Chapter 5: Open Space

A. INTRODUCTION

This chapter assesses the potential impacts of the proposed actions—minor modifications to the Two Bridges Large Scale Residential Development (LSRD)—to result in significant adverse impacts on open space resources, in accordance with the 2014 *City Environmental Quality Review (CEQR) Technical Manual*. Open space is defined in the *CEQR Technical Manual* as publicly accessible, publicly or privately owned land that is available for leisure, play, or sport or serves to protect or enhance the natural environment. An open space assessment should be conducted if a project would have a direct effect on open space, such as eliminating or altering a public open space, or an indirect effect, such as when a substantial new population could place added demand on an area's open spaces.

Together the proposed projects would result in three new mixed-use developments containing residential, retail, and community facility uses. The proposed projects would collectively result in the development of up to 2,775 residential units, which would be anticipated to generate approximately 5,836 new residents.[1] The three proposed projects would also contain a total of approximately 22,779 square feet (sf) of new publicly accessible and private open space. On Site 5, the existing private Rutgers Slip Open Space would be enlarged and reconstructed, and dedicated as publicly accessible open space. Across the three project sites, a total of approximately 80,020 sf of both publicly accessible and private open space would be altered with new amenities, such as new landscaping, paving, seating, and play areas.

In addition, the proposed projects may have effects on nearby open space related to air quality, noise, and shadows that may affect the use of those spaces. Therefore, an assessment of the proposed projects' direct and indirect effects on open space was performed. Direct effects include the proposed projects' effects on open spaces due to increased noise, air pollutant emissions, odor, or shadows. Indirect effects consist of the increase in the residential population resulting from the proposed projects, which has the potential to diminish the capacity of open space to serve the future population in the area.

PRINCIPAL CONCLUSIONS

The proposed projects would not directly displace any publicly accessible open space resources. The proposed projects would result in project-generated shadows impacts on two opens space resources—Cherry Clinton Playground and Lillian D. Wald Playground—as discussed in Chapter 6, "Shadows," and Chapter 21, "Mitigation." The reductions in the total, active, and passive open space ratios in the With Action condition would result in significant adverse open

[1] Using Manhattan Community District (CD) 3's average household size of 2.15 (source: Manhattan CD 3 Profile, U.S. Census Bureau) for the non-senior units and an average household size of 1.5 for the senior units.

space impacts based on a quantitative analysis of indirect effects, as set forth in the *CEQR Technical Manual*.

DIRECT EFFECTS

No publicly accessible open space resources would be physically displaced as a result of the proposed projects. In two cases, project-generated shadows would be substantial enough in extent and/or duration to significantly affect the use or vegetation of the open space resource: Cherry Clinton Playground on the December 21 analysis day (use, but not vegetation), March 21/September 21 analysis day (use and vegetation), and on the May 6/August 6 analysis day (use only); and the Lillian D. Wald Playground on the March 21/September 21 analysis day (use only). Further, the active areas of these two open space resources would be less affected by shadows than the passive areas (see Chapter 6, "Shadows"). Potential measures to mitigate the project-generated shadows impacts on open space resources are discussed in Chapter 6, "Shadows," and Chapter 21, "Mitigation." The proposed projects would not result in any significant adverse operational air quality or noise impacts affecting open space resources.

INDIRECT EFFECTS

The proposed projects would increase utilization of study area resources due to the introduction of a substantial new residential population. In the future with and without the proposed projects, the total, active, and passive open space ratios in the open space study area would remain below the City's median of 1.5 acres of total open space per 1,000 residents and the City's planning goal of 2.5 acres of total open space per 1,000 residents. With the proposed projects, the study area's total open space ratio would decrease by ~~7.36~~7.31 percent, the active open space ratio would decrease by ~~8.17~~8.06 percent, and the passive open space ratio would decrease by ~~6.45~~6.25 percent. According to the *CEQR Technical Manual*, an action may result in a significant adverse open space impact if it would reduce the open space ratio by more than 5 percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents. Therefore, the reductions in the total, active, and passive open space ratios with the proposed projects would result in a significant adverse open space impact based on quantitative analysis of indirect effects, as set forth in the *CEQR Technical Manual*.

According to the *CEQR Technical Manual*, projects that may result in significant quantitative impacts on open space resources are typically further assessed in a qualitative assessment to determine overall significance of the impact. While the proposed projects would result in an increase in demand for open space resources, they would also provide new and enhanced private open spaces for building residents. These open space amenities would help meet some of the residents' passive and active open space needs. On Site 5, the existing private Rutgers Slip Open Space would be dedicated as publicly accessible open space, resulting in approximately 33,550 sf (approximately 0.77 acres) of new publicly accessible open space. The Rutgers Slip Open Space would be enlarged and reconstructed with new amenities for both active and passive use, such as play equipment, basketball courts, walking paths, and seating. While the approximately 33,550 sf of dedicated publicly accessible open space that would be developed with the proposed projects would reduce the significant adverse open space impacts, it is not sufficient to avoid significant adverse open space impacts.

As described above, based on the quantitative analysis, which found that the decrease in the total, active, and passive open space ratios with the proposed projects would exceed the *CEQR Technical Manual* guidelines of five percent, the proposed projects would result in a significant

adverse indirect impact on open space. Potential mitigation measures for the open space impacts are described in Chapter 21, "Mitigation." As partial mitigation for the open space impact, the existing approximately 15,868 sf (approximately 0.36 acres) of private open space on Site 4 (4A/4B) would be dedicated as publicly accessible open space. In addition, ~~and include funding for the~~ renovation of existing open spaces in the vicinity of the project sites has been identified as a practicable mitigation measure. ~~Potential resources to be reconstructed are~~ Coleman Playground, Captain Jacob Joseph Playground, and Little Flower Playground have been proposed as potential resources to be reconstructed, as described in Chapter 21, "Mitigation."

B. METHODOLOGY

The methodology of the *CEQR Technical Manual* includes a consideration of both direct and indirect effects of the proposed projects.

DIRECT EFFECTS

According to the *CEQR Technical Manual*, a direct effects analysis should be performed if the proposed projects would directly affect open space conditions by causing the loss of public open space, changing the use of an open space so that it no longer serves the same user population, limiting public access to an open space, or increasing noise or air pollutant emissions, odor, or shadows that would temporarily or permanently affect the usefulness of a public open space. The proposed projects also can directly affect an open space by enhancing its design or increasing its accessibility to the public. As no publicly accessible open space resources would be physically displaced as a result of the proposed projects, this chapter uses information from Chapter 6, "Shadows," Chapter 15, "Air Quality," and Chapter 17, "Noise," to determine whether the proposed projects would directly affect any open space resources.

INDIRECT EFFECTS

As described in the *CEQR Technical Manual*, open space can be indirectly affected by a proposed action if a project would add enough population, either residential or non-residential, to noticeably diminish the capacity of open space in the area to serve the future population. The *CEQR Technical Manual* suggests that a detailed indirect effects analysis is necessary when a project would introduce 200 or more residents or 500 or more workers to an area; however, the thresholds for assessment are slightly different for areas of the City that have been identified as either underserved or well-served by open space. The project sites are not located within an area that has been identified as either underserved or well served; therefore, the 200 resident and 500 worker thresholds were applied in this analysis.

Because the proposed projects would generate more than 200 residents, an indirect effects assessment is warranted and is provided below. The proposed projects also would increase the number of workers in the surrounding area; however, since the number of workers generated by the projects would not approach the CEQR threshold of 500 workers, an assessment of the effects of new workers on open space resources is not warranted.

STUDY AREA

The *CEQR Technical Manual* recommends establishing study area boundaries as the first step in an open space analysis. The study area is based on the distance that users are likely to walk to an open space. According to the *CEQR Technical Manual*, residents use both passive and active

open spaces and are assumed to walk approximately 20 minutes, or up to ½-mile, to an open space. Because the proposed projects would introduce a new residential population to the area, the adequacy of open space resources was assessed for a ½-mile (residential) study area around the boundary of the Two Bridges LSRD. This study area was adjusted to include all census tracts with at least 50 percent of their area within the ½-mile boundary. This adjustment to the study area allows analysis of both the open spaces in the area, as well as population data.

The ½-mile open space study area for this assessment contains 11 census tracts: Tracts 2.01, 2.02, 6, 8, 10.01, 12, 14.01, 14.02, 16, 25, and 27 in Manhattan. **Figure 5-1** shows all census tracts included in the residential study area.

STUDY AREA POPULATIONS

Existing Conditions

The existing residential population of the study area was calculated using 2012–2016 American Community Survey (ACS) data.

Future without the Proposed Projects

As described in detail in Chapter 1, "Project Description," there are several developments anticipated to be completed in the study area by 2021 in the future without the proposed projects (the No Action condition). The residential population anticipated to be introduced to the study area by these projects was estimated by applying Manhattan Community District (CD) 3's average household size of 2.15 (source: Manhattan CD 3 Profile, U.S. Census Bureau) to the number of dwelling units included in the projects.

Future with the Proposed Projects

The population introduced by the proposed projects was estimated by using Manhattan CD 3's average household size of 2.15 (source: Manhattan CD 3 Profile, U.S. Census Bureau) for the non-senior units and an average household size of 1.5 for the senior units.

INVENTORY OF OPEN SPACE RESOURCES

The *CEQR Technical Manual* defines public open space as open space that is publicly or privately owned and is accessible to the public on a regular basis, either constantly or for designated daily periods of time. Open spaces that are only available for limited users or are not available to the public on a regular or constant basis are not considered public open space, but are considered in a qualitative assessment of open space impacts.

All publicly accessible open space resources in the study area were inventoried through field visits conducted in February 2017. Additional data were obtained from the New York City Department of Parks and Recreation (NYC Parks) and published environmental impact statements for projects in or near the study area. In addition to the open spaces located in the study area, open spaces located just outside of the study area were considered in the qualitative analysis, as they are available for use by residents living within the study area.

Information was gathered about the condition of each of the open space resources, types of facilities, levels of utilization, and accessibility. According to CEQR guidelines, open spaces were also described in terms of the amount of active and passive facilities present. Active open space is used for exercise, sports, or active children's play. Examples of active open space include playgrounds, athletic fields or courts, pools, and greenways. Passive open spaces allow

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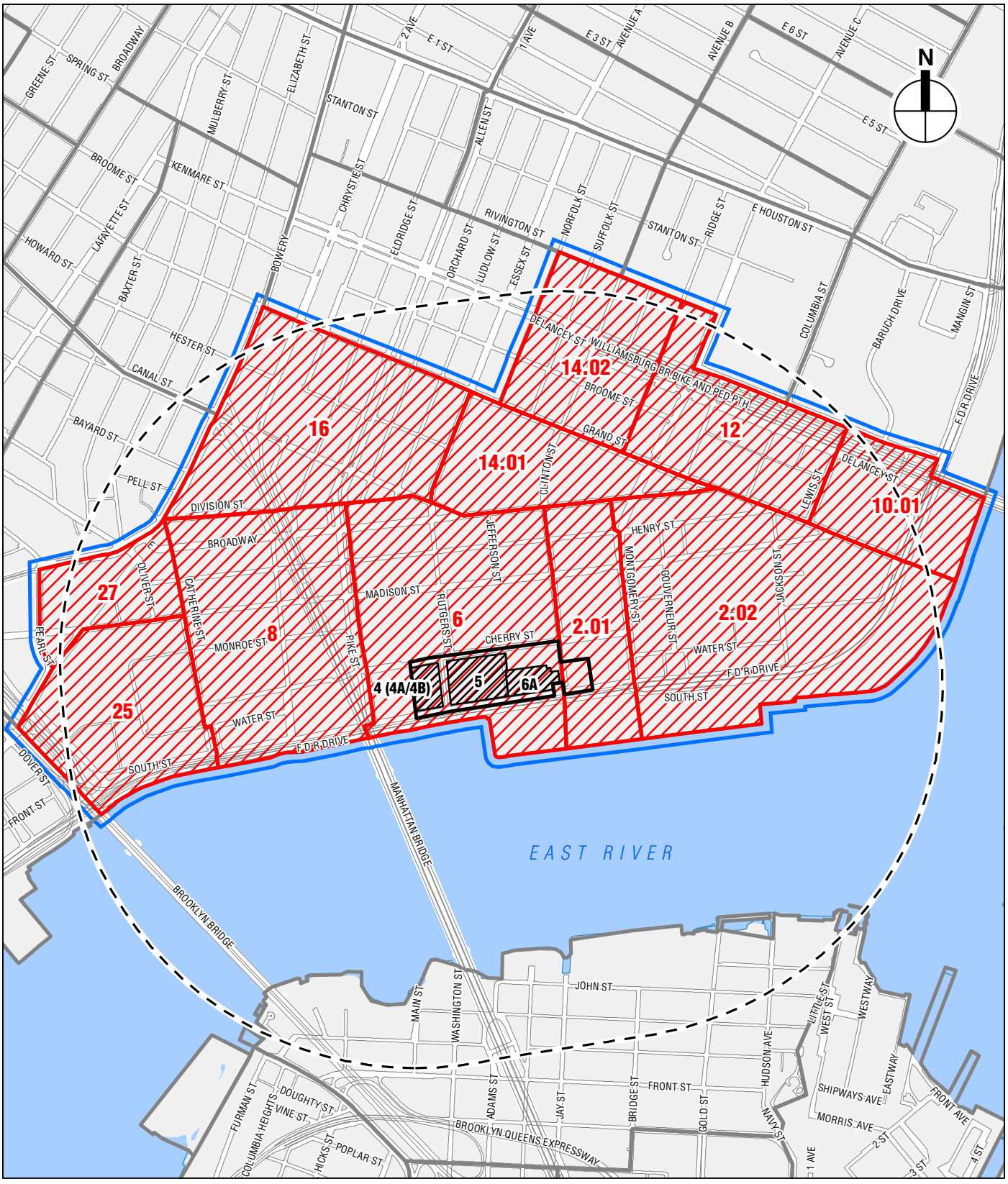

** A very small portion of Manhattan Census Tract 2.02 is in Brooklyn but does not contain any residential uses that would influence the open space analysis; therefore, it is not included in the residential open space study area.*

Open Space Study Area

TWO BRIDGES LSRD

Figure 5-1

for activities such as strolling, reading, sunbathing, and people watching. Examples of passive open space include plazas, walking paths, gardens, and certain lawns with restricted uses. Open space may be characterized as passive, active, or a mixture of active and passive. Esplanades are an example of open space that may be used both for active uses such as running and biking, and passive uses such as dog walking.

ADEQUACY OF OPEN SPACE RESOURCES

Comparison to City Guidelines

The adequacy of open space in the study area was quantitatively and qualitatively assessed for existing conditions, the No Action condition, and the With Action condition. According to CEQR guidelines, the quantitative assessment is based on ratios of usable open space acreage to the study area populations (the "open space ratios"). These ratios were then compared with the City's open space guidelines for residential populations. For residential populations, there is a City-wide median open space ratio of 1.5 acres per 1,000 residents, which is used as a guideline. In addition to this median ratio, the City has set an open space ratio planning goal of 2.5 acres per 1,000 residents, which includes 0.50 acres of passive space and 2.0 acres of active space per 1,000 residents. It should be noted that the City's open space planning goals are often not feasible for many areas of the City, and they are not considered an impact threshold. Rather, they are used as benchmarks to represent how well an area is served by its open space resources.

Impact Assessment

The determination of significant adverse impacts is based on how a project would change the open space ratios in the study area, as well as qualitative factors not reflected in the quantitative assessment. According to the *CEQR Technical Manual*, if the proposed projects would reduce an open space ratio and consequently result in overburdening existing facilities, or if it would substantially exacerbate an existing deficiency in open space, it may result in a significant impact on open space resources. In general, if a study area's open space ratios fall below City guidelines, and the proposed projects would result in a decrease in the open space ratio of more than five percent, it could be considered a substantial change. However, in areas which have been determined to be extremely lacking in open space, a reduction as small as one percent may be considered significant.

In addition to the quantitative factors cited above, the *CEQR Technical Manual* recommends consideration of qualitative factors in assessing the potential for open space impacts. These include the availability of nearby destination resources, the beneficial effects of new open space and recreational resources and improvements provided by a project, and the comparison of projected open space ratios with established City guidelines.

C. EXISTING CONDITIONS

STUDY AREA POPULATION

Based on the 2012–2016 ACS data, the 11 Census Tracts that make up the residential open space study area have a total residential population of 55,992 (see **Table 5-1** and **Figure 5-1**). A small sliver of Manhattan Census Tract 2.02 extends into Brooklyn; however, this portion of the census tract does not contain any residential uses or open spaces that would influence the open space analysis, and therefore it is not included in the residential open space study area. In addition, while other portions of Brooklyn fall within the ½-mile study area radius, they have not

been included in the quantitative analysis because they are not 50 percent within the ½-mile boundary and are well beyond walking distance, given the distances to bridges over the East River. Therefore, the study area only contains census tracts within Manhattan with at least 50 percent of their area within the ½-mile boundary.

Table 5-1
Study Area Residential Population

Census Tract	Population
2.01	2,670
2.02	8,016
6	10,765
8	9,299
10.01	1,485
12	3,726
14.01	3,199
14.02	2,902
16	7,219
25	5,311
27	1,400
Total	**55,992**

Note: See **Figure 5-1**
Source: 2012–2016 ACS. Accessed through Social Explorer in December 2017.

Table 5-2 summarizes the age distribution of the study area population with a comparison to Manhattan and New York City as a whole. As shown in **Table 5-2**, the study area has similar proportions of children and teenagers (19 years and younger) as compared to both Manhattan and New York City as a whole. The study area has a higher proportion of senior citizens (65 years and older) as compared to Manhattan and New York City.

Table 5-2
Study Area Residential Population Age Distribution

	Study Area		Manhattan		New York City	
Age Category	Persons	Percent	Persons	Percent	Persons	Percent
Under 5 Years	1,953	3.49%	82,024	5.02%	555,383	6.56%
5 to 9 Years	2,575	4.60%	62,937	3.85%	487,643	5.76%
10 to 14 Years	2,638	4.71%	59,514	3.64%	466,493	5.51%
15 to 19 Years	2,557	4.57%	72,486	4.43%	479,928	5.67%
20 to 64 Years	34,087	60.88%	1,122,856	68.68%	5,373,184	63.50%
65 Years and over	12,182	21.76%	235,172	14.38%	1,099,330	12.99%
Total	55,992	100.00%	1,634,989	100.00%	8,461,961	100.00%

Note: Percent totals may not sum due to rounding.
Source: 2012–2016 ACS. Accessed through Social Explorer in January 2017.

Given the range of age groups present in the study area population, the study area has a need for various kinds of active and passive recreation facilities, including open space features that can be used by children and adults. Within a given area, the age distribution of a population affects the way open spaces are used and the need for various types of recreational facilities. Typically, children four years old or younger use traditional playgrounds that have play equipment for toddlers and preschool children. Children aged five through nine typically use traditional playgrounds, as well as grassy and hard-surfaced open spaces, which are important for activities such as ball playing, running, and skipping rope. Children aged 10 through 14 typically use playground equipment, court spaces, and ball fields. Teenagers' and young adults' needs tend toward court game facilities, such as basketball and field sports. Adults (aged 20 to 64) continue to use court game facilities and sports fields, along with more individualized recreation such as

rollerblading, biking, and jogging that require bike paths, promenades, and vehicle-free roadways. Adults also gather with families for picnicking, active informal sports such as Frisbee, and recreational activities in which all ages can participate. Senior citizens (65 years and older) engage in active recreation such as handball, tennis, gardening, fishing, walking, and swimming, as well as recreational activities that require passive facilities.

STUDY AREA OPEN SPACES

There are no public open spaces located on the project sites; however, as described in Chapter 1, "Project Description," Site 4 (4A/4B) has approximately 15,868 sf (0.36 acres) of private open space and Site 5 has approximately 64,152 sf (1.47 acres) of private open space, including the private, approximately 22,440-sf Rutgers Slip Open Space and the private, approximately 29,664-sf courtyard area (see **Figures 5-2 and 5-3**). These open spaces include seating areas, play equipment, trees, basketball courts, and landscaping. Since these open space resources are private open spaces, they are not included in the public open space acreage totals provided below; however, they help to meet the open space needs of residents on the project sites. Site 6A does not have any existing private or public open space.

Within the ½-mile residential open space study area, there are 30 publicly accessible open spaces (see **Figure 5-4**). These open spaces include publicly accessible open spaces and privately owned spaces that are open to the public. Altogether, there is a total of 46.75 acres of publicly accessible open space in the study area, of which 30.03 acres are considered active recreational open space and 16.72 acres are considered passive recreational open space (see **Table 5-3**).

East River Park is the largest open space resource in the study area. The park offers a wide array of amenities for both active and passive use, including a promenade, a bikeway, seating, lawn areas, playgrounds, an amphitheater, baseball fields, basketball courts, tennis courts, soccer fields, a running track, and other athletic courts and fields. The park is 45.88 acres in size, of which approximately 14.96 acres are within the residential study area (9.72 acres of active space, 5.24 acres of passive space). As described below, the City is currently progressing design and environmental review for the East Side Coastal Resiliency (ESCR) Project. It should be noted that East River Park is currently anticipated to experience temporary disruption associated with construction of the ESCR project, which is slated to begin construction in ~~2019~~2020.

The East River Esplanade offers both active and passive recreational open space, including bicycle and pedestrian paths, exercise equipment, benches, and bocce ball courts. Approximately 3.82 acres associated with the East River Esplanade are located within the residential study area, of which 1.91 acres are assumed to be active open space and 1.91 acres are assumed to be passive open space. Corlears Hook Park also offers a mix of active and passive recreational open space. The park is approximately 4.36 acres, of which 1.31 acres are assumed to be active and 3.05 are assumed to be passive open space. Within the park are basketball courts, fitness equipment, and playgrounds. William H. Seward Park comprises 3.36 acres of open space, and is located north of the project sites at the intersection of Essex and Canal Streets and East Broadway. The park includes 2.36 acres of active open space, including basketball and volleyball courts, playgrounds, and spray showers, and 1.00 acres of passive recreational open space, including walking paths and benches.

Other City-owned open spaces within the residential study area include the Alfred Smith Park, Luther Gulick Playground, Cherry Clinton Playground, Coleman Square Playground, Martin F. Tanahey Playground, and the southern portion of Sara D. Roosevelt Park. These resources offer

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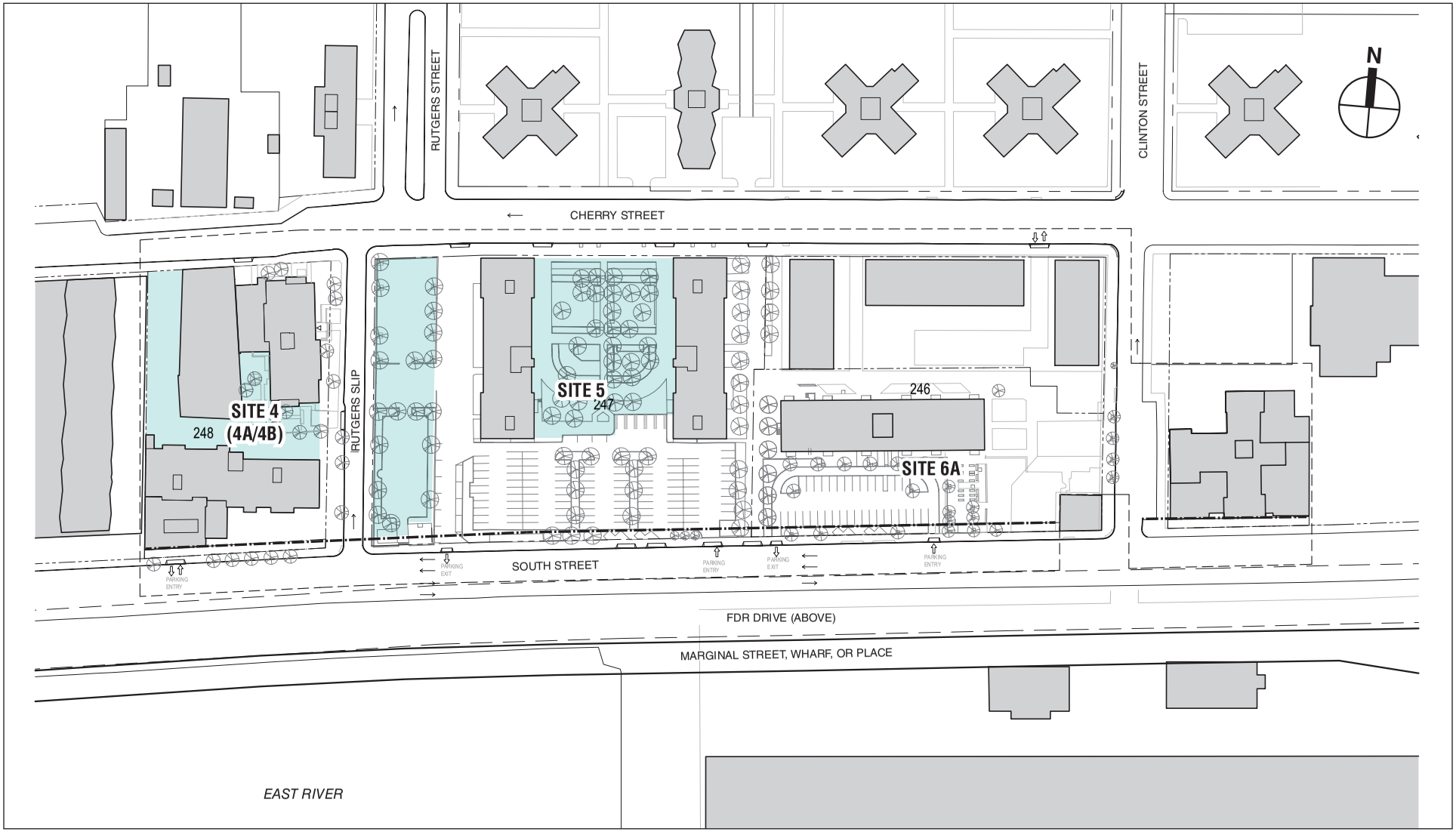


Source: SHoP Architects PC

Existing Private Open Space

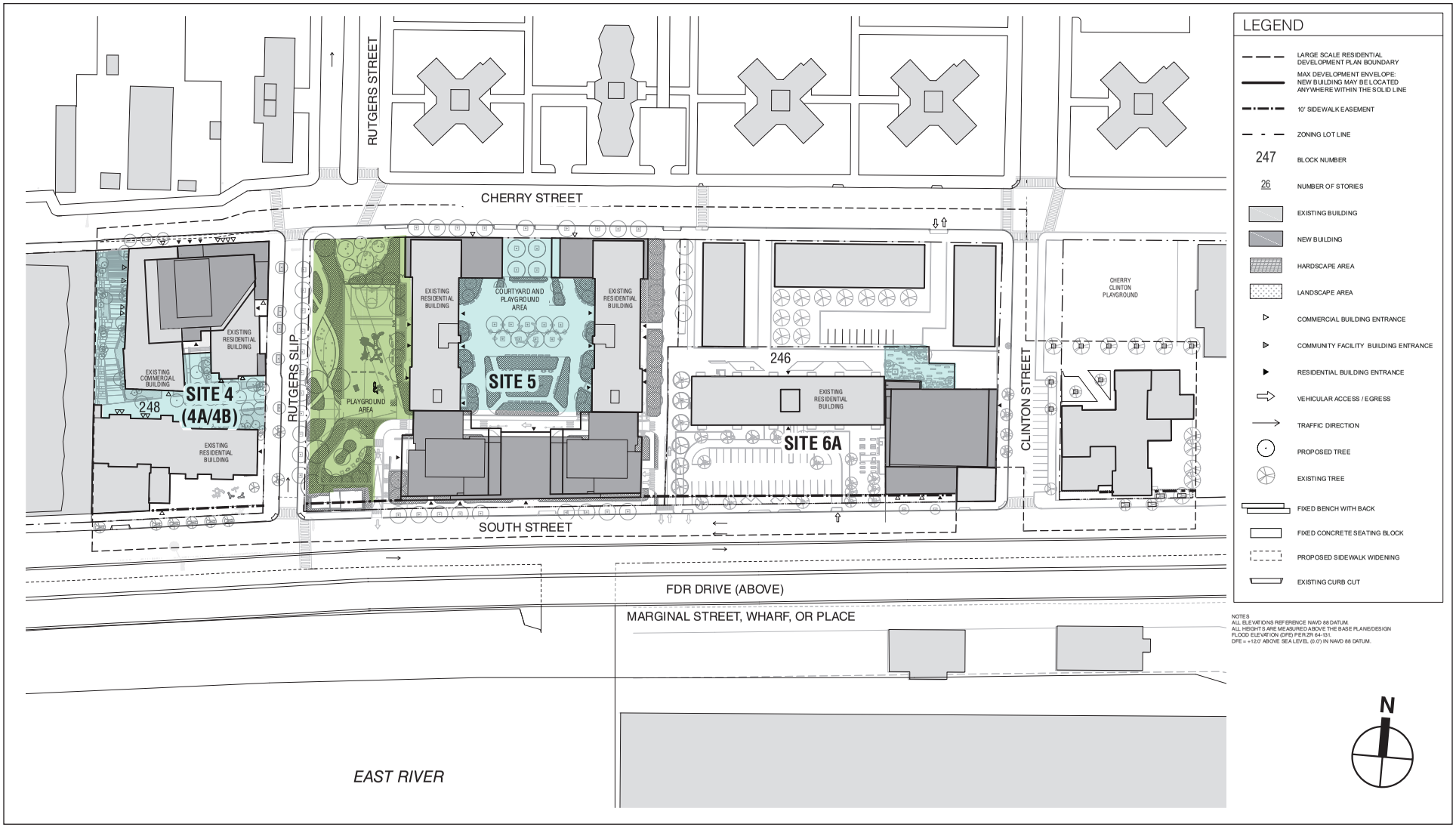
0 200 FEET

NOTE: Open Space as Shown are Approximate

Existing Conditions Site Plan
All Projects

TWO BRIDGES LSRD

Figure 5-2



Source: SHoP Architects PC

NOTES:
CERTAIN ELEMENTS OF BUILDING DESIGN, SUCH AS THE MAXIMUM BUILDING ENVELOPE, WILL BE CONTROLLED UNDER THE PROPOSED MINOR MODIFICATIONS TO THE TWO BRIDGES LSRD APPROVALS.

OPEN SPACE DELINEATIONS AS SHOWN ARE APPROXIMATE.

* PER CHAPTER 21, MITIGATION," THE SITE 4 (4A/4B) OPEN SPACE WOULD BE DEDICATED AS PUBLICLY ACCESSIBLE.

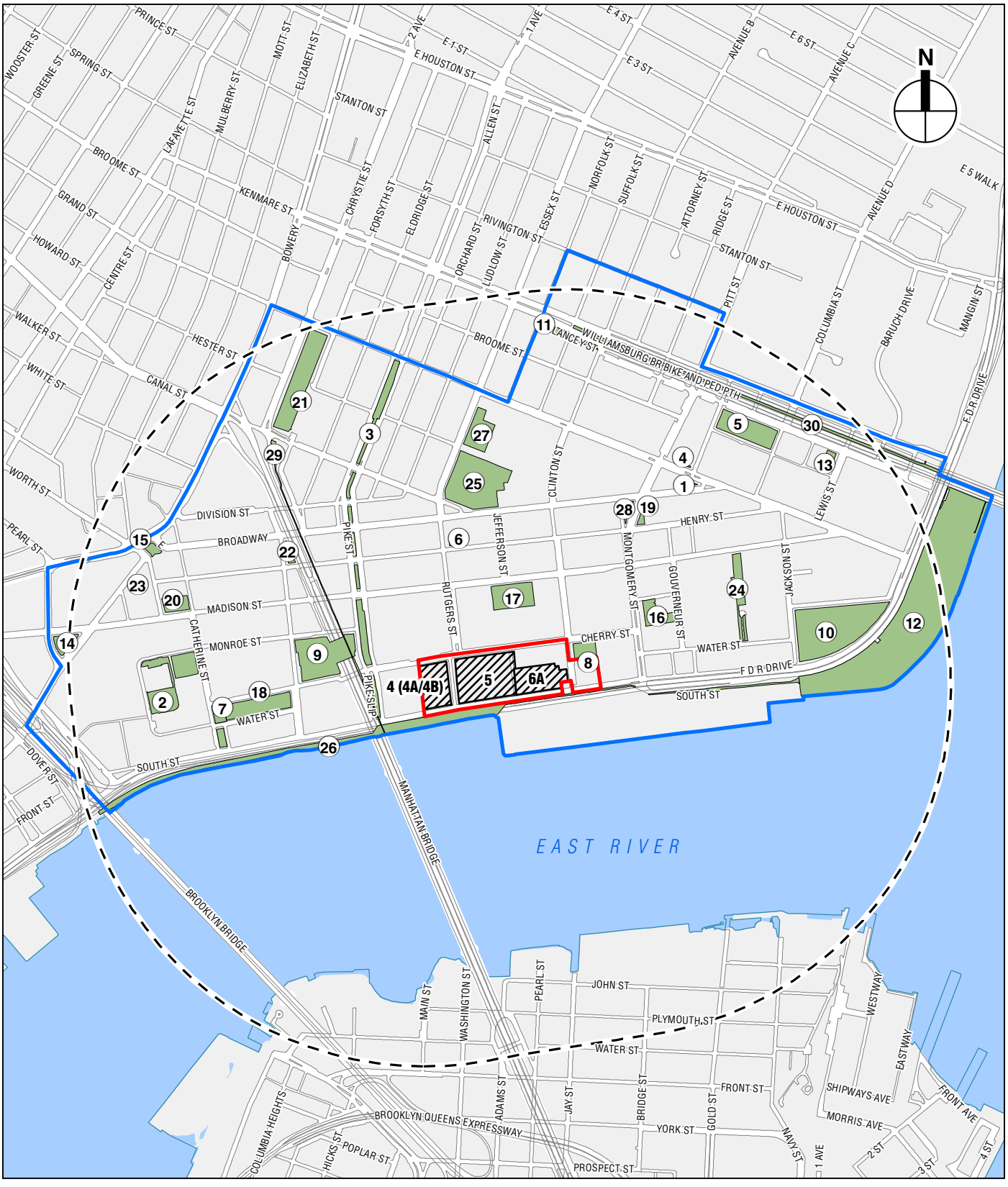
0 200 FEET

*Enhanced Existing and New Private Open Space

Enhanced Existing and New Open Space Made Publicly Accessible

TWO BRIDGES LSRD

Proposed Site Plan
All Projects
Figure 5-3



Open Space Resources

TWO BRIDGES LSRD

Figure 5-4

a range of active and passive recreational space, including basketball courts, handball courts, playgrounds, and seating areas.

Table 5-3
Existing Residential Study Area Open Spaces

Ref. No.1	Name	Location	Owner/ Agency	Features	Total Acres	Active Acres	Passive Acres	Condition/ Utilization
1	Ahearn Park	Grand St., E. Broadway, and Willet St.	NYC Parks	Public square with seating	0.09	0.00	0.09	Fair/ Moderate
2	Alfred Smith Park	Catherine St. and Monroe St.	NYC Parks	Playgrounds, monuments, comfort station, plaza, seating, basketball courts, handball courts, recreational center	1.75	1.31	0.44	Good/ Moderate
3	Allen Street Center/Pike Slip Greenway	Between Delancey St. and FDR Dr. along Allen St. and Pike St.	NYC Parks (Allen Street portion), DOT (Pike Slip portion)	Bikeway, walkway, benches, tables	2.26	0.66	1.60	Good/Poor (Partial - Madison to Hester portion)/ Moderate
4	Abron's Art Center	466 Grand St.	Henry Street Settlement	Seating area	0.10	0.00	0.10	Good/Low
5	Luther Gulick Playground	Columbia St., Delancey St., and Bialystoker Pl.	NYC Parks	Basketball and handball courts, playgrounds, spray showers	1.45	1.23	0.22	Good/Low
6	Captain Jacob Joseph Playground	Rutgers St. and Henry St.	NYC Parks	Playgrounds, seating	0.14	0.14	0.00	Good/ Moderate
7	Catherine Slip Park	Catherine Slip between Cherry and South Sts.	NYC Parks	Landscaping, benches	0.25	0.00	0.25	Good/ Moderate
8	Cherry Clinton Playground	Corner of Cherry St. and Clinton St.	NYC Parks	Basketball and handball courts, fitness equipment	0.48	0.41	0.07	Good/ Moderate
9	Coleman Square Playground	Cherry St., Pike St., Monroe St	NYC Parks	Baseball field, handball courts, playground, skate park and spray shower	2.61	2.61	0.00	Fair/Low
10	Corlears Hook Park	Jackson St., Cherry St., FDR Drive	NYC Parks	Baseball fields, playgrounds, dog-friendly areas, spray showers	4.36	1.31	3.05	Good/ Moderate
11	Delancey Plaza	Delancey St. between Clinton and Norfolk Sts.	DOT	Passive seating, movable chairs, benches, planters	0.36	0.00	0.36	Good/ Moderate
12	East River Park[2]	Montgomery St. to E. 12 St., FDR Drive	NYC Parks	Passive seating, lawn areas, playgrounds with water fountains, picnic and barbequing areas, amphitheater, baseball fields, basketball courts, tennis courts, soccer fields, a running track, bicycling and greenways	14.96	9.72	5.24	Excellent/ High
13	Hillman Playground	Lewis and Delancey Sts.	NYC Parks/ DOE	Basketball courts, playground	0.24	0.24	0.00	Fair/Low
14	James Madison Plaza	Pearl St., Madison St., and St James Pl.	NYC Parks	Monument, benches, plaza, game tables	0.36	0.00	0.36	Good/Low
15	Kimlau Square	Chatham Sq., Oliver St., and E. Broadway	NYC Parks	Monuments, benches, pathway	0.24	0.00	0.24	Good/ Moderate
16	Lillian D. Wald Playground	Cherry St., Montgomery St., and Gouverneur St.	NYC Parks	Basketball courts, fitness equipment and playgrounds	0.68	0.68	0.00	Good/ Moderate
17	Little Flower Playground	Madison St. between Rutgers and Clinton Streets	NYC Parks/ NYCHA	Playground, sitting area	1.29	1.29	0.00	Good/ Moderate

Table 5-3 (cont'd)
Existing Residential Study Area Open Spaces

Ref. No.[1]	Name	Location	Owner/ Agency	Features	Total Acres	Active Acres	Passive Acres	Condition/ Utilization
18	Martin F. Tanahey Playground	Cherry St. to Waters St., W. Catherine Slip to Market Slip	NYC Parks	Basketball courts, playgrounds, roller hockey, seating area	1.25	0.94	0.31	Fair/Low
19	MLK Jr. Community Park	Pitt and Henry Sts.	Henry Street Settlement	Garden, benches, gazebo	0.14	0.00	0.14	Good/Low
20	Playground 1	Madison St. between Catherine and Oliver Sts.	NYC Parks	Basketball courts, playgrounds, spray showers	0.44	0.44	0.00	Good/Low
21	Sara D. Roosevelt Park[3]	E. Houston St. to Canal St., between Chrystie and Forsyth Sts.	NYC Parks	Basketball, handball, and volleyball courts, playgrounds, spray showers, soccer fields, comfort stations	2.39	1.92	0.48	Good/High
22	Sophie Irene Loeb Playground	Henry St., Market St., E. Broadway	NYC Parks	Playground, seating areas	0.12	0.06	0.06	Good/Low
23	St. James Triangle	St. James Pl. and Oliver St.	NYC Parks	Pathway, bench, plants	0.04	0.00	0.04	Fair/Low
24	Vladeck Park	668 Waters St.	NYC Parks/ NYCHA	Landscaping, seating and pathways, playground	0.79	0.16	0.63	Fair/Low
25	William H. Seward Park	28 Essex St.	NYC Parks	Basketball and volleyball courts, playgrounds, spray showers	3.36	2.36	1.0	Good/ Moderate
26	East River Esplanade[4]	South St.	NYC Parks	Bike and pedestrian paths, benches	3.82	1.91	1.91	Good/ High
27	Seward H.S. Fields	28 Essex St.	DOE	Basketball, handball, tennis courts, track and field track	1.01	1.01	0.00	Good/ Moderate
28	Montgomery Street Green Street	Montgomery St., Samuel Dickstein Plaza, E. Broadway	NYC Parks	Landscaping, benches	0.13	0.00	0.13	Good/Low
29	Manhattan Bridge Bikeway	Manhattan Bridge between East River and Canal St.	DOT	Bike path	0.42	0.42	0.00	Good/ High
30	Williamsburg Bridge Bikeway	Williamsburg Bridge between East River and Suffolk St.	DOT	Bike path	1.21	1.21	0.00	Good/ High
Study Area Total[5]					**46.75**	**30.03**	**16.72**	

Notes:
[1] See **Figure 5-2**
[2] The acreage calculation for East River Park includes only the area located within the residential study area.
[3] The acreage calculation for Sara D. Roosevelt Park includes only the area located within the residential study area.
[4] The acreage calculation for East River Esplanade includes only the area located within the residential study area.
[5] Several New York City Housing Authority (NYCHA) housing developments with open spaces are located in the residential study area. However, open space within a public housing development is primarily meant for use by residents of that housing development. Therefore, for a conservative analysis, these areas were not included in the open space inventory and quantitative analysis. In addition, DOE resources that are not accessible to the public on a regular basis have also been excluded from the open space inventory and quantitative analysis.
Sources: NYC Parks; AKRF Field Survey February 2017; Select open space acreages were calculated using GIS data.

Several New York City Housing Authority (NYCHA) housing developments with open spaces are located in the residential study area. However, open space within a public housing development is primarily meant for use by residents of that housing development. Therefore, for a conservative analysis, these areas were not included in the open space inventory and quantitative analysis. Open spaces that are jointly owned by NYC Parks and NYCHA—Little Flower Playground and Vladeck Park—were included in the open space inventory and quantitative analysis.

The New York City Department of Education's (DOE) Seward High School Fields are open to the public when school is not in session and offer approximately one acre of active open space with basketball, handball, and tennis courts, as well as a track. DOE resources that are not accessible to the public on a regular basis were not included in the open space inventory and quantitative analysis.

The remaining open spaces within the study area are a mix of publicly and privately owned parks, plazas, and seating areas. Bike paths connecting to the Manhattan and Williamsburg Bridges offer additional active recreational space. It should also be noted that Henry M. Jackson Playground and Sol Lain Playground are currently under reconstruction and therefore have not been included in the existing conditions calculations of the quantitative analysis.

ADEQUACY OF OPEN SPACES

As shown in **Table 5-4**, with a residential population of 55,992, the residential study area has a total open space ratio of 0.835 acres per 1,000 residents, which is lower than the City's median of 1.5 acres per 1,000 residents. **Table 5-4** also compares the existing open space ratios to the City's planning goal of 2.5 total acres of open space per 1,000 residents (with 2.0 acres of active open space and 0.5 acres of passive open space per 1,000 residents). The study area currently has 0.536 acres of active open space and 0.299 acres of passive open space per 1,000 residents, below the City's goals of 2.0 acres of active open space and 0.5 acres of passive open space per 1,000 residents.

Table 5-4
Existing Conditions: Adequacy of Open Space Resources

Total Population		Open Space Acreage			Open Space Ratios			Open Space Goals		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Residential (½-Mile) Study Area										
Residents	55,992	46.75	30.03	16.72	0.835	0.536	0.299	2.5	2.0	0.5

Note: Ratios in acres per 1,000 people
Sources: 2012–2016 ACS data; NYC Parks; AKRF Field Survey, February 2017

D. FUTURE WITHOUT THE PROPOSED PROJECTS

As described in Chapter 1, "Project Description," absent the proposed actions, it is assumed that the project sites would continue in their existing conditions, with the existing approximately 22,440-sf Rutgers Slip Open Space on Site 5 remaining private open space and the existing retail in the Lot 76 building (235 Cherry Street) on Site 4 (4A/4B) being re-tenanted. No new development would occur.

STUDY AREA POPULATION

There are numerous development projects anticipated to be completed within the residential open space study area by 2021, as described in Chapter 1, "Project Description." Overall, approximately ~~2,547~~2,817 residential units are anticipated to be completed within the residential open space study area. Applying the CD 3 average household size of 2.15 persons per household, these projects are expected to introduce an estimated ~~5,476~~6,057 new residents to the study area. Therefore, with these new residents, the residential population within the study area is anticipated to increase to ~~61,468~~62,049 in the No Action condition.

No substantial changes to the age distribution of the residential population are expected by 2021, and the anticipated development projects do not include any housing facilities (such as dormitories or senior housing) that would alter the distribution toward the teenager and young adult or senior citizen cohorts. The estimated number of residents in each age cohort, as shown in **Table 5-5**, is based on the percent share for that age cohort in the 2012–2016 ACS data.

Table 5-5
No Action Condition: Study Area Residential Population Age Distribution

Age Category	Study Area	
	Persons	Percent
Under 5 Years	2,144	3.49%
5 to 9 Years	2,827	4.60%
10 to 14 Years	2,896	4.71%
15 to 19 Years	2,807	4.57%
20 to 64 Years	37,421	60.88%
65 Years and over	13,373	21.76%
Total	61,468	100.0%

Notes: Percent totals may not sum due to rounding.
Sources: 2012–2016 ACS data; AKRF, Inc.

STUDY AREA OPEN SPACES

Several reconstructed or new open space resources have recently been completed or are expected to be completed in the study area by the 2021 analysis year. As described above, the Henry M. Jackson Playground and Sol Lain Playground are currently under reconstruction and have not been included in the existing conditions calculations for the quantitative analysis. Completed in summer 2017, the Henry M. Jackson Playground has been reconstructed with new basketball courts, handball courts, and plantings; therefore, the 0.61 active acres of open space are now available to residents in the No Action condition. The Sol Lain Playground ~~is anticipated to be~~was reopened in fall 2017 ~~and will include~~with reconstructed playgrounds, basketball courts, multi-purpose play areas, and benches. Therefore, the reopening of Sol Lain Playground ~~will~~ offers an additional 0.89 acres of active open space to study area residents in the No Action condition.

In addition, the New York City Department of Transportation (DOT) has ~~plans to~~ completed Forsyth Plaza between Division and Canal Streets with approximately 0.27 acres of passive open space, including plantings, seating, and public art work. Pier 35 and Pier 42 are being redeveloped as a recreational pier and park that will connect to East River Park. Pier 35 and Pier 42 are anticipated to be complete by 2021 and will offer an additional 5.07 acres of passive open space with flat lawn areas, pavement walkways, picnic tables, and outdoor grills. Adjacent to Pier 42, Pier 36 already attracts large groups of boat riders and contains event space and Basketball City (an indoor basketball facility); however, this is not considered a publicly accessible recreational open space. Seward Park also ~~is anticipated to provide~~ recently completed approximately 0.34 acres of new publicly accessible open space, of which 0.18 acres are assumed to be passive with seating areas and 0.16 acres are assumed to be active with a play area for children. In addition, a new approximately 1.15-acre soccer field has been proposed to be developed at P.S. 184 (Shuang Wen School), under the New York City Soccer Initiative. Since this project is only in the planning stages and may not be complete by 2021, and since the potential accessibility of this space to the public is unclear at this time, for a conservative analysis, this open space has not been included in the quantitative analysis for the No Action

condition. A portion of the East River Esplanade—under the FDR between Catherine Slip and Pike Street—is anticipated to be expanded and completed by 2021. This area is expected to offer an additional approximately 1.23 acres of recreational open space and will include new seating and play equipment along the waterfront.

Overall, the total open space acreage within the study area is anticipated to increase by 8.41 acres, of which 2.28 acres will be active open space and 6.14 acres will be passive open space. Altogether, in the No Action condition, there will be a total of 55.16 acres of open space, of which 32.31 acres will be active and 22.86 acres will be passive.

Several other improvements to open spaces have recently occurred or are anticipated to occur within the study area; however, these projects are not expected to change the amount of open space in the study area and therefore will not impact the quantitative open space analysis. Some of these improvements include the reconstruction of the Luther Gulick Playground, the reconstruction of comfort stations at Sara D. Roosevelt Park and Corlears Hook Park, and the reconstruction of portions of Seward Park. While these projects will not change the quantitative analysis, they will provide improved open space amenities for users within the study area.

COASTAL RESILIENCY PROGRAMS

New York City is currently in the process of planning and approving the Lower Manhattan Coastal Resiliency (LMCR) Project, a flood-proofing and park-building measure that extends from Montgomery Street, one block north of the proposed projects, around Lower Manhattan to the north of Battery Park City. The City has begun working on the design and environmental review. In addition, the City is currently designing the ESCR project, a similar effort starting at Montgomery Street northward to East 25th Street, and is currently in the preliminary design phase and undergoing environmental review. Through these projects, the City is proposing to install a flood protection system within City parkland and streets. The flood protection system would include a combination of berms, floodwalls, and possibly deployable systems with other infrastructure improvements to reduce flooding. In the No Action condition, both the LMCR and ESCR programs are expected to have progressed to protect the shoreline and low-lying upland areas. It is possible that some public open spaces within the study area, such as East River Park, could be affected by these programs.

ADEQUACY OF OPEN SPACES

In the No Action condition—with the additional residents and increase in publicly accessible open space—the total open space ratio will increase to 0.897 acres per 1,000 residents and would remain below the City's median of 1.5 acres per 1,000 residents and the City's planning goal of 2.5 acres per 1,000 residents. The active open space ratio will decrease to 0.526 acres per 1,000 residents, and will remain below the City's planning goal of 2.0 acres per 1,000 residents, while the passive open space ratio will increase to 0.372 acres per 1,000 residents, but would remain below the City's planning goal of 0.5 acres per 1,000 residents. **Table 5-6** summarizes the open space ratios in the No Action condition.

Table 5-6
No Action Condition: Adequacy of Open Space Resources

Total Population	Open Space Acreage			Open Space Ratios			Open Space Goals		
	Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Residential (½-Mile) Study Area									
Residents	~~61,468~~62,049	55.16	32.31	22.86	~~0.897~~0.889	~~0.526~~0.521	~~0.372~~0.368	2.5	2.0	0.5

Note: Ratios in acres per 1,000 people
Sources: 2012–2016 ACS data; NYC Parks; AKRF Field Survey February 2017

E. FUTURE WITH THE PROPOSED PROJECTS

DIRECT EFFECTS ON OPEN SPACES

The proposed projects would not directly displace any publicly accessible open space. The potential for the proposed projects to result in shadows, air quality, and noise effects on open spaces in the study area is discussed in Chapter 6, "Shadows," Chapter 15, "Air Quality," and Chapter 17, "Noise." As detailed in Chapter 6, "Shadows," in two cases, project-generated shadow would be substantial enough in extent and/or duration to significantly affect the use or vegetation of the resource: Cherry Clinton Playground on the December 21 analysis day (use, but not vegetation), March 21/September 21 analysis day (use and vegetation), and on the May 6/August 6 analysis day (use only); and the Lillian D. Wald Playground on the March 21/September 21 analysis day (use only). Further, the active areas of these two open space resources would be less affected by shadows than the passive areas. Potential measures to mitigate the project-generated shadows impacts on these two open space resources are described in Chapter 21, "Mitigation," and include dedicated funding for enhanced maintenance at these two playgrounds. The proposed projects would not result in any significant adverse operational air quality or noise impacts affecting open space resources.

INDIRECT EFFECTS ON OPEN SPACES

STUDY AREA POPULATION

The proposed projects would collectively result in the development of up to ~~2,775~~2,817 residential units and approximately 22,779 sf of new publicly accessible and private open space and alterations to approximately 80,020 sf of existing private open space on the project sites (see **Figures 5-2, 5-3, and 5-7**). The proposed projects would be anticipated to generate approximately ~~5,836~~6,057 new residents.[2] As a result, in the future with the proposed projects, the study area's residential population would increase to ~~67,304~~67,885. The age distribution of the residential population in the study area would be altered slightly by the proposed projects, as a result of the 200 senior housing units that would be introduced as part of the proposed projects. Specifically, out of the total population of 5,836 residents that would be introduced by the proposed projects, an estimated 1,504 residents would be in the senior citizen (65 years and

[2] Using Manhattan CD 3's average household size of 2.15 (source: Manhattan CD 3 Profile, U.S. Census Bureau) for the non-senior units and an average household size of 1.5 for the senior units.

11.20.18

Source: SHoP Architects PC

NOTES:
CERTAIN ELEMENTS OF BUILDING DESIGN, SUCH AS THE MAXIMUM BUILDING ENVELOPE, WILL BE CONTROLLED UNDER THE PROPOSED MINOR MODIFICATIONS TO THE TWO BRIDGES LSRD APPROVALS.

OPEN SPACE DELINEATIONS AS SHOWN ARE APPROXIMATE.

* PER CHAPTER 21, MITIGATION," THE SITE 4 (4A/4B) OPEN SPACE WOULD BE DEDICATED AS PUBLICLY ACCESSIBLE.

0 100 FEET

*Enhanced Existing and New Private Open Space

Site 4 (4A/4B) Proposed Site Plan

11.20.18

Source: SHoP Architects PC

View west from near Rutgers Slip through the grove area **1**

Source: SHoP Architects PC

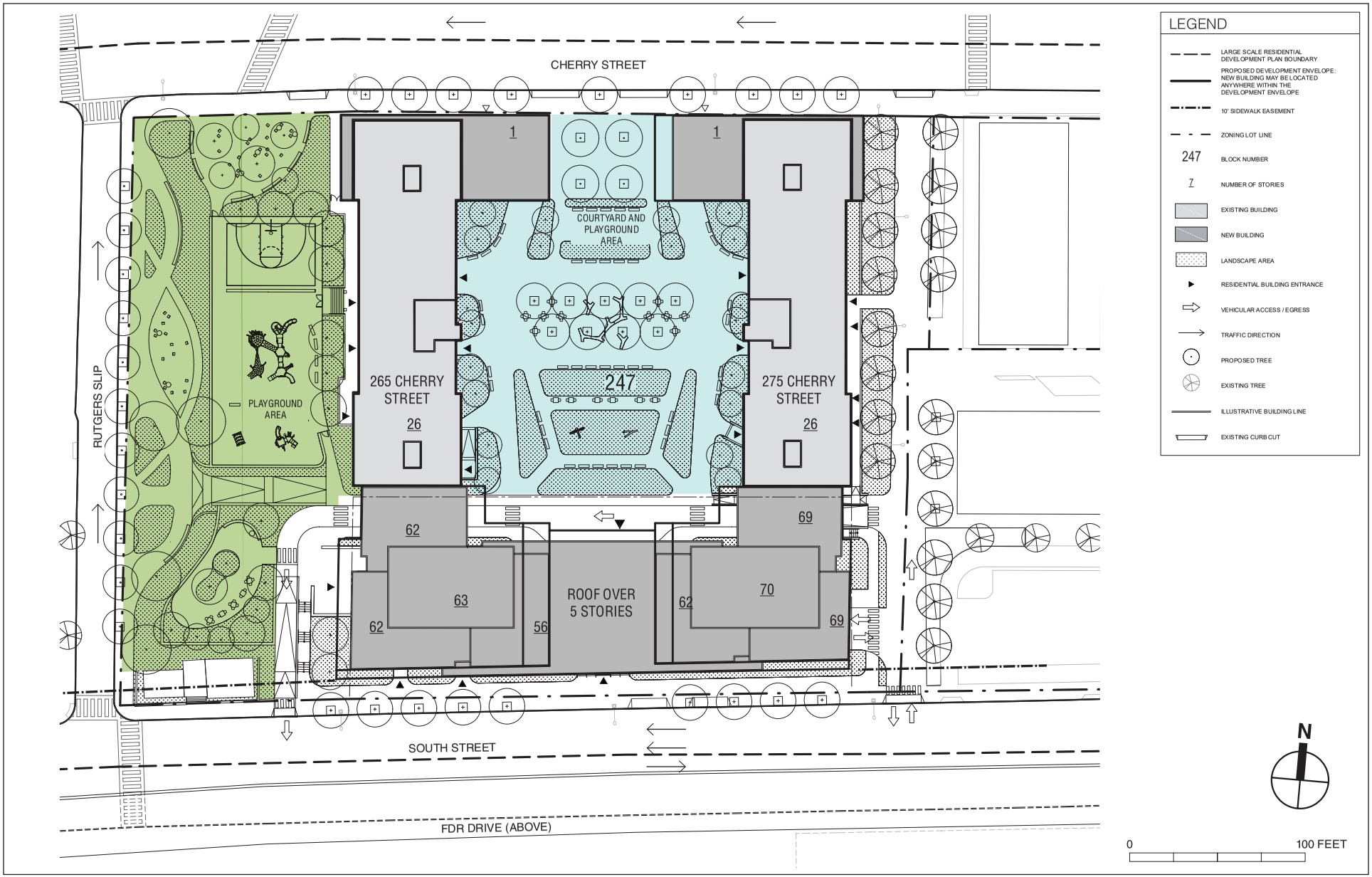
NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

View northeast from the project site across the grove area **2**

Site 4 (4A/4B)
Illustrative Renderings

TWO BRIDGES LSRD

Figure 5-6



Source: Handel Architects LLP

NOTES:
CERTAIN ELEMENTS OF BUILDING DESIGN, SUCH AS THE MAXIMUM BUILDING ENVELOPE, WILL BE CONTROLLED UNDER THE PROPOSED MINOR MODIFICATIONS TO THE TWO BRIDGES LSRD APPROVALS.

OPEN SPACE DELINEATIONS AS SHOWN ARE APPROXIMATE.

Enhanced Existing and New Private Open Space

Enhanced and New Open Space Made Publicly Accessible

Site 5
Proposed Site Plan

Figure 5-7

older) cohort.[3] Therefore, in the With Action condition, the age distribution of the study area population would be weighted slightly more toward senior citizens as compared to the No Action condition. **Table 5-7** shows the estimated number of residents in each age cohort in the With Action condition.

Table 5-7
With Action Condition: Study Area Residential Population Age Distribution

Age Category	Proposed Projects		Study Area	
	Persons	Percent	Persons	Percent
Under 5 Years	193	3.31%	2,337	3.49%
5 to 9 Years	255	4.36%	3,081	4.60%
10 to 14 Years	261	4.47%	3,157	4.71%
15 to 19 Years	253	4.33%	3,060	4.57%
20 to 64 Years	3,370	57.75%	40,791	60.88%
65 Years and Over	1,504	25.78%	14,878	21.76%
Total	**5,836**	**100%**	**67,304**	**100%**

Note: Percent totals may not sum due to rounding.
Sources: 2012–2016 ACS data; AKRF, Inc.

STUDY AREA OPEN SPACES

With the proposed projects, on Site 5 the existing approximately 22,440 sf of private Rutgers Slip Open Space would be enlarged by approximately 11,110 sf, totaling approximately 0.77 acres (approximately 33,550 sf), which would be dedicated as publicly accessible open space. The enlarged and reconstructed Rutgers Slip Open Space would include amenities for both active and passive use, such as play equipment, basketball courts, walking paths, and seating. Overall, approximately 0.21 acres would be dedicated for active recreational uses and 0.56 acres would be dedicated for passive recreational uses. With the dedication of Rutgers Slip Open Space as publicly accessible open space on Site 5, the study area would provide 55.93 total acres of open space, comprising 32.52 acres of active recreational open space and 23.42 acres of passive recreational open space.

ADEQUACY OF OPEN SPACES

In the With Action condition, with the additional residents introduced by the proposed projects, the total open space ratio in the study area would decrease to ~~0.831~~0.824 acres per 1,000 residents (from ~~0.897~~0.889 in the No Action condition). The active open space ratio would decrease to ~~0.483~~0.479 acres per 1,000 residents (from ~~0.526~~0.521 in the No Action condition), and the passive open space ratio would decrease to ~~0.348~~0.345 acres per 1,000 residents (from ~~0.372~~0.368 in the No Action condition). **Table 5-8** summarizes the open space ratios in the With Action condition.

[3] The estimated age distribution assumes 100 percent of the residents of the senior housing units would fall in the age 65 and older cohort and that the age distribution of the residents in the remaining 2,575 general housing units would be the same as the existing age distribution in the study area, as shown on **Table 5-2**.

Table 5-8
With Action Condition: Adequacy of Open Space Resources

Total Population	Open Space Acreage			Open Space Ratios			Open Space Goals		
	Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Residential (½-Mile) Study Area									
Residents ~~67,304~~67,885	55.93	32.52	23.42	~~0.831~~0.824	~~0.483~~0.479	~~0.348~~0.345	2.5	2.0	0.5
Note: Ratios in acres per 1,000 people **Sources:** 2012–2016 ACS data; NYC Parks; AKRF Field Survey February 2017.									

INDIRECT EFFECTS ASSESSMENT

Quantitative Analysis

As in the No Action condition, in the With Action condition the total open space ratio would remain below the City's median of 1.5 acres of total open space per 1,000 residents and the City's planning goal of 2.5 acres of total open space per 1,000 residents. Similarly, the study area would remain below the City's planning goal of 2.0 acres of active open space per 1,000 residents and below the City's planning goal of 0.5 acres of passive open space per 1,000 residents. As noted in the *CEQR Technical Manual*, these ratios are not feasible for many areas of the City and are not considered impact thresholds.

As shown in **Table 5-9**, in the With Action condition the study area's total open space ratio would decrease by ~~7.36~~7.31 percent, while the active open space ratio would decrease by ~~8.17~~8.06 percent and the passive open space ratio would decrease by ~~6.45~~6.25 percent.

Table 5-9
Open Space Ratios Summary

Ratio	City Goal (acres per 1,000 non-residents)	No Action Condition	With Action Condition	Percent Change
Total	2.5	~~0.897~~0.889	~~0.831~~0.824	~~-7.36%~~-7.31%
Active	2.0	~~0.526~~0.521	~~0.483~~0.479	~~-8.17%~~-8.06%
Passive	0.5	~~0.372~~0.368	~~0.348~~0.345	~~-6.45%~~-6.25%

According to the *CEQR Technical Manual*, an action may result in a significant adverse open space impact if it would reduce the open space ratio by more than five percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents. As noted in **Table 5-8**, the open space ratios for the study area are below the City's open space goal and the median community district ratio. In addition, as noted in **Table 5-9**, the proposed projects would result in a decrease in the total, active, and passive open space ratios of 7.31~~7.36~~ percent, 8.06~~8.17~~ percent, and 6.25~~6.45~~ percent, respectively. Therefore, based on the *CEQR Technical Manual* guidelines, the proposed projects would result in a significant adverse impact to open space due to the decreases in the total, active, and passive open space ratios.

In addition to this quantitative assessment approach to determine overall impact significance, a qualitative assessment of the proposed actions is provided below.

Qualitative Assessment

Based on the quantitative analysis, the proposed projects would have a significant adverse impact to open space due to indirect effects. Following *CEQR Technical Manual* guidelines, in addition to a quantitative analysis, a qualitative assessment of a project's effects on open space

should be considered. Therefore, a qualitative assessment of the proposed actions is provided below.

Although the total, active, and passive open space ratios in the study area would remain below the City's planning goals in both the No Action and With Action conditions, residents in the study area would have access to other open space resources located just outside of the study area. In particular, East River Park and the East River Esplanade, which extend well beyond the study area, provide additional space for both active and passive recreation. These resources are destination open spaces that serve local residents in the study area as well as visitors from throughout the City, and provide extensive areas for active recreational activities that are popular among adults, such as jogging and biking, as well as the use of other courts and fields.

In addition, as noted above, there are several NYCHA housing developments with open spaces located in the residential study area. While these areas were not included in the open space inventory and quantitative analysis as they are primarily meant for use by residents of the housing developments, they would help serve the recreational needs of the study area and provide additional playgrounds and passive seating areas for younger and older age cohorts.

Further, as described in Chapter 1, "Project Description," across the three project sites, approximately 80,020 sf of both publicly accessible and private open space would be reconstructed with new amenities, such as new landscaping, paving, seating, and play areas (see **Figure 5-3**). The Site 4 (4A/4B) development would provide new amenities, including pavers, plantings, and seating, at the existing approximately 15,868 sf (approximately 0.36 acres) of private open space located on Lots 15, 70, and 76 (see **Figures 5-3, 5-5, and 5-6**). As described above, the Site 5 development would enlarge the existing private Rutgers Slip Open Space from approximately 22,440 sf to approximately 33,550 sf (approximately 0.77 acres) and would dedicate it as publicly accessible open space, with amenities for both active and passive use, including play equipment, basketball courts, walking paths, and seating. In addition, the Site 5 development would enlarge the existing approximately 29,664-sf open space between 265 and 275 Cherry Street (the "courtyard area") by approximately 2,649 sf, totaling approximately 32,313 sf (approximately 0.74 acres) of private open space. The courtyard area would provide new landscaping, seating, and play areas (see **Figures 5-3, 5-7, and 5-8**). The Site 6A development also would provide approximately 3,200 sf (approximately 0.07 acres) of new private open space (see **Figures 5-3, 5-9, and 5-10**). In total, the proposed projects would create approximately 13,759 sf (approximately 0.32 acres) of new open space, with approximately 33,550 sf of dedicated publicly accessible open space (see **Figures 5-3, 5-7, and 5-8**). Therefore, these open space amenities would help meet some of the residents' passive and active open space needs. Nevertheless, in accordance with the guidelines of the *CEQR Technical Manual*, the proposed projects would result in significant adverse open space impacts due to the decrease in the total and active open space ratios. ✷

Source: Handel Architects LLP

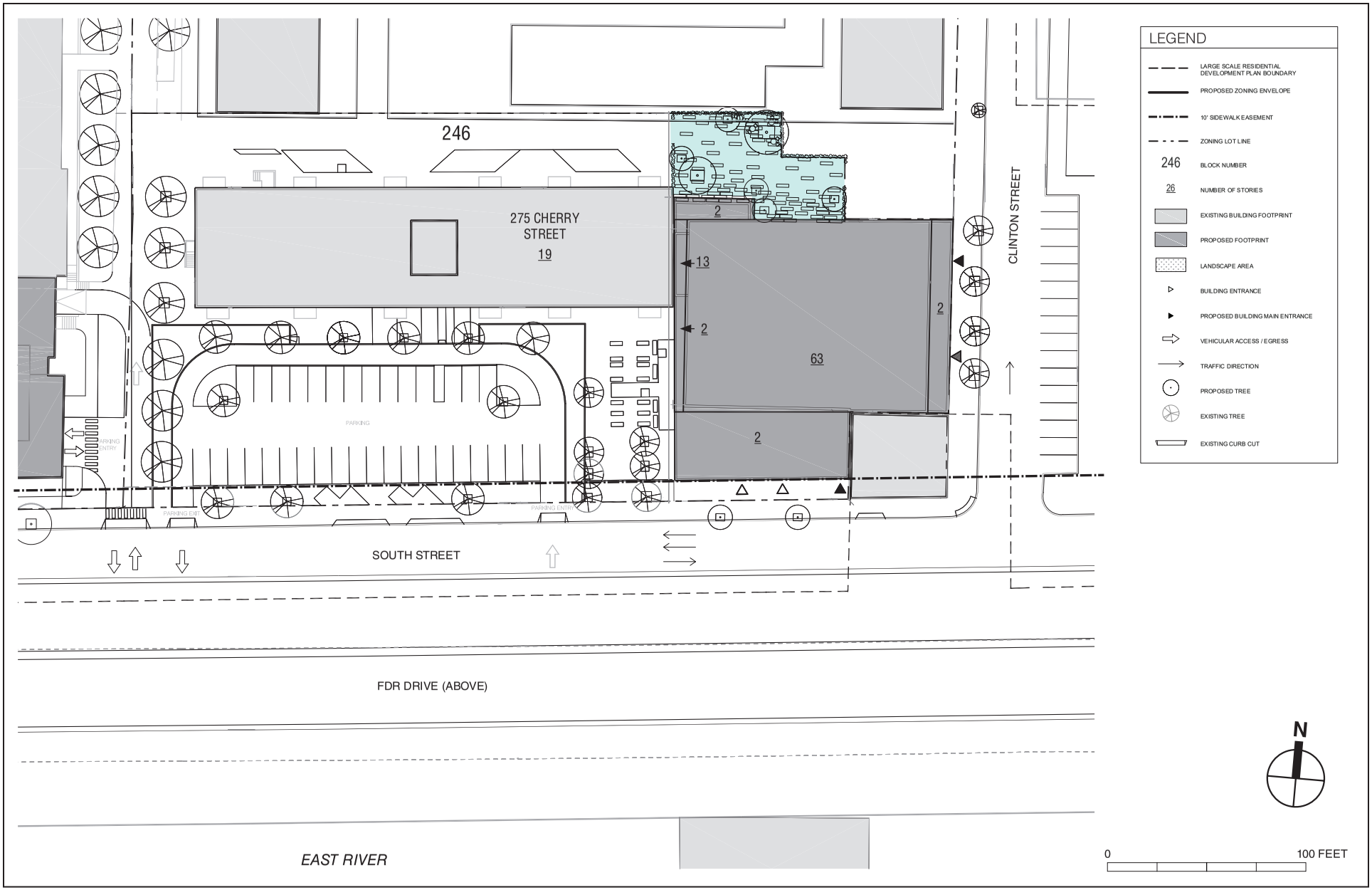
Southwest view on Cherry Street to the landscaped courtyard and ground floor retail **3**

Source: Handel Architects LLP

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

View south on Rutgers Slip from Cherry Street **4**

Site 5
Illustrative Renderings



Source: Perkins Eastman

NOTES:
CERTAIN ELEMENTS OF BUILDING DESIGN, SUCH AS THE MAXIMUM BUILDING ENVELOPE, WILL BE CONTROLLED UNDER THE PROPOSED MINOR MODIFICATIONS TO THE TWO BRIDGES LSRD APPROVALS.

OPEN SPACE DELINEATIONS AS SHOWN ARE APPROXIMATE.

New Private Open Space

TWO BRIDGES LSRD

Site 6A
Proposed Site Plan

Figure 5-9

Source: Perkins Eastman

View northeast on South Street **5**

Source: Perkins Eastman

View southwest on Clinton Street **6**

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

Site 6A
Illustrative Rendering
Figure 5-10