



THE CITY OF NEW YORK  
OFFICE OF THE MAYOR  
NEW YORK, NY 10007

**Technical Memorandum for the Seward Park Mixed-Use Development  
Project FGEIS**

**CEQR Number 11DME012M  
Technical Memorandum 001**

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**A. INTRODUCTION**

On August 10, 2012 the Office of the Deputy Mayor for Economic Development (ODMED), as Lead Agency, issued a Notice of Completion for the Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS) that was prepared in coordination with the New York City Economic Development Corporation (NYCEDC) and New York City Department of Housing Preservation & Development (HPD). The New York City Council (City Council) has proposed certain modifications to the Uniform Land Use Review Procedure (ULURP) applications (the ~~“Applications”~~ or the ~~“proposed actions”~~) as a result of its review of the Applications.

In addition, HPD has submitted a revised Urban Development Action Area Project (UDAAP) project summary (the ~~“UDAAP Revised Project Summary”~~) to the City Council to be reflected in the City Council’s resolution regarding the project, and the City has stated certain intentions, as reflected in a letter dated September 27, 2012, from Robert K. Steel, Deputy Mayor for Economic Development, to Councilmember Margaret Chin (the ~~“City Letter,”~~ and altogether, the ~~“proposed modifications”~~).

The proposed modifications would increase the number of residential units in the reasonable worst-case development scenario (RWCDS) for the proposed development to 1,000 from the 900 units assessed in the FGEIS and include the potential for a school on Site 5 as part of the RWCDS. The additional 100 residential units would be reflected in the UDAAP Revised Project Summary (and also in a conforming revised project summary submitted to the New York City Department of City Planning [DCP]) and in the notes section of the zoning calculation chart that is part of the approved ULURP drawing set. The Large-Scale General Development (LSGD) ground-floor plans for Zoning Lots 2, 3, and 4 would be revised to eliminate the second waiver to the ground floor frontage requirements. The potential for school use is reflected in the City Letter; while that letter is not part of the approvals for the proposed actions and reflects a statement of intent, the potential for a school to result in additional or different impacts is nevertheless considered herein.

The proposed modifications, which are described and assessed below, would affect the UDAAP Project and the special permit pursuant to ZR Sections 74-743 and 74-744 for an LSGD. The

proposed modifications would not affect: the acquisition of a portion of Site 2 for the sole purpose of the relocated Essex Street Market; the zoning map change; the special permits pursuant to ZR Sections 13-562 and 74-52 to allow the development of up to four parking garages on Sites 2–5; zoning authorization to modify signage regulations; the zoning text amendment; the street mapping and demapping actions; and potential Mayoral and Borough Board approval of the business terms with the developer(s) to be selected pursuant to the Request for Proposals (RFP), as applicable.

This Technical Memorandum describes the proposed modifications and whether they would result in any significant adverse environmental impacts not already identified in the FGEIS. As discussed below, this Technical Memorandum concludes that the proposed modifications would not result in any significant adverse environmental impacts not already identified in the FGEIS. This Technical Memorandum does include an analysis that was not warranted for the FGEIS; as described below, with an additional 100 residential units, the proposed modifications would exceed the CEQR threshold for a detailed analysis of public libraries. As described below, the libraries analysis concluded that the proposed modifications would not result in any significant adverse impacts on public libraries. In terms of transportation, there would be some modest changes to the analyses but the overall findings resulting from the proposed modifications would not be substantially different from those identified in the FGEIS. To preclude the potential for significant adverse impacts on air quality, the analysis below concludes that the heating and hot water system stack for the potential school should be located at least 57 feet away from the proposed residential and commercial development on Site 5. However, as described below, the New York City School Construction Authority (SCA) would further examine the potential environmental effect of the school once a detailed program and a design for a school on Site 5 have been developed, as SCA projects involving the construction of a new school are subject to environmental review pursuant to the State Environmental Quality Review Act (SEQRA). The future SEQRA analysis may determine alternate design features to avoid any significant impacts. The assumption of a public elementary school as part of the RWCDs for the proposed modifications is conceptual, and no school for Site 5 has been designed or funded; SCA will make the final development decisions.

## **B. DESCRIPTION OF THE PROPOSED MODIFICATIONS**

In summary, the proposed modifications would increase the number of residential units in the RWCDs to 1,000 from the 900 units assessed in the FGEIS, include the potential for a school on Site 5 as part of the RWCDs<sup>1</sup>, and revise the LSGD ground floor plans for Zoning Lots 2, 3, and 4 to eliminate the second waiver to the ground floor frontage requirements. The proposed modifications are described below. **Table 1** presents the modified RWCDs program.

### **INCREASE IN THE NUMBER OF RESIDENTIAL UNITS**

To further one of the goals of the proposed actions to allow for the development of a mixed-income residential development, the UDAAP Project would be modified to allow for the development of 1,000 residential units, of which half would be affordable units. The additional 100 units would be dispersed across Sites 1 and 3–6 within the LSGD, because the large floorplates of the proposed developments on those sites would be able to accommodate the additional units. Sites 8, 9, and 10, which are smaller development sites, would not be able to

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<sup>1</sup> The inclusion of a school is for analysis purposes only.

accommodate an increase in residential units. The total gross residential floor area of the RWCDs would not change from that assessed in the FGEIS; it would remain approximately 951,000 gross square feet. Likewise, the residential floor area assumed on the individual development sites would be the same as assessed in the FGEIS. The additional 100 residential units would be reflected in the UDAAP Revised Project Summary (and also in a conforming revised project summary submitted to DCP) and the notes section of the zoning calculation chart that is part of the approved ULURP drawing set.

**Table 1**  
**Modified 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) | School (gsf)  | Other Community Facility (gsf) |
|--------------|-----------------------------------|------------------------------|-------------------|----------------|---------------|-------------------|---------------------|---------------|--------------------------------|
| 1            | 142,708                           | 140,682                      | 74,951            | 60,731         | 0             | 0                 | 0                   | 0             | 5,000                          |
| 2            | 280,410                           | 355,200                      | 0                 | 167,294        | 97,450        | 36,304            | 29,152              | 0             | 25,000                         |
| 3            | 265,038                           | 239,258                      | 168,239           | 71,019         | 0             | 0                 | 0                   | 0             | 0                              |
| 4            | 264,063                           | 344,351                      | 256,663           | 69,688         | 0             | 0                 | 0                   | 0             | 18,000                         |
| 5            | 394,602                           | 343,458                      | 229,603           | 47,855         | 0             | 0                 | 0                   | 66,000        | 0                              |
| 6            | 138,593                           | 107,026                      | 88,101            | 18,925         | 0             | 0                 | 0                   | 0             | 0                              |
| 8            | 44,840                            | 46,652                       | 37,862            | 8,790          | 0             | 0                 | 0                   | 0             | 0                              |
| 9            | 90,384                            | 94,168                       | 75,361            | 18,807         | 0             | 0                 | 0                   | 0             | 0                              |
| 10           | 27,360                            | 26,642                       | 20,402            | 6,240          | 0             | 0                 | 0                   | 0             | 0                              |
| <b>Total</b> | <b>1,647,997</b>                  | <b>1,697,437</b>             | <b>951,182*</b>   | <b>469,349</b> | <b>97,450</b> | <b>36,304</b>     | <b>29,152</b>       | <b>66,000</b> | <b>48,000</b>                  |

**Notes:**  
 \* The modified RWCDs residential program would comprise 1,000 dwelling units, compared to the 900 dwelling units analyzed in the FGEIS. Half (500) of the units would be affordable units. The 100 additional units would be dispersed across Sites 1 and 3–6 of the proposed LSGD.  
 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. Any development beyond the RWCDs analyzed herein would be subject to additional analysis, as required.  
 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.

**INCLUSION OF A POTENTIAL SCHOOL**

The City Letter reflects an intent to reserve approximately 15,000 square feet of land on Site 5 for potential use as a school. For analysis purposes, the RWCDs assumes the development of a 456-seat, 66,000-square-foot public elementary school at this location. For analysis purposes it is assumed that the floor area of the school would be part of the total 114,000 square feet of community facility space assumed as part of the RWCDs assessed in the FGEIS, and the total RWCDs (approximately 1.648 million zoning square feet) would be the same with the proposed modifications as with the proposed actions assessed in the FGEIS. To account for the potential development of a 66,000-square-foot school on Site 5, it is assumed for analysis purposes that 32,000 square feet of community facility space would be shifted from Sites 3, 4, and 6 to Site 5, which included 34,000 square feet of community facility space in the RWCDs assessed in the FGEIS. It is, therefore, assumed for analysis purposes that the total development assumed on each of Sites 3, 4, and 6 would accordingly be less than assessed in the FGEIS.

NYCEDC and HPD would make approximately 15,000 square feet of land available within the LSGD on Site 5 to SCA for the provision of a school. For analysis purposes, a conceptual public elementary school program is being assumed as part of the RWCDs since no school for Site 5

has been designed or funded; SCA will make the final development decisions.<sup>1</sup> However, it is assumed that should SCA develop a public elementary school within the LSGD, it would be designed in accordance with the New York City Department of Education's specifications for new elementary school construction and would include standard school facilities such as classroom, administration, and assembly space, and gymnasium, cafeteria, library, and outdoor play areas. For analysis purposes, it is assumed that the school would have a separate entrance from the other uses developed on Site 5, and the school entrance would be located on Suffolk Street. Further, it is assumed that the school would have a play area on the roof for the exclusive use of students.

SCA projects involving the construction of a new school are subject to environmental review pursuant to SEQRA. Prior to SCA's committing to constructing a school, SCA would further examine the potential environmental effects of the school once the program has been defined and would make appropriate findings at that time.

### **ELIMINATION OF A GROUND FLOOR FRONTAGE WAIVER**

The LSGD ground floor plans for Zoning Lots 2, 3 and 4, which are part of the ULURP drawing set include notes regarding ground floor frontage. The provision requiring a minimum number of storefronts on the ground floor of Delancey and Broome Streets included two exceptions. In order to ensure that ground floor activity on Zoning Lots 2, 3, and 4 is promoted, the City Council proposes to eliminate the exception that gave the City the ability to waive the frontage requirement if the requirement is substantially economically disadvantageous. The proposed modification to the ground floor frontage waiver would not affect the RWCDS program assumptions or the conclusions presented in the FGEIS.

### **C. POTENTIAL IMPACTS OF THE PROPOSED MODIFICATIONS**

The proposed modifications would affect the RWCDS program for the proposed development. Therefore, the potential for new significant adverse impacts in the analysis areas based on the RWCDS program are considered below. However, the proposed modifications would not affect the analysis of greenhouse gas emissions, because the estimate of building operation emissions is based on the residential floor area and not the number of units and is based on a general community facility category that could include a school. The proposed development under the proposed modifications would also include the same sustainable design features assessed in the FGEIS. Furthermore, the proposed modifications would not affect the site plan or RWCDS massing. Accordingly, the proposed modifications would not alter the analyses of shadows, historic and cultural resources, urban design and visual resources, or hazardous materials.

### **LAND USE, ZONING AND PUBLIC POLICY**

As described above, the proposed modifications would add one potential new use to the proposed development—a school. The proposed school use would be in keeping with the uses of the RWCDS program assessed in the FGEIS, which included approximately 114,000 square feet of community facility use, and it would be compatible with the mix of uses in the surrounding study area where there are a number of existing public schools. The proposed school would

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<sup>1</sup> While the school program of 456 seats is conceptual for analysis purposes, it is based on SCA's "Program of Requirements for a Small Primary School Building."

complement the proposed residential uses of the project site and provide a community facility for existing and future neighborhood residents. While the proposed school would be located on a site that would also be developed under the proposed modifications with residential and retail uses, many New York City public schools operate in a dense urban environment surrounded by a mix of uses and populations. Schools are permitted “as of right” under the existing and proposed zoning designations of the proposed development sites. Therefore, the proposed school would be compatible with land uses on the project site and in the study area.

The proposed modifications would also increase the number of residential units by 100 units (of which 50 would be affordable). The additional residential units would not alter the finding of the FGEIS that the proposed project would improve land use conditions by replacing underutilized and deteriorated buildings and surface parking lots with a vibrant, mixed-use development. The additional affordable units would further help address the community’s need for affordable housing and would be supportive of public policies that aim to increase the availability of affordable housing, including the Mayor’s New Market Housing Plan, PlaNYC, and the Community Board 3 redevelopment guidelines for the project site. As discussed above, the proposed modifications would be consistent with surrounding land uses and would be supportive of applicable public policies and would not introduce new discretionary actions that were not assessed in the FGEIS. Therefore, the proposed zoning modifications would not result in any significant adverse impacts on zoning on the development sites or in the study area.

## **SOCIOECONOMIC CONDITIONS**

The FGEIS concluded that there would be no potential significant adverse impacts with respect to any of the six areas of socioeconomic concern—direct residential displacement; direct businesses displacement; indirect residential displacement; indirect businesses displacement due to increased rents; indirect business displacement due to retail market saturation; and adverse effects on specific industries. Similar to the findings of the socioeconomic conditions analysis presented in the FGEIS, the proposed modifications would not result in any significant adverse socioeconomic impacts.

While the total amount of community facility space that would be introduced with the proposed modifications would remain at approximately 114,000 square feet, a portion of the community facility space (66,000 square feet) would be reserved for a public elementary school. This would not alter the finding that the proposed actions would not result in significant adverse socioeconomic impacts. A public elementary school is a community facility use, and as stated in the FGEIS, the addition of community facility uses would not alter existing economic patterns and would, therefore, not result in indirect displacement due to increased rents.

As stated in the FGEIS, the proposed actions would introduce 900 residential units and an estimated 1,989 residents to the study area, for a total population of 46,761 or an increase of 4.44 percent. With the proposed modifications, there would be 100 additional residential units, for a total of 1,000 residential units. Assuming the 2.21 people per household average for Community District 3, the proposed modifications would introduce 2,210 residents to the study area, for a total population of 46,982 or an increase of 4.94 percent.

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. The population increase with the proposed modifications continues to be lower than this 5 percent CEQR threshold. In addition, the 4.94 percent population increase would be substantially similar to the 4.44 percent increase identified in the FGEIS, and therefore the additional population with the

proposed modifications would not be expected to have effects beyond what was described in the FGEIS. Also, the proposed modifications would include 50 additional affordable residential units compared with the program analyzed in the FGEIS, for a total of 500 affordable residential units. These additional affordable housing units would expand housing options available to lower-income residents in the study area, creating more housing opportunities for these residents than the program analyzed in the FGEIS. Therefore, the findings with respect to indirect residential displacement would be unchanged, and the proposed modifications would not result in any significant adverse indirect residential displacement impacts.

## COMMUNITY FACILITIES AND SERVICES

The proposed modifications would result in additional residential development on the project site, which could create additional demand for community facilities and services. The proposed modifications would also include a potential school on Site 5, which would provide additional school capacity for residents of the proposed project and the surrounding area. The FGEIS concluded that the proposed actions would not result in any significant adverse impacts on community facilities. As discussed below, the proposed modifications would also not result in any significant adverse impacts on community facilities.

### *DIRECT EFFECTS ON HEALTH CARE SERVICES*

Like the proposed actions assessed in the FGEIS, the proposed modifications 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 proposed modifications would not result in any other direct effects on health care services. Therefore, the proposed modifications would not alter the FGEIS findings with respect to health care services.

### *PUBLIC SCHOOLS*

The proposed modifications would result in the development of 1,000 residential units in the school study areas. Based on the CEQR student generation rates, the proposed modifications would generate approximately 119 elementary school students and 40 intermediate school students by 2022 (see **Table 2**). This would represent 11 additional elementary students and 4 additional intermediate students compared to the proposed actions.

**Table 2**  
**Estimated Number of Students Introduced in the Study Areas:**  
**2022 Future With the Proposed Modifications**

| Study Area  | Housing Units | Elementary Students | Intermediate Students |
|---|---------------|---------------------|-----------------------|
| Sub-district 1 of CSD 1   | 94            | 11                  | 4                     |
| Sub-district 2 of CSD 1   | 127           | 15                  | 5                     |
| Sub-district 1 of CSD 2   | 779           | 93                  | 31                    |
| Total   | 1,000         | 119                 | 40                    |
| <b>Sources:</b> CEQR Technical Manual (January 2012 edition), Table 6-1a. |               |                     |                       |

**Table 3** below shows the school enrollment, capacity, and utilization in the future with the proposed modifications, without accounting for the additional school capacity that would be provided by the proposed elementary school. As shown, even without the additional elementary school capacity, the proposed modifications would not result in any significant adverse impacts on public elementary or intermediate schools. As with the proposed actions assessed in the FGEIS, elementary schools within the three sub-districts analyzed would operate with a shortage of

seats in 2022, but the proposed modifications 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 or intermediate school utilization rate.

**Table 3**  
**Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization:**  
**2022 Future With the Proposed 1,000 Units**  
**(Conditions Without the Potential Elementary School)**

| Study Area                  | Future No Action Enrollment   | Students Introduced by Proposed Modifications | Total With Action Enrollment | Capacity | Available Seats | Utilization | Increase in Utilization over No Action |
|-----------------------------|---|---|------------------------------|----------|-----------------|-------------|--|
| <b>Elementary Schools</b>   |   |   |                              |          |                 |             |  |
| Sub-district 1 of CSD 1     | 2,245   | 11  | 2,256                        | 1,803    | -453            | 125%        | 1%                                     |
| Sub-district 2 of CSD 1     | 2,561   | 15  | 2,576                        | 2,296    | -280            | 112%        | 1%                                     |
| Sub-district 1 of CSD 2     | 5,949   | 93  | 6,042                        | 4,882*   | -1,160          | 124%        | 2%                                     |
| <b>Intermediate Schools</b> |   |   |                              |          |                 |             |  |
| Sub-district 1 of CSD 1     | 822   | 4   | 826                          | 1,138    | 312             | 73%         | 0%                                     |
| Sub-district 2 of CSD 1     | 958   | 5   | 963                          | 1,047    | 84              | 92%         | 0%                                     |
| Sub-district 1 of CSD 2     | 1,320   | 31  | 1,351                        | 1,144    | -207            | 118%        | 3%                                     |
| <b>Notes:</b>               | * Does not include additional capacity as a result of the potential 456-seat elementary school on Site 5 under the proposed modifications.  |   |                              |          |                 |             |  |
| <b>Sources:</b>             | DOE <i>Enrollment Projections 2009-2018 by the Grier Partnership</i> ; DOE, <i>Utilization Profiles: Enrollment/Capacity/Utilization, 2010-2011</i> , DOE 2010-2014 <i>Five-Year Capital Plan, Proposed Amendment</i> , February 2012; School Construction Authority. |   |                              |          |                 |             |  |

**Table 4** below shows the school enrollment, capacity, and utilization in the future with the proposed modifications accounting for the additional school capacity that would be provided by a potential elementary school. Because this school would be located on Site 5, which is located within Sub-district 1 of CSD 2, it is assumed that it would provide additional capacity for that sub-district. Conditions in all other study areas would remain the same as shown in **Table 3**. As shown, the addition of this new elementary school capacity would improve elementary school conditions in Sub-district 1 of CSD 2 compared to conditions under the proposed actions.

**Table 4**  
**Estimated Public Elementary School Enrollment, Capacity, and Utilization:**  
**2022 Future With the Proposed 1,000 Units**  
**(Conditions With the Potential Elementary School)**

| Study Area*               | Future No Action Enrollment  | Students Introduced by Proposed Modifications | Total With Action Enrollment | Capacity | Available Seats | Utilization | Increase in Utilization over No Action |
|---------------------------|--|---|------------------------------|----------|-----------------|-------------|--|
| <b>Elementary Schools</b> |  |   |                              |          |                 |             |  |
| Sub-district 1 of CSD 2   | 5,949  | 93  | 6,042                        | 5,338**  | -704            | 113%        | -9%                                    |
| <b>Notes:</b>             | *Conditions in all other study areas would remain as shown in Table 3 above.   |   |                              |          |                 |             |  |
| <b>Sources:</b>           | ** Includes additional capacity as a result of a potential 456-seat elementary school on Site 5 under the proposed modifications.<br>DOE <i>Enrollment Projections 2009-2018 by the Grier Partnership</i> ; DOE, <i>Utilization Profiles: Enrollment/Capacity/Utilization, 2010-2011</i> , DOE 2010-2014 <i>Five-Year Capital Plan, Proposed Amendment</i> , February 2012; School Construction Authority. |   |                              |          |                 |             |  |

Overall, because the proposed modifications would increase the elementary and intermediate school utilization rates by less than five percentage points (with or without the proposed elementary school), the CEQR threshold for a potential significant adverse impact, the proposed modifications would not result in a significant adverse impact on public elementary or intermediate schools in any of the sub-districts analyzed. Therefore, the proposed modifications would not alter the FGEIS findings with respect to public elementary and intermediate schools.

### *INDIRECT EFFECTS ON CHILD CARE SERVICES*

The proposed modifications would introduce 500 low- to middle-income units by 2022, which is 50 more units than assessed in the FGEIS. Based on CEQR child care multipliers, this development would generate approximately 58 children under the age of six who would be eligible for publicly funded child care programs, compared to 52 eligible children under the proposed actions as analyzed in the FGEIS.

With the addition of these children, total enrollment at study area child care facilities would increase from 1,856 in the FGEIS to 1,862 compared to a capacity of 1,750 slots. As with the proposed actions in the FGEIS, child care facilities would have a utilization rate of 106 percent in the future with the proposed modifications, which would represent an increase of three percentage points over the No Action condition. 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 five percent of the study area capacity could result in a significant adverse impact. While child care facilities in the study area would operate above capacity, the increase in the utilization rate with the proposed modifications would be less than five percent, and therefore, the project with the proposed modifications would not result in a significant adverse impact on child care facilities. Therefore, the proposed modifications would not alter the FGEIS findings with respect to publicly funded child care facilities.

### *PUBLIC LIBRARIES*

According to the *CEQR Technical Manual*, a detailed analysis of public libraries in Manhattan is warranted if a proposed project would introduce 901 or more residential units. With 1,000 residential units, the proposed modifications would exceed this threshold and a detailed analysis of public libraries is warranted. The FGEIS, which assessed 900 proposed units, did not include an analysis of public libraries.

According to the *CEQR Technical Manual*, service areas for neighborhood branch libraries are based on the distance that residents would travel to use library services, typically not more than 3/4-mile (this is referred to as the library's "catchment area"). This libraries analysis compares the population generated by the proposed modifications with the catchment area population of libraries available within an approximately 3/4-mile area around the project site.

#### *Existing Conditions*

The project site is served by the New York Public Library (NYPL). The NYPL system includes 85 neighborhood branches and four research libraries located in Manhattan, the Bronx, and Staten Island, housing approximately 53 million volumes. (The boroughs of Queens and Brooklyn have separate library systems.)

Six NYPL neighborhood libraries are located within a 3/4-mile of the project site—the Tompkins Square, Seward Park, Hamilton Fish, Mulberry Street, Chatham Square, and Ottendorfer Branch Libraries (see **Figure 1**). **Table 5** below provides the catchment area population for each library and the total catchment area population served by all six libraries. The branch libraries in the study area have a combined total of 394,770 holdings. When compared to the catchment area population of 299,643, this is a holdings-to-resident ratio of 1.32. All of these branch libraries offer a wide selection of reading materials for people of all ages as well as computers with free internet access. They also offer special programs, such as reading hours, book groups, puppet shows, films, lectures, and more. In addition, residents in the area can go to any NYPL branch and order books from any of the other library branches.



**Table 5**  
**Public Libraries Serving the Project Site**

| Map No.*   | Library Name    | Address                 | Holdings       | Catchment Area Population  | Holdings per Resident |
|--|-----------------|-------------------------|----------------|----------------------------|-----------------------|
| 1  | Tompkins Square | 331 East 10th Street    | 52,522         | 135,315                    | 0.39                  |
| 2  | Seward Park     | 192 East Broadway       | 87,902         | 110,608                    | 0.79                  |
| 3  | Hamilton Fish   | 415 East Houston Street | 59,428         | 105,417                    | 0.56                  |
| 4  | Mulberry Street | 10 Jersey Street        | 54,370         | 138,032                    | 0.39                  |
| 5  | Chatham Square  | 33 East Broadway        | 92,278         | 110,543                    | 0.83                  |
| 6  | Ottendorfer     | 135 Second Avenue       | 48,270         | 147,962                    | 0.33                  |
| <b>Total, Combined Catchment Areas:</b>  |                 |                         | <b>394,770</b> | <b>299,643<sup>1</sup></b> | <b>1.32</b>           |
| <b>Notes:</b> * See Figure 1.<br><sup>1</sup> Due to overlapping catchment areas for each library, the total population is less than the sum of the catchment area population for each library. The catchment area population for each library includes the area within ¼-mile of the library. |                 |                         |                |                            |                       |
| <b>Sources:</b> NYPL, July 2012 holdings data; U.S. Census Bureau, 2010 Census, NYC Department of City Planning Selected Facilities and Program Sites.   |                 |                         |                |                            |                       |

#### *The Future Without the Proposed Project*

In the No Action condition, all six libraries will continue to serve the study area. The catchment area population of each library will increase as a result of development projects completed in the future without the proposed project.

Within the combined catchment area, new residential development will introduce 523 new residential units with approximately 1,156 new residents, increasing the combined catchment area population to 300,799. The holdings-per-resident ratio in the combined catchment area will decrease slightly, from 1.32 to 1.31.

#### *The Future With the Proposed Project*

The proposed modifications would result in 1,000 new residential units on the project site, which could introduce approximately 2,210 new residents.<sup>1</sup> With these additional residents, the population of the combined catchment area would increase by approximately 0.7 percent to 303,009. The holdings-per-resident ratio in the combined catchment area will decrease slightly, from 1.31 to 1.30.

According to the *CEQR Technical Manual*, if a proposed project increases the study area population by 5 percent or more as compared with the No Action condition, this increase may impair the delivery of library services in the study area, and a significant adverse impact could occur. Overall, the new population introduced with the proposed modifications would constitute less than a one percent increase in the total catchment area population, and the total holdings per resident would decrease only slightly, from 1.31 to 1.30, compared to the No Action condition. Because of the small increase in population and the fact that residents of the study area would have access to the entire NYPL system through the inter-library loan system, the population introduced with the proposed modifications would not be expected to impair the delivery of library services in the study area. Therefore, the proposed modifications would not result in any significant adverse impacts on public libraries.

<sup>1</sup> The number of residents was calculated based on 1,000 units. A Community District 3 rate of 2.21 residents per unit was applied.

**OPEN SPACE**

The proposed modifications would include an additional 100 residential units, and these new units would increase the number of project-generated residents from 1,989 assessed in the FGEIS to 2,210. Further, with the proposed modifications, there would be a modest decrease of 21 project-generated employees (from the estimated 1,449 employees in the FGEIS to an estimated 1,428 employees) as a result of the substitution of a school for approximately 66,000 square feet of the general community facility space assumed in the FGEIS as part of the RWCDs.

The proposed modifications would not alter the findings of the open space analyses presented in the FGEIS. As shown in **Table 6**, given the lower number of project-generated employees with the proposed modifications compared to the FGEIS, the With-Action open space ratio for workers in the commercial (¼-mile) study area would improve by approximately 0.16 percent (from -11.45 percent in the FGEIS to -11.29 percent). As with the FGEIS, the proposed modifications would continue to result in a decrease in the passive open space for workers in the study area, but the open space ratio would still remain almost five times above the City’s recommended guideline ratio. Therefore, the proposed modifications, like the proposed actions, would not result in any significant adverse impacts on open space resources in the commercial study area

**Table 6**  
**2022 Open Space Ratios Summary**  
**Future with the Proposed Modifications**

| Ratio                             | DCP Guideline | Existing Ratio | No-Action Ratio | With-Action Ratio - FGEIS | With-Action Ratio - Proposed Modifications | Percent Change No-Action to With-Action (FGEIS/Proposed Modifications) |
|-----------------------------------|---------------|----------------|-----------------|---------------------------|--|--|
| <b>Non-Residential Study Area</b> |               |                |                 |                           |  |  |
| Passive/non-residents             | 0.15          | 0.82           | 0.78            | 0.69                      | 0.70                                       | -11.45% / -11.29%  |
| <b>Residential Study Area</b>     |               |                |                 |                           |  |  |
| Total/residents                   | 2.5           | 0.79           | 0.83            | 0.82                      | 0.81                                       | -1.32% / -1.49%  |
| Passive/residents                 | 0.5           | 0.23           | 0.26            | 0.26                      | 0.26                                       | -1.18% / -1.35%  |
| Active/residents                  | 2.0           | 0.56           | 0.57            | 0.56                      | 0.56                                       | -1.38% / -1.55%  |

**Note:** Ratios in acres per 1,000 people.

As shown in **Table 6**, the larger residential population with the proposed modifications would result in a very slight decrease in the total open space ratio compared to the With-Action open space ratio presented in the FGEIS for the ½-mile residential study area. As with the proposed actions, the open space ratios with the proposed modifications would continue to fall short of the City’s recommended open space ratio guidelines. However, the decrease with the proposed modifications would remain 1.55 percent or less and would not constitute a substantial change. Therefore, the proposed modifications would not result in any significant adverse impacts on open space resources in the residential study area.

**WATER AND SEWER INFRASTRUCTURE**

*WATER SUPPLY*

As shown in **Table 7**, the proposed development with the proposed modifications would result in a water demand of 690,195 gallons per day (gpd), which is 20,060 gpd more than the water demand generated by the proposed actions assessed in the FGEIS. With this additional

increment, the total incremental water demand of 676,452 gpd over the No Action condition (described in the FGEIS) generated by the proposed development with the proposed modifications would continue to represent a small increase in demand on the New York City water supply system—approximately 0.06 percent of the 1.1 billion gallons per day (bgd) typically distributed within New York City and Westchester County. As a result, the proposed modifications, like the proposed actions assessed in the FGEIS, would have no significant adverse impacts on the City’s water supply.

**Table 7**  
**Future With the Proposed Modifications Water Consumption**

| Use   | Unit                        | Size<br>(Square feet) | Rate                               | Consumption<br>(gallons per day) |
|---|-----------------------------|-----------------------|------------------------------------|----------------------------------|
| <b>Residential</b>  |                             |                       |                                    |                                  |
| Domestic  | 2,210 (people) <sup>1</sup> | NA                    | 100 gpd/person                     | 221,000                          |
| Air Conditioning  | NA                          | 951,182               | 0.17 gpd/sf                        | 161,701                          |
| <b>Commercial/Office<sup>2</sup></b>  |                             |                       |                                    |                                  |
| Domestic  | NA                          | 84,304                | 0.10 gpd/sf                        | 8,430                            |
| Air Conditioning  | NA                          | 84,304                | 0.17 gpd/sf                        | 14,332                           |
| <b>Retail<sup>3</sup></b>   |                             |                       |                                    |                                  |
| Domestic  | NA                          | 498,501               | 0.24 gpd/sf                        | 119,640                          |
| Air Conditioning  | NA                          | 498,501               | 0.17 gpd/sf                        | 84,745                           |
| <b>Hotel</b>  |                             |                       |                                    |                                  |
| Domestic  | 200 (rooms)                 | NA                    | 120 gpd/room/occupant <sup>4</sup> | 48,000                           |
| Air Conditioning  | NA                          | 97,450                | 0.17 gpd/sf                        | 16,567                           |
| <b>Public School</b>  |                             |                       |                                    |                                  |
| Domestic  | 456 (seats)                 | NA                    | 10 gpd/seat                        | 4,560                            |
| Air Conditioning  | NA                          | 66,000                | 0.17 gpd/sf                        | 11,220                           |
| TOTAL   | NA                          | 1,697,437             | NA                                 | 690,195                          |
| <b>Notes:</b>   |                             |                       |                                    |                                  |
| 1. The number of residents was calculated based on 1,000 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.  |                             |                       |                                    |                                  |
| <b>Source:</b> Rates from <i>CEQR Technical Manual</i> (January 2012 edition).  |                             |                       |                                    |                                  |

### SANITARY SEWAGE

As with the FGEIS, for purposes of this analysis the amount of sanitary sewage generated by the proposed development 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 sanitary sewage that would be generated by the proposed development with the proposed modifications is estimated to be 401,630 gpd, which is 20,060 gpd more than the sewage that would be generated by the proposed actions assessed in the FGEIS. With this additional increment, the total increment of sanitary sewage—393,904 gpd—generated by the proposed development with the proposed modifications over the No Action condition (described in the FGEIS) would represent approximately 0.17 percent of the average daily flow of 230 million gallons per day at the Newtown Creek Wastewater Treatment Plant (WWTP) and would not result in an exceedance of the Newtown Creek WWTP’s capacity. Therefore, the proposed modifications, like the proposed actions assessed in the FGEIS, would not create a significant adverse impact on the City’s sanitary sewage treatment system.

*STORMWATER*

Under the proposed modifications, the surface coverage and weighted runoff coefficient for each combined sewer overflow (CSO) subcatchment area would not change as compared to the program analyzed in the FGEIS.

Following the same methodology used for the FGEIS analysis, the DEP Flow Volume Calculation Matrix was completed for the existing and With-Action conditions. The summary tables, taken from the DEP Flow Volume Calculation Matrix, are included in **Table 8**.

**Table 8**  
**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 (%) |
|--|-------------------------|------------------------------------|-----------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------|--------------------------------------|---|
| <b>NCM-042</b>                                       |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-042 Increment</b>             |   |
|  |                         | 72,354 sf / 1.66 Acres             |                             |                             |                          | 72,354 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00   | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40   | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0203                               | 129   |
| 1.20   | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0603                               | 128   |
| 2.50   | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1059                               | 108   |
| <b>NCM-059</b>                                       |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-059 Increment</b>             |   |
|  |                         | 72,353 sf / 1.66 Acres             |                             |                             |                          | 72,353 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00   | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40   | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0203                               | 129   |
| 1.20   | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0603                               | 128   |
| 2.50   | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1059                               | 108   |
| <b>NCM-060</b>                                       |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-060 Increment</b>             |   |
|  |                         | 72,353 sf / 1.66 Acres             |                             |                             |                          | 72,353 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00   | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40   | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0203                               | 129   |
| 1.20   | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0603                               | 128   |
| 2.50   | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1059                               | 108   |
| <b>NCM-063</b>                                       |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-063 Increment</b>             |   |
|  |                         | 11,535 sf / 0.26 Acres             |                             |                             |                          | 11,535 sf / 0.26 Acres      |                             |                             |                          |                                      |   |
| 0.00   | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.00                        | 0.00                     | 0.0020                               | *   |
| 0.40   | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.00                        | 0.01                     | 0.0023                               | 84  |
| 1.20   | 11.30                   | 0.00                               | 0.01                        | 0.00                        | 0.01                     | 0.00                        | 0.01                        | 0.01                        | 0.02                     | 0.0068                               | 83  |
| 2.50   | 19.50                   | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.01                        | 0.03                     | 0.0121                               | 71  |
| <b>Notes:</b>  |                         |                                    |                             |                             |                          |                             |                             |                             |                          |                                      |   |
| *Percent increase computed for rainfall events only. |                         |                                    |                             |                             |                          |                             |                             |                             |                          |                                      |   |
| ** Assumes no on-site detention/BMPs                 |                         |                                    |                             |                             |                          |                             |                             |                             |                          |                                      |   |
| CSS = Combined Sewer System; MG = Million Gallons    |                         |                                    |                             |                             |                          |                             |                             |                             |                          |                                      |   |

The program and surface coverage analyzed in the FGEIS for Sites 2, 8, 9, and 10 would not change under the proposed modifications.

As shown in **Table 8**, the range of the percent increase in total combined sewer discharge to subcatchment area NCM-042, 059 and 060 increased with the proposed modifications from a range of 103 to 123 percent to a range of 108 to 129 percent. The percent increase in total combined sewer discharge to subcatchment area NCM-063 increased from a range of 64 to 74 percent to a range of 71 to 84 percent.

As with the FGEIS analysis, the Flow Volume Matrix calculations do not 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. These BMPs, as assessed in the FGEIS, 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.

The BMP Concept Plan in the FGEIS summarizes the potential BMPs that would be suitable for implementation within the project site.

Under the proposed modifications, with the incorporation of select BMPs outlined in the BMP Concept Plan documented in the FGEIS, the overall volume of stormwater runoff and the peak stormwater runoff rate would remain the same as compared to the proposed actions assessed in the FGEIS with BMPs incorporated. In conclusion, the proposed modifications, like the proposed actions assessed in the FGEIS, would not result in any significant adverse impacts on wastewater treatment or stormwater conveyance infrastructure.

**SOLID WASTE AND SANITATION SERVICES**

There would be no change to the non-residential solid waste generated by the proposed modifications compared to that generated by the proposed actions assessed in the FGEIS.

As shown in **Table 10**, under the proposed modifications, the proposed development would result in 225,848 pounds (112.9 tons) of solid waste per week, which is 4,610 pounds (or 2.3 tons) per week more than would be produced by the proposed actions assessed in the FGEIS. An estimated 42,992 pounds (21.5 tons) of solid waste per week would be from the residential, school, and community facility uses. That 21.5 tons, which would be collected by the New York City Department of Sanitation (DSNY), would be 4,610 pounds (2.3 tons) per week more than assessed in the FGEIS, but it would result in the same number of up to two added truckloads per week for solid collection services assessed in the FGEIS, as the typical DSNY collection truck has a capacity of 12.5 tons. Therefore, as with the proposed actions, the proposed modifications would not result in a significant adverse impact on solid waste services for DSNY, since only two truckloads—the same as assessed in the FGEIS—would be needed per week.

**Table 10**  
**The Future with the Proposed Modifications: Solid Waste Generation**

| Use   | Program     | Households/<br>Employment/Students | Generation Rate<br>(pounds per week) <sup>1</sup> | Total<br>(pounds per week) |
|---|-------------|------------------------------------|---|----------------------------|
| Residential   | 1,000 units | 1,000 households                   | 41 per household                                  | 41,000                     |
| Office Building   | 36,304 sf   | 145 employees <sup>2</sup>         | 13 per employee                                   | 1,885                      |
| General Retail  | 363,095 sf  | 535 employees <sup>3</sup>         | 79 per employee                                   | 42,265                     |
| Restaurants   | 21,367 sf   | 107 employees <sup>4</sup>         | 251 per employee                                  | 26,857                     |
| Fast Food   | 19,887 sf   | 199 employees <sup>5</sup>         | 200 per employee                                  | 39,800                     |
| Food Stores   | 94,152 sf   | 236 employees <sup>3</sup>         | 284 per employee                                  | 67,024                     |
| Hotel   | 200 rooms   | 67 employees <sup>6</sup>          | 75 per employee                                   | 5,025                      |
| Community Facility  | 48,000 sf   | 48 employees <sup>7</sup>          | 13 per employee                                   | 624                        |
| Elementary School   | 456 seats   | 456 students                       | 3 per pupil                                       | 1,368                      |
| <b>Total</b>  |             |                                    |   | <b>225,848</b>             |
| <b>Notes:</b>   |             |                                    |   |                            |
| 1. Solid waste generation rates as per Table 14-1 in the <i>CEQR Technical Manual</i> (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 2007 <i>Manhattanville in West Harlem Rezoning and Academic Mixed- Use Development FEIS</i> and in the 2008 <i>Willets Point Development Plan FGEIS</i> . |             |                                    |   |                            |

## ENERGY

With the proposed modifications, there would be no change to the estimate of the proposed development's energy consumption disclosed in the FGEIS, as the energy analysis in the FGEIS used the institutional rate for the community facility space and the residential rate was based on floor area and not the number of units. Therefore, with the substitution of a public elementary school for a portion of the community facility space assumed in the FGEIS RWCDs program and the increase in the number of residential units but not of floor area, the proposed development would continue to have a total energy demand of 285.9 billion BTU's per year, and the proposed modifications, like the proposed actions, would not have a significant adverse impact on energy systems and services. In addition, the proposed modifications would not alter the FGEIS assumptions about the inclusion of features aimed at reducing energy consumption and greenhouse gas emissions in the proposed development and the expectation that housing developments on all sites would be certified under the Enterprise Green Communities Program or would incorporate measures that would achieve equivalent energy efficiency levels.

## TRANSPORTATION

A detailed trip generation analysis was performed to estimate the volume of person and vehicle trips generated by the proposed modifications. As described above, the modified program would increase the number of residential units analyzed in the RWCDs to 1,000 from the 900 units assessed in the FGEIS and include a potential school on Site 5. To account for the development of the potential elementary school on Site 5, 32,000 square feet of community facility space would be shifted from Sites 3, 4, and 6 to Site 5, which included 34,000 square feet of community facility space in the RWCDs assessed in the FGEIS. Therefore, as discussed above, the total development assumed on Sites 3, 4, and 6 with the proposed modifications would accordingly be less than assessed in the FGEIS.

Travel demand projections were prepared for each of the proposed development components under the proposed modifications for the weekday AM, midday, PM, and Saturday peak hours. The trips generated by the proposed development assessed in the FGEIS were compared to the proposed modifications to determine if additional quantified analyses were warranted. **Table 11** shows the transportation planning assumptions used in estimating the number of person and vehicle trips. Consistent with *CEQR* requirements and consistent with the travel demand assumptions used in the FGEIS transportation analyses, 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*

Trip generation assumptions for the residential, hotel, office/community office, local retail, destination retail, public market, medical office, and community facility are identical to the assumptions utilized for the FGEIS. Travel demand factors used to calculate trips generated by the potential elementary school are described in detail below.

#### *Elementary School*

For the potential public elementary school included in the RWCDS under the proposed modifications, daily person trip generation rates of 2 person trips per student and per staff for weekday and 0 person trips per student and per staff for Saturday were obtained from the 2012 *New York University (NYU) Core FEIS*. A temporal distribution of 50 percent for the weekday AM peak hour, 0 percent for the midday peak hour, 2.5 percent for the PM peak hour, and 0 percent for the Saturday peak hour for students and for staff were also obtained from the *NYU Core FEIS*. Directional distributions for the weekday AM, midday, and PM, and Saturday peak hours were obtained from the *NYU Core FEIS*. A modal split of 10 percent by auto, 2 percent by taxi, 8 percent by subway, 7 percent by bus, 20 percent by school bus, and 53 percent by walk for student trips were based on the information from the New York Metropolitan Transportation Council (NYMTC) school paired-journey data for Lower Manhattan (adjusted for study area conditions). For the staff trips, 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 for the staff were obtained from the 2000 U.S. Census reverse journey-to-work (RJTW) database. Vehicle occupancy rates of 1.7 per auto, 1.22 passengers by taxi, and 19 passengers by school bus for students were obtained from the *NYU Core FEIS*. Vehicle occupancy rates of 1.25 per auto and 1.4 passengers by taxi for staff were obtained from the 2000 U.S. Census RJTW database.

For truck deliveries, a daily trip generation rate of 0.07 trips per 1,000 square feet for weekday and 0.00 trips per 1,000 square feet for Saturday were obtained from the *NYU Core FEIS*. Temporal and directional distribution factors for truck deliveries were also obtained from the *NYU Core FEIS*.

The total number of person and vehicle trips generated by the development program with the proposed modifications is summarized in **Table 12** and **Table 13**, respectively. As presented in **Table 12**, the development program with the proposed modifications would generate approximately 3,562, 6,123, 6,216, and 7,357 person trips, which is the summation of all trips by all modes, during the weekday AM, midday, PM, and Saturday peak hours, respectively. In terms of vehicle trips, the development program with the proposed modifications would generate approximately 397, 450, 473, and 466 vehicle trips, including both auto trips and taxi trips, during the weekday AM, midday, PM, and Saturday peak hours, respectively (see **Table 13**). In comparison, the development program analyzed in the FGEIS is expected to generate 3,245, 6,375, 6,355, and 7,403 person trips, respectively, and 371, 527, 540, and 496 vehicle trips, respectively, during the weekday AM, midday, PM, and Saturday midday peak hours. As shown in **Tables 14 and 15**, a comparison of the trips expected to be generated by the FGEIS development program versus the development program with the proposed modifications indicates that the person and vehicle trips would be greater for the FGEIS development program during the weekday midday, PM, and Saturday midday peak hours. However, during the weekday AM peak hour, the proposed modifications are expected to generate 317 additional pedestrian trips and 26 additional vehicle trips in comparison to the trips expected to be generated by the FGEIS development program.

**Table 12**  
**Trip Generation Summary**  
**Person Trips – Proposed Modifications**

| Use         |                      | Peak Hour | Person Trips |           |           |            |            |          |            |            |
|-------------|----------------------|-----------|--------------|-----------|-----------|------------|------------|----------|------------|------------|
|             |                      |           | Auto         | Taxi      | Subway    | Bus        | School Bus | Walk     | Total      |            |
| Residential | 1,000 Dwelling Units | AM        | In           | 13        | 2         | 59         | 11         | 0        | 35         | 120        |
|             |                      |           | Out          | 76        | 14        | 336        | 62         | 0        | 199        | 687        |
|             |                      |           | <b>Total</b> | <b>89</b> | <b>16</b> | <b>395</b> | <b>73</b>  | <b>0</b> | <b>234</b> | <b>807</b> |
|             |                      | MD        | In           | 22        | 4         | 99         | 18         | 0        | 59         | 202        |
|             |                      |           | Out          | 22        | 4         | 99         | 18         | 0        | 59         | 202        |
|             |                      |           | <b>Total</b> | <b>44</b> | <b>8</b>  | <b>198</b> | <b>36</b>  | <b>0</b> | <b>118</b> | <b>404</b> |
|             |                      | PM        | In           | 68        | 12        | 305        | 56         | 0        | 180        | 621        |
|             |                      |           | Out          | 29        | 5         | 131        | 24         | 0        | 77         | 266        |
|             |                      |           | <b>Total</b> | <b>97</b> | <b>17</b> | <b>436</b> | <b>80</b>  | <b>0</b> | <b>257</b> | <b>887</b> |
|             |                      | SAT       | In           | 42        | 8         | 188        | 35         | 0        | 111        | 384        |
|             |                      |           | Out          | 42        | 8         | 188        | 35         | 0        | 111        | 384        |
|             |                      |           | <b>Total</b> | <b>84</b> | <b>16</b> | <b>376</b> | <b>70</b>  | <b>0</b> | <b>222</b> | <b>768</b> |
| Hotel       | 200 Rooms            | AM        | In           | 5         | 11        | 14         | 2          | 0        | 27         | 59         |
|             |                      |           | Out          | 8         | 17        | 22         | 3          | 0        | 42         | 92         |
|             |                      |           | <b>Total</b> | <b>13</b> | <b>28</b> | <b>36</b>  | <b>5</b>   | <b>0</b> | <b>69</b>  | <b>151</b> |
|             |                      | MD        | In           | 11        | 21        | 18         | 4          | 0        | 87         | 141        |
|             |                      |           | Out          | 10        | 18        | 16         | 4          | 0        | 74         | 122        |
|             |                      |           | <b>Total</b> | <b>21</b> | <b>39</b> | <b>34</b>  | <b>8</b>   | <b>0</b> | <b>161</b> | <b>263</b> |
|             |                      | PM        | In           | 14        | 29        | 38         | 5          | 0        | 73         | 159        |
|             |                      |           | Out          | 8         | 15        | 21         | 3          | 0        | 39         | 86         |
|             |                      |           | <b>Total</b> | <b>22</b> | <b>44</b> | <b>59</b>  | <b>8</b>   | <b>0</b> | <b>112</b> | <b>245</b> |
|             |                      | SAT       | In           | 9         | 17        | 23         | 3          | 0        | 44         | 96         |
|             |                      |           | Out          | 7         | 13        | 18         | 2          | 0        | 34         | 74         |
|             |                      |           | <b>Total</b> | <b>16</b> | <b>30</b> | <b>41</b>  | <b>5</b>   | <b>0</b> | <b>78</b>  | <b>170</b> |
| Office      | 36.304 KSF           | AM        | In           | 20        | 1         | 28         | 6          | 0        | 17         | 72         |
|             |                      |           | Out          | 1         | 0         | 1          | 0          | 0        | 1          | 3          |
|             |                      |           | <b>Total</b> | <b>21</b> | <b>1</b>  | <b>29</b>  | <b>6</b>   | <b>0</b> | <b>18</b>  | <b>75</b>  |
|             |                      | MD        | In           | 1         | 1         | 3          | 3          | 0        | 39         | 47         |
|             |                      |           | Out          | 1         | 2         | 3          | 3          | 0        | 42         | 51         |
|             |                      |           | <b>Total</b> | <b>2</b>  | <b>3</b>  | <b>6</b>   | <b>6</b>   | <b>0</b> | <b>81</b>  | <b>98</b>  |
|             |                      | PM        | In           | 1         | 0         | 2          | 0          | 0        | 1          | 4          |
|             |                      |           | Out          | 23        | 1         | 32         | 7          | 0        | 20         | 83         |
|             |                      |           | <b>Total</b> | <b>24</b> | <b>1</b>  | <b>34</b>  | <b>7</b>   | <b>0</b> | <b>21</b>  | <b>87</b>  |
|             |                      | SAT       | In           | 0         | 0         | 1          | 1          | 0        | 11         | 13         |
|             |                      |           | Out          | 0         | 0         | 1          | 1          | 0        | 9          | 11         |
|             |                      |           | <b>Total</b> | <b>0</b>  | <b>0</b>  | <b>2</b>   | <b>2</b>   | <b>0</b> | <b>20</b>  | <b>24</b>  |

**Table 12 (cont'd)**  
**Trip Generation Summary**  
**Person Trips – Proposed Modifications**

| Use                |                | Peak Hour | Person Trips |            |            |            |            |          | Total        |              |
|--------------------|----------------|-----------|--------------|------------|------------|------------|------------|----------|--------------|--------------|
|                    |                |           | Auto         | Taxi       | Subway     | Bus        | School Bus | Walk     |              |              |
| Local Retail       | 52.762<br>KSF  | AM        | In           | 2          | 4          | 7          | 7          | 0        | 135          | 155          |
|                    |                |           | Out          | 2          | 4          | 7          | 7          | 0        | 135          | 155          |
|                    |                |           | <b>Total</b> | <b>4</b>   | <b>8</b>   | <b>14</b>  | <b>14</b>  | <b>0</b> | <b>270</b>   | <b>310</b>   |
|                    |                | MD        | In           | 15         | 23         | 46         | 46         | 0        | 853          | 983          |
|                    |                |           | Out          | 15         | 23         | 46         | 46         | 0        | 853          | 983          |
|                    |                |           | <b>Total</b> | <b>30</b>  | <b>46</b>  | <b>92</b>  | <b>92</b>  | <b>0</b> | <b>1,706</b> | <b>1,966</b> |
|                    |                | PM        | In           | 8          | 12         | 24         | 24         | 0        | 449          | 517          |
|                    |                |           | Out          | 8          | 12         | 24         | 24         | 0        | 449          | 517          |
|                    |                |           | <b>Total</b> | <b>16</b>  | <b>24</b>  | <b>48</b>  | <b>48</b>  | <b>0</b> | <b>898</b>   | <b>1,034</b> |
|                    |                | SAT       | In           | 9          | 14         | 28         | 28         | 0        | 526          | 605          |
|                    |                |           | Out          | 9          | 14         | 28         | 28         | 0        | 526          | 605          |
|                    |                |           | <b>Total</b> | <b>18</b>  | <b>28</b>  | <b>56</b>  | <b>56</b>  | <b>0</b> | <b>1,052</b> | <b>1,210</b> |
| Destination Retail | 351.587<br>KSF | AM        | In           | 34         | 15         | 108        | 30         | 0        | 254          | 441          |
|                    |                |           | Out          | 22         | 10         | 69         | 19         | 0        | 162          | 282          |
|                    |                |           | <b>Total</b> | <b>56</b>  | <b>25</b>  | <b>177</b> | <b>49</b>  | <b>0</b> | <b>416</b>   | <b>723</b>   |
|                    |                | MD        | In           | 92         | 41         | 204        | 82         | 0        | 803          | 1,222        |
|                    |                |           | Out          | 75         | 33         | 167        | 67         | 0        | 657          | 999          |
|                    |                |           | <b>Total</b> | <b>167</b> | <b>74</b>  | <b>371</b> | <b>149</b> | <b>0</b> | <b>1,460</b> | <b>2,221</b> |
|                    |                | PM        | In           | 79         | 35         | 249        | 70         | 0        | 587          | 1,020        |
|                    |                |           | Out          | 89         | 39         | 280        | 79         | 0        | 662          | 1,149        |
|                    |                |           | <b>Total</b> | <b>168</b> | <b>74</b>  | <b>529</b> | <b>149</b> | <b>0</b> | <b>1,249</b> | <b>2,169</b> |
|                    |                | SAT       | In           | 126        | 56         | 279        | 112        | 0        | 1,098        | 1,671        |
|                    |                |           | Out          | 116        | 52         | 258        | 103        | 0        | 1,013        | 1,542        |
|                    |                |           | <b>Total</b> | <b>242</b> | <b>108</b> | <b>537</b> | <b>215</b> | <b>0</b> | <b>2,111</b> | <b>3,213</b> |

**Table 12 (cont'd)**  
**Trip Generation Summary**  
**Person Trips – Proposed Modifications**

| Use                       |            | Peak Hour | Person Trips |           |           |           |            |          |              |              |
|---------------------------|------------|-----------|--------------|-----------|-----------|-----------|------------|----------|--------------|--------------|
|                           |            |           | Auto         | Taxi      | Subway    | Bus       | School Bus | Walk     | Total        |              |
| Public Market             | 94.152 KSF | AM        | In           | 7         | 11        | 22        | 22         | 0        | 403          | 465          |
|                           |            |           | Out          | 5         | 8         | 15        | 15         | 0        | 280          | 323          |
|                           |            |           | <b>Total</b> | <b>12</b> | <b>19</b> | <b>37</b> | <b>37</b>  | <b>0</b> | <b>683</b>   | <b>788</b>   |
|                           |            | MD        | In           | 7         | 10        | 20        | 20         | 0        | 377          | 434          |
|                           |            |           | Out          | 8         | 12        | 24        | 24         | 0        | 443          | 511          |
|                           |            |           | <b>Total</b> | <b>15</b> | <b>22</b> | <b>44</b> | <b>44</b>  | <b>0</b> | <b>820</b>   | <b>945</b>   |
|                           |            | PM        | In           | 12        | 17        | 35        | 35         | 0        | 643          | 742          |
|                           |            |           | Out          | 13        | 20        | 39        | 39         | 0        | 725          | 836          |
|                           |            |           | <b>Total</b> | <b>25</b> | <b>37</b> | <b>74</b> | <b>74</b>  | <b>0</b> | <b>1,368</b> | <b>1,578</b> |
|                           |            | SAT       | In           | 15        | 22        | 45        | 45         | 0        | 829          | 956          |
|                           |            |           | Out          | 14        | 22        | 43        | 43         | 0        | 796          | 918          |
|                           |            |           | <b>Total</b> | <b>29</b> | <b>44</b> | <b>88</b> | <b>88</b>  | <b>0</b> | <b>1,625</b> | <b>1,874</b> |
| Medical Office (Staff)    | 43 KSF     | AM        | In           | 27        | 1         | 38        | 8          | 0        | 23           | 97           |
|                           |            |           | Out          | 2         | 0         | 2         | 0          | 0        | 1            | 5            |
|                           |            |           | <b>Total</b> | <b>29</b> | <b>1</b>  | <b>40</b> | <b>8</b>   | <b>0</b> | <b>24</b>    | <b>102</b>   |
|                           |            | MD        | In           | 10        | 0         | 14        | 3          | 0        | 9            | 36           |
|                           |            |           | Out          | 10        | 0         | 14        | 3          | 0        | 9            | 36           |
|                           |            |           | <b>Total</b> | <b>20</b> | <b>0</b>  | <b>28</b> | <b>6</b>   | <b>0</b> | <b>18</b>    | <b>72</b>    |
|                           |            | PM        | In           | 3         | 0         | 5         | 1          | 0        | 3            | 12           |
|                           |            |           | Out          | 25        | 1         | 35        | 7          | 0        | 22           | 90           |
|                           |            |           | <b>Total</b> | <b>28</b> | <b>1</b>  | <b>40</b> | <b>8</b>   | <b>0</b> | <b>25</b>    | <b>102</b>   |
|                           |            | SAT       | In           | 4         | 0         | 6         | 1          | 0        | 4            | 15           |
|                           |            |           | Out          | 4         | 0         | 6         | 1          | 0        | 4            | 15           |
|                           |            |           | <b>Total</b> | <b>8</b>  | <b>0</b>  | <b>12</b> | <b>2</b>   | <b>0</b> | <b>8</b>     | <b>30</b>    |
| Medical Office (Visitors) | 43 KSF     | AM        | In           | 20        | 20        | 24        | 9          | 0        | 8            | 81           |
|                           |            |           | Out          | 1         | 1         | 2         | 1          | 0        | 1            | 6            |
|                           |            |           | <b>Total</b> | <b>21</b> | <b>21</b> | <b>26</b> | <b>10</b>  | <b>0</b> | <b>9</b>     | <b>87</b>    |
|                           |            | MD        | In           | 16        | 16        | 19        | 7          | 0        | 7            | 65           |
|                           |            |           | Out          | 16        | 16        | 19        | 7          | 0        | 7            | 65           |
|                           |            |           | <b>Total</b> | <b>32</b> | <b>32</b> | <b>38</b> | <b>14</b>  | <b>0</b> | <b>14</b>    | <b>130</b>   |
|                           |            | PM        | In           | 2         | 2         | 3         | 1          | 0        | 1            | 9            |
|                           |            |           | Out          | 16        | 16        | 18        | 7          | 0        | 6            | 63           |
|                           |            |           | <b>Total</b> | <b>18</b> | <b>18</b> | <b>21</b> | <b>8</b>   | <b>0</b> | <b>7</b>     | <b>72</b>    |
|                           |            | SAT       | In           | 7         | 7         | 8         | 3          | 0        | 3            | 28           |
|                           |            |           | Out          | 7         | 7         | 8         | 3          | 0        | 3            | 28           |
|                           |            |           | <b>Total</b> | <b>14</b> | <b>14</b> | <b>16</b> | <b>6</b>   | <b>0</b> | <b>6</b>     | <b>56</b>    |

**Table 12 (cont'd)**  
**Trip Generation Summary**  
**Person Trips – Proposed Modifications**

| Use                |           | Peak Hour | Person Trips |            |            |              |            |           | Total        |              |
|--------------------|-----------|-----------|--------------|------------|------------|--------------|------------|-----------|--------------|--------------|
|                    |           |           | Auto         | Taxi       | Subway     | Bus          | School Bus | Walk      |              |              |
| School (Students)  | 456 Seats | AM        | In           | 46         | 9          | 36           | 32         | 91        | 242          | 456          |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>46</b>  | <b>9</b>   | <b>36</b>    | <b>32</b>  | <b>91</b> | <b>242</b>   | <b>456</b>   |
|                    |           | MD        | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>0</b>   | <b>0</b>   | <b>0</b>     | <b>0</b>   | <b>0</b>  | <b>0</b>     | <b>0</b>     |
|                    |           | PM        | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 2          | 0          | 2            | 2          | 5         | 12           | 23           |
|                    |           |           | <b>Total</b> | <b>2</b>   | <b>0</b>   | <b>2</b>     | <b>2</b>   | <b>5</b>  | <b>12</b>    | <b>23</b>    |
|                    |           | SAT       | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>0</b>   | <b>0</b>   | <b>0</b>     | <b>0</b>   | <b>0</b>  | <b>0</b>     | <b>0</b>     |
| School (Staff)     | 46 Staff  | AM        | In           | 13         | 0          | 18           | 4          | 0         | 11           | 46           |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>13</b>  | <b>0</b>   | <b>18</b>    | <b>4</b>   | <b>0</b>  | <b>11</b>    | <b>46</b>    |
|                    |           | MD        | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>0</b>   | <b>0</b>   | <b>0</b>     | <b>0</b>   | <b>0</b>  | <b>0</b>     | <b>0</b>     |
|                    |           | PM        | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 1          | 0          | 1            | 0          | 0         | 1            | 3            |
|                    |           |           | <b>Total</b> | <b>1</b>   | <b>0</b>   | <b>1</b>     | <b>0</b>   | <b>0</b>  | <b>1</b>     | <b>3</b>     |
|                    |           | SAT       | In           | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 0            | 0            |
|                    |           |           | <b>Total</b> | <b>0</b>   | <b>0</b>   | <b>0</b>     | <b>0</b>   | <b>0</b>  | <b>0</b>     | <b>0</b>     |
| Community Facility | 5 KSF     | AM        | In           | 1          | 0          | 0            | 1          | 0         | 9            | 11           |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 6            | 6            |
|                    |           |           | <b>Total</b> | <b>1</b>   | <b>0</b>   | <b>0</b>     | <b>1</b>   | <b>0</b>  | <b>15</b>    | <b>17</b>    |
|                    |           | MD        | In           | 1          | 0          | 0            | 1          | 0         | 11           | 13           |
|                    |           |           | Out          | 1          | 0          | 0            | 1          | 0         | 9            | 11           |
|                    |           |           | <b>Total</b> | <b>2</b>   | <b>0</b>   | <b>0</b>     | <b>2</b>   | <b>0</b>  | <b>20</b>    | <b>24</b>    |
|                    |           | PM        | In           | 0          | 0          | 0            | 0          | 0         | 4            | 4            |
|                    |           |           | Out          | 1          | 0          | 0            | 1          | 0         | 10           | 12           |
|                    |           |           | <b>Total</b> | <b>1</b>   | <b>0</b>   | <b>0</b>     | <b>1</b>   | <b>0</b>  | <b>14</b>    | <b>16</b>    |
|                    |           | SAT       | In           | 0          | 0          | 0            | 0          | 0         | 6            | 6            |
|                    |           |           | Out          | 0          | 0          | 0            | 0          | 0         | 6            | 6            |
|                    |           |           | <b>Total</b> | <b>0</b>   | <b>0</b>   | <b>0</b>     | <b>0</b>   | <b>0</b>  | <b>12</b>    | <b>12</b>    |
| Total              |           | AM        | In           | 188        | 74         | 354          | 132        | 91        | 1,164        | 2,003        |
|                    |           |           | Out          | 117        | 54         | 454          | 107        | 0         | 827          | 1,559        |
|                    |           |           | <b>Total</b> | <b>305</b> | <b>128</b> | <b>808</b>   | <b>239</b> | <b>91</b> | <b>1,991</b> | <b>3,562</b> |
|                    |           | MD        | In           | 175        | 116        | 423          | 184        | 0         | 2,245        | 3,143        |
|                    |           |           | Out          | 158        | 108        | 388          | 173        | 0         | 2,153        | 2,980        |
|                    |           |           | <b>Total</b> | <b>333</b> | <b>224</b> | <b>811</b>   | <b>357</b> | <b>0</b>  | <b>4,398</b> | <b>6,123</b> |
|                    |           | PM        | In           | 187        | 107        | 661          | 192        | 0         | 1,941        | 3,088        |
|                    |           |           | Out          | 215        | 109        | 583          | 193        | 5         | 2,023        | 3,128        |
|                    |           |           | <b>Total</b> | <b>402</b> | <b>216</b> | <b>1,244</b> | <b>385</b> | <b>5</b>  | <b>3,964</b> | <b>6,216</b> |
|                    |           | SAT       | In           | 212        | 124        | 578          | 228        | 0         | 2,632        | 3,774        |
|                    |           |           | Out          | 199        | 116        | 550          | 216        | 0         | 2,502        | 3,583        |
|                    |           |           | <b>Total</b> | <b>411</b> | <b>240</b> | <b>1,128</b> | <b>444</b> | <b>0</b>  | <b>5,134</b> | <b>7,357</b> |

**Table 13**  
**Trip Generation Summary**  
**Vehicle Trips – Proposed Modifications**

| Use                       | Weekday Peak Hours |            |            |            |            |            |            |            |            | Saturday Peak Hour |            |            |
|---------------------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------------|------------|------------|
|                           | AM                 |            |            | Midday     |            |            | PM         |            |            | In                 | Out        | Total      |
|                           | In                 | Out        | Total      | In         | Out        | Total      | In         | Out        | Total      |                    |            |            |
| <b>Autos</b>              |                    |            |            |            |            |            |            |            |            |                    |            |            |
| Residential               | 11                 | 64         | 75         | 19         | 19         | 38         | 58         | 25         | 83         | 36                 | 36         | 72         |
| 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         | 5          | 5          | 10         | 6                  | 6          | 12         |
| Destination Retail        | 17                 | 11         | 28         | 46         | 38         | 84         | 39         | 44         | 83         | 63                 | 58         | 121        |
| Medical Office (Staff)    | 22                 | 1          | 23         | 8          | 8          | 16         | 3          | 20         | 23         | 4                  | 4          | 8          |
| Medical Office (Visitors) | 12                 | 1          | 13         | 10         | 10         | 20         | 1          | 10         | 11         | 4                  | 4          | 8          |
| School (Students)         | 27                 | 27         | 54         | 0          | 0          | 0          | 1          | 1          | 2          | 0                  | 0          | 0          |
| School (Staff)            | 10                 | 0          | 10         | 0          | 0          | 0          | 0          | 1          | 1          | 0                  | 0          | 0          |
| Community Facility        | 0                  | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0                  | 0          | 0          |
| Public Market             | 4                  | 3          | 7          | 4          | 5          | 9          | 7          | 8          | 15         | 9                  | 9          | 18         |
| Deliveries (all uses)     | 15                 | 15         | 30         | 16         | 16         | 32         | 2          | 2          | 4          | 2                  | 2          | 4          |
| Taxis (all uses)          | 59                 | 59         | 118        | 108        | 108        | 216        | 103        | 103        | 206        | 106                | 106        | 212        |
| School Buses (all uses)   | 5                  | 5          | 10         | 0          | 0          | 0          | 0          | 0          | 0          | 0                  | 0          | 0          |
| <b>Total</b>              | <b>203</b>         | <b>194</b> | <b>397</b> | <b>229</b> | <b>221</b> | <b>450</b> | <b>230</b> | <b>243</b> | <b>473</b> | <b>236</b>         | <b>230</b> | <b>466</b> |

**Table 14**  
**Person Trip Comparisons:**  
**Proposed Modifications vs. FGEIS Development Program**

|                                 | Auto |     | Taxi |     | Subway |     | Bus |     | School Bus |     | Walk  |       | Total |       | Total  |
|---------------------------------|------|-----|------|-----|--------|-----|-----|-----|------------|-----|-------|-------|-------|-------|--------|
|                                 | In   | Out | In   | Out | In     | Out | In  | Out | In         | Out | In    | Out   | In    | Out   | In+Out |
| <b>Weekday AM Peak Hour</b>     |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| PM                              | 188  | 117 | 74   | 54  | 354    | 454 | 132 | 107 | 91         | 0   | 1,164 | 827   | 2,003 | 1,559 | 3,562  |
| FGEIS                           | 191  | 114 | 91   | 54  | 376    | 425 | 117 | 103 | 0          | 0   | 960   | 814   | 1,735 | 1,510 | 3,245  |
| Diff.                           | -3   | 3   | -17  | 0   | -22    | 29  | 15  | 4   | 91         | 0   | 204   | 13    | 268   | 49    | 317    |
| <b>Weekday Midday Peak Hour</b> |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| PM                              | 175  | 158 | 116  | 108 | 423    | 388 | 184 | 173 | 0          | 0   | 2,245 | 2,153 | 3,143 | 2,980 | 6,123  |
| FGEIS                           | 205  | 188 | 137  | 129 | 454    | 419 | 196 | 184 | 0          | 0   | 2,278 | 2,185 | 3,270 | 3,105 | 6,375  |
| Diff.                           | -30  | -30 | -21  | -21 | -31    | -31 | -12 | -11 | 0          | 0   | -33   | -32   | -127  | -125  | -252   |
| <b>Weekday PM Peak Hour</b>     |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| PM                              | 187  | 215 | 107  | 109 | 661    | 583 | 192 | 193 | 0          | 5   | 1,941 | 2,023 | 3,088 | 3,128 | 6216   |
| FGEIS                           | 190  | 265 | 109  | 129 | 638    | 641 | 189 | 208 | 0          | 0   | 1,932 | 2,054 | 3,058 | 3,297 | 6355   |
| Diff.                           | -3   | -50 | -2   | -20 | 23     | -58 | 3   | -15 | 0          | 5   | 9     | -31   | 30    | -169  | -139   |
| <b>Saturday Peak Hour</b>       |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| PM                              | 212  | 199 | 124  | 116 | 578    | 550 | 228 | 216 | 0          | 0   | 2,632 | 2,502 | 3,774 | 3,583 | 7357   |
| FGEIS                           | 223  | 210 | 131  | 123 | 576    | 548 | 231 | 219 | 0          | 0   | 2,636 | 2,506 | 3,797 | 3,606 | 7403   |
| Diff.                           | -11  | -11 | -7   | -7  | 2      | 2   | -3  | -3  | 0          | 0   | -4    | -4    | -23   | -23   | -46    |

**Table 15**  
**Vehicle Trip Comparisons:**  
**Proposed Modifications vs. FGEIS Development Program**

|                                 | Auto |     | Taxi |     | Truck |     | School Bus |     | Total |     | Total Trips |
|---------------------------------|------|-----|------|-----|-------|-----|------------|-----|-------|-----|-------------|
|                                 | In   | Out | In   | Out | In    | Out | In         | Out | In    | Out | In+Out      |
| <b>Weekday AM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| PM                              | 124  | 115 | 59   | 59  | 15    | 15  | 5          | 5   | 203   | 194 | 397         |
| FGEIS                           | 131  | 84  | 67   | 67  | 11    | 11  | 0          | 0   | 209   | 162 | 371         |
| Difference                      | -7   | 31  | -8   | -8  | 4     | 4   | 5          | 5   | -6    | 32  | 26          |
| <b>Weekday Midday Peak Hour</b> |      |     |      |     |       |     |            |     |       |     |             |
| PM                              | 105  | 97  | 108  | 108 | 16    | 16  | 0          | 0   | 229   | 221 | 450         |
| FGEIS                           | 124  | 117 | 129  | 129 | 14    | 14  | 0          | 0   | 267   | 260 | 527         |
| Difference                      | -19  | -20 | -21  | -21 | 2     | 2   | 0          | 0   | -38   | -39 | -77         |
| <b>Weekday PM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| PM                              | 125  | 138 | 103  | 103 | 2     | 2   | 0          | 0   | 230   | 243 | 473         |
| FGEIS                           | 124  | 176 | 120  | 120 | 0     | 0   | 0          | 0   | 244   | 296 | 540         |
| Difference                      | 1    | -38 | -17  | -17 | 2     | 2   | 0          | 0   | -14   | -53 | -67         |
| <b>Saturday Peak Hour</b>       |      |     |      |     |       |     |            |     |       |     |             |
| PM                              | 128  | 122 | 106  | 106 | 2     | 2   | 0          | 0   | 236   | 230 | 466         |
| FGEIS                           | 134  | 130 | 116  | 116 | 0     | 0   | 0          | 0   | 250   | 246 | 496         |
| Difference                      | -6   | -8  | -10  | -10 | 2     | 2   | 0          | 0   | -14   | -16 | -30         |

### TRAFFIC

A detailed trip distribution and assignment of projected vehicle trips was prepared for all four peak analysis hours. The assumptions were similar to those used for the FGEIS. Traffic assignments performed for the potential school use consisted of two components—student trips and staff trips. Student auto and taxi trips were assigned to pick up and drop off students in front of the school along Suffolk Street and would be similar to the local retail and public market traffic assignment patterns discussed in the FGEIS. School staff auto and taxi trips were assigned similar to the office use discussed in the FGEIS. The auto trips would be assigned to the parking garage located on Site 5. Figures detailing the traffic volume generated by the proposed modifications are provided in Appendix A, “Transportation,” at the end of this Technical Memorandum.

During the weekday AM peak hour, vehicle trips resulting from the proposed modifications would exceed the FGEIS development program volumes by a modest amount for one or more movements at most of the analysis intersections. Volumes under the proposed modifications would not exceed the FGEIS traffic volumes at any of the analysis intersections during the weekday PM and Saturday peak hours. During the weekday midday peak hour, the proposed modifications would have two traffic movements out of the 119 analyzed with volumes that would exceed the FGEIS development program volumes by just one vehicle.

Based on this analysis, it was concluded that the findings in the FGEIS would remain unchanged during the weekday midday, PM, and the Saturday midday peak hours. Since the weekday AM peak hour would be expected to have a modest increase in volume at the majority of the intersections, a quantitative analysis was performed for the proposed modifications for the weekday AM peak hour at all 30 analysis intersections for the With-Action and Mitigated With-Action conditions. (There would be no changes to the existing and No Action conditions analyses).

Detailed volume-to-capacity (v/c) ratios, average vehicle delay, and levels of service movement-by-movement at each intersection during the weekday AM peak hour for the proposed modifications, and comparisons with the No Action condition, are provided in **Table A-1** located in the appendix. A summary of level of service findings and significant traffic impacts for the 30 intersections analyzed is presented in **Table 16**. As with the FGEIS analysis, the assessment of potential significant adverse traffic impacts resulting from the proposed modifications is based on significant impact criteria defined in the *CEQR Technical Manual*.

**Table 16**  
**Significant Traffic Impact and Mitigation Summary – Weekday AM Peak Hour**

| <b>Intersections</b>                | <b>FGEIS Development Program</b> | <b>Proposed Modifications</b> |
|-------------------------------------|----------------------------------|-------------------------------|
| No significant impact               | 17                               | 17                            |
| Impact could be fully mitigated     | 5                                | 6                             |
| Impact could be partially mitigated | 1                                | 1                             |
| Unmitigated impact                  | 7                                | 6                             |

The analysis of the proposed modifications for the weekday AM peak hour indicates that:

- The number of intersections that are projected to operate at or below overall mid-LOS D would remain the same with the proposed modifications as presented in the FGEIS.
- The number of intersections that are projected to operate at overall LOS E or F would remain the same with the proposed modifications as presented in the FGEIS.
- Overall, 13 of the 30 intersections would have significant impacts for the FGEIS as well as the proposed modifications. Intersections that were impacted as part of the FGEIS would also be impacted as part of the proposed modifications with the following exceptions:
  - The intersection of East Houston Street and Chrystie Street/Second Avenue, which was impacted and unmitigatable in the FGEIS, would not be impacted under the proposed modifications;
  - The intersection of Delancey Street and Norfolk Street would have one less significantly impacted movement under the proposed modifications in comparison to the FGEIS, and would continue to remain unmitigated similar to the FGEIS;
  - The intersection of Grand Street and Essex Street, which was not impacted in the FGEIS, would be impacted under the proposed modifications; and
  - The intersection of Grand Street and Allen Street would have one additional movement that would be significantly impacted under the proposed modifications as compared to the FGEIS.
- Impacts at the intersection Grand Street and Essex Street, and for the additional movement at the intersection of Grand Street and Allen Street, could be mitigated by signal timing modifications.

Thus, the overall findings resulting from the proposed modifications would not be significantly different from those identified in the FGEIS.

*PARKING*

Similar to the FGEIS, the proposed modifications 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 modifications, as well as to replace the number of public parking spaces that could be lost as a result of the proposed modifications. A parking accumulation analysis performed for the



proposed modifications concluded that, similar to the FGEIS, parking demands during the weekday AM, midday, PM and Saturday peak traffic hours would be fully accommodated by the proposed parking garages. **Tables 17 and 18** provide the projected parking accumulation at the proposed garage locations for the weekday and Saturday conditions under the proposed modifications.

**Table 17**  
**Weekday Garage Parking Accumulation**

| 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   | 57     | 1             | 1   | 40     | 2             | 2   | 81     | 2             | 2   | 54     | 7            | 6    | 232    |
| 1 - 2 AM            | 2             | 1   | 58     | 0             | 0   | 40     | 1             | 1   | 81     | 1             | 1   | 54     | 4            | 3    | 233    |
| 2 - 3 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 1             | 1   | 81     | 0             | 0   | 54     | 1            | 1    | 233    |
| 3 - 4 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 54     | 0            | 0    | 233    |
| 4 - 5 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 54     | 0            | 0    | 233    |
| 5 - 6 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 54     | 0            | 0    | 233    |
| 6 - 7 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 1             | 1   | 81     | 1             | 1   | 54     | 2            | 2    | 233    |
| 7 - 8 AM            | 8             | 10  | 56     | 1             | 5   | 36     | 3             | 10  | 74     | 2             | 6   | 50     | 14           | 31   | 216    |
| 8 - 9 AM            | 55            | 30  | 81     | 5             | 14  | 27     | 22            | 28  | 68     | 15            | 17  | 48     | 97           | 89   | 224    |
| 9 - 10 AM           | 44            | 32  | 93     | 5             | 8   | 24     | 17            | 24  | 61     | 4             | 10  | 42     | 70           | 74   | 220    |
| 10 - 11 AM          | 30            | 31  | 92     | 6             | 7   | 23     | 15            | 21  | 55     | 4             | 8   | 38     | 55           | 67   | 208    |
| 11 AM - 12 PM       | 41            | 39  | 94     | 7             | 8   | 22     | 23            | 25  | 53     | 7             | 8   | 37     | 78           | 80   | 206    |
| 12 - 1 PM           | 40            | 40  | 94     | 12            | 10  | 24     | 21            | 21  | 53     | 10            | 9   | 38     | 83           | 80   | 209    |
| 1 - 2 PM            | 55            | 51  | 98     | 12            | 11  | 25     | 26            | 24  | 55     | 11            | 10  | 39     | 104          | 96   | 217    |
| 2 - 3 PM            | 57            | 56  | 99     | 17            | 17  | 25     | 24            | 24  | 55     | 14            | 14  | 39     | 112          | 111  | 218    |
| 3 - 4 PM            | 43            | 47  | 95     | 13            | 14  | 24     | 20            | 20  | 55     | 10            | 18  | 31     | 86           | 99   | 205    |
| 4 - 5 PM            | 39            | 52  | 82     | 14            | 13  | 25     | 22            | 20  | 57     | 13            | 13  | 31     | 88           | 98   | 195    |
| 5 - 6 PM            | 55            | 80  | 57     | 18            | 13  | 30     | 33            | 33  | 57     | 19            | 13  | 37     | 125          | 139  | 181    |
| 6 - 7 PM            | 42            | 46  | 53     | 16            | 14  | 32     | 28            | 22  | 63     | 17            | 12  | 42     | 103          | 94   | 190    |
| 7 - 8 PM            | 43            | 37  | 59     | 15            | 10  | 37     | 24            | 15  | 72     | 16            | 10  | 48     | 98           | 72   | 216    |
| 8 - 9 PM            | 22            | 21  | 60     | 7             | 5   | 39     | 11            | 8   | 75     | 8             | 5   | 51     | 48           | 39   | 225    |
| 9 - 10 PM           | 12            | 20  | 52     | 5             | 7   | 37     | 8             | 8   | 75     | 5             | 6   | 50     | 30           | 41   | 214    |
| 10 - 11 PM          | 6             | 5   | 53     | 3             | 1   | 39     | 6             | 3   | 78     | 4             | 2   | 52     | 19           | 11   | 222    |
| 11 PM - 12 midnight | 5             | 2   | 56     | 2             | 1   | 40     | 5             | 2   | 81     | 3             | 1   | 54     | 15           | 6    | 231    |
| Daily Total         | 601           | 601 | -      | 159           | 159 | -      | 313           | 313 | -      | 166           | 166 | -      | 1239         | 1239 | -      |
| Overnight Demand    | -             | -   | 58     | -             | -   | 40     | -             | -   | 81     | -             | -   | 54     | -            | -    | 233    |

**Table 18**  
**Saturday Garage Parking Accumulation**

| 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   | 57     | 0             | 0   | 40     | 1             | 1   | 81     | 0             | 0   | 48     | 2            | 1    | 226    |
| 1 - 2 AM            | 1             | 0   | 58     | 0             | 0   | 40     | 1             | 1   | 81     | 0             | 0   | 48     | 2            | 1    | 227    |
| 2 - 3 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 48     | 0            | 0    | 227    |
| 3 - 4 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 48     | 0            | 0    | 227    |
| 4 - 5 AM            | 0             | 0   | 58     | 0             | 0   | 40     | 0             | 0   | 81     | 0             | 0   | 48     | 0            | 0    | 227    |
| 5 - 6 AM            | 1             | 1   | 58     | 1             | 1   | 40     | 2             | 2   | 81     | 1             | 1   | 48     | 5            | 5    | 227    |
| 6 - 7 AM            | 0             | 1   | 57     | 0             | 1   | 39     | 1             | 2   | 80     | 0             | 1   | 47     | 1            | 5    | 223    |
| 7 - 8 AM            | 7             | 7   | 57     | 2             | 4   | 37     | 5             | 8   | 77     | 2             | 5   | 44     | 16           | 24   | 215    |
| 8 - 9 AM            | 25            | 12  | 70     | 4             | 5   | 36     | 10            | 10  | 77     | 2             | 6   | 40     | 41           | 33   | 223    |
| 9 - 10 AM           | 24            | 22  | 72     | 4             | 6   | 34     | 11            | 16  | 72     | 2             | 7   | 35     | 41           | 51   | 213    |
| 10 - 11 AM          | 28            | 26  | 74     | 6             | 8   | 32     | 13            | 18  | 67     | 4             | 8   | 31     | 51           | 60   | 204    |
| 11 AM - 12 PM       | 56            | 45  | 85     | 17            | 14  | 35     | 27            | 30  | 64     | 3             | 10  | 24     | 103          | 99   | 208    |
| 12 - 1 PM           | 40            | 41  | 84     | 11            | 13  | 33     | 23            | 25  | 62     | 6             | 7   | 23     | 80           | 86   | 202    |
| 1 - 2 PM            | 50            | 51  | 83     | 16            | 15  | 34     | 26            | 25  | 63     | 7             | 7   | 23     | 99           | 98   | 203    |
| 2 - 3 PM            | 51            | 49  | 85     | 18            | 16  | 36     | 27            | 23  | 67     | 8             | 6   | 25     | 104          | 94   | 213    |
| 3 - 4 PM            | 52            | 46  | 91     | 19            | 16  | 39     | 28            | 22  | 73     | 8             | 6   | 27     | 107          | 90   | 230    |
| 4 - 5 PM            | 60            | 57  | 94     | 19            | 18  | 40     | 30            | 29  | 74     | 8             | 8   | 27     | 117          | 112  | 235    |
| 5 - 6 PM            | 48            | 55  | 87     | 17            | 15  | 42     | 26            | 27  | 73     | 8             | 5   | 30     | 99           | 102  | 232    |
| 6 - 7 PM            | 46            | 51  | 82     | 16            | 15  | 43     | 26            | 22  | 77     | 9             | 5   | 34     | 97           | 93   | 236    |
| 7 - 8 PM            | 40            | 47  | 75     | 15            | 16  | 42     | 24            | 21  | 80     | 10            | 4   | 40     | 89           | 88   | 237    |
| 8 - 9 PM            | 34            | 42  | 67     | 13            | 15  | 40     | 20            | 19  | 81     | 8             | 3   | 45     | 75           | 79   | 233    |
| 9 - 10 PM           | 23            | 34  | 56     | 11            | 11  | 40     | 16            | 16  | 81     | 7             | 4   | 48     | 57           | 65   | 225    |
| 10 - 11 PM          | 6             | 6   | 56     | 2             | 2   | 40     | 5             | 5   | 81     | 3             | 3   | 48     | 16           | 16   | 225    |
| 11 PM - 12 midnight | 3             | 3   | 56     | 1             | 1   | 40     | 2             | 2   | 81     | 1             | 1   | 48     | 7            | 7    | 225    |
| Daily Total         | 596           | 596 | -      | 192           | 192 | -      | 324           | 324 | -      | 97            | 97  | -      | 1209         | 1209 | -      |
| Overnight Demand    | -             | -   | 58     | -             | -   | 40     | -             | -   | 81     | -             | -   | 48     | -            | -    | 227    |

## TRANSIT AND PEDESTRIANS

### Transit

As presented in **Table 12**, the development program with the proposed modifications would generate approximately 808, 811, 1,244, and 1,128 subway trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In terms of bus activity, the development program with the proposed modifications would generate approximately 239, 357, 385, and 444 bus trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In comparison, the development program analyzed in the FGEIS is expected to generate 801, 873, 1,279, and 1,124 subway trips, respectively, and 220, 380, 397, and 450 bus trips, respectively, during the weekday AM, midday, PM, and Saturday midday peak hours. As shown in **Table 14**, the total subway trips resulting from the proposed modifications would imperceptibly (a maximum of 7 trips) exceed those resulting from the FGEIS development program during the weekday AM and Saturday peak hours. Total subway trips under the proposed modifications would not exceed the total subway trips estimated for the FGEIS development program during the weekday midday and PM peak hours (see **Table 14**). A comparison of bus trips expected to be generated by the FGEIS development program versus the proposed modifications indicates that the bus trips would be greater for the FGEIS development program during the weekday midday, PM, and Saturday midday peak hours. However, during the weekday AM peak hour, the proposed modifications are expected to generate an additional 19 bus trips in comparison to the bus trips expected to be generated by the FGEIS development program. These modest additional subway and bus trips would be distributed among the various subway lines and bus routes in the study area.

Based on this comparison and the modest level of additional subway and bus trips generated under the proposed modifications, the findings in the FGEIS would remain unchanged for the weekday AM and PM peak hours—the peak periods of transit analysis in the study area. Thus, similar to the FGEIS, the proposed modifications 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. These impacts could be fully mitigated by increasing the frequency on 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 NYCT’s fiscal and operational constraints and, if implemented, are expected to take place over time. In addition, similar to the FGEIS, the proposed modifications would not result in the potential for significant adverse subway impacts.

### *Pedestrians*

A detailed trip distribution and assignment of projected pedestrian trips was prepared for all four peak analysis hours. The assumptions were similar to those used for the FGEIS. Pedestrian assignments performed for a potential school use consisted of two components—student trips and staff trips. Students were assigned similar to local retail and public market pedestrian assignment patterns discussed in the FGEIS. Student drop-off and pick-up related pedestrian trips were accounted for on the east sidewalk on Suffolk Street between Broome and Grand Streets. Staff auto- and taxi-related pedestrian trips were also assigned similar to the office use discussed in the FGEIS. Figures detailing the pedestrian volumes generated by the proposed modifications are provided in Appendix A, “Transportation.”

As presented in **Table 14**, during the weekday AM peak hour, the total person trips resulting from the proposed modifications would exceed the FGEIS development program by approximately 317 person trips. Total person trips under the proposed modifications would not exceed the total person trips estimated for the FGEIS development program during any of the other three peak hours (see **Table 14**).

Based on this comparison, the findings in the FGEIS would remain unchanged during the weekday midday, PM, and the Saturday midday peak hours. Since the weekday AM peak hour would be expected to have higher person trips with the proposed modifications compared to the development program analyzed in the FGEIS, a quantitative analysis of pedestrian conditions was performed for all of the analysis locations for the With-Action condition. (There would be no changes to the existing and No-Action conditions analyses.)

Detailed levels of service for the sidewalks, crosswalks and corner reservoir elements at each of the pedestrian analysis locations during the weekday AM peak hour for the proposed modifications, and comparisons with the No Action condition, are provided in **Tables A-2 through A-4** located in the appendix. A summary of level of service findings for the sidewalks, crosswalks and corner reservoir elements is presented in **Tables 19 through 21**. As in the FGEIS, the assessment of potential significant adverse pedestrian impacts resulting from the proposed modifications is based on significant impact criteria defined in the *CEQR Technical Manual*.

**Table 19**

**Pedestrian Sidewalk Level of Service Summary Comparison – Weekday AM Peak Hour**

|   | FGEIS Development Program | Proposed Modifications |
|---|---------------------------|------------------------|
| Overall LOS A/B/C                                     | 56                        | 56                     |
| Overall LOS D   | 2                         | 2                      |
| Overall LOS E   | 0                         | 0                      |
| Overall LOS F   | 0                         | 0                      |
| Number of analysis locations with significant impacts | 1                         | 1                      |
| <b>Note:</b> Includes 58 sidewalk analysis locations. |                           |                        |

**Table 20**

**Pedestrian Corner Level of Service Summary Comparison – Weekday AM Peak Hour**

|   | FGEIS Development Program | Proposed Modifications |
|---|---------------------------|------------------------|
| Overall LOS A/B/C                                     | 52                        | 52                     |
| Overall LOS D   | 0                         | 0                      |
| Overall LOS E   | 0                         | 0                      |
| Overall LOS F   | 0                         | 0                      |
| Number of analysis locations with significant impacts | 0                         | 0                      |
| <b>Note:</b> Includes 52 corner analysis locations.   |                           |                        |

**Table 21**

**Pedestrian Crosswalk Level of Service Summary Comparison – Weekday AM Peak Hour**

|  | FGEIS Development Program | Proposed Modifications |
|--|---------------------------|------------------------|
| Overall LOS A/B/C                                      | 29                        | 29                     |
| Overall LOS D  | 0                         | 0                      |
| Overall LOS E  | 1                         | 1                      |
| Overall LOS F  | 0                         | 0                      |
| Number of analysis locations with significant impacts  | 0                         | 0                      |
| <b>Note:</b> Includes 30 crosswalk analysis locations. |                           |                        |

The analysis of pedestrian conditions for the proposed modifications during the weekday AM peak hour indicates that:

- Two of the sidewalks are projected to operate within overall LOS D under the proposed modifications. Of these two sidewalks, one is projected to operate below overall mid-LOS D and the other is projected to operate above overall mid-LOS D. The operating conditions for these two sidewalks under the proposed modifications are consistent with the conclusions presented in the FGEIS.
- None of the sidewalks and corner reservoirs are projected to operate at overall LOS E or F under the proposed modifications consistent with the conclusions presented in the FGEIS;
- One of the crosswalks is projected to operate at overall LOS E under the proposed modifications consistent with the conclusions presented in the FGEIS. Moreover, consistent with the conclusions presented in the FGEIS, this crosswalk would not experience a significant impact;
- Overall, one of the 58 sidewalks would have significant impacts for the FGEIS as well as for the proposed modifications. This west sidewalk of Essex Street between Delancey Street and Broome

Street was impacted in the FGEIS and would also be impacted under the proposed modifications; and

- The impact at the west sidewalk of Essex Street between Delancey Street and Broome Street would be unmitigated under the proposed modifications consistent with the conclusions in the FGEIS.

Thus, the overall findings resulting from the proposed modifications would not be different from those identified in the FGEIS.

#### *Vehicular and Pedestrian Safety*

Similar to the future with the proposed actions assessed in the FGEIS, in the future with the proposed modifications there will be ten high pedestrian accident locations in the study area, as per the statistics for 2008 to 2011 obtained from the New York City Department of Transportation (NYCDOT). 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 presented in the FGEIS, NYCDOT began implementation of a safety plan along the Delancey Street corridor to improve pedestrian, bicycle, and vehicular safety. Once this plan is fully implemented, it is expected that the pedestrian safety conditions at the high accident locations along the Delancey Street corridor will improve. Similar to the future with the proposed actions assessed in the FGEIS, in the future with the proposed modifications, measures that could be implemented for the remaining high pedestrian accident locations 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.

As discussed earlier, the SCA would further examine the potential environmental effect of the potential school once a detailed program and a design for a school on Site 5 have been developed, as SCA projects involving the construction of a new school are subject to environmental review pursuant to SEQRA. At that time, SCA would undertake a comprehensive analysis of the traffic and pedestrian safety conditions resulting from the school as part of their Environmental Assessment. The future SEQRA analysis may determine alternate design features to avoid any significant traffic and pedestrian safety impacts. Furthermore, if warranted, as part of the SEQRA analysis, additional safety improvement measures such as provision of school crosswalks and signage at critical intersections may be recommended to improve traffic and pedestrian safety conditions in the study area.

## **AIR QUALITY**

### *MOBILE SOURCES*

The mobile source analysis conducted for the FGEIS concluded that there would be no potential for significant adverse impacts on air quality from mobile sources. With the proposed modifications, there would be a decrease in project-generated vehicle trips in the midday and PM peak periods and a slight increase in project-generated vehicle trips during the AM peak period. However, the number of AM peak hour trips with the proposed modifications would be below the number of trips analyzed in the FGEIS for the midday and PM peak hours. As the number of vehicle trips would be lower with the proposed modification the effect on air quality

would also be lower than with the program analyzed in the FGEIS, for which it was determined that there would be no significant adverse impacts. Therefore, with the proposed modifications, as with the proposed actions, there would be no potential for significant adverse impacts from mobile sources.

Since there would be no modifications to the proposed parking program analyzed in the FGEIS, the proposed modifications would not alter the FGEIS conclusion that there would be no potential for significant adverse impacts on air quality from the proposed parking garages.

### *STATIONARY SOURCES*

As shown in **Table 1**, there would be no increase in the total floor area of the RWCDs program analyzed in the FGEIS. On Sites 1, 2, 8, 9, and 10, the maximum zoning envelopes and floor areas of the proposed developments would remain the same. On Sites 3, 4, and 6, the floor areas of the proposed developments would slightly decrease, although the maximum zoning envelopes would remain the same. Therefore, with the proposed modifications, there would be no increase in fuel use and resulting emissions on Sites 1, 2, 3, 4, 6, 8, 9, and 10, or cumulatively from all sites, as compared with the RWCDs program analyzed in the FGEIS.

On Site 5, however, there would be an increase of 32,000 community facility square feet. This additional floor area would allow for a potential 66,000-square-foot school on Site 5. It is expected that the school would have its own heating and hot water systems that would exhaust at a height that is lower than the top of the residential and commercial development on Site 5, which would have a total height of 190 feet as assessed in the FGEIS. Therefore, a screening analysis was performed to assess the potential for impacts on air quality from the proposed school's heating and hot water system.

The screening analysis for the proposed school on Site 5 used the methodology described in the *CEQR Technical Manual*. The analysis determines the threshold distance between the heating and hot water system for a proposed building and a sensitive use (e.g., operable window, balcony, publically accessible open space) of a similar or greater height, beyond which there would be no potential for a significant adverse impact on air quality. The screening analysis uses information regarding the type of fuel to be used, the proposed development size, type of development, and the heating and hot water system stack height. When the distance between sensitive uses of concern and the heating and hot water system stack is less than the threshold distance determined from the screening analysis, there is a potential for a significant adverse air quality impact that could further be evaluated using a refined dispersion modeling analysis. Otherwise, the emission source passes the screening analysis, and no further analysis is required.

The screening analysis for the proposed school was based on an assumed exhaust stack height of less than 100 feet, the use of natural gas (which is standard usage for new schools in New York City), and a development size of 66,000 gross square feet. Based on *CEQR Technical Manual* Appendix Figure 17-8, there would be no potential for significant adverse impacts on air quality assuming the school's heating and hot water system stack is located at least 57 feet away from any sensitive use of a similar or greater height. The closest sensitive use would be the proposed residential and commercial development on Site 5. The threshold distance is a guideline to ensure that the future design for the proposed school precludes the potential for significant adverse impacts on air quality; however, SCA would further examine the potential environmental effect of the school once a detailed program and a design for a school on Site 5 have been developed. As described above, SCA projects involving the construction of a new school are subject to environmental review pursuant to SEQRA and, therefore, prior to SCA

committing to acquiring property on Site 5 or elsewhere within the LSGD, appropriate findings regarding the heating and hot water system will be made based on specific design information. The future SEQRA analysis may, therefore, identify alternate design features to avoid any significant impacts.

The proposed residential and commercial floor area on Site 5 would be the same with the proposed modifications as with the proposed actions assessed in the FGEIS. Therefore, with the fuel and stack placement requirements identified in the FGEIS for Site 5, there would be no potential for significant adverse impacts on air quality from the heating and hot water systems for the commercial and residential development on Site 5.

## NOISE

### *INTRODUCTION*

The proposed modifications allow for the development of a school on Site 5, which would be expected to include a rooftop playground. The analysis below examines the potential for noise generated by the potential rooftop playground to result in a significant noise impact.

#### *Playground Impact Definition*

As recommended in the *CEQR Technical Manual*, this study uses the following criteria to define a significant adverse noise impact:

- An increase of 5 dBA, or more, in With-Action  $L_{eq(1)}$  noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those calculated for the No-Action condition, if the No-Action levels are less than 60 dBA  $L_{eq(1)}$  and the analysis period is not a nighttime period.
- An increase of 4 dBA, or more, in With-Action  $L_{eq(1)}$  noise levels at sensitive receptors over those calculated for the No-Action condition, if the No-Action levels are 61 dBA  $L_{eq(1)}$  and the analysis period is not a nighttime period.
- An increase of 3 dBA, or more, in With-Action  $L_{eq(1)}$  noise levels at sensitive receptors over those calculated for the No-Action condition, if the No-Action levels are greater than 62 dBA  $L_{eq(1)}$  and the analysis period is not a nighttime period.
- An increase of 3 dBA, or more, in With-Action  $L_{eq(1)}$  noise levels at sensitive receptors over those calculated for the No-Action condition, if the analysis period is a nighttime period (defined by the *CEQR Technical Manual* criteria as being between 10 PM and 7 AM).

### *NOISE PREDICTION METHODOLOGY*

#### *Noise from the Rooftop Playground*

The potential school included in the RWCDs under the proposed modifications may include a rooftop playground. The analysis results are based on the following assumptions:

- The playground would be located on the roof of the school at a height of approximately 90 feet;
- The rooftop playground would be used by elementary school students (kindergarten to 6th grade); and
- The maximum occupancy for the playground is expected to be approximately 60 children.

The CadnaA model was used to determine sound effects of the proposed playground at development Site 5 and nearby receptors. The CadnaA model is a computerized model developed by DataKustik for sound prediction and assessment. The model can be used for the analysis of a wide variety of sound sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment, etc.), transportation sources (e.g., roads, highways, railroad lines, busways, airports, etc.), and other specialized sources (e.g., sporting facilities, etc.) The model takes into account the sound power levels of the sound sources, 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. The CadnaA model is a state-of-the-art tool for acoustical analysis.

The analysis of the potential school's rooftop playground consisted of the following procedure:

- Street-level noise measurements were made adjacent to Site 5;
- The project site geometry and surrounding building geometry were coded into the CadnaA model;
- Existing noise levels at nearby receptors (both at-grade and elevated) were calculated via the CadnaA model with existing traffic data inputs and adjusted based on the noise measurements;
- The existing noise levels at nearby receptors were conservatively used to represent future noise levels without the proposed modifications, because noise levels in the future without the proposed modifications would be expected to be similar to or slightly above the existing levels;
- Using the playground location assumptions described above (i.e., at a height of approximately 90 feet), the building geometry in the CadnaA model was updated to reflect future conditions with the proposed modifications;
- An area source was created in the CadnaA model for the potential playground. The acoustical parameters of the area source were defined based on noise measurements that were performed at an existing playground similar to the potential playground. The sound power level of the area source created in the CadnaA model was based on measured  $L_{eq(1)}$  noise levels (in dB) from the comparable playground and the number of children assumed to be utilizing the corresponding potential playground at any given time;
- Using the area source to represent the potential playground, the CadnaA model was used to predict noise levels with the proposed modifications at nearby buildings;
- The calculated playground-generated noise levels were combined with the future noise levels as calculated in the FGEIS to determine total noise levels in the future with the rooftop playground; and
- Future noise levels with the proposed modifications were compared to CEQR noise impact criteria to identify any potential noise impacts.

#### *PROBABLE IMPACTS OF THE PROPOSED ACTIONS*

Using the methodology previously described, an assessment was made of potential noise impacts at noise sensitive receptor locations adjacent to the project site. Noise sensitive receptor locations were determined to be located at 384 Grand Street, 50 Norfolk Street, and 60 Norfolk Street. The façades of the commercial and residential development on Sites 3, 4, and 5 with a direct line of sight to the playground were also analyzed for building attenuation purposes. The



façades of these buildings that directly face the potential rooftop playground would have the greatest potential to experience noise generated by the school playground.

*Rooftop Playground Noise*

The analysis shows that for receptors at 384 Grand Street, 50 Norfolk Street, and 60 Norfolk Street, exterior noise levels would increase by 2.9 dBA or less during the hours when the potential playground would be in operation (See Appendix B, “Noise,” at the end of this Technical Memorandum). As in the FGEIS, it was assumed that No-Action noise levels would be the same as the existing noise levels. Noise level increases of this magnitude would be barely perceptible and would not be considered a significant adverse noise impact. Although weekday AM peak hour vehicle trips resulting from the proposed modifications would exceed the FGEIS development program volumes, these increases would be modest and would not generate sufficient traffic to have the potential to cause a significant noise impact (i.e., the project, as modified, would not result in doubling the Noise Passenger Car Equivalents that would be necessary to cause a 3 dBA increase in noise levels).

*PROJECT INTERIOR NOISE LEVELS*

As shown in Table 16-3 of the FGEIS, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior L<sub>10(1)</sub> noise levels in order to maintain interior noise levels of 45 dBA or lower for residential, community facility, and hotel uses and 50 dBA or lower for commercial uses. As shown in Table 16-4 of the FGEIS, HUD guidelines state that buildings must provide sufficient window/wall attenuation to result in L<sub>dn</sub> values less than 45 dBA. Based on measured exterior noise levels, predicted future noise levels due to the potential playground on Site 5, and the CEQR and HUD criteria, the necessary attenuation for each façade of a development on each of the proposed development sites has been calculated. The required attenuation levels for Site 5, which experienced increased noise levels due to the proposed modifications, are shown in **Table 22**. Attenuation requirements for Sites 3 and 4—which as noted above were determined to be sensitive receptor locations with the proposed modifications—would be the same with the proposed modifications as identified in the FGEIS.

**Table 22**  
**Updated Building Attenuation Requirements (in dBA)**

| Dev. Site | Proposed Building Façade Locations | FGEIS Attenuation Required for CEQR <sup>1</sup> | FGEIS Attenuation Required for HUD <sup>1</sup> | Updated Attenuation Required for CEQR <sup>1</sup> | Updated Attenuation Required for HUD <sup>1</sup> |
|-----------|------------------------------------|--|---|--|---|
| 5         | North (facing playground)          | N.A. <sup>2</sup>                                | 23  | 33-39 <sup>3</sup>                                 | 25-31 <sup>3</sup>                                |
|           | West (facing playground)           | 28   | 31  | 31-35 <sup>3</sup>                                 | 28-30 <sup>3</sup>                                |

**Notes:**  
<sup>1</sup> 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.  
<sup>2</sup> The maximum measured L<sub>10</sub> is below 70 dBA, and the *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L<sub>10</sub> values below this level.  
<sup>3</sup> A range of attenuation requirements is presented due to the upper floors being further away from the playground and needing less attenuation. See Appendix 2 for attenuation requirements by floor.

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. As described in the FGEIS, to ensure that there would be no potential for significant adverse noise impacts, prospective developers would be notified of required attenuation

measures through the Request for Proposals (RFPs) to be issued by the City, and these measures would be undertaken by the developer(s) selected pursuant to the RFP(s).

These measures (including the provision for alternate means of ventilation) will be required either by HPD through the Land Disposition Agreement (or loan agreements) between HPD and the selected developer(s) or by NYCEDC through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer(s). All buildings planned to be constructed on development Site 5 would be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating greater than or equal to the attenuation requirements listed in **Table 22**. 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, development pursuant to the proposed modifications on Site 5 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, the HUD interior noise level guidance of 45 dBA  $L_{dn}$  for residential and community facility use. Therefore, with the implementation of these measures there would be no potential for significant adverse noise impacts.

## **PUBLIC HEALTH**

Since there would be no significant unmitigated adverse impacts found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise, the assessment of public health for the proposed modifications, like that for the proposed actions, examines the potential effects of construction-period noise impacts on public health. As described below, the findings of the construction-related noise analyses presented in the FGEIS would remain the same with the proposed modifications. Therefore, the proposed modifications would not change the FGEIS conclusion that there would be no significant adverse environmental impacts with respect to public health.

## **NEIGHBORHOOD CHARACTER**

Since the proposed modifications would not result in new significant adverse impacts on any of the contributing elements that define neighborhood character (land use, urban design, visual resources, historic resources, socioeconomic conditions, shadows, open space, traffic, and noise), they—like the proposed actions assessed in the FGEIS—would not result in any significant adverse impacts on neighborhood character. Rather, the proposed modifications add 100 residential units of which half would be affordable housing units. Also, with the proposed modifications, a portion of the community facility space could be used for a potential school. Therefore, the proposed modifications, like the proposed actions, would improve the character of the neighborhood by replacing underutilized buildings and surface parking lots with new, active mixed-use development.

## **CONSTRUCTION**

Consistent with the proposed modifications, the FGEIS analyzed the potential impacts that would result from construction of approximately 951,000 gsf of residential development, a publicly accessible open space on Site 5, and a total of 114,000 gsf community facilities throughout the project site. Although the FGEIS assumed construction of fewer residential units and a different distribution of community facility space than would occur under the proposed modifications, overall, the general construction practices, equipment, staging, and work hours

would be similar to those described in the FGEIS. The potential school would be of modest size, and its construction activities would not be atypical of other community facilities, which were studied in the FGEIS. In addition, the proposed modifications would not require changes to the conceptual construction schedule presented in the FGEIS. Therefore, the findings of the construction-related analyses (including transportation, air quality, noise and vibration, historic and cultural resources, hazardous materials, open space, socioeconomic conditions, community facilities, and land use and neighborhood character) presented in the FGEIS would remain the same. It is possible that the potential school could be built after completion of the proposed residential and commercial development on Site 5. In such a case, there would be no adverse construction noise impacts on the commercial and residential development on Site 5, because that development would be constructed with facades providing sound attenuation as dictated in the FGEIS analysis and Table 22 of this Technical Memorandum. During any time when the proposed buildings on Site 5 may be occupied, and construction would still be underway at the proposed school, interior noise levels at the Site 5 buildings would, during some times, exceed 45 dBA  $L_{10(1)}$  (the CEQR acceptable interior noise level criteria for residential or academic uses). Such exceedances may be intrusive, but would be only temporary and of limited duration. Consequently, they would not result in any significant impacts. As noted, the analysis of a school as part of the RWCDs for the proposed modifications is conceptual; no school has been designed or funded for Site 5. Decisions by SCA to develop the potential school on Site 5 would be subject to further environmental review pursuant to SEQRA. Accordingly, to the extent that construction of the potential school would be different than anticipated under the RWCDs, any potential impacts that could result from the actual construction program would be subject to further review pursuant to SEQRA.

## CONCLUSIONS

As described above, the proposed modifications to the proposed actions would not result in any significant adverse environmental impacts that were not previously identified in the FGEIS. The proposed modifications would not affect the majority of the environmental impact areas assessed in the FGEIS. For those impact areas that would be affected by the proposed modifications, there would not be any new significant adverse impacts that were not previously disclosed in the FGEIS. \*



Robert R. Kulikowski, Ph.D.  
Assistant to the Mayor

October 1, 2012

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Date

# **APPENDIX A TRANSPORTATION**

# **Level of Service Tables**

**TABLE A-1  
SEWARD PARK PROPOSED MODIFICATIONS  
2022 NO BUILD VS. 2022 BUILD VS. 2022 MITIGATION WEEKDAY AM PEAK HOUR TRAFFIC LEVELS OF SERVICE**

| INTERSECTION & APPROACH  | 2022 No Build |             |               |          | 2022 Build |             |               |          | 2022 Build with Mitigation |             |               |          | Mitigation Measures |   |
|--|---------------|-------------|---------------|----------|------------|-------------|---------------|----------|----------------------------|-------------|---------------|----------|---------------------|---|
|  | Mvt.          | V/C         | Control Delay | LOS      | Mvt.       | V/C         | Control Delay | LOS      | Mvt.                       | V/C         | Control Delay | LOS      |                     |   |
| <b>SIGNALIZED INTERSECTIONS</b>                                  |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| <b>EAST HOUSTON STREET</b>                                       |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| <b>1 EAST HOUSTON STREET AND BOWERY</b>                          |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| East Houston Street  | EB            | L           | 0.28          | 30.5     | C          | L           | 0.28          | 30.9     | C                          | L           | 0.30          | 31.5     | 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          | 0.69          | 29.4     | C          | TR          | 0.71          | 30.0     | C                          | TR          | 0.69          | 28.7     | C                   |   |
| Bowery   | WB            | L           | 0.69          | 30.4     | C          | L           | 0.71          | 31.3     | C                          | L           | 0.72          | 31.8     | C                   |   |
|  |               | TR          | 1.05          | 58.3     | E          | TR          | 1.08          | 70.2     | E                          | TR          | 1.04          | 55.3     | E                   |   |
|  | 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          | 0.92          | 41.3     | D                          | TR          | 0.92          | 41.3     | D                   |   |
|  | SB            | L           | 0.32          | 26.3     | C          | L           | 0.32          | 26.3     | C                          | L           | 0.32          | 26.3     | C                   |   |
|  |               | TR          | 0.92          | 42.8     | D          | TR          | 0.92          | 42.8     | D                          | TR          | 0.92          | 42.8     | D                   |   |
| <b>Overall Intersection</b>                                      | -             | <b>0.97</b> | <b>44.1</b>   | <b>D</b> | -          | <b>0.98</b> | <b>48.4</b>   | <b>D</b> | -                          | <b>0.99</b> | <b>43.1</b>   | <b>D</b> |                     |   |
| <b>2 EAST HOUSTON STREET AND CHRYSTIE STREET / SECOND AVENUE</b> |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| East Houston Street  | EB            | T           | 0.57          | 29.4     | C          | T           | 0.59          | 29.7     | C                          |             |               |          |                     | - Mitigation not required.<br>[Intersection was not unmitigatable in the FEIS]  |
|  |               | R           | 0.82          | 49.4     | D          | R           | 0.86          | 53.5     | D                          |             |               |          |                     |   |
| Chrystie Street / Second Avenue                                  | 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                          |             |               |          |                     |   |
|  | 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          | 35.8     | D                          |             |               |          |                     |   |
|  | R             | 1.01        | 64.0          | E        | R          | 1.01        | 64.0          | E        |                            |             |               |          |                     |   |
| <b>Overall Intersection</b>                                      | -             | <b>0.90</b> | <b>39.0</b>   | <b>D</b> | -          | <b>0.91</b> | <b>39.7</b>   | <b>D</b> |                            |             |               |          |                     |   |
| <b>3 EAST HOUSTON STREET AND ALLEN STREET / FIRST AVENUE</b>     |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| East Houston Street  | EB            | L           | 0.90          | 42.4     | D          | L           | 0.90          | 42.2     | D                          | L           | 0.94          | 47.3     | D                   | - Partially Mitigated<br>- 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           | 0.88          | 34.2     | C                          | T           | 0.88          | 34.2     | C                   |   |
| Allen Street   |               | 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          | 26.4     | C                   |   |
|  |               | TR          | 1.13          | 101.3    | F          | TR          | 1.16          | 114.7    | F                          | TR          | 1.16          | 114.7    | F                   |   |
|  | NB            | L           | 0.70          | 37.6     | D          | L           | 0.75          | 39.6     | D                          | L           | 0.71          | 37.2     | D                   |   |
|  |               | T           | 1.10          | 90.7     | F          | T           | 1.11          | 96.5     | F                          | T           | 1.06          | 77.7     | E                   |   |
|  |               | R           | 0.41          | 32.5     | C          | R           | 0.41          | 32.5     | C                          | R           | 0.39          | 31.2     | C                   |   |
| <b>Overall Intersection</b>                                      | -             | <b>1.13</b> | <b>66.0</b>   | <b>E</b> | -          | <b>1.13</b> | <b>71.3</b>   | <b>E</b> | -                          | <b>1.13</b> | <b>67.5</b>   | <b>E</b> |                     |   |
| <b>4 EAST HOUSTON STREET AND ESSEX STREET / AVENUE A</b>         |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| 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                   |   |
| Essex Street / Avenue A  | WB            | L           | 0.64          | 22.7     | C          | L           | 0.65          | 23.3     | 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                   |   |
|  | NB            | LTR         | 0.77          | 35.0     | C          | LTR         | 0.80          | 36.3     | D                          | LTR         | 0.76          | 33.7     | C                   |   |
|  | SB            | LTR         | 0.97          | 50.5     | D          | LTR         | 1.04          | 67.5     | E                          | LTR         | 0.97          | 50.1     | D                   |   |
| <b>Overall Intersection</b>                                      | -             | <b>0.87</b> | <b>31.8</b>   | <b>C</b> | -          | <b>0.91</b> | <b>35.0</b>   | <b>C</b> | -                          | <b>0.90</b> | <b>33.3</b>   | <b>C</b> |                     |   |
| <b>STANTON STREET</b>  |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| <b>5 STANTON STREET AND ESSEX STREET</b>                         |               |             |               |          |            |             |               |          |                            |             |               |          |                     |   |
| 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          | 0.34          | 12.1     | B                          |             |               |          |                     |   |
|  |               | SB          | LT            | 0.39     | 12.4       | B           | LT            | 0.41     | 12.7                       | B           |               |          |                     |   |
| <b>Overall Intersection</b>                                      | -             | <b>0.33</b> | <b>13.1</b>   | <b>B</b> | -          | <b>0.34</b> | <b>13.3</b>   | <b>B</b> |                            |             |               |          |                     |   |

**TABLE A-1  
SEWARD PARK PROPOSED MODIFICATIONS  
2022 NO BUILD VS. 2022 BUILD VS. 2022 MITIGATION WEEKDAY AM PEAK HOUR TRAFFIC LEVELS OF SERVICE**

| INTERSECTION & APPROACH                      | 2022 No Build |     |               |             | 2022 Build |     |               |             | 2022 Build with Mitigation |          |               |      | Mitigation Measures |  |                            |          |
|--|---------------|-----|---------------|-------------|------------|-----|---------------|-------------|----------------------------|----------|---------------|------|---------------------|--|----------------------------|----------|
|  | Mvt.          | V/C | Control Delay | LOS         | Mvt.       | V/C | Control Delay | LOS         | Mvt.                       | V/C      | Control Delay | LOS  |                     |  |                            |          |
| <b>6 STANTON STREET AND NORFOLK STREET</b>   |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| 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  | 0.53          | 21.3        | C                          |          |               |      |                     |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>0.34</b>   | <b>18.6</b> | <b>B</b>   | -   |               | <b>0.38</b> | <b>19.8</b>                | <b>B</b> |               |      |                     |  |                            |          |
| <b><u>RIVINGTON STREET</u></b>               |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| <b>7 RIVINGTON STREET AND ESSEX STREET</b>   |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| Rivington Street                             | WB            | LTR | 1.07          | 92.4        | F          | LTR | 1.19          | 136.8       | F                          | LTR      | 1.08          | 92.6 | F                   | - 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.<br>- 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.<br>- 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          | 12.0        | B                          | LT       | 0.70          | 19.4 | B                   |  |                            |          |
|  | SB            | TR  | 0.35          | 12.2        | B          | TR  | 0.37          | 12.5        | B                          | TR       | 0.37          | 14.1 | B                   |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>0.63</b>   | <b>39.4</b> | <b>D</b>   | -   |               | <b>0.69</b> | <b>55.5</b>                | <b>E</b> | -             |      | <b>0.86</b>         |  | <b>43.1</b>                | <b>D</b> |
| <b>8 RIVINGTON STREET AND NORFOLK STREET</b> |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| Rivington Street                             | WB            | TR  | 0.69          | 26.4        | C          | TR  | 0.71          | 27.0        | C                          |          |               |      |                     |  | - Mitigation not required. |          |
| Norfolk Street                               | NB            | LT  | 0.45          | 18.1        | B          | LT  | 0.56          | 19.6        | B                          |          |               |      |                     |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>0.57</b>   | <b>22.5</b> | <b>C</b>   | -   |               | <b>0.64</b> | <b>23.3</b>                | <b>C</b> |               |      |                     |  |                            |          |
| <b><u>DELANCEY STREET</u></b>                |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| <b>9 DELANCEY STREET AND ALLEN STREET</b>    |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| Delancey Street                              | EB            | TR  | 0.98          | 40.4        | D          | TR  | 1.01          | 47.8        | D                          |          |               |      |                     | - Unmitigatable Impact   |                            |          |
|  | WB            | L   | 0.82          | 48.0        | D          | L   | 0.84          | 50.1        | D                          |          |               |      |                     |  |                            |          |
|  | TR            |     | 1.08          | 64.6        | E          | TR  | 1.10          | 68.9        | E                          |          |               |      |                     |  |                            |          |
| Allen Street                                 | NB            | T   | 0.67          | 33.4        | C          | T   | 0.70          | 34.4        | C                          |          |               |      |                     |  |                            |          |
|  | R             |     | 0.23          | 9.0         | A          | R   | 0.24          | 9.1         | A                          |          |               |      |                     |  |                            |          |
|  | SB            | TR  | 0.55          | 31.1        | C          | TR  | 0.56          | 31.4        | C                          |          |               |      |                     |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>0.96</b>   | <b>49.6</b> | <b>D</b>   | -   |               | <b>0.98</b> | <b>53.9</b>                | <b>D</b> |               |      |                     |  |                            |          |
| <b>10 DELANCEY STREET AND ORCHARD STREET</b> |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| Delancey Street                              | EB            | T   | 0.45          | 12.0        | B          | T   | 0.46          | 12.1        | 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                          |          |               |      |                     |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>0.62</b>   | <b>17.0</b> | <b>B</b>   | -   |               | <b>0.63</b> | <b>17.1</b>                | <b>B</b> |               |      |                     |  |                            |          |
| <b>11 DELANCEY STREET AND LUDLOW STREET</b>  |               |     |               |             |            |     |               |             |                            |          |               |      |                     |  |                            |          |
| Delancey Street                              | EB            | TR  | 0.47          | 12.5        | B          | TR  | 0.49          | 12.7        | B                          |          |               |      |                     | - Unmitigatable Impact   |                            |          |
|  | WB            | T   | 1.14          | 85.3        | F          | T   | 1.15          | 88.1        | F                          |          |               |      |                     |  |                            |          |
| Ludlow Street                                | SB            | LTR | 0.78          | 42.0        | D          | LTR | 0.87          | 51.9        | D                          |          |               |      |                     |  |                            |          |
| <b>Overall Intersection</b>                  | -             |     | <b>1.01</b>   | <b>57.5</b> | <b>E</b>   | -   |               | <b>1.04</b> | <b>59.5</b>                | <b>E</b> |               |      |                     |  |                            |          |

**TABLE A-1  
SEWARD PARK PROPOSED MODIFICATIONS  
2022 NO BUILD VS. 2022 BUILD VS. 2022 MITIGATION WEEKDAY AM PEAK HOUR TRAFFIC LEVELS OF SERVICE**

| INTERSECTION & APPROACH                      | 2022 No Build        |      |       |      | 2022 Build |      |       |       | 2022 Build with Mitigation |      |       |      | Mitigation Measures |  |
|--|----------------------|------|-------|------|------------|------|-------|-------|----------------------------|------|-------|------|---------------------|--|
|  | Mvt.                 | V/C  | Delay | LOS  | Mvt.       | V/C  | Delay | LOS   | Mvt.                       | V/C  | Delay | LOS  |                     |  |
| <b>12 DELANCEY STREET AND ESSEX STREET</b>   |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| Delancey Street                              | EB                   | TR   | 0.51  | 12.9 | B          | TR   | 0.53  | 13.1  | 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   | 0.77  | 50.2  | D                          |      |       |      |                     |  |
|  | R                    |      | 0.80  | 57.7 | E          | R    | 0.99  | 95.8  | F                          |      |       |      |                     |  |
|  | SB                   | TR   | 0.82  | 42.2 | D          | TR   | 0.91  | 51.0  | D                          |      |       |      |                     |  |
|  | Overall Intersection | -    | 1.06  | 62.0 | E          | -    | 1.11  | 64.7  | E                          |      |       |      |                     |  |
| <b>13 DELANCEY STREET AND NORFOLK STREET</b> |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| 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   | 1.04  | 44.0  | D                          |      |       |      |                     |  |
| Norfolk Street                               | NB                   | TR   | 0.74  | 35.7 | D          | TR   | 0.89  | 48.6  | D                          |      |       |      |                     |  |
|  | R                    |      | 0.71  | 34.6 | C          | R    | 0.88  | 47.5  | D                          |      |       |      |                     |  |
| Overall Intersection                         | -                    | 0.92 | 29.3  | C    | -          | 0.99 | 34.6  | C     |                            |      |       |      |                     |  |
| <b>14 DELANCEY STREET AND SUFFOLK STREET</b> |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| Delancey Street                              | EB                   | TR   | 0.74  | 16.3 | B          | TR   | 0.82  | 18.1  | B                          |      |       |      |                     | - Mitigation not required.   |
|  | WB                   | T    | 0.94  | 20.0 | C          | T    | 0.95  | 20.4  | C                          |      |       |      |                     |  |
| Suffolk Street                               | SB                   | R    | 0.21  | 23.0 | C          | R    | 0.26  | 24.3  | C                          |      |       |      |                     |  |
|  | Overall Intersection | -    | 0.67  | 18.4 | B          | -    | 0.69  | 19.4  | B                          |      |       |      |                     |  |
| <b>15 DELANCEY STREET AND CLINTON STREET</b> |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| 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     | 1.25  | 137.0                      | F    |       |      |                     |  |
| Delancey Street Service Road                 | R                    |      | 0.86  | 28.8 | C          | R    | 0.87  | 29.8  | C                          |      |       |      |                     |  |
|  | Clinton Street       | WB   | R     | 2.05 | 571.1      | F    | R     | 2.05  | 571.1                      | F    |       |      |                     |  |
| Overall Intersection                         | -                    | 1.15 | 78.9  | E    | -          | 1.16 | 81.3  | F     |                            |      |       |      |                     |  |
| <b>BROOME STREET</b>                         |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| <b>16 BROOME STREET AND ESSEX STREET</b>     |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| 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 | 27.6                |  |
| Overall Intersection                         | SB                   | L    | 0.92  | 44.6 | D          | L    | 1.25  | 153.0 | F                          | L    | 0.79  | 21.3 | C                   |  |
|  | T                    |      | 0.33  | 12.3 | B          | T    | 0.33  | 12.3  | B                          | T    | 0.31  | 10.0 | A                   |  |
|  | -                    | 0.63 | 21.7  | C    | -          | 0.85 | 56.5  | E     | -                          | 0.53 | 21.8  | C    |                     |  |
| <b>17 BROOME STREET AND NORFOLK STREET</b>   |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| Broome Street                                | EB                   | L    | 0.43  | 14.0 | B          | L    | 0.69  | 21.7  | 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    | 0.70  | 28.5  | C                          |      |       |      |                     |  |
|  | Overall Intersection | -    | 0.47  | 18.2 | B          | -    | 0.70  | 23.5  | C                          |      |       |      |                     |  |
| <b>GRAND STREET</b>                          |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| <b>18 GRAND STREET AND ALLEN STREET</b>      |                      |      |       |      |            |      |       |       |                            |      |       |      |                     |  |
| Grand Street                                 | EB                   | LTR  | 0.88  | 33.5 | C          | LTR  | 0.98  | 44.1  | D                          | LTR  | 0.94  | 37.3 | D                   | - 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. |
|  | Allen Street         | WB   | LTR   | 0.69 | 34.5       | C    | LTR   | 0.84  | 45.2                       | D    | LTR   | 0.81 | 41.6                |  |
| Overall Intersection                         | NB                   | L    | 0.63  | 55.7 | E          | L    | 0.63  | 55.7  | E                          | L    | 0.53  | 46.5 | D                   |  |
|  | TR                   |      | 0.59  | 24.9 | C          | TR   | 0.60  | 25.1  | C                          | TR   | 0.66  | 28.6 | C                   |  |
|  | SB                   | L    | 0.86  | 73.7 | E          | L    | 0.90  | 80.0  | F                          | L    | 0.75  | 56.1 | E                   |  |
| Overall Intersection                         | -                    | 0.75 | 32.8  | C    | -          | 0.80 | 36.9  | D     | -                          | 0.82 | 35.2  | D    |                     |  |



**TABLE A-1**  
**SEWARD PARK PROPOSED MODIFICATIONS**  
**2022 NO BUILD VS. 2022 BUILD VS. 2022 MITIGATION WEEKDAY AM PEAK HOUR TRAFFIC LEVELS OF SERVICE**

| INTERSECTION & APPROACH                   | 2022 No Build |             |             |          | 2022 Build |             |             |          | 2022 Build with Mitigation |             |             |          | Mitigation Measures |   |
|---|---------------|-------------|-------------|----------|------------|-------------|-------------|----------|----------------------------|-------------|-------------|----------|---------------------|---|
|   | Mvt.          | V/C         | Delay       | LOS      | Mvt.       | V/C         | Delay       | LOS      | Mvt.                       | V/C         | Delay       | LOS      |                     |   |
| <b>19 GRAND STREET AND ORCHARD STREET</b> |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | LT          | 0.63        | 21.1     | C          | LT          | 0.70        | 22.7     | C                          |             |             |          |                     | - Mitigation not required.  |
|   | WB            | TR          | 0.50        | 21.0     | C          | TR          | 0.59        | 23.2     | C                          |             |             |          |                     |   |
| Orchard Street                            | NB            | LTR         | 0.15        | 15.4     | B          | LTR         | 0.15        | 15.4     | B                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.39</b> | <b>20.4</b> | <b>C</b> | -          | <b>0.42</b> | <b>22.1</b> | <b>C</b> |                            |             |             |          |                     |   |
| <b>20 GRAND STREET AND LUDLOW STREET</b>  |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | TR          | 0.59        | 22.6     | C          | TR          | 0.67        | 24.9     | C                          |             |             |          |                     | - Mitigation not required.  |
|   | WB            | LT          | 0.34        | 17.3     | B          | LT          | 0.42        | 18.4     | B                          |             |             |          |                     |   |
| Ludlow Street                             | SB            | LTR         | 0.28        | 17.4     | B          | LTR         | 0.29        | 17.6     | B                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.44</b> | <b>19.8</b> | <b>B</b> | -          | <b>0.48</b> | <b>21.2</b> | <b>C</b> |                            |             |             |          |                     |   |
| <b>21 GRAND STREET AND ESSEX STREET</b>   |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | LTR         | 0.80        | 33.4     | C          | LTR         | 0.92        | 47.6     | D                          | LTR         | 0.89        | 42.4     | D                   | - Modify signal timing: Shift 1 s from the NB/SB phase to EB/WB [EB/WB green time shifts from 40 s to 41 s; NB/SB green time shifts from 40 s to 39 s].<br><b>[Intersection was not impacted in the FEIS]</b> |
|   | WB            | LTR         | 0.72        | 21.8     | C          | LTR         | 0.91        | 28.4     | C                          | LTR         | 0.89        | 26.4     | C                   |   |
| Essex Street                              | NB            | LTR         | 0.38        | 17.9     | B          | LTR         | 0.40        | 18.3     | B                          | LTR         | 0.41        | 19.1     | B                   |   |
|   | SB            | DefL        | 0.45        | 22.9     | C          | DefL        | 0.49        | 25.1     | C                          | DefL        | 0.51        | 26.5     | C                   |   |
|   |               | TR          | 0.31        | 17.7     | B          | TR          | 0.31        | 17.9     | B                          | TR          | 0.32        | 18.7     | B                   |   |
| <b>Overall Intersection</b>               | -             | <b>0.62</b> | <b>23.6</b> | <b>C</b> | -          | <b>0.71</b> | <b>29.9</b> | <b>C</b> | -                          | <b>0.70</b> | <b>28.3</b> | <b>C</b> |                     |   |
| <b>22 GRAND STREET AND NORFOLK STREET</b> |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | L           | 0.21        | 12.6     | B          | L           | 0.36        | 15.1     | B                          |             |             |          |                     | - Mitigation not required.  |
|   | T             |             | 0.49        | 16.2     | B          | T           | 0.49        | 16.2     | B                          |             |             |          |                     |   |
|   | WB            | T           | 0.43        | 14.1     | B          | T           | 0.54        | 15.5     | B                          |             |             |          |                     |   |
|   | R             |             | 0.28        | 12.5     | B          | R           | 0.36        | 13.3     | B                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.50</b> | <b>14.3</b> | <b>B</b> | -          | <b>0.54</b> | <b>15.1</b> | <b>B</b> |                            |             |             |          |                     |   |
| <b>23 GRAND STREET AND SUFFOLK STREET</b> |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| 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           | 0.78        | 23.2     | C                          |             |             |          |                     |   |
| Suffolk Street                            | SB            | LR          | 0.11        | 19.3     | B          | LR          | 0.45        | 24.9     | C                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.46</b> | <b>18.5</b> | <b>B</b> | -          | <b>0.64</b> | <b>21.2</b> | <b>C</b> |                            |             |             |          |                     |   |
| <b>24 GRAND STREET AND CLINTON STREET</b> |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | TR          | 0.50        | 17.8     | B          | LTR         | 0.61        | 20.4     | C                          |             |             |          |                     | - <b>Unmitigatable Impact</b><br>- 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           | 0.64        | 19.6     | B                          |             |             |          |                     |   |
|   |               | R           | 1.00        | 65.8     | E          | R           | 1.12        | 104.2    | F                          |             |             |          |                     |   |
| Clinton Street                            | NB            | LTR         | 0.75        | 36.8     | D          | LTR         | 0.77        | 38.1     | D                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.90</b> | <b>33.2</b> | <b>C</b> | -          | <b>0.99</b> | <b>42.1</b> | <b>D</b> |                            |             |             |          |                     |   |
| <b>25 GRAND STREET AND EAST BROADWAY</b>  |               |             |             |          |            |             |             |          |                            |             |             |          |                     |   |
| Grand Street                              | EB            | T           | 0.16        | 7.1      | A          | T           | 0.18        | 7.3      | A                          |             |             |          |                     | - Mitigation not required.  |
|   | WB            | LT          | 0.76        | 15.5     | B          | LT          | 0.82        | 18.0     | B                          |             |             |          |                     |   |
| East Broadway                             | NB            | R           | -           | 10.2     | B          | R           | -           | 10.3     | B                          |             |             |          |                     |   |
| <b>Overall Intersection</b>               | -             | <b>0.76</b> | <b>13.6</b> | <b>B</b> | -          | <b>0.82</b> | <b>15.5</b> | <b>B</b> |                            |             |             |          |                     |   |

TABLE A-1  
SEWARD PARK PROPOSED MODIFICATIONS  
2022 NO BUILD VS. 2022 BUILD VS. 2022 MITIGATION WEEKDAY AM PEAK HOUR TRAFFIC LEVELS OF SERVICE

| INTERSECTION & APPROACH                      | <u>2022 No Build</u> |     |       |             | <u>2022 Build</u> |     |       |             | <u>2022 Build with Mitigation</u> |     |       |     | <u>Mitigation Measures</u> |                            |
|--|----------------------|-----|-------|-------------|-------------------|-----|-------|-------------|-----------------------------------|-----|-------|-----|----------------------------|----------------------------|
|  | Mvt.                 | V/C | Delay | LOS         | Mvt.              | V/C | Delay | LOS         | Mvt.                              | V/C | Delay | LOS |                            |                            |
| <b>UNSIGNALIZED INTERSECTIONS</b>            |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| <b>26 STANTON STREET AND LUDLOW STREET</b>   |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| Stanton Street                               | EB                   | TR  | -     | 8.0         | A                 | TR  | -     | 8.0         | A                                 |     |       |     |                            | - Mitigation not required. |
| Ludlow Street                                | SB                   | LT  | -     | 9.2         | A                 | LT  | -     | 9.3         | A                                 |     |       |     |                            |                            |
| <b>Overall Intersection</b>                  | -                    | -   | -     | <b>8.9</b>  | <b>A</b>          | -   | -     | <b>9.0</b>  | <b>A</b>                          |     |       |     |                            |                            |
| <b>27 RIVINGTON STREET AND LUDLOW STREET</b> |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| Rivington Street                             | WB                   | LT  | -     | 12.3        | B                 | LT  | -     | 12.5        | B                                 |     |       |     |                            | - Mitigation not required. |
| Ludlow Street                                | SB                   | TR  | -     | 10.0        | A                 | TR  | -     | 10.1        | B                                 |     |       |     |                            |                            |
| <b>Overall Intersection</b>                  | -                    | -   | -     | <b>11.5</b> | <b>B</b>          | -   | -     | <b>11.6</b> | <b>B</b>                          |     |       |     |                            |                            |
| <b>28 BROOME STREET AND LUDLOW STREET</b>    |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| 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                                 |     |       |     |                            |                            |
| <b>Overall Intersection</b>                  | -                    | -   | -     | <b>5.9</b>  | <b>A</b>          | -   | -     | <b>6.0</b>  | <b>A</b>                          |     |       |     |                            |                            |
| <b>29 BROOME STREET AND SUFFOLK STREET</b>   |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| Broome Street                                | WB                   | LT  | -     | 7.6         | A                 | LT  | -     | 7.6         | A                                 |     |       |     |                            | - Mitigation not required. |
| Suffolk Street                               | SB                   | TR  | -     | 10.6        | B                 | TR  | -     | 14.7        | B                                 |     |       |     |                            |                            |
| <b>Overall Intersection</b>                  | -                    | -   | -     | <b>6.1</b>  | <b>A</b>          | -   | -     | <b>11.2</b> | <b>B</b>                          |     |       |     |                            |                            |
| <b>30 BROOME STREET AND CLINTON STREET</b>   |                      |     |       |             |                   |     |       |             |                                   |     |       |     |                            |                            |
| Broome Street                                | NB                   | LTR | -     | 7.9         | A                 | LTR | -     | 7.9         | A                                 |     |       |     |                            | - Mitigation not required. |
| <b>Overall Intersection</b>                  | -                    | -   | -     | <b>1.2</b>  | <b>A</b>          | -   | -     | <b>1.3</b>  | <b>A</b>                          |     |       |     |                            |                            |

(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 A-2**

**2022 With Action Condition Sidewalk Analysis Comparison:  
FGEIS Development Program vs. Proposed Modifications – Weekday AM Peak Hour**

| Intersection No.   | Location  | Sidewalk   | FGEIS |       | Proposed Modifications |      |
|--|---|--|-------|-------|------------------------|------|
|  |   |  | PMF   | LOS   | PMF                    | LOS  |
| 1  | Essex Street between Stanton Street and Rivington Street  | East   | 2.59  | B     | 2.62                   | B    |
| 2  | Essex Street between Rivington Street and Stanton Street  | East   | 2.95  | B     | 2.98                   | B    |
|  | Essex Street between Rivington Street and Delancey Street | East   | 7.97  | D     | 8.03                   | D    |
| 3  | Delancey Street between Allen Street and Orchard Street   | South  | 0.54  | B     | 0.57                   | B    |
| 4  | Delancey Street between Orchard Street and Ludlow Street  | South  | 0.53  | B     | 0.55                   | B    |
| 5  | Delancey Street between Ludlow Street and Essex Street    | South  | 1.27  | B     | 1.31                   | B    |
| 6  | Delancey Street between Essex Street and Norfolk Street   | North  | 2.50  | B     | 2.53                   | B    |
|  |   | South  | 1.18  | B     | 1.20                   | B    |
|  | Essex Street between Delancey Street and Rivington Street | East   | 5.48  | C     | 5.58                   | C    |
|  |   | Essex Street between Delancey Street and Broome Street | East  | 4.45  | C                      | 4.47 |
|  | West  | 10.85  | D+    | 10.99 | D+                     |      |
| 7  | Delancey Street between Norfolk Street and Essex Street   | North  | 2.50  | B     | 2.53                   | B    |
|  |   | South  | 0.99  | B     | 1.00                   | B    |
|  | Delancey Street between Norfolk Street and Suffolk Street | North  | 4.68  | C     | 4.73                   | C    |
|  |   | South  | 0.52  | B     | 0.51                   | B    |
| Norfolk Street between Delancey Street and Broome Street | West  | 0.61   | B     | 0.64  | B                      |      |
| 8  | Delancey Street between Suffolk Street and Norfolk Street | South  | 0.50  | A     | 0.51                   | B    |
|  | Delancey Street between Suffolk Street and Clinton Street | North  | 3.52  | C     | 3.54                   | C    |
|  |   | South  | 0.58  | B     | 0.56                   | B    |
|  | Suffolk Street between Delancey Street and Broome Street  | East   | 0.36  | A     | 0.47                   | A    |
| West   |   | 0.53   | B     | 0.62  | B                      |      |
| 9  | Delancey Street between Clinton Street and Suffolk Street | South  | 0.40  | A     | 0.40                   | A    |
|  | Clinton Street between Delancey Street and Broome Street  | East   | 0.48  | A     | 0.46                   | A    |
|  |   | West   | 0.41  | A     | 0.43                   | A    |
| 10   | Broome Street between Allen Street and Orchard Street     | North  | 1.08  | B     | 1.10                   | B    |
|  |   | South  | 0.72  | B     | 0.76                   | B    |
| 11   | Broome Street between Ludlow Street and Essex Street      | North  | 0.99  | B     | 1.00                   | B    |
|  | Broome Street between Ludlow Street and Orchard Street    | North  | 2.29  | B     | 2.31                   | B    |
|  |   | South  | 1.10  | B     | 1.15                   | B    |
| 12   | Broome Street between Essex Street and Ludlow Street      | North  | 1.06  | B     | 1.08                   | B    |
|  | Broome Street between Essex Street and Norfolk Street     | North  | 2.43  | B     | 2.47                   | B    |
|  | Essex Street between Broome Street and Delancey Street    | East   | 3.18  | C     | 3.22                   | C    |
|  |   | West   | 3.17  | C     | 3.22                   | C    |
|  | Essex Street between Broome Street and Grand Street       | East   | 1.39  | B     | 1.37                   | B    |
|  |   | West   | 2.26  | B     | 2.30                   | B    |
| 13   | Broome Street between Norfolk Street and Essex Street     | North  | 1.82  | B     | 1.87                   | B    |
|  | Broome Street between Norfolk Street and Suffolk Street   | North  | 1.76  | B     | 1.84                   | B    |
|  |   | South  | 1.09  | B     | 1.27                   | B    |
|  | Norfolk Street between Broome Street and Delancey Street  | West   | 0.35  | A     | 0.37                   | A    |

**Table A-2 (cont'd)**

**2022 With Action Condition Sidewalk Analysis Comparison:  
FGEIS Development Program vs. Proposed Modifications – Weekday AM Peak Hour**

| Intersection No.                                      | Location   | Sidewalk | FGEIS |      | Proposed Modifications |     |
|---|--|----------|-------|------|------------------------|-----|
|   |  |          | PMF   | LOS  | PMF                    | LOS |
| 14  | Broome Street between Suffolk Street and Norfolk Street  | North    | 1.42  | B    | 1.50                   | B   |
|   | Broome Street between Suffolk Street and Clinton Street  | North    | 0.62  | B    | 0.58                   | B   |
|   | Suffolk Street between Broome Street and Delancey Street | East     | 0.59  | B    | 0.74                   | B   |
|   |  | West     | 0.50  | A    | 0.60                   | B   |
| Suffolk Street between Broome Street and Grand Street | East   | 1.02     | B     | 1.70 | B                      |     |
| 15  | Broome Street between Clinton Street and Suffolk Street  | North    | 0.63  | B    | 0.59                   | B   |
|   | Broome Street between Clinton Street and Ridge Street    | North    | 0.46  | A    | 0.43                   | A   |
|   | Clinton Street between Broome Street and Delancey Street | East     | 0.34  | A    | 0.33                   | A   |
|   |  | West     | 0.40  | A    | 0.43                   | A   |
| Clinton Street between Broome Street and Grand Street | West   | 0.65     | B     | 0.60 | B                      |     |
| 16  | Grand Street between Allen Street and Orchard Street     | North    | 1.89  | B    | 1.95                   | B   |
| 17  | Grand Street between Ludlow Street and Orchard Street    | North    | 2.16  | B    | 2.22                   | B   |
|   | Grand Street between Ludlow Street and Essex Street      | North    | 1.91  | B    | 1.97                   | B   |
| 18  | Grand Street between Essex Street and Norfolk Street     | North    | 1.05  | B    | 1.12                   | B   |
| 19  | Grand Street between Norfolk Street and Suffolk Street   | North    | 0.95  | B    | 1.03                   | B   |
| 20  | Grand Street between Suffolk Street and Clinton Street   | North    | 0.86  | B    | 0.87                   | B   |
|   | Suffolk Street between Grand Street and Broome Street    | East     | 0.84  | B    | 1.60                   | B   |
| 21  | Grand Street between Clinton Street and Suffolk Street   | North    | 1.65  | B    | 1.75                   | B   |
|   | Clinton Street between Grand Street and Broome Street    | West     | 0.53  | B    | 0.50                   | A   |

**Note:** PMF = pedestrians per minute per foot  
+ Denotes a significant adverse pedestrian impact

**Table A-3**

**2022 With Action Condition Corner Analysis Comparison:  
FGEIS Development Program vs. Proposed Modifications – Weekday AM Peak Hour**

| Intersection No. | Location                           | Corner    | FGEIS  |     | Proposed Modifications |     |
|------------------|------------------------------------|-----------|--------|-----|------------------------|-----|
|                  |                                    |           | SFP    | LOS | SFP                    | LOS |
| 1                | Stanton Street and Essex Street    | Southeast | 78.2   | A   | 77.1                   | A   |
|                  |                                    | Southwest | 121.7  | A   | 119.8                  | A   |
| 2                | Rivington Street and Essex Street  | Northeast | 60.5   | A   | 60.2                   | A   |
|                  |                                    | Southeast | 29.3   | C   | 29.1                   | C   |
|                  |                                    | Southwest | 93.6   | A   | 92.8                   | A   |
| 3                | Delancey Street and Allen Street   | Southeast | 312.0  | A   | 301.1                  | A   |
|                  |                                    | Southwest | 295.5  | A   | 286.8                  | A   |
| 4                | Delancey Street and Orchard Street | Southeast | 380.8  | A   | 367.8                  | A   |
|                  |                                    | Southwest | 398.9  | A   | 383.2                  | A   |
| 5                | Delancey Street and Ludlow Street  | Northeast | 227.3  | A   | 221.8                  | A   |
|                  |                                    | Southeast | 204.2  | A   | 197.7                  | A   |
|                  |                                    | Southwest | 311.0  | A   | 301.2                  | A   |
|                  |                                    | Northwest | 266.0  | A   | 260.7                  | A   |
| 6                | Delancey Street and Essex Street   | Northeast | 78.2   | A   | 77.6                   | A   |
|                  |                                    | Southeast | 108.6  | A   | 107.1                  | A   |
|                  |                                    | Southwest | 112.9  | A   | 110.6                  | A   |
|                  |                                    | Northwest | 208.6  | A   | 208.0                  | A   |
| 7                | Delancey Street and Norfolk Street | Northeast | 137.3  | A   | 134.8                  | A   |
|                  |                                    | Southeast | 1027.3 | A   | 1032.7                 | A   |
|                  |                                    | Southwest | 275.2  | A   | 270.7                  | A   |
|                  |                                    | Northwest | 131.7  | A   | 129.3                  | A   |
| 8                | Delancey Street and Suffolk Street | Northeast | 122.3  | A   | 119.4                  | A   |
|                  |                                    | Southeast | 997.7  | A   | 922.1                  | A   |
|                  |                                    | Southwest | 962.1  | A   | 906.5                  | A   |
|                  |                                    | Northwest | 54.3   | B   | 53.3                   | B   |
| 9                | Delancey Street and Clinton Street | Southwest | 451.2  | A   | 446.8                  | A   |
|                  |                                    | Northwest | 160.3  | A   | 159.2                  | A   |
| 12               | Broome Street and Essex Street     | Northeast | 80.1   | A   | 78.7                   | A   |
|                  |                                    | Southeast | 206.0  | A   | 201.7                  | A   |
|                  |                                    | Southwest | 51.2   | B   | 50.1                   | B   |
|                  |                                    | Northwest | 69.2   | A   | 67.8                   | A   |
| 13               | Broome Street and Norfolk Street   | Northeast | 273.6  | A   | 266.4                  | A   |
|                  |                                    | Southeast | 198.1  | A   | 172.2                  | A   |
|                  |                                    | Southwest | 823.9  | A   | 709.9                  | A   |
|                  |                                    | Northwest | 233.5  | A   | 222.8                  | A   |
| 16               | Grand Street and Allen Street      | Northeast | 66.7   | A   | 65.5                   | A   |
|                  |                                    | Southeast | 64.4   | A   | 63.2                   | A   |
| 17               | Grand Street and Orchard Street    | Northeast | 78.3   | A   | 76.8                   | A   |
|                  |                                    | Northwest | 74.4   | A   | 72.5                   | A   |
| 18               | Grand Street and Ludlow Street     | Northeast | 194.4  | A   | 189.3                  | A   |
|                  |                                    | Southeast | 103.0  | A   | 100.7                  | A   |
|                  |                                    | Northwest | 95.2   | A   | 93.0                   | A   |
| 19               | Grand Street and Essex Street      | Northeast | 211.9  | A   | 203.6                  | A   |
|                  |                                    | Southeast | 186.8  | A   | 184.9                  | A   |
|                  |                                    | Southwest | 111.0  | A   | 109.1                  | A   |
|                  |                                    | Northwest | 78.1   | A   | 74.9                   | A   |
| 20               | Grand Street and Norfolk Street    | Northeast | 567.9  | A   | 520.0                  | A   |
|                  |                                    | Northwest | 1374.7 | A   | 1257.3                 | A   |
| 21               | Grand Street and Suffolk Street    | Northeast | 244.6  | A   | 214.3                  | A   |
|                  |                                    | Northwest | 206.7  | A   | 188.6                  | A   |
| 22               | Grand Street and Clinton Street    | Southwest | 550.3  | A   | 542.0                  | A   |
|                  |                                    | Northwest | 215.2  | A   | 207.2                  | A   |

**Note:** SFP = square feet per pedestrian

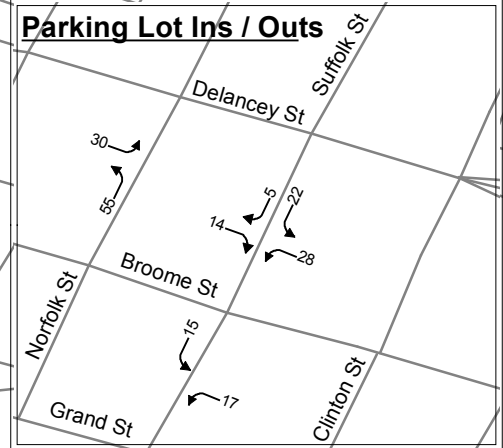
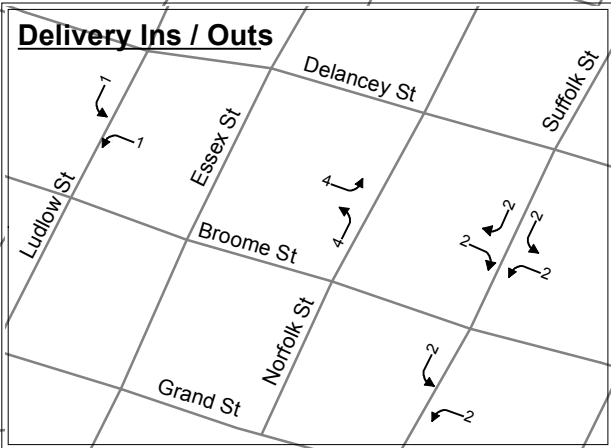
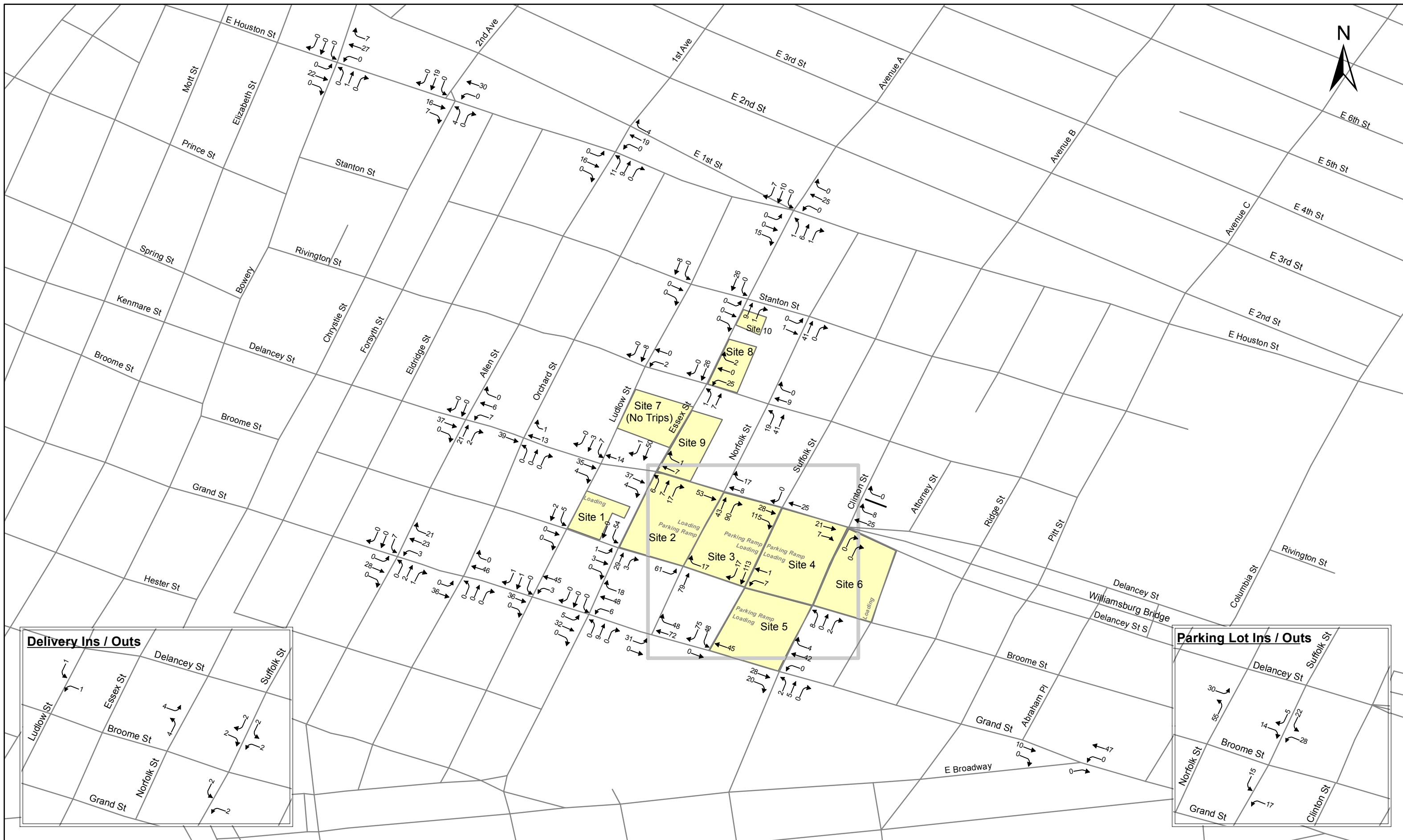
**Table A-4**

**2022 With Action Condition Crosswalk Analysis Comparison:  
FGEIS Development Program vs. Proposed Modifications – Weekday AM Peak Hour**

| Intersection No. | Location                           | Crosswalk              | FGEIS |     | Proposed Modifications |     |
|------------------|------------------------------------|------------------------|-------|-----|------------------------|-----|
|                  |                                    |                        | SFP   | LOS | SFP                    | LOS |
| 2                | Rivington Street and Essex Street  | East                   | 26.4  | C   | 26.2                   | C   |
| 3                | Delancey Street and Allen Street   | South <sup>1</sup>     | 75.9  | A   | 72.9                   | A   |
| 4                | Delancey Street and Orchard Street | South                  | 233.9 | A   | 222.9                  | A   |
| 5                | Delancey Street and Ludlow Street  | North                  | 88.6  | A   | 86.4                   | A   |
|                  |                                    | South                  | 181.9 | A   | 174.9                  | A   |
| 6                | Delancey Street and Essex Street   | North                  | 61.1  | A   | 60.9                   | A   |
|                  |                                    | East                   | 29.2  | C   | 28.9                   | C   |
|                  |                                    | South                  | 142.5 | A   | 137.2                  | A   |
|                  |                                    | West                   | 28.6  | C   | 28.4                   | C   |
| 7                | Delancey Street and Norfolk Street | North                  | 71.5  | A   | 70.2                   | A   |
|                  |                                    | South                  | 69.6  | A   | 69.4                   | A   |
|                  |                                    | West                   | 78.8  | A   | 76.9                   | A   |
| 8                | Delancey Street and Suffolk Street | North                  | 35.2  | C   | 34.9                   | C   |
|                  |                                    | East <sup>1</sup>      | 270.8 | A   | 223.3                  | A   |
|                  |                                    | South                  | 116.7 | A   | 114.2                  | A   |
|                  |                                    | West <sup>1</sup>      | 140.0 | A   | 126.6                  | A   |
| 9                | Delancey Street and Clinton Street | North                  | 8.1   | E   | 8.1                    | E   |
|                  |                                    | South                  | 255.7 | A   | 259.1                  | A   |
|                  |                                    | West (North of Median) | 94.0  | A   | 92.2                   | A   |
|                  |                                    | West (South of Median) | 127.3 | A   | 124.0                  | A   |
| 12               | Broome Street and Essex Street     | North                  | 73.3  | A   | 71.7                   | A   |
|                  |                                    | East                   | 37.9  | C   | 37.3                   | C   |
|                  |                                    | South                  | 111.4 | A   | 107.6                  | A   |
| 13               | Broome Street and Norfolk Street   | North                  | 83.5  | A   | 81.3                   | A   |
|                  |                                    | South                  | 168.1 | A   | 142.9                  | A   |
| 17               | Grand Street and Orchard Street    | North                  | 32.8  | C   | 31.8                   | C   |
| 18               | Grand Street and Ludlow Street     | North                  | 55.7  | B   | 53.7                   | B   |
| 19               | Grand Street and Essex Street      | North                  | 78.2  | A   | 71.1                   | A   |
| 20               | Grand Street and Norfolk Street    | North                  | 45.7  | B   | 40.4                   | B   |
| 21               | Grand Street and Suffolk Street    | North                  | 78.5  | A   | 70.9                   | A   |

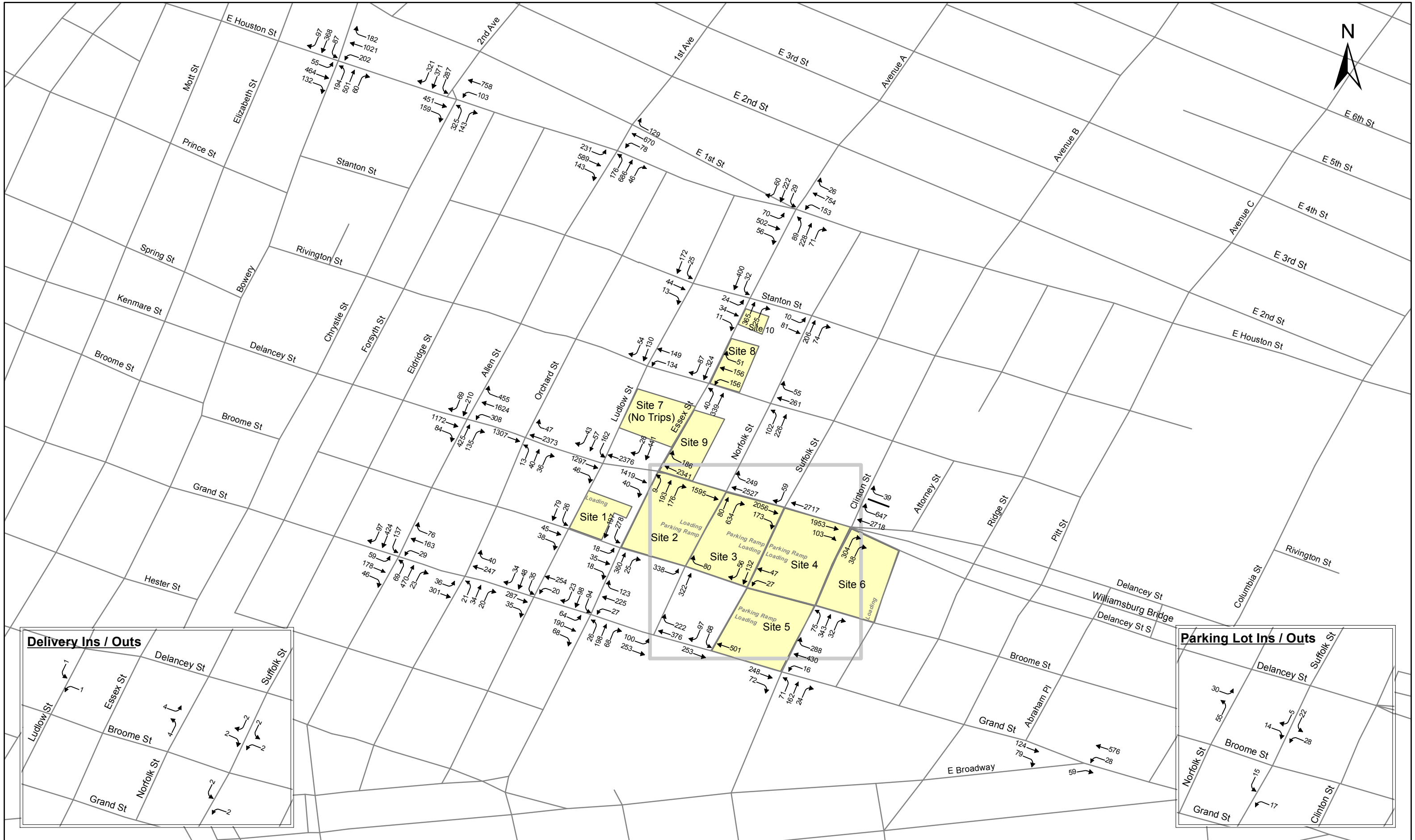
**Notes:** SFP = square feet per pedestrian  
<sup>1</sup> Critical width (north/east or south/west of pedestrian refuge median) used for analysis street width  
+ Denotes a significant adverse pedestrian impact

# **Volume Maps**

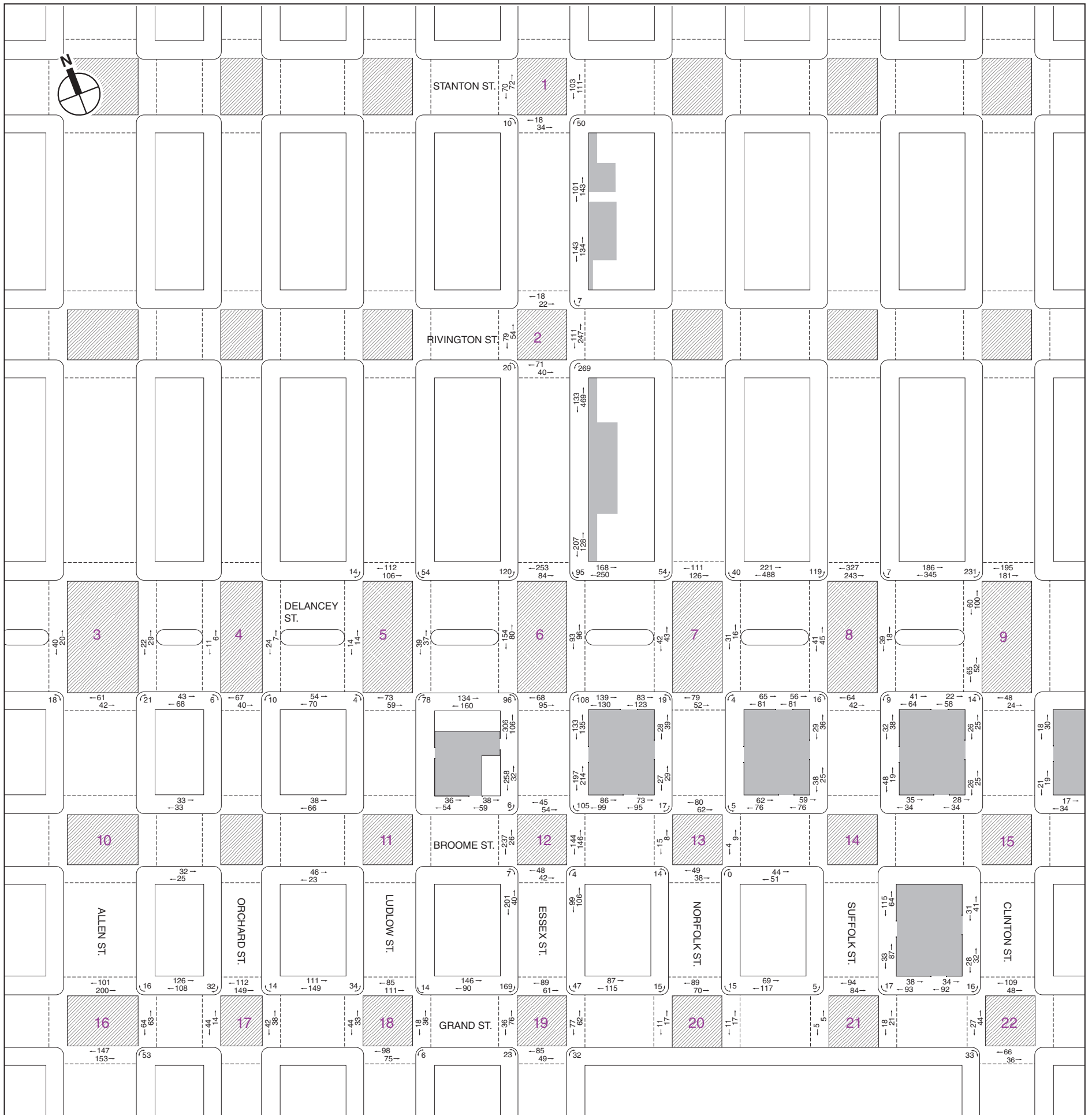


2022 BUILD TRAFFIC VOLUME INCREMENTS  
WEEKDAY AM PEAK HOUR  
Seward Park Proposed Modifications





2022 BUILD TRAFFIC VOLUMES  
WEEKDAY AM PEAK HOUR  
Seward Park Proposed Modifications



Proposed Development Parcels



Proposed Development Parcels



Proposed Development Parcels

# **APPENDIX B**

## **NOISE**

Seward Park Rooftop Playground Analysis

| Receptor          | Façade | Receptor Floor | Predicted Playground Noise Level (L <sub>eq</sub> ) | Associated Noise Receptor | Calculated Existing Noise Level (L <sub>eq</sub> ) | Calculated Build Noise Level (L <sub>eq</sub> ) | Level Increase (dBA) |
|-------------------|--------|----------------|---|---------------------------|--|---|----------------------|
| 384 Grand Street  | North  | 1              | 45.8  | 2                         | 58.1   | 58.3  | 0.2                  |
|                   |        | 6              | 54.7  | 2                         | 60.1   | 61.2  | 1.1                  |
| 50 Norfolk Street | East   | 1              | 45.2  | 2                         | 56.4   | 56.7  | 0.3                  |
|                   |        | 11             | 60.2  | 2                         | 60.4   | 63.3  | 2.9                  |
| 60 Norfolk Street | South  | 1              | 43.5  | 2                         | 54.7   | 55.0  | 0.3                  |
|                   |        | 7              | 53.6  | 2                         | 57.2   | 58.8  | 1.6                  |

**Playground Noise Results (in dBA)**

Seward Park

| CadnaA<br>Receptor Sites | Elevation<br>(floor) | Existing<br>L <sub>eq(1)</sub> | Existing<br>L <sub>10</sub> | Playground Only    |       |                 |      |        | Total<br>L <sub>10</sub> | CEQR Attenuation<br>Required | "Playground"<br>L <sub>dn</sub> | FGEIS                 |                 |                         |                 | Total                   |        |  |
|--------------------------|----------------------|--------------------------------|-----------------------------|--------------------|-------|-----------------|------|--------|--------------------------|------------------------------|---------------------------------|-----------------------|-----------------|-------------------------|-----------------|-------------------------|--------|--|
|                          |                      |                                |                             | L <sub>eq(1)</sub> | Delta | L <sub>10</sub> | Site | Façade |                          |                              |                                 | Governing<br>Receptor | L <sub>dn</sub> | Attenuation<br>Required | L <sub>dn</sub> | Attenuation<br>Required | Change |  |
|                          |                      |                                |                             |                    |       |                 |      |        |                          |                              |                                 |                       |                 |                         |                 |                         |        |  |
| AAAA                     | 1                    | 62.9                           | 65.4                        | 30.4               | 2.8   | 33.2            | 65.4 | 0      | 25.6                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 2                    | 63.6                           | 66.1                        | 30.4               | 2.8   | 33.2            | 66.1 | 0      | 25.6                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 3                    | 64.1                           | 66.6                        | 30.4               | 2.8   | 33.2            | 66.6 | 0      | 25.6                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 4                    | 64.6                           | 67.1                        | 30.5               | 2.8   | 33.3            | 67.1 | 0      | 25.7                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 5                    | 65.0                           | 67.5                        | 30.5               | 2.8   | 33.3            | 67.5 | 0      | 25.7                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 6                    | 65.2                           | 67.7                        | 30.5               | 2.8   | 33.3            | 67.7 | 0      | 25.7                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 7                    | 65.4                           | 67.9                        | 30.5               | 2.8   | 33.3            | 67.9 | 0      | 25.7                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA                     | 8                    | 65.5                           | 68.0                        | 30.6               | 2.8   | 33.4            | 68.0 | 0      | 25.8                     | 6                            | N                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 1                    | 54.7                           | 57.2                        | 31.7               | 2.8   | 34.5            | 57.2 | 0      | 26.9                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 2                    | 54.7                           | 57.2                        | 31.7               | 2.8   | 34.5            | 57.2 | 0      | 26.9                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 3                    | 55.6                           | 58.1                        | 31.8               | 2.8   | 34.6            | 58.1 | 0      | 27.0                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 4                    | 56.0                           | 58.5                        | 31.8               | 2.8   | 34.6            | 58.5 | 0      | 27.0                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 5                    | 56.2                           | 58.7                        | 32.1               | 2.8   | 34.9            | 58.7 | 0      | 27.3                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 6                    | 56.3                           | 58.8                        | 32.9               | 2.8   | 35.7            | 58.8 | 0      | 28.1                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 7                    | 56.4                           | 58.9                        | 34.9               | 2.8   | 37.7            | 58.9 | 0      | 30.1                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 8                    | 56.6                           | 59.1                        | 39.0               | 2.8   | 41.8            | 59.2 | 0      | 34.2                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 9                    | 56.8                           | 59.3                        | 41.7               | 2.8   | 44.5            | 59.4 | 0      | 36.9                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 10                   | 56.9                           | 59.4                        | 48.4               | 2.8   | 51.2            | 60.0 | 0      | 43.6                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 11                   | 57.6                           | 60.1                        | 48.7               | 2.8   | 51.5            | 60.7 | 0      | 43.9                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA01                   | 16                   | 59.5                           | 62.0                        | 48.7               | 2.8   | 51.5            | 62.4 | 0      | 43.9                     | 6                            | E                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA02                   | 1                    | 54.7                           | 57.7                        | 42.3               | 2.8   | 45.1            | 57.9 | 0      | 37.5                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 2                    | 54.7                           | 57.7                        | 42.9               | 2.8   | 45.7            | 57.9 | 0      | 38.1                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 3                    | 54.7                           | 57.7                        | 40.8               | 2.8   | 43.6            | 57.8 | 0      | 36.0                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 4                    | 54.7                           | 57.7                        | 42.1               | 2.8   | 44.9            | 57.9 | 0      | 37.3                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 5                    | 54.7                           | 57.7                        | 43.6               | 2.8   | 46.4            | 58.0 | 0      | 38.8                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 6                    | 54.7                           | 57.7                        | 45.3               | 2.8   | 48.1            | 58.1 | 0      | 40.5                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 7                    | 54.7                           | 57.7                        | 47.2               | 2.8   | 50.0            | 58.4 | 0      | 42.4                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA02                   | 8                    | 54.7                           | 57.7                        | 47.0               | 2.8   | 49.8            | 58.3 | 0      | 42.2                     | 6                            | S                               | 3                     | 65.5            | 20.5                    | 65.5            | 20.5                    | 0.0    |  |
| AAAA03                   | 1                    | 58.8                           | 61.1                        | 37.5               | 2.8   | 40.3            | 61.1 | 0      | 32.7                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 2                    | 59.4                           | 61.7                        | 37.9               | 2.8   | 40.7            | 61.7 | 0      | 33.1                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 3                    | 59.7                           | 62.0                        | 38.5               | 2.8   | 41.3            | 62.0 | 0      | 33.7                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 4                    | 59.8                           | 62.1                        | 39.3               | 2.8   | 42.1            | 62.1 | 0      | 34.5                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 5                    | 59.9                           | 62.2                        | 40.4               | 2.8   | 43.2            | 62.3 | 0      | 35.6                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 6                    | 59.8                           | 62.1                        | 41.9               | 2.8   | 44.7            | 62.2 | 0      | 37.1                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 7                    | 59.9                           | 62.2                        | 45.9               | 2.8   | 48.7            | 62.4 | 0      | 41.1                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |
| AAAA03                   | 8                    | 59.9                           | 62.2                        | 47.0               | 2.8   | 49.8            | 62.4 | 0      | 42.2                     | 6                            | W                               | 4                     | 71.9            | 26.9                    | 71.9            | 26.9                    | 0.0    |  |

|        |    |      |      |      |     |      |      |   |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|---|------|---|---|---|------|------|------|------|-----|
| AAAA04 | 9  | 54.7 | 57.2 | 32.0 | 2.8 | 34.8 | 57.2 | 0 | 27.2 | 6 | N | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA04 | 10 | 64.7 | 67.2 | 32.0 | 2.8 | 34.8 | 67.2 | 0 | 27.2 | 6 | N | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA04 | 11 | 64.8 | 67.3 | 32.0 | 2.8 | 34.8 | 67.3 | 0 | 27.2 | 6 | N | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA04 | 16 | 64.8 | 67.3 | 32.3 | 2.8 | 35.1 | 67.3 | 0 | 27.5 | 6 | N | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA05 | 9  | 54.7 | 57.2 | 41.5 | 2.8 | 44.3 | 57.4 | 0 | 36.7 | 6 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA05 | 10 | 54.7 | 57.2 | 45.1 | 2.8 | 47.9 | 57.7 | 0 | 40.3 | 6 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA05 | 11 | 54.7 | 57.2 | 45.4 | 2.8 | 48.2 | 57.7 | 0 | 40.6 | 6 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA05 | 16 | 57.0 | 59.5 | 45.4 | 2.8 | 48.2 | 59.8 | 0 | 40.6 | 6 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA06 | 9  | 54.7 | 57.7 | 49.6 | 2.8 | 52.4 | 58.8 | 0 | 44.8 | 6 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| AAAA06 | 10 | 54.7 | 57.7 | 52.5 | 2.8 | 55.3 | 59.7 | 0 | 47.7 | 6 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| AAAA06 | 11 | 54.7 | 57.7 | 52.6 | 2.8 | 55.4 | 59.7 | 0 | 47.8 | 6 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| AAAA06 | 16 | 54.7 | 57.7 | 52.4 | 2.8 | 55.2 | 59.6 | 0 | 47.6 | 6 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| AAAA07 | 9  | 54.7 | 57.0 | 49.0 | 2.8 | 51.8 | 58.1 | 0 | 44.2 | 6 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA07 | 10 | 58.4 | 60.7 | 52.5 | 2.8 | 55.3 | 61.8 | 0 | 47.7 | 6 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA07 | 11 | 59.5 | 61.8 | 52.7 | 2.8 | 55.5 | 62.7 | 0 | 47.9 | 6 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| AAAA07 | 16 | 59.6 | 61.9 | 52.6 | 2.8 | 55.4 | 62.8 | 0 | 47.8 | 6 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| BBBB   | 1  | 54.7 | 57.7 | 49.1 | 2.8 | 51.9 | 58.7 | 0 | 44.3 | 5 | N | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| BBBB   | 2  | 55.5 | 58.5 | 49.9 | 2.8 | 52.7 | 59.5 | 0 | 45.1 | 5 | N | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| BBBB   | 3  | 55.9 | 58.9 | 50.7 | 2.8 | 53.5 | 60.0 | 0 | 45.9 | 5 | N | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| BBBB   | 4  | 56.0 | 59.0 | 51.6 | 2.8 | 54.4 | 60.3 | 0 | 46.8 | 5 | N | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| BBBB   | 5  | 55.9 | 58.9 | 52.6 | 2.8 | 55.4 | 60.5 | 0 | 47.8 | 5 | N | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| BBBB   | 6  | 54.8 | 57.8 | 53.6 | 2.8 | 56.4 | 60.2 | 0 | 48.8 | 5 | N | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| BBBB   | 7  | 54.7 | 57.7 | 54.7 | 2.8 | 57.5 | 60.6 | 0 | 49.9 | 5 | N | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| BBBB   | 8  | 55.2 | 58.2 | 55.5 | 2.8 | 58.3 | 61.3 | 0 | 50.7 | 5 | N | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| BBBB01 | 1  | 66.5 | 65.3 | 38.5 | 2.8 | 41.3 | 65.3 | 0 | 33.7 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 2  | 66.5 | 65.3 | 38.8 | 2.8 | 41.6 | 65.3 | 0 | 34.0 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 3  | 66.0 | 64.8 | 39.0 | 2.8 | 41.8 | 64.8 | 0 | 34.2 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 4  | 65.4 | 64.2 | 39.3 | 2.8 | 42.1 | 64.2 | 0 | 34.5 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 5  | 64.7 | 63.5 | 39.5 | 2.8 | 42.3 | 63.5 | 0 | 34.7 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 6  | 64.1 | 62.9 | 39.7 | 2.8 | 42.5 | 62.9 | 0 | 34.9 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 7  | 62.6 | 61.4 | 39.9 | 2.8 | 42.7 | 61.5 | 0 | 35.1 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB01 | 8  | 62.4 | 61.2 | 40.0 | 2.8 | 42.8 | 61.3 | 0 | 35.2 | 5 | E | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0 |
| BBBB02 | 1  | 62.0 | 65.7 | 38.4 | 2.8 | 41.2 | 65.7 | 0 | 33.6 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 2  | 63.0 | 66.7 | 38.7 | 2.8 | 41.5 | 66.7 | 0 | 33.9 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 3  | 63.1 | 66.8 | 38.9 | 2.8 | 41.7 | 66.8 | 0 | 34.1 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 4  | 63.0 | 66.7 | 39.1 | 2.8 | 41.9 | 66.7 | 0 | 34.3 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 5  | 62.7 | 66.4 | 39.3 | 2.8 | 42.1 | 66.4 | 0 | 34.5 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 6  | 61.9 | 65.6 | 39.5 | 2.8 | 42.3 | 65.6 | 0 | 34.7 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 7  | 61.4 | 65.1 | 39.7 | 2.8 | 42.5 | 65.1 | 0 | 34.9 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB02 | 8  | 61.0 | 64.7 | 39.8 | 2.8 | 42.6 | 64.7 | 0 | 35.0 | 5 | S | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0 |
| BBBB03 | 1  | 57.0 | 59.3 | 48.7 | 2.8 | 51.5 | 60.0 | 0 | 43.9 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 2  | 57.5 | 59.8 | 49.3 | 2.8 | 52.1 | 60.5 | 0 | 44.5 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 3  | 57.6 | 59.9 | 49.9 | 2.8 | 52.7 | 60.7 | 0 | 45.1 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 4  | 57.8 | 60.1 | 50.7 | 2.8 | 53.5 | 61.0 | 0 | 45.9 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 5  | 58.0 | 60.3 | 51.5 | 2.8 | 54.3 | 61.3 | 0 | 46.7 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 6  | 58.0 | 60.3 | 52.2 | 2.8 | 55.0 | 61.4 | 0 | 47.4 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| BBBB03 | 7  | 58.1 | 60.4 | 53.0 | 2.8 | 55.8 | 61.7 | 0 | 48.2 | 5 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |



|        |    |      |      |      |     |      |      |    |      |   |    |   |      |      |      |      |      |
|--------|----|------|------|------|-----|------|------|----|------|---|----|---|------|------|------|------|------|
| BBBB03 | 8  | 58.1 | 60.4 | 54.3 | 2.8 | 57.1 | 62.1 | 0  | 49.5 | 5 | W  | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0  |
| BBBB04 | 9  | 54.7 | 57.7 | 61.2 | 2.8 | 64.0 | 64.9 | 0  | 56.4 | 5 | N  | 3 | 65.5 | 20.5 | 66.0 | 21.0 | 0.5  |
| BBBB04 | 10 | 54.7 | 57.7 | 60.2 | 2.8 | 63.0 | 64.1 | 0  | 55.4 | 5 | N  | 3 | 65.5 | 20.5 | 65.9 | 20.9 | 0.4  |
| BBBB04 | 11 | 54.7 | 57.7 | 60.5 | 2.8 | 63.3 | 64.4 | 0  | 55.7 | 5 | N  | 3 | 65.5 | 20.5 | 65.9 | 20.9 | 0.4  |
| BBBB04 | 16 | 54.7 | 57.7 | 58.6 | 2.8 | 61.4 | 62.9 | 0  | 53.8 | 5 | N  | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3  |
| BBBB05 | 9  | 54.7 | 53.5 | 40.8 | 2.8 | 43.6 | 53.9 | 0  | 36.0 | 5 | E  | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0  |
| BBBB05 | 10 | 57.2 | 56.0 | 40.8 | 2.8 | 43.6 | 56.2 | 0  | 36.0 | 5 | E  | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0  |
| BBBB05 | 11 | 58.5 | 57.3 | 40.7 | 2.8 | 43.5 | 57.5 | 0  | 35.9 | 5 | E  | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0  |
| BBBB05 | 16 | 60.0 | 58.8 | 39.7 | 2.8 | 42.5 | 58.9 | 0  | 34.9 | 5 | E  | 2 | 62.3 | 17.3 | 62.3 | 17.3 | 0.0  |
| BBBB06 | 9  | 54.7 | 58.4 | 40.6 | 2.8 | 43.4 | 58.5 | 0  | 35.8 | 5 | S  | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0  |
| BBBB06 | 10 | 56.5 | 60.2 | 40.6 | 2.8 | 43.4 | 60.3 | 0  | 35.8 | 5 | S  | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0  |
| BBBB06 | 11 | 59.8 | 63.5 | 40.5 | 2.8 | 43.3 | 63.5 | 0  | 35.7 | 5 | S  | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0  |
| BBBB06 | 16 | 58.5 | 62.2 | 39.6 | 2.8 | 42.4 | 62.2 | 0  | 34.8 | 5 | S  | 1 | 71.5 | 26.5 | 71.5 | 26.5 | 0.0  |
| BBBB07 | 9  | 54.7 | 53.5 | 61.4 | 2.8 | 64.2 | 64.6 | 0  | 56.6 | 5 | W  | 7 | 72.4 | 27.4 | 72.5 | 27.5 | 0.1  |
| BBBB07 | 10 | 58.2 | 57.0 | 60.9 | 2.8 | 63.7 | 64.5 | 0  | 56.1 | 5 | W  | 7 | 72.4 | 27.4 | 72.5 | 27.5 | 0.1  |
| BBBB07 | 11 | 60.2 | 59.0 | 61.2 | 2.8 | 64.0 | 65.2 | 0  | 56.4 | 5 | W  | 7 | 72.4 | 27.4 | 72.5 | 27.5 | 0.1  |
| BBBB07 | 16 | 62.1 | 60.9 | 59.9 | 2.8 | 62.7 | 64.9 | 0  | 55.1 | 5 | W  | 7 | 72.4 | 27.4 | 72.5 | 27.5 | 0.1  |
| BBBB08 | 9  | 54.7 | 53.5 | 79.6 | 2.8 | 82.4 | 82.4 | 39 | 74.8 | 5 | PN | 3 | 65.5 | 20.5 | 75.3 | 31.0 | 10.5 |
| BBBB08 | 10 | 54.7 | 53.5 | 78.8 | 2.8 | 81.6 | 81.6 | 38 | 74.0 | 5 | PN | 3 | 65.5 | 20.5 | 74.6 | 30.0 | 9.5  |
| BBBB08 | 11 | 54.7 | 53.5 | 77.6 | 2.8 | 80.4 | 80.4 | 37 | 72.8 | 5 | PN | 3 | 65.5 | 20.5 | 73.6 | 29.0 | 8.5  |
| BBBB08 | 12 | 54.7 | 53.5 | 76.5 | 2.8 | 79.3 | 79.3 | 35 | 71.7 | 6 | PN | 3 | 65.5 | 20.5 | 72.7 | 28.0 | 7.5  |
| BBBB08 | 13 | 54.7 | 53.5 | 75.5 | 2.8 | 78.3 | 78.3 | 35 | 70.7 | 7 | PN | 3 | 65.5 | 20.5 | 71.9 | 27.0 | 6.5  |
| BBBB08 | 14 | 54.7 | 53.5 | 74.7 | 2.8 | 77.5 | 77.5 | 33 | 69.9 | 8 | PN | 3 | 65.5 | 20.5 | 71.3 | 27.0 | 6.5  |
| BBBB08 | 15 | 54.7 | 53.5 | 73.9 | 2.8 | 76.7 | 76.7 | 33 | 69.1 | 9 | PN | 3 | 65.5 | 20.5 | 70.7 | 26.0 | 5.5  |
| BBBB08 | 16 | 55.7 | 54.5 | 73.2 | 2.8 | 76.0 | 76.0 | 33 | 68.4 | 5 | PN | 3 | 65.5 | 20.5 | 70.2 | 26.0 | 5.5  |
| BBBB09 | 9  | 54.7 | 57.7 | 76.4 | 2.8 | 79.2 | 79.2 | 35 | 71.6 | 5 | PW | 7 | 72.4 | 27.4 | 75.0 | 31.0 | 3.6  |
| BBBB09 | 10 | 54.7 | 57.7 | 76.0 | 2.8 | 78.8 | 78.8 | 35 | 71.2 | 5 | PW | 7 | 72.4 | 27.4 | 74.9 | 30.0 | 2.6  |
| BBBB09 | 11 | 54.7 | 57.7 | 75.2 | 2.8 | 78.0 | 78.0 | 35 | 70.4 | 5 | PW | 7 | 72.4 | 27.4 | 74.5 | 30.0 | 2.6  |
| BBBB09 | 12 | 54.7 | 57.7 | 74.1 | 2.8 | 76.9 | 77.0 | 33 | 69.3 | 6 | PW | 7 | 72.4 | 27.4 | 74.1 | 30.0 | 2.6  |
| BBBB09 | 13 | 54.7 | 57.7 | 73.2 | 2.8 | 76.0 | 76.1 | 33 | 68.4 | 7 | PW | 7 | 72.4 | 27.4 | 73.9 | 29.0 | 1.6  |
| BBBB09 | 14 | 54.7 | 57.7 | 72.5 | 2.8 | 75.3 | 75.4 | 31 | 67.7 | 8 | PW | 7 | 72.4 | 27.4 | 73.7 | 29.0 | 1.6  |
| BBBB09 | 15 | 54.7 | 57.7 | 71.7 | 2.8 | 74.5 | 74.6 | 31 | 66.9 | 9 | PW | 7 | 72.4 | 27.4 | 73.5 | 29.0 | 1.6  |
| BBBB09 | 16 | 54.7 | 57.7 | 71.0 | 2.8 | 73.8 | 73.9 | 31 | 66.2 | 5 | PW | 7 | 72.4 | 27.4 | 73.3 | 29.0 | 1.6  |
| CCCC   | 1  | 66.6 | 68.8 | 30.5 | 2.8 | 33.3 | 68.8 | 0  | 25.7 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 2  | 67.9 | 70.1 | 30.6 | 2.8 | 33.4 | 70.1 | 28 | 25.8 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 3  | 68.1 | 70.3 | 30.6 | 2.8 | 33.4 | 70.3 | 28 | 25.8 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 4  | 68.1 | 70.3 | 30.7 | 2.8 | 33.5 | 70.3 | 28 | 25.9 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 5  | 67.9 | 70.1 | 30.7 | 2.8 | 33.5 | 70.1 | 28 | 25.9 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 6  | 67.7 | 69.9 | 30.8 | 2.8 | 33.6 | 69.9 | 0  | 26.0 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 7  | 67.4 | 69.6 | 30.9 | 2.8 | 33.7 | 69.6 | 0  | 26.1 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC   | 8  | 67.1 | 69.3 | 31.1 | 2.8 | 33.9 | 69.3 | 0  | 26.3 | 4 | N  | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0  |
| CCCC01 | 1  | 58.1 | 60.4 | 39.7 | 2.8 | 42.5 | 60.5 | 0  | 34.9 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |
| CCCC01 | 2  | 58.5 | 60.8 | 40.7 | 2.8 | 43.5 | 60.9 | 0  | 35.9 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |
| CCCC01 | 3  | 58.6 | 60.9 | 41.8 | 2.8 | 44.6 | 61.0 | 0  | 37.0 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |
| CCCC01 | 4  | 58.5 | 60.8 | 43.1 | 2.8 | 45.9 | 60.9 | 0  | 38.3 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |
| CCCC01 | 5  | 58.4 | 60.7 | 44.4 | 2.8 | 47.2 | 60.9 | 0  | 39.6 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |
| CCCC01 | 6  | 58.3 | 60.6 | 45.6 | 2.8 | 48.4 | 60.9 | 0  | 40.8 | 4 | E  | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0  |

|        |    |      |      |      |     |      |      |    |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|----|------|---|---|---|------|------|------|------|-----|
| CCCC01 | 7  | 58.0 | 60.3 | 46.6 | 2.8 | 49.4 | 60.6 | 0  | 41.8 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC01 | 8  | 57.8 | 60.1 | 49.0 | 2.8 | 51.8 | 60.7 | 0  | 44.2 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC02 | 1  | 57.9 | 60.9 | 44.9 | 2.8 | 47.7 | 61.1 | 0  | 40.1 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 2  | 58.3 | 61.3 | 45.3 | 2.8 | 48.1 | 61.5 | 0  | 40.5 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 3  | 58.0 | 61.0 | 46.4 | 2.8 | 49.2 | 61.3 | 0  | 41.6 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 4  | 57.5 | 60.5 | 47.3 | 2.8 | 50.1 | 60.9 | 0  | 42.5 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 5  | 57.0 | 60.0 | 47.9 | 2.8 | 50.7 | 60.5 | 0  | 43.1 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 6  | 56.4 | 59.4 | 50.3 | 2.8 | 53.1 | 60.3 | 0  | 45.5 | 4 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| CCCC02 | 7  | 55.9 | 58.9 | 53.0 | 2.8 | 55.8 | 60.6 | 0  | 48.2 | 4 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| CCCC02 | 8  | 55.5 | 58.5 | 55.4 | 2.8 | 58.2 | 61.4 | 0  | 50.6 | 4 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| CCCC03 | 1  | 59.8 | 62.1 | 41.1 | 2.8 | 43.9 | 62.2 | 0  | 36.3 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 2  | 60.5 | 62.8 | 41.9 | 2.8 | 44.7 | 62.9 | 0  | 37.1 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 3  | 61.0 | 63.3 | 42.8 | 2.8 | 45.6 | 63.4 | 0  | 38.0 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 4  | 61.4 | 63.7 | 43.8 | 2.8 | 46.6 | 63.8 | 0  | 39.0 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 5  | 61.8 | 64.1 | 45.1 | 2.8 | 47.9 | 64.2 | 0  | 40.3 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 6  | 61.9 | 64.2 | 46.7 | 2.8 | 49.5 | 64.3 | 0  | 41.9 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 7  | 62.0 | 64.3 | 47.8 | 2.8 | 50.6 | 64.5 | 0  | 43.0 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC03 | 8  | 62.0 | 64.3 | 49.0 | 2.8 | 51.8 | 64.5 | 0  | 44.2 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC04 | 9  | 54.7 | 56.9 | 31.7 | 2.8 | 34.5 | 56.9 | 0  | 26.9 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC04 | 10 | 67.2 | 69.4 | 31.7 | 2.8 | 34.5 | 69.4 | 0  | 26.9 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC04 | 11 | 68.3 | 70.5 | 31.7 | 2.8 | 34.5 | 70.5 | 28 | 26.9 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC04 | 16 | 67.2 | 69.4 | 31.6 | 2.8 | 34.4 | 69.4 | 0  | 26.8 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC04 | 21 | 66.0 | 68.2 | 31.4 | 2.8 | 34.2 | 68.2 | 0  | 26.6 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC04 | 26 | 64.8 | 67.0 | 30.0 | 2.8 | 32.8 | 67.0 | 0  | 25.2 | 4 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| CCCC05 | 9  | 54.7 | 57.0 | 44.2 | 2.8 | 47.0 | 57.4 | 0  | 39.4 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC05 | 10 | 54.7 | 57.0 | 50.0 | 2.8 | 52.8 | 58.4 | 0  | 45.2 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC05 | 11 | 54.9 | 57.2 | 50.0 | 2.8 | 52.8 | 58.5 | 0  | 45.2 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC05 | 16 | 57.0 | 59.3 | 49.9 | 2.8 | 52.7 | 60.2 | 0  | 45.1 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC05 | 21 | 56.4 | 58.7 | 40.1 | 2.8 | 42.9 | 58.8 | 0  | 35.3 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC05 | 26 | 55.9 | 58.2 | 39.9 | 2.8 | 42.7 | 58.3 | 0  | 35.1 | 4 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC06 | 9  | 54.7 | 57.7 | 54.3 | 2.8 | 57.1 | 60.4 | 0  | 49.5 | 4 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| CCCC06 | 10 | 54.7 | 57.7 | 59.1 | 2.8 | 61.9 | 63.3 | 0  | 54.3 | 4 | S | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3 |
| CCCC06 | 11 | 54.7 | 57.7 | 59.2 | 2.8 | 62.0 | 63.4 | 0  | 54.4 | 4 | S | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3 |
| CCCC06 | 16 | 54.7 | 57.7 | 58.9 | 2.8 | 61.7 | 63.1 | 0  | 54.1 | 4 | S | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3 |
| CCCC06 | 21 | 54.7 | 57.7 | 58.3 | 2.8 | 61.1 | 62.7 | 0  | 53.5 | 4 | S | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3 |
| CCCC06 | 26 | 54.7 | 57.7 | 57.6 | 2.8 | 60.4 | 62.3 | 0  | 52.8 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| CCCC07 | 1  | 54.7 | 57.7 | 40.1 | 2.8 | 42.9 | 57.8 | 0  | 35.3 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC07 | 9  | 54.7 | 57.7 | 57.7 | 2.8 | 60.5 | 62.3 | 0  | 52.9 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC07 | 10 | 54.7 | 57.7 | 60.9 | 2.8 | 63.7 | 64.7 | 0  | 56.1 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC07 | 11 | 54.7 | 57.7 | 60.9 | 2.8 | 63.7 | 64.7 | 0  | 56.1 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC07 | 16 | 54.7 | 57.7 | 60.7 | 2.8 | 63.5 | 64.5 | 0  | 55.9 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC07 | 21 | 54.7 | 57.7 | 60.3 | 2.8 | 63.1 | 64.2 | 0  | 55.5 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC07 | 26 | 54.7 | 57.7 | 59.7 | 2.8 | 62.5 | 63.7 | 0  | 54.9 | 4 | W | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| CCCC08 | 9  | 54.7 | 56.9 | 54.5 | 2.8 | 57.3 | 60.1 | 0  | 49.7 | 4 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| CCCC08 | 10 | 54.7 | 56.9 | 57.2 | 2.8 | 60.0 | 61.7 | 0  | 52.4 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| CCCC08 | 11 | 54.7 | 56.9 | 57.4 | 2.8 | 60.2 | 61.9 | 0  | 52.6 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| CCCC08 | 16 | 54.7 | 56.9 | 57.3 | 2.8 | 60.1 | 61.8 | 0  | 52.5 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |

|        |    |      |      |      |     |      |      |    |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|----|------|---|---|---|------|------|------|------|-----|
| CCCC08 | 21 | 54.7 | 56.9 | 56.9 | 2.8 | 59.7 | 61.5 | 0  | 52.1 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| CCCC08 | 26 | 54.7 | 56.9 | 56.5 | 2.8 | 59.3 | 61.3 | 0  | 51.7 | 4 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| CCCC09 | 9  | 54.7 | 56.9 | 52.5 | 2.8 | 55.3 | 59.2 | 0  | 47.7 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC09 | 10 | 61.8 | 64.0 | 54.9 | 2.8 | 57.7 | 64.9 | 0  | 50.1 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC09 | 11 | 63.6 | 65.8 | 55.0 | 2.8 | 57.8 | 66.4 | 0  | 50.2 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC09 | 16 | 64.7 | 66.9 | 54.9 | 2.8 | 57.7 | 67.4 | 0  | 50.1 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC09 | 21 | 64.0 | 66.2 | 53.2 | 2.8 | 56.0 | 66.6 | 0  | 48.4 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| CCCC09 | 26 | 63.2 | 65.4 | 52.9 | 2.8 | 55.7 | 65.8 | 0  | 48.1 | 4 | W | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD   | 1  | 67.8 | 70.0 | 36.8 | 2.8 | 39.6 | 70.0 | 28 | 32.0 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 2  | 69.5 | 71.7 | 37.9 | 2.8 | 40.7 | 71.7 | 28 | 33.1 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 3  | 70.1 | 72.3 | 38.9 | 2.8 | 41.7 | 72.3 | 28 | 34.1 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 4  | 70.4 | 72.6 | 40.0 | 2.8 | 42.8 | 72.6 | 28 | 35.2 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 5  | 70.5 | 72.7 | 40.9 | 2.8 | 43.7 | 72.7 | 28 | 36.1 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 6  | 70.4 | 72.6 | 41.5 | 2.8 | 44.3 | 72.6 | 28 | 36.7 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 7  | 70.3 | 72.5 | 37.3 | 2.8 | 40.1 | 72.5 | 28 | 32.5 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD   | 8  | 70.1 | 72.3 | 30.9 | 2.8 | 33.7 | 72.3 | 28 | 26.1 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD01 | 1  | 62.0 | 64.3 | 43.2 | 2.8 | 46.0 | 64.4 | 0  | 38.4 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 2  | 62.6 | 64.9 | 44.3 | 2.8 | 47.1 | 65.0 | 0  | 39.5 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 3  | 63.1 | 65.4 | 45.6 | 2.8 | 48.4 | 65.5 | 0  | 40.8 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 4  | 63.6 | 65.9 | 47.1 | 2.8 | 49.9 | 66.0 | 0  | 42.3 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 5  | 63.8 | 66.1 | 48.7 | 2.8 | 51.5 | 66.2 | 0  | 43.9 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 6  | 63.9 | 66.2 | 50.4 | 2.8 | 53.2 | 66.4 | 0  | 45.6 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 7  | 63.9 | 66.2 | 52.8 | 2.8 | 55.6 | 66.6 | 0  | 48.0 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD01 | 8  | 63.8 | 66.1 | 54.8 | 2.8 | 57.6 | 66.7 | 0  | 50.0 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD02 | 1  | 60.7 | 63.7 | 42.7 | 2.8 | 45.5 | 63.8 | 0  | 37.9 | 3 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| DDDD02 | 2  | 60.9 | 63.9 | 44.2 | 2.8 | 47.0 | 64.0 | 0  | 39.4 | 3 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| DDDD02 | 3  | 60.6 | 63.6 | 46.1 | 2.8 | 48.9 | 63.7 | 0  | 41.3 | 3 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| DDDD02 | 4  | 60.1 | 63.1 | 48.0 | 2.8 | 50.8 | 63.3 | 0  | 43.2 | 3 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| DDDD02 | 5  | 59.6 | 62.6 | 49.8 | 2.8 | 52.6 | 63.0 | 0  | 45.0 | 3 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| DDDD02 | 6  | 59.1 | 62.1 | 51.9 | 2.8 | 54.7 | 62.8 | 0  | 47.1 | 3 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| DDDD02 | 7  | 58.7 | 61.7 | 53.3 | 2.8 | 56.1 | 62.8 | 0  | 48.5 | 3 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| DDDD02 | 8  | 58.3 | 61.3 | 54.9 | 2.8 | 57.7 | 62.9 | 0  | 50.1 | 3 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| DDDD03 | 1  | 70.3 | 72.6 | 32.9 | 2.8 | 35.7 | 72.6 | 28 | 28.1 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 2  | 70.3 | 72.6 | 33.0 | 2.8 | 35.8 | 72.6 | 28 | 28.2 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 3  | 69.8 | 72.1 | 33.2 | 2.8 | 36.0 | 72.1 | 28 | 28.4 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 4  | 69.2 | 71.5 | 33.0 | 2.8 | 35.8 | 71.5 | 28 | 28.2 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 5  | 68.7 | 71.0 | 33.4 | 2.8 | 36.2 | 71.0 | 28 | 28.6 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 6  | 68.3 | 70.6 | 34.6 | 2.8 | 37.4 | 70.6 | 28 | 29.8 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 7  | 67.8 | 70.1 | 37.0 | 2.8 | 39.8 | 70.1 | 28 | 32.2 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD03 | 8  | 67.4 | 69.7 | 41.4 | 2.8 | 44.2 | 69.7 | 0  | 36.6 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD04 | 9  | 54.9 | 57.1 | 31.6 | 2.8 | 34.4 | 57.1 | 0  | 26.8 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD04 | 10 | 67.0 | 69.2 | 31.6 | 2.8 | 34.4 | 69.2 | 0  | 26.8 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD04 | 11 | 66.9 | 69.1 | 31.6 | 2.8 | 34.4 | 69.1 | 0  | 26.8 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD04 | 16 | 65.7 | 67.9 | 31.6 | 2.8 | 34.4 | 67.9 | 0  | 26.8 | 3 | N | 8 | 73.8 | 28.8 | 73.8 | 28.8 | 0.0 |
| DDDD05 | 9  | 54.7 | 57.0 | 54.8 | 2.8 | 57.6 | 60.3 | 0  | 50.0 | 3 | E | 4 | 71.9 | 26.9 | 71.9 | 26.9 | 0.0 |
| DDDD05 | 10 | 59.3 | 61.6 | 59.2 | 2.8 | 62.0 | 64.8 | 0  | 54.4 | 3 | E | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| DDDD05 | 11 | 61.5 | 63.8 | 59.2 | 2.8 | 62.0 | 66.0 | 0  | 54.4 | 3 | E | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |

|        |    |      |      |      |     |      |      |    |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|----|------|---|---|---|------|------|------|------|-----|
| DDDD05 | 16 | 63.1 | 65.4 | 59.1 | 2.8 | 61.9 | 67.0 | 0  | 54.3 | 3 | E | 4 | 71.9 | 26.9 | 72.0 | 27.0 | 0.1 |
| DDDD06 | 9  | 54.7 | 57.7 | 55.8 | 2.8 | 58.6 | 61.2 | 0  | 51.0 | 3 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| DDDD06 | 10 | 54.7 | 57.7 | 57.9 | 2.8 | 60.7 | 62.5 | 0  | 53.1 | 3 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| DDDD06 | 11 | 54.7 | 57.7 | 58.0 | 2.8 | 60.8 | 62.5 | 0  | 53.2 | 3 | S | 3 | 65.5 | 20.5 | 65.8 | 20.8 | 0.3 |
| DDDD06 | 16 | 54.7 | 57.7 | 57.8 | 2.8 | 60.6 | 62.4 | 0  | 53.0 | 3 | S | 3 | 65.5 | 20.5 | 65.7 | 20.7 | 0.2 |
| DDDD07 | 9  | 54.7 | 57.0 | 32.4 | 2.8 | 35.2 | 57.0 | 0  | 27.6 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD07 | 10 | 60.5 | 62.8 | 32.4 | 2.8 | 35.2 | 62.8 | 0  | 27.6 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD07 | 11 | 62.7 | 65.0 | 32.3 | 2.8 | 35.1 | 65.0 | 0  | 27.5 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| DDDD07 | 16 | 64.8 | 67.1 | 33.0 | 2.8 | 35.8 | 67.1 | 0  | 28.2 | 3 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE   | 1  | 70.2 | 73.6 | 26.4 | 2.8 | 29.2 | 73.6 | 31 | 21.7 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 2  | 71.2 | 74.6 | 26.4 | 2.8 | 29.2 | 74.6 | 31 | 21.7 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 3  | 71.4 | 74.8 | 26.5 | 2.8 | 29.3 | 74.8 | 31 | 21.8 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 4  | 71.3 | 74.7 | 26.5 | 2.8 | 29.3 | 74.7 | 31 | 21.8 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 5  | 71.2 | 74.6 | 26.6 | 2.8 | 29.4 | 74.6 | 31 | 21.8 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 6  | 70.9 | 74.3 | 26.7 | 2.8 | 29.5 | 74.3 | 31 | 21.9 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 7  | 70.6 | 74.0 | 26.8 | 2.8 | 29.6 | 74.0 | 31 | 22.0 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE   | 8  | 70.3 | 73.7 | 27.0 | 2.8 | 29.8 | 73.7 | 31 | 22.2 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE01 | 1  | 67.8 | 70.1 | 31.2 | 2.8 | 34.0 | 70.1 | 28 | 26.4 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 2  | 68.1 | 70.4 | 31.3 | 2.8 | 34.1 | 70.4 | 28 | 26.5 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 3  | 67.7 | 70.0 | 31.5 | 2.8 | 34.3 | 70.0 | 28 | 26.7 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 4  | 67.4 | 69.7 | 31.7 | 2.8 | 34.5 | 69.7 | 0  | 26.9 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 5  | 67.0 | 69.3 | 31.9 | 2.8 | 34.7 | 69.3 | 0  | 27.1 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 6  | 66.6 | 68.9 | 32.1 | 2.8 | 34.9 | 68.9 | 0  | 27.3 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 7  | 66.2 | 68.5 | 32.4 | 2.8 | 35.2 | 68.5 | 0  | 27.6 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE01 | 8  | 65.9 | 68.2 | 32.5 | 2.8 | 35.3 | 68.2 | 0  | 27.7 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE02 | 1  | 55.5 | 58.5 | 42.3 | 2.8 | 45.1 | 58.7 | 0  | 37.5 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 2  | 56.2 | 59.2 | 43.5 | 2.8 | 46.3 | 59.4 | 0  | 38.7 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 3  | 56.5 | 59.5 | 44.8 | 2.8 | 47.6 | 59.8 | 0  | 40.0 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 4  | 56.4 | 59.4 | 46.4 | 2.8 | 49.2 | 59.8 | 0  | 41.6 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 5  | 56.2 | 59.2 | 48.1 | 2.8 | 50.9 | 59.8 | 0  | 43.3 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 6  | 55.9 | 58.9 | 49.1 | 2.8 | 51.9 | 59.7 | 0  | 44.3 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 7  | 55.7 | 58.7 | 49.6 | 2.8 | 52.4 | 59.6 | 0  | 44.8 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE02 | 8  | 55.4 | 58.4 | 50.6 | 2.8 | 53.4 | 59.6 | 0  | 45.8 | 2 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| EEEE03 | 1  | 65.5 | 67.8 | 29.3 | 2.8 | 32.1 | 67.8 | 0  | 24.5 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 2  | 66.1 | 68.4 | 29.4 | 2.8 | 32.2 | 68.4 | 0  | 24.6 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 3  | 66.9 | 69.2 | 29.9 | 2.8 | 32.7 | 69.2 | 0  | 25.1 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 4  | 68.4 | 70.7 | 30.7 | 2.8 | 33.5 | 70.7 | 28 | 25.9 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 5  | 68.2 | 70.5 | 32.4 | 2.8 | 35.2 | 70.5 | 28 | 27.6 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 6  | 68.1 | 70.4 | 35.0 | 2.8 | 37.8 | 70.4 | 28 | 30.2 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 7  | 67.9 | 70.2 | 38.8 | 2.8 | 41.6 | 70.2 | 28 | 34.0 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE03 | 8  | 67.6 | 69.9 | 41.3 | 2.8 | 44.1 | 69.9 | 0  | 36.5 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE04 | 9  | 58.1 | 61.5 | 27.3 | 2.8 | 30.1 | 61.5 | 0  | 22.5 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE04 | 10 | 68.1 | 71.5 | 27.3 | 2.8 | 30.1 | 71.5 | 28 | 22.5 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE04 | 11 | 68.5 | 71.9 | 27.3 | 2.8 | 30.1 | 71.9 | 28 | 22.5 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE04 | 16 | 67.8 | 71.2 | 27.2 | 2.8 | 30.0 | 71.2 | 28 | 22.4 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE04 | 21 | 66.5 | 69.9 | 27.2 | 2.8 | 30.0 | 69.9 | 0  | 22.4 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE04 | 26 | 65.4 | 68.8 | 29.0 | 2.8 | 31.8 | 68.8 | 0  | 24.2 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |

|        |    |      |      |      |     |      |      |   |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|---|------|---|---|---|------|------|------|------|-----|
| EEEE04 | 28 | 65.1 | 68.5 | 28.8 | 2.8 | 31.6 | 68.5 | 0 | 24.0 | 2 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| EEEE05 | 9  | 54.7 | 57.0 | 34.7 | 2.8 | 37.5 | 57.0 | 0 | 29.9 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 10 | 62.8 | 65.1 | 34.7 | 2.8 | 37.5 | 65.1 | 0 | 29.9 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 11 | 64.4 | 66.7 | 34.7 | 2.8 | 37.5 | 66.7 | 0 | 29.9 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 16 | 66.2 | 68.5 | 36.0 | 2.8 | 38.8 | 68.5 | 0 | 31.2 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 21 | 65.2 | 67.5 | 53.1 | 2.8 | 55.9 | 67.8 | 0 | 48.3 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 26 | 64.6 | 66.9 | 53.6 | 2.8 | 56.4 | 67.3 | 0 | 48.8 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE05 | 28 | 64.2 | 66.5 | 53.5 | 2.8 | 56.3 | 66.9 | 0 | 48.7 | 2 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE06 | 9  | 54.7 | 57.7 | 51.7 | 2.8 | 54.5 | 59.4 | 0 | 46.9 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE06 | 11 | 54.7 | 57.7 | 52.9 | 2.8 | 55.7 | 59.8 | 0 | 48.1 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE06 | 16 | 54.7 | 57.7 | 52.9 | 2.8 | 55.7 | 59.8 | 0 | 48.1 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE06 | 21 | 54.7 | 57.7 | 52.7 | 2.8 | 55.5 | 59.7 | 0 | 47.9 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE06 | 26 | 54.7 | 57.7 | 52.5 | 2.8 | 55.3 | 59.7 | 0 | 47.7 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE06 | 28 | 54.7 | 57.7 | 52.4 | 2.8 | 55.2 | 59.6 | 0 | 47.6 | 2 | S | 3 | 65.5 | 20.5 | 65.6 | 20.6 | 0.1 |
| EEEE07 | 9  | 60.4 | 62.7 | 43.5 | 2.8 | 46.3 | 62.8 | 0 | 38.7 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 10 | 65.0 | 67.3 | 28.4 | 2.8 | 31.2 | 67.3 | 0 | 23.6 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 11 | 66.0 | 68.3 | 28.4 | 2.8 | 31.2 | 68.3 | 0 | 23.6 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 16 | 66.2 | 68.5 | 28.3 | 2.8 | 31.1 | 68.5 | 0 | 23.5 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 21 | 65.5 | 67.8 | 28.2 | 2.8 | 31.0 | 67.8 | 0 | 23.4 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 26 | 64.8 | 67.1 | 28.2 | 2.8 | 31.0 | 67.1 | 0 | 23.4 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| EEEE07 | 28 | 64.5 | 66.8 | 27.9 | 2.8 | 30.7 | 66.8 | 0 | 23.1 | 2 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 1  | 60.3 | 62.6 | 24.8 | 2.8 | 27.6 | 62.6 | 0 | 20.1 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 2  | 60.7 | 63.0 | 23.7 | 2.8 | 26.5 | 63.0 | 0 | 19.0 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 3  | 60.6 | 62.9 | 23.7 | 2.8 | 26.5 | 62.9 | 0 | 19.0 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 4  | 60.5 | 62.8 | 23.7 | 2.8 | 26.5 | 62.8 | 0 | 19.0 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 5  | 60.5 | 62.8 | 23.8 | 2.8 | 26.6 | 62.8 | 0 | 19.1 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 6  | 60.6 | 62.9 | 23.8 | 2.8 | 26.6 | 62.9 | 0 | 19.1 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 7  | 60.8 | 63.1 | 23.8 | 2.8 | 26.6 | 63.1 | 0 | 19.1 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF   | 8  | 61.1 | 63.4 | 23.5 | 2.8 | 26.3 | 63.4 | 0 | 18.8 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF01 | 1  | 54.7 | 57.0 | 24.2 | 2.8 | 27.0 | 57.0 | 0 | 19.5 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 2  | 54.7 | 57.0 | 24.2 | 2.8 | 27.0 | 57.0 | 0 | 19.5 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 3  | 54.7 | 57.0 | 24.3 | 2.8 | 27.1 | 57.0 | 0 | 19.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 4  | 54.7 | 57.0 | 24.3 | 2.8 | 27.1 | 57.0 | 0 | 19.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 5  | 56.7 | 59.0 | 24.4 | 2.8 | 27.2 | 59.0 | 0 | 19.7 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 6  | 63.7 | 66.0 | 24.5 | 2.8 | 27.3 | 66.0 | 0 | 19.8 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 7  | 63.1 | 65.4 | 24.5 | 2.8 | 27.3 | 65.4 | 0 | 19.8 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 8  | 63.9 | 66.2 | 24.5 | 2.8 | 27.3 | 66.2 | 0 | 19.8 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 9  | 64.5 | 66.8 | 24.5 | 2.8 | 27.3 | 66.8 | 0 | 19.8 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 10 | 65.0 | 67.3 | 39.4 | 2.8 | 42.2 | 67.3 | 0 | 34.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 11 | 65.3 | 67.6 | 39.4 | 2.8 | 42.2 | 67.6 | 0 | 34.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF01 | 16 | 65.5 | 67.8 | 39.5 | 2.8 | 42.3 | 67.8 | 0 | 34.7 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF02 | 1  | 65.3 | 67.6 | 27.3 | 2.8 | 30.1 | 67.6 | 0 | 22.5 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 2  | 66.0 | 68.3 | 27.4 | 2.8 | 30.2 | 68.3 | 0 | 22.6 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 3  | 66.1 | 68.4 | 27.5 | 2.8 | 30.3 | 68.4 | 0 | 22.7 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 4  | 66.1 | 68.4 | 28.1 | 2.8 | 30.9 | 68.4 | 0 | 23.3 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 5  | 66.0 | 68.3 | 28.8 | 2.8 | 31.6 | 68.3 | 0 | 24.0 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 6  | 65.9 | 68.2 | 30.3 | 2.8 | 33.1 | 68.2 | 0 | 25.5 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |

|        |    |      |      |      |     |      |      |   |      |   |   |   |      |      |      |      |     |
|--------|----|------|------|------|-----|------|------|---|------|---|---|---|------|------|------|------|-----|
| FFFF02 | 7  | 65.7 | 68.0 | 33.2 | 2.8 | 36.0 | 68.0 | 0 | 28.4 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF02 | 8  | 65.4 | 67.7 | 38.4 | 2.8 | 41.2 | 67.7 | 0 | 33.6 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF03 | 1  | 54.8 | 57.1 | 26.8 | 2.8 | 29.6 | 57.1 | 0 | 22.0 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 2  | 56.8 | 59.1 | 27.0 | 2.8 | 29.8 | 59.1 | 0 | 22.2 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 3  | 56.9 | 59.2 | 27.0 | 2.8 | 29.8 | 59.2 | 0 | 22.2 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 4  | 56.7 | 59.0 | 27.1 | 2.8 | 29.9 | 59.0 | 0 | 22.3 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 5  | 56.4 | 58.7 | 27.2 | 2.8 | 30.0 | 58.7 | 0 | 22.4 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 6  | 56.0 | 58.3 | 28.5 | 2.8 | 31.3 | 58.3 | 0 | 23.7 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 7  | 55.7 | 58.0 | 38.5 | 2.8 | 41.3 | 58.1 | 0 | 33.7 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF03 | 8  | 55.9 | 58.2 | 45.1 | 2.8 | 47.9 | 58.6 | 0 | 40.3 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF04 | 1  | 54.7 | 57.7 | 27.1 | 2.8 | 29.9 | 57.7 | 0 | 22.3 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 2  | 54.7 | 57.7 | 27.3 | 2.8 | 30.1 | 57.7 | 0 | 22.5 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 3  | 54.7 | 57.7 | 27.6 | 2.8 | 30.4 | 57.7 | 0 | 22.8 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 4  | 54.7 | 57.7 | 27.7 | 2.8 | 30.5 | 57.7 | 0 | 22.9 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 5  | 54.7 | 57.7 | 27.9 | 2.8 | 30.7 | 57.7 | 0 | 23.1 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 6  | 54.7 | 57.7 | 28.1 | 2.8 | 30.9 | 57.7 | 0 | 23.3 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 7  | 54.7 | 57.7 | 38.0 | 2.8 | 40.8 | 57.8 | 0 | 33.2 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 8  | 54.7 | 57.7 | 46.3 | 2.8 | 49.1 | 58.2 | 0 | 41.5 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 9  | 54.7 | 57.7 | 47.1 | 2.8 | 49.9 | 58.3 | 0 | 42.3 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 10 | 54.7 | 57.7 | 48.3 | 2.8 | 51.1 | 58.5 | 0 | 43.5 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 11 | 54.7 | 57.7 | 48.4 | 2.8 | 51.2 | 58.6 | 0 | 43.6 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF04 | 16 | 58.4 | 61.4 | 48.4 | 2.8 | 51.2 | 61.8 | 0 | 43.6 | 1 | E | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF05 | 1  | 54.7 | 57.7 | 30.5 | 2.8 | 33.3 | 57.7 | 0 | 25.7 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 2  | 54.9 | 57.9 | 31.7 | 2.8 | 34.5 | 57.9 | 0 | 26.9 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 3  | 54.8 | 57.8 | 33.8 | 2.8 | 36.6 | 57.8 | 0 | 29.0 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 4  | 54.7 | 57.7 | 34.6 | 2.8 | 37.4 | 57.7 | 0 | 29.8 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 5  | 54.7 | 57.7 | 35.8 | 2.8 | 38.6 | 57.7 | 0 | 31.0 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 6  | 54.7 | 57.7 | 37.3 | 2.8 | 40.1 | 57.8 | 0 | 32.5 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 7  | 54.7 | 57.7 | 37.4 | 2.8 | 40.2 | 57.8 | 0 | 32.6 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF05 | 8  | 57.9 | 60.2 | 37.4 | 2.8 | 40.2 | 60.2 | 0 | 32.6 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF06 | 9  | 54.7 | 57.0 | 24.4 | 2.8 | 27.2 | 57.0 | 0 | 19.7 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF06 | 10 | 58.0 | 60.3 | 24.4 | 2.8 | 27.2 | 60.3 | 0 | 19.7 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF06 | 11 | 59.6 | 61.9 | 24.4 | 2.8 | 27.2 | 61.9 | 0 | 19.7 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF06 | 16 | 61.1 | 63.4 | 25.5 | 2.8 | 28.3 | 63.4 | 0 | 20.8 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF07 | 9  | 54.7 | 57.0 | 44.2 | 2.8 | 47.0 | 57.4 | 0 | 39.4 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF07 | 10 | 56.4 | 58.7 | 48.8 | 2.8 | 51.6 | 59.5 | 0 | 44.0 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF07 | 11 | 61.8 | 64.1 | 49.0 | 2.8 | 51.8 | 64.3 | 0 | 44.2 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF07 | 16 | 64.2 | 66.5 | 49.0 | 2.8 | 51.8 | 66.6 | 0 | 44.2 | 1 | W | 7 | 72.4 | 27.4 | 72.4 | 27.4 | 0.0 |
| FFFF08 | 9  | 54.7 | 57.0 | 24.9 | 2.8 | 27.7 | 57.0 | 0 | 20.2 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF08 | 10 | 54.7 | 57.0 | 39.4 | 2.8 | 42.2 | 57.1 | 0 | 34.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF08 | 11 | 59.4 | 61.7 | 39.4 | 2.8 | 42.2 | 61.7 | 0 | 34.6 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF08 | 16 | 64.0 | 66.3 | 39.6 | 2.8 | 42.4 | 66.3 | 0 | 34.8 | 1 | N | 6 | 78.2 | 33.2 | 78.2 | 33.2 | 0.0 |
| FFFF09 | 9  | 54.7 | 57.7 | 39.9 | 2.8 | 42.7 | 57.8 | 0 | 35.1 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF09 | 10 | 54.7 | 57.7 | 42.1 | 2.8 | 44.9 | 57.9 | 0 | 37.3 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF09 | 11 | 54.7 | 57.7 | 42.2 | 2.8 | 45.0 | 57.9 | 0 | 37.4 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |
| FFFF09 | 16 | 54.7 | 57.7 | 42.3 | 2.8 | 45.1 | 57.9 | 0 | 37.5 | 1 | S | 3 | 65.5 | 20.5 | 65.5 | 20.5 | 0.0 |



THE CITY OF NEW YORK  
OFFICE OF THE MAYOR  
NEW YORK, NY 10007

## **Technical Memorandum for the Seward Park Mixed-Use Development Project FGEIS**

### **CEQR Number 11DME012M Technical Memorandum 002**

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#### **A. INTRODUCTION**

On August 10, 2012 the Office of the Deputy Mayor for Economic Development (ODMED), as Lead Agency, issued a Notice of Completion for the Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS) that was prepared in coordination with the New York City Economic Development Corporation (NYCEDC) and New York City Department of Housing Preservation & Development (HPD). Following the issuance of the Notice of Completion, the New York City Council (City Council) proposed certain modifications to the Uniform Land Use Review Procedure (ULURP) applications (the “Applications” or the “proposed actions”) as a result of its review of the Applications. In addition, HPD submitted a revised Urban Development Action Area Project (UDAAP) project summary (the “UDAAP Revised Project Summary”) to the City Council to be reflected in the City Council’s resolution regarding the project, and the City stated certain intentions, as reflected in a letter dated September 27, 2012, from Robert K. Steel, Deputy Mayor for Economic Development, to Councilmember Margaret Chin. Those modifications were assessed in a Technical Memorandum (CEQR Number 11DME012M TM001) dated October 1, 2012 (Technical Memorandum 001). The New York City Department of City Planning is considering a minor modification to the Applications, which is proposed by NYCEDC and HPD.

The proposed modification would increase the size of the proposed open space on Site 5 to 15,000 square feet from the 10,000 square feet assessed in the FGEIS. The larger open space would be reflected in a revised Site 5 plan that would be part of the approved ULURP drawing set, and the proposed modification, which is described and assessed below, would affect the special permit pursuant to Zoning Resolution (ZR) Section 74-743 for a Large Scale General Development (LSGD).

This Technical Memorandum describes the proposed modification and whether it would result in any significant adverse environmental impacts not already identified in the FGEIS. As discussed below, this Technical Memorandum concludes that the proposed modification would not result in any significant adverse environmental impacts not already identified in the FGEIS.

#### **B. DESCRIPTION OF THE PROPOSED MODIFICATION**

Under the proposed modification, the ULURP drawing set would be modified to increase the size of the publicly accessible open space included as part of the proposed development from

10,000 square feet, as assessed in the FGEIS, to 15,000 square feet. The proposed open space would continue to be located on the Broome Street portion of Site 5, as assessed in the FGEIS. For analysis purposes, it is assumed, as in the FGEIS, that approximately half of the open space would be dedicated to passive open space and the other half to active open space. To allow for the larger publicly accessible open space, the LSGD special permit pursuant to ZR section 74-743 would be modified in order to reduce the size of the maximum zoning envelope on Site 5, and the larger open space would be reflected in a revised Site 5 plan that would be part of the approved drawing set.

Under the proposed modification, the publicly accessible open space on Site 5 would have a footprint that is 25 feet deeper than assessed in the FGEIS (i.e., it would extend approximately 76 feet back from the property line on Broome Street, compared to 51 feet assessed in the FGEIS). Although the larger footprint of the proposed publicly accessible open space would shift the northern face of the maximum zoning envelope established for development on Site 5 back an additional 25 feet from Broome Street, the remaining dimensions—including maximum height—of the zoning envelope would not change. Therefore, the illustrative massings for a development on Site 5 would be similar under the proposed modification to the illustrative massings analyzed in the FGEIS (see **Figure 1**). Further, while the proposed modification would reduce the footprint for development on Site 5, it would still allow for NYCEDC and HPD to make approximately 15,000 square feet of land on Site 5 available to the New York City School Construction Authority for the potential provision of a school, as analyzed in Technical Memorandum 001.

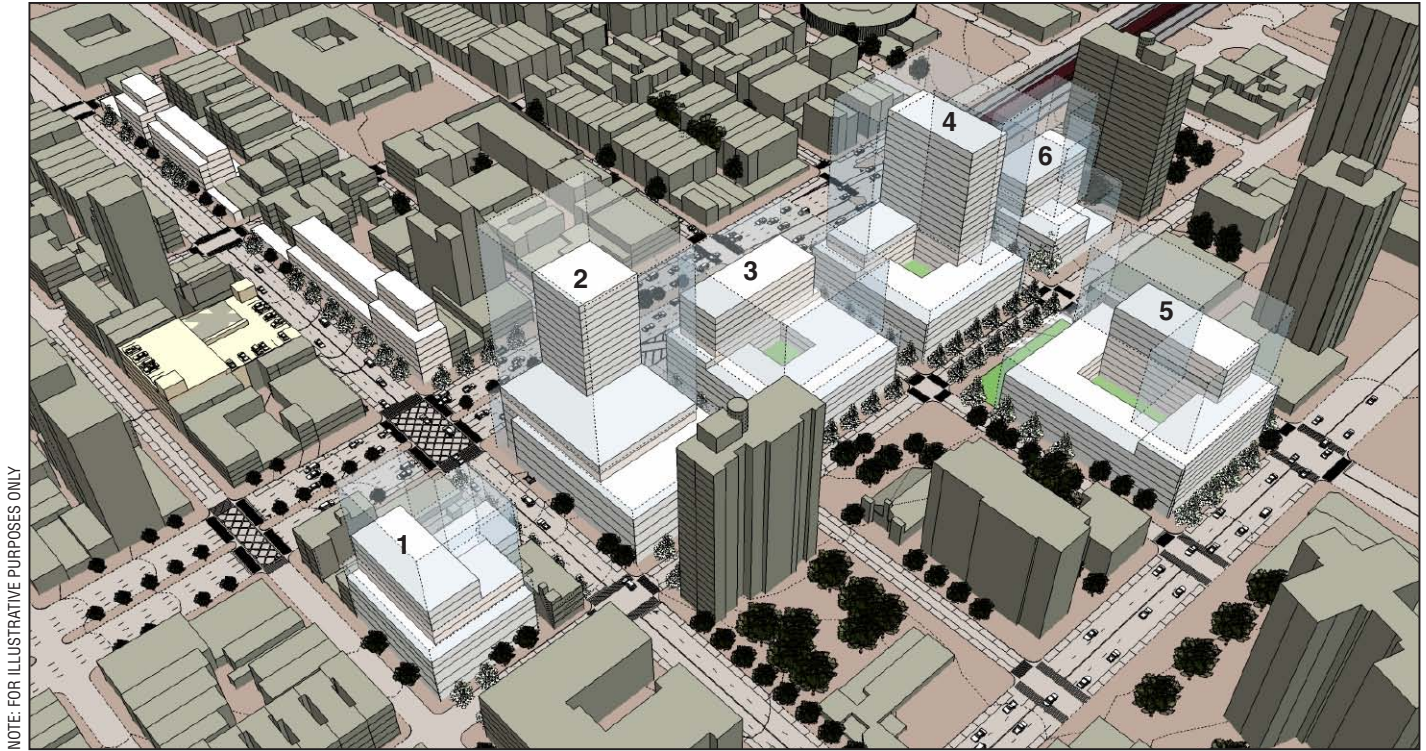
### **C. POTENTIAL IMPACTS OF THE PROPOSED MODIFICATION**

The proposed modification would not affect the RWCDs program for the proposed development. Therefore, for those impact areas for which the analysis was based on the RWCDs program, the conclusions of the FGEIS and Technical Memorandum 001 would be unchanged by the proposed modification. In terms of the site plan and RWCDs massing, the proposed modification would only affect Site 5. Since changes to the site plan of Site 5 only relate to a slight increase in the size of the proposed open space, with a minor reduction in the size of the maximum zoning envelope of that site, the proposed modification would not alter the analyses of historic and cultural resources, urban design and visual resources, and hazardous materials. Therefore, the analyses below address those studies where the proposed modification could represent a material change from the RWCDs massing and site plan of Site 5 analyzed in the FGEIS.

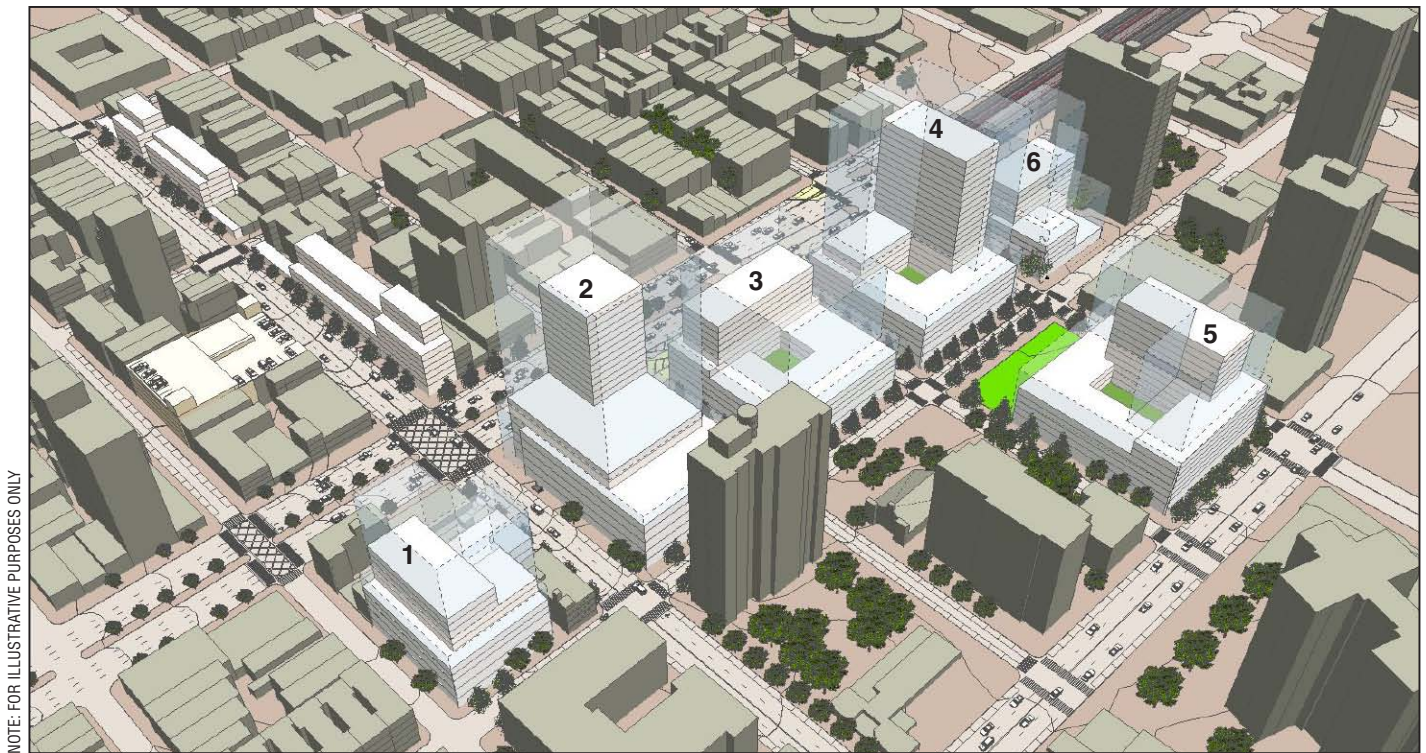
#### **LAND USE, ZONING AND PUBLIC POLICY**

The increase in size in the proposed open space would improve land use conditions on the project site and in the study area and would be consistent with applicable public policies. To facilitate this land use change, the proposed modification would affect one zoning action, the special permit pursuant to ZR Section 74-743 for an LSGD, and it would not introduce new discretionary actions that were not assessed in the FGEIS. The larger open space would be reflected in a revised Site 5 plan that would be part of the approved drawing set. Therefore, the proposed modification would not result in any significant adverse impacts on land use or zoning on the development sites or in the study area.





Proposed Actions Assessed in FGEIS 1



Proposed Actions with Open Space Modification 2

Illustrative Renderings with  
Maximum Building Envelopes and RWCDS Massing -  
View Northeast

Figure 1

**OPEN SPACE**

The additional 5,000 square feet of project-generated open space would increase the total 0.23 acres of open space (0.11 active and 0.12 passive) assessed in the FGEIS to 0.34 acres (0.16 active and 0.18 passive). The proposed modification would not alter the findings of the open space analyses presented in the FGEIS and Technical Memorandum 001. As shown in **Table 1**, given the additional 5,000 square feet of proposed open space, the With-Action open space ratio for workers in the commercial (¼-mile) study area would improve by approximately 0.84 percent from the analysis presented in the FGEIS (from -11.45 percent to -10.61 percent) and by approximately 0.68 percent from the analysis presented in the Technical Memorandum 001 (from -11.29 percent to -10.61 percent). As with the FGEIS, the proposed modifications would continue to result in a decrease in the passive open space for workers in the study area from the No-Action condition, but the open space ratio would still remain almost five times above the City’s recommended guideline ratio. Therefore, the proposed modification, like the proposed actions, would not result in any significant adverse impacts on open space resources in the commercial study area

**Table 1**  
**2022 Open Space Ratios Summary**  
**Future with the Proposed Modifications**

| Ratio  | DCP Guideline | Existing Ratio | No-Action Ratio | With-Action Ratio - FGEIS | With-Action Ratio - Proposed Modifications TM 001 | With-Action Ratio - Proposed Modification TM 002 | Percent Change No-Action to With-Action (FGEIS/TM 001/TM 002) |
|--|---------------|----------------|-----------------|---------------------------|---|--|---|
| <b>Non-Residential Study Area</b>              |               |                |                 |                           |   |  |   |
| Passive/non-residents                          | 0.15          | 0.82           | 0.78            | 0.69                      | 0.70  | 0.70   | -11.45% / -11.29% / -10.61%                                   |
| <b>Residential Study Area</b>                  |               |                |                 |                           |   |  |   |
| Total/residents                                | 2.5           | 0.79           | 0.83            | 0.82                      | 0.81  | 0.82   | -1.32% / -1.49% / -1.38%                                      |
| Passive/residents                              | 0.5           | 0.23           | 0.26            | 0.26                      | 0.26  | 0.26   | -1.18% / -1.35% / -1.17%                                      |
| Active/residents                               | 2.0           | 0.56           | 0.57            | 0.56                      | 0.56  | 0.56   | -1.38% / -1.55% / -1.48%                                      |
| <b>Note:</b> Ratios in acres per 1,000 people. |               |                |                 |                           |   |  |   |

As shown in **Table 1**, the increase in open space with the proposed modification would result in a slight increase in the passive open space ratio for the residential study area compared to the With-Action passive open space ratio presented in Technical Memorandum 001 and would result in the same passive open space ratio presented in the FGEIS. As with the proposed actions, the open space ratios with the proposed modification would continue to fall short of the City’s recommended open space ratio guidelines. However, the decrease from the No-Action condition with the proposed modification would remain 1.48 percent or less and would not constitute a substantial change. Therefore, the proposed modification would not result in any significant adverse impacts on open space resources in the residential study area.

**SHADOWS**

As described above, with the proposed modification the footprint of the proposed open space on Site 5 would extend approximately 76 feet back from the property line on Broome Street, compared to 51 feet assessed in the FGEIS. As a result, the north face of the maximum zoning envelope on Site 5, which abuts the proposed open space, would correspondingly shift 25 feet southward away from Broome Street, and it would still remain within the maximum zoning envelope studied in the FGEIS. Other than this 25-foot reduction in the north-south dimension, the maximum zoning envelope, including its height and upper floor setbacks, would not change

compared to what was assessed in the FGEIS. With the proposed modification, as with the proposed actions, the maximum zoning envelope established for Site 5 would not result in significant adverse shadows impacts. The proposed modification would not affect the maximum zoning envelopes for any of the other proposed development sites or the potential shadow effects from those sites on study area resources.

Shadow that would be cast from the northern 25 feet of the maximum zoning envelope on Site 5 analyzed in the FGEIS would not exist with the proposed modification. A detailed analysis of the modified maximum zoning envelope for Site 5 showed that, in terms of project-generated shadows on sunlight-sensitive resources, shadows would be the same as in the FGEIS on the March 21/September 21 analysis day, the December 21 analysis day, and the June 21 analysis day.

On the May 6/August 6 analysis day, shadows with the proposed modification would also be the same as in the FGEIS with one exception: late in the afternoon, when shadows fall to the east, there would be less incremental shadow on the New York City Housing Authority-owned open space at 150 Broome Street with the proposed modification, compared with the FGEIS. Specifically, with the proposed actions assessed in the FGEIS, the maximum zoning envelope on Site 5 would cast an area of shadow on the open space from 4:20 PM to 5:18 PM, whereas with the proposed modification, the maximum zoning envelope on Site 5 would cast a much smaller area of shadow, and for a shorter duration from 4:30 PM to 5:05 PM.

Shadows that would be cast on the proposed publicly accessible open space on Site 5 would be similar to those described in the FGEIS in the fall, winter, and early spring. On the May 6/August 6 and June 21 analysis days, a larger area of the open space would remain in sun with the proposed modification than with the proposed actions analyzed in the FGEIS.

## **WATER AND SEWER INFRASTRUCTURE**

The proposed open space modification would result in an increase in area from 10,000 square feet to 15,000 square feet, and there would be no change in water demand or sanitary sewage generated. Therefore, there will be no change to the water demand and sanitary sewage generated as compared to the proposed modifications assessed in Technical Memorandum 001.

### *STORMWATER*

Under the proposed modification, the area of the open space on Site 5 included as part of the proposed development would be increased by 5,000 square feet from what was assessed in the FGEIS. As a result, as shown in **Table 2**, the weighted runoff coefficient of CSO outfall subcatchment areas NCM-042, 059 and 060 would decrease from 0.96 to 0.94. Surface coverage for CSO subcatchment areas NCM-020, 028, 057, 058, and 063 would not change under the proposed modification; therefore refer to the FGEIS for the surface coverage calculations.

Following the same methodology as the FGEIS, the DEP Flow Volume Calculation Matrix was completed for the existing and With-Action conditions. The summary tables, taken from the DEP Flow Volume Calculation Matrix, are shown in **Table 3** and include both the proposed modifications assessed in Technical Memorandum 001, which would slightly increase the amount of sanitary sewage generated, and the proposed open space modification. The program and surface coverage analyzed in the FGEIS for Sites 2, 8, 9, and 10 would not change; therefore, refer to the FGEIS for the summary tables for subcatchment areas NCM-020, 028, 057, and 058. The surface coverage of CSO subcatchment area NCM-063 would not change

under the proposed open space modification; therefore, refer to Technical Memorandum 001 for the summary table that assesses RWCDs program compared to the FGEIS.

**Table 2  
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-042              | Building Roofs | 67,354/93%                           | Combined Sewer              |                             |                                      |  |
|                      | Vegetation     | 5,000/7%                             | Infiltration/Combined Sewer |                             |                                      |  |
|                      | <b>Total</b>   | <b>72,354/100%</b>                   |                             | <b>0.94</b>                 | <b>0.87</b>                          | <b>+0.07</b>                             |
| NCM-059              | Building Roofs | 67,353/93%                           | Combined Sewer              |                             |                                      |  |
|                      | Vegetation     | 5,000/7%                             | Infiltration/Combined Sewer |                             |                                      |  |
|                      | <b>Total</b>   | <b>72,353/100%</b>                   |                             | <b>0.94</b>                 | <b>0.87</b>                          | <b>+0.07</b>                             |
| NCM-060              | Building Roofs | 67,353/93%                           | Combined Sewer              |                             |                                      |  |
|                      | Vegetation     | 5,000/7%                             | Infiltration/Combined Sewer |                             |                                      |  |
|                      | <b>Total</b>   | <b>72,353/100%</b>                   |                             | <b>0.94</b>                 | <b>0.87</b>                          | <b>+0.07</b>                             |

Sources: Draft Large Scale General Development site plans, dated September 2011.

**Table 3  
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 (%) |
|-----------------------|-------------------------|------------------------------------|-----------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------|--------------------------------------|---|
| <b>NCM-042</b>        |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-042 Increment</b>             |   |
|                       |                         | 72,354 sf / 1.66 Acres             |                             |                             |                          | 72,354 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00                  | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40                  | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0199                               | 127   |
| 1.20                  | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0593                               | 126   |
| 2.50                  | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1039                               | 106   |
| <b>NCM-059</b>        |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-059 Increment</b>             |   |
|                       |                         | 72,353 sf / 1.66 Acres             |                             |                             |                          | 72,353 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00                  | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40                  | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0199                               | 127   |
| 1.20                  | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0593                               | 126   |
| 2.50                  | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1039                               | 106   |
| <b>NCM-060</b>        |                         | Existing                           |                             |                             |                          | Build                       |                             |                             |                          | <b>NCM-060 Increment</b>             |   |
|                       |                         | 72,353 sf / 1.66 Acres             |                             |                             |                          | 72,353 sf / 1.66 Acres      |                             |                             |                          |                                      |   |
| 0.00                  | 3.80                    | 0.00                               | 0.00                        | 0.00                        | 0.00                     | 0.00                        | 0.00                        | 0.02                        | 0.02                     | 0.0185                               | *   |
| 0.40                  | 3.80                    | 0.00                               | 0.02                        | 0.00                        | 0.02                     | 0.00                        | 0.02                        | 0.02                        | 0.04                     | 0.0199                               | 127   |
| 1.20                  | 11.30                   | 0.00                               | 0.05                        | 0.00                        | 0.05                     | 0.00                        | 0.05                        | 0.06                        | 0.11                     | 0.0593                               | 126   |
| 2.50                  | 19.50                   | 0.00                               | 0.10                        | 0.00                        | 0.10                     | 0.00                        | 0.11                        | 0.10                        | 0.20                     | 0.1039                               | 106   |

**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 3**, the range of the percent increase in total combined sewer discharge to subcatchment area NCM-042, 059, and 060 with both the proposed modifications assessed in Technical Memorandum 001 and the proposed open space modification, compared to the range of percent increase in the FGEIS, increased from a range of 103 to 123 percent to a range of 106 to 127 percent.

As with the FGEIS analysis, the Flow Volume Matrix calculations do not reflect the use of any best management practices (BMPs) to reduce sanitary and stormwater runoff volumes to the combined sewer system. BMPs would be required as part of the DEP site connection approval process. These BMPs, as assessed in the FGEIS, would achieve an overall release rate of 0.25 cubic feet per second (cfs) or 10 percent of the allowable flow rate (whichever is greater) from the proposed development sites. The BMP Concept Plan in the FGEIS summarizes the potential BMPs that would be suitable for implementation within the proposed development sites.

Under the proposed modifications (both the proposed open space modification and the modifications assessed in Technical Memorandum 001), with the incorporation of select BMPs outlined in the BMP Concept Plan documented in the FGEIS, the overall volume of stormwater runoff would be slightly reduced and the peak stormwater runoff rate would remain the same as compared to the proposed actions assessed in the FGEIS with BMPs incorporated. In conclusion, the proposed modifications, like the proposed actions, would not result in any significant adverse impacts to wastewater treatment or stormwater conveyance infrastructure.

## CONCLUSIONS

As described above, the City's proposed modification to the proposed actions would not result in any significant adverse environmental impacts that were not previously identified in the FGEIS. The proposed modification would not affect the majority of the environmental impact areas assessed in the FGEIS. For those impact areas that would be affected by the proposed modification, there would not be any new significant adverse impacts that were not previously disclosed in the FGEIS. \*



Robert R. Kulikowski, Ph.D.  
Assistant to the Mayor

October 22, 2012  
Date

**Technical Memorandum for the  
Seward Park Mixed-Use Development Project FGEIS  
CEQR Number 11DME012M  
Technical Memorandum 003  
March 9, 2015**

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**A. INTRODUCTION**

The applicant proposes use changes to the previously approved development program (described in the Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS), Technical Memorandum 001, and Technical Memorandum 002) and design controls determined as part of a Large-Scale General Development (LSGD) applicable to Sites 1-6 of the proposed mixed-use development program (“Essex Crossing program”). The proposed 1.98 million-gross-square foot (gsf) mixed-use development would result in the following changes, as compared to the FGEIS and Technical Memoranda 001 and 002:

- Increase of overall development size by approximately 16.6 percent (281,405 gsf);
- Increase of public market by 13,876 gsf;
- Of the 1,000 residential units, 400 would be affordable units and 100 would be affordable senior units;
- Increase of school space by 9,000 gsf;
- Reduction of retail space by 177,222 gsf;
- Increase of “Other Commercial Space” by 344,427 gsf (including the following uses: commercial office, a gym, a bowling alley, and a movie theater);
- Elimination of 500 parking spaces;
- Increase of “Other Community Facility space” by 31,092 gsf; and
- Omission of previously proposed hotel use of 97,450 gsf.

As a result of these use changes and the advanced project design at this point in time, the proposed Essex Crossing program requires Minor Modification to the LSGD design controls for Sites 1 and 5, as well as a Board of Standards and Appeals (BSA) Special Permit pursuant to New York City Zoning Resolution (ZR) Section 73-36 to allow for a physical culture or health establishment (gym) on Site 1, which is located within a C6-1 commercial zoning district.

**BACKGROUND**

On August 10, 2012 the Office of the Deputy Mayor for Economic Development<sup>1</sup> (ODMED), as Lead Agency, issued a Notice of Completion for the Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS) that was prepared in coordination with the New

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<sup>1</sup> The Office formerly known as the Deputy Mayor for Economic Development is now the Office of the Deputy Mayor for Housing and Economic Development (ODMHED).

York City Economic Development Corporation (NYCEDC) and New York City Department of Housing Preservation & Development (HPD). Following the issuance of the Notice of Completion, the New York City Council (City Council) proposed certain modifications to the Uniform Land Use Review Procedure (ULURP) applications (the “Applications” or the “proposed actions”) as a result of its review of the Applications. In addition, HPD submitted a revised Urban Development Action Area Project (UDAAP) project summary (the “UDAAP Revised Project Summary”) to the City Council to be reflected in the City Council’s resolution regarding the project, and the City stated certain intentions, as reflected in a letter dated September 27, 2012, from Robert K. Steel, Deputy Mayor for Economic Development, to Councilmember Margaret Chin. Those modifications were assessed in a Technical Memorandum (CEQR Number 11DME012M TM 001) dated October 1, 2012 (Technical Memorandum 001). The proposed modifications assessed in Technical Memorandum 001 increased the number of residential units in the reasonable worst-case development scenario (RWCDS) to 1,000 from the 900 units assessed in the FGEIS, included the potential for a school on Site 5 as part of the RWCDS, and revised the Large Scale General Development (LSGD) ground floor plans for Zoning Lots 2, 3, and 4 to eliminate the second waiver to the ground floor frontage requirements. Technical Memorandum 001 concluded that the proposed modifications to the proposed actions would not result in any significant adverse environmental impacts that were not previously identified in the FGEIS.

Further, the New York City Department of City Planning reviewed a minor modification to the Applications, which was proposed by NYCEDC and HPD, in Technical Memorandum 002 (CEQR Number 11DME012M TM 002). The proposed modification increased the size of the proposed open space on Site 5 to 15,000 square feet from the 10,000 square feet assessed in the FGEIS. Technical Memorandum 002 concluded that the proposed modification would not result in any significant adverse environmental impacts not already identified in the FGEIS.

Since the issuance of the 2012 FGEIS and subsequent Technical Memoranda 001 and 002, the City of New York issued a developer’s Request for Proposal for the sites and selected Delancey Street Associates (DSA) as the designated developer for the project sites. DSA has proposed a specific program for each site and specific buildings designs for the six sites located within the LSGD (Sites 1-6). As with the FGEIS RWCDS, Site 7, a public parking garage, would not be redeveloped under the Essex Crossing program, and therefore, is not included in the analysis and is not analyzed in this Technical Memorandum. This Technical Memorandum assumes the most up to date program information for Sites 8-10; however, development of Sites 8-10 are further out in the completion timeline and thus are not as developed as those for Sites 1-6. The proposed program (“Essex Crossing program”) is different from the program analyzed in the 2012 FGEIS (“FGEIS program”) and subsequent Technical Memoranda 001 and 002 (“approved program”). Primary differences in the Essex Crossing program for Sites 1-6 include: an increase in public market space; a reduction of retail space; the elimination of the hotel; the addition of sub-grade retail space, a gym (Physical Culture Establishment), movie theater, bowling alley, and museum space; an increase in the amount of professional office space; and the elimination of 500 parking spaces. With the Essex Crossing program, the same uses would be introduced on Sites 8, 9, and 10 as the approved program; however, there would be shifts in retail and residential space on these sites with the Essex Crossing program.

In addition to programming changes, the full completion of the entire Essex Crossing program is expected to extend beyond the 2022 Build year analyzed in the FGEIS and subsequent Technical Memoranda 001 and 002. Due to lease agreements with the current tenants of Site 10, the development of approximately 14 residential units and 5,311 gsf of retail space in that building could not begin until 2021 and which would last until 2024. The development of the other Sites is expected to be complete by 2022, as was analyzed in the 2012 FGEIS. Considering the

unfinished Site 10 development would represent only 1.4 percent of the total Essex Crossing program floor area, it would have little bearing on the impacts anticipated for the overall project, which would largely materialize by 2022 and for which mitigation measures would need to be implemented. Therefore, for analysis purposes, 2022 is still the appropriate analysis year for assessing potential impacts from the Essex Crossing program.

The purpose of this Technical Memorandum is to determine whether the proposed Essex Crossing program would result in any significant adverse environmental impacts not already identified in the 2012 FGEIS and subsequent Technical Memoranda 001 and 002. As set forth below, this Technical Memorandum (Technical Memorandum 003) concludes that the proposed Essex Crossing program would not result in such impacts.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City.

The development described below will require approval by the New York City Planning Commission (CPC) of an application for Minor Modification to a previously approved Seward Park LSGD Special Permit (C 120228 ZSM) to modify the design controls applicable to the LSGD for Site 1 and Site 5. Also, the addition of the gym to the program will require a Special Permit by BSA to allow a Physical Culture Establishment.

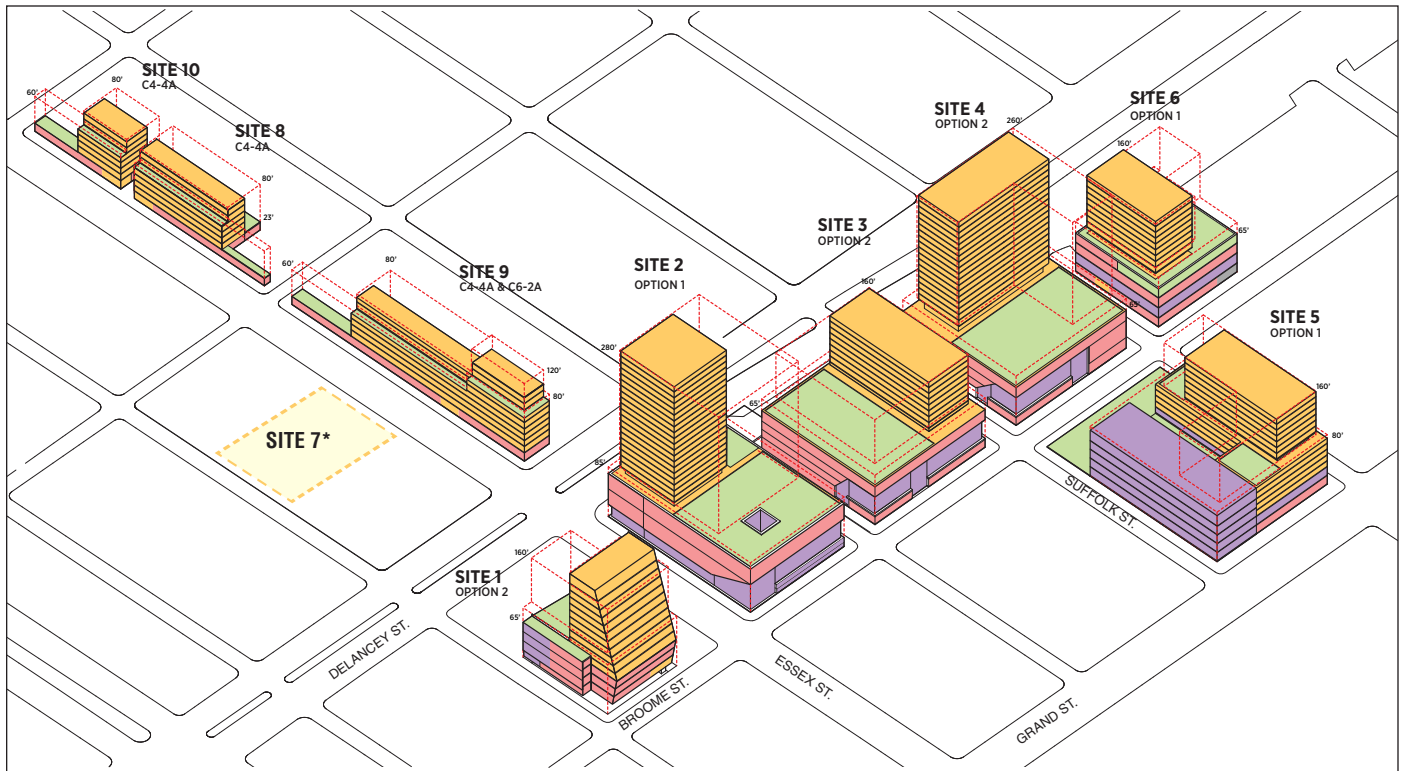
## **B. DESCRIPTION OF THE PROPOSED DEVELOPMENT**

The proposed Essex Crossing program would introduce an approximately 1.98 million-gsf mixed-use development, which would be about 16.6 percent larger than the 1.70 million gsf approved program. As described below, the proposed buildings on Sites 1-6 would be within the limits of the maximum zoning envelopes established according to the LSGD rules and the future developments on Sites 8, 9, and 10 would be compliant with zoning (see **Figure 1**). **Table 1** compares the proposed Essex Crossing development with the approved program. Like the approved program, the proposed Essex Crossing program would provide 1,000 residential units. Of these residential units, there would be approximately 400 affordable units and 100 affordable senior housing units.

As shown in **Table 1**, the allowable zoning floor area for the proposed Essex Crossing program is 1.65 million zoning square feet (zsf), which is 5,128 zsf larger than the approved program. Tables 2, 3, 6, and 7 present proposed zsf estimates for Sites 1, 2, 5 and 6, respectively. The zsf estimates presented for the other sites (Sites 3, 4, 8, 9, and 10) are preliminary and may be further refined. While there may be nominal shifts in zsf for the other sites, the total zsf for the proposed Essex Crossing Program will not exceed the total amount presented in Table 1. Also, as the plans for each site are further refined, there may be shifts in the gsf estimates presented in Tables 1-10.

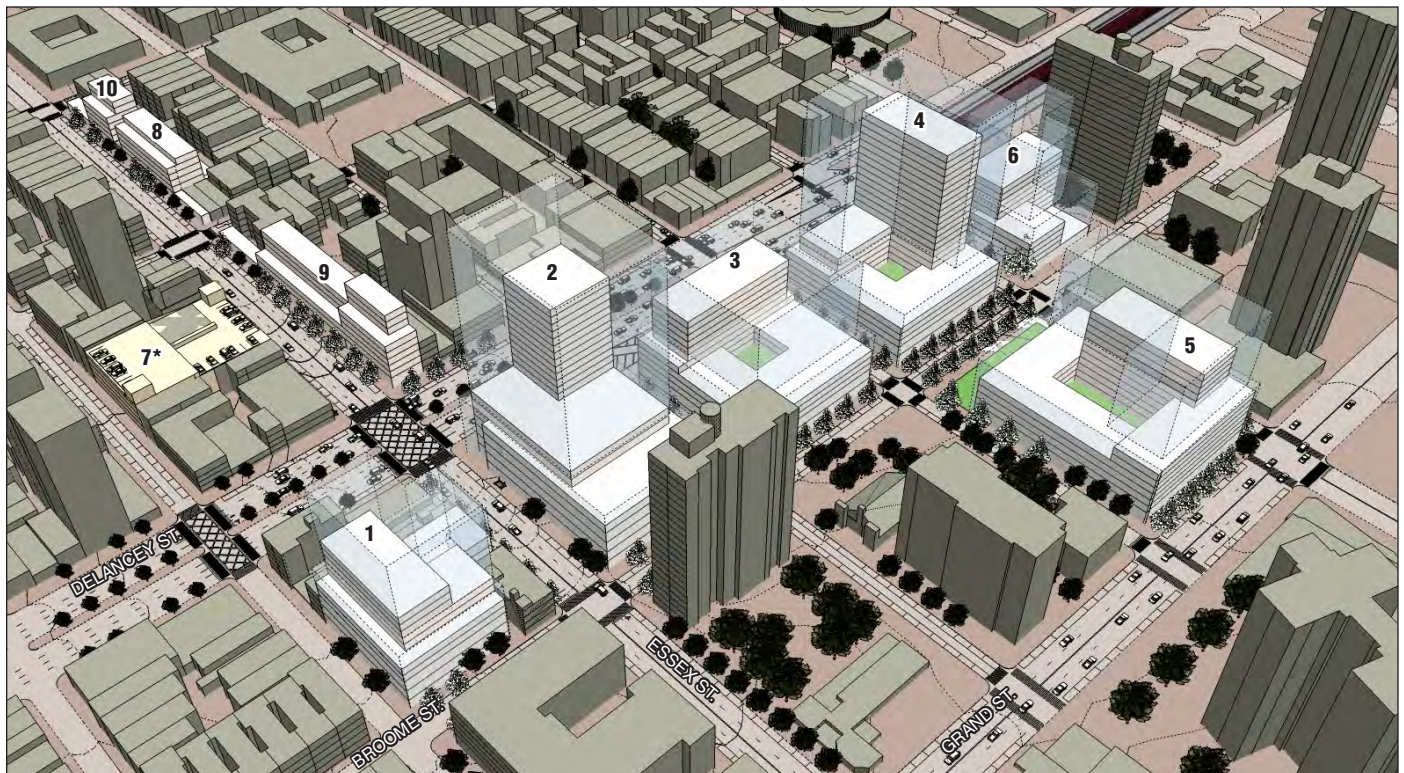
The proposed Essex Crossing program would introduce 715,886 gsf of commercial space, including retail (292,127 gsf), public market (43,028 gsf), and other commercial uses (380,731 gsf). “Other commercial uses” include commercial office, a gym, a bowling alley, and a movie theater. There would be 13 percent more commercial space than with the approved program, which would introduce 632,255 gsf of commercial space, including retail (469,349 gsf), hotel (97,450 gsf), public market (29,152 gsf), and other commercial space (36,304 gsf). The retail





FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Essex Crossing Development



FOR ILLUSTRATIVE PURPOSES ONLY

FGEIS Illustrative Rendering with Maximum Building Envelopes and RWCDs Massing

\*Site 7 would not be redeveloped under the approved program or the Essex Crossing Program

Proposed and Illustrative FGEIS Renderings  
View Northwest  
Figure 1

**Table 1**  
**Total Proposed Essex Crossing Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Res. (gsf)  | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 1,653,125                         | 1,978,842                    | 977,324 (1) | 292,127      | 0           | 380,731 (2)        | 43,028              | 75,000       | 72,092 (3)      | 131,540 (4) |
| Tech Memo 001                   | 1,647,997                         | 1,697,437                    | 951,182     | 469,349      | 97,450      | 36,304             | 29,152              | 66,000       | 48,000          | 0           |
| Increment                       | 5,128                             | 281,405                      | 26,142      | -177,222     | -97,450     | 344,427            | 13,876              | 9,000        | 31,092          | 131,540     |

**Note:**

- (1) 1,000 residential units (including 400 affordable units and 100 affordable senior units)
- (2) "Other Commercial Space" includes 237,708 gsf of office space, a 29,986 gsf gym (Physical Culture Establishment), 17,629 gsf bowling alley, and a 95,408 gsf movie theater.
- (3) Other Community Facility space includes 16,547 gsf of medical office space, 16,545 gsf museum, and 46,000 gsf of general community facility space.
- (4) Other includes 39,891 gsf of MEP, back of house, and support space; 79,364 gsf of mechanical space, 11,352 gsf Broome Street Gardens, and 933 gsf of subway space. Analyses including Transportation, Socioeconomic Conditions, Open Space, Water and Sewer Infrastructure, Solid Waste, and Energy allocate this other space to specific uses.
- (5) No parking spaces would be provided with the proposed Essex Crossing. In comparison, the FGEIS program and the approved program included the provision of up to 500 parking spaces on up to four sites (Sites 2 through 5).
- (6) A rooftop farm would be added on Site 2.

\* Comm.= Commercial, CF= Community Facility

**Source:** Proposed program provided by the Applicant.

space that would be introduced with the proposed Essex Crossing program would include 43,028 gsf of public market space and 292,127 gsf of local and destination retail space, for a total of 335,155 gsf of retail space. The total amount of retail is lower than the approved plan's 498,501 gsf of retail that includes 469,349 gsf of local and destination retail and 29,152 gsf of public market space. The proposed Essex Crossing program would introduce 237,708 gsf of commercial office space. In comparison, the approved program assumed approximately 36,304 gsf of non-specific commercial uses, some of which could be office space. The proposed Essex Crossing program would also introduce 16,547 gsf of medical office space compared with the approved program, which assumed 43,000 gsf of medical office space. The proposed Essex Crossing program would not include a hotel, which was part of the FGEIS program and approved program. The proposed Essex Crossing program would introduce commercial and community facility uses that were not part of the FGEIS program or approved program. These include the following commercial uses: a 17,629-gsf bowling alley and 29,986-gsf gym (Physical Culture Establishment) on Site 1; a 95,408-gsf movie theater on Site 2; and 109,437 sf below-grade retail space (the Market Line) on Sites 2, 3, and 4 (the Market Line retail space at these sites would be connected underground), as well as the following community facility use: a 16,545-gsf museum on Site 1. Also, the Essex Crossing program would include the Broome Street Gardens on Sites 3 and 4, which would provide seating areas for visitors of the Market Line vendors. The proposed Essex Crossing program would also introduce a roof top farm on Site 2. These uses were not contemplated in the FGEIS.

Further, while the FGEIS and ULURP approval contemplated special permits that would accommodate the potential for up to 500 parking spaces on up to four sites (Sites 2 through 5), no parking spaces would be provided with the Essex Crossing program. As assessed in Technical Memorandum 001, the proposed development would reserve space on Site 5 for a

public school, and as assessed in Technical Memorandum 002, the proposed development would create an approximately 15,000-sf public open space on Site 5.

The specific development proposed for each site is described below.

**SITE 1**

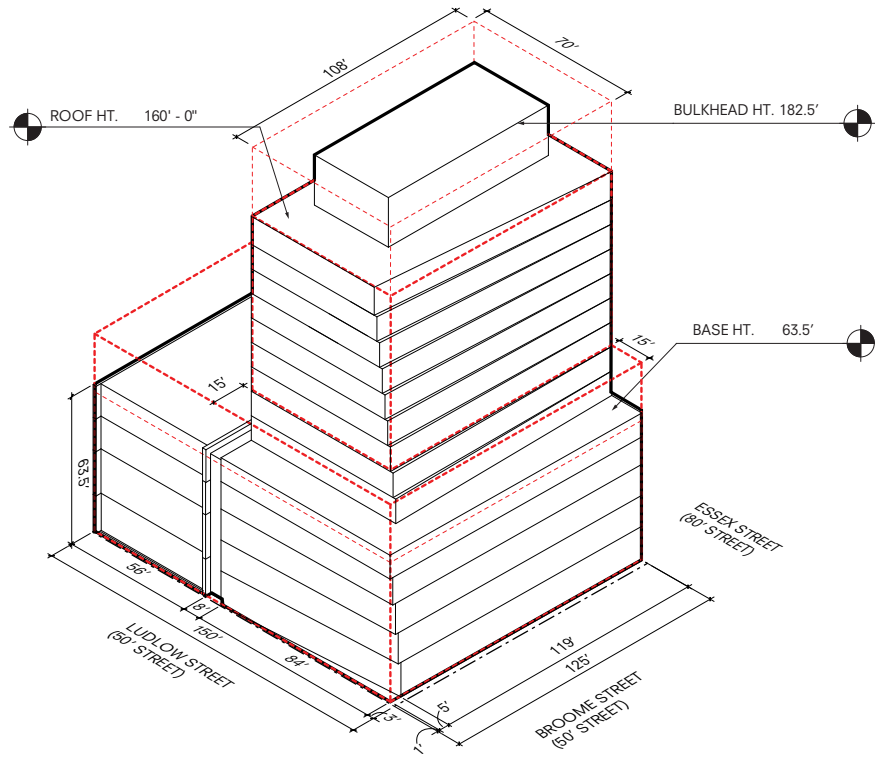
DSA proposes to construct a 185,676-gsf building on Site 1, which would be 44,994 gsf larger than the 140,682-gsf reasonable worst-case development scenario (RWCDS) building that was analyzed in the FGEIS and Technical Memorandum 001. The building on Site 1 would include 55 residential units, including 11 affordable units. In addition, the proposed building on Site 1 would include uses that were not previously analyzed, including a 29,986-gsf gym (Physical Culture Establishment) on floors 2 through 4, a 17,629-gsf bowling alley in the first below-grade level, and a 16,545-gsf museum on the ground and second floors. An operator for the gym has not been determined. As described above, a BSA Special Permit pursuant to ZR Section 73-36 would be required to allow a physical culture or health establishment in a C6-1 commercial district. These new uses would be consistent with the mix of commercial and community facility uses assessed for the development sites in the FGEIS and Technical Memorandum 001. **Table 2** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 2  
Proposed Site 1 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 137,542                           | 185,676                      | 74,692 (1)        | 6,933        | 0           | 47,615 (2)         | 0                   | 0            | 16,545 (3)      | 39,891 (4)  |
| FGEIS/ Tech Memo 001            | 142,708                           | 140,682                      | 74,951            | 60,731       | 0           | 0                  | 0                   | 0            | 5,000           | 0           |
| Increment                       | -5,166                            | 44,994                       | -259              | -53,798      | 0           | 47,615             | 0                   | 0            | 11,545          | 39,891      |

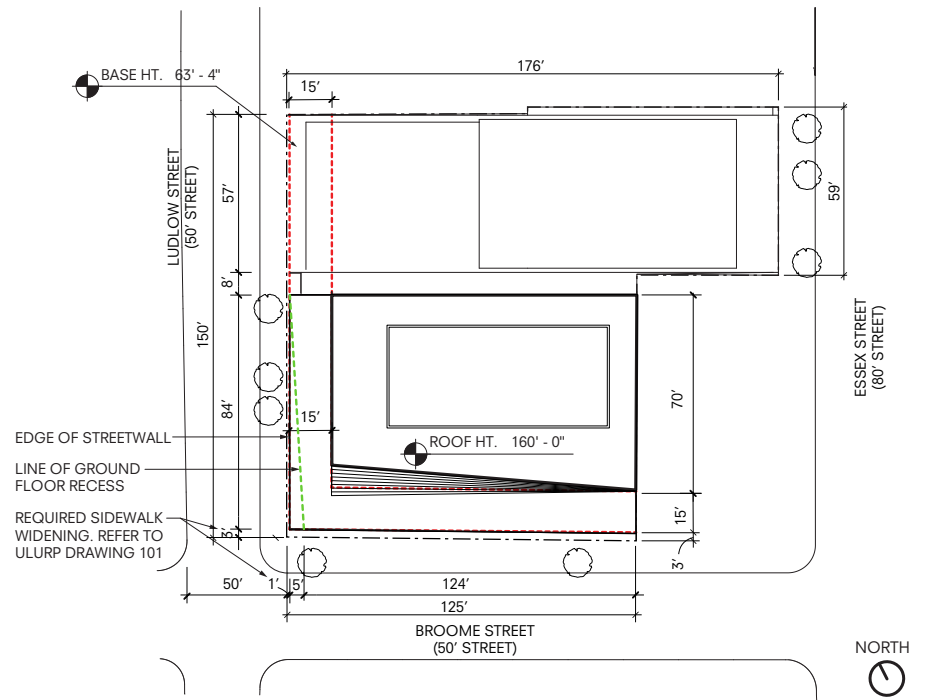
**Notes:**  
 (1) 55 residential units (including 11 affordable units).  
 (2) Other commercial space includes a bowling alley (17,629 gsf) and a gym (29,986 gsf).  
 (3) The Community Facility Space is a proposed museum use.  
 (4) Other space is MEP, back of house, and support space.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

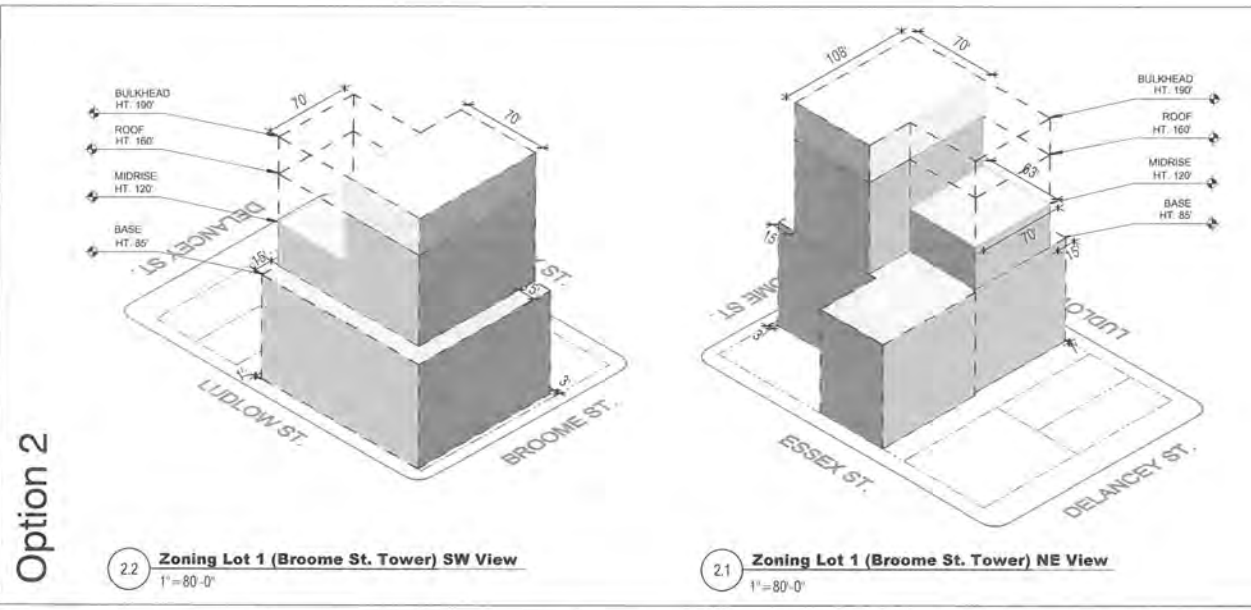
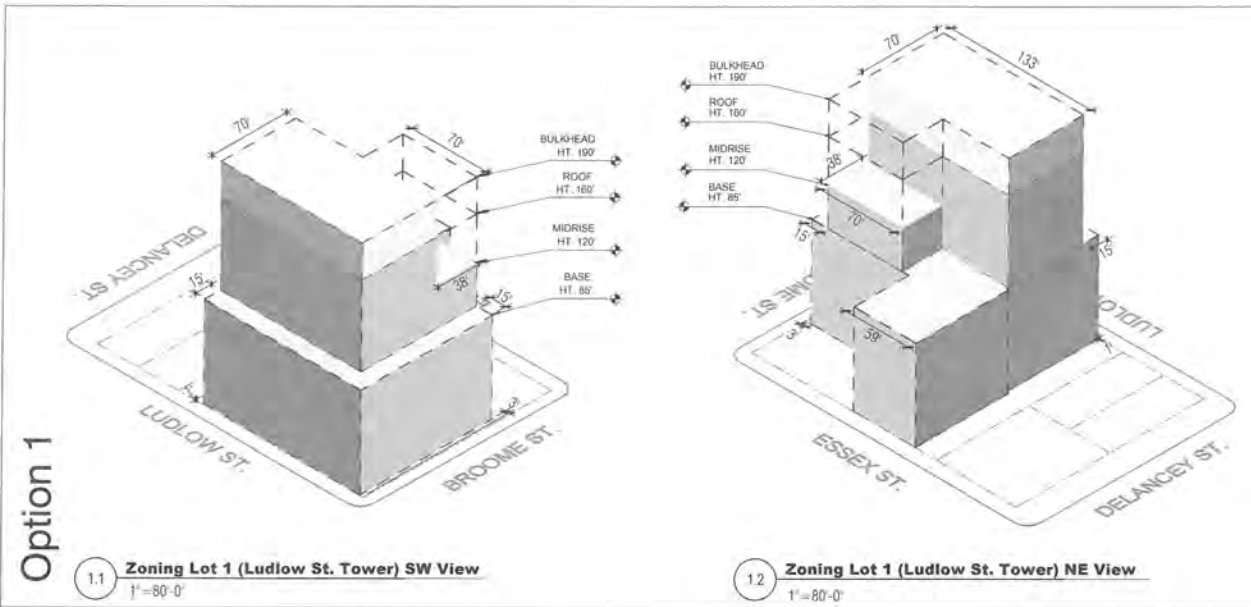
The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. However, DSA is seeking a minor modification to the Large Scale General Development (LSGD) design controls for Site 1 to vary a portion of the streetwall (see **Figures 2a and 2b**). With the proposed modification, the base would be angled along Ludlow Street to create a wider sidewalk, and the streetwall along Ludlow Street would not be compliant with the LSGD design controls (see **Figure 2c**). The intent of the modification is to taper the building’s Ludlow Street frontage and widen the sidewalk at the corner of Broome and Ludlow Streets to provide pedestrian space at the building entry and corner, meet the setback of the Seward Park High School on the block south of the intersection, and provide more open views up Ludlow Street, thereby promoting the visitor’s appreciation of the existing low-rise buildings within the Lower East Side Historic District to the south and west. The allowance to taper the Ludlow Street streetwall would, therefore, serve to widen the public realm, promote pedestrian circulation,



NOTE:  
DRAWING FOR ILLUSTRATIVE PURPOSES. HEIGHTS AND DIMENSIONS ARE APPROXIMATE AND MAY CHANGE.

- LEGEND**
- STREET CURB LINE
  - - - PROPERTY LINE
  - · - · - MAX. PERMITTED BUILDING ENVELOPE PER ULURP
  - PROPOSED BUILDING MASSING

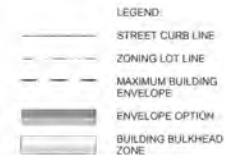




**DESIGN CONTROLS**

**Bulk, Height and Setback**

1. Envelope heights are relative to the Base Plane (Sheet 104M) or the Average Curb Level (Sheet 104N) elevations (as indicated).
2. The base or streetwall portion of Site 1 will have a minimum height of 60' and a maximum height of 85' on Broome and Ludlow Streets; the minimum base height on Essex Street may be below the minimum height of 60', but no lower than 25'.
3. The midrise portions of all buildings developed pursuant to the approved Large-Scale General Development will have a maximum height of 120'.
4. For Zoning Lot 1, Options 1 and 2, the envelope option volume indicates the maximum extent of the base and midrise portions of the building. The tower in Option 1 will be limited to a maximum length of 133' and a maximum width of 70'. The tower in Option 2 will be limited to a maximum length of 108' and a maximum width of 70'.
5. Elevator or stair bulkheads (including shafts, and vestibules not larger than 60 square feet in area providing access to a roof), roof water tanks and accessory mechanical equipment (including enclosures), other than solar or wind energy systems, shall be permitted to exceed the maximum building (roof) heights approved in the LSGD, up to a maximum bulkhead height of 30 feet, provided that:
  - i. such obstructions shall be located not less than 10 feet from the street wall of a building, except that such obstructions need not be set back more than 25 feet from a narrow street line or more than 20 feet from a wide street line. However, such restrictions on location shall not apply to elevator or stair bulkheads (including shafts or vestibules), provided the aggregate width of street walls of such bulkheads within 10 feet of a street wall, facing each street frontage, times their average height, in feet, does not exceed an area equal to four feet times the width, in feet, of the street wall of the building facing such frontage.
  - ii. all mechanical equipment shall be screened on all sides.
  - iii. such obstructions and screening are contained within a volume that complies with one of the following:
    - a. the product, in square feet, of the aggregate width of street walls of such obstructions facing each street frontage, times their average height, shall not exceed an area equal to eight feet times the width, in feet, of the street wall of the building facing such frontage; or
    - b. the lot coverage of all such obstructions does not exceed 20 percent of the lot coverage of the building.





bring more light and air onto the street, and align the Ludlow Street view corridor at this prominent intersection. The proposed modification would also serve to differentiate the entrance to the museum from the remaining portions of the mixed-use building. As described below, the proposed modification would not result in any significant adverse impacts.

With the exception of the variation in the streetwall the proposed building on Site 1 would be consistent with the LSGD design controls for Site 1. The proposed building would have an east-west oriented tower on Broome Street. The tower would be 160 feet to the roof and 182 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 64 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension and setback controls.

**SITE 2**

DSA proposes to construct a 388,100-gsf building on Site 2, which would be approximately 32,900 gsf larger than the 355,200-gsf RWCDs building that was analyzed in the FGEIS and Technical Memorandum 001. As proposed by DSA, the building on Site 2 would include 187,195 gsf of residential space (195 units, of which 98 units would be affordable), whereas the FGEIS program and the approved program assumed that Site 2 would include a 200-room hotel. In addition, the relocated and expanded Essex Street Market would increase to approximately 43,028 gsf from the 29,152 gsf assessed in the FGEIS and Technical Memorandum 001. In addition to the Essex Street Market, Site 2 would have retail in a below-grade space called the Market Line that would run under Norfolk Street to the building on Site 3 and continue under Suffolk Street to the building on Site 4. DSA intends the Market Line’s smaller sized retailers to expand the breadth of goods and services available on the development sites and in the neighborhood. The 2nd and 3rd levels of the building on Site 2 would have a movie theater. The Market Line and movie theater are new program elements that were not evaluated in the FGEIS or Technical Memorandum 001. In addition, a roof top farm is envisioned on the roof of the third floor facing Broome Street. This 8,000- to 9,000-sf outdoor growing area would have an educational component and would be associated with the Market Line. This **Table 3** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 3  
Proposed Site 2 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 300,547                           | 388,100                      | 187,195 (1)       | 41,271       | 0           | 95,408 (2)         | 43,028              | 0            | 0               | 21,198 (3)  |
| FGEIS/ Tech Memo 001            | 280,410                           | 355,200                      | 0                 | 167,294      | 97,450      | 36,304             | 29,152              | 0            | 25,000          | 0           |
| Increment                       | 20,137                            | 32,900                       | 187,195           | -126,023     | -97,450     | 59,104             | 13,876              | 0            | -25,000         | 21,198      |

**Notes:**  
 (1) Building would include 195 residential units (including 98 affordable units).  
 (2) Other commercial space includes a 95,408 sf movie theater.  
 (3) Other space is mechanical space.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 2, the proposed building would have a square tower on Delancey Street. The tower would be 285 feet to the roof and 315 to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 80 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.

**SITE 3**

The proposed building on Site 3 would be 296,593 gsf, which would be 57,335 gsf larger than the building analyzed in Technical Memorandum 001. The building on Site 3 would include 107,902 gsf of office space, 80,757 gsf of residential space, and 72,758 gsf of retail space. In addition, the building would include 97 residential units (including 48 affordable units). The retail space would include below-grade Market Line space that would connect with the Market Line space on Sites 2 and 4. In addition, the 2nd level would contain a seating area above the retail stores that overlooks Broome Street and the Market Line. This seating area would be called the Broome Street Gardens, and there would be a separate but similar seating area in the building on Site 4. On Site 3, the Broome Street Gardens space would be approximately 7,287 gsf (see **Figure 3**). This interior seating area, which would be open during the hours of operation of the retail space, would be accessed through the retail space. **Table 4** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 4  
Proposed Site 3 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 241,004                           | 296,593                      | 80,757 (1)        | 72,758       | 0           | 107,902 (2)        | 0                   | 0            | 0               | 35,176 (3)  |
| Tech Memo 001                   | 265,038                           | 239,258                      | 168,239           | 71,019       | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | -24,034                           | 57,335                       | -87,482           | 1,739        | 0           | 107,902            | 0                   | 0            | 0               | 35,176      |

**Notes:**  
 (1) 97 residential units (including 48 affordable units).  
 (2) Other commercial space includes 107,902 gsf of office space.  
 (3) Other includes 27,889 gsf of mechanical space and the 7,287 gsf Broome Street Gardens.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 3, the proposed building would have a tower on Suffolk Street. The tower would be 156 feet to the roof in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 76 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.





**SITE 4**

DSA proposes to construct a 433,777-gsf building on Site 4, which would be approximately 89,426 gsf larger than the building analyzed in Technical Memorandum 001. The proposed building on Site 4 would have a mix of uses, including 214,061 gsf of residential space (240 residential units, of which 118 units would be affordable), 129,806 gsf of office space, and 59,073 gsf of retail uses. This retail space would include below-grade Market Line retail space. Site 4 would also include approximately 4,065 gsf of Broome Street Gardens space. As described above, the Broome Street Gardens space would provide indoor seating areas on Sites 3 and 4 that would be accessible through the retail space. **Table 5** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 5  
Proposed Site 4 Program**

|  | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|--|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program  | 369,211                           | 433,777                      | 214,061 (1)       | 59,073 (2)   | 0           | 129,806 (3)        | 0                   | 0            | 0               | 30,837 (4)  |
| Tech Memo 001  | 264,063                           | 344,351                      | 256,663           | 69,688       | 0           | 0                  | 0                   | 0            | 18,000          | 0           |
| Increment  | 105,148                           | 89,426                       | -42,602           | -10,615      | 0           | 129,806            | 0                   | 0            | -18,000         | 30,837      |
| <b>Notes:</b>  |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (1) 240 residential units (including 118 affordable units).                                      |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (2) Retail includes: 12,764 gsf of sub-grade Market Line space.                                  |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (3) Other Commercial Space is office space.  |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (4) Other space includes 26,772 gsf of mechanical space and the 4,065 gsf Broome Street Gardens. |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| * Comm.= Commercial, CF= Community Facility  |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| <b>Source:</b> Proposed program provided by the Applicant.                                       |                                   |                              |                   |              |             |                    |                     |              |                 |             |

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 4, the proposed building would have a tower on Delancey Street. The tower would be 260 feet to the roof in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 76 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.

**SITE 5**

The proposed building on Site 5 would be 344,544 gsf, which would be approximately 1,086 gsf larger than the building analyzed in Technical Memorandum 001. The proposed building would contain 193,296 gsf of residential space (211 residential units, of which 104 units would be affordable) and 72,743 gsf of retail space. The FGEIS and ULURP approval contemplated special permits that would accommodate the potential for up to 500 parking spaces on up to four sites, including Site 5. With the Essex Crossing program, no parking would be provided on Site 5. The entrance to the building’s loading dock would be located on Clinton Street, whereas the parking and loading entrances to the RWCDs development on Site 5 were assumed in the FGEIS to be located on Suffolk Street. **Table 6** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 6  
Proposed Site 5 Program**

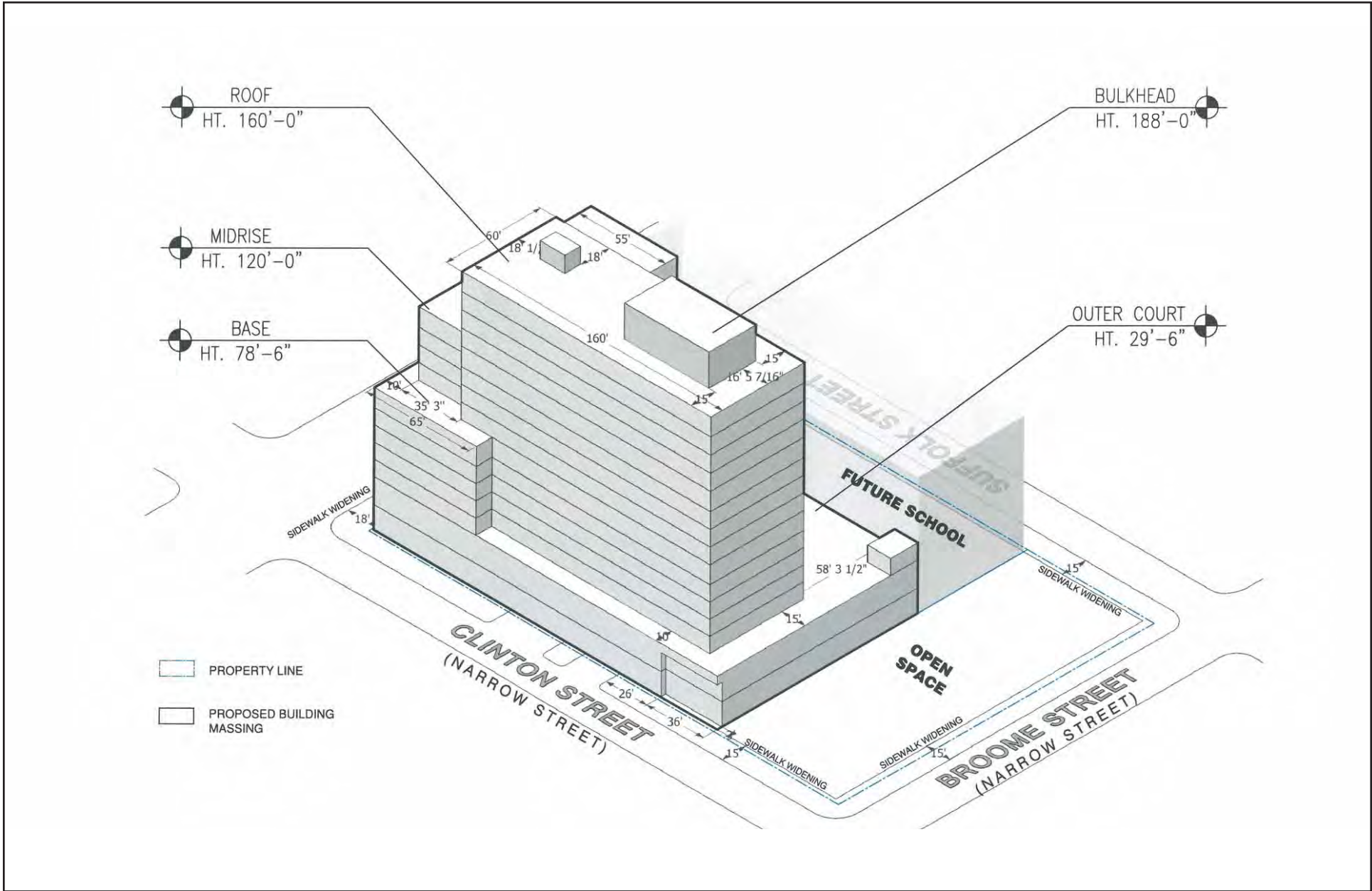
|   | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program   | 297,908                           | 344,544                      | 193,296 (1)       | 72,743       | 0           | 0                  | 0                   | 75,000       | 0               | 3,505 (2)   |
| Tech Memo 001   | 394,602                           | 343,458                      | 229,603           | 47,855       | 0           | 0                  | 0                   | 66,000       | 0               | 0           |
| Increment   | -96,694                           | 1,086                        | -36,307           | 24,888       | 0           | 0                  | 0                   | 9,000        | 0               | 3,505       |
| <b>Note:</b>  |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (1) 211 residential units (including 104 affordable units)              |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| (2) Other space includes mechanical space.                              |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| Site 5 would also include 15,000 gsf of publicly accessible open space. |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| * Comm.= Commercial, CF= Community Facility                             |                                   |                              |                   |              |             |                    |                     |              |                 |             |
| <b>Source:</b> Proposed program provided by the Applicant.              |                                   |                              |                   |              |             |                    |                     |              |                 |             |

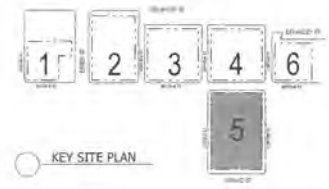
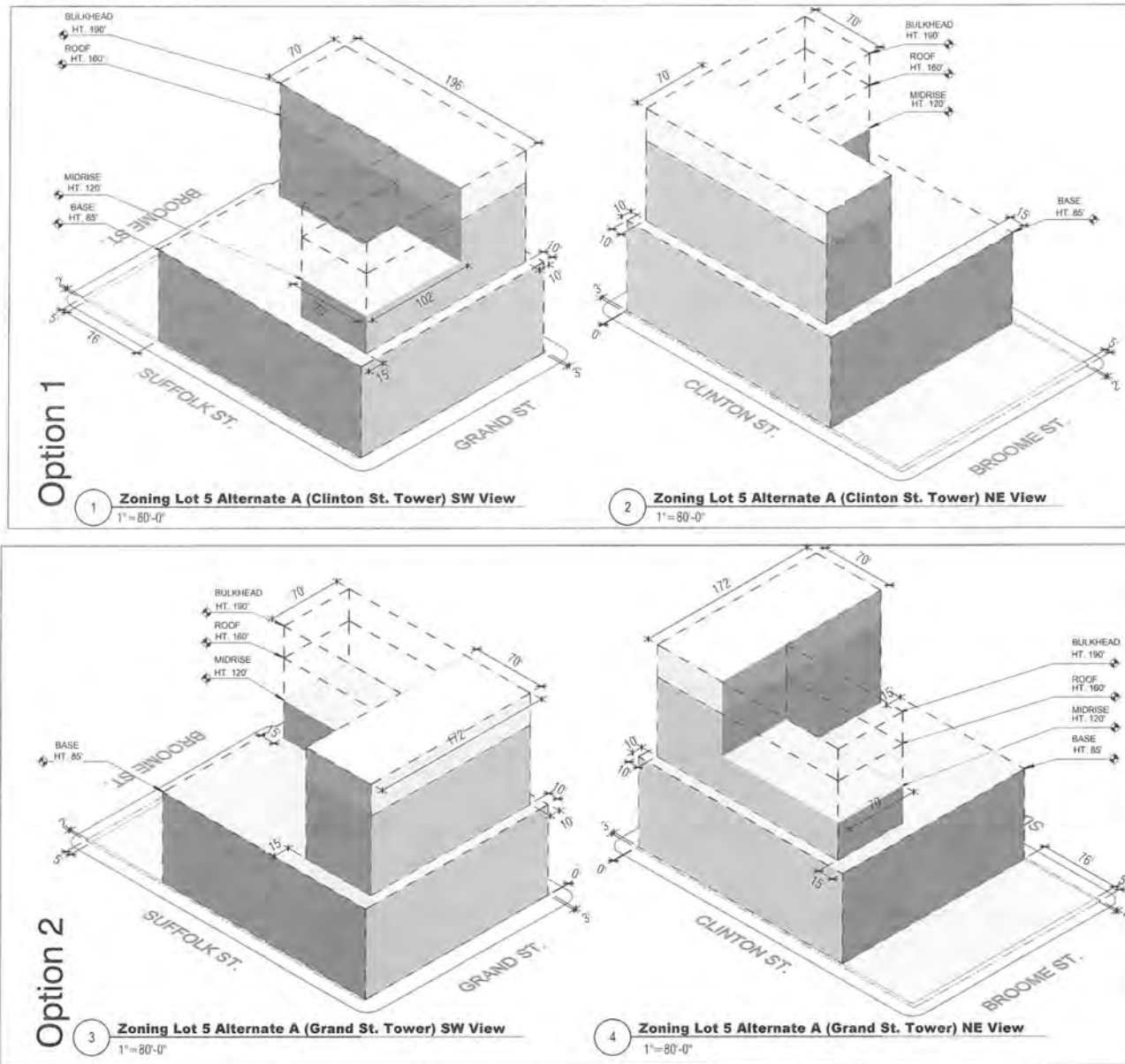
As assessed in Technical Memorandum 002, the proposed development on Site 5 would include a 15,000-sf public open space on the Broome Street portion of the site, and the proposed development on Site 5 is reserving an approximately 15,400-sf portion of the site fronting on Grand and Suffolk Streets for the potential future use of a school as assessed in Technical Memorandum 001. The Essex Crossing Program contemplates a 75,000-gsf school, while Technical Memorandum 001 analyzed a 66,000-gsf school. The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. However, DSA is seeking a minor modification to the LSGD design controls for Site 5 to reduce the 60-foot minimum base height on the Clinton Street frontage of the site (see **Figures 4a, 4b, and 4c**). The proposed modification would permit the base height of the proposed building on Site 5 along Clinton Street 50 feet beyond the intersection with Grand Street and along the proposed open space to be set as low as 29 feet. Allowing for a lower streetwall in those locations is necessary to allow the building to set back at a lower level so that the residential tower can begin at the third floor. Without the proposed modification, residential tower floors three through six would be required to be built to the streetline of Clinton Street, conflicting with the otherwise efficient floor plans for the residential tower. With the proposed modification, the perimeter of floors three through six would align with the seventh floor in the above residential tower. As described below, the proposed modification would not result in any significant adverse impacts.

With the exception of the reduced base height, the proposed building would comply with all of the LSGD design controls. Consistent with the LSGD design controls for Site 5, the proposed building would have a tower on Clinton Street, which would be 160 feet to the roof and 180 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site, and it would comply with the tower dimension controls. The proposed building would not have a mid-rise portion, and the base height on Grand Street would be 78 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with streetwall and setback controls.

**SITE 6**

The proposed building that would be constructed on Site 6 would be 154,851 gsf, which would be 47,825 gsf larger than the building analyzed in Technical Memorandum 001, and it would include 100 affordable senior housing units. There would be 7,000 gsf of ground-floor retail

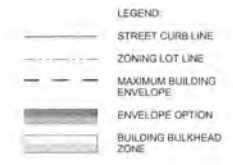




**DESIGN CONTROLS**

**Bulk, Height and Setback**

- Envelope heights are relative to the Base Plane (see Sheet 504M).
- The base or streetwall portions of Site 5 will have a minimum height of 60' and a maximum height of 85', except as indicated in Note 6.
- The midrise portions of all buildings developed pursuant to the approved Large-Scale General Development will have a maximum height of 120'.
- For Zoning Lot 5, Options 1 and 2, the envelope option volume indicates the maximum extent of the base and midrise portions of the building. The tower portion of the building may be located anywhere above the building base within the respective envelope options shown. In both options, the tower will be limited to a maximum length of 160' and a maximum width of 70'.
- Elevator or stair bulkheads (including shafts; and vestibules not larger than 60 square feet in area providing access to a roof), roof water tanks and accessory mechanical equipment (including enclosures), other than solar or wind energy systems, shall be permitted to exceed the maximum building (roof) heights approved in the LSGD, up to a maximum bulkhead height of 30 feet, provided that:
  - such obstructions shall be located not less than 10 feet from the street wall of a building, except that such obstructions need not be set back more than 25 feet from a narrow street line or more than 20 feet from a wide street line. However, such restrictions on location shall not apply to elevator or stair bulkheads (including shafts or vestibules), provided the aggregate width of street walls of such bulkheads within 10 feet of a street wall, facing each street frontage, times their average height, in feet, does not exceed an area equal to four feet times the width, in feet, of the street wall of the building facing such frontage.
  - all mechanical equipment shall be screened on all sides.
  - such obstructions and screening are contained within a volume that complies with one of the following:
    - the product, in square feet, of the aggregate width of street walls of such obstructions facing each street frontage, times their average height, shall not exceed an area equal to eight feet times the width, in feet, of the street wall of the building facing such frontage; or
    - the lot coverage of all such obstructions does not exceed 20 percent of the lot coverage of the building.
- The base height along the Publicly Accessible Open Space and on Clinton Street beyond 50 feet of its intersection with Broome Street shall have a minimum height of 29 feet.





space. The building would also include 16,547 gsf of medical office space and 46,000 gsf of other community facility space. **Table 7** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 7  
Proposed Site 6 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Res. (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 138,708                           | 154,851                      | 85,304 (1) | 7,000        | 0           | 0                  | 0                   | 0            | 62,547 (2)      | 0           |
| Tech Memo 001                   | 138,593                           | 107,026                      | 88,101     | 18,925       | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | 115                               | 47,825                       | -2,797     | -11,925      | 0           | 0                  | 0                   | 0            | 62,547          | 0           |

**Notes:**  
 (1) 100 affordable senior residential units.  
 (2) "Other Community Facility" space would include 16,547 gsf of medical office space and 46,000 gsf of community office space and general community facility space.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 6, the proposed building would have a tower on Delancey Street. The tower would be 160 feet to the roof and 170 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be approximately 65 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.

**SITE 8**

The building on Site 8 has not been designed or programmed as fully as the buildings within the LSGD on Sites 1-6, but it is planned to be 46,215 gsf, which would be approximately 437 gsf smaller than the building analyzed in Technical Memorandum 001. The building would introduce 24 residential units, of which 20 percent would be affordable. The ground-floor retail space is envisioned to be neighborhood-oriented retailers. **Table 8** shows a comparison between the proposed Essex Crossing program and the approved program. The massing and height of the building on Site 8 would be compliant with existing zoning, as assessed in the FGEIS.

**SITE 9**

The building on Site 9 has not been designed or programmed as fully as the buildings within the LSGD on Sites 1-6, but it is planned to be 102,364 gsf, approximately 8,196 gsf larger than the building analyzed in Technical Memorandum 001. As currently programmed, the proposed building would include 83,609 gsf of residential space (64 units, of which 20 percent would be affordable) and 17,822 gsf of retail space. Like the retail space on Site 8, the retail space on Site 9 is envisioned to be occupied by neighborhood-oriented retailers. **Table 9** shows a comparison between the proposed Essex Crossing program and the approved program. The massing and height of the building on Site 9 would be compliant with existing zoning, as assessed in the FGEIS.

**Table 8  
Proposed Site 8 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 44,829                            | 46,215                       | 36,999 (1)        | 9,216        | 0           | 0                  | 0                   | 0            | 0               | 0           |
| FGEIS/ Tech Memo 001            | 44,840                            | 46,652                       | 37,862            | 8,790        | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | -11                               | -437                         | -863              | 426          | 0           | 0                  | 0                   | 0            | 0               | 0           |

**Notes:**  
 (1) The building would include 24 condominiums (20 percent affordable).  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

**Table 9  
Proposed Site 9 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 97,455                            | 102,364                      | 83,609 (1)        | 17,822 (2)   | 0           | 0                  | 0                   | 0            | 0               | 933 (3)     |
| FGEIS/ Tech Memo 001            | 90,384                            | 94,168                       | 75,361            | 18,807       | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | 7,071                             | 8,196                        | 8,248             | -985         | 0           | 0                  | 0                   | 0            | 0               | 933         |

**Note:**  
 (1) 64 condominiums (20 percent affordable).  
 (2) Retail space is envisioned as neighborhood oriented businesses and boutiques.  
 (3) Other space is subway space.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

**SITE 10**

The building on Site 10 has not been designed or programmed as fully as the buildings within the LSGD on Sites 1-6, but it is planned to be 26,722 gsf, which would be 80 gsf larger than the building assessed in Technical Memorandum 001. The proposed building would introduce 14 residential units, of which 20 percent would be affordable, and there would be 5,311 gsf of ground-floor retail space. **Table 10** shows a comparison between the proposed Essex Crossing program and the approved program. The massing and height of the building on Site 10 would be compliant with existing zoning, as assessed in the FGEIS.

This Technical Memorandum is required to analyze whether the proposed Essex Crossing program, which includes uses not analyzed in the FGEIS and Technical Memoranda 001 and 002, would result in any significant adverse impacts not already identified in the FGEIS.



**Table 10**  
**Proposed Site 10 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 25,921                            | 26,722                       | 21,411 (1)        | 5,311        | 0           | 0                  | 0                   | 0            | 0               | 0           |
| FGEIS/ Tech Memo 001            | 27,360                            | 26,642                       | 20,402            | 6,240        | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | -1,439                            | 80                           | 1,009             | -929         | 0           | 0                  | 0                   | 0            | 0               | 0           |

**Note:**  
(1) 14 condominiums (20 percent affordable).  
\* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

In addition, this Technical Memorandum analyzes the whether the proposed Minor Modification for Site 1 would result in any significant adverse impacts not already identified in the FGEIS. With the proposed modification on Site 1, the base would be angled along Ludlow Street to create a wider sidewalk, and the streetwall along Ludlow Street would not be compliant with the LSGD design controls. The allowance to taper the Ludlow Street streetwall would, therefore, serve to widen the public realm, promote pedestrian circulation, bring more light and air onto the street, and align the Ludlow Street view corridor at this prominent intersection.

This Technical Memorandum also analyzes whether the proposed Minor Modification on Site 5 would result in any significant adverse impacts not already identified in the FGEIS. As described above, the proposed modification on Site 5 would permit the base height of the proposed building on Site 5 along Clinton Street 50 feet beyond the intersection with Grand Street and along the proposed open space to be set as low as 29 feet. Allowing for a lower streetwall in those locations is necessary to allow the building to set back at a lower level so that the residential tower can begin at the third floor. With the proposed modification, the perimeter of floors three through six would align with the seventh floor in the above residential tower.

Finally, this Technical Memorandum analyzes whether the BSA Special Permit would result in any significant adverse impacts not already identified in the FGEIS. As described above, this BSA Special Permit is required to allow for a Physical Culture Establishment (gym) on Site 1, which is located within a C6-1 commercial zoning district.

### *INFRASTRUCTURE IMPROVEMENTS*

As discussed above, the proposed Essex Crossing program includes the Market Line, which is sub-grade retail on Sites 2, 3, and 4. To facilitate the construction of the pedestrian tunnel connecting Sites 2 and 3, portions of an existing New York City Department of Environmental Protection (NYCDEP) owned 15-inch combined sewer and 12-inch water main within the bed of Norfolk Street would need to be relocated and reconstructed within Norfolk Street along the entire frontage of Sites 2 and 3. Design and permitting plans and details for the sewer and water main reconstruction would be filed with NYCDEP for review. Upon approval, NYCDEP would issue a permit to reconstruct their facilities within the Norfolk Street road bed. It is not anticipated that any additional utility relocations would be required as part of the tunnel construction between Sites 2 and 3; however, coordination with Consolidated Edison would be

incorporated into the construction planning in order to protect and maintain their facilities while the tunnel is under construction.

Relocation and reconstruction of portions of the existing NYCDEP owned 15-inch combined sewer bed 12-inch water main within the bed of Suffolk Street would likely be required to facilitate the construction of the pedestrian tunnel connecting the Market Line for Sites 3 and 4. Once the design is underway for Sites 3 and 4, the design team would initiate preliminary meetings with NYCDEP to determine the requirements for relocating water and sewer utilities within Suffolk Street to facilitate the proposed tunnel, and develop design and permitting plans for the proposed relocations. Relocation of existing Consolidated Edison electrical utilities may be required to facilitate tunnel construction and any required relocations will be coordinated with Consolidated Edison as the design for Sites 3 and 4 are advanced.

### **C. POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT**

The proposed Essex Crossing development would introduce a program that is different from the RWCDs program analyzed in the FGEIS and Technical Memoranda 001 and 002. Therefore, the potential for new significant adverse impacts in the analysis areas based on the program are considered below. In addition, each site within the LSGD (Sites 1-6) now has a specific building design; therefore, the potential for significant adverse impacts in the analysis areas based on height and massing are considered below. Following the approach of the 2014 *CEQR Technical Manual*, each of the relevant CEQR technical areas is discussed below.

#### **LAND USE, ZONING AND PUBLIC POLICY**

The FGEIS concluded that the proposed actions and RWCDs would have a positive effect on land use by creating an active new mixed-use development with publicly accessible open space on underutilized sites. Like the FGEIS program, the proposed Essex Crossing program would introduce new housing, retail, publicly accessible open space, and community facility uses that would bring activity to the development sites and would serve both residents of the surrounding area and the larger community. The proposed Essex Crossing program would not include a hotel or parking (which were part of the FGEIS program), but would introduce several uses that were not analyzed previously, including: a gym (Physical Culture Establishment), movie theater, bowling alley, roof top farm, and museum. With the proposed Essex Crossing program, there would be more commercial office space as compared to the FGEIS program and the approved program. Like the FGEIS program and the approved program, the uses introduced by the proposed Essex Crossing program would transform underutilized land into a vibrant, mixed use area and would complement the existing range of uses that surround the project sites.

Like the program analyzed in the FGEIS, Site 1 with the Essex Crossing program would include residential space; however, the Essex Crossing program would replace retail with the following uses not analyzed in the FGEIS: a bowling alley, gym, and museum. Like the program analyzed in the FGEIS, these uses would bring activity to the development sites and would serve both residents of the surrounding area and the larger community. As described above, the proposed Site 1 building would fit within the maximum zoning envelope assessed in the FGEIS. However, DSA is seeking a minor modification to the LSGD design controls for Site 1 to vary the streetwall along Ludlow Street. As proposed, the building on Site 1 would have an angled base along Ludlow Street to provide a wider sidewalk at the corner of Ludlow and Broome Streets. With the exception of this variation in the streetwall, the proposed building would comply with all of the LSGD design controls. Consistent with the LSGD design controls for Site 1, the

proposed building would have an east-west oriented tower on Broome Street. The tower would be 160 feet to the roof and 182 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 64 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension and setback controls. Since the design varies from the LSGD design controls, a minor modification is required. The minor modification would not result in any significant adverse zoning impacts, since the proposed building design is compliant with the underlying zoning district regulations.

Similar to the approved program, Site 5 with the Essex Crossing program would include the following uses: residential, retail, school, and open space; however, while the approved program included parking on Site 5, no parking would be provided on Site 5 in the future with the Essex Crossing program. As described above, the proposed Site 5 building would fit within the maximum zoning envelope assessed in the FGEIS. However, DSA is seeking a minor modification to the LSGD design controls for Site 5 to reduce the 60-foot minimum base height on the Clinton Street frontage of the site. As proposed, the building on Site 5 would have a base height of approximately 29 feet on Clinton Street 65 feet from the intersection of Clinton and Grand Streets. With the exception of this reduced base height, the proposed building would comply with all of the LSGD design controls. Consistent with the LSGD design controls for Site 5, the proposed building would have a tower on Clinton Street, which would be 160 feet to the roof and 180 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site, and it would comply with the tower dimension controls. The proposed building would not have a mid-rise portion, and the base height on Grand Street would be 78 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with streetwall and setback controls. Since the design varies from the LSGD design controls, a minor modification is required. The minor modification would not result in any significant adverse zoning impacts, since the proposed building design is compliant with the underlying zoning district regulations.

Like the proposed project analyzed in the FGEIS, the Essex Crossing program would introduce new affordable housing units and would contribute to achieving the City's goal of creating new affordable housing units, as expressed in *The New Housing Marketplace Plan*. The Essex Crossing program would also support the Lower East Side and Chinatown Business Improvement Districts (BIDs) by providing economic development within and adjacent to the BID's areas of operations. Also, like the approved program, the Essex Crossing program would be consistent with PlaNYC 2030. Therefore, like the approved program, the Essex Crossing program would support the objectives of applicable public policies.

Based on the assessment presented above, the proposed Essex Crossing program would not result in any new significant adverse land use, zoning, or public policy impacts.

## **SOCIOECONOMIC CONDITIONS**

The FGEIS and Technical Memorandum 001 concluded that there would be no potential significant adverse impacts with respect to any of the six areas of socioeconomic concern—direct residential displacement; direct businesses displacement; indirect residential displacement; indirect businesses displacement due to increased rents; indirect business displacement due to retail market saturation; and adverse effects on specific industries. The proposed Essex Crossing program would have no changes to the FGEIS findings of direct residential displacement or

direct business displacement; therefore, the analysis below focuses on indirect residential displacement, indirect business displacement due to increased rents, indirect business displacement due to retail market saturation, and adverse effects on specific industries.

#### *INDIRECT RESIDENTIAL DISPLACEMENT*

Similar to Technical Memorandum 001, the proposed Essex Crossing program would not result in significant adverse impacts due to indirect residential displacement. 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. Technical Memorandum 001 analyzed the introduction of a total of 1,000 residential units, and found the population increase would be 4.94 percent, which is less than the 5 percent CEQR threshold. The proposed Essex Crossing program also would introduce 1,000 residential units, of which there would be 100 senior housing units on Site 6. Assuming that the 100 senior housing units would have an average household size of 1.5 people per household and that the other housing units would have an average household size of 2.21 people per household, the total population increase with the Essex Crossing program would be 2,139 residents, which is less than previously estimated (2,210 residents). Therefore, the findings with respect to indirect residential displacement would be unchanged, and the proposed Essex Crossing program would not result in any significant adverse indirect residential displacement impacts.

#### *INDIRECT BUSINESS DISPLACEMENT DUE TO INCREASED RENTS*

The FGEIS found that the proposed actions would not result in significant adverse indirect business displacement impacts due to increased rents. The socioeconomic conditions chapter in the FGEIS analyzed the introduction of 483,000 square feet of retail (469,000 sf plus the 14,000 sf expansion of the Essex Street Market). With the proposed Essex Crossing program, there would be 358,454 gsf of retail space (193,255 gsf of local and destination retail space, including the supermarket) plus 165,199 gsf of expanded Essex Street Market space and sub-grade Market Line space). This amount is higher than the retail amount presented in Table 1 as it conservatively includes the support space square footage associated with the retail use (that is listed as “Other” in Table 1. Table 15 shows the reallocation of support space to specific uses within each development site).<sup>2</sup> The proposed Essex Crossing program would introduce 124,546 gsf less overall retail space than previously analyzed, and therefore would not have the potential to result in a significant adverse indirect business displacement impacts due to increased rents.

While the proposed Essex Crossing program would result in an overall reduction of retail and the elimination of the 200-room hotel that was analyzed in the FGEIS, the proposed development would introduce 269,205 gsf of commercial office space,<sup>3</sup> which is 232,901 gsf more office space than contemplated in the FGEIS. While the proposed Essex Crossing program would introduce significantly more office space than the FGEIS program, the ¼-mile study area includes an estimated 801,200 gsf of office space.<sup>4</sup> Employment data also shows the presence of office space

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<sup>2</sup> The 165,199 gsf of public market space also includes the Broome Street Garden as this space would include seating areas that could be used by visitors who purchased food from market vendors. This number subtracts the existing 15,000 sf Essex Street Market.

<sup>3</sup> Based on the development program discussed under “Transportation,” which allocates support space to specific uses (See Table 15).

<sup>4</sup> Based on New York City Department of City Planning’s 2013 MapPluto data.

in the area. Industries that typically require office space for their functions—such as information, finance, insurance, and real estate, as well as professional, scientific, and technical services, and management of companies and enterprises—represent a combined total of 16.1 percent of all employment in the ¼-mile socioeconomic study area.<sup>5</sup> Thus, there is already economic activity generated in the study area by office uses and the introduction of additional office space would not have the potential to alter existing economic patterns.

The proposed Essex Crossing program would introduce new uses that were not specifically analyzed in the FGEIS, including a gym (Physical Culture Establishment), a 1,100-seat movie theater, a bowling alley, and a museum. The new uses would provide amenities to the residential and worker population in the study area. The new entertainment uses could result in increased foot traffic that may draw beyond local residents and workers. This increased foot traffic could benefit existing retail businesses in the ¼-mile study area. With the proposed Essex Crossing program, there would be an estimated 2,213 workers, as compared to 1,449 workers analyzed in the FGEIS and 1,428 workers analyzed in Technical Memoranda 001 and 002. Although existing businesses in the ¼-mile study area would benefit from the increased foot traffic, 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, as stated in the FGEIS, 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. Also, since the ¼-mile study area already contains a large residential population, 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, the 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, as a property owner could decide to convert an existing industrial property to a retail use. However, as stated in the FGEIS, these pressures are already present within the study area and are expected to increase in the future irrespective of the proposed development. Similar to the findings presented in the FGEIS, the proposed Essex Crossing program could result in limited indirect displacement of existing industrial businesses; however, 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*

Similar to the proposed actions analyzed in the FGEIS, the proposed Essex Crossing program would not result in significant adverse impacts on neighborhood character due to retail market saturation or competition. As discussed above, the socioeconomic conditions chapter in the FGEIS

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<sup>5</sup> Based on ESRI Business Analyst 2013 Data.

analyzed the introduction of 469,000 sf of retail and the 14,000 sf expansion of the Essex Street Market. With the proposed Essex Crossing program, there would be 193,255 gsf of local and destination retail space and 165,199 gsf of net new Essex Street Market space and sub-grade Market Line space. While 275,745 gsf less local and destination retail space would be introduced with the proposed Essex Crossing program, the proposed development would introduce 151,199 gsf more retail space from the new sub-grade Market Line space under Sites 2, 3, and 4 and expanded Essex Street Market space, as compared to the program analyzed in the FGEIS.

The proposed Essex Crossing program would introduce 151,199 gsf more public market space from the larger Essex Street Market and the added sub-grade Market Line space. As discussed above, the Market Line would supplement the Essex Street Market with additional market space, food vendors, and retailers selling soft goods such as home goods, clothing and clothing accessories. The FGEIS analyzed the effect of the 65,000 sf grocery store and 14,000 sf of additional Essex Street Market space on local retail corridors, and found that smaller food stores would experience moderate competitive pressure, if any and neighborhood services stores and eating and drinking establishments would not be adversely impacted. While competitive pressure may increase due to the added Market Line space, it is not expected to lead to adverse changes to neighborhood character and would not result in significant adverse impacts. As stated in the FGEIS, local residents would continue to shop at existing smaller grocery stores for specialized goods and services for convenience, and for accessibility to public transit. Also, many local retail concentrations offer specialty goods and services familiar to a specific ethnic community. It is unlikely that the retail from the proposed development would offer goods and services that would directly compete with the specialty goods, services, and ethnic restaurants offered by local retailers focusing on a specific ethnic community. Further, as stated in the FGEIS, the character of retail in the area makes any substantial displacement due to new development and market saturation unlikely. 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. In effect, the concentration of stores in a location like the Lower East Side creates more positive synergy than negative competition among similar stores. Therefore, it is not expected that the added Market Line space and larger Essex Street Market would alter the findings with respect to indirect business displacement due to retail market competition.

The detailed analysis of indirect business displacement due to retail market saturation in the FGEIS analyzed grocery stores since they often serve as anchors for retail concentrations and since the FGEIS program included a 65,000 sf grocery store. The socioeconomic conditions chapter found that although one grocery store<sup>6</sup> in the ½-Mile Local Trade Area could experience competitive pressure from a supermarket introduced by the proposed project, this potential closure would not negatively impact neighborhood character and would not result in a significant adverse impact due to indirect business displacement from market saturation. Since the grocery store that would be introduced by the proposed Essex Crossing program would be 27,805 gsf<sup>7</sup>, which is smaller than the 65,000 sf grocery store analyzed in the FGEIS, the proposed Essex Crossing program would not alter the findings with respect to grocery stores.

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<sup>6</sup> The Fine Fare at 357 Grand Street (at Clinton Street south of the development sites).

<sup>7</sup> Based on the development program discussed below under "Transportation," which allocates mechanical and support space to specific uses.

The detailed analysis in the FGEIS also studied building materials and garden supply stores, large-scale department stores, and discount department stores since they often serve as anchors for retail concentrations and since the proposed actions could introduce these types of stores. Since less retail space is anticipated with the proposed development, the proposed development would not alter the findings with respect to building materials and garden supply stores, large-scale department stores, and discount department stores.

Based on the analysis presented above, and like the FGEIS, the proposed Essex Crossing program 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 analyzed in the socioeconomic conditions chapter in the FGEIS, the proposed Essex Crossing program would not have a significant adverse impact on specific industries. The proposed development would displace the same businesses as the proposed actions analyzed in the FGEIS, but the displaced businesses are not critical to the viability of any City industries. Also, as discussed above, any indirect business displacement is expected to be limited and would not substantially affect a specific industry or category of business. Therefore, the proposed development would not have a significant adverse impact on specific industries.

#### **COMMUNITY FACILITIES**

Like the proposed project assessed in Technical Memorandum 001, the proposed Essex Crossing program would not result in any significant adverse impacts on community facilities. Similar to the approved program, the proposed Essex Crossing program would result in 1,000 residential units. In addition, under the proposed Essex Crossing program, all residential units that would be developed on Site 6 would be senior housing units. Therefore, the number of children that would be introduced with the proposed development would be similar or lower than the number of children analyzed in Technical Memorandum 001, which found that the project would increase the elementary and intermediate school utilization rates by less than five percentage points, the CEQR threshold for a potential significant adverse impact. Therefore, like Technical Memorandum 001 findings, the proposed Essex Crossing program would not alter the findings with respect to public and intermediate schools and there would be no significant adverse impacts on community facilities.

#### **OPEN SPACE**

The proposed Essex Crossing program would not alter the findings of the open space analyses presented in the FGEIS and Technical Memoranda 001 and 002. Like Technical Memorandum 002, 15,000 square feet of open space would be introduced on Site 5. The FGEIS found that there would be a decrease in the passive open space ratio from 0.78 acres per 1,000 workers in the No-Action Condition to 0.69 acres per 1,000 workers in the future with the proposed actions. Technical Memoranda 001 and 002 showed an increase to 0.70 acres per 1,000 workers. With the proposed Essex Crossing program, the open space ratio would decrease to 0.66 acres per 1,000 workers.<sup>8</sup> Similar to the FGEIS and subsequent Technical Memoranda 001 and 002, there

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<sup>8</sup> Based on the development program discussed under "Transportation," below, the proposed development is estimated to result in the introduction of 2,213 workers, as compared to 1,449 workers analyzed in the FGEIS and 1,428 workers analyzed in Technical Memoranda 001 and 002.

would be a reduction in the open space ratio. However, the passive open space ratio in the commercial study area in the No-Action condition would be five times greater than the recommended City guideline of 0.15 acres of passive space per 1,000 workers, and this condition would continue in the future with the proposed Essex Crossing program. Therefore, the proposed development, like the FGEIS program and approved program, would not result in any significant adverse impacts on open space resources in the commercial study area.

As shown in **Table 11**, there would be no change in the total open space ratio for the residential study area compared to the With-Action total open space ratio presented in Technical Memorandum 002. Like Technical Memorandum 001 and 002, the Essex Crossing program would introduce 1,000 residential units. However, with the proposed Essex Crossing program, 100 residential units would be senior housing units, which would have a lower average household size than the 2.21 average household size assumed in the FGEIS and subsequent Technical Memoranda. Technical Memorandum 001 assumed that the project would generate 2,210 residents. Assuming an average household size of 1.5 for the senior housing units would result in 2,139 residents from the Essex Crossing program. The reduced residential population from the Essex Crossing program would result in substantially similar open space ratios in the residential study area as compared to Technical Memorandum 002. As with the proposed actions analyzed in Technical Memorandum 002, the open space ratios with the proposed Essex Crossing program would continue to fall short of the City’s recommended open space ratio guidelines. However, the decrease from the No-Action condition with the proposed Essex Crossing program would remain 1.43 percent or less and would not constitute a substantial change. Therefore, the proposed Essex Crossing program would not result in any significant adverse impacts on open space resources in the residential study area.

**Table 11**  
**2022 Open Space Ratios Summary**  
**Future with the Proposed Essex Crossing Program**

| Ratio  | DCP Guideline | Existing Ratio | No-Action Ratio | With-Action Ratio |                      |                      | Percent Change No-Action to With-Action (FGEIS/TM 001/TM 002/TM 003) |                                       |
|--|---------------|----------------|-----------------|-------------------|----------------------|----------------------|--|---------------------------------------|
|  |               |                |                 | FGEIS             | Proposed Mod. TM 001 | Proposed Mod. TM 002 |  | Proposed Mod. TM 003                  |
| <b>Non-Residential Study Area</b>              |               |                |                 |                   |                      |                      |  |                                       |
| Passive/non-residents                          | 0.15          | 0.82           | 0.78            | 0.69              | 0.70                 | 0.70                 | 0.66   | -11.45% / -11.29% / -10.61% / -16.42% |
| <b>Residential Study Area</b>                  |               |                |                 |                   |                      |                      |  |                                       |
| Total/residents                                | 2.5           | 0.79           | 0.83            | 0.82              | 0.81                 | 0.82                 | 0.82   | -1.32% / -1.49% / -1.38% / -1.33%     |
| Passive/residents                              | 0.5           | 0.23           | 0.26            | 0.26              | 0.26                 | 0.26                 | 0.26   | -1.18% / -1.35% / -1.17% / -1.11%     |
| Active/residents                               | 2.0           | 0.56           | 0.57            | 0.56              | 0.56                 | 0.56                 | 0.56   | -1.38% / -1.55% / -1.48% / -1.43%     |
| <b>Note:</b> Ratios in acres per 1,000 people. |               |                |                 |                   |                      |                      |  |                                       |

In addition to the 15,000 square feet of publicly accessible open space that would be added on Site 5, the Essex Crossing program would introduce the Broome Street Gardens on Sites 3 and 4 and the rooftop farm on Site 2. The Broome Street Gardens were not included in the quantitative assessment as this space would be seating area for visitors who purchased food from Market Line vendors. The rooftop farm was not included in open space calculations as it would have limited public accessibility.

**SHADOWS**

As the proposed buildings on Sites 1- 6 would be within the limits of the maximum zoning envelopes established according to the LSGD rules and the future developments on Sites 8, 9,



and 10 would be compliant with zoning, the proposed Essex Crossing program would not result in shadow impacts that were not identified in the FGEIS. The proposed buildings, in fact, could result in incremental shadows that have less extent and duration than what is described in the FGEIS as they would not be quite as large or bulky as the maximum zoning envelopes established for those sites.

As described in the FGEIS, the RWCDs assessed for the proposed actions would cast shadows on four of the block-long medians of Schiff Mall, which comprises medians in the center of Delancey Street that contain trees, rose bushes, and other vegetation. The medians that would experience project-generated shadow in one or more seasons are located between Orchard and Suffolk Streets. As the actual extent and duration of incremental shadow cast by the proposed buildings on Sites 1, 2, 3, and 4 could be less than what is described in the FGEIS, the roses on Schiff Mall may not actually be impacted by the proposed development. While the designs of the buildings on Sites 1 and 2 are advanced enough to conduct a refined shadows analysis, the designs of the buildings on Sites 3 and 4 are still in progress. Since the FGEIS determined that the shadows from all four buildings on Sites 1, 2, 3, and 4 could impact the roses, in accordance with the FGEIS commitments, prior to the application for a Certificate of Occupancy, DSA will either pay for the replacement measures identified in the FGEIS or provide a refined shadows analysis to the New York City Department of Parks and Recreation (DPR) demonstrating that the extent of the shadow impact would be less pronounced.

As noted above in the description of the proposed development, DSA is seeking a minor modification to the LSGD design controls for Site 5 to reduce the 60-foot minimum base height on the Clinton Street frontage of the site to a base height of approximately 29 feet. Similar to Technical Memorandum 002, the Essex Crossing program would introduce a 15,000-sf publicly accessible open space on the Broome Street portion of Site 5. With this decrease in the base height, there would be a corresponding small decrease in shadow on the proposed Broome Street public open space that would be introduced on Site 5 in all seasons, during a portion of the day in the morning and/or mid-day.

## **HISTORIC AND CULTURAL RESOURCES**

As a result of the possibility that construction financing might be provided by New York State and/or the United States Department of Housing and Urban Development (HUD), the FGEIS and Technical Memoranda 001 and 002 were 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.

Since the selection of DSA as the designated developer for the project sites, DSA and HPD have determined that the development of Sites 2-5 will receive construction financing through the New York City Housing Development Corporation (NYCHDC), a New York State agency for purposes of Section 14.09. Therefore, NYCHDC conducted a consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), as required by Section 14.09.

No construction financing from NYCHDC or HUD is being sought for the development of Sites 1 and 6 or the development of Sites 8-10. Therefore, the development of Sites 1, 6, 8, 9, and 10 is not subject to consultation with OPRHP under Section 14.09 or further review under Section 106.

*ARCHAEOLOGICAL RESOURCES*

In accordance with the FGEIS commitments, a Phase 1B archaeological survey was undertaken on Sites 2-6 in August 2014 following the testing protocol that the New York City Landmarks Preservation Commission (LPC) and OPRHP approved in letters dated July 3, 2014 and July 16, 2014, respectively. No archaeological resources were encountered during the Phase 1B survey for Sites 2-6, and a final report summarizing the results of the Phase 1B survey was prepared and submitted to LPC and OPRHP for review and comment. As written in an Environmental Review letter dated November 26, 2015, LPC concurred with the findings of the Phase 1B report that there are no further archaeological concerns for Sites 2-6. OPRHP concurred with the Phase 1B report's recommendation that no further archaeological investigation is warranted for the project in a letter dated December 15, 2014.

*ARCHITECTURAL RESOURCES*

The proposed Essex Crossing program, which would be built within the maximum building envelopes established for each site by the LSGD and analyzed in the FGEIS, would not alter the conclusions in the FGEIS with respect to architectural resource impacts.

*Potential Direct Impacts*

As described in the FGEIS, the proposed development would result in significant adverse impacts on the four Essex Street Market buildings (on Sites 2, 8, 9, and 10) and the former fire station at 185 Broome Street (on Site 5); those architectural resources are eligible for listing on the State and National Registers of Historic Places (S/NR). As noted above, the developments of Sites 2 and 5 are subject to consultation under Section 14.09. Due to safety concerns at the former fire station, the City is expediting the building's demolition. Consultation with LPC and OPRHP is being conducted prior to demolition.

In connection with the Section 14.09 consultation, in a letter dated October 22, 2014 OPRHP requested a detailed analysis of alternatives specific to the historic resources on Sites 2 and 5. An analysis was prepared and submitted to OPRHP that assessed three alternatives: an alternative that retains and reuses the Essex Street Market building on Site 2 without new construction or alterations to the building; an alternative that retains the Essex Street Market building on Site 2 and builds above it to accommodate the Essex Crossing program components for Site 2; and an alternative that retains and reuses most of the former fire station on Site 5. The alternatives analysis, which is included in **Appendix A** to this Technical Memorandum 003, concluded that there are no prudent and feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 2 and the former fire station on Site 5.<sup>9</sup> These impacts were disclosed in the FGEIS.

In a letter dated December 22, 2014, OPRHP requested additional information to clarify the conclusions presented in the alternatives analysis. An executive summary that further described why the two historic buildings could not be retained and reused to meet the goals of the Essex Crossing program was prepared and submitted to OPRHP. The executive summary is included in **Appendix A**. In a letter dated January 26, 2015, OPRHP concluded that there are no feasible

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<sup>9</sup> Appendix A includes the alternatives analysis that was submitted to OPRHP on December 10, 2014. When the alternatives analysis was prepared and submitted to OPRHP, the Essex Crossing program included 98 parking spaces on Site 5. Subsequently, parking has been removed from the Essex Crossing program.

and prudent alternatives to demolition of the former Essex Street Market building on Site 2 and the former fire station on Site 5.

Therefore, in accordance with the FGEIS commitments and in consultation with LPC and OPRHP, DSA has proposed to undertake the following measures to partially mitigate the significant adverse impacts:

- Historic American Buildings Survey Document (HABS) documentation. DSA is preparing HABS Level II documentation of the Essex Street Market complex<sup>10</sup> and the former fire station. A HABS work plan was submitted to LPC and OPRHP on August 14, 2014, and documentation packages will be submitted to LPC and OPRHP for review and comment. The completed documentation packages will be submitted to other repositories to be identified in consultation with LPC and OPRHP.
- Site commemoration plan. DSA proposes to prepare an interpretive exhibit on the Essex Street Market and is investigating installing the exhibit within the new market facility that will be constructed on Site 2. DSA will consult with NYCEDC, HPD, LPC, and OPRHP regarding the site commemoration plan.
- Architectural salvage. There is a neon sign in the former Essex Street Market building on Site 2 that appears to be original to the building; it advertises the former location of the meat department. Pursuant to their agreement with the City of New York, DSA will salvage this neon sign, store it on Site 8, and investigate the possibility of reinstalling the sign within the Essex Crossing project. No other significant exterior or interior architectural elements of the Essex Street Market buildings and fire station were identified.
- Market signage. The design of the new market facility on Site 2 is preliminary, but a currently contemplated design measure is signage for the new market that references the Moderne lettering of the façade signage of the original market buildings.

A Letter of Resolution (LOR) is being prepared that documents these mitigation measures that will be incorporated into the Essex Crossing program. The LOR is being prepared in consultation with OPRHP and will be executed by NYCHDC, DSA, and OPRHP.

In accordance with the FGEIS commitments, DSA will also prepare and implement, in consultation with LPC, construction protection plans for architectural resources located within 90 feet of Sites 1, 3, 6, 8, and 9. Implementation of construction protection plans will be required through the Land Disposition Agreement (LDA). As development on Site 3 will receive construction financing through NYCHDC, the construction protection plan for that site will also be submitted to OPRHP for review and approval. There are no architectural resources located within 90 feet of Sites 2, 4, 5, and 10. The architectural resources that will be included in the construction protection plans are:

- thirteen buildings surrounding Site 1 that are located within the S/NR-listed Lower East Side Historic District, including the Eastern Dispensary at 75 Essex Street, which is individually eligible for S/NR listing and is adjacent to Site 1;
- the Norfolk Street Baptist Church (Congregation Beth Hamedrash Hagodol) at 60-64 Norfolk Street, which is a designated New York City Landmark (NYCL) and S/NR-listed property and is located within 90 feet of Site 3;

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<sup>10</sup> Although only one of the four sites (Site 2) containing an Essex Street Market building is subject to Section 14.09 consultation, the entire Essex Street Market complex is one integrated historic resource. Accordingly, HABS documentation and other mitigative measures will be taken for the entire complex.

- the Williamsburg Bridge, which is eligible for S/NR listing and is located within 90 feet of Site 6; and
- ten buildings surrounding Sites 8 and 9 that are located within the potential Clinton, Rivington, Stanton Street Historic District, which is eligible for NYCL designation and S/NR listing.

#### *Potential Visual and Contextual Impacts*

In accordance with the FGEIS commitments, NYCEDC and DSA will continue to consult with LPC regarding the compatibility of the proposed building on Site 1 with the S/NR-listed Lower East Side Historic District, in which it is located, and with the S/NR-eligible Eastern Dispensary. NYCEDC will ensure that appropriate consultation occurs with LPC and that possible mitigation measures are fully explored. Such measures, to the maximum extent practicable and feasible, would be required through the provisions of a contract of sale or long-term lease or other legally-binding agreement between DSA and NYCEDC. Development of Site 1 is not receiving construction financing through NYCHDC and is, therefore, not subject to consultation under Section 14.09 of the New York Parks, Recreation and Historic Preservation Law.

The FGEIS concluded that—should there be any State or Federal permitting or funding for development on sites 8, 9, and 10—HPD and NYCEDC would consult with OPRHP regarding the compatibility of the proposed developments on those sites with the adjacent potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible), even though the FGEIS concluded that the proposed developments on Sites 8, 9, and 10 would not have significant adverse visual and contextual impacts on the historic district. As described above, the developments on Sites 8, 9, and 10 are not receiving construction financing through NYCHDC and are, therefore, not subject to consultation under Section 14.09 of the New York Parks, Recreation and Historic Preservation Law.

The developments on Sites 2-5 will receive construction financing through NYCHDC but, as concluded in the FGEIS, the development of new buildings of various heights on Sites 2-5 would not have significant adverse visual and contextual impacts on architectural resources. As the buildings proposed for Sites 2-5 would be constructed within the maximum zoning envelopes established for each site and assessed in the FGEIS and Technical Memoranda 001 and 002, the proposed development would not alter the conclusions of the FGEIS, and there would be no significant adverse visual and contextual impacts on architectural resources from the buildings proposed for Sites 2-5. In accordance with the FGEIS commitments, NYCHDC and DSA undertook appropriate consultation with OPRHP under Section 14.09 regarding these sites and, in a letter dated October 22, 2014, ORPHP concluded that they have no additional concerns with Sites 3, 4, or 6.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City.

#### **URBAN DESIGN**

As described above, the proposed buildings on Sites 1-6 would fit within the maximum building envelopes established for each site by the LSGD (see **Figure 1**). The proposed buildings on Sites 2-4 and Site 6 would largely comply with the LSGD design controls for maximum building heights, minimum and maximum base heights, setback requirements, and maximum tower

dimensions, and they would be massed according to one of the envelope options established for each site and presented in the FGEIS.

On Site 1, the proposed building would utilize envelope option 2 from the FGEIS (which orients the tower portion of the building east-west along Broome Street) for the site and would comply with all of the LSGD design controls, except that it would modify a portion of the streetwall at the intersection of Broome and Ludlow Streets. On Site 5, the proposed building would utilize envelope option 1 from the FGEIS (which orients the tower portion of the building north-south along Clinton Street) for the site and would comply with all of the LSGD design controls, except that it would not meet the minimum base height of 60 feet on Clinton Street. Sixty-five feet from the intersection of Clinton and Grand Streets, the proposed building would have a base height of approximately 29 feet on Clinton Street. Developments on Sites 8, 9, and 10 have not been designed, but they would be compliant with existing zoning.

Overall, because the proposed buildings on Sites 2-4 and 6 would be within the limits of the maximum zoning envelopes established according to the LSGD rules and the future developments on Sites 8, 9, and 10 would be compliant with zoning, the proposed buildings on those sites would not alter the conclusions of the urban design and visual resources analyses in the FGEIS, and there would be no significant adverse impacts on the urban design and visual resources of the developments sites and study area.

As described above, minor modifications are proposed to the LSGD design controls for Sites 1 and 5. The proposed building on Site 1 would have an angled base along Ludlow Street that varies from the LSGD streetwall design controls for the site (see **Figure 2c**). This modification would not result in significant adverse impacts to urban design and visual features, because the height of the base would be in compliance with the LSGD design controls and the angled base would provide a wider sidewalk at the corner and building entrance and more open views along Ludlow Street. This wider sidewalk would improve the pedestrian experience at the corner of Broome and Ludlow Streets and would have no effect on the pedestrian experience in other portions of the study area. While the proposed building on Site 5 is proposed to have a lower streetwall along a portion of its Clinton Street frontage, this variation to the design controls for Site 5 would not result in significant adverse impacts to urban design and visual resources (see **Figure 4c**). On Clinton Street, the building would have a base height of 78 feet for a portion of the streetwall in compliance with existing design controls for the site. Reducing the base height on the northern portion of the Clinton Street frontage to as low as 29 feet would not substantially alter the pedestrian experience along Clinton Street and would have no effect on the pedestrian experience in other portions of the study area. Along this small stretch of Clinton Street, the base of a tall building that has a 29-foot-tall streetwall would not be appreciably different to a pedestrian than the base of a tall building that has a 60-foot-tall streetwall, especially as the location of the streetwall would not be modified. Therefore, the proposed buildings—like the actions assessed in the FGEIS and Technical Memoranda 001 and 002—would enhance the pedestrian's experience of the development sites by replacing underutilized buildings and surface parking lots with new active, mixed-use development and would be consistent with the existing trends of new residential, hotel, and mixed-use development making the neighborhood more densely developed, and thus these proposed modifications would not result in any significant adverse impacts.

## HAZARDOUS MATERIALS

In accordance with the FGEIS commitments, subsequent investigations including soil and groundwater testing (and potential remediation, as appropriate) would take place prior to

commencing construction of the proposed Essex Crossing program. Additional measures such as removal of petroleum bulk storage tanks and any associated contaminated soil, asbestos-containing materials (ACM) surveys and abatement, if necessary, prior to demolition activities, proper disposal of any chemicals or materials containing polychlorinated biphenyls (PCBs), and proper handling of lead-based paint during demolition would be undertaken. Additionally, appropriate health and safety/remedial measures would be developed under a Remedial Action Plan (RAP)/Construction Health and Safety Plan and implemented in consultation with NYCDEP that would precede or govern demolition, construction, and soil disturbance activities on the development sites. At the completion of construction activities, a New York State Professional Engineer-certified closure report would be submitted to NYCDEP for approval. With the implementation of these measures as identified in the FGEIS, no significant adverse impacts related to hazardous materials would be expected to result from the proposed development. Following construction, there would be no potential for significant adverse impacts as identified in the FGEIS.

A Phase I Environmental Site Assessment (ESA) for the original 10 Sites (Site 7 was subsequently eliminated from the proposed project) was completed by Holzmacher, McLendon, and Murrel, P.C. (H2M) in September 2008 and by Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. in February 2014. The Phase I ESAs identified the following: a fill port in the Norfolk Street sidewalk adjacent to Site 3; Historic Auto Station database listing for Site 3; a fill port, an out-of-service fuel oil underground storage tank (UST) and a vaulted 1,500-gallon fuel oil aboveground storage tank (AST) at Site 5; closed NYSDEC Spill #1100365 associated with Site 5; RCRA database listing as a non-hazardous waste generator and MANIFEST database listing for the disposal of lead waste in 1997 and chromium waste in 2003 at Site 5; two 500-gallon USTs on a 1922 Sanborn map of Site 6; and potential vapor intrusion at all 10 Sites 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 (though no remediation of this plant is currently required by New York State). Based on the results of the Phase I ESA, a Phase II Work Plan was prepared and submitted to DEP for review and approval for Sites 1, 2, 5 and 6. As required, the Phase II Work Plan for Sites 3, 4, 8, 9, and 10 will be prepared at a later date.

The Phase II Environmental Site Investigation (ESI) for Sites 1, 2, 5 and 6 was completed in September 2014. The ESI included the advancement of 20 borings (5 at each site) with the collection of up to 2 soil samples from each boring; the installation of 8 temporary groundwater wells (2 at each site) in selected borings with collection of a groundwater sample from each; and, the installation of soil vapor probes for the collection of 12 soil vapor samples (3 at each site).

Several semivolatile organic compounds (SVOCs), pesticides, and metals exceeded their respective USCOs and/or RRSCOs in the soil samples collected from Sites 1, 2, 5, and 6 but these exceedances were likely attributable to historic fill materials (encountered in the borings) rather than a spill or release. The volatile organic compound (VOC) tetrachloroethene (PCE or perc) was detected in one groundwater sample collected from Site 1 at a concentration of 8 µg/L, slightly above its Class GA standard of 5 µg/L. Acetone was detected in one groundwater sample collected from Site 2 above its Class GA standard; however, acetone is a common laboratory artifact. Dieldrin was detected in the groundwater samples collected from Site 2 and Site 6 above its Class GA standard. As pesticides were also detected in the soil at both these sites, their presence may be attributable to the turbidity of the samples. Manganese and sodium were detected in the dissolved groundwater samples collected from Site 1 above their respective Class GA standards. Magnesium, manganese, selenium, and sodium were detected in the dissolved groundwater samples collected from Site 2 above their respective Class GA standards.

Iron, magnesium, manganese, and sodium were detected in the dissolved groundwater samples collected from Site 5 above their respective Class GA standards. Manganese and selenium were detected in the dissolved groundwater samples collected from Site 6 above their respective Class GA standards. The metals detected above their respective Class GA standard are naturally occurring and their presence in the groundwater does not represent an environmental concern.

Thirty VOCs were detected in the soil vapor samples from Sites 1, 2, 5 and 6. The VOCs detected included the chlorinated compounds PCE and carbon disulfide, and some petroleum-related compounds (2-hexanone, ethanol, hexane, benzene, toluene, xylenes, heptane, ethyl acetate, methyl ethyl ketone, and cyclohexane). The common laboratory contaminants acetone and methylene chloride were also detected. None of the VOCs with established NYSDOH Air Guideline Values (AGVs) were detected above their respective guidelines.

Based on the results of the ESI, a Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) were prepared for Sites 1, 2, 5 and 6 and submitted to DEP for review and approval. The RAP and CHASP for Sites 1, 2, 5 and 6 were approved on October 28, 2014. The RAP and CHASP specify the required procedures during construction: identification and management of any anticipated or unanticipated contaminated soil and/or underground storage tanks (including procedures for stockpiling and off-site transportation and disposal of soil, and reporting of petroleum spills); appropriate health and safety procedures, including dust control, installation of a minimum 10-mil vapor barrier underneath the foundation slab and outside of the sub-grade walls; and installation of a minimum two-foot-thick imported clean soil layer over any landscaped areas. Upon completion of these activities, a Site Closure Report will be provided to DEP documenting compliance with the RAP and CHASP requirements. In addition, closure of the existing New York State Department of Environmental Conservation (NYSDEC) Spill #1407415, associated with Site 3, will be coordinated with NYSDEC in accordance with all applicable regulations. NYSDEC Spill #1311663, associated with Site 2, was closed on September 16, 2014.

A Phase II Subsurface Investigation for Sites 3, 4, 8, 9, and 10 will be conducted prior to redevelopment. Based on the findings of the Subsurface Investigation, a RAP/CHASP would be developed and approved by DEP for implementation during soil and/or groundwater disturbing activities (prior to redevelopment). The RAP/CHASP would specify procedures for identifying and managing any anticipated or unanticipated contaminated soil and/or underground storage tanks (including procedures for stockpiling and off-site transportation and disposal), and appropriate health and safety procedures, including the need for dust control. The RAP would also include any necessary requirements for the new building's vapor controls and for any planned landscaped areas. With these procedures, the proposed Essex Crossing project, like the development assessed in the FGEIS, would have no significant adverse impacts on hazardous materials.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City.

## **WATER AND SEWER INFRASTRUCTURE**

### *WATER SUPPLY*

As shown in **Table 12**, the proposed Essex Crossing program would result in a water demand of 727,011 gallons per day (gpd), which is 58,876 gpd more than the water demand generated by the proposed actions assessed in the FGEIS (670,135 gpd) and 36,816 gpd more than the

assessed in Technical Memorandum 001 (690,195 gpd). With this additional increment, the total incremental water demand over the No-Action condition (described in the FGEIS) generated by the proposed Essex Crossing program would continue to represent a small increase in demand on the New York City water supply system as compared to the 1.1 billion gallons per day (bgd) typically distributed within New York City and Westchester County. As a result, the proposed Essex Crossing program, like the FGEIS program and approved program, would have no significant adverse impacts on the City’s water supply.

**Table 12**  
**Future With the Proposed Essex Crossing Program: Water Consumption**

| Use  | Unit                        | Size (sf) | Rate <sup>1</sup> | Consumption (gallons per day) |
|--|-----------------------------|-----------|-------------------|-------------------------------|
| <b>Residential</b>   |                             |           |                   |                               |
| Domestic   | 2,139 (people) <sup>2</sup> | NA        | 100 gpd/person    | 213,900                       |
| Air Conditioning   | NA                          | 994,026   | 0.17 gpd/sf       | 168,984                       |
| <b>Commercial/Office<sup>3</sup></b>   |                             |           |                   |                               |
| Domestic   | NA                          | 331,753   | 0.10 gpd/sf       | 33,175                        |
| Air Conditioning   | NA                          | 331,753   | 0.17 gpd/sf       | 56,398                        |
| <b>Retail<sup>4</sup></b>  |                             |           |                   |                               |
| Domestic   | NA                          | 577,130   | 0.24 gpd/sf       | 138,511                       |
| Air Conditioning   | NA                          | 577,130   | 0.17 gpd/sf       | 98,112                        |
| <b>Public School</b>   |                             |           |                   |                               |
| Domestic   | 518 (seats)                 | NA        | 10 gpd/seat       | 5,180                         |
| Air Conditioning   | NA                          | 75,000    | 0.17 gpd/sf       | 12,750                        |
| <b>Total Water Supply Demand</b>   |                             |           |                   | <b>727,011</b>                |
| <b>Total Sewage Generation</b>   |                             |           |                   | <b>390,766</b>                |
| <b>Notes:</b>  |                             |           |                   |                               |
| 1. Rates from Table 13-2 in the 2014 <i>CEQR Technical Manual</i> .  |                             |           |                   |                               |
| 2. The number of residents was calculated based on 1,000 units. A Community District 3 average household size of 2.21 was applied for 900 units. For the 100 senior housing units, an average household size of 1.5 was assumed. |                             |           |                   |                               |
| 2. Commercial/Office uses include commercial office, medical office, community office, and community facility spaces (see development program discussed under "Transportation").   |                             |           |                   |                               |
| 3. Retail uses include local retail, destination retail, supermarket, public market and Market Line, gym, bowling alley, movie theater, and museum spaces.   |                             |           |                   |                               |

In accordance with the FGEIS commitments, the applicant is required to develop and implement stormwater best management practices (BMPs) in coordination with DEP and in accordance with recent stormwater rules promulgated by DEP. The new rules will require developments to achieve an overall release rate of 0.25 cfs or 10 percent of the allowable flow rate (whichever is greater) from the development sites. For City properties that may be managed by NYCEDC, this obligation will be required through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer.

**SANITARY SEWAGE**

As with the FGEIS and Technical Memorandum 001, for purposes of this analysis the amount of sanitary sewage generated by the proposed development is conservatively estimated as all water demand except that used by air conditioning, which is typically not discharged to the sewer system. As shown in Table 12, the estimated amount of sanitary sewage that would be generated by the proposed Essex Crossing program is estimated to be 390,766 gpd, which is 9,196 gpd more than the sewage that would be generated by the FGEIS program (381,570 gpd) and 10,864 gpd less than the approved program (401,630 gpd). With this additional increment, the total increment of sanitary sewage generated by the proposed Essex Crossing program over the No-Action condition (described in the FGEIS) would represent a negligible increase in the average daily flow of 217 million gallons



per day at the Newtown Creek Wastewater Treatment Plant (WWTP)<sup>11</sup> and would not result in an exceedance of the Newtown Creek WWTP's capacity. Therefore, the proposed Essex Crossing program, like the FGEIS program and the approved program, would not create a significant adverse impact on the City's sanitary sewage treatment system.

### *STORMWATER*

The proposed Essex Crossing program would be built with best management practices (BMPs) outlined in the BMP Concept Plan described in the FGEIS, as required as a part of the NYCDEP site connection approval process. These BMPs, as assessed in the FGEIS, 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. The BMP Concept Plan in the FGEIS summarizes the potential BMPs that would be suitable for implementation within the project site.

The proposed Essex Crossing program would include stormwater detention practices on each site, and with the incorporation of these BMPs, the overall volume of stormwater runoff and the peak stormwater runoff rate would remain the same as compared to the FGEIS program with BMPs incorporated. In addition, as described above, a roof top farm is anticipated on Site 2. This roof top farm is expected to have a cistern for a water recycling system. In conclusion, the proposed Essex Crossing program, like the FGEIS program, would not result in any significant adverse impacts on wastewater treatment or stormwater conveyance infrastructure.

### **SOLID WASTE AND SANITATION SERVICES**

As shown in **Table 13**, the proposed Essex Crossing program would result in 239,250 pounds (119.6 tons) of solid waste per week, which is 18,012 pounds (or 9.0 tons) per week more than would be produced by the FGEIS program, and 13,402 pounds (or 6.7 tons) more than would be produced by the proposed actions assessed in Technical Memorandum 001.

An estimated 43,934 pounds (22.0 tons) of solid waste per week would be from the residential, school, and community facility uses. That 22.0 tons, which would be collected by the New York City Department of Sanitation (DSNY), would be 2.8 tons per week more than assessed in the FGEIS and 0.5 tons per week more than assessed in Technical Memorandum 001, but it would result in the same number of up to two added truckloads per week for solid collection services assessed in the FGEIS and Technical Memorandum 001, as the typical DSNY collection truck has a capacity of 12.5 tons. The remaining 195,315 pounds (97.7 tons) per week from commercial uses, which would be collected by commercial carters, would be 6.2 tons more than assessed in the FGEIS and Technical Memorandum 001. Conservatively assuming that the private carters carry 12 tons of solid waste, the proposed Essex Crossing program would require approximately nine truck trips per week, which is one truck more than was needed as determined by the FGEIS. Therefore, as with the FGEIS program and approved program, the proposed Essex Crossing program would not result in a significant adverse impact on solid waste services.

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<sup>11</sup> 12-month average daily flow for the period ending April 2014.

**Table 13**

**The Future with the Proposed Essex Crossing Program: Solid Waste Generation**

| Use                           | Program <sup>1</sup> | Households/<br>Employment/Students | Generation Rate<br>(pounds per week) <sup>2</sup> | Total<br>(pounds per week) |
|-------------------------------|----------------------|------------------------------------|---|----------------------------|
| Residential                   | 1,000 units          | 1,000 households                   | 41 per household                                  | 41,000                     |
| Office                        | 269,206 sf           | 1,076 employees <sup>3</sup>       | 13 per employee                                   | 13,988                     |
| Medical Office                | 16,547 sf            | 36 employees <sup>4</sup>          | 13 per employee                                   | 468                        |
| General Retail—Local          | 83,872 sf            | 209 employees <sup>5</sup>         | 79 per employee                                   | 16,511                     |
| General Retail—Destination    | 81,578 sf            | 102 employees <sup>5</sup>         | 79 per employee                                   | 8,058                      |
| Food Stores—Grocery           | 27,805 sf            | 70 employees <sup>5</sup>          | 284 per employee                                  | 19,880                     |
| Public Market and Market Line | 180,199 sf           | 451 employees <sup>5</sup>         | 284 per employee                                  | 128,084                    |
| Community Facility            | 46,000 sf            | 46 employees <sup>7</sup>          | 13 per employee                                   | 598                        |
| Elementary School             | 518 seats            | 518 students                       | 3 per pupil                                       | 1,554                      |
| Gym                           | 47,258 sf            | 32 employees <sup>8</sup>          | 79 per employee                                   | 2,489                      |
| Movie Theater                 | 102,560 sf           | 60 employees <sup>9</sup>          | 79 per employee                                   | 4,740                      |
| Bowling Alley                 | 27,784 sf            | 14 employees <sup>10</sup>         | 79 per employee                                   | 1,097                      |
| Museum                        | 26,075 sf            | 26 employees <sup>7</sup>          | 0.03 per sf                                       | 782                        |
| <b>Total</b>                  |                      |                                    |   | <b>239,250</b>             |

**Notes:**

1. Based on the development program discussed under “Transportation,” which allocates the mechanical and support space to specific uses.
2. Solid waste generation rates as per Table 14-1 in the 2014 *CEQR Technical Manual*.
3. Office employment based on 250 sf per employee.
4. Medical office employment based on 450 sf per employee.
5. Local retail, public market, and Market Line employment based on 400 sf per employee. Destination retail employment based on 800 sf per employee.
6. Market Line would include retail and food vendors. For a conservative assessment, the generation rate for food stores was used.
7. Community facility and museum employment based on 1,000 sf per employee.
8. Gym employment based on 1,500 sf per employee.
9. Movie theater employment based on estimate of approximately 21 workers per shift (two 8-hour shifts per day, equivalent to 112 total work-hours per week).
10. Bowling alley employment based on 2,000 sf per employee.

**ENERGY**

As shown in **Table 14**, the proposed Essex Crossing program would result in demand for 343,816 Thousand MBTUs per year.

The proposed Essex Crossing program would result in energy demand of 57,964 Thousand MBTUs per year more than assessed in the FGEIS and Technical Memorandum 001 (285,852 Thousand MBTUs per year). However, the energy demand of the proposed Essex Crossing program would remain a negligible increase compared with the approximately 353 Billion MBTUs of energy consumed annually within Con Edison’s New York City and Westchester County service area and is not expected to overburden the energy generation, transmission, and distribution system. Therefore, the proposed Essex Crossing program would not change the findings of the FGEIS and Technical Memorandum 001, and the proposed development would not result in a significant adverse energy impact. In addition, the proposed Essex Crossing development would not alter the FGEIS assumptions about the inclusion of features aimed at reducing energy consumption and greenhouse gas emissions in the proposed development and the expectation that housing developments on all sites would be certified under the Enterprise Green Communities Program or would incorporate measures that would achieve equivalent energy efficiency levels.

**Table 14**

**The Future with the Proposed Essex Crossing Program: Energy Consumption**

| Use  | Program <sup>1</sup> | Rate (MBTU/sf/year) <sup>2</sup> | Energy Consumption (Thousand MBTU/Year) |
|--|----------------------|----------------------------------|---|
| Residential  | 994,026 sf           | 126.7                            | 125,943                                 |
| Office   | 269,206 sf           | 216.3                            | 58,229                                  |
| Medical Office   | 16,547 sf            | 216.3                            | 3,579                                   |
| General Retail—Local   | 83,872sf             | 216.3                            | 18,142                                  |
| General Retail—Destination   | 81,578 sf            | 216.3                            | 17,645                                  |
| Food Stores—Grocery  | 27,805 sf            | 216.3                            | 6,014                                   |
| Public Market and Market Line  | 180,199 sf           | 216.3                            | 38,977                                  |
| Community Facility   | 46,000 sf            | 250.7                            | 11,532                                  |
| Elementary School  | 75,000 sf            | 250.7                            | 18,803                                  |
| Gym  | 47,258 sf            | 216.3                            | 10,222                                  |
| Movie Theater  | 102,560 sf           | 216.3                            | 22,184                                  |
| Bowling Alley  | 27,784 sf            | 216.3                            | 6,010                                   |
| Museum   | 26,075 sf            | 250.7                            | 6,537                                   |
| <b>Total</b>   |                      |                                  | <b>343,816</b>                          |
| <b>Notes:</b>  |                      |                                  |   |
| 1. Based on the development program discussed under "Transportation," which allocates the mechanical and support space to specific uses. |                      |                                  |   |
| 2. Energy rates as per Table 15-1 in the 2014 <i>CEQR Technical Manual</i> .   |                      |                                  |   |

## TRANSPORTATION

A detailed trip generation analysis was performed to estimate the volume of person and vehicle trips generated by the proposed Essex Crossing program. As described above, the proposed Essex Crossing program would introduce a program that is different from the RWCDs program analyzed in the FGEIS and subsequent Technical Memoranda 001 and 002. Primary differences include an increase in the public market space, the introduction of the Market Line use, an overall reduction of local and destination retail spaces, the removal of the hotel, the addition of a gym (Physical Culture Establishment), movie theater, bowling alley, and museum space, an increase in the amount of commercial office space, a reduction of medical office space, and the elimination of on-site parking spaces. The bowling alley, museum, and gym would be located on Site 1, the movie theater on Site 2, and sub-grade Market Line retail space on Sites 2, 3, and 4. **Table 15** provides a summary of the program assumptions used for the transportation analyses presented below.

Travel demand projections were prepared for each of the proposed development components under the proposed Essex Crossing program for the weekday AM, midday, PM, and Saturday peak hours. Although Technical Memoranda 001 and 002, which were prepared subsequent to the publication of the FGEIS, addressed potential impacts associated with modifications to the development program analyzed in the FGEIS, they did not include the same level of robust analyses presented in the FGEIS. Therefore, for purposes of the transportation assessments in this Technical Memorandum, all comparisons are made to the analyses described in the FGEIS. **Table 16** shows the transportation planning assumptions used in estimating the number of person and vehicle trips. Consistent with *CEQR* requirements and consistent with the travel demand assumptions used in the FGEIS, these assumptions are based on travel demand factors from established and published sources including the *CEQR Technical Manual*, *ITE Trip Generation Manual (9th Edition)*, U.S. Census data, various approved studies, and discussions with the New York City Department of Transportation (DOT). As further described below, trip estimates for the Market Line use were developed based on characteristics of the public market and destination retail uses.

**Table 15**  
**Program Assumptions for Transportation Analyses**

| Use                |            | Site 1         | Site 2         | Site 3         | Site 4         | Site 5         | Site 6         | Site 8        | Site 9         | Site 10       | Total            |
|--------------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|------------------|
| Residential        | GSF        | 76,933         | 192,811        | 83,180         | 220,483        | 193,296        | 85,304         | 36,999        | 83,609         | 21,411        | 994,026          |
|                    | Units      | 55             | 195            | 97             | 240            | 211            | 100            | 24            | 64             | 14            | 1,000            |
| Office             | GSF        |                |                | 125,363        | 143,842        |                |                |               |                |               | 269,205          |
| Gym                | GSF        | 47,258         |                |                |                |                |                |               |                |               | 47,258           |
| Bowling Alley      | GSF        | 27,784         |                |                |                |                |                |               |                |               | 27,784           |
|                    | Lanes      | 13             |                |                |                |                |                |               |                |               | 13               |
| Movie Theater      | GSF        |                | 102,560        |                |                |                |                |               |                |               | 102,560          |
|                    | Seats      |                | 1,100          |                |                |                |                |               |                |               | 1,100            |
| Local Retail       | GSF        | 7,626          | 3,584          | 14,870         |                | 18,443         | 7,000          | 9,216         | 17,822         | 5,311         | 83,872           |
| Destination Retail | GSF        |                |                | 26,002         | 25,576         | 30,000         |                |               |                |               | 81,578           |
| Public Market      | GSF        |                | 43,028         |                |                |                |                |               |                |               | 43,028           |
| Market Line        | GSF        |                | 46,117         | 47,178         | 43,876         |                |                |               |                |               | 137,171          |
| Supermarket        | GSF        |                |                |                |                | 27,805         |                |               |                |               | 27,805           |
| School             | GSF        |                |                |                |                | 75,000         |                |               |                |               | 75,000           |
|                    | Seats      |                |                |                |                | 518            |                |               |                |               | 518              |
| Medical Office     | GSF        |                |                |                |                |                | 16,547         |               |                |               | 16,547           |
| Museum             | GSF        | 26,075         |                |                |                |                |                |               |                |               | 26,075           |
| Community Office   | GSF        |                |                |                |                |                | 23,000         |               |                |               | 23,000           |
| Community Facility | GSF        |                |                |                |                |                | 23,000         |               |                |               | 23,000           |
| <b>Total</b>       | <b>GSF</b> | <b>185,676</b> | <b>388,100</b> | <b>296,593</b> | <b>433,777</b> | <b>344,544</b> | <b>154,851</b> | <b>46,215</b> | <b>101,431</b> | <b>26,722</b> | <b>1,977,909</b> |

**Notes:** Programming of Sites 1 to 5 has advanced to include the allocation of support space (i.e., for mechanical and back-of-house uses). Because the FGEIS and TM 001 analyses did not separate out this type of inactive space, the transportation analyses for this Tech Memo has conservatively reallocated the support space square footage to the individual uses within each of these development sites. For Sites 6 to 10, the design process has not been advanced to identify the required support space.

Approximately 933 gsf at Site 9 will be dedicated subway improvements and are not included in the above summary.

Since the Transportation analysis started, the allocation of residential units shifted on Sites 3, 4, and 5. However, the total number of residential units has remained at 1,000 units (see Tables 4, 5, and 6).

**Table 16  
Travel Demand Assumptions**

| Use                                 | Residential                            |      |       |      | Office                                |      |      |      | Local Retail                          |      |      |      |
|-------------------------------------|--|------|-------|------|---------------------------------------|------|------|------|---------------------------------------|------|------|------|
| Daily Person Trip Generation Rate   | (1)<br>8.075 Trips / Unit 9.6          |      |       |      | (1)<br>18.0 Trips / KSF 3.9           |      |      |      | (1)<br>205 Trips / KSF 240            |      |      |      |
| Trip Linkage                        | 0%                                     |      |       |      | 0%                                    |      |      |      | 25%                                   |      |      |      |
| Temporal                            | AM                                     | MD   | PM    | SAT  | AM                                    | MD   | PM   | SAT  | AM                                    | MD   | PM   | SAT  |
|                                     | (1)<br>10% 5% 11% 8%                   |      |       |      | (1)<br>12% 15% 14% 17%                |      |      |      | (1)<br>3% 19% 10% 10%                 |      |      |      |
| Directional                         | (2)                                    |      |       |      | (2)                                   |      |      |      | (2)                                   |      |      |      |
| In                                  | 15%                                    | 50%  | 70%   | 50%  | 96%                                   | 48%  | 5%   | 57%  | 50%                                   | 50%  | 50%  | 50%  |
| Out                                 | 85%                                    | 50%  | 30%   | 50%  | 4%                                    | 52%  | 95%  | 43%  | 50%                                   | 50%  | 50%  | 50%  |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |
| Modal Split                         | (3)                                    |      |       |      | (4)                                   |      |      |      | (2)                                   |      |      |      |
| Auto                                | 9%                                     | 9%   | 9%    | 9%   | 17%                                   | 2%   | 17%  | 2%   | 2%                                    | 2%   | 2%   | 2%   |
| Taxi                                | 2%                                     | 2%   | 2%    | 2%   | 2%                                    | 3%   | 2%   | 3%   | 3%                                    | 3%   | 3%   | 3%   |
| Subway                              | 57%                                    | 57%  | 57%   | 57%  | 56%                                   | 6%   | 56%  | 6%   | 6%                                    | 6%   | 6%   | 6%   |
| Bus                                 | 6%                                     | 6%   | 6%    | 6%   | 9%                                    | 6%   | 9%   | 6%   | 6%                                    | 6%   | 6%   | 6%   |
| Walk                                | 26%                                    | 26%  | 26%   | 26%  | 13%                                   | 83%  | 13%  | 83%  | 83%                                   | 83%  | 83%  | 83%  |
| School Bus                          | -                                      | -    | -     | -    | -                                     | -    | -    | -    | -                                     | -    | -    | -    |
| Work at Home                        | 0%                                     | 0%   | 0%    | 0%   | 3%                                    | 0%   | 3%   | 0%   | 0%                                    | 0%   | 0%   | 0%   |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |
| Vehicle Occupancy                   | (2)(3)                                 |      |       |      | (2)(4)                                |      |      |      | (2)                                   |      |      |      |
| Auto                                | 1.46                                   | 1.46 | 1.46  | 1.46 | 1.21                                  | 1.21 | 1.21 | 1.21 | 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 | 1.40                                  | 1.40 | 1.40 | 1.40 |
| School Bus                          | -                                      | -    | -     | -    | -                                     | -    | -    | -    | -                                     | -    | -    | -    |
| Daily Delivery Trip Generation Rate | (1)<br>0.06 Delivery Trips / Unit 0.02 |      |       |      | (1)<br>0.32 Delivery Trips / KSF 0.01 |      |      |      | (1)<br>0.35 Delivery Trips / KSF 0.04 |      |      |      |
| Delivery Temporal                   | AM                                     | MD   | PM    | SAT  | AM                                    | MD   | PM   | SAT  | AM                                    | MD   | PM   | SAT  |
|                                     | (1)<br>12% 9% 2% 9%                    |      |       |      | (1)<br>10% 11% 2% 11%                 |      |      |      | (1)<br>8% 11% 2% 11%                  |      |      |      |
| Delivery Directional                | (1)                                    |      |       |      | (1)                                   |      |      |      | (1)                                   |      |      |      |
| In                                  | 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%  |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |
| Use                                 | Destination Retail                     |      |       |      | Public Market/ Supermarket            |      |      |      | Medical Office (Staff)                |      |      |      |
| Daily Person Trip Generation Rate   | (1)<br>78.2 Trips / KSF 92.5           |      |       |      | (1)<br>175 Trips / KSF 231            |      |      |      | (2)<br>10.0 Trips / KSF 4.3           |      |      |      |
| Trip Linkage                        | 0%                                     |      |       |      | 25%                                   |      |      |      | 0%                                    |      |      |      |
| Temporal                            | AM                                     | MD   | PM    | SAT  | AM                                    | MD   | PM   | SAT  | AM                                    | MD   | PM   | SAT  |
|                                     | (1)<br>3% 9% 9% 11%                    |      |       |      | (1)<br>5% 6% 10% 9%                   |      |      |      | (2)<br>24% 17% 24% 17%                |      |      |      |
| Directional                         | (2)                                    |      |       |      | (2)                                   |      |      |      | (2)                                   |      |      |      |
| In                                  | 61%                                    | 55%  | 47%   | 52%  | 59%                                   | 46%  | 47%  | 51%  | 94%                                   | 50%  | 12%  | 50%  |
| Out                                 | 39%                                    | 45%  | 53%   | 48%  | 41%                                   | 54%  | 53%  | 49%  | 6%                                    | 50%  | 88%  | 50%  |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |
| Modal Split                         | (2)                                    |      |       |      | (2)                                   |      |      |      | (4)(5)                                |      |      |      |
| Auto                                | 9%                                     | 9%   | 9%    | 9%   | 2%                                    | 2%   | 2%   | 2%   | 17%                                   | 17%  | 17%  | 17%  |
| Taxi                                | 4%                                     | 4%   | 4%    | 4%   | 3%                                    | 3%   | 3%   | 3%   | 2%                                    | 2%   | 2%   | 2%   |
| Subway                              | 28.5%                                  | 20%  | 28.5% | 20%  | 6%                                    | 6%   | 6%   | 6%   | 58%                                   | 58%  | 58%  | 58%  |
| Bus                                 | 8%                                     | 8%   | 8%    | 8%   | 6%                                    | 6%   | 6%   | 6%   | 10%                                   | 10%  | 10%  | 10%  |
| Walk                                | 50.5%                                  | 59%  | 50.5% | 59%  | 83%                                   | 83%  | 83%  | 83%  | 13%                                   | 13%  | 13%  | 13%  |
| School Bus                          | -                                      | -    | -     | -    | -                                     | -    | -    | -    | -                                     | -    | -    | -    |
| Work at Home                        | 0%                                     | 0%   | 0%    | 0%   | 0%                                    | 0%   | 0%   | 0%   | 0%                                    | 0%   | 0%   | 0%   |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |
| Vehicle Occupancy                   | (2)                                    |      |       |      | (2)                                   |      |      |      | (2)(4)                                |      |      |      |
| Auto                                | 2.00                                   | 2.00 | 2.00  | 2.00 | 1.65                                  | 1.65 | 1.65 | 1.65 | 1.21                                  | 1.21 | 1.21 | 1.21 |
| Taxi                                | 2.00                                   | 2.00 | 2.00  | 2.00 | 1.40                                  | 1.40 | 1.40 | 1.40 | 1.40                                  | 1.40 | 1.40 | 1.40 |
| School Bus                          | -                                      | -    | -     | -    | -                                     | -    | -    | -    | -                                     | -    | -    | -    |
| Daily Delivery Trip Generation Rate | (1)<br>0.35 Delivery Trips / KSF 0.04  |      |       |      | (2)<br>0.35 Delivery Trips / KSF 0.04 |      |      |      | (2)<br>0.29 Delivery Trips / KSF 0.0  |      |      |      |
| Delivery Temporal                   | AM                                     | MD   | PM    | SAT  | AM                                    | MD   | PM   | SAT  | AM                                    | MD   | PM   | SAT  |
|                                     | (1)<br>8% 11% 2% 11%                   |      |       |      | (2)<br>8% 11% 2% 11%                  |      |      |      | (2)<br>9.6% 11.0% 1.0% 0%             |      |      |      |
| Delivery Directional                | (1)                                    |      |       |      | (2)                                   |      |      |      | (2)                                   |      |      |      |
| In                                  | 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%  |
| Total                               | 100%                                   | 100% | 100%  | 100% | 100%                                  | 100% | 100% | 100% | 100%                                  | 100% | 100% | 100% |

Table 16 (cont'd)  
Travel Demand Assumptions

| Use                                 | Medical Office (Visitors)                |      |      |      | School Students                          |      |      |      | School Staff                             |      |      |      |
|-------------------------------------|--|------|------|------|--|------|------|------|--|------|------|------|
| Daily Person Trip Generation Rate   | (2)<br>33.6 14.5<br>Trips / KSF          |      |      |      | (2)(12)<br>2.0 0.0<br>Trips / Seat       |      |      |      | (2)<br>2.0 0.0<br>Trips / Staff          |      |      |      |
| Trip Linkage                        | 0%                                       |      |      |      | 0%                                       |      |      |      | 0%                                       |      |      |      |
| Temporal                            | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  |
| Directional                         | (2)<br>6% 9% 5% 9%                       |      |      |      | (2)(13)<br>50% 0% 10% 0%                 |      |      |      | (2)<br>50% 0% 2.5% 0%                    |      |      |      |
| In                                  | (2)<br>94% 50% 12% 50%                   |      |      |      | (2)<br>100% 50% 0% 50%                   |      |      |      | (2)<br>100% 50% 0% 50%                   |      |      |      |
| Out                                 | (2)<br>6% 50% 88% 50%                    |      |      |      | (2)<br>0% 50% 100% 50%                   |      |      |      | (2)<br>0% 50% 100% 50%                   |      |      |      |
| Total                               | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      |
| Modal Split                         | (2)                                      |      |      |      | (2)                                      |      |      |      | (4)(5)                                   |      |      |      |
| Auto                                | 25%                                      | 25%  | 25%  | 25%  | 10%                                      | 10%  | 10%  | 10%  | 17%                                      | 17%  | 17%  | 17%  |
| Taxi                                | 25%                                      | 25%  | 25%  | 25%  | 2%                                       | 2%   | 2%   | 2%   | 2%                                       | 2%   | 2%   | 2%   |
| Subway                              | 29%                                      | 29%  | 29%  | 29%  | 8%                                       | 8%   | 8%   | 8%   | 58%                                      | 58%  | 58%  | 58%  |
| Bus                                 | 11%                                      | 11%  | 11%  | 11%  | 7%                                       | 7%   | 7%   | 7%   | 10%                                      | 10%  | 10%  | 10%  |
| Walk                                | 10%                                      | 10%  | 10%  | 10%  | 53%                                      | 53%  | 53%  | 53%  | 13%                                      | 13%  | 13%  | 13%  |
| School Bus                          | -  | -    | -    | -    | 20%                                      | 20%  | 20%  | 20%  | -  | -    | -    | -    |
| Work at Home                        | 0%                                       | 0%   | 0%   | 0%   | 0%                                       | 0%   | 0%   | 0%   | 0%                                       | 0%   | 0%   | 0%   |
| Total                               | 100%                                     | 100% | 100% | 100% | 100%                                     | 100% | 100% | 100% | 100%                                     | 100% | 100% | 100% |
| Vehicle Occupancy                   | (2)                                      |      |      |      | (2)(14)                                  |      |      |      | (2)(4)                                   |      |      |      |
| Auto                                | 1.65                                     | 1.65 | 1.65 | 1.65 | 1.28                                     | 1.28 | 1.28 | 1.28 | 1.21                                     | 1.21 | 1.21 | 1.21 |
| Taxi                                | 1.20                                     | 1.20 | 1.20 | 1.20 | 1.22                                     | 1.22 | 1.22 | 1.22 | 1.40                                     | 1.40 | 1.40 | 1.40 |
| School Bus                          | -  | -    | -    | -    | 19.0                                     | 19.0 | 19.0 | 19.0 | -  | -    | -    | -    |
| Daily Delivery Trip Generation Rate | (2)<br>0.29 0.0<br>Delivery Trips / KSF  |      |      |      | (2)<br>0.07 0.0<br>Delivery Trips / KSF  |      |      |      | (2)<br>0.07 0.0<br>Delivery Trips / KSF  |      |      |      |
| Delivery Temporal                   | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  |
| Delivery Directional                | (2)<br>9.6% 11% 1.0% 0%                  |      |      |      | (2)<br>9.6% 11% 1% 0%                    |      |      |      | (2)<br>9.6% 11% 1% 0%                    |      |      |      |
| In                                  | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      |
| Out                                 | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      |
| Total                               | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      |
| Use                                 | Community Office                         |      |      |      | Community Facility                       |      |      |      | Gym (Physical Culture Establishment)     |      |      |      |
| Daily Person Trip Generation Rate   | (2)<br>18.0 3.9<br>Trips / KSF           |      |      |      | (2)<br>48 19<br>Trips / KSF              |      |      |      | (1)<br>44.7 26.1<br>Trips / KSF          |      |      |      |
| Trip Linkage                        | 0%                                       |      |      |      | 0%                                       |      |      |      | 0%                                       |      |      |      |
| Temporal                            | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  |
| Directional                         | (2)<br>12% 15% 14% 17%                   |      |      |      | (2)<br>7% 10% 7% 14%                     |      |      |      | (1)<br>4% 9% 5% 9%                       |      |      |      |
| In                                  | (2)<br>96% 48% 5% 57%                    |      |      |      | (2)<br>61% 55% 29% 49%                   |      |      |      | (6)<br>41% 54% 75% 54%                   |      |      |      |
| Out                                 | (2)<br>4% 52% 95% 43%                    |      |      |      | (2)<br>39% 45% 71% 51%                   |      |      |      | (6)<br>59% 46% 25% 46%                   |      |      |      |
| Total                               | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      | (6)<br>100% 100% 100% 100%               |      |      |      |
| Modal Split                         | (4)                                      |      |      |      | (2)                                      |      |      |      | (6)                                      |      |      |      |
| Auto                                | 17%                                      | 2%   | 17%  | 2%   | 5%                                       | 5%   | 5%   | 5%   | 2%                                       | 2%   | 2%   | 2%   |
| Taxi                                | 2%                                       | 3%   | 2%   | 3%   | 1%                                       | 1%   | 1%   | 1%   | 2%                                       | 2%   | 2%   | 2%   |
| Subway                              | 56%                                      | 6%   | 56%  | 6%   | 3%                                       | 3%   | 3%   | 3%   | 12%                                      | 12%  | 12%  | 12%  |
| Bus                                 | 9%                                       | 6%   | 9%   | 6%   | 6%                                       | 6%   | 6%   | 6%   | 4%                                       | 4%   | 4%   | 4%   |
| Walk                                | 13%                                      | 83%  | 13%  | 83%  | 85%                                      | 85%  | 85%  | 85%  | 80%                                      | 80%  | 80%  | 80%  |
| School Bus                          | -  | -    | -    | -    | -  | -    | -    | -    | -  | -    | -    | -    |
| Work at Home                        | 3%                                       | 0%   | 3%   | 0%   | 0%                                       | 0%   | 0%   | 0%   | 0%                                       | 0%   | 0%   | 0%   |
| Total                               | 100%                                     | 100% | 100% | 100% | 100%                                     | 100% | 100% | 100% | 100%                                     | 100% | 100% | 100% |
| Vehicle Occupancy                   | (2)(4)                                   |      |      |      | (2)                                      |      |      |      | (6)                                      |      |      |      |
| Auto                                | 1.21                                     | 1.21 | 1.21 | 1.21 | 1.65                                     | 1.65 | 1.65 | 1.65 | 1.00                                     | 1.00 | 1.00 | 1.00 |
| Taxi                                | 1.40                                     | 1.40 | 1.40 | 1.40 | 1.40                                     | 1.40 | 1.40 | 1.40 | 1.00                                     | 1.00 | 1.00 | 1.00 |
| School Bus                          | -  | -    | -    | -    | -  | -    | -    | -    | -  | -    | -    | -    |
| Daily Delivery Trip Generation Rate | (2)<br>0.32 0.01<br>Delivery Trips / KSF |      |      |      | (2)<br>0.29 0.04<br>Delivery Trips / KSF |      |      |      | (6)<br>0.19 0.01<br>Delivery Trips / KSF |      |      |      |
| Delivery Temporal                   | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  | AM                                       | MD   | PM   | SAT  |
| Delivery Directional                | (2)<br>10% 11% 2% 11%                    |      |      |      | (2)<br>10% 11% 1% 0%                     |      |      |      | (6)<br>6% 11% 1% 7.6%                    |      |      |      |
| In                                  | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      | (6)<br>50% 50% 50% 50%                   |      |      |      |
| Out                                 | (2)<br>50% 50% 50% 50%                   |      |      |      | (2)<br>50% 50% 50% 50%                   |      |      |      | (6)<br>50% 50% 50% 50%                   |      |      |      |
| Total                               | (2)<br>100% 100% 100% 100%               |      |      |      | (2)<br>100% 100% 100% 100%               |      |      |      | (6)<br>100% 100% 100% 100%               |      |      |      |

**Table 16 (cont'd)  
Travel Demand Assumptions**

| Use                                 | Bowling Alley   |       |       |       | Movie Theater                         |       |       |       | Museum                               |      |      |      |
|-------------------------------------|---|-------|-------|-------|---------------------------------------|-------|-------|-------|--------------------------------------|------|------|------|
| Daily Person Trip Generation Rate   | (7)<br>70.2<br>Trips / Lane   |       |       |       | (1)<br>3.26<br>Trips / Seat           |       |       |       | (1)<br>27.0<br>Trips / KSF           |      |      |      |
| Trip Linkage                        | 0%  |       |       |       | 0%                                    |       |       |       | 0%                                   |      |      |      |
| Temporal                            | AM  | MD    | PM    | SAT   | AM                                    | MD    | PM    | SAT   | AM                                   | MD   | PM   | SAT  |
|                                     | 9.4%  | 11.5% | 13.5% | 13.5% | 1%                                    | 3%    | 8%    | 5%    | 1%                                   | 16%  | 13%  | 17%  |
| Directional                         | (8)   |       |       |       | (10)                                  |       |       |       | (11)                                 |      |      |      |
| In                                  | 60%   | 60%   | 83%   | 60%   | 95%                                   | 62%   | 54%   | 62%   | 50%                                  | 63%  | 52%  | 63%  |
| Out                                 | 40%   | 40%   | 17%   | 40%   | 5%                                    | 38%   | 46%   | 38%   | 50%                                  | 37%  | 48%  | 37%  |
| Total                               | 100%  | 100%  | 100%  | 100%  | 100%                                  | 100%  | 100%  | 100%  | 100%                                 | 100% | 100% | 100% |
| Modal Split                         | (9)   |       |       |       | (9)                                   |       |       |       | (11)                                 |      |      |      |
| Auto                                | 9%  | 9%    | 9%    | 9%    | 9%                                    | 9%    | 9%    | 9%    | 12%                                  | 12%  | 12%  | 12%  |
| Taxi                                | 4%  | 4%    | 4%    | 4%    | 4%                                    | 4%    | 4%    | 4%    | 10%                                  | 10%  | 10%  | 10%  |
| Subway                              | 28.5%   | 28.5% | 28.5% | 28.5% | 28.5%                                 | 28.5% | 28.5% | 28.5% | 7%                                   | 7%   | 7%   | 7%   |
| Bus                                 | 8%  | 8%    | 8%    | 8%    | 8%                                    | 8%    | 8%    | 8%    | 29%                                  | 29%  | 29%  | 29%  |
| Walk                                | 50.5%   | 50.5% | 50.5% | 50.5% | 50.5%                                 | 50.5% | 50.5% | 50.5% | 42%                                  | 42%  | 42%  | 42%  |
| School Bus                          | -   | -     | -     | -     | -                                     | -     | -     | -     | -                                    | -    | -    | -    |
| Work at Home                        | 0%  | 0%    | 0%    | 0%    | 0%                                    | 0%    | 0%    | 0%    | 0%                                   | 0%   | 0%   | 0%   |
| Total                               | 100%  | 100%  | 100%  | 100%  | 100%                                  | 100%  | 100%  | 100%  | 100%                                 | 100% | 100% | 100% |
| Vehicle Occupancy                   | (9)   |       |       |       | (10)                                  |       |       |       | (11)                                 |      |      |      |
| Auto                                | 2.00  | 2.00  | 2.00  | 2.00  | 2.52                                  | 2.52  | 2.52  | 2.52  | 2.34                                 | 2.34 | 2.34 | 2.34 |
| Taxi                                | 2.00  | 2.00  | 2.00  | 2.00  | 2.30                                  | 2.30  | 2.30  | 2.30  | 1.90                                 | 1.90 | 1.90 | 1.90 |
| School Bus                          | -   | -     | -     | -     | -                                     | -     | -     | -     | -                                    | -    | -    | -    |
| Daily Delivery Trip Generation Rate | (9)<br>0.35<br>Delivery Trips / KSF   |       |       |       | (10)<br>0.02<br>Delivery Trips / Seat |       |       |       | (11)<br>0.05<br>Delivery Trips / KSF |      |      |      |
| Delivery Temporal                   | AM  | MD    | PM    | SAT   | AM                                    | MD    | PM    | SAT   | AM                                   | MD   | PM   | SAT  |
|                                     | 8%  | 11%   | 2%    | 11.0% | 12%                                   | 11%   | 1%    | 0.0%  | 9.6%                                 | 11%  | 1%   | 11%  |
| Delivery Directional                | (9)   |       |       |       | (10)                                  |       |       |       | (11)                                 |      |      |      |
| In                                  | 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%  |
| Total                               | 100%  | 100%  | 100%  | 100%  | 100%                                  | 100%  | 100%  | 100%  | 100%                                 | 100% | 100% | 100% |
| Sources                             | (1) 2014 <i>CEQR Technical Manual</i><br>(2) <i>Seward Park Mixed-Use Development Project FGEIS and Technical Memoranda</i> , 2012<br>(3) U.S. Census Bureau, ACS 2008-2012 Five-Year Estimates - Journey-to-Work (JTW) Data for Census Tracts 12, 14.01, 14.02, 16, 18, 22.01, and 30.01<br>(4) U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates. Special Tabulation: Census Transportation Planning – Reverse-Journey-to-Work (RJTW) Data for Census Tracts 12, 14.01, 14.02, 16, 18, 22.01, and 30.01<br>(5) Work at home mode excluded from modal split estimations<br>(6) <i>Hudson Square Rezoning FEIS</i> , 2013<br>(7) <i>ITE Trip Generation 9th Edition</i> , Land Use Code: 437, P821. Weekday daily person trip rate converted from ITE vehicle trip rate: (33.33 / 0.95) * 2 = 70.2. Saturday daily person trip rate based on the ratio of Golf Driving Range (Land Use Code:432) use weekday and Saturday trip rates and applied to the converted weekday daily person trip rate.<br>(8) <i>ITE Trip Generation 9th Edition</i> , Land Use Code: 437, P821. Weekday midday temporal distribution based on the average of the weekday AM and PM temporal distributions. Weekday midday directional distribution assumed the same as weekday AM. Saturday peak hour directional and temporal distributions assumed the same as the weekday midday and PM peak hours, respectively.<br>(9) Modal splits based on the destination retail use<br>(10) <i>Willels Point Development FSEIS</i> , 2013<br>(11) <i>West Harlem Rezoning FEIS</i> , 2013<br>(12) Assumes 1 parent for every 1.28 students taking subway, bus, and walk modes to school. These trips were added to the student trips based on the factors presented above.<br>(13) Weekday PM peak hour temporal distribution adjusted per DOT.<br>(14) Based on DOT survey. |       |       |       |                                       |       |       |       |                                      |      |      |      |

**TRIP GENERATION**

Trip generation assumptions for the various previously analyzed uses are based on the assumptions utilized for the FGEIS and incorporate DOT-provided adjustments. For the destination retail use, the 25-percent linked trip credit previously assumed was eliminated in accordance with guidance from the latest edition of the *CEQR Technical Manual*. The proposed Market Line retail space would in part serve as an extension of the Essex Street Market with additional market space and food vendors and would provide vendors space for selling soft goods such as home goods, clothing, and clothing accessories. It also incorporates an underground circulation network connecting Sites

2, 3, and 4 with a new subway connection at the western end of Site 2. As discussed above under “Socioeconomic Conditions,” retail stores throughout the Lower East Side and adjacent neighborhoods all benefit from the high volumes of foot traffic spurred by the proximity of stores offering similar goods and services that draw shoppers from throughout the region. Therefore, the integration of this new Market Line use is expected to create positive relationships among similar stores. As this use can be expected to exhibit characteristics that resemble those of local retail, public market, and destination retail uses, its anticipated trip-making was estimated by assuming that the portion under Site 2 connecting to the future Essex Street Market would share the same travel demand characteristics as the public market/supermarket use, while the space under Site 3 and Site 4 would take on destination retail travel characteristics. For the detailed pedestrian analyses prepared for the FGEIS, it was described that those analyses accounted for a RWCDs assessment of future pedestrian levels absent a more defined development program. As such, the 25-percent linked-trip credit for the local retail and public market/supermarket uses was applied for all modes, except for the walk-only mode. Considering the recent retail trends in the Lower East Side, the relationship among the various retail and entertainment uses that define the current Essex Crossing program, and the increased opportunity for existing and future residents, workers, and visitors in this area to patronize multiple retail stores on the same trip, the 25-percent linked-trip credit was incorporated into the walk-only trip estimates for local retail and public market/supermarket uses in this Technical Memorandum’s transportation analyses.

For the elementary school, adjustments were made to the afternoon temporal distribution for students and to the travel characteristics of accompanying parents. In addition, modal splits and auto occupancies for the residential, office/community office, medical office staff, and elementary school staff were updated based on the latest 2008-2012 U.S. Census Bureau American Community Survey (ACS) Journey-to-Work (JTW) data and the 2006-2010 U.S. Census Bureau ACS (Special Tabulation: Census Transportation Planning) Reverse-Journey-to-Work (RJTW) data. Travel demand factors used to calculate trips generated by the new uses, including the gym, bowling alley, movie theater, and museum, are described in detail below.

#### *Gym (Physical Culture Establishment)*

For the gym use under the proposed Essex Crossing program, daily person trip generation rates of 44.7 person trips per 1,000 square feet for weekday and 26.1 person trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distributions of 4 percent for the weekday AM peak hour, 9 percent for the midday peak hour, 5 percent for the PM peak hour, and 9 percent for the Saturday peak hour, as well as modal splits of 2 percent by auto, 2 percent by taxi, 12 percent by subway, 4 percent by bus, and 80 percent by walk, and vehicle occupancies of 1.00 per auto and 1.00 per taxi were obtained from the 2013 *Hudson Square Rezoning FEIS*.

For truck deliveries, daily trip generation rates of 0.19 trips per 1,000 square feet for weekday and 0.01 trips per 1,000 square feet for Saturday were obtained from the *Hudson Square Rezoning FEIS*. Temporal and directional distribution factors for truck deliveries were also obtained from the *Hudson Square Rezoning FEIS*.

#### *Bowling Alley*

For the bowling alley use under the proposed Essex Crossing program, the weekday daily person trip generation rate of 70.2 person trips per lane was derived based on trip rates presented in the *ITE Trip Generation Manual, 9th Edition* for the bowling alley land use. For the Saturday daily person trip generation rate, the relative weekday and Saturday trip rates for the driving range land use was taken to arrive at 90.9 person trips per lane for Saturday. Temporal distributions of



9.4 percent for the weekday AM peak hour and 13.5 percent for the PM peak hour were extrapolated from the relative daily vs. hourly trip rates shown in the *ITE Trip Generation Manual*. A temporal distribution of 11.5 percent for the weekday midday peak hour was derived based on the average of the weekday AM and PM peak hour temporal distributions. For the Saturday peak hour, the same temporal distribution of 13.5 percent as the weekday PM peak hour was assumed. Directional distributions for the weekday AM and PM peak hours are based on the *ITE Trip Generation Manual*. The weekday midday and Saturday directional distributions were assumed to be the same as the weekday AM peak hour. Modal splits of 9 percent by auto, 4 percent by taxi, 28.5 percent by subway, 8 percent by bus, and 50.5 percent by walk, and vehicle occupancies of 2.00 per auto and 2.00 per taxi are based on those assumed for the destination retail use.

For truck deliveries, 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, as well as the temporal and directional distribution factors, are also based those assumed for the destination retail use.

#### *Movie Theater*

For the movie theater use under the proposed Essex Crossing program, daily person trip generation rates of 3.26 person trips per seat for weekday and 6.25 person trips per seat for Saturday were obtained from the *CEQR Technical Manual*. Temporal distributions of 1 percent for the weekday AM peak hour, 3 percent for the weekday midday peak hour, 8 percent for the PM peak hour, and 5 percent for the Saturday peak hour were also obtained from the *CEQR Technical Manual*. Directional distributions for the weekday AM, midday, PM, and Saturday peak hours were obtained from the 2013 *Willets Point Development FSEIS*. Modal splits of 9 percent by auto, 4 percent by taxi, 28.5 percent by subway, 8 percent by bus, and 50.5 percent by walk are based on those assumed for the destination retail use. Vehicle occupancies of 2.52 per auto and 2.30 per taxi were obtained from the *Willets Point Development FSEIS*.

For truck deliveries, daily trip generation rates of 0.02 trips per seat for weekday and 0.00 trips per seat for Saturday were obtained from the *Willets Point Development FSEIS*. Temporal and directional distribution factors for truck deliveries were also obtained from the *Willets Point Development FSEIS*.

#### *Museum*

For the museum use under the proposed Essex Crossing program, daily person trip generation rates of 27.0 person trips per 1,000 square feet for weekday and 20.6 person trips per 1,000 square feet for Saturday were obtained from the *CEQR Technical Manual*. Temporal distributions of 1 percent for the weekday AM peak hour, 16 percent for the weekday midday peak hour, 13 percent for the PM peak hour, and 17 percent for the Saturday peak hour were also obtained from the *CEQR Technical Manual*. Directional distributions for the weekday AM, midday, PM, and Saturday peak hours were obtained from the 2013 *West Harlem Rezoning FEIS*. Modal splits of 12 percent by auto, 10 percent by taxi, 7 percent by subway, 29 percent by bus, and 42 percent by walk, as well as vehicle occupancies of 2.34 per auto and 1.90 per taxi, were also obtained from the *West Harlem Rezoning FEIS*.

For truck deliveries, daily trip generation rates of 0.05 trips per 1,000 square feet for weekday and 0.01 trips per 1,000 square feet for Saturday were obtained from the *West Harlem Rezoning FEIS*. Temporal and directional distribution factors for truck deliveries were also obtained from the *West Harlem Rezoning FEIS*.

*Summary*

The total numbers of person and vehicle trips generated by the proposed Essex Crossing program are summarized in **Tables 17 and 18**, respectively. As presented in **Table 17**, the proposed Essex Crossing program would generate approximately 4,457, 6,488, 6,614, and 6,857 person trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In terms of vehicle trips, the proposed Essex Crossing program would generate approximately 412, 418, 514, and 416 vehicle trips during the weekday AM, midday, PM, and Saturday peak hours, respectively (see **Table 18**).

In comparison, the FGEIS program was expected to generate 3,245, 6,375, 6,355, and 7,403 person trips, and 371, 527, 540, and 496 vehicle trips, respectively, during the weekday AM, midday, PM, and Saturday peak hours. As shown in **Table 19**, a comparison of the person trips expected to be generated by the FGEIS program to the proposed Essex Crossing program indicates that the number of person trips would be greater for the proposed Essex Crossing program only during the Saturday peak hour, and as shown in **Table 20** for vehicle trips, the proposed Essex Crossing program would generate more vehicle trips only during the weekday AM peak hour (41 additional vehicle trips) in comparison to the trips projected to be generated by the FGEIS program.

*TRAFFIC*

A detailed trip distribution and assignment of projected vehicle trips was prepared for all four peak analysis hours. The assumptions were similar to those used for the FGEIS. Traffic assignments for the new uses that are part of the proposed Essex Crossing program, which includes gym, bowling alley, movie theater, and museum uses, are assumed to follow similar trip distributions and assignments as the destination retail use. The proposed school on Site 5, which was not a part of the FGEIS, assumes student trips to follow a similar trip distribution and assignment as local retail use, and for staff trips to be similar to the trip distribution and assignment of the office use. Parking demand generated by these uses would be destined to park at off-street parking facilities further away, but still within a ¼-mile radius of the project sites.

A qualitative assessment was performed to determine the potential for new significant impacts as a result of the proposed Essex Crossing program. This was achieved by comparing traffic volume increments expected as part of the FGEIS to those expected as a result of the proposed Essex Crossing program, and by reviewing the FGEIS traffic levels of service to assess whether significant impact and mitigation findings are likely to change. Subsequent to the publication of the FGEIS, DOT has made geometric and operational improvements in the study area to enhance traffic and pedestrian flow and safety. With the mayoral Vision Zero initiatives taking shape across the City, there are likely to be additional improvements made in the study area to further the goals and objectives of these transportation initiatives. Therefore, for purposes of the assessments presented below, conditions presented in the FGEIS were used as the baseline for comparing potential changes in traffic operations associated with the Essex Crossing development program. DOT can then consider the findings made from these assessments to make informed decisions on the implementation of future improvement plans.

**Table 17**  
**Trip Generation Summary**  
**Person Trips - Proposed Essex Crossing Program**

| Use           |                        | Peak Hour |              | Person Trip |           |            |           |            |            |            |
|---------------|------------------------|-----------|--------------|-------------|-----------|------------|-----------|------------|------------|------------|
|               |                        |           |              | Auto        | Taxi      | Subway     | Bus       | School Bus | Walk       | Total      |
| Residential   | 1,000 Dwelling Units   | AM        | In           | 11          | 2         | 69         | 7         | 0          | 31         | 120        |
|               |                        |           | Out          | 62          | 14        | 391        | 41        | 0          | 178        | 686        |
|               |                        |           | <b>Total</b> | <b>73</b>   | <b>16</b> | <b>460</b> | <b>48</b> | <b>0</b>   | <b>209</b> | <b>806</b> |
|               |                        | MD        | In           | 18          | 4         | 115        | 12        | 0          | 52         | 201        |
|               |                        |           | Out          | 18          | 4         | 115        | 12        | 0          | 52         | 201        |
|               |                        |           | <b>Total</b> | <b>36</b>   | <b>8</b>  | <b>230</b> | <b>24</b> | <b>0</b>   | <b>104</b> | <b>402</b> |
|               |                        | PM        | In           | 56          | 12        | 354        | 37        | 0          | 162        | 621        |
|               |                        |           | Out          | 24          | 5         | 152        | 16        | 0          | 69         | 266        |
|               |                        |           | <b>Total</b> | <b>80</b>   | <b>17</b> | <b>506</b> | <b>53</b> | <b>0</b>   | <b>231</b> | <b>887</b> |
|               |                        | SAT       | In           | 35          | 8         | 219        | 23        | 0          | 100        | 385        |
|               |                        |           | Out          | 35          | 8         | 219        | 23        | 0          | 100        | 385        |
|               |                        |           | <b>Total</b> | <b>70</b>   | <b>16</b> | <b>438</b> | <b>46</b> | <b>0</b>   | <b>200</b> | <b>770</b> |
| Office        | 269.206 KSF            | AM        | In           | 95          | 11        | 313        | 50        | 0          | 73         | 542        |
|               |                        |           | Out          | 4           | 0         | 13         | 2         | 0          | 3          | 22         |
|               |                        |           | <b>Total</b> | <b>99</b>   | <b>11</b> | <b>326</b> | <b>52</b> | <b>0</b>   | <b>76</b>  | <b>564</b> |
|               |                        | MD        | In           | 7           | 10        | 21         | 21        | 0          | 290        | 349        |
|               |                        |           | Out          | 8           | 11        | 23         | 23        | 0          | 314        | 379        |
|               |                        |           | <b>Total</b> | <b>15</b>   | <b>21</b> | <b>44</b>  | <b>44</b> | <b>0</b>   | <b>604</b> | <b>728</b> |
|               |                        | PM        | In           | 6           | 1         | 19         | 3         | 0          | 4          | 33         |
|               |                        |           | Out          | 110         | 13        | 361        | 58        | 0          | 84         | 626        |
|               |                        |           | <b>Total</b> | <b>116</b>  | <b>14</b> | <b>380</b> | <b>61</b> | <b>0</b>   | <b>88</b>  | <b>659</b> |
|               |                        | SAT       | In           | 2           | 3         | 6          | 6         | 0          | 84         | 101        |
|               |                        |           | Out          | 2           | 2         | 5          | 5         | 0          | 64         | 78         |
|               |                        |           | <b>Total</b> | <b>4</b>    | <b>5</b>  | <b>11</b>  | <b>11</b> | <b>0</b>   | <b>148</b> | <b>179</b> |
| Gym           | 47.258 KSF             | AM        | In           | 1           | 1         | 4          | 1         | 0          | 28         | 35         |
|               |                        |           | Out          | 1           | 1         | 6          | 2         | 0          | 40         | 50         |
|               |                        |           | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>10</b>  | <b>3</b>  | <b>0</b>   | <b>68</b>  | <b>85</b>  |
|               |                        | MD        | In           | 2           | 2         | 12         | 4         | 0          | 82         | 102        |
|               |                        |           | Out          | 2           | 2         | 10         | 3         | 0          | 70         | 87         |
|               |                        |           | <b>Total</b> | <b>4</b>    | <b>4</b>  | <b>22</b>  | <b>7</b>  | <b>0</b>   | <b>152</b> | <b>189</b> |
|               |                        | PM        | In           | 2           | 2         | 10         | 3         | 0          | 63         | 80         |
|               |                        |           | Out          | 1           | 1         | 3          | 1         | 0          | 21         | 27         |
|               |                        |           | <b>Total</b> | <b>3</b>    | <b>3</b>  | <b>13</b>  | <b>4</b>  | <b>0</b>   | <b>84</b>  | <b>107</b> |
|               |                        | SAT       | In           | 1           | 1         | 7          | 2         | 0          | 48         | 59         |
|               |                        |           | Out          | 1           | 1         | 6          | 2         | 0          | 41         | 51         |
|               |                        |           | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>13</b>  | <b>4</b>  | <b>0</b>   | <b>89</b>  | <b>110</b> |
| Bowling Alley | 13 Lanes<br>27.784 KSF | AM        | In           | 5           | 2         | 15         | 4         | 0          | 26         | 52         |
|               |                        |           | Out          | 3           | 1         | 10         | 3         | 0          | 17         | 34         |
|               |                        |           | <b>Total</b> | <b>8</b>    | <b>3</b>  | <b>25</b>  | <b>7</b>  | <b>0</b>   | <b>43</b>  | <b>86</b>  |
|               |                        | MD        | In           | 6           | 3         | 18         | 5         | 0          | 32         | 64         |
|               |                        |           | Out          | 4           | 2         | 12         | 3         | 0          | 21         | 42         |
|               |                        |           | <b>Total</b> | <b>10</b>   | <b>5</b>  | <b>30</b>  | <b>8</b>  | <b>0</b>   | <b>53</b>  | <b>106</b> |
|               |                        | PM        | In           | 9           | 4         | 29         | 8         | 0          | 52         | 102        |
|               |                        |           | Out          | 2           | 1         | 6          | 2         | 0          | 11         | 22         |
|               |                        |           | <b>Total</b> | <b>11</b>   | <b>5</b>  | <b>35</b>  | <b>10</b> | <b>0</b>   | <b>63</b>  | <b>124</b> |
|               |                        | SAT       | In           | 9           | 4         | 27         | 8         | 0          | 48         | 96         |
|               |                        |           | Out          | 6           | 3         | 18         | 5         | 0          | 32         | 64         |
|               |                        |           | <b>Total</b> | <b>15</b>   | <b>7</b>  | <b>45</b>  | <b>13</b> | <b>0</b>   | <b>80</b>  | <b>160</b> |

**Table 17 (cont'd)**  
**Trip Generation Summary**  
**Person Trips - Proposed Essex Crossing Program**

| Use                |   | Peak Hour |              | Person Trip |           |            |            |            |              |              |
|--------------------|---|-----------|--------------|-------------|-----------|------------|------------|------------|--------------|--------------|
|                    |   |           |              | Auto        | Taxi      | Subway     | Bus        | School Bus | Walk         | Total        |
| Movie Theater      | 1,100 Seats   | AM        | In           | 3           | 1         | 10         | 3          | 0          | 17           | 34           |
|                    |   |           | Out          | 0           | 0         | 1          | 0          | 0          | 1            | 2            |
|                    |   |           | <b>Total</b> | <b>3</b>    | <b>1</b>  | <b>11</b>  | <b>3</b>   | <b>0</b>   | <b>18</b>    | <b>36</b>    |
|                    |   | MD        | In           | 6           | 3         | 19         | 5          | 0          | 34           | 67           |
|                    |   |           | Out          | 4           | 2         | 12         | 3          | 0          | 21           | 42           |
|                    |   |           | <b>Total</b> | <b>10</b>   | <b>5</b>  | <b>31</b>  | <b>8</b>   | <b>0</b>   | <b>55</b>    | <b>109</b>   |
|                    |   | PM        | In           | 14          | 6         | 44         | 12         | 0          | 78           | 154          |
|                    |   |           | Out          | 12          | 5         | 38         | 11         | 0          | 67           | 133          |
|                    |   |           | <b>Total</b> | <b>26</b>   | <b>11</b> | <b>82</b>  | <b>23</b>  | <b>0</b>   | <b>145</b>   | <b>287</b>   |
|                    |   | SAT       | In           | 19          | 9         | 61         | 17         | 0          | 108          | 214          |
|                    |   |           | Out          | 12          | 5         | 37         | 10         | 0          | 66           | 130          |
|                    |   |           | <b>Total</b> | <b>31</b>   | <b>14</b> | <b>98</b>  | <b>27</b>  | <b>0</b>   | <b>174</b>   | <b>344</b>   |
| Local Retail       | 83.872 KSF  | AM        | In           | 4           | 6         | 12         | 12         | 0          | 161          | 195          |
|                    |   |           | Out          | 4           | 6         | 12         | 12         | 0          | 161          | 195          |
|                    |   |           | <b>Total</b> | <b>8</b>    | <b>12</b> | <b>24</b>  | <b>24</b>  | <b>0</b>   | <b>322</b>   | <b>390</b>   |
|                    |   | MD        | In           | 25          | 37        | 74         | 74         | 0          | 1,017        | 1,227        |
|                    |   |           | Out          | 25          | 37        | 74         | 74         | 0          | 1,017        | 1,227        |
|                    |   |           | <b>Total</b> | <b>50</b>   | <b>74</b> | <b>148</b> | <b>148</b> | <b>0</b>   | <b>2,034</b> | <b>2,454</b> |
|                    |   | PM        | In           | 13          | 19        | 39         | 39         | 0          | 535          | 645          |
|                    |   |           | Out          | 13          | 19        | 39         | 39         | 0          | 535          | 645          |
|                    |   |           | <b>Total</b> | <b>26</b>   | <b>38</b> | <b>78</b>  | <b>78</b>  | <b>0</b>   | <b>1,070</b> | <b>1,290</b> |
|                    |   | SAT       | In           | 15          | 23        | 45         | 45         | 0          | 627          | 755          |
|                    |   |           | Out          | 15          | 23        | 45         | 45         | 0          | 627          | 755          |
|                    |   |           | <b>Total</b> | <b>30</b>   | <b>46</b> | <b>90</b>  | <b>90</b>  | <b>0</b>   | <b>1,254</b> | <b>1,510</b> |
| Destination Retail | 172.632 KSF<br>(incl. Market Line Space of 47.178 ksf at Site 3 & 43.876 ksf at Site 4) | AM        | In           | 22          | 10        | 70         | 20         | 0          | 125          | 247          |
|                    |   |           | Out          | 14          | 6         | 45         | 13         | 0          | 80           | 158          |
|                    |   |           | <b>Total</b> | <b>36</b>   | <b>16</b> | <b>115</b> | <b>33</b>  | <b>0</b>   | <b>205</b>   | <b>405</b>   |
|                    |   | MD        | In           | 60          | 27        | 134        | 53         | 0          | 394          | 668          |
|                    |   |           | Out          | 49          | 22        | 109        | 44         | 0          | 323          | 547          |
|                    |   |           | <b>Total</b> | <b>109</b>  | <b>49</b> | <b>243</b> | <b>97</b>  | <b>0</b>   | <b>717</b>   | <b>1,215</b> |
|                    |   | PM        | In           | 51          | 23        | 163        | 46         | 0          | 288          | 571          |
|                    |   |           | Out          | 58          | 26        | 184        | 52         | 0          | 325          | 645          |
|                    |   |           | <b>Total</b> | <b>109</b>  | <b>49</b> | <b>347</b> | <b>98</b>  | <b>0</b>   | <b>613</b>   | <b>1,216</b> |
|                    |   | SAT       | In           | 82          | 37        | 183        | 73         | 0          | 539          | 914          |
|                    |   |           | Out          | 76          | 34        | 169        | 67         | 0          | 497          | 843          |
|                    |   |           | <b>Total</b> | <b>158</b>  | <b>71</b> | <b>352</b> | <b>140</b> | <b>0</b>   | <b>1,036</b> | <b>1,757</b> |
| Public Market      | 89.145 KSF<br>(incl. Market Line Space of 46.117 ksf at Site 2)                         | AM        | In           | 7           | 10        | 21         | 21         | 0          | 286          | 345          |
|                    |   |           | Out          | 5           | 7         | 14         | 14         | 0          | 199          | 239          |
|                    |   |           | <b>Total</b> | <b>12</b>   | <b>17</b> | <b>35</b>  | <b>35</b>  | <b>0</b>   | <b>485</b>   | <b>584</b>   |
|                    |   | MD        | In           | 6           | 10        | 19         | 19         | 0          | 268          | 322          |
|                    |   |           | Out          | 8           | 11        | 23         | 23         | 0          | 315          | 380          |
|                    |   |           | <b>Total</b> | <b>14</b>   | <b>21</b> | <b>42</b>  | <b>42</b>  | <b>0</b>   | <b>583</b>   | <b>702</b>   |
|                    |   | PM        | In           | 11          | 16        | 33         | 33         | 0          | 456          | 549          |
|                    |   |           | Out          | 12          | 19        | 37         | 37         | 0          | 515          | 620          |
|                    |   |           | <b>Total</b> | <b>23</b>   | <b>35</b> | <b>70</b>  | <b>70</b>  | <b>0</b>   | <b>971</b>   | <b>1,169</b> |
|                    |   | SAT       | In           | 14          | 21        | 43         | 43         | 0          | 588          | 709          |
|                    |   |           | Out          | 14          | 20        | 41         | 41         | 0          | 565          | 681          |
|                    |   |           | <b>Total</b> | <b>28</b>   | <b>41</b> | <b>84</b>  | <b>84</b>  | <b>0</b>   | <b>1,153</b> | <b>1,390</b> |

**Table 17 (cont'd)**  
**Trip Generation Summary**  
**Person Trips - Proposed Essex Crossing Program**

| Use                       |            | Peak Hour |              | Person Trip |           |           |           |            |            |            |
|---------------------------|------------|-----------|--------------|-------------|-----------|-----------|-----------|------------|------------|------------|
|                           |            |           |              | Auto        | Taxi      | Subway    | Bus       | School Bus | Walk       | Total      |
| Supermarket               | 27.805 KSF | AM        | In           | 2           | 3         | 6         | 6         | 0          | 89         | 106        |
|                           |            |           | Out          | 1           | 2         | 4         | 4         | 0          | 62         | 73         |
|                           |            |           | <b>Total</b> | <b>3</b>    | <b>5</b>  | <b>10</b> | <b>10</b> | <b>0</b>   | <b>151</b> | <b>179</b> |
|                           |            | MD        | In           | 2           | 3         | 6         | 6         | 0          | 84         | 101        |
|                           |            |           | Out          | 2           | 4         | 7         | 7         | 0          | 98         | 118        |
|                           |            |           | <b>Total</b> | <b>4</b>    | <b>7</b>  | <b>13</b> | <b>13</b> | <b>0</b>   | <b>182</b> | <b>219</b> |
|                           |            | PM        | In           | 3           | 5         | 10        | 10        | 0          | 142        | 170        |
|                           |            |           | Out          | 4           | 6         | 12        | 12        | 0          | 161        | 195        |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>11</b> | <b>22</b> | <b>22</b> | <b>0</b>   | <b>303</b> | <b>365</b> |
|                           |            | SAT       | In           | 4           | 7         | 13        | 13        | 0          | 184        | 221        |
|                           |            |           | Out          | 4           | 6         | 13        | 13        | 0          | 176        | 212        |
|                           |            |           | <b>Total</b> | <b>8</b>    | <b>13</b> | <b>26</b> | <b>26</b> | <b>0</b>   | <b>360</b> | <b>433</b> |
| Medical Office (Staff)    | 16.547 KSF | AM        | In           | 6           | 1         | 22        | 4         | 0          | 5          | 38         |
|                           |            |           | Out          | 0           | 0         | 1         | 0         | 0          | 0          | 1          |
|                           |            |           | <b>Total</b> | <b>6</b>    | <b>1</b>  | <b>23</b> | <b>4</b>  | <b>0</b>   | <b>5</b>   | <b>39</b>  |
|                           |            | MD        | In           | 2           | 0         | 8         | 1         | 0          | 2          | 13         |
|                           |            |           | Out          | 2           | 0         | 8         | 1         | 0          | 2          | 13         |
|                           |            |           | <b>Total</b> | <b>4</b>    | <b>0</b>  | <b>16</b> | <b>2</b>  | <b>0</b>   | <b>4</b>   | <b>26</b>  |
|                           |            | PM        | In           | 1           | 0         | 3         | 0         | 0          | 1          | 5          |
|                           |            |           | Out          | 6           | 1         | 20        | 3         | 0          | 5          | 35         |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>1</b>  | <b>23</b> | <b>3</b>  | <b>0</b>   | <b>6</b>   | <b>40</b>  |
|                           |            | SAT       | In           | 1           | 0         | 4         | 1         | 0          | 1          | 7          |
|                           |            |           | Out          | 1           | 0         | 4         | 1         | 0          | 1          | 7          |
|                           |            |           | <b>Total</b> | <b>2</b>    | <b>0</b>  | <b>8</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>14</b>  |
| Medical Office (Visitors) | 16.547 KSF | AM        | In           | 8           | 8         | 9         | 3         | 0          | 3          | 31         |
|                           |            |           | Out          | 1           | 1         | 1         | 0         | 0          | 0          | 3          |
|                           |            |           | <b>Total</b> | <b>9</b>    | <b>9</b>  | <b>10</b> | <b>3</b>  | <b>0</b>   | <b>3</b>   | <b>34</b>  |
|                           |            | MD        | In           | 6           | 6         | 7         | 3         | 0          | 3          | 25         |
|                           |            |           | Out          | 6           | 6         | 7         | 3         | 0          | 3          | 25         |
|                           |            |           | <b>Total</b> | <b>12</b>   | <b>12</b> | <b>14</b> | <b>6</b>  | <b>0</b>   | <b>6</b>   | <b>50</b>  |
|                           |            | PM        | In           | 1           | 1         | 1         | 0         | 0          | 0          | 3          |
|                           |            |           | Out          | 6           | 6         | 7         | 3         | 0          | 2          | 24         |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>7</b>  | <b>8</b>  | <b>3</b>  | <b>0</b>   | <b>2</b>   | <b>27</b>  |
|                           |            | SAT       | In           | 3           | 3         | 3         | 1         | 0          | 1          | 11         |
|                           |            |           | Out          | 3           | 3         | 3         | 1         | 0          | 1          | 11         |
|                           |            |           | <b>Total</b> | <b>6</b>    | <b>6</b>  | <b>6</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>22</b>  |
| School (Students)         | 518 Seats  | AM        | In           | 52          | 10        | 41        | 36        | 104        | 275        | 518        |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>52</b>   | <b>10</b> | <b>41</b> | <b>36</b> | <b>104</b> | <b>275</b> | <b>518</b> |
|                           |            | MD        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|                           |            | PM        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 10          | 2         | 8         | 7         | 21         | 55         | 103        |
|                           |            |           | <b>Total</b> | <b>10</b>   | <b>2</b>  | <b>8</b>  | <b>7</b>  | <b>21</b>  | <b>55</b>  | <b>103</b> |
|                           |            | SAT       | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |

**Table 17 (cont'd)**  
**Trip Generation Summary**  
**Person Trips - Proposed Essex Crossing Program**

| Use  |                | Peak Hour |              | Person Trip |           |           |           |            |            |            |
|--|----------------|-----------|--------------|-------------|-----------|-----------|-----------|------------|------------|------------|
|  |                |           |              | Auto        | Taxi      | Subway    | Bus       | School Bus | Walk       | Total      |
| School<br>(Parents)<br><i>[Subway, bus,<br/>and walk<br/>modes only]</i> | 275<br>Parents | AM        | In           | 0           | 0         | 33        | 28        | 0          | 214        | 275        |
|  |                |           | Out          | 0           | 0         | 33        | 28        | 0          | 214        | 275        |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>66</b> | <b>56</b> | <b>0</b>   | <b>428</b> | <b>550</b> |
|  |                | MD        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|  |                | PM        | In           | 0           | 0         | 7         | 6         | 0          | 43         | 56         |
|  |                |           | Out          | 0           | 0         | 7         | 6         | 0          | 43         | 56         |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>14</b> | <b>12</b> | <b>0</b>   | <b>86</b>  | <b>112</b> |
|  |                | SAT       | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
| School<br>(Faculty)  | 52 Staff       | AM        | In           | 9           | 1         | 30        | 5         | 0          | 7          | 52         |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | <b>Total</b> | <b>9</b>    | <b>1</b>  | <b>30</b> | <b>5</b>  | <b>0</b>   | <b>7</b>   | <b>52</b>  |
|  |                | MD        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|  |                | PM        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | Out          | 0           | 0         | 2         | 0         | 0          | 0          | 2          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>2</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>2</b>   |
|  |                | SAT       | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
| Museum   | 26.075<br>KSF  | AM        | In           | 0           | 0         | 0         | 1         | 0          | 1          | 2          |
|  |                |           | Out          | 0           | 0         | 0         | 1         | 0          | 1          | 2          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>4</b>   |
|  |                | MD        | In           | 9           | 7         | 5         | 21        | 0          | 30         | 72         |
|  |                |           | Out          | 5           | 4         | 3         | 12        | 0          | 18         | 42         |
|  |                |           | <b>Total</b> | <b>14</b>   | <b>11</b> | <b>8</b>  | <b>33</b> | <b>0</b>   | <b>48</b>  | <b>114</b> |
|  |                | PM        | In           | 6           | 5         | 3         | 14        | 0          | 20         | 48         |
|  |                |           | Out          | 5           | 4         | 3         | 13        | 0          | 18         | 43         |
|  |                |           | <b>Total</b> | <b>11</b>   | <b>9</b>  | <b>6</b>  | <b>27</b> | <b>0</b>   | <b>38</b>  | <b>91</b>  |
|  |                | SAT       | In           | 7           | 6         | 4         | 17        | 0          | 24         | 58         |
|  |                |           | Out          | 4           | 3         | 2         | 10        | 0          | 14         | 33         |
|  |                |           | <b>Total</b> | <b>11</b>   | <b>9</b>  | <b>6</b>  | <b>27</b> | <b>0</b>   | <b>38</b>  | <b>91</b>  |
| Community<br>Office  | 23 KSF         | AM        | In           | 8           | 1         | 27        | 4         | 0          | 6          | 46         |
|  |                |           | Out          | 0           | 0         | 1         | 0         | 0          | 0          | 1          |
|  |                |           | <b>Total</b> | <b>8</b>    | <b>1</b>  | <b>28</b> | <b>4</b>  | <b>0</b>   | <b>6</b>   | <b>47</b>  |
|  |                | MD        | In           | 1           | 1         | 2         | 2         | 0          | 25         | 31         |
|  |                |           | Out          | 1           | 1         | 2         | 2         | 0          | 27         | 33         |
|  |                |           | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>4</b>  | <b>4</b>  | <b>0</b>   | <b>52</b>  | <b>64</b>  |
|  |                | PM        | In           | 0           | 0         | 2         | 0         | 0          | 0          | 2          |
|  |                |           | Out          | 9           | 1         | 31        | 5         | 0          | 7          | 53         |
|  |                |           | <b>Total</b> | <b>9</b>    | <b>1</b>  | <b>33</b> | <b>5</b>  | <b>0</b>   | <b>7</b>   | <b>55</b>  |
|  |                | SAT       | In           | 0           | 0         | 1         | 1         | 0          | 7          | 9          |
|  |                |           | Out          | 0           | 0         | 0         | 0         | 0          | 5          | 5          |
|  |                |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>1</b>  | <b>1</b>  | <b>0</b>   | <b>12</b>  | <b>14</b>  |

**Table 17 (cont'd)**  
**Trip Generation Summary**  
**Person Trips - Proposed Essex Crossing Program**

| Use                |        | Peak Hour |              | Person Trip |            |              |            |            |              |              |
|--------------------|--------|-----------|--------------|-------------|------------|--------------|------------|------------|--------------|--------------|
|                    |        |           |              | Auto        | Taxi       | Subway       | Bus        | School Bus | Walk         | Total        |
| Community Facility | 23 KSF | AM        | In           | 2           | 0          | 1            | 3          | 0          | 41           | 47           |
|                    |        |           | Out          | 2           | 0          | 1            | 2          | 0          | 26           | 31           |
|                    |        |           | <b>Total</b> | <b>4</b>    | <b>0</b>   | <b>2</b>     | <b>5</b>   | <b>0</b>   | <b>67</b>    | <b>78</b>    |
|                    |        | MD        | In           | 3           | 1          | 2            | 4          | 0          | 52           | 62           |
|                    |        |           | Out          | 2           | 0          | 1            | 3          | 0          | 42           | 48           |
|                    |        |           | <b>Total</b> | <b>5</b>    | <b>1</b>   | <b>3</b>     | <b>7</b>   | <b>0</b>   | <b>94</b>    | <b>110</b>   |
|                    |        | PM        | In           | 1           | 0          | 1            | 1          | 0          | 20           | 23           |
|                    |        |           | Out          | 3           | 1          | 2            | 3          | 0          | 48           | 57           |
|                    |        |           | <b>Total</b> | <b>4</b>    | <b>1</b>   | <b>3</b>     | <b>4</b>   | <b>0</b>   | <b>68</b>    | <b>80</b>    |
|                    |        | SAT       | In           | 2           | 0          | 1            | 2          | 0          | 26           | 31           |
|                    |        |           | Out          | 2           | 0          | 1            | 2          | 0          | 27           | 32           |
|                    |        |           | <b>Total</b> | <b>4</b>    | <b>0</b>   | <b>2</b>     | <b>4</b>   | <b>0</b>   | <b>53</b>    | <b>63</b>    |
| Total              |        | AM        | In           | 235         | 67         | 683          | 208        | 104        | 1,388        | 2,685        |
|                    |        |           | Out          | 97          | 38         | 533          | 122        | 0          | 982          | 1,772        |
|                    |        |           | <b>Total</b> | <b>332</b>  | <b>105</b> | <b>1,216</b> | <b>330</b> | <b>104</b> | <b>2,370</b> | <b>4,457</b> |
|                    |        | MD        | In           | 153         | 114        | 442          | 230        | 0          | 2,365        | 3,304        |
|                    |        |           | Out          | 136         | 106        | 406          | 213        | 0          | 2,323        | 3,184        |
|                    |        |           | <b>Total</b> | <b>289</b>  | <b>220</b> | <b>848</b>   | <b>443</b> | <b>0</b>   | <b>4,688</b> | <b>6,488</b> |
|                    |        | PM        | In           | 174         | 94         | 718          | 212        | 0          | 1,864        | 3,062        |
|                    |        |           | Out          | 275         | 110        | 912          | 268        | 21         | 1,966        | 3,552        |
|                    |        |           | <b>Total</b> | <b>449</b>  | <b>204</b> | <b>1,630</b> | <b>480</b> | <b>21</b>  | <b>3,830</b> | <b>6,614</b> |
|                    |        | SAT       | In           | 194         | 122        | 617          | 252        | 0          | 2,385        | 3,570        |
|                    |        |           | Out          | 175         | 108        | 563          | 225        | 0          | 2,216        | 3,287        |
|                    |        |           | <b>Total</b> | <b>369</b>  | <b>230</b> | <b>1,180</b> | <b>447</b> | <b>0</b>   | <b>4,601</b> | <b>6,857</b> |

**Table 18**  
**Trip Generation Summary**  
**Vehicle Trips – Proposed Essex Crossing Program**

| Use                       | Weekday Peak Hours |     |       |        |     |       |    |     |       | Saturday Peak Hour |     |       |
|---------------------------|--------------------|-----|-------|--------|-----|-------|----|-----|-------|--------------------|-----|-------|
|                           | AM                 |     |       | Midday |     |       | PM |     |       | In                 | Out | Total |
|                           | In                 | Out | Total | In     | Out | Total | In | Out | Total |                    |     |       |
| <b>Autos</b>              |                    |     |       |        |     |       |    |     |       |                    |     |       |
| Residential               | 7                  | 42  | 49    | 12     | 12  | 24    | 38 | 16  | 54    | 24                 | 24  | 48    |
| Office                    | 78                 | 3   | 81    | 6      | 6   | 12    | 5  | 91  | 96    | 2                  | 1   | 3     |
| Local Retail              | 2                  | 2   | 4     | 15     | 15  | 30    | 8  | 8   | 16    | 9                  | 9   | 18    |
| Destination Retail        | 11                 | 7   | 18    | 30     | 25  | 55    | 26 | 29  | 55    | 41                 | 38  | 79    |
| Medical Office (Staff)    | 5                  | 0   | 5     | 2      | 2   | 4     | 1  | 5   | 6     | 1                  | 1   | 2     |
| Medical Office (Visitors) | 5                  | 0   | 5     | 4      | 4   | 8     | 1  | 4   | 5     | 2                  | 2   | 4     |
| School (Students)         | 40                 | 40  | 80    | 0      | 0   | 0     | 8  | 8   | 16    | 0                  | 0   | 0     |
| School (Staff)            | 7                  | 0   | 7     | 0      | 0   | 0     | 0  | 0   | 0     | 0                  | 0   | 0     |
| Community Facility        | 1                  | 1   | 2     | 2      | 2   | 4     | 1  | 2   | 3     | 1                  | 1   | 2     |
| Public Market             | 4                  | 3   | 7     | 4      | 5   | 9     | 7  | 8   | 15    | 9                  | 8   | 17    |
| Supermarket               | 1                  | 1   | 2     | 1      | 1   | 2     | 2  | 2   | 4     | 3                  | 3   | 6     |
| Community Office          | 7                  | 0   | 7     | 1      | 1   | 2     | 0  | 8   | 8     | 0                  | 0   | 0     |

**Table 18 (cont'd)**  
**Trip Generation Summary**  
**Vehicle Trips – Proposed Essex Crossing Program**

| Use                     | Weekday Peak Hours |            |            |            |            |            |            |            |            | Saturday Peak Hour |            |            |
|-------------------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------------|------------|------------|
|                         | AM                 |            |            | Midday     |            |            | PM         |            |            | In                 | Out        | Total      |
|                         | In                 | Out        | Total      | In         | Out        | Total      | In         | Out        | Total      |                    |            |            |
| Gym                     | 1                  | 1          | 2          | 2          | 2          | 4          | 2          | 1          | 3          | 1                  | 1          | 2          |
| Bowling Alley           | 2                  | 2          | 4          | 3          | 2          | 5          | 5          | 1          | 6          | 4                  | 3          | 7          |
| Movie Theater           | 1                  | 0          | 1          | 2          | 1          | 3          | 6          | 5          | 11         | 8                  | 5          | 13         |
| Museum                  | 0                  | 0          | 0          | 4          | 2          | 6          | 2          | 2          | 4          | 3                  | 2          | 5          |
| Deliveries (all uses)   | 13                 | 13         | 26         | 18         | 18         | 36         | 3          | 3          | 6          | 1                  | 1          | 2          |
| Taxis (all uses)        | 51                 | 51         | 102        | 107        | 107        | 214        | 102        | 102        | 204        | 104                | 104        | 208        |
| School Buses (all uses) | 5                  | 5          | 10         | 0          | 0          | 0          | 1          | 1          | 2          | 0                  | 0          | 0          |
| <b>Total</b>            | <b>241</b>         | <b>171</b> | <b>412</b> | <b>213</b> | <b>205</b> | <b>418</b> | <b>218</b> | <b>296</b> | <b>514</b> | <b>213</b>         | <b>203</b> | <b>416</b> |

**Table 19**  
**Person Trip Comparisons:**  
**Proposed Essex Crossing Program vs. FGEIS Program**

|                                 | Auto |     | Taxi |     | Subway |     | Bus |     | School Bus |     | Walk  |       | Total |       | Total  |
|---------------------------------|------|-----|------|-----|--------|-----|-----|-----|------------|-----|-------|-------|-------|-------|--------|
|                                 | In   | Out | In   | Out | In     | Out | In  | Out | In         | Out | In    | Out   | In    | Out   | In+Out |
| <b>Weekday AM Peak Hour</b>     |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PM</b>                       | 235  | 97  | 67   | 38  | 683    | 533 | 208 | 122 | 104        | 0   | 1,388 | 982   | 2,685 | 1,772 | 4,457  |
| <b>FGEIS</b>                    | 191  | 114 | 91   | 54  | 376    | 425 | 117 | 103 | 0          | 0   | 960   | 814   | 1,735 | 1,510 | 3,245  |
| <b>Diff.</b>                    | 44   | -17 | -24  | -16 | 307    | 108 | 91  | 19  | 104        | 0   | 428   | 168   | 950   | 262   | 1,212  |
| <b>Weekday Midday Peak Hour</b> |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PM</b>                       | 153  | 136 | 114  | 106 | 442    | 406 | 230 | 213 | 0          | 0   | 2,365 | 2,323 | 3,304 | 3,184 | 6,488  |
| <b>FGEIS</b>                    | 205  | 188 | 137  | 129 | 454    | 419 | 196 | 184 | 0          | 0   | 2,278 | 2,185 | 3,270 | 3,105 | 6,375  |
| <b>Diff.</b>                    | -52  | -52 | -23  | -23 | -12    | -13 | 34  | 29  | 0          | 0   | 87    | 138   | 34    | 79    | 113    |
| <b>Weekday PM Peak Hour</b>     |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PM</b>                       | 174  | 275 | 94   | 110 | 718    | 912 | 212 | 268 | 0          | 21  | 1,864 | 1,966 | 3,062 | 3,552 | 6,614  |
| <b>FGEIS</b>                    | 190  | 265 | 109  | 129 | 638    | 641 | 189 | 208 | 0          | 0   | 1,932 | 2,054 | 3,058 | 3,297 | 6,355  |
| <b>Diff.</b>                    | -16  | 10  | -15  | -19 | 80     | 271 | 23  | 60  | 0          | 21  | -68   | -88   | 4     | 255   | 259    |
| <b>Saturday Peak Hour</b>       |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PM</b>                       | 194  | 175 | 122  | 108 | 617    | 563 | 252 | 225 | 0          | 0   | 2,385 | 2,216 | 3,570 | 3,287 | 6,857  |
| <b>FGEIS</b>                    | 223  | 210 | 131  | 123 | 576    | 548 | 231 | 219 | 0          | 0   | 2,636 | 2,506 | 3,797 | 3,606 | 7,403  |
| <b>Diff.</b>                    | -29  | -35 | -9   | 15  | 41     | 15  | 21  | 6   | 0          | 0   | -251  | -290  | -227  | -319  | -546   |



**Table 20**  
**Vehicle Trip Comparisons:**  
**Proposed Essex Crossing Program vs. FGEIS Program**

|                                 | Auto |     | Taxi |     | Truck |     | School Bus |     | Total |     | Total Trips |
|---------------------------------|------|-----|------|-----|-------|-----|------------|-----|-------|-----|-------------|
|                                 | In   | Out | In   | Out | In    | Out | In         | Out | In    | Out | In+Out      |
| <b>Weekday AM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| <b>PM</b>                       | 172  | 102 | 51   | 51  | 13    | 13  | 5          | 5   | 241   | 171 | 412         |
| <b>FGEIS</b>                    | 131  | 84  | 67   | 67  | 11    | 11  | 0          | 0   | 209   | 162 | 371         |
| <b>Difference</b>               | 41   | 18  | -16  | -16 | 2     | 2   | 5          | 5   | 32    | 9   | 41          |
| <b>Weekday Midday Peak Hour</b> |      |     |      |     |       |     |            |     |       |     |             |
| <b>PM</b>                       | 88   | 80  | 107  | 107 | 18    | 18  | 0          | 0   | 213   | 205 | 418         |
| <b>FGEIS</b>                    | 124  | 117 | 129  | 129 | 14    | 14  | 0          | 0   | 267   | 260 | 527         |
| <b>Difference</b>               | -36  | -37 | -22  | -22 | 4     | 4   | 0          | 0   | -54   | -55 | -109        |
| <b>Weekday PM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| <b>PM</b>                       | 112  | 190 | 102  | 102 | 3     | 3   | 1          | 1   | 218   | 296 | 514         |
| <b>FGEIS</b>                    | 124  | 176 | 120  | 120 | 0     | 0   | 0          | 0   | 244   | 296 | 540         |
| <b>Difference</b>               | -12  | 14  | -18  | -18 | 3     | 3   | 1          | 1   | -26   | 0   | -26         |
| <b>Saturday Peak Hour</b>       |      |     |      |     |       |     |            |     |       |     |             |
| <b>PM</b>                       | 108  | 98  | 104  | 104 | 1     | 1   | 0          | 0   | 213   | 203 | 416         |
| <b>FGEIS</b>                    | 134  | 130 | 116  | 116 | 0     | 0   | 0          | 0   | 250   | 246 | 496         |
| <b>Difference</b>               | -26  | -32 | -12  | -12 | 1     | 1   | 0          | 0   | -37   | -43 | -80         |

It is preliminarily expected that during the weekday AM peak hour, there could be three less significantly impacted intersections as part of the proposed Essex Crossing program in comparison to the FGEIS. Significant impact findings during the weekday PM peak hour are not anticipated to change due to the proposed Essex Crossing program. During the weekday midday peak hour, one intersection that was significantly impacted as part of the FGEIS, and two intersections for the Saturday peak hour, might not be impacted as part of the proposed Essex Crossing program. Descriptions of the preliminarily anticipated changes are provided below.

*East Houston Street and Chrystie Street/Second Avenue*

During the weekday AM peak hour, one movement that was identified as being significantly impacted in the FGEIS would likely not be impacted as part of the proposed Essex Crossing program, resulting in no significant impacts expected at this intersection. The findings are not expected to change when comparing the proposed Essex Crossing program with the other time periods analyzed in the FGEIS.

*East Houston Street and Essex Street/Avenue A*

Significantly impacted lane groups (i.e., westbound East Houston Street left turn and southbound Avenue A approach) are not expected to change at this intersection as a result of the proposed Essex Crossing program. However, in comparison with the FGEIS, impacts during the Saturday peak hour are expected to worsen. Additional measures similar to those considered in the FGEIS (such as signal timing and phasing modifications, lane restriping, and parking prohibitions) may be needed for the intersection to remain mitigated.

*Rivington Street and Essex Street*

Significantly impacted lane groups are not expected to change at this intersection as a result of the proposed Essex Crossing program. The same mitigation measures identified in the FGEIS (signal timing modifications, lane re-striping, and parking prohibitions) would similarly mitigate the traffic impacts anticipated for the Essex Crossing program. However, accompanying these traffic mitigation measures, a modest widening of the intersection's east crosswalk would be required. See specific discussions below in the "Pedestrians" section.

*Delancey Street and Allen Street*

In comparison with the FGEIS, one new movement may be impacted during the weekday AM peak hour with the proposed Essex Crossing program. This intersection was unmitigatable during the weekday AM peak hour in the FGEIS and would continue to remain unmitigatable with the proposed Essex Crossing program.

*Delancey Street and Ludlow Street*

In comparison with the FGEIS, one new movement may be impacted during the weekday PM peak hour with the proposed Essex Crossing program. This intersection was unmitigatable during the weekday PM peak hour in the FGEIS and would continue to remain unmitigatable with the proposed Essex Crossing program.

*Delancey Street and Norfolk Street*

Two movements that were identified as significantly impacted during the weekday midday, PM, and Saturday peak hours in the FGEIS (three movements during the weekday AM peak hour) would likely not be impacted with the proposed Essex Crossing program. This intersection, which was unmitigatable during all four peak analysis hours in the FGEIS, would not be expected to be impacted during the weekday AM, midday, and Saturday peak hours in the FGEIS with the proposed Essex Crossing program.

*Delancey Street and Suffolk Street*

One movement that was identified as being significantly impacted in the FGEIS during the Saturday peak hour is not expected to be impacted with the proposed Essex Crossing program. This previously impacted intersection would likely not be impacted as a result.

*Delancey Street and Clinton Street*

In comparison with the FGEIS, one new movement may be impacted during the weekday AM and Saturday peak hours with the proposed Essex Crossing program. This intersection was unmitigatable during the weekday AM, PM, and Saturday peak hours in the FGEIS, and would continue to remain unmitigatable with the proposed Essex Crossing program.

*Grand Street and Allen Street*

During the weekday AM, midday, and Saturday peak hours, one movement that was identified as significantly impacted in the FGEIS would likely not be impacted with the proposed Essex Crossing program. This intersection was previously impacted during the weekday AM peak hour in the FGEIS but would likely not be impacted during the weekday AM peak hour with the proposed Essex Crossing program. The findings for the proposed Essex Crossing program are not expected to change for the other peak analysis hours.

*Grand Street and Clinton Street*

In comparison with the FGEIS, significant impact findings at this intersection are not expected to change as a result of the proposed Essex Crossing program; however, impacts during the weekday midday and PM peak hours are expected to worsen. Additional mitigation measures similar to those considered as part of the FGEIS (such as signal timing and phasing modifications, lane restriping, and parking prohibitions) may be needed for the intersection to remain mitigated during all peak analysis hours.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City.

*PARKING*

The proposed Essex Crossing program would not include any off-street parking, compared to 500 off-street parking spaces in the FGEIS. Parking demand as a result of the proposed Essex Crossing program would be expected to be accommodated by off-street parking facilities within a ¼-mile radius of the project sites, including: the municipal parking garage along Essex Street between Rivington Street and Delancey Street; the parking lot along Essex Street between Houston Street and Stanton Street; the parking garage along Allen Street between Grand Street and Hester Street; and the parking garage at the corner of Delancey Street and Columbia Street. Similar to the FGEIS, all existing trips to the surface parking lots at the development sites would continue to be retained in the street network.

*TRANSIT AND PEDESTRIANS*

As described above, the proposed Essex Crossing program would not only result in uses that are different from those previously assumed at each development site, it would also introduce different building/storefront access locations and alter the on-site parking accommodations. In addition, a new subway connection with direct access to Site 2, as well as, tunnel connections between Sites 2, 3, and 4 would be constructed below grade. These program elements are expected to alter pedestrian flow to and from the development sites both on-street and en route to/from the Delancey Street subway station.

*Transit*

As shown in **Table 19**, the proposed Essex Crossing program is expected to generate up to approximately 415 and 351 more subway trips during the weekday AM and PM peak hours, respectively, than the development program analyzed in the FGEIS. A detailed distribution of the projected subway trips onto the various station elements, including the new connections at Site 2, at the Delancey Street station showed that incremental trips at individual locations would not be materially different from those analyzed in the FGEIS. Since the previous FGEIS analyses had concluded that there would not be a potential for significant adverse impacts to station elements at and line-haul conditions of subway lines that serve the Delancey Street subway station, the proposed Essex Crossing program would likewise not be expected to result in any significant adverse subway impacts.

For City buses, the proposed Essex Crossing program would yield up to approximately 110 and 83 more riders during the weekday AM and PM peak hours, respectively, than the development program analyzed in the FGEIS. Similar to the findings presented in the FGEIS, the proposed

Essex Crossing program would result in significant adverse impacts on bus line-haul levels on the southbound M9 and westbound M14A during the weekday AM peak period and the northbound and southbound M9 during the weekday PM peak period. These impacts could be fully mitigated by increasing the frequency on the M09 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 NYCT's fiscal and operational constraints and, if implemented, are expected to take place over time.

### *Pedestrians*

A detailed trip distribution and assignment of projected person trips by mode and by use was prepared for all four peak analysis hours. Assumptions on the overall assignment patterns were similar to those used for the FGEIS. However, localized changes were made to account for more specific access locations for Sites 1 to 5, a direct subway connection at Site 2, and underground connections between Sites 2, 3, and 4. Because peak hour person trips projected for the Essex Crossing development program are up to 1,200 more than those projected for development program analyzed in the FGEIS and considering the changes in these trips' access and circulation, solely a qualitative assessment, as was discussed above for traffic and transit, would not be sufficient to identify potential new impacts, determine how previously identified impacts may change, and recommend new and/or modified mitigation measures.

A detailed analysis of the pedestrian elements analyzed in the FGEIS, using the projected pedestrian volumes for the proposed Essex Crossing program, was undertaken for the weekday AM, midday, PM, and Saturday analysis peak hours. Beyond the FGEIS pedestrian study area, incremental pedestrian trips would be expected to exceed the CEQR analysis threshold of 200 peak hour pedestrian trips at numerous additional sidewalk, corner, and crosswalk locations. A qualitative review of background pedestrian characteristics at these locations concluded that the relatively nominal increments projected for these locations would not be expected to result in the potential for significant adverse pedestrian impacts.

As described above, DOT has made geometric and operational improvements in the study area to enhance traffic and pedestrian flow and safety and is likely to make additional improvements in the future, in particular to further the goals and objectives of Vision Zero. Therefore, for purposes of the assessments presented below, conditions presented in the FGEIS were used as the baseline for comparing potential changes in pedestrian operations associated with the Essex Crossing development program. DOT can then consider the findings made from these assessments to make informed decisions on the implementation of future improvement plans. **Tables B-1 to B-3** (in **Appendix B**) summarize the With-Action condition for the proposed Essex Crossing program, with notations highlighting how service levels and findings on significant adverse pedestrian impacts would be different from those depicted in the FGEIS.

The FGEIS analyses concluded that significant adverse pedestrian impacts would result at five pedestrian analysis locations, including 1) the west crosswalk of Delancey Street and Essex Street during the midday peak period, 2) the east crosswalk of Delancey Street and Essex Street during the midday, PM, and Saturday peak periods, 3) the west sidewalk of Essex Street between Delancey Street and Broome Street during the AM and midday peak periods, 4) the east sidewalk of Essex Street between Delancey Street and Rivington Street during the midday and Saturday peak periods, and 5) the north crosswalk of Delancey Street and Clinton Street during the Saturday peak period. Crosswalk widenings were recommended and deemed feasible to mitigate the predicted impacts at the three crosswalk locations. For the two impacted sidewalk

locations, although modest widenings could mitigate the predicted impacts, such widenings were determined to be infeasible; hence these impacts were disclosed in the FGEIS as unmitigated.

As discussed above, with up to 1,200 more peak hour pedestrian trips projected to be generated by the proposed Essex Crossing program and changes in these trips' access and circulation, service levels at certain pedestrian study area locations are expected to be different from those presented in the FGEIS. At a few locations where local trip-making patterns are expected to alter due to changes in site access, connections between different uses and buildings, and circulation improvements associated with a new transit connection, service levels were projected to improve slightly over those summarized in the FGEIS. At the five pedestrian locations where significant adverse impacts were identified in the FGEIS, service levels would generally worsen with the proposed Essex Crossing program. At three other crosswalk locations, deteriorations in service levels with the proposed Essex Crossing program would exceed CEQR impact thresholds. However, crosswalk widenings in the form of project improvements would adequately alleviate these anticipated deteriorations. These improvements along with required changes to the potential mitigation measures recommended in the FGEIS are described below.

#### Sidewalks

- Essex Street between Rivington Street and Delancey Street – The southern portion of the east sidewalk was identified as an impacted location in the FGEIS during the midday and Saturday peak periods. With the proposed Essex Crossing program, it would no longer be impacted during the midday and Saturday peak periods but would incur deterioration exceeding the CEQR impact threshold during the PM peak period. Pedestrian LOS would deteriorate from LOS C (3.68 PMF), LOS C (4.43 PMF), and LOS C (5.22 PMF) under the No Action condition to LOS D (6.65 PMF—not impacted), LOS E (11.28 PMF), and LOS D (7.27 PMF—not impacted) during the midday, PM, and Saturday peak periods, respectively, in the future with the proposed Essex Crossing program. The impacts identified in the FGEIS for the midday and Saturday peak periods could be mitigated by widening the existing sidewalk by 8 inches. However, as concluded in the FGEIS, sidewalk widening at this location would not be feasible and practicable since there are constraints that would prohibit such widening. Specifically, the presence of subway stairways abutting Site 9 would preclude any widening eastward. Although widening the sidewalk by extending it into the roadbed is a potential mitigation measure, DOT does not typically undertake such widening except for extending corners by providing bulbouts. For the service level deterioration described above for the PM peak period with the proposed Essex Crossing program, the widening needed to alleviate the projected conditions to acceptable levels would be 1.5 feet. Therefore, as with the FGEIS, the significant adverse sidewalk impact attributed to the proposed Essex Crossing program for the PM peak period at this location would be unmitigated.
- Essex Street between Delancey Street and Broome Street – The west sidewalk was identified as an impacted location in the FGEIS during the AM and midday peak periods. With the proposed Essex Crossing program, it would also be impacted during the PM peak period (in addition to the AM and midday peak periods). Pedestrian LOS would deteriorate from LOS D (6.35 PMF), LOS C (4.57 PMF), and LOS C (3.47 PMF) under the No Action condition to LOS E (11.17 PMF), LOS D (8.93 PMF), and LOS D (8.91 PMF) during the AM, midday, and PM peak periods, respectively, in the future with the proposed Essex Crossing program. These impacts could be mitigated by widening the existing sidewalk by 10 inches (FGEIS identified a 7-inch required widening). However, the FGEIS concluded that this

mitigation would not be feasible and practicable due the presence of a subway stairway and DOT typically not undertaking sidewalk widenings into the roadbed except for extending corners by providing bulbouts. Therefore, as with the FGEIS, the significant adverse sidewalk impact attributed to the proposed Essex Crossing program would be unmitigated.

### Crosswalks

- The east crosswalk of Delancey Street and Essex Street was identified as an impacted location in the FGEIS during the midday, PM, and Saturday peak periods. With the proposed Essex Crossing program, this crosswalk would be impacted only during the PM peak period but at a more deteriorated level. Pedestrian LOS would deteriorate from LOS C (39.6 SFP), LOS C (39.8 SFP), LOS C (34.5 SFP) under the No Action condition to LOS D (20.2 SFP—not impacted), LOS E (11.0 SFP), LOS D (20.3 SFP—not impacted) during the midday, PM, and Saturday peak periods, respectively, in the future with the proposed Essex Crossing program. In the FGEIS, a crosswalk widening of 6 feet (from 14 feet to 20 feet) was identified as a feasible improvement measure to mitigate the projected impacts. With the proposed Essex Crossing program, the projected impact would require a crosswalk widening of 11 feet (from 14 feet to 25 feet). With this change in previously recommended mitigation, in the form of a project improvement, pedestrian circulation during the PM peak period would improve to LOS D, 20.3 SFP.
- The west crosswalk of Delancey Street and Essex Street was identified as an impacted location in the FGEIS during the midday peak period. Pedestrian LOS would deteriorate from LOS D (21.7 SFP) under the No Action condition to LOS D (16.3 SFP) in the future with the proposed Essex Crossing program. In the FGEIS, a crosswalk widening of 3 feet (from 14 feet to 16 feet) was identified as a feasible improvement measure to mitigate the projected impact. With the proposed Essex Crossing program, the projected impact would require a crosswalk widening of 3 feet (from 14 feet to 17 feet). This crosswalk widening would mitigate the projected impact, with pedestrian circulation improving to LOS D, 20.1 SFP.
- The south crosswalk of Delancey Street and Norfolk Street, which was not identified as an impacted location in the FGEIS, would deteriorate during the PM peak period from LOS A (169.3 SFP) under the No Action condition to LOS E (10.5 SFP) in the future with the proposed Essex Crossing program. Widening this crosswalk by 7 feet (from 10 feet to 17 feet), in the form of a project improvement, would improve pedestrian circulation to LOS D, 20.3 SFP.
- The north crosswalk of Delancey Street and Clinton Street was identified as an impacted location in the FGEIS only during the Saturday peak period. Pedestrian LOS would deteriorate from LOS D (16.7 SFP) during the Saturday peak period under the No Action condition to LOS D (15.2 SFP) in the future with the proposed Essex Crossing program. This crosswalk impact can be mitigated by widening the crosswalk by 1 foot (from 16 feet to 17 feet), same as recommended in the FGEIS. With the widened crosswalk, pedestrian circulation would improve to LOS D, 16.2 SFP for the Saturday peak period.
- The north crosswalk of Broome Street and Norfolk Street, which was not identified as an impacted location in the FGEIS, would deteriorate during the PM peak period from LOS A (605.2 SFP) under the No Action condition to LOS D (18.0 SFP) in the future with the proposed Essex Crossing program. Widening this crosswalk by 2 feet (from 12 feet to 14 feet), in the form of a project improvement, would improve pedestrian circulation to LOS D, 21.6 SFP.

- The north crosswalk of Grand Street and Norfolk Street, which was not identified as an impacted location in the FGEIS, would deteriorate during the PM peak period from LOS B (48.3 SFP) under the No Action condition to LOS E (14.1 SFP) in the future with the proposed Essex Crossing program. Widening this crosswalk by 5 feet (from 14 feet to 19 feet), in the form of a project improvement, would improve pedestrian circulation to LOS D. 20.0 SFP.
- In addition to the above, as stated in the “Traffic” section, a modest widening of the east crosswalk of Rivington Street and Essex Street would be required in combination with the FGEIS identified traffic mitigation measures at that intersection. This crosswalk widening—1-foot from 11 feet to 12 feet—would be implemented as a project improvement associated with the Essex Crossing development program.

By implementing the mitigation measures identified in the FGEIS with the modifications described above in the form of project improvements, the Essex Crossing program would not result in any new significant adverse pedestrian impacts. For the two sidewalk locations identified in the FGEIS as unmitigated locations, they would incur similar unmitigatable impacts with the proposed Essex Crossing program.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City.

#### *VEHICULAR AND PEDESTRIAN SAFETY*

As summarized in the FGEIS, the review of crash data from 2008 to 2011 identified ten high pedestrian accident locations within the transportation study area, including five intersections along Delancey Street—at Allen Street, Clinton Street, Essex Street, Norfolk Street, and Suffolk Street—and the intersections of 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. DOT has implemented a comprehensive safety plan along the Delancey Street corridor to improve pedestrian, bicycle, and vehicular safety. This plan included shortening Delancey Street crosswalks with new neckdowns and median tip extensions, instituting additional left-turn prohibitions, modifying signal timings, taking space from overly wide roadbed, clarifying travel lanes, enhancing bridge approach, and opening Clinton Street to the bridge. These measures are expected to calm traffic and improve safety at several Delancey Street intersections that serve the Seward Park development sites. At remaining high pedestrian accident locations, vehicular and pedestrian safety can be improved with standard safety improvement measures, such as installing crosswalk countdown timers, restriping faded crosswalks, and installation of warning signs to alert motorists about high intersection pedestrian crossing volumes. With regard to the potential school on Site 5, the SCA would undertake a comprehensive analysis of the traffic and pedestrian safety conditions resulting from the school as part of their environmental review, which may identify additional safety improvements measures, such as the provision of school crosswalks and signage at critical intersections.

#### **AIR QUALITY**

This section summarizes the conclusions of the air quality analyses completed as part of the FGEIS and Technical Memorandum 001 and describes the potential effect of the proposed Essex Crossing program on air quality, considering the proposed changes to the program and the

results of the prior assessment. The program modifications considered in Technical Memorandum 002 had no effect on air quality and were not analyzed.

#### *MOBILE SOURCES*

The FGEIS and Technical Memorandum 001 concluded that the maximum predicted pollutant concentrations and concentration increments from mobile sources would be well below the corresponding guidance thresholds and ambient air quality standards and would therefore not result in any significant adverse air quality impacts.

As shown in **Table 20**, with the proposed Essex Crossing program, there would be a decrease in project-generated vehicle trips as compared to what was analyzed in the FGEIS, during the weekday PM peak period. The PM peak period was analyzed in the FGEIS because the number of vehicle trips generated during that time is greatest. The PM peak period remains the worst-case period in terms of project generated trips, but there are fewer trips than with the program analyzed in the FGEIS. During other peak periods the number of trips generated with the proposed Essex Crossing program is comparable or less than the number of project generated trips analyzed in the FGEIS, and the overall reduction in vehicle trips with the proposed Essex Crossing program, as shown in **Table 20**. As the number of vehicle trips would be lower with the proposed Essex Crossing program the effect on air quality would also be lower than with the FGEIS program. Since it had been determined that there would be no significant adverse impacts from mobile sources with the FGEIS program, there would also be no potential for significant adverse impacts from mobile sources with the proposed Essex Crossing program.

#### *PARKING FACILITIES*

The proposed Essex Crossing program would not provide any parking spaces. The RWCDs assessed in the FGEIS and Technical Memorandum 001 assumed the provision of up to 500 parking spaces, located at four project sites (Sites 2, 3, 4, and 5). For the FGEIS, the parking facilities that were proposed on Site 2 and Site 3 were cumulatively considered to assess the reasonable worst-case effect on air quality from the parking facilities proposed at that time. Based on the results of the cumulative analysis of Site 2 and Site 3 that showed that there would be no potential for a significant adverse impact on air quality from the parking at those two sites, the FGEIS concluded that there would also be no potential for a significant adverse impact from the parking that was proposed on Site 4 and Site 5. As no parking facilities are proposed with the Essex Crossing program, an analysis of air quality impacts from parking facilities is not warranted, and there would be no potential for a significant adverse air quality impact from parking facilities.

#### *STATIONARY SOURCES*

Based on a refined stationary source modeling analysis, the FGEIS concluded that there would be no potential for a significant adverse impact on air quality from heating and hot water systems, provided that natural gas was the only fossil fuel used on all of the sites and that locations of the exhaust stacks for heating and hot water systems serving Site 5 and Site 9 were restricted as specified in the FGEIS. The FGEIS did not identify the need for stack placement restrictions on any other project sites. The FGEIS noted that the stack placement requirements could be modified or eliminated if additional air quality modeling shows that the requirements are not needed to meet national and local ambient air quality standards and thresholds. Technical Memorandum 001 considered an increase in floor area on Site 5 for a potential school that was



assumed to have its own heating and hot water systems that would exhaust at a height that is lower than the top of the residential and commercial development on Site 5. A screening analysis for the potential school was conducted and indicated that there would be no potential for significant adverse impacts on air quality assuming the school's heating and hot water system stack is located at least 57 feet away from any sensitive use of a similar or greater height. Technical Memorandum 001 noted that New York City School Construction Authority (SCA) would further examine the potential environmental effect of the school once a detailed program and a design for a school on Site 5 have been developed, as part of environmental review pursuant to the State Environmental Quality Review Act (SEQRA).

With the proposed Essex Crossing program, the gross floor area, and therefore emissions from the heating and hot water systems, would increase on every development site, except Site 8, where the gross floor area would slightly decrease. In addition, natural gas fueled microturbines would be installed on Sites 2, 3, and 4 to provide for some of the building's electricity and heat needs. The output capacity of the microturbines would be up to 130 kW on Site 2, up to 65 kW on Site 3, and up to 130 kW on Site 4. Other project sites would not include microturbines. The increase in fuel use (and consequently emissions) due to the increase in residential and commercial floor area and the addition of microturbines was considered, as shown in **Table 21**. Consistent with the *CEQR Technical Manual* and the analysis conducted for the FGEIS, nitrogen dioxide (NO<sub>2</sub>) was considered as the pollutant of concern with the use of natural gas. Furthermore, based on the results of the FGEIS analysis, the 1-hour NO<sub>2</sub> averaging period was considered as the averaging period of greatest potential concern. The maximum 1-hour NO<sub>2</sub> emissions increase would occur on Site 4, and would be up to 39 percent greater than the emissions analyzed in the FGEIS. The projected increase in emissions would be proportional to the increases in fuel use shown in **Table 21**. Based on the increase in emissions, a proportional increase in predicted concentrations at the receptor locations analyzed (such as windows and air intakes of neighboring buildings) is shown in **Table 22**. When added to the 1-hour NO<sub>2</sub> background concentration of 129.8 micrograms per cubic meter (µg/m<sup>3</sup>), the concentration increases shown in **Table 22** would not exceed the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard (NAAQS) of 188 µg/m<sup>3</sup>.

**Table 21**  
**Comparison of Fuel Use with the Proposed Essex**  
**Crossing Program**

| Site No. | FGEIS Fuel Consumption MMcf / year | Fuel Consumption With Essex Crossing Program Floor Area and Microturbines MMcf / year | Percent Change in Short Term Fuel Use* |
|----------|------------------------------------|---|--|
| 1        | 7.36                               | 8.36  | 4                                      |
| 2        | 17.35                              | 19.35   | 27                                     |
| 3        | 13.73                              | 16.73   | 20                                     |
| 4        | 19.07                              | 23.07   | 39                                     |
| 5        | 17.13                              | 22.13   | 9                                      |
| 6        | 6.69                               | 12.69   | 27                                     |
| 8        | 2.61                               | 10.61   | -1                                     |
| 9        | 5.26                               | 14.26   | 8                                      |
| 10       | 1.48                               | 11.48   | 0                                      |

**Note:** MMcf denotes million cubic feet of natural gas.  
\*Short term fuel use is based on the  
**Source:** Seward Park Mixed-Use Development Project FGEIS.

As microturbines are a new sustainable feature introduced with the proposed Essex Crossing program, an additional analysis was performed to assess the effect of particulate matter (PM<sub>2.5</sub>) emissions from the microturbines on air quality. Although the microturbines would use natural gas, PM<sub>2.5</sub> emissions are a potential concern with this type of source. The analysis was performed using AP-42 emissions factors<sup>12</sup> and the worst-case assumptions on meteorological conditions built into the AERSCREEN model. The background concentration of 25 µg/m<sup>3</sup> is based on the Division Street DEC monitoring station. The maximum predicted 24-hour average concentration is 1.02 µg/m<sup>3</sup>, and the maximum predicted annual average concentration is 0.17 µg/m<sup>3</sup>. As these levels do not exceed the *de minimis criteria* of 5 µg/m<sup>3</sup> and 0.3 µg/m<sup>3</sup>, respectively, there would be no potential for a significant adverse impact on air quality with the proposed Essex Crossing program.

**Table 22**  
**Projected Concentration Increase**

| Site No. | FGEIS Projected 1-hour NO <sub>2</sub> Increase (µg/m <sup>3</sup> ) | Percent Change in Short Term Fuel Use | Projected 1-hour NO <sub>2</sub> Increase with New Program (µg/m <sup>3</sup> ) |
|----------|--|---------------------------------------|---|
| Site 1   | 15.6   | 4                                     | 16.2  |
| Site 2   | 2.0  | 27                                    | 2.5   |
| Site 3   | 37.3   | 20                                    | 44.8  |
| Site 4   | 6.3  | 39                                    | 8.8   |
| Site 5   | 28.0   | 9                                     | 30.5  |
| Site 6   | 30.2   | 27                                    | 38.4  |
| Site 8   | 7.4  | -1                                    | 7.3   |
| Site 9   | 35.5   | 8                                     | 38.3  |
| Site 10  | 3.6  | 0                                     | 3.6   |

**Note:** µg/m<sup>3</sup> denotes microgram per cubic meter.  
**Source:** Seward Park Mixed-Use Development Project FGEIS.

There would also be no potential for a significant adverse impact from the cumulative emission changes on all project sites. The fuel use and stack placement restrictions identified in the FGEIS would still be required with the proposed Essex Crossing program. Specifically,

- 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 or greater height.

As discussed in the FGEIS, 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 through provisions in the LDA between HPD and the developer. For City properties that may be managed by NYCEDC, the implementation of fuel use and stack placement requirements will be required to be undertaken by the developer through provisions of

<sup>12</sup> 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 3.1-2a.

a contract of sale or long-term lease or other legally binding agreement between NYCEDC and the developer.

As shown in **Table 6**, the school currently considered for Site 5 would be larger than the school that was analyzed in Technical Memorandum 001. The minimum distance from the school's heating and hot water system exhaust stack and a sensitive used of a similar or greater height, needed to preclude the potential for a significant adverse impact on air quality would be 61 feet, based on an update to the screening level analysis performed for Technical Memorandum 001. SCA would further examine the potential environmental effect of the school pursuant to SEQRA, at a later time, when the program and design for the school are developed.

### **GREENHOUSE GAS EMISSIONS**

Similar to the FGEIS program, the proposed Essex Crossing program would include features aimed at reducing energy consumption and greenhouse gas (GHG) emissions. It is expected that housing developments on all sites would be certified under the Enterprise Green Communities Program or would incorporate measures that would achieve equivalent energy efficiency levels. The FGEIS included estimates of GHG emissions. GHG emissions, which were estimated based on developed area (gsf), would not be substantially different based on the currently proposed program and the limitations of the 2014 *CEQR Technical Manual* methodology for calculating GHG emissions.

The proposed development would include sustainable design features, described in the FGEIS, that would, among other benefits, result in lower GHG emissions. In addition, in accordance with the FGEIS commitments, housing developments on City-owned sites that are managed by NYCEDC must be certified under the Enterprise Green Communities Program, which includes mandatory energy efficiency and sustainability measures. Also, all affordable housing projects developed through HPD programs must be certified under the Enterprise Green Communities Program. If a housing development cannot be certified under the Enterprise Green Communities Program because of its construction typology/methodology, the development would be designed and constructed to standards equivalent to those which would be necessary to achieve certification under the Enterprise Green Communities Program. All housing developments 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.

Overall, the proposed actions would result in mixed-use development with energy efficient buildings and would likely use low-carbon fuel (natural gas). The proposed development would also support the use of public transit and non-motorized commuting. The proposed development's 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.

### **NOISE**

As was concluded in the FGEIS, the proposed Essex Crossing program 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, and 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.

Further, the façade attenuation design requirements specified in the FGEIS and Technical Memorandum 001 that will be included in the proposed Essex Crossing program would be expected to result in acceptable interior noise levels according to CEQR and HUD interior noise level guidelines. Buildings will be required to construct facades providing Outdoor-Indoor Transmission Class (OITC) ratings equal or greater than the levels shown in **Table 23** as well as provide an alternate means of ventilation.

**Table 23**  
**Building Attenuation Requirements (in dBA)**

| Development Site | Block | Lot   | Facade                         | Governing Noise Receptor | Attenuation Required for CEQR <sup>1</sup> | Attenuation Required for HUD <sup>1</sup> |
|------------------|-------|-------|--------------------------------|--------------------------|--|---|
| 2                | 352   | 1, 28 | North                          | 6                        | 33   | 34  |
|                  |       |       | East                           | 7                        | 31   | 28  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 7                        | 31   | 28  |
| 3                | 346   | 40    | North                          | 8                        | 28   | 29  |
|                  |       |       | East                           | 4 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 7                        | 31   | 28  |
| 4                | 346   | 40    | North                          | 8                        | 28   | 29  |
|                  |       |       | East                           | 4 <sup>3</sup>           | N/A <sup>2</sup>                           | 21  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 4 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
| 5                | 346   | 40    | North                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | North (adjacent to playground) | playground               | 33-39 <sup>4</sup>                         | 25-31 <sup>4</sup>                        |
|                  |       |       | East                           | 2 <sup>3</sup>           | N/A <sup>2</sup>                           | 20  |
|                  |       |       | South                          | 1 <sup>3</sup>           | 28   | 27  |
|                  |       |       | West                           | 7                        | 31   | 28  |
|                  |       |       | West (adjacent to playground)  | playground               | 33-35 <sup>4</sup>                         | 28-30 <sup>4</sup>                        |
|                  |       |       | North                          | 4                        | 28   | 27  |
| 6                | 347   | 71    | East                           | 4 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 4 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | North                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
| 8                | 354   | 1     | East                           | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 7                        | 31   | 28  |
|                  |       |       | North                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
| 9                | 353   | 44    | East                           | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | South                          | 6                        | 33   | 34  |
|                  |       |       | West                           | 7                        | 31   | 28  |
|                  |       |       | North                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
| 10               | 354   | 12    | East                           | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | South                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |
|                  |       |       | West                           | 7                        | 31   | 28  |
|                  |       |       | North                          | 3 <sup>3</sup>           | N/A <sup>2</sup>                           | 23  |

**Notes:**

<sup>1</sup>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.

<sup>2</sup>The maximum measured L<sub>10</sub> is below 70 dBA, and the *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L<sub>10</sub> values below this level.

<sup>3</sup>Attenuation requirements based on these locations are adjusted for future increases in traffic with the proposed project (see Appendix D of the FGEIS). At all other locations future increases in traffic would be insubstantial.

<sup>4</sup>A range of attenuation requirements is presented due to the upper floors being further away from the playground and needing less attenuation. Attenuation requirements by floor are included in Technical Memorandum 001.

In accordance with FGEIS commitments, for sites developed through HPD programs the LDA, and for sites that may be under the jurisdiction of NYCEDC the contract of sale or long-term lease or other legally binding agreement, would require that the selected developer provide window-wall attenuation in dwelling units and community facility space, which is equal to or greater than the attenuation requirements presented in the FGEIS (and shown in Table 25), while also providing an alternate means of ventilation to ensure a maximum interior noise environment of 45 dBA under closed-window conditions.

Window-wall attenuation requirements for commercial uses would be 5 dBA lower than the requirement for residential and community facility uses in order to ensure a maximum interior noise environment of 50 dBA. In the event federal funding is utilized, HPD would follow HUD guidance concerning window-wall attenuation for residential and community facility uses. The measures would be required through an LDA. To satisfy the LDA noise attenuation and alternate means of ventilation requirements, the developer would submit a letter from a Registered Architect describing the building façade design and certifying its OITC rating, as supported by ASTM E90 test data, and the alternate means of ventilation, as supported by mechanical drawings and equipment cut sheets.

Subsequent to the FGEIS, more detailed building design information was made available for Site 1, which allowed for a more refined building attenuation analysis to be conducted to more precisely determine the necessary window/wall attenuation at the proposed Site 1 building to ensure acceptable interior noise levels according to CEQR criteria. The refined building attenuation analysis used a detailed 3-dimensional model of the proposed building design along with an updated noise survey at the project site to calculate future predicted noise levels at specific locations along the building façade. The refined building attenuation analysis demonstrates that for the Site 1 building's tower, and the north facade of the Site 1 building's base, lower levels of window/wall attenuation than prescribed in the FGEIS would be sufficient to provide acceptable interior noise levels according to CEQR criteria. The resultant noise levels and window/wall attenuation requirements are shown in **Table 24**.

**Table 24**  
**Essex Crossing Site 1 Refined Façade Attenuation Requirements [in dB(A)]**

| Building Portion   | Façade | Floor  | FGEIS<br>L <sub>10</sub> <sup>3</sup> | FGEIS<br>L <sub>dn</sub> <sup>3</sup> | CadnaA Calculated<br>Shielding/Distance<br>Factor | Maximum<br>Resultant<br>L <sub>10</sub> | CEQR<br>Required<br>Attenuation <sup>1</sup> | Maximum<br>Resultant<br>L <sub>dn</sub> | HUD<br>Required<br>Attenuation |
|--|--------|--------|---------------------------------------|---------------------------------------|---|---|--|---|--------------------------------|
| Base   | North  | 1 to 2 | 77.8                                  | 78.2                                  | 8.6 to 25.4                                       | 69.2                                    | <b>N/A</b> <sup>2</sup>                      | 69.6                                    | <b>25</b>                      |
|  | North  | 3 to 5 | 77.8                                  | 78.2                                  | 7.2 to 22.0                                       | 70.6                                    | <b>28</b>                                    | 71.0                                    | <b>26</b>                      |
|  | East   | All    | 73.8                                  | 72.4                                  | 2.9 to 3.7  | 70.9                                    | 28   | 69.5                                    | <b>25</b>                      |
|  | West   | All    | 73.8                                  | 72.4                                  | 1.5 to 3.2  | 72.3                                    | 28   | 70.9                                    | <b>26</b>                      |
| Tower  | North  | All    | 77.8                                  | 78.2                                  | 8.2 to 18.0                                       | 69.6                                    | <b>N/A</b> <sup>2</sup>                      | 70.0                                    | <b>25</b>                      |
|  | East   | All    | 73.8                                  | 72.4                                  | 6.9 to 17.1                                       | 66.9                                    | <b>N/A</b> <sup>2</sup>                      | 65.5                                    | <b>21</b>                      |
|  | South  | All    | 65.4                                  | 65.5                                  | 1.7 to 5.5  | 63.7                                    | <b>N/A</b> <sup>2</sup>                      | 63.8                                    | <b>19</b>                      |
|  | West   | All    | 73.8                                  | 72.4                                  | 3.9 to 14.6                                       | 69.9                                    | <b>N/A</b> <sup>2</sup>                      | 68.5                                    | <b>24</b>                      |
| <b>Notes:</b>  |        |        |                                       |                                       |   |   |  |   |                                |
| <sup>1</sup> The CEQR attenuation requirements shown are for residential uses; non-residential uses would require 5 dB(A) less attenuation. HUD attenuation regulations would not apply to non-residential uses. |        |        |                                       |                                       |   |   |  |   |                                |
| <sup>2</sup> The maximum measured L <sub>10</sub> is below 70 dB(A), and the <i>CEQR Technical Manual</i> does not specify minimum attenuation guidance for exterior L <sub>10</sub> values below this level.    |        |        |                                       |                                       |   |   |  |   |                                |
| <sup>3</sup> Attenuation requirements based on these locations are adjusted for future increases in traffic with the proposed project (see Appendix D of the FGEIS).   |        |        |                                       |                                       |   |   |  |   |                                |
| <sup>4</sup> Attenuation requirements different from those indicated in the 2012 Seward Park Mixed Use Development Project FGEIS are shown in bold.  |        |        |                                       |                                       |   |   |  |   |                                |

Based on the predicted noise levels, development at Site 1 with window/wall attenuation equal to or greater to the values shown in **Table 24**, as well as an alternate means of ventilation, would

provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA  $L_{10}$  for residential uses and 50 dBA  $L_{10}$  for non-residential uses and the HUD interior noise level guideline of 45 dBA  $L_{dn}$  for residential and use. Depending on the operator of the gym (Physical Culture Establishment) that would be included in the Site 1 development, BSA may prescribe additional use-specific noise and vibration attenuation.

## **PUBLIC HEALTH**

Since there would be no significant unmitigated adverse impacts found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise, the assessment of public health for the proposed Essex Crossing program, like that for the FGEIS program, examines the potential effects of construction-period noise impacts on public health. As described below in “Construction Noise Analysis Results,” the findings of the construction-related noise analyses presented in the FGEIS would be substantially similar with the proposed Essex Crossing program. Therefore, the proposed development would not change the FGEIS conclusion that there would be no significant adverse environmental impacts with respect to public health.

## **NEIGHBORHOOD CHARACTER**

Since the proposed Essex Crossing program would not result in new significant adverse impacts on any of the contributing elements that define neighborhood character (land use, urban design, visual resources, historic resources, socioeconomic conditions, shadows, open space, traffic, and noise), the proposed development—like the proposed actions and RWCDs assessed in the FGEIS and Technical Memoranda 001 and 002—would not result in any significant adverse impacts on neighborhood character. Like the FGEIS program and the approved program, the proposed Essex Crossing program would improve the character of the neighborhood by replacing underutilized buildings and surface parking lots with new, active mixed-use development.

## **CONSTRUCTION**

For the proposed Essex Crossing program, general construction practices, equipment, staging, and work hours would be similar to those described in the FGEIS. However, as described above in “Introduction,” the proposed Essex Crossing program and the project construction schedule are different from the assumptions analyzed in the FGEIS and subsequent Technical Memoranda 001 and 002. For example, the proposed development includes a below-grade retail space (the Market Line) on Sites 2, 3, and 4 and the overall construction duration for the proposed development is anticipated to be approximately nine years (FGEIS assumed five and a half year construction duration) with different construction phasing of buildings.

At the time of the FGEIS, there were no specific construction programs or designs for any of the buildings. The construction durations were conservatively chosen to serve as the basis of the analyses in the FGEIS and were representative of the reasonable worst-case for potential impacts. The conceptual schedule in the FGEIS represented a compressed and conservative potential timeline for construction, which showed overlapping construction activities and simultaneously operating construction equipment for development sites in proximity to one another. The conceptual construction schedule for the proposed buildings as analyzed in the FGEIS is shown in **Table 25**. In the FGEIS conceptual construction schedule, construction was assumed to begin in the third quarter of 2016 on Sites 2 and 5. Site 2 was expected to be completed in approximately two years while Site 5 was expected to take approximately 27 months to complete. Construction on Sites 3 and 4 was assumed to begin in the third quarter of

2017 in the FGEIS, and were expected to take approximately 27 months and 33 months to complete, respectively. Construction on Sites 1 and 6 was assumed to begin in the first quarter of 2019 in the FGEIS, and were expected to be completed by the third quarter of 2020. Construction on Sites 8, 9, and 10 was assumed to commence in the second quarter of 2020 in the FGEIS, and were expected to be completed by the third quarter of 2021, fourth quarter of 2021, and second quarter of 2021, respectively.

**Table 25**  
**FGEIS - Conceptual Construction Schedule**

| Reasonable Worst Case Development Scenario (RWCDs) Site | Start Quarter    | Finish Quarter   | 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 <sup>1</sup>                                     | --               | --               | --                            |
| 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:**  
<sup>1</sup> 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 was not included in the FGEIS analysis.  
**Source:** Hunter Roberts Construction Group

The scheduling of construction activities for a major project is an exceedingly complex endeavor, with conceptual schedules for construction made early on in project planning evolving over the course of the design and development process. **Table 26** presents the anticipated construction schedule for the proposed Essex Crossing program as currently envisioned. In this schedule, construction is assumed to begin in March 2015 on Sites 1, 2, and 5. Sites 1 and 5 are anticipated to take approximately 30 months to complete while Site 2 is anticipated to take approximately 36 months to complete. Construction on Site 6 would begin in September 2015 and would take approximately 27 months to complete. In September 2016, construction would commence on Site 8 with construction anticipated to be completed by November 2018. Construction on Sites 3 and 4 would begin in February 2018 and would each take approximately 36 months to complete. By April 2020, construction on Site 9 would begin and would take approximately 27 months to complete. Finally, construction on Site 10 is anticipated to begin by the end of 2021 and would be completed by March 2024. As discussed above, the full completion of the entire Essex Crossing program is expected to extend beyond the 2022 Build year analyzed in the FGEIS and subsequent Technical Memoranda 001 and 002. Due to lease agreements with the current tenants of Site 10, the development of approximately 14 residential units and 5,311 square feet of retail space in that building could not begin until 2021 and which would last until 2024. The development of all other buildings is expected to be complete by 2022. Considering the unfinished Site 10 development would represent only 1.4 percent of the total Essex Crossing program floor area, it would have little bearing on the impacts anticipated for the overall project, which would largely materialize by 2022 and for which mitigation measures would need to be implemented. Therefore, for analysis purposes, 2022 is still the appropriate analysis year for assessing potential impacts from the Essex Crossing program.

**Table 26**  
**Anticipated Essex Crossing Construction Schedule**

| Reasonable Worst Case Development Scenario (RWCDs) Site | Start Month    | Finish Month   | Approximate duration (months) |
|---|----------------|----------------|-------------------------------|
| Site 1  | March 2015     | August 2017    | 30                            |
| Site 2  | March 2015     | March 2018     | 36                            |
| Site 3  | March 2018     | February 2021  | 36                            |
| Site 4  | March 2018     | February 2021  | 36                            |
| Site 5  | March 2015     | September 2017 | 30                            |
| Site 6  | September 2015 | December 2017  | 27                            |
| Site 7 <sup>1</sup>                                     | --             | --             | --                            |
| Site 8  | September 2016 | November 2018  | 27                            |
| Site 9  | April 2020     | June 2022      | 27                            |
| Site 10   | December 2021  | March 2024     | 27                            |

**Note:**  
<sup>1</sup> 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:** Turner Construction

This section assesses whether the updates in construction schedule and information regarding the design and construction of the proposed development would have the potential to result in new construction-related impacts in the relevant technical areas not previously identified in the FGEIS and subsequent Technical Memoranda 001 and 002. The construction impact analysis below focused on those technical areas (i.e., transportation, air quality, and noise) that could be affected by the design development and schedule change.

### *TRANSPORTATION*

Construction of the project would generate construction worker and truck traffic. Because of these activities, an evaluation of construction sequencing and work/truck projections was completed in order to identify potential construction transportation impacts. As described below, the projected construction activities would yield an amount of total traffic similar to that disclosed in the FGEIS. Construction vehicle trips were assigned to the study area network, and a qualitative assessment was conducted to compare potential construction transportation impacts with the proposed project to those identified in the FGEIS.

#### *Construction Traffic Projections*

Average daily construction worker and truck activities by quarter were projected for the duration of the construction period and were refined with the same assumptions used in the FGEIS to account for worker modal splits, 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 2015, the combined construction worker and truck traffic peak would occur in the fourth quarter of 2016. The daily average number of construction worker and truck deliveries during



the peak quarters was estimated at 657 workers and 92 truck deliveries<sup>13</sup> compared to 556 workers and 109 truck deliveries in the FGEIS peak quarter, which occurred in the third quarter of 2017.

*Construction Worker Modal Splits*

The travel characteristics for worker trips use the same assumptions as those found in the FGEIS. 71.1 percent of construction workers would travel to the site via public transportation, and the remaining 28.9 percent of construction workers would travel to the site via private auto (with an average auto occupancy rate of 2.04). The study area is well served by mass transit which includes the F, J, M, and Z subway lines, and the B39, 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 or 3:30 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 fourth quarter of 2016 are summarized in **Table 27**.

**Table 27**  
**Peak Construction Vehicle Trip Projections – Fourth Quarter of 2016**

| Hour          | Auto Trips |     | Truck Trips |     | Total Vehicle Trips |     |       |
|---------------|------------|-----|-------------|-----|---------------------|-----|-------|
|               | In         | Out | In          | Out | In                  | Out | Total |
| 6 AM - 7 AM   | 74         | 0   | 23          | 23  | 97                  | 23  | 120   |
| 7 AM - 8 AM   | 19         | 0   | 9           | 9   | 28                  | 9   | 37    |
| 8 AM - 9 AM   | 0          | 0   | 9           | 9   | 9                   | 9   | 18    |
| 9 AM - 10 AM  | 0          | 0   | 9           | 9   | 9                   | 9   | 18    |
| 10 AM - 11 AM | 0          | 0   | 9           | 9   | 9                   | 9   | 18    |
| 11- AM -12 PM | 0          | 0   | 9           | 9   | 9                   | 9   | 18    |
| 12 PM - 1 PM  | 0          | 0   | 9           | 9   | 9                   | 9   | 18    |
| 1 PM - 2 PM   | 0          | 0   | 5           | 5   | 5                   | 5   | 10    |
| 2 PM - 3 PM   | 0          | 5   | 5           | 5   | 5                   | 10  | 15    |
| 3 PM - 4 PM   | 0          | 74  | 5           | 5   | 5                   | 79  | 84    |
| 4 PM - 5 PM   | 0          | 14  | 0           | 0   | 0                   | 14  | 14    |
| 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 657 workers and 92 trucks making two daily trips each (arrival and departure) in the fourth quarter of 2016. Numbers of construction worker vehicles were calculated using a 28.9-percent auto split with an auto-occupancy of 2.04.

<sup>13</sup> The construction workforce and truck projections were estimated by a construction manager (Turner Construction) with experience on projects of comparable size and complexity in New York City and are based on the anticipated construction schedule presented in Table 26 and the activities that would be needed for the construction of the project buildings.

*Traffic*

As discussed above and shown in **Table 27**, construction activities would result in maximum combined auto and truck traffic of 120 and 84 vehicles trips during the 6-7 AM and 3-4 construction peak hours, respectively. In comparison, the peak construction quarter in the FGEIS would generate 118 and 74 vehicle trips during the same construction peak hours, as shown in **Table 28**.

**Table 28**  
**Comparison of Construction Vehicle Trips—FGEIS vs. Proposed Project**

| Weekday Peak Period           | FGEIS Construction Vehicle Trips<br>(Third Quarter 2017) |     |       | Proposed Project<br>Construction Vehicle Trips<br>(Fourth Quarter 2016) |     |       |
|-------------------------------|--|-----|-------|---|-----|-------|
|                               | In   | Out | Total | In  | Out | Total |
| 6-7 AM<br>Arrival Peak Hour   | 91   | 27  | 118   | 97  | 23  | 120   |
| 3-4 PM<br>Departure Peak Hour | 5  | 69  | 74    | 5   | 79  | 84    |

Vehicle trips generated by construction activities were assigned to the roadway network. Vehicles would be expected to utilize similar travel routes as in the FGEIS with the exception of the westbound Grand Street trips that would be diverted due to the Third Water Tunnel Water Main Shaft Installation Phase II project. This project would eliminate the westbound Grand Street approach between the Bowery and Essex Street during the peak construction quarter. Parking would not be provided on-site, and workers are assumed to utilize off-street parking facilities in the study area. Truck delivery trips would be destined to the project sites under construction.

Traffic volumes during the construction peak hours for the proposed project are generally expected to be similar to the construction peak hour volumes in the FGEIS. Hence, it is expected that the mitigation measures identified in the FGEIS would be sufficient to mitigate intersection impacts associated with construction trips.

*Deliveries*

Construction trucks would be required to use DOT-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 designated loading zones.

*Curb Lane Closures and Staging*

Curb lane closures and staging for the proposed modification are comparable to those assumed in the FGEIS. 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 of development sites during the construction period. Sidewalk and lane closures will be finalized as Maintenance and Protection of Traffic (MPT) plans are developed and reviewed with DOT.

All lane and sidewalk closures during construction would be coordinated with DOT'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 93 spaces during the peak construction phase as compared to 80 spaces in the FGEIS. This parking demand could be accommodated by the off-street spaces available within a quarter-mile radius of the construction sites. Approximately half the worker auto trips (51 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 parking lot south of Delancey Street between Norfolk and Suffolk Streets. The remaining 49 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 (three percent), the parking garage along Allen Street south of Grand Street (13 percent), and the parking garage at the intersection of the Delancey Street service road and Columbia Street (32 percent). Therefore, the proposed modification would not result in any significant adverse parking impacts during construction, consistent with the conclusion in the FGEIS.

### *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 B39, 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 657 average daily construction workers), this distribution would represent approximately 460 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 368. 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, consistent with the FGEIS, the proposed project would not result in 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 DOT 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 657 average daily construction workers, there would be up to approximately 525 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 multiple 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, consistent with the FGEIS, the proposed project would not result in 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 DOT requirements to maintain pedestrian access if needed.

### *AIR QUALITY*

The construction air quality analysis in the FGEIS was revisited to determine if the design development and construction schedule change would have the potential to cause significant adverse impacts not identified in the FGEIS. Overall, the construction means and methods, as presented in the FGEIS, are not expected to change. The FGEIS construction air quality analysis included a detailed quantified modeling study of the most intensive construction periods determined through a review of a site-wide PM<sub>2.5</sub> emissions profile. PM<sub>2.5</sub> was selected for determining the worst-case periods for all pollutants as analyzed, because the ratio of predicted PM<sub>2.5</sub> incremental concentrations to impact criteria is higher than for other pollutants. To ensure that the construction would result in the lowest practicable diesel particulate matter (DPM) emissions, the FGEIS assumed that extensive measures would be incorporated into the construction program to the extent feasible and practicable, including:

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<sub>x</sub> 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,<sup>14</sup> 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<sup>15</sup> or higher for all nonroad diesel engines with a power

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<sup>14</sup> 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).

<sup>15</sup> 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

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.

For properties that may be under the jurisdiction of HPD, emissions reduction measures would be required to be undertaken by the developer through LDA provisions, to be entered into at the time of closing. The LDA would also require the use of a construction monitor, which would operate under the oversight of ODMHED, 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 through provisions of a contract or other legally binding agreement between NYCEDC and the developer. The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMHED, to ensure that the emissions reduction measures, to the extent practicable and feasible, are implemented during construction activities.

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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<sub>x</sub>) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

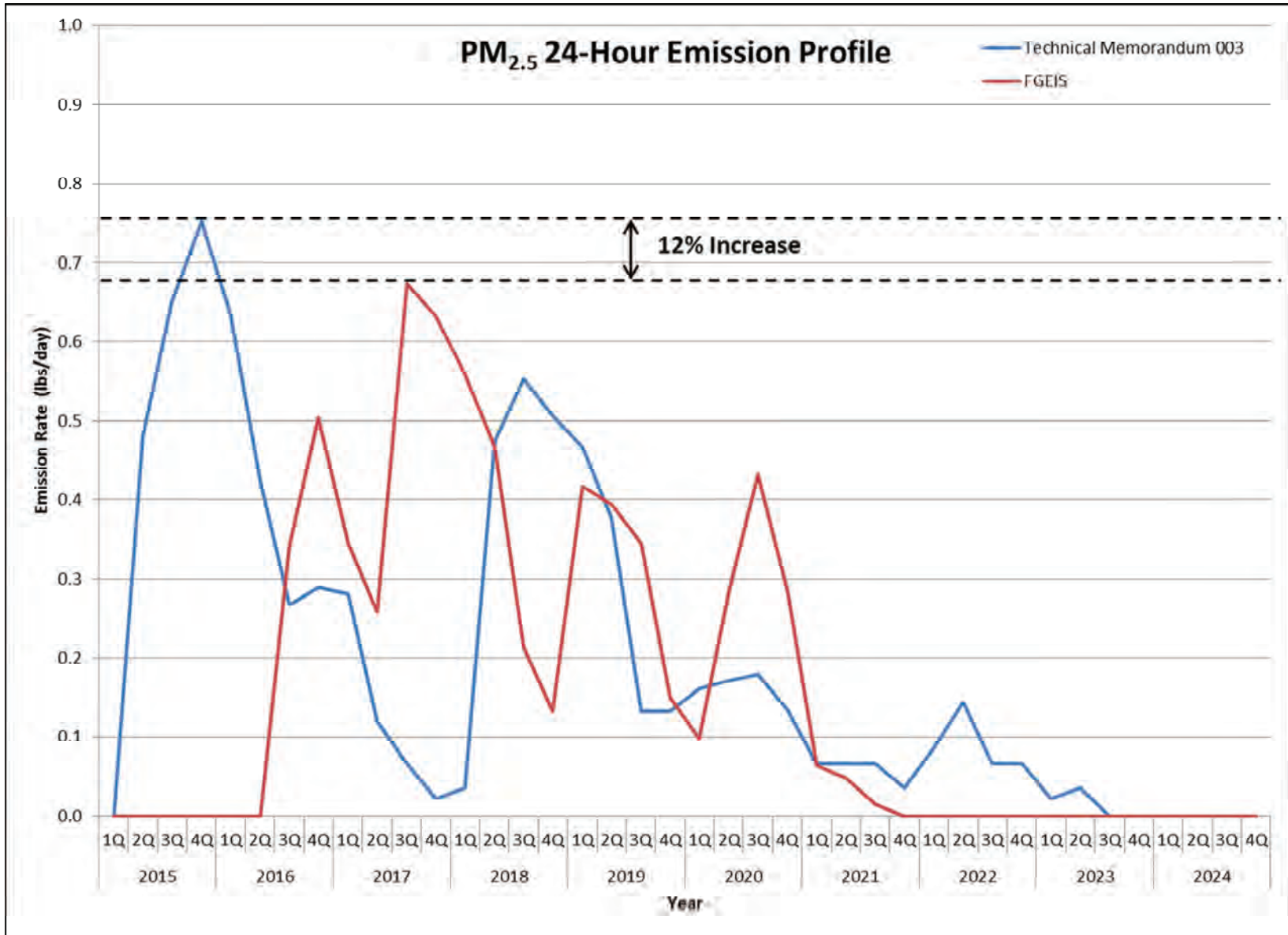
With the implementation of emissions control measures described above, the FGEIS showed that annual-average nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>), and annual- average particulate matter with an aerodynamic diameter less than 2.5 microns (PM<sub>2.5</sub>) concentrations would be well below their corresponding *de minimis* thresholds or National Ambient Air Quality Standards (NAAQS), respectively. Although PM<sub>2.5</sub> concentrations (maximum predicted concentration of 3.2 µg/m<sup>3</sup>) were found to increase to levels exceeding the City's 24-hour interim guidance thresholds in areas immediately adjacent to construction activity, the PM<sub>2.5</sub> threshold exceedances were predicted to be limited in extent, duration, and severity. Therefore, the FGEIS concluded that no significant adverse impacts on air quality would occur during the construction of the Project.

In order to assess the potential change in the impact on air pollutant concentrations with the design development and the construction schedule change, the emissions assumptions prepared for the FGEIS were applied to the updated construction information and schedule, resulting in new estimates ('emission profiles') of 24-hour and annual average PM<sub>2.5</sub> emissions throughout the duration of construction. The new 24-hour and annual average emissions profiles for the proposed Essex Crossing program, together with the profiles presented in the FGEIS, are shown in **Figures 5 and 6**, respectively. As presented in the figures, the emission intensity levels during the peak construction periods with the updated construction information and schedule are comparable to those analyzed in the FGEIS. With updated construction information and schedule, there would be a 12 percent increase in peak short-term emission intensity and a 9 percent increase in peak annual emission intensity. While the peak emission intensities would increase for the proposed Essex Crossing program, the *de minimis* criteria employed for determination of potential significant adverse 24-hour PM<sub>2.5</sub> impacts as set forth in the *CEQR Technical Manual* has been updated since the FGEIS was published. The current 24-hour PM<sub>2.5</sub> *de minimis* threshold value is half the difference between the NAAQS of 35 µg/m<sup>3</sup> and the ambient monitored background near the project site (27 µg/m<sup>3</sup>), or 4.0 µg/m<sup>3</sup>. This value is twice the 24 hour PM<sub>2.5</sub> interim guidance threshold value (2 µg/m<sup>3</sup>)<sup>16</sup> considered in the FGEIS. The maximum predicted annual average PM<sub>2.5</sub> concentration was predicted to be 0.18 µg/m<sup>3</sup> in the FGEIS, well below the applicable PM<sub>2.5</sub> *de minimis* criterion of 0.3 µg/m<sup>3</sup> for local impacts. A moderate increase (9 percent) in peak annual emission intensity for the current construction program would not result in new significant adverse construction-related air quality impacts not identified in the FGEIS.

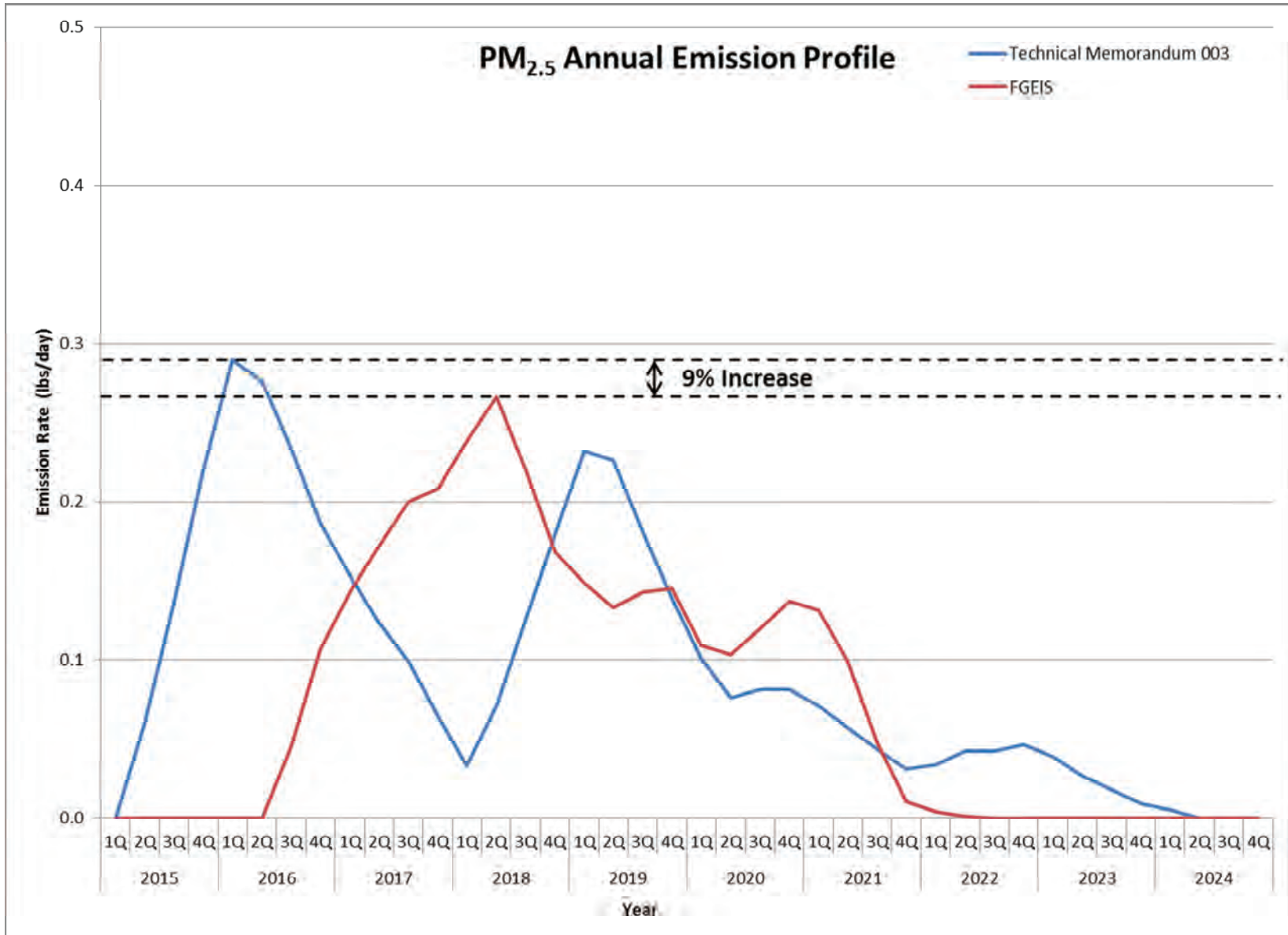
Construction associated with the Third Water Tunnel Water Main Shaft Installation Phase II along Grand Street between Broadway and Essex Street is expected to occur between the present day and the spring of 2017 and, consequently, portions of that construction period may overlap with construction activities associated with the proposed project. However, the Water Main Shaft Installation project is located more than 350 feet away from the nearest project building and, therefore, such distance would provide for significant dispersion of pollutants from construction activities occurring at that distance. In addition, the intervening buildings would serve as a buffer between the construction sources for the Water Main Shaft Installation project and the construction sources for the proposed project, further dispersing emissions in the area. Therefore, the potential cumulative air quality effects from the construction of the Water Main

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<sup>16</sup> In the FGEIS analysis, 24-hour average PM<sub>2.5</sub> concentration increments which are predicted to be greater than 2 µg/m<sup>3</sup> but no greater than 5 µg/m<sup>3</sup> would be considered to have the potential for a significant adverse impact on air quality based on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations.



Comparison of FGEIS and Proposed Essex Crossing Program  
PM<sub>2.5</sub> 24-Hour Emission Profile



Comparison of FGEIS and Proposed Essex Crossing Program  
PM<sub>2.5</sub> Annual Emission Profile



Shaft Installation project and the proposed project would be negligible. Accordingly, the Water Main Shaft Installation project was not included in the detailed construction air quality analysis in this Technical Memorandum.

Therefore, based on the FGEIS construction air quality results, a moderate increase in peak period concentrations with the updated construction information and schedule, and a substantial increase in the 24-hour  $PM_{2.5}$  *de minimis* criteria, the design development and construction schedule change would not result in new significant adverse construction-related air quality impacts warranting further study. Further, as discussed above, to ensure that construction would result in the lowest practicable diesel particulate matter emissions, an emission reduction program would be employed for the construction of the proposed Essex Crossing program to the extent feasible and practicable during construction.

## NOISE

### Introduction

Based on more specific building design, construction sequencing, and staging information for the proposed development at Sites 1 through 6, the quantified construction noise analysis in the FGEIS was revisited for these sites. Development of Sites 8 through 10 would occur further in the future, and more detailed construction information than what was examined in the FGEIS is not available at this time. It is assumed that development at these sites would occur according to the reasonable worst case scenario examined in the FGEIS, and the construction noise resulting from construction at these sites would be as described in the FGEIS. The FGEIS construction noise analysis identified the potential for significant adverse construction noise impacts at three (3) locations, including some façades and floors of 350 Grand Street (Seward Park High School) and certain outdoor balconies of two residential buildings (e.g., 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). The purpose of this supplemental analysis was to more precisely determine the extent, magnitude, and duration of predicted significant adverse noise impacts that would occur during construction, and to examine the feasibility of implementing mitigation measures at such impacted locations.

### Construction Noise Impact Criteria

The construction noise impact criteria for this supplemental analysis are the same as those used for the FGEIS construction noise analysis. 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. 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 dBA  $L_{eq(1)}$ , a 5 dBA  $L_{eq(1)}$  or greater increase would be considered significant.
- If the No Action noise level is 61 dBA  $L_{eq(1)}$ , a 4 dBA  $L_{eq(1)}$  or greater increase would be considered significant.
- If the No Action noise level is equal to or greater than 62 dBA  $L_{eq(1)}$ , 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 dBA  $L_{eq(1)}$ .

### *Noise Analysis Methodology*

The construction noise analysis methodology for this supplemental analysis is the same as that used for the FGEIS construction noise analysis. Construction activities associated with the proposed development 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*

As was the case for the FGEIS construction noise analysis, 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 of Sites 1 through 6 is expected to take place over a period of about six years (i.e., from about 2015 to 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 for proposed development at Sites 1 through 6 have been developed with an experienced New York City construction manager to serve as the basis of the analyses. 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 quarter-year of the construction period. The schedule was developed to represent a reasonable worst-case scenario resulting in the highest potential construction noise levels at nearby receptor locations.

An analysis was performed based on this construction schedule to determine the quarter during each year of the construction period (i.e., 2015-2021) when the maximum potential for significant noise impacts would occur. For most years, in which the amount of on-site equipment would fluctuate widely during the year, this analysis examined both the worst-case quarter of the year, as well as an “off-peak” quarter. 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 during each year. For 2015 and 2021, which are not full years of construction according to the analyzed construction schedule, and for 2017, in which construction activities do not vary as widely, the analysis conservatively assumed that the worst-case quarter of each year would represent the entire year. Additionally, for each quarter being analyzed, including peak and off-peak quarters, the analysis considered the peak hour of construction during the quarter, and used the noise level resulting from that peak hour of construction to represent the entire quarter. This resulted in a conservative analysis, especially in determining the duration of predicted noise level increases.

Development of Sites 8 through 10 would occur further in the future, and more detailed construction information than what was examined in the FGEIS is not available at this time. It is assumed that development at these sites would occur according to the reasonable worst case scenario examined in the FGEIS, and the construction noise resulting from construction at these sites would be as described in the FGEIS.

Construction associated with the Third Water Tunnel Water Main Shaft Installation Phase II along Grand Street is expected to occur between the present day and the Spring of 2017, however it has not been included in the detailed construction noise analysis in this Technical Memorandum. The Water Main Shaft Installation project is part of the No Action scenario for the proposed development examined in this Technical Memorandum, and as such it is more conservative to not include noise associated with its construction work. This is because a lower No Action condition noise level would result in the greatest calculated noise level increases resulting from construction on Sites 1 through 6, and consequently the highest likelihood of finding significant noise impacts.

To be conservative, the noise analysis assumed that both peak on-site construction activities and peak construction-related traffic conditions would occur simultaneously.

#### *Noise Reduction Measures*

Construction of 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 29** 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.

**Table 29**

**Typical Construction Equipment Noise Emission Levels (dBA)**

| Equipment List            | NYCDEP & FTA Typical Noise Level at 50 feet <sup>1</sup> | Noise Level with Path Controls at 50 feet <sup>2</sup> |
|---------------------------|--|--|
| 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 <sup>3</sup>  | 62   |
| Impact Wrenches           | 85   | 75   |
| Pile Driving Rig (Impact) | 85   |  |
| Rebar Bender              | 80   |  |
| Welding Machines          | 73   |  |

**Notes:**

<sup>1</sup> 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.

<sup>2</sup> Path controls include portable noise barriers, enclosures, acoustical panels, and curtains, whichever feasible and practical.

<sup>3</sup> Source: Kessler, Frederick M., "Noise Control for Construction Equipment and Construction Sites," report for Hydro Quebec

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 29**. The details to construct portable noise barriers, enclosures, tents, etc. are based upon the instructions of NYCDEP Citywide Construction Noise Mitigation.

### *Receptor Sites*

The same receptor sites analyzed as part of the construction noise analysis in this Technical Memorandum are the same as those analyzed in the FGEIS construction noise analysis. 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 7** shows the locations of the 83 noise receptor sites, and **Table 30** 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.

### *Construction Noise Analysis Results*

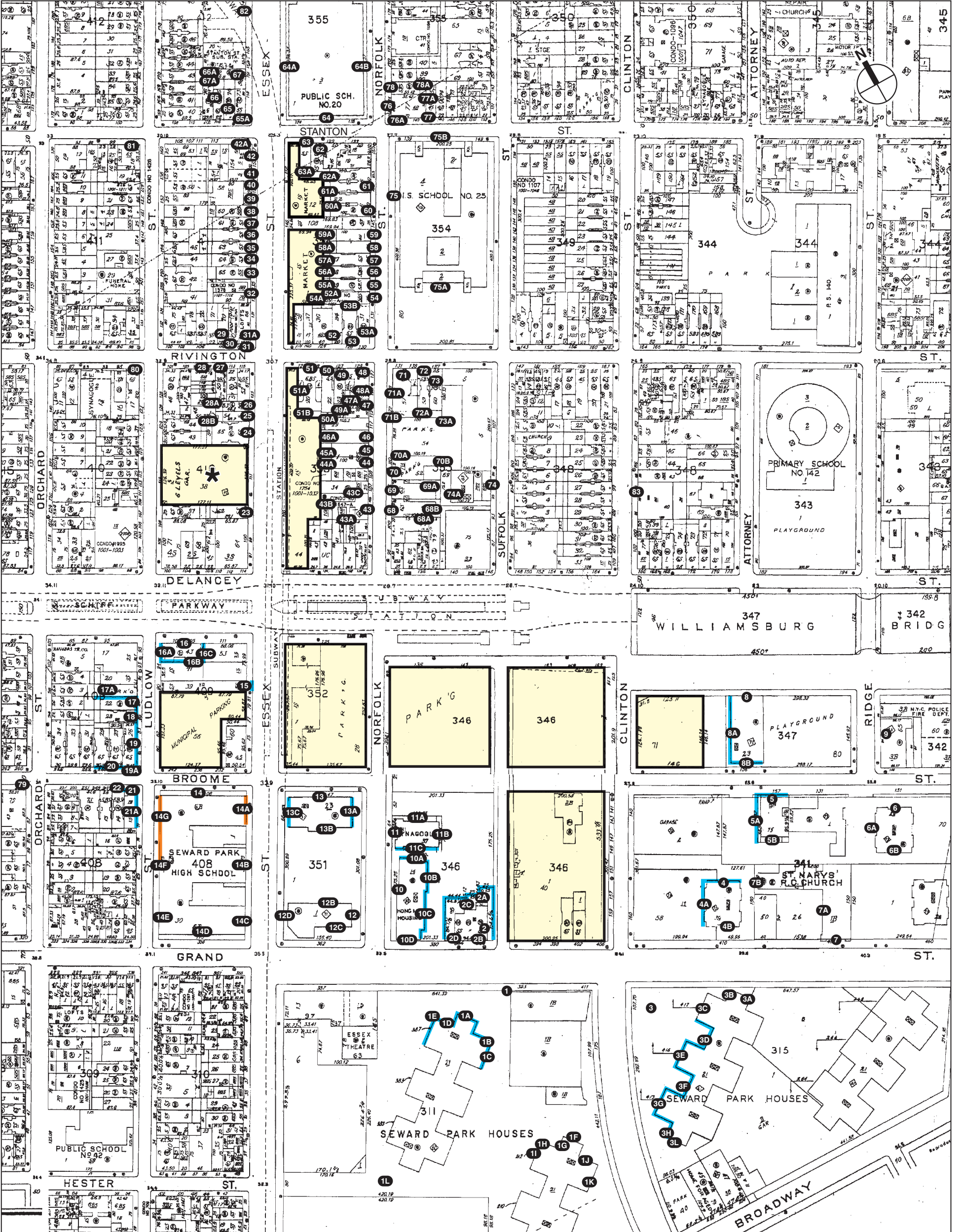
#### *Cumulative Analysis*

Using the methodology described above, and considering the noise abatement measures 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 one or two quarters from each year of the construction period.

For impact determination purposes, the significance of adverse noise impacts is determined based on whether predicted incremental noise levels at sensitive receptor locations resulting from construction of the proposed developments at Sites 1 through 6 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 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 18 of the 83 receptor sites (i.e., 1-1C, 1E, 2, 2A, 2C, 2D, 3F, 3H, 4A, 5A, 5B, 8A, 8B, 10A-10C, 11B, 11C, 13A, 13C, 14A, 14F, 14G, 15, 16A-16C, 17, 17A, 18, 19, 20, 21-21A, and 22). **Figure 7** shows the locations and **Table 31** 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 C**).

As described above in the “Analysis Periods” section, the analysis, which included analyzing additional off-peak quarters during certain years of the construction period, made it possible to more precisely determine the duration of the predicted exceedances of the CEQR impact criteria. The 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. Furthermore, also as described above, the noise level calculations for each analysis quarter, including both peak and off-peak quarters, were based on the peak hour of the quarter and would not persist throughout the quarter. During hours or days when dominant noise sources (e.g., pile driving or cement mixing equipment) are not in use, noise levels would be lower at nearby noise receptors. At receptors that were predicted to experience construction noise levels exceeding the *CEQR Technical Manual* noise impact criteria (an increase of 3 – 5 dBA compared to No Action noise levels) not occurring continuously for at least 24 months, the noise level increases



- Proposed Development Sites
- ★ Site 7 Would Not Be Redeveloped Under the Proposed Actions
- Ⓜ Measured Noise Receptor
- ⓐ 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 7

**Table 30**  
**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       |
| 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       |



**Table 31**

**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) | Maximum Increase in dBA* | Impact Duration (years) | Associated Development Site(s) |
|--|--|---------------|-----------------------------|------------------------|-------------------|--------------------------|-------------------------|--------------------------------|
| Open Space on Grand Street at Suffolk Street                                 | Open Space   | n/a           | n/a                         | 1                      | n/a               | 4.6                      | 2                       | 5                              |
| Residential Building south of Grand Street between Essex and Clinton Streets | Residential  | 18            | North                       | 1A, 1B, 1E             | 2nd to top        | 10.9                     | 3                       | 5                              |
|  |  |               | East (northernmost section) | 1C                     | 3rd to top        | 11.4                     | 3                       | 5                              |
| 384 Grand Street   | Residential  | 6             | East                        | 2                      | all               | 12.1                     | 3                       | 2, 3, 4, 5                     |
|  |  |               | North                       | 2A, 2C                 | all               | 16.7                     | 6                       | 2, 3, 4, 5                     |
|  |  |               | West                        | 2D                     | 5th to top        | 6.3                      | 3                       | 2, 3, 4, 5                     |
| Residential Building at the southeast corner of Clinton and Grand Streets    | Residential  | 19            | West (middle section)       | 3F                     | 17th to top       | 10.0                     | 3                       | 5                              |
| 410 Grand Street   | Residential  | 24            | West                        | 4A                     | 6th to top        | 15.2                     | 3                       | 4, 5, 6                        |
| 157 Broome Street  | Residential  | 7             | West                        | 5A                     | all               | 18.5                     | 6                       | 4, 5, 6                        |
|  |  |               | South                       | 5B                     | 3rd to top        | 17.9                     | 3                       | 4, 5, 6                        |
| 150 Broome Street  | Residential  | 23            | West                        | 8A                     | 11th to top       | 9.4                      | 3                       | 4, 5, 6                        |
|  |  |               | South                       | 8B                     | 4, 5              | 13.2                     | 2                       | 4, 5, 6                        |
| 50 Norfolk Street  | Residential  | 13            | North                       | 10A                    | all               | 12.5                     | 3                       | 2, 3, 4, 5                     |
|  |  |               | East (northernmost section) | 10B                    | all               | 12.2                     | 3                       | 2, 3, 4, 5                     |
|  |  |               | East (southernmost section) | 10C                    | 2nd to top        | 9.6                      | 3                       | 2, 3, 4, 5                     |
| 60 Norfolk Street  | Institutional  | 7             | East                        | 11B                    | 2nd to top        | 12.5                     | 3                       | 2, 3, 4, 5                     |
|  |  |               | South                       | 11C                    | all               | 11.3                     | 3                       | 2, 3, 4, 5                     |
| 65 Norfolk Street  | Residential  | 20            | East                        | 13A                    | 3rd to top        | 10.2                     | 5                       | 1, 2, 3                        |
|  |  |               | West                        | 13C                    | 11                | 11.5                     | 3                       | 1, 2, 3                        |
| 350 Grand Street   | Institutional (Seward Park High School/Urban Assembly Academy of Government and Law) | 10            | East (northernmost section) | 14A                    | 8th to top        | 8.7                      | 3                       | 110                            |
| 83 Essex Street  | Residential/ Commercial  | 4             | West (north section)        | 14F, 14G               | 2nd to top        | 15.1                     | 3                       | 2, 3                           |
| 101 Delancey Street  | Residential/ Commercial  | 6             | East                        | 15                     | all               | 12.3                     | 3                       | 2                              |
|  |  |               | West                        | 16A                    | all               | 11.0                     | 3                       | 2                              |
|  |  |               | South                       | 16B                    | 4th to top        | 15.1                     | 3                       | 2                              |
| 89 Ludlow Street   | Future Residential/ Commercial   | n/a           | East                        | 16C                    | 4th to top        | 7.1                      | 3                       | 2                              |
|  |  |               | East                        | 17                     | all               | 18.6                     | 3                       | 1, 2                           |
| 87 Ludlow Street   | Residential/ Commercial  | 6             | East                        | 17                     | all               | 18.6                     | 3                       | 1, 2                           |
| 85 Ludlow Street   | Residential/ Commercial  | 6             | North                       | 17A                    | all               | 18.0                     | 3                       | 1, 2                           |
| 246 Broome Street  | Residential/ Commercial  | 6             | East                        | 18                     | all               | 20.3                     | 3                       | 1, 2                           |
| 248 Broome Street  | Residential/ Commercial  | 7             | South                       | 19                     | all               | 20.0                     | 3                       | 1, 2                           |
| 243 Broome Street  | Residential/ Commercial  | 7             | South                       | 20                     | all               | 16.1                     | 3                       | 1, 2                           |
|  |  |               | North                       | 21                     | all               | 20.5                     | 3                       | 1, 2                           |
| 245 Broome Street  | Residential/ Commercial  | 6             | East                        | 21A                    | 2nd to top        | 19.1                     | 3                       | 1, 2                           |
| 245 Broome Street  | Residential/ Commercial  | 6             | North                       | 22                     | 4th to top        | 19.4                     | 3                       | 1, 2                           |

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

may be readily noticeable and even intrusive, but these noise level increases would be temporary and the total exterior noise levels during construction would be comparable to those in the No Action condition at grade-level locations in the surrounding neighborhood or other locations near construction sites in New York City. Consequently, the predicted noise level increases at these receptors would not be considered a significant impact according to CEQR criteria.

As outlined above in the “Analysis Periods” section, the construction noise analysis was performed using the two quarters of each year that are anticipated to result in the respective maximum and minimum peak hourly construction noise levels of the year. The analysis conservatively assumed that the worst-case quarter would represent construction noise levels in the subsequent quarters, until the next analyzed quarter. 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.

At locations predicted to experience an 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 each quarter of construction would not persist throughout the entire quarter.

The results of the construction noise analysis for this Technical Memorandum are comparable at most receptors to those included in the FGEIS. In the vicinity of Sites 1 and 2, maximum predicted construction noise levels are generally somewhat greater, because the conservative conceptual construction schedule used as the basis of this construction noise analysis includes simultaneous construction of those sites, whereas the FGEIS construction noise analysis did not assume simultaneous construction of Sites 1 and 2. However, while the simultaneous construction results in greater maximum predicted construction noise levels, the duration of these levels is substantially shorter, because the construction tasks that would have the greatest potential to result in elevated noise levels are carried out simultaneously, and thus completed as soon as possible. This also occurs in proximity to Sites 5 and 6, which are also assumed to be constructed simultaneously in the analysis for this Technical Memorandum, but were assumed to be constructed sequentially in the FGEIS. Throughout the study area, the overall magnitude of construction noise levels predicted in this analysis are comparable to those predicted in the FGEIS analysis.

As part of the FGEIS construction noise analysis, locations where the FGEIS analysis predicted noise level increases that 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. The results of the visual inspection of window type and alternate means of ventilation were used to determine the status of these items at the locations predicted to experience noise level increases exceeding the CEQR impact criteria for two or more consecutive years by the noise analysis in this Technical Memorandum.

Most buildings listed in **Table 31** have double-glazed windows and alternate ventilation (i.e., air conditioners, including and well-sealed through-the-wall/sleeve/PTAC air conditioners). The amount of façade attenuation provided by these buildings would depend on the specific façade construction measures of each building, but an attenuation of 25 dBA was used as a typical value to estimate interior noise levels.

Seward Park High School (350 Grand Street) does not currently have double-glazed windows, but, the school's windows are in the process of being replaced with double-glazed windows providing at least 28 dBA of attenuation, and all windows are expected to be replaced by January 2015. With these replacement windows and the existing window air-conditioning units, the school building's façade would be expected to provide at least 25 dBA of composite window/wall attenuation.

Based on these typical façade attenuation estimates, interior noise levels were estimated for each of the buildings listed in **Table 31** for each of the analysis periods during construction. **Table 32** shows the predicted maximum interior  $L_{10(1)}$  noise levels during construction and the length of time during which peak-hour interior noise levels are predicted to exceed 45 dBA  $L_{10(1)}$  (the CEQR acceptable interior noise level criteria). The duration of these exceedances at each receptor was determined by examining the one or two analyzed quarters of each year during the construction period and interpolating between the first and last consecutive quarters of predicted exceedance. At the buildings shown in **Table 32**, which are predicted to experience peak hour interior  $L_{10(1)}$  noise levels greater than 45 dBA, interior noise levels are in the high 40s to high 50s dBA, which are comparable to interior noise levels at some buildings in this neighborhood that do not have double-glazed windows or air-conditioning. Additionally, none of the buildings shown in **Table 32** are predicted to experience peak hour interior  $L_{10(1)}$  noise levels greater than 45 dBA over a period of two years or longer. Consequently, while construction noise at these buildings would be readily noticeable and potentially intrusive at times, the predicted magnitude and duration of the noise level increases would not constitute a significant adverse construction noise impact.

Table 32

Locations Where Interior Construction Noise Levels Exceed CEQR Recommended Threshold

| Building/Location  | Associated Land Use  | Total Stories | Façade                      | Associated Receptor(s) | Floor(s) Experiencing L <sub>10(1)</sub> Greater Than 45 dBA | Maximum Interior L <sub>10(1)</sub> in dBA* | Maximum Duration of L <sub>10(1)</sub> Greater Than 45 dBA (years) | Associated Development Site(s) |
|--|--|---------------|-----------------------------|------------------------|--|---|--|--------------------------------|
| Residential Building south of Grand Street between Essex and Clinton Streets | Residential  | 18            | North                       | 1A, 1E                 | 4th to top   | 46.6  | 1  | 5                              |
| 384 Grand Street   | Residential  | 6             | East                        | 2                      | 3rd to top   | 47.4  | 1.5  | 2, 3, 4, 5                     |
|  |  |               | North                       | 2A, 2C                 | 2nd to top   | 51.8  | 1.75   | 2, 3, 4, 5                     |
| Residential Building at the southeast corner of Clinton and Grand Streets    | Residential  | 19            | West (middle section)       | 3F                     | 7th to top   | 46.1  | 1  | 5                              |
| 410 Grand Street   | Residential  | 24            | West                        | 4A                     | 5th to top   | 48.5  | 1  | 4, 5, 6                        |
| 157 Broome Street  | Residential  | 7             | West                        | 5A                     | all  | 51.2  | 0.5  | 4, 5, 6                        |
|  |  |               | South                       | 5B                     | 3rd to top   | 51.0  | 1  | 4, 5, 6                        |
| 150 Broome Street  | Residential  | 23            | West                        | 8A                     | 11th to top  | 46.1  | 1  | 4, 5, 6                        |
|  |  |               | South                       | 8B                     | 4, 5   | 52.6  | 0.5  | 4, 5, 6                        |
|  |  |               | North                       | 10A                    | 11th to top  | 49.8  | 1  | 2, 3, 4, 5                     |
| 50 Norfolk Street  | Residential  | 13            | East (southernmost section) | 10C                    | 4th to top   | 46.1  | 1  | 2, 3, 4, 5                     |
| 60 Norfolk Street  | Institutional  | 7             | South                       | 11B                    | 5th to top   | 47.3  | 1  | 2, 3, 4, 5                     |
| 65 Norfolk Street  | Residential  | 20            | East                        | 13A                    | 3rd to top   | 48.6  | 1.75   | 1, 2, 3                        |
|  |  |               | West                        | 13C                    | 11   | 51.2  | 1  | 1, 2, 3                        |
| 350 Grand Street   | Institutional (Seward Park High School/Urban Assembly Academy of Government and Law) | 10            | East (northernmost section) | 14A                    | 8th to top   | 47.3  | 1  | 110                            |
|  |  |               | West (north section)        | 14G                    | 3rd to top   | 48.9  | 1  | 2, 3                           |
| 83 Essex Street  | Residential/Commercial   | 4             | East                        | 15                     | all  | 56.5  | 1.75   | 2                              |
| 101 Delancey Street  | Residential/Commercial   | 6             | West                        | 16A                    | all  | 53.9  | 1.75   | 2                              |
|  |  |               | South                       | 16B                    | 5th to top   | 48.9  | 1  | 2                              |
|  |  |               | East                        | 16C                    | 4th to top   | 50.7  | 1.75   | 2                              |
| 89 Ludlow Street   | Future Residential/Commercial  | n/a           | East                        | 17                     | all  | 57.5  | 1.75   | 1, 2                           |
| 87 Ludlow Street   | Residential/Commercial   | 6             | East                        | 17                     | all  | 57.5  | 1.75   | 1, 2                           |
|  |  |               | North                       | 17A                    | 2nd to top   | 50.8  | 1.75   | 1, 2                           |
| 85 Ludlow Street   | Residential/Commercial   | 6             | East                        | 18                     | all  | 58.3  | 1.75   | 1, 2                           |
| 246 Broome Street  | Residential/Commercial   | 7             | South                       | 19                     | all  | 57.8  | 1.75   | 1, 2                           |
| 248 Broome Street  | Residential/Commercial   | 7             | South                       | 20                     | 4th to top   | 48.8  | 1  | 1, 2                           |
| 243 Broome Street  | Residential/Commercial   |               | North                       | 21                     | all  | 53.6  | 1.75   | 1, 2                           |
|  |  |               | East                        | 21A                    | 2nd to top   | 52.2  | 1  | 1, 2                           |
| 245 Broome Street  | Residential/Commercial   | 6             | North                       | 22                     | 4th to top   | 52.1  | 1  | 1, 2                           |

As an example, at 83 Essex Street, 85 Ludlow Street, 87 Ludlow Street, 89 Ludlow Street, and 246 Broome Street, all of which are immediately adjacent to Site 1, as shown in **Table 31**, construction is predicted to result in maximum noise level increases between 12.3 dBA and 20.6 dBA during peak construction activities at Site 1, which would be pile driving work. Each of these buildings has double-glazed windows and air conditioning, and are estimated along with the masonry façade area to provide 25 dBA composite building attenuation between exterior and interior noise levels. During the pile driving activity, maximum interior L<sub>10(1)</sub> noise levels are predicted to be up to the mid 50s dBA at these buildings. However, pile driving at Site 1 would occur only over a period of approximately a single year, and would occur only during 10 percent of work hours during that year. At other times during the excavation, foundation, superstructure, and exterior phases of construction at Site 1, maximum interior L<sub>10(1)</sub> noise levels are predicted to be up to the low 50s dBA at these buildings, at times exceeding 45 dBA L<sub>10(1)</sub> (the CEQR acceptable interior noise level criteria). Once Site 1 construction reaches the interior work phase, using mostly small hand tools with the building mostly enclosed, maximum interior L<sub>10(1)</sub> noise levels are predicted to be less than 45 dBA at these buildings. Since the occurrences of interior L<sub>10(1)</sub> noise levels greater than 45 dBA at these buildings would occur over a period of less than two years, and even peak interior noise levels would not be greater than the mid 50s dBA, which is comparable to interior noise levels at some other locations in the surrounding neighborhood, the predicted noise level increases at this location, while they would be readily noticeable and may be annoying or intrusive, would not constitute a significant adverse construction noise impact.

**Table 33** identifies two outdoor locations that would experience substantially elevated noise levels for at least 24 continuous months. These are outdoor balconies of residential buildings. These two locations were identified in the FGEIS as having the potential for significant adverse construction noise impacts.

**Table 33**  
**Predicted Noise Impact Locations**

| Building/Location   | Associated Land Use | Total Stories | Façade                      | Associated Receptor(s) | Impacted Floor(s) | Impact Duration (years) | Maximum Increase 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        | 3                       | 10.9                     | n/a                                 |                  |
|   |                     |               | East (northernmost section) | 1C                     | 3rd to top        | 3                       | 11.4                     |                                     |                  |
| Balconies of Residential Building at the southeast corner of Clinton and Grand Streets    | Residential         | 19            | West (middle section)       | 3F                     | 17th to top       | 3                       | 10.0                     | n/a                                 |                  |

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

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, 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, and only the balconies (i.e., not the residences' interior spaces) would be considered to experience unmitigated significant noise impacts as a result of construction.

Proposed buildings on Sites 1, 2, 5, and 6 that would be completed and occupied before construction is completed at Sites 3 and 4 would 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 and a half years according to the 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 in the low to mid 60s 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<sup>17</sup> 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.

NYCEDC and/or HPD will require that its developers will implement the mitigation and associated environmental measures identified in the FGEIS and this Technical Memorandum, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between the developer(s) and NYCEDC, HPD, and/or the City. \*

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<sup>17</sup> Noise barriers would not be practical because of security concerns.

**Appendix A:**  
**Historic and Cultural Resources**

**PROPOSED ESSEX CROSSING PROJECT**  
**12PR00119 (11DME012M)**  
**ALTERNATIVES ANALYSIS**

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**A. INTRODUCTION**

In September 2013, the City of New York selected Delancey Street Associates (DSA) as the designated developer for the Seward Park Mixed-Use Development project on the Lower East Side of Manhattan (see **Figure 1** for the project site). DSA is proposing use changes to the previously approved, reasonable worst-case development scenario (RWCDs) for Sites 1-6 and 8-10 that was described and assessed in the 2012 Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS), Technical Memorandum 001, and Technical Memorandum 002. DSA is also proposing changes to the design controls set forth as part of the Large-Scale General Development (LSGD) applicable to Sites 1-6. Now called Essex Crossing, the proposed 1.98 million-gross-square-foot (gsf) mixed-use development would result in the following changes, as compared to the programs assessed in the FGEIS and Technical Memoranda 001 and 002:





- Increase of overall development size by approximately 16.6 percent (281,405 gsf);
- Increase in public market by 13,876 gsf;
- Increase of residential space by 26,142 gsf;
- Increase of school space by 9,000 gsf;
- Reduction of retail space by 177,222 gsf;
- Increase of other commercial space by 360,974 gsf (including the following uses: commercial offices, medical offices, a gym, a bowling alley, and a movie theater);
- Reduction of the number of parking spaces by 402 (from 500) and placement of proposed 98 parking spaces on one site (Site 5); and
- Omission of previously proposed hotel use of 98,450 gsf.

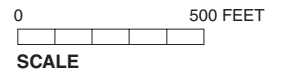
As a result of these use changes and the advanced project design, the proposed Essex Crossing program requires minor modifications to the LSGD design controls for Sites 1 and 5, as well as a Board of Standards and Appeals (BSA) Special Permit pursuant to New York City Zoning Resolution (ZR) Section 73-36 to allow for a physical culture or health establishment (gym) on Site 1, which is located within a C6-1 commercial zoning district. These proposed changes are assessed in Technical Memorandum 003.

Since the selection of DSA as the designated developer for the project site, DSA and the New York City Department of Housing Preservation and Development (HPD) have determined that the development of Sites 2-6 will receive construction financing through the New York City Housing Development Corporation (NYCHDC). Therefore, the development of Sites 2-6 is subject to review 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). No construction financing from NYCHDC or the United States Department of Housing and Urban Development is being sought for the development of Site 1 or the development of Sites 8-10.





-  Former Seward Park Urban Renewal Area (URA)
-  Former Seward Park Extension URA
-  Proposed Development Sites
- \* Site 7 Would not be Redeveloped Under the Proposed Actions
-  2008 East Village/Lower East Side Rezoning Boundary



Therefore, the development of Sites 1, 8, 9, and 10 is not subject to review under Section 14.09 or Section 106 of the National Historic Preservation Act of 1966.

Of Sites 2-6, Sites 3, 4, and 6 are currently developed with parking lots. Site 2 (bounded by Essex, Delancey, Norfolk and Broome Streets) contains a parking lot and a former building of the Essex Street Market complex, which has been determined eligible for listing on the State/National Registers of Historic Places (S/NR-eligible). Site 5 (bounded by Suffolk, Broome, Clinton, and Grand Streets) contains a parking lot, two non-historic tenement buildings, and a S/NR-eligible former fire station.

Like the RWCDS assessed in the FGEIS, the Essex Crossing project would result in the demolition of the Essex Street Market building on Site 2 and the former fire station on Site 5, and the demolition of these buildings would constitute a significant adverse impact. The 2012 FGEIS identified these significant adverse impacts and proposed potential mitigation measures. In a letter dated October 22, 2014, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) requested—under Section 14.09—an analysis of alternatives specific to the historic resources on Sites 2 and 5. Presented below, this alternatives analysis assesses the potential for retaining and reusing the Essex Street Market building and the fire station in conjunction with the proposed Essex Crossing program. The following analysis concludes that it is not feasible to retain all or portions of those two architectural resources as part of the proposed Essex Crossing program.

## **B. PROPOSED ESSEX CROSSING PROJECT**

### **PURPOSE AND NEED**

The Essex Crossing program would fulfill the purpose and need of the Seward Park Mixed-Use Development project as described in the 2012 FGEIS and Technical Memoranda 001 and 002. The project site is the largest underdeveloped City-owned site south of 96th Street, and the purpose of adopting the proposed land use actions in October 2012 was 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.

Community guidelines and urban design recommendations adopted by Manhattan Community Board 3 (CB3) in January 2011 served as a broad framework for defining key elements of the Seward Park Mixed-Use Development Project. Starting in 2008, CB3 embarked on a planning process for the sites with the goal of gaining broad community consensus on a development program for the project site and invited the City to be part of the discussions. The New York City Economic Development Corporation (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 guidelines call for a mixed-use and mixed-income development that is reflective of, and compatible with, adjacent communities. CB3 recommended 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.

### **PROPOSED SEWARD PARK MIXED-USE DEVELOPMENT PROJECT**

In 2011, the Office of the Deputy Mayor for Economic Development (ODMED), in coordination with NYCEDC and HPD, sponsored an initiative to allow for the implementation of an approximately 1.7 million gsf mixed-use development on the 10 City-owned sites that compose the Seward Park Mixed-Use Development project site. These 10 sites are located in Manhattan Community District 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), which was established in 1965 and expired in 2005. Four sites (Sites 7<sup>1</sup>, 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 are to be mapped as City streets and sections of Clinton and Delancey Streets that are to be demapped encompass the project site.

The program for the proposed development on Sites 1–6 and 8–10 was projected to include a variety of mixed-income residential, commercial (such as retail and office space), and community or cultural uses. The project also included provisions for parking and publicly accessible open space. To facilitate the redevelopment project, a number of discretionary actions were adopted. These actions included zoning map changes 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.

In order to address the potential range of developer responses to Request for Proposals (RFPs) for the future development of the project site, the environmental review analyzed a RWCDs that conservatively considered for each impact category the reasonable worst-case potential for environmental effects. While the proposed discretionary actions were defined, the development program and design specifics under those actions were to be dependent on the RFP response(s). Thus, pursuant to City Environmental Quality Review (CEQR), an FGEIS was prepared that considered 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 future projects that fit within the RWCDs is likely to result from the agency's action. The program analyzed in the RWCDs was used for illustrative and analysis purposes only; a site-specific breakdown is required for the environmental review. This was not meant to indicate an actual development program. The FGEIS was prepared pursuant to CEQR and the 2012 edition of the *CEQR Technical Manual*, and it analyzed the proposed actions' potential to generate significant adverse environmental impacts as the redevelopment took place. The FGEIS

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<sup>1</sup> 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 retained its current function as a municipal parking garage to support the existing neighborhood uses, as well as the potential new development on the project site.

considered alternatives that would reduce or eliminate impacts identified in the technical analyses and proposed mitigation for such impacts, to the extent practicable.

On August 10, 2012, ODMED, as Lead Agency, issued a Notice of Completion for the Seward Park Mixed-Use Development Project FGEIS that was prepared in coordination with NYCEDC and HPD. Following the issuance of the Notice of Completion, the New York City Council proposed certain modifications to the Uniform Land Use Review Procedure (ULURP) applications (the “Applications” or the “proposed actions”) as a result of its review of the Applications. In addition, HPD submitted a revised UDAAP project summary to the City Council to be reflected in the City Council’s resolution regarding the project, and the City stated certain intentions, as reflected in a letter dated September 27, 2012, from Robert K. Steel, Deputy Mayor for Economic Development, to Councilmember Margaret Chin. Those modifications were assessed in a Technical Memorandum dated October 1, 2012 (Technical Memorandum 001). The modifications assessed in Technical Memorandum 001 increased the number of residential units in the RWCDS to 1,000 from the 900 units assessed in the FGEIS, included the potential for a school on Site 5 as part of the RWCDS, and revised the LSGD ground floor plans for Sites 2, 3, and 4 to eliminate the second waiver to the ground floor frontage requirements. Technical Memorandum 001 concluded that the modifications to the proposed actions would not result in any significant adverse environmental impacts that were not previously identified in the FGEIS.

Further, DCP reviewed a minor modification to the Applications, which was proposed by NYCEDC and HPD, in Technical Memorandum 002 (October 22, 2012). The modification increased the size of the proposed open space on Site 5 to 15,000 square feet from the 10,000 square feet assessed in the FGEIS. Technical Memorandum 002 concluded that the modification would not result in any significant adverse environmental impacts not already identified in the FGEIS.

#### *SITE PLAN AND URBAN DESIGN*

As assessed in the FGEIS, the RWCDS program included up to approximately 1.7 million gsf (1.648 million zoning square feet) of mixed-use residential, commercial development, and community facility use (see **Figure 2** for an illustrative rendering). The proposed development included relocating the existing Essex Street Market on Site 9 to a new, larger facility on Site 2. The new public market was over 29,000 gsf and was expected to accommodate 35 to 65 vendors (depending on the size of each stall). The larger space was intended to create entrepreneurship opportunities for additional vendors and to allow for a variety of vendor price points. A new facility is 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. 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.

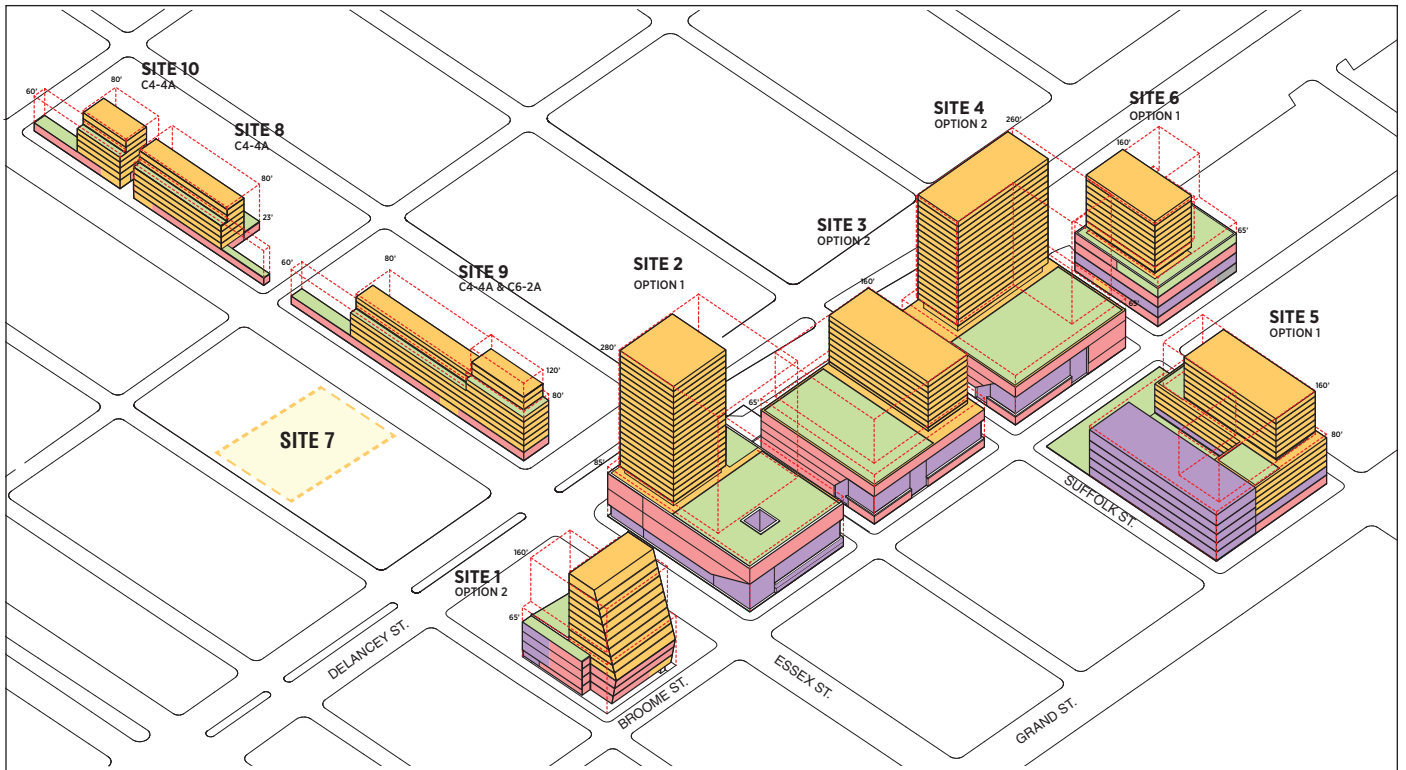
The urban design for the proposed Seward Park Mixed-Use Development project built on the framework laid out in the CB3 urban design principles. The general concept for the massing incorporated elements from the building forms of the surrounding neighborhood, which vary from low-rise walk-ups to large towers-in-the-park. The project incorporated a connected street



FOR ILLUSTRATIVE PURPOSES ONLY

FGEIS Illustrative Rendering with Maximum Building Envelopes and RWCDs Massing

\*Site 7 would not be redeveloped under the approved program or the Essex Crossing Program



FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Essex Crossing Development

Proposed Essex Crossing and Illustrative FGEIS Renderings  
View Northwest  
**Figure 2**

grid, and new buildings had retail and residential entrances on multiple sides to create ground-floor activity and provide necessary access. The buildings incorporated streetwall design characteristics that were intended to activate the pedestrian realm and setback towers to permit access to light and air. The development project maximized street-level uses such as retail that would 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 was incorporated into the development as well. (After completion of the FGEIS, the size of the proposed open space was enlarged to 15,000 square feet, as assessed in Technical Memorandum 002.) The proposed development was expected to 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 City approved LSGD special permits that apply to Sites 1 through 6 (see **Figure 3**). The LSGD establishes 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 can 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 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 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. Sites 8, 9, and 10 would be consistent with massing requirements and maximum heights allowable under existing zoning. **Figures 4a and 4b** show the massing controls and potential massings (in plan) for structures developed within the maximum building envelopes on Sites 1 through 6. **Figure 2** shows an illustrative rendering of the proposed development; Sites 1 through 6 are shown with illustrative massings rendered within the maximum building envelopes.

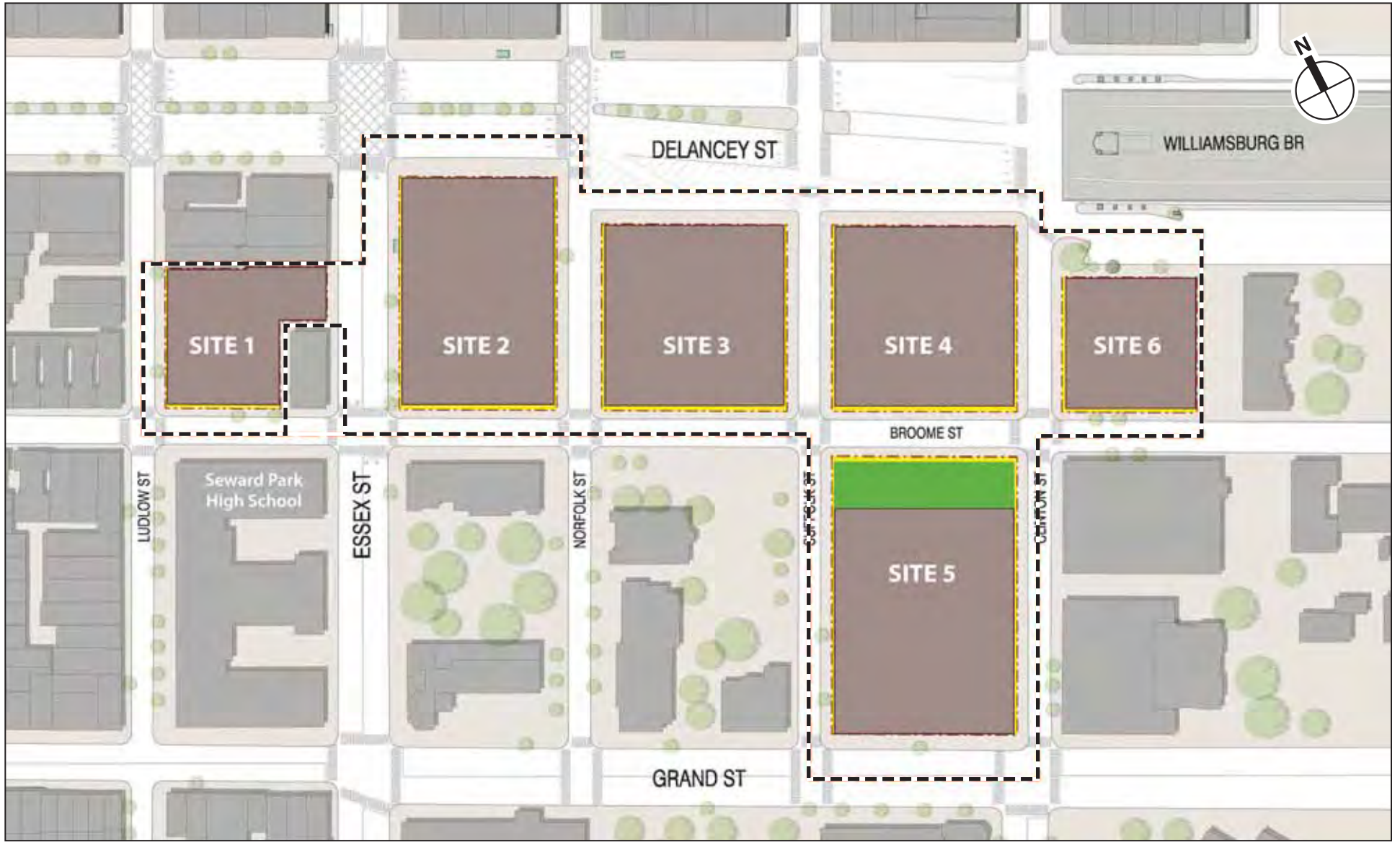
The proposed land uses and illustrative massings assessed in the FGEIS were intended to be illustrative of a possible configuration of the proposed uses and the possible interactions among those proposed uses across the project site.

#### *REASONABLE WORST-CASE DEVELOPMENT SCENARIO*

As described above, the City developed a maximum development envelope, or RWCDS, for CEQR analysis purposes, because the approved actions would allow for a range of new developments on the project site. 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.

#### *Site Program*

Under the RWCDS, the FGEIS 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



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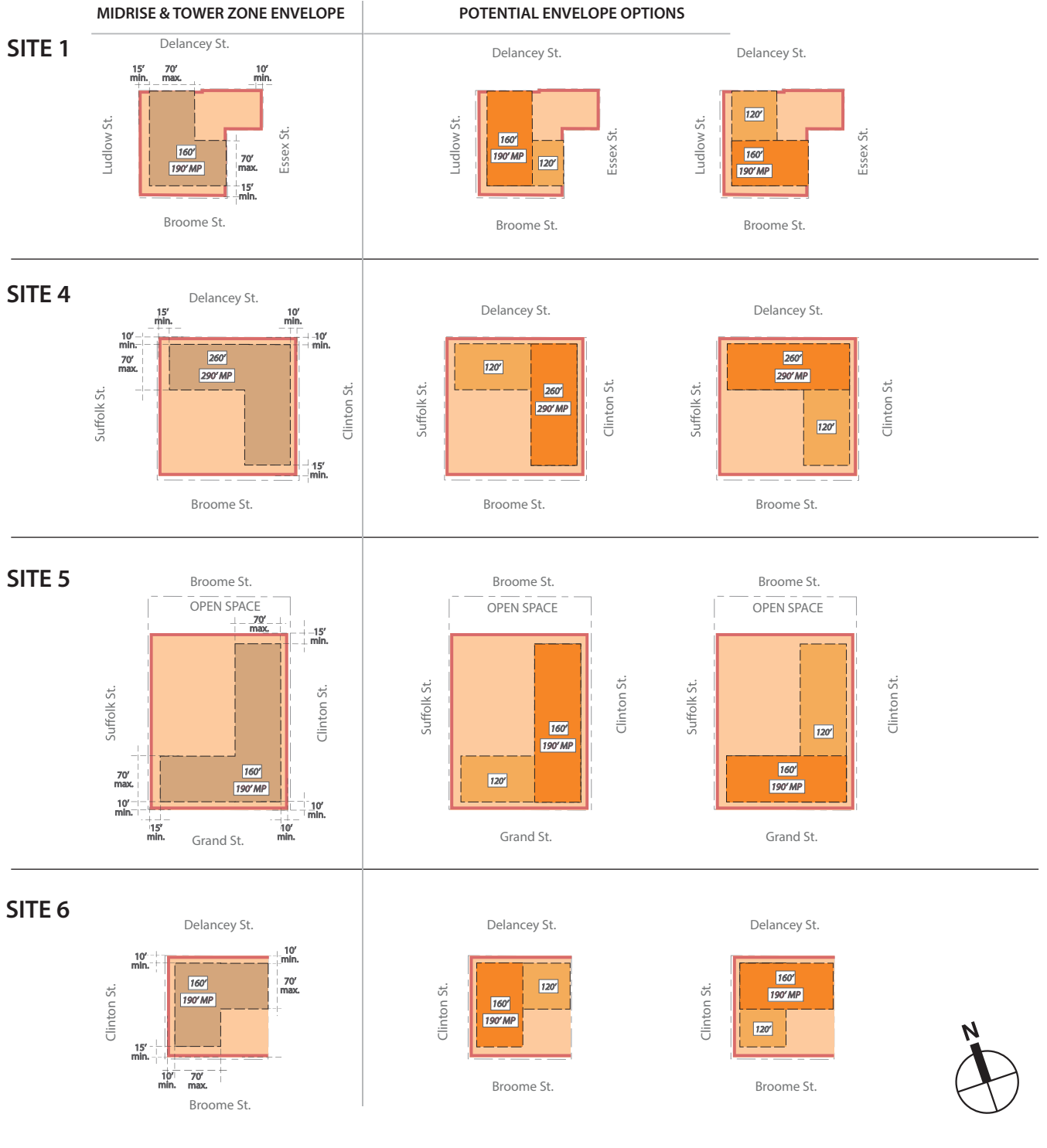
- Building Footprint
- Large Scale General Development Boundary
- Publicly Accessible Open Space
- Sidewalk Widening

NOT TO SCALE

NOTE: This figure has been revised for the FGEIS.

**ESSEX CROSSING**

Large Scale General Development Boundary  
**Figure 3**



**LEGEND AND NOTES**

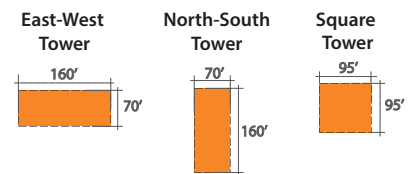
- Proposed Lot Lines
- Building Footprint
- Street Wall
- Midrise
- Tower
- Midrise only Zone
- Midrise and Tower Zone
- Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- Maximum building height including rooftop mechanical

**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'

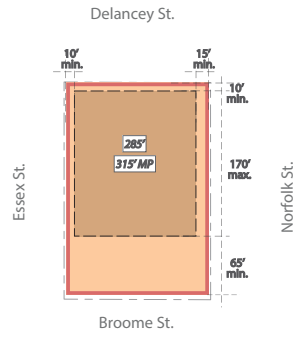
**MAXIMUM TOWER DIMENSIONS (ABOVE 120')**



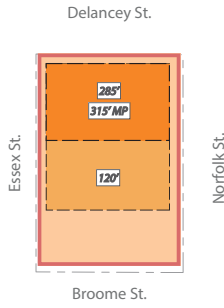


### SITE 2

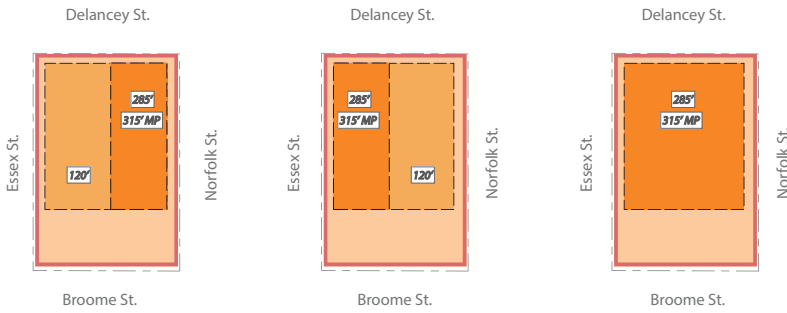
#### MIDRISE & TOWER ZONE ENVELOPE



#### 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
- Maximum building height (excluding rooftop mechanical) shall not exceed number of stories as noted
- Maximum building height including rooftop mechanical

#### DESIGN CONTROLS

##### TOWER ORIENTATION:

Towers to be oriented to create variety.

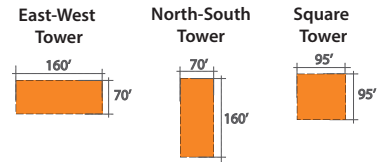
##### BUILDING SETBACKS:

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.

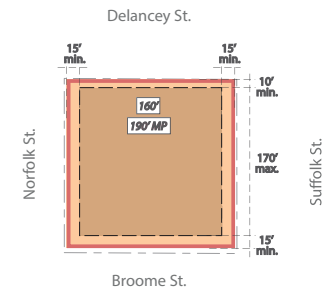
Midrise levels to be maximum height of 120'

##### MAXIMUM TOWER DIMENSIONS (ABOVE 120')

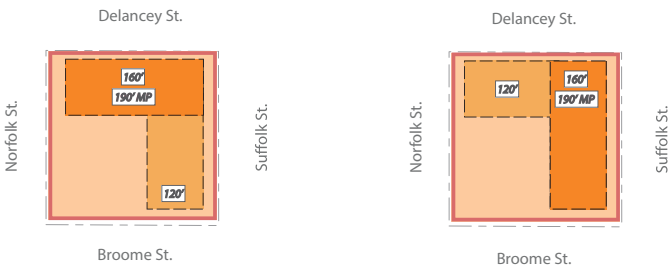


### SITE 3

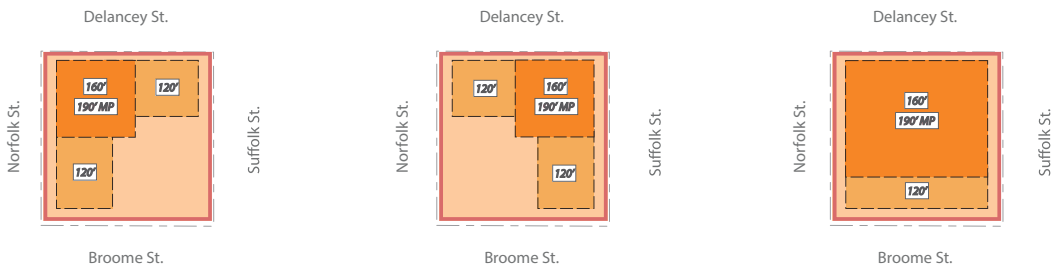
#### MIDRISE & TOWER ZONE ENVELOPE



#### POTENTIAL ENVELOPE OPTIONS



#### ADDITIONAL MASSING ALTERNATES



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 (subsequently increased to 15,000 square feet). The commercial space included 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. The site-specific program assessed in the FGEIS was illustrative only and for analysis purposes only, and it was 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 was 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 (subsequently increased to 1,000 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.

*Commercial*

In order to facilitate development flexibility, a wide range of commercial uses is allowed under the LSGD plan. These commercial uses, totaling approximately 632,300 gsf, were 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 FGEIS also included the analysis of a 200-room hotel and a grocery store.

*Community Facility*

The RWCDS included a total of approximately 114,000 gsf of community facility or cultural space that 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 proposed 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 sought approval for four special permits to allow for these additional public parking facilities on Sites 2 through 5 within the LSGD. The RWCDS assumed 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.

***SIGNIFICANT ADVERSE IMPACTS TO HISTORIC AND CULTURAL RESOURCES***

Under the Seward Park Mixed-Use Development project, the four S/NR-eligible buildings of the Essex Street Market (located on Sites 2, 8, 9, and 10) would be redeveloped. The market building at 78-90 Essex Street on Site 2 was expected to 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 was expected to 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 was expected to be replaced by an approximately 46,000-gsf, 80-foot-tall building, and the market building at 150 Essex Street on Site 10 was expected to be replaced by an approximately 26,000-gsf, 80-foot-tall building. Therefore, the FGEIS concluded that 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 were described in Chapter 21, “Mitigation Measures” of the FGEIS.

The development of an approximately 311,000-gsf, 160-foot-tall building and a 10,000-square-foot publicly accessible open space on Site 5 was expected to replace the S/NR-eligible former fire station at 185 Broome Street. Therefore, the FGEIS concluded that the proposed development would have a direct significant adverse impact on this architectural resource. Measures that could partially mitigate this significant adverse impact were described in Chapter 21, “Mitigation Measures” of the FGEIS.

### **PROPOSED ESSEX CROSSING PROJECT**

Since the issuance of the 2012 FGEIS and subsequent Technical Memoranda 001 and 002, the City of New York issued a developer’s RFP for the sites and selected DSA as the designated developer for the project site. DSA has proposed a specific program for each site and specific buildings designs for the six sites located within the LSGD (Sites 1-6). Like the FGEIS, Site 7, a public parking garage, would not be redeveloped under the proposed program. Development of Sites 8-10 are further out in the completion timeline and thus are not as developed as those for Sites 1-6. The proposed Essex Crossing program is different from the program analyzed in the 2012 FGEIS and subsequent Technical Memoranda 001 and 002 (“approved program”). Primary differences in the Essex Crossing program for Sites 1-6 include: an increase in public market space; a reduction of retail space; removing the hotel; adding sub-grade retail space, a gym (Physical Culture Establishment), movie theater, bowling alley, and museum space; increasing the amount of professional office space; and reducing the number of parking spaces. With the Essex Crossing program, the same uses would be introduced on Sites 8, 9, and 10 as the approved program; however, there would be shifts in retail and residential space on these sites with the Essex Crossing program.

The proposed Essex Crossing program would introduce an approximately 1.98 million-gsf mixed-use development, which would be about 16.6 percent larger than the 1.70 million-gsf approved program. The proposed buildings on Sites 1-4 and 6 would be within the limits of the maximum zoning envelopes established according to the LSGD rules and the future developments on Sites 8, 9, and 10 would be compliant with zoning (see **Figure 2**). Like the approved program, the proposed Essex Crossing program would provide 1,000 residential units. Of these residential units, there would be approximately 400 affordable units and 100 affordable senior housing units.

The proposed Essex Crossing program would introduce 732,433 gsf of commercial space, including retail, public market, office, and other uses described below. The commercial program is 16 percent larger than the commercial space envisioned in the approved program (632,255 square feet). The commercial space would include approximately 335,155 gsf of retail space (including 43,028 gsf of public market space and 292,127 gsf of local and destination retail space). The total amount of retail is lower than the approved plan’s 498,501 square feet of retail that includes 469,349 square feet of local and destination retail and 29,152 square feet of public

market space. The proposed Essex Crossing program would introduce more office space (254,255 gsf) compared with the approved program. In comparison, the approved program assumed approximately 36,300 square feet of non-specific commercial uses, some of which could be office space. The proposed Essex Crossing program would not include a hotel, which was part of the approved program. The proposed Essex Crossing program would introduce commercial uses that were not part of the approved program, including: a bowling alley, museum, and gym (Physical Culture Establishment) on Site 1; a movie theater on Site 2; and below-grade retail space (the Market Line) on Sites 2, 3, and 4. The Market Line retail space at these sites would be connected underground. Further, while the FGEIS and ULURP approval contemplated special permits that would accommodate the potential for up to 500 parking spaces spread among three sites, the Essex Crossing program would provide only 98 public parking spaces on Site 5. As assessed in Technical Memorandum 001, the proposed development would reserve space on Site 5 for a public school, and as assessed in Technical Memorandum 002, the proposed development would create an approximately 15,000-square-foot public open space on Site 5.

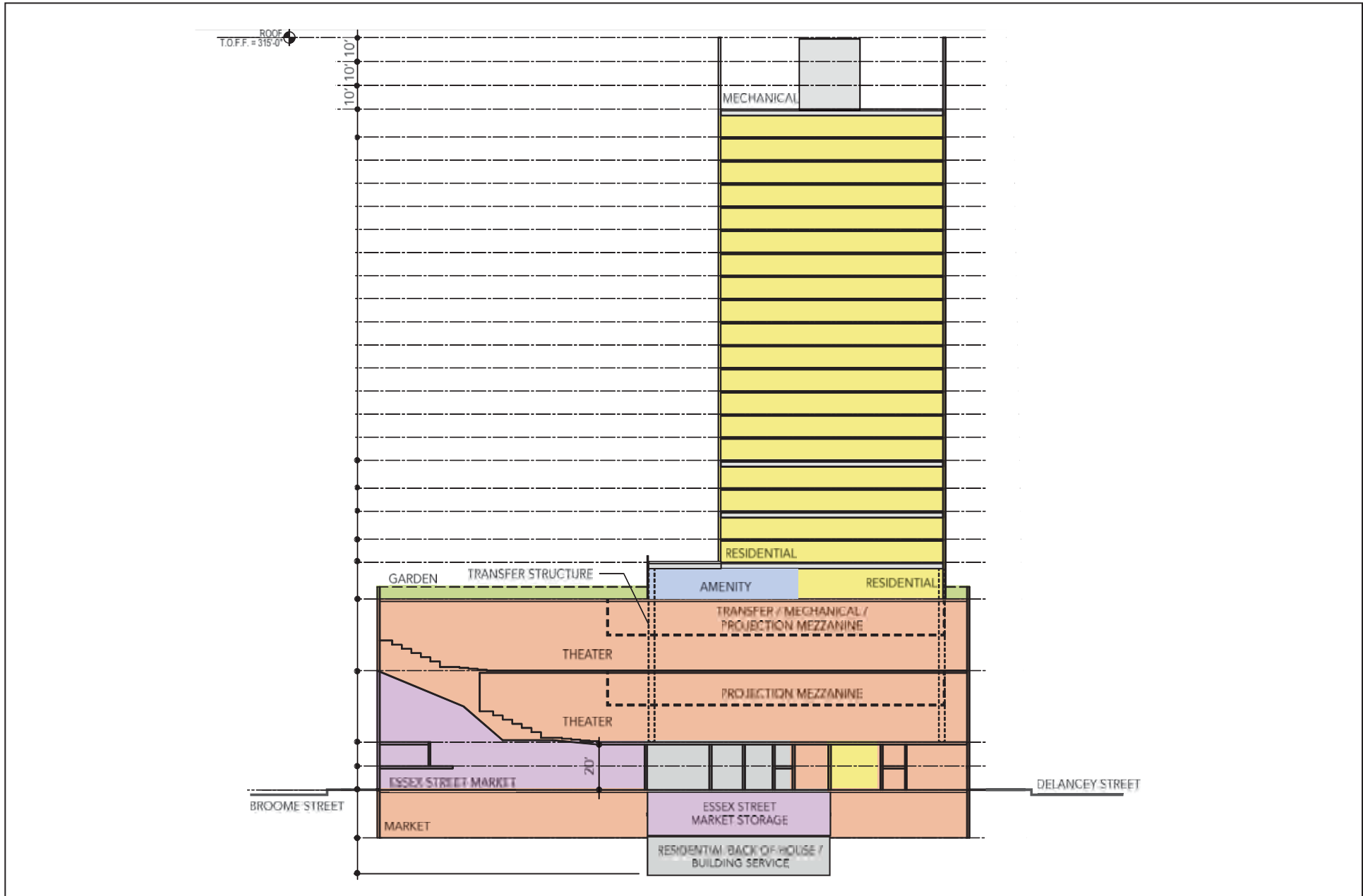
As OPRHP requested an analysis of alternatives specific to Sites 2 and 5, because those two sites would receive construction financing through NYCHDC and they contain architectural resources that would be demolished by the Essex Crossing program, the specific developments programs for Sites 2 and 5 are described below.

### *SITE 2*

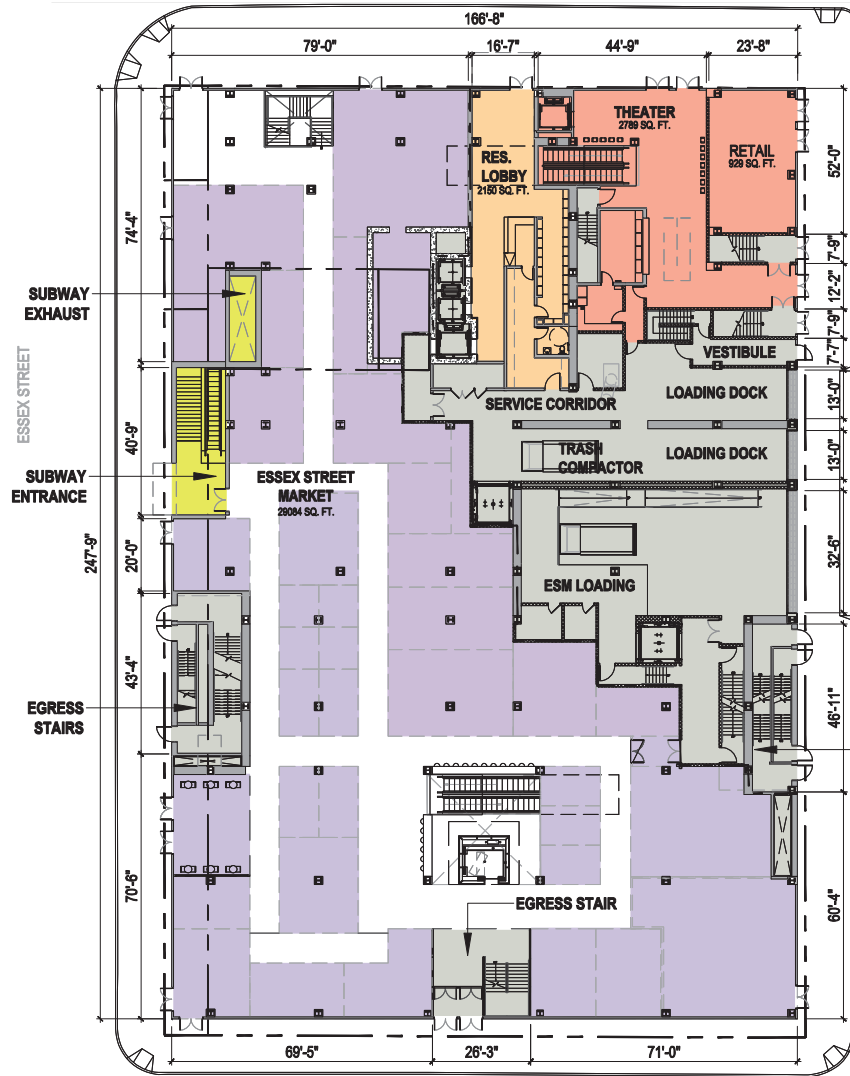
DSA proposes to construct a 388,100-gsf building on Site 2, which would be approximately 32,900 gsf larger than the 355,200-gsf RWCDs building that was analyzed in the FGEIS and Technical Memorandum 001. As proposed by DSA, the building on Site 2 would include 187,195 gsf of residential space (195 units, of which 98 units would be affordable), whereas the approved program assumed that Site 2 would include a 200-room hotel. In addition, the relocated and expanded Essex Street Market would increase to approximately 43,028 gsf from the 29,152 gsf assessed in the FGEIS and Technical Memorandum 001. In addition to the Essex Street Market, Site 2 would have retail in a below-grade space called the Market Line that would run under Norfolk Street to the building on Site 3 and continue under Suffolk Street to the building on Site 4. DSA intends the Market Line's smaller sized retailers to expand the breadth of goods and services available on the development sites and in the neighborhood. The 2nd and 3rd levels of the building on Site 2 would have a movie theater. The Market Line and movie theater are new program elements that were not evaluated in the FGEIS or Technical Memorandum 001. In addition, a roof top farm, which is envisioned on the roof of the third floor facing Broome Street, is currently envisioned to have an outdoor growing area. See **Figure 5** for a building section and **Figure 6** for the ground floor plan.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 2, the proposed building would have a square tower on Delancey Street. The tower would be 285 feet to the roof and 315 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site. The proposed building would not have a mid-rise portion, and the base height would be 80 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.

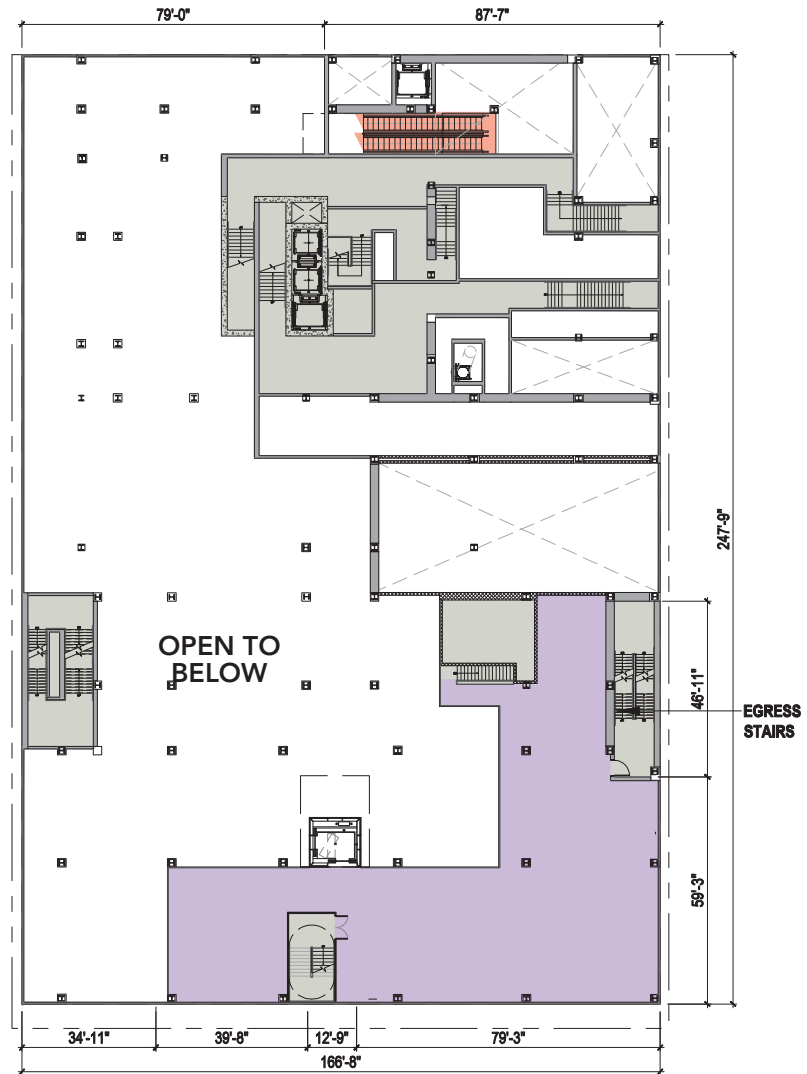
Like the RWCDs assessed in the FGEIS and Technical Memorandum 001, the Essex Crossing project would demolish the Essex Street Market Building on Site 2.



Site 2 Building North-South Section  
Figure 5



**LEVEL 1 - GROUND FLOOR**  
SCALE: 1/32" = 1'-0"



**LEVEL 1M - ESSEX STREET MARKET MEZZANINE**  
SCALE: 1/32" = 1'-0"

*SITE 5*

The proposed building on Site 5 would be 344,544 gsf, which would be approximately 1,086 gsf larger than the building analyzed in Technical Memorandum 001. The proposed building would contain 193,296 gsf of residential space (211 residential units, of which 104 units would be affordable) and 72,743 gsf of retail space. While the FGEIS and ULURP approval contemplated special permits that would accommodate the potential for up to 500 parking spaces spread across three sites, the Essex Crossing program proposes only 98 public parking spaces on Site 5. The entrance to the parking garage and the building's loading dock would be located on Clinton Street, whereas the parking and loading entrances to the RWCDs development on Site 5 were assumed in the FGEIS to be located on Suffolk Street. See **Figure 7** for a building rendering.

As assessed in Technical Memorandum 002, the proposed development on Site 5 would include a 15,000-square-foot public open space on the Broome Street portion of the site, and the proposed development on Site 5 is reserving an approximately 15,400-square-foot portion of the site fronting on Grand and Suffolk Streets for the potential future use of a school as assessed in Technical Memorandum 001. The Essex Crossing program contemplates a 75,000-gsf school, while Technical Memorandum 001 analyzed a 66,000-gsf school. The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. However, DSA is seeking a minor modification to the LSGD design controls for Site 5 to reduce the 60-foot minimum base height on the Clinton Street frontage of the site. The proposed modification would permit the base height of the proposed building on Site 5 along Clinton Street 50 feet beyond the intersection with Grand Street and along the proposed open space to be set as low as 29 feet. Allowing for a lower streetwall in those locations is necessary to allow the building to set back at a lower level so that the residential tower can begin at the third floor. Without the proposed modification, residential tower floors three through six would be required to be built to the streetline of Clinton Street, conflicting with the otherwise efficient floor plans for the residential tower. With the proposed modification, the perimeter of floors three through six would align with the seventh floor in the above residential tower. See **Figure 8a** for the LSGD building envelope diagrams for Site 5 and **Figure 8b** for the proposed massing with the minor modification.

With the exception of the reduced base height, the proposed building would comply with all of the LSGD design controls. Consistent with the LSGD design controls for Site 5, the proposed building would have a tower on Clinton Street, which would be 160 feet to the roof and 180 feet to the top of the mechanical bulkhead in compliance with the maximum tower heights for the site, and it would comply with the tower dimension controls. The proposed building would not have a mid-rise portion, and the base height on Grand Street would be 78 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with streetwall and setback controls.

In November 2014, the Parks, Recreation, Cultural Affairs, Landmarks, & Waterfront committee of CB3 approved the proposed design of the open space on Site 5. The 15,000-square-foot publically accessible open space would be located on the northern, Broome Street portion of Site 5, occupying a parcel that measures approximately 200 feet by 77 feet. The proposed open space would contain landscaped areas spaced throughout the park, seating areas, and a play area for children. There would be no perimeter fencing.

Like the RWCDs assessed in the FGEIS and Technical Memoranda 001 and 002, the Essex Crossing project would demolish the former fire station on Site 5, which is located within the footprint of the proposed open space and extends into the footprint of the proposed building.



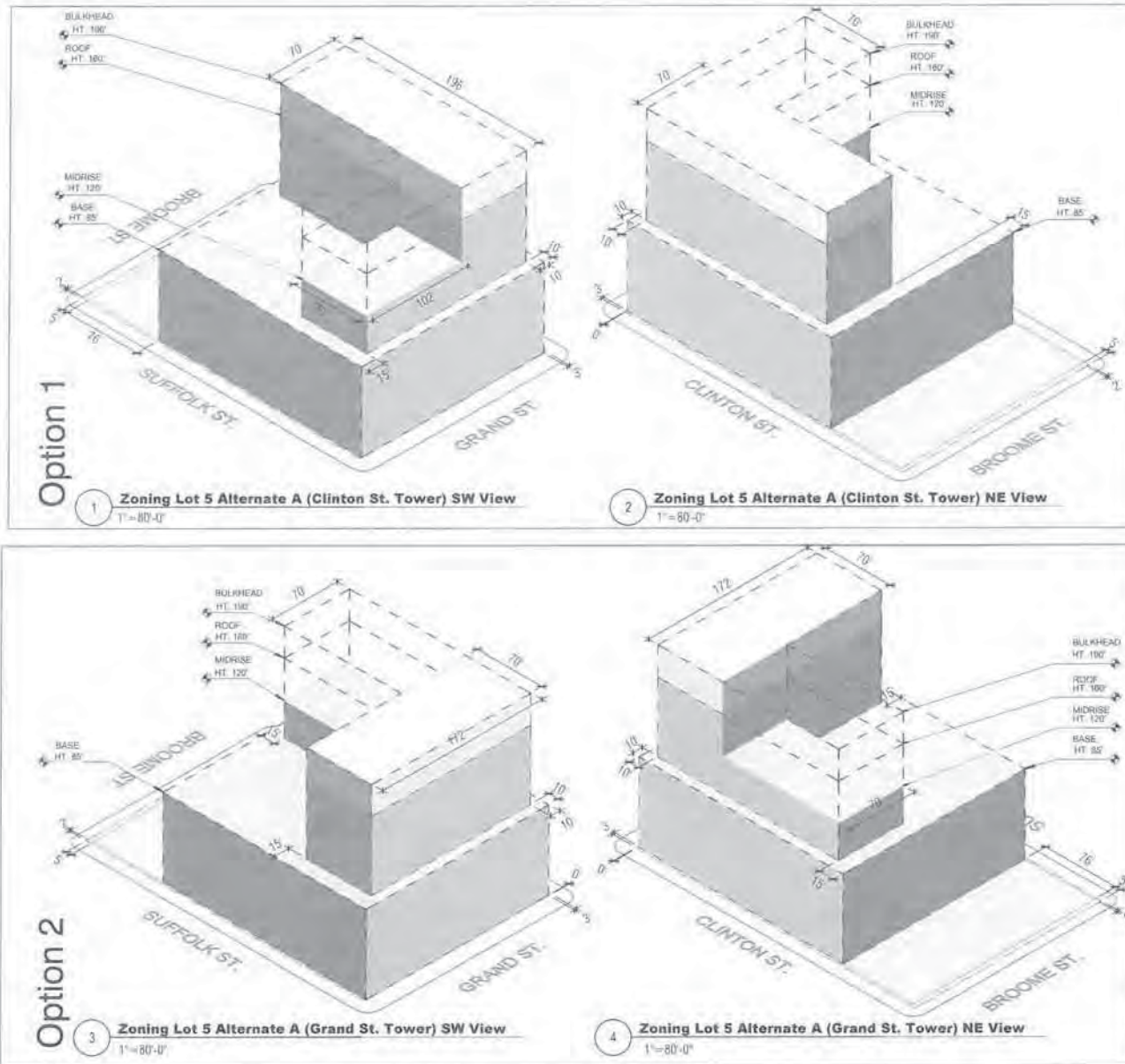
SITE FOR POTENTIAL SCHOOL

PROPOSED OPEN SPACE

FOR ILLUSTRATIVE PURPOSES ONLY

Site 5 Building Rendering  
Aerial View North  
**Figure 7**

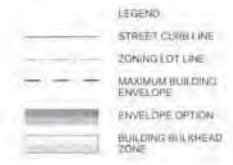


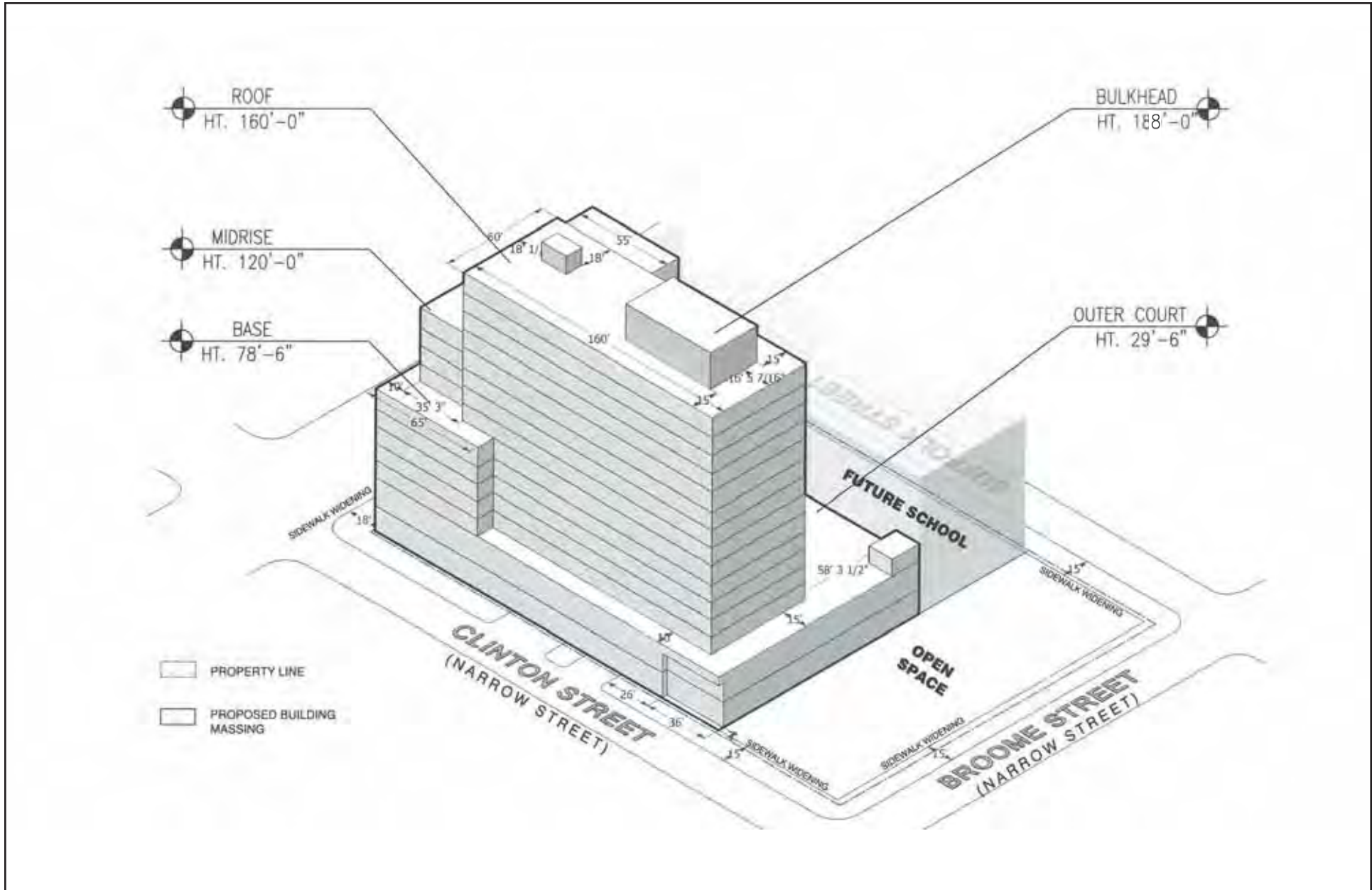


**DESIGN CONTROLS**

**Bulk, Height and Setback**

1. Envelope heights are relative to the Base Plane (see Sheet 504M)
2. The base or streetwall portions of Site 5 will have a minimum height of 60' and a maximum height of 85', except as indicated in Note 6
3. The midrise portions of all buildings developed pursuant to the approved Large-Scale General Development will have a maximum height of 120'
4. For Zoning Lot 5, Options 1 and 2, the envelope option volume indicates the maximum extent of the base and midrise portions of the building. The tower portion of the building may be located anywhere above the building base within the respective envelope options shown. In both options, the tower will be limited to a maximum length of 160' and a maximum width of 70'.
5. Elevator or stair bulkheads (including shafts, and vestibules not larger than 60 square feet in area providing access to a roof), roof water tanks and accessory mechanical equipment (including enclosures), other than solar or wind energy systems, shall be permitted to exceed the maximum building (roof) heights approved in the LSGD, up to a maximum bulkhead height of 30 feet, provided that:
  - i. such obstructions shall be located not less than 10 feet from the street wall of a building, except that such obstructions need not be set back more than 25 feet from a narrow street line or more than 20 feet from a wide street line. However, such restrictions on location shall not apply to elevator or stair bulkheads (including shafts or vestibules), provided the aggregate width of street walls of such bulkheads within 10 feet of a street wall, facing each street frontage, times their average height, in feet, does not exceed an area equal to four feet times the width, in feet, of the street wall of the building facing such frontage.
  - ii. all mechanical equipment shall be screened on all sides.
  - iii. such obstructions and screening are contained within a volume that complies with one of the following:
    - a. the product, in square feet, of the aggregate width of street walls of such obstructions facing each street frontage, times their average height, shall not exceed an area equal to eight feet times the width, in feet, of the street wall of the building facing such frontage; or
    - b. the lot coverage of all such obstructions does not exceed 20 percent of the lot coverage of the building.
6. The base height along the Publicly Accessible Open Space and on Clinton Street beyond 50 feet of its intersection with Broome Street shall have a minimum height of 29 feet.





## C. EXISTING CONDITIONS OF SITES 2 AND 5

### FORMER ESSEX STREET MARKET BUILDING (SITE 2)

Site 2 contains the former Essex Street Market building (S/NR-eligible) at 78-90 Essex Street (see **Figure 9**). 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 redevelopment proposals for the Essex Street Market buildings and, with 59 tenants remaining, leased the market to a private developer in 1988. NYCEDC 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 on Site 2 is the second largest of the four market buildings. It is vacant and most recently contained a diner and liquor store along the Delancey Street frontage. The incised lettering above the two entrances on Essex Street has been filled in but can be faintly discerned. A portion of the building overlaps the F and M subway platform below by 12 feet, and an escalator and stair exit to Essex Street through the building.

### FORMER FIRE STATION (SITE 5)

The S/NR-eligible building at 185 Broome Street 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), 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 **Figure 10**). 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. The building is currently vacant, and most recently housed a company that provided equipment and props for the motion picture industry.

## D. ALTERNATIVES

### AVOIDANCE OF AN ADVERSE IMPACT—RETAIN AND REUSE THE ESSEX STREET MARKET BUILDING

To avoid an adverse impact on the Essex Street Market Building on Site 2, an alternative that retains and reuses the building without new construction or alterations to the building was



View southeast



Interior - View southwest

Essex Street Market Building D  
Site 2  
**Figure 9**



Interior - View south

Former Fire Station  
Site 5  
Figure 10

evaluated. Under this alternative, the Essex Street Market building would not be altered apart from basic restoration and regular maintenance. New development on Site 2 would be limited to the portion of the site occupied by the existing parking lot on the eastern side of the site. Therefore, leaving the market building in place would reduce the footprint of new development on Site 2, thereby providing less public market space and fewer residential units.

Under this alternative, the diner and liquor store spaces on the Delancey Street frontage of the market building could be re-tenanted with similar uses and a minimal amount of alteration as those retail spaces were occupied into 2014. The market hall, however, has been vacant since 1995. To renovate that space for new uses would likely require substantial upgrades to the building systems and roof. Assuming the long-vacant 15,265-square-foot market hall could be sufficiently renovated and upgraded to current building codes to accommodate new public market uses, it would provide substantially less public market space than would be provided by the Essex Crossing program, which would create a 43,028-square-foot public market on Site 2. Further, it would accommodate fewer vendors, and the renovated market hall would not include the expanded common gathering areas for public seating and market events. In addition, the renovated and reused space would be smaller than the proposed 29,152-square-foot market that was assessed for Site 2 in the FGEIS.

Constructed on a smaller footprint and limited to the envelope set by the LSGD, the new development on Site 2 under this alternative would be approximately 273,712 square feet; this alternative would, therefore, be approximately 114,388 square feet smaller than the 388,100-gsf building that would be built as part of the Essex Crossing program. With less overall floor area and smaller floorplates, the development would not be able to provide the total 195 residential units (of which 98 units would be affordable) that would be developed with the Essex Crossing program. This alternative would potentially have up to 40 fewer units. Further, a smaller development on Site 2 would result in less commercial space compared to the Essex Crossing program. The new development could potentially include public market space on the ground floor, but that new market use could not be connected to any potential market use in the retained Essex Street Market building as a large, uninterrupted market hall without compromising the integrity of the architectural resource.

Therefore, while this alternative would not result in a significant adverse impact to the Essex Street Market building, with a smaller public market, up to 40 fewer residential units, and less overall commercial space, this alternative would not be feasible as it would not meet the goals and objectives of the project as set forth above.

#### **EXPANSION OF THE ESSEX STREET MARKET BUILDING**

The potential for retaining the Essex Street Market building and building above it to accommodate the Essex Crossing program components for Site 2 was evaluated. As described below, this alternative would involve substantial alterations to the existing market building.

As described above, the proposed program for Site 2 includes a relocated and expanded Essex Street Market on the ground floor, cellar level retail to complement the Essex Street Market, a movie theater, and 195 residential units, of which 98 would be affordable to a range of incomes. The new market would provide ADA accessibility (unlike the existing Essex Street Market on Site 9), modern facilities and building systems, including garbage handling facilities (again, unlike the existing market on Site 9), and common gathering areas for public seating and market events. The new market would continue to serve the local community while attracting new customers. In its new location on Site 2, the social and cultural functions of the public market as

a local institution would continue without interruption and remain integral to the market's idiosyncratic identity.

Given the complexity of including diverse uses in a single building, including egress requirements for a structure with large assembly requirements (the movie theater), building above an active subway line, and maximizing the efficiency of the building in order to optimize the affordable housing, retaining the existing Essex Street Market building and building above it is not feasible. A new 285-foot-tall (to the roof) building would require a solid foundation, and the existing market building (which was constructed in 1939) lacks the structural capacity to support vertical expansion atop the building. Attempting to build over the existing building would require extensive new structural columns that would limit the usable programming of the ground floor, thereby compromising the size and goals of the new public market. Columns for the new development would need to be placed through the existing structure with new foundations constructed below the existing building for both above-grade and below-grade retail space. Further, the existing market building, which has largely been left vacant since 1995, would require significant rehabilitation and is not spatially feasible to house the newly expanded Essex Street Market and a movie theater above the roof. In addition, the street facades of the existing building, which are masonry with strip windows set near the roofline, do not accommodate the current requirements for transparency and accessibility for the new market set forth in the specifications issued by NYCEDC.

Additional interventions to the existing building would need to be made to accommodate other programmatic requirements of the new market. Construction of cellar storage for the new market (the existing building does not have a cellar) and the Market Line at a new cellar level that would complement the new Essex Street Market and would form a tunnel connection between sites 2, 3, and 4, would result in structural changes to the existing building. As part of the Essex Crossing program, DSA is required to relocate the existing fresh air intake for the subway station that currently runs underneath the existing market building and up the east façade to the roof. Demolishing the existing shaft and horizontal transition to construct a new intake system would result in the removal of much of the northern section of the building. Overall, this alternative would compromise the architectural integrity of the existing Essex Street Market building.

In conclusion, retaining the existing Essex Street Market building is not feasible. The existing building can not be incorporated into the new building while accommodating the structural and programmatic requirements of the Essex Crossing program. Much of the existing structure would be demolished in the course of constructing the new building. The existing building would impede foundation work required for the new building, and new construction would compromise the structural stability of the existing building and the goals for the new Essex Street Market.

#### **AVOIDANCE OF AN ADVERSE IMPACT—RETAIN AND REUSE THE FORMER FIRE STATION**

To avoid an adverse impact on the former fire station on Site 5, an alternative that retains and reuses most of the building was evaluated. As shown on **Figure 11**, the building is located within the site of the proposed open space, with the rear portion also extending within the footprint of the new building proposed for Site 5. Therefore, under this alternative, the rear portion of the fire station would be removed but no other alterations would be made apart from



 Site of Proposed Open Space



basic restoration and regular maintenance. This alternative would result in a reduction in the size of the proposed open space of approximately 4,000 square feet.

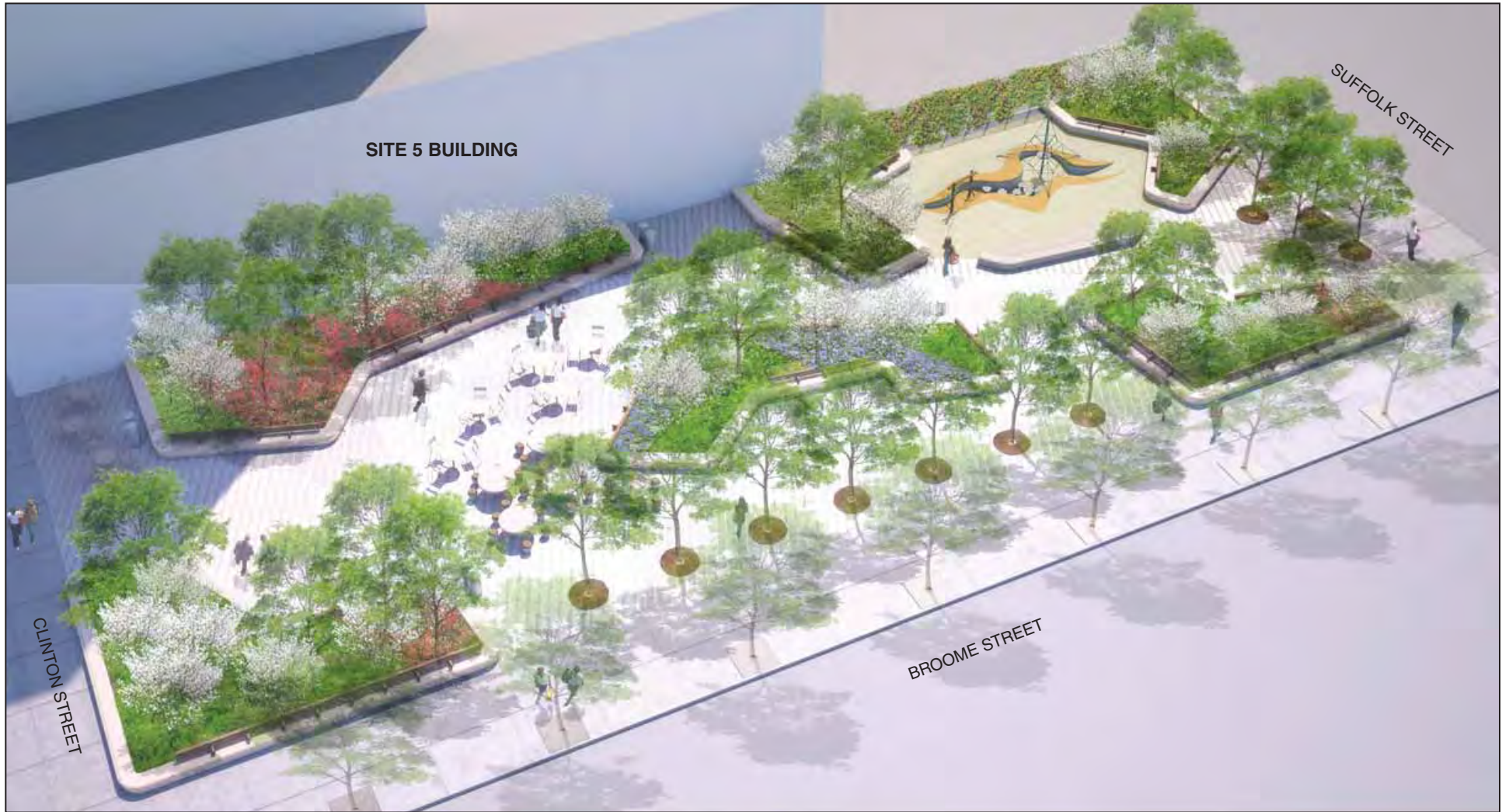
As described above, the fire station is located in the middle of the site of the 15,000-square-foot publicly-accessible open space. The building has an irregular footprint of approximately 4,000 square feet with a maximum width at the street of 54.64 feet, and retaining the front portion of the fire station would, therefore, result in a bifurcated open space with sections on the northwest and northeast corners of the site. The open space on the west side of the fire station would have a depth of 77 feet with a width that varies between approximately 84.43 feet and 102.54 feet for a total area of approximately 6,500 square feet; and the open space on the east side of the fire station would have dimensions of approximately 58.86 feet by 77 feet for a total area of approximately 4,500 square feet. The open space is conceived as a green oasis within a dense neighborhood, and it would serve passive and active uses, and it is designed so that users could move through the open space between distinct but connected elements (see **Figure 12**). Retaining the fire station in the middle of the site would compromise the usability and design of the open space, which has been approved by the CB3 Parks committee, and the total square footage of the two smaller open spaces would be approximately 4,000 square feet less than what would be provided with the Essex Crossing program. The open space is an important component of the overall project, and 15,000 square feet is a relatively small site to incorporate both active and passive uses. The LSGD includes a restrictive declaration binding the property and including specific requirements for the amount of planting, trees, seating, and play area to be included within the open space. Should the fire station be retained, the development on Site 5 would not be able to fulfill these requirements, which were designed to maximize diverse uses of the open space.

The public open space was a consistent element included in the four-year planning process conducted through monthly committee meetings with CB3 throughout 2008-2012, and Site 5 was selected for the location of the open space to be provided as part of the future development of the Seward Park Mixed-Use Development site, because Site 5 is the largest of the development sites and would, therefore, allow for a feasibly sized open space, which would also be adjacent to a public school on Site 5 if the City proceeds with building a school in the future. In addition, locating the open space in a central location within the overall development on the project site would allow it to serve all new residents and visitors to the project, as well as the surrounding neighborhood.

While this alternative would not result in a significant adverse impact to the former fire station, it would result in a smaller amount of total open space split between two sections and would, therefore, not be feasible, because it would not meet the open space goals and objectives of the project.

## **E. CONCLUSION**

As described above, DSA has evaluated the potential for: 1) retaining and reusing the Essex Street Market building on Site 2; 2) retaining and building above the Essex Street Market building on Site 2; and 3) retaining and reusing the former fire station on Site 5. Of the two Essex Street Market alternatives, only the one that retains and reuses the building would avoid a significant adverse impact to that architectural resource. Building above the market building would necessitate alterations that would compromise its integrity. Retaining and reusing the Essex Street Market building, however, would not meet the project's programming needs—especially those for the Essex Street Market. Similarly, the alternative that retains and reuses the



## **Essex Crossing**

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former fire station, while avoiding a significant adverse impact to the architectural resource, would compromise the project's open space goals that, like the goals for the new public market, are central to the project's purpose and need.

In consideration of the City's purpose and need for the proposed project, there are no prudent and feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 2 and the former fire station on Site 5. \*

**PROPOSED ESSEX CROSSING PROGRAM**  
**12PR00119 (11DME012M)**  
**EXECUTIVE SUMMARY FOR THE ALTERNATIVES ANALYSIS**

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This document provides additional information pertaining to the conclusions presented in the Alternatives Analysis (dated December 10, 2014) for the Essex Crossing program. In a letter dated December 22, 2014, the New York State Office of Parks, Recreation and Historic Preservation requested “a cover document that pulls together the information clearly supporting the stated conclusions” that there are no feasible and prudent alternatives to the demolition of the former Essex Street Market building on Site 2 and the former fire station on Site 5. To further clarify those conclusions, this document further describes why the two historic buildings cannot be retained and reused to meet the goals of the Essex Crossing program.

**PURPOSE AND NEED**

The goals of the Essex Crossing program are to: (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 achieve these goals, the Essex Crossing program would provide 1,000 residential units, of which 400 would be affordable units and 100 would be affordable senior units; it would also develop a new, approximately 43,000-square-foot Essex Street Market on Site 2 that is approximately 28,000 square feet larger than the existing Essex Street Market on Site 9 and would provide ADA accessibility (unlike the existing Essex Street Market on Site 9), modern facilities and building systems, including garbage handling facilities (unlike the existing market on Site 9), and common gathering areas for public seating and market events, and it would develop a 15,000-square-foot publicly accessible open space on Site 5.

**SITE ANALYSIS**

As described below, the former Essex Street Market building on Site 2 and the former fire station on Site 5 can not feasibly be retained and reused to meet the project’s goals.

*SITE 2*

As described more fully in the Alternatives Analysis, the former Essex Street Market building (State/National Register-eligible) at 78-90 Essex Street on Site 2 dates to 1939. At 15,265 square feet, the building is the second largest of the four market buildings. It is vacant and most recently contained a diner and liquor store along the Delancey Street frontage. The market hall has been vacant since 1995. A portion of the building overlaps the F and M subway platform below by 12 feet, and an escalator and stair exit to Essex Street through the building. Like the existing Essex Street Market on Site 9, the building on Site 2 is not ADA accessible, and it lacks modern facilities and building systems, including garbage handling facilities.

## Essex Crossing

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On Site 2, the Essex Crossing program would construct a 388,100-gross-square-foot (gsf) building that would include 195 units, of which 98 units would be affordable, a relocated and expanded Essex Street Market, and retail in a below-grade space called the Market Line that would run under Norfolk Street to the building on Site 3 and continue under Suffolk Street to the building on Site 4.

To renovate the long-vacant market hall for new uses would likely require substantial rehabilitation and upgrades to the building systems and roof. Assuming the 15,265-square-foot market hall could be sufficiently renovated and upgraded to current building codes to accommodate new public market uses, it is not spatially feasible to house an expanded Essex Street Market there. The existing market hall would be of an insufficient size to meet the program goals; it would provide substantially less public market space than would be provided by the Essex Crossing program, which would create a 43,028-square-foot public market on Site 2. Further, a renovated market hall would accommodate fewer vendors than the proposed market, could not include garbage handling facilities without further reducing the space allocated to vendors (which could in turn result in less vendor space than currently exists in the market on Site 9), and would not include the expanded common gathering areas for public seating and market events that are intended to continue the existing market's public role in the community. Therefore, reusing the existing building for new market uses would not fulfill the project goal of developing an expanded, modern market facility.

It would also not be feasible to retain the existing building within a larger development without substantially compromising the building's historic integrity, given the complexity of including diverse uses in a single building, including egress requirements for a structure with large assembly requirements (a movie theater), building above an active subway line, and maximizing the efficiency of the building in order to optimize the affordable housing program. A new 285-foot-tall building would require a solid foundation, and the existing market building (which was constructed in 1939) lacks the structural capacity to support vertical expansion atop the building. Attempting to build over the existing building would require extensive new structural columns that would limit the usable programming of the ground floor, thereby compromising the size and goals of the new public market. Columns for the new development would need to be placed through the existing structure with new foundations constructed below the existing building for both above-grade and below-grade retail space. In addition, the City is requiring the relocation of the existing fresh air intake for the subway station that currently runs underneath the existing market building and up the east façade to the roof. Demolishing the existing shaft and horizontal transition to construct a new intake system would result in the removal of much of the northern section of the market building. Overall, much of the existing structure would need to be demolished in the course of constructing a new building on Site 2.

In conclusion, it is not feasible to retain and reuse the existing market building for new market uses and meet the program's goals, and the existing market building cannot feasibly be incorporated into a new development on Site 2 without substantially compromising its historical integrity.

### *SITE 5*

Constructed in 1937, the State/National Register-eligible former fire station at 185 Broome Street has an irregular footprint of approximately 4,100 square feet. The widest portion of the two-story building (the northern part fronting on Broome Street) has a maximum width of 54.64 feet (with a footprint of approximately 2,664 square feet). The southern portion of the building

has two sections—the middle section is 37.48 feet wide and 19.20 feet deep (with a footprint of approximately 720 feet), and the southernmost section is 23.65 feet wide and 30.29 feet deep (with a footprint of 716 feet). This building configuration would not be conducive to residential conversion. Further, the 77-year-old building has not been used as a fire station since 1973, and it does not appear to contain modern building systems. In addition, the most recent tenant did not provide any substantial upgrades or renovations to the building, and renovation of the small, irregularly shaped building to house new uses as part of the Essex Crossing program would likely require substantial renovations. Therefore, it is not feasible to retain and reuse the former fire station for residential uses to meet the goals of the Essex Crossing program.

On Site 5, the Essex Crossing program would construct a 344,544-gsf building that would include 211 residential units, of which 104 units would be affordable, and 72,743 gsf of retail space. The proposed development on Site 5 also includes a 15,000-square-foot public open space on the Broome Street portion of the site, and the proposed development is reserving an approximately 15,400-square-foot portion of the site fronting on Grand and Suffolk Streets for the potential future use of a 75,000-gsf school.

The 15,000-square-foot publically accessible open space would be located on the northern, Broome Street portion of Site 5, occupying a parcel that measures approximately 200 feet by 77 feet. The proposed open space would contain landscaped areas spaced throughout the park, seating areas, and a play area for children. There would be no perimeter fencing. Site 5 was selected for the location of the open space, because it is the largest of the nine development sites and would, therefore, allow for a feasibly sized open space, which would also be adjacent to a public school on Site 5 if the City proceeds with building a school in the future. In addition, locating the open space on Broome Street (as opposed to Grand Street) would place it in a central location within the overall development where it would better serve all new residents and visitors to the project, as well as residents of the surrounding neighborhood.

As more fully described in the Alternatives Analysis, the fire station is located in the middle of the site of the 15,000-square-foot publicly-accessible open space proposed as part of the Essex Crossing program. Retaining the fire station would, therefore, result in a bifurcated open space with sections on the northwest and northeast corners of the site, which would compromise the usability and design of the open space. As described above, the proposed open space would be located on Site 5, because it is the largest of the nine development sites and may contain a public school in the future, and locating the open space on Broome Street would place it in a central location. Therefore, retaining the fire station would compromise the open space goals and objectives of the Essex Crossing program.

## **SUMMARY CONCLUSIONS**

Delancey Street Associates (DSA), the developer of the Essex Crossing program, has evaluated the potential for: 1) retaining and reusing the Essex Street Market building on Site 2; 2) retaining and building above the Essex Street Market building on Site 2; and 3) retaining and reusing the former fire station on Site 5. As described above and in the Alternatives Analysis, in consideration of the City's purpose and need for the proposed program, retention and reuse of the former Essex Street Market building on Site 2 and the former fire station on Site 5 is not feasible, and there are no prudent and feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 2 and the former fire station on Site 5. Of the two Essex Street Market alternatives, only the one that retains and reuses the building would avoid a significant adverse impact to that architectural resource. Building above the market

## Essex Crossing

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building would necessitate alterations that would compromise its integrity. Retaining and reusing the Essex Street Market building, however, would not meet the project's programming needs—especially those for the Essex Street Market. Similarly, the former fire station could not feasibly be converted to residential use, and retaining it would compromise the project's open space goals that, like the goals for the new public market, are central to the project's purpose and need.

\*



**APPENDIX B**  
**TRANSPORTATION**



# **PEDESTRIAN ANALYSES LEVEL-OF-SERVICE TABLES**

**Table B-1**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No.   | Location  | Sidewalk   | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |
|--|---|--|----------------------|--------------------------|--------------|------|
|  |   |  |                      |                          | PMF          | LOS  |
| <b>AM Peak Period</b>                                    |   |  |                      |                          |              |      |
| 1  | Essex Street between Stanton Street and Rivington Street  | East   | 6.2                  | 212                      | 2.28         | B    |
| 2  | Essex Street between Rivington Street and Stanton Street  | East   | 6.2                  | 241                      | 2.59         | B    |
|  | Essex Street between Rivington Street and Delancey Street | East   | 5.0                  | 555                      | 7.40         | D    |
| 3  | Delancey Street between Allen Street and Orchard Street   | South  | 13.0                 | 122                      | 0.63         | B    |
| 4  | Delancey Street between Orchard Street and Ludlow Street  | South  | 15.0                 | 135                      | 0.60         | B    |
| 5  | Delancey Street between Ludlow Street and Essex Street    | South  | 15.0                 | 317                      | 1.41         | B    |
| 6  | Delancey Street between Essex Street and Norfolk Street   | North  | 11.0                 | 425                      | 2.58         | B    |
|  |   | South  | 15.0                 | 291                      | 1.29         | B    |
|  | Essex Street between Delancey Street and Rivington Street | East   | 4.0                  | 300                      | 5.00         | C    |
|  | Essex Street between Delancey Street and Broome Street    | East <sup>1</sup>  | 8.0                  | 303                      | 2.53         | B(*) |
| West   |   | 2.5  | 419                  | 11.17                    | E+           |      |
| 7  | Delancey Street between Norfolk Street and Essex Street   | North  | 11.0                 | 428                      | 2.59         | B    |
|  |   | South  | 13.8                 | 249                      | 1.20         | B    |
|  | Delancey Street between Norfolk Street and Suffolk Street | North  | 10.0                 | 718                      | 4.79         | C    |
|  |   | South  | 19.0                 | 213                      | 0.75         | B    |
| Norfolk Street between Delancey Street and Broome Street | West  | 7.0  | 54                   | 0.51                     | B            |      |
| 8  | Delancey Street between Suffolk Street and Norfolk Street | South  | 18.0                 | 177                      | 0.66         | B*   |
|  |   | North  | 10.0                 | 536                      | 3.57         | C    |
|  | Delancey Street between Suffolk Street and Clinton Street | South  | 12.5                 | 134                      | 0.71         | B    |
|  |   | Suffolk Street between Delancey Street and Broome Street | East                 | 10.0                     | 122          | 0.81 |
| West   | 7.0   | 89   | 0.85                 | B                        |              |      |
| 9  | Delancey Street between Clinton Street and Suffolk Street | South  | 13.5                 | 103                      | 0.51         | B*   |
|  |   | East   | 7.0                  | 46                       | 0.44         | A    |
|  | Clinton Street between Delancey Street and Broome Street  | West   | 8.0                  | 56                       | 0.47         | A    |
| 10   | Broome Street between Allen Street and Orchard Street     | North  | 4.0                  | 74                       | 1.23         | B*   |
|  |   | South  | 5.0                  | 60                       | 0.80         | B    |
| 11   | Broome Street between Ludlow Street and Essex Street      | North  | 6.0                  | 93                       | 1.03         | B    |
|  |   | North  | 3.0                  | 112                      | 2.49         | B    |
|  | Broome Street between Ludlow Street and Orchard Street    | South  | 4.0                  | 78                       | 1.30         | B    |
| 12   | Broome Street between Essex Street and Ludlow Street      | North  | 6.0                  | 101                      | 1.12         | B    |
|  | Broome Street between Essex Street and Norfolk Street     | North  | 5.0                  | 168                      | 2.24         | B    |
|  |   | Essex Street between Broome Street and Delancey Street   | East                 | 8.5                      | 294          | 2.31 |
|  | Essex Street between Broome Street and Grand Street       | West   | 6.0                  | 310                      | 3.44         | C    |
|  |   | East   | 10.0                 | 193                      | 1.29         | B    |
| West   | 7.0   | 238  | 2.27                 | B                        |              |      |

**Note:** PMF = pedestrians per minute per foot  
<sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.  
+ Denotes a significant adverse pedestrian impact.  
\* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.  
 FGEIS and Tech Memo impacted pedestrian element;  Tech Memo impacted pedestrian element only.

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No.   | Location  | Sidewalk | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |
|--|---|----------|----------------------|--------------------------|--------------|------|
|  |   |          |                      |                          | PMF          | LOS  |
| 13   | Broome Street between Norfolk Street and Essex Street     | North    | 6.0                  | 227                      | 2.52         | B    |
|  | Broome Street between Norfolk Street and Suffolk Street   | North    | 5.0                  | 182                      | 2.43         | B    |
|  |   | South    | 5.0                  | 115                      | 1.53         | B    |
|  | Norfolk Street between Broome Street and Delancey Street  | West     | 10.0                 | 54                       | 0.36         | A    |
| 14   | Broome Street between Suffolk Street and Norfolk Street   | North    | 6.0                  | 167                      | 1.86         | B    |
|  | Broome Street between Suffolk Street and Clinton Street   | North    | 8.0                  | 116                      | 0.97         | B    |
|  | Suffolk Street between Broome Street and Delancey Street  | East     | 6.0                  | 92                       | 1.02         | B    |
|  |   | West     | 7.0                  | 71                       | 0.68         | B*   |
|  | Suffolk Street between Broome Street and Grand Street     | East     | 7.0                  | 281                      | 2.68         | B    |
| 15   | Broome Street between Clinton Street and Suffolk Street   | North    | 7.0                  | 107                      | 1.02         | B    |
|  | Broome Street between Clinton Street and Ridge Street     | North    | 8.0                  | 78                       | 0.65         | B(*) |
|  | Clinton Street between Broome Street and Delancey Street  | East     | 8.0                  | 47                       | 0.39         | A    |
|  |   | West     | 8.0                  | 56                       | 0.47         | A    |
|  | Clinton Street between Broome Street and Grand Street     | West     | 8.0                  | 117                      | 0.98         | B    |
| 16   | Grand Street between Allen Street and Orchard Street      | North    | 8.0                  | 248                      | 2.07         | B    |
| 17   | Grand Street between Ludlow Street and Orchard Street     | North    | 7.8                  | 269                      | 2.30         | B    |
|  | Grand Street between Ludlow Street and Essex Street       | North    | 8.0                  | 257                      | 2.14         | B    |
| 18   | Grand Street between Essex Street and Norfolk Street      | North    | 12.0                 | 236                      | 1.31         | B    |
| 19   | Grand Street between Norfolk Street and Suffolk Street    | North    | 12.0                 | 227                      | 1.26         | B    |
| 20   | Grand Street between Suffolk Street and Clinton Street    | North    | 10.0                 | 194                      | 1.29         | B    |
|  | Suffolk Street between Grand Street and Broome Street     | East     | 5.0                  | 231                      | 3.08         | C*   |
| 21   | Grand Street between Clinton Street and Suffolk Street    | North    | 4.8                  | 157                      | 2.18         | B    |
|  | Clinton Street between Grand Street and Broome Street     | West     | 8.0                  | 86                       | 0.72         | B    |
| <b>Midday Peak Period</b>  |   |          |                      |                          |              |      |
| 1  | Essex Street between Stanton Street and Rivington Street  | East     | 6.2                  | 248                      | 2.67         | B(*) |
| 2  | Essex Street between Rivington Street and Stanton Street  | East     | 6.2                  | 235                      | 2.53         | B(*) |
|  | Essex Street between Rivington Street and Delancey Street | East     | 5.0                  | 393                      | 5.24         | C(*) |
| 3  | Delancey Street between Allen Street and Orchard Street   | South    | 13.0                 | 269                      | 1.38         | B    |
| 4  | Delancey Street between Orchard Street and Ludlow Street  | South    | 15.0                 | 215                      | 0.96         | B    |
| <p><b>Note:</b> PMF = pedestrians per minute per foot<br/> <sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.<br/> + Denotes a significant adverse pedestrian impact.<br/> * Denotes degrading level-of-service as compared to the FGEIS; (*) Denotes improved level-of-service as compared to the FGEIS.<br/>  FGEIS and Tech Memo impacted pedestrian element;  Tech Memo impacted pedestrian element only.</p> |   |          |                      |                          |              |      |

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No. | Location  | Sidewalk  | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |
|------------------|---|---|----------------------|--------------------------|--------------|------|
|                  |   |   |                      |                          | PMF          | LOS  |
| 5                | Delancey Street between Ludlow Street and Essex Street    | South   | 15.0                 | 358                      | 1.59         | B    |
|                  |   | North   | 11.0                 | 508                      | 3.08         | C    |
| 6                | Delancey Street between Essex Street and Norfolk Street   | South   | 15.0                 | 301                      | 1.34         | B    |
|                  |   | Essex Street between Delancey Street and Rivington Street | East                 | 4.0                      | 399          | 6.65 |
|                  | Essex Street between Delancey Street and Broome Street    | East <sup>1</sup>   | 8.0                  | 342                      | 2.85         | B(*) |
|                  |   | West  | 2.5                  | 335                      | 8.93         | D+   |
| 7                | Delancey Street between Norfolk Street and Essex Street   | North   | 11.0                 | 516                      | 3.13         | C    |
|                  |   | South   | 13.8                 | 251                      | 1.21         | B    |
|                  | Delancey Street between Norfolk Street and Suffolk Street | North   | 10.0                 | 486                      | 3.24         | C    |
|                  |   | South   | 19.0                 | 250                      | 0.88         | B    |
|                  | Norfolk Street between Delancey Street and Broome Street  | West  | 7.0                  | 54                       | 0.51         | B    |
| 8                | Delancey Street between Suffolk Street and Norfolk Street | South   | 18.0                 | 207                      | 0.77         | B    |
|                  |   | Delancey Street between Suffolk Street and Clinton Street | North                | 10.0                     | 449          | 2.99 |
|                  | South   |   | 12.5                 | 192                      | 1.02         | B    |
|                  | Suffolk Street between Delancey Street and Broome Street  | East  | 10.0                 | 93                       | 0.62         | B*   |
|                  |   | West  | 7.0                  | 73                       | 0.70         | B    |
| 9                | Delancey Street between Clinton Street and Suffolk Street | South   | 13.5                 | 132                      | 0.65         | B    |
|                  |   | Clinton Street between Delancey Street and Broome Street  | East                 | 7.0                      | 45           | 0.43 |
|                  | West  |   | 8.0                  | 68                       | 0.57         | B    |
| 10               | Broome Street between Allen Street and Orchard Street     | North   | 4.0                  | 144                      | 2.40         | B    |
|                  |   | South   | 5.0                  | 98                       | 1.31         | B    |
| 11               | Broome Street between Ludlow Street and Essex Street      | North   | 6.0                  | 145                      | 1.61         | B    |
|                  |   | Broome Street between Ludlow Street and Orchard Street    | North                | 3.0                      | 95           | 2.11 |
|                  | South   |   | 4.0                  | 124                      | 2.07         | B    |
| 12               | Broome Street between Essex Street and Ludlow Street      | North   | 6.0                  | 157                      | 1.74         | B    |
|                  |   | Broome Street between Essex Street and Norfolk Street     | North                | 5.0                      | 235          | 3.13 |
|                  | Essex Street between Broome Street and Delancey Street    |   | East                 | 8.5                      | 314          | 2.46 |
|                  |   | West  | 6.0                  | 310                      | 3.44         | C    |
|                  | Essex Street between Broome Street and Grand Street       | East  | 10.0                 | 312                      | 2.08         | B    |
| West             |   | 7.0   | 295                  | 2.81                     | B            |      |
| 13               | Broome Street between Norfolk Street and Essex Street     | North   | 6.0                  | 237                      | 2.63         | B    |
|                  |   | Broome Street between Norfolk Street and Suffolk Street   | North                | 5.0                      | 215          | 2.87 |
|                  | South   |   | 5.0                  | 91                       | 1.21         | B    |
|                  | Norfolk Street between Broome Street and Delancey Street  | West  | 10.0                 | 54                       | 0.36         | A    |
| 14               | Broome Street between Suffolk Street and Norfolk Street   | North   | 6.0                  | 176                      | 1.96         | B    |
|                  |   | Broome Street between Suffolk Street and Clinton Street   | North                | 8.0                      | 149          | 1.24 |
|                  | Suffolk Street between Broome Street and Delancey Street  |   | East                 | 6.0                      | 86           | 0.96 |
|                  |   | West  | 7.0                  | 55                       | 0.52         | B*   |
|                  | Suffolk Street between Broome Street and Grand Street     | East  | 7.0                  | 177                      | 1.69         | B    |

**Note:** PMF = pedestrians per minute per foot

<sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.

+ Denotes a significant adverse pedestrian impact.

\* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.

■ FGEIS and Tech Memo impacted pedestrian element; ■ Tech Memo impacted pedestrian element only.

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No.   | Location  | Sidewalk          | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |     |
|--|---|-------------------|----------------------|--------------------------|--------------|-----|
|  |   |                   |                      |                          | PMF          | LOS |
| 15   | Broome Street between Clinton Street and Suffolk Street   | North             | 7.0                  | 146                      | 1.39         | B   |
|  | Broome Street between Clinton Street and Ridge Street     | North             | 8.0                  | 109                      | 0.91         | B   |
|  | Clinton Street between Broome Street and Delancey Street  | East              | 8.0                  | 45                       | 0.38         | A   |
|  |   | West              | 8.0                  | 62                       | 0.52         | B*  |
|  | Clinton Street between Broome Street and Grand Street     | West              | 8.0                  | 141                      | 1.18         | B   |
| 16   | Grand Street between Allen Street and Orchard Street      | North             | 8.0                  | 249                      | 2.08         | B   |
| 17   | Grand Street between Ludlow Street and Orchard Street     | North             | 7.8                  | 220                      | 1.88         | B   |
|  | Grand Street between Ludlow Street and Essex Street       | North             | 8.0                  | 225                      | 1.88         | B   |
| 18   | Grand Street between Essex Street and Norfolk Street      | North             | 12.0                 | 239                      | 1.33         | B   |
| 19   | Grand Street between Norfolk Street and Suffolk Street    | North             | 12.0                 | 241                      | 1.34         | B   |
| 20   | Grand Street between Suffolk Street and Clinton Street    | North             | 10.0                 | 318                      | 2.12         | B   |
|  | Suffolk Street between Grand Street and Broome Street     | East              | 5.0                  | 177                      | 2.36         | B   |
| 21   | Grand Street between Clinton Street and Suffolk Street    | North             | 4.8                  | 200                      | 2.78         | B   |
|  | Clinton Street between Grand Street and Broome Street     | West              | 8.0                  | 121                      | 1.01         | B   |
| <b>PM Peak Period</b>  |   |                   |                      |                          |              |     |
| 1  | Essex Street between Stanton Street and Rivington Street  | East              | 6.2                  | 366                      | 3.94         | C   |
| 2  | Essex Street between Rivington Street and Stanton Street  | East              | 6.2                  | 467                      | 5.02         | C   |
|  | Essex Street between Rivington Street and Delancey Street | East              | 5.0                  | 630                      | 8.40         | D   |
| 3  | Delancey Street between Allen Street and Orchard Street   | South             | 13.0                 | 424                      | 2.17         | B   |
| 4  | Delancey Street between Orchard Street and Ludlow Street  | South             | 15.0                 | 472                      | 2.10         | B   |
| 5  | Delancey Street between Ludlow Street and Essex Street    | South             | 15.0                 | 569                      | 2.53         | B   |
| 6  | Delancey Street between Essex Street and Norfolk Street   | North             | 11.0                 | 652                      | 3.95         | C   |
|  |   | South             | 15.0                 | 934                      | 4.15         | C*  |
|  | Essex Street between Delancey Street and Rivington Street | East              | 4.0                  | 677                      | 11.28        | E+  |
|  | Essex Street between Delancey Street and Broome Street    | East <sup>1</sup> | 8.0                  | 747                      | 6.23         | D   |
| West   |   | 2.5               | 334                  | 8.91                     | D+           |     |
| 7  | Delancey Street between Norfolk Street and Essex Street   | North             | 11.0                 | 659                      | 3.99         | C   |
|  |   | South             | 13.8                 | 727                      | 3.51         | C*  |
|  | Delancey Street between Norfolk Street and Suffolk Street | North             | 10.0                 | 828                      | 5.52         | C   |
|  |   | South             | 19.0                 | 672                      | 2.36         | B   |
|  | Norfolk Street between Delancey Street and Broome Street  | West              | 7.0                  | 85                       | 0.81         | B   |
| <p><b>Note:</b> PMF = pedestrians per minute per foot<br/> <sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.<br/>                     + Denotes a significant adverse pedestrian impact.<br/>                     * Denotes degrading level-of-service as compared to the FGEIS; (*) Denotes improved level-of-service as compared to the FGEIS.<br/>                     FGEIS and Tech Memo impacted pedestrian element; Tech Memo impacted pedestrian element only.</p> |   |                   |                      |                          |              |     |

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No. | Location  | Sidewalk   | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |    |
|------------------|---|--|----------------------|--------------------------|--------------|------|----|
|                  |   |  |                      |                          | PMF          | LOS  |    |
| 8                | Delancey Street between Suffolk Street and Norfolk Street | South  | 18.0                 | 523                      | 1.94         | B    |    |
|                  |   | North  | 10.0                 | 547                      | 3.65         | C    |    |
|                  | Delancey Street between Suffolk Street and Clinton Street | South  | 12.5                 | 474                      | 2.53         | B    |    |
|                  |   | Suffolk Street between Delancey Street and Broome Street | East                 | 10.0                     | 228          | 1.52 | B* |
|                  |   |  | West                 | 7.0                      | 162          | 1.54 | B  |
| 9                | Delancey Street between Clinton Street and Suffolk Street | South  | 13.5                 | 272                      | 1.34         | B    |    |
|                  |   | Clinton Street between Delancey Street and Broome Street | East                 | 7.0                      | 123          | 1.17 | B  |
|                  | West  |  | 8.0                  | 147                      | 1.23         | B    |    |
| 10               | Broome Street between Allen Street and Orchard Street     | North  | 4.0                  | 175                      | 2.92         | B    |    |
|                  |   | South  | 5.0                  | 165                      | 2.20         | B    |    |
| 11               | Broome Street between Ludlow Street and Essex Street      | North  | 6.0                  | 295                      | 3.28         | C*   |    |
|                  |   | Broome Street between Ludlow Street and Orchard Street   | North                | 3.0                      | 169          | 3.76 | C* |
|                  | South   |  | 4.0                  | 199                      | 3.32         | C*   |    |
| 12               | Broome Street between Essex Street and Ludlow Street      | North  | 6.0                  | 323                      | 3.59         | C    |    |
|                  |   | Broome Street between Essex Street and Norfolk Street    | North                | 5.0                      | 506          | 6.75 | D* |
|                  | Essex Street between Broome Street and Delancey Street    |  | East                 | 8.5                      | 563          | 4.42 | C  |
|                  |   |  | West                 | 6.0                      | 303          | 3.37 | C* |
|                  | Essex Street between Broome Street and Grand Street       | East   | 10.0                 | 374                      | 2.49         | B    |    |
| West             |   | 7.0  | 237                  | 2.26                     | B            |      |    |
| 13               | Broome Street between Norfolk Street and Essex Street     | North  | 6.0                  | 643                      | 7.14         | D*   |    |
|                  |   | Broome Street between Norfolk Street and Suffolk Street  | North                | 5.0                      | 498          | 6.64 | D* |
|                  | Norfolk Street between Broome Street and Delancey Street  |  | South                | 5.0                      | 206          | 2.75 | B  |
|                  |   | West   | 10.0                 | 79                       | 0.53         | B*   |    |
| 14               | Broome Street between Suffolk Street and Norfolk Street   | North  | 6.0                  | 420                      | 4.67         | C*   |    |
|                  |   | Broome Street between Suffolk Street and Clinton Street  | North                | 8.0                      | 335          | 2.79 | B  |
|                  | Suffolk Street between Broome Street and Delancey Street  |  | East                 | 6.0                      | 182          | 2.02 | B  |
|                  |   |  | West                 | 7.0                      | 128          | 1.22 | B  |
|                  | Suffolk Street between Broome Street and Grand Street     | East   | 7.0                  | 381                      | 3.63         | C*   |    |
| 15               | Broome Street between Clinton Street and Suffolk Street   | North  | 7.0                  | 286                      | 2.72         | B    |    |
|                  |   | Broome Street between Clinton Street and Ridge Street    | North                | 8.0                      | 176          | 1.47 | B  |
|                  | Clinton Street between Broome Street and Delancey Street  |  | East                 | 8.0                      | 105          | 0.88 | B  |
|                  |   |  | West                 | 8.0                      | 143          | 1.19 | B  |
|                  | Clinton Street between Broome Street and Grand Street     | West   | 8.0                  | 240                      | 2.00         | B    |    |
| 16               | Grand Street between Allen Street and Orchard Street      | North  | 8.0                  | 423                      | 3.53         | C*   |    |
| 17               | Grand Street between Ludlow Street and Orchard Street     | North  | 7.8                  | 387                      | 3.31         | C*   |    |
|                  |   | Grand Street between Ludlow Street and Essex Street      | North                | 8.0                      | 327          | 2.73 | B  |

**Note:** PMF = pedestrians per minute per foot  
<sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.  
+ Denotes a significant adverse pedestrian impact.  
\* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.  
 FGEIS and Tech Memo impacted pedestrian element; Tech Memo impacted pedestrian element only.

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No.   | Location  | Sidewalk          | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |
|--|---|-------------------|----------------------|--------------------------|--------------|------|
|  |   |                   |                      |                          | PMF          | LOS  |
| 18   | Grand Street between Essex Street and Norfolk Street      | North             | 12.0                 | 318                      | 1.77         | B    |
| 19   | Grand Street between Norfolk Street and Suffolk Street    | North             | 12.0                 | 385                      | 2.14         | B    |
| 20   | Grand Street between Suffolk Street and Clinton Street    | North             | 10.0                 | 636                      | 4.24         | C*   |
|  | Suffolk Street between Grand Street and Broome Street     | East              | 5.0                  | 368                      | 4.91         | C*   |
| 21   | Grand Street between Clinton Street and Suffolk Street    | North             | 4.8                  | 356                      | 4.94         | C*   |
|  | Clinton Street between Grand Street and Broome Street     | West              | 8.0                  | 7                        | 1.48         | B    |
| <b>Saturday Peak Period</b>                              |   |                   |                      |                          |              |      |
| 1  | Essex Street between Stanton Street and Rivington Street  | East              | 6.2                  | 227                      | 2.44         | B(*) |
| 2  | Essex Street between Rivington Street and Stanton Street  | East              | 6.2                  | 301                      | 3.24         | C    |
|  | Essex Street between Rivington Street and Delancey Street | East              | 5.0                  | 413                      | 5.51         | C(*) |
| 3  | Delancey Street between Allen Street and Orchard Street   | South             | 13.0                 | 331                      | 1.70         | B    |
| 4  | Delancey Street between Orchard Street and Ludlow Street  | South             | 15.0                 | 252                      | 1.12         | B    |
| 5  | Delancey Street between Ludlow Street and Essex Street    | South             | 15.0                 | 350                      | 1.56         | B    |
| 6  | Delancey Street between Essex Street and Norfolk Street   | North             | 11.0                 | 512                      | 3.10         | C    |
|  |   | South             | 15.0                 | 425                      | 1.89         | B    |
|  | Essex Street between Delancey Street and Rivington Street | East              | 4.0                  | 436                      | 7.27         | D    |
|  | Essex Street between Delancey Street and Broome Street    | East <sup>1</sup> | 8.0                  | 414                      | 3.45         | C    |
| West   |   | 2.5               | 237                  | 6.32                     | D            |      |
| 7  | Delancey Street between Norfolk Street and Essex Street   | North             | 11.0                 | 522                      | 3.16         | C    |
|  |   | South             | 13.8                 | 315                      | 1.52         | B    |
|  | Delancey Street between Norfolk Street and Suffolk Street | North             | 10.0                 | 601                      | 4.01         | C    |
|  |   | South             | 19.0                 | 265                      | 0.93         | B    |
| Norfolk Street between Delancey Street and Broome Street | West  | 7.0               | 47                   | 0.45                     | A(*)         |      |
| 8  | Delancey Street between Suffolk Street and Norfolk Street | South             | 18.0                 | 236                      | 0.87         | B    |
|  |   | North             | 10.0                 | 512                      | 3.41         | C    |
|  | Delancey Street between Suffolk Street and Clinton Street | South             | 12.5                 | 174                      | 0.93         | B    |
|  |   | East              | 10.0                 | 127                      | 0.85         | B    |
| Suffolk Street between Delancey Street and Broome Street | West  | 7.0               | 85                   | 0.81                     | B            |      |
|  | East  | 7.0               | 85                   | 0.81                     | B            |      |
| 9  | Delancey Street between Clinton Street and Suffolk Street | South             | 13.5                 | 137                      | 0.68         | B    |
|  |   | East              | 7.0                  | 46                       | 0.44         | A(*) |
|  | Clinton Street between Delancey Street and Broome Street  | West              | 8.0                  | 75                       | 0.63         | B    |
| 10   | Broome Street between Allen Street and Orchard Street     | North             | 4.0                  | 181                      | 3.02         | C*   |
|  |   | South             | 5.0                  | 142                      | 1.89         | B    |
| 11   | Broome Street between Ludlow Street and Essex Street      | North             | 6.0                  | 160                      | 1.78         | B    |
|  |   | North             | 3.0                  | 176                      | 3.91         | C    |
|  | Broome Street between Ludlow Street and Orchard Street    | South             | 4.0                  | 199                      | 3.32         | C    |

**Note:** PMF = pedestrians per minute per foot  
<sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.  
+ Denotes a significant adverse pedestrian impact.  
\* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.  
 FGEIS and Tech Memo impacted pedestrian element; Tech Memo impacted pedestrian element only.

**Table B-1 (Cont'd)**  
**2022 With Action Condition Sidewalk Analysis**

| Intersection No.                                      | Location   | Sidewalk | Effective Width (ft) | 15 Minute Two-Way Volume | Platoon Flow |      |
|---|--|----------|----------------------|--------------------------|--------------|------|
|   |  |          |                      |                          | PMF          | LOS  |
| 12  | Broome Street between Essex Street and Ludlow Street     | North    | 6.0                  | 170                      | 1.89         | B    |
|   | Broome Street between Essex Street and Norfolk Street    | North    | 5.0                  | 251                      | 3.35         | C    |
|   | Essex Street between Broome Street and Delancey Street   | East     | 8.5                  | 349                      | 2.74         | B(*) |
|   |  | West     | 6.0                  | 216                      | 2.40         | B    |
|   | Essex Street between Broome Street and Grand Street      | East     | 10.0                 | 246                      | 1.64         | B    |
| West  |  | 7.0      | 176                  | 1.68                     | B            |      |
| 13  | Broome Street between Norfolk Street and Essex Street    | North    | 6.0                  | 247                      | 2.74         | B    |
|   | Broome Street between Norfolk Street and Suffolk Street  | North    | 5.0                  | 218                      | 2.91         | B(*) |
|   |  | South    | 5.0                  | 101                      | 1.35         | B    |
|   | Norfolk Street between Broome Street and Delancey Street | West     | 10.0                 | 47                       | 0.31         | A    |
| 14  | Broome Street between Suffolk Street and Norfolk Street  | North    | 6.0                  | 182                      | 2.02         | B    |
|   | Broome Street between Suffolk Street and Clinton Street  | North    | 8.0                  | 128                      | 1.07         | B    |
|   | Suffolk Street between Broome Street and Delancey Street | East     | 6.0                  | 101                      | 1.12         | B    |
|   |  | West     | 7.0                  | 66                       | 0.63         | B    |
| Suffolk Street between Broome Street and Grand Street | East   | 7.0      | 180                  | 1.71                     | B            |      |
| 15  | Broome Street between Clinton Street and Suffolk Street  | North    | 7.0                  | 135                      | 1.29         | B    |
|   | Broome Street between Clinton Street and Ridge Street    | North    | 8.0                  | 82                       | 0.68         | B    |
|   | Clinton Street between Broome Street and Delancey Street | East     | 8.0                  | 46                       | 0.38         | A    |
|   |  | West     | 8.0                  | 68                       | 0.57         | B    |
| Clinton Street between Broome Street and Grand Street | West   | 8.0      | 151                  | 1.26                     | B            |      |
| 16  | Grand Street between Allen Street and Orchard Street     | North    | 8.0                  | 290                      | 2.42         | B    |
| 17  | Grand Street between Ludlow Street and Orchard Street    | North    | 7.8                  | 258                      | 2.21         | B    |
|   | Grand Street between Ludlow Street and Essex Street      | North    | 8.0                  | 213                      | 1.78         | B    |
| 18  | Grand Street between Essex Street and Norfolk Street     | North    | 12.0                 | 215                      | 1.19         | B    |
| 19  | Grand Street between Norfolk Street and Suffolk Street   | North    | 12.0                 | 226                      | 1.26         | B    |
| 20  | Grand Street between Suffolk Street and Clinton Street   | North    | 10.0                 | 341                      | 2.27         | B    |
|   | Suffolk Street between Grand Street and Broome Street    | East     | 5.0                  | 180                      | 2.40         | B    |
| 21  | Grand Street between Clinton Street and Suffolk Street   | North    | 4.8                  | 210                      | 2.92         | B    |
|   | Clinton Street between Grand Street and Broome Street    | West     | 8.0                  | 120                      | 1.00         | B    |

**Note:** PMF = pedestrians per minute per foot  
<sup>1</sup> Sidewalk effective width was increased under With Action condition to reflect increased pedestrian space from the relocation of subway stairs from the sidewalk to within the adjacent building.  
 + Denotes a significant adverse pedestrian impact.  
 \* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.  
 FGEIS and Tech Memo impacted pedestrian element; Tech Memo impacted pedestrian element only.



**Table B-2**  
**2022 With 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 | 84.8           | A   | 82.7               | A    | 40.9           | B   | 60.9                 | A(*) |
|                  |                                    | Southwest | 107.1          | A   | 93.4               | A    | 71.0           | A   | 52.8                 | B    |
| 2                | Rivington Street and Essex Street  | Northeast | 66.7           | A   | 73.5               | A(*) | 37.1           | C*  | 44.2                 | B(*) |
|                  |                                    | Southeast | 31.1           | C   | 45.3               | B(*) | 20.6           | D   | 35.1                 | C    |
|                  |                                    | Southwest | 87.4           | A   | 59.9               | B*   | 32.6           | C   | 41.9                 | B    |
| 3                | Delancey Street and Allen Street   | Southeast | 282.5          | A   | 178.2              | A    | 106.6          | A   | 122.6                | A    |
|                  |                                    | Southwest | 263.8          | A   | 134.0              | A    | 98.2           | A   | 116.8                | A    |
| 4                | Delancey Street and Orchard Street | Southeast | 342.2          | A   | 133.1              | A    | 112.6          | A   | 94.5                 | A    |
|                  |                                    | Southwest | 352.7          | A   | 130.4              | A    | 94.4           | A   | 107.8                | A    |
| 5                | Delancey Street and Ludlow Street  | Northeast | 216.6          | A   | 143.2              | A    | 109.2          | A   | 127.4                | A    |
|                  |                                    | Southeast | 185.1          | A   | 106.3              | A    | 87.2           | A   | 123.5                | A    |
|                  |                                    | Southwest | 269.2          | A   | 104.8              | A    | 93.6           | A   | 116.9                | A    |
|                  |                                    | Northwest | 254.5          | A   | 140.9              | A    | 114.4          | A   | 118.4                | A    |
| 6                | Delancey Street and Essex Street   | Northeast | 81.2           | A   | 58.3               | B    | 41.8           | B   | 54.5                 | B    |
|                  |                                    | Southeast | 104.4          | A   | 73.2               | A(*) | 32.3           | C*  | 58.5                 | B    |
|                  |                                    | Southwest | 102.5          | A   | 66.7               | A    | 50.0           | B*  | 75.2                 | A    |
|                  |                                    | Northwest | 201.6          | A   | 144.3              | A    | 142.0          | A   | 170.3                | A    |
| 7                | Delancey Street and Norfolk Street | Northeast | 134.5          | A   | 107.4              | A    | 71.5           | A   | 97.9                 | A    |
|                  |                                    | Southeast | 745.6          | A   | 682.6              | A    | 251.0          | A   | 637.6                | A    |
|                  |                                    | Southwest | 196.6          | A   | 155.6              | A    | 57.4           | B*  | 137.1                | A    |
|                  |                                    | Northwest | 122.6          | A   | 91.6               | A    | 54.5           | B*  | 81.8                 | A    |
| 8                | Delancey Street and Suffolk Street | Northeast | 111.4          | A   | 139.1              | A    | 90.7           | A   | 125.4                | A    |
|                  |                                    | Southeast | 635.2          | A   | 557.1              | A    | 231.8          | A   | 481.4                | A    |
|                  |                                    | Southwest | 676.1          | A   | 547.2              | A    | 236.7          | A   | 526.4                | A    |
|                  |                                    | Northwest | 51.4           | B   | 62.7               | A    | 36.9           | C*  | 60.3                 | A(*) |
| 9                | Delancey Street and Clinton Street | Southeast | 388.3          | A   | 305.4              | A    | 166.7          | A   | 307.6                | A    |
|                  |                                    | Northwest | 155.6          | A   | 235.9              | A    | 139.8          | A   | 206.5                | A    |
| 12               | Broome Street and Essex Street     | Northeast | 94.3           | A   | 73.5               | A(*) | 37.9           | C*  | 68.4                 | A(*) |
|                  |                                    | Southeast | 241.9          | A   | 181.0              | A    | 115.4          | A   | 173.3                | A    |
|                  |                                    | Southwest | 49.6           | B   | 43.7               | B    | 37.5           | C*  | 56.4                 | B    |
|                  |                                    | Northwest | 62.6           | A   | 58.8               | B*   | 38.2           | C*  | 63.5                 | A    |
| 13               | Broome Street and Norfolk Street   | Northeast | 195.1          | A   | 157.0              | A    | 60.3           | A   | 167.7                | A    |
|                  |                                    | Southeast | 137.8          | A   | 118.6              | A    | 52.3           | B*  | 115.0                | A    |
|                  |                                    | Southwest | 494.5          | A   | 508.1              | A    | 237.6          | A   | 485.8                | A    |
|                  |                                    | Northwest | 153.5          | A   | 146.2              | A    | 53.5           | B*  | 139.4                | A    |
| 16               | Grand Street and Allen Street      | Northeast | 63.4           | A   | 83.5               | A    | 57.0           | B*  | 60.9                 | A    |
|                  |                                    | Southeast | 61.8           | A   | 65.9               | A    | 43.1           | B   | 44.0                 | B    |
| 17               | Grand Street and Orchard Street    | Northeast | 74.7           | A   | 101.5              | A    | 53.6           | B*  | 85.1                 | A    |
|                  |                                    | Northwest | 70.4           | A   | 86.7               | A    | 50.8           | B*  | 72.1                 | A    |
| 18               | Grand Street and Ludlow Street     | Northeast | 180.1          | A   | 169.5              | A    | 111.8          | A   | 155.2                | A    |
|                  |                                    | Southeast | 97.1           | A   | 98.9               | A    | 59.8           | B*  | 75.3                 | A    |
|                  |                                    | Northwest | 90.1           | A   | 120.6              | A    | 70.4           | A   | 85.8                 | A    |
| 19               | Grand Street and Essex Street      | Northeast | 180.3          | A   | 160.7              | A    | 107.0          | A   | 172.9                | A    |
|                  |                                    | Southeast | 182.5          | A   | 150.4              | A    | 144.3          | A   | 174.4                | A    |
|                  |                                    | Southwest | 106.0          | A   | 75.3               | A    | 68.9           | A   | 78.5                 | A    |
|                  |                                    | Northwest | 67.3           | A   | 63.3               | A    | 50.7           | B*  | 81.2                 | A    |
| 20               | Grand Street and Norfolk Street    | Northeast | 430.9          | A   | 385.7              | A    | 246.4          | A   | 374.4                | A    |
|                  |                                    | Northwest | 1047.2         | A   | 947.8              | A    | 632.9          | A   | 907.4                | A    |
| 21               | Grand Street and Suffolk Street    | Northeast | 150.4          | A   | 128.1              | A    | 58.3           | B*  | 117.4                | A    |
|                  |                                    | Northwest | 159.7          | A   | 151.5              | A    | 74.5           | A   | 146.8                | A    |
| 22               | Grand Street and Clinton Street    | Southwest | 516.2          | A   | 361.8              | A    | 293.8          | A   | 392.4                | A    |
|                  |                                    | Northwest | 185.4          | A   | 142.2              | A    | 95.9           | A   | 136.4                | A    |

**Note:** SFP = square feet per pedestrian  
 + Denotes a significant adverse pedestrian impact.  
 \* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.

**Table B-3  
2022 With Action Condition Crosswalk Analysis**

| Intersectio<br>n No. | Location                           | Crosswalk              | Street<br>Width<br>(feet) | Crosswalk<br>Width<br>(feet) | Conditions with conflicting vehicles |       |         |                 |       |      |                 |      |         |                 |       |         |
|----------------------|------------------------------------|------------------------|---------------------------|------------------------------|--------------------------------------|-------|---------|-----------------|-------|------|-----------------|------|---------|-----------------|-------|---------|
|                      |                                    |                        |                           |                              | AM                                   |       |         | Midday          |       |      | PM              |      |         | Saturday        |       |         |
|                      |                                    |                        |                           |                              | 2-way<br>Volume                      | SFP   | LO<br>S | 2-way<br>Volume | SFP   | LOS  | 2-way<br>Volume | SFP  | LO<br>S | 2-way<br>Volume | SFP   | LO<br>S |
| 2                    | Rivington Street and Essex Street  | East                   | 24.0                      | 11.0                         | 323                                  | 29.4  | C       | 249             | 42.0  | B(*) | 456             | 20.8 | D*      | 288             | 36.0  | C       |
| 3                    | Delancey Street and Allen Street   | South <sup>1</sup>     | 44.0                      | 20.0                         | 113                                  | 66.3  | A       | 194             | 61.5  | A    | 306             | 39.8 | C       | 263             | 47.8  | B       |
| 4                    | Delancey Street and Orchard Street | South                  | 25.0                      | 22.0                         | 118                                  | 201.8 | A       | 276             | 85.5  | A    | 397             | 56.7 | B*      | 318             | 72.2  | A       |
| 5                    | Delancey Street and Ludlow Street  | North                  | 25.0                      | 20.0                         | 220                                  | 85.6  | A       | 348             | 52.3  | B    | 441             | 40.7 | B       | 378             | 47.3  | B       |
| 6                    | Delancey Street and Essex Street   | South                  | 26.0                      | 22.0                         | 147                                  | 157.0 | A       | 341             | 65.1  | A    | 387             | 57.1 | B*      | 289             | 77.1  | A       |
|                      |                                    | North                  | 48.0                      | 19.0                         | 347                                  | 58.7  | B*      | 446             | 45.1  | B    | 462             | 41.8 | B       | 415             | 46.6  | B       |
|                      |                                    | East                   | 110.0                     | 14.0                         | 155                                  | 35.5  | C       | 265             | 20.2  | D(*) | 431             | 11.0 | E+      | 261             | 20.3  | D(*)    |
|                      |                                    | South                  | 54.0                      | 19.0                         | 172                                  | 130.1 | A       | 286             | 76.5  | A    | 549             | 38.8 | C*      | 357             | 60.9  | A       |
| 7                    | Delancey Street and Norfolk Street | West                   | 95.0                      | 14.0                         | 243                                  | 27.1  | C       | 390             | 16.3  | D+   | 311             | 21.1 | D*      | 244             | 27.1  | C       |
|                      |                                    | North                  | 26.0                      | 20.0                         | 233                                  | 72.1  | A       | 351             | 46.0  | B    | 488             | 31.8 | C       | 372             | 46.9  | B       |
|                      |                                    | South                  | 24.0                      | 10.0                         | 197                                  | 45.9  | B*      | 238             | 36.7  | C*   | 671             | 10.5 | E+      | 247             | 35.5  | C       |
| 8                    | Delancey Street and Suffolk Street | West                   | 105.0                     | 14.0                         | 108                                  | 60.2  | A       | 144             | 44.9  | B    | 294             | 21.5 | D*      | 177             | 36.2  | C*      |
|                      |                                    | North                  | 26.0                      | 20.0                         | 578                                  | 34.4  | C       | 446             | 44.9  | B    | 608             | 31.5 | C       | 453             | 44.8  | B       |
|                      |                                    | East <sup>1</sup>      | 56.0                      | 20.0                         | 90                                   | 140.5 | A       | 96              | 130.9 | A    | 202             | 60.9 | A       | 137             | 90.5  | A       |
|                      |                                    | South                  | 23.0                      | 14.0                         | 145                                  | 88.0  | A       | 174             | 75.5  | A    | 437             | 26.9 | C*      | 171             | 77.8  | A(*)    |
| 9                    | Delancey Street and Clinton Street | West <sup>1</sup>      | 51.0                      | 18.0                         | 113                                  | 95.4  | A       | 154             | 70.7  | A    | 306             | 33.4 | C*      | 166             | 63.0  | A       |
|                      |                                    | North                  | 24.0                      | 16.0                         | 377                                  | 8.0   | F*      | 208             | 16.8  | D    | 354             | 8.8  | E       | 224             | 15.2  | D+      |
|                      |                                    | South                  | 26.0                      | 17.0                         | 94                                   | 197.3 | A       | 98              | 190.7 | A    | 189             | 96.5 | A       | 96              | 194.7 | A       |
|                      |                                    | West (North of Median) | 36.0                      | 23.0                         | 168                                  | 87.5  | A       | 186             | 78.7  | A    | 276             | 51.3 | B*      | 177             | 82.1  | A       |
| 12                   | Broome Street and Essex Street     | West (South of Median) | 53.0                      | 23.0                         | 125                                  | 115.8 | A       | 179             | 80.2  | A    | 321             | 43.6 | B*      | 188             | 76.4  | A       |
|                      |                                    | North                  | 54.0                      | 11.0                         | 108                                  | 65.2  | A       | 171             | 40.5  | B    | 332             | 19.7 | D*      | 209             | 32.6  | C       |
|                      |                                    | East                   | 30.0                      | 11.0                         | 236                                  | 47.1  | B(*)    | 297             | 36.0  | C    | 451             | 22.6 | D*      | 295             | 36.6  | C       |
| 13                   | Broome Street and Norfolk Street   | South                  | 54.0                      | 15.0                         | 82                                   | 118.3 | A       | 124             | 78.4  | A    | 195             | 48.5 | B*      | 118             | 82.0  | A(*)    |
|                      |                                    | North                  | 25.0                      | 12.0                         | 196                                  | 56.1  | B*      | 223             | 49.6  | B    | 554             | 18.0 | D+      | 218             | 50.0  | B       |
| 17                   | Grand Street and Orchard Street    | North                  | 24.0                      | 13.0                         | 270                                  | 30.5  | C       | 187             | 46.7  | B    | 391             | 20.5 | D*      | 237             | 35.1  | C       |
| 18                   | Grand Street and Ludlow Street     | North                  | 24.0                      | 15.0                         | 207                                  | 50.6  | B       | 197             | 54.2  | B    | 316             | 32.3 | C*      | 249             | 41.3  | B(*)    |
| 19                   | Grand Street and Essex Street      | North                  | 54.0                      | 15.0                         | 190                                  | 55.3  | B*      | 221             | 46.8  | B    | 325             | 29.6 | C*      | 183             | 58.5  | B*      |
| 20                   | Grand Street and Norfolk Street    | North                  | 24.0                      | 14.0                         | 198                                  | 31.5  | C*      | 223             | 28.9  | C    | 350             | 14.1 | E+      | 225             | 25.7  | C(*)    |
| 21                   | Grand Street and Suffolk Street    | North                  | 25.0                      | 13.0                         | 207                                  | 59.9  | B*      | 206             | 60.6  | A*   | 423             | 26.8 | C*      | 210             | 59.0  | B       |

**Notes:** SFP = square feet per pedestrian

<sup>1</sup> Critical width (north/east or south/west of pedestrian refuge median) used for analysis street width.

+ Denotes a significant adverse pedestrian impact.

\* Denotes degrading level-of-service as compared to the FGEIS; (\*) Denotes improved level-of-service as compared to the FGEIS.

Yellow background: FGEIS and Tech Memo impacted pedestrian element; Orange background: Tech Memo impacted pedestrian element only.

# **Appendix C: Construction Noise**















|     |   |      |      |     |     |      |      |      |      |      |      |      |      |     |      |      |      |      |     |      |      |      |      |      |      |     |      |      |      |      |     |      |      |      |      |       |      |      |      |      |     |      |      |      |      |     |      |      |      |     |     |      |      |
|-----|---|------|------|-----|-----|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|------|------|------|------|------|-----|------|------|------|------|-----|------|------|------|------|-------|------|------|------|------|-----|------|------|------|------|-----|------|------|------|-----|-----|------|------|
| 50A | 5 | 57.2 | 60.9 | 2.5 | 0.0 | 63.1 | 62.2 | 63.2 | 58.5 | 65.9 | 53.1 | 59.5 | 1.1  | 0.0 | 61.7 | 59.7 | 59.1 | 0.7  | 0.0 | 61.3 | 0.0  | 60.5 | 55.4 | 60.2 | 1.8  | 0.0 | 62.4 | 53.9 | 59.7 | 1.3  | 0.0 | 61.0 | 48.6 | 58.8 | 0.4  | 0.0   | 61.0 | 48.6 | 58.8 | 0.4  | 0.0 | 61.0 | 38.4 | 58.4 | 0.0  | 0.0 | 60.6 | 48.1 | 58.8 | 0.4 | 0.0 | 61.0 | 61.0 |
| 50A | 6 | 59.8 | 62.7 | 3.2 | 0.0 | 67.5 | 64.0 | 65.3 | 58.8 | 0.0  | 67.5 | 64.0 | 67.0 | 1.2 | 0.0  | 62.9 | 53.4 | 60.5 | 1.0 | 0.0  | 62.7 | 0.0  | 61.7 | 56.7 | 61.3 | 1.8 | 0.0  | 63.5 | 53.9 | 60.9 | 1.4 | 0.0  | 61.1 | 49.7 | 59.9 | 0.4   | 0.0  | 62.1 | 48.1 | 59.4 | 0.4 | 0.0  | 62.1 | 48.1 | 59.4 | 0.4 | 0.0  | 62.1 | 61.0 |     |     |      |      |
| 51  | 1 | 51.5 | 61.0 | 0.5 | 0.0 | 64.0 | 52.0 | 61.1 | 0.6  | 0.0  | 64.1 | 51.0 | 61.0 | 0.5 | 0.0  | 64.0 | 50.9 | 61.0 | 0.5 | 0.0  | 64.0 | 0.0  | 60.5 | 0.0  | 0.0  | 0.5 | 0.0  | 64.0 | 51.3 | 61.0 | 0.5 | 0.0  | 63.0 | 50.8 | 60.9 | 0.4   | 0.0  | 63.0 | 50.5 | 60.9 | 0.4 | 0.0  | 63.0 | 50.6 | 60.9 | 0.4 | 0.0  | 63.0 | 61.0 |     |     |      |      |
| 51  | 2 | 52.8 | 61.6 | 0.9 | 0.0 | 64.6 | 53.9 | 61.6 | 0.6  | 0.0  | 64.6 | 52.4 | 61.6 | 0.6 | 0.0  | 64.6 | 52.4 | 61.6 | 0.6 | 0.0  | 64.6 | 0.0  | 60.0 | 0.0  | 0.0  | 0.6 | 0.0  | 64.6 | 52.4 | 61.6 | 0.6 | 0.0  | 64.6 | 52.4 | 61.6 | 0.6   | 0.0  | 64.6 | 52.4 | 61.6 | 0.6 | 0.0  | 64.6 | 52.4 | 61.6 | 0.6 | 0.0  | 64.6 | 61.0 |     |     |      |      |
| 51  | 3 | 53.2 | 61.6 | 2.0 | 0.0 | 63.6 | 53.2 | 62.7 | 0.7  | 0.0  | 63.6 | 51.2 | 62.7 | 0.7 | 0.0  | 63.6 | 51.2 | 62.7 | 0.7 | 0.0  | 63.6 | 0.0  | 60.5 | 0.7  | 0.0  | 0.7 | 0.0  | 63.6 | 51.2 | 62.7 | 0.7 | 0.0  | 63.6 | 51.2 | 62.7 | 0.7   | 0.0  | 63.6 | 51.2 | 62.7 | 0.7 | 0.0  | 63.6 | 51.2 | 62.7 | 0.7 | 0.0  | 63.6 | 61.0 |     |     |      |      |
| 51  | 4 | 53.6 | 60.9 | 0.8 | 0.0 | 63.9 | 53.0 | 60.9 | 0.8  | 0.0  | 63.9 | 53.0 | 60.9 | 0.8 | 0.0  | 63.9 | 53.0 | 60.9 | 0.8 | 0.0  | 63.9 | 0.0  | 60.0 | 0.0  | 0.0  | 0.8 | 0.0  | 63.9 | 53.0 | 60.9 | 0.8 | 0.0  | 63.9 | 53.0 | 60.9 | 0.8   | 0.0  | 63.9 | 53.0 | 60.9 | 0.8 | 0.0  | 63.9 | 53.0 | 60.9 | 0.8 | 0.0  | 63.9 | 61.0 |     |     |      |      |
| 51  | 5 | 53.6 | 60.7 | 0.9 | 0.0 | 63.7 | 53.9 | 60.9 | 1.0  | 0.0  | 63.7 | 53.4 | 60.9 | 0.9 | 0.0  | 63.7 | 53.4 | 60.9 | 0.9 | 0.0  | 63.7 | 0.0  | 59.8 | 0.0  | 0.0  | 0.9 | 0.0  | 63.7 | 53.4 | 60.9 | 0.9 | 0.0  | 63.7 | 53.4 | 60.9 | 0.9   | 0.0  | 63.7 | 53.4 | 60.9 | 0.9 | 0.0  | 63.7 | 53.4 | 60.9 | 0.9 | 0.0  | 63.7 | 61.0 |     |     |      |      |
| 51  | 6 | 53.6 | 61.3 | 1.0 | 0.0 | 63.1 | 53.2 | 61.3 | 1.0  | 0.0  | 63.1 | 53.2 | 61.3 | 1.0 | 0.0  | 63.1 | 53.2 | 61.3 | 1.0 | 0.0  | 63.1 | 0.0  | 60.1 | 1.0  | 0.0  | 1.0 | 0.0  | 63.1 | 53.2 | 61.3 | 1.0 | 0.0  | 63.1 | 53.2 | 61.3 | 1.0   | 0.0  | 63.1 | 53.2 | 61.3 | 1.0 | 0.0  | 63.1 | 53.2 | 61.3 | 1.0 | 0.0  | 63.1 | 61.0 |     |     |      |      |
| 51  | 7 | 54.5 | 60.2 | 1.3 | 0.0 | 63.6 | 53.6 | 60.0 | 1.1  | 0.0  | 63.6 | 53.6 | 60.0 | 1.1 | 0.0  | 63.6 | 53.6 | 60.0 | 1.1 | 0.0  | 63.6 | 0.0  | 58.9 | 0.0  | 0.0  | 1.1 | 0.0  | 63.6 | 53.6 | 60.0 | 1.1 | 0.0  | 63.6 | 53.6 | 60.0 | 1.1   | 0.0  | 63.6 | 53.6 | 60.0 | 1.1 | 0.0  | 63.6 | 53.6 | 60.0 | 1.1 | 0.0  | 63.6 | 61.0 |     |     |      |      |
| 51A | 1 | 44.6 | 55.1 | 0.4 | 0.0 | 58.1 | 46.7 | 55.3 | 0.6  | 0.0  | 58.3 | 43.6 | 54.9 | 0.2 | 0.0  | 57.9 | 41.3 | 54.9 | 0.2 | 0.0  | 57.9 | 0.0  | 54.7 | 0.0  | 0.0  | 0.2 | 0.0  | 57.9 | 41.3 | 54.9 | 0.2 | 0.0  | 57.9 | 41.3 | 54.9 | 0.2   | 0.0  | 57.9 | 41.3 | 54.9 | 0.2 | 0.0  | 57.9 | 41.3 | 54.9 | 0.2 | 0.0  | 57.9 | 61.0 |     |     |      |      |
| 51A | 2 | 45.0 | 55.1 | 0.5 | 0.0 | 58.3 | 47.0 | 55.3 | 0.7  | 0.0  | 58.5 | 44.3 | 55.3 | 0.8 | 0.0  | 58.1 | 41.6 | 55.3 | 0.8 | 0.0  | 58.1 | 0.0  | 54.8 | 0.0  | 0.0  | 0.5 | 0.0  | 58.1 | 41.6 | 55.3 | 0.8 | 0.0  | 58.1 | 41.6 | 55.3 | 0.8   | 0.0  | 58.1 | 41.6 | 55.3 | 0.8 | 0.0  | 58.1 | 41.6 | 55.3 | 0.8 | 0.0  | 58.1 | 61.0 |     |     |      |      |
| 51A | 3 | 47.6 | 55.5 | 0.8 | 0.0 | 58.5 | 48.5 | 55.6 | 0.9  | 0.0  | 58.6 | 45.7 | 55.2 | 0.5 | 0.0  | 58.2 | 42.6 | 55.2 | 0.5 | 0.0  | 58.2 | 0.0  | 54.7 | 0.0  | 0.0  | 0.8 | 0.0  | 58.2 | 42.6 | 55.2 | 0.5 | 0.0  | 58.2 | 42.6 | 55.2 | 0.5   | 0.0  | 58.2 | 42.6 | 55.2 | 0.5 | 0.0  | 58.2 | 42.6 | 55.2 | 0.5 | 0.0  | 58.2 | 61.0 |     |     |      |      |
| 51A | 4 | 53.2 | 57.1 | 2.3 | 0.0 | 60.1 | 54.1 | 57.5 | 2.7  | 0.0  | 60.5 | 52.7 | 56.7 | 1.9 | 0.0  | 59.9 | 52.4 | 56.8 | 2.0 | 0.0  | 59.8 | 0.0  | 54.8 | 0.0  | 0.0  | 2.3 | 0.0  | 59.9 | 52.4 | 56.8 | 2.0 | 0.0  | 59.9 | 52.4 | 56.8 | 2.0   | 0.0  | 59.9 | 52.4 | 56.8 | 2.0 | 0.0  | 59.9 | 52.4 | 56.8 | 2.0 | 0.0  | 59.9 | 61.0 |     |     |      |      |
| 51A | 5 | 55.2 | 59.4 | 2.0 | 0.0 | 62.4 | 58.4 | 59.9 | 2.5  | 0.0  | 62.9 | 54.8 | 59.9 | 1.9 | 0.0  | 62.3 | 54.8 | 59.9 | 1.9 | 0.0  | 62.4 | 0.0  | 57.4 | 0.0  | 0.0  | 2.0 | 0.0  | 62.4 | 54.8 | 59.9 | 1.9 | 0.0  | 62.4 | 54.8 | 59.9 | 1.9   | 0.0  | 62.4 | 54.8 | 59.9 | 1.9 | 0.0  | 62.4 | 54.8 | 59.9 | 1.9 | 0.0  | 62.4 | 61.0 |     |     |      |      |
| 51A | 6 | 58.2 | 62.0 | 2.3 | 0.0 | 64.6 | 58.5 | 62.1 | 2.5  | 0.0  | 64.5 | 58.5 | 62.1 | 2.5 | 0.0  | 64.5 | 57.1 | 61.5 | 1.9 | 0.0  | 64.5 | 0.0  | 59.6 | 0.0  | 0.0  | 2.3 | 0.0  | 64.5 | 57.1 | 61.5 | 1.9 | 0.0  | 64.5 | 57.1 | 61.5 | 1.9   | 0.0  | 64.5 | 57.1 | 61.5 | 1.9 | 0.0  | 64.5 | 57.1 | 61.5 | 1.9 | 0.0  | 64.5 | 61.0 |     |     |      |      |
| 51B | 1 | 46.9 | 55.3 | 0.7 | 0.0 | 58.3 | 49.0 | 55.7 | 1.0  | 0.0  | 58.0 | 42.4 | 55.0 | 0.3 | 0.0  | 58.0 | 42.4 | 55.0 | 0.3 | 0.0  | 57.9 | 0.0  | 54.7 | 0.0  | 0.0  | 0.7 | 0.0  | 58.0 | 42.4 | 55.0 | 0.3 | 0.0  | 58.0 | 42.4 | 55.0 | 0.3   | 0.0  | 58.0 | 42.4 | 55.0 | 0.3 | 0.0  | 58.0 | 42.4 | 55.0 | 0.3 | 0.0  | 58.0 | 61.0 |     |     |      |      |
| 51B | 2 | 49.6 | 55.2 | 1.0 | 0.0 | 63.3 | 54.0 | 56.2 | 1.1  | 0.0  | 63.2 | 54.0 | 56.2 | 1.1 | 0.0  | 63.2 | 54.0 | 56.2 | 1.1 | 0.0  | 63.2 | 0.0  | 56.3 | 0.0  | 0.0  | 1.0 | 0.0  | 63.2 | 54.0 | 56.2 | 1.1 | 0.0  | 63.2 | 54.0 | 56.2 | 1.1   | 0.0  | 63.2 | 54.0 | 56.2 | 1.1 | 0.0  | 63.2 | 54.0 | 56.2 | 1.1 | 0.0  | 63.2 | 61.0 |     |     |      |      |
| 51B | 3 | 55.3 | 58.0 | 3.3 | 0.0 | 61.0 | 60.5 | 61.5 | 6.8  | 0.0  | 60.5 | 49.9 | 55.9 | 1.2 | 0.0  | 58.9 | 47.6 | 55.9 | 1.2 | 0.0  | 58.5 | 0.0  | 54.7 | 0.0  | 0.0  | 3.3 | 0.0  | 58.5 | 47.6 | 55.9 | 1.2 | 0.0  | 58.5 | 47.6 | 55.9 | 1.2   | 0.0  | 58.5 | 47.6 | 55.9 | 1.2 | 0.0  | 58.5 | 47.6 | 55.9 | 1.2 | 0.0  | 58.5 | 61.0 |     |     |      |      |
| 51B | 4 | 58.2 | 59.8 | 1.5 | 0.0 | 62.8 | 62.0 | 62.7 | 8.1  | 0.0  | 62.6 | 62.0 | 62.7 | 8.1 | 0.0  | 62.6 | 62.0 | 62.7 | 8.1 | 0.0  | 62.6 | 0.0  | 54.7 | 0.0  | 0.0  | 1.5 | 0.0  | 62.6 | 62.0 | 62.7 | 8.1 | 0.0  | 62.6 | 62.0 | 62.7 | 8.1   | 0.0  | 62.6 | 62.0 | 62.7 | 8.1 | 0.0  | 62.6 | 62.0 | 62.7 | 8.1 | 0.0  | 62.6 | 61.0 |     |     |      |      |
| 51B | 5 | 58.6 | 60.4 | 5.7 | 0.0 | 63.1 | 62.8 | 63.4 | 8.7  | 0.0  | 63.1 | 62.8 | 63.4 | 8.7 | 0.0  | 63.1 | 62.8 | 63.4 | 8.7 | 0.0  | 63.1 | 0.0  | 54.7 | 0.0  | 0.0  | 5.7 | 0.0  | 63.1 | 62.8 | 63.4 | 8.7 | 0.0  | 63.1 | 62.8 | 63.4 | 8.7   | 0.0  | 63.1 | 62.8 | 63.4 | 8.7 | 0.0  | 63.1 | 62.8 | 63.4 | 8.7 | 0.0  | 63.1 | 61.0 |     |     |      |      |
| 51B | 6 | 60.5 | 62.1 | 5.1 | 0.0 | 65.2 | 60.7 | 62.1 | 3.1  | 0.0  | 65.0 | 57.2 | 60.1 | 3.1 | 0.0  | 63.0 | 57.2 | 60.1 | 3.1 | 0.0  | 63.0 | 0.0  | 59.9 | 0.0  | 0.0  | 5.1 | 0.0  | 63.0 | 57.2 | 60.1 | 3.1 | 0.0  | 63.0 | 57.2 | 60.1 | 3.1   | 0.0  | 63.0 | 57.2 | 60.1 | 3.1 | 0.0  | 63.0 | 57.2 | 60.1 | 3.1 | 0.0  | 63.0 | 61.0 |     |     |      |      |
| 51B | 7 | 61.5 | 62.8 | 5.7 | 0.0 | 65.8 | 62.2 | 65.8 | 8.7  | 0.0  | 65.8 | 62.2 | 65.8 | 8.7 | 0.0  | 65.8 | 62.2 | 65.8 | 8.7 | 0.0  | 65.8 | 0.0  | 59.9 | 0.0  | 0.0  | 5.7 | 0.0  | 65.8 | 62.2 | 65.8 | 8.7 | 0.0  | 65.8 | 62.2 | 65.8 | 8.7   | 0.0  | 65.8 | 62.2 | 65.8 | 8.7 | 0.0  | 65.8 | 62.2 | 65.8 | 8.7 | 0.0  | 65.8 | 61.0 |     |     |      |      |
| 52  | 1 | 49.8 | 60.3 | 0.4 | 0.0 | 63.1 | 50.3 | 60.4 | 0.5  | 0.0  | 63.4 | 48.8 | 60.2 | 0.3 | 0.0  | 63.2 | 48.8 | 60.2 | 0.3 | 0.0  | 63.2 | 0.0  | 59.9 | 0.0  | 0.0  | 0.4 | 0.0  | 63.2 | 48.8 | 60.2 | 0.3 | 0.0  | 63.2 | 48.8 | 60.2 | 0.3   | 0.0  | 63.2 | 48.8 | 60.2 | 0.3 | 0.0  | 63.2 | 48.8 | 60.2 | 0.3 | 0.0  | 63.2 | 61.0 |     |     |      |      |
| 52  | 2 | 52.6 | 60.7 | 0.5 | 0.0 | 63.2 | 50.7 | 60.4 | 0.4  | 0.0  | 63.2 | 49.7 | 60.4 | 0.4 | 0.0  | 63.2 | 49.7 | 60.4 | 0.4 | 0.0  | 63.2 | 0.0  | 59.9 | 0.0  | 0.0  | 0.5 | 0.0  | 63.2 | 49.7 | 60.4 | 0.4 | 0.0  | 63.2 | 49.7 | 60.4 | 0.4   | 0.0  | 63.2 | 49.7 | 60.4 | 0.4 | 0.0  | 63.2 | 49.7 | 60.4 | 0.4 | 0.0  | 63.2 | 61.0 |     |     |      |      |
| 52  | 3 | 51.2 | 60.4 | 0.6 | 0.0 | 63.4 | 51.7 | 60.4 | 0.6  | 0.0  | 63.4 | 50.3 | 60.3 | 0.5 | 0.0  | 63.3 | 50.2 | 60.3 | 0.5 | 0.0  | 63.3 | 0.0  | 59.8 | 0.0  | 0.0  | 0.6 | 0.0  | 63.3 | 50.2 | 60.3 | 0.5 | 0.0  | 63.3 | 50.2 | 60.3 | 0.5   | 0.0  | 63.3 | 50.2 | 60.3 | 0.5 | 0.0  | 63.3 | 50.2 | 60.3 | 0.5 | 0.0  | 63.3 | 61.0 |     |     |      |      |
| 52  | 4 | 51.6 | 60.0 | 0.7 | 0.0 | 63.0 | 52.5 | 60.1 | 0.8  | 0.0  | 63.0 | 52.5 | 60.1 | 0.8 | 0.0  | 63.0 | 52.5 | 60.1 | 0.8 | 0.0  | 63.0 | 0.0  | 59.8 | 0.0  | 0.0  | 0.7 | 0.0  | 63.0 | 52.5 | 60.1 | 0.8 | 0.0  | 63.0 | 52.5 | 60.1 | 0.8   | 0.0  | 63.0 | 52.5 | 60.1 | 0.8 | 0.0  | 63.0 | 52.5 | 60.1 | 0.8 | 0.0  | 63.0 | 61.0 |     |     |      |      |
| 52  | 5 | 52.9 | 59.9 | 0.6 | 0.0 | 63.2 | 52.6 | 60.5 | 2.0  | 0.0  | 63.5 | 51.5 | 59.3 | 0.8 | 0.0  | 62.3 | 51.2 | 59.2 | 0.7 | 0.0  | 62.8 | 0.0  | 58.5 | 0.0  | 0.0  | 0.6 | 0.0  | 62.3 | 51.2 | 59.2 | 0.7 | 0.0  | 62.3 | 51.2 | 59.2 | 0.7   | 0.0  | 62.3 | 51.2 | 59.2 | 0.7 | 0.0  | 62.3 | 51.2 | 59.2 | 0.7 | 0.0  | 62.3 | 61.0 |     |     |      |      |
| 52A | 1 | 43.8 | 54.9 | 0.3 | 0.0 | 57.9 | 44.2 | 55.0 | 0.4  | 0.0  | 58.0 | 39.4 | 54.8 | 0.1 | 0.0  | 57.8 | 39.1 | 54.8 | 0.1 | 0.0  | 57.8 | 0.0  | 54.7 | 0.0  | 0.0  | 0.3 | 0.0  | 57.8 | 39.1 | 54.8 | 0.1 | 0.0  | 57.8 | 39.1 | 54.8 | 0.1   | 0.0  | 57.8 | 39.1 | 54.8 | 0.1 | 0.0  | 57.8 | 39.1 | 54.8 | 0.1 | 0.0  | 57.8 | 61.0 |     |     |      |      |
| 52A | 2 | 43.0 | 55.0 | 0.3 | 0.0 | 58.0 | 44.3 | 55.1 | 0.4  | 0.0  | 58.1 | 39.7 | 54.8 | 0.1 | 0.0  | 57.9 | 38.5 | 54.8 | 0.1 | 0.0  | 57.8 | 0.0  | 54.7 | 0.0  | 0.0  | 0.3 | 0.0  | 57.9 | 38.5 | 54.8 | 0.1 | 0.0  | 57.9 | 38.5 | 54.8 | 0.1</ |      |      |      |      |     |      |      |      |      |     |      |      |      |     |     |      |      |





**Technical Memorandum for the  
Seward Park Mixed-Use Development Project FGEIS  
CEQR Number 11DME012M  
Technical Memorandum 004  
June 20, 2017**

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**A. INTRODUCTION**

The applicant Delancey Street Associates LLC (DSA) is proposing modifications to the previously approved development program (described in the Seward Park Mixed-Use Development Project Final Generic Environmental Impact Statement (FGEIS), Technical Memorandum 001, Technical Memorandum 002, and Technical Memorandum 003). The proposed 2 million-gross-square foot (gsf) mixed-use development would result in the following changes on Sites 3, 4, 8, 9, and 10 (refer to **Figure 1**), as compared to the FGEIS and Technical Memoranda 001, 002, and 003:

- A net increase of 79 units in the number of residential units and changes in the number and composition of affordable and market-rate residential units on Sites 3, 4, 8, 9, and 10;
- A net increase of 22,150 gross square feet (gsf) of commercial space; and
- A specific building design now proposed for Site 8 which is 23,153 gsf larger and 15 feet taller than the previously analyzed building envelope, which would be allowed under New York City Zoning for Quality and Affordability provisions for independent residences for seniors.

In addition, DSA is seeking U.S. Department of Housing and Urban Development (HUD) Project-based Section 8 vouchers (rental assistance) for Site 8, which would be allocated by the New York City Department of Housing Preservation and Development (HPD), are subject to review under the National Environmental Protection Act (NEPA) and Section 106 of the National Historic Preservation Act. The NEPA and Section 106 reviews are being finalized in June 2017.

As a result of these program modifications, the proposed Essex Crossing program requires additional environmental review under City Environmental Quality Review (CEQR) in order to determine whether the modifications could result in significant adverse impacts that were not identified in the FGEIS or subsequent Technical Memoranda, and the New York City Office of the Deputy Mayor for Housing and Economic Development (OMHED)<sup>1</sup> will be the lead agency for review.

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<sup>1</sup> The Office formerly known as the Deputy Mayor for Economic Development (ODMED) is now OMHED.

## BACKGROUND

On August 10, 2012, ODMED, as Lead Agency, issued a Notice of Completion for the Seward Park Mixed-Use Development Project FGEIS that was prepared in coordination with the New York City Economic Development Corporation (NYCEDC) and HPD. Following the issuance of the Notice of Completion, the New York City Council (City Council) proposed certain modifications to the Uniform Land Use Review Procedure (ULURP) applications (the “Applications” or the “proposed actions”) as a result of its review of the Applications. In addition, HPD submitted a revised Urban Development Action Area Project (UDAAP) project summary (the “UDAAP Revised Project Summary”) to the City Council to be reflected in the City Council’s resolution regarding the project, and the City stated certain intentions, as reflected in a letter dated September 27, 2012, from Robert K. Steel, Deputy Mayor for Economic Development, to Councilmember Margaret Chin. Those modifications were assessed in a Technical Memorandum (CEQR Number 11DME012M TM 001) dated October 1, 2012 (Technical Memorandum 001). The proposed modifications assessed in Technical Memorandum 001 increased the number of residential units in the reasonable worst-case development scenario (RWCDS) to 1,000 from the 900 units assessed in the FGEIS, included the potential for a school on Site 5 as part of the RWCDS, and revised the Large Scale General Development (LSGD) ground floor plans for Sites 2, 3, and 4 to eliminate the second waiver to the ground floor frontage requirements. Technical Memorandum 001 concluded that the proposed modifications to the proposed actions would not result in any significant adverse environmental impacts that were not previously identified in the FGEIS.

Further, the New York City Department of City Planning (DCP) reviewed a minor modification to the Applications, which was proposed by NYCEDC and HPD, in Technical Memorandum 002 (CEQR Number 11DME012M TM 002). The proposed modification increased the size of the proposed open space on Site 5 to 15,000 square feet from the 10,000 square feet assessed in the FGEIS. Technical Memorandum 002 concluded that the proposed modification would not result in any significant adverse environmental impacts not already identified in the FGEIS.

Subsequently, the City’s designated developer, DSA, proposed use changes to the previously approved development program and design controls determined as part of the LSGD applicable to Sites 1-6 of the proposed mixed-use development program. These changes were assessed in Technical Memorandum 003 (CEQR Number 11DME012M TM 003) (March 9, 2015). The proposed modifications included: an increase of the overall development size by 16.6 percent (281,405 gsf); of the 1,000 residential units, 400 would be affordable units and 100 would be affordable senior units; an increase in public market space; a reduction in retail space; the elimination of the hotel; the addition of sub-grade retail space; a gym (Physical Culture Establishment), movie theatre, bowling alley, and museum space; an increase in the amount of professional office space; and the elimination of 500 parking spaces for Sites 1-6. Technical Memorandum 003 concluded that the proposed modifications would not result in any significant adverse environmental impacts not already identified in the FGEIS and Technical Memoranda 001 and 002.

Since the issuance of Technical Memorandum 003, DSA has initiated construction on Sites 1, 2, 5, and 6. DSA is now proposing modifications to the building program for Sites 3, 4, 8, 9, and 10. Further, DSA is now proposing a specific building design for Site 8. With the proposed modifications, the same uses would be introduced on Sites 3, 4, 8, 9 and 10 as with the program analyzed in the 2012 FGEIS (“FGEIS program”) and subsequent Technical Memoranda 001, 002, and 003 (“approved program”); however, there would be an additional 79 residential units,

an additional 22,150 gsf of commercial space, and shifts in the make-up of commercial space and the mix of market-rate, affordable, and affordable senior housing units. As assessed in Technical Memorandum 003, the development of Sites 1-6, 8, and 9 is expected to be complete by 2022, as was analyzed in the 2012 FGEIS, with the development of Site 10 expected to be complete by 2024.

The purpose of this Technical Memorandum is to determine whether the proposed modifications to the approved program would result in any significant adverse environmental impacts not already identified in the 2012 FGEIS and subsequent Technical Memoranda 001, 002, and 003. As set forth below, this Technical Memorandum (Technical Memorandum 004) concludes that the proposed Essex Crossing program would not result in such impacts.

NYCEDC and/or HPD will require DSA and its affiliates to implement the mitigation and associated environmental measures identified in the FGEIS and the Technical Memoranda, including this Technical Memorandum 004, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between DSA or its affiliates and NYCEDC, HPD, and/or the City.

**B. DESCRIPTION OF THE PROPOSED MODIFICATIONS**

With the proposed modifications, the proposed Essex Crossing program would introduce an approximately 2.0 million-gsf mixed-use development. In summary, the proposed modifications would add 79 residential units for a total of 1,079 residential units, consisting of 518 market-rate units, 369 affordable units, and 192 affordable senior housing units. In comparison, the approved program assessed in Technical Memorandum 003 consisted of 1,000 total units, comprising 500 market-rate units, 400 affordable units, and 100 affordable senior housing units. Further, changes to the commercial programs on Sites 3, 4, and 8 would result in an additional 22,150 gsf of commercial space on those Sites. Table 1 compares the proposed Essex Crossing program with the approved program. Tables 2, 3, and 4 compare the proposed programs on Sites 3, 4, and 8, respectively, with the approved program on those sites.

**Table 1  
Total Proposed Essex Crossing Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Res. (gsf) | Res. Dwelling Units | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|------------|---------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 1,661,280                         | 2,058,464                    | 1,037,221  | 1,079 (1)           | 282,892 (3)  | 0           | 412,116 (4)        | 43,028              | 75,000       | 72,092(5)       | 136,115 (6) |
| Tech Memo 003                   | 1,653,125                         | 1,978,842                    | 977,324    | 1,000 (2)           | 292,127      | 0           | 380,731            | 43,028              | 75,000       | 72,092          | 131,540     |
| Increment                       | +8,155                            | +79,622                      | +59,897    | +79                 | -9,235       | 0           | +31,385            | 0                   | 0            | 0               | +4,575      |

**Note:**

- (1) 1,079 residential units includes 887 market-rate and affordable units and 192 affordable senior units.
  - (2) 1,000 residential units includes 900 market-rate and affordable units and 100 affordable senior units.
  - (3) Retail includes general retail, sub-grade Market Line space, and Broome Street Gardens.
  - (4) Other Commercial Space includes office space and a bowling alley, gym, and movie theater.
  - (5) Other Community Facility space includes general community facility space, medical office space, and a museum.
  - (6) Other includes Mechanical, Electrical, and Plumbing (MEP), back of house, and support space; subway space; and open roof terraces.
- \* Comm.= Commercial, CF= Community Facility

**Source:** Proposed program provided by the Applicant.

The specific development modifications proposed for each site are described below.

**SITE 3**

The proposed building on Site 3 would be 388,835 gsf, which would be 42,242 gsf larger than the building analyzed in Technical Memorandum 003. The building on Site 3 would include 130,883 gsf of office space, 124,356 gsf of residential space, and 53,634 gsf of retail space. In addition, the building would include 83 market rate condominiums. In comparison, the approved program assessed in Technical Memorandum 003 included 97 residential units of which 48 were affordable units. The retail space would include below-grade Market Line space that would connect with the Market Line space on Sites 2 and 4. In addition, the 2nd level would contain a seating area above the retail stores that overlooks Broome Street and the Market Line. This seating area would be called the Broome Street Gardens, and there would be a separate but similar seating area in the building on Site 4. On Site 3, the Broome Street Gardens space would be approximately 6,247 gsf. This interior seating area, which would be open during the hours of operation of the retail space, would be accessed through the retail space. **Table 2** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 2  
Proposed Site 3 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Res. Dwelling Units | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|---------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 259,947                           | 338,835                      | 124,356           | 83 (1)              | 53,634 (3)   | 0           | 130,883 (4)        | 0                   | 0            | 0               | 29,962 (5)  |
| Tech Memo 003                   | 241,004                           | 296,593                      | 80,757            | 97 (2)              | 72,758       | 0           | 107,902            | 0                   | 0            | 0               | 35,176      |
| Increment                       | +18,943                           | +42,242                      | +43,599           | -14                 | -19,124      | -           | +22,981            | -                   | -            | -               | -5,214      |

**Notes:**

- (1) Market-rate units.
- (2) 49 market-rate units and 48 affordable units.
- (3) Retail includes 30,493 gsf of sub-grade Market Line space and 6,247 gsf of Broome Street Gardens.
- (4) Other commercial space is 127,132 gsf of office space and lobby, circulation, and bike storage.
- (5) Other includes mechanical space. .

\* Comm.= Commercial, CF= Community Facility

**Source:** Proposed program provided by the Applicant.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 3, the proposed building would have a tower on Delancey Street. The tower would be 160 feet to the roof in compliance with the maximum tower heights for the site. The proposed building would have a mid-rise portion on Suffolk Street, and the base height would be 72 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls. See **Figures 2-5** for the LSGD design controls, a site plan and sections, and elevations.

**SITE 4**

DSA proposes to construct a 454,520-gsf building on Site 4, which would be approximately 20,743 gsf larger than the building analyzed in Technical Memorandum 003. The proposed



building on Site 4 would have a mix of uses, including 207,206 gsf of residential space, 138,210 gsf of office space, and 68,478 gsf of retail uses. The residential space would include 263 units, of which 121 would be affordable units. In comparison, the approved program assessed in Technical Memorandum 003 included 240 units, of which 118 were affordable units. The retail space would include below-grade Market Line retail space and 4,524 gsf of Broome Street Gardens space. As described above, the Broome Street Gardens space would provide indoor seating areas on Sites 3 and 4 that would be accessible through the retail space. **Table 3** shows a comparison between the proposed Essex Crossing program and the approved program. See **Figures 6-8** for a ground floor plan and elevations.

**Table 3**  
**Proposed Site 4 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Res. Dwelling Units | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|---------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 346,399                           | 454,520                      | 207,206           | 263 (1)             | 68,478 (3)   | 0           | 138,210 (4)        | 0                   | 0            | 0               | 40,626 (5)  |
| Tech Memo 003                   | 369,211                           | 433,777                      | 214,061           | 240 (2)             | 59,073       | 0           | 129,806            | 0                   | 0            | 0               | 30,837      |
| Increment                       | -22,812                           | +20,743                      | -6,855            | +23                 | +9,405       | -           | +8,404             | -                   | -            | -               | +9,789      |

**Notes:**  
 (1) 142 market-rate units and 121 affordable units.  
 (2) 122 market-rate units and 118 affordable units.  
 (3) Retail includes 39,700 gsf of sub-grade Market Line space and 4,524 gsf of Broome Street Gardens.  
 (4) Other Commercial Space is office space.  
 (5) Other space includes 28,263 gsf of open roof terraces and 12,363 gsf of mechanical space.  
 \* Comm.= Commercial, CF= Community Facility  
**Source:** Proposed program provided by the Applicant.

The proposed building would fit within the maximum zoning envelope assessed in the FGEIS. Consistent with the LSGD design controls for Site 4, the proposed building would have a tower on Clinton Street. The tower would be 259 feet to the roof in compliance with the maximum tower heights for the site. The proposed building would have a mid-rise portion on Delancey Street, and the base height would be 73 feet in compliance with the minimum and maximum base heights for the site. The proposed building would also be in compliance with tower dimension, streetwall, and setback controls.

**SITE 8**

DSA proposes to construct a 69,852-gsf building on Site 8, which would be 23,637-gsf larger than the building analyzed in Technical Memorandum 003. The building would introduce 92 affordable senior units as compared to the previously analyzed 24 residential units, of which 20 percent would be affordable, in Technical Memorandum 003. The 9,700-gsf ground-floor retail space remains envisioned to be neighborhood-oriented retailers. **Table 4** shows a comparison between the proposed Essex Crossing program and the approved program.

**Table 4  
Proposed Site 8 Program**

|                                 | Allowable Zoning Floor Area (zsf) | Total Gross Floor Area (gsf) | Residential (gsf) | Res. Dwelling Units | Retail (gsf) | Hotel (gsf) | Other Comm.* (gsf) | Public Market (gsf) | School (gsf) | Other CF* (gsf) | Other (gsf) |
|---------------------------------|-----------------------------------|------------------------------|-------------------|---------------------|--------------|-------------|--------------------|---------------------|--------------|-----------------|-------------|
| Proposed Essex Crossing Program | 56,853                            | 69,852                       | 60,152            | 92 (1)              | 9,700 (3)    | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Tech Memo 003                   | 44,829                            | 46,215                       | 36,999            | 24 (2)              | 9,216        | 0           | 0                  | 0                   | 0            | 0               | 0           |
| Increment                       | +12,024                           | +23,637                      | +23,153           | +68                 | +484         | -           | -                  | -                   | -            | -               | -           |

**Notes:**

- (1) Affordable senior housing units.
- (2) 20% of these units (5 units) were assumed to be affordable units.
- (3) The retail total also includes mechanical space.

\* Comm.= Commercial, CF= Community Facility

**Source:** Proposed program provided by the Applicant.

A specific building design is now proposed for Site 8 that is 15 feet taller than the previously analyzed building envelope (85 feet to the roofline and 96 feet to the bulkhead); however, the massing and height of the building on Site 8 would remain compliant with existing zoning as permitted under the New York City Zoning for Quality and Affordability provisions for affordable independent residences for seniors. See **Figures 9-11** for ground floor and cellar plans, a section and roof plan, and an elevation.

**SITE 9**

The building on Site 9 has not been designed or programmed as fully as the buildings within the LSGD on Sites 1-6 or the building on Site 8, but as previously assessed in the approved program, it is planned to be 102,364 gsf (comprising 83,609 gsf of residential space and 17,822 gsf of retail space). The proposed program unit composition now includes 70 residential units, including 35 affordable units, compared to the 64 units, of which 20 percent were affordable (13 units), assessed in Technical Memorandum 003. Like the retail space on Site 8, the retail space on Site 9 is envisioned to be occupied by neighborhood-oriented retailers. The massing and height of the building on Site 9 would be compliant with existing zoning, as assessed in the FGEIS.

**SITE 10**

The building on Site 10 has not been designed or programmed as fully as the buildings within the LSGD on Sites 1-6 or the building on Site 8, but it is planned to be 26,722 gsf as previously assessed in the approved program. The proposed program now includes 10 market-rate condominium units, compared to the 14 residential units, of which 20 percent were affordable (3 units), assessed in Technical Memorandum 003. Ground-floor retail space is assumed to be 5,311 gsf as assessed in Technical Memorandum 003. The massing and height of the building on Site 10 would be compliant with existing zoning, as assessed in the FGEIS.

This Technical Memorandum is required to analyze whether the proposed modifications to the Essex Crossing program on Sites 3, 4, 8, 9, and 10 would result in any significant adverse impacts not already identified in the FGEIS and subsequent Technical Memoranda 001, 002, and 003.

## C. POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

The proposed modifications to the Essex Crossing program would introduce a program that is different from the approved program. Therefore, the potential for new significant adverse impacts in the analysis areas based on the program are considered below. In addition, Site 8 now has a specific building design; therefore, the potential for significant adverse impacts in the analysis areas based on the height and massing of Site 8 are considered below. Following the approach of the 2014 *CEQR Technical Manual*, each of the relevant CEQR technical areas is discussed below.

### LAND USE, ZONING, AND PUBLIC POLICY

The proposed modifications to the Essex Crossing program—an increase in commercial use on three Sites and a change in the mix of market rate, affordable, and affordable senior housing units across five Sites—would not alter the land uses that were analyzed previously in Technical Memorandum 003 and, therefore, would not result in new or different significant adverse impacts. Similarly, the buildings on Sites 3 and 4 would be consistent with the LSGD controls and would fit within the maximum zoning envelopes assessed in the FGEIS, and the buildings on Sites 8, 9, and 10 would be compliant with existing zoning as assessed in the FGEIS. Therefore, the proposed modifications do not include any changes in zoning and would not result in significant adverse zoning impacts.

Like the proposed project analyzed in the FGEIS and subsequent Technical Memoranda, the Essex Crossing program with the proposed modifications would introduce new affordable housing units and would contribute to achieving the City's goal of creating new affordable housing units, as expressed in *The New Housing Marketplace Plan*. Further, the proposed modifications would introduce an additional 92 affordable senior housing units to the Essex Crossing program. With the proposed modifications, the Essex Crossing program would continue to support the Lower East Side and Chinatown Business Improvement Districts (BIDs) by providing economic development within and adjacent to the BID's areas of operations. Also, like the approved program, the Essex Crossing program would be consistent with PlaNYC 2030 (subsequently updated and renamed to OneNYC). Therefore, like the approved program, the Essex Crossing program with the proposed modifications would support the objectives of applicable public policies.

### SOCIOECONOMIC CONDITIONS

The FGEIS and subsequent technical memoranda concluded that there would be no significant adverse impacts with respect to any of the six areas of CEQR socioeconomic concern: direct residential displacement; direct business displacement; indirect residential displacement due to increased rents; indirect business displacement due to increased rents; indirect business displacement due to retail market saturation; and adverse effects on specific industries. This section considers whether the proposed modifications to the Essex Crossing program would alter these findings.

As described above, the proposed modifications to the Essex Crossing program include:

- A net increase in the number of residential units (a 79-unit increase from the program assessed in Technical Memorandum 003);
- A shift in the composition of affordable and market-rate residential units (an increase of 18 market-rate dwelling units; a decrease of 31 affordable, non-senior dwelling units; and an

increase of 92 affordable senior dwellings units above the Technical Memorandum 003 program);

- A net 22,150-gsf increase of commercial space; and
- For Site 8, a revised building design and pursuance of U.S. Department of Housing and Urban Development (HUD) Project-based Section 8 vouchers.

These proposed modifications would not result in any direct residential or direct business displacement. With respect to indirect business displacement, the marginal net increase in commercial space would be distributed among three sites and would not materially affect market conditions. The same could be said for the 79-unit increase in terms of its potential to affect residential market conditions. However, as detailed below, this residential increment trips a *CEQR Technical Manual* threshold for analyses of indirect residential displacement, warranting consideration as to whether the proposed Essex Crossing Program could introduce or accelerate a trend toward increased residential rents. The analysis presented below finds that the proposed Essex Crossing program would not result in significant adverse impacts due to indirect residential displacement.

#### *INDIRECT RESIDENTIAL DISPLACEMENT*

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. The indirect residential displacement analysis as presented in Technical Memorandum 003 analyzed the introduction of a total of 1,000 residential units, including 100 senior housing units, and found the population increase would be less than the 5 percent CEQR threshold. The proposed Essex Crossing program would introduce 1,079 units including: 518 market-rate, non-senior units; 369 affordable, non-senior units; and 192 affordable, senior units. The proposed modifications would introduce an estimated 2,248 residents to the study area, for a total population of 47,018 or an increase of 5.02 percent.<sup>2</sup> Since the proposed Essex Crossing program would result in a population increase that exceeds the 5 percent threshold, consistent with *CEQR Technical Manual* methodology, the following assessment considers whether the study area has already experienced a readily observable trend toward increasing rents and the likely effect of the Essex Crossing program on such trends within the study area.

The study area, shown in FGEIS Figure 3-1, has experienced a readily observable trend toward increasing housing prices. As shown in **Table 5**, the study area's average gross rent as reported by the Census increased by approximately 30 percent between 2000 and the 2006-2010 American Community Survey (ACS), approximately three times the rate of Manhattan and New York City. The average gross rents continued to increase by 6 percent between the 2006-2010 ACS and 2011-2015 ACS, which is similar to the rate of growth in Manhattan and New York City. The average is calculated by dividing the aggregate rent by the total number of listings in the study areas. The presence of high rents raises the average rent, sometimes substantially higher than the median rent in the study area. The median rent represents the mid-point of all listings' rents in the study area.

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<sup>2</sup> Similar to the FGEIS and subsequent technical memoranda, the estimated population was based on an average household size of 2.21 people per household for non-senior units and 1.5 people per household for senior units in Community District 3.

Median gross rents also show a trend toward increasing housing prices (see **Table 6**). The study area’s median gross rent increased by approximately 21 percent between 2000 and the 2006-2010 ACS, which is a faster rate of growth than compared to that of Manhattan and New York City. The study area’s median gross rent increased by 11.6 percent between the 2006-2010 ACS and 2011-2015 ACS, which is a slower rate than for Manhattan as a whole (13.8 percent increase) but a faster rate than New York City (8.3 percent increase). In specific areas—the area bounded by East Houston Street to the North, Rivington Street to the South, Allen Street to the West and Clinton Street to the east (Census Tract 30.01); another area bounded by Delancey Street to the north, Grand Street to the south, Ridge Street to the west and the East River to the east (Census Tract 12); and a third area bounded by Grand Street to the north, Division Street to the southeast, and Essex Street to the west (Census Tract 14.01)—the study area median gross rents are increasing at an even faster rate than in Manhattan and New York City. There is one area generally bounded by East Houston Street to the south, East Third Street to the north, Avenue B to the east, and First Avenue to the west (Census Tract 30.02) where the trend of increasing housing prices is less readily identifiable, because the area is mostly New York City Housing Authority housing—including First Houses with 126 DUs and Meltzer Tower with 231 DUs—where rents are regulated as to maintain affordability. Even in the case of rent-regulated units, the area showed a growth in median and average gross rents, which reinforces the conclusion that the study area shows a pronounced trend towards increased rents.

**Table 5**  
**Average Gross Rent (2000 Census, 2006—2010 ACS, 2011—2015 ACS)**

|                                 | 2000    | 2006—2010 ACS | 2011—2015 ACS | Percent Change<br>2000—2006/2010<br>ACS | Percent Change<br>2006/2010—<br>2011/2015 ACS |
|---------------------------------|---------|---------------|---------------|---|---|
| <b>Socioeconomic Study Area</b> | \$1,009 | \$1,290       | \$1,368       | 27.9                                    | 6.0   |
| Census Tract 12                 | \$850   | \$1,023       | \$1,105       | 20.5                                    | 7.9   |
| Census Tract 14.01              | \$995   | \$1,112       | \$1,803       | 11.7                                    | 62.2  |
| Census Tract 14.02              | \$876   | \$1,181       | \$1,146       | 34.7                                    | -2.9  |
| Census Tract 16                 | \$902   | \$1,096       | \$1,191       | 21.5                                    | 8.7   |
| Census Tract 18                 | \$997   | \$1,408       | \$1,381       | 41.3                                    | -2.0  |
| Census Tract 22.01              | \$845   | \$1,010       | \$1,085       | 19.5                                    | 7.3   |
| Census Tract 30.01              | \$1,332 | \$1,632       | \$1,993       | 22.6                                    | 22.1  |
| Census Tract 30.02              | \$1,408 | \$1,430       | \$1,524       | 1.6                                     | 6.6   |
| Census Tract 36.01              | \$823   | \$1,600       | \$1,366       | 94.4                                    | -14.6   |
| <b>Manhattan</b>                | \$1,467 | \$1,555       | \$1,685       | 6.0                                     | 8.4   |
| <b>New York City</b>            | \$1,140 | \$1,252       | \$1,345       | 9.8                                     | 7.5   |

**Notes:** 1. All dollar figures have been adjusted to 2016 dollars based on the U.S. Department of Labor, Consumer Price Index, 2016.  
**Sources:** U.S. Census Bureau 2000, 2006-2010 ACS, 2011-2015 ACS. Accessed through Social Explorer in April 2017.

**Table 6**  
**Median Gross Rent (2000, 2006—2010 ACS, 2011—2015 ACS)**

|                                 | 2000    | 2006—2010 ACS | 2011—2015 ACS | Percent Change<br>2000—2006/2010<br>ACS | Percent Change<br>2006/2010—<br>2011/2015 ACS |
|---------------------------------|---------|---------------|---------------|---|---|
| <b>Socioeconomic Study Area</b> | \$830   | \$1,008       | \$1,125       | 21.4                                    | 11.6  |
| Census Tract 12                 | \$594   | \$779         | \$918         | 31.1                                    | 17.9  |
| Census Tract 14.01              | \$911   | \$903         | \$1,665       | -0.8                                    | 84.3  |
| Census Tract 14.02              | \$683   | \$833         | \$895         | 22.0                                    | 7.4   |
| Census Tract 16                 | \$833   | \$940         | \$1,004       | 12.9                                    | 6.7   |
| Census Tract 18                 | \$832   | \$1,198       | \$1,204       | 44.1                                    | 0.5   |
| Census Tract 22.01              | \$716   | \$909         | \$955         | 27.0                                    | 5.1   |
| Census Tract 30.01              | \$1,174 | \$1,652       | \$1,985       | 40.7                                    | 20.2  |
| Census Tract 30.02              | \$1,043 | \$1,053       | \$1,248       | 1.0                                     | 18.6  |
| Census Tract 36.01              | \$629   | \$930         | \$948         | 47.8                                    | 1.9   |
| <b>Manhattan</b>                | \$1,184 | \$1,349       | \$1,535       | 13.9                                    | 13.8  |
| <b>New York City</b>            | \$1,049 | \$1,171       | \$1,269       | 11.6                                    | 8.3   |

**Notes:** 1. All dollar figures have been adjusted to 2016 dollars based on the U.S. Department of Labor, Consumer Price Index, 2016.  
**Sources:** U.S. Census Bureau 2000, 2006-2010 ACS, 2011-2015 ACS. Accessed through Social Explorer in April 2017.

U.S. Census and ACS data do not provide specific rent information according to regulation status or unit size, but instead can paint a general picture about the rate at which housing costs are changing in a neighborhood. Market comparables are therefore used below to provide a fuller understanding of where the market is today. Average and median asking rents for unregulated housing in the study area, presented in **Table 7**, shows that current market-rate rents are already unaffordable to households earning less than the AMI for the New York City region (\$75,200 for a two-person family and \$81,600 for a three-person family).<sup>3</sup> In addition, residential development within or in close proximity to the study area is largely market-rate housing, including The Adele located at 310 East Second Street, with 136 rental units; 50 Clinton Street, a 37-unit condominium building; 150 Rivington Street, a 45-unit condominium building; and 196 Orchard Street, a 94-unit condominium building.

**Table 7**  
**Average and Median Asking Rents in the Socioeconomic Study Area**

|         | Studio  | 1-bedroom | 2-bedroom | 3-bedroom |
|---------|---------|-----------|-----------|-----------|
| Average | \$2,185 | \$2,535   | \$3,540   | \$4,341   |
| Median  | \$2,150 | \$2,495   | \$3,442   | \$4,275   |

**Sources:** StreetEasy.com (Accessed April 2017)

Given the prevailing trends toward increased rents and the high cost of market rate units, the mixed-income demographic within the study area can only be maintained within the study area through the introduction and preservation of affordable housing. With the proposed modifications, the Essex Crossing program would result in a greater amount of affordable housing (61 additional affordable dwelling units: a decrease of 31 non-senior affordable units but an increase of 92 senior affordable units) than the program analyzed in Technical Memorandum 003. The additional affordable senior units would likely bring down the average income as compared to the program in the FGEIS and previous technical memorandums. In this respect, the Essex Street Crossing program—even while introducing new households with

<sup>3</sup> Source: <http://www1.nyc.gov/site/hpd/about/what-is-affordable-housing.page>

higher incomes—can serve to maintain the area’s income diversity through the introduction of a substantial amount of affordable housing.

### *CONCLUSION*

Since the vast majority of the study area has already experienced a readily observable trend toward increasing rents and new market rate development, the proposed Essex Crossing program would not initiate a trend toward increased rents. The proposed Essex Crossing program includes a large amount of affordable housing (561 dwelling units) that would provide opportunity for residents with a wider range of incomes to live in the study area.

While Step 1 of the preliminary assessment in the FGEIS could not rule out the possibility that the proposed development would result in new populations with higher average incomes than the existing and future study area population, and Step 2 of the analysis of the proposed Essex Crossing program with the proposed modifications (above) determined that the project’s increase in population could be large enough to affect real estate market conditions in portions of the study area, Step 3 found that the study area has already experienced a readily observable trend toward increasing housing prices. Thus, the analysis presented above finds that the Essex Crossing program with the proposed modifications would not result in significant adverse impacts due to indirect residential displacement.

### **COMMUNITY FACILITIES**

The FGEIS and subsequent Technical Memoranda 001 and 003 concluded that the proposed development would not result in any significant adverse impacts on community facilities. As discussed below, the proposed modifications would not result in any significant adverse impacts on community facilities.

Technical Memorandum 001 assessed 1,000 residential units (500 market-rate and 500 affordable units); the Essex Crossing program with the proposed modifications would result in 1,079 units, of which 192 are affordable senior housing units, 518 are market-rate units, and 369 are affordable units. The incremental difference between the Essex Crossing program with the proposed modifications and the program assessed in Technical Memorandum 001 is assessed below. A community facilities analysis was not included in Technical Memorandum 003, because it also assessed a program with 1,000 units (of which 100 were affordable senior housing units) and was, therefore, not expected to alter the findings presented in Technical Memorandum 001.

### *PUBLIC SCHOOLS*

Technical Memorandum 001 analyzed 1,000 residential units and concluded that the proposed development would not result in a significant adverse impact on public schools. Under the proposed modifications, 1,079 residential units would be developed, including 192 senior units. Senior units have been excluded in the analysis of public schools, as they were in the assumptions for Technical Memorandum 003, because they are not expected to generate students in the study area, and therefore 887 units were analyzed.

In accordance with the *CEQR Technical Manual*, this schools analysis uses the most recent DOE data on school capacity, enrollment, and utilization rates for elementary and intermediate schools in the sub-district study area and New York City School Construction Authority (SCA) projections of future enrollment. Specifically, the existing conditions analysis uses data provided

in the DOE’s *Utilization Profiles: Enrollment/Capacity/Utilization*, 2015-2016 edition. Future conditions are then predicted based on SCA enrollment projections and data obtained from SCA’s Capital Planning Division on the number of new housing units and students expected at the sub-district level. The future utilization rate for school facilities is calculated by adding the estimated enrollment from proposed residential projects in the schools’ study area to DOE’s projected enrollment, and then comparing that number with projected capacity. DOE’s enrollment projections for years 2015 through 2024—the most recent data currently available—were obtained from DCP.

The proposed modifications would result in the development of 887 units, excluding senior units in the school study areas. Based on the CEQR student generation rates, the proposed modifications would generate 107 elementary school students and 35 intermediate school students by 2022 (see **Table 8**). This would represent a reduction of 13 elementary students and 5 intermediate students compared to the analysis in TM001.

**Table 8**  
**Estimated Number of Students Introduced in the Study Areas:**  
**2022 Future With the Proposed Modifications**

| Study Area <sup>1</sup>   | Housing Units | Elementary Students | Intermediate Students |
|---|---------------|---------------------|-----------------------|
| CSD 1, Sub-District 2   | 80            | 10                  | 3                     |
| CSD 2, Sub-District 1   | 807           | 97                  | 32                    |
| Total   | 887           | 107                 | 35                    |
| <b>Note:</b> <sup>1</sup> CSD 1, Sub-District 1 was excluded from the analysis because only senior units are proposed within this sub-district. |               |                     |                       |
| <b>Source:</b> <i>CEQR Technical Manual</i> , Table 6-1a.   |               |                     |                       |

**Table 9** below shows the school enrollment, capacity, and utilization in the future with the proposed modifications, without accounting for the additional school capacity that would be provided by the proposed elementary school on Site 5. As shown, even without the additional elementary school capacity, the proposed modifications would not result in any significant adverse impacts on public elementary or intermediate schools. Therefore, as with the approved program, the Essex Crossing program with the proposed modifications would not result a significant adverse impact on public schools.



**Table 9**  
**Estimated Public Elementary and Intermediate School Enrollment, Capacity, and Utilization: 2022 Future With the Proposed Modifications (Conditions without the Potential Elementary School)**

| Study Area <sup>1</sup>  | No Action Enrollment | Students Introduced by Proposed Modifications | Total With Action Enrollment | Capacity | Available Seats | Utilization | Increase in Utilization Over No Action |
|--|----------------------|---|------------------------------|----------|-----------------|-------------|--|
| Elementary Schools   |                      |   |                              |          |                 |             |  |
| CSD 1, Sub-District 2  | 1,646                | 10  | 1,656                        | 2,233    | 577             | 74.2%       | 0.5%                                   |
| CSD 2, Sub-District 1  | 4,755                | 97  | 4,852                        | 4,853    | 1               | 99.9%       | 2.0%                                   |
| Intermediate Schools   |                      |   |                              |          |                 |             |  |
| CSD 1, Sub-District 2  | 1,045                | 3   | 1,048                        | 918      | -130            | 114.2%      | 0.3%                                   |
| CSD 2, Sub-District 1  | 597                  | 32  | 629                          | 1,053    | 424             | 59.8%       | 3.0%                                   |
| <b>Notes:</b> <sup>1</sup> CSD 1, Sub-District 1 was excluded from the analysis because only senior units are proposed within this sub-district.<br><b>Sources:</b> DOE Enrollment Projections 2015-2024 by the Grier Partnership; DOE Utilization Profiles: Enrollment/Capacity/Utilization 2015-2016 School Year; DOE 2015-2019 Proposed Five-Year Capital Plan, Amended February 2017; School Construction Authority. |                      |   |                              |          |                 |             |  |

**Table 10** shows the school enrollment, capacity, and utilization in the future with the proposed modifications accounting for the additional school capacity that would be provided by the potential elementary school on Site 5. Because the school would be located on Site 5, which is located within Sub-District 1 of CSD 2, it is assumed that it would provide additional capacity for that sub-district. Conditions in all other study areas would remain the same as shown in **Table 9**. As shown, the addition of this new elementary school capacity would improve elementary school conditions in Sub-District 1 of CSD 2 compared to conditions under the proposed actions.

Overall, the increase in utilization attributable to the proposed modifications would remain below the 5 percent *CEQR Technical Manual* threshold for a significant adverse impact. Therefore, the Essex Crossing program with the proposed modifications, like the approved program, would not result a significant adverse impact on public schools.

**Table 10**

**Estimated Public Elementary and Intermediate School  
Enrollment, Capacity, and Utilization:  
2022 Future With the Proposed Modifications  
(Conditions with the Potential Elementary School)**

| Study Area <sup>1</sup> | No Action Enrollment   | Students Introduced by Proposed Modifications | Total With Action Enrollment | Capacity | Available Seats | Utilization | Increase in Utilization Over No Action |
|-------------------------|--|---|------------------------------|----------|-----------------|-------------|--|
| Elementary Schools      |  |   |                              |          |                 |             |  |
| CSD 2, Sub-District 1   | 4,755  | 97  | 4,852                        | 5,309    | 457             | 91.4%       | -6.6%                                  |
| <b>Notes:</b>           | <sup>1</sup> Conditions in all other study areas would remain as shown in <b>Table 2</b> .   |   |                              |          |                 |             |  |
|                         | <sup>2</sup> Includes additional capacity as a result of a potential 456-seat elementary school on Site 5 under the proposed modifications.  |   |                              |          |                 |             |  |
| <b>Sources:</b>         | DOE Enrollment Projections 2015-2024 by the Grier Partnership; DOE Utilization Profiles: Enrollment/Capacity/Utilization 2015-2016 School Year; DOE 2015-2019 Proposed Five-Year Capital Plan, Amended February 2017; School Construction Authority. |   |                              |          |                 |             |  |

#### INDIRECT EFFECTS ON CHILD CARE SERVICES

TM001 analyzed 500 affordable units, compared to the 369 affordable units currently proposed by 2022. This is 131 units fewer than previously analyzed. Based on CEQR child care multipliers, the Essex Crossing program with the proposed modifications would generate approximately 42 children under the age of six who would be eligible for publicly funded child care programs, compared to 58 eligible children generated by the program assessed in Technical Memorandum 001. While the Essex Crossing program with the proposed modifications would result in a decrease of 16 eligible children as compared to the previously analysis, the child care analysis has been updated to reflect the latest available data, below.

Enrollment data for the child care facilities located within a 1.5-mile study area of the Essex Crossing Sites were gathered from the New York City Administration for Children's Services (ACS). Based on June 2016 ACS data, there are 21 publicly funded child care facilities within the 1.5-mile study area with a total capacity of 1,264 slots and an enrollment of 1,103 children (87.3 percent utilization).

With the addition of approximately 926 affordable units in the No Action condition identified in the list of No Action projects presented in the FGEIS, enrollment would increase by 106 children to 1,209 children with a capacity of 1,264 slots (95.6 percent utilization).

With the addition of the 42 children generated by the Essex Crossing program with the proposed modifications, total enrollment at study area child care facilities would increase from 1,209 in the No Action condition to 1,251 in the future with the proposed modifications compared to a capacity of 1,264 slots. Child care facilities would have a utilization rate of 99.0 percent in the future with the proposed modifications, which would represent an increase of 3.4 percentage points over the No Action condition. 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 five percent of the study area capacity could result in a significant adverse impact. Child care facilities in the study area would operate just under capacity and the increase in the utilization rate with the proposed modifications would be less than five percent; therefore, as in

the previously analyses, the proposed project would not result in a significant adverse impact on child care facilities.

### *PUBLIC LIBRARIES*

A detailed analysis of public libraries in Manhattan was included as part of TM001 as the number of residential units introduced (1,000 units) exceeded the threshold of 901 or more residential units, as outlined in the CEQR *Technical Manual*. Similar to the previous analysis, the 1,079 proposed units would exceed this threshold. Also similar to the previous analysis, the proposed modifications would not result in any significant adverse impacts on public libraries, as detailed below.

As assessed in TM001, there are six NYPL neighborhood libraries located within a ¼-mile of the Essex Crossing Sites. The branch libraries in the study area have a combined total of 394,770 holdings. When compared to the catchment area population of 299,643, this is a holdings-to-resident ratio of 1.32. In addition, residents in the area can go to any NYPL branch and order books from any of the other library branches.

The Essex Crossing program with the proposed modifications could introduce approximately 2,385 new residents (compared to 2,210 in the previously approved program).<sup>4</sup> With these additional residents, the population of the combined catchment area would increase by approximately 0.8 percent to 303,184 (compared to .7 percent to 303,009 in the previously approved program). With a 0.1 percent change in the population of the combined catchment area, the holdings-per-resident ratio is similar to the previously approved program at 1.30.

Overall, the new population introduced with the proposed modifications would constitute less than a one percent increase in the total catchment area population, and the total holdings per resident would be similar to the previously approved program, and slightly decreased from the No Action condition. Because of the small increase in population and the fact that residents of the study area would have access to the entire NYPL system through the inter-library loan system, the population introduced with the proposed modifications would not be expected to impair the delivery of library services in the study area. Therefore, the proposed modifications would not result in any significant adverse impacts on public libraries.

### **OPEN SPACE**

The proposed modifications to the Essex Crossing program would not alter the findings of the open space analyses presented in the FGEIS and subsequent Technical Memoranda. Like with the approved program, 15,000 square feet of open space would be introduced on Site 5. The FGEIS found that there would be a decrease in the passive open space ratio from 0.78 acres per 1,000 workers in the No Action Condition to 0.69 acres per 1,000 workers in the future with the proposed actions. Technical Memorandum 003 showed a non-residential population increase that resulted in 0.66 acres per 1,000 workers as shown in **Table 11**. With the proposed modifications, the open space ratio would decrease to 0.65 acres per 1,000 workers.<sup>5</sup> Similar to

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<sup>4</sup> The number of residents was calculated based on 1,079 units. A Community District 3 rate of 2.21 residents per unit was applied.

<sup>5</sup> Based on the development program discussed under "Transportation," below, the proposed development is estimated to result in the introduction of 2,278 workers, as compared to 2,213 workers analyzed in Technical Memorandum 003.

the FGEIS and subsequent Technical Memoranda, there would be a reduction in the open space ratio. However, the passive open space ratio in the commercial study area in the No Action condition would be more than four times greater than the recommended City guideline of 0.15 acres of passive space per 1,000 workers, and this condition would continue in the future with the proposed modifications to the Essex Crossing program. Therefore, the Essex Crossing program with the proposed modifications, like the FGEIS program and approved program, would not result in any significant adverse impacts on open space resources in the commercial study area.

As shown in **Table 11**, there would be little change in the total open space ratio for the residential study area compared to the With Action total open space ratio presented in Technical Memorandum 003. With the proposed modifications, the Essex Crossing program would introduce 1,079 residential units, an increase of 79 units over the 1,000 units in the approved program. However, with the proposed modifications, 192 residential units would be affordable senior housing units (an increase of 92 affordable senior units from the number assessed in Technical Memorandum 003), which would have a smaller average household size than the 2.21 average household size for the non-senior residential units. Technical Memorandum 003 assumed that the project would generate 2,139 residents. Assuming an average household size of 1.5 for the senior housing units would result in 2,248 residents with the proposed modifications, an increase of 109 residents. With the proposed modifications, the residential population generated by the Essex Crossing program would result in substantially similar open space ratios in the residential study area as compared to Technical Memorandum 003. As with the approved program, the open space ratios with the proposed modifications would continue to fall short of the City’s recommended open space ratio guidelines. However, the decrease from the No Action condition with the proposed Essex Crossing program would remain 1.51 percent or less and would not constitute a substantial change. Therefore, the proposed modifications would not result in any significant adverse impacts on open space resources in the residential study area.

**Table 11**  
**2022 Open Space Ratios Summary**  
**Future with the Proposed Essex Crossing Program**

| Ratio                             | DCP Guideline | Existing Ratio | No Action Ratio | With Action Ratio |                      |                      |                      |                      | Percent Change No Action to With Action (FGEIS/TM 001/TM 002/TM 003/TM 004) |
|-----------------------------------|---------------|----------------|-----------------|-------------------|----------------------|----------------------|----------------------|----------------------|---|
|                                   |               |                |                 | FGEIS             | Proposed Mod. TM 001 | Proposed Mod. TM 002 | Proposed Mod. TM 003 | Proposed Mod. TM 004 |   |
| <b>Non-Residential Study Area</b> |               |                |                 |                   |                      |                      |                      |                      |   |
| Passive/non-residents             | 0.15          | 0.82           | 0.78            | 0.69              | 0.70                 | 0.70                 | 0.66                 | 0.65                 | -11.45% / -11.29% / -10.61% / -16.42% / -16.87%                             |
| <b>Residential Study Area</b>     |               |                |                 |                   |                      |                      |                      |                      |   |
| Total/residents                   | 2.5           | 0.79           | 0.83            | 0.82              | 0.81                 | 0.82                 | 0.82                 | 0.81                 | -1.32% / -1.49% / -1.38% / -1.33% / -1.41%                                  |
| Passive/residents                 | 0.5           | 0.23           | 0.23            | 0.26              | 0.26                 | 0.26                 | 0.26                 | 0.26                 | -1.18% / -1.35% / -1.17% / -1.11% / -1.20%                                  |
| Active/residents                  | 2.0           | 0.56           | 0.56            | 0.56              | 0.56                 | 0.56                 | 0.56                 | 0.56                 | -1.38% / -1.55% / -1.48% / -1.43% / -1.51%                                  |

**Note:** Ratios in acres per 1,000 people.

In addition to the 15,000 square feet of publicly accessible open space that would be added on Site 5, the Essex Crossing program would introduce the Broome Street Gardens on Sites 3 and 4 and the rooftop farm on Site 2 as assessed in Technical Memorandum 003. The Broome Street Gardens were not included in the quantitative assessment as this space would be seating area for visitors who purchased food from Market Line vendors. The rooftop farm was not included in open space calculations as it would have limited public accessibility.

## SHADOWS

As described above, the buildings on Sites 3 and 4 would be consistent with the LSGD design controls for those sites and would fit within the maximum zoning envelopes assessed in the FGEIS. Sites 9 and 10 would be compliant with existing zoning as assessed in the FGEIS and Technical Memorandum 003. Therefore, the shadow impacts previously analyzed in the FGEIS and Technical Memorandum 003 remain applicable. As described in Technical Memorandum 003, since the FGEIS determined that the shadows from all four buildings on Sites 1, 2, 3, and 4 could impact the roses on Schiff Mall in Delancey Street, in accordance with the FGEIS commitments, prior to the application for a Certificate of Occupancy, DSA will either pay for the replacement measures identified in the FGEIS or provide a refined shadows analysis to the New York City Department of Parks and Recreation demonstrating that the extent of the shadow impact would be less pronounced.

A specific building design is now proposed for Site 8, and the proposed building would be 23,637 gsf larger and approximately 15 feet taller than the building assessed in the FGEIS and subsequent Technical Memoranda; the additional floor area and height is permitted under the New York City Zoning for Quality and Affordability provisions for affordable independent residences for seniors. The FGEIS concluded that shadow from Site 8 would not reach any sun-sensitive resources at any time of the year. It is not expected that with the 15 additional feet of height that the building on Site 8 would result in any new incremental shadow on sun-sensitive resources. Therefore, there would be no new significant adverse shadow impacts not identified in the FGEIS or subsequent Technical Memoranda.

## HISTORIC AND CULTURAL RESOURCES

As described in Technical Memorandum 003, DSA and HPD determined that the development of Sites 2-5 will receive construction financing through the New York City Housing Development Corporation (NYCHDC), a New York State agency for purposes of Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law. Therefore, as documented in Technical Memorandum 003, NYCHDC consulted with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), as required by Section 14.09.

DSA is now seeking HUD Project-based Section 8 vouchers for Site 8, which would be allocated by HPD and are subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended. Therefore, HPD and DSA have consulted with OPRHP regarding Site 8 in accordance with Section 106 (see **Appendix A** for Site 8 Section 106 materials).

### *ARCHAEOLOGICAL RESOURCES*

The proposed modifications to the Essex Crossing program would not alter the conclusions of Technical Memorandum 003 that no further archaeological investigation is warranted for the Essex Crossing program.

### *ARCHITECTURAL RESOURCES*

The proposed modifications to the Essex Crossing program would not alter the conclusions in the FGEIS and Technical Memorandum 003 with respect to architectural resource impacts (see **Appendix A** for correspondence from the New York City Landmarks Preservation Commission (LPC) for this Technical Memorandum 004).

In accordance with the Section 14.09 consultation undertaken concurrently with preparation of Technical Memorandum 003, NYCHDC, DSA, and OPRHP executed a Letter of Resolution in March 2015 to ensure that appropriate mitigation measures are undertaken in conjunction with the development of Sites 2-5 receiving construction financing through NYCHDC. The Letter of Resolution includes the following Stipulations:

- Historic American Buildings Survey Document (HABS) documentation. DSA is preparing HABS Level II documentation of the Essex Street Market complex<sup>6</sup> and the former fire station. A HABS work plan was submitted to LPC and OPRHP on August 14, 2014, and documentation packages will be submitted to LPC and OPRHP for review and comment. The completed documentation packages will be submitted to other repositories to be identified in consultation with LPC and OPRHP.
- Site commemoration plan. DSA proposes to prepare an interpretive exhibit on the Essex Street Market and is investigating installing the exhibit within the new market facility that will be constructed on Site 2. DSA will consult with NYCEDC, HPD, LPC, and OPRHP regarding the site commemoration plan.
- Architectural salvage. There is a neon sign in the former Essex Street Market building on Site 2 that appears to be original to the building; it advertises the former location of the meat department. Pursuant to their agreement with the City of New York, DSA will salvage this neon sign, store it on Site 8, and investigate the possibility of reinstalling the sign within the Essex Crossing project. No other significant exterior or interior architectural elements of the Essex Street Market buildings and fire station were identified.
- Market signage. The design of the new market facility on Site 2 is preliminary, but a currently contemplated design measure is signage for the new market that references the Moderne lettering of the façade signage of the original market buildings.

In connection with the Section 106 consultation undertaken in regard to Site 8, an alternatives analysis was prepared and submitted to OPRHP, acting in its capacity as the State Historic Preservation Office (SHPO), that documented why the historic Essex Street Market building on Site 8 cannot be retained and reused to meet the goals of the Essex Crossing program. The analysis assessed two alternatives: an alternative that retains and reuses the Essex Street Market building on Site 8 without new construction or alterations to the building; and an alternative that retains the Essex Street Market building on Site 8 and builds above it to accommodate the Essex Crossing residential program for Site 8. The alternatives analysis, which is included in **Appendix A** to this Technical Memorandum 004, concluded that there are no prudent and feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 8. This impact was disclosed in the FGEIS. In a letter dated March 31, 2017, SHPO concluded that there are no feasible and prudent alternatives to demolition of the former Essex Street Market building on Site 8.

A Memorandum of Agreement has been executed in accordance with Section 106 to ensure that appropriate mitigation measures as required are undertaken in conjunction with the development of Site 8. The Memorandum of Agreement (like the executed Letter of Resolution) stipulates that HABS documentation be prepared for the Essex Market complex and that a site

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<sup>6</sup> Although only one of the four sites (Site 2) containing an Essex Street Market building is subject to Section 14.09 consultation, the entire Essex Street Market complex is one integrated historic resource that is eligible for listing on the State and National Registers of Historic Places. Accordingly, HABS documentation and other mitigative measures will be taken for the entire complex.

commemoration plan for the Essex Market be prepared. The Memorandum of Agreement was prepared in consultation with SHPO and executed by HPD, DSA, and SHPO.

In accordance with the FGEIS and Technical Memorandum 003 commitments, DSA has prepared and implemented, in consultation with LPC, construction protection plans for architectural resources located within 90 feet of Sites 1 and 6. In accordance with those commitments, construction protection plans will be also prepared and implemented in consultation with LPC for architectural resources located within 90 feet of Sites 3, 8, and 9. As development on Site 3 will receive construction financing through NYCHDC and development on Site 8 is seeking HUD Project-based Section 8 vouchers, the construction protection plans for those sites will also be submitted to SHPO for review and approval. There are no architectural resources located within 90 feet of Sites 2, 4, 5, and 10. The architectural resources that will be included in the construction protection plans for Sites 3, 8, and 9 are:

- the Norfolk Street Baptist Church (Congregation Beth Hamedrash Hagodol) at 60-64 Norfolk Street, which is a designated New York City Landmark (NYCL) and S/NR-listed property and is located within 90 feet of Site 3 (in May 2017, the Norfolk Street Baptist Church was heavily damaged in a fire. The New York City Department of Buildings and LPC are still assessing its structural integrity); and
- ten buildings surrounding Sites 8 and 9 that are located within the potential Clinton, Rivington, Stanton Street Historic District, which is eligible for NYCL designation and listing on the State and National Registers of Historic Places.

A construction protection plan for Site 8 has been prepared and submitted to SHPO and LPC. In a letter dated March 31, 2017, SHPO determined that the construction protection plan was acceptable. In a letter dated April 7, 2017, LPC concurred with that determination.

## **URBAN DESIGN**

As described above, the buildings on Sites 1, 2, 5, and 6 are under construction. With the proposed modifications, the proposed buildings on Sites 3 and 4 would continue to fit within the maximum building envelopes established for each site by the LSGD and would comply with the LSGD design controls for maximum building heights, minimum and maximum base heights, setback requirements, and maximum tower dimensions. In addition, the buildings on Sites 9 and 10 could be compliant with zoning. Therefore, the proposed modifications related to those sites would not alter the conclusions of the urban design and visual resources analyses in the FGEIS and Technical Memorandum 003, and there would be no significant adverse impacts on the urban design and visual resources of Sites 3, 4, 9, and 10 and study area.

As described above, there is now a specific building design for Site 8, and the proposed building would be 23,637 gsf larger and 15 feet taller than the building assessed in the FGEIS and Technical Memorandum 003. It would, however, have the same general massing. The additional floor area and minimal increase in height are permitted under New York City Zoning for Quality and Affordability provisions for independent residences for seniors, and it is not expected that the proposed modification would result in significant adverse impacts to urban design and visual features. The proposed building would continue to be compatible with the bulk and height of surrounding buildings, and it would continue to enhance the pedestrian experience.

## HAZARDOUS MATERIALS

The FGEIS and subsequent Technical Memoranda determined that with the mitigation and associated environmental measures identified in the FGEIS and subsequent Technical Memoranda, the potential for significant adverse impacts related to hazardous materials would be avoided. Although time has passed since completion of the FGEIS and subsequent Technical Memoranda and construction has been underway at Sites 1, 2, 5, and 6, the determinations of the FGEIS and subsequent Technical Memoranda remain the same, as discussed below. Further, the proposed modifications to the Essex Crossing Program would not affect these determinations.

In accordance with the FGEIS commitments, subsequent investigations including soil and groundwater testing (and potential remediation, as appropriate) have been undertaken and will continue to take place prior to commencing construction at individual sites within the Essex Crossing program. Additional measures such as removal of petroleum bulk storage tanks and any associated contaminated soil, asbestos-containing materials (ACM) surveys and abatement, if necessary, prior to demolition activities, proper disposal of any chemicals or materials containing polychlorinated biphenyls (PCBs), and proper handling of lead-based paint during demolition have taken place and will continue to be undertaken. Additionally, appropriate health and safety/remedial measures have been undertaken and will continue to be conducted under Remedial Action Plans (RAPs)/Construction Health and Safety Plans (CHASPs) and implemented in consultation with the New York City Department of Environmental Protection (DEP) that would precede or govern demolition, construction, and soil disturbance activities on the development sites. At the completion of construction activities, a New York State Professional Engineer-certified closure report would be submitted to DEP for approval.

A Phase I Environmental Site Assessment (ESA) for the original 10 Sites (Site 7 was subsequently eliminated from the proposed project) was completed by Holzmacher, McLendon, and Murrel, P.C. (H2M) in September 2008 and by Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. in February 2014. The Phase I ESAs identified the following: a fill port in the Norfolk Street sidewalk adjacent to Site 3; Historic Auto Station database listing for Site 3; a fill port, an out-of-service fuel oil underground storage tank (UST) and a vaulted 1,500-gallon fuel oil aboveground storage tank (AST) at Site 5; closed NYSDEC Spill #1100365 associated with Site 5; RCRA database listing as a non-hazardous waste generator and MANIFEST database listing for the disposal of lead waste in 1997 and chromium waste in 2003 at Site 5; two 500-gallon USTs on a 1922 Sanborn map of Site 6; and potential vapor intrusion at all 10 Sites 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 (though no remediation of this plant is currently required by New York State). Based on the results of the Phase I ESA, a Phase II Work Plan was prepared and submitted to DEP for review and approval for Sites 1, 2, 3, 4, 5, 6, and 8. As required, the Phase II Work Plan for Sites 9 and 10 would be prepared at a later date.

The Phase II Environmental Site Investigation (ESI) for Sites 1, 2, 5, and 6 was completed in September 2014; for Sites 3 and 4 in July 2016; and for Site 8 in January 2017. The ESI included the advancement of 33 borings with the collection of up to 2 soil samples from each boring; the installation of 14 temporary groundwater wells in selected borings with collection of a groundwater sample from each; and, the installation of soil vapor probes for the collection of 20 soil vapor samples.

Several typically petroleum-related volatile organic compounds (VOCs) were identified in the soil sample collected adjacent to the UST on Site 3 during the ESI. Several semivolatile organic



compounds (SVOCs), pesticides, and metals also exceeded NYSDEC guidelines (6 NYCRR part 375 Restricted Residential Soil Cleanup Objectives) but these exceedances were likely attributable to historic fill materials (encountered in the borings) rather than a spill or release. The VOC tetrachloroethene (PCE or perc) was detected in one groundwater sample collected from Site 1 at a concentration of 8 µg/L, slightly above its Class GA (drinking water) standard of 5 µg/L. Acetone was detected in one groundwater sample collected from Site 2 above its GA standard; however, acetone is a common laboratory artifact. Low-level concentrations of typically petroleum-related VOCs and SVOCs were detected in a groundwater sample from Site 3 (adjacent to the UST), but at levels meeting GA standards. Dieldrin was detected in the groundwater samples collected from Site 2 and Site 6 above its standard. As pesticides were also detected in the soil at both these sites, their presence may be attributable to the turbidity of the samples. Certain metals were also detected above GA standards in the dissolved groundwater samples. The metals detected above Class GA standards were naturally occurring and their presence in the groundwater does not represent an environmental concern.

Up to thirty VOCs were detected in the soil vapor samples from Sites 1, 2, 3, 4, 5, 6 and 8. The VOCs detected included the chlorinated compounds PCE and carbon disulfide, and some petroleum-related compounds. The common laboratory contaminants acetone and methylene chloride were also detected. None of the VOCs with established NYSDOH Air Guideline Values (AGVs) were detected above their respective guidelines.

Based on the results of the ESI, RAPs and CHASPs were prepared addressing Sites 1, 2, 3, 4, 5, 6, and 8 and submitted to DEP for review and approval. The RAP and CHASP for Sites 1, 2, 5 and 6 were approved on October 28, 2014; for Site 3 on January 12, 2017; and for Site 4 on January 4, 2017. DEP approved the RAP and CHASP for Site 8 on April 4, 2017. The RAPs and CHASPs specify the required procedures during construction: identification and management of any anticipated or unanticipated contaminated soil and/or underground storage tanks (including procedures for stockpiling and off-site transportation and disposal of soil, and reporting of petroleum spills); appropriate health and safety procedures, including dust control, installation of a minimum 10-mil vapor barrier underneath the foundation slab and outside of the sub-grade walls; and installation of a minimum two-foot-thick imported clean soil layer over any landscaped areas.

Sites 1, 2, 5, and 6 are currently undergoing construction, and all soil/fill material have been excavated and removed for installation of the building foundations. Underground storage tanks were encountered on all sites during construction. Soil/material handling and disposal, tank removal and spill closure (where applicable) were conducted as per the requirements of the DEP-approved RAPs and CHASPs. A Site Closure Report for Sites 1, 2, 5, and 6 is currently being prepared and will be provided to DEP documenting compliance with the RAP and CHASP requirements. A Site Closure Report for Site 8 will also be prepared documenting compliance with the RAP and CHASP requirements for Site 8.

In addition, closure of the existing New York State Department of Environmental Conservation (NYSDEC) Spill #1407415, associated with Site 3, will be coordinated with NYSDEC in accordance with all applicable regulations. NYSDEC Spill #1311663, associated with Site 2, was closed on September 16, 2014.

A Phase II Subsurface Investigation for Sites 9 and 10 will be conducted prior to their redevelopment. Based on the findings of the Subsurface Investigation, a RAP/CHASP would be developed and approved by DEP for implementation during soil and/or groundwater disturbing activities (prior to redevelopment). The RAP/CHASP would specify procedures for identifying

and managing any anticipated or unanticipated contaminated soil and/or underground storage tanks (including procedures for stockpiling and off-site transportation and disposal), and appropriate health and safety procedures, including the need for dust control. The RAP would also include any necessary requirements for the new building's vapor controls and for any planned landscaped areas. With these procedures, the proposed Essex Crossing project, like the development assessed in the FGEIS, would have no significant adverse impacts on hazardous materials.

NYCEDC and/or HPD will require that DSA and its affiliates will implement the mitigation and associated environmental measures identified in the FGEIS and the Technical Memoranda, by means of provisions in the contract of sale or long-term lease or other legally binding agreement between DSA or its affiliates and NYCEDC, HPD, and/or the City.

## WATER AND SEWER INFRASTRUCTURE

### WATER SUPPLY

As shown in **Table 12**, the proposed Essex Crossing program with the proposed modifications would result in a water demand of 748,439 gallons per day (gpd), which is 21,428 gpd more than the water demand assessed in Technical Memorandum 003 (727,011 gpd). With this additional increment, the total incremental water demand over the No Action condition (described in the FGEIS) generated by the proposed Essex Crossing program would continue to represent a small increase (.001948 percent) in demand on the New York City water supply system as compared to the 1.1 billion gallons per day (bgd) typically distributed within New York City and Westchester County. As a result, the Essex Crossing program with the proposed modifications, like the approved program, would have no significant adverse impacts on the City's water supply.

**Table 12**  
**Future with the Proposed Essex Crossing Program: Water Consumption**

| Use  | Unit                        | Size (sf) | Rate <sup>1</sup> | Consumption<br>(gallons per day) |
|--|-----------------------------|-----------|-------------------|----------------------------------|
| <b>Residential</b>   |                             |           |                   |                                  |
| Domestic   | 2,248 (people) <sup>2</sup> | NA        | 100 gpd/person    | 224,800                          |
| Air Conditioning   | NA                          | 1,084,136 | 0.17 gpd/sf       | 184,303                          |
| <b>Commercial/Office<sup>3</sup></b>   |                             |           |                   |                                  |
| Domestic   | NA                          | 355,752   | 0.10 gpd/sf       | 35,575                           |
| Air Conditioning   | NA                          | 355,752   | 0.17 gpd/sf       | 60,478                           |
| <b>Retail<sup>4</sup></b>  |                             |           |                   |                                  |
| Domestic   | NA                          | 549,643   | 0.24 gpd/sf       | 131,914                          |
| Air Conditioning   | NA                          | 549,643   | 0.17 gpd/sf       | 93,439                           |
| <b>Public School</b>   |                             |           |                   |                                  |
| Domestic   | 518 (seats)                 | NA        | 10 gpd/seat       | 5,180                            |
| Air Conditioning   | NA                          | 75,000    | 0.17 gpd/sf       | 12,750                           |
| <b>Total Water Supply Demand</b>   |                             |           |                   | <b>748,439</b>                   |
| <b>Total Sewage Generation</b>   |                             |           |                   | <b>397,469</b>                   |
| <b>Notes:</b>  |                             |           |                   |                                  |
| 1. Rates from Table 13-2 in the 2014 <i>CEQR Technical Manual</i> .  |                             |           |                   |                                  |
| 2. The number of residents was calculated based on 1,079 units. A Community District 3 average household size of 2.21 was applied for 887 units. For the 192 senior housing units, an average household size of 1.5 was assumed. |                             |           |                   |                                  |
| 3. Commercial/Office uses include commercial office, medical office, community office, and community facility spaces (see development program discussed under "Transportation").   |                             |           |                   |                                  |
| 4. Retail uses include local retail, destination retail, supermarket, public market and Market Line, gym, bowling alley, movie theater, and museum spaces.   |                             |           |                   |                                  |

In accordance with the FGEIS commitments, DSA is required to develop and implement stormwater best management practices (BMPs) in coordination with DEP and in accordance with recent stormwater rules promulgated by DEP. The new rules will require developments to achieve an overall release rate of 0.25 cubic feet per second (cfs) or 10 percent of the allowable flow rate (whichever is greater) from the development sites. For City properties that may be managed by NYCEDC, this obligation will be required through the provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and DSA or its affiliates.

#### *SANITARY SEWAGE*

As with the FGEIS and subsequent Technical Memoranda, for purposes of this analysis the amount of sanitary sewage generated by the Essex Crossing program with the proposed modifications is conservatively estimated as all water demand except that used by air conditioning, which is typically not discharged to the sewer system. As shown in **Table 12**, the estimated amount of sanitary sewage that would be generated by the proposed Essex Crossing program is estimated to be 397,469 gpd, which is 6,703 gpd more than the sewage demand assessed in Technical Memorandum 003 (390,766 gpd). With this additional increment, the total increment of sanitary sewage generated by the proposed Essex Crossing program over the No Action condition (described in the FGEIS) would represent a negligible increase (0.003089 percent) in the average daily flow of 217 million gallons per day at the Newtown Creek Wastewater Treatment Plant (WWTP)<sup>7</sup> and would not result in an exceedance of the Newtown Creek WWTP's capacity. Therefore, the Essex Crossing program with the proposed modifications, like the approved program, would not create a significant adverse impact on the City's sanitary sewage treatment system.

#### *STORMWATER*

The proposed Essex Crossing program would be built with best management practices (BMPs) outlined in the BMP Concept Plan described in the FGEIS, as required as a part of the DEP site connection approval process. These BMPs, as assessed in the FGEIS, 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. The BMP Concept Plan in the FGEIS summarizes the potential BMPs that would be suitable for implementation within the project site.

The proposed Essex Crossing program would include stormwater detention practices on each site, and with the incorporation of these BMPs, the overall volume of stormwater runoff and the peak stormwater runoff rate would remain the same as compared to the FGEIS program with BMPs incorporated. In conclusion, the proposed Essex Crossing program, like the FGEIS program, would not result in any significant adverse impacts on wastewater treatment or stormwater conveyance infrastructure.

#### **SOLID WASTE AND SANITATION SERVICES**

New York City Department of Sanitation (DSNY)-collected refuse from Essex Crossing will be driven to DSNY's East 91st Street Marine Transfer Station (MTS) for transportation by barge and rail to waste-to-energy plants in Niagara Falls, NY and Chester, PA, respectively. Residential and community facility paper and cardboard recyclables collected by DSNY from

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<sup>7</sup> 12-month average daily flow for the period ending April 2014.

this location will be driven to DSNY's West 59th Street MTS for transport by barge to the Pratt Industries paper mill on Staten Island. Residential and community facility metal, glass and plastic recyclables collected by DSNY will be driven to the Sims Municipal Recycling processing plant in Jersey City, NJ for processing and marketing. DSNY's voluntary organics program enrolls high-rise residential buildings for collection service of food waste and food-soiled paper not suitable for recycling. The organics are taken to composting facilities in the City and region. Commercial waste and recyclables from Essex Crossing will be managed by private carters and driven to transfer stations or waste-to-energy plants in the region, and to recycling transfer or processing plants, respectively.

As shown in **Table 13**, the proposed Essex Crossing program would result in 304,080 pounds (152 tons) of solid waste per week, which is 64,830 pounds (or 32.4 tons) more than would be produced by the program assessed in Technical Memorandum 003.

An estimated 46,391 pounds (23.2 tons) of solid waste per week would be from the residential, school, and community facility uses. That 23.2 tons, which would be collected by the New York City Department of Sanitation (DSNY), would be 1.2 tons per week more than assessed in Technical Memorandum 003, and it would result in the same number of up to two added truckloads per week for solid collection services assessed in Technical Memorandum 003, as the typical DSNY collection truck has a capacity of 12.5 tons. The remaining 257,689 pounds (128.8 tons) per week from commercial uses, which would be collected by commercial carters, would be 31.1 tons more than assessed in Technical Memorandum 003. Conservatively assuming that the private carters carry 12 tons of solid waste, the proposed Essex Crossing program would require approximately eleven truck trips per week, which is the same number of truck trips that were expected to be required for the approved program assessed in Technical Memorandum 003. Therefore, as with the approved program, the Essex Crossing program with the proposed modifications would not result in a significant adverse impact on solid waste services.

Table 13

**The Future with the Proposed Essex Crossing Program: Solid Waste Generation**

| Use                           | Program <sup>1</sup> | Households/<br>Employment/Students | Generation Rate<br>(pounds per week) <sup>2</sup> | Total<br>(pounds per week) |
|-------------------------------|----------------------|------------------------------------|---|----------------------------|
| Residential                   | 1,079 units          | 1,079 households                   | 41 per household                                  | 44,239                     |
| Office                        | 293,205 sf           | 1,173 employees <sup>3</sup>       | 13 per employee                                   | 15,249                     |
| Medical Office                | 16,547 sf            | 37 employees <sup>4</sup>          | 13 per employee                                   | 481                        |
| General Retail—Local          | 88,069 sf            | 220 employees <sup>5</sup>         | 79 per employee                                   | 17,380                     |
| General Retail—Destination    | 54,982 sf            | 69 employees <sup>5</sup>          | 79 per employee                                   | 5,451                      |
| Food Stores—Grocery           | 27,805 sf            | 70 employees <sup>5</sup>          | 284 per employee                                  | 19,880                     |
| Public Market and Market Line | 175,110 sf           | 438 employees <sup>5</sup>         | 434 per employee                                  | 190,092                    |
| Community Facility            | 23,000 sf            | 23 employees <sup>7</sup>          | 13 per employee                                   | 299                        |
| Community Office              | 23,000 sf            | 23 employees <sup>7</sup>          | 13 per employee                                   | 299                        |
| Elementary School             | 518 seats            | 518 students                       | 3 per pupil                                       | 1,554                      |
| Gym                           | 47,258 sf            | 32 employees <sup>8</sup>          | 79 per employee                                   | 2,528                      |
| Movie Theater                 | 102,560 sf           | 60 employees <sup>9</sup>          | 79 per employee                                   | 4,740                      |
| Bowling Alley                 | 27,784 sf            | 14 employees <sup>10</sup>         | 79 per employee                                   | 1,106                      |
| Museum                        | 26,075 sf            | 26 employees <sup>7</sup>          | 0.03 per sf                                       | 782                        |
| <b>Total</b>                  |                      |                                    |   | <b>304,080</b>             |

**Notes:**

1. Based on the development program discussed under "Transportation," which allocates the mechanical and support space to specific uses.
2. Solid waste generation rates as per Table 14-1 in the 2014 *CEQR Technical Manual*.
3. Office employment based on 250 sf per employee.
4. Medical office employment based on 450 sf per employee.
5. Local retail, public market, and Market Line employment based on 400 sf per employee. Destination retail employment based on 800 sf per employee.
6. Market Line would include retail and food vendors. For a conservative assessment, the generation rate for food stores was used.
7. Community facility, community office, and museum employment based on 1,000 sf per employee.
8. Gym employment based on 1,500 sf per employee.
9. Movie theater employment based on estimate of approximately 21 workers per shift (two 8-hour shifts per day, equivalent to 112 total work-hours per week).
10. Bowling alley employment based on 2,000 sf per employee.

**ENERGY**

As shown in **Table 14**, the Essex Crossing program with the proposed modifications would result in demand for approximately 354,478 Thousand MBTUs per year.

The Essex Crossing program with the proposed modifications would result in energy demand of 10,662 Thousand MBTUs per year more than assessed in Technical Memorandum 003 (343,816 Thousand MBTUs per year). However, this energy demand would remain a negligible increase compared with the approximately 353 Billion MBTUs of energy consumed annually within Con Edison's New York City and Westchester County service area and is not expected to overburden the energy generation, transmission, and distribution system. Therefore, the Essex Crossing program with the proposed modifications would not change the conclusions of Technical Memorandum 003, and the proposed development would not result in a significant adverse energy impact. In addition, the Essex Crossing development with the proposed modifications would not alter the FGEIS assumptions (also included in Technical Memorandum 003) about the inclusion of features aimed at reducing energy consumption and greenhouse gas emissions in the proposed development and the expectation that housing developments on all sites would be certified under the Enterprise Green Communities Program or would incorporate measures that would achieve equivalent energy efficiency levels.

**Table 14**

**The Future with the Proposed Essex Crossing Program:  
Energy Consumption**

| Use  | Program <sup>1</sup> | Rate<br>(MBTU/sf/year) <sup>2</sup> | Energy Consumption<br>(Thousand MBTU/Year) |
|--|----------------------|-------------------------------------|--|
| Residential  | 1,084,136 sf         | 126.7                               | 137,360,031.2                              |
| Office   | 293,205 sf           | 216.3                               | 63,420,241.5                               |
| Gym  | 47,258 sf            | 216.3                               | 10,221,905.4                               |
| Bowling Alley  | 27,784 sf            | 216.3                               | 6,009,679.2                                |
| Movie Theater  | 102,560 sf           | 216.3                               | 22,183,728                                 |
| General Retail—Local   | 88,069 sf            | 216.3                               | 19,049,324.7                               |
| General Retail—Destination   | 54,982 sf            | 216.3                               | 11,892,606.6                               |
| Public Market and Market Line  | 175,110 sf           | 216.3                               | 37,876,293                                 |
| Food Stores—Supermarket  | 27,805 sf            | 216.3                               | 6,014,221.5                                |
| Elementary School  | 75,000 sf            | 250.7                               | 18,802,500                                 |
| Medical Office   | 16,547 sf            | 216.3                               | 3,579,116.1                                |
| Museum   | 26,075 sf            | 250.7                               | 6,536,002.5                                |
| Community Office   | 23,000 sf            | 250.7                               | 5,766,100                                  |
| Community Facility   | 23,000 sf            | 250.7                               | 5,766,100                                  |
| <b>Total</b>   |                      |                                     | <b>354,477,849.7</b>                       |
| <b>Notes:</b>  |                      |                                     |  |
| 1. Based on the development program discussed under "Transportation," which allocates the mechanical and support space to specific uses. |                      |                                     |  |
| 2. Energy rates as per Table 15-1 in the 2014 <i>CEQR Technical Manual</i> .   |                      |                                     |  |

## TRANSPORTATION

A detailed trip generation analysis was performed to estimate the volume of person and vehicle trips generated by the Essex Crossing program with the proposed modifications. **Table 15** provides a summary of the program assumptions used for the transportation analyses presented below.

Compared to the approved program, the Essex Crossing program with the proposed modifications would introduce the same uses; however, there would be increases in residential units and shifts in the composition of commercial space (office and retail). The other program uses would remain unchanged. **Table 16** provides a detailed comparison of the Essex Crossing program with the proposed modifications and the approved program.

**Table 15**  
**Program Assumptions for Transportation Analyses**

| Use                |            | Site 1         | Site 2         | Site 3         | Site 4         | Site 5         | Site 6         | Site 8        | Site 9         | Site 10       | Total            |
|--------------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|------------------|
| Residential        | GSF        | 76,933         | 192,811        | 128,087        | 242,533        | 193,296        | 85,304         | 60,152        | 83,609         | 21,411        | 1,084,136        |
|                    | Units      | 55             | 195            | 83             | 263            | 211            | 100            | 92            | 70             | 10            | 1,079            |
| Office             | GSF        |                |                | 151,751        | 141,454        |                |                |               |                |               | 293,205          |
| Gym                | GSF        | 47,258         |                |                |                |                |                |               |                |               | 47,258           |
| Bowling Alley      | GSF        | 27,784         |                |                |                |                |                |               |                |               | 27,784           |
|                    | Lanes      | 13             |                |                |                |                |                |               |                |               | 13               |
| Movie Theater      | GSF        |                | 102,560        |                |                |                |                |               |                |               | 102,560          |
|                    | Seats      |                | 1,100          |                |                |                |                |               |                |               | 1,100            |
| Local Retail       | GSF        | 7,626          | 3,584          | 18,583         |                | 18,443         | 7,000          | 9,700         | 17,822         | 5,311         | 88,069           |
| Destination Retail | GSF        |                |                |                | 24,982         | 30,000         |                |               |                |               | 54,982           |
| Public Market      | GSF        |                | 43,028         |                |                |                |                |               |                |               | 43,028           |
| Market Line        | GSF        |                | 46,117         | 40,414         | 45,551         |                |                |               |                |               | 132,082          |
| Supermarket        | GSF        |                |                |                |                | 27,805         |                |               |                |               | 27,805           |
| School             | GSF        |                |                |                |                | 75,000         |                |               |                |               | 75,000           |
|                    | Seats      |                |                |                |                | 518            |                |               |                |               | 518              |
| Medical Office     | GSF        |                |                |                |                |                | 16,547         |               |                |               | 16,547           |
| Museum             | GSF        | 26,075         |                |                |                |                |                |               |                |               | 26,075           |
| Community Office   | GSF        |                |                |                |                |                | 23,000         |               |                |               | 23,000           |
| Community Facility | GSF        |                |                |                |                |                | 23,000         |               |                |               | 23,000           |
| <b>Total</b>       | <b>GSF</b> | <b>185,676</b> | <b>388,100</b> | <b>338,835</b> | <b>454,520</b> | <b>344,544</b> | <b>154,851</b> | <b>69,852</b> | <b>101,431</b> | <b>26,722</b> | <b>2,064,531</b> |

**Notes:** Compared to the approved program, the proposed Essex Crossing program would result in building program changes to Sites 3, 4, 9, and 10 and program and design changes to Site 8. There are no programming changes made to Sites 1, 2, and 5. Programming of Sites 3 and 4 has advanced to include the allocation of support space (i.e., for mechanical and back-of-house uses). The transportation analyses for this Technical Memorandum have conservatively reallocated the Sites 3 and 4 support space square footage to the individual uses within both of these development sites.  
As with the approved program, approximately 933 gsf of space at Site 9 will be dedicated to subway improvements and are not included in the above summary.

**Table 16**  
**Transportation Analyses**  
**Comparison of Proposed Essex Crossing Program and Approved Program**

| Use                |            | Approved Program | Essex Crossing Program | Difference    |
|--------------------|------------|------------------|------------------------|---------------|
| Residential        | GSF        | 994,026          | 1,084,136              | 90,110        |
|                    | Units      | 1,000            | 1,079                  | 79            |
| Office             | GSF        | 269,205          | 293,205                | 24,000        |
| Gym                | GSF        | 47,258           | 47,258                 | 0             |
| Bowling Alley      | GSF        | 27,784           | 27,784                 | 0             |
|                    | Lanes      | 13               | 13                     | 0             |
| Movie Theater      | GSF        | 102,560          | 102,560                | 0             |
|                    | Seats      | 1,100            | 1,100                  | 0             |
| Local Retail       | GSF        | 83,872           | 88,069                 | 4,197         |
| Destination Retail | GSF        | 81,578           | 54,982                 | -26,596       |
| Public Market      | GSF        | 43,028           | 43,028                 | 0             |
| Market Line        | GSF        | 137,171          | 132,082                | -5,089        |
| Supermarket        | GSF        | 27,805           | 27,805                 | 0             |
| School             | GSF        | 75,000           | 75,000                 | 0             |
|                    | Seats      | 518              | 518                    | 0             |
| Medical Office     | GSF        | 16,547           | 16,547                 | 0             |
| Museum             | GSF        | 26,075           | 26,075                 | 0             |
| Community Office   | GSF        | 23,000           | 23,000                 | 0             |
| Community Facility | GSF        | 23,000           | 23,000                 | 0             |
| <b>Total</b>       | <b>GSF</b> | <b>1,977,909</b> | <b>2,064,531</b>       | <b>86,622</b> |

Travel demand projections were prepared for each of the proposed development components under the Essex Crossing program with the proposed modifications for the weekday AM, midday, PM, and Saturday peak hours. For purposes of the transportation assessments in this Technical Memorandum, all comparisons are made to the analyses described for the approved program in

Technical Memorandum 003. **Table 17** shows the transportation planning assumptions used in estimating the number of person and vehicle trips for the Essex Crossing program with the proposed modifications.

#### *TRIP GENERATION*

Trip generation assumptions for the various previously analyzed uses are based on the assumptions utilized for the approved program. For the residential use, the modal splits and auto occupancy were updated based on the latest 2011-2015 U.S. Census Bureau American Community Survey (ACS) Journey-to-Work (JTW) data. For other uses that utilized the Reverse-Journey-to-Work (RJTW) data, the 2006-2010 U.S. Census Bureau ACS (Special Tabulation: Census Transportation Planning) RJTW dataset is still the latest.

#### *Summary*

The total numbers of person and vehicle trips generated by the Essex Crossing program with the proposed modifications are summarized in **Tables 18 and 19**, respectively. As presented in **Table 18**, the Essex Crossing program with the proposed modifications would generate approximately 4,513, 6,483, 6,585, and 6,687 person trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. In terms of vehicle trips, the Essex Crossing program with the proposed modifications would generate approximately 411, 409, 501, and 392 vehicle trips during the weekday AM, midday, PM, and Saturday peak hours, respectively (see **Table 19**).

In comparison, the approved program was expected to generate 4,457, 6,488, 6,614, and 6,857 person trips, and 412, 418, 514, and 416 vehicle trips, respectively, during the weekday AM, midday, PM, and Saturday peak hours. As shown in **Table 20**, a comparison of the person trips expected to be generated by the Essex Crossing program with the proposed modifications to the approved program indicates that the number of person trips would be greater for the Essex Crossing program with the proposed modifications only during the weekday AM peak hour (by approximately 1.3 percent), and as shown in **Table 21** for vehicle trips, the Essex Crossing program with the proposed modifications would generate fewer vehicle trips during all four analysis peak hours in comparison to the vehicle trips projected to be generated by the approved program.



**Table 17  
Travel Demand Assumptions**

| Use                  | Residential           |      |       |      | Office                        |      |      |      | Local Retail           |       |      |      |                      |       |      |      |
|----------------------|-----------------------|------|-------|------|-------------------------------|------|------|------|------------------------|-------|------|------|----------------------|-------|------|------|
| Daily Person Trip    | (1)                   |      |       |      |                               |      |      |      |                        |       |      |      |                      |       |      |      |
| Generation Rate      | 8.075                 |      |       |      | 9.6                           |      |      |      | 18.0                   |       |      |      | 3.9                  |       |      |      |
| Trip Linkage         | 0%                    |      |       |      | 0%                            |      |      |      | 25%                    |       |      |      | 25%                  |       |      |      |
|                      | AM                    | MD   | PM    | SAT  | AM                            | MD   | PM   | SAT  | AM                     | MD    | PM   | SAT  | AM                   | MD    | PM   | SAT  |
| Temporal             | (1)                   |      |       |      | (1)                           |      |      |      | (1)                    |       |      |      | (1)                  |       |      |      |
| Directional          | (2)                   |      |       |      | (2)                           |      |      |      | (2)                    |       |      |      | (2)                  |       |      |      |
| In                   | 15%                   | 50%  | 70%   | 50%  | 96%                           | 48%  | 5%   | 57%  | 50%                    | 50%   | 50%  | 50%  | 50%                  | 50%   | 50%  | 50%  |
| Out                  | 85%                   | 50%  | 30%   | 50%  | 4%                            | 52%  | 95%  | 43%  | 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% |
| Modal Split          | (3)                   |      |       |      | (4)                           |      |      |      | (2)                    |       |      |      | (2)                  |       |      |      |
| Auto                 | 6%                    | 6%   | 6%    | 6%   | 17%                           | 2%   | 17%  | 2%   | 2%                     | 2%    | 2%   | 2%   | 2%                   | 2%    | 2%   | 2%   |
| Taxi                 | 2%                    | 2%   | 2%    | 2%   | 2%                            | 3%   | 2%   | 3%   | 3%                     | 3%    | 3%   | 3%   | 3%                   | 3%    | 3%   | 3%   |
| Subway               | 59%                   | 59%  | 59%   | 59%  | 56%                           | 6%   | 56%  | 6%   | 6%                     | 6%    | 6%   | 6%   | 6%                   | 6%    | 6%   | 6%   |
| Bus                  | 5%                    | 5%   | 5%    | 5%   | 9%                            | 6%   | 9%   | 6%   | 6%                     | 6%    | 6%   | 6%   | 6%                   | 6%    | 6%   | 6%   |
| Walk                 | 28%                   | 28%  | 28%   | 28%  | 13%                           | 83%  | 13%  | 83%  | 83%                    | 83%   | 83%  | 83%  | 83%                  | 83%   | 83%  | 83%  |
| School Bus           | -                     | -    | -     | -    | -                             | -    | -    | -    | -                      | -     | -    | -    | -                    | -     | -    | -    |
| Work at Home         | 0%                    | 0%   | 0%    | 0%   | 3%                            | 0%   | 3%   | 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% |
| Vehicle Occupancy    | (2)(3)                |      |       |      | (2)(4)                        |      |      |      | (2)                    |       |      |      | (2)                  |       |      |      |
| Auto                 | 1.33                  | 1.33 | 1.33  | 1.33 | 1.21                          | 1.21 | 1.21 | 1.21 | 1.65                   | 1.65  | 1.65 | 1.65 | 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 | 1.40                   | 1.40  | 1.40 | 1.40 | 1.40                 | 1.40  | 1.40 | 1.40 |
| School Bus           | -                     | -    | -     | -    | -                             | -    | -    | -    | -                      | -     | -    | -    | -                    | -     | -    | -    |
| Daily Delivery Trip  | (1)                   |      |       |      |                               |      |      |      |                        |       |      |      |                      |       |      |      |
| Generation Rate      | 0.06                  |      |       |      | 0.02                          |      |      |      | 0.32                   |       |      |      | 0.01                 |       |      |      |
| Trip Linkage         | Delivery Trips / Unit |      |       |      | 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  |
| Delivery Temporal    | (1)                   |      |       |      | (1)                           |      |      |      | (1)                    |       |      |      | (1)                  |       |      |      |
| Delivery Directional | (1)                   |      |       |      | (1)                           |      |      |      | (1)                    |       |      |      | (1)                  |       |      |      |
| In                   | 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%  |
| Total                | 100%                  | 100% | 100%  | 100% | 100%                          | 100% | 100% | 100% | 100%                   | 100%  | 100% | 100% | 100%                 | 100%  | 100% | 100% |
| Use                  | Destination Retail    |      |       |      | Public Market/<br>Supermarket |      |      |      | Medical Office (Staff) |       |      |      |                      |       |      |      |
| Daily Person Trip    | (1)                   |      |       |      |                               |      |      |      |                        |       |      |      |                      |       |      |      |
| Generation Rate      | 78.2                  |      |       |      | 92.5                          |      |      |      | 175                    |       |      |      | 231                  |       |      |      |
| Trip Linkage         | Trips / KSF           |      |       |      | Trips / KSF                   |      |      |      | Trips / KSF            |       |      |      | Trips / KSF          |       |      |      |
|                      | AM                    | MD   | PM    | SAT  | AM                            | MD   | PM   | SAT  | AM                     | MD    | PM   | SAT  | AM                   | MD    | PM   | SAT  |
| Temporal             | (1)                   |      |       |      | (1)                           |      |      |      | (1)                    |       |      |      | (2)                  |       |      |      |
| Directional          | (2)                   |      |       |      | (2)                           |      |      |      | (2)                    |       |      |      | (2)                  |       |      |      |
| In                   | 61%                   | 55%  | 47%   | 52%  | 59%                           | 46%  | 47%  | 51%  | 94%                    | 50%   | 12%  | 50%  | 94%                  | 50%   | 12%  | 50%  |
| Out                  | 39%                   | 45%  | 53%   | 48%  | 41%                           | 54%  | 53%  | 49%  | 6%                     | 50%   | 88%  | 50%  | 6%                   | 50%   | 88%  | 50%  |
| Total                | 100%                  | 100% | 100%  | 100% | 100%                          | 100% | 100% | 100% | 100%                   | 100%  | 100% | 100% | 100%                 | 100%  | 100% | 100% |
| Modal Split          | (2)                   |      |       |      | (2)                           |      |      |      | (4)(5)                 |       |      |      | (4)(5)               |       |      |      |
| Auto                 | 9%                    | 9%   | 9%    | 9%   | 2%                            | 2%   | 2%   | 2%   | 17%                    | 17%   | 17%  | 17%  | 17%                  | 17%   | 17%  | 17%  |
| Taxi                 | 4%                    | 4%   | 4%    | 4%   | 3%                            | 3%   | 3%   | 3%   | 2%                     | 2%    | 2%   | 2%   | 2%                   | 2%    | 2%   | 2%   |
| Subway               | 28.5%                 | 20%  | 28.5% | 20%  | 6%                            | 6%   | 6%   | 6%   | 58%                    | 58%   | 58%  | 58%  | 58%                  | 58%   | 58%  | 58%  |
| Bus                  | 8%                    | 8%   | 8%    | 8%   | 6%                            | 6%   | 6%   | 6%   | 10%                    | 10%   | 10%  | 10%  | 10%                  | 10%   | 10%  | 10%  |
| Walk                 | 50.5%                 | 59%  | 50.5% | 59%  | 83%                           | 83%  | 83%  | 83%  | 13%                    | 13%   | 13%  | 13%  | 13%                  | 13%   | 13%  | 13%  |
| School Bus           | -                     | -    | -     | -    | -                             | -    | -    | -    | -                      | -     | -    | -    | -                    | -     | -    | -    |
| Work at Home         | 0%                    | 0%   | 0%    | 0%   | 0%                            | 0%   | 0%   | 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% |
| Vehicle Occupancy    | (2)                   |      |       |      | (2)                           |      |      |      | (2)(4)                 |       |      |      | (2)(4)               |       |      |      |
| Auto                 | 2.00                  | 2.00 | 2.00  | 2.00 | 1.65                          | 1.65 | 1.65 | 1.65 | 1.21                   | 1.21  | 1.21 | 1.21 | 1.21                 | 1.21  | 1.21 | 1.21 |
| Taxi                 | 2.00                  | 2.00 | 2.00  | 2.00 | 1.40                          | 1.40 | 1.40 | 1.40 | 1.40                   | 1.40  | 1.40 | 1.40 | 1.40                 | 1.40  | 1.40 | 1.40 |
| School Bus           | -                     | -    | -     | -    | -                             | -    | -    | -    | -                      | -     | -    | -    | -                    | -     | -    | -    |
| Daily Delivery Trip  | (1)                   |      |       |      |                               |      |      |      |                        |       |      |      |                      |       |      |      |
| Generation Rate      | 0.35                  |      |       |      | 0.04                          |      |      |      | 0.35                   |       |      |      | 0.04                 |       |      |      |
| Trip Linkage         | 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  |
| Delivery Temporal    | (1)                   |      |       |      | (2)                           |      |      |      | (2)                    |       |      |      | (2)                  |       |      |      |
|                      | 8%                    | 11%  | 2%    | 11%  | 8%                            | 11%  | 2%   | 11%  | 9.6%                   | 11.0% | 1.0% | 0%   | 9.6%                 | 11.0% | 1.0% | 0%   |

**Table 17 (cont'd)  
Travel Demand Assumptions**

| Delivery Directional     | (1)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
|--------------------------|----------------------------------|------|------|-------|---------------------------|------|------|-------|---|------|------|-------|
| In                       | 50%                              | 50%  | 50%  | In    | 50%                       | 50%  | 50%  | In    | 50%   | 50%  | 50%  | In    |
| Out                      | 50%                              | 50%  | 50%  | Out   | 50%                       | 50%  | 50%  | Out   | 50%   | 50%  | 50%  | Out   |
| Total                    | 100%                             | 100% | 100% | Total | 100%                      | 100% | 100% | Total | 100%  | 100% | 100% | Total |
| <b>Use</b>               | <b>Medical Office (Visitors)</b> |      |      |       | <b>School Students</b>    |      |      |       | <b>School Staff</b>                         |      |      |       |
| Daily Person Trip        | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Generation Rate          | 33.6                             |      |      |       | 14.5                      |      |      |       | 2.0   |      |      |       |
|                          | Trips / KSF                      |      |      |       | Trips / Seat              |      |      |       | Trips / Staff                               |      |      |       |
| Trip Linkage             | 0%                               |      |      |       | 0%                        |      |      |       | 0%  |      |      |       |
|                          | AM                               | MD   | PM   | SAT   | AM                        | MD   | PM   | SAT   | AM  | MD   | PM   | SAT   |
| Temporal                 | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
|                          | 6%                               | 9%   | 5%   | 9%    | 50%                       | 0%   | 10%  | 0%    | 50%   | 0%   | 2.5% | 0%    |
| Directional              | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| In                       | 94%                              | 50%  | 12%  | 50%   | 100%                      | 50%  | 0%   | 50%   | 100%  | 50%  | 0%   | 50%   |
| Out                      | 6%                               | 50%  | 88%  | 50%   | 0%                        | 50%  | 100% | 50%   | 0%  | 50%  | 100% | 50%   |
| Total                    | 100%                             | 100% | 100% | 100%  | 100%                      | 100% | 100% | 100%  | 100%  | 100% | 100% | 100%  |
| <b>Modal Split</b>       | (2)                              |      |      |       | (2)                       |      |      |       | (4)(5)                                      |      |      |       |
| Auto                     | 25%                              | 25%  | 25%  | 25%   | 10%                       | 10%  | 10%  | 10%   | 17%   | 17%  | 17%  | 17%   |
| Taxi                     | 25%                              | 25%  | 25%  | 25%   | 2%                        | 2%   | 2%   | 2%    | 2%  | 2%   | 2%   | 2%    |
| Subway                   | 29%                              | 29%  | 29%  | 29%   | 8%                        | 8%   | 8%   | 8%    | 58%   | 58%  | 58%  | 58%   |
| Bus                      | 11%                              | 11%  | 11%  | 11%   | 7%                        | 7%   | 7%   | 7%    | 10%   | 10%  | 10%  | 10%   |
| Walk                     | 10%                              | 10%  | 10%  | 10%   | 53%                       | 53%  | 53%  | 53%   | 13%   | 13%  | 13%  | 13%   |
| School Bus               | -                                | -    | -    | -     | 20%                       | 20%  | 20%  | 20%   | -   | -    | -    | -     |
| Work at Home             | 0%                               | 0%   | 0%   | 0%    | 0%                        | 0%   | 0%   | 0%    | 0%  | 0%   | 0%   | 0%    |
| Total                    | 100%                             | 100% | 100% | 100%  | 100%                      | 100% | 100% | 100%  | 100%  | 100% | 100% | 100%  |
| <b>Vehicle Occupancy</b> | (2)                              |      |      |       | (2)                       |      |      |       | (2)(4)                                      |      |      |       |
| Auto                     | 1.65                             | 1.65 | 1.65 | 1.65  | 1.28                      | 1.28 | 1.28 | 1.28  | 1.21  | 1.21 | 1.21 | 1.21  |
| Taxi                     | 1.20                             | 1.20 | 1.20 | 1.20  | 1.22                      | 1.22 | 1.22 | 1.22  | 1.40  | 1.40 | 1.40 | 1.40  |
| School Bus               | -                                | -    | -    | -     | 19.0                      | 19.0 | 19.0 | 19.0  | -   | -    | -    | -     |
| Daily Delivery Trip      | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Generation Rate          | 0.29                             |      |      |       | 0.0                       |      |      |       | 0.07  |      |      |       |
|                          | Delivery Trips / KSF             |      |      |       | Delivery Trips / KSF      |      |      |       | Delivery Trips / KSF                        |      |      |       |
|                          | AM                               | MD   | PM   | SAT   | AM                        | MD   | PM   | SAT   | AM  | MD   | PM   | SAT   |
| Delivery Temporal        | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
|                          | 9.6%                             | 11%  | 1.0% | 0%    | 9.6%                      | 11%  | 1%   | 0%    | 9.6%  | 11%  | 1%   | 0%    |
| Delivery Directional     | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| In                       | 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%   |
| Total                    | 100%                             | 100% | 100% | 100%  | 100%                      | 100% | 100% | 100%  | 100%  | 100% | 100% | 100%  |
| <b>Use</b>               | <b>Community Office</b>          |      |      |       | <b>Community Facility</b> |      |      |       | <b>Gym (Physical Culture Establishment)</b> |      |      |       |
| Daily Person Trip        | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Generation Rate          | 18.0                             |      |      |       | 3.9                       |      |      |       | 44.7  |      |      |       |
|                          | Trips / KSF                      |      |      |       | Trips / KSF               |      |      |       | Trips / KSF                                 |      |      |       |
| Trip Linkage             | 0%                               |      |      |       | 0%                        |      |      |       | 0%  |      |      |       |
|                          | AM                               | MD   | PM   | SAT   | AM                        | MD   | PM   | SAT   | AM  | MD   | PM   | SAT   |
| Temporal                 | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
|                          | 12%                              | 15%  | 14%  | 17%   | 7%                        | 10%  | 7%   | 14%   | 4%  | 9%   | 5%   | 9%    |
| Directional              | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| In                       | 96%                              | 48%  | 5%   | 57%   | 61%                       | 55%  | 29%  | 49%   | 41%   | 54%  | 75%  | 54%   |
| Out                      | 4%                               | 52%  | 95%  | 43%   | 39%                       | 45%  | 71%  | 51%   | 59%   | 46%  | 25%  | 46%   |
| Total                    | 100%                             | 100% | 100% | 100%  | 100%                      | 100% | 100% | 100%  | 100%  | 100% | 100% | 100%  |
| <b>Modal Split</b>       | (4)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Auto                     | 17%                              | 2%   | 17%  | 2%    | 5%                        | 5%   | 5%   | 5%    | 2%  | 2%   | 2%   | 2%    |
| Taxi                     | 2%                               | 3%   | 2%   | 3%    | 1%                        | 1%   | 1%   | 1%    | 2%  | 2%   | 2%   | 2%    |
| Subway                   | 56%                              | 6%   | 56%  | 6%    | 3%                        | 3%   | 3%   | 3%    | 12%   | 12%  | 12%  | 12%   |
| Bus                      | 9%                               | 6%   | 9%   | 6%    | 6%                        | 6%   | 6%   | 6%    | 4%  | 4%   | 4%   | 4%    |
| Walk                     | 13%                              | 83%  | 13%  | 83%   | 85%                       | 85%  | 85%  | 85%   | 80%   | 80%  | 80%  | 80%   |
| School Bus               | -                                | -    | -    | -     | -                         | -    | -    | -     | -   | -    | -    | -     |
| Work at Home             | 3%                               | 0%   | 3%   | 0%    | 0%                        | 0%   | 0%   | 0%    | 0%  | 0%   | 0%   | 0%    |
| Total                    | 100%                             | 100% | 100% | 100%  | 100%                      | 100% | 100% | 100%  | 100%  | 100% | 100% | 100%  |
| <b>Vehicle Occupancy</b> | (2)(4)                           |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Auto                     | 1.21                             | 1.21 | 1.21 | 1.21  | 1.65                      | 1.65 | 1.65 | 1.65  | 1.00  | 1.00 | 1.00 | 1.00  |
| Taxi                     | 1.40                             | 1.40 | 1.40 | 1.40  | 1.40                      | 1.40 | 1.40 | 1.40  | 1.00  | 1.00 | 1.00 | 1.00  |
| School Bus               | -                                | -    | -    | -     | -                         | -    | -    | -     | -   | -    | -    | -     |
| Daily Delivery Trip      | (2)                              |      |      |       | (2)                       |      |      |       | (2)   |      |      |       |
| Generation Rate          | 0.32                             |      |      |       | 0.01                      |      |      |       | 0.19  |      |      |       |
|                          | Delivery Trips / KSF             |      |      |       | Delivery Trips / KSF      |      |      |       | Delivery Trips / KSF                        |      |      |       |
|                          | AM                               | MD   | PM   | SAT   | AM                        | MD   | PM   | SAT   | AM  | MD   | PM   | SAT   |

**Table 17 (cont'd)  
Travel Demand Assumptions**

|                             |  |           |           |            |                       |           |           |            |                      |           |           |            |
|-----------------------------|--|-----------|-----------|------------|-----------------------|-----------|-----------|------------|----------------------|-----------|-----------|------------|
| <b>Delivery Temporal</b>    | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
|                             | 10%  | 11%       | 2%        |            | 10%                   | 11%       | 2%        |            | 10%                  | 11%       | 2%        |            |
| <b>Delivery Directional</b> | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| In                          | 50%  | 50%       | 50%       | In         | 50%                   | 50%       | 50%       | In         | 50%                  | 50%       | 50%       | In         |
| Out                         | 50%  | 50%       | 50%       | Out        | 50%                   | 50%       | 50%       | Out        | 50%                  | 50%       | 50%       | Out        |
| Total                       | 100%   | 100%      | 100%      | Total      | 100%                  | 100%      | 100%      | Total      | 100%                 | 100%      | 100%      | Total      |
| <b>Use</b>                  | <b>Bowling Alley</b>   |           |           |            | <b>Movie Theater</b>  |           |           |            | <b>Museum</b>        |           |           |            |
| <b>Daily Person Trip</b>    | (2)  |           |           |            | (1)                   |           |           |            | (1)                  |           |           |            |
| <b>Generation Rate</b>      | 70.2   |           |           |            | 90.9                  |           |           |            | 27.0                 |           |           |            |
|                             | Trips / Lane   |           |           |            | Trips / Seat          |           |           |            | Trips / KSF          |           |           |            |
| <b>Trip Linkage</b>         | 0%   |           |           |            | 0%                    |           |           |            | 0%                   |           |           |            |
|                             | <b>AM</b>  | <b>MD</b> | <b>PM</b> | <b>SAT</b> | <b>AM</b>             | <b>MD</b> | <b>PM</b> | <b>SAT</b> | <b>AM</b>            | <b>MD</b> | <b>PM</b> | <b>SAT</b> |
| <b>Temporal</b>             | (2)  |           |           |            | (1)                   |           |           |            | (1)                  |           |           |            |
|                             | 9.4%   | 11.5%     | 13.5%     | 13.5%      | 1%                    | 3%        | 8%        | 5%         | 1%                   | 16%       | 13%       | 17%        |
| <b>Directional</b>          | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| In                          | 60%  | 60%       | 83%       | 60%        | 95%                   | 62%       | 54%       | 62%        | 50%                  | 63%       | 52%       | 63%        |
| Out                         | 40%  | 40%       | 17%       | 40%        | 5%                    | 38%       | 46%       | 38%        | 50%                  | 37%       | 48%       | 37%        |
| Total                       | 100%   | 100%      | 100%      | 100%       | 100%                  | 100%      | 100%      | 100%       | 100%                 | 100%      | 100%      | 100%       |
| <b>Modal Split</b>          | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| Auto                        | 9%   | 9%        | 9%        | 9%         | 9%                    | 9%        | 9%        | 9%         | 12%                  | 12%       | 12%       | 12%        |
| Taxi                        | 4%   | 4%        | 4%        | 4%         | 4%                    | 4%        | 4%        | 4%         | 10%                  | 10%       | 10%       | 10%        |
| Subway                      | 28.5%  | 28.5%     | 28.5%     | 28.5%      | 28.5%                 | 28.5%     | 28.5%     | 28.5%      | 7%                   | 7%        | 7%        | 7%         |
| Bus                         | 8%   | 8%        | 8%        | 8%         | 8%                    | 8%        | 8%        | 8%         | 29%                  | 29%       | 29%       | 29%        |
| Walk                        | 50.5%  | 50.5%     | 50.5%     | 50.5%      | 50.5%                 | 50.5%     | 50.5%     | 50.5%      | 42%                  | 42%       | 42%       | 42%        |
| School Bus                  | -  | -         | -         | -          | -                     | -         | -         | -          | -                    | -         | -         | -          |
| Work at Home                | 0%   | 0%        | 0%        | 0%         | 0%                    | 0%        | 0%        | 0%         | 0%                   | 0%        | 0%        | 0%         |
| Total                       | 100%   | 100%      | 100%      | 100%       | 100%                  | 100%      | 100%      | 100%       | 100%                 | 100%      | 100%      | 100%       |
| <b>Vehicle Occupancy</b>    | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| Auto                        | 2.00   | 2.00      | 2.00      | 2.00       | 2.52                  | 2.52      | 2.52      | 2.52       | 2.34                 | 2.34      | 2.34      | 2.34       |
| Taxi                        | 2.00   | 2.00      | 2.00      | 2.00       | 2.30                  | 2.30      | 2.30      | 2.30       | 1.90                 | 1.90      | 1.90      | 1.90       |
| School Bus                  | -  | -         | -         | -          | -                     | -         | -         | -          | -                    | -         | -         | -          |
| <b>Daily Delivery Trip</b>  | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| <b>Generation Rate</b>      | 0.35   |           |           |            | 0.02                  |           |           |            | 0.05                 |           |           |            |
|                             | Delivery Trips / KSF   |           |           |            | Delivery Trips / Seat |           |           |            | Delivery Trips / KSF |           |           |            |
|                             | <b>AM</b>  | <b>MD</b> | <b>PM</b> | <b>SAT</b> | <b>AM</b>             | <b>MD</b> | <b>PM</b> | <b>SAT</b> | <b>AM</b>            | <b>MD</b> | <b>PM</b> | <b>SAT</b> |
| <b>Delivery Temporal</b>    | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
|                             | 8%   | 11%       | 2%        | 11.0%      | 12%                   | 11%       | 1%        | 0.0%       | 9.6%                 | 11%       | 1%        | 11%        |
| <b>Delivery Directional</b> | (2)  |           |           |            | (2)                   |           |           |            | (2)                  |           |           |            |
| In                          | 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%        |
| Total                       | 100%   | 100%      | 100%      | 100%       | 100%                  | 100%      | 100%      | 100%       | 100%                 | 100%      | 100%      | 100%       |
| <b>Sources</b>              | (1) 2014 CEQR Technical Manual<br>(2) Seward Park Mixed-Use Development Project FGEIS and Technical Memoranda, 2012 and 2015<br>(3) U.S. Census Bureau, ACS 2011-2015 Five-Year Estimates—Journey-to-Work (JTW) Data for Census Tracts 12, 14.01, 14.02, 16, 18, 22.01, and 30.01<br>(4) U.S. Census Bureau, ACS 2006-2010 Five-Year Estimates. Special Tabulation: Census Transportation Planning—Reverse-Journey-to-Work (RJTW) Data for Census Tracts 12, 14.01, 14.02, 16, 18, 22.01, and 30.01<br>(5) Work at home mode excluded from modal split estimations |           |           |            |                       |           |           |            |                      |           |           |            |

**Table 18**  
**Trip Generation Summary**  
**Person Trips—Proposed Essex Crossing Program**

| Use           |                        | Peak Hour    | Person Trip |           |            |           |            |            |            |
|---------------|------------------------|--------------|-------------|-----------|------------|-----------|------------|------------|------------|
|               |                        |              | Auto        | Taxi      | Subway     | Bus       | School Bus | Walk       | Total      |
| Residential   | 1,079 Dwelling Units   | In           | 8           | 3         | 77         | 7         | 0          | 37         | 132        |
|               |                        | AM Out       | 44          | 15        | 437        | 37        | 0          | 207        | 740        |
|               |                        | <b>Total</b> | <b>52</b>   | <b>18</b> | <b>514</b> | <b>44</b> | <b>0</b>   | <b>244</b> | <b>872</b> |
|               |                        | In           | 13          | 4         | 129        | 11        | 0          | 61         | 218        |
|               |                        | MD Out       | 13          | 4         | 129        | 11        | 0          | 61         | 218        |
|               |                        | <b>Total</b> | <b>26</b>   | <b>8</b>  | <b>258</b> | <b>22</b> | <b>0</b>   | <b>122</b> | <b>436</b> |
|               |                        | In           | 40          | 13        | 396        | 34        | 0          | 188        | 671        |
|               |                        | PM Out       | 17          | 6         | 170        | 14        | 0          | 81         | 288        |
|               |                        | <b>Total</b> | <b>57</b>   | <b>19</b> | <b>566</b> | <b>48</b> | <b>0</b>   | <b>269</b> | <b>959</b> |
|               |                        | In           | 25          | 8         | 244        | 21        | 0          | 116        | 414        |
|               |                        | SAT Out      | 25          | 8         | 244        | 21        | 0          | 116        | 414        |
|               |                        | <b>Total</b> | <b>50</b>   | <b>16</b> | <b>488</b> | <b>42</b> | <b>0</b>   | <b>232</b> | <b>828</b> |
| Office        | 293.205 KSF            | In           | 103         | 12        | 340        | 55        | 0          | 79         | 589        |
|               |                        | AM Out       | 4           | 1         | 14         | 2         | 0          | 3          | 24         |
|               |                        | <b>Total</b> | <b>107</b>  | <b>13</b> | <b>354</b> | <b>57</b> | <b>0</b>   | <b>82</b>  | <b>613</b> |
|               |                        | In           | 8           | 11        | 23         | 23        | 0          | 315        | 380        |
|               |                        | MD Out       | 8           | 12        | 25         | 25        | 0          | 342        | 412        |
|               |                        | <b>Total</b> | <b>16</b>   | <b>23</b> | <b>48</b>  | <b>48</b> | <b>0</b>   | <b>657</b> | <b>792</b> |
|               |                        | In           | 6           | 1         | 21         | 3         | 0          | 5          | 36         |
|               |                        | PM Out       | 119         | 14        | 393        | 63        | 0          | 91         | 680        |
|               |                        | <b>Total</b> | <b>125</b>  | <b>15</b> | <b>414</b> | <b>66</b> | <b>0</b>   | <b>96</b>  | <b>716</b> |
|               |                        | In           | 2           | 3         | 7          | 7         | 0          | 92         | 111        |
|               |                        | SAT Out      | 2           | 3         | 5          | 5         | 0          | 69         | 84         |
|               |                        | <b>Total</b> | <b>4</b>    | <b>6</b>  | <b>12</b>  | <b>12</b> | <b>0</b>   | <b>161</b> | <b>195</b> |
| Gym           | 47.258 KSF             | In           | 1           | 1         | 4          | 1         | 0          | 28         | 35         |
|               |                        | AM Out       | 1           | 1         | 6          | 2         | 0          | 40         | 50         |
|               |                        | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>10</b>  | <b>3</b>  | <b>0</b>   | <b>68</b>  | <b>85</b>  |
|               |                        | In           | 2           | 2         | 12         | 4         | 0          | 82         | 102        |
|               |                        | MD Out       | 2           | 2         | 10         | 3         | 0          | 70         | 87         |
|               |                        | <b>Total</b> | <b>4</b>    | <b>4</b>  | <b>22</b>  | <b>7</b>  | <b>0</b>   | <b>152</b> | <b>189</b> |
|               |                        | In           | 2           | 2         | 10         | 3         | 0          | 63         | 80         |
|               |                        | PM Out       | 1           | 1         | 3          | 1         | 0          | 21         | 27         |
|               |                        | <b>Total</b> | <b>3</b>    | <b>3</b>  | <b>13</b>  | <b>4</b>  | <b>0</b>   | <b>84</b>  | <b>107</b> |
|               |                        | In           | 1           | 1         | 7          | 2         | 0          | 48         | 59         |
|               |                        | SAT Out      | 1           | 1         | 6          | 2         | 0          | 41         | 51         |
|               |                        | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>13</b>  | <b>4</b>  | <b>0</b>   | <b>89</b>  | <b>110</b> |
| Bowling Alley | 13 Lanes<br>27.784 KSF | In           | 5           | 2         | 15         | 4         | 0          | 26         | 52         |
|               |                        | AM Out       | 3           | 1         | 10         | 3         | 0          | 17         | 34         |
|               |                        | <b>Total</b> | <b>8</b>    | <b>3</b>  | <b>25</b>  | <b>7</b>  | <b>0</b>   | <b>43</b>  | <b>86</b>  |
|               |                        | In           | 6           | 3         | 18         | 5         | 0          | 32         | 64         |
|               |                        | MD Out       | 4           | 2         | 12         | 3         | 0          | 21         | 42         |
|               |                        | <b>Total</b> | <b>10</b>   | <b>5</b>  | <b>30</b>  | <b>8</b>  | <b>0</b>   | <b>53</b>  | <b>106</b> |
|               |                        | In           | 9           | 4         | 29         | 8         | 0          | 52         | 102        |
|               |                        | PM Out       | 2           | 1         | 6          | 2         | 0          | 11         | 22         |
|               |                        | <b>Total</b> | <b>11</b>   | <b>5</b>  | <b>35</b>  | <b>10</b> | <b>0</b>   | <b>63</b>  | <b>124</b> |
|               |                        | In           | 9           | 4         | 27         | 8         | 0          | 48         | 96         |
|               |                        | SAT Out      | 6           | 3         | 18         | 5         | 0          | 32         | 64         |
|               |                        | <b>Total</b> | <b>15</b>   | <b>7</b>  | <b>45</b>  | <b>13</b> | <b>0</b>   | <b>80</b>  | <b>160</b> |

**Table 18 (cont'd)**  
**Trip Generation Summary**  
**Person Trips—Proposed Essex Crossing Program**

| Use                |   | Person Trip |              |            |           |            |            |          |              |              |
|--------------------|---|-------------|--------------|------------|-----------|------------|------------|----------|--------------|--------------|
|                    |   | Peak Hour   | Auto         | Taxi       | Subway    | Bus        | School Bus | Walk     | Total        |              |
| Movie Theater      | 1,100 Seats   |             | In           | 3          | 1         | 10         | 3          | 0        | 17           | 34           |
|                    |   | AM          | Out          | 0          | 0         | 1          | 0          | 0        | 1            | 2            |
|                    |   |             | <b>Total</b> | <b>3</b>   | <b>1</b>  | <b>11</b>  | <b>3</b>   | <b>0</b> | <b>18</b>    | <b>36</b>    |
|                    |   |             | In           | 6          | 3         | 19         | 5          | 0        | 34           | 67           |
|                    |   | MD          | Out          | 4          | 2         | 12         | 3          | 0        | 21           | 42           |
|                    |   |             | <b>Total</b> | <b>10</b>  | <b>5</b>  | <b>31</b>  | <b>8</b>   | <b>0</b> | <b>55</b>    | <b>109</b>   |
|                    |   |             | In           | 14         | 6         | 44         | 12         | 0        | 78           | 154          |
|                    |   | PM          | Out          | 12         | 5         | 38         | 11         | 0        | 67           | 133          |
|                    |   |             | <b>Total</b> | <b>26</b>  | <b>11</b> | <b>82</b>  | <b>23</b>  | <b>0</b> | <b>145</b>   | <b>287</b>   |
|                    |   |             | In           | 19         | 9         | 61         | 17         | 0        | 108          | 214          |
|                    |   | SAT         | Out          | 12         | 5         | 37         | 10         | 0        | 66           | 130          |
|                    |   |             | <b>Total</b> | <b>31</b>  | <b>14</b> | <b>98</b>  | <b>27</b>  | <b>0</b> | <b>174</b>   | <b>344</b>   |
| Local Retail       | 88.069 KSF  |             | In           | 4          | 6         | 12         | 12         | 0        | 169          | 203          |
|                    |   | AM          | Out          | 4          | 6         | 12         | 12         | 0        | 169          | 203          |
|                    |   |             | <b>Total</b> | <b>8</b>   | <b>12</b> | <b>24</b>  | <b>24</b>  | <b>0</b> | <b>338</b>   | <b>406</b>   |
|                    |   |             | In           | 26         | 39        | 77         | 77         | 0        | 1,068        | 1,287        |
|                    |   | MD          | Out          | 26         | 39        | 77         | 77         | 0        | 1,068        | 1,287        |
|                    |   |             | <b>Total</b> | <b>52</b>  | <b>78</b> | <b>154</b> | <b>154</b> | <b>0</b> | <b>2,136</b> | <b>2,574</b> |
|                    |   |             | In           | 14         | 20        | 41         | 41         | 0        | 562          | 678          |
|                    |   | PM          | Out          | 14         | 20        | 41         | 41         | 0        | 562          | 678          |
|                    |   |             | <b>Total</b> | <b>28</b>  | <b>40</b> | <b>82</b>  | <b>82</b>  | <b>0</b> | <b>1,124</b> | <b>1,356</b> |
|                    |   |             | In           | 16         | 24        | 48         | 48         | 0        | 658          | 794          |
|                    |   | SAT         | Out          | 16         | 24        | 48         | 48         | 0        | 658          | 794          |
|                    |   |             | <b>Total</b> | <b>32</b>  | <b>48</b> | <b>96</b>  | <b>96</b>  | <b>0</b> | <b>1,316</b> | <b>1,588</b> |
| Destination Retail | 140.947 KSF<br>(incl. Market Line Space of 40.414 ksf at Site 3 & 45.551 ksf at Site 4) |             | In           | 18         | 8         | 57         | 16         | 0        | 102          | 201          |
|                    |   | AM          | Out          | 12         | 5         | 37         | 10         | 0        | 65           | 129          |
|                    |   |             | <b>Total</b> | <b>30</b>  | <b>13</b> | <b>94</b>  | <b>26</b>  | <b>0</b> | <b>167</b>   | <b>330</b>   |
|                    |   |             | In           | 49         | 22        | 109        | 44         | 0        | 322          | 546          |
|                    |   | MD          | Out          | 40         | 18        | 89         | 36         | 0        | 263          | 446          |
|                    |   |             | <b>Total</b> | <b>89</b>  | <b>40</b> | <b>198</b> | <b>80</b>  | <b>0</b> | <b>585</b>   | <b>992</b>   |
|                    |   |             | In           | 42         | 19        | 133        | 37         | 0        | 235          | 466          |
|                    |   | PM          | Out          | 47         | 21        | 150        | 42         | 0        | 266          | 526          |
|                    |   |             | <b>Total</b> | <b>89</b>  | <b>40</b> | <b>283</b> | <b>79</b>  | <b>0</b> | <b>501</b>   | <b>992</b>   |
|                    |   |             | In           | 67         | 30        | 149        | 60         | 0        | 440          | 746          |
|                    |   | SAT         | Out          | 62         | 28        | 138        | 55         | 0        | 406          | 689          |
|                    |   |             | <b>Total</b> | <b>129</b> | <b>58</b> | <b>287</b> | <b>115</b> | <b>0</b> | <b>846</b>   | <b>1,435</b> |
| Public Market      | 89.145 KSF<br>(incl. Market Line Space of 46.117 ksf at Site 2)                         |             | In           | 7          | 10        | 21         | 21         | 0        | 286          | 345          |
|                    |   | AM          | Out          | 5          | 7         | 14         | 14         | 0        | 199          | 239          |
|                    |   |             | <b>Total</b> | <b>12</b>  | <b>17</b> | <b>35</b>  | <b>35</b>  | <b>0</b> | <b>485</b>   | <b>584</b>   |
|                    |   |             | In           | 6          | 10        | 19         | 19         | 0        | 268          | 322          |
|                    |   | MD          | Out          | 8          | 11        | 23         | 23         | 0        | 315          | 380          |
|                    |   |             | <b>Total</b> | <b>14</b>  | <b>21</b> | <b>42</b>  | <b>42</b>  | <b>0</b> | <b>583</b>   | <b>702</b>   |
|                    |   |             | In           | 11         | 16        | 33         | 33         | 0        | 456          | 549          |
|                    |   | PM          | Out          | 12         | 19        | 37         | 37         | 0        | 515          | 620          |
|                    |   |             | <b>Total</b> | <b>23</b>  | <b>35</b> | <b>70</b>  | <b>70</b>  | <b>0</b> | <b>971</b>   | <b>1,169</b> |
|                    |   |             | In           | 14         | 21        | 43         | 43         | 0        | 588          | 709          |
|                    |   | SAT         | Out          | 14         | 20        | 41         | 41         | 0        | 565          | 681          |
|                    |   |             | <b>Total</b> | <b>28</b>  | <b>41</b> | <b>84</b>  | <b>84</b>  | <b>0</b> | <b>1,153</b> | <b>1,390</b> |

**Table 18 (cont'd)**  
**Trip Generation Summary**  
**Person Trips—Proposed Essex Crossing Program**

| Use                       |            | Peak Hour |              | Person Trip |           |           |           |            |            |            |
|---------------------------|------------|-----------|--------------|-------------|-----------|-----------|-----------|------------|------------|------------|
|                           |            |           |              | Auto        | Taxi      | Subway    | Bus       | School Bus | Walk       | Total      |
| Supermarket               | 27.805 KSF | AM        | In           | 2           | 3         | 6         | 6         | 0          | 89         | 106        |
|                           |            |           | Out          | 1           | 2         | 4         | 4         | 0          | 62         | 73         |
|                           |            |           | <b>Total</b> | <b>3</b>    | <b>5</b>  | <b>10</b> | <b>10</b> | <b>0</b>   | <b>151</b> | <b>179</b> |
|                           |            | MD        | In           | 2           | 3         | 6         | 6         | 0          | 84         | 101        |
|                           |            |           | Out          | 2           | 4         | 7         | 7         | 0          | 98         | 118        |
|                           |            |           | <b>Total</b> | <b>4</b>    | <b>7</b>  | <b>13</b> | <b>13</b> | <b>0</b>   | <b>182</b> | <b>219</b> |
|                           |            | PM        | In           | 3           | 5         | 10        | 10        | 0          | 142        | 170        |
|                           |            |           | Out          | 4           | 6         | 12        | 12        | 0          | 161        | 195        |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>11</b> | <b>22</b> | <b>22</b> | <b>0</b>   | <b>303</b> | <b>365</b> |
|                           |            | SAT       | In           | 4           | 7         | 13        | 13        | 0          | 184        | 221        |
|                           |            |           | Out          | 4           | 6         | 13        | 13        | 0          | 176        | 212        |
|                           |            |           | <b>Total</b> | <b>8</b>    | <b>13</b> | <b>26</b> | <b>26</b> | <b>0</b>   | <b>360</b> | <b>433</b> |
| Medical Office (Staff)    | 16.547 KSF | AM        | In           | 6           | 1         | 22        | 4         | 0          | 5          | 38         |
|                           |            |           | Out          | 0           | 0         | 1         | 0         | 0          | 0          | 1          |
|                           |            |           | <b>Total</b> | <b>6</b>    | <b>1</b>  | <b>23</b> | <b>4</b>  | <b>0</b>   | <b>5</b>   | <b>39</b>  |
|                           |            | MD        | In           | 2           | 0         | 8         | 1         | 0          | 2          | 13         |
|                           |            |           | Out          | 2           | 0         | 8         | 1         | 0          | 2          | 13         |
|                           |            |           | <b>Total</b> | <b>4</b>    | <b>0</b>  | <b>16</b> | <b>2</b>  | <b>0</b>   | <b>4</b>   | <b>26</b>  |
|                           |            | PM        | In           | 1           | 0         | 3         | 0         | 0          | 1          | 5          |
|                           |            |           | Out          | 6           | 1         | 20        | 3         | 0          | 5          | 35         |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>1</b>  | <b>23</b> | <b>3</b>  | <b>0</b>   | <b>6</b>   | <b>40</b>  |
|                           |            | SAT       | In           | 1           | 0         | 4         | 1         | 0          | 1          | 7          |
|                           |            |           | Out          | 1           | 0         | 4         | 1         | 0          | 1          | 7          |
|                           |            |           | <b>Total</b> | <b>2</b>    | <b>0</b>  | <b>8</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>14</b>  |
| Medical Office (Visitors) | 16.547 KSF | AM        | In           | 8           | 8         | 9         | 3         | 0          | 3          | 31         |
|                           |            |           | Out          | 1           | 1         | 1         | 0         | 0          | 0          | 3          |
|                           |            |           | <b>Total</b> | <b>9</b>    | <b>9</b>  | <b>10</b> | <b>3</b>  | <b>0</b>   | <b>3</b>   | <b>34</b>  |
|                           |            | MD        | In           | 6           | 6         | 7         | 3         | 0          | 3          | 25         |
|                           |            |           | Out          | 6           | 6         | 7         | 3         | 0          | 3          | 25         |
|                           |            |           | <b>Total</b> | <b>12</b>   | <b>12</b> | <b>14</b> | <b>6</b>  | <b>0</b>   | <b>6</b>   | <b>50</b>  |
|                           |            | PM        | In           | 1           | 1         | 1         | 0         | 0          | 0          | 3          |
|                           |            |           | Out          | 6           | 6         | 7         | 3         | 0          | 2          | 24         |
|                           |            |           | <b>Total</b> | <b>7</b>    | <b>7</b>  | <b>8</b>  | <b>3</b>  | <b>0</b>   | <b>2</b>   | <b>27</b>  |
|                           |            | SAT       | In           | 3           | 3         | 3         | 1         | 0          | 1          | 11         |
|                           |            |           | Out          | 3           | 3         | 3         | 1         | 0          | 1          | 11         |
|                           |            |           | <b>Total</b> | <b>6</b>    | <b>6</b>  | <b>6</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>22</b>  |
| School (Students)         | 518 Seats  | AM        | In           | 52          | 10        | 41        | 36        | 104        | 275        | 518        |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>52</b>   | <b>10</b> | <b>41</b> | <b>36</b> | <b>104</b> | <b>275</b> | <b>518</b> |
|                           |            | MD        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|                           |            | PM        | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 10          | 2         | 8         | 7         | 21         | 55         | 103        |
|                           |            |           | <b>Total</b> | <b>10</b>   | <b>2</b>  | <b>8</b>  | <b>7</b>  | <b>21</b>  | <b>55</b>  | <b>103</b> |
|                           |            | SAT       | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|                           |            |           | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |

**Table 18 (cont'd)**  
**Trip Generation Summary**  
**Person Trips—Proposed Essex Crossing Program**

| Use  |                | Peak Hour    |              | Person Trip |           |           |           |            |            |            |
|--|----------------|--------------|--------------|-------------|-----------|-----------|-----------|------------|------------|------------|
|  |                |              |              | Auto        | Taxi      | Subway    | Bus       | School Bus | Walk       | Total      |
| School<br>(Parents)<br><i>[Subway, bus,<br/>and walk<br/>modes only]</i> | 275<br>Parents |              | In           | 0           | 0         | 33        | 28        | 0          | 214        | 275        |
|  |                | AM           | Out          | 0           | 0         | 33        | 28        | 0          | 214        | 275        |
|  |                |              | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>66</b> | <b>56</b> | <b>0</b>   | <b>428</b> | <b>550</b> |
|  |                |              | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                | MD           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |              | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|  |                | In           | 0            | 0           | 7         | 6         | 0         | 43         | 56         |            |
|  | PM             | Out          | 0            | 0           | 7         | 6         | 0         | 43         | 56         |            |
|  |                | <b>Total</b> | <b>0</b>     | <b>0</b>    | <b>14</b> | <b>12</b> | <b>0</b>  | <b>86</b>  | <b>112</b> |            |
|  |                | In           | 0            | 0           | 0         | 0         | 0         | 0          | 0          |            |
|  | SAT            | Out          | 0            | 0           | 0         | 0         | 0         | 0          | 0          |            |
|  |                | <b>Total</b> | <b>0</b>     | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   |            |
| School<br>(Faculty)  | 52<br>Staff    |              | In           | 9           | 1         | 30        | 5         | 0          | 7          | 52         |
|  |                | AM           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |              | <b>Total</b> | <b>9</b>    | <b>1</b>  | <b>30</b> | <b>5</b>  | <b>0</b>   | <b>7</b>   | <b>52</b>  |
|  |                |              | In           | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                | MD           | Out          | 0           | 0         | 0         | 0         | 0          | 0          | 0          |
|  |                |              | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>   |
|  |                | In           | 0            | 0           | 0         | 0         | 0         | 0          | 0          |            |
|  | PM             | Out          | 0            | 0           | 2         | 0         | 0         | 0          | 2          |            |
|  |                | <b>Total</b> | <b>0</b>     | <b>0</b>    | <b>2</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>2</b>   |            |
|  |                | In           | 0            | 0           | 0         | 0         | 0         | 0          | 0          |            |
|  | SAT            | Out          | 0            | 0           | 0         | 0         | 0         | 0          | 0          |            |
|  |                | <b>Total</b> | <b>0</b>     | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>   | <b>0</b>   |            |
| Museum   | 26.075<br>KSF  |              | In           | 0           | 0         | 0         | 1         | 0          | 1          | 2          |
|  |                | AM           | Out          | 0           | 0         | 0         | 1         | 0          | 1          | 2          |
|  |                |              | <b>Total</b> | <b>0</b>    | <b>0</b>  | <b>0</b>  | <b>2</b>  | <b>0</b>   | <b>2</b>   | <b>4</b>   |
|  |                |              | In           | 9           | 7         | 5         | 21        | 0          | 30         | 72         |
|  |                | MD           | Out          | 5           | 4         | 3         | 12        | 0          | 18         | 42         |
|  |                |              | <b>Total</b> | <b>14</b>   | <b>11</b> | <b>8</b>  | <b>33</b> | <b>0</b>   | <b>48</b>  | <b>114</b> |
|  |                | In           | 6            | 5           | 3         | 14        | 0         | 20         | 48         |            |
|  | PM             | Out          | 5            | 4           | 3         | 13        | 0         | 18         | 43         |            |
|  |                | <b>Total</b> | <b>11</b>    | <b>9</b>    | <b>6</b>  | <b>27</b> | <b>0</b>  | <b>38</b>  | <b>91</b>  |            |
|  |                | In           | 7            | 6           | 4         | 17        | 0         | 24         | 58         |            |
|  | SAT            | Out          | 4            | 3           | 2         | 10        | 0         | 14         | 33         |            |
|  |                | <b>Total</b> | <b>11</b>    | <b>9</b>    | <b>6</b>  | <b>27</b> | <b>0</b>  | <b>38</b>  | <b>91</b>  |            |
| Community<br>Office  | 23<br>KSF      |              | In           | 8           | 1         | 27        | 4         | 0          | 6          | 46         |
|  |                | AM           | Out          | 0           | 0         | 1         | 0         | 0          | 0          | 1          |
|  |                |              | <b>Total</b> | <b>8</b>    | <b>1</b>  | <b>28</b> | <b>4</b>  | <b>0</b>   | <b>6</b>   | <b>47</b>  |
|  |                |              | In           | 1           | 1         | 2         | 2         | 0          | 25         | 31         |
|  |                | MD           | Out          | 1           | 1         | 2         | 2         | 0          | 27         | 33         |
|  |                |              | <b>Total</b> | <b>2</b>    | <b>2</b>  | <b>4</b>  | <b>4</b>  | <b>0</b>   | <b>52</b>  | <b>64</b>  |
|  |                | In           | 0            | 0           | 2         | 0         | 0         | 0          | 2          |            |
|  | PM             | Out          | 9            | 1           | 31        | 5         | 0         | 7          | 53         |            |
|  |                | <b>Total</b> | <b>9</b>     | <b>1</b>    | <b>33</b> | <b>5</b>  | <b>0</b>  | <b>7</b>   | <b>55</b>  |            |
|  |                | In           | 0            | 0           | 1         | 1         | 0         | 7          | 9          |            |
|  | SAT            | Out          | 0            | 0           | 0         | 0         | 0         | 5          | 5          |            |
|  |                | <b>Total</b> | <b>0</b>     | <b>0</b>    | <b>1</b>  | <b>1</b>  | <b>0</b>  | <b>12</b>  | <b>14</b>  |            |

**Table 18 (cont'd)**  
**Trip Generation Summary**  
**Person Trips—Proposed Essex Crossing Program**

| Use                |        | Peak Hour    |              | Person Trip |            |              |            |            |              |              |
|--------------------|--------|--------------|--------------|-------------|------------|--------------|------------|------------|--------------|--------------|
|                    |        |              |              | Auto        | Taxi       | Subway       | Bus        | School Bus | Walk         | Total        |
| Community Facility | 23 KSF | In           |              | 2           | 0          | 1            | 3          | 0          | 41           | 47           |
|                    |        | AM           | Out          | 2           | 0          | 1            | 2          | 0          | 26           | 31           |
|                    |        |              | <b>Total</b> | <b>4</b>    | <b>0</b>   | <b>2</b>     | <b>5</b>   | <b>0</b>   | <b>67</b>    | <b>78</b>    |
|                    |        |              | In           | 3           | 1          | 2            | 4          | 0          | 52           | 62           |
|                    |        | MD           | Out          | 2           | 0          | 1            | 3          | 0          | 42           | 48           |
|                    |        |              | <b>Total</b> | <b>5</b>    | <b>1</b>   | <b>3</b>     | <b>7</b>   | <b>0</b>   | <b>94</b>    | <b>110</b>   |
|                    |        |              | In           | 1           | 0          | 1            | 1          | 0          | 20           | 23           |
|                    |        | PM           | Out          | 3           | 1          | 2            | 3          | 0          | 48           | 57           |
|                    |        |              | <b>Total</b> | <b>4</b>    | <b>1</b>   | <b>3</b>     | <b>4</b>   | <b>0</b>   | <b>68</b>    | <b>80</b>    |
|                    |        |              | In           | 2           | 0          | 1            | 2          | 0          | 26           | 31           |
|                    |        | SAT          | Out          | 2           | 0          | 1            | 2          | 0          | 27           | 32           |
|                    |        |              | <b>Total</b> | <b>4</b>    | <b>0</b>   | <b>2</b>     | <b>4</b>   | <b>0</b>   | <b>53</b>    | <b>63</b>    |
| Total              |        | In           |              | 236         | 67         | 705          | 209        | 104        | 1,385        | 2,706        |
|                    | AM     | Out          |              | 77          | 39         | 572          | 115        | 0          | 1,004        | 1,807        |
|                    |        | <b>Total</b> |              | <b>313</b>  | <b>106</b> | <b>1,277</b> | <b>324</b> | <b>104</b> | <b>2,389</b> | <b>4,513</b> |
|                    |        | In           |              | 139         | 112        | 436          | 225        | 0          | 2,378        | 3,290        |
|                    | MD     | Out          |              | 123         | 105        | 405          | 209        | 0          | 2,351        | 3,193        |
|                    |        | <b>Total</b> |              | <b>262</b>  | <b>217</b> | <b>841</b>   | <b>434</b> | <b>0</b>   | <b>4,729</b> | <b>6,483</b> |
|                    |        | In           |              | 150         | 92         | 734          | 202        | 0          | 1,865        | 3,043        |
|                    | PM     | Out          |              | 267         | 108        | 930          | 263        | 21         | 1,953        | 3,542        |
|                    |        | <b>Total</b> |              | <b>417</b>  | <b>200</b> | <b>1,664</b> | <b>465</b> | <b>21</b>  | <b>3,818</b> | <b>6,585</b> |
|                    |        | In           |              | 170         | 116        | 612          | 241        | 0          | 2,341        | 3,480        |
|                    | SAT    | Out          |              | 152         | 104        | 560          | 214        | 0          | 2,177        | 3,207        |
|                    |        | <b>Total</b> |              | <b>322</b>  | <b>220</b> | <b>1,172</b> | <b>455</b> | <b>0</b>   | <b>4,518</b> | <b>6,687</b> |

**Table 19**  
**Trip Generation Summary**  
**Vehicle Trips—Proposed Essex Crossing Program**

| Use                       | Weekday Peak Hours |     |       |        |     |       |    |     |       | Saturday Peak Hour |     |       |
|---------------------------|--------------------|-----|-------|--------|-----|-------|----|-----|-------|--------------------|-----|-------|
|                           | AM                 |     |       | Midday |     |       | PM |     |       | In                 | Out | Total |
|                           | In                 | Out | Total | In     | Out | Total | In | Out | Total |                    |     |       |
| <b>Autos</b>              |                    |     |       |        |     |       |    |     |       |                    |     |       |
| Residential               | 6                  | 33  | 39    | 10     | 10  | 20    | 30 | 13  | 43    | 19                 | 19  | 38    |
| Office                    | 85                 | 4   | 89    | 6      | 7   | 13    | 5  | 99  | 104   | 2                  | 1   | 3     |
| Local Retail              | 2                  | 2   | 4     | 16     | 16  | 32    | 8  | 8   | 16    | 10                 | 10  | 20    |
| Destination Retail        | 9                  | 6   | 15    | 25     | 20  | 45    | 21 | 24  | 45    | 34                 | 31  | 65    |
| Medical Office (Staff)    | 5                  | 0   | 5     | 2      | 2   | 4     | 1  | 5   | 6     | 1                  | 1   | 2     |
| Medical Office (Visitors) | 5                  | 0   | 5     | 4      | 4   | 8     | 1  | 4   | 5     | 2                  | 2   | 4     |
| School (Students)         | 40                 | 40  | 80    | 0      | 0   | 0     | 8  | 8   | 16    | 0                  | 0   | 0     |
| School (Staff)            | 7                  | 0   | 7     | 0      | 0   | 0     | 0  | 0   | 0     | 0                  | 0   | 0     |
| Community Facility        | 1                  | 1   | 2     | 2      | 2   | 4     | 1  | 2   | 3     | 1                  | 1   | 2     |
| Public Market             | 4                  | 3   | 7     | 4      | 5   | 9     | 7  | 8   | 15    | 9                  | 8   | 17    |
| Supermarket               | 1                  | 1   | 2     | 1      | 1   | 2     | 2  | 2   | 4     | 3                  | 3   | 6     |
| Community Office          | 7                  | 0   | 7     | 1      | 1   | 2     | 0  | 8   | 8     | 0                  | 0   | 0     |



**Table 19 (cont'd)  
Trip Generation Summary  
Vehicle Trips—Proposed Essex Crossing Program**

| Use                     | Weekday Peak Hours |            |            |            |            |            |            |            |            | Saturday Peak Hour |            |            |
|-------------------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------------|------------|------------|
|                         | AM                 |            |            | Midday     |            |            | PM         |            |            | In                 | Out        | Total      |
|                         | In                 | Out        | Total      | In         | Out        | Total      | In         | Out        | Total      |                    |            |            |
| Gym                     | 1                  | 1          | 2          | 2          | 2          | 4          | 2          | 1          | 3          | 1                  | 1          | 2          |
| Bowling Alley           | 2                  | 2          | 4          | 3          | 2          | 5          | 5          | 1          | 6          | 4                  | 3          | 7          |
| Movie Theater           | 1                  | 0          | 1          | 2          | 1          | 3          | 6          | 5          | 11         | 8                  | 5          | 13         |
| Museum                  | 0                  | 0          | 0          | 4          | 2          | 6          | 2          | 2          | 4          | 3                  | 2          | 5          |
| Deliveries (all uses)   | 14                 | 14         | 28         | 18         | 18         | 36         | 2          | 2          | 4          | 1                  | 1          | 2          |
| Taxis (all uses)        | 52                 | 52         | 104        | 108        | 108        | 216        | 103        | 103        | 206        | 103                | 103        | 206        |
| School Buses (all uses) | 5                  | 5          | 10         | 0          | 0          | 0          | 1          | 1          | 2          | 0                  | 0          | 0          |
| <b>Total</b>            | <b>247</b>         | <b>164</b> | <b>411</b> | <b>208</b> | <b>201</b> | <b>409</b> | <b>205</b> | <b>296</b> | <b>501</b> | <b>201</b>         | <b>191</b> | <b>392</b> |

**Table 20  
Person Trip Comparisons:  
Proposed Essex Crossing Program vs. Approved Program**

|   | Auto |     | Taxi |     | Subway |     | Bus |     | School Bus |     | Walk  |       | Total |       | Total  |
|---|------|-----|------|-----|--------|-----|-----|-----|------------|-----|-------|-------|-------|-------|--------|
|   | In   | Out | In   | Out | In     | Out | In  | Out | In         | Out | In    | Out   | In    | Out   | In+Out |
| <b>Weekday AM Peak Hour</b>                         |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PECP</b>   | 236  | 77  | 67   | 39  | 705    | 572 | 209 | 115 | 104        | 0   | 1,385 | 1,004 | 2,706 | 1,807 | 4,513  |
| <b>TM 003</b>                                       | 235  | 97  | 67   | 38  | 683    | 533 | 208 | 122 | 104        | 0   | 1,388 | 982   | 2,685 | 1,772 | 4,457  |
| <b>Diff.</b>  | 1    | -20 | 0    | 1   | 22     | 39  | 1   | -7  | 0          | 0   | -3    | 22    | 21    | 35    | 56     |
| <b>Weekday Midday Peak Hour</b>                     |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PECP</b>   | 139  | 123 | 112  | 105 | 436    | 405 | 225 | 209 | 0          | 0   | 2,378 | 2,351 | 3,290 | 3,193 | 6,483  |
| <b>TM 003</b>                                       | 153  | 136 | 114  | 106 | 442    | 406 | 230 | 213 | 0          | 0   | 2,365 | 2,323 | 3,304 | 3,184 | 6,488  |
| <b>Diff.</b>  | -14  | -13 | -2   | -1  | -6     | -1  | -5  | -4  | 0          | 0   | 13    | 28    | -14   | 9     | -5     |
| <b>Weekday PM Peak Hour</b>                         |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PECP</b>   | 150  | 267 | 92   | 108 | 734    | 930 | 202 | 263 | 0          | 21  | 1,865 | 1,953 | 3,043 | 3,542 | 6,585  |
| <b>TM 003</b>                                       | 174  | 275 | 94   | 110 | 718    | 912 | 212 | 268 | 0          | 21  | 1,864 | 1,966 | 3,062 | 3,552 | 6,614  |
| <b>Diff.</b>  | -24  | -8  | -2   | -2  | 16     | 18  | -10 | -5  | 0          | 0   | 1     | -13   | -19   | -10   | -29    |
| <b>Saturday Peak Hour</b>                           |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |
| <b>PECP</b>   | 170  | 152 | 116  | 104 | 612    | 560 | 241 | 214 | 0          | 0   | 2,341 | 2,177 | 3,480 | 3,207 | 6,687  |
| <b>TM 003</b>                                       | 194  | 175 | 122  | 108 | 617    | 563 | 252 | 225 | 0          | 0   | 2,385 | 2,216 | 3,570 | 3,287 | 6,857  |
| <b>Diff.</b>  | -24  | -23 | -6   | -4  | -5     | -3  | -11 | -11 | 0          | 0   | -44   | -39   | -90   | -80   | -170   |
| <b>Note: PECP = Proposed Essex Crossing Program</b> |      |     |      |     |        |     |     |     |            |     |       |       |       |       |        |

**Table 21**  
**Vehicle Trip Comparisons:**  
**Proposed Essex Crossing Program vs. Approved Program**

|                                 | Auto |     | Taxi |     | Truck |     | School Bus |     | Total |     | Total Trips |
|---------------------------------|------|-----|------|-----|-------|-----|------------|-----|-------|-----|-------------|
|                                 | In   | Out | In   | Out | In    | Out | In         | Out | In    | Out | In+Out      |
| <b>Weekday AM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| PECP                            | 176  | 93  | 52   | 52  | 14    | 14  | 5          | 5   | 247   | 164 | 411         |
| TM 003                          | 172  | 102 | 51   | 51  | 13    | 13  | 5          | 5   | 241   | 171 | 412         |
| Diff.                           | 4    | -9  | 1    | 1   | 1     | 1   | 0          | 0   | 6     | -7  | -1          |
| <b>Weekday Midday Peak Hour</b> |      |     |      |     |       |     |            |     |       |     |             |
| PECP                            | 82   | 75  | 108  | 108 | 18    | 18  | 0          | 0   | 208   | 201 | 409         |
| TM 003                          | 88   | 80  | 107  | 107 | 18    | 18  | 0          | 0   | 213   | 205 | 418         |
| Diff.                           | -6   | -5  | 1    | 1   | 0     | 0   | 0          | 0   | -5    | -4  | -9          |
| <b>Weekday PM Peak Hour</b>     |      |     |      |     |       |     |            |     |       |     |             |
| PECP                            | 99   | 190 | 103  | 103 | 2     | 2   | 1          | 1   | 205   | 296 | 501         |
| TM 003                          | 112  | 190 | 102  | 102 | 3     | 3   | 1          | 1   | 218   | 296 | 514         |
| Diff.                           | -13  | 0   | 1    | 1   | -1    | -1  | 0          | 0   | -13   | 0   | -13         |
| <b>Saturday Peak Hour</b>       |      |     |      |     |       |     |            |     |       |     |             |
| PECP                            | 97   | 87  | 103  | 103 | 1     | 1   | 0          | 0   | 201   | 191 | 392         |
| TM 003                          | 108  | 98  | 104  | 104 | 1     | 1   | 0          | 0   | 213   | 203 | 416         |
| Diff.                           | -11  | -11 | -1   | -1  | 0     | 0   | 0          | 0   | -12   | -12 | -24         |

Note: PECP = Proposed Essex Crossing Program

### TRAFFIC

As summarized in **Table 21**, the Essex Crossing program with the proposed modifications would yield -1, -9, -13, and -24 incremental vehicle trips during the weekday AM, midday, PM, and Saturday peak hours, respectively, when compared to the approved program. Therefore, the Essex Crossing program with the proposed modifications would not have the potential to result in new traffic impacts that were not previously disclosed and considered.

### PARKING

As with the approved program, the Essex Crossing program with the proposed modifications would not include any off-street parking. Overall, it would result in modest changes in programming and in vehicle trips when compared to the approved program (summarized in **Tables 16 and 21**, respectively) such that the anticipated parking demand as a result of the Essex Crossing program with the proposed modifications would similarly expected to be comparable to that of the approved program. Therefore, as with the approved program, parking demand as a result of the Essex Crossing program with the proposed modifications would be expected to be accommodated by off-street parking facilities within a ¼-mile radius of the project sites.

### TRANSIT

As summarized in **Table 20**, the Essex Crossing program with the proposed modifications is expected to generate up to approximately 61 and 34 more subway trips during the weekday AM and PM peak hours, respectively, than the approved program. These subway trips would be distributed onto the various station elements, including the new connections at Site 2, at the Delancey Street station such that incremental trips at individual locations are not expected to be materially different from those analyzed in the approved program. Since the previous approved program analyses had concluded that there would not be a potential for significant adverse impacts to station elements at the Delancey Street subway station or line-haul conditions of

subway lines that serve the Delancey Street subway station, the Essex Crossing program with the proposed modifications would similarly not be expected to result in any significant adverse subway impacts.

For City buses, the Essex Crossing program with the proposed modifications would yield -6, -9, -15, and -22 incremental riders during the weekday AM, midday, PM, and Saturday peak hours, respectively, when compared to the approved program. Therefore, the Essex Crossing program with the proposed modifications would not have the potential to result in new bus line-haul impacts that were not previously disclosed and considered.

### *PEDESTRIANS*

In terms of overall person trips or potential pedestrian trips traversing the City sidewalks, corner reservoirs, and crosswalks, the Essex Crossing program with the proposed modifications would result in higher pedestrian trip generation than the approved program by up to 56 peak hour pedestrian trips but only during the weekday AM peak hour (see **Table 20**). These trips would be distributed among the numerous pedestrian elements surrounding the project sites (over the course of the weekday AM peak hour) such that the changes at individual pedestrian elements would not be perceptible. Therefore, the Essex Crossing program with the proposed modifications would not result in new or different pedestrian impacts that were not previously disclosed and considered.

### *CONCLUSIONS*

Overall, for all analysis time periods, the Essex Crossing program with the proposed modifications would not result in any significant adverse transportation impacts not previously identified for the approved program.

### **AIR QUALITY**

The purpose of this section is to assess the potential of the proposed modifications to the approved Essex Crossing program to result in significant adverse impacts on air quality that were not identified in the 2012 FGEIS and subsequent Technical Memoranda. In addition, DSA is seeking HUD Project-based Section 8 vouchers for Site 8, which is an action subject to review under NEPA and to conformity regulations under the Clean Air Act.

In a letter dated May 23, 2017, DEP determined that the previous DEP conclusions made for the FGEIS and subsequent Technical Memoranda regarding air quality do not change (see **Appendix B**).

### *MOBILE SOURCES*

The FGEIS and subsequent Technical Memoranda concluded that the maximum predicted pollutant concentrations and concentration increments from mobile sources (project-generated vehicle trips and changes to traffic patterns) would be well below the corresponding guidance thresholds and would not exceed ambient air quality standards. Therefore, the FGEIS and subsequent Technical Memoranda concluded that there would be no significant adverse air quality impacts from mobile sources. As shown in **Table 21**, the Essex Crossing program with the proposed modifications would generate fewer vehicle trips in comparison with the number of vehicle trips previously analyzed for the approved program. Consequently, the conclusion that traffic associated with the proposed Essex Crossing program would not have the potential to

result in a significant adverse impact on air quality would not be affected by the proposed modifications to the program.

#### *PARKING FACILITIES*

Like the approved program, the Essex Crossing program with the proposed modifications would not include any parking facilities. Therefore, an analysis of air quality impacts from parking is not warranted.

#### *STATIONARY SOURCES*

Based on a refined stationary source modeling analysis, the FGEIS concluded that there would be no potential for a significant adverse impact on air quality from heating and hot water systems, provided that natural gas was the only fossil fuel used on all of the sites and that locations of the exhaust stacks for heating and hot water systems serving Site 5 and Site 9 were restricted as specified in the FGEIS. Subsequent changes that had the potential to affect air quality were assessed in Technical Memoranda 001 and 003. These changes resulted in the need for additional exhaust stack placement restrictions on Site 5.

The Essex Crossing program with the proposed modifications would result in greater gross floor area than the approved program assessed in Technical Memorandum 003 (see Table 1-4) and was, therefore, analyzed for potential impacts on air quality. The greater floor area proposed on Sites 3, 4, and 8 would result in more demand for heat and hot water and, therefore, greater emissions associated with the fuel used in the heating and hot water systems.

Technical Memorandum 003 considered the inclusion of natural gas fueled microturbines on Sites 2, 3, and 4 to provide for some of the building's electricity and heat needs. Microturbines or other on-site power generating units for daily electricity needs are no longer proposed and were not included in the refined stationary source analysis for the proposed modifications.

A refined stationary source analysis was performed to assess the proposed changes to Sites 3, 4, and 8, following the methodology described in the FGEIS, updated using the most recent version of the AERMOD model, USEPA guidance, five years of most recently available meteorological and pollutant background data (2012 to 2016), and specific building plans. Following the methodology used in the FGEIS, NO<sub>2</sub> was considered as the critical pollutant of concern and 1-hour average NO<sub>2</sub> concentrations were predicted using the AERMOD dispersion model with and without building downwash conditions. To avoid a potential significant adverse impact, Site 3 and Site 4 require the use of natural gas-fired boilers equipped with low NO<sub>x</sub> burners (30 ppm or less). The floor areas and emission rates assumed in the model are provided in **Table 22**.

**Table 22**  
**Floor Area, Fuel Consumption, and Emission Rates**

| <b>Site No.</b>  | <b>Total Residential (gsf)</b> | <b>Total Commercial (gsf)</b> | <b>Fuel Consumption (Mcf/year)</b> | <b>Short Term NO<sub>x</sub> (g/s)</b> |
|--|--------------------------------|-------------------------------|------------------------------------|--|
| 3*   | 124,356                        | 214,479                       | 16.97                              | 2.85x10 <sup>-2</sup>                  |
| 4*   | 207,206                        | 247,314                       | 23.30                              | 3.91x10 <sup>-2</sup>                  |
| 8  | 60,152                         | 9,700                         | 3.96                               | 2.08x10 <sup>-2</sup>                  |
| <b>Note:</b> *Emission rates assume the use of low-NO <sub>x</sub> burners |                                |                               |                                    |  |

With the requirement to use low-NO<sub>x</sub> burners in place, the predicted 1-hour average NO<sub>2</sub> concentration (calculated consistent with the format of the standard) is 146 µg/m<sup>3</sup>, which is well below the National Ambient Air Quality Standard (NAAQS) of 100 parts per billion (ppb) or approximately 188 µg/m<sup>3</sup>.

Therefore, with the requirement to use low-NO<sub>x</sub> burners for the heating and hot water systems at Site 3 and Site 4, there would be no potential for significant adverse impacts on air quality from the proposed modifications to the Essex Crossing program.

As discussed in the FGEIS, for sites that may be under the jurisdiction of HPD, the heating and hot water system measures will be required to be implemented by DSA and its affiliates through provisions in the LDA between HPD and DSA or its affiliates. For City properties that may be managed by NYCEDC, the heating and hot water system measures will be required to be undertaken by DSA through provisions of a contract of sale or long-term lease or other legally binding agreement between NYCEDC and DSA or its affiliates.

#### *CONFORMITY REGULATIONS*

Regulations under the Clean Air Act (“conformity regulations”) require that federal agencies, when taking action to assist, fund, permit, or approve projects in areas with a non-attainment or maintenance status regarding any of the NAAQS, ensure that the projects conform to the applicable State Implementation Plans (SIPs) for attaining those standards, so as not to interfere with the state’s ability to attain and maintain the NAAQS. To obtain HUD Project-based Section 8 vouchers for Site 8, federal approvals would be necessary and, therefore, conformity regulations apply. The projected annual emissions would be a small fraction of the *de minimis* levels defined in the conformity regulations. Therefore, a conformity determination is not required and the Essex Crossing program with the proposed modifications would not interfere with attainment or maintenance of NAAQS in the region.

#### **GREENHOUSE GAS EMISSIONS**

Similar to the approved program, the Essex Crossing program with the proposed modifications would include features aimed at reducing energy consumption and greenhouse gas (GHG) emissions. As assumed in Technical Memorandum 003, it is expected that housing developments on all sites would be certified under the Enterprise Green Communities Program or would incorporate measures that would achieve equivalent energy efficiency levels. GHG emissions would not be substantially different than those assumed in the FGEIS and Technical Memorandum 003 based on the currently proposed program and the limitations of the 2014 *CEQR Technical Manual* methodology for calculating GHG emissions.

As described in Technical Memorandum 003, the Essex Crossing program would include sustainable design features, described in the FGEIS, which would, among other benefits, result in lower GHG emissions. In addition, in accordance with the FGEIS commitments, housing developments on City-owned sites that are managed by NYCEDC must be certified under the Enterprise Green Communities Program, which includes mandatory energy efficiency and sustainability measures. Also, all affordable housing projects developed through HPD programs must be certified under the Enterprise Green Communities Program. If a housing development cannot be certified under the Enterprise Green Communities Program because of its construction typology/methodology, the development would be designed and constructed to standards equivalent to those which would be necessary to achieve certification under the Enterprise Green Communities Program. All housing developments 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.

Overall, the Essex Crossing program with the proposed modifications would result in mixed-use development with energy efficient buildings and would likely use low-carbon fuel (natural gas). The proposed development would also support the use of public transit and non-motorized commuting. The proposed development's 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.

## NOISE

The FGEIS and subsequent Technical Memoranda concluded that the proposed Essex Crossing program 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. As described above, traffic generated by the program with the proposed modifications would be comparable to that assumed in the previous analyses (i.e., FGEIS and Technical Memoranda). Consequently, the conclusion that traffic associated with the proposed Essex Crossing program would not have the potential to result in a significant adverse noise impact would not be affected by the proposed modifications to the program.

The FGEIS and subsequent Technical Memoranda also included the assumption 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. This would also hold true for the program with the proposed modifications.

Requirements for window/wall attenuation and alternate means of ventilation for each of the proposed Essex Crossing development sites were also established in the FGEIS and subsequent Technical Memoranda. These design requirements would be expected to result in acceptable interior noise levels according to CEQR and HUD interior noise level guidelines. Buildings will be required to construct façades providing Outdoor-Indoor Transmission Class (OITC) ratings equal or greater than the levels shown in **Table 23** as well as provide an alternate means of ventilation.

In accordance with FGEIS commitments as reiterated in the Technical Memorandum 003, for sites developed through HPD programs the LDA, and for sites that may be under the jurisdiction of NYCEDC the contract of sale or long-term lease or other legally binding agreement, would require that DSA and its affiliates provide window-wall attenuation in dwelling units and community facility space, which is equal to or greater than the attenuation requirements presented in the FGEIS (and shown in **Table 23**), while also providing an alternate means of ventilation to ensure a maximum interior noise environment of 45 dBA under closed-window conditions.

Window-wall attenuation requirements for commercial uses would be 5 dBA lower than the requirement for residential and community facility uses in order to ensure a maximum interior noise environment of 50 dBA. As described above, DSA is seeking HUD Project-based Section 8 vouchers for Site 8; therefore, HPD would follow HUD guidance concerning window-wall attenuation for residential and community facility uses. The measures would be required through an LDA. To satisfy the LDA noise attenuation and alternate means of ventilation requirements,

DSA would submit a letter from a Registered Architect describing the building façade design and certifying its OITC rating, as supported by ASTM E90 test data, and the alternate means of ventilation, as supported by mechanical drawings and equipment cut sheets.

**Table 23**  
**Building Attenuation Requirements (in dBA)**

| Development Site | Block | Lot   | Façade                         | Governing Noise Receptor  | Attenuation Required for CEQR <sup>1</sup> | Attenuation Required for HUD <sup>1</sup> |    |
|------------------|-------|-------|--------------------------------|---|--|---|----|
| 1 (Base)         | 409   | 56    | North (floors 1-2)             | Based on refined noise attenuation analysis for Site 1 as described in TM003          | N/A <sup>2</sup>                           | 25  |    |
|                  |       |       | North (floors 3-5)             |   | 28   | 26  |    |
|                  |       |       | East                           |   | 28   | 25  |    |
|                  |       |       | West                           |   | 28   | 26  |    |
| 1 (Tower)        | 409   | 56    | North                          |   | N/A <sup>2</sup>                           | 25  |    |
|                  |       |       | East                           |   | N/A <sup>2</sup>                           | 21  |    |
|                  |       |       | South                          |   | N/A <sup>2</sup>                           | 19  |    |
|                  |       |       | West                           |   | N/A <sup>2</sup>                           | 24  |    |
| 2                | 352   | 1, 28 | North                          | 6   | 33   | 34  |    |
|                  |       |       | East                           | 7   | 31   | 28  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West                           | 7   | 31   | 28  |    |
| 3                | 346   | 40    | North                          | 8   | 28   | 29  |    |
|                  |       |       | East                           | 4   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West <sup>3</sup>              | 5   | N/A <sup>2</sup>                           | 21  |    |
| 4                | 346   | 40    | North                          | 8   | 28   | 29  |    |
|                  |       |       | East                           | 4   | N/A <sup>2</sup>                           | 21  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West                           | 4   | N/A <sup>2</sup>                           | 23  |    |
| 5                | 346   | 40    | North                          | 3   | N/A <sup>2</sup>                           | 21  |    |
|                  |       |       | North (overlooking playground) | Based on refined analysis of Site 5 playground noise presented to NYCEDC May 14, 2015 | 28   | 21  |    |
|                  |       |       | West                           |   | 28   | 27  |    |
|                  |       |       | East                           |   | 2  | N/A <sup>2</sup>                          | 20 |
|                  |       |       | South                          |   | 1  | 28  | 27 |
| North            | 4     | 28    | 27                             |   |  |   |    |
| 6                | 347   | 71    | East                           | 4   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West                           | 4   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | North                          | 3   | N/A <sup>2</sup>                           | 23  |    |
| 8                | 354   | 1     | East                           | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West                           | 7   | 31   | 28  |    |
|                  |       |       | North                          | 3   | N/A <sup>2</sup>                           | 23  |    |
| 9                | 353   | 44    | East                           | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | South                          | 6   | 33   | 34  |    |
|                  |       |       | West                           | 7   | 31   | 28  |    |
|                  |       |       | North                          | 3   | N/A <sup>2</sup>                           | 23  |    |
| 10               | 354   | 12    | North                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | East                           | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | South                          | 3   | N/A <sup>2</sup>                           | 23  |    |
|                  |       |       | West                           | 7   | 31   | 28  |    |

**Notes:**

<sup>1</sup>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.

<sup>2</sup>The maximum measured L<sub>10</sub> is below 70 dBA, and the *CEQR Technical Manual* does not specify minimum attenuation guidance for exterior L<sub>10</sub> values below this level.

<sup>3</sup>Attenuation requirements for the east façade of Site 3 were adjusted based to correct a previous error in reporting results.

For Site 8, which was mapped with an (E) Designation for noise as part of the East Village/Lower East Side Rezoning (CEQR#: 07DCP078M), the attenuation requirements as established in the FGEIS and subsequent Technical Memoranda serve as updates to the attenuation requirements of the Noise (E) Designation. Development on this site is required to go through the (E) Designation approval process including a review by the New York City Office of Environmental Remediation (NYCOER) to ensure that the building design would comply with the Noise (E) Designation Requirements before building permits would be issued. The NYCOER review process requires a Remedial Action Plan from a Registered Architect describing the building façade design and certifying its OITC rating, as supported by ASTM E90 test data, and the alternate means of ventilation, as supported by mechanical drawings and equipment cut sheets. Additionally, as described above, DSA is seeking HUD Project-based Section 8 vouchers for Site 8; therefore, HPD would follow HUD guidance concerning window-wall attenuation for residential and community facility uses.

In a letter dated May 23, 2017, DEP determined that the previous DEP conclusions made for the FGEIS and subsequent Technical Memoranda regarding noise do not change (see **Appendix B**).

## **PUBLIC HEALTH**

Since there would be no significant unmitigated adverse impacts found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise, the assessment of public health for the Essex Crossing program with the proposed modifications, like that for the FGEIS program and approved program, examines the potential effects of construction-period noise impacts on public health. As described below, the findings of the construction-related noise analyses presented in Technical Memorandum 003 would be substantially similar with the Essex Crossing program with the proposed modifications. Therefore, the proposed modifications would not change the conclusions presented in the FGEIS and Technical Memorandum 003 that there would be no significant adverse environmental impacts with respect to public health.

## **NEIGHBORHOOD CHARACTER**

Since the Essex Crossing program with the proposed modifications would not result in new significant adverse impacts on any of the contributing elements that define neighborhood character (land use, urban design, visual resources, historic resources, socioeconomic conditions, shadows, open space, traffic, and noise),—like the approved program—it would not result in any significant adverse impacts on neighborhood character. Like the FGEIS program and the approved program, the Essex Crossing program with the proposed modifications would improve the character of the neighborhood by replacing underutilized buildings and surface parking lots with new, active mixed-use development.

## **CONSTRUCTION**

Construction is currently underway on Sites 1, 2, 5, and 6, as described above, in accordance with the requirements identified in the FGEIS and Technical Memorandum 003.

The proposed modifications—an increase in commercial use on Sites 3, 4, and 8 and a change in the mix of market rate, affordable, and affordable senior housing units across Sites 3, 4, 8, 9, and 10 with an increase in floor area on Site 8—would not result in any changes to the construction analysis and conclusions presented in Technical Memorandum 003, and the general construction practices, schedule, equipment, staging, and work hours would be similar to those described in the FGEIS and Technical Memorandum 003. In a letter dated May 23, 2017, DEP determined



that the previous DEP conclusions made for the FGEIS and subsequent Technical Memoranda regarding construction do not change (see **Appendix B**).

NYCEDC and/or HPD will require that DSA and its affiliates implement the mitigation and associated environmental measures identified in the FGEIS and Technical Memorandum 003 (described below), by means of provisions in the contract of sale or long-term lease or other legally binding agreement between DSA or its affiliates and NYCEDC, HPD, and/or the City.

#### *CURB LANE AND SIDEWALK CLOSURES*

Sidewalk and lane closures will be finalized as Maintenance and Protection of Traffic (MPT) plans are developed and reviewed with the New York City Department of Transportation (DOT).

All lane and sidewalk closures during construction would be coordinated with DOT'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.

#### *AIR QUALITY*

To ensure that the construction would result in the lowest practicable diesel particulate matter (DPM) emissions, the following extensive measures would be incorporated into the construction program to the extent feasible and practicable, as assumed in the FGEIS:

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<sub>x</sub> 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,<sup>8</sup> 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.

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<sup>8</sup> 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).

4. *Utilization of Newer Equipment.* In addition to the tailpipe controls commitments, construction equipment rated Tier 2<sup>9</sup> 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 on Sites 3, 4, 8, 9, and 10 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.

For properties that may be under the jurisdiction of HPD, emissions reduction measures would be required to be undertaken by DSA and its affiliates through LDA provisions, to be entered into at the time of closing. The LDA would also require the use of a construction monitor, which would operate under the oversight of OMHED, 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 DSA and its affiliates

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<sup>9</sup> 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<sub>x</sub>) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

through provisions of a contract or other legally binding agreement between NYCEDC and DSA or its affiliates. The contract or other legally binding agreement would require the use of a construction monitor, which will operate under the oversight of ODMHED, to ensure that the emissions reduction measures, to the extent practicable and feasible, are implemented during construction activities.

Further, to ensure that construction would result in the lowest practicable diesel particulate matter emissions, an emission reduction program would be employed for the construction of the proposed Essex Crossing program to the extent feasible and practicable during construction.

### *NOISE*

As with Sites 1, 2, 5, and 6, construction of Sites 3, 4, 8, 9, and 10 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.
- 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. The details to construct portable noise barriers, enclosures, tents, etc. are based upon the instructions of DEP Citywide Construction Noise Mitigation.

As described in Technical Memorandum 003, the buildings on Sites 1, 2, 5, and 6 that would be completed and occupied before construction is completed at Sites 3 and 4 would 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 and a half years according to the construction schedule on which the construction noise analysis is based), interior noise levels would, during some times, exceed 45 dBA L<sub>10(1)</sub> (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 as concluded in Technical Memorandum 003. \*



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Hilary Semel  
Assistant to the Mayor

June 20, 2017  
Date

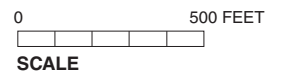
## **FIGURES**

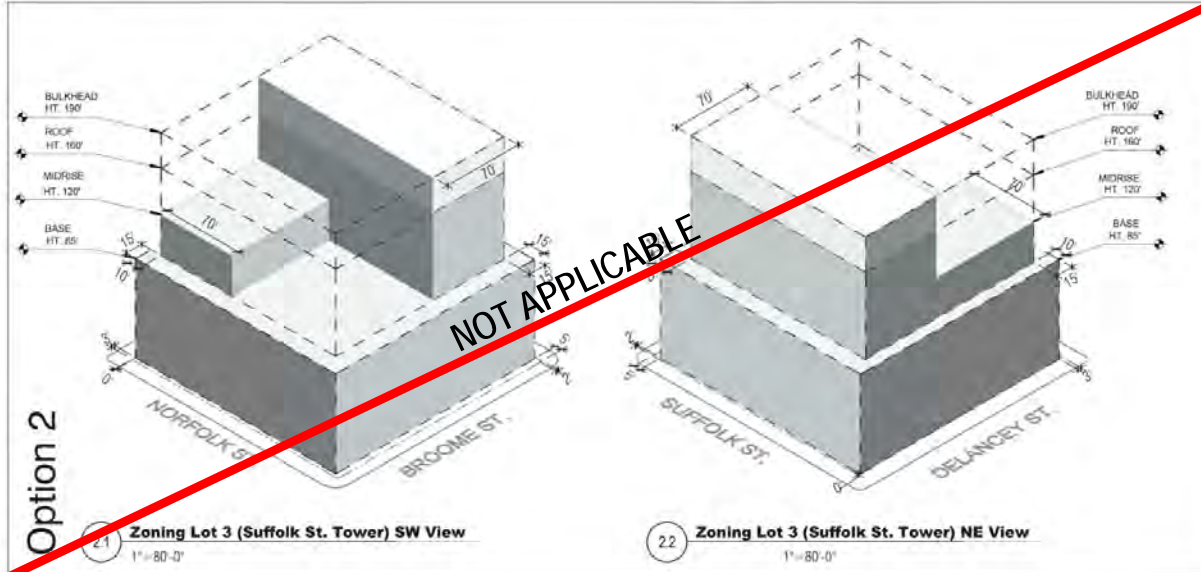
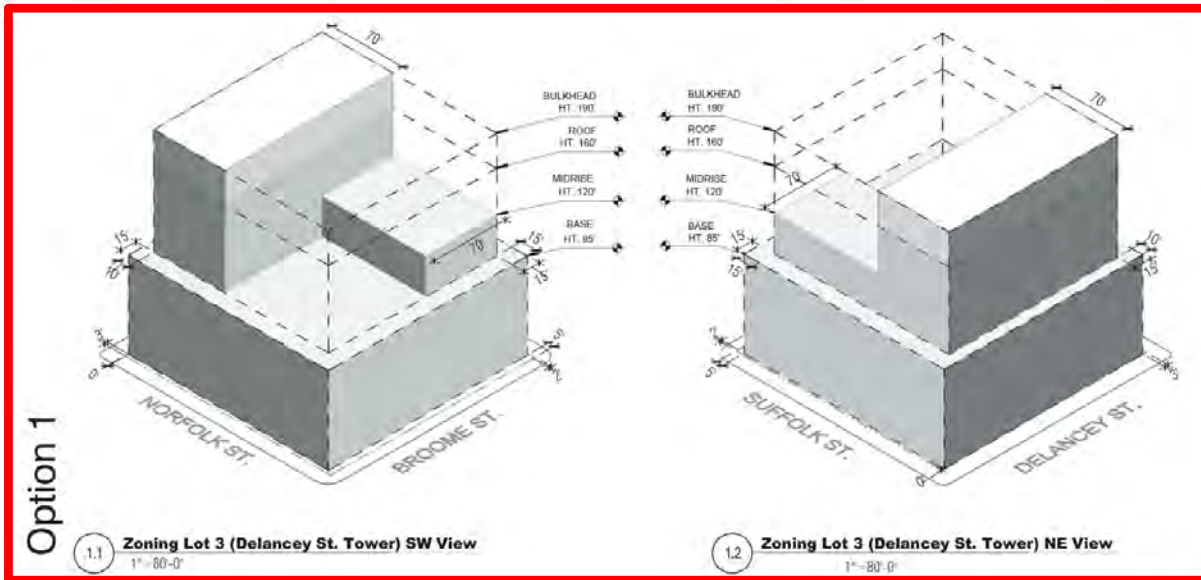


 Large Scale General Development Boundary

 1 Development Sites

\* Site 7 Would not be Redeveloped Under the Essex Crossing Project





**DESIGN CONTROLS**

**Bulk, Height and Setback**

- Envelope heights are relative to the Base Plane (see Sheet 304M) or the Average Curb Level (see Sheet 304N)
- The base or streetwall portions of Site 3 will have a minimum height of 60' and a maximum height of 85'.
- The midrise portions of all buildings developed pursuant to the approved Large-Scale General Development will have a maximum height of 120'.
- For Zoning Lot 3, Options 1 and 2, the envelope option volume indicates the maximum extent of the base and midrise portions of the building. The tower portion of the building may be located anywhere above the building base within the respective envelope options shown. In both options, the tower will be limited to a maximum length of 160' and a maximum width of 70'.
- Elevator or stair bulkheads (including shafts and vestibules not larger than 60 square feet in area providing access to a roof, roof water tanks and accessory mechanical equipment (including enclosures), other than solar or wind energy systems, shall be permitted to exceed the maximum building (roof) heights approved in the LSGD, up to a maximum bulkhead height of 30 feet, provided that:
  - such obstructions shall be located not less than 10 feet from the street wall of a building, except that such obstructions need not be set back more than 25 feet from a narrow street line or more than 20 feet from a wide street line. However, such restrictions on location shall not apply to elevator or stair bulkheads (including shafts or vestibules), provided the aggregate width of street walls of such bulkheads within 10 feet of a street wall, facing each street frontage, times their average height, in feet, does not exceed an area equal to four feet times the width, in feet, of the street wall of the building facing such frontage.
  - all mechanical equipment shall be screened on all sides
  - such obstructions and screening are contained within a volume that complies with one of the following:
    - the product, in square feet, of the aggregate width of street walls of such obstructions facing each street frontage, times their average height, shall not exceed an area equal to eight feet times the width, in feet, of the street wall of the building facing such frontage; or
    - the lot coverage of all such obstructions does not exceed 20 percent of the lot coverage of the building.

**Tower Orientation**

Towers above the midrise portion (or base height if optional midrise portion is not constructed) that have a width or depth greater than 95 ft. on Sites 2, 3, and 4 may not be oriented such that two adjacent sites both have a north-south orientation or an east-west orientation. This restriction shall not apply if Option 4 on Site 2 or Option 5 on Site 3 is constructed on one of those sites.



**Seward Park Mixed-Use Development Project**

**Beyer Blinder Belle**

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 New York, NY 10003  
 212.777.7800

New York City Economic Development Corporation  
 110 William Street  
 New York, NY 10038  
 212.819.5000

New York City Department of Housing Preservation and Development  
 120 Gold Street  
 New York, NY 10002  
 212.863.6400

Legal Consultant  
 Greer Case  
 1200 Avenue of the Americas  
 New York, NY 10104  
 212.914.2000

| No. | Date | Description |
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Issue: Permitted  
 Seal & Signature

SHEET SIZE 31" X 11"

DO NOT SCALE  
 All dimensions to be checked on site

NOT FOR CONSTRUCTION ISSUED FOR ULLRP

Drawing Title  
**BUILDING ENVELOPE DIAGRAMS  
 ZONING LOT 3**

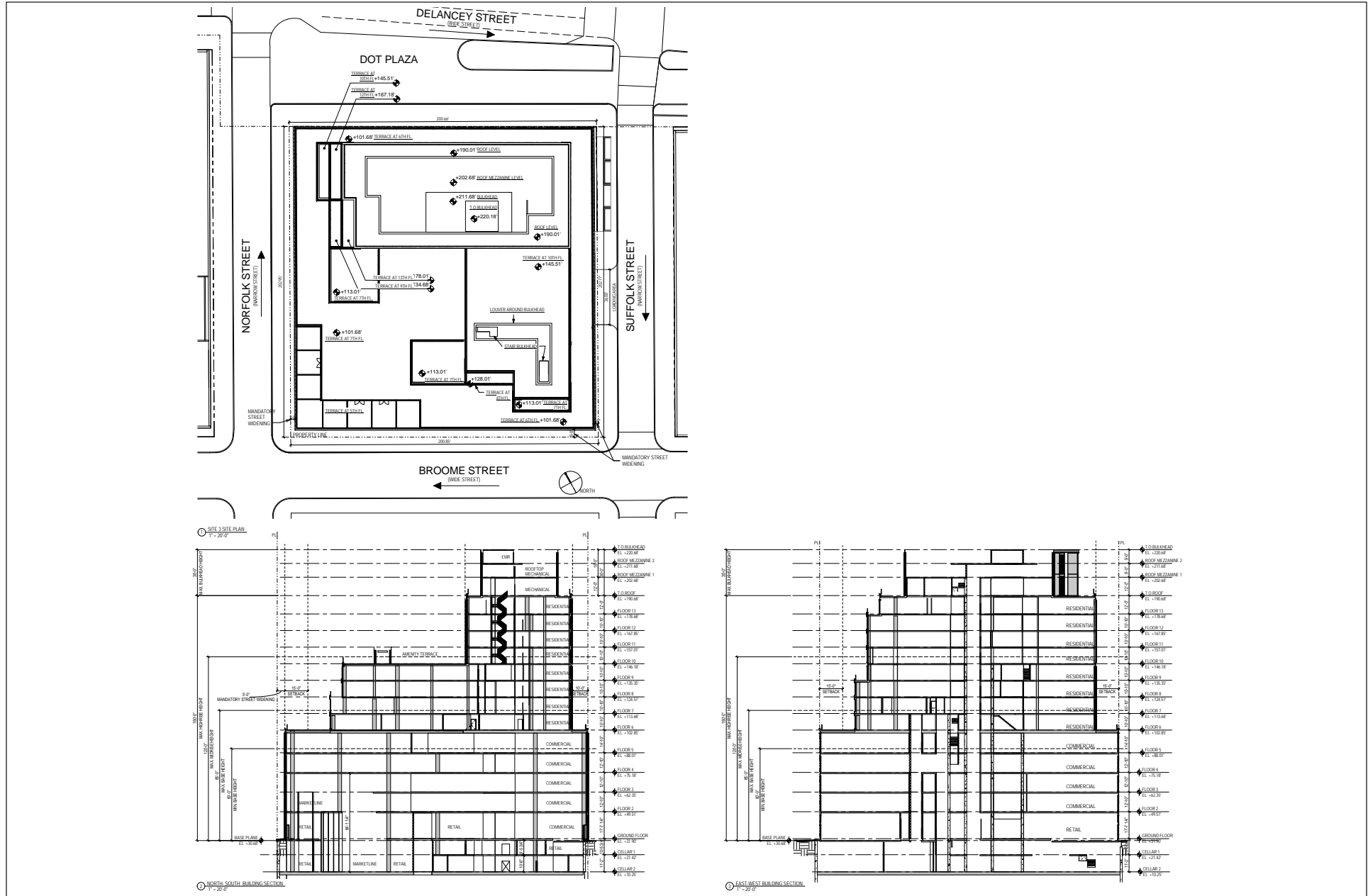
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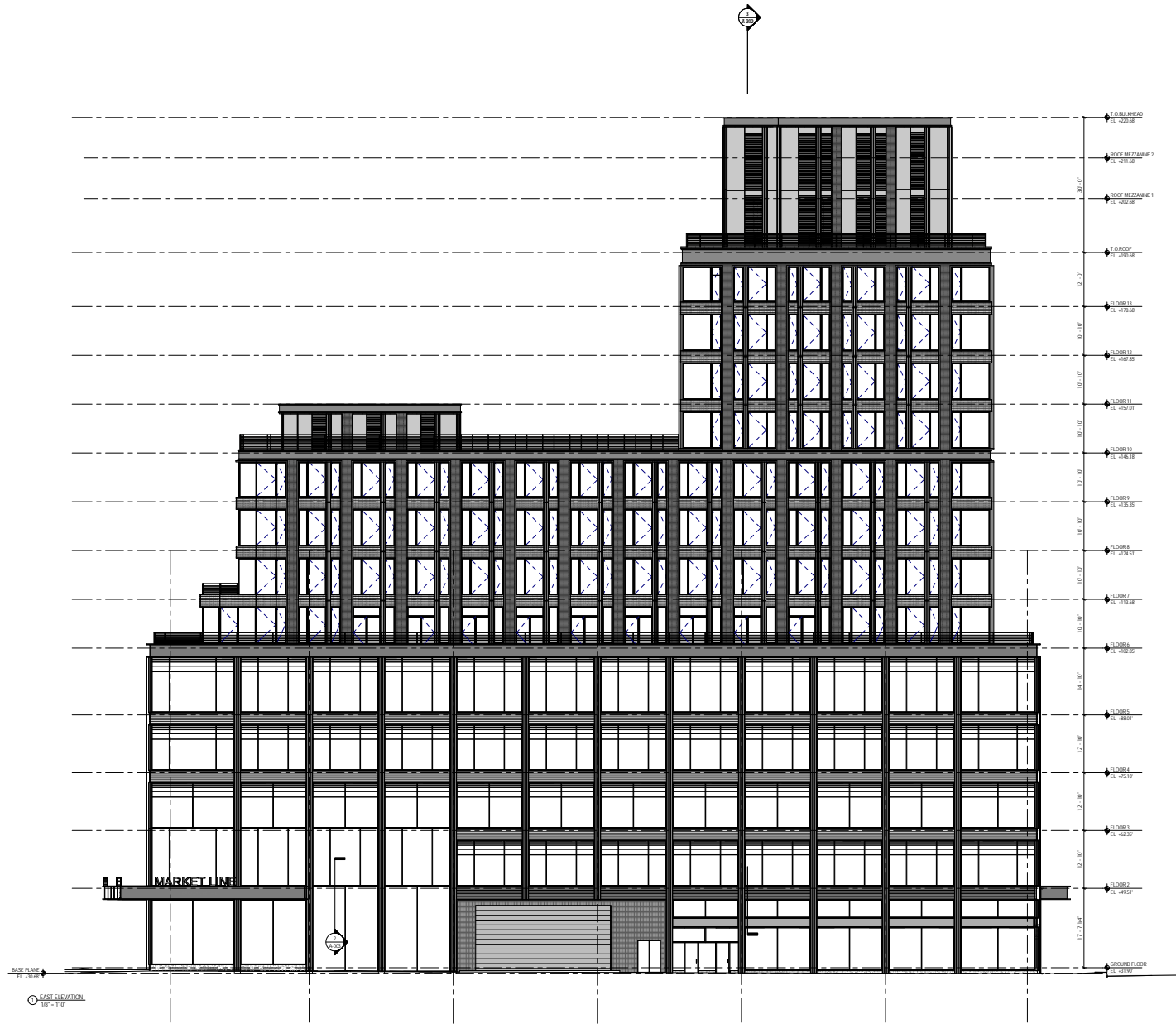
Drawing No.

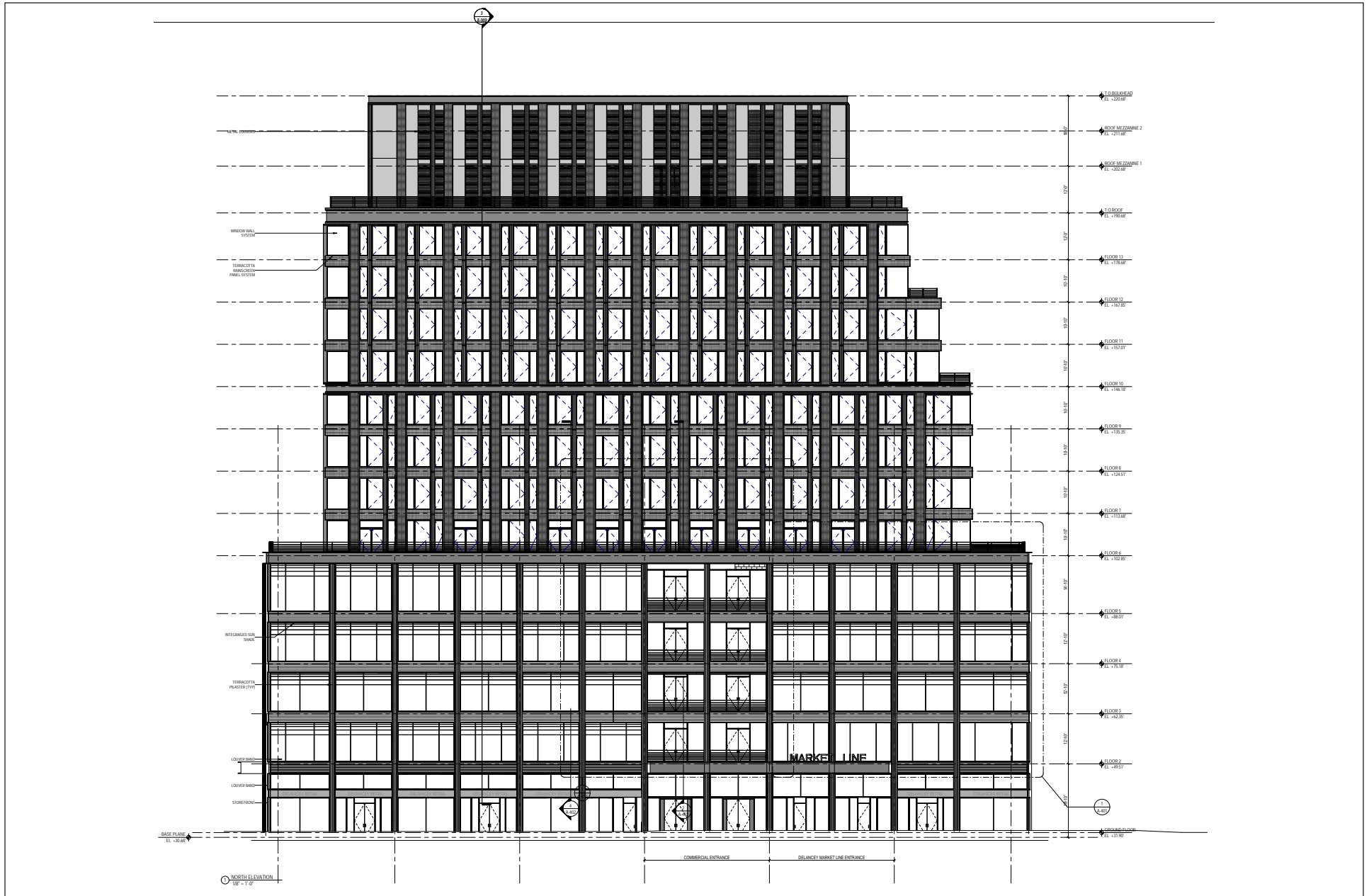
**303.1**



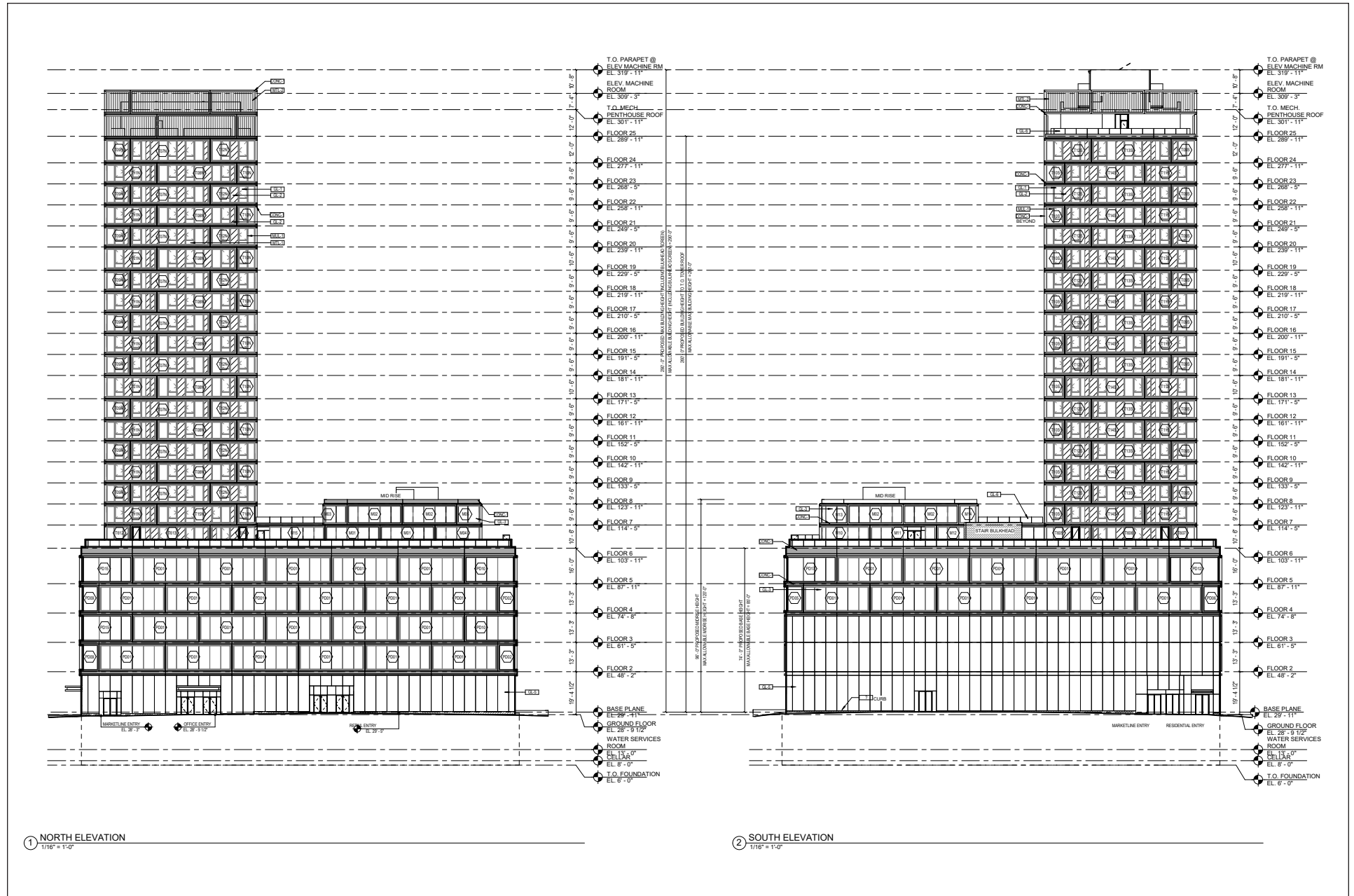
Site 3 Site Plan and Sections  
Figure 3

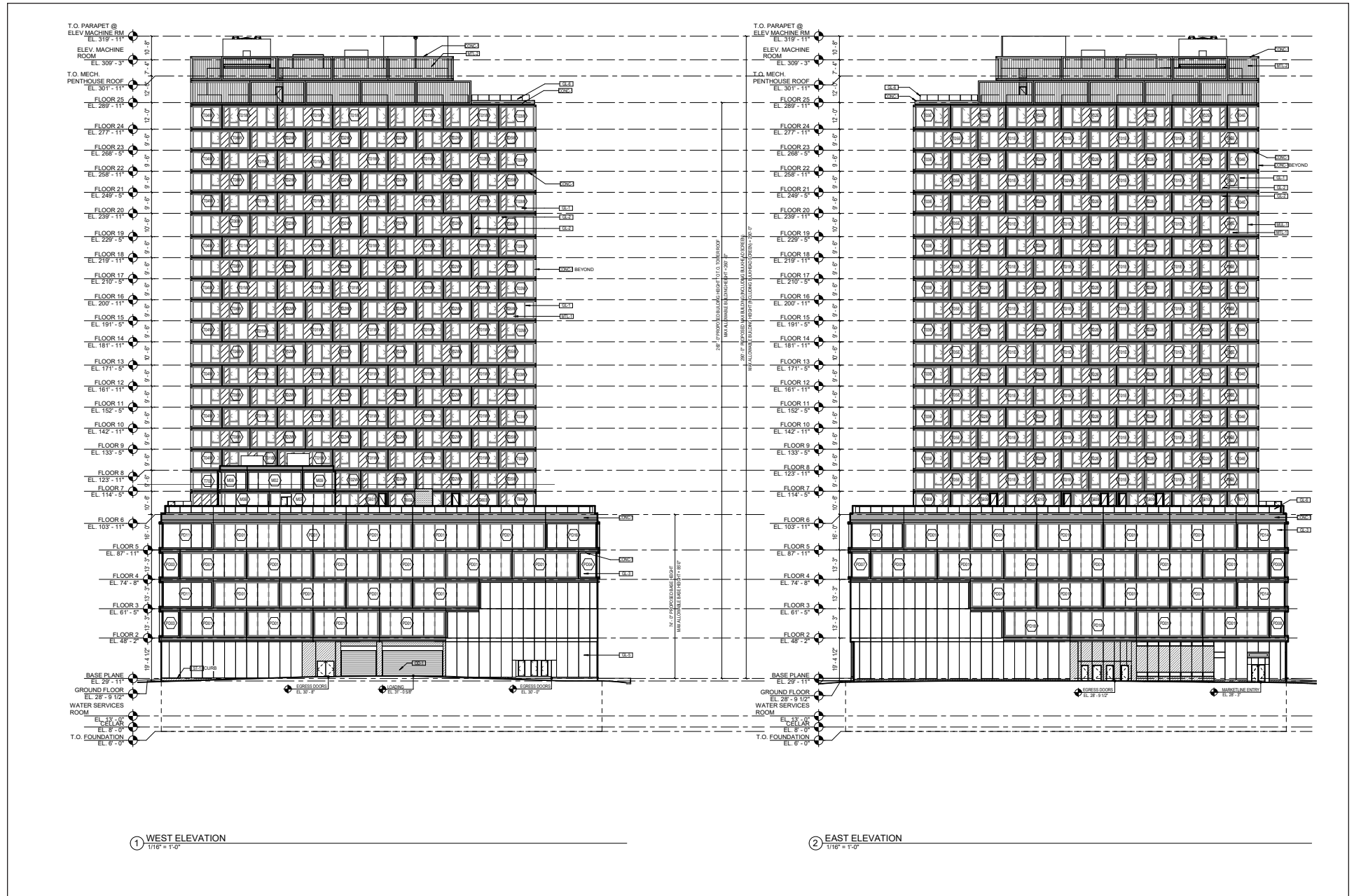


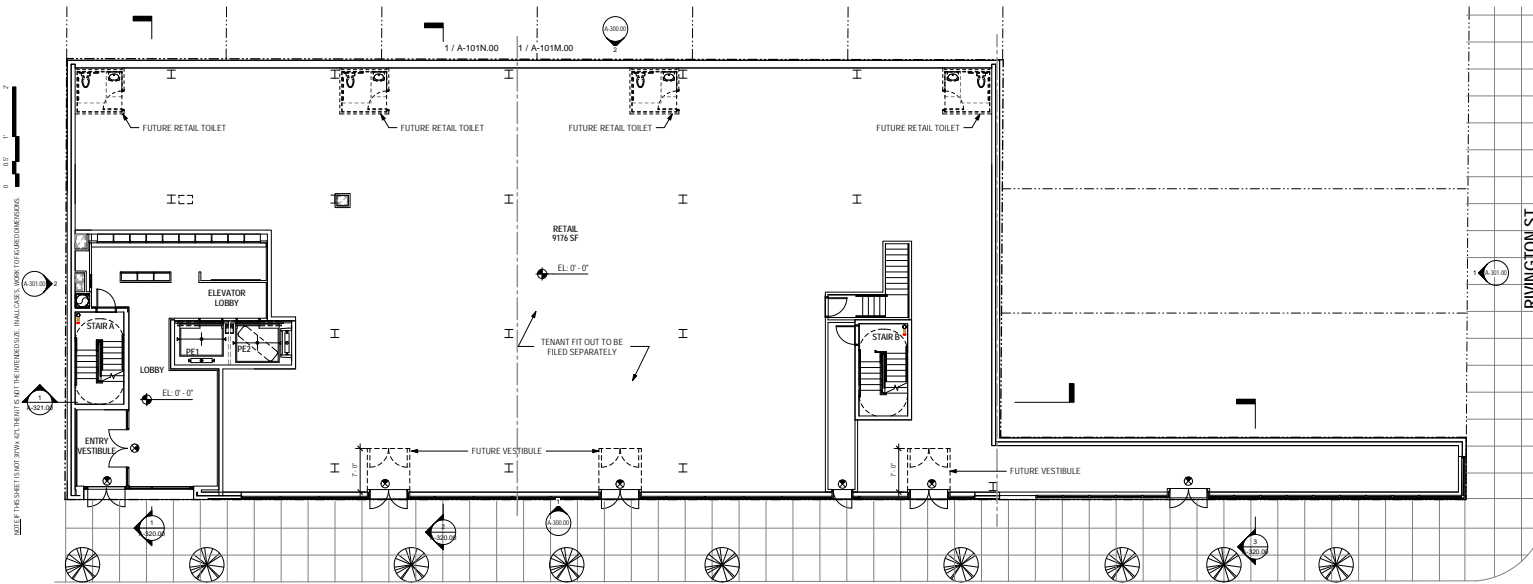




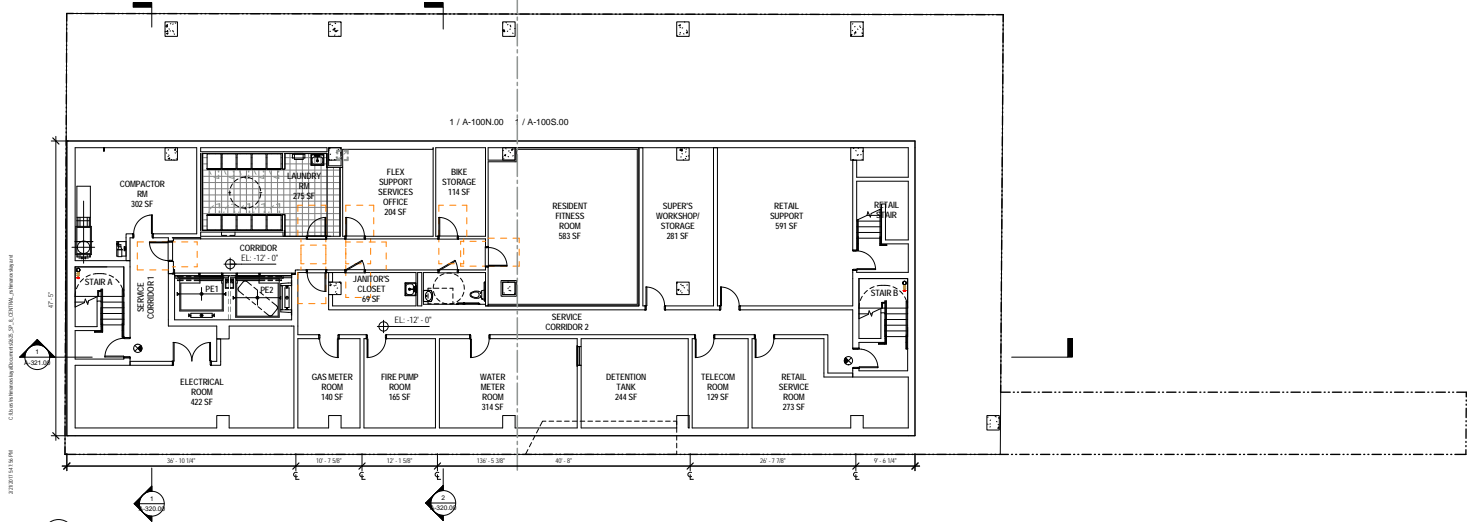






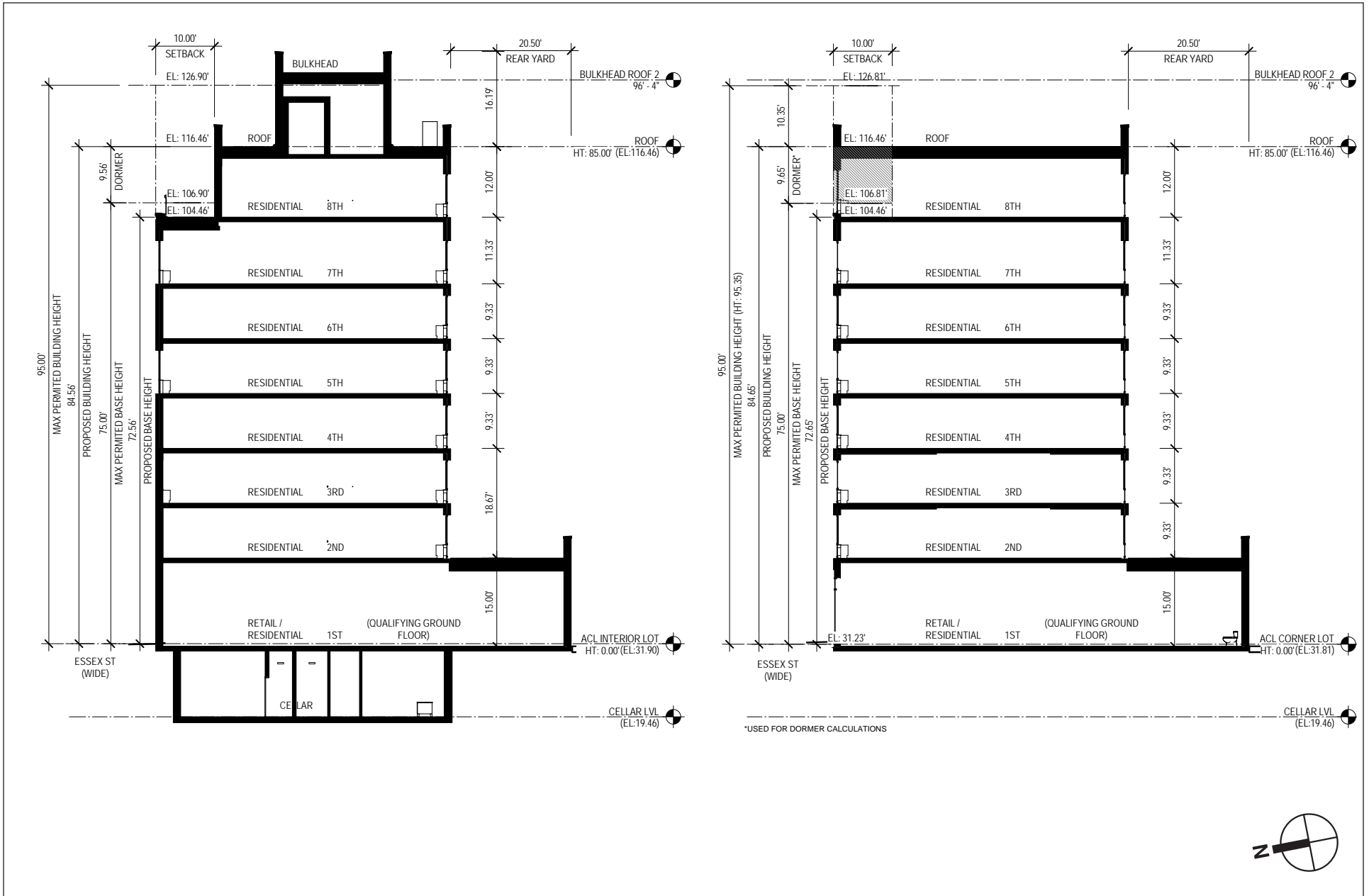


2 Ground Floor - Overall Plan  
1/8" = 1'-0"



1 Cellar - Overall Plan  
1/8" = 1'-0"









## **APPENDIX A**

## ENVIRONMENTAL REVIEW

**Project number:** ECONOMIC DEVELOPMENT CORP. / 11DME012M  
**Project:** SEWARD PARK/ESSEX CROSSING  
**Date received:** 4/28/2017

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The LPC is in receipt of the draft Technical Memorandum 004 dated 4/17/17. The text appears acceptable for historic and cultural resources.

*Gina Santucci*

5/9/2017

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SIGNATURE  
Gina Santucci, Environmental Review Coordinator

DATE

**File Name:** 26165\_FSO\_GS\_05092017.doc



# Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO  
Governor

ROSE HARVEY  
Commissioner

March 31, 2017

Mr. Nathan Riddle  
AKRF  
440 Park Avenue South  
New York, NY 10016

Re: HPD  
Seward Park - Mixed Use Development Project (CEQR No. 11DME012M), renamed  
Essex Crossing  
12PR00119

Dear Mr. Riddle:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

We note that the Essex Market building located at 140 Essex Street is eligible for listing in the State and National Registers of Historic Places. We further note that our office has already reviewed under state law a portion of this project (the proposed redevelopment of Sites 2, 3, 4 and 5), and that review resulted in the Letter of Resolution on record for project number 12PR00119. We understand that HUD Section 8 housing vouchers are being used for the proposed redevelopment of Site 8, and therefore we will be reviewing this portion of the undertaking under Section 106.

We have reviewed the Section 106 initiation letter, Construction Protection Plan for Site 8, HABS contact sheets for the Site 8 market building, the 100% Design Drawings for the proposed Site 8 new building, and the Site 8 Alternative Analysis that were provided to our office on March 23<sup>rd</sup>, 2017. Based upon our review, we concur with the conclusion that alternatives to demolition of the market building are not feasible, as outlined in your Alternatives Analysis. We also find the HABS contact sheets and Construction Protection Plan to be acceptable, and we have no comments on the proposed design of the new building.

At this time, we suggest drafting a Memorandum of Agreement that would incorporate appropriate mitigation measures into the project. This MOA should be based on the Letter of Resolution already in place for Sites 2 and 5.

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**Division for Historic Preservation**

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • [www.nysparks.com](http://www.nysparks.com)

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS) at [www.nysparks.com/shpo/online-tools/](http://www.nysparks.com/shpo/online-tools/) Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,



Olivia Brazee  
Historic Site Restoration Coordinator  
olivia.brazee@parks.ny.gov

via e-mail only

## ENVIRONMENTAL REVIEW

**Project number:** ECONOMIC DEVELOPMENT CORP. / 11DME012M  
**Project:** SEWARD PARK/ESSEX CROSSING  
**Date received:** 3/21/2017

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The LPC is in receipt of the CPP for Site 8 and the site 8 HABS photos. LPC concurs with the SHPO findings of 3/31/17 in regards to these items.

Cc: SHPO 12PR00119



4/7/2017

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SIGNATURE  
Gina Santucci, Environmental Review Coordinator

DATE

**File Name:** 26165\_FSO\_GS\_04072017.doc

**CONSTRUCTION PROTECTION PLAN**  
**ESSEX CROSSING—SITE 8**  
**LOWER EAST SIDE, NY**  
**March 2017**

**A. INTRODUCTION**

As set forth in the Final Generic Environmental Impact Statement (FGEIS) for the Seward Park Mixed-Use Development Project, dated August 10, 2012, and Technical Memorandum 003 for the Essex Crossing program, dated February 2015, a Construction Protection Plan (CPP) is required for Site 8 of the Essex Crossing program to avoid adverse physical impacts on historic architectural resources that are located close enough (within 90 feet)<sup>1</sup> to Site 8 to be potentially affected by staging and construction period activities. This CPP was prepared by AKRF, Inc. based upon the requirements stipulated in the New York City Department of Buildings' *Technical Policy and Procedure Notice (TPPN) #10/88*, regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction and the New York City Landmarks Preservation Commission (LPC) guidelines described in *Protection Programs for Landmark Building* and *Guidelines for Construction Adjacent to a Historic Landmark*. Implementation of this CPP will be undertaken by a construction monitoring firm (the "Construction Monitoring Consultant"), to be selected by Site 8 DSA Owner LLC (Site 8 DSA). The Construction Monitoring Consultant will have documented experience with historic structures.

This CPP focuses only on the activities related to demolition, site preparation, and construction required to build the 8-story 73,379-gross-square-foot building on Site 8. Separate CPPs have been prepared and implemented for Sites 1 and 6, and separate CPPs will be prepared for Sites 3 and 9 of the Essex Crossing program.

**B. CONSTRUCTION ACTIVITIES**

Prior to the start of construction on the new building located at 140 Essex Street (Site 8), the existing former market building would need to be fully demolished. It is a one-story brick and steel building. The building has no below-grade cellar space and an open interior floor plan with a small one-story interior office mezzanine in the south east corner. Demolition of the existing building will require handheld pneumatic power tools, demolition torches, generators, compressors, scissor lifts, articulating boom lifts, scaffolding, and a telescopic forklift.

The proposed building on Site 8 is expected to be constructed with a slab on grade and mat slab foundation system incorporating drilled piles. It is expected that all piles will be drilled as the project has buildings directly adjacent to it and abuts a New York City Transit below-grade subway tunnel. The new building would have a one-level cellar built to a depth to match the adjoining buildings. Excavators and front-end loaders would be used for soil excavation and

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<sup>1</sup> Through its *Technical Policy and Procedure Notice (TPPN) #10/88*, the New York City Department of Buildings outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet of the historic resource. *TPPN #10/88* was issued by the New York City Department of Buildings on June 6, 1988 to supplement Building Code regulations with regard to historic structures.

## **Construction Protection Plan**

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minimal rock removal during foundation excavation. Blasting would not be used. It is expected that local dewatering would be required; a more advanced dewatering system would be implemented in the event water levels are found to be higher than anticipated. The installation of the foundation and cellar would require construction equipment including concrete trucks, concrete pumps, concrete finishers, backhoes, rebar benders, excavators, and small generators.

Construction of the superstructure of the new building 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. A crane would be used to lift structural components, façade elements, large construction equipment, and other larger materials. The floors of the building would be made of precast concrete plank and trucked to the site and lifted into place for attachment by crane.

During demolition, excavation, and construction, plastic Yodock barriers would be placed along the western perimeter of the construction site within Essex Street. A construction fence would be placed along the western (Essex Street) and southern (Rivington Street) perimeters of the construction site. All loading and unloading would be done from Essex street, with vehicular construction access to be provided at the western side of the site on Essex Street. All construction equipment would be located within the fenced site perimeter, with the exception of delivery trucks and cranes located within the closed permitted parking lane on Essex Street. During construction of the superstructure, sidewalk sheds would be placed along the site's western (Essex Street) perimeter and a portion of the site's south (Rivington Street) perimeter. Roof protection would be provided for the adjacent buildings at 146 Essex Street; 118, 120, 122 Rivington Street; and 133, 135, 137, 139, and 141 Norfolk Street. Netting for additional protection would also be provided for the rear façade and protection of 122 Rivington and 133 Norfolk Street. Further, a rear yard fence and scaffold protection will be installed along the eastern side of the new building in the rear yards of 133, 135, 137, 139, and 141 Norfolk Street during construction.

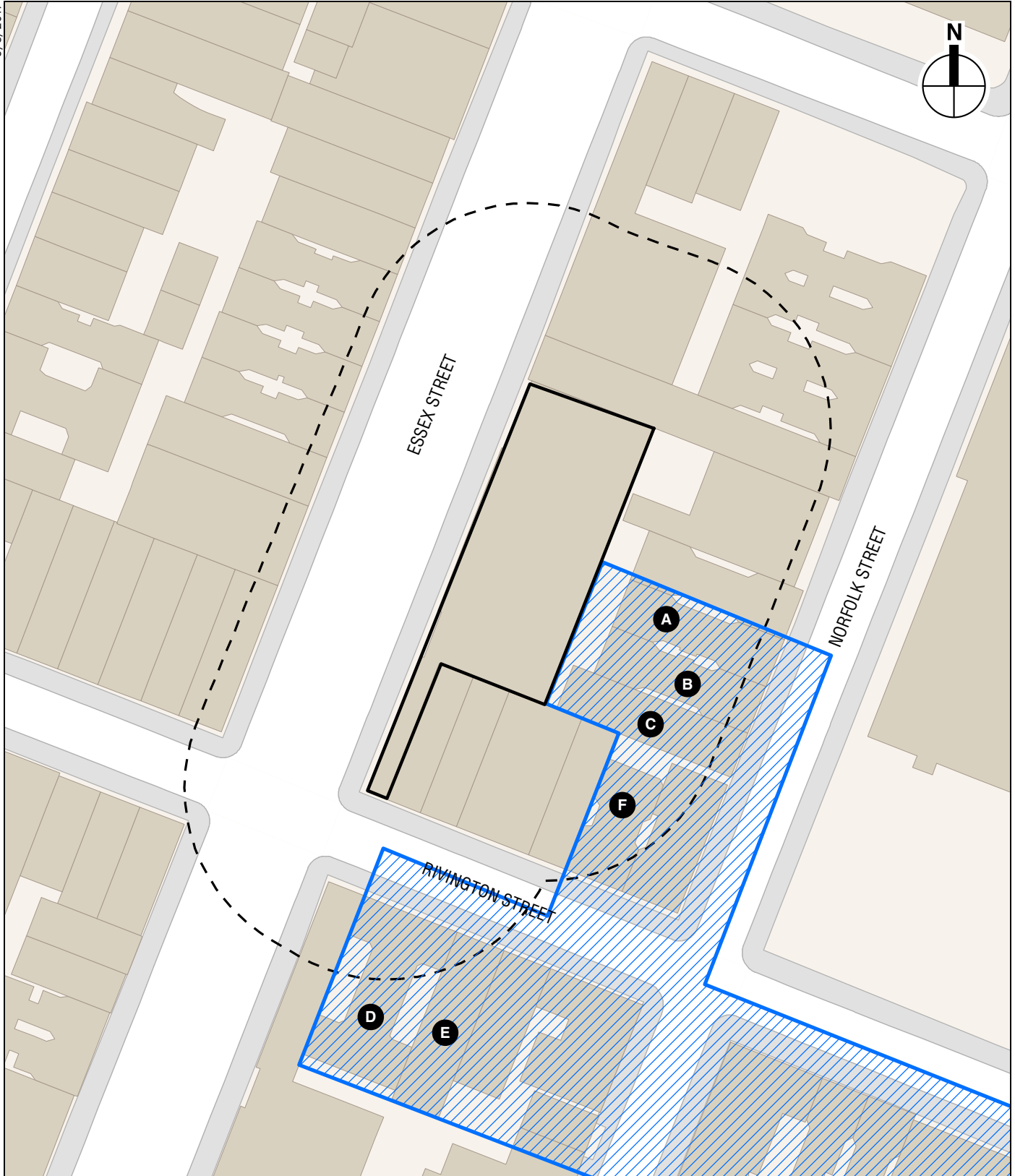
### **C. HISTORIC PROPERTIES ON OR WITHIN 90 FEET OF SITE 8**

Six contributing buildings located within the potential Clinton, Rivington, Stanton Street Historic District, which is eligible for NYCL designation and S/NR listing, are located within 90 feet of Site 8. These properties are identified below and shown on the attached Figure 1.

#### **NORFOLK STREET (3 BUILDINGS)**

- 133 Norfolk Street. Four-story brick and stone tenement with a cast-iron storefront. The only ornament consists of decorative brickwork at the first and second floors and at the roof parapet. The façade appears to have been reconstructed since its original construction.
- 135 and 137 Norfolk Street. Identical five-story brick and stone tenements. The façades of these two buildings are tied together with shared stone lintel and sill courses. Additional ornamentation includes projecting stone window pediments, panels with masonry reliefs, panels with dogtooth brickwork, and incised floral patterns at the top floor. Each building has a projecting, bracketed metal cornice. The shared ground floor has been altered with brick infill, although some original cast iron pilasters remain visible.

3/6/2017



Development Site 8

Study Area (90-foot boundary)

Potential Clinton, Rivington, Stanton Street  
Historic District (NYCL-eligible, S/NR-eligible)

**A** 137 Norfolk Street

**B** 135 Norfolk Street

**C** 133 Norfolk Street

**D** 121 Rivington Street

**E** 125 Rivington Street

**F** 128 Rivington Street

0 100 FEET

Potential Clinton, Rivington, Stanton Street  
Historic District Buildings Within 90 Feet  
**Figure 1**



### **RIVINGTON STREET (3 BUILDINGS)**

- 128 Rivington Street. Five-story brick and stone tenement. Ornamentation on the Rivington and Essex Street facades includes stone lintel courses, panels with terra cotta reliefs and panels with geometric brick patterns, corbelling, decorative brick courses, and a tall, bracketed metal cornice. The ground floor has been altered with modern storefronts.
- 121 Rivington Street. Six-story brick and stone tenement with Classical Revival style details. On the second floor, the window enframements consist of rounded half columns supporting entablatures with broken segmental pediments. On the third through fifth floors, the side bay windows have stone architraves capped by scalloped pediments, and the windows in the central bays have carved keystones. A simple cornice caps the building. The ground floor has been altered with modern storefronts.
- 125 Rivington Street. Five-story brick tenement with curved, projecting windows lintels, a bracketed cornice, and an altered ground floor.

### **D. CONSTRUCTION PROTECTION MEASURES**

The following protective measures will be implemented:

1. To the extent permitted by the property owners, a preconstruction inspection of the historic properties listed above will be undertaken by the Construction Monitoring Consultant to assess the existing conditions of the buildings with respect to building façade, windows, slabs, masonry wall, etc., and to ascertain any pre-existing damage, existing structural distress, and any potential weakness of the foundations or structures. The inspection will include all exterior areas from the ground floor level to the roof and include all sidewalks, curbs, setbacks, parapets and coping. An interior inspection will also be undertaken, to be limited to accessible public ground floor areas, e.g., lobbies and subgrade areas as applicable.
2. A written report will be prepared by the Construction Monitoring Consultant based on the preconstruction inspection. After completion of the visual survey and inspection, the Construction Monitoring Consultant will make recommendations to Site 8 DSA for monitoring required to adequately monitor, document, and assess ground and building deformations (i.e., movements) over the duration of the excavation and construction periods, together with any recommended protocols and procedures to adequately protect and preserve the integrity of the structures during construction. The written report will be supplemented with photo-documentation—in the form of color photographs keyed to a map or plan—in order to provide a clear record of existing conditions and any problem areas. This report shall be provided to Site 8 DSA.
3. Based on the preconstruction inspection, and as deemed necessary by the Construction Monitoring Consultant, crack monitors shall be installed across existing cracks (and new cracks as required) to permit changes in crack width to be measured. The crack monitors shall be monitored on a bi-weekly basis. Should any new cracking or widening of existing cracks occur in the architectural resource during excavation or construction, the Construction Monitoring Consultant will evaluate the seriousness of the widening, identify possible reasons for the widening, and modify on-site construction activities that are causing the problem, including cessation of work. Additional crack monitors will be installed as determined necessary by the Construction Monitoring Consultant and cracks

## Construction Protection Plan

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monitored more frequently, if required, until the Construction Monitoring Consultant deems the cracks to be stable.

4. Seismic monitor(s) will be installed in areas deemed necessary by the Construction Monitoring Consultant during excavation and other construction operations that would cause vibrations in the historic buildings. Seismograph(s) will be installed to the extent permitted by the building owner. The seismograph(s) will measure vibration levels and be located such that they are away from the general public but are accessible to the technicians who must monitor them. Logs of seismic monitoring will be maintained. Seismic monitoring data for the architectural resources shall be submitted to LPC upon request.
5. Controls on construction vibration will be required as per LPC standards. LPC and *TPPN #10/88* requirements are for a maximum peak particle velocity of 0.5 inches per second for historic structures. In addition, an appropriate lower alert level will be established such that if an alert level is reached or exceeded, construction procedures may be reviewed and modified as needed.
6. Vibration level measurements will be taken at the vibration-sensitive locations at applicable daytime, evening, and nighttime periods. Vibrations will be monitored and recorded continuously by the seismograph(s) and by the Construction Monitoring Consultant. Prior to the commencement of demolition and excavation operations, the seismograph(s) will be installed and tested to ensure that they are in working order and to enable taking baseline readings.
7. If any excessive vibration (that which meets or exceeds the peak particle velocity level) is detected, the vibration monitoring consultant will verify the accuracy of the seismograph equipment, evaluate the possibility of measurement errors, and repeat the measurement as necessary. If the measurement is verified and can be directly correlated to specific construction activities, and the recorded measurement exceeds the specified threshold criteria, the Construction Monitoring Consultant will direct the construction contractor to stop the work causing this excessive vibration, and the historic properties will be inspected for any structural degradation that may have occurred due to the measured excess vibration event. The Construction Monitoring Consultant will submit a report to LPC detailing the reason for exceeding the peak particle velocity level and the presence or lack of damage to the historic property(s). If any damage to a historic property was sustained, it will be secured, and the work that caused any damage will be altered to reduce the vibration levels to within acceptable limits. Where damage has occurred, the resumption of all work must be authorized by the Construction Monitoring Consultant. Any repairs that can be reasonably attributed to the proposed project's vibration activities will be undertaken with the permission of the property owner. Any repairs would also be undertaken in consultation with LPC.
8. Staging areas will be identified on a site plan to show the locations of construction equipment including site access, cranes, concrete trucks, excavators, and dumpsters. Where possible, equipment would be located within the site and as far away from the historic properties to mitigate the potential for damage. The construction site would be surrounded by 12'-high plywood fencing along the Essex Street and Rivington Street frontages. During construction, a rear yard fence and scaffold protection would be installed along the eastern side of the site in the rear yards of 133, 135, and 137 Norfolk Street (as well as of 139 and 141 Norfolk Street, which are not located within the

potential historic district). All loading and unloading would be done from Essex Street. It is expected that the crane to be utilized would be located within the closed permitted parking lane on Essex Street.

9. The Construction Monitoring Consultant will monitor for settlement and displacement of properties warranting settlement monitoring. The maximum permissible vertical and horizontal movement of structures will be ¼ inch (6mm) as per *TPPN #10/88*.
10. Protection shall be designed to shield the historic properties so that no permanent marks or damage shall result. No work that could affect historic properties will commence until this plan has been submitted to and approved in writing by the Construction Monitoring Consultant, and the construction contractor installs the approved protection measures.
11. During excavation, the Construction Monitoring Consultant will monitor any exposed vertical rock faces or fissures, joint orientation, and potential weaknesses to ensure that underground utilities serving the buildings listed above are protected from damage.
12. All other provisions of the New York City Building Code applicable to construction activities, protection of adjacent structures and utilities, and specific sections dealing with dewatering, excavation and foundation operations will be met. Construction of the building on Site 8 will be performed in a safe manner with controlled inspections as required by the New York City Department of Buildings.
13. Following the completion of construction, a post-construction inspection of historic properties will be undertaken by the Construction Monitoring Consultant. A memorandum will be prepared that will compare the condition of the historic properties as described in the pre-construction inspection report with the post-construction conditions. It will also evaluate any collected data, and comment on the extent, if any, of damage incurred to the historic properties as appropriate.
14. All activities occurring on or within adjacent buildings are subject to access being granted by that building's respective owner.

\*

**PROPOSED ESSEX CROSSING PROGRAM  
12PR00119 (11DME012M)  
ALTERNATIVES ANALYSIS FOR SITE 8**

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This document provides an Alternatives Analysis for Site 8 of the Essex Crossing program to supplement the conclusions presented in the Alternatives Analysis for Sites 2 and 5 (dated December 10, 2014) and the Executive Summary for the Alternatives Analysis (dated December 31, 2014) for the Essex Crossing program.

The project developer, Delancey Street Associates (DSA), is now seeking U.S. Department of Housing and Urban Development (HUD) Project-based Section 8 vouchers (rental assistance) for Site 8, which would be allocated by the New York City Department of Housing Preservation and Development. This undertaking is subject to review under Section 106 of the National Historic Preservation Act and the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.). As requested in a call with Olivia Brazee of the New York State Historic Preservation Office on March 21, 2017, this document describes why the historic Essex Street Market building on Site 8 cannot be retained and reused to meet the goals of the Essex Crossing program.

**PURPOSE AND NEED**

The goals of the Essex Crossing program are to: (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., 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 achieve these goals, the Essex Crossing program would provide 1,078 residential units, of which 369 would be affordable units and 192 would be affordable senior units; it would also develop a new, approximately 43,000-square-foot Essex Street Market on Site 2 that is approximately 28,000 square feet larger than the existing Essex Street Market on Site 9 and would provide ADA accessibility (unlike the existing Essex Street Market on Site 9), modern facilities and building systems, including garbage handling facilities (unlike the existing market on Site 9), and common gathering areas for public seating and market events; and it would develop a 15,000-square-foot publicly accessible open space on Site 5.

**SITE ANALYSIS**

As described below, the former Essex Street Market building on Site 8 cannot feasibly be retained and reused to meet the project's housing goals.

*SITE 8*

The former Essex Street Market building (State/National Register-eligible) at 140 Essex Street on Site 8 dates to 1939. At 11,210 square feet, the building is the second smallest of the four market buildings; only the building on Site 10 is smaller at 6,840 square feet. It has not been

## Essex Crossing Site 8

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used as a market hall since 1995 and is currently vacant. It was most recently used for garbage storage by the Essex Street Market located on Site 9. (See **Figure 1** for photographs of the Essex Market building on Site 8). The building overlaps a portion of the F and M subway tunnel that runs beneath Essex Street. Like the existing Essex Street Market on Site 9, the building on Site 8 is not ADA accessible, and it lacks modern facilities and building systems.

On Site 8, the Essex Crossing program would construct a 69,852-gross-square-foot (gsf) building that would include 92 affordable senior housing units and 9,700 square feet of ground-floor retail. Constructed in accordance with the applicable New York City zoning regulations for the site, the proposed building would be 8 stories (85 feet tall to the roofline and 96 feet tall to the bulkhead) with a 10-foot setback above the 7th floor. A 1-story storefront extension would be located on the narrow southern portion of the site. The extension to Rivington Street would be 10 feet wide. See **Figure 2** for a ground-floor and cellar plans, **Figure 3** for an elevation, and **Figure 4** for a section and roof plan.

To retain and renovate the long-vacant 1-story market hall for new uses would likely require substantial rehabilitation and upgrades to the building systems and roof. Assuming the 11,210 - square-foot market hall could be sufficiently renovated and upgraded to current building codes to accommodate new uses, such as market or retail uses, retaining the building would preclude the development of new residential units on Site 8. Due to the small, irregular footprint of Site 8, the Essex Crossing program proposes a primarily residential building on the site. With this alternative, the Essex Crossing program would not be able to provide 92 units of affordable senior housing on Site 8, and the Essex Crossing program would provide fewer total units and, therefore, fewer affordable housing units, and the project would meet the project's housing goals and the City's affordable housing policy objectives to a lesser extent.

It would also not be feasible to retain the existing building within a larger development without substantially compromising the building's historic integrity, given the complexity of including diverse uses in a single building, partially building above an active subway line, and maximizing the efficiency of the building in order to optimize the affordable housing program. The new 96-foot-tall building would require a solid foundation, and the existing market building (which was constructed in 1939) lacks the structural capacity to support vertical expansion atop the building. Attempting to build over the existing building would require extensive new structural columns that would limit the usable programming of the ground floor that is already constrained by the small, irregular lot. Columns for the new development would need to be placed through the existing structure with new foundations constructed below the existing building for ground-floor retail space. Overall, much of the existing structure would need to be demolished in the course of constructing a new building on Site 8.

In conclusion, it is not feasible to retain and reuse the existing market building for new retail uses and meet the program's housing goals, and the existing market building cannot feasibly be incorporated into a new development on Site 8 without substantially compromising its historical integrity.

## SUMMARY CONCLUSIONS

Delancey Street Associates (DSA), the developer of the Essex Crossing program, has evaluated the potential for: 1) retaining and reusing the Essex Street Market building on Site 8; and 2) retaining and building above the Essex Street Market building on Site 8. As described above, in consideration of the City's purpose and need for the proposed program, retention and reuse of the former Essex Street Market building on Site 8 is not feasible, and there are no prudent and

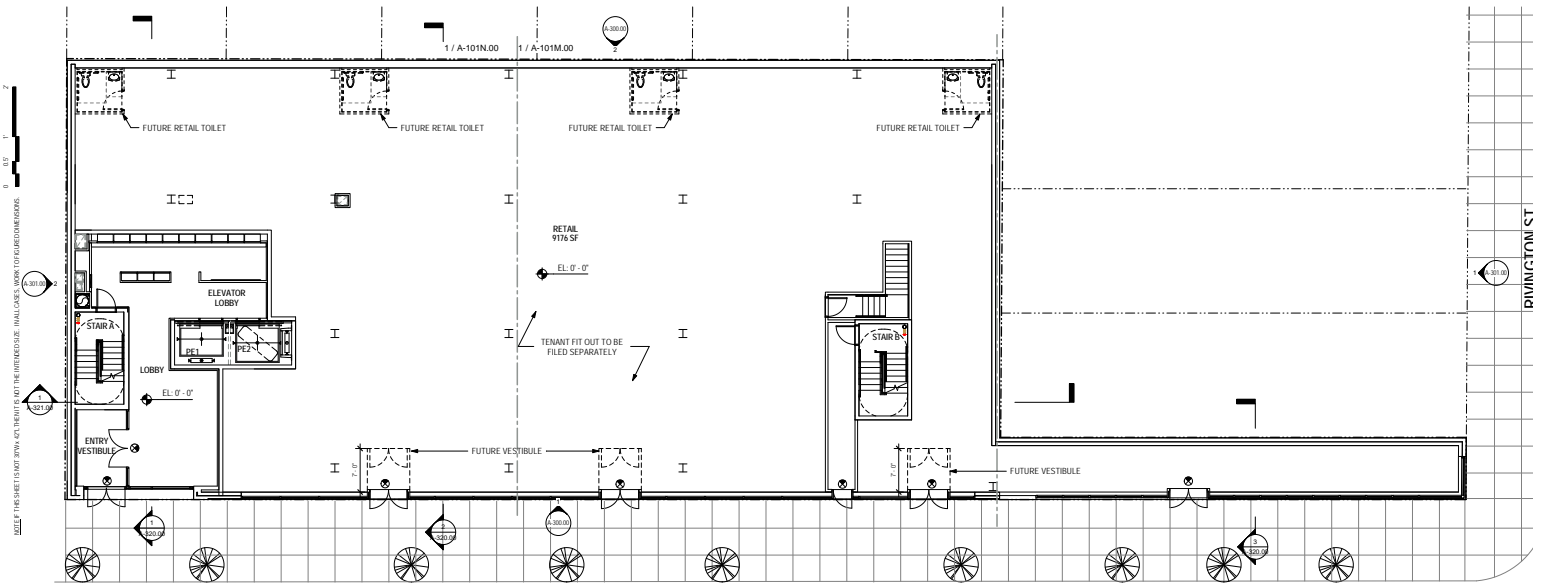


View northeast

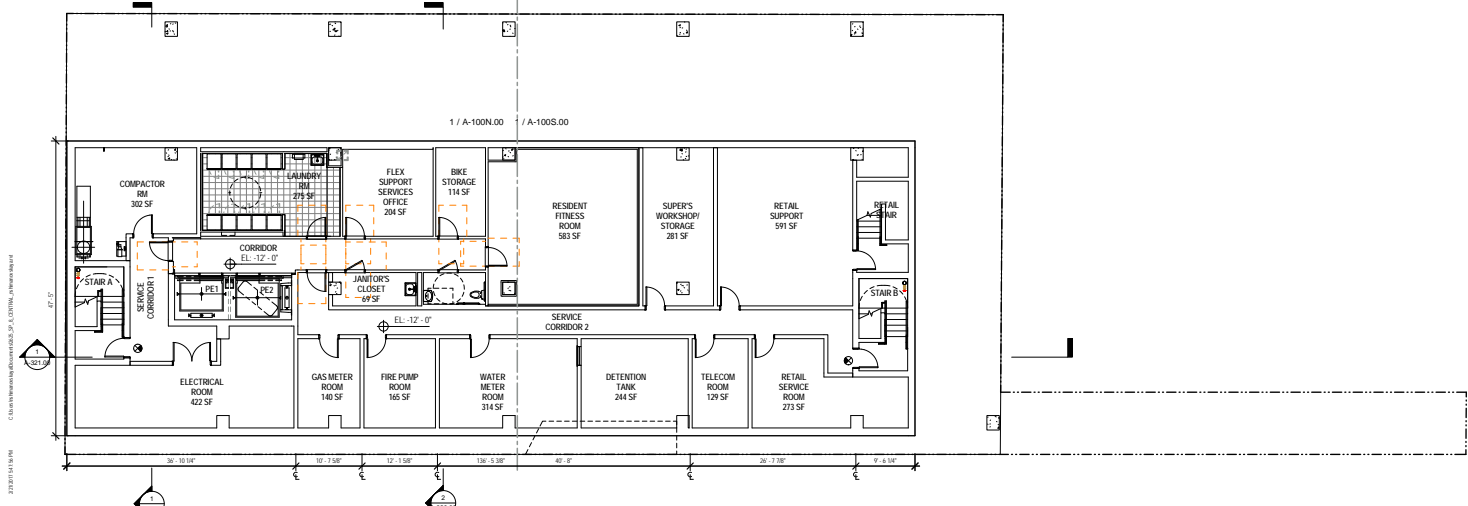


Interior - View south

Essex Street Market Building—140 Essex Street  
Site 8  
Figure 1



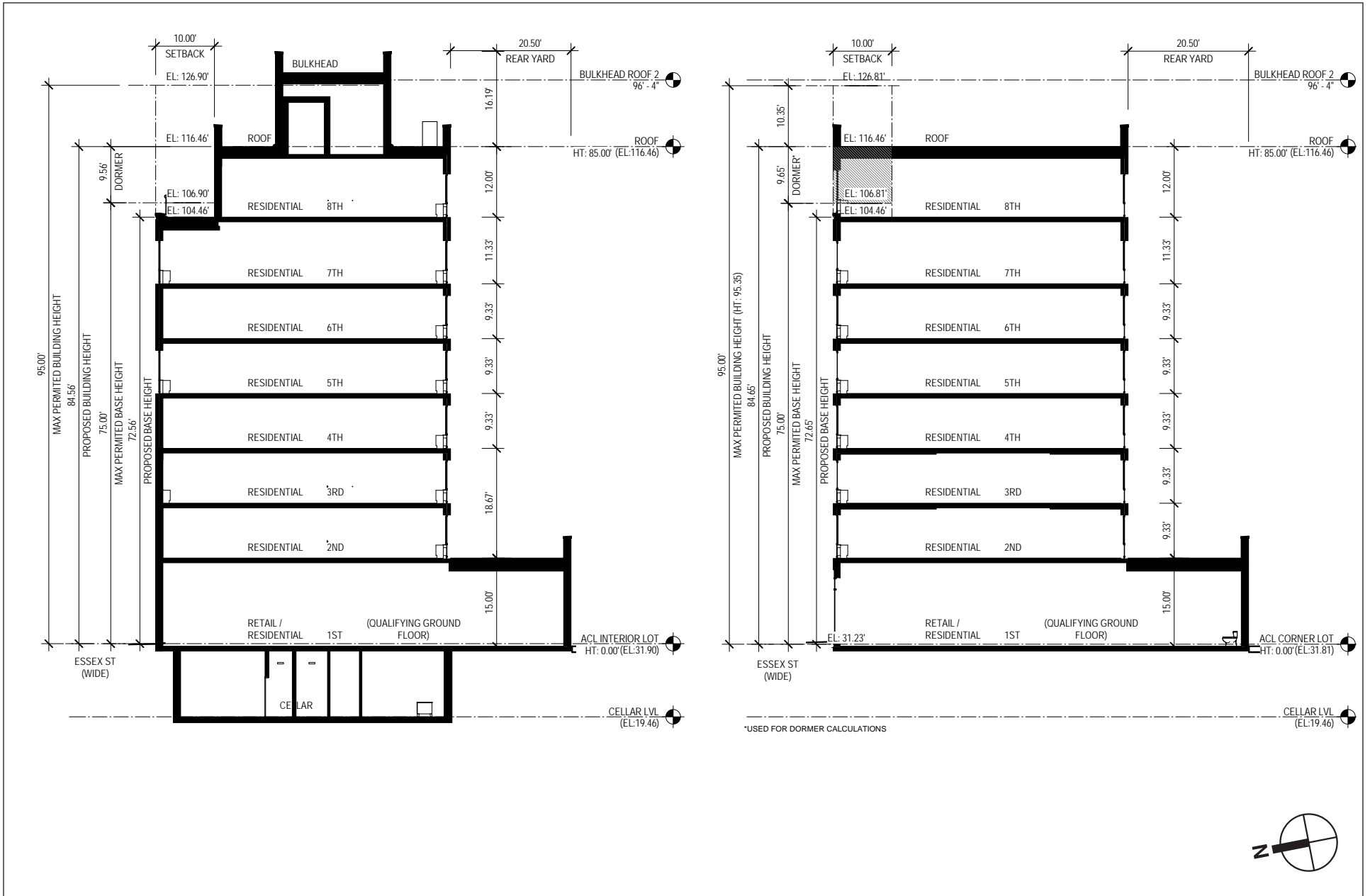
2 Ground Floor - Overall Plan  
1/8" = 1'-0"



1 Cellar - Overall Plan  
1/8" = 1'-0"







feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 8. Of the two alternatives, only the one that retains and reuses the building would avoid a significant adverse impact to that architectural resource. Building above the market building would necessitate alterations that would compromise its integrity. Retaining and reusing the Essex Street Market building, however, would not meet the project's affordable housing goals that are central to the project's purpose and need.

\*

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**MEMORANDUM OF AGREEMENT  
AMONG  
NEW YORK STATE OFFICE OF PARKS, RECREATION AND  
HISTORIC PRESERVATION,  
THE CITY OF NEW YORK ACTING BY AND THROUGH ITS DEPARTMENT OF  
HOUSING PRESERVATION AND DEVELOPMENT,  
AND  
SITE 8 DSA OWNER LLC**

**WHEREAS**, the Essex Crossing Program seeks to construct an approximately 1.98 million-gross-square-foot mixed-use development in the Borough of Manhattan, to comprise approximately 1,079 dwelling units, of which 369 are intended to be affordable dwelling units and 192 are intended to be affordable senior dwelling units, several community facility spaces, retail spaces, a public market, as well as other commercial uses across nine sites, identified as Sites 1-6 (part of a Large-Scale General Development) and Sites 8-10)<sup>1</sup> (collectively, the “**Overall Project**”); and

**WHEREAS**, the developer of the Overall Project, Delancey Street Associates LLC (together with permitted affiliates and successors and assigns, “**DSA**”), The City of New York (the “**City**”) acting by and through its Department of Housing Preservation and Development (“**HPD**”) and New York City Economic Development Corporation (“**EDC**”) worked together to formulate the Overall Project; and

**WHEREAS**, environmental review of the Overall Project was conducted by the Office of the Deputy Mayor for Economic Development<sup>2</sup> as lead agency; and

**WHEREAS**, Site 8 DSA Owner LLC (“**Site 8 DSA**”) intends to demolish an existing vacant building (the “**Existing Building**”) located on the real property known by and as street address 140 Essex Street, Borough of Manhattan, designated as Block 354, Lot 1 on the City’s Tax Map, County of New York (“**Site 8**”), which real property is currently owned by the City and is formerly part of the Essex Street Market, and construct on Site 8 a new 8-story building, which, when completed, shall contain, among other things, approximately ninety-two (92) affordable dwelling units for seniors, along with one (1) superintendent’s dwelling unit (the “**Proposed Project**”); and

**WHEREAS**, New York State Office of Parks, Recreation and Historic Preservation (“**OPRHP**”), New York City Housing Development Corporation (“**HDC**”), and DSA, under

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<sup>1</sup> It is intended that Site 7 shall retain its current function as a municipal parking garage, which shall continue to support the existing neighborhood uses, as well as the potential new development on the remaining development sites. Therefore, Site 7 was not included in the FGEIS and Technical Memoranda analyses.

<sup>2</sup> The office formerly known as the Office of the Deputy Mayor for Economic Development is now the Office of the Deputy Mayor for Housing and Economic Development.

## **Memorandum of Agreement**

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law, executed a Letter of Resolution dated as of April 1, 2015, attached hereto as **Exhibit A** (the “**Letter of Resolution**”), to ensure that appropriate mitigation measures, as required by SHPO, are undertaken in conjunction with the development of Sites 2, 3, 4, and 5 of the Overall Project for which New York State bond-funded construction financing provided by HDC is contemplated, and

**WHEREAS**, HPD intends to provide partial financing of the construction of the Proposed Project on Site 8 through its Senior Affordable Rental Apartments Program, which partial financing will include financial assistance provided by the United States Department of Housing and Urban Development (“**HUD**”), thereby making the Proposed Project on Site 8 an undertaking subject to review under Section 106 of the National Historic Preservation Act (“**NHPA**”), 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. Part 800, as amended (“**Section 106**”); and

**WHEREAS**, HPD is the “Responsible Entity” for federal environmental review pursuant to the National Environmental Policy Act (“**NEPA**”), specifically HUD’s environmental review regulations found at 24 CFR Part 58; and

**WHEREAS**, HPD and Site 8 DSA have consulted with OPRHP, acting in its capacity as the State Historic Preservation Office (“**SHPO**”), to assess the impact of the Proposed Project on Site 8 on historic resources, in accordance with Section 106; and

**WHEREAS**, SHPO has determined that the Existing Building on Site 8 is eligible for listing on the National Register of Historic Places, in accordance with Section 106; and

**WHEREAS**, the former Essex Street Market building on Site 2 has already been demolished, in accordance with the Letter of Resolution; and

**WHEREAS**, an analysis of alternatives to the demolition of the Existing Building on Site 8 was performed and a report thereof, dated March, 2017, was submitted to SHPO for review, a copy of which is attached hereto as **Exhibit B** (the “**Alternatives Analysis**”); and

**WHEREAS**, the Alternatives Analysis sets forth in relevant part that that there are no prudent and feasible alternatives to the proposed demolition of the Existing Building on Site 8, which demolition constitutes an “Adverse Effect” to this historic building; and

**WHEREAS**, in a letter dated March 31, 2017, SHPO relying on the Alternatives Analysis, concurred that there are no prudent and feasible alternatives to the proposed demolition of the Existing Building on Site 8, which letter is attached hereto as **Exhibit C** (the “**March 31, 2017 SHPO Letter**”); and

**Memorandum of Agreement**

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

**WHEREAS**, six buildings that are not a part of the Overall Project and that are located in proximity to Site 8 lie within a potential historic district that is eligible for listing both on New York State and National Registers of Historic Places by SHPO, and is also eligible for designation as a New York City Landmark Historic District by New York City Landmarks Preservation Commission (“LPC”) (the “**Potential Clinton, Rivington, Stanton Street Historic District**”); and

**WHEREAS**, said six buildings eligible to belong to the Potential Clinton, Rivington, Stanton Street Historic District are located within 90 feet of Site 8, which distance is close enough to be affected by construction of the Proposed Project on Site 8; and

**WHEREAS**, in accordance with New York City Department of Buildings and LPC procedures concerning construction impacts on neighboring historic structures, a Construction Protection Plan for Site 8 dated March, 2017, attached hereto as Exhibit D (the “**Site 8 Construction Protection Plan**”) was developed with the aim of protecting said six potential historic district buildings; and

**WHEREAS**, SHPO and LPC reviewed the Site 8 Construction Protection Plan and, in addition to the other matters set forth in the March 31, 2017 SHPO Letter, SHPO declared the Site 8 Construction Protection Plan to be acceptable and LPC, in a letter dated April 7, 2017 and attached hereto as Exhibit E (the “**April 7, 2017 LPC Letter**”), concurred with SHPO’s findings concerning the Site 8 Construction Protection Plan; and

**WHEREAS**, the parties hereto wish to ensure that appropriate mitigation measures are undertaken in conjunction with the development of the Proposed Project on Site 8 so as to comply with Section 106.

**NOW, THEREFORE**, in accordance with Section 106, HPD, Site 8 DSA, and SHPO agree to be bound as set forth below:

1. Site 8 DSA shall perform a Historic American Buildings Survey (“**HABS**”) Level II (the “**Survey**”) of the Existing Building on Site 8. The Survey shall consist of:
  - (A) Four sets of black and white photographs (4- by 5-inch prints on archival paper) and two sets of 4- by 5-inch negatives that record the exterior appearance and major interior spaces of the Existing Building on Site 8. All photographs shall have unobstructed exterior views of all façades of the Existing Building on Site 8. Historic photographs and architectural drawings of the Existing Building on Site 8 shall also be included, if available as determined by SHPO and LPC.
  - (B) Site 8 DSA shall make a good faith effort to locate exterior elevations and floor plans of the Existing Building on Site 8 from appropriate civic and historic repositories. If located, to the satisfaction of SHPO and LPC, copies of such

## Memorandum of Agreement

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

exterior elevations and floor plans shall be included in the documentation submitted as part of the Survey.

- (C) A historic narrative of the history of the Existing Building on Site 8 illustrating the historic and architectural significance of the Existing Building on Site 8. The narrative shall provide an appropriate historic context for the Existing Building on Site 8 acceptable to SHPO and LPC.
- (D) Four copies of the Survey shall be prepared. One copy of the Survey shall be submitted to SHPO (which will include the archival negatives), one copy of the Survey shall be submitted to LPC (which will include the archival negatives), and two copies of the Survey shall be prepared for appropriate repositories (library(ies) or historical society(ies)) to be determined in consultation with SHPO and LPC.
- (E) Site 8 DSA assumes all risk of, and shall be fully responsible for and reimburse fully the City, HPD, and SHPO for any loss, cost or expense arising out of any personal or bodily injury, death, or loss or damage to any property arising out of this Memorandum of Agreement and Site 8 DSA's operations hereunder or any of the acts, omissions, events, conditions, occurrences or causes described in the next sentence. Site 8 DSA shall forever defend, indemnify and hold harmless the City, HPD, and SHPO and their respective directors, members, officials, officers, agents, representatives and employees from and against any and all liabilities, claims, demands, penalties, fines, settlements, damages, costs, expenses and judgments of whatever kind or nature, known or unknown, contingent or otherwise (a) arising from personal or bodily injury to any person or persons, including death, or any damage to property of any nature, occasioned wholly or in part by any act(s) or omission(s) of Site 8 DSA or of the employees, guests, invitees, contractors, subcontractors, representatives, officials, officers, servants or agents of Site 8 DSA, occurring on or in proximity to Site 8, or arising out of or as a result of this Memorandum of Agreement, including, without limitation, any personal or bodily injury, including death, or property damage related to any collapse or failure of all or any part of Site 8, or (b) relating to or arising from any and all liens and encumbrances which may be filed or recorded against Site 8 or any public improvement lien filed against any funds of the City, HPD, or SHPO as a result of actions taken by or on behalf of Site 8 DSA, its contractors, subcontractors, agents, representatives, employees, guests or invitees, or (c) arising out of, or in any way related to the storage, transportation, disposal, release or threatened release of any Hazardous Materials (as hereinafter defined), over, under, in, on, from or affecting Site 8 or any persons, real property, personal property, or natural substances thereon or affected thereby in connection with Site 8 DSA's use of Site 8 or any work performed on Site 8 by or on behalf of Site 8 DSA in accordance with this Memorandum of Agreement, except that Site 8 DSA

## Memorandum of Agreement

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

shall not be liable for any claim, demand, penalty, fine, settlement, damage, cost, expense or judgment arising from a condition existing on Site 8 prior to the date that Site 8 DSA or the employees, guests, invitees, contractors, subcontractors, representatives, officials, officers, servants or agents of Site 8 DSA entered upon Site 8; provided, however, that Site 8 DSA shall be liable for any acts or omissions on its part that worsens any condition existing on Site 8. For purposes of this Memorandum of Agreement, “**Hazardous Materials**” means (i) any “**hazardous waste**” as defined under the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq., or (ii) “**hazardous substance**” as defined under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Section 9601 et seq., or (iii) “**hazardous materials**” as defined under the Hazardous Materials Transportation Act, 49 U.S.C. Section 5101 et seq., or (iv) “**hazardous waste**” as defined under New York Environmental Conservation Law Section 27-0901 et seq., or (v) “**hazardous substance**” as defined under the Clean Water Act, 33 U.S.C. Section 1321 et seq., or (vi) petroleum or petroleum products, crude oil or any by-products thereof, natural gas or synthetic gas used for fuel; any asbestos, asbestos-containing material or polychlorinated biphenyl; and any additional substances or materials which from time to time are classified or considered to be hazardous or toxic or a pollutant or contaminant under the laws of the State of New York, the United States of America, or regulated under any other Requirements. For the purposes of this Memorandum of Agreement, the term “**Requirements**” means: (i) the Zoning Resolution of the City of New York (as the same may be amended and/or replaced) (the “**Zoning Resolution**”) and any and all laws, rules, regulations, orders, ordinances, statutes codes, executive orders, resolutions and requirements of all governmental authorities (currently in force and hereafter adopted) applicable to Site 8 or any street, road, avenue, service area, sidewalk or other area comprising a part of, or lying in front of, Site 8, or any vault in or under Site 8 (including, without limitation, the Building Code of New York City, and any applicable equivalent, and the laws, rules, regulations, orders, ordinances, statutes, codes and requirements of any applicable Fire Rating Bureau or other body exercising similar functions) and (ii) any and all provisions and requirements of any property, casualty or other insurance policy required to be carried by Site 8 DSA under this Memorandum of Agreement. The provisions of this Article shall survive the expiration or termination of this Memorandum of Agreement.

2. In January 2017, EDC, the Lower East Side Partnership, and the Essex Street Market Vendor Association installed an interpretive display about the Essex Street Market’s history in the current market facility located on Site 9 (the “**Interpretive Display**”). Site 8 DSA shall add materials about the Existing Building on Site 8 to the Interpretive Display and install the Interpretive Display, or a similar exhibit, about the Essex Street Market acceptable to SHPO and LPC, within the new market facility that will be constructed on Site 2. Site 8 DSA shall, or shall cause Site 2 DSA Owner LLC to,

**Memorandum of Agreement**

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

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consult with and comply with all decisions of EDC, HPD, SHPO, and LPC regarding the form and substance of the Interpretive Display and any other site commemoration plan.

3. Site 8 DSA shall implement the approved Construction Protection Plan for Site 8 in consultation with SHPO and LPC.

Execution of this Memorandum of Agreement and implementation of its Stipulations evidence that HPD and Site 8 DSA have consulted with SHPO regarding the portion of the Overall Project (Site 8) subject to Section 106 of the National Historic Preservation Act of 1966, as amended, concerning the potential impacts of the Proposed Project on the quality of any historic, architectural, archeological, or cultural property that is listed on the National Register of Historic Places or on the State Register or is determined eligible for listing on the State Register by SHPO and on any comparable City register by LPC; that SHPO has determined that the Proposed Project on Site 8 will have an adverse effect on such listed or eligible property; that alternatives to avoid or mitigate such adverse effects have been explored to the satisfaction of SHPO; and that SHPO has determined that such effects will be mitigated to the fullest extent practicable by compliance by Site 8 DSA with the requirements set forth in this Memorandum of Agreement, all as required by Section 106.

Exhibits A through E are incorporated herein by reference.

**[SIGNATURE PAGES FOLLOW]**



**Memorandum of Agreement**

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

**NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC  
PRESERVATION**



BY: \_\_\_\_\_

DATE: June 14, 2017

NAME: Michael F. Lynch, P.E. AIA

TITLE: Deputy State Historic Preservation Officer

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**THE CITY OF NEW YORK**  
**BY: DEPARTMENT OF HOUSING PRESERVATION AND DEVELOPMENT**

BY:  DATE: 6/13/17  
NAME: Molly Park  
TITLE: Deputy Commissioner

APPROVED AS TO FORM:  
By: /s/ Amrita Barth  
Acting Corporation Counsel

**Memorandum of Agreement**

Essex Crossing Site 8

Borough of Manhattan, New York City, New York

(SHPO Project No. 12PR00119)

**SITE 8 DSA OWNER LLC**

BY: 

DATE: 6/14/17

NAME: Member, Brandon Baron

TITLE:

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**EXHIBIT A**

**Letter of Resolution**

**(following page(s))**

**Letter of Resolution**

Essex Crossing

Borough of Manhattan, New York City, New York

(OPRHP Project No. 12PR00119)

**LETTER OF RESOLUTION  
AMONG  
THE NEW YORK STATE OFFICE OF PARKS, RECREATION AND  
HISTORIC PRESERVATION,  
THE NEW YORK CITY HOUSING DEVELOPMENT CORPORATION,  
AND  
DELANCEY STREET ASSOCIATES LLC**

**WHEREAS**, the Essex Crossing Program in the borough of Manhattan, New York City, is a program that would introduce an approximately 1.98 million-gross-square-foot mixed-use development comprising 1,000 residential units of which 400 would be affordable units and 100 would be affordable senior housing units, community facility, retail, public market, and other commercial uses across nine sites (Sites 1-6 as part of a Large-Scale General Development and Sites 8-10)<sup>1</sup> (the “Proposed Project”), and;

**WHEREAS**, the project developer, Delancey Street Associates ~~(“DSA”)~~, or its successors or assigns (“DSA”), the New York City Department of Housing, Preservation and Development (“HPD”) and the New York City Economic Development Corporation (“NYCEDC”) worked together to formulate the Proposed Project, and;

**WHEREAS**, environmental review of the Proposed Project was conducted by the Office of the Deputy Mayor for Economic Development<sup>2</sup> as lead agency, for which a Notice of Completion for the Final Generic Environmental Impact Statement (“FGEIS”) was issued on August 10, 2012, Technical Memoranda 001 and 002 were issued in October 2012, and Technical Memorandum 003 was issued in March 2015, and;

**WHEREAS**, a portion of the construction and permanent financing may be provided through the New York City Housing Development Corporation (“NYCHDC”), a state agency as provided for in Section 14.09 of the Parks, Recreation and Historic Preservation Law, and, if provided, NYCHDC funds will be used only for the development of Sites 2, 3, 4, and 5 of the Proposed Project and;

**WHEREAS**, there will not be any construction financing through NYCHDC used for the development of Sites 1, 6, 8, 9, and 10 of the Proposed Project, and;

**WHEREAS**, NYCHDC, and DSA have consulted with the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”) regarding Sites 2, 3, 4, and 5 of

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<sup>1</sup> 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 was not included in the FGEIS and Technical Memoranda analyses.

<sup>2</sup> The office formerly known as the Office of the Deputy Mayor for Economic Development is now the Office of the Deputy Mayor for Housing and Economic Development.

**Letter of Resolution**

Essex Crossing

Borough of Manhattan, New York City, New York

(OPRHP Project No. 12PR00119)

the Proposed Project as provided for under Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law to assess the impact of this undertaking on historic resources, and;

**WHEREAS**, NYCHDC, DSA, and OPRHP agree that the former Essex Street Market building at 78-90 Essex Street on Site 2 is eligible for listing on the National Register of Historic Places and;

**WHEREAS**, NYCHDC, DSA, and OPRHP agree that the other three buildings of the former Essex Street Market complex at 130-144 Essex Street (on Site 8), 96-124 Essex Street (on Site 9), and 150 Essex Street (on Site 10) are eligible for listing on the National Register of Historic Places, but that the proposed developments on these sites are not receiving construction financing through NYCHDC and;

**WHEREAS**, NYCHDC, DSA, and OPRHP agree that the former fire station of Engine Company 17 and Hook & Ladder Company 18 at 185 Broome Street on Site 5 is eligible for listing on the National Register of Historic Places and;

**WHEREAS**, OPRHP reviewed an analysis of alternatives to the demolition of the former Essex Street Market building on Site 2 and the former fire station on Site 5 dated December 10, 2014 and an executive summary of the Alternatives Analysis dated December 31, 2014 and;

**WHEREAS**, OPRHP, in a letter dated January 26, 2015, concurred with the executive summary of the Alternatives Analysis that there are no prudent and feasible alternatives to the proposed demolitions of the former market building on Site 2 and the former fire station on Site 5 that constitute an Adverse Impact to these historic buildings, and;

**WHEREAS**, the Norfolk Street Baptist Church (Congregation Beth Hamedrash Hagodol) at 60-64 Norfolk Street, a designated New York City Landmark and State and National Register-listed property, is located within 90 feet of Site 3, close enough to be affected by construction of the Proposed Project, and;

**WHEREAS**, the purpose of this Letter of Resolution is to ensure that appropriate mitigation measures as required are undertaken in conjunction with the development of those portions of the Proposed Project receiving construction financing through NYCHDC;

**NOW, THEREFORE**, in accordance with the New York State Parks, Recreation, and Historic Preservation Law, NYCHDC, DSA, and OPRHP agree that those portions of the Proposed Project receiving construction funding through NYCHDC may proceed subject to the Stipulations set forth below.

## **Letter of Resolution**

Essex Crossing

Borough of Manhattan, New York City, New York  
(OPRHP Project No. 12PR00119)

### **STIPULATIONS**

1. DSA will undertake Historic American Buildings Survey (“HABS”) Level II documentation of the Essex Street Market complex. Documentation shall consist of:
  - A. Four sets of black and white photographs (4- by 5-inch prints on archival paper) and two sets of 4- by 5-inch negatives that record the exterior appearance and major interior spaces of the Essex Street Market buildings as outlined below:
    - i. Largely unobstructed exterior photographs of the façades of each market building. Historic photographs and architectural drawings of the four buildings will also be included, if available.
    - ii. Representative interior photographs of the market halls, including of the historic neon sign located in the building on Site 2.
    - iii. Because the building on Site 10 is in active use as a health clinic, interior photographs will only be taken if feasible.
  - B. Measured drawings are not required but a good faith effort shall be made to locate exterior elevations and floor plans of the market buildings from appropriate civic and historic repositories. If located, copies shall be included in the documentation submission.
  - C. A historic narrative pertaining to the history of the market complex shall be prepared to illustrate the historic and architectural significance of the Essex Street Market. The narrative will provide an appropriate historic context for the structures.
  - D. Four copies of the report will be prepared. One copy of the report will be submitted to OPRHP (which will include the archival negatives), one copy of the report will be submitted to the New York City Landmarks Preservation Commission (LPC) (which will include the archival negatives), and two copies of the report will be prepared for appropriate repositories (library or historical society) to be determined in consultation with OPRHP and LPC.
2. DSA will undertake HABS Level II documentation of the former fire station on Site 5. Documentation shall consist of:
  - A. Four sets of black and white photographs (4- by 5-inch prints on archival paper) and two sets of 4- by 5-inch negatives that record the exterior

## Letter of Resolution

Essex Crossing

Borough of Manhattan, New York City, New York

(OPRHP Project No. 12PR00119)

appearance and major interior spaces of the former fire station as outlined below:

- i. Largely unobstructed exterior photographs of each façade. Historic photographs and architectural drawings of the building will also be included, if available.
    - ii. Representative interior photographs, showing the first floor lobby entrance, the stair between the second and first floors, the second floor office, and the opening for the non-extant fireman's pole.
  - B. Measured drawings are not required but a good faith effort shall be made to locate exterior elevations and floor plans of the former fire station from appropriate civic and historic repositories. If located, copies shall be included in the documentation submission.
  - C. A historic narrative pertaining to the history of the building shall be prepared to illustrate its historic and architectural significance. The narrative will provide an appropriate historic context for the structure.
  - D. Four copies of the report will be prepared. One copy of the report will be submitted to OPRHP (which will include the archival negatives), one copy of the report will be submitted to the New York City Landmarks Preservation Commission ("LPC") (which will include the archival negatives), and two copies of the report will be prepared for appropriate repositories (library or historical society) to be determined in consultation with OPRHP and LPC.
3. DSA will prepare an interpretive exhibit on the Essex Street Market and is investigating installing the exhibit within the new market facility that will be constructed on Site 2. DSA will consult with NYCEDC, HPD, LPC, and OPRHP regarding the site commemoration plan.
  4. There is a neon sign in the former Essex Street Market building on Site 2 that appears to be original to the building; it advertises the former location of the meat department. Pursuant to their agreement with the City of New York, DSA will salvage this neon sign and will investigate the possibility of reinstalling the sign within the Essex Crossing project. No other significant exterior or interior architectural elements of the Essex Street Market buildings and fire station have been identified.
  5. The design of the new market facility on Site 2 is preliminary, but a currently contemplated design measure is signage for the new market that references the Moderne lettering of the façade signage of the original market buildings.



**Letter of Resolution**

Essex Crossing

Borough of Manhattan, New York City, New York  
(OPRHP Project No. 12PR00119)

6. A Construction Protection Plan ("CPP") shall be prepared in coordination with a licensed professional engineer for the Norfolk Street Baptist Church (Congregation Beth Hamedrash Hagodol) at 60-64 Norfolk Street, which is a designated New York City Landmark and State and National Register-listed property located within 90 feet of Site 3. The CPP shall meet the requirements specified in the New York City Department of Buildings' *Technical Policy and Procedure Notice #10/88* concerning procedures for avoidance of damage to historic structures resulting from adjacent construction. This plan shall be submitted to OPRHP and LPC for review and approval prior to implementation.

Execution of this agreement and implementation of its Stipulations evidence that NYCHDC and DSA have consulted with OPRHP regarding those portions of the Proposed Project subject to Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980 concerning the potential impacts of the Proposed Project on the quality of any historic, architectural, archeological, or cultural property that is listed on the national register of historic places or on the state register or is determined eligible for listing on the state register by OPRHP; that OPRHP has determined that the Proposed Project may have an adverse impact on such listed or eligible property; that alternatives to avoid or mitigate such adverse impacts have been explored to the satisfaction of OPRHP; and that OPRHP has determined that such impacts will be avoided or mitigated to the fullest extent practicable by completion of the Stipulations contained in this Letter of Resolution, all as required by the provisions of Section 14.09.

This Letter of Resolution does not constitute a commitment by NYCHDC (which would require the approval of the Members of NYCHDC), nor does it obligate NYCHDC in any way to provide construction or permanent financing to the Proposed Project.

**Letter of Resolution**

Essex Crossing  
Borough of Manhattan, New York City, New York  
(OPRHP Project No. 12PR00119)

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC  
PRESERVATION

BY: Richard Purpoint DATE: 3/26/15

TITLE: Dep. Comm

NEW YORK CITY HOUSING DEVELOPMENT CORPORATION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

DELANCEY STREET ASSOCIATES LLC

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**Letter of Resolution**  
Essex Crossing  
Borough of Manhattan, New York City, New York  
(OPRHP Project No. 12PR00119)

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC  
PRESERVATION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

NEW YORK CITY HOUSING DEVELOPMENT CORPORATION

BY:  DATE: 3/26/15

TITLE: Senior Vice President

DELANCEY STREET ASSOCIATES LLC

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

**Letter of Resolution**

Essex Crossing

Borough of Manhattan, New York City, New York

(OPRHP Project No. 12PR00119)

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC  
PRESERVATION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

NEW YORK CITY HOUSING DEVELOPMENT CORPORATION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

TITLE: \_\_\_\_\_

DELANCEY STREET ASSOCIATES LLC

BY:  \_\_\_\_\_ DATE: 4/1/15

TITLE: \_\_\_\_\_

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**EXHIBIT B**

**Alternatives Analysis**

**(following page(s))**

**PROPOSED ESSEX CROSSING PROGRAM  
12PR00119 (11DME012M)  
ALTERNATIVES ANALYSIS FOR SITE 8**

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This document provides an Alternatives Analysis for Site 8 of the Essex Crossing program to supplement the conclusions presented in the Alternatives Analysis for Sites 2 and 5 (dated December 10, 2014) and the Executive Summary for the Alternatives Analysis (dated December 31, 2014) for the Essex Crossing program.

The project developer, Delancey Street Associates (DSA), is now seeking U.S. Department of Housing and Urban Development (HUD) Project-based Section 8 vouchers (rental assistance) for Site 8, which would be allocated by the New York City Department of Housing Preservation and Development. This undertaking is subject to review under Section 106 of the National Historic Preservation Act and the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.). As requested in a call with Olivia Brazee of the New York State Historic Preservation Office on March 21, 2017, this document describes why the historic Essex Street Market building on Site 8 cannot be retained and reused to meet the goals of the Essex Crossing program.

**PURPOSE AND NEED**

The goals of the Essex Crossing program are to: (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., 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 achieve these goals, the Essex Crossing program would provide 1,078 residential units, of which 369 would be affordable units and 192 would be affordable senior units; it would also develop a new, approximately 43,000-square-foot Essex Street Market on Site 2 that is approximately 28,000 square feet larger than the existing Essex Street Market on Site 9 and would provide ADA accessibility (unlike the existing Essex Street Market on Site 9), modern facilities and building systems, including garbage handling facilities (unlike the existing market on Site 9), and common gathering areas for public seating and market events; and it would develop a 15,000-square-foot publicly accessible open space on Site 5.

**SITE ANALYSIS**

As described below, the former Essex Street Market building on Site 8 cannot feasibly be retained and reused to meet the project's housing goals.

*SITE 8*

The former Essex Street Market building (State/National Register-eligible) at 140 Essex Street on Site 8 dates to 1939. At 11,210 square feet, the building is the second smallest of the four market buildings; only the building on Site 10 is smaller at 6,840 square feet. It has not been

used as a market hall since 1995 and is currently vacant. It was most recently used for garbage storage by the Essex Street Market located on Site 9. (See **Figure 1** for photographs of the Essex Market building on Site 8). The building overlaps a portion of the F and M subway tunnel that runs beneath Essex Street. Like the existing Essex Street Market on Site 9, the building on Site 8 is not ADA accessible, and it lacks modern facilities and building systems.

On Site 8, the Essex Crossing program would construct a 69,852-gross-square-foot (gsf) building that would include 92 affordable senior housing units and 9,700 square feet of ground-floor retail. Constructed in accordance with the applicable New York City zoning regulations for the site, the proposed building would be 8 stories (85 feet tall to the roofline and 96 feet tall to the bulkhead) with a 10-foot setback above the 7th floor. A 1-story storefront extension would be located on the narrow southern portion of the site. The extension to Rivington Street would be 10 feet wide. See **Figure 2** for a ground-floor and cellar plans, **Figure 3** for an elevation, and **Figure 4** for a section and roof plan.

To retain and renovate the long-vacant 1-story market hall for new uses would likely require substantial rehabilitation and upgrades to the building systems and roof. Assuming the 11,210 -square-foot market hall could be sufficiently renovated and upgraded to current building codes to accommodate new uses, such as market or retail uses, retaining the building would preclude the development of new residential units on Site 8. Due to the small, irregular footprint of Site 8, the Essex Crossing program proposes a primarily residential building on the site. With this alternative, the Essex Crossing program would not be able to provide 92 units of affordable senior housing on Site 8, and the Essex Crossing program would provide fewer total units and, therefore, fewer affordable housing units, and the project would meet the project's housing goals and the City's affordable housing policy objectives to a lesser extent.

It would also not be feasible to retain the existing building within a larger development without substantially compromising the building's historic integrity, given the complexity of including diverse uses in a single building, partially building above an active subway line, and maximizing the efficiency of the building in order to optimize the affordable housing program. The new 96-foot-tall building would require a solid foundation, and the existing market building (which was constructed in 1939) lacks the structural capacity to support vertical expansion atop the building. Attempting to build over the existing building would require extensive new structural columns that would limit the usable programming of the ground floor that is already constrained by the small, irregular lot. Columns for the new development would need to be placed through the existing structure with new foundations constructed below the existing building for ground-floor retail space. Overall, much of the existing structure would need to be demolished in the course of constructing a new building on Site 8.

In conclusion, it is not feasible to retain and reuse the existing market building for new retail uses and meet the program's housing goals, and the existing market building cannot feasibly be incorporated into a new development on Site 8 without substantially compromising its historical integrity.

### SUMMARY CONCLUSIONS

Delancey Street Associates (DSA), the developer of the Essex Crossing program, has evaluated the potential for: 1) retaining and reusing the Essex Street Market building on Site 8; and 2) retaining and building above the Essex Street Market building on Site 8. As described above, in consideration of the City's purpose and need for the proposed program, retention and reuse of the former Essex Street Market building on Site 8 is not feasible, and there are no prudent and



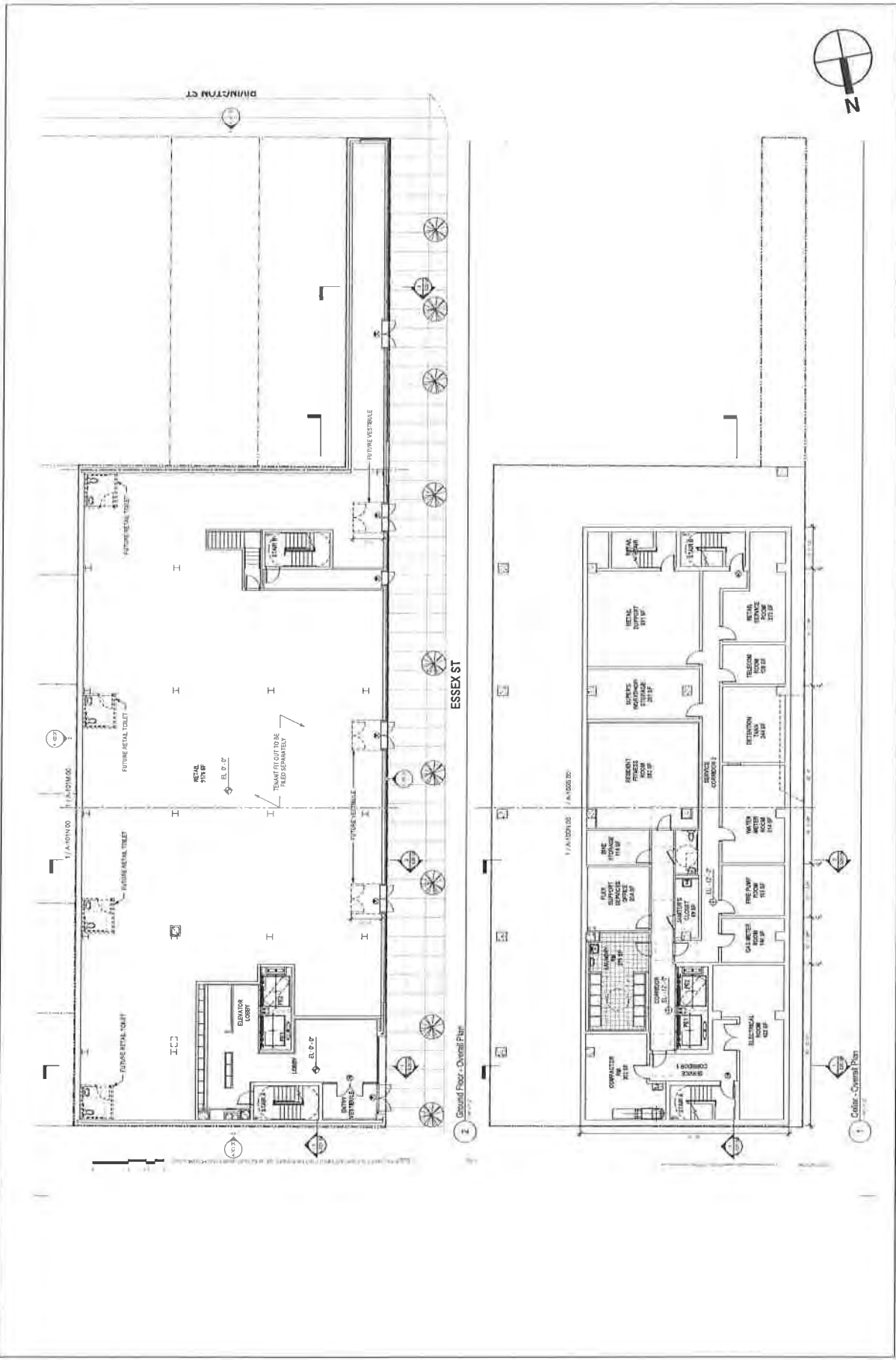
View northeast



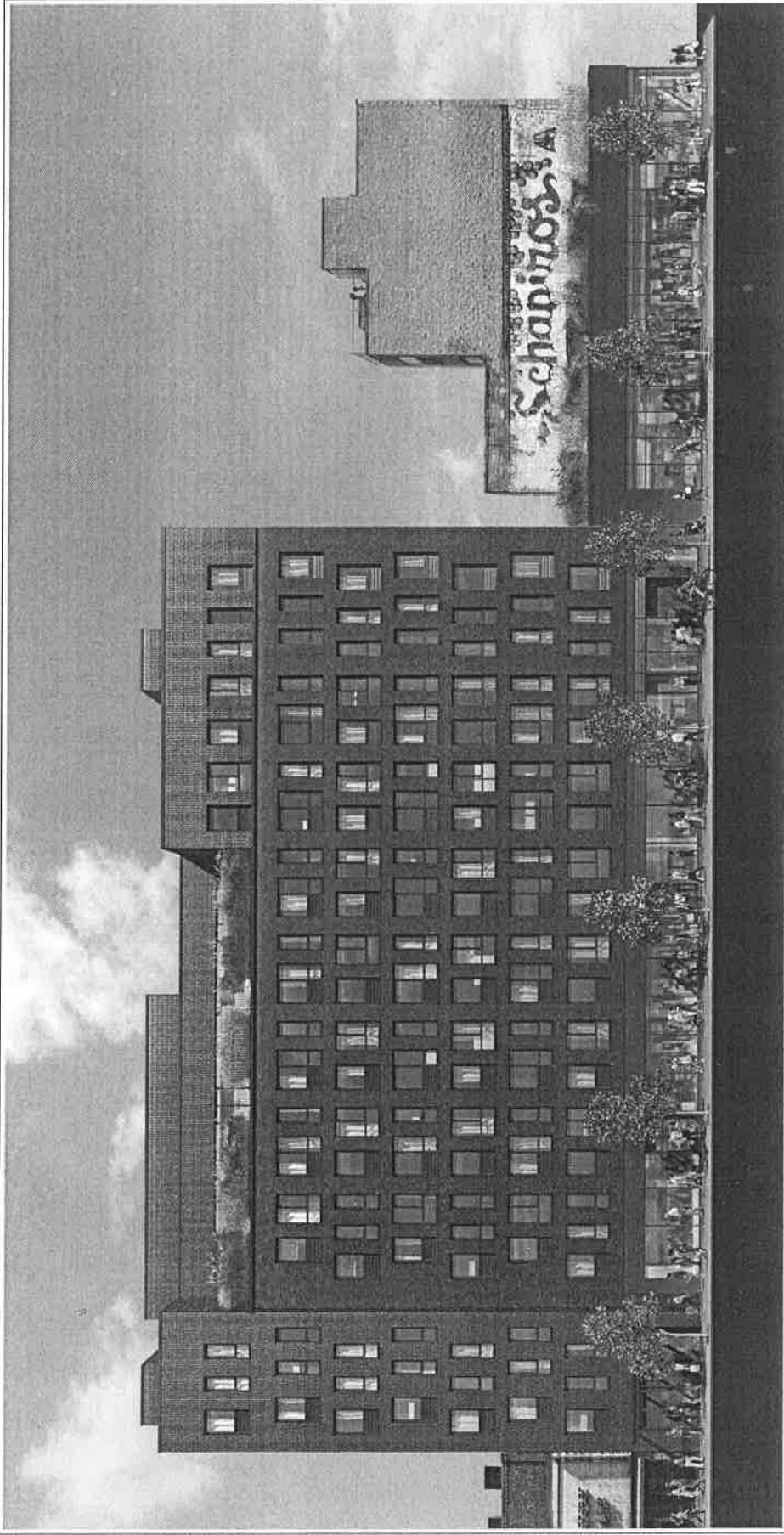
Interior - View south

Essex Street Market Building—140 Essex Street  
Site 8  
Figure 1

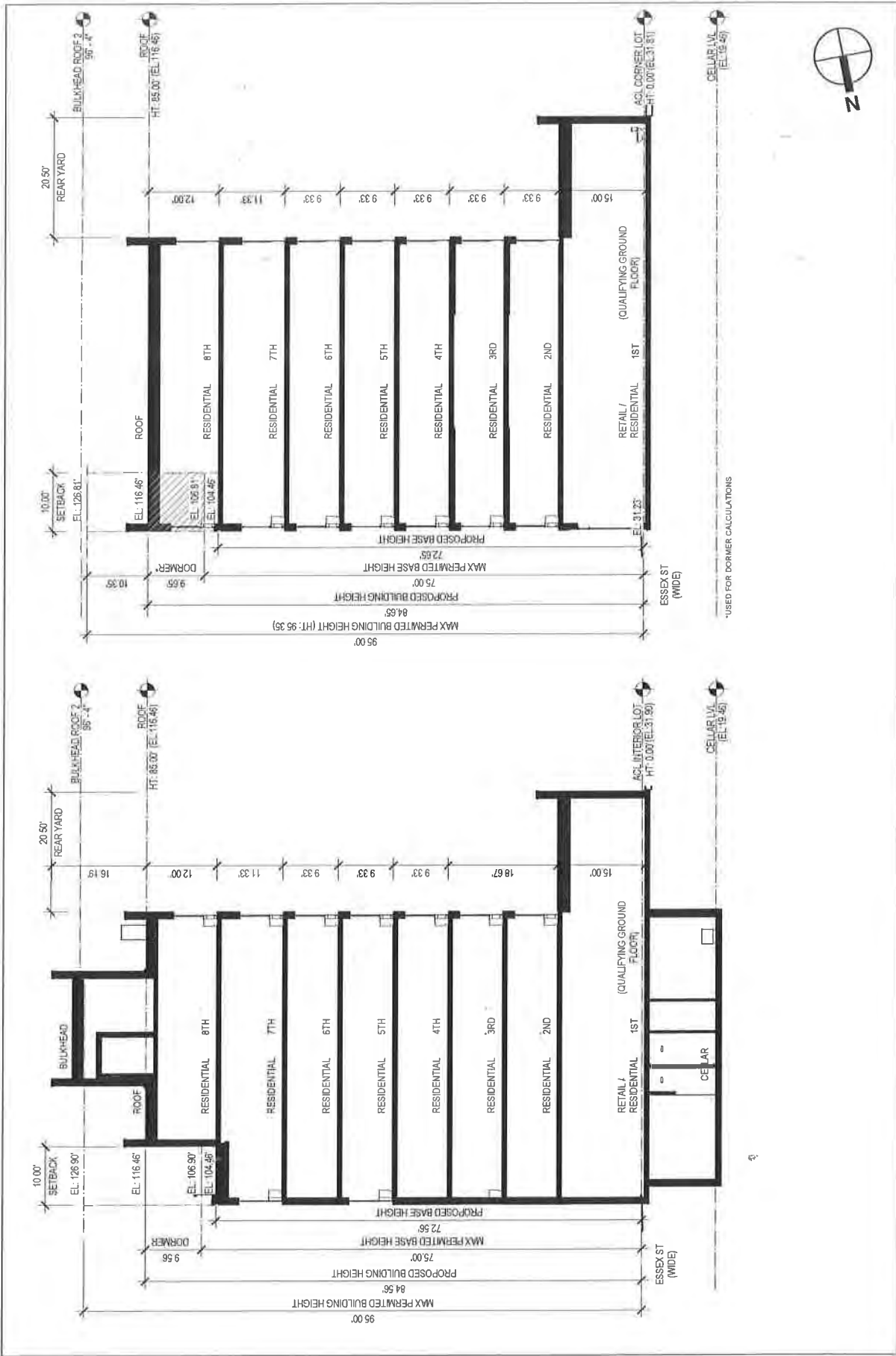




Site 8 Building Ground Floor and Cellar Plans  
Figure 2



Site 8 West Elevation  
Figure 3



Site 8 Section and Roof Plan  
Figure 4

feasible alternatives to avoiding significant adverse impacts to the Essex Street Market building on Site 8. Of the two alternatives, only the one that retains and reuses the building would avoid a significant adverse impact to that architectural resource. Building above the market building would necessitate alterations that would compromise its integrity. Retaining and reusing the Essex Street Market building, however, would not meet the project's affordable housing goals that are central to the project's purpose and need.

\*

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**EXHIBIT C**

**March 31, 2017 SHPO Letter**

**(following page(s))**



## Parks, Recreation, and Historic Preservation

**ANDREW M. CUOMO**  
Governor

**ROSE HARVEY**  
Commissioner

March 31, 2017

Mr. Nathan Riddle  
AKRF  
440 Park Avenue South  
New York, NY 10016

Re: HPD  
Seward Park - Mixed Use Development Project (CEQR No. 11DME012M), renamed  
Essex Crossing  
12PR00119

Dear Mr. Riddle:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

We note that the Essex Market building located at 140 Essex Street is eligible for listing in the State and National Registers of Historic Places. We further note that our office has already reviewed under state law a portion of this project (the proposed redevelopment of Sites 2, 3, 4 and 5), and that review resulted in the Letter of Resolution on record for project number 12PR00119. We understand that HUD Section 8 housing vouchers are being used for the proposed redevelopment of Site 8, and therefore we will be reviewing this portion of the undertaking under Section 106.

We have reviewed the Section 106 initiation letter, Construction Protection Plan for Site 8, HABS contact sheets for the Site 8 market building, the 100% Design Drawings for the proposed Site 8 new building, and the Site 8 Alternative Analysis that were provided to our office on March 23<sup>rd</sup>, 2017. Based upon our review, we concur with the conclusion that alternatives to demolition of the market building are not feasible, as outlined in your Alternatives Analysis. We also find the HABS contact sheets and Construction Protection Plan to be acceptable, and we have no comments on the proposed design of the new building.

At this time, we suggest drafting a Memorandum of Agreement that would incorporate appropriate mitigation measures into the project. This MOA should be based on the Letter of Resolution already in place for Sites 2 and 5.

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**Division for Historic Preservation**

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • [www.nysparks.com](http://www.nysparks.com)

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS) at [www.nysparks.com/shpo/online-tools/](http://www.nysparks.com/shpo/online-tools/) Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,



Olivia Brazee  
Historic Site Restoration Coordinator  
[olivia.brazee@parks.ny.gov](mailto:olivia.brazee@parks.ny.gov)

via e-mail only

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**EXHIBIT D**

**Site 8 Construction Protection Plan**

**(following page(s))**



**CONSTRUCTION PROTECTION PLAN**  
**ESSEX CROSSING—SITE 8**  
**LOWER EAST SIDE, NY**  
**March 2017**

**A. INTRODUCTION**

As set forth in the Final Generic Environmental Impact Statement (FGEIS) for the Seward Park Mixed-Use Development Project, dated August 10, 2012, and Technical Memorandum 003 for the Essex Crossing program, dated February 2015, a Construction Protection Plan (CPP) is required for Site 8 of the Essex Crossing program to avoid adverse physical impacts on historic architectural resources that are located close enough (within 90 feet)<sup>1</sup> to Site 8 to be potentially affected by staging and construction period activities. This CPP was prepared by AKRF, Inc. based upon the requirements stipulated in the New York City Department of Buildings' *Technical Policy and Procedure Notice (TPPN) #10/88*, regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction and the New York City Landmarks Preservation Commission (LPC) guidelines described in *Protection Programs for Landmark Building* and *Guidelines for Construction Adjacent to a Historic Landmark*. Implementation of this CPP will be undertaken by a construction monitoring firm (the "Construction Monitoring Consultant"), to be selected by Site 8 DSA Owner LLC (Site 8 DSA). The Construction Monitoring Consultant will have documented experience with historic structures.

This CPP focuses only on the activities related to demolition, site preparation, and construction required to build the 8-story 73,379-gross-square-foot building on Site 8. Separate CPPs have been prepared and implemented for Sites 1 and 6, and separate CPPs will be prepared for Sites 3 and 9 of the Essex Crossing program.

**B. CONSTRUCTION ACTIVITIES**

Prior to the start of construction on the new building located at 140 Essex Street (Site 8), the existing former market building would need to be fully demolished. It is a one-story brick and steel building. The building has no below-grade cellar space and an open interior floor plan with a small one-story interior office mezzanine in the south east corner. Demolition of the existing building will require handheld pneumatic power tools, demolition torches, generators, compressors, scissor lifts, articulating boom lifts, scaffolding, and a telescopic forklift.

The proposed building on Site 8 is expected to be constructed with a slab on grade and mat slab foundation system incorporating drilled piles. It is expected that all piles will be drilled as the project has buildings directly adjacent to it and abuts a New York City Transit below-grade subway tunnel. The new building would have a one-level cellar built to a depth to match the adjoining buildings. Excavators and front-end loaders would be used for soil excavation and

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<sup>1</sup> Through its *Technical Policy and Procedure Notice (TPPN) #10/88*, the New York City Department of Buildings outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet of the historic resource. *TPPN #10/88* was issued by the New York City Department of Buildings on June 6, 1988 to supplement Building Code regulations with regard to historic structures.

minimal rock removal during foundation excavation. Blasting would not be used. It is expected that local dewatering would be required; a more advanced dewatering system would be implemented in the event water levels are found to be higher than anticipated. The installation of the foundation and cellar would require construction equipment including concrete trucks, concrete pumps, concrete finishers, backhoes, rebar benders, excavators, and small generators.

Construction of the superstructure of the new building 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. A crane would be used to lift structural components, façade elements, large construction equipment, and other larger materials. The floors of the building would be made of precast concrete plank and trucked to the site and lifted into place for attachment by crane.

During demolition, excavation, and construction, plastic Yodock barriers would be placed along the western perimeter of the construction site within Essex Street. A construction fence would be placed along the western (Essex Street) and southern (Rivington Street) perimeters of the construction site. All loading and unloading would be done from Essex street, with vehicular construction access to be provided at the western side of the site on Essex Street. All construction equipment would be located within the fenced site perimeter, with the exception of delivery trucks and cranes located within the closed permitted parking lane on Essex Street. During construction of the superstructure, sidewalk sheds would be placed along the site's western (Essex Street) perimeter and a portion of the site's south (Rivington Street) perimeter. Roof protection would be provided for the adjacent buildings at 146 Essex Street; 118, 120, 122 Rivington Street; and 133, 135, 137, 139, and 141 Norfolk Street. Netting for additional protection would also be provided for the rear façade and protection of 122 Rivington and 133 Norfolk Street. Further, a rear yard fence and scaffold protection will be installed along the eastern side of the new building in the rear yards of 133, 135, 137, 139, and 141 Norfolk Street during construction.

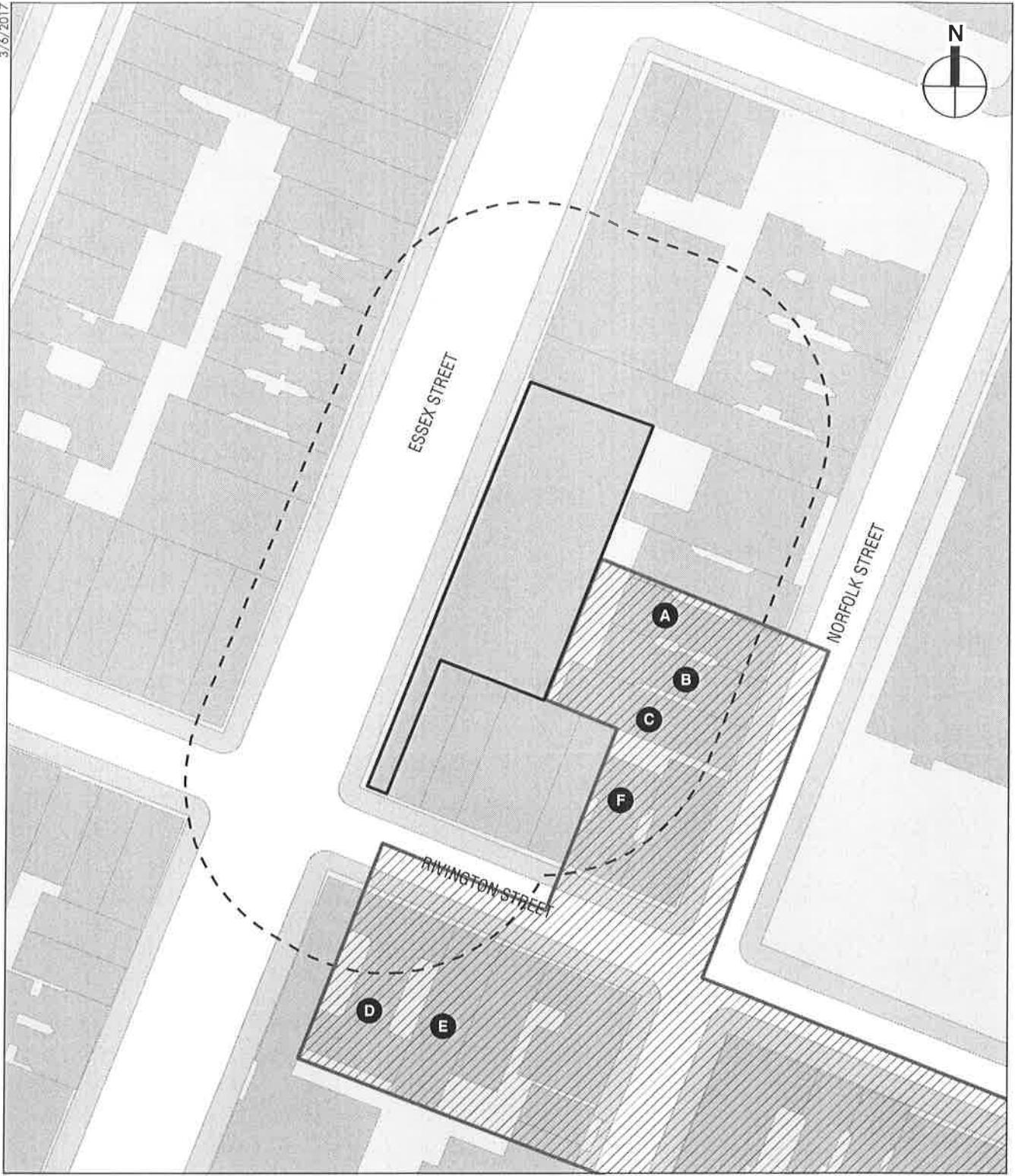
### **C. HISTORIC PROPERTIES ON OR WITHIN 90 FEET OF SITE 8**




Six contributing buildings located within the potential Clinton, Rivington, Stanton Street Historic District, which is eligible for NYCL designation and S/NR listing, are located within 90 feet of Site 8. These properties are identified below and shown on the attached Figure 1.

#### **NORFOLK STREET (3 BUILDINGS)**

- 133 Norfolk Street. Four-story brick and stone tenement with a cast-iron storefront. The only ornament consists of decorative brickwork at the first and second floors and at the roof parapet. The façade appears to have been reconstructed since its original construction.
- 135 and 137 Norfolk Street. Identical five-story brick and stone tenements. The façades of these two buildings are tied together with shared stone lintel and sill courses. Additional ornamentation includes projecting stone window pediments, panels with masonry reliefs, panels with dogtooth brickwork, and incised floral patterns at the top floor. Each building has a projecting, bracketed metal cornice. The shared ground floor has been altered with brick infill, although some original cast iron pilasters remain visible.

3/6/2017



-  Development Site 8
-  Study Area (90-foot boundary)
-  Potential Clinton, Rivington, Stanton Street Historic District (NYCL-eligible, S/NR-eligible)

- A** 137 Norfolk Street
- B** 135 Norfolk Street
- C** 133 Norfolk Street
- D** 121 Rivington Street
- E** 125 Rivington Street
- F** 128 Rivington Street



Potential Clinton, Rivington, Stanton Street  
Historic District Buildings Within 90 Feet  
**Figure 1**

### **RIVINGTON STREET (3 BUILDINGS)**

- 128 Rivington Street. Five-story brick and stone tenement. Ornamentation on the Rivington and Essex Street facades includes stone lintel courses, panels with terra cotta reliefs and panels with geometric brick patterns, corbelling, decorative brick courses, and a tall, bracketed metal cornice. The ground floor has been altered with modern storefronts.
- 121 Rivington Street. Six-story brick and stone tenement with Classical Revival style details. On the second floor, the window enframements consist of rounded half columns supporting entablatures with broken segmental pediments. On the third through fifth floors, the side bay windows have stone architraves capped by scalloped pediments, and the windows in the central bays have carved keystones. A simple cornice caps the building. The ground floor has been altered with modern storefronts.
- 125 Rivington Street. Five-story brick tenement with curved, projecting windows lintels, a bracketed cornice, and an altered ground floor.

### **D. CONSTRUCTION PROTECTION MEASURES**

The following protective measures will be implemented:

1. To the extent permitted by the property owners, a preconstruction inspection of the historic properties listed above will be undertaken by the Construction Monitoring Consultant to assess the existing conditions of the buildings with respect to building façade, windows, slabs, masonry wall, etc., and to ascertain any pre-existing damage, existing structural distress, and any potential weakness of the foundations or structures. The inspection will include all exterior areas from the ground floor level to the roof and include all sidewalks, curbs, setbacks, parapets and coping. An interior inspection will also be undertaken, to be limited to accessible public ground floor areas, e.g., lobbies and subgrade areas as applicable.
2. A written report will be prepared by the Construction Monitoring Consultant based on the preconstruction inspection. After completion of the visual survey and inspection, the Construction Monitoring Consultant will make recommendations to Site 8 DSA for monitoring required to adequately monitor, document, and assess ground and building deformations (i.e., movements) over the duration of the excavation and construction periods, together with any recommended protocols and procedures to adequately protect and preserve the integrity of the structures during construction. The written report will be supplemented with photo-documentation—in the form of color photographs keyed to a map or plan—in order to provide a clear record of existing conditions and any problem areas. This report shall be provided to Site 8 DSA.
3. Based on the preconstruction inspection, and as deemed necessary by the Construction Monitoring Consultant, crack monitors shall be installed across existing cracks (and new cracks as required) to permit changes in crack width to be measured. The crack monitors shall be monitored on a bi-weekly basis. Should any new cracking or widening of existing cracks occur in the architectural resource during excavation or construction, the Construction Monitoring Consultant will evaluate the seriousness of the widening, identify possible reasons for the widening, and modify on-site construction activities that are causing the problem, including cessation of work. Additional crack monitors will be installed as determined necessary by the Construction Monitoring Consultant and cracks

## Construction Protection Plan

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monitored more frequently, if required, until the Construction Monitoring Consultant deems the cracks to be stable.

4. Seismic monitor(s) will be installed in areas deemed necessary by the Construction Monitoring Consultant during excavation and other construction operations that would cause vibrations in the historic buildings. Seismograph(s) will be installed to the extent permitted by the building owner. The seismograph(s) will measure vibration levels and be located such that they are away from the general public but are accessible to the technicians who must monitor them. Logs of seismic monitoring will be maintained. Seismic monitoring data for the architectural resources shall be submitted to LPC upon request.
5. Controls on construction vibration will be required as per LPC standards. LPC and *TPPN #10/88* requirements are for a maximum peak particle velocity of 0.5 inches per second for historic structures. In addition, an appropriate lower alert level will be established such that if an alert level is reached or exceeded, construction procedures may be reviewed and modified as needed.
6. Vibration level measurements will be taken at the vibration-sensitive locations at applicable daytime, evening, and nighttime periods. Vibrations will be monitored and recorded continuously by the seismograph(s) and by the Construction Monitoring Consultant. Prior to the commencement of demolition and excavation operations, the seismograph(s) will be installed and tested to ensure that they are in working order and to enable taking baseline readings.
7. If any excessive vibration (that which meets or exceeds the peak particle velocity level) is detected, the vibration monitoring consultant will verify the accuracy of the seismograph equipment, evaluate the possibility of measurement errors, and repeat the measurement as necessary. If the measurement is verified and can be directly correlated to specific construction activities, and the recorded measurement exceeds the specified threshold criteria, the Construction Monitoring Consultant will direct the construction contractor to stop the work causing this excessive vibration, and the historic properties will be inspected for any structural degradation that may have occurred due to the measured excess vibration event. The Construction Monitoring Consultant will submit a report to LPC detailing the reason for exceeding the peak particle velocity level and the presence or lack of damage to the historic property(s). If any damage to a historic property was sustained, it will be secured, and the work that caused any damage will be altered to reduce the vibration levels to within acceptable limits. Where damage has occurred, the resumption of all work must be authorized by the Construction Monitoring Consultant. Any repairs that can be reasonably attributed to the proposed project's vibration activities will be undertaken with the permission of the property owner. Any repairs would also be undertaken in consultation with LPC.
8. Staging areas will be identified on a site plan to show the locations of construction equipment including site access, cranes, concrete trucks, excavators, and dumpsters. Where possible, equipment would be located within the site and as far away from the historic properties to mitigate the potential for damage. The construction site would be surrounded by 12'-high plywood fencing along the Essex Street and Rivington Street frontages. During construction, a rear yard fence and scaffold protection would be installed along the eastern side of the site in the rear yards of 133, 135, and 137 Norfolk Street (as well as of 139 and 141 Norfolk Street, which are not located within the

potential historic district). All loading and unloading would be done from Essex Street. It is expected that the crane to be utilized would be located within the closed permitted parking lane on Essex Street.

9. The Construction Monitoring Consultant will monitor for settlement and displacement of properties warranting settlement monitoring. The maximum permissible vertical and horizontal movement of structures will be ¼ inch (6mm) as per *TPPN #10/88*.
10. Protection shall be designed to shield the historic properties so that no permanent marks or damage shall result. No work that could affect historic properties will commence until this plan has been submitted to and approved in writing by the Construction Monitoring Consultant, and the construction contractor installs the approved protection measures.
11. During excavation, the Construction Monitoring Consultant will monitor any exposed vertical rock faces or fissures, joint orientation, and potential weaknesses to ensure that underground utilities serving the buildings listed above are protected from damage.
12. All other provisions of the New York City Building Code applicable to construction activities, protection of adjacent structures and utilities, and specific sections dealing with dewatering, excavation and foundation operations will be met. Construction of the building on Site 8 will be performed in a safe manner with controlled inspections as required by the New York City Department of Buildings.
13. Following the completion of construction, a post-construction inspection of historic properties will be undertaken by the Construction Monitoring Consultant. A memorandum will be prepared that will compare the condition of the historic properties as described in the pre-construction inspection report with the post-construction conditions. It will also evaluate any collected data, and comment on the extent, if any, of damage incurred to the historic properties as appropriate.
14. All activities occurring on or within adjacent buildings are subject to access being granted by that building's respective owner.

\*

**Memorandum of Agreement**  
Essex Crossing Site 8  
Borough of Manhattan, New York City, New York  
(SHPO Project No. 12PR00119)

**EXHIBIT E**

**April 7, 2017 LPC Letter**

**(following page(s))**

## ENVIRONMENTAL REVIEW

**Project number:** ECONOMIC DEVELOPMENT CORP. / 11DME012M  
**Project:** SEWARD PARK/ESSEX CROSSING  
**Date received:** 3/21/2017

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The LPC is in receipt of the CPP for Site 8 and the site 8 HABS photos. LPC concurs with the SHPO findings of 3/31/17 in regards to these items.

Cc: SHPO 12PR00119

*Gina Santucci*

4/7/2017

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SIGNATURE  
Gina Santucci, Environmental Review Coordinator

DATE

**File Name:** 26165\_FSO\_GS\_04072017.doc



## **APPENDIX B**



May 23, 2017

Ms. Esther Brunner, AICP  
Deputy Director  
Mayor's Office of Environmental Coordination  
253 Broadway, 14<sup>th</sup> Floor  
New York, NY 10007

**Vincent Sapienza P.E.**  
*Acting Commissioner*

**Re: Seward Park Mixed-Use Redevelopment Project  
CEQR # 11DME012M**

**Angela Licata**  
*Deputy Commissioner of  
Sustainability*

59-17 Junction Blvd.  
Flushing, NY 11373

Tel. (718) 595-4398  
Fax (718) 595-4479  
alicata@dep.nyc.gov

Dear Ms. Brunner:

The New York City Department of Environmental Protection, Bureau of Environmental Planning and Analysis (DEP) has reviewed the April 17, 2017 Memorandum Technical Memorandum 004 for the Seward Park Mixed-Use Development Project prepared by AKRF, Inc. (consultant), on behalf of the Office of the Deputy Mayor for Economic Development (DME), in coordination with the NYC Economic Development Corporation (EDC), NYC Department of Housing Preservation and Development (HPD) and Delancey Street Associates LLC (applicants), for the above referenced project. The applicant Delancey Street Associates LLC (DSA) is now proposing modifications to the building program for Sites 3, 4, 8, 9, and 10, and a specific building design for Site 8. With the proposed modifications, the same uses would be introduced on Sites 3, 4, 8, 9 and 10 as with the program analyzed in the 2012 FGEIS and subsequent Technical Memoranda 001, 002, and 003; however, there would be an additional 79 residential units, an additional 22,150 gsf of commercial space, and shifts in the make-up of commercial space and the mix of market-rate, affordable, and affordable senior housing units. As assessed in Technical Memorandum 003, the development of Sites 1-6, 8, and 9 is expected to be complete by 2022, as was analyzed in the 2012 FGEIS, with the development of Site 10 expected to be complete by 2024.

Per EDC's requests (11DME012M-13-2804201715044, 042, and 041), we have reviewed the submitted documentation and concluded that previous DEP conclusions which were made for the 2012 FGEIS and subsequent Technical Memoranda 001, 002, and 003 regarding to Air Quality, Noise and Construction analyses do not change.

If you have any questions, you may contact Mr. Alex Popov at (718) 595-4031.

Sincerely,

Chung Chan,  
Director  
Air Quality and Noise Review and Planning