Chapter 6: Open Space

A. INTRODUCTION

The *City Environmental Quality Review (CEQR) Technical Manual* guidelines indicate the need for an open space analysis when an action would result in the physical loss of public open space or would introduce 200 or more residents or 500 or more workers to an area. The proposed project would result in an increase in the number of residents and employees in the study area beyond the *CEQR Technical Manual's* thresholds requiring a detailed analysis. Therefore, an open space analysis was conducted to determine whether the proposed project would result in any direct or indirect significant adverse open space impacts. This chapter assesses existing conditions (both users and resources) and compares conditions in the future with and without the proposed project to determine potential impacts for the 2020 analysis year.

As discussed in Chapter 1, "Project Description," the proposed project would create approximately four acres of public open space on the project site, including a public open space along the waterfront that would highlight the landmarked Refinery. This publicly accessible open space is intended to provide physical and visual access to the East River waterfront and would include an approximately ¼-mile-long waterfront esplanade that would connect the waterfront to the existing Grand Ferry Park at the north and continue to South 5th Street to the south. Additional connections from the esplanade to Kent Avenue at South 1st, South 2nd, South 3rd, and South 4th Streets would facilitate physical access to the waterfront from all of the adjacent upland streets. Several active and passive recreation areas would be located along and adjacent to the esplanade, including play areas, a large lawn on the waterfront side of the Refinery complex, an active play lawn with a water feature that may function as an ice rink in winter, and multiple seating and public gathering areas. The proposed open space would retain industrial artifacts salvaged from the site's existing industrial buildings to reflect a sense of the site's industrial past.

Absent the proposed project, no new open space will be created and the project site will be developed with as-of-right uses permitted under the existing M3-1 zoning, including a storage facility, a maritime industrial use, a waterfront distribution facility, and a catering hall/restaurant.

PRINCIPAL CONCLUSIONS

The proposed project would create a total of approximately four acres of new, high-quality public open space, with approximately 2.4 acres devoted to passive recreation and 1.6 acres to active recreation. The addition of these new open spaces would offset decreases in the open space ratios resulting from the residential and worker populations introduced by the proposed project.

As each of the five parcels along the waterfront is built out, the public open space required under the Zoning Resolution would be completed. Pursuant to Section 62-73 of the Zoning Resolution

(ZR), the waterfront open space would be transferred to New York City Department of Parks and Recreation (DPR) ownership, and easements for public use would be granted to DPR for the upland connections. An agreement for the ongoing maintenance of the waterfront open space would be developed with DPR, pursuant to ZR Section 62-73, as described in Chapter 1, "Project Description."

DIRECT EFFECTS

As described in Chapter 7, "Shadows," the proposed project's development on Site A would result in several hours of incremental midday shadow on Grand Ferry Park throughout the year, which would cause a significant adverse impact on this open space during the fall, winter, and early spring. However, the proposed project would create a substantial amount of new public open space that would connect to Grand Ferry Park, thereby enhancing this park and extending waterfront access south to South 5th Street. During the spring, summer, and fall seasons, the project-created open space would provide some sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow.

The significant adverse shadows impact on Grand Ferry Park would not result in a significant adverse open space impact because Grand Ferry Park would remain a usable open space and would be connected to the approximately 4 acres of landscaped public waterfront open space proposed as part of the project. Approximately 40 percent of the project's waterfront parcel would be dedicated to open space for both active and passive uses, which would exceed the waterfront open space requirements under the Greenpoint-Williamsburg rezoning. The proposed project would also provide private open space for residents of the proposed project and users of the commercial office space and, although not accounted for in the quantitative analysis, could offset some project-generated demand for open space. In addition, several smaller parks and open spaces just outside the study area would continue to provide almost 6 acres of open space. Additionally, as noted in Chapter 23, "Mitigation," the applicant has reached agreement with DPR on mitigation measures that will address the significant adverse shadows impact. Therefore, the significant adverse shadows impact on Grand Ferry Park would be partially mitigated.

As discussed in Chapter 21, "Construction," the proposed project would result in a temporary disruption to the southern edge of Grand Ferry Park during construction of the connection between the proposed project's public open space and Grand Ferry Park. The connection between these open spaces would be constructed while the buildings on Site A were under development, and Grand Ferry Park would not be affected during the rest of the project's construction period. Creating this connection would require construction activity within a portion of the park. The design of the connection and the necessary construction work within Grand Ferry Park are being coordinated with DPR. This connection would enhance the use of Grand Ferry Park by providing access to the larger waterfront esplanade running the length of the project site. Measures would be taken to minimize the temporary disruption to this open space during construction. Therefore, construction of the proposed project would not result in a significant adverse impact on this open space.

The proposed project would not result in significant adverse hazardous materials, noise, or air quality impacts on any of the open spaces in the study area.

INDIRECT EFFECTS

Table 6-1 provides a comparison of open space ratios in the future without the proposed project (the "No Action" condition) and the future with the proposed project. As shown in the table, the proposed project would result in a 3 percent decrease in the passive open space ratio for workers in the commercial (¼-mile) study area, but this ratio would still exceed the City's recommended guidelines substantially. The proposed project would also result in a 7 percent decrease in the passive ratio for the combined population of residents and workers in the commercial study area, but this decrease would not overburden existing facilities. In the residential (½-mile) study area with the proposed project, the passive open space ratio for the combined population would remain the same as in the No Action condition. The active open space ratio, passive open space ratio, and total open space ratio per 1,000 residents would decrease by less than 3 percent. All of the ratios in the residential study area are currently below, and would continue to be below, the City's guidelines.

Table 6-1
2020 Future With the Proposed Project: Open Space Ratios Summary

Ratio	City Guideline	Open Space Ratios			Percent Change No Action to Future With the Proposed Project
		Existing Conditions	No Action	Future With the Proposed Project	
Commercial (¼-Mile) Study Area					
Passive/Workers	0.15	1.639	2.461	2.384	-3.1%
Passive/Total Population	Weighted 0.388 / 0.437 / 0.440*	0.524	0.443	0.411	-7.1%
Residential (½-Mile) Study Area					
Total/Residents	2.5	0.700	0.668	0.659	-1.4%
Passive/Residents	0.5	0.403	0.366	0.365	-0.2%
Passive/Total Population	Weighted: 0.426 / 0.447 / 0.447*	0.318	0.310	0.310	0.1%
Active/Residents	2.0	0.298	0.302	0.294	-2.9%

Notes:
Ratios in acres per 1,000 people.
* Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it is different for existing, No Action, and future with the proposed project conditions. Each of these ratios is listed in this table.

To summarize, the proposed project would result in decreases in five open space ratios: (1) the passive open space ratio for workers in the commercial study area, (2) the passive open space ratio for the combined population of residents and workers in the commercial study area, (3) the active open space ratio in the residential study area, (4) the passive open space ratio per 1,000 residents in the residential study area, and (5) the total open space ratio in the residential study area. As shown in Table 6-1, these ratios would experience small decreases (i.e., less than 5 percent) that would not result in a substantial change in the open space ratios or in an overburdening of existing facilities. In addition, by adding a new, high-quality public waterfront open space with on-site active open space, the proposed project would result in an improvement to the area's open space condition that is not clearly reflected in the quantitative analysis due to the new open space's design, waterfront location, and potential for connections to other waterfront open spaces. The proposed project's waterfront open space would represent a major new open space resource for the Williamsburg neighborhood. The proposed open space would serve the existing community as well as residents of the proposed project and other anticipated development projects, many of which are not expected to provide publicly accessible open space.

Open spaces nearby but beyond the ¼- and ½-mile study areas, such as McCarren Park, would help to alleviate any open space shortage, particularly the active open space shortage. Based on the open space analysis presented in this chapter, the proposed project would not result in significant adverse impacts on open space and recreational facilities in either the commercial or residential study areas.

PUBLIC SCHOOL OPTION

As described in Chapter 23, "Mitigation," the New York City School Construction Authority (SCA) may locate an approximately 100,000-square-foot public elementary and intermediate school within the community facility space in the Refinery complex. Should this school be constructed, a portion of the project's open space may be set aside for school use as a play area and staging area during school hours. This could result in modifications to the project's open space plan to meet requirements related to school play areas and access. These modifications to the open space plan would not materially affect the amount of open space available to the study area population. In addition, the student population of the school would comprise a larger daytime population in the Refinery community facility space than that which was analyzed in the open space analysis, but this additional population would not result in increased demand for open space resources. Therefore, the provision of a public school in the Refinery complex would not alter the conclusion that the proposed project would not result in any significant adverse open space impacts.

As part of the agreement to locate a school in the Refinery, the SCA may defer construction of the Refinery until after construction of Site B. If that occurs, an interim open space connection between Site B and Site C would be established in front of the Refinery. The full open space program—including the balance of the large central lawn—would then be completed along with the build-out of the Refinery.

B. METHODOLOGY

DIRECT EFFECTS ANALYSIS

According to the *CEQR Technical Manual*, a proposed action would have a direct effect on an open space if it causes the physical loss of public open space because of encroachment onto the space or displacement of the space; changes the use of an open space so that it no longer serves the same user population; limits public access to an open space; or causes increased noise or air pollutant emissions, odors, or shadows that would affect its usefulness, whether on a permanent or temporary basis. This chapter uses information from Chapter 7, "Shadows," Chapter 9, "Urban Design and Visual Resources," Chapter 12, "Hazardous Materials," Chapter 19, "Air Quality and Greenhouse Gas Emissions," and Chapter 20, "Noise," to determine whether the proposed project would directly affect any open spaces near the project site. The direct effects analysis is included in section E, "The Future with the Proposed Project," of this chapter.

The potential for the proposed project to result in direct impacts on open space during the construction period is assessed in Chapter 21, "Construction."

INDIRECT EFFECTS ANALYSIS

Following the methodology of the *CEQR Technical Manual*, indirect impacts occur to an area's open spaces when a proposed action would add enough population, either workers or residents,

to noticeably diminish the ability of an area's open space to serve the existing or future population. The *CEQR Technical Manual* recommends an analysis of indirect effects if a proposed action would introduce 200 or more residents or 500 or more workers to an area. The *CEQR Technical Manual* methodology suggests conducting an initial quantitative assessment to determine whether more detailed analyses are appropriate, but also recognizes that for projects with a large population in an area that is underserved by open space, it may be clear that a full, detailed analysis should be conducted. Using the methodology of the *CEQR Technical Manual*, the adequacy of open space in the study area is assessed quantitatively using a ratio of usable open space acreage to the study area population—the open space ratio. This quantitative measure is then used to assess the changes in the adequacy of open space resources in the future, both with and without the proposed project. In addition, qualitative factors are considered in making an assessment of a proposed action's effects on open space resources.

As compared to conditions in the No Action condition, the proposed project would introduce approximately 6,696 new residents and 1,165 new workers to the Williamsburg neighborhood in Brooklyn.[1] In addition, the neighborhood near the project site was recently rezoned as part of the Greenpoint-Williamsburg rezoning and is experiencing substantial residential development. Given the existing open space ratios in the area, the size of this new population, and the amount of other residential development in the area, a full, detailed open space analysis was conducted to assess the proposed project's potential indirect effects on the area's open space resources.

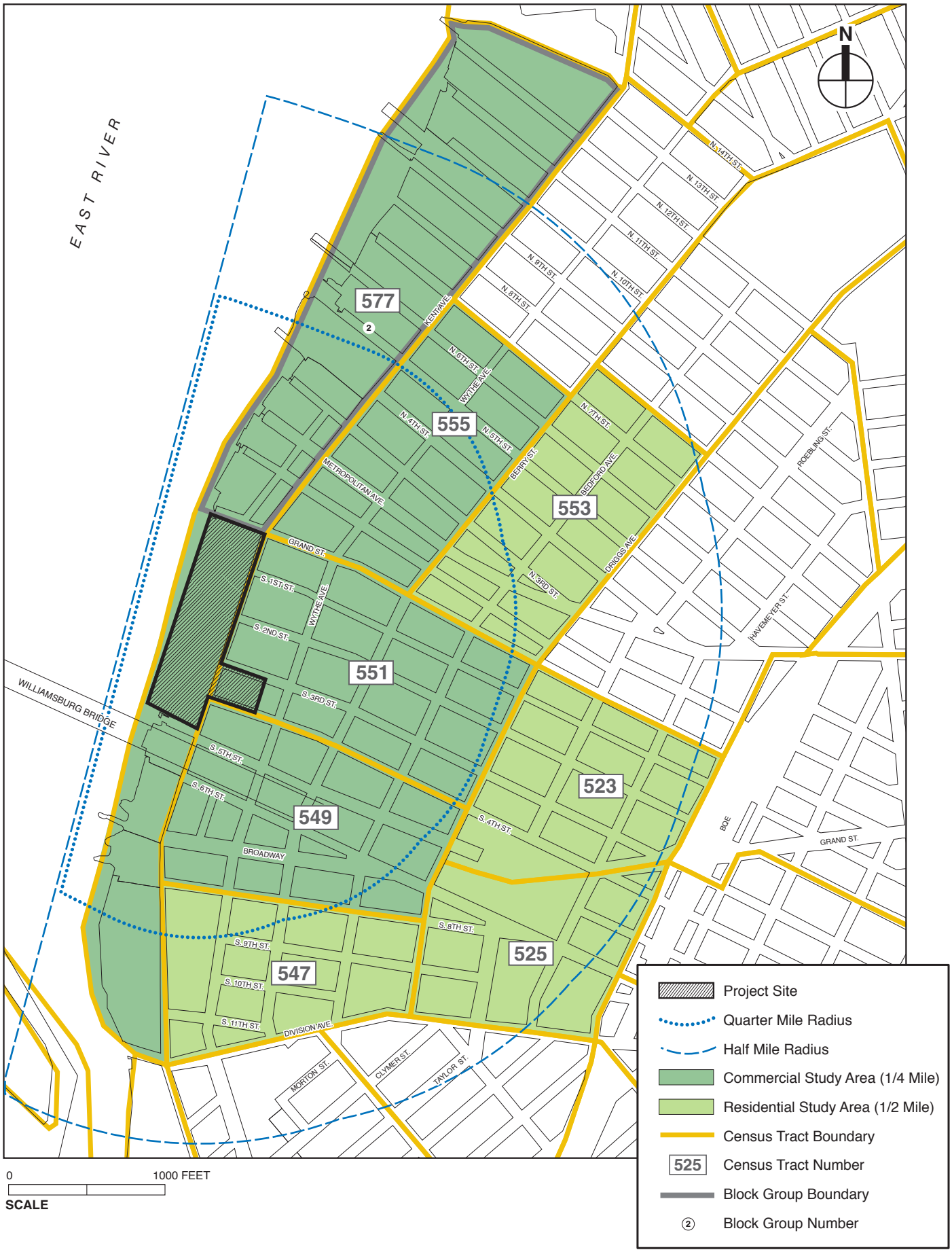
STUDY AREAS

The *CEQR Technical Manual* recommends establishing study area boundaries as the first step in an open space analysis. Worker and residential populations use different open space study areas. Workers typically use passive open spaces within walking distance of their workplaces; this area is roughly ¼ mile. Therefore, projects that would add substantial worker populations analyze their effects on passive open spaces located within ¼ mile of the project site. Residents are more likely to travel farther to reach parks and recreational facilities, and they use both passive and active open spaces. Residents will typically walk up to ½ mile for recreational spaces. Thus, projects that would add substantial residential populations analyze their effects on active and passive open spaces located within ½ mile of the project site. The proposed project would add sizable worker and residential populations. Therefore, as recommended in the *CEQR Technical Manual*, two study areas were used—a commercial (¼-mile) and residential (½-mile) study area.

Commercial (¼-Mile) Study Area

Following the methodology in the *CEQR Technical Manual*, the commercial study area for the proposed project includes all census tracts with at least 50 percent of their area inside a ¼-mile radius around the project site. The census tracts with at least 50 percent of their area within ¼ mile of the project site are shown on Figure 6-1. Census Tract 577, Block Group 2—a smaller census unit than a census tract—was also included in the analysis because while Census Tract 577 includes the project site, the full tract covers a very large area along the Brooklyn waterfront and the majority of the tract is outside the ¼-mile study area.

[1] The residential population is estimated by multiplying the weighted average household size for the ½-mile socioeconomic study area (2.79 persons per household) by the proposed number of dwelling units (2,400). The number of employees is based on the following assumptions: 3 employee per 1,000 square feet (sf) of retail, 3 employees per 1,000 sf of community facility space, 1 employee per 25 residential units, 1 employee per 250 sf of office, and 1 employee per 50 parking spaces.



Open Space Study Areas

Figure 6-1

Residential (½-Mile) Study Area

The residential study area for the proposed project includes all census tracts that fall at least 50 percent within a ½-mile radius around the project site. Figure 6-1 shows all census tracts included in the residential study area. Similar to the commercial study area, Census Tract 577, Block Group 2 was included instead of the entirety of Census Tract 577.

OPEN SPACE USER POPULATIONS

Existing Conditions

Census data were used to identify potential open space users within the study areas. Open space user groups include area residents and employees. To determine the number of residents currently located within the study areas, data were compiled from the 2000 Census for the tracts and block groups in each study area. The age distribution of the residential population was noted, as children and elderly residents are typically more dependent on local open space resources. The census population was then adjusted to account for population growth since 2000. Specifically, population growth was estimated based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. This data provided an estimate of the number of residential units constructed since 2000. The resident population was estimated by multiplying the number of residential units constructed since 2000 by the study area housing occupancy rate and average household size.[1] This number is added to the 2000 U.S. Census population figure to estimate 2009 population.

In addition, the number of employees in each of the study areas was also determined based on the 2000 Census Reverse Journey-to-Work data.

This analysis conservatively assumes that residents and workers are entirely distinct populations and that no one both lives and works within the study area. While this assumption could double-count the daily user population, it also provides a more conservative analysis.

The Future without the Proposed Project

As discussed in Chapter 2, "Analytical Framework," a number of new developments are anticipated to be constructed by 2020 in the ¼-mile and ½-mile study areas. To estimate the population anticipated in the study areas in the No Action condition, the average household size for the ½-mile study area (as calculated in Chapter 4, "Socioeconomic Conditions") was applied to the number of new housing units forecast in each area. The number of workers introduced by these developments was estimated using standard employment density ratios for the expected uses.

The Future with the Proposed Project

The population introduced by the proposed project was estimated by multiplying the number of units by the average household size for the ½-mile study area as calculated in Chapter 4, "Socioeconomic Conditions." The number of workers introduced by the proposed project was estimated using standard employment density ratios.

[1] As calculated for the ½-mile study area in Chapter 4, "Socioeconomic Conditions."

INVENTORY OF OPEN SPACE RESOURCES

All publicly accessible open spaces and recreational facilities located within the study areas were inventoried. The inventory of open spaces was compiled based on field visits conducted in November 2007; information from DPR and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP); and information from the agencies responsible for oversight of the open spaces within the study areas. Published environmental impact statements for projects in or near the study areas were also consulted.

The *CEQR Technical Manual* defines a publicly accessible open space as one "that is accessible to the public on a constant and regular basis or for designated daily periods." Open spaces that are not publicly accessible or available to a limited number of people are not included in the quantitative analysis. An open space that charges a fee for access is an example of the latter.

The size, character, and condition of the publicly accessible open spaces and recreational facilities within the commercial and residential study areas were determined during field visits conducted in 2007 and 2009. Active and passive amenities were noted at each open space. Active facilities are intended for vigorous activities such as jogging, field sports, and children's active play. Such facilities might include basketball and handball courts, jogging paths, ball fields, and playground equipment. Passive facilities encourage activities such as strolling, reading, sunbathing, and people watching. Passive open spaces are characterized by picnic areas, walking paths, beaches, or gardens. Certain areas, such as lawns or public esplanades, can serve as both active and passive open spaces.

In addition to the open spaces located within the commercial and residential study areas, open spaces falling outside the study areas were considered qualitatively, as these spaces provide additional resources to the residential and worker populations.

Open spaces that will be added to the study area as part of projects forecast for completion by 2020 are included in the open space inventory for the No Action condition.

Open spaces to be built as part of the proposed project are included in the open space inventory for the future with the proposed project.

ADEQUACY OF OPEN SPACE RESOURCES

Comparison to City Guidelines

The adequacy of open space in each study area was quantitatively assessed using a ratio of useable open space acreage to the study area population (the "open space ratio"). The open space ratio was compared to guidelines established by DCP. The following guidelines are used in this type of analysis:

- For non-residential populations, 0.15 acres of passive open space per 1,000 non-residents is typically considered adequate.
- For residential populations, two sets of guidelines are used. The first guideline is a citywide median open space ratio of 1.5 acres per 1,000 residents. Throughout New York City, local open space ratios vary widely, and the median ratio at the Community District level is 1.5 acres of open space per 1,000 residents. The second is an optimal planning goal established by DCP of 2.5 acres per 1,000 residents—2.0 acres of active and 0.5 acres of passive open space per 1,000 residents—for large-scale plans and proposals. However, these goals are often not feasible for many areas of the city, and they do not constitute an impact threshold.

Rather, they act as a benchmark to represent how well an area is served by its open space resources.

- The needs of the residents and non-residents are considered together because it is assumed that these populations will use the same passive open spaces. As noted above, these populations have different guideline ratios for passive open space (0.50 acre per 1,000 residents and 0.15 acres per 1,000 non-residents). Therefore, a weighted average is used to determine the amount of open space necessary to meet the DCP guideline of 0.50 acres of passive open space per 1,000 residents and 0.15 acres of passive open space per 1,000 non-residents. This average is weighted according to the proportion of residents and non-residents in the study area. This guideline ratio changes depending on the proportion of residents and non-residents in a study area.

Impact Assessment

Impacts are based on how a project would change the open space ratios in the study area. According to the *CEQR Technical Manual*, if a proposed project would reduce an open space ratio and consequently result in overburdening existing facilities, or if it would exacerbate an existing deficiency in open space, it may result in a significant impact on open space resources. In areas that are underserved by open space, even a decrease in the open space ratio of less than 1 percent may result in a significant adverse impact.

In addition to the quantitative factors cited above, the *CEQR Technical Manual* also recommends consideration of more 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 resources provided by the project, and the comparison of projected open space ratios with established City guidelines. It is recognized that the open space ratios of the City guidelines described above are not feasible for many areas of the city, and they are not considered impact thresholds on their own. Rather, they are benchmarks that indicate how well an area is served by open space.

C. EXISTING CONDITIONS

STUDY AREA POPULATION

COMMERCIAL (¼-MILE) STUDY AREA

According to 2000 Census population data and RPAD data on housing units constructed between 2000 and 2009, the commercial study area has a population of approximately 8,492 residents and 3,990 workers for a total residential and worker population of 12,482 (see Table 6-2).

Table 6-2
Existing Population in Commercial and Residential Study Areas

Study Area	Commercial (¼-Mile) Study Area	Residential (½-Mile) Study Area**
Resident Population*	8,492	24,670
Worker Population	3,990	6,575
Total Population	**12,482**	**31,245**

Notes:
* The residential population figure is determined by using 2000 U.S. Census data and the number of new units constructed between 2000 and April 2009 according to RPAD data from the New York City Department of Finance.
** Residential study area totals also include the census tracts within the commercial study area.
Sources: U.S. Census of Population and Housing, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2 Reverse Journey-to-Work data; New York City Department of Finance Real Property Assessment Data (RPAD) version 09v1, 2009.

RESIDENTIAL (½-MILE) STUDY AREA

Based on the 2000 Census and RPAD data, the residential study area has a population of approximately 24,670 residents and 6,575 workers for a total residential and worker population of 31,245 (see Table 6-2).

As shown in Table 6-3, the vast majority of the population - 60 percent - is between the ages of 20 and 64. Children and teenagers (age 0 through 19) make up 33 percent of the total population and the elderly (age 65 and older) account for the remaining 7 percent of the study area population.

Table 6-3
Age Distribution of 2000 Population in Residential Study Area

Age Category	Percent of Total Population
4 and Younger	9%
5 through 9	8%
10 through 14	8%
15 through 19	8%
20 through 64	60%
65 and Older	7%
Total	**100%**

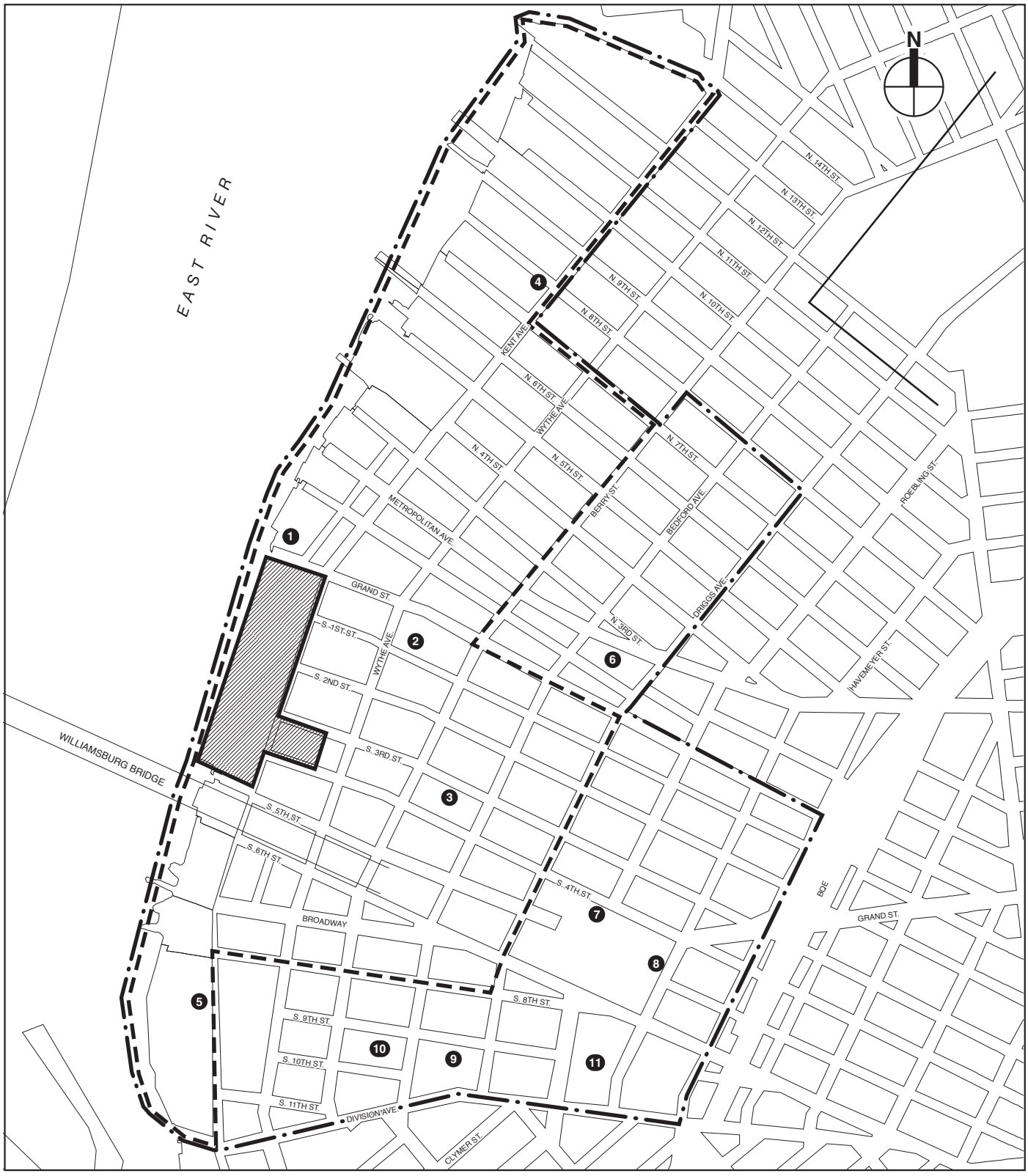
Source: U.S. Census of Population and Housing, 2000.

Given the range of age groups present in the population, there is a need for various kinds of active and passive recreation facilities, including those with amenities that can be used by children and adults, in the residential study area. 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 4 years old or younger use traditional playgrounds that have play equipment for toddlers and preschool children. Children ages 5 through 9 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 ages 10 through 14 use playground equipment, court spaces, little league fields, and ball fields. Teenagers' and young adults' needs tend toward court game facilities such as basketball and field sports. Adults between the ages of 20 and 64 continue to use court game facilities and fields for sports, as well as more individualized recreation such as rollerblading, biking, and jogging, requiring bike paths, promenades, and vehicle-free roadways. Adults also gather with families for picnicking, ad hoc active sports such as Frisbee, and recreational activities in which all ages can participate. Senior citizens engage in active recreation such as tennis, gardening, and swimming, as well as recreational activities that require passive facilities.

STUDY AREA OPEN SPACE INVENTORY

COMMERCIAL (¼-MILE) STUDY AREA

The commercial study area currently contains a total of 10.87 acres of open space, of which 6.54 acres are passive open space and 4.33 acres are active open space (see Table 6-4 and Figure 6-2).



DOMINO SUGAR REZONING

Open Space Resources
Figure 6-2

Table 6-4
Study Area Open Space Inventory

Map Ref.	Name/Address	Owner/ Agency	Features	Total Acres	Active Acres	Passive Acres	Condition/ Utilization
Commercial (¼-Mile) Study Area							
1	Grand Ferry Park	DPR	Seating, scenic views, waterfront walkway, lawn area, native plantings	1.80	0.00	1.80	Excellent/ High
2	Public School (PS) 84 William Sheridan Playground	DPR	Basketball courts, play equipment	0.79	0.75	0.04	Excellent/High
3	Berry Playground	DPR	Play equipment, spray shower, benches	0.33	0.31	0.02	Fair/Low
4	East River State Park	OPRHP	Picnic tables, scenic views	7.00	2.80	4.20	Good/ Moderate
5	Schaefer Landing Esplanade	DPR	Waterfront walkway	0.95	0.47	0.48	Good/ Moderate
			Commercial (¼-Mile) Study Area Total	**10.87**	**4.33**	**6.54**	
Residential (1/2-Mile) Study Area							
6	Metropolitan Pool	DPR	Fitness center, indoor swimming pool	0.18	0.18	0.00	Good/ Moderate
7	Continental Army Plaza	DPR	Benches, plantings, performance area, sculpture	0.76	0.00	0.76	Good/ Moderate
8	LaGuardia Playground	DPR	Basketball courts, play equipment, handball court, benches	1.88	1.13	0.75	Good/ Moderate
9	Bedford Playground	DPR	Basketball courts, handball courts, play equipment, spray shower, benches	0.88	0.75	0.13	Good/Low
10	Epiphany Park	DPR	Basketball courts, play equipment, spray shower, garden, benches, handball court	0.50	0.45	0.05	Good/Low
11	Jonathan Williams Plaza Housing	NYCHA	Play equipment, benches	2.20	0.50	1.70	Fair/Moderate
			Residential (½-Mile) Study Area Total	**17.27**	**7.34**	**9.93**	

Notes: See Figure 6-2 for the location of the open spaces.
NYCHA=New York City Housing Authority.
Sources: New York City Department of Parks and Recreation; AKRF, Inc field surveys, November 2007.

The largest open space in the commercial study area is the 7-acre East River State Park. This open space opened in the summer of 2007 and is run by OPRHP. The park features a large open lawn with picnic benches, scenic views of the Manhattan skyline, and historical remnants like old cobblestone streets and railroad tracks embedded in concrete.

The open space nearest the project site is the adjacent Grand Ferry Park, a 1.8-acre passive open space located along the East River waterfront at Grand Street. This park was recently reconstructed by DPR and features a waterfront walkway, lawn area, and seating, as well as areas that have been designed to function as wetlands, with native plantings and a swale providing drainage from Grand Street to the East River. One-and-a-half blocks east of the project site, along Wythe Avenue between Grand and South 1st Streets, is the William Sheridan Playground adjacent to PS 84. This 0.79-acre playground features nautical-themed play equipment, chess and checker tables, swings, and benches. Berry Playground, located along South 3rd Street between Berry Street and Bedford Avenue, is a 0.33-acre open space featuring a spray shower, play equipment, swings, and sitting areas. The commercial study area also includes the waterfront walkway adjacent to the Schaefer Landing development.

RESIDENTIAL (½-MILE) STUDY AREA

In addition to the open spaces described above, the residential study area contains six additional public open spaces, bringing the total residential study area open space acreage to 17.27 acres. Of this total, 9.93 acres are passive space and 7.34 acres are active space.

The Metropolitan Pool and Fitness Center, operated by DPR, is located at the corner of Bedford and Metropolitan Avenues. This indoor facility, which underwent an extensive renovation in 1997, features a 25-yard pool, a fitness center with exercise equipment, locker rooms, and a

playschool area. Although this facility charges a fee for use, it was included in the open space analysis because it is free for children under 18 and the fees are modest for adults and seniors.[1]

Several open spaces along and to the north of the Williamsburg Bridge were created by the Department of Public Works in conjunction with the construction of the bridge. Within the residential study area, these include LaGuardia Playground and the Continental Army Plaza. LaGuardia Playground—a 1.88-acre open space that contains play equipment, a spray nozzle, and several tables and benches—is located just north of the bridge on the block bounded by South 4th, South 6th, Roebling, and Havemeyer Streets. This playground is divided by the ramp leading from the Williamsburg Bridge to the Brooklyn-Queens Expressway (BQE). Across Roebling Street from LaGuardia Playground is Continental Army Plaza, a 0.76-acre passive open space with a performance area, sitting areas, plantings, and a statue of a mounted George Washington.

The portion of the study area south of the Williamsburg Bridge includes three public open spaces: Bedford Playground, Epiphany Park, and open space within Jonathan Williams Plaza Housing. The 0.88-acre Bedford Playground is located on the southeast corner of South 9th Street and Bedford Avenue and features play equipment with safety surfacing, spray showers, benches and game tables, and basketball and handball courts. A block to the west, at North 9th and Berry Streets, is Epiphany Park, a 0.50-acre open space with basketball courts, a playground, a spray shower, benches, and a garden area. Jonathan Williams Plaza Housing, a NYCHA development, features approximately 2.20 acres of open space with seating, walkways, and playground equipment.

ADDITIONAL OPEN SPACES

Several publicly accessible open spaces are located a short distance from the study area boundaries and, as a result, are not included in the quantitative analysis. It is likely that these open spaces also serve the area's residential and worker population. The largest of these parks is the 35-acre McCarren Park, located less than ¼ mile outside the boundary of the residential study area. The park includes a variety of athletic fields, as well as tennis courts, a track, a playground, and a Works Progress Administration (WPA) pool with an original capacity of 6,800 swimmers. Opened in 1936, the 5.5-acre pool served as an important active recreation resource and the summertime social hub of the Greenpoint and Williamsburg communities until it closed in 1984. The pool remained closed until the summer of 2005, when it opened for warm-weather concerts, movies, and other special events. Nevertheless, it is still not available for regular recreational use by the public. Plans have been announced for a $50 million renovation of the park that will include a renovated pool, a year-round recreation center, multi-purpose community rooms, a skate park, an ice rink, and the restoration of the historic bathhouse and entry arch.

Several smaller parks that offer predominantly active recreation facilities are also nearby. Marcy Green and Rodney Park—a series of small parks, playgrounds, and sitting areas along the BQE—are located just east of the study area. Three primarily active open spaces are located less than ¼ mile outside the boundary of the study area: Roebling (PS 16) Playground, a 1.23-acre open space with play equipment and basketball courts; Roberto Clemente ball field, a 1.24-acre ball field and sitting area; and Jacob's Ladder Playground, a 0.85-acre playground. Altogether,

[1] As of March 2008, a one-year membership to Metropolitan Pool was $75 for adults, $10 for seniors, and free for children under 18. http://www.nycgovparks.org/sub_about/rules_and_regulations/rr_2-14.html

these five parks have almost 6 acres of open space, of which 4.5 acres (75 percent) is active space.

ADEQUACY OF OPEN SPACES

COMMERCIAL (¼-MILE) STUDY AREA

As described above, the analysis of the commercial study area focuses on passive open spaces that may be used by workers in the area. To assess the adequacy of the area's open spaces, the ratio of workers to acres of open space is compared to the City's planning guideline of 0.15 acres of passive space per 1,000 workers. In addition, the passive open space ratio for both workers and residents in the area is compared with the guideline weighted average ratio (0.388).

The commercial study area includes 10.87 acres of open space, of which 6.54 acres are passive space. It has a total of 8,429 residents and 3,990 workers for a combined population of 12,482.

Based on DCP guidelines, the area has a passive open space ratio of 1.639 acres of passive open space per 1,000 workers; this is substantially more than the DCP guideline of 0.15 acres (see Table 6-5). The combined passive open space ratio is 0.524 acres per 1,000 residents and workers, which is more than the recommended weighted average ratio of 0.388 acres per 1,000 residents and workers.

Table 6-5
Existing Conditions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	3,990	10.87	4.33	6.54	N/A	N/A	1.639	N/A	N/A	0.15
Combined non-residents and residents	12,482				N/A	N/A	0.524	N/A	N/A	0.388*
Residential (½-Mile) Study Area										
Residents	24,670	17.27	7.34	9.93	0.700	0.298	0.403	2.5	2.0	0.50
Combined non-residents and residents	31,245				N/A	N/A	0.318	N/A	N/A	0.426*

Note: *Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents. Non-residents typically use passive spaces; therefore, for the non-residential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

RESIDENTIAL (½-MILE) STUDY AREA

With a total of 17.27 acres of open space (of which 7.34 are for active use and 9.93 are for passive use) and a total residential population of 24,670, the residential study area has an overall open space ratio of 0.700 acres per 1,000 residents. This is less than both DCP's planning guideline of 2.5 acres of open space per 1,000 residents and the citywide community district median of 1.5 acres per 1,000 residents.

The residential study area's current residential passive open space ratio is 0.403 acres of passive open space per 1,000 residents, which is slightly below DCP's goal of 0.5 acres per 1,000 residents. The area's residential active open space ratio is 0.298 acres per 1,000 residents, which is also below DCP's planning guideline of 2.0 acres per 1,000 residents.

When the employees who work within the residential study area are added to the population, the passive open space ratio is lower. As described earlier, workers typically use passive open

spaces during the workday, so the passive open space ratio is the relevant ratio for consideration. With a combined worker and residential population of 31,245, the combined passive open space ratio in the residential study area is 0.318, which is less than the recommended weighted average ratio of 0.426 acres per 1,000 residents and workers.

QUALITITATIVE CONSIDERATIONS

As described above, several open spaces are located just outside the study area boundaries. These parks have a variety of passive and active uses that may help to meet the need for open space in the area. In particular, McCarren Park and the three parks south of the study area (Roebling Playground , Roberto Clemente Ball Field, and Jacob's Ladder Playground) are designed predominantly for active recreation and may help to meet the need for active open space in the residential study area. McCarren Park is also considered a "destination park" and users would typically travel farther than the ½-mile extent of the residential study area to enjoy the open space and recreational amenities within this park. Existing active open space resources at McCarren Park totals approximately 13.6 acres and includes an outdoor track, a football/soccer field, four tennis courts, three baseball fields, a playground, basketball courts, and a multipurpose field.

In addition, a bike path has recently been created along Kent Avenue as part of the Brooklyn Greenway. Although the bike path is not included in the quantitative analysis of the open space acreage in the study area, it provides an active recreation resource in the area and improves access to open spaces along the Brooklyn waterfront within and outside of the study area.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

STUDY AREA POPULATION

As discussed in Chapter 1, "Project Description," absent the proposed project, the project site will be developed with as-of-right uses permitted under the existing M3-1 zoning. These uses would include a storage facility, a building material storage yard, a waterfront distribution facility, and a catering hall/restaurant. These uses would add approximately 182 workers to the project site.[1]

Several other anticipated residential and commercial developments within the commercial and residential study areas will be completed by 2020. These developments will increase both the residential and worker populations within the study areas.

COMMERCIAL (¼-MILE) STUDY AREA

A number of new developments will be completed in the commercial study area by 2020. These projects include the continued build-out of projected development sites from the Greenpoint-Williamsburg rezoning and other development projects such as Kedem Winery, Rose Plaza, and the Northside Piers development (see Table 2-1). Altogether, new development in the commercial study area will introduce a total of approximately 4,583 residential units and 126,039 square feet of retail space. Assuming a household size of 2.79 persons for these new

[1] Based on 1 employee per 1,000 sf of industrial distribution space, 1 employee per 600 sf of catering hall/restaurant space, 5 employees for the materials building storage use, and 4 employees for the storage facility.

units (the existing average household size for the ½-mile socioeconomic conditions study area), it is anticipated that the population of the commercial study area will increase by 12,787 residents for a total study area residential population of 21,279. The new retail uses will increase the worker population by approximately 500 workers and, along with the 182 workers introduced on the project site, will bring the commercial study area's total worker population to 4,670.[1]

RESIDENTIAL (½-MILE) STUDY AREA

In addition to the new development that will occur in the commercial study area, an additional 1,158 residential units are anticipated to be constructed in the residential study area. In total, the new units within the residential study area (including the units built within the commercial study area) will introduce approximately 16,018 new residents and 736 new workers to the residential study area, bringing the residential study area's residential population to 40,688, its worker population to 7,311, and its combined residential and worker population to 47,999.

STUDY AREA OPEN SPACES

COMMERCIAL (¼-MILE) STUDY AREA

By 2020, one new park and five waterfront esplanades will increase the amount of open space resources in the commercial study area. A portion of Bushwick Inlet Park, approximately 6.37 acres, would be completed and would feature an even mix of active and passive uses. Bushwick Inlet Park was mapped as part of the Greenpoint-Williamsburg rezoning and will be located along the waterfront between North 9th and Quay Streets. The five waterfront esplanades that will be completed are the 0.50-acre Kedem Winery waterfront esplanade near South 8th Street; a 1.19-acre esplanade that will be developed in conjunction with the Greenpoint-Williamsburg rezoning Projected Development Site 199 between North 5th and North 7th Streets (where the development known as The Edge is currently under construction); a 0.1-acre esplanade at 184 Kent Avenue; a 0.77-acre esplanade as part of the Rose Plaza development; and an approximately 0.98-acre esplanade that will be developed with the Northside Piers residential development. All of these esplanades are assumed to have a mix of half active uses and half passive uses. In addition, new open space features, including a playground, will be completed in East River State Park, but these features will not change the total amount of open space or the estimated breakdown of active and passive space.

With these three new open spaces, the total amount of open space in the commercial study area will increase to 20.78 acres, of which 9.29 acres will be for active uses and 11.49 acres will be for passive uses.

RESIDENTIAL (½-MILE) STUDY AREA

Aside from the two open spaces that will be completed in the commercial study area, no additional open space is anticipated in the residential study area. The total amount of open space in the residential study area will increase to 27.18 acres, of which 12.30 acres will be for active uses and 14.88 acres will be for passive uses.

[1] Worker population for new development projects was estimated using the following assumptions: 1 employee per 400 sf of retail space and 1 employee per 25 residential units.

ADEQUACY OF OPEN SPACES

COMMERCIAL (¼-MILE) STUDY AREA

In the No Action condition, the commercial study area will remain adequately served by passive open spaces to meet the needs of the non-residential and residential populations. The ratio of passive open space per 1,000 non-residents will be 2.461, well above the City's guideline ratio of 0.15 (see Table 6-6). The ratio for the combined population of residents and non-residents will be 0.443, slightly above the City's guideline ratio of 0.437 acres (calculated by assuming 0.15 acres per 1,000 for the worker population and 0.5 acres per 1,000 for the residential population in the No Action condition).

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

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	4,670	20.78	9.29	11.49	N/A	N/A	2.461	N/A	N/A	0.15
Combined non-residents and residents	25,949				N/A	N/A	0.443	N/A	N/A	0.441*
Residential (½-Mile) Study Area										
Residents	40,688	27.18	12.30	14.88	0.668	0.302	0.366	2.5	2.0	0.50
Combined non-residents and residents	47,999				N/A	N/A	0.310	N/A	N/A	0.447*

Note: *Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents. Non-residents typically use passive spaces; therefore, for the non-residential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

RESIDENTIAL (½-MILE) STUDY AREA

In 2020, the additional population introduced to the study area by anticipated developments will increase the demand on the area's open spaces. With that new population and the additional open space anticipated at Bushwick Inlet Park, Kedem Winery, Site 199, 184 Kent Avenue, Rose Plaza, and Northside Piers, the residential study area will remain underserved by open spaces in comparison to the City's guidelines. The open space ratios within the residential study area will decrease because many of the other anticipated development projects are not expected to provide publicly accessible open space. The overall open space ratio will be 0.668 acres per 1,000 residents, considerably lower than the City's planning guideline of 2.5 acres of total open space per 1,000 residents and the citywide median of 1.5 acres per 1,000 residents (see Table 6-6). As in existing conditions, the active and passive open spaces will provide insufficient space for the population. The passive ratio per 1,000 residents will be 0.366 acres and the combined passive ratio will be 0.310 acres per 1,000, well below the guideline combined ratio of 0.447 acres per 1,000 residents and workers. The active open space ratio will be 0.302 acres per 1,000 residents, in comparison to the City's planning guideline of 2.0 acres per 1,000 residents.

QUALITATIVE CONSIDERATION

As in existing conditions, in the No Action condition, residents will have access to open spaces just outside the study area. McCarren Park will continue to provide a substantial active open space resource. In addition, McCarren Park is anticipated to be fully renovated by 2012 with a new pool, a recreation center, a skate park, an ice rink, and the restoration of the historic

bathhouse and entry arch.[1] Existing active open space resources at McCarren Park that are expected to remain include an outdoor track, football/soccer field, four tennis courts, three baseball fields, a playground, basketball courts, and a multipurpose field. The renovation of McCarren Park pool, in particular, will substantially increase the availability of active open space near the study area because the pool is currently not open for active recreation. The other small parks and playgrounds near the study area will continue to offer predominantly active facilities.

E. THE FUTURE WITH THE PROPOSED PROJECT

STUDY AREA POPULATION

Assuming an average household size of 2.79,[2] the proposed project would introduce approximately 6,696 residents and 1,347 workers[3] to the project site. Of the 1,347 workers, 1,165 would be a new addition over the No Action condition (1,347 workers introduced by the proposed project, minus 182 that would be introduced in the No Action condition).

COMMERCIAL (¼-MILE) STUDY AREA

With the addition of the new residents and workers from the proposed project, the commercial study area would have 27,975 residents and 5,835 workers, for a combined population of 33,810.

RESIDENTIAL (½-MILE) STUDY AREA

The proposed project would increase the residential study area's total population (residents and workers) to 55,860. The residential population would be 47,384 and the worker population would be 8,476.

STUDY AREA OPEN SPACES

As discussed in Chapter 1, "Project Description," the proposed project would add approximately four acres of publicly accessible open space to the study area. This open space would include an approximately ¼-mile-long waterfront esplanade connecting to Grand Ferry Park to the north and to South 5th Street to the south. Connections from the waterfront to Kent Avenue would also be provided at South 1st, South 2nd, South 3rd, and South 4th Streets to facilitate public physical access to the waterfront. Several active and passive recreation areas would be located along the esplanade, including two playgrounds, a large lawn on the waterfront side of the Refinery complex, an active play lawn with a water feature that may function as an ice rink in winter, and several seating and gathering areas (see Figure 6-3). In addition, the Refinery lawn and esplanade could be used for passive recreation as well as active recreation, such as biking and running, and would connect to other off-site open spaces. This new open space would retain artifacts salvaged from the site's existing industrial buildings to reflect a sense of the site's industrial past. It is expected that approximately 2.4 acres would be for passive recreation and 1.6 acres would be for active recreation.

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[1] New York City Department of Parks & Recreation website; http://www.nycgovparks.org/sub_about/parks_divisions/capital/parks/mc_carren_park_and_pool.html; accessed February 22, 2008.

[2] This is the weighted average household size for the socioeconomic conditions ½-mile study area.

[3] The number of employees is based on the following assumptions: 3 employees per 1,000 sf of retail, 3 employees per 1,000 sf of community facility space, 1 employee per 25 residential units, 1 employee per 250 sf of office space, and 1 employee per 50 parking spaces.



1. Children's Play Area
2. Active Play Lawn
3. Refinery Lawn
4. North Lawn

NOTE: This figure has been revised for the FEIS

Open Space Plan
Figure 6-3

The active recreation space would be composed of two playgrounds totaling approximately 0.4 acres, an active play lawn of approximately 0.2 acres, a portion of the esplanade of approximately 0.7 acres, and a portion of the Refinery lawn of approximately 0.3 acres.[1]

Pursuant to Section 62-73 of the Zoning Resolution (ZR), the waterfront open space would be transferred to DPR ownership, and easements for public use would be granted to DPR for the upland connections. An agreement for the ongoing maintenance of the waterfront open space would be developed with DPR, pursuant to ZR Section 62-73, as described in Chapter 1, "Project Description."

COMMERCIAL (¼-MILE) STUDY AREA

With the addition of the open space on the project site, the total amount of open space in the commercial study area would be 24.81 acres, of which 13.91 would be for passive recreation and 10.90 would be for active recreation.

RESIDENTIAL (½- MILE) STUDY AREA

With the proposed project, the total amount of open space in the commercial study area would be 31.21 acres, of which 17.30 would be for passive recreation and 13.91 would be for active recreation.

ADEQUACY OF OPEN SPACES

COMMERCIAL (¼-MILE) STUDY AREA

In the future with the proposed project, the commercial study area would be well served by passive open spaces to meet the needs of workers, but would be underserved to meet the needs of the combined worker and residential population. The ratio of passive open space per 1,000 workers would decrease by 3.1 percent compared to the No Action condition (from 2.461 acres to 2.384 acres with the proposed project) but would be well above the City's guideline ratio (see Table 6-7). The ratio of passive open space for the total population (workers and residents) in the commercial study area would decrease by 7.1 percent (from 0.443 acres to 0.411 acres with the proposed project). This ratio would be less than the City's guideline ratios of 0.15 acres per 1,000 workers and 0.50 acres per 1,000 residents, for a combined guideline ratio of 0.440 acres.

Table 6-7
Future With the Proposed Project: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial (¼-Mile) Study Area										
Non-residents	5,835	24.81	10.90	13.91	N/A	N/A	2.384	N/A	N/A	0.15
Combined non-residents and residents	33,810				N/A	N/A	0.411	N/A	N/A	0.440*
Residential (½-Mile) Study Area										
Residents	47,384	31.21	13.91	17.30	0.659	0.294	0.365	2.5	2.0	0.50
Combined non-residents and residents	55,860				N/A	N/A	0.310	N/A	N/A	0.447*

Note: *Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents. Non-residents typically use passive spaces; therefore, for the non-residential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

[1] To reflect the fact that the Refinery lawn and the esplanade could be used for both active and passive recreation, this analysis allocated 1/3 of the Refinery lawn and ½ of the esplanade as active recreation space.

RESIDENTIAL (½-MILE) STUDY AREA

With the proposed project, as in existing conditions and the No Action condition, all open space ratios in the residential study area would remain below City guideline levels. The total open space ratio in the residential study area would decrease by 1.4 percent with the proposed project (from 0.668 acres in the No Action condition to 0.659 acres with the proposed project). The passive open space ratio per 1,000 residents would decrease by 0.2 percent, and the ratio for the combined population would be unchanged compared to the No Action condition (0.310 acres in both the No Action condition and the future with the proposed project). The active open space ratio would decrease by 2.9 percent (from 0.302 acres to 0.294 acres with the proposed project).

QUALITATIVE CONSIDERATIONS

As in the No Action condition, residents would continue to have access to open spaces just outside the study area. McCarren Park, which is anticipated to be fully renovated by 2012, would continue to provide an important active open space resource and would have a substantial new active recreation amenity with the reopening of the pool that has been closed since 1984. Active open space resources at McCarren Park total approximately 13.6 acres and are expected to include a pool, recreation center, skate park, ice rink, outdoor track, football/soccer field, four tennis courts, three baseball fields, a playground, basketball courts and a multipurpose field. The other small parks and playgrounds near the study area would continue to offer mainly active recreation facilities. As noted above, these parks include Marcy Green and Rodney Park—a series of small parks, playgrounds, and sitting areas along the Brooklyn-Queens Expressway (BQE)—as well as Roebling (P.S 16) Playground, a 1.23-acre open space with play equipment and basketball courts; Roberto Clemente ball field, a 1.24-acre ball field and sitting area; and, Jacob's Ladder Playground, a 0.85-acre playground. Altogether, these five parks have almost 6 acres of open space, of which 4.5 acres (75 percent) is active space.

Further, by adding a new, high-quality waterfront open space, the proposed project would provide connections to other esplanades and would provide opportunities for active uses such as running and biking along the Brooklyn waterfront. In addition, the proposed project would improve the community's access to the waterfront by creating four new upland connections to the waterfront. The waterfront open space would also provide new unobstructed views of the Williamsburg Bridge, the East River, and the Brooklyn and Manhattan skylines. As noted in the quantitative analysis, some of the on-site open space will be active space, specifically the two playgrounds and active play lawn with a water feature. Additionally, much of the proposed open space, such as the Refinery lawn and the waterfront esplanade, would be flexibly programmed to allow for active uses.

The proposed project's waterfront open space would represent a major new open space resource for the Williamsburg neighborhood. The proposed open space would serve the existing community as well as residents of the proposed project and other anticipated development projects.

Finally, residents of the proposed project would have access to open courtyards at the second floor level of the development. At some upper floors there would also be rooftop access which could be landscaped to provide additional private open space for the residents.

IMPACT SIGNIFICANCE

DIRECT EFFECTS

As described earlier in the discussion of methodology, direct adverse effects on an open space occur when a proposed action would cause the physical loss of public open space; change the use of an open space so that it no longer serves the same user population; limit public access to an open space; or cause increased noise or air pollutant emissions, odors, or shadows that would affect its usefulness, whether on a permanent or temporary basis.

As described in Chapter 7, "Shadows," the proposed project's development on Site A would result in several hours of incremental midday shadow on Grand Ferry Park throughout the year, which would cause a significant adverse impact on this open space during the fall, winter, and early spring. However, the proposed project would create a substantial amount of new public open space that would connect to Grand Ferry Park, thereby enhancing this park and extending waterfront access south to South 5th Street. During the spring, summer and fall seasons, the project-created open space would provide some sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow.

The significant adverse shadows impact on Grand Ferry Park would not result in a significant adverse open space impact because Grand Ferry Park would remain a usable open space and would be connected to the approximately 4 acres of landscaped public waterfront open space proposed as part of the project. Approximately 40 percent of the project's waterfront parcel would be dedicated to open space for both active and passive uses, which would exceed the waterfront open space requirements under the Greenpoint-Williamsburg rezoning. As noted above, the proposed project would also provide private open space for residents of the proposed project and users of the commercial office space and, although not accounted for in the quantitative analysis, could offset some project-generated demand for open space. In addition, several smaller parks and open spaces just outside the study area would continue to provide almost 6 acres of open space. Additionally, as noted in Chapter 23, "Mitigation," the applicant has reached agreement with DPR on mitigation measures. With these measures in place, the significant adverse shadows impact would be partially mitigated.

As discussed in Chapter 9, "Urban Design and Visual Resources," the pedestrian wind analysis conducted for the proposed project concluded that although the proposed project would create some elevated pedestrian wind conditions during the winter months, these conditions would essentially be minimized by landscaping features, and would be similar to those at comparable locations in the city. The project's Restrictive Declaration contains provisions defining circumstances under which the final tree planting layout detailed in the construction drawings may be required to undergo wind tunnel analysis to confirm its effectiveness in addressing the potential for elevated pedestrian wind conditions.

Overall, for the reasons described above, the proposed project would not result in any significant adverse impacts on open space due to pedestrian wind conditions or shadows.

As discussed in Chapter 21, "Construction," the proposed project would result in a temporary disruption to the southern edge of Grand Ferry Park during construction of the connection between the proposed project's public open space and Grand Ferry Park. The connection between these open spaces would be constructed while the buildings on Site A were under development, and Grand Ferry Park would not be affected during the rest of the project's construction period. Creating this connection would require construction activity within a

portion of the park. The design of the connection and the necessary construction work within Grand Ferry Park are being coordinated with DPR. This connection would enhance the use of Grand Ferry Park by providing access to the larger waterfront esplanade spanning the length of the project site. Measures would be taken to minimize the temporary disruption to this open space during construction. Therefore, construction of the proposed project would not result in a significant adverse impact on this open space.

The proposed project would not result in significant adverse hazardous materials, noise, or air quality impacts on any of the open spaces in the study area.

INDIRECT EFFECTS

Commercial (¼-Mile) Study Area

As discussed above, the passive open space ratio per 1,000 workers would decrease in the future with the proposed project but would continue to be well above the City's guideline ratio (see Table 6-8). In comparison, the passive open space ratio for the combined population of residents and workers would be below the guideline ratio and would decrease by approximately 7.0 percent. In absolute terms, the ratio would decrease by approximately 0.03 acres per 1,000 people, which would be a small decrease that would not overburden existing facilities. Although the ratio is below City guidelines, the *CEQR Technical Manual* acknowledges that City guidelines are not feasible in many parts of the city and therefore are not considered impact thresholds.

As described above in "Qualitative Considerations," by adding a new, high-quality waterfront open space, the proposed project would result in an improvement to the area's open space conditions that is not clearly reflected in the quantitative analysis. As noted above, the proposed project's waterfront open space would represent a major new open space resource for the Williamsburg neighborhood. The proposed open space would serve the existing community as well as residents of the proposed project and other anticipated development projects, many of which are not expected to provide publicly accessible open space. The proposed open space would provide access to the Williamsburg waterfront and would have the potential for connections with other waterfront esplanades. Furthermore, much of the proposed open space, such as the Refinery Lawn and the waterfront esplanade, would be flexibly programmed to allow for both active and passive uses.

Therefore, although the passive open space ratio for the combined population falls below City guidelines and would decrease with the proposed project, the proposed project would not result in significant adverse open space impacts in the commercial study area.

Residential (½-Mile) Study Area

In the residential study area, the active open space ratio, the passive open space ratio, and the total open space ratio would decrease with the proposed project. The active open space ratio would decrease by 2.9 percent (see Table 6-8) and would continue to fall short of DCP guidelines. The total open space ratio would decrease by 1.4 percent compared to the No Action condition. The passive open space ratio per 1,000 residents would decrease by 0.2 percent. These decreased ratios would be small and would not be considered a substantial change. Furthermore, it is recognized that the DCP guidelines are not feasible for many areas of the city, and they are not considered impact thresholds. As noted above in "Qualitative Considerations," McCarren Park, a destination open space with a substantial amount of active recreation facilities and a planned renovation that would improve and increase active recreation facilities, is located just outside the study area. Active open space resources at McCarren Park total approximately 13.6 acres and are expected to include a pool,

recreation center, skate park, ice rink, outdoor track, football/soccer field, four tennis courts, three baseball fields, a playground, basketball courts, and a multipurpose field. Several smaller parks that together provide almost 6 acres of open space, of which 4.5 acres are active space, are also located less than ¼ mile from the boundary of the study area. As noted above, these parks include Marcy Green and Rodney Park—a series of small parks, playgrounds, and sitting areas along the BQE—as well as Roebling (PS 16) Playground, a 1.23-acre open space with play equipment and basketball courts; Roberto Clemente ball field, a 1.24-acre ball field and sitting area; and Jacob's Ladder Playground, a 0.85-acre playground.

These open spaces would help to alleviate any open space shortage, particularly an active open space shortage. The proposed project would also add a new, high-quality waterfront open space to the study area with on-site active open space. As described above, the open spaces provided on-site would include two playgrounds, a large lawn on the waterfront side of the Refinery complex, and an active play lawn with a water feature that may function as an ice rink in winter. In addition, the Refinery lawn and esplanade would provide opportunities for active uses such as running and biking along the Brooklyn waterfront, and would provide connections to other off-site open spaces. As noted above, the proposed project's waterfront open space would represent a major new open space resource for the Williamsburg neighborhood. The proposed open space would serve the existing community as well as residents of the proposed project and other anticipated development projects.

Therefore, even though the active space ratio would decrease with the proposed project and would continue to fall below City guidelines, the proposed project would not result in a significant adverse impact on open spaces in the residential study area.

Table 6-8
Future with the Proposed Project: Open Space Ratios Summary

Ratio	City Guideline	Open Space Ratios			Percent Change No Action to Future With the Proposed Project
		Existing Conditions	No Action	Future With the Proposed Project	
Commercial (¼-Mile) Study Area					
Passive/Workers	0.15	1.639	2.461	2.384	-3.1%
Passive/Total Population	Weighted 0.388 / 0.437 / 0.440*	0.524	0.443	0.411	-7.1%
Residential (½-Mile) Study Area					
Total/Residents	2.5	0.700	0.668	0.659	-1.4%
Passive/Residents	0.5	0.403	0.366	0.365	-0.2%
Passive/Total Population	Weighted: 0.426 / 0.447 / 0.447*	0.318	0.310	0.310	0.1%
Active/Residents	2.0	0.298	0.302	0.294	-2.9%

Notes:
Ratios in acres per 1,000 people.
* Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it is different for existing, No Action, and future with the proposed project conditions. Each of these ratios is listed in this table.

PUBLIC SCHOOL OPTION

As described in Chapter 23, "Mitigation," the applicant will enter into an agreement with SCA to provide an option to locate an approximately 100,000-square-foot public elementary and intermediate school within the community facility space in the Refinery complex. Should this school be constructed, a portion of the project's open space may be set aside for school use as a

play area and staging area during school hours. This could result in modifications to the project's open space plan to meet requirements related to school play areas and access. These modifications to the open space plan would not materially affect the amount of open space available to the study area population.

The student population of the school would comprise a larger daytime population in the Refinery community facility space than that which was analyzed in the open space analysis. However, these students would not increase demand for open spaces in the study area because they would be drawn from the project site and surrounding area and would be present in the study area population even if the Refinery school was not built. They may also have access to on-site open space set aside for school use during school hours. Therefore, the provision of a public school in the Refinery complex would not alter the conclusion that the proposed project would not result in any significant adverse open space impacts.

As part of the agreement to locate a school in the Refinery, the SCA may defer construction of the Refinery until after construction of Site B. If that occurs, an interim open space connection between Site B and Site C would be established in front of the Refinery. The full open space program—including the balance of the large central lawn—would then be completed along with the build-out of the Refinery. ✷