3F	4	1	[redacted]	55.2	0.3	54.7	55.5	3.7	59.2
3F	5	1	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
3F	6	1	[redacted]	56.2	0.3	54.7	56.5	3.7	60.2
3F	11	1	[redacted]	57.2	0.3	54.7	57.5	3.7	61.2
3F	16	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
3F	19	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
3G	1	1	[redacted]	55.1	0.3	54.7	55.4	3.7	59.1
3G	2	1	[redacted]	56.5	0.3	54.7	56.8	3.7	60.5
3G	3	1	[redacted]	56.8	0.3	54.7	57.1	3.7	60.8
3G	4	1	[redacted]	56.9	0.3	54.7	57.2	3.7	60.9
3G	5	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
3G	6	1	[redacted]	57.1	0.3	54.7	57.4	3.7	61.1
3G	11	1	[redacted]	57.2	0.3	54.7	57.5	3.7	61.2
3G	16	1	[redacted]	56.7	0.3	54.7	57.0	3.7	60.7
3G	19	1	[redacted]	56.5	0.3	54.7	56.8	3.7	60.5
3H	1	1	[redacted]	54.4	0.3	54.7	54.7	3.7	58.4
3H	2	1	[redacted]	56.4	0.3	54.7	56.7	3.7	60.4
3H	3	1	[redacted]	56.8	0.3	54.7	57.1	3.7	60.8
3H	4	1	[redacted]	56.7	0.3	54.7	57.0	3.7	60.7
3H	5	1	[redacted]	56.5	0.3	54.7	56.8	3.7	60.5
3H	6	1	[redacted]	56.3	0.3	54.7	56.6	3.7	60.3
3H	11	1	[redacted]	55.4	0.3	54.7	55.7	3.7	59.4
3H	16	1	[redacted]	54.6	0.3	54.7	54.9	3.7	58.6
3H	19	1	[redacted]	54.3	0.3	54.7	54.7	3.7	58.4
3I	1	1	[redacted]	53.8	0.3	54.7	54.7	3.7	58.4
3I	2	1	[redacted]	55.6	0.3	54.7	55.9	3.7	59.6
3I	3	1	[redacted]	55.9	0.3	54.7	56.2	3.7	59.9
3I	4	1	[redacted]	55.9	0.3	54.7	56.2	3.7	59.9
3I	5	1	[redacted]	55.9	0.3	54.7	56.2	3.7	59.9
3I	6	1	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
3I	11	1	[redacted]	54.6	0.3	54.7	54.9	3.7	58.6
3I	16	1	[redacted]	53.7	0.3	54.7	54.7	3.7	58.4
3I	19	1	[redacted]	53.3	0.3	54.7	54.7	3.7	58.4
4A	1	1	[redacted]	46.0	0.3	54.7	54.7	3.7	58.4
4A	2	1	[redacted]	48.0	0.3	54.7	54.7	3.7	58.4

4A	3	1	[redacted]	51.6	0.3	54.7	54.7	3.7	58.4
4A	4	1	[redacted]	52.9	0.3	54.7	54.7	3.7	58.4
4A	5	1	[redacted]	53.5	0.3	54.7	54.7	3.7	58.4
4A	6	1	[redacted]	53.8	0.3	54.7	54.7	3.7	58.4
4A	11	1	[redacted]	54.3	0.3	54.7	54.7	3.7	58.4
4A	16	1	[redacted]	55.5	0.3	54.7	55.8	3.7	59.5
4A	21	1	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
4A	24	1	[redacted]	55.7	0.3	54.7	56.0	3.7	59.7
4B	3	1	[redacted]	53.1	0.3	54.7	54.7	3.7	58.4
4B	4	1	[redacted]	55.3	0.3	54.7	55.6	3.7	59.3
4B	5	1	[redacted]	57.2	0.3	54.7	57.5	3.7	61.2
4B	6	1	[redacted]	59.3	0.3	54.7	59.6	3.7	63.3
4B	11	1	[redacted]	60.1	0.3	54.7	60.4	3.7	64.1
4B	16	1	[redacted]	59.9	0.3	54.7	60.2	3.7	63.9
4B	21	1	[redacted]	59.5	0.3	54.7	59.8	3.7	63.5
4B	24	1	[redacted]	59.3	0.3	54.7	59.6	3.7	63.3
4C	1	1	[redacted]	59.9	0.3	54.7	60.2	3.7	63.9
4C	2	1	[redacted]	62.2	0.3	54.7	62.5	3.7	66.2
4C	3	1	[redacted]	62.1	0.3	54.7	62.4	3.7	66.1
4C	4	1	[redacted]	63.1	0.3	54.7	63.4	3.7	67.1
4C	5	1	[redacted]	62.9	0.3	54.7	63.2	3.7	66.9
4C	6	1	[redacted]	62.7	0.3	54.7	63.0	3.7	66.7
4C	11	1	[redacted]	61.1	0.3	54.7	61.4	3.7	65.1
4C	16	1	[redacted]	59.6	0.3	54.7	59.9	3.7	63.6
4C	21	1	[redacted]	58.4	0.3	54.7	58.7	3.7	62.4
4C	24	1	[redacted]	57.8	0.3	54.7	58.1	3.7	61.8
5A	1	3	[redacted]	52.7	-1.5	54.7	54.7	3.0	57.7
5A	2	3	[redacted]	53.1	-1.5	54.7	54.7	3.0	57.7
5A	3	3	[redacted]	53.3	-1.5	54.7	54.7	3.0	57.7
5A	4	3	[redacted]	53.4	-1.5	54.7	54.7	3.0	57.7
5A	5	3	[redacted]	53.4	-1.5	54.7	54.7	3.0	57.7
5A	6	3	[redacted]	53.4	-1.5	54.7	54.7	3.0	57.7
5A	7	3	[redacted]	53.7	-1.5	54.7	54.7	3.0	57.7
5B	1	3	[redacted]	53.0	-1.5	54.7	54.7	3.0	57.7
5B	2	3	[redacted]	54.0	-1.5	54.7	54.7	3.0	57.7
5B	3	3	[redacted]	55.2	-1.5	54.7	54.7	3.0	57.7
5B	4	3	[redacted]	55.7	-1.5	54.7	54.7	3.0	57.7
5B	5	3	[redacted]	56.2	-1.5	54.7	54.7	3.0	57.7
5B	6	3	[redacted]	56.6	-1.5	54.7	55.1	3.0	58.1
5B	7	3	[redacted]	57.1	-1.5	54.7	55.6	3.0	58.6
5C	1	3	[redacted]	45.1	-1.5	54.7	54.7	3.0	57.7
5C	2	3	[redacted]	46.0	-1.5	54.7	54.7	3.0	57.7
5C	3	3	[redacted]	46.9	-1.5	54.7	54.7	3.0	57.7
5C	4	3	[redacted]	47.8	-1.5	54.7	54.7	3.0	57.7
5C	5	3	[redacted]	48.6	-1.5	54.7	54.7	3.0	57.7
5C	6	3	[redacted]	49.8	-1.5	54.7	54.7	3.0	57.7
5C	7	3	[redacted]	53.7	-1.5	54.7	54.7	3.0	57.7
6A	1	3	[redacted]	51.9	-1.5	54.7	54.7	3.0	57.7
6A	2	3	[redacted]	52.6	-1.5	54.7	54.7	3.0	57.7
6A	3	3	[redacted]	52.5	-1.5	54.7	54.7	3.0	57.7
6A	4	3	[redacted]	52.1	-1.5	54.7	54.7	3.0	57.7
6A	5	3	[redacted]	51.7	-1.5	54.7	54.7	3.0	57.7
6A	6	3	[redacted]	51.4	-1.5	54.7	54.7	3.0	57.7
6A	11	3	[redacted]	49.9	-1.5	54.7	54.7	3.0	57.7
6A	16	3	[redacted]	49.2	-1.5	54.7	54.7	3.0	57.7
6A	21	3	[redacted]	48.9	-1.5	54.7	54.7	3.0	57.7
6A	24	3	[redacted]	49.2	-1.5	54.7	54.7	3.0	57.7
6B	1	3	[redacted]	45.1	-1.5	54.7	54.7	3.0	57.7
6B	2	3	[redacted]	46.8	-1.5	54.7	54.7	3.0	57.7
6B	3	3	[redacted]	47.4	-1.5	54.7	54.7	3.0	57.7
6B	4	3	[redacted]	47.8	-1.5	54.7	54.7	3.0	57.7
6B	5	3	[redacted]	48.5	-1.5	54.7	54.7	3.0	57.7
6B	6	3	[redacted]	49.4	-1.5	54.7	54.7	3.0	57.7
6B	11	3	[redacted]	51.4	-1.5	54.7	54.7	3.0	57.7
6B	16	3	[redacted]	53.0	-1.5	54.7	54.7	3.0	57.7
6B	21	3	[redacted]	53.3	-1.5	54.7	54.7	3.0	57.7
6B	24	3	[redacted]	53.4	-1.5	54.7	54.7	3.0	57.7
6C	1	3	[redacted]	48.3	-1.5	54.7	54.7	3.0	57.7
6C	2	3	[redacted]	49.4	-1.5	54.7	54.7	3.0	57.7
6C	3	3	[redacted]	50.1	-1.5	54.7	54.7	3.0	57.7
6C	4	3	[redacted]	50.9	-1.5	54.7	54.7	3.0	57.7
6C	5	3	[redacted]	51.7	-1.5	54.7	54.7	3.0	57.7
6C	6	3	[redacted]	52.4	-1.5	54.7	54.7	3.0	57.7
6C	11	3	[redacted]	52.6	-1.5	54.7	54.7	3.0	57.7
6C	16	3	[redacted]	52.6	-1.5	54.7	54.7	3.0	57.7
6C	21	3	[redacted]	52.3	-1.5	54.7	54.7	3.0	57.7

6C	24	3	[redacted]	52.6	-1.5	54.7	54.7	3.0	57.7
7A	1	1	[redacted]	62.0	0.3	54.7	62.3	3.7	66.0
7A	2	1	[redacted]	62.9	0.3	54.7	63.2	3.7	66.9
7A	3	1	[redacted]	62.8	0.3	54.7	63.1	3.7	66.8
7A	4	1	[redacted]	62.5	0.3	54.7	62.8	3.7	66.5
7A	5	1	[redacted]	62.0	0.3	54.7	62.3	3.7	66.0
7A	6	1	[redacted]	61.6	0.3	54.7	61.9	3.7	65.6
7A	7	1	[redacted]	61.3	0.3	54.7	61.6	3.7	65.3
7B	1	1	[redacted]	53.5	0.3	54.7	54.7	3.7	58.4
7B	2	1	[redacted]	56.2	0.3	54.7	56.5	3.7	60.2
7B	3	1	[redacted]	57.4	0.3	54.7	57.7	3.7	61.4
7B	4	1	[redacted]	57.8	0.3	54.7	58.1	3.7	61.8
7B	5	1	[redacted]	58.2	0.3	54.7	58.5	3.7	62.2
7B	6	1	[redacted]	58.3	0.3	54.7	58.6	3.7	62.3
7B	7	1	[redacted]	58.0	0.3	54.7	58.3	3.7	62.0
7C	1	1	[redacted]	52.9	0.3	54.7	54.7	3.7	58.4
7C	2	1	[redacted]	54.8	0.3	54.7	55.1	3.7	58.8
7C	3	1	[redacted]	56.2	0.3	54.7	56.5	3.7	60.2
7C	4	1	[redacted]	57.2	0.3	54.7	57.5	3.7	61.2
7C	5	1	[redacted]	57.7	0.3	54.7	58.0	3.7	61.7
8A	1	4	[redacted]	54.8	6.6	54.7	61.4	2.5	63.9
8A	2	4	[redacted]	55.3	6.6	54.7	61.9	2.5	64.4
8A	3	4	[redacted]	55.6	6.6	54.7	62.2	2.5	64.7
8A	4	4	[redacted]	55.7	6.6	54.7	62.3	2.5	64.8
8A	5	4	[redacted]	55.9	6.6	54.7	62.5	2.5	65.0
8A	6	4	[redacted]	56.0	6.6	54.7	62.6	2.5	65.1
8A	11	4	[redacted]	56.8	6.6	54.7	63.4	2.5	65.9
8A	16	4	[redacted]	57.1	6.6	54.7	63.7	2.5	66.2
8A	21	4	[redacted]	56.7	6.6	54.7	63.3	2.5	65.8
8A	22	4	[redacted]	56.7	6.6	54.7	63.3	2.5	65.8
8A	23	4	[redacted]	56.7	6.6	54.7	63.3	2.5	65.8
8A	1	4	[redacted]	54.9	6.6	54.7	61.5	2.5	64.0
8A	2	4	[redacted]	55.6	6.6	54.7	62.2	2.5	64.7
8A	3	4	[redacted]	56.1	6.6	54.7	62.7	2.5	65.2
8A	4	4	[redacted]	56.6	6.6	54.7	63.2	2.5	65.7
8A	5	4	[redacted]	56.1	6.6	54.7	62.7	2.5	65.2
8A	6	4	[redacted]	56.4	6.6	54.7	63.0	2.5	65.5
8A	11	4	[redacted]	57.5	6.6	54.7	64.1	2.5	66.6
8A	16	4	[redacted]	57.8	6.6	54.7	64.4	2.5	66.9
8A	21	4	[redacted]	57.7	6.6	54.7	64.3	2.5	66.8
8A	22	4	[redacted]	57.7	6.6	54.7	64.3	2.5	66.8
8A	23	4	[redacted]	57.7	6.6	54.7	64.3	2.5	66.8
8A	1	4	[redacted]	52.1	6.6	54.7	58.7	2.5	61.2
8A	2	4	[redacted]	52.8	6.6	54.7	59.4	2.5	61.9
8A	3	4	[redacted]	53.3	6.6	54.7	59.9	2.5	62.4
8A	4	4	[redacted]	51.9	6.6	54.7	58.5	2.5	61.0
8A	5	4	[redacted]	51.7	6.6	54.7	58.3	2.5	60.8
8A	6	4	[redacted]	52.0	6.6	54.7	58.6	2.5	61.1
8A	11	4	[redacted]	52.2	6.6	54.7	58.8	2.5	61.3
8A	16	4	[redacted]	53.2	6.6	54.7	59.8	2.5	62.3
8A	21	4	[redacted]	53.5	6.6	54.7	60.1	2.5	62.6
8A	22	4	[redacted]	53.6	6.6	54.7	60.2	2.5	62.7
8A	23	4	[redacted]	53.8	6.6	54.7	60.4	2.5	62.9
9	1	4	[redacted]	50.3	6.6	54.7	56.9	2.5	59.4
9	2	4	[redacted]	51.1	6.6	54.7	57.7	2.5	60.2
9	3	4	[redacted]	51.4	6.6	54.7	58.0	2.5	60.5
9	4	4	[redacted]	51.7	6.6	54.7	58.3	2.5	60.8
10	1	2	[redacted]	62.7	4.0	54.7	66.7	-1.2	65.5
10	2	2	[redacted]	63.1	4.0	54.7	67.1	-1.2	65.9
10	3	2	[redacted]	63.2	4.0	54.7	67.2	-1.2	66.0
10	4	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8
10	5	2	[redacted]	62.7	4.0	54.7	66.7	-1.2	65.5
10	6	2	[redacted]	62.3	4.0	54.7	66.3	-1.2	65.1
10	11	2	[redacted]	61.5	4.0	54.7	65.5	-1.2	64.3
10	13	2	[redacted]	61.1	4.0	54.7	65.1	-1.2	63.9
10A	1	2	[redacted]	50.9	4.0	54.7	54.9	-1.2	53.7
10A	2	2	[redacted]	52.9	4.0	54.7	56.9	-1.2	55.7
10A	3	2	[redacted]	53.1	4.0	54.7	57.1	-1.2	55.9
10A	4	2	[redacted]	53.1	4.0	54.7	57.1	-1.2	55.9
10A	5	2	[redacted]	53.2	4.0	54.7	57.2	-1.2	56.0
10A	6	2	[redacted]	53.4	4.0	54.7	57.4	-1.2	56.2
10A	11	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
10A	13	2	[redacted]	60.7	4.0	54.7	64.7	-1.2	63.5
10B	1	2	[redacted]	52.4	4.0	54.7	56.4	-1.2	55.2
10B	2	2	[redacted]	53.1	4.0	54.7	57.1	-1.2	55.9
10B	3	2	[redacted]	53.9	4.0	54.7	57.9	-1.2	56.7

10B	4	2	[redacted]	54.6	4.0	54.7	58.6	-1.2	57.4
10B	5	2	[redacted]	54.9	4.0	54.7	58.9	-1.2	57.7
10B	6	2	[redacted]	55.1	4.0	54.7	59.1	-1.2	57.9
10B	11	2	[redacted]	56.4	4.0	54.7	60.4	-1.2	59.2
10B	13	2	[redacted]	56.7	4.0	54.7	60.7	-1.2	59.5
10C	1	2	[redacted]	56.6	4.0	54.7	60.6	-1.2	59.4
10C	2	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
10C	3	2	[redacted]	59.0	4.0	54.7	63.0	-1.2	61.8
10C	4	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
10C	5	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
10C	6	2	[redacted]	59.0	4.0	54.7	63.0	-1.2	61.8
10C	11	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
10C	13	2	[redacted]	59.5	4.0	54.7	63.5	-1.2	62.3
10D	1	2	[redacted]	62.0	4.0	54.7	66.0	-1.2	64.8
10D	2	2	[redacted]	62.8	4.0	54.7	66.8	-1.2	65.6
10D	3	2	[redacted]	62.7	4.0	54.7	66.7	-1.2	65.5
10D	4	2	[redacted]	62.4	4.0	54.7	66.4	-1.2	65.2
10D	5	2	[redacted]	62.1	4.0	54.7	66.1	-1.2	64.9
10D	6	2	[redacted]	61.6	4.0	54.7	65.6	-1.2	64.4
10D	11	2	[redacted]	59.5	4.0	54.7	63.5	-1.2	62.3
10D	13	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
11	1	2	[redacted]	62.5	4.0	54.7	66.5	-1.2	65.3
11	2	2	[redacted]	62.7	4.0	54.7	66.7	-1.2	65.5
11	3	2	[redacted]	62.6	4.0	54.7	66.6	-1.2	65.4
11	4	2	[redacted]	62.2	4.0	54.7	66.2	-1.2	65.0
11	5	2	[redacted]	61.9	4.0	54.7	65.9	-1.2	64.7
11	6	2	[redacted]	61.5	4.0	54.7	65.5	-1.2	64.3
11	7	2	[redacted]	61.4	4.0	54.7	65.4	-1.2	64.2
11A	1	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
11A	2	2	[redacted]	61.5	4.0	54.7	65.5	-1.2	64.3
11A	3	2	[redacted]	61.9	4.0	54.7	65.9	-1.2	64.7
11A	4	2	[redacted]	62.1	4.0	54.7	66.1	-1.2	64.9
11A	5	2	[redacted]	62.2	4.0	54.7	66.2	-1.2	65.0
11A	6	2	[redacted]	62.3	4.0	54.7	66.3	-1.2	65.1
11A	7	2	[redacted]	62.3	4.0	54.7	66.3	-1.2	65.1
11B	1	2	[redacted]	54.3	4.0	54.7	58.3	-1.2	57.1
11B	2	2	[redacted]	55.0	4.0	54.7	59.0	-1.2	57.8
11B	3	2	[redacted]	55.7	4.0	54.7	59.7	-1.2	58.5
11B	4	2	[redacted]	56.0	4.0	54.7	60.0	-1.2	58.8
11B	5	2	[redacted]	56.3	4.0	54.7	60.3	-1.2	59.1
11B	6	2	[redacted]	56.6	4.0	54.7	60.6	-1.2	59.4
11B	7	2	[redacted]	57.0	4.0	54.7	61.0	-1.2	59.8
11C	1	2	[redacted]	50.4	4.0	54.7	54.7	-1.2	53.5
11C	2	2	[redacted]	52.4	4.0	54.7	56.4	-1.2	55.2
11C	3	2	[redacted]	52.5	4.0	54.7	56.5	-1.2	55.3
11C	4	2	[redacted]	52.6	4.0	54.7	56.6	-1.2	55.4
11C	5	2	[redacted]	52.5	4.0	54.7	56.5	-1.2	55.3
11C	6	2	[redacted]	52.6	4.0	54.7	56.6	-1.2	55.4
11C	7	2	[redacted]	53.2	4.0	54.7	57.2	-1.2	56.0
12	1	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
12B	1	2	[redacted]	56.5	4.0	54.7	60.5	-1.2	59.3
12C	1	2	[redacted]	57.6	4.0	54.7	61.6	-1.2	60.4
12D	1	2	[redacted]	63.4	4.0	54.7	67.4	-1.2	66.2
13	1	2	[redacted]	60.7	4.0	54.7	64.7	-1.2	63.5
13	2	2	[redacted]	61.5	4.0	54.7	65.5	-1.2	64.3
13	3	2	[redacted]	62.2	4.0	54.7	66.2	-1.2	65.0
13	4	2	[redacted]	62.3	4.0	54.7	66.3	-1.2	65.1
13	5	2	[redacted]	62.4	4.0	54.7	66.4	-1.2	65.2
13	6	2	[redacted]	62.6	4.0	54.7	66.6	-1.2	65.4
13	11	2	[redacted]	63.4	4.0	54.7	67.4	-1.2	66.2
13	16	2	[redacted]	63.2	4.0	54.7	67.2	-1.2	66.0
13	20	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8
13A	1	2	[redacted]	60.7	4.0	54.7	64.7	-1.2	63.5
13A	2	2	[redacted]	61.3	4.0	54.7	65.3	-1.2	64.1
13A	3	2	[redacted]	61.3	4.0	54.7	65.3	-1.2	64.1
13A	4	2	[redacted]	61.2	4.0	54.7	65.2	-1.2	64.0
13A	5	2	[redacted]	61.0	4.0	54.7	65.0	-1.2	63.8
13A	6	2	[redacted]	60.8	4.0	54.7	64.8	-1.2	63.6
13A	11	2	[redacted]	60.3	4.0	54.7	64.3	-1.2	63.1
13A	16	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
13A	20	2	[redacted]	59.2	4.0	54.7	63.2	-1.2	62.0
13B	1	2	[redacted]	54.6	4.0	54.7	58.6	-1.2	57.4
13B	2	2	[redacted]	56.0	4.0	54.7	60.0	-1.2	58.8
13B	3	2	[redacted]	57.1	4.0	54.7	61.1	-1.2	59.9
13B	4	2	[redacted]	57.4	4.0	54.7	61.4	-1.2	60.2
13B	5	2	[redacted]	57.6	4.0	54.7	61.6	-1.2	60.4

13B	6	2	[redacted]	57.9	4.0	54.7	61.9	-1.2	60.7
13B	11	2		57.8	4.0	54.7	61.8	-1.2	60.6
13B	16	2		57.2	4.0	54.7	61.2	-1.2	60.0
13B	20	2		56.2	4.0	54.7	60.2	-1.2	59.0
13C	1	2		63.2	4.0	54.7	67.2	-1.2	66.0
13C	2	2		64.0	4.0	54.7	68.0	-1.2	66.8
13C	3	2		64.0	4.0	54.7	68.0	-1.2	66.8
13C	4	2		63.7	4.0	54.7	67.7	-1.2	66.5
13C	5	2		63.4	4.0	54.7	67.4	-1.2	66.2
13C	6	2		63.1	4.0	54.7	67.1	-1.2	65.9
13C	11	2		61.9	4.0	54.7	65.9	-1.2	64.7
13C	16	2		61.0	4.0	54.7	65.0	-1.2	63.8
13C	20	2		60.6	4.0	54.7	64.6	-1.2	63.4
14	1	3		57.7	-1.5	54.7	56.2	3.0	59.2
14	2	3		58.5	-1.5	54.7	57.0	3.0	60.0
14	3	3		59.0	-1.5	54.7	57.5	3.0	60.5
14	4	3		59.1	-1.5	54.7	57.6	3.0	60.6
14	5	3		59.1	-1.5	54.7	57.6	3.0	60.6
14	6	3		59.1	-1.5	54.7	57.6	3.0	60.6
14	7	3		59.2	-1.5	54.7	57.7	3.0	60.7
14	8	3		59.6	-1.5	54.7	58.1	3.0	61.1
14	9	3		60.1	-1.5	54.7	58.6	3.0	61.6
14	10	3		60.5	-1.5	54.7	59.0	3.0	62.0
14A	1	2		61.3	4.0	54.7	65.3	-1.2	64.1
14A	2	2		61.9	4.0	54.7	65.9	-1.2	64.7
14A	3	2		62.0	4.0	54.7	66.0	-1.2	64.8
14A	4	2		61.8	4.0	54.7	65.8	-1.2	64.6
14A	5	2		61.6	4.0	54.7	65.6	-1.2	64.4
14A	6	2		61.4	4.0	54.7	65.4	-1.2	64.2
14A	7	2		61.2	4.0	54.7	65.2	-1.2	64.0
14A	8	2		60.8	4.0	54.7	64.8	-1.2	63.6
14A	9	2		60.7	4.0	54.7	64.7	-1.2	63.5
14A	10	2		60.6	4.0	54.7	64.6	-1.2	63.4
14B	1	2		61.3	4.0	54.7	65.3	-1.2	64.1
14B	2	2		61.8	4.0	54.7	65.8	-1.2	64.6
14B	3	2		61.8	4.0	54.7	65.8	-1.2	64.6
14B	4	2		61.6	4.0	54.7	65.6	-1.2	64.4
14B	5	2		61.3	4.0	54.7	65.3	-1.2	64.1
14B	6	2		60.8	4.0	54.7	64.8	-1.2	63.6
14B	7	2		60.6	4.0	54.7	64.6	-1.2	63.4
14B	8	2		60.2	4.0	54.7	64.2	-1.2	63.0
14B	9	2		60.0	4.0	54.7	64.0	-1.2	62.8
14B	10	2		59.8	4.0	54.7	63.8	-1.2	62.6
14C	1	2		61.8	4.0	54.7	65.8	-1.2	64.6
14C	2	2		62.6	4.0	54.7	66.6	-1.2	65.4
14C	3	2		62.6	4.0	54.7	66.6	-1.2	65.4
14C	4	2		62.4	4.0	54.7	66.4	-1.2	65.2
14C	5	2		62.1	4.0	54.7	66.1	-1.2	64.9
14C	6	2		61.5	4.0	54.7	65.5	-1.2	64.3
14C	7	2		61.1	4.0	54.7	65.1	-1.2	63.9
14C	8	2		60.7	4.0	54.7	64.7	-1.2	63.5
14C	9	2		60.2	4.0	54.7	64.2	-1.2	63.0
14C	10	2		59.9	4.0	54.7	63.9	-1.2	62.7
14D	1	1		61.8	0.3	54.7	62.1	3.7	65.8
14D	2	1		62.4	0.3	54.7	62.7	3.7	66.4
14D	3	1		62.5	0.3	54.7	62.8	3.7	66.5
14D	4	1		62.2	0.3	54.7	62.5	3.7	66.2
14D	5	1		61.8	0.3	54.7	62.1	3.7	65.8
14D	6	1		61.4	0.3	54.7	61.7	3.7	65.4
14D	7	1		61.0	0.3	54.7	61.3	3.7	65.0
14D	8	1		60.5	0.3	54.7	60.8	3.7	64.5
14D	9	1		60.2	0.3	54.7	60.5	3.7	64.2
14D	10	1		59.8	0.3	54.7	60.1	3.7	63.8
14E	1	2		60.3	4.0	54.7	64.3	-1.2	63.1
14E	2	2		61.4	4.0	54.7	65.4	-1.2	64.2
14E	3	2		61.4	4.0	54.7	65.4	-1.2	64.2
14E	4	2		61.1	4.0	54.7	65.1	-1.2	63.9
14E	5	2		60.8	4.0	54.7	64.8	-1.2	63.6
14E	6	2		60.5	4.0	54.7	64.5	-1.2	63.3
14E	7	2		60.3	4.0	54.7	64.3	-1.2	63.1
14E	8	2		60.0	4.0	54.7	64.0	-1.2	62.8
14E	9	2		59.8	4.0	54.7	63.8	-1.2	62.6
14E	10	2		59.6	4.0	54.7	63.6	-1.2	62.4
14F	1	2		56.2	4.0	54.7	60.2	-1.2	59.0
14F	2	2		56.9	4.0	54.7	60.9	-1.2	59.7
14F	3	2		56.8	4.0	54.7	60.8	-1.2	59.6

14F	4	2	[redacted]	56.7	4.0	54.7	60.7	-1.2	59.5
14F	5	2	[redacted]	56.4	4.0	54.7	60.4	-1.2	59.2
14F	6	2	[redacted]	56.1	4.0	54.7	60.1	-1.2	58.9
14F	7	2	[redacted]	55.8	4.0	54.7	59.8	-1.2	58.6
14F	8	2	[redacted]	55.6	4.0	54.7	59.6	-1.2	58.4
14F	9	2	[redacted]	55.6	4.0	54.7	59.6	-1.2	58.4
14F	10	2	[redacted]	55.6	4.0	54.7	59.6	-1.2	58.4
14G	1	2	[redacted]	56.6	4.0	54.7	60.6	-1.2	59.4
14G	2	2	[redacted]	57.2	4.0	54.7	61.2	-1.2	60.0
14G	3	2	[redacted]	57.0	4.0	54.7	61.0	-1.2	59.8
14G	4	2	[redacted]	56.7	4.0	54.7	60.7	-1.2	59.5
14G	5	2	[redacted]	56.4	4.0	54.7	60.4	-1.2	59.2
14G	6	2	[redacted]	56.2	4.0	54.7	60.2	-1.2	59.0
14G	7	2	[redacted]	55.9	4.0	54.7	59.9	-1.2	58.7
14G	8	2	[redacted]	55.8	4.0	54.7	59.8	-1.2	58.6
14G	9	2	[redacted]	55.6	4.0	54.7	59.6	-1.2	58.4
14G	10	2	[redacted]	55.7	4.0	54.7	59.7	-1.2	58.5
15	1	5	[redacted]	62.6	2.8	54.7	65.4	2.3	67.7
15	2	5	[redacted]	63.5	2.8	54.7	66.3	2.3	68.6
15	3	5	[redacted]	63.9	2.8	54.7	66.7	2.3	69.0
15	4	5	[redacted]	64.1	2.8	54.7	66.9	2.3	69.2
16	1	6	[redacted]	66.1	0.6	54.7	66.7	3.4	70.1
16	2	6	[redacted]	67.1	0.6	54.7	67.7	3.4	71.1
16	3	6	[redacted]	67.5	0.6	54.7	68.1	3.4	71.5
16	4	6	[redacted]	67.4	0.6	54.7	68.0	3.4	71.4
16	5	6	[redacted]	67.3	0.6	54.7	67.9	3.4	71.3
16	6	6	[redacted]	67.2	0.6	54.7	67.8	3.4	71.2
16A	1	6	[redacted]	62.5	0.6	54.7	63.1	3.4	66.5
16A	2	6	[redacted]	63.6	0.6	54.7	64.2	3.4	67.6
16A	3	6	[redacted]	64.0	0.6	54.7	64.6	3.4	68.0
16A	4	6	[redacted]	64.1	0.6	54.7	64.7	3.4	68.1
16A	5	6	[redacted]	64.0	0.6	54.7	64.6	3.4	68.0
16A	6	6	[redacted]	63.8	0.6	54.7	64.4	3.4	67.8
16B	4	6	[redacted]	52.4	0.6	54.7	54.7	3.4	58.1
16B	5	6	[redacted]	54.9	0.6	54.7	55.5	3.4	58.9
16B	6	6	[redacted]	54.8	0.6	54.7	55.4	3.4	58.8
16C	4	6	[redacted]	62.6	0.6	54.7	63.2	3.4	66.6
16C	5	6	[redacted]	64.2	0.6	54.7	64.8	3.4	68.2
16C	6	6	[redacted]	64.6	0.6	54.7	65.2	3.4	68.6
17	1	5	[redacted]	58.8	2.8	54.7	61.6	2.3	63.9
17	2	5	[redacted]	59.0	2.8	54.7	61.8	2.3	64.1
17	3	5	[redacted]	58.8	2.8	54.7	61.6	2.3	63.9
17	4	5	[redacted]	58.8	2.8	54.7	61.6	2.3	63.9
17	5	5	[redacted]	58.8	2.8	54.7	61.6	2.3	63.9
17	6	5	[redacted]	59.3	2.8	54.7	62.1	2.3	64.4
17A	1	5	[redacted]	51.5	2.8	54.7	54.7	2.3	57.0
17A	2	5	[redacted]	51.9	2.8	54.7	54.7	2.3	57.0
17A	3	5	[redacted]	51.9	2.8	54.7	54.7	2.3	57.0
17A	4	5	[redacted]	52.0	2.8	54.7	54.8	2.3	57.1
17A	5	5	[redacted]	54.4	2.8	54.7	57.2	2.3	59.5
17A	6	5	[redacted]	59.3	2.8	54.7	62.1	2.3	64.4
18	1	5	[redacted]	58.2	2.8	54.7	61.0	2.3	63.3
18	2	5	[redacted]	58.3	2.8	54.7	61.1	2.3	63.4
18	3	5	[redacted]	58.1	2.8	54.7	60.9	2.3	63.2
18	4	5	[redacted]	57.9	2.8	54.7	60.7	2.3	63.0
18	5	5	[redacted]	58.0	2.8	54.7	60.8	2.3	63.1
18	6	5	[redacted]	58.2	2.8	54.7	61.0	2.3	63.3
19	1	5	[redacted]	57.8	2.8	54.7	60.6	2.3	62.9
19	2	5	[redacted]	58.0	2.8	54.7	60.8	2.3	63.1
19	3	5	[redacted]	57.8	2.8	54.7	60.6	2.3	62.9
19	4	5	[redacted]	57.6	2.8	54.7	60.4	2.3	62.7
19	5	5	[redacted]	57.6	2.8	54.7	60.4	2.3	62.7
19	6	5	[redacted]	57.7	2.8	54.7	60.5	2.3	62.8
19	7	5	[redacted]	58.0	2.8	54.7	60.8	2.3	63.1
19A	1	3	[redacted]	57.2	-1.5	54.7	55.7	3.0	58.7
19A	2	3	[redacted]	57.5	-1.5	54.7	56.0	3.0	59.0
19A	3	3	[redacted]	57.1	-1.5	54.7	55.6	3.0	58.6
19A	4	3	[redacted]	56.6	-1.5	54.7	55.1	3.0	58.1
19A	5	3	[redacted]	56.2	-1.5	54.7	54.7	3.0	57.7
19A	6	3	[redacted]	55.9	-1.5	54.7	54.7	3.0	57.7
19A	7	3	[redacted]	55.7	-1.5	54.7	54.7	3.0	57.7
20	1	3	[redacted]	56.6	-1.5	54.7	55.1	3.0	58.1
20	2	3	[redacted]	57.0	-1.5	54.7	55.5	3.0	58.5
20	3	3	[redacted]	56.6	-1.5	54.7	55.1	3.0	58.1
20	4	3	[redacted]	56.1	-1.5	54.7	54.7	3.0	57.7
20	5	3	[redacted]	55.7	-1.5	54.7	54.7	3.0	57.7

20	6	3	[redacted]	55.4	-1.5	54.7	54.7	3.0	57.7
20	7	3		55.2	-1.5	54.7	54.7	3.0	57.7
21	1	3		57.8	-1.5	54.7	56.3	3.0	59.3
21	2	3		57.9	-1.5	54.7	56.4	3.0	59.4
21	3	3		57.5	-1.5	54.7	56.0	3.0	59.0
21	4	3		57.0	-1.5	54.7	55.5	3.0	58.5
21	5	3		56.6	-1.5	54.7	55.1	3.0	58.1
21	6	3		56.4	-1.5	54.7	54.9	3.0	57.9
21A	1	3		57.7	-1.5	54.7	56.2	3.0	59.2
21A	2	3		57.8	-1.5	54.7	56.3	3.0	59.3
21A	3	3		57.4	-1.5	54.7	55.9	3.0	58.9
21A	4	3		56.9	-1.5	54.7	55.4	3.0	58.4
21A	5	3		56.5	-1.5	54.7	55.0	3.0	58.0
21A	6	3		56.2	-1.5	54.7	54.7	3.0	57.7
22	1	3		57.1	-1.5	54.7	55.6	3.0	58.6
22	2	3		57.4	-1.5	54.7	55.9	3.0	58.9
22	3	3		57.0	-1.5	54.7	55.5	3.0	58.5
22	4	3		56.5	-1.5	54.7	55.0	3.0	58.0
22	5	3		56.2	-1.5	54.7	54.7	3.0	57.7
22	6	3		56.0	-1.5	54.7	54.7	3.0	57.7
23	1	7		63.8	4.5	54.7	68.3	2.2	70.5
23	2	7		64.5	4.5	54.7	69.0	2.2	71.2
23	3	7		64.7	4.5	54.7	69.2	2.2	71.4
23	4	7		64.7	4.5	54.7	69.2	2.2	71.4
23	5	7		64.4	4.5	54.7	68.9	2.2	71.1
23	6	7		64.2	4.5	54.7	68.7	2.2	70.9
24	1	7		63.1	4.5	54.7	67.6	2.2	69.8
24	2	7		63.8	4.5	54.7	68.3	2.2	70.5
24	3	7		63.8	4.5	54.7	68.3	2.2	70.5
24	4	7		63.6	4.5	54.7	68.1	2.2	70.3
24	5	7		63.3	4.5	54.7	67.8	2.2	70.0
24	6	7		62.9	4.5	54.7	67.4	2.2	69.6
25	1	7		63.6	4.5	54.7	68.1	2.2	70.3
25	2	7		64.1	4.5	54.7	68.6	2.2	70.8
25	3	7		64.1	4.5	54.7	68.6	2.2	70.8
25	4	7		63.8	4.5	54.7	68.3	2.2	70.5
25	5	7		63.4	4.5	54.7	67.9	2.2	70.1
25	6	7		63.0	4.5	54.7	67.5	2.2	69.7
26	1	7		66.0	4.5	54.7	70.5	2.2	72.7
26	2	7		66.5	4.5	54.7	71.0	2.2	73.2
26	3	7		66.4	4.5	54.7	70.9	2.2	73.1
26	4	7		65.8	4.5	54.7	70.3	2.2	72.5
26	5	7		65.3	4.5	54.7	69.8	2.2	72.0
26	6	7		64.9	4.5	54.7	69.4	2.2	71.6
27	1	3		60.7	-1.5	54.7	59.2	3.0	62.2
27	2	3		61.2	-1.5	54.7	59.7	3.0	62.7
27	3	3		60.9	-1.5	54.7	59.4	3.0	62.4
28	1	3		60.5	-1.5	54.7	59.0	3.0	62.0
28	2	3		60.8	-1.5	54.7	59.3	3.0	62.3
28	3	3		60.5	-1.5	54.7	59.0	3.0	62.0
28	4	3		60.0	-1.5	54.7	58.5	3.0	61.5
28	5	3		59.5	-1.5	54.7	58.0	3.0	61.0
28	6	3		59.0	-1.5	54.7	57.5	3.0	60.5
28	7	3		58.5	-1.5	54.7	57.0	3.0	60.0
28	8	3		58.1	-1.5	54.7	56.6	3.0	59.6
28	9	3		57.7	-1.5	54.7	56.2	3.0	59.2
28	10	3		57.3	-1.5	54.7	55.8	3.0	58.8
28	11	3		56.7	-1.5	54.7	55.2	3.0	58.2
28	12	3		56.2	-1.5	54.7	54.7	3.0	57.7
28	13	3		55.7	-1.5	54.7	54.7	3.0	57.7
28	14	3		55.4	-1.5	54.7	54.7	3.0	57.7
28	15	3		55.3	-1.5	54.7	54.7	3.0	57.7
28	16	3		55.2	-1.5	54.7	54.7	3.0	57.7
28	17	3		55.0	-1.5	54.7	54.7	3.0	57.7
28	18	3		54.8	-1.5	54.7	54.7	3.0	57.7
28	19	3		54.8	-1.5	54.7	54.7	3.0	57.7
28	20	3		54.7	-1.5	54.7	54.7	3.0	57.7
28	21	3		54.4	-1.5	54.7	54.7	3.0	57.7
28	22	3		54.1	-1.5	54.7	54.7	3.0	57.7
28A	1	7		36.1	4.5	54.7	54.7	2.2	56.9
28A	7	7		55.0	4.5	54.7	59.5	2.2	61.7
28A	8	7		56.8	4.5	54.7	61.3	2.2	63.5
28A	9	7		57.2	4.5	54.7	61.7	2.2	63.9
28A	10	7		57.7	4.5	54.7	62.2	2.2	64.4
28A	11	7		58.1	4.5	54.7	62.6	2.2	64.8
28A	12	7		56.9	4.5	54.7	61.4	2.2	63.6

28A	13	7	[redacted]	57.1	4.5	54.7	61.6	2.2	63.8
28A	14	7	[redacted]	57.4	4.5	54.7	61.9	2.2	64.1
28A	15	7	[redacted]	57.3	4.5	54.7	61.8	2.2	64.0
28A	16	7	[redacted]	57.8	4.5	54.7	62.3	2.2	64.5
28A	17	7	[redacted]	58.1	4.5	54.7	62.6	2.2	64.8
28A	18	7	[redacted]	58.4	4.5	54.7	62.9	2.2	65.1
28A	19	7	[redacted]	58.1	4.5	54.7	62.6	2.2	64.8
28A	20	7	[redacted]	58.3	4.5	54.7	62.8	2.2	65.0
28A	21	7	[redacted]	58.2	4.5	54.7	62.7	2.2	64.9
28A	22	7	[redacted]	58.1	4.5	54.7	62.6	2.2	64.8
28B	1	7	[redacted]	35.4	4.5	54.7	54.7	2.2	56.9
28B	7	7	[redacted]	48.2	4.5	54.7	54.7	2.2	56.9
28B	8	7	[redacted]	50.6	4.5	54.7	55.1	2.2	57.3
28B	9	7	[redacted]	52.7	4.5	54.7	57.2	2.2	59.4
28B	10	7	[redacted]	55.1	4.5	54.7	59.6	2.2	61.8
28B	11	7	[redacted]	56.6	4.5	54.7	61.1	2.2	63.3
28B	12	7	[redacted]	57.1	4.5	54.7	61.6	2.2	63.8
28B	13	7	[redacted]	56.8	4.5	54.7	61.3	2.2	63.5
28B	14	7	[redacted]	57.4	4.5	54.7	61.9	2.2	64.1
28B	15	7	[redacted]	57.8	4.5	54.7	62.3	2.2	64.5
28B	16	7	[redacted]	58.1	4.5	54.7	62.6	2.2	64.8
28B	17	7	[redacted]	58.4	4.5	54.7	62.9	2.2	65.1
28B	18	7	[redacted]	58.8	4.5	54.7	63.3	2.2	65.5
28B	19	7	[redacted]	59.0	4.5	54.7	63.5	2.2	65.7
28B	20	7	[redacted]	59.1	4.5	54.7	63.6	2.2	65.8
28B	21	7	[redacted]	59.3	4.5	54.7	63.8	2.2	66.0
28B	22	7	[redacted]	59.4	4.5	54.7	63.9	2.2	66.1
29	1	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
29	2	3	[redacted]	61.0	-1.5	54.7	59.5	3.0	62.5
29	3	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
29	4	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
30	1	3	[redacted]	60.9	-1.5	54.7	59.4	3.0	62.4
30	2	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
30	3	3	[redacted]	61.4	-1.5	54.7	59.9	3.0	62.9
30	4	3	[redacted]	61.1	-1.5	54.7	59.6	3.0	62.6
30	5	3	[redacted]	60.6	-1.5	54.7	59.1	3.0	62.1
31	1	3	[redacted]	62.1	-1.5	54.7	60.6	3.0	63.6
31	2	3	[redacted]	62.6	-1.5	54.7	61.1	3.0	64.1
31	3	3	[redacted]	62.4	-1.5	54.7	60.9	3.0	63.9
31	4	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
31	5	3	[redacted]	61.7	-1.5	54.7	60.2	3.0	63.2
31	6	3	[redacted]	61.3	-1.5	54.7	59.8	3.0	62.8
31	7	3	[redacted]	60.9	-1.5	54.7	59.4	3.0	62.4
31A	1	7	[redacted]	63.6	4.5	54.7	68.1	2.2	70.3
31A	2	7	[redacted]	64.2	4.5	54.7	68.7	2.2	70.9
31A	3	7	[redacted]	64.1	4.5	54.7	68.6	2.2	70.8
31A	4	7	[redacted]	63.7	4.5	54.7	68.2	2.2	70.4
31A	5	7	[redacted]	63.3	4.5	54.7	67.8	2.2	70.0
31A	6	7	[redacted]	62.9	4.5	54.7	67.4	2.2	69.6
31A	7	7	[redacted]	61.8	4.5	54.7	66.3	2.2	68.5
32	1	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
32	2	7	[redacted]	63.7	4.5	54.7	68.2	2.2	70.4
32	3	7	[redacted]	63.7	4.5	54.7	68.2	2.2	70.4
32	4	7	[redacted]	63.4	4.5	54.7	67.9	2.2	70.1
32	5	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
32	6	7	[redacted]	62.6	4.5	54.7	67.1	2.2	69.3
32	7	7	[redacted]	61.1	4.5	54.7	65.6	2.2	67.8
32	8	7	[redacted]	60.6	4.5	54.7	65.1	2.2	67.3
32	9	7	[redacted]	60.2	4.5	54.7	64.7	2.2	66.9
33	1	7	[redacted]	65.2	4.5	54.7	69.7	2.2	71.9
33	2	7	[redacted]	66.0	4.5	54.7	70.5	2.2	72.7
33	3	7	[redacted]	65.9	4.5	54.7	70.4	2.2	72.6
33	4	7	[redacted]	65.5	4.5	54.7	70.0	2.2	72.2
33	5	7	[redacted]	65.1	4.5	54.7	69.6	2.2	71.8
33	6	7	[redacted]	64.7	4.5	54.7	69.2	2.2	71.4
34	1	7	[redacted]	65.2	4.5	54.7	69.7	2.2	71.9
34	2	7	[redacted]	65.9	4.5	54.7	70.4	2.2	72.6
34	3	7	[redacted]	65.8	4.5	54.7	70.3	2.2	72.5
34	4	7	[redacted]	65.5	4.5	54.7	70.0	2.2	72.2
34	5	7	[redacted]	65.1	4.5	54.7	69.6	2.2	71.8
34	6	7	[redacted]	64.7	4.5	54.7	69.2	2.2	71.4
35	1	7	[redacted]	62.8	4.5	54.7	67.3	2.2	69.5
35	2	7	[redacted]	63.5	4.5	54.7	68.0	2.2	70.2
35	3	7	[redacted]	63.5	4.5	54.7	68.0	2.2	70.2
35	4	7	[redacted]	63.2	4.5	54.7	67.7	2.2	69.9
35	5	7	[redacted]	62.8	4.5	54.7	67.3	2.2	69.5

35	6	7	[redacted]	62.4	4.5	54.7	66.9	2.2	69.1
36	1	7	[redacted]	65.1	4.5	54.7	69.6	2.2	71.8
36	2	7	[redacted]	65.9	4.5	54.7	70.4	2.2	72.6
36	3	7	[redacted]	65.8	4.5	54.7	70.3	2.2	72.5
36	4	7	[redacted]	65.4	4.5	54.7	69.9	2.2	72.1
36	5	7	[redacted]	65.0	4.5	54.7	69.5	2.2	71.7
36	6	7	[redacted]	64.6	4.5	54.7	69.1	2.2	71.3
37	1	7	[redacted]	62.8	4.5	54.7	67.3	2.2	69.5
37	2	7	[redacted]	63.5	4.5	54.7	68.0	2.2	70.2
37	3	7	[redacted]	63.4	4.5	54.7	67.9	2.2	70.1
37	4	7	[redacted]	63.2	4.5	54.7	67.7	2.2	69.9
37	5	7	[redacted]	62.8	4.5	54.7	67.3	2.2	69.5
37	6	7	[redacted]	62.4	4.5	54.7	66.9	2.2	69.1
38	1	7	[redacted]	62.5	4.5	54.7	67.0	2.2	69.2
38	2	7	[redacted]	63.3	4.5	54.7	67.8	2.2	70.0
38	3	7	[redacted]	63.3	4.5	54.7	67.8	2.2	70.0
38	4	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
38	5	7	[redacted]	62.6	4.5	54.7	67.1	2.2	69.3
38	6	7	[redacted]	62.3	4.5	54.7	66.8	2.2	69.0
39	1	7	[redacted]	62.6	4.5	54.7	67.1	2.2	69.3
39	2	7	[redacted]	63.3	4.5	54.7	67.8	2.2	70.0
39	3	7	[redacted]	63.3	4.5	54.7	67.8	2.2	70.0
39	4	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
39	5	7	[redacted]	62.6	4.5	54.7	67.1	2.2	69.3
39	6	7	[redacted]	62.2	4.5	54.7	66.7	2.2	68.9
39	7	7	[redacted]	60.7	4.5	54.7	65.2	2.2	67.4
40	1	7	[redacted]	62.7	4.5	54.7	67.2	2.2	69.4
40	2	7	[redacted]	63.4	4.5	54.7	67.9	2.2	70.1
40	3	7	[redacted]	63.4	4.5	54.7	67.9	2.2	70.1
40	4	7	[redacted]	63.1	4.5	54.7	67.6	2.2	69.8
40	5	7	[redacted]	62.7	4.5	54.7	67.2	2.2	69.4
40	6	7	[redacted]	62.2	4.5	54.7	66.7	2.2	68.9
40	7	7	[redacted]	60.8	4.5	54.7	65.3	2.2	67.5
41	1	7	[redacted]	63.1	4.5	54.7	67.6	2.2	69.8
41	2	7	[redacted]	63.6	4.5	54.7	68.1	2.2	70.3
41	3	7	[redacted]	63.5	4.5	54.7	68.0	2.2	70.2
41	4	7	[redacted]	63.2	4.5	54.7	67.7	2.2	69.9
41	5	7	[redacted]	62.8	4.5	54.7	67.3	2.2	69.5
41	6	7	[redacted]	62.4	4.5	54.7	66.9	2.2	69.1
42	1	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
42	2	7	[redacted]	63.5	4.5	54.7	68.0	2.2	70.2
42	3	7	[redacted]	63.4	4.5	54.7	67.9	2.2	70.1
42	4	7	[redacted]	63.0	4.5	54.7	67.5	2.2	69.7
42	5	7	[redacted]	62.6	4.5	54.7	67.1	2.2	69.3
42	6	7	[redacted]	62.3	4.5	54.7	66.8	2.2	69.0
42A	1	3	[redacted]	61.1	-1.5	54.7	59.6	3.0	62.6
42A	2	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
42A	3	3	[redacted]	61.9	-1.5	54.7	60.4	3.0	63.4
42A	4	3	[redacted]	61.5	-1.5	54.7	60.0	3.0	63.0
42A	5	3	[redacted]	61.2	-1.5	54.7	59.7	3.0	62.7
42A	6	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
43	1	2	[redacted]	62.0	4.0	54.7	66.0	-1.2	64.8
43	2	2	[redacted]	62.3	4.0	54.7	66.3	-1.2	65.1
43	3	2	[redacted]	62.0	4.0	54.7	66.0	-1.2	64.8
43	4	2	[redacted]	61.9	4.0	54.7	65.9	-1.2	64.7
43	5	2	[redacted]	61.6	4.0	54.7	65.6	-1.2	64.4
43	6	2	[redacted]	61.1	4.0	54.7	65.1	-1.2	63.9
43	11	2	[redacted]	60.9	4.0	54.7	64.9	-1.2	63.7
43	16	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
43	18	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
43A	5	2	[redacted]	52.9	4.0	54.7	56.9	-1.2	55.7
43A	6	2	[redacted]	57.5	4.0	54.7	61.5	-1.2	60.3
43A	11	2	[redacted]	63.1	4.0	54.7	67.1	-1.2	65.9
43A	16	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8
43A	18	2	[redacted]	62.7	4.0	54.7	66.7	-1.2	65.5
43B	3	7	[redacted]	49.1	4.5	54.7	54.7	2.2	56.9
43B	4	7	[redacted]	54.6	4.5	54.7	59.1	2.2	61.3
43B	5	7	[redacted]	57.5	4.5	54.7	62.0	2.2	64.2
43B	6	7	[redacted]	58.8	4.5	54.7	63.3	2.2	65.5
43B	11	7	[redacted]	61.7	4.5	54.7	66.2	2.2	68.4
43B	16	7	[redacted]	61.4	4.5	54.7	65.9	2.2	68.1
43B	18	7	[redacted]	61.0	4.5	54.7	65.5	2.2	67.7
43C	3	2	[redacted]	44.6	4.0	54.7	54.7	-1.2	53.5
43C	4	2	[redacted]	48.4	4.0	54.7	54.7	-1.2	53.5
43C	5	2	[redacted]	50.7	4.0	54.7	54.7	-1.2	53.5
43C	6	2	[redacted]	53.7	4.0	54.7	57.7	-1.2	56.5

43C	11	2	[redacted]	56.2	4.0	54.7	60.2	-1.2	59.0
43C	16	2	[redacted]	57.2	4.0	54.7	61.2	-1.2	60.0
43C	18	2	[redacted]	57.3	4.0	54.7	61.3	-1.2	60.1
44	1	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
44	2	2	[redacted]	60.8	4.0	54.7	64.8	-1.2	63.6
44	3	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
44	4	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
44	5	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
44	6	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
44	7	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
44A	1	7	[redacted]	38.2	4.5	54.7	54.7	2.2	56.9
44A	2	7	[redacted]	40.5	4.5	54.7	54.7	2.2	56.9
44A	3	7	[redacted]	48.6	4.5	54.7	54.7	2.2	56.9
44A	4	7	[redacted]	53.8	4.5	54.7	58.3	2.2	60.5
44A	5	7	[redacted]	56.9	4.5	54.7	61.4	2.2	63.6
44A	6	7	[redacted]	58.0	4.5	54.7	62.5	2.2	64.7
44A	7	7	[redacted]	59.2	4.5	54.7	63.7	2.2	65.9
45	1	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
45	2	2	[redacted]	60.5	4.0	54.7	64.5	-1.2	63.3
45	3	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
45	4	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
45	5	2	[redacted]	59.5	4.0	54.7	63.5	-1.2	62.3
45	6	2	[redacted]	59.1	4.0	54.7	63.1	-1.2	61.9
45	7	2	[redacted]	58.7	4.0	54.7	62.7	-1.2	61.5
45A	1	7	[redacted]	38.5	4.5	54.7	54.7	2.2	56.9
45A	2	7	[redacted]	40.5	4.5	54.7	54.7	2.2	56.9
45A	3	7	[redacted]	43.2	4.5	54.7	54.7	2.2	56.9
45A	4	7	[redacted]	46.6	4.5	54.7	54.7	2.2	56.9
45A	5	7	[redacted]	49.6	4.5	54.7	54.7	2.2	56.9
45A	6	7	[redacted]	53.1	4.5	54.7	57.6	2.2	59.8
45A	7	7	[redacted]	53.8	4.5	54.7	58.3	2.2	60.5
46	1	2	[redacted]	60.4	4.0	54.7	64.4	-1.2	63.2
46	2	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
46	3	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
46	4	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
46	5	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
46	6	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
46	7	2	[redacted]	58.6	4.0	54.7	62.6	-1.2	61.4
46	8	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
46A	1	7	[redacted]	40.4	4.5	54.7	54.7	2.2	56.9
46A	2	7	[redacted]	43.3	4.5	54.7	54.7	2.2	56.9
46A	3	7	[redacted]	48.6	4.5	54.7	54.7	2.2	56.9
46A	4	7	[redacted]	51.8	4.5	54.7	56.3	2.2	58.5
46A	5	7	[redacted]	55.1	4.5	54.7	59.6	2.2	61.8
46A	6	7	[redacted]	56.1	4.5	54.7	60.6	2.2	62.8
46A	7	7	[redacted]	56.8	4.5	54.7	61.3	2.2	63.5
46A	8	7	[redacted]	57.9	4.5	54.7	62.4	2.2	64.6
47	1	2	[redacted]	61.7	4.0	54.7	65.7	-1.2	64.5
47	2	2	[redacted]	61.8	4.0	54.7	65.8	-1.2	64.6
47	3	2	[redacted]	61.2	4.0	54.7	65.2	-1.2	64.0
47	4	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
47	5	2	[redacted]	60.0	4.0	54.7	64.0	-1.2	62.8
47A	1	2	[redacted]	37.5	4.0	54.7	54.7	-1.2	53.5
47A	2	2	[redacted]	38.7	4.0	54.7	54.7	-1.2	53.5
47A	3	2	[redacted]	39.9	4.0	54.7	54.7	-1.2	53.5
47A	4	2	[redacted]	40.5	4.0	54.7	54.7	-1.2	53.5
47A	5	2	[redacted]	41.5	4.0	54.7	54.7	-1.2	53.5
48	1	3	[redacted]	62.1	-1.5	54.7	60.6	3.0	63.6
48	2	3	[redacted]	62.2	-1.5	54.7	60.7	3.0	63.7
48	3	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
48	4	3	[redacted]	60.9	-1.5	54.7	59.4	3.0	62.4
48	5	3	[redacted]	60.3	-1.5	54.7	58.8	3.0	61.8
48	6	3	[redacted]	59.7	-1.5	54.7	58.2	3.0	61.2
48	7	3	[redacted]	59.2	-1.5	54.7	57.7	3.0	60.7
48A	1	2	[redacted]	61.7	4.0	54.7	65.7	-1.2	64.5
48A	2	2	[redacted]	61.9	4.0	54.7	65.9	-1.2	64.7
48A	3	2	[redacted]	61.3	4.0	54.7	65.3	-1.2	64.1
48A	4	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
48A	5	2	[redacted]	60.0	4.0	54.7	64.0	-1.2	62.8
48A	6	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
48A	7	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
49	1	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
49	2	3	[redacted]	61.9	-1.5	54.7	60.4	3.0	63.4
49	3	3	[redacted]	61.4	-1.5	54.7	59.9	3.0	62.9
49	4	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
49	5	3	[redacted]	60.2	-1.5	54.7	58.7	3.0	61.7

49	6	3	[redacted]	59.6	-1.5	54.7	58.1	3.0	61.1
49A	1	2	[redacted]	41.1	4.0	54.7	54.7	-1.2	53.5
49A	2	2	[redacted]	43.5	4.0	54.7	54.7	-1.2	53.5
49A	3	2	[redacted]	44.0	4.0	54.7	54.7	-1.2	53.5
49A	4	2	[redacted]	44.1	4.0	54.7	54.7	-1.2	53.5
49A	5	2	[redacted]	44.3	4.0	54.7	54.7	-1.2	53.5
49A	6	2	[redacted]	45.1	4.0	54.7	54.7	-1.2	53.5
50	1	3	[redacted]	61.8	-1.5	54.7	60.3	3.0	63.3
50	2	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
50	3	3	[redacted]	61.7	-1.5	54.7	60.2	3.0	63.2
50	4	3	[redacted]	61.0	-1.5	54.7	59.5	3.0	62.5
50	5	3	[redacted]	60.4	-1.5	54.7	58.9	3.0	61.9
50	6	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
50A	1	7	[redacted]	40.2	4.5	54.7	54.7	2.2	56.9
50A	2	7	[redacted]	42.6	4.5	54.7	54.7	2.2	56.9
50A	3	7	[redacted]	46.8	4.5	54.7	54.7	2.2	56.9
50A	4	7	[redacted]	50.6	4.5	54.7	55.1	2.2	57.3
50A	5	7	[redacted]	53.9	4.5	54.7	58.4	2.2	60.6
50A	6	7	[redacted]	55.0	4.5	54.7	59.5	2.2	61.7
51	1	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
51	2	3	[redacted]	62.5	-1.5	54.7	61.0	3.0	64.0
51	3	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
51	4	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
51	5	3	[redacted]	61.3	-1.5	54.7	59.8	3.0	62.8
51	6	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
51	7	3	[redacted]	60.4	-1.5	54.7	58.9	3.0	61.9
51A	1	3	[redacted]	39.5	-1.5	54.7	54.7	3.0	57.7
51A	2	3	[redacted]	42.1	-1.5	54.7	54.7	3.0	57.7
51A	3	3	[redacted]	47.6	-1.5	54.7	54.7	3.0	57.7
51A	4	3	[redacted]	56.3	-1.5	54.7	54.8	3.0	57.8
51A	5	3	[redacted]	58.9	-1.5	54.7	57.4	3.0	60.4
51A	6	3	[redacted]	61.1	-1.5	54.7	59.6	3.0	62.6
51A	7	3	[redacted]	61.2	-1.5	54.7	59.7	3.0	62.7
51B	1	3	[redacted]	39.8	-1.5	54.7	54.7	3.0	57.7
51B	2	3	[redacted]	42.6	-1.5	54.7	54.7	3.0	57.7
51B	3	3	[redacted]	49.4	-1.5	54.7	54.7	3.0	57.7
51B	4	3	[redacted]	54.4	-1.5	54.7	54.7	3.0	57.7
51B	5	3	[redacted]	55.8	-1.5	54.7	54.7	3.0	57.7
51B	6	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
51B	7	3	[redacted]	58.6	-1.5	54.7	57.1	3.0	60.1
52	1	3	[redacted]	61.4	-1.5	54.7	59.9	3.0	62.9
52	2	3	[redacted]	61.7	-1.5	54.7	60.2	3.0	63.2
52	3	3	[redacted]	61.3	-1.5	54.7	59.8	3.0	62.8
52	4	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
52	5	3	[redacted]	60.3	-1.5	54.7	58.8	3.0	61.8
52	6	3	[redacted]	60.0	-1.5	54.7	58.5	3.0	61.5
52A	1	3	[redacted]	38.3	-1.5	54.7	54.7	3.0	57.7
52A	2	3	[redacted]	40.2	-1.5	54.7	54.7	3.0	57.7
52A	3	3	[redacted]	40.8	-1.5	54.7	54.7	3.0	57.7
52A	4	3	[redacted]	41.0	-1.5	54.7	54.7	3.0	57.7
52A	5	3	[redacted]	41.4	-1.5	54.7	54.7	3.0	57.7
52A	6	3	[redacted]	42.8	-1.5	54.7	54.7	3.0	57.7
53	1	3	[redacted]	61.5	-1.5	54.7	60.0	3.0	63.0
53	2	3	[redacted]	61.8	-1.5	54.7	60.3	3.0	63.3
53	3	3	[redacted]	61.4	-1.5	54.7	59.9	3.0	62.9
53	4	3	[redacted]	60.9	-1.5	54.7	59.4	3.0	62.4
53	5	3	[redacted]	60.4	-1.5	54.7	58.9	3.0	61.9
53	6	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
53A	1	2	[redacted]	61.1	4.0	54.7	65.1	-1.2	63.9
53A	2	2	[redacted]	61.1	4.0	54.7	65.1	-1.2	63.9
53A	3	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
53A	4	2	[redacted]	60.0	4.0	54.7	64.0	-1.2	62.8
53A	5	2	[redacted]	59.5	4.0	54.7	63.5	-1.2	62.3
53A	6	2	[redacted]	59.0	4.0	54.7	63.0	-1.2	61.8
53B	1	2	[redacted]	35.3	4.0	54.7	54.7	-1.2	53.5
54	1	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
54	2	2	[redacted]	60.4	4.0	54.7	64.4	-1.2	63.2
54	3	2	[redacted]	59.9	4.0	54.7	63.9	-1.2	62.7
54	4	2	[redacted]	59.3	4.0	54.7	63.3	-1.2	62.1
54	5	2	[redacted]	58.8	4.0	54.7	62.8	-1.2	61.6
54	6	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
54	7	2	[redacted]	58.0	4.0	54.7	62.0	-1.2	60.8
54A	1	2	[redacted]	37.8	4.0	54.7	54.7	-1.2	53.5
54A	2	2	[redacted]	41.7	4.0	54.7	54.7	-1.2	53.5
54A	3	2	[redacted]	48.6	4.0	54.7	54.7	-1.2	53.5
54A	4	2	[redacted]	53.2	4.0	54.7	57.2	-1.2	56.0

54A	5	2	[redacted]	54.9	4.0	54.7	58.9	-1.2	57.7
54A	6	2	[redacted]	58.1	4.0	54.7	62.1	-1.2	60.9
54A	7	2	[redacted]	58.5	4.0	54.7	62.5	-1.2	61.3
55	1	2	[redacted]	60.6	4.0	54.7	64.6	-1.2	63.4
55	2	2	[redacted]	60.5	4.0	54.7	64.5	-1.2	63.3
55	3	2	[redacted]	59.9	4.0	54.7	63.9	-1.2	62.7
55	4	2	[redacted]	59.3	4.0	54.7	63.3	-1.2	62.1
55	5	2	[redacted]	58.8	4.0	54.7	62.8	-1.2	61.6
55	6	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
55A	1	2	[redacted]	39.3	4.0	54.7	54.7	-1.2	53.5
55A	2	2	[redacted]	42.8	4.0	54.7	54.7	-1.2	53.5
55A	3	2	[redacted]	47.8	4.0	54.7	54.7	-1.2	53.5
55A	4	2	[redacted]	53.0	4.0	54.7	57.0	-1.2	55.8
55A	5	2	[redacted]	54.4	4.0	54.7	58.4	-1.2	57.2
55A	6	2	[redacted]	56.0	4.0	54.7	60.0	-1.2	58.8
56	1	2	[redacted]	60.5	4.0	54.7	64.5	-1.2	63.3
56	2	2	[redacted]	60.4	4.0	54.7	64.4	-1.2	63.2
56	3	2	[redacted]	59.9	4.0	54.7	63.9	-1.2	62.7
56	4	2	[redacted]	59.3	4.0	54.7	63.3	-1.2	62.1
56	5	2	[redacted]	58.7	4.0	54.7	62.7	-1.2	61.5
56	6	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
56A	1	2	[redacted]	39.4	4.0	54.7	54.7	-1.2	53.5
56A	2	2	[redacted]	42.8	4.0	54.7	54.7	-1.2	53.5
56A	3	2	[redacted]	47.7	4.0	54.7	54.7	-1.2	53.5
56A	4	2	[redacted]	53.0	4.0	54.7	57.0	-1.2	55.8
56A	5	2	[redacted]	54.4	4.0	54.7	58.4	-1.2	57.2
56A	6	2	[redacted]	56.0	4.0	54.7	60.0	-1.2	58.8
57	1	2	[redacted]	60.2	4.0	54.7	64.2	-1.2	63.0
57	2	2	[redacted]	60.4	4.0	54.7	64.4	-1.2	63.2
57	3	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
57	4	2	[redacted]	59.2	4.0	54.7	63.2	-1.2	62.0
57	5	2	[redacted]	58.7	4.0	54.7	62.7	-1.2	61.5
57	6	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
57A	1	2	[redacted]	39.3	4.0	54.7	54.7	-1.2	53.5
57A	2	2	[redacted]	42.8	4.0	54.7	54.7	-1.2	53.5
57A	3	2	[redacted]	48.0	4.0	54.7	54.7	-1.2	53.5
57A	4	2	[redacted]	53.1	4.0	54.7	57.1	-1.2	55.9
57A	5	2	[redacted]	54.6	4.0	54.7	58.6	-1.2	57.4
57A	6	2	[redacted]	56.3	4.0	54.7	60.3	-1.2	59.1
58	1	2	[redacted]	59.3	4.0	54.7	63.3	-1.2	62.1
58	2	2	[redacted]	59.6	4.0	54.7	63.6	-1.2	62.4
58	3	2	[redacted]	59.3	4.0	54.7	63.3	-1.2	62.1
58	4	2	[redacted]	58.8	4.0	54.7	62.8	-1.2	61.6
58	5	2	[redacted]	58.2	4.0	54.7	62.2	-1.2	61.0
58	6	2	[redacted]	57.8	4.0	54.7	61.8	-1.2	60.6
58	7	2	[redacted]	57.7	4.0	54.7	61.7	-1.2	60.5
58A	1	2	[redacted]	37.7	4.0	54.7	54.7	-1.2	53.5
58A	2	2	[redacted]	41.3	4.0	54.7	54.7	-1.2	53.5
58A	3	2	[redacted]	49.8	4.0	54.7	54.7	-1.2	53.5
58A	4	2	[redacted]	54.2	4.0	54.7	58.2	-1.2	57.0
58A	5	2	[redacted]	55.9	4.0	54.7	59.9	-1.2	58.7
58A	6	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
58A	7	2	[redacted]	59.2	4.0	54.7	63.2	-1.2	62.0
59	1	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
59	2	2	[redacted]	59.8	4.0	54.7	63.8	-1.2	62.6
59	3	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
59	4	2	[redacted]	58.9	4.0	54.7	62.9	-1.2	61.7
59	5	2	[redacted]	58.4	4.0	54.7	62.4	-1.2	61.2
59	6	2	[redacted]	58.0	4.0	54.7	62.0	-1.2	60.8
59	7	2	[redacted]	57.7	4.0	54.7	61.7	-1.2	60.5
59A	1	2	[redacted]	37.8	4.0	54.7	54.7	-1.2	53.5
59A	2	2	[redacted]	40.2	4.0	54.7	54.7	-1.2	53.5
59A	3	2	[redacted]	43.4	4.0	54.7	54.7	-1.2	53.5
59A	4	2	[redacted]	47.6	4.0	54.7	54.7	-1.2	53.5
59A	5	2	[redacted]	51.4	4.0	54.7	55.4	-1.2	54.2
59A	6	2	[redacted]	53.0	4.0	54.7	57.0	-1.2	55.8
59A	7	2	[redacted]	54.5	4.0	54.7	58.5	-1.2	57.3
60	1	2	[redacted]	60.4	4.0	54.7	64.4	-1.2	63.2
60	2	2	[redacted]	60.5	4.0	54.7	64.5	-1.2	63.3
60	3	2	[redacted]	60.0	4.0	54.7	64.0	-1.2	62.8
60	4	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
60	5	2	[redacted]	58.8	4.0	54.7	62.8	-1.2	61.6
60	6	2	[redacted]	58.2	4.0	54.7	62.2	-1.2	61.0
60	7	2	[redacted]	57.8	4.0	54.7	61.8	-1.2	60.6
60A	1	2	[redacted]	40.0	4.0	54.7	54.7	-1.2	53.5
60A	2	2	[redacted]	42.2	4.0	54.7	54.7	-1.2	53.5

60A	3	2	[redacted]	45.8	4.0	54.7	54.7	-1.2	53.5
60A	4	2	[redacted]	50.5	4.0	54.7	54.7	-1.2	53.5
60A	5	2	[redacted]	54.0	4.0	54.7	58.0	-1.2	56.8
60A	6	2	[redacted]	55.6	4.0	54.7	59.6	-1.2	58.4
60A	7	2	[redacted]	56.9	4.0	54.7	60.9	-1.2	59.7
61	1	2	[redacted]	60.5	4.0	54.7	64.5	-1.2	63.3
61	2	2	[redacted]	60.7	4.0	54.7	64.7	-1.2	63.5
61	3	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
61	4	2	[redacted]	59.4	4.0	54.7	63.4	-1.2	62.2
61	5	2	[redacted]	58.8	4.0	54.7	62.8	-1.2	61.6
61	6	2	[redacted]	58.2	4.0	54.7	62.2	-1.2	61.0
61	7	2	[redacted]	57.7	4.0	54.7	61.7	-1.2	60.5
61A	1	2	[redacted]	41.8	4.0	54.7	54.7	-1.2	53.5
61A	2	2	[redacted]	44.0	4.0	54.7	54.7	-1.2	53.5
61A	3	2	[redacted]	46.5	4.0	54.7	54.7	-1.2	53.5
61A	4	2	[redacted]	50.1	4.0	54.7	54.7	-1.2	53.5
61A	5	2	[redacted]	53.4	4.0	54.7	57.4	-1.2	56.2
61A	6	2	[redacted]	54.6	4.0	54.7	58.6	-1.2	57.4
61A	7	2	[redacted]	56.1	4.0	54.7	60.1	-1.2	58.9
62	1	3	[redacted]	58.2	-1.5	54.7	56.7	3.0	59.7
62	2	3	[redacted]	58.8	-1.5	54.7	57.3	3.0	60.3
62	3	3	[redacted]	59.0	-1.5	54.7	57.5	3.0	60.5
62	4	3	[redacted]	58.9	-1.5	54.7	57.4	3.0	60.4
62	5	3	[redacted]	58.8	-1.5	54.7	57.3	3.0	60.3
62A	1	3	[redacted]	39.7	-1.5	54.7	54.7	3.0	57.7
62A	2	3	[redacted]	42.1	-1.5	54.7	54.7	3.0	57.7
62A	3	3	[redacted]	45.8	-1.5	54.7	54.7	3.0	57.7
62A	4	3	[redacted]	50.7	-1.5	54.7	54.7	3.0	57.7
62A	5	3	[redacted]	52.5	-1.5	54.7	54.7	3.0	57.7
63	1	3	[redacted]	58.9	-1.5	54.7	57.4	3.0	60.4
63	2	3	[redacted]	59.8	-1.5	54.7	58.3	3.0	61.3
63	3	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
63	4	3	[redacted]	59.8	-1.5	54.7	58.3	3.0	61.3
63	5	3	[redacted]	59.7	-1.5	54.7	58.2	3.0	61.2
63A	1	3	[redacted]	39.9	-1.5	54.7	54.7	3.0	57.7
63A	2	3	[redacted]	42.6	-1.5	54.7	54.7	3.0	57.7
63A	3	3	[redacted]	49.2	-1.5	54.7	54.7	3.0	57.7
63A	4	3	[redacted]	55.1	-1.5	54.7	54.7	3.0	57.7
63A	5	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
64	1	3	[redacted]	55.3	-1.5	54.7	54.7	3.0	57.7
64	2	3	[redacted]	56.6	-1.5	54.7	55.1	3.0	58.1
64	3	3	[redacted]	57.4	-1.5	54.7	55.9	3.0	58.9
64A	1	2	[redacted]	63.7	4.0	54.7	67.7	-1.2	66.5
64A	2	2	[redacted]	64.9	4.0	54.7	68.9	-1.2	67.7
64A	3	2	[redacted]	64.9	4.0	54.7	68.9	-1.2	67.7
64B	1	2	[redacted]	58.2	4.0	54.7	62.2	-1.2	61.0
64B	2	2	[redacted]	58.6	4.0	54.7	62.6	-1.2	61.4
64B	3	2	[redacted]	58.3	4.0	54.7	62.3	-1.2	61.1
65	1	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
65	2	3	[redacted]	61.0	-1.5	54.7	59.5	3.0	62.5
65	3	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
65	4	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
65	5	3	[redacted]	60.2	-1.5	54.7	58.7	3.0	61.7
65	6	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
65A	1	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8
65A	2	2	[redacted]	63.4	4.0	54.7	67.4	-1.2	66.2
65A	3	2	[redacted]	63.3	4.0	54.7	67.3	-1.2	66.1
65A	4	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8
65A	5	2	[redacted]	62.6	4.0	54.7	66.6	-1.2	65.4
65A	6	2	[redacted]	62.1	4.0	54.7	66.1	-1.2	64.9
66	1	3	[redacted]	57.9	-1.5	54.7	56.4	3.0	59.4
66	2	3	[redacted]	58.9	-1.5	54.7	57.4	3.0	60.4
66	3	3	[redacted]	58.9	-1.5	54.7	57.4	3.0	60.4
66	4	3	[redacted]	58.8	-1.5	54.7	57.3	3.0	60.3
66	5	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
66	6	3	[redacted]	58.2	-1.5	54.7	56.7	3.0	59.7
66A	1	3	[redacted]	35.6	-1.5	54.7	54.7	3.0	57.7
66A	2	3	[redacted]	36.9	-1.5	54.7	54.7	3.0	57.7
66A	3	3	[redacted]	38.4	-1.5	54.7	54.7	3.0	57.7
66A	4	3	[redacted]	40.9	-1.5	54.7	54.7	3.0	57.7
66A	5	3	[redacted]	45.4	-1.5	54.7	54.7	3.0	57.7
66A	6	3	[redacted]	50.6	-1.5	54.7	54.7	3.0	57.7
67	1	2	[redacted]	62.8	4.0	54.7	66.8	-1.2	65.6
67	2	2	[redacted]	63.4	4.0	54.7	67.4	-1.2	66.2
67	3	2	[redacted]	63.3	4.0	54.7	67.3	-1.2	66.1
67	4	2	[redacted]	63.0	4.0	54.7	67.0	-1.2	65.8

67	5	2	[redacted]	62.5	4.0	54.7	66.5	-1.2	65.3
67	6	2	[redacted]	62.1	4.0	54.7	66.1	-1.2	64.9
67A	1	2	[redacted]	35.2	4.0	54.7	54.7	-1.2	53.5
67A	2	2	[redacted]	36.1	4.0	54.7	54.7	-1.2	53.5
67A	3	2	[redacted]	37.2	4.0	54.7	54.7	-1.2	53.5
67A	4	2	[redacted]	39.2	4.0	54.7	54.7	-1.2	53.5
67A	5	2	[redacted]	42.5	4.0	54.7	54.7	-1.2	53.5
67A	6	2	[redacted]	48.6	4.0	54.7	54.7	-1.2	53.5
68	1	5	[redacted]	62.1	2.8	54.7	64.9	2.3	67.2
68	2	5	[redacted]	62.3	2.8	54.7	65.1	2.3	67.4
68	3	5	[redacted]	62.2	2.8	54.7	65.0	2.3	67.3
68	4	5	[redacted]	62.0	2.8	54.7	64.8	2.3	67.1
68	5	5	[redacted]	61.9	2.8	54.7	64.7	2.3	67.0
68	6	5	[redacted]	61.5	2.8	54.7	64.3	2.3	66.6
68	7	5	[redacted]	61.4	2.8	54.7	64.2	2.3	66.5
68A	4	5	[redacted]	53.8	2.8	54.7	56.6	2.3	58.9
68A	5	5	[redacted]	57.8	2.8	54.7	60.6	2.3	62.9
68A	6	5	[redacted]	60.0	2.8	54.7	62.8	2.3	65.1
68A	7	5	[redacted]	61.4	2.8	54.7	64.2	2.3	66.5
68B	1	5	[redacted]	38.1	2.8	54.7	54.7	2.3	57.0
68B	2	5	[redacted]	39.9	2.8	54.7	54.7	2.3	57.0
68B	3	5	[redacted]	43.3	2.8	54.7	54.7	2.3	57.0
68B	4	5	[redacted]	46.8	2.8	54.7	54.7	2.3	57.0
68B	5	5	[redacted]	50.0	2.8	54.7	54.7	2.3	57.0
68B	6	5	[redacted]	54.1	2.8	54.7	56.9	2.3	59.2
68B	7	5	[redacted]	55.9	2.8	54.7	58.7	2.3	61.0
69	1	5	[redacted]	61.7	2.8	54.7	64.5	2.3	66.8
69	2	5	[redacted]	61.9	2.8	54.7	64.7	2.3	67.0
69	3	5	[redacted]	61.6	2.8	54.7	64.4	2.3	66.7
69	4	5	[redacted]	61.3	2.8	54.7	64.1	2.3	66.4
69	5	5	[redacted]	61.1	2.8	54.7	63.9	2.3	66.2
69	6	5	[redacted]	60.7	2.8	54.7	63.5	2.3	65.8
69	7	5	[redacted]	60.4	2.8	54.7	63.2	2.3	65.5
69A	1	5	[redacted]	37.0	2.8	54.7	54.7	2.3	57.0
69A	2	5	[redacted]	38.4	2.8	54.7	54.7	2.3	57.0
69A	3	5	[redacted]	40.4	2.8	54.7	54.7	2.3	57.0
69A	4	5	[redacted]	42.7	2.8	54.7	54.7	2.3	57.0
69A	5	5	[redacted]	44.6	2.8	54.7	54.7	2.3	57.0
69A	6	5	[redacted]	46.8	2.8	54.7	54.7	2.3	57.0
69A	7	5	[redacted]	50.6	2.8	54.7	54.7	2.3	57.0
70	1	5	[redacted]	60.5	2.8	54.7	63.3	2.3	65.6
70	2	5	[redacted]	60.9	2.8	54.7	63.7	2.3	66.0
70	3	5	[redacted]	60.7	2.8	54.7	63.5	2.3	65.8
70	4	5	[redacted]	60.3	2.8	54.7	63.1	2.3	65.4
70	5	5	[redacted]	60.0	2.8	54.7	62.8	2.3	65.1
70	6	5	[redacted]	59.6	2.8	54.7	62.4	2.3	64.7
70	7	5	[redacted]	59.4	2.8	54.7	62.2	2.3	64.5
70A	1	5	[redacted]	53.2	2.8	54.7	56.0	2.3	58.3
70A	2	5	[redacted]	54.7	2.8	54.7	57.5	2.3	59.8
70A	3	5	[redacted]	55.0	2.8	54.7	57.8	2.3	60.1
70A	4	5	[redacted]	55.0	2.8	54.7	57.8	2.3	60.1
70A	5	5	[redacted]	54.8	2.8	54.7	57.6	2.3	59.9
70A	6	5	[redacted]	54.6	2.8	54.7	57.4	2.3	59.7
70A	7	5	[redacted]	54.5	2.8	54.7	57.3	2.3	59.6
70B	1	5	[redacted]	39.7	2.8	54.7	54.7	2.3	57.0
70B	2	5	[redacted]	40.7	2.8	54.7	54.7	2.3	57.0
70B	3	5	[redacted]	41.6	2.8	54.7	54.7	2.3	57.0
70B	4	5	[redacted]	42.6	2.8	54.7	54.7	2.3	57.0
70B	5	5	[redacted]	43.5	2.8	54.7	54.7	2.3	57.0
70B	6	5	[redacted]	44.1	2.8	54.7	54.7	2.3	57.0
70B	7	5	[redacted]	45.0	2.8	54.7	54.7	2.3	57.0
71	1	3	[redacted]	63.8	-1.5	54.7	62.3	3.0	65.3
71	2	3	[redacted]	63.9	-1.5	54.7	62.4	3.0	65.4
71	3	3	[redacted]	63.3	-1.5	54.7	61.8	3.0	64.8
71	4	3	[redacted]	62.7	-1.5	54.7	61.2	3.0	64.2
71	5	3	[redacted]	62.0	-1.5	54.7	60.5	3.0	63.5
71	6	3	[redacted]	61.5	-1.5	54.7	60.0	3.0	63.0
71	7	3	[redacted]	61.0	-1.5	54.7	59.5	3.0	62.5
71A	1	5	[redacted]	61.9	2.8	54.7	64.7	2.3	67.0
71A	2	5	[redacted]	62.0	2.8	54.7	64.8	2.3	67.1
71A	3	5	[redacted]	61.5	2.8	54.7	64.3	2.3	66.6
71A	4	5	[redacted]	60.8	2.8	54.7	63.6	2.3	65.9
71A	5	5	[redacted]	60.2	2.8	54.7	63.0	2.3	65.3
71A	6	5	[redacted]	59.7	2.8	54.7	62.5	2.3	64.8
71A	7	5	[redacted]	59.3	2.8	54.7	62.1	2.3	64.4
71B	1	5	[redacted]	55.5	2.8	54.7	58.3	2.3	60.6

71B	2	5	[redacted]	56.3	2.8	54.7	59.1	2.3	61.4
71B	3	5	[redacted]	56.5	2.8	54.7	59.3	2.3	61.6
71B	4	5	[redacted]	56.3	2.8	54.7	59.1	2.3	61.4
71B	5	5	[redacted]	56.1	2.8	54.7	58.9	2.3	61.2
71B	6	5	[redacted]	55.9	2.8	54.7	58.7	2.3	61.0
71B	7	5	[redacted]	55.7	2.8	54.7	58.5	2.3	60.8
72	1	3	[redacted]	60.9	-1.5	54.7	59.4	3.0	62.4
72	2	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
72	3	3	[redacted]	60.2	-1.5	54.7	58.7	3.0	61.7
72	4	3	[redacted]	59.5	-1.5	54.7	58.0	3.0	61.0
72	5	3	[redacted]	59.0	-1.5	54.7	57.5	3.0	60.5
72	6	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
72A	1	5	[redacted]	47.2	2.8	54.7	54.7	2.3	57.0
72A	2	5	[redacted]	48.7	2.8	54.7	54.7	2.3	57.0
72A	3	5	[redacted]	49.8	2.8	54.7	54.7	2.3	57.0
72A	4	5	[redacted]	50.3	2.8	54.7	54.7	2.3	57.0
72A	5	5	[redacted]	50.6	2.8	54.7	54.7	2.3	57.0
72A	6	5	[redacted]	50.8	2.8	54.7	54.7	2.3	57.0
73	1	3	[redacted]	60.6	-1.5	54.7	59.1	3.0	62.1
73	2	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
73	3	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
73	4	3	[redacted]	59.3	-1.5	54.7	57.8	3.0	60.8
73	5	3	[redacted]	58.7	-1.5	54.7	57.2	3.0	60.2
73	6	3	[redacted]	58.3	-1.5	54.7	56.8	3.0	59.8
73A	1	5	[redacted]	47.3	2.8	54.7	54.7	2.3	57.0
73A	2	5	[redacted]	48.7	2.8	54.7	54.7	2.3	57.0
73A	3	5	[redacted]	50.0	2.8	54.7	54.7	2.3	57.0
73A	4	5	[redacted]	50.6	2.8	54.7	54.7	2.3	57.0
73A	5	5	[redacted]	50.9	2.8	54.7	54.7	2.3	57.0
73A	6	5	[redacted]	51.0	2.8	54.7	54.7	2.3	57.0
74	1	5	[redacted]	55.0	2.8	54.7	57.8	2.3	60.1
74	2	5	[redacted]	55.5	2.8	54.7	58.3	2.3	60.6
74	3	5	[redacted]	55.7	2.8	54.7	58.5	2.3	60.8
74	4	5	[redacted]	55.9	2.8	54.7	58.7	2.3	61.0
74	5	5	[redacted]	56.3	2.8	54.7	59.1	2.3	61.4
74	6	5	[redacted]	56.6	2.8	54.7	59.4	2.3	61.7
74	7	5	[redacted]	56.8	2.8	54.7	59.6	2.3	61.9
74	8	5	[redacted]	57.1	2.8	54.7	59.9	2.3	62.2
74A	1	5	[redacted]	36.4	2.8	54.7	54.7	2.3	57.0
74A	2	5	[redacted]	37.3	2.8	54.7	54.7	2.3	57.0
74A	3	5	[redacted]	38.1	2.8	54.7	54.7	2.3	57.0
74A	4	5	[redacted]	39.2	2.8	54.7	54.7	2.3	57.0
74A	5	5	[redacted]	40.3	2.8	54.7	54.7	2.3	57.0
74A	6	5	[redacted]	42.0	2.8	54.7	54.7	2.3	57.0
74A	7	5	[redacted]	44.8	2.8	54.7	54.7	2.3	57.0
74A	8	5	[redacted]	49.1	2.8	54.7	54.7	2.3	57.0
75	1	5	[redacted]	62.8	2.8	54.7	65.6	2.3	67.9
75	2	5	[redacted]	62.9	2.8	54.7	65.7	2.3	68.0
75	3	5	[redacted]	62.2	2.8	54.7	65.0	2.3	67.3
75	4	5	[redacted]	61.5	2.8	54.7	64.3	2.3	66.6
75	5	5	[redacted]	60.9	2.8	54.7	63.7	2.3	66.0
75A	1	3	[redacted]	51.6	-1.5	54.7	54.7	3.0	57.7
75A	2	3	[redacted]	52.8	-1.5	54.7	54.7	3.0	57.7
75A	3	3	[redacted]	53.9	-1.5	54.7	54.7	3.0	57.7
75A	4	3	[redacted]	54.6	-1.5	54.7	54.7	3.0	57.7
75A	5	3	[redacted]	55.0	-1.5	54.7	54.7	3.0	57.7
75B	1	3	[redacted]	61.1	-1.5	54.7	59.6	3.0	62.6
75B	2	3	[redacted]	61.2	-1.5	54.7	59.7	3.0	62.7
75B	3	3	[redacted]	60.7	-1.5	54.7	59.2	3.0	62.2
75B	4	3	[redacted]	60.1	-1.5	54.7	58.6	3.0	61.6
75B	5	3	[redacted]	59.5	-1.5	54.7	58.0	3.0	61.0
76	1	5	[redacted]	59.7	2.8	54.7	62.5	2.3	64.8
76	2	5	[redacted]	59.8	2.8	54.7	62.6	2.3	64.9
76	3	5	[redacted]	59.4	2.8	54.7	62.2	2.3	64.5
76	4	5	[redacted]	58.8	2.8	54.7	61.6	2.3	63.9
76A	1	3	[redacted]	59.0	-1.5	54.7	57.5	3.0	60.5
76A	2	3	[redacted]	59.3	-1.5	54.7	57.8	3.0	60.8
76A	3	3	[redacted]	58.8	-1.5	54.7	57.3	3.0	60.3
76A	4	3	[redacted]	58.3	-1.5	54.7	56.8	3.0	59.8
77	1	3	[redacted]	59.0	-1.5	54.7	57.5	3.0	60.5
77	2	3	[redacted]	59.1	-1.5	54.7	57.6	3.0	60.6
77	3	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
77	4	3	[redacted]	57.8	-1.5	54.7	56.3	3.0	59.3
77A	1	3	[redacted]	40.8	-1.5	54.7	54.7	3.0	57.7
77A	2	3	[redacted]	42.7	-1.5	54.7	54.7	3.0	57.7
77A	3	3	[redacted]	43.7	-1.5	54.7	54.7	3.0	57.7

77A	4	3	[redacted]	44.3	-1.5	54.7	54.7	3.0	57.7
78	1	5		59.0	2.8	54.7	61.8	2.3	64.1
78	2	5		59.3	2.8	54.7	62.1	2.3	64.4
78	3	5		58.9	2.8	54.7	61.7	2.3	64.0
78	4	5		58.3	2.8	54.7	61.1	2.3	63.4
78	5	5		57.9	2.8	54.7	60.7	2.3	63.0
78A	1	3		34.1	-1.5	54.7	54.7	3.0	57.7
78A	2	3		35.2	-1.5	54.7	54.7	3.0	57.7
78A	3	3		36.4	-1.5	54.7	54.7	3.0	57.7
78A	4	3		38.1	-1.5	54.7	54.7	3.0	57.7
78A	5	3		40.1	-1.5	54.7	54.7	3.0	57.7
AAAA	1	4		56.3	6.6	54.7	62.9	2.5	65.4
AAAA	2	4		57.0	6.6	54.7	63.6	2.5	66.1
AAAA	3	4		57.5	6.6	54.7	64.1	2.5	66.6
AAAA	4	4		58.0	6.6	54.7	64.6	2.5	67.1
AAAA	5	4		58.4	6.6	54.7	65.0	2.5	67.5
AAAA	6	4		58.6	6.6	54.7	65.2	2.5	67.7
AAAA	7	4		58.8	6.6	54.7	65.4	2.5	67.9
AAAA	8	4		58.9	6.6	54.7	65.5	2.5	68.0
AAAA01	1	4		46.8	6.6	54.7	54.7	2.5	57.2
AAAA01	2	4		48.1	6.6	54.7	54.7	2.5	57.2
AAAA01	3	4		49.0	6.6	54.7	55.6	2.5	58.1
AAAA01	4	4		49.4	6.6	54.7	56.0	2.5	58.5
AAAA01	5	4		49.6	6.6	54.7	56.2	2.5	58.7
AAAA01	6	4		49.7	6.6	54.7	56.3	2.5	58.8
AAAA01	7	4		49.8	6.6	54.7	56.4	2.5	58.9
AAAA01	8	4		50.0	6.6	54.7	56.6	2.5	59.1
AAAA01	9	4		50.2	6.6	54.7	56.8	2.5	59.3
AAAA01	10	4		50.3	6.6	54.7	56.9	2.5	59.4
AAAA01	11	4		51.0	6.6	54.7	57.6	2.5	60.1
AAAA01	16	4		52.9	6.6	54.7	59.5	2.5	62.0
AAAA02	1	3		53.3	-1.5	54.7	54.7	3.0	57.7
AAAA02	2	3		54.2	-1.5	54.7	54.7	3.0	57.7
AAAA02	3	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA02	4	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA02	5	3		54.4	-1.5	54.7	54.7	3.0	57.7
AAAA02	6	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA02	7	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA02	8	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA03	1	5		56.0	2.8	54.7	58.8	2.3	61.1
AAAA03	2	5		56.6	2.8	54.7	59.4	2.3	61.7
AAAA03	3	5		56.9	2.8	54.7	59.7	2.3	62.0
AAAA03	4	5		57.0	2.8	54.7	59.8	2.3	62.1
AAAA03	5	5		57.1	2.8	54.7	59.9	2.3	62.2
AAAA03	6	5		57.0	2.8	54.7	59.8	2.3	62.1
AAAA03	7	5		57.1	2.8	54.7	59.9	2.3	62.2
AAAA03	8	5		57.1	2.8	54.7	59.9	2.3	62.2
AAAA04	9	4		47.8	6.6	54.7	54.7	2.5	57.2
AAAA04	10	4		58.1	6.6	54.7	64.7	2.5	67.2
AAAA04	11	4		58.2	6.6	54.7	64.8	2.5	67.3
AAAA04	16	4		58.2	6.6	54.7	64.8	2.5	67.3
AAAA05	9	4		38.9	6.6	54.7	54.7	2.5	57.2
AAAA05	10	4		44.3	6.6	54.7	54.7	2.5	57.2
AAAA05	11	4		47.8	6.6	54.7	54.7	2.5	57.2
AAAA05	16	4		50.4	6.6	54.7	57.0	2.5	59.5
AAAA06	9	3		44.2	-1.5	54.7	54.7	3.0	57.7
AAAA06	10	3		51.9	-1.5	54.7	54.7	3.0	57.7
AAAA06	11	3		53.3	-1.5	54.7	54.7	3.0	57.7
AAAA06	16	3		54.5	-1.5	54.7	54.7	3.0	57.7
AAAA07	9	5		46.3	2.8	54.7	54.7	2.3	57.0
AAAA07	10	5		55.6	2.8	54.7	58.4	2.3	60.7
AAAA07	11	5		56.7	2.8	54.7	59.5	2.3	61.8
AAAA07	16	5		56.8	2.8	54.7	59.6	2.3	61.9
BBBB	1	3		55.2	-1.5	54.7	54.7	3.0	57.7
BBBB	2	3		57.0	-1.5	54.7	55.5	3.0	58.5
BBBB	3	3		57.4	-1.5	54.7	55.9	3.0	58.9
BBBB	4	3		57.5	-1.5	54.7	56.0	3.0	59.0
BBBB	5	3		57.4	-1.5	54.7	55.9	3.0	58.9
BBBB	6	3		56.3	-1.5	54.7	54.8	3.0	57.8
BBBB	7	3		56.2	-1.5	54.7	54.7	3.0	57.7
BBBB	8	3		56.7	-1.5	54.7	55.2	3.0	58.2
BBBB01	1	2		62.5	4.0	54.7	66.5	-1.2	65.3
BBBB01	2	2		62.5	4.0	54.7	66.5	-1.2	65.3
BBBB01	3	2		62.0	4.0	54.7	66.0	-1.2	64.8
BBBB01	4	2		61.4	4.0	54.7	65.4	-1.2	64.2
BBBB01	5	2		60.7	4.0	54.7	64.7	-1.2	63.5

BBBB01	6	2	[redacted]	60.1	4.0	54.7	64.1	-1.2	62.9
BBBB01	7	2	[redacted]	58.6	4.0	54.7	62.6	-1.2	61.4
BBBB01	8	2	[redacted]	58.4	4.0	54.7	62.4	-1.2	61.2
BBBB02	1	1	[redacted]	61.7	0.3	54.7	62.0	3.7	65.7
BBBB02	2	1	[redacted]	62.7	0.3	54.7	63.0	3.7	66.7
BBBB02	3	1	[redacted]	62.8	0.3	54.7	63.1	3.7	66.8
BBBB02	4	1	[redacted]	62.7	0.3	54.7	63.0	3.7	66.7
BBBB02	5	1	[redacted]	62.4	0.3	54.7	62.7	3.7	66.4
BBBB02	6	1	[redacted]	61.6	0.3	54.7	61.9	3.7	65.6
BBBB02	7	1	[redacted]	61.1	0.3	54.7	61.4	3.7	65.1
BBBB02	8	1	[redacted]	60.7	0.3	54.7	61.0	3.7	64.7
BBBB03	1	5	[redacted]	54.2	2.8	54.7	57.0	2.3	59.3
BBBB03	2	5	[redacted]	54.7	2.8	54.7	57.5	2.3	59.8
BBBB03	3	5	[redacted]	54.8	2.8	54.7	57.6	2.3	59.9
BBBB03	4	5	[redacted]	55.0	2.8	54.7	57.8	2.3	60.1
BBBB03	5	5	[redacted]	55.2	2.8	54.7	58.0	2.3	60.3
BBBB03	6	5	[redacted]	55.2	2.8	54.7	58.0	2.3	60.3
BBBB03	7	5	[redacted]	55.3	2.8	54.7	58.1	2.3	60.4
BBBB03	8	5	[redacted]	55.3	2.8	54.7	58.1	2.3	60.4
BBBB04	9	3	[redacted]	39.4	-1.5	54.7	54.7	3.0	57.7
BBBB04	10	3	[redacted]	50.2	-1.5	54.7	54.7	3.0	57.7
BBBB04	11	3	[redacted]	54.2	-1.5	54.7	54.7	3.0	57.7
BBBB04	16	3	[redacted]	54.4	-1.5	54.7	54.7	3.0	57.7
BBBB05	9	2	[redacted]	44.4	4.0	54.7	54.7	-1.2	53.5
BBBB05	10	2	[redacted]	53.2	4.0	54.7	57.2	-1.2	56.0
BBBB05	11	2	[redacted]	54.5	4.0	54.7	58.5	-1.2	57.3
BBBB05	16	2	[redacted]	56.0	4.0	54.7	60.0	-1.2	58.8
BBBB06	9	1	[redacted]	47.2	0.3	54.7	54.7	3.7	58.4
BBBB06	10	1	[redacted]	56.2	0.3	54.7	56.5	3.7	60.2
BBBB06	11	1	[redacted]	59.5	0.3	54.7	59.8	3.7	63.5
BBBB06	16	1	[redacted]	58.2	0.3	54.7	58.5	3.7	62.2
BBBB07	9	2	[redacted]	46.1	4.0	54.7	54.7	-1.2	53.5
BBBB07	10	2	[redacted]	54.2	4.0	54.7	58.2	-1.2	57.0
BBBB07	11	2	[redacted]	56.2	4.0	54.7	60.2	-1.2	59.0
BBBB07	16	2	[redacted]	58.1	4.0	54.7	62.1	-1.2	60.9
BBBB08	9	2	[redacted]	39.1	4.0	54.7	54.7	-1.2	53.5
BBBB08	10	2	[redacted]	42.6	4.0	54.7	54.7	-1.2	53.5
BBBB08	11	2	[redacted]	47.4	4.0	54.7	54.7	-1.2	53.5
BBBB08	16	2	[redacted]	51.7	4.0	54.7	55.7	-1.2	54.5
BBBB09	9	3	[redacted]	38.7	-1.5	54.7	54.7	3.0	57.7
BBBB09	10	3	[redacted]	41.6	-1.5	54.7	54.7	3.0	57.7
BBBB09	11	3	[redacted]	44.2	-1.5	54.7	54.7	3.0	57.7
BBBB09	16	3	[redacted]	51.6	-1.5	54.7	54.7	3.0	57.7
CCCC	1	8	[redacted]	65.1	1.5	54.7	66.6	2.2	68.8
CCCC	2	8	[redacted]	66.4	1.5	54.7	67.9	2.2	70.1
CCCC	3	8	[redacted]	66.6	1.5	54.7	68.1	2.2	70.3
CCCC	4	8	[redacted]	66.6	1.5	54.7	68.1	2.2	70.3
CCCC	5	8	[redacted]	66.4	1.5	54.7	67.9	2.2	70.1
CCCC	6	8	[redacted]	66.2	1.5	54.7	67.7	2.2	69.9
CCCC	7	8	[redacted]	65.9	1.5	54.7	67.4	2.2	69.6
CCCC	8	8	[redacted]	65.6	1.5	54.7	67.1	2.2	69.3
CCCC01	1	5	[redacted]	55.3	2.8	54.7	58.1	2.3	60.4
CCCC01	2	5	[redacted]	55.7	2.8	54.7	58.5	2.3	60.8
CCCC01	3	5	[redacted]	55.8	2.8	54.7	58.6	2.3	60.9
CCCC01	4	5	[redacted]	55.7	2.8	54.7	58.5	2.3	60.8
CCCC01	5	5	[redacted]	55.6	2.8	54.7	58.4	2.3	60.7
CCCC01	6	5	[redacted]	55.5	2.8	54.7	58.3	2.3	60.6
CCCC01	7	5	[redacted]	55.2	2.8	54.7	58.0	2.3	60.3
CCCC01	8	5	[redacted]	55.0	2.8	54.7	57.8	2.3	60.1
CCCC02	1	3	[redacted]	59.4	-1.5	54.7	57.9	3.0	60.9
CCCC02	2	3	[redacted]	59.8	-1.5	54.7	58.3	3.0	61.3
CCCC02	3	3	[redacted]	59.5	-1.5	54.7	58.0	3.0	61.0
CCCC02	4	3	[redacted]	59.0	-1.5	54.7	57.5	3.0	60.5
CCCC02	5	3	[redacted]	58.5	-1.5	54.7	57.0	3.0	60.0
CCCC02	6	3	[redacted]	57.9	-1.5	54.7	56.4	3.0	59.4
CCCC02	7	3	[redacted]	57.4	-1.5	54.7	55.9	3.0	58.9
CCCC02	8	3	[redacted]	57.0	-1.5	54.7	55.5	3.0	58.5
CCCC03	1	5	[redacted]	57.0	2.8	54.7	59.8	2.3	62.1
CCCC03	2	5	[redacted]	57.7	2.8	54.7	60.5	2.3	62.8
CCCC03	3	5	[redacted]	58.2	2.8	54.7	61.0	2.3	63.3
CCCC03	4	5	[redacted]	58.6	2.8	54.7	61.4	2.3	63.7
CCCC03	5	5	[redacted]	59.0	2.8	54.7	61.8	2.3	64.1
CCCC03	6	5	[redacted]	59.1	2.8	54.7	61.9	2.3	64.2
CCCC03	7	5	[redacted]	59.2	2.8	54.7	62.0	2.3	64.3
CCCC03	8	5	[redacted]	59.2	2.8	54.7	62.0	2.3	64.3
CCCC04	9	8	[redacted]	53.0	1.5	54.7	54.7	2.2	56.9

CCCC04	10	8	[redacted]	65.7	1.5	54.7	67.2	2.2	69.4
CCCC04	11	8	[redacted]	66.8	1.5	54.7	68.3	2.2	70.5
CCCC04	16	8	[redacted]	65.7	1.5	54.7	67.2	2.2	69.4
CCCC04	21	8	[redacted]	64.5	1.5	54.7	66.0	2.2	68.2
CCCC04	26	8	[redacted]	63.3	1.5	54.7	64.8	2.2	67.0
CCCC05	9	5	[redacted]	42.2	2.8	54.7	54.7	2.3	57.0
CCCC05	10	5	[redacted]	50.5	2.8	54.7	54.7	2.3	57.0
CCCC05	11	5	[redacted]	52.1	2.8	54.7	54.9	2.3	57.2
CCCC05	16	5	[redacted]	54.2	2.8	54.7	57.0	2.3	59.3
CCCC05	21	5	[redacted]	53.6	2.8	54.7	56.4	2.3	58.7
CCCC05	26	5	[redacted]	53.1	2.8	54.7	55.9	2.3	58.2
CCCC06	9	3	[redacted]	42.7	-1.5	54.7	54.7	3.0	57.7
CCCC06	10	3	[redacted]	51.7	-1.5	54.7	54.7	3.0	57.7
CCCC06	11	3	[redacted]	52.6	-1.5	54.7	54.7	3.0	57.7
CCCC06	16	3	[redacted]	54.3	-1.5	54.7	54.7	3.0	57.7
CCCC06	21	3	[redacted]	53.6	-1.5	54.7	54.7	3.0	57.7
CCCC06	26	3	[redacted]	53.0	-1.5	54.7	54.7	3.0	57.7
CCCC07	1	3	[redacted]	30.7	-1.5	54.7	54.7	3.0	57.7
CCCC07	9	3	[redacted]	39.0	-1.5	54.7	54.7	3.0	57.7
CCCC07	10	3	[redacted]	41.6	-1.5	54.7	54.7	3.0	57.7
CCCC07	11	3	[redacted]	44.2	-1.5	54.7	54.7	3.0	57.7
CCCC07	16	3	[redacted]	49.9	-1.5	54.7	54.7	3.0	57.7
CCCC07	21	3	[redacted]	51.5	-1.5	54.7	54.7	3.0	57.7
CCCC07	26	3	[redacted]	53.5	-1.5	54.7	54.7	3.0	57.7
CCCC08	9	8	[redacted]	37.3	1.5	54.7	54.7	2.2	56.9
CCCC08	10	8	[redacted]	40.0	1.5	54.7	54.7	2.2	56.9
CCCC08	11	8	[redacted]	42.7	1.5	54.7	54.7	2.2	56.9
CCCC08	16	8	[redacted]	48.1	1.5	54.7	54.7	2.2	56.9
CCCC08	21	8	[redacted]	49.6	1.5	54.7	54.7	2.2	56.9
CCCC08	26	8	[redacted]	50.1	1.5	54.7	54.7	2.2	56.9
CCCC09	9	8	[redacted]	49.5	1.5	54.7	54.7	2.2	56.9
CCCC09	10	8	[redacted]	60.3	1.5	54.7	61.8	2.2	64.0
CCCC09	11	8	[redacted]	62.1	1.5	54.7	63.6	2.2	65.8
CCCC09	16	8	[redacted]	63.2	1.5	54.7	64.7	2.2	66.9
CCCC09	21	8	[redacted]	62.5	1.5	54.7	64.0	2.2	66.2
CCCC09	26	8	[redacted]	61.7	1.5	54.7	63.2	2.2	65.4
DDDD	1	8	[redacted]	66.3	1.5	54.7	67.8	2.2	70.0
DDDD	2	8	[redacted]	68.0	1.5	54.7	69.5	2.2	71.7
DDDD	3	8	[redacted]	68.6	1.5	54.7	70.1	2.2	72.3
DDDD	4	8	[redacted]	68.9	1.5	54.7	70.4	2.2	72.6
DDDD	5	8	[redacted]	69.0	1.5	54.7	70.5	2.2	72.7
DDDD	6	8	[redacted]	68.9	1.5	54.7	70.4	2.2	72.6
DDDD	7	8	[redacted]	68.8	1.5	54.7	70.3	2.2	72.5
DDDD	8	8	[redacted]	68.6	1.5	54.7	70.1	2.2	72.3
DDDD01	1	5	[redacted]	59.2	2.8	54.7	62.0	2.3	64.3
DDDD01	2	5	[redacted]	59.8	2.8	54.7	62.6	2.3	64.9
DDDD01	3	5	[redacted]	60.3	2.8	54.7	63.1	2.3	65.4
DDDD01	4	5	[redacted]	60.8	2.8	54.7	63.6	2.3	65.9
DDDD01	5	5	[redacted]	61.0	2.8	54.7	63.8	2.3	66.1
DDDD01	6	5	[redacted]	61.1	2.8	54.7	63.9	2.3	66.2
DDDD01	7	5	[redacted]	61.1	2.8	54.7	63.9	2.3	66.2
DDDD01	8	5	[redacted]	61.0	2.8	54.7	63.8	2.3	66.1
DDDD02	1	3	[redacted]	62.2	-1.5	54.7	60.7	3.0	63.7
DDDD02	2	3	[redacted]	62.4	-1.5	54.7	60.9	3.0	63.9
DDDD02	3	3	[redacted]	62.1	-1.5	54.7	60.6	3.0	63.6
DDDD02	4	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
DDDD02	5	3	[redacted]	61.1	-1.5	54.7	59.6	3.0	62.6
DDDD02	6	3	[redacted]	60.6	-1.5	54.7	59.1	3.0	62.1
DDDD02	7	3	[redacted]	60.2	-1.5	54.7	58.7	3.0	61.7
DDDD02	8	3	[redacted]	59.8	-1.5	54.7	58.3	3.0	61.3
DDDD03	1	5	[redacted]	67.5	2.8	54.7	70.3	2.3	72.6
DDDD03	2	5	[redacted]	67.5	2.8	54.7	70.3	2.3	72.6
DDDD03	3	5	[redacted]	67.0	2.8	54.7	69.8	2.3	72.1
DDDD03	4	5	[redacted]	66.4	2.8	54.7	69.2	2.3	71.5
DDDD03	5	5	[redacted]	65.9	2.8	54.7	68.7	2.3	71.0
DDDD03	6	5	[redacted]	65.5	2.8	54.7	68.3	2.3	70.6
DDDD03	7	5	[redacted]	65.0	2.8	54.7	67.8	2.3	70.1
DDDD03	8	5	[redacted]	64.6	2.8	54.7	67.4	2.3	69.7
DDDD04	9	8	[redacted]	53.4	1.5	54.7	54.9	2.2	57.1
DDDD04	10	8	[redacted]	65.5	1.5	54.7	67.0	2.2	69.2
DDDD04	11	8	[redacted]	65.4	1.5	54.7	66.9	2.2	69.1
DDDD04	16	8	[redacted]	64.2	1.5	54.7	65.7	2.2	67.9
DDDD05	9	5	[redacted]	46.4	2.8	54.7	54.7	2.3	57.0
DDDD05	10	5	[redacted]	56.5	2.8	54.7	59.3	2.3	61.6
DDDD05	11	5	[redacted]	58.7	2.8	54.7	61.5	2.3	63.8
DDDD05	16	5	[redacted]	60.3	2.8	54.7	63.1	2.3	65.4

DDDD06	9	3	[redacted]	46.8	-1.5	54.7	54.7	3.0	57.7
DDDD06	10	3	[redacted]	52.7	-1.5	54.7	54.7	3.0	57.7
DDDD06	11	3	[redacted]	53.7	-1.5	54.7	54.7	3.0	57.7
DDDD06	16	3	[redacted]	55.4	-1.5	54.7	54.7	3.0	57.7
DDDD07	9	5	[redacted]	48.0	2.8	54.7	54.7	2.3	57.0
DDDD07	10	5	[redacted]	57.7	2.8	54.7	60.5	2.3	62.8
DDDD07	11	5	[redacted]	59.9	2.8	54.7	62.7	2.3	65.0
DDDD07	16	5	[redacted]	62.0	2.8	54.7	64.8	2.3	67.1
EEEE	1	6	[redacted]	69.6	0.6	54.7	70.2	3.4	73.6
EEEE	2	6	[redacted]	70.6	0.6	54.7	71.2	3.4	74.6
EEEE	3	6	[redacted]	70.8	0.6	54.7	71.4	3.4	74.8
EEEE	4	6	[redacted]	70.7	0.6	54.7	71.3	3.4	74.7
EEEE	5	6	[redacted]	70.6	0.6	54.7	71.2	3.4	74.6
EEEE	6	6	[redacted]	70.3	0.6	54.7	70.9	3.4	74.3
EEEE	7	6	[redacted]	70.0	0.6	54.7	70.6	3.4	74.0
EEEE	8	6	[redacted]	69.7	0.6	54.7	70.3	3.4	73.7
EEEE01	1	5	[redacted]	65.0	2.8	54.7	67.8	2.3	70.1
EEEE01	2	5	[redacted]	65.3	2.8	54.7	68.1	2.3	70.4
EEEE01	3	5	[redacted]	64.9	2.8	54.7	67.7	2.3	70.0
EEEE01	4	5	[redacted]	64.6	2.8	54.7	67.4	2.3	69.7
EEEE01	5	5	[redacted]	64.2	2.8	54.7	67.0	2.3	69.3
EEEE01	6	5	[redacted]	63.8	2.8	54.7	66.6	2.3	68.9
EEEE01	7	5	[redacted]	63.4	2.8	54.7	66.2	2.3	68.5
EEEE01	8	5	[redacted]	63.1	2.8	54.7	65.9	2.3	68.2
EEEE02	1	3	[redacted]	57.0	-1.5	54.7	55.5	3.0	58.5
EEEE02	2	3	[redacted]	57.7	-1.5	54.7	56.2	3.0	59.2
EEEE02	3	3	[redacted]	58.0	-1.5	54.7	56.5	3.0	59.5
EEEE02	4	3	[redacted]	57.9	-1.5	54.7	56.4	3.0	59.4
EEEE02	5	3	[redacted]	57.7	-1.5	54.7	56.2	3.0	59.2
EEEE02	6	3	[redacted]	57.4	-1.5	54.7	55.9	3.0	58.9
EEEE02	7	3	[redacted]	57.2	-1.5	54.7	55.7	3.0	58.7
EEEE02	8	3	[redacted]	56.9	-1.5	54.7	55.4	3.0	58.4
EEEE03	1	5	[redacted]	62.7	2.8	54.7	65.5	2.3	67.8
EEEE03	2	5	[redacted]	63.3	2.8	54.7	66.1	2.3	68.4
EEEE03	3	5	[redacted]	64.1	2.8	54.7	66.9	2.3	69.2
EEEE03	4	5	[redacted]	65.6	2.8	54.7	68.4	2.3	70.7
EEEE03	5	5	[redacted]	65.4	2.8	54.7	68.2	2.3	70.5
EEEE03	6	5	[redacted]	65.3	2.8	54.7	68.1	2.3	70.4
EEEE03	7	5	[redacted]	65.1	2.8	54.7	67.9	2.3	70.2
EEEE03	8	5	[redacted]	64.8	2.8	54.7	67.6	2.3	69.9
EEEE04	9	6	[redacted]	57.5	0.6	54.7	58.1	3.4	61.5
EEEE04	10	6	[redacted]	67.5	0.6	54.7	68.1	3.4	71.5
EEEE04	11	6	[redacted]	67.9	0.6	54.7	68.5	3.4	71.9
EEEE04	16	6	[redacted]	67.2	0.6	54.7	67.8	3.4	71.2
EEEE04	21	6	[redacted]	65.9	0.6	54.7	66.5	3.4	69.9
EEEE04	26	6	[redacted]	64.8	0.6	54.7	65.4	3.4	68.8
EEEE04	28	6	[redacted]	64.5	0.6	54.7	65.1	3.4	68.5
EEEE05	9	5	[redacted]	49.5	2.8	54.7	54.7	2.3	57.0
EEEE05	10	5	[redacted]	60.0	2.8	54.7	62.8	2.3	65.1
EEEE05	11	5	[redacted]	61.6	2.8	54.7	64.4	2.3	66.7
EEEE05	16	5	[redacted]	63.4	2.8	54.7	66.2	2.3	68.5
EEEE05	21	5	[redacted]	62.4	2.8	54.7	65.2	2.3	67.5
EEEE05	26	5	[redacted]	61.8	2.8	54.7	64.6	2.3	66.9
EEEE05	28	5	[redacted]	61.4	2.8	54.7	64.2	2.3	66.5
EEEE06	9	3	[redacted]	40.1	-1.5	54.7	54.7	3.0	57.7
EEEE06	11	3	[redacted]	47.5	-1.5	54.7	54.7	3.0	57.7
EEEE06	16	3	[redacted]	53.4	-1.5	54.7	54.7	3.0	57.7
EEEE06	21	3	[redacted]	54.1	-1.5	54.7	54.7	3.0	57.7
EEEE06	26	3	[redacted]	54.8	-1.5	54.7	54.7	3.0	57.7
EEEE06	28	3	[redacted]	54.2	-1.5	54.7	54.7	3.0	57.7
EEEE07	9	5	[redacted]	57.6	2.8	54.7	60.4	2.3	62.7
EEEE07	10	5	[redacted]	62.2	2.8	54.7	65.0	2.3	67.3
EEEE07	11	5	[redacted]	63.2	2.8	54.7	66.0	2.3	68.3
EEEE07	16	5	[redacted]	63.4	2.8	54.7	66.2	2.3	68.5
EEEE07	21	5	[redacted]	62.7	2.8	54.7	65.5	2.3	67.8
EEEE07	26	5	[redacted]	62.0	2.8	54.7	64.8	2.3	67.1
EEEE07	28	5	[redacted]	61.7	2.8	54.7	64.5	2.3	66.8
FFFF	1	5	[redacted]	57.5	2.8	54.7	60.3	2.3	62.6
FFFF	2	5	[redacted]	57.9	2.8	54.7	60.7	2.3	63.0
FFFF	3	5	[redacted]	57.8	2.8	54.7	60.6	2.3	62.9
FFFF	4	5	[redacted]	57.7	2.8	54.7	60.5	2.3	62.8
FFFF	5	5	[redacted]	57.7	2.8	54.7	60.5	2.3	62.8
FFFF	6	5	[redacted]	57.8	2.8	54.7	60.6	2.3	62.9
FFFF	7	5	[redacted]	58.0	2.8	54.7	60.8	2.3	63.1
FFFF	8	5	[redacted]	58.3	2.8	54.7	61.1	2.3	63.4
FFFF01	1	5	[redacted]	37.3	2.8	54.7	54.7	2.3	57.0

FFFF01	2	5	[redacted]	38.3	2.8	54.7	54.7	2.3	57.0
FFFF01	3	5	[redacted]	39.8	2.8	54.7	54.7	2.3	57.0
FFFF01	4	5	[redacted]	42.6	2.8	54.7	54.7	2.3	57.0
FFFF01	5	5	[redacted]	53.9	2.8	54.7	56.7	2.3	59.0
FFFF01	6	5	[redacted]	60.9	2.8	54.7	63.7	2.3	66.0
FFFF01	7	5	[redacted]	60.3	2.8	54.7	63.1	2.3	65.4
FFFF01	8	5	[redacted]	61.1	2.8	54.7	63.9	2.3	66.2
FFFF01	9	5	[redacted]	61.7	2.8	54.7	64.5	2.3	66.8
FFFF01	10	5	[redacted]	62.2	2.8	54.7	65.0	2.3	67.3
FFFF01	11	5	[redacted]	62.5	2.8	54.7	65.3	2.3	67.6
FFFF01	16	5	[redacted]	62.7	2.8	54.7	65.5	2.3	67.8
FFFF02	1	5	[redacted]	62.5	2.8	54.7	65.3	2.3	67.6
FFFF02	2	5	[redacted]	63.2	2.8	54.7	66.0	2.3	68.3
FFFF02	3	5	[redacted]	63.3	2.8	54.7	66.1	2.3	68.4
FFFF02	4	5	[redacted]	63.3	2.8	54.7	66.1	2.3	68.4
FFFF02	5	5	[redacted]	63.2	2.8	54.7	66.0	2.3	68.3
FFFF02	6	5	[redacted]	63.1	2.8	54.7	65.9	2.3	68.2
FFFF02	7	5	[redacted]	62.9	2.8	54.7	65.7	2.3	68.0
FFFF02	8	5	[redacted]	62.6	2.8	54.7	65.4	2.3	67.7
FFFF03	1	5	[redacted]	52.0	2.8	54.7	54.8	2.3	57.1
FFFF03	2	5	[redacted]	54.0	2.8	54.7	56.8	2.3	59.1
FFFF03	3	5	[redacted]	54.1	2.8	54.7	56.9	2.3	59.2
FFFF03	4	5	[redacted]	53.9	2.8	54.7	56.7	2.3	59.0
FFFF03	5	5	[redacted]	53.6	2.8	54.7	56.4	2.3	58.7
FFFF03	6	5	[redacted]	53.2	2.8	54.7	56.0	2.3	58.3
FFFF03	7	5	[redacted]	52.9	2.8	54.7	55.7	2.3	58.0
FFFF03	8	5	[redacted]	53.1	2.8	54.7	55.9	2.3	58.2
FFFF04	1	3	[redacted]	42.2	-1.5	54.7	54.7	3.0	57.7
FFFF04	2	3	[redacted]	43.7	-1.5	54.7	54.7	3.0	57.7
FFFF04	3	3	[redacted]	43.8	-1.5	54.7	54.7	3.0	57.7
FFFF04	4	3	[redacted]	43.8	-1.5	54.7	54.7	3.0	57.7
FFFF04	5	3	[redacted]	43.7	-1.5	54.7	54.7	3.0	57.7
FFFF04	6	3	[redacted]	43.8	-1.5	54.7	54.7	3.0	57.7
FFFF04	7	3	[redacted]	44.8	-1.5	54.7	54.7	3.0	57.7
FFFF04	8	3	[redacted]	48.4	-1.5	54.7	54.7	3.0	57.7
FFFF04	9	3	[redacted]	51.9	-1.5	54.7	54.7	3.0	57.7
FFFF04	10	3	[redacted]	54.9	-1.5	54.7	54.7	3.0	57.7
FFFF04	11	3	[redacted]	56.0	-1.5	54.7	54.7	3.0	57.7
FFFF04	16	3	[redacted]	59.9	-1.5	54.7	58.4	3.0	61.4
FFFF05	1	3	[redacted]	55.9	-1.5	54.7	54.7	3.0	57.7
FFFF05	2	3	[redacted]	56.4	-1.5	54.7	54.9	3.0	57.9
FFFF05	3	3	[redacted]	56.3	-1.5	54.7	54.8	3.0	57.8
FFFF05	4	3	[redacted]	56.2	-1.5	54.7	54.7	3.0	57.7
FFFF05	5	3	[redacted]	55.9	-1.5	54.7	54.7	3.0	57.7
FFFF05	6	3	[redacted]	55.6	-1.5	54.7	54.7	3.0	57.7
FFFF05	7	3	[redacted]	55.3	-1.5	54.7	54.7	3.0	57.7
FFFF05	8	5	[redacted]	55.1	2.8	54.7	57.9	2.3	60.2
FFFF06	9	5	[redacted]	47.5	2.8	54.7	54.7	2.3	57.0
FFFF06	10	5	[redacted]	55.2	2.8	54.7	58.0	2.3	60.3
FFFF06	11	5	[redacted]	56.8	2.8	54.7	59.6	2.3	61.9
FFFF06	16	5	[redacted]	58.3	2.8	54.7	61.1	2.3	63.4
FFFF07	9	5	[redacted]	46.8	2.8	54.7	54.7	2.3	57.0
FFFF07	10	5	[redacted]	53.6	2.8	54.7	56.4	2.3	58.7
FFFF07	11	5	[redacted]	59.0	2.8	54.7	61.8	2.3	64.1
FFFF07	16	5	[redacted]	61.4	2.8	54.7	64.2	2.3	66.5
FFFF08	9	5	[redacted]	46.0	2.8	54.7	54.7	2.3	57.0
FFFF08	10	5	[redacted]	51.0	2.8	54.7	54.7	2.3	57.0
FFFF08	11	5	[redacted]	56.6	2.8	54.7	59.4	2.3	61.7
FFFF08	16	5	[redacted]	61.2	2.8	54.7	64.0	2.3	66.3
FFFF09	9	3	[redacted]	40.4	-1.5	54.7	54.7	3.0	57.7
FFFF09	10	3	[redacted]	48.7	-1.5	54.7	54.7	3.0	57.7
FFFF09	11	3	[redacted]	52.2	-1.5	54.7	54.7	3.0	57.7
FFFF09	16	3	[redacted]	54.0	-1.5	54.7	54.7	3.0	57.7
79	1	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
79	2	3	[redacted]	61.6	-1.5	54.7	60.1	3.0	63.1
79	3	3	[redacted]	61.5	-1.5	54.7	60.0	3.0	63.0
79	4	3	[redacted]	61.2	-1.5	54.7	59.7	3.0	62.7
79	5	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3
79	6	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
79	7	3	[redacted]	60.4	-1.5	54.7	58.9	3.0	61.9
79	8	3	[redacted]	60.5	-1.5	54.7	59.0	3.0	62.0
80	1	3	[redacted]	62.7	-1.5	54.7	61.2	3.0	64.2
80	2	3	[redacted]	62.7	-1.5	54.7	61.2	3.0	64.2
80	3	3	[redacted]	62.1	-1.5	54.7	60.6	3.0	63.6
80	4	3	[redacted]	61.4	-1.5	54.7	59.9	3.0	62.9
80	5	3	[redacted]	60.8	-1.5	54.7	59.3	3.0	62.3

80	6	3	[redacted]	60.3	-1.5	54.7	58.8	3.0	61.8
80	7	3		59.6	-1.5	54.7	58.1	3.0	61.1
81	1	3		59.3	-1.5	54.7	57.8	3.0	60.8
81	2	3		59.4	-1.5	54.7	57.9	3.0	60.9
81	3	3		58.9	-1.5	54.7	57.4	3.0	60.4
81	4	3		58.3	-1.5	54.7	56.8	3.0	59.8
81	5	3		57.7	-1.5	54.7	56.2	3.0	59.2
81	6	3		57.2	-1.5	54.7	55.7	3.0	58.7
82	1	2		62.8	4.0	54.7	66.8	-1.2	65.6
82	2	2		63.1	4.0	54.7	67.1	-1.2	65.9
82	3	2		62.7	4.0	54.7	66.7	-1.2	65.5
82	4	2		62.1	4.0	54.7	66.1	-1.2	64.9
83	1	5		65.5	2.8	54.7	68.3	2.3	70.6
83	2	5		65.6	2.8	54.7	68.4	2.3	70.7
83	3	5		65.0	2.8	54.7	67.8	2.3	70.1
83	4	5		64.3	2.8	54.7	67.1	2.3	69.4

Seward Park

Project Building	Story	Feet	Meter	2016								2017								2018							
				Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4	
Site 1		160	49																								
Site 2		285	87					5	11	16	22	27	33	38	43	49	54	60	65	71	76	81	87				
Site 3		160	49													3	5	8	11	14	16	19	22	24	27	30	33
Site 4		260	79													4	7	11	14	18	22	25	29	32	36	40	43
Site 5		160	49					3	5	8	11	14	16	19	22	24	27	30	33	35	38	41	43	46	49		
Site 6		160	49																								
Site 8		160	49																								
Site 9		160	49																								
Site 10		160	49																								

Project Building	2019								2020								2021							
	Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4	
Site 1	3	6	9	12	15	18	21	24	27	31	34	37	40	43	46	49								
Site 2																								
Site 3	35	38	41	43	46	49																		
Site 4	47	50	54	58	61	65	68	72	76	79														
Site 5																								
Site 6	3	6	9	12	15	18	21	24	27	31	34	37	40	43	46	49								
Site 8											4	8	12	16	20	24	28	33	37	41	45	49		
Site 9											3	7	10	14	17	21	24	28	31	35	38	42	45	49
Site 10											5	10	15	20	24	29	34	39	44	49				

Demolition & Foundation
Shell and Core
Exterior
Interior

Peak Construction Quarter
Minimum Construction Quarter