Chapter 6: Open Space

A. INTRODUCTION

Using City Environmental Quality Review (CEQR) criteria, an open space analysis is presented in order to determine whether the Proposed Actions would have either a direct or indirect impact on a study area's open spaces. A direct effect on an open space occurs if a proposed action would cause the physical loss of a 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 pollution emissions, odors, or shadows that would temporarily or permanently affect its usefulness. If an action would add population to an area that population would typically place a demand on existing open space resources. Indirect effects may occur when the population generated by the proposed action would be sufficient to noticeably diminish the ability of an area's open space to serve the existing or future population.

Because of the substantial development that would occur as a result of the Proposed Actions, including the Development Site and the Additional Housing Sites, a detailed analysis of open space resources was conducted. This chapter assesses existing conditions (both users and resources) and compares conditions in the Future with and without the Proposed Actions to determine potential impacts.

PRINCIPAL CONCLUSIONS

The Proposed Actions would result in a direct significant adverse impact on open spaces due to shadows. The full build out of the Proposed Actions would also result in a significant adverse indirect active and total open space impact in the Development Site Study Area. The impact is described below, and potential mitigation measures are described in Chapter 24, "Mitigation."

The Proposed Actions would result in the creation of approximately 5.45 acres of open space on the Development Site.[1] This new open space would provide a considerable open space amenity for residents and workers in an area that currently lacks open space or parks. The new publicly accessible open space would provide active and passive recreational opportunities and attractive pedestrian connections between the Development Site, the High Line, the open space planned for the Eastern Rail Yard, and surrounding neighborhoods—areas that are currently separated visually and physically by the largely below-grade rail yard. A visual connection would also be established to Hudson River Park and the Hudson River Greenway. This new open space is anticipated to have a variety of elements, including lawns, landscaped areas, walking paths, seating areas, plazas, and one playground. Per zoning requirements, one playground is required on the Development Site. Although it is possible that another playground would be provided on

[1] In the DEIS, it was assumed that the Proposed Actions included approximately 5.0 acres of open space. However, subsequent to the DEIS, it was determined that a calculation of the amount of open space on the Development Site as per zoning requirements is approximately 5.45 acres.

the Development Site, it was assumed that one playground would be provided for a conservative analysis. The proposed open space would also serve an important role as a link in the open space network that will be developed throughout the Hudson Yards area. In the existing conditions, this area lacks significant parks or open space. In the Future without the Proposed Actions, a network of open spaces will be developed extending southward from West 36th Street through the first phase of Hudson Park and Boulevard into the Eastern Rail Yard and continuing along the High Line to the south. A portion of the proposed open space (approximately 1.48 acres) would be completed in the interim Build year (2017) and the total of approximately 5.45 acres of open space would be completed by the full Build year (2019).

There is no publicly accessible open space proposed at the two Additional Housing Sites. However, development at the Additional Housing Sites would comply with the recreation space requirements of the New York City Zoning Resolution Quality Housing Program. To comply with the requirements, the proposed developments would provide a minimum amount of recreation space for the building's residents to utilize. While this space would be for use by the building's residents only and is not considered publicly accessible for the purposes of the quantitative analysis in this chapter, the additional space would provide an on-site resource for the proposed residents.

DIRECT EFFECTS

The Proposed Actions would not displace or eliminate any existing open space resources. However, shadows from the proposed buildings on the Development Site are expected to result in a significant adverse impact on the planned Eastern Rail Yard open space during the spring, summer, and fall, when large incremental shadows would remove the remaining sunlight on the open space. The Proposed Actions would also result in a significant shadow impact at the Tenth Avenue Site. As a result of the Proposed Actions, much of the open space that will be constructed immediately to the east of the Tenth Avenue Site would be in shadow from early afternoon to the end of the day during each analysis day (see Chapter 7, "Shadows"). Potential mitigation measures for this significant adverse shadow impact are discussed in Chapter 24, "Mitigation."

INDIRECT EFFECTS

Development Site

While the Proposed Actions would provide a substantial amount of additional new open space in a part of the City largely devoid of parks and open space, the Proposed Actions would nevertheless result in a significant decrease in the active and total open space ratios (the amount of active or total open space per 1,000 persons) in the study area due to the introduction of workers and residents in the larger "residential" study area surrounding the Development Site (see Table 6-1). Thus, literal compliance with the *CEQR Technical Manual* methodology would result in a significant adverse environmental impact on open space. While the Proposed Actions would result in decreases to the passive open space ratios in the smaller "non-residential" and larger residential study areas, these decreases are not considered a significant adverse impact.

The exception, as noted below, is that open space ratios in the smaller "non-residential" study areas continue to be at or above City goals for workers and the total population in 2017 and for both workers and total population in 2019.

Table 6-1
Development Site Study Areas
Summary Open Space Ratios, 2017 and 2019

Ratio	City Guideline Ratio*	Existing Ratio	Future Without the Proposed Actions Ratio	Future with the Proposed Actions Ratio	Percent Change**
2017 Non-Residential Study Area					
Passive/Workers	0.15	0.16	0.30	0.27	-10.00
Passive/Total Population	0.22	0.15	0.24	0.21	-12.50
2017 Residential Study Area					
Total/Residents	2.5	1.01	1.15	1.09	**-5.22**
Active/Residents	2.0	0.61	0.44	0.42	-4.55
Passive/Residents	0.5	0.40	0.71	0.66	-7.04
Passive/Total Population	0.23	0.09	0.15	0.15	0.00
2019 Non-Residential Study Area					
Passive/Workers	0.15	0.16	0.30	0.32	6.67
Passive/Total Population	0.24	0.15	0.24	0.24	0.00
2019 Residential Study Area					
Total/Residents	2.5	1.01	1.15	1.03	**-10.43**
Active/Residents	2.0	0.61	0.44	0.39	**-11.36**
Passive/Residents	0.5	0.40	0.71	0.64	-9.86
Passive/Total Population	0.24	0.09	0.15	0.16	6.67

Notes: * Ratios in acres per 1,000 people.
** **BOLD** signifies that the ratio percent change indicates the potential for the Proposed Actions to result in a significant adverse impact.

Additional Housing Sites

The locations of the Additional Housing Sites are a sufficient distance away from the Development Site such that there would not be cumulative demand for open space resources. In the Future with the Proposed Actions, the study area would continue to experience an open space deficiency. While this is the case, the Proposed Actions would not result in a significant adverse impact for this study area in either analysis year because the open space ratios would change minimally.

B. METHODOLOGY

The open space analysis has been conducted in accordance with the methodology presented in the 2001 *CEQR Technical Manual*.

DIRECT EFFECTS ANALYSIS

A direct effect on an open space occurs if a proposed action would cause the physical loss of a 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 pollution emissions, odors, or shadows that would temporarily or permanently affect its usefulness.

This chapter uses information from Chapter 7, "Shadows," Chapter 19, "Air Quality and Greenhouse Gas Emissions," and Chapter 20, "Noise," to determine whether the Proposed Actions would directly affect any of the study area's open spaces. In addition, the shadows, air

quality, and noise conditions in the open spaces created as part of the Proposed Actions are discussed. The direct effects analysis is included in the "Future with the Proposed Actions" section of this chapter.

INDIRECT EFFECTS ANALYSIS

An indirect impact occurs if the Proposed Actions would overtax available open space. As described in Chapter 1, "Project Description," the Proposed Actions would result in development on both the Development Site and the Additional Housing Sites. Development at each of these project sites could potentially overtax area open spaces. Given that the Development Site and the Additional Housing Sites are separated by a considerable distance, separate study areas around the Development Site and the Additional Housing Sites have been established.

The methodology for assessing such open space impacts in the Development Site Study Area and Additional Housing Sites Study Area ("AHS Study Area") is described below.

STUDY AREAS

Establishing open space study areas that encompass the likely open space resources that new populations added by the Proposed Actions would use is the first step in assessing potential open space impacts. The study area is based on the distance a person is assumed to walk to reach a neighborhood open space. Workers typically use passive open spaces and are assumed to walk up to approximately ¼-mile from their workplaces. Residents are more likely to travel farther to reach parks and recreational facilities; they are assumed to walk up to about ½-mile to reach both passive and active neighborhood open spaces. The locations of the Additional Housing Sites are sufficiently far (greater than ½-mile) from the Development Site such that there is not a cumulative demand for open space resources and the study areas are distinct.

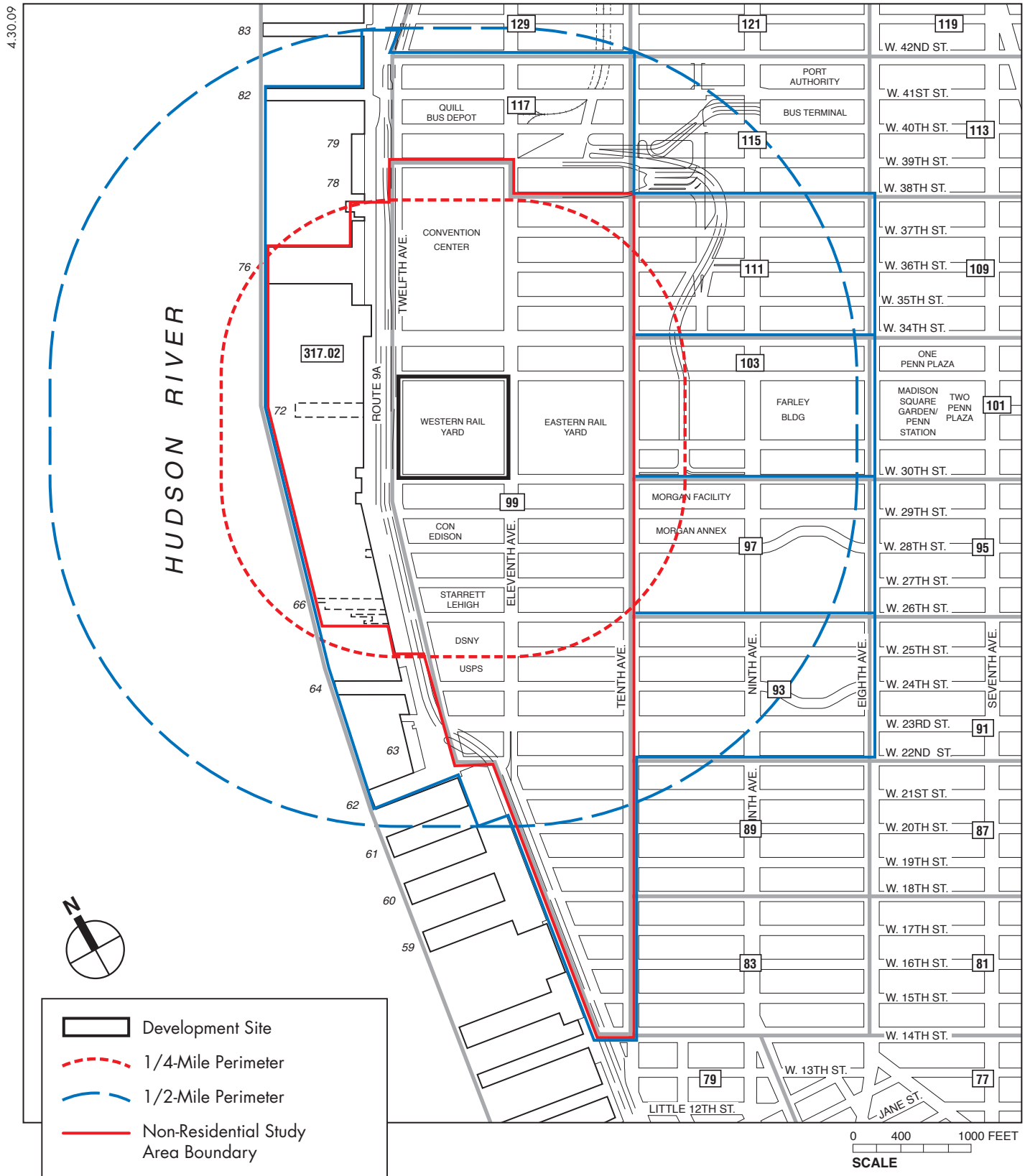
Development Site Study Areas

Because the Proposed Actions would have components that would generate both new residents and workers on the Development Site, two study areas were evaluated: a worker study area ("non-residential" study area) based on a ¼-mile distance from the Development Site and a residential study area based on a ½-mile distance from the Development Site. Each study area is described in detail below.

Non-Residential (¼-Mile) Study Area

As recommended in the *CEQR Technical Manual*, the non-residential open space study area comprises all census tracts that have at least 50 percent of their area located within ¼-mile of the Development Site. All open spaces, as well as all residents and employees within census tracts that fall at least 50 percent within the ¼-mile radius, were included in the non-residential study area. As shown in Figure 6-1, the non-residential study area only includes Census Tracts 99 and 317.02.[1]

[1] Only the open space portion of Hudson River Park and the Hudson River Greenway located within the ¼-mile and ½-mile radii are included in the quantitative analysis. However, to be conservative the entire population of the census tract in which Hudson River Park and the Greenway are located (317.02) is included in the quantitative analysis of the non-residential study area. The total population in this census tract includes approximately three residents and approximately 2,395 workers.



NOTE: Only a portion of Census Tract 317.2 is included in the study area

WESTERN **RAIL YARD**

Open Space Study Areas
Figure 6-1

Residential (½-Mile) Study Area

As mentioned above, residents typically walk up to ½-mile to access recreational spaces. While they may also visit certain regional parks (like Central Park), such open spaces were not included in the quantitative analysis but are described qualitatively. Therefore, the residential study area includes all census tracts that have at least 50 percent of their area located within ½-mile of the Development Site. All open spaces and the residents and employees of the census tracts that fall within the study area were included in this analysis (see Figure 6-1). In addition to the census tracts in the non-residential study area, the residential study area includes Census Tracts 93, 97, 103, 111, and 117.

AHS Study Area

The development that would occur at the Additional Housing Sites would generate approximately 270 new residents at the Ninth Avenue Site and approximately 510 residents at the Tenth Avenue Site, which would exceed the CEQR threshold for a residential analysis of open space impacts.[1] The Ninth Avenue Site would generate approximately 21 workers and the Tenth Avenue Site would generate approximately 35 workers.[2] Therefore, the development would not generate enough workers to warrant analysis of a non-residential open space study area. The residential study area is described below.

Residential (½-Mile) Study Area

The residential study area for the AHS Study Area includes Census Tracts 115, 117, 121, 125, 127, 129, 131, 133, 135, 137, 139, 145, 147, and 317.2 (see Figure 6-2).

OPEN SPACE USER POPULATIONS

Demographic data were used to identify potential open space users (residents and workers) within the non-residential and residential study areas. To determine the number of residents, 2000 U.S. Census Bureau population data were compiled for the tracts 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. To determine the number of employees, data was first compiled from the 2000 Census Bureau's reverse journey-to-work data. A background growth rate of 0.5 percent per year between 2000 and 2008 was applied to both the residential and worker populations to estimate the existing residential and worker populations.

In addition, population and employment projections have been made for the 2017 and 2019 analysis years in the Future without the Proposed Actions. These estimates are based on known developments expected to be completed by 2017 and 2019.

INVENTORY OF OPEN SPACE RESOURCES

All publicly accessible open spaces and recreational facilities within the Development Site and AHS Study Areas were inventoried to determine their size, character, and condition. Public spaces that do not offer usable recreational areas, such as spaces where seating is unavailable, were excluded from the survey, as were open spaces that are not easily accessible by the general

[1] The number of residents was estimated by multiplying the number of units that would be developed at each site by an average household size for affordable residential units of 2.5.

[2] Workers at both Additional Housing Sites include retail employees as well as residential building staff (i.e., maintenance workers and superintendant).

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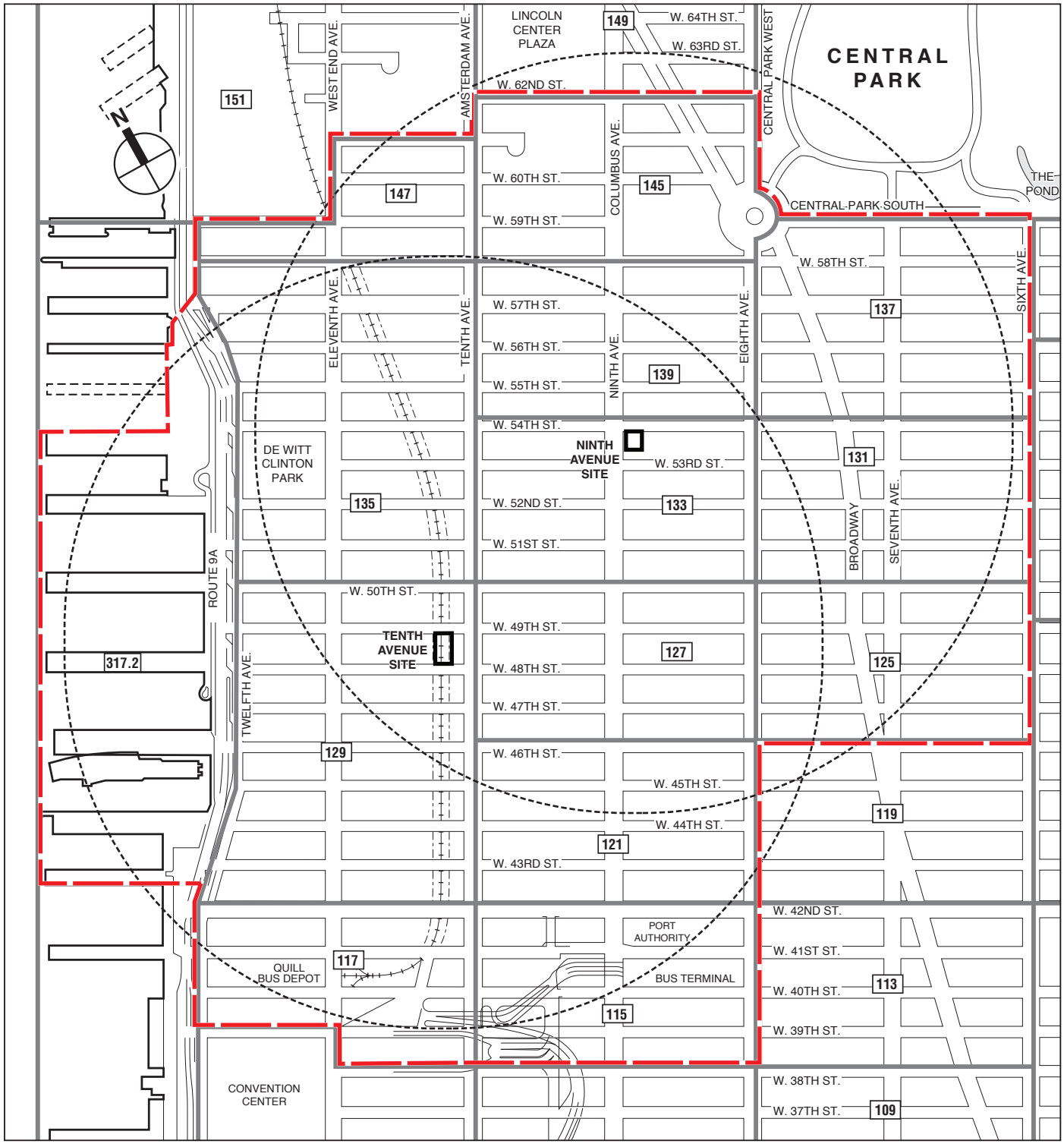


Project Sites

1/2-Mile Perimeter

Census Tract Boundary

89 Census Tract Number

Open Space Study Area Boundary

NOTE: Only a portion of Census Tract 317.2 is included in the study area

Additional Housing Sites
Open Space Study Area
Figure 6-2

public. The information used for this analysis was gathered through field studies conducted in September and October 2008 on weekdays and from the New York City Department of Parks and Recreation (DPR). At each open space, active and passive recreational spaces were noted. Active open space facilities are characterized by activities such as jogging, field sports, and children's active play. Such open space features might include basketball courts, baseball fields, or play equipment. Passive open space facilities are characterized by such activities as strolling, reading, sunbathing, and people-watching. Some spaces, such as lawns, and public esplanades, can be both active and passive recreation areas.

In addition to the open spaces located within the Development Site and AHS Study Areas, open spaces outside the study areas, including "destination parks" (such as portions of Hudson River Park and Central Park), were considered qualitatively. These open spaces are located beyond the ¼-mile or ½-mile study area boundaries but are likely to be utilized by the open space user population within the study area.

ANALYSIS YEARS

As described in Chapter 2, "Framework for Analysis," the analysis of the Proposed Actions is performed for the expected year of completion of the project—2019. In addition, an assessment of the Proposed Actions' potential environmental impact is undertaken for an interim year of development for certain technical areas, as appropriate. As described in Chapter 1, "Project Description," only a portion of the proposed open space on the Development Site would be completed in 2017 and the full 5.45 acres would not be completed until 2019. Therefore, the following analysis considers the potential for a significant adverse impact of the Proposed Actions for the interim (2017) and full (2019) Future with the Proposed Actions conditions.

ADEQUACY OF OPEN SPACE RESOURCES

Criteria for Quantified Analysis

The adequacy of open space in the study areas was quantitatively assessed using a ratio of usable open space acreage to the study area population, which is referred to as the open space ratio. The determination of the need for a detailed analysis is based on both the adequacy of the quantity of open space and how the Proposed Actions would change the open space ratios in the study areas compared with the ratios in the Future without the Proposed Actions. If a potential decrease in an adequate open space ratio exceeds 5 percent, it is generally considered to be a substantial change, warranting further analysis. However, if a study area exhibits a low open space ratio (i.e., below the guidelines in the *CEQR Technical Manual*, indicating a shortfall of open space), even a small decrease in that ratio as a result of the proposed action may have an adverse effect and would warrant detailed analysis.

For this chapter, a detailed open space analysis has been conducted because the Proposed Actions would introduce a large new population to an area considered to have an existing deficiency of open space (i.e., below 1.5 acres of total open space per 1,000 residents or below 0.15 acres of passive open space per 1,000 non-residents). To determine the significance of any potential adverse impacts in the Future with the Proposed Actions, the *CEQR Technical Manual* suggests both a quantitative and qualitative evaluation compared with conditions in the Future without the Proposed Actions.

As described in Chapter 2, "Framework for Analysis," in the Future with the Proposed Actions, the Development Site would be developed with one of two scenarios—a Maximum Residential

Scenario or a Maximum Commercial Scenario. Each scenario includes different development options. Overall, the Maximum Residential Scenario would include greater residential development while the Maximum Commercial Scenario would result in more commercial office space on the Development Site. To provide a conservative quantitative analysis, the added residential and worker population generated by the Maximum Commercial Scenario was used for the non-residential (¼-mile) analysis. The residential and worker populations generated by the Maximum Residential Scenario were used for the residential (½-mile) analysis.

Comparison to City Guidelines

To assess the adequacy of the quantity of open space resources, open space ratios were compared against goals set by the City. Although these open space ratios are not meant to determine whether a proposed action might have a significant adverse impact on open space resources, they are helpful guidelines in understanding the extent to which user populations are adequately served by open space resources. The following guidelines have been used in this analysis:

- For non-residential (worker) populations, 0.15 acres of passive open space per 1,000 non-residents is typically considered adequate.
- For residential populations, the City attempts to achieve a ratio of 2.5 acres per 1,000 residents for large-scale proposals. Ideally, this would comprise 0.50 acres of passive space and 2.0 acres of active open space per 1,000 residents. However, as noted above, these goals are often not feasible for many areas of the City, and they do not constitute an impact threshold. Rather, these are benchmarks that represent how well an area is served by its open space. Throughout New York City, local open space ratios vary widely, and the median ratio at the Citywide Community District level is 1.5 acres of open space per 1,000 residents.
- For the combined resident and non-resident population, a target passive open space ratio—established by creating a weighted average of the amount of open space necessary to meet the City 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—is considered in this analysis.

Impact Assessment

The impact assessment is based on how the Proposed Actions would change the open space ratios in the open space study areas combined with a qualitative assessment of such factors as the availability of nearby destination resources, the beneficial effects of new open space resources provided by the Proposed Actions, and the comparison of projected open space ratios with established City guidelines. A significant impact on open space may result if one of two situations occurs: (1) an action causes a direct displacement or alteration of an existing open space within the study area and has a significant adverse effect on existing users, unless the proposed action would provide a comparable replacement; and (2) an action would substantially reduce the open space ratio and consequently result in overburdening existing facilities or further exacerbate a deficiency in open space.

C. DEVELOPMENT SITE ANALYSIS

EXISTING CONDITIONS

STUDY AREA POPULATION

Non-Residential (¼-Mile) Study Area

As recommended in the *CEQR Technical Manual*, the non-residential study area includes all census tracts that have 50 percent of their area within ¼-mile of the Development Site. As shown in Figure 6-1, only Census Tract 99 is included in this area. The non-residential study area, or the boundaries of Census Tract 99, covers an area from West 39th and West 38th Streets to the north, Tenth Avenue to the east, West 14th Street to the south, and the Hudson River pierhead line to the west. Census Tract 317.02 does not have 50 percent of its area within a ¼-mile of the Development Site, but due to its proximity the analysis includes the portion of Hudson River Park and the Hudson River Greenway located within a ¼-mile of the Development Site. To be conservative the entire population of the census tract in which Hudson River Park is located (317.02) is included in the analysis.

Non-Residential Population

The existing (2008) worker population in the non-residential study area is estimated at 22,736 (see Table 6-2).

Table 6-2
Existing Resident and Worker Populations
Non-Residential (¼-Mile) Study Area

Census Tract	Resident Population*	Worker Population*	Total Population
Non-Residential (¼-Mile) Study Area			
99	1,202	20,341	21,543
317.02	3	2,395	2,398
Total population	**1,205**	**22,736**	**23,941**

Notes: * A background growth rate of 0.5 percent per year between 2000 and 2008 was applied to both the residential and worker populations to estimate the existing residential and worker populations.
Sources: U.S. Census of Population and Housing, 2000; 2000 Census Transportation Planning Package

Residential Population

As shown in Table 6-2, the existing (2008) residential population is estimated to be 1,205.

Total User Population

Within the non-residential study area, the total population (residents and workers) is 23,941. Although this analysis conservatively assumes that residents and workers are separate populations, it is possible that some of the residents live near their workplace. As a result, there is likely to be some double-counting of the daily user population in which residential and non-residential populations overlap, resulting in a more conservative analysis.

Residential (½-Mile) Study Area

The residential study area includes the two census tracts within the non-residential study area (Census Tracts 99 and 317.02) as well as five additional census tracts (Census Tracts 93, 97, 103, 111, and 117). As shown in Figure 6-1, the residential study area generally extends from West 42nd and West 38th Streets on the north, Eighth and Tenth Avenues on the east, West 14th Street on the south, and the Hudson River pierhead line on the west.

Non-Residential Population

Although there is no quantitative analysis dedicated to the worker population within the residential study area, the *CEQR Technical Manual* calls for a quantitative analysis of the passive open space ratio for the total population, which includes the worker as well as the residential populations. The residential study area is estimated to contain approximately 73,206 workers.

Residential Population

The residential study area, which encompasses the non-residential study area, is estimated to contain a residential population of 20,372 (see Table 6-3).

Table 6-3
Existing Resident and Worker Populations
Residential (½-Mile) Study Area

Census Tract	Resident Population*	Worker Population*	Total Population
Residential (½-Mile) Study Area**			
93	9,069	3,258	12,327
97	5,050	5,176	10,226
99	1,202	20,341	21,543
103	1,523	21,183	22,705
111	3,172	19,051	22,223
117	354	1,801	2,155
317.02	3	2,395	2,398
Total population	**20,372**	**73,206**	**93,577**

Note: * A background growth rate of 0.5 percent per year between 2000 and 2008 was applied to both the residential and worker populations to estimate the existing residential and worker populations.
** Residential study area totals include the worker and residential populations from the two census tracts within the non-residential study area.
Sources: U.S. Census of Population and Housing, 2000; 2000 Census Transportation Planning Package

Total User Population

Within the residential study area (and including the population within the smaller non-residential study area), the total residential and non-residential population is 93,577. Again, this count conservatively assumes that the residential and non-residential populations are entirely distinct from each other.

Adults between 20 and 64 years old constitute approximately 70 percent of the residential population (Table 6-4). Adults tend to utilize a variety of active and passive open space facilities. Children and teenagers account for approximately 12 percent of the residential study area's residents. This population segment tends to utilize active amenities, such as play equipment and basketball courts, more often than passive facilities. Senior citizens 65 years old or older make up approximately 16 percent of the population. This group tends to utilize more passive recreational amenities.

Table 6-4
Age Distribution of Study Areas

Census Tract	Population	Under 5 Years Old		5 to 9 Years Old		10 to 14 Years Old		15 to 19 Years Old		20 to 64 Years Old		65 Years and Older	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Non-Residential (¼-Mile) Study Area													
99	1,155	21	1.82	20	1.73	18	1.56	15	1.30	1,034	89.52	47	4.07
Residential (½-Mile) Study Area													
93	8,714	289	3.32	260	2.98	259	2.97	243	2.79	5,918	67.91	1,745	20.03
97	4,852	134	2.76	137	2.82	175	3.61	179	3.69	2,866	59.07	1,361	28.05
103	1,463	20	1.37	10	0.68	14	0.96	20	1.37	1,287	87.97	112	7.66
111	3,048	79	2.59	74	2.43	65	2.13	82	2.69	2,549	83.63	199	6.53
117	370	107	31.47	88	25.88	12	3.53	35	10.29	124	36.47	4	1.18
Total:	**19,602**	**650**	**3.32**	**589**	**3.00**	**543**	**2.77**	**574**	**2.93**	**13,778**	**70.29**	**3,468**	**17.70**

Note: Population has not been adjusted to reflect 2008 conditions.
Source: U.S. Census of Population and Housing, 2000

STUDY AREA OPEN SPACES

Non-Residential (¼-Mile) Study Area

The non-residential study area contains three publicly accessible open spaces with a total of approximately 9.22 total acres. The total acres of open space include approximately 3.70 acres of passive space and 5.52 acres of active space (see Table 6-5 and Figure 6-3).

Table 6-5
Existing Open Space Inventory

Map Ref.[1]	Name/Address	Owner/Agency	Acres of Open Space			Condition/ Utilization
			Total	Passive	Active	
Non-Residential (¼-Mile) Study Area						
1	Chelsea Waterside Park	Hudson River Park Trust	2.50	1.25	1.25	Excellent/High
2	Hudson River Park[2]	Hudson River Park Trust	2.45	2.45	0.00	Excellent/High
3	Hudson River Greenway[2]	DPR	4.27	0.00	4.27	Excellent/High
		Total	**9.22**	**3.70**	**5.52**	
Residential (½-Mile) Study Area						
4	River Place Plaza 640 West 42nd Street Plaza	River Place I LLC	0.74	0.74	0.00	Excellent/Moderate
5	Bob's Park: 456 West 35th Street	Clinton Housing West 40th Partners LP	0.05	0.04	0.01	Good/Low
6	Farley Building: Eighth Avenue, West 33rd to 34th Streets	United States Postal Service	0.38	0.38	0.00	Good/Moderate
7	Penn Station South Houses: West 23rd to 28th Streets between Eighth and Ninth Avenues	Mutual Redevelopment Houses, Inc.	2.04	1.26	0.78	Excellent/Moderate
8	Chelsea Park: West 28th Street between Ninth and Tenth Avenues	DPR	3.91	0.98	2.93	Good/Moderate
9	Elliot Houses: West 25th to West 27th Streets between Ninth and Tenth Avenues	NYCHA	0.97	0.64	0.33	Excellent/Moderate
10	P.S. 33 Playground	DOE	0.23	0.00	0.23	Good/Moderate
11	Chelsea Addition Houses: West 26th to West 27th Streets between Ninth and Tenth Avenues	NYCHA	0.26	0.00	0.26	Excellent/High
12	Chelsea Houses: West 25th to West 27th Streets between Ninth and Tenth Avenues	DPR	0.45	0.27	0.18	Excellent/Moderate
13	Penn Station South Playground	DPR	0.60	0.06	0.54	Excellent/High
14	Chelsea Recreation Center	DPR	0.39	0.00	0.39	Excellent/High
15	Hudson River Park[3]	Hudson River Park Trust	0.10	0.10	0.00	Excellent/High
16	Hudson River Greenway[3]	DPR	1.16	0.00	1.16	Excellent/High
		Subtotal	**11.28**	**4.47**	**6.81**	
		Total	**20.50**	**8.17**	**12.33**	

Notes:
All numbers are rounded to nearest hundredth of an acre.
DPR = New York City Department of Parks and Recreation
NYCHA = New York City Housing Authority
DOE= New York City Department of Education
1. Refer to Figure 6-3 for open space locations.
2. This acreage represents only the portion of Hudson River Park and the Hudson River Greenway within a ¼-mile of the Development Site.
3. This acreage represents only the portion of Hudson River Park and the Hudson River Greenway within a ½-mile of the Development Site. The portion of the Park and Greenway within the ¼-mile radius is not included.
Sources: DPR open space database; AKRF, Inc. field survey, September and October 2008.

Development Site Study Area
Existing Conditions Open Space Resources
Figure 6-3

The 2.50-acre Chelsea Waterside Park (No. 1 in Figure 6-3), located between Eleventh and Twelfth Avenues and West 22nd and West 24th Streets, is a large open space with a wide variety of amenities, such as basketball courts, children's soccer fields, a sprinkler area, dog run, paved walkways, picnic tables, and benches. This park is very well-maintained and used quite heavily.

Hudson River Park (No. 2 in Figure 6-3), a joint New York State and New York City resource managed by the Hudson River Park Trust, stretches from Battery Park at the south to West 59th Street to the north. The 5-mile park is divided into geographic areas called "segments." Of the total length, 2.45 acres of passive open space are located within the study area. This acreage includes portions of Segments 5 and 6. Segment 5 includes the "float bridge" at Pier 66, which is a newly restored historic pier, that provides a kayak launch, the Chelsea Upland Habitat area, a sail boat launch, and an education center. Segment 6 includes a skateboarding park at West 30th Street. The skateboarding park is only available for use between mid-April and November. Construction of Segment 5 is currently under way with the reconstruction of Piers 62, 63, and 64.

The Hudson River Greenway is also located within the study area. This continuous paved bikeway that was built as part of the Route 9A project allows users to stroll, bike, jog, or rollerblade along the Hudson River. The approximately 4.27 acres of the Greenway within the non-residential study area is entirely active.

Residential (½-Mile) Study Area

The residential study area includes 16 open spaces with a total of 20.50 acres divided between 8.17 acres of passive open space and 12.33 acres of active open space. These numbers include the 5.52 acres of active and 3.70 acres of passive open spaces, within the non-residential (¼-mile) study area.

The 3.91-acre Chelsea Park, which is operated by DPR, occupies an entire block between Ninth and Tenth Avenues, south of West 28th Street. Chelsea Park is devoted to both active and passive uses. Amenities include swings, jungle gyms, a comfort station, basketball courts, and ball fields. In addition, the park has trees, planters, and lighting for passive users. Penn Station South Houses, located between West 28th and West 23rd Streets and Eighth and Ninth Avenues, provides several open spaces for use by its residents and the public. Numerous sitting areas and landscaped paths are provided, along with play equipment for children. NYCHA operates several open spaces in connection with the Elliott, Chelsea and Chelsea Addition Houses developments. The Chelsea and Elliot Houses include jungle gyms, spray showers, benches, game tables, paths, and a garden interspersed between the buildings. The Chelsea Addition Houses is a senior housing facility that is surrounded by passive open space including benches and trees. These open spaces are located between West 25th and West 27th Streets and Ninth and Tenth Avenues.

The Chelsea Recreation Center, a DPR facility, is located at 430 West 25th Street. The six-story 56,000-square-foot (sf) facility includes a 25-yard-long pool, a full-sized basketball court, exercise rooms with free weights and cardiovascular equipment, a game room, space for aerobics and yoga classes, and a computer resource room that provides internet access. The Penn South Playground, located between West 25th and West 26th Streets and Eighth and Ninth Avenues, includes playground equipment and two basketball courts.

Bob's Park is located on West 35th Street between Dyer and Tenth Avenues. The community park, which contains a landscaped sitting area and play equipment, is accessible with a key obtained from Community Board 4. There are also two sitting areas within the ½-mile study area. The plaza at the River Place development at 640 West 42nd Street provides seating, and the

steps to the Farley Building can be utilized for seating. In addition to the open space within the ¼-mile study area, a total of 1.17 acres of the Hudson River Park (0.10 acres of passive open space) and the Hudson River Greenway (1.16 acres of active open space) are located within the residential study area.

Additional open spaces located just beyond the ½-mile radius of the Development Site augment the study area open space acreage. Hudson River Park extends south of the study area to Battery Park, and north of the study area to 59th Street. In addition to the continuous Hudson River Greenway bikeway along Route 9A, segment 4 of the Hudson River Park is completed. This section begins at Clarkson Street and continues north to Horatio Street. This segment provides landscaped areas, recreational piers, and a completed pedestrian pathway along the riverfront. Although this segment of Hudson River Park falls outside of the study area, it is likely that visitors to the park from the study area would venture south into this segment, and the linear pathway would allow people to access other destination open spaces north and south of the project area along the Hudson River, such as Riverside Park and Battery Park.

ADEQUACY OF OPEN SPACES

Non-Residential (¼-Mile) Study Area

As described above, the non-residential study area analysis focuses on passive open spaces that area workers may use. To assess the adequacy of the open spaces in the area, the ratio of workers to acres of open space is compared with 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 recommended weighted average ratio.

The non-residential study area is currently underserved by passive open spaces. Based on *CEQR Technical Manual* methodology, the area has a passive open space ratio of 0.16 acres of passive open space per 1,000 workers, which is slightly above the City's guideline of 0.15 acres (see Table 6-6). The combined passive open space ratio is 0.15 acres per 1,000 residents and workers, which is slightly below the recommended weighted average ratio of 0.17 acres per 1,000 residents and workers. These ratios indicate the worker population is well served by open space but there is a small shortfall of passive open space within the study area to serve the combined worker and resident populations.

Table 6-6
Existing Conditions: Open Space Ratios and Guidelines

Ratio*	City Guideline	Existing Open Space Ratio
Non-Residential (¼-Mile) Study Area		
Passive/Workers	0.15	0.16
Passive/Total Population	Weighted: 0.17**	0.15
Residential (½-Mile) Study Area		
Total/Residents	2.5	1.01
Active/Residents	2.0	0.61
Passive/Residents	0.5	0.40
Passive/Total Population	Weighted: 0.23**	0.09

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents.

Residential (½-Mile) Study Area

The following analysis of the adequacy of open space resources within the residential study area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and non-residents, and compares these to DCP open space guidelines.

All of the open space ratios are currently below their respective recommended City ratio. This indicates that the residential study area is underserved by area open spaces. The residential study area has a total open space ratio of 1.01 acres per 1,000 residents, which is below the City's recommended ratio of 2.5 acres of combined active and passive open space per 1,000 residents.

The active open ratio of 0.61 acres per 1,000 residents is also below the recommended guideline of 2.0 acres per 1,000 residents. The passive open space ratio of 0.40 acres per 1,000 people is below the City's recommended guideline of 0.5 acres.

For the combined worker and resident populations, the residential study area has a passive open space ratio of 0.09 acres, less than the City's recommended weighted average guideline ratio of 0.23 acres per 1,000 residents and workers.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the 2019 Future without the Proposed Actions, the Development Site would remain as a largely below-grade rail yard.

STUDY AREA POPULATION

As discussed in Chapter 2, "Framework for Analysis," in the Future without the Proposed Actions, there are a substantial number of additional new residential and commercial developments currently under construction or planned that are expected to be completed within the study areas by 2019. These developments will increase both the residential and worker populations within the non-residential and residential study areas. A significant number of the proposed developments will be constructed in the West Chelsea neighborhood, particularly in the area between Tenth and Eleventh Avenues. This area, which is very close to the Development Site, is currently defined by a mix of uses, but does not contain a significant amount of passive or active open space. Future development would introduce new residential and worker populations that would place further demands on existing and future open space resources. The future developments are described in detail below.

Non-Residential (¼-Mile) Study Area

There are 37 new developments that will be completed in the non-residential study area by 2019. It is anticipated that these developments would add 11,304 residents[1] and 31,188 workers to the non-residential study area, which will bring the total population to 66,433. The total population will be divided between 12,509 residents and 53,924 workers.

[1] The number of residents generated by new development is estimated by multiplying the number of residential units (6,568) by the weighted average household size for the Development Site Study Area (1.68).

Residential (½-Mile) Study Area

In addition to the new development that will occur in the non-residential study area, additional residential and commercial development projects are expected to be constructed in the residential study area. In total, these projects will add 17,724 new residents and 63,391 new workers to the residential study area, bringing the residential study area's residential population to 38,096, its worker population to 136,597, and its total residential and worker population to 174,692.

STUDY AREA OPEN SPACES

As shown in Figure 6-4, several publicly accessible open spaces will be added to both the non-residential and residential study areas by 2019.

Non-Residential (¼-Mile) Study Area

As shown in Table 6-7, a total of 12.46 acres of open space will be added to the non-residential study area by 2019. All of the new open space will be programmed for passive use. Overall, this additional open space acreage will increase the total amount of open space within the non-residential study area to 21.68 acres, which will consist of 16.16 acres of passive open space and 5.52 acres of active open space.

Table 6-7
Future Without the Proposed Actions: New Open Space Resources

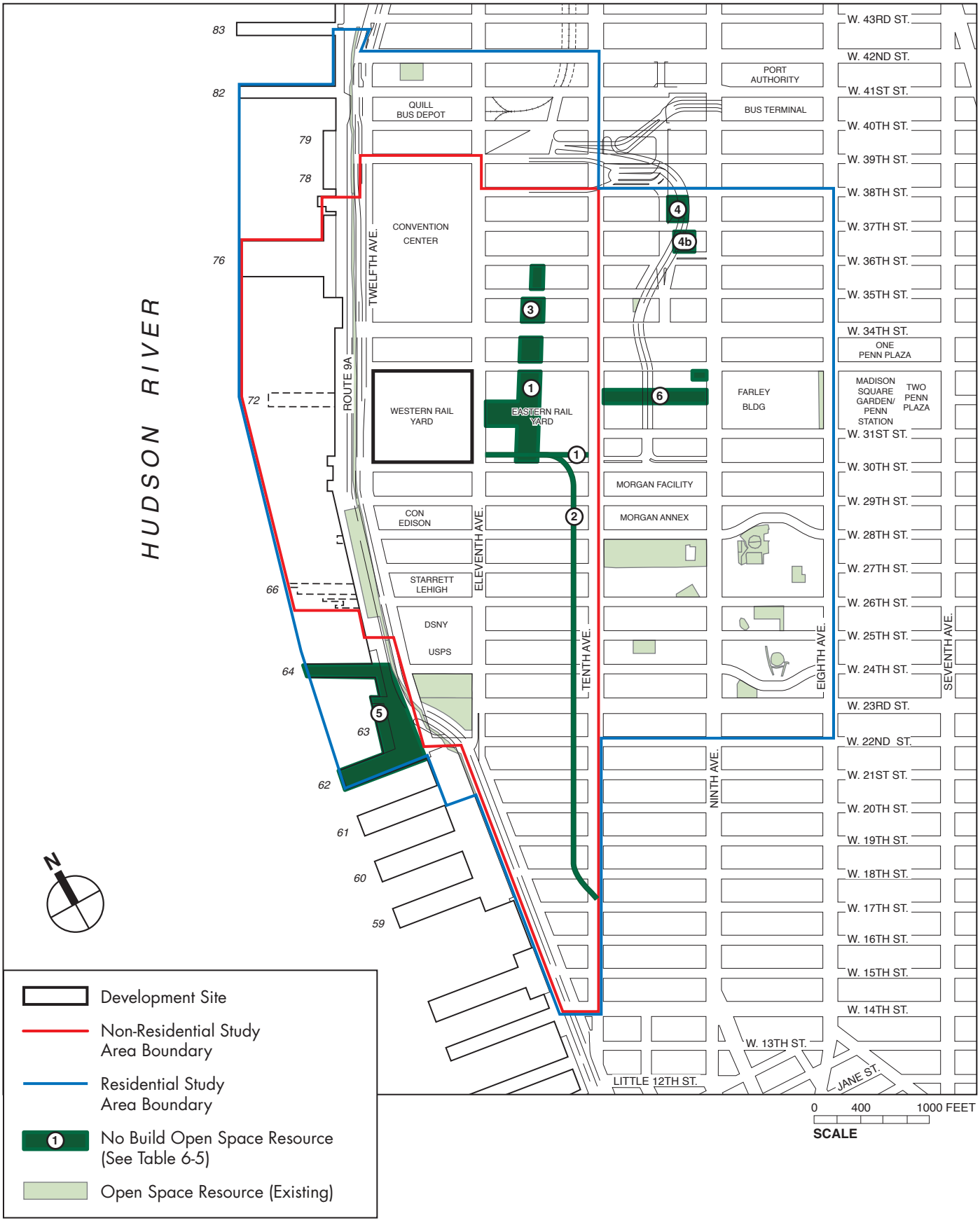
Map ID No.*	Name	Total Acres	Passive Acres	Active Acres
Non-Residential Study Area				
1	Eastern Rail Yard	5.93**	5.93	0.00
2	High Line – Sections 1B, 2, and 3	4.41	4.41	0.00
3	Hudson Park and Boulevard	2.12	2.12	0.00
Subtotal		**12.46**	**12.46**	**0.00**
Residential Study Area				
4a	Hudson Mews I (North)	0.48	0.46	0.02***
4b	Hudson Mews II (South)	0.08	0.08	0.00
5	Hudson River Park	9.20	4.60	4.60
6	Brookfield Development Plaza	1.15	1.15	0.00
	Total	**23.37**	**18.75**	**4.62**

Notes:
* See Figure 6-4 for open space locations.
** The total amount of open space on the Eastern Rail Yard includes the adaptive reuse of 0.7 acres of the High Line.
*** Size of Hudson Mews North playground estimated based on site plan.
Sources: DPR and DCP.

The open spaces that will be added to the non-residential study area are described below.

Eastern Rail Yard

A large public square and two urban plazas are expected to be located over the Eastern Rail Yard from West 30th to West 33rd Streets between Tenth and Eleventh Avenues. The largest area will be the central open space, which will be surrounded by buildings with ground-floor retail uses. It is conservatively assumed that this public square will be programmed as passive open space, although some space could potentially be programmed for active use. In addition to these open space areas, the portion of the High Line that runs along West 30th Street on the Eastern Rail Yard will be adaptively reused to provide approximately 0.70 acres of passive open space.



Development Site Study Area
Future Without the Proposed Actions
Open Space Resources
Figure 6-4

The Eastern Rail Yard development will also include an enclosed atrium and circulation space in the base of the proposed building fronting on Tenth Avenue. The interior space will include through-block connections allowing for pedestrian access between the central open space and Tenth Avenue. While workers and residents may use this interior space for public access, it was conservatively not included in the quantitative analysis.

High Line – Sections 1B, 2, and 3

The High Line, formerly a freight railroad line, will be adaptively reused to provide a linear publicly accessible passive open space that will run primarily between Tenth and Eleventh Avenues from Gansevoort Street to West 30th Street. Within the study areas, the High Line will add 4.41 acres of passive open space. The space will feature a variety of landscapes, including a grassland preserve, forest platform, and woodland living room. The park will also include seating, water features, and a variety of pedestrian amenities including a shade garden, a public plaza near West 18th Street, a butterfly garden, and lighting both above and below the elevated platform.

Hudson Park and Boulevard

Overall, the City is planning to construct a 4.0-acre mid-block park and boulevard system in the midblocks between Tenth and Eleventh Avenues from West 33rd Street to West 39th Street with a pedestrian bridge connecting to West 42nd Street. The open space is expected to be built in two phases. The first segment, consisting of approximately 2.12 acres of passive space, will extend from West 33rd to West 36th Streets and will be completed by 2013. The remaining segment between West 36th and West 39th Streets and the pedestrian bridge will be completed in the future (beyond 2019), and is not considered in this analysis. The open space will contain a variety of amenities, including, but not limited to benches, plantings, and walkways.

Residential (½-Mile) Study Area

As shown in Table 6-7, a total of 23.37 acres of open space will be added to the residential study area by 2019. This total acreage will comprise 18.75 acres of passive open space and 4.62 acres of active open space. Overall, this additional open space acreage will increase the total amount of open space within the residential study area to 43.87 acres, which will include 26.92 acres of passive open space and 16.95 acres of active open space.

The open spaces that will be added to the residential study area are described in detail below.

Hudson Mews North and South

Publicly accessible open spaces associated with the Hudson Mews I (North) and II (South) development projects are expected to be added to the residential study area by 2019. Hudson Mews South will be developed with a 0.08-acre pocket park located over the Lincoln Tunnel access ramps on the east side of Dyer Avenue between West 36th and West 37th Streets. Amenities of the pocket park will include a water feature at its southern end, seating, and landscaping. Additionally, the northern end of this open space will link across West 37th Street to the larger public open space associated with the Hudson Mews North development. This through block open space will be located in the midblock between West 37th and West 38th Streets between Ninth and Tenth Avenues. The northern open space will consist of approximately 0.48 acres and will include a central lawn and seating. Landscaping will be located along the edges of the open space, and will include in ground plantings and plantings in raised planter boxes. A small playground will be located in the northern portion of the open space. Together, these developments will add 0.56 acres of publicly accessible open space to the area.

Hudson River Park

The northern portion of Segment 5 of Hudson River Park is expected to be developed by 2019. Located between West 22nd and 24th Streets, Chelsea Cove consists of Piers 62-64 and will be one of the largest continuous park spaces within Hudson River Park. Chelsea Cove will feature a broad central lawn. This portion of the park will be designed with an enclosed grove separating the park from the highway. Active recreation will include a skate park. Chelsea Cove is expected to add 9.2 acres of open space to the study area equally divided between active and passive uses.

Brookfield Development

A 1.15-acre passive open space is expected to be completed by 2019 as part of the Brookfield Development commercial project. The passive open space will be located on the superblock between West 31st and West 33rd Streets and Ninth and Tenth Avenues. The open space will include a covered pedestrian space along the length of the site with a public plaza fronting on Ninth Avenue, a public plaza on the northeast corner of the site, and a plaza along the western edge of the site that will run in a north to south direction. The public plazas would contain seating, plantings, trees, lighting, bicycle parking, and a drinking fountain.

ADEQUACY OF OPEN SPACES

Non-Residential (¼-Mile) Study Area

In the Future without the Proposed Actions, both of the open space ratios will increase. The passive open space ratio will increase to 0.30 acres of passive open space per 1,000 workers, which will exceed the City's guideline of 0.15 acres (see Table 6-8). The combined passive open space ratio will be 0.24 acres per 1,000 residents and workers, which is also above the recommended weighted average ratio of 0.22 acres per 1,000 residents and workers. These ratios indicate there will be sufficient passive open space within the study area to serve the worker and the combined worker and resident populations.

Table 6-8
Future Without the Proposed Actions—2019:
Open Space Ratios and Guidelines

Ratio*	City Guideline	Open Space Ratios	
		Existing	Future Without the Proposed Actions
Commercial (¼-Mile) Study Area			
Passive/Workers	0.15	0.16	0.30
Passive/Total Population	Weighted 0.17 / 0.22**	0.15	0.24
Residential (½-Mile) Study Area			
Total/Residents	2.5	1.01	1.15
Active/Residents	2.0	0.61	0.44
Passive/Residents	0.5	0.40	0.71
Passive/Total Population	Weighted: 0.23 / 0.23**	0.09	0.15

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it can be different for Existing and Future without the Proposed Actions conditions. Each recommended guideline is listed in this table (Existing / Future without the Proposed Actions).

Residential (½-Mile) Study Area

As shown in Table 6-8, in the Future without the Proposed Actions in 2019, the total and passive open space ratios for residents and the passive open space ratio for the total population will increase. Only the active open space ratio for residents will decline. While the total open space ratio will increase to 1.15 acres per 1,000 residents, this ratio will still be below the City guideline of 2.5 acres per 1,000. However, the passive open space ratio will increase to 0.71 acres per 1,000 residents, which will exceed the City guideline of 0.50 acres per 1,000 residents. The active open space ratio will decrease to 0.44 acres per 1,000 residents, which is also below the City guideline of 2.0 acres per 1,000 residents. Finally, the passive open space for the total population will remain at 0.15 acres per 1,000 residents and workers, but this ratio will remain below the City guideline.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2019

DIRECT EFFECTS

Shadows

As detailed in Chapter 7, "Shadows," the Proposed Actions would cast shadows on open spaces surrounding the Development Site as well as the proposed open spaces on the Development Site. Specifically, the Hudson River Park, the Hudson River Greenway, the Hudson Park and Boulevard, and the Eastern Rail Yard open space would all experience incremental shadow. However, the Proposed Actions would not result in a significant adverse shadow impact on the Hudson River Park, the Hudson River Greenway, or the Hudson Park and Boulevard. Each of these open spaces would continue to experience a great deal of direct sunlight, and the Proposed Actions would not result in a significant adverse shadows impact.

The incremental shadow from the Proposed Actions would result in a significant adverse shadow impact on the open space planned in the Eastern Rail Yard. In the late spring and summer, incremental shadows would fall across portions of the open space for over four hours. On the March 21 and September 21 analysis days, shadows would cover the open space for two and a half hours. During each day, the large areas of new shadow would remove most of the remaining sunlight, and would therefore cause a significant adverse impact on this open space resource. Potential mitigation measures for this significant adverse shadow impact are discussed in Chapter 24, "Mitigation."

The proposed open spaces on the Development Site would be cast in shadow during each of the four analysis periods. On March 21 and September 21, a large open space in the central portion of the Development Site and an open space along the western portion of the site would be shadow during the morning and midday, while the open space in the southwestern section of the Development Site would be in shadow during the morning. From May to August, all of the proposed open spaces would be in shadow for most of the morning. During these months, the central open space would be in shadow throughout the day. During the winter, the central open space would also be in shadow throughout much of the day. Although the shadows on these open spaces could diminish their appeal for certain passive recreational activities, they could still be used for other activities, such as strolling or reading. On warm days, shaded portions of these open spaces may be preferred by users of passive open space. Therefore, even with extensive shadows during the fall through spring months, the new open spaces would be a beneficial resource for this neighborhood, which is underserved in terms of open space. The popularity of certain other open space resources in the City that are in densely developed areas and are heavily

shadowed—Tudor City Greens, the Museum of Modern Art garden, Rockefeller Center Plaza, etc.—demonstrates that open spaces in substantial shadow can still serve as useful community amenities. Although new open spaces created as part of the Proposed Actions would be affected by shadow, this shadowing is not considered to be a significant adverse impact, as the open spaces are created as part of the Proposed Actions.

Noise

As described in Chapter 20, "Noise," noise levels on each of the open spaces on the Development Site would be above 55 dBA $L_{10(1)}$, exceeding the *CEQR Technical Manual* noise exposure guidelines for outdoor areas requiring serenity and quiet. However, the noise levels in these new open space areas would be comparable to noise levels in several other New York City open space areas and parks that are also located adjacent to heavily trafficked roadways, including Hudson River Park, Riverside Park, Central Park, and Bryant Park. For the portion of Hudson River Park to the west of the Development Site between West 30th and West 33rd Streets, measured $L_{10(1)}$ noise levels were recorded above 80 dBA. Although the 55 dBA $L_{10(1)}$ guideline is a worthwhile goal for outdoor areas requiring serenity and quiet, this relatively low noise level is typically not achieved in parks and open space areas in New York City. Consequently, noise levels in the new open spaces, while exceeding the 55 dBA $L_{10(1)}$, would not result in a significant adverse noise impact. Furthermore, the noise on the new open space resources created as part of the Proposed Actions would not be considered significant or adverse, as the open spaces are created as part of the Proposed Actions.

Air Quality

As analyzed in Chapter 19, "Air Quality and Greenhouse Gas Emissions," the Proposed Actions would not result in a significant adverse air quality impact. Therefore, no direct effects on open space from air pollutants or odors are expected as a result of the Proposed Actions.

INDIRECT EFFECTS

As described in Section B, "Methodology," to provide a conservative analysis, the residential and worker population generated by the Maximum Commercial Scenario for the Development Site was considered for the non-residential (¼-mile) analysis. The residential and worker populations generated by the Maximum Residential Scenario or the Development Site were considered for the residential (½-mile) analysis.

Study Area Population

Non-Residential (¼-Mile) Study Area

By 2019, the Maximum Commercial Scenario would generate 8,079 new residents and 9,596 new workers. With the addition of these new residents and workers the commercial study area's residential population would be 20,588, the worker population would be 63,520, for a total residential and worker population of 84,108.

Residential (½-Mile) Study Area

By 2019, the Maximum Residential Scenario would generate approximately 10,000 new residents and 6,865 new workers. These new populations would increase the residential study area's total (residential and worker) population to 191,557. The residential population would be 48,096 and the worker population would be 143,462.

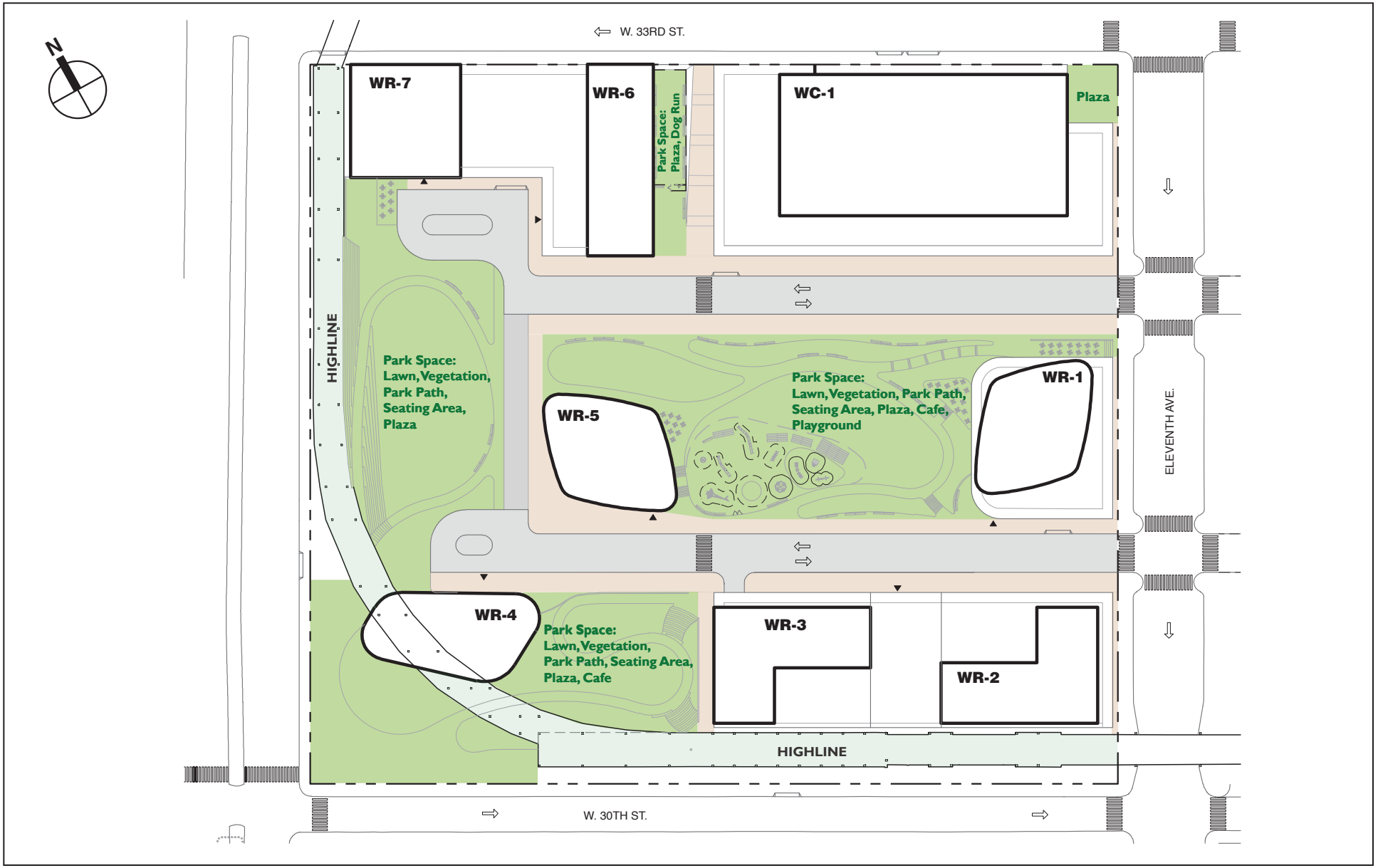
Study Area Open Spaces

By 2019, the Proposed Actions would add a total of approximately 5.45 acres of open space to the Development Site (see Figure 6-5). The new publicly accessible open space would provide active and passive recreational opportunities and attractive pedestrian connections between the Development Site, the High Line, and the surrounding neighborhoods—areas that are currently separated visually and physically by the largely below-grade rail yard. A visual connection would also be established to the Hudson River Park and Hudson River Greenway. This new open space is anticipated to have a number of elements, including lawns, landscaped areas, walking paths, seating areas, plazas, and a dog run. The Developer has committed to build one playground on the Development Site. This analysis assumes that one playground would be located in the large lawn in the central portion of the Development Site. In total, the playground would comprise approximately 0.23 acres.

As described in Chapter 1, "Project Description," and Chapter 3, "Land Use, Zoning, and Public Policy," the proposed zoning would create several zones of publicly accessible open spaces on the Development Site, with core open space elements defined for each zone. Within each zone, the zoning would mandate specific features and core elements, as well as connection requirements between zones. Amenities in the open spaces would need to generally meet the privately owned public plaza standards of the Zoning Resolution. Appendix A, "Proposed Zoning Text," provides a complete version of the proposed zoning text amendment. The Developer has prepared an illustrative site plan consistent with the proposed zoning regulations. Although this plan reflects the Developer's current approach to site planning, it must be considered illustrative, since it is not fully designed and may change based on a more detailed design process. The description below regarding the open space design reflects what is currently contemplated by the illustrative site plan.

The 5.45 acres would be located throughout the Development Site. The second largest open space area, which would be approximately 1.42 acres, would be located generally in the middle of the Development Site (see Figure 6-5). This open space, between buildings WR-1 and WR-5 is anticipated to contain a lawn, vegetation, a walking path, a seating area, a plaza, and a playground. A 1.14-acre area of open space would surround building WR-4. This tiered open space is anticipated to feature a lawn, walking path, seating area, and a plaza. This open space would provide street-level access to West 30th Street and Twelfth Avenue. Directly north of this open space, a 1.51-acre open space lawn area would be located at the platform level along Twelfth Avenue between WR-4 and WR-7 and is anticipated to feature a walking path, a plaza, and seating. A 0.26-acre plaza, anticipated to contain a dog run and through-block pedestrian connection to West 33rd Street, would be located directly adjacent to building WR-6 and would run north-south from West 33rd Street to the West 32nd Street upland connections. A 0.06-acre plaza would be located at the southwest corner of Eleventh Avenue and West 33rd Street. Finally, the portion of the High Line located within the Development Site would be adaptively reused as a result of the Proposed Actions as 1.05 acres of passive open space elevated above the Development Site. This open space would provide a pedestrian pathway that would run parallel to Twelfth Avenue before curving to the east and running parallel to West 30th Street. This open space would then connect to the portion of the High Line on the Eastern Rail Yard (to be developed in the Future without the Proposed Actions) to the east of the Development Site.

In accordance with *CEQR Technical Manual* guidelines, portions of the proposed lawn areas have been assumed as active and passive open spaces. Although the exact size of the playground has not been determined, for analysis purposes it assumed that the playground would be



Development Site Boundary

Development Site: 2019 Proposed Open Space

Figure 6-5

approximately 0.23 acres. As described above, one playground is assumed to be located on a portion of the large central lawn. The portion of the central lawn not occupied by the playground (approximately 1.19 acres) is assumed to be evenly divided into active and passive acreage. The 1.14-acre open space in the southwest portion of the Development Site is anticipated to have a tiered design and the proposed topography may limit its use to passive recreation. The 1.51-acre open space lawn area along Twelfth Avenue is assumed to be evenly divided between active and passive open space. In total, the analysis assumes approximately 3.87 acres of passive open space and 1.58 acres of active open space by 2019.

As per School Construction Authority (SCA) and Department of Education (DOE) guidelines, the proposed school on the Development Site would include a playground to accommodate its 750 new students. Discussions with SCA and DOE are ongoing to determine the design and placement of the school playground. As noted above, a commitment has been made to create one playground on the Development Site. While it has not been determined, the school playground may be used by the school children during school hours and would be open to the public after school hours and on weekends.

Adequacy of Open Spaces

Non-Residential (¼-Mile) Study Area

Quantitative Analysis. As shown in Table 6-9, the ratio of passive open space per 1,000 workers would remain above the City's recommended guideline of 0.15 acres and would increase by approximately seven percent from the Future without the Proposed Actions. The ratio indicates that the worker population would continue to be well served by passive open spaces. The passive open space ratio for the combined residential and worker population would equal the recommended ratio and would be the same as the Future without the Proposed Actions condition.

Table 6-9
Future with the Proposed Actions—2019:
Open Space Ratios and Guidelines

Ratio*	City Guideline	Open Space Ratios			
		Existing Conditions	2019 Future Without the Proposed Actions	2019 Future With the Proposed Actions**	2019 Percent Change from Future Without to Future With the Proposed Actions
Non-Residential (¼-Mile) Study Area					
Passive/Workers	0.15	0.16	0.30	0.32	6.67
Passive/Total Population	Weighted 0.17/0.22/0.24***	0.15	0.24	0.24	0.00
Residential (½-Mile) Study Area					
Total/Residents	2.5	1.01	1.15	**1.03**	**-10.43**
Active/Residents	2.0	0.61	0.44	**0.39**	**-11.36**
Passive/Residents	0.5	0.40	0.71	0.64	-9.86
Passive/Total Population	Weighted: 0.23/0.23/0.24***	0.09	0.15	0.16	6.67

Notes:
* Ratios in acres per 1,000 people.
** **BOLD** signifies that the ratio change indicates the potential for the Proposed Actions resulting in a significant adverse impact.
*** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this targeted open space ratio guideline depends on the proportion of non-residents and residents in the study area's population, it can be different for existing, Future without the Proposed Actions, and Future with the Proposed Actions conditions. Each of these ratio guidelines is listed in this table (Existing / 2019 Future without the Proposed Actions / 2019 Future with the Proposed Actions).

According to the *CEQR Technical Manual*, a five percent decrease in open space ratios is considered a substantial change (and, for areas that are not well served by open spaces, changes of one percent can be significant). As described above, the passive open space ratio per 1,000 workers would increase by approximately seven percent and would remain above the City guideline. These two conditions indicate that workers would be well served by passive open space in the 2019 Future with the Proposed Actions. The passive open space ratio for the total population would remain the same and would equal the City guideline, which indicates that the Proposed Actions would not result in a significant adverse passive open space impact for the total population.

Residential (½-Mile) Study Area

Quantitative Analysis. In the residential study area, only the passive open space ratio would be above the City's recommended guideline. Three of the four open space ratios would decline in the Future with the Proposed Actions. The total open space ratio would decline by approximately ten percent (from 1.15 to 1.03 acres per 1,000 residents). The active open space ratio would decline by approximately 11 percent (from 0.44 to 0.39 acres per 1,000 residents) and would remain well below the City guideline of 2.0 acres per 1,000 residents. The passive open space ratio would decline by approximately ten percent (0.71 to 0.64 acres per 1,000), but would remain above the City's guideline of 0.5 acres per 1,000 residents. Finally, the passive open space ratio for the total population would increase by approximately seven percent in the Future with the Proposed Actions but would remain below the recommended guideline of 0.24 acres per 1,000 residents and workers.

The total and active open space ratios would remain substantially below the recommended City guideline. The decline in the total, active, and passive open space ratios for residents as a result of the Proposed Actions exceeds the one percent threshold that is considered a substantial change in areas that are not well-served by open space, according to the *CEQR Technical Manual*. However, the passive open space ratio would exceed the City guideline. As such, the substantial changes to the total and active open space ratios indicate that the Proposed Actions would result in a significant adverse total and active indirect open space impact.

While the passive open space ratio would also experience a decrease, this change would not result in a significant adverse impact. The passive open space ratio for residents would continue to exceed the recommended ratio. This indicates that residents would continue to be well-served by the study area's passive open space resources. Furthermore, the passive ratio would exceed the City guideline of 0.5 acres per 1,000 residents by approximately 28 percent. Therefore, the Proposed Actions would not result in a significant adverse passive open space impact. Finally, although the passive open space ratio for the total population would remain below the recommended guideline, this ratio would increase by seven percent as a result of the Proposed Actions. This indicates that the Proposed Actions would not exacerbate an existing shortfall and would not result in a significant adverse passive open space impact on the total population.

Qualitative Analysis. Overall, the Proposed Actions would result in the creation of 5.45 acres of high quality passive and active open space on the Development Site that would serve residents, workers, visitors, and the general public. This would include the adaptive reuse of the High Line that runs parallel to Twelfth Avenue and parallel to West 30th Street as passive open space. This open space would then connect to the portion of the High Line on the Eastern Rail Yard (to be developed in the Future without the Proposed Actions) to the east of the Development Site and continue to the south. The addition of the 5.45 acres of open space would help relieve some of

the potential burden on open spaces throughout each study area and would provide an additional, high-quality open space resource to the area.

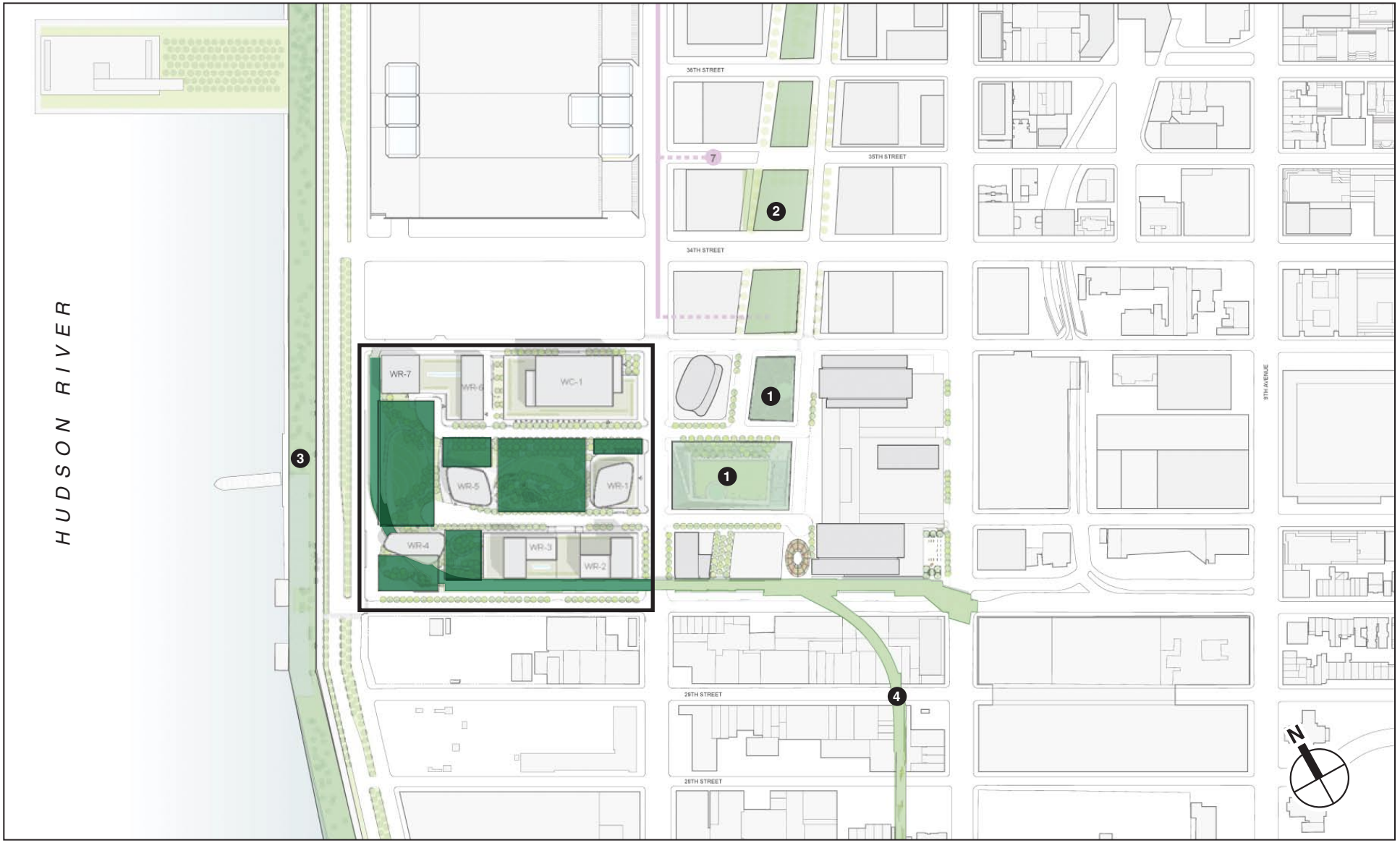
In addition, the proposed open space would play an important role as a link in the open space network that will be developed throughout the Hudson Yards area. In the existing conditions, this area lacks significant parks or open space. In the Future without the Proposed Actions, a network of open spaces will be developed extending southward from West 36th Street through the first phase of Hudson Park and Boulevard into the Eastern Rail Yard and continuing along the High Line to the south (see Figure 6-6). The Development Site is situated in an ideal location relative to these open spaces and the proposed open spaces on the Development Site would serve as the western terminus of this future open space network and would help link residents and workers to the surrounding open spaces. Without the provision of the open space on the Development Site, the open space network would terminate along the eastern side of Eleventh Avenue and the Hudson River Park and Hudson River Greenway would remain visually separated from the surrounding open spaces and neighborhoods.

As described above, the quantitative analysis concludes that the Proposed Actions would result in a substantial decrease in the active and total open space ratios within the residential study area. However, to ensure that open space ratio increments remain at the level of the Future without the Proposed Actions, in addition to the open space that would be provided as a result of the Proposed Actions, another 5.75 acres of open space (2.40 acres of active and 3.35 acres of passive open space) would need to be created on the Development Site in 2019. The total open space on the Development Site would need to increase to 11.2 acres and would almost equal the size of the 13-acre Development Site. Given site constraints, that amount of open space cannot be provided on-site. However, the proposed open space would occupy a substantial portion (approximately 42 percent) of the Development Site and would be an important component of the proposed mixed-use development and connection into the neighborhood open space network.

Furthermore, the quantitative open space analysis excluded the open spaces outside of the study area boundaries, such as the remainder of Hudson River Park, as well as destination open spaces, such as Central Park. It is likely that residents would continue to take advantage of the amenities that these additional open space resources to alleviate any open space shortfalls within the study area. In addition, the quantitative analysis conservatively assumed that one playground would be provided on the Development Site, per zoning requirements. It is possible that additional playgrounds would be provided on the Development Site. However, the Proposed Actions would result in a significant adverse impact on total and active open spaces for the residential population. The impact is described below, and potential mitigation measures are described in Chapter 24, "Mitigation."

The provision of the open space on the Development Site would also help to meet some of the open space goals described in *PlaNYC: A Greener, Greater New York.* As described in Chapter 3, "Land Use, Zoning, and Public Policy," the Plan's policies address three key challenges that the City faces over the next twenty years: (1) population growth; (2) aging infrastructure; and (3) global climate change.

PlaNYC's three specific open space goals are to: make existing sites available to more New Yorkers; expand usable hours at existing sites; and re-imagine the public realm. The first two goals apply to existing open space sites within the City and, therefore, do not relate to the Proposed Actions. The Proposed Actions would be consistent with the third goal and the specific initiatives related to that goal. The first initiative recommends creating or enhancing a public plaza in every community. The Proposed Actions would create several plazas throughout the Development Site that could be utilized



Development Site

Existing open space and open space to be developed in the future without the Proposed Actions

Proposed Open Space

1 *Eastern Rail Yard Open Space*

2 *Hudson Park*

3 *Hudson River Park*

4 *High Line Park*

WESTERN **RAIL YARD**

Open Space Connections

Figure 6-6

by workers, residents, and visitors. The second initiative recommends greening the cityscape by providing street trees and expanding the City's Greenstreets program. As described in Chapter 3, "Land Use, Zoning, and Public Policy," the Proposed Actions would comply with the City's street tree zoning text amendment. As a result, many street trees would be planted along the streets surrounding the Development Site. Thus, the Proposed Actions would be consistent with this initiative. More importantly, in addition to providing open space resources to residents and workers, the proposed open space would provide an important linkage to the Hudson River Park and the Hudson Boulevard. As such, the Proposed Actions would be consistent with the open space goals described in *PlaNYC*.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS— 2017

As described above, to provide a conservative analysis, the added residential and worker population generated by the Maximum Commercial Scenario for the Development Site was used for the non-residential (¼-mile) analysis. The residential and worker populations generated by the Maximum Residential Scenario for the Development Site were used for the residential (½-mile) analysis.

DIRECT EFFECTS

In 2017, proposed buildings WR-2 and WR-3 would be completed and would cast incremental shadows on the open space at the Eastern Rail Yard, which would also be completed by that year. Therefore, the Proposed Actions' significant adverse shadow impact on the Eastern Rail Yard open space would also occur in 2017.

INDIRECT EFFECTS

Study Area Population

Non-Residential (¼-Mile) Study Area

By 2017, the Maximum Commercial Scenario would generate 3,496 new residents and 9,343 new workers. With the addition of these new residents and workers, in the Future with the Proposed Actions, the commercial study area's residential population would be 16,005, and the worker population would be 63,266, for a combined residential and worker population of 79,271.

Residential (½-Mile) Study Area

By 2017, the Maximum Residential Scenario would generate approximately 3,592 new residents and 6,585 new workers. These new populations would increase the residential study area's total (residential and worker) population to 184,870. The residential population would be 41,688 and the worker population would be 143,182.

Study Area Open Spaces

By 2017, the Development Site would contain a total of approximately 1.48 acres of open space. Based on the proposed site plan, it is anticipated that two open space areas would be completed, along with two residential buildings (WR-2 and WR-3) and one commercial building (WC-1) by 2017. A 1.42-acre open space would be located in the central portion of the site, between buildings WC-1 to the north and WR-2 and WR-3 to the south (see Figure 6-7). This large open space is anticipated to contain a lawn, vegetation, a walking path, a seating area, and a plaza. Following *CEQR Technical Manual* guidelines, the amounts of publicly accessible open space

Development Site: Interim Build Open Space

Figure 6-7

allocated to active uses and passive uses is estimated based on the facility type and amenities planned. The large lawn in the central portion of the site could be used for both active and passive recreational activities. For purposes of the quantified analysis, such space is assumed to be evenly divided between active uses (0.71 acres) and passive uses (0.71 acres). In addition, a 0.06-acre plaza would be located at the northeast corner of the site adjacent to building WC-1, at the corner of Eleventh Avenue and West 33rd Street. These new open spaces would serve existing and proposed residents, workers, visitors, and the general public.

Non-Residential (¼-Mile) Study Area

Within the non-residential study area, there would be a total of 23.16 acres, which would be divided between 16.93 acres of passive and 6.23 acres of active open space.

Residential (½-Mile) Study Area

The total amount of open space within the residential study area would be 45.35 acres, with 27.69 acres of passive open space and 17.66 acres of active open space.

Adequacy of Open Spaces

Non-Residential (¼-Mile) Study Area

Quantitative Analysis. As shown in Table 6-10, the ratio of passive open space per 1,000 workers would be 0.27, which would be above the City's guideline of 0.15 acres. Thus, while the passive open space ratio would decline by approximately 10 percent from 0.30 acres per 1,000 workers in the 2017 Future without the Proposed Actions condition, the worker population would continue to be well served by passive open spaces. The passive open space ratio for the combined residential and worker population would be 0.21 acres per 1,000 people, which is slightly below the City's recommended weighted average ratio of 0.22 acres per 1,000 residents and workers.

While both of the ratios would decline, the Proposed Actions would not result in a significant adverse open space impact. The change to passive open space ratio for workers is not considered a significant adverse impact because the ratio remains well above City guidelines and the Proposed Actions would result in the creation of approximately 0.77 acres of new passive open space. The passive open space ratio for workers of 0.27 acres would exceed the recommended ratio of 0.15 acres per 1,000 workers by approximately 80 percent. In the 2017 Future with the Proposed Actions, the passive open space ratio for the total population would decline by approximately 12 percent and would be slightly below the recommended City guideline of 0.22 acres per 1,000 residents and workers. While this ratio change exceeds the five percent CEQR threshold that indicates a substantial change, the *CEQR Technical Manual* open space ratio guidelines are not considered impact thresholds. Instead, these goals indicate how well an area is served by open space. As shown above, the passive open space ratio would be only 0.01 less than the recommended guideline. Furthermore, the Proposed Actions would result in the creation of 0.77 acres of high quality passive open space in an area that currently lacks significant open space resources. Finally, providing more open space in 2017 is not practical given that other areas on the site are needed for the construction of the remaining buildings on the Development Site. By 2019, the passive open space ratios would improve and any substantial change experienced during the interim Build year would be eliminated within the non-residential study area by the creation of a total of 3.9 acres of passive open space. Therefore, the 2017 Future with the Proposed Actions would not result in a significant adverse passive open space impact for the non-residential analysis.

Table 6-10
Future with the Proposed Actions—2017:
Open Space Ratios and Guidelines

Ratio*	City Guideline	Open Space Ratios			
		Existing Conditions	2017 Future Without the Proposed Actions	2017 Future With the Proposed Actions**	2017 Percent Change from Future Without to Future With the Proposed Actions
Non-Residential (¼-Mile) Study Area					
Passive/Workers	0.15	0.16	0.30	0.27	-10.00
Passive/Total Population	Weighted 0.17 / 0.22 / 0.22***	0.15	0.24	0.21	-12.50
Residential (½-Mile) Study Area					
Total/Residents	2.5	1.01	1.15	1.09	**-5.22**
Active/Residents	2.0	0.61	0.44	0.42	-4.55
Passive/Residents	0.5	0.40	0.71	0.66	-7.04
Passive/Total Population	Weighted: 0.23 / 0.23 / 0.23***	0.09	0.15	0.15	0.00

Notes:
* Ratios in acres per 1,000 people.
** **BOLD** signifies that the ratio change indicates the potential for the Proposed Actions to result in a significant adverse impact.
*** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this target open space ratio guideline depends on the proportion of non-residents and residents in the study area's population, it can be different for existing, Future without the Proposed Actions, and Future with the Proposed Actions conditions. Each of these ratio guidelines is listed in this table (Existing / 2017 Future without the Proposed Actions / 2017 Future with the Proposed Actions).

Residential (½-Mile) Study Area

Quantitative Analysis. As shown in Table 6-10, in the 2017 Future with the Proposed Actions condition for the residential analysis, three of the four open space ratios would decline from the 2017 Future without the Proposed Actions condition. The total open space ratio for residents would decline by approximately five percent and would remain below the City's recommended guideline of 2.5 acres per 1,000 residents. The active open space per 1,000 residents would decline by approximately five percent and would remain below the City's recommended guideline of 2.0 acres per 1,000 residents. The passive open space ratio per 1,000 residents would decline by approximately seven percent, but it would remain above the City's recommended guideline of 0.50 acres per 1,000 residents. Finally, the combined residential and worker passive open space ratio would not decline but it would remain below the City's recommended weighted average ratio of 0.23 acres per 1,000 residents and workers.

The change in the total open space ratio indicates that the Proposed Actions would result in a significant adverse indirect open space impact for the residential population in 2017. As described above, a one percent decrease could be considered a substantial change, particularly in areas where the open space ratio is very low; in 2017, the total open space ratio would be less than half of the recommended city guideline of 2.5 acres. As such, the low ratio and the five percent decrease indicate that the Proposed Actions would result in a significant adverse total indirect open space impact.

The change in the active open space ratio indicates that the Proposed Actions would not result in a significant adverse active indirect open space impact for the residential population. As shown in Table 6-10, the active open space ratio for the residential population in the residential study area would decrease by approximately five percent. In areas where the open space ratio is very low, even a one percent decrease in the open space ratio may result in a potential significant adverse impact on open space. However, for active open spaces it is recognized that these ratio goals are not feasible for many areas of the City and they are not considered impact thresholds. Thus, while the active open space ratio would continue to be considerably less than City's recommended guideline, the ratio would only decline by 0.02 acres; therefore the Proposed Actions would not result in a significant adverse active open space impact in 2017.

Qualitative Analysis. To ensure that open space ratio increments remain at the level of the Future without the Proposed Actions, in addition to the open space that would be provided as a result of the Proposed Actions, another 2.39 acres of open space (0.48 acres of active and 1.91 acres of passive open space) would need to be created on the Development Site in 2017. The total open space on the Development Site would need to increase to 3.87 acres in 2017. This would represent most of the open space to be provided on the Development Site at full build out and is not considered feasible given site constraints, construction activities and staging.

While the quantitative analysis indicates that an active open space deficiency exists in the residential study area, this analysis does not include the open spaces that are located just beyond the study area boundaries. These open spaces include smaller urban plazas and destination parks, such as Hudson River Park and Central Park. Hudson River Park extends south of the study area to Battery Park, and north of the study area to 59th Street. It is likely that workers and residents from the Development Site would utilize these resources. As such these open spaces would help to alleviate a portion of the shortfall that would exist within the residential study area. However, the Proposed Actions would result in a significant adverse impact on active open space resources for the residential population.

D. ADDITIONAL HOUSING SITES ANALYSIS

EXISTING CONDITIONS

STUDY AREA POPULATION

Given the proximity of the Additional Housing Sites to each other this analysis considers the two sites together. Therefore, as recommended in the *CEQR Technical Manual*, the study area for the off-site locations includes all census tracts that have 50 percent of their area within ½-mile of the two sites' boundaries. As shown in Figure 6-2, 13 Census Tracts are located within the study area, including 115, 117, 121, 125, 127, 129, 131, 133, 135 137, 139, 145, 147, and a portion of Census Tract 317.02. These Census Tracts cover an area that generally extends from West 62nd Street to the north, Sixth Avenue to the east, West 38th Street to the south, and Route 9A to the west. As described above, Census Tract 317.02 does not have 50 percent of its area within a ½-mile of either affordable housing site, but the quantitative analysis includes the portion of Hudson River Park located within a ½-mile radius of the Additional Housing Sites. To be conservative the entire residential and worker populations of this Census Tract are included in the analysis.

Non-Residential Population

The worker population in the AHS Study Area is estimated at 197,985 workers, as shown in Table 6-11.

Table 6-11
Existing Resident and Daytime Populations—AHS Study Area

Census Tract	Residential Population*	Worker Population*	Total Population
Residential (½-Mile) Study Area			
115	1,527	8,934	10,461
117	354	1,280	1,634
121	8,625	5,412	14,037
125	1,834	44,292	46,126
127	7,574	8,107	15,681
129	4,638	8,487	13,125
131	2,171	49,382	51,552
133	6,041	4,673	10,714
135	3,648	9,195	12,842
137	7,074	38,048	45,122
139	10,194	5,599	15,793
145	4,591	10,620	15,211
147	2,322	1,561	3,883
317.02	3	2,395	
Total	**60,595**	**197,985**	**258,581**

Note:
* A background growth rate of 0.5 percent per year between 2000 and 2008 was applied to both the residential and worker populations to estimate the existing residential and worker populations.
Sources: U.S. Census of Population and Housing, 2000; 2000 Census Transportation Planning Package; New York City Department of Finance Real Property Assessment Data (RPAD), 2008.

Residential Population

The residential population within the AHS Study Area is estimated to be 60,595 people.

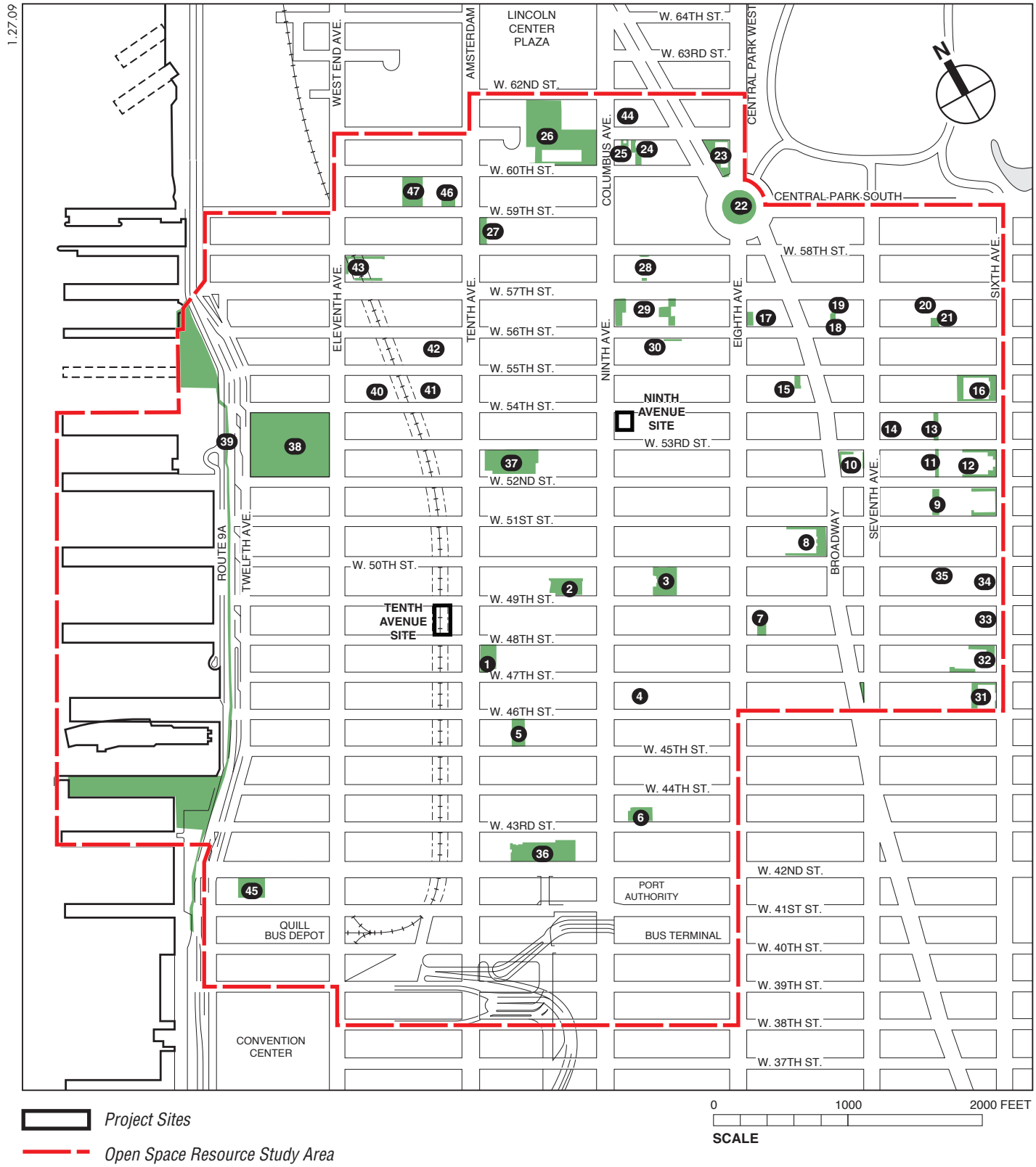
Total User Population

Within the AHS Study Area, the total residential and non-residential population is 258,581. As described above, this analysis conservatively assumes that residents and employees are separate populations. While this may be the case, it is possible that some of the residents live near their workplace. As a result, there is likely to be some double-counting of the daily user population in which residential and non-residential populations overlap, resulting in a more conservative analysis.

Adults between 20 and 64 years old constitute approximately 79 percent of the AHS Study Area population (Table 6-12). Adults tend to utilize a variety of active and passive open space facilities. Children and teenagers account for approximately 10 percent of the study area's residents. This population segment tends to utilize active amenities, such as play equipment and basketball courts, more often than passive facilities. Senior citizens 65 years old or older make up approximately 11 percent of the population. This group tends to utilize more passive recreational amenities.

STUDY AREA OPEN SPACES

The AHS Study Area includes 47 publicly accessible open spaces with a total of 35.80 acres (see Table 6-13 and Figure 6-8). The total acreage includes 27.10 acres of passive open space and 8.70 acres of active open space. Overall, the AHS Study Area contains primarily outdoor and indoor urban plazas that are well-maintained and well-utilized. Most of the active open space is located within Hudson River Park.



WESTERN **RAIL YARD**

Additional Housing Sites
Open Space Resources
Figure 6-8

Table 6-12
Age Distribution of AHS Study Area

Tract	Population	Under 5 years old		5 to 9 years old		10 to 14 years old		15 to 19 years old		20 to 64 years old		65 years old and older	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
115	1,467	64	4.36	40	2.73	26	1.77	92	6.27	1,151	78.46	94	6.41
117	340	107	31.47	88	25.88	12	3.53	5	1.47	124	36.47	4	1.18
121	8,288	161	1.94	154	1.86	161	1.94	182	2.20	6,538	78.89	1,092	13.18
125	1,762	37	2.10	20	1.14	15	0.85	25	1.42	1,546	87.74	119	6.75
127	7,278	226	3.11	186	2.56	171	2.35	214	2.94	5,951	81.77	530	7.28
129	4,457	172	3.86	130	2.92	127	2.85	138	3.10	3,714	83.33	176	3.95
131	2,086	29	1.39	16	0.77	15	0.72	23	1.10	1,543	73.97	460	22.05
133	5,805	147	2.53	117	2.02	119	2.05	118	2.03	4,760	82.00	544	9.37
135	3,505	179	5.11	192	5.48	223	6.36	187	5.34	2,182	62.25	542	15.46
137	6,797	168	2.47	87	1.28	106	1.56	76	1.12	5,160	75.92	1,200	17.65
139	9,795	191	1.95	128	1.31	110	1.12	146	1.49	8,003	81.70	1,217	12.42
145	4,411	211	4.78	77	1.75	70	1.59	71	1.61	3,519	79.78	463	10.50
147	2,231	78	3.50	59	2.64	29	1.30	310	13.90	1,717	76.96	38	1.70
Total	**58,222**	**1,700**	**3.04**	**1,294**	**2.22**	**1,184**	**2.03**	**1,587**	**2.73**	**45,908**	**78.85**	**6,479**	**11.13**

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

Table 6-13
Existing Open Space Inventory
AHS Study Area

Map Ref.[1]	Name	Owner/Agency	Total	Passive	Active	Condition/ Utilization
1	Hell's Kitchen Park	DPR	0.57	0.40	0.17	Excellent/ High
2	High School of Graphic Communication/Gutenberg Playground	DPR	0.55	0.06	0.49	Good/High
3	Worldwide Plaza: West 49th to 50th Streets between Eighth and Ninth Avenues	EOP - Worldwide Plaza LLC	0.84	0.84	0.00	Good/Low
4	Ramon Aponte Park: 351 West 47th Street	DPR	0.17	0.12	0.05	Good/ Moderate
5	May Matthews Playground: West 46th Street between Ninth and Tenth Avenues	DPR	0.48	0.11	0.37	Good/ Moderate
6	McCaffrey Playground: West 43rd Street between Eighth and Ninth Avenues	DPR	0.44	0.09	0.35	Good/ Moderate
7	Ritz: 235 West 48th Street	C S Ritz Holdings	0.17	0.17	0.00	Good/High
8	Paramount Plaza: 1633 Broadway	Broadway Pl. Associates	0.88	0.88	0.00	Good/ Moderate
9	Painewebber: 1285 Sixth Avenue	Equitable Life Assurance, Inc; 1285 Associates Limited Partners	0.63	0.63	0.00	Good/ Moderate
10	810 Seventh Avenue	Metropolitan 810 7th Avenue LLC	0.15	0.15	0.00	Good/High
11	135 West 52nd Street	Euro-American Ldge Corp	0.15	0.15	0.00	Good/ Moderate
12	1301 Sixth Avenue	Tishman-Speyer	0.57	0.57	0.00	Good/ Moderate
13	1325 Sixth Avenue	1325 Avenue of the Americas, LP	0.16	0.16	0.00	Good/ Moderate
14	Tower 53: 835 Seventh Avenue	Vornado New York RR1 LLC	0.06	0.06	0.00	Good/ Moderate
15	La Premier: 230 West 55th Street	Goodstein & Hoffman Co	0.12	0.12	0.00	Good/ Moderate
16	Alliance Capital: 1345 Sixth Avenue	1345 Fee Limited Partnership	0.69	0.69	0.00	Excellent/ High
17	Symphony House: 1755 Broadway	Broadway and 56th Street Associates	0.11	0.11	0.00	Excellent/ High

Table 6-13 (cont'd)
Existing Open Space Inventory
Additional Housing Sites Study Area

Map Ref.[1]	Name	Owner/Agency	Total	Passive	Active	Condition/ Utilization
18	Carnegie Mews: 211 West 56th Street	211 West 56th Street	0.11	0.11	0.00	Good/ Moderate
19	888 Seventh Avenue	888 Seventh Avenue LLC	0.28	0.28	0.00	Excellent/ High
20	Metropolitan Tower: 135 West 56th Street/142 West 57th Street	Condominium Association	0.15	0.15	0.00	Excellent/ High
21	Le Parker Meridien Hotel: 118 West 57th Street	PM Hotel Associates	0.23	0.23	0.00	Excellent/ Moderate
22	Columbus Circle	DPR	0.12	0.12	0.00	Excellent/ High
23	Trump International Hotel: One Central Park West	Trump International Homeowners Association	0.41	0.41	0.00	Excellent/ Moderate
24	Beaumont: 30 West 61st Street	Condominium Association	0.27	0.27	0.00	Excellent/ Moderate
25	Regent: 45 West 60th Street	Columbus 60th Realty LLC	0.20	0.20	0.00	Excellent/ High
26	Fordham Plaza	Fordham University	2.98	2.98	0.00	Good/ Moderate
27	St. Luke's-Roosevelt Hospital Center: 1000 Tenth Avenue	400 West 59th Street Partners	0.30	0.30	0.00	Good/ Moderate
28	Colonade: 347 West 57th Street	Condominium Association	0.05	0.05	0.00	Good/ Moderate
29	Sheffield: 322 West 57th Street	Southcroft Company	0.80	0.80	0.00	Good/ Moderate
30	330 West 56th Street	Marbru Associates	0.17	0.17	0.00	Good/ Moderate
31	Westpoint Stevens Tower: 1185 Sixth Avenue	1185 Avenue of the Americas Associates	0.40	0.40	0.00	Good/ Moderate
32	1211 Sixth Avenue	1211 Acquisition Corp	0.91	0.91	0.00	Good/ Moderate
33	McGraw Hill: 1221 Sixth Avenue	Rock McGraw, Inc.	0.86	0.86	0.00	Good/High
34	1251 Sixth Avenue	1251 Americas Associates	0.69	0.69	0.00	Excellent/ High
35	745 Seventh Avenue	Rock-Forty-Ninth LLC	0.56	0.56	0.00	Good/ Moderate
36	Gregory J.M. Portley Plaza: 576 Tenth Avenue	Manhattan Plaza Apt.	0.33	0.33	0.00	Good/ Moderate
37	P.S. 111 Playground	DOE	0.80	0.10	0.70	Good/Low
38	DeWitt Clinton Park	DPR	5.83	4.66	1.17	Excellent/ High
39	Hudson River Park	Hudson River Park Trust	8.00	4.00	4.00	Excellent/ High
40	Clinton Towers Plaza: 790 Eleventh Avenue	P&L Management & Consulting	0.40	0.30	0.10	Poor/Low
41	Harborview Terrace Plaza: 530 West 55th Street	NYCHA	0.10	0.10	0.00	Fair/ Moderate
42	Amsterdam Plaza at Harborview Terrace	NYCHA	2.10	1.30	0.80	Fair/ Moderate
43	555 West 57th Street	555 West 57th Street Associates	0.50	0.50	0.00	Fair/ Moderate
44	Lincoln Plaza Towers: 44 West 62nd Street	Lincoln Plaza Tenants Corp.	0.10	0.10	0.00	Good/ Moderate
45	640 West 42nd St. Plaza	River Place I LLC	0.74	0.74	0.00	Good/ Moderate
46	Concerto: 200 West 60th Street	Columbus/Amsterdam Associates	0.17	0.17	0.00	Good/ Moderate
47	West 59th Street Recreation Center	DPR	0.50	0.00	0.50	Good/ Moderate
		Total	**35.80**	**27.10**	**8.70**	

Notes: 1. Please see Figure 6-8 for open space locations.
Sources: DPR open space database; AKRF, Inc. field survey, September and October 2008.

Six DPR-maintained parks are located within the AHS Study Area. The 5.83-acre DPR-maintained DeWitt Clinton Park is the largest of these parks. DeWitt Clinton Park occupies a large site between Eleventh and Twelfth Avenues from West 52nd to West 54th Streets. The Park contains play equipment, game tables, swings, benches, spray showers, basketball courts, handball courts, baseball fields, a dog run, and Maria's Perennial Garden. The Park also contains the Clinton War Memorial, which was dedicated in 1929 to commemorate the service of soldiers during World War I.

Five additional DPR-maintained parks are located within the AHS Study Area. The 0.57-acre Hell's Kitchen Park is located on the east side of Tenth Avenue between West 47th and West 48th Streets. This park contains play equipment, basketball courts, volleyball courts, handball courts, benches, game tables, and extensive plantings and trees. The Gutenberg Playground is located to the north of Hell's Kitchen Park. This 0.55-acre park is adjacent to the High School for Graphic Communication and contains basketball and handball courts. The 0.48-acre May Matthews Playground occupies a through-block lot between West 45th and West 46th Street between Ninth and Tenth Avenues. This playground contains play equipment, handball and basketball courts, and benches. The 0.17-acre Ramon Aponte Park is located to the east of the Matthews Playground. This park's amenities include play equipment and basketball courts. Finally, the 0.44-acre McCaffrey Playground is located on West 43rd Street between Eighth and Ninth Avenues. The Playground includes landscaping, basketball courts, play equipment, and a spray shower.

An 8.0-acre segment of the Hudson River Park is located within the AHS Study Area. In addition to the multi-use path that runs along Route 9A, Pier 84 and Clinton Cove are located within the AHS Study Area. Pier 84, which is located between West 43rd and West 44th Street opened in 2006 and is currently the largest public pier in Hudson River Park. Pier 84 includes a boathouse that offers rowing and boatbuilding programs, a classroom and interpretive center, an interactive water play area, a lawn, bike rentals, a restaurant, the Manhattan Botanical Community Garden, and a dog run. Clinton Cove is located between West 55th and West 57th Street and features a large landscaped lawn, a large public sculpture, as well as a boathouse that is used by kayakers associated with the Downtown Boathouse. Finally, the Hudson River Park Trust periodically offers educational programs at Clinton Cove.

The remaining open spaces within the AHS Study Area consist of plazas associated with either office buildings or NYCHA buildings. These plazas typically are entirely passive resources that consist of through-block arcades, indoor atriums, or outdoor plazas that contain seating, landscaping, or other plantings. These resources are well-maintained and well-utilized by workers or residents.

Although the quantitative analysis indicates that the open space resources located within the study areas do not provide sufficient open space resources to the user populations, additional open spaces located just beyond the ½-mile radius of the Additional Housing Sites augment the study area open acreage. For instance, Hudson River Park extends south and north of the AHS Study Area. Additionally, Central Park is located just beyond the study area boundary but a portion of it falls within the ½-mile radius. These open spaces provide residents and workers with a substantial amount of passive and active open space acreage that is within reasonable walking distance and/or connected to existing study area open space.

ADEQUACY OF OPEN SPACES

The following analysis of the adequacy of open space resources within the AHS Study Area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and non-residents.

The residential study area has a total open space ratio of 0.59 acres per 1,000 residents, which is below the City's recommended ratio of 2.5 acres of combined active and passive open space per 1,000 residents (see Table 6-14).

Table 6-14
Existing Conditions: AHS Study Area
Open Space Ratios and Guidelines

Ratio*	City Guideline	Open Space Ratio
Residential (½-Mile) Study Area		
Total/Residents	2.5	0.59
Active/Residents	2.0	0.14
Passive/Residents	0.5	0.45
Passive/Total Population	Weighted: 0.23**	0.10

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents.

The active open ratio of 0.14 acres per 1,000 residents is well below the recommended guideline of 2.0 acres per 1,000 residents. The passive open space ratio of 0.45 acres per 1,000 residents is below the City's recommended guideline of 0.5 acres.

For the combined worker and resident populations, the residential study area has a passive open space ratio of 0.10 acres, considerably less than the City's recommended weighted average guideline ratio of 0.23 acres per 1,000 residents and workers.

THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the 2019 Future without the Proposed Actions, there would be no change at either of the Additional Housing Sites.

STUDY AREA POPULATION

As described in Chapter 2, "Framework for Analysis," there are many additional new residential and commercial developments currently under construction or planned that are expected to be completed within the AHS Study Area by 2019. These developments will increase both the residential and commercial populations within the residential study area. As noted earlier, the population information in this chapter provides 2008 population data; therefore, for the purposes of this analysis, all developments completed after 2008 are considered as part of this future condition.

In the 2019 Future without the Proposed Actions, 35 new developments will be completed in the residential study area. These projects will add 10,909 new residents and 6,895 new workers to the study area. The added population would bring the residential study area's residential

population to 71,504, its worker population to 204,881, and its combined residential and worker population to 276,385.

STUDY AREA OPEN SPACES

Three publicly accessible open spaces will be added to AHS Study Area by 2019 and will provide an additional 1.64 acres of open space. An approximately 0.23-acre passive open space area will be developed as part of the New York City Department of Environmental Protection City Water Tunnel Number 3 project. This open space will be located on the northern half of the block front between West 48th and West 49th Streets along the west side of Tenth Avenue, immediately adjacent to the Tenth Avenue Additional Housing site. A second open space will be constructed at Pier 92/94 and will consist of 0.41 passive acres. Features will include a waterfront esplanade, a viewing platform, and a public plaza. The final open space will consist of 1.0 acre that will be added to the Hudson River Park at Clinton Cove. These additional passive open space resources will increase the total open space acreage to 37.44 acres, which will be divided between 28.74 acres of passive open space and 8.70 acres of active open space.

ADEQUACY OF OPEN SPACES

In the Future without the Proposed Actions, the AHS Study Area will have a total open space ratio of 0.61 acres per 1,000 residents, which would increase from the ratio in the existing condition but would continue to be well below the City's recommended ratio of 2.5 acres of combined active and passive open space per 1,000 residents (see Table 6-15).

Table 6-15
AHS Study Area
Future Without the Proposed Actions—2019:
Open Space Ratios and Guidelines

Ratio	City Guideline	Open Space Ratios	
		Existing	2017 Future Without the Proposed Actions
Residential (½-Mile) Study Area			
Total/Residents	2.5	0.59	0.61
Active/Residents	2.0	0.14	0.14
Passive/Residents	0.5	0.45	0.47
Passive/Total Population	Weighted: 0.23 / 0.24**	0.10	0.11

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it can be different for Existing and Future without the Proposed Actions conditions. Each recommended guideline is listed in this table (Existing / 2017 Future without the Proposed Actions).

The active open ratio of 0.14 acres per 1,000 residents would remain the same and would continue to be well below the recommended guideline of 2.0 acres per 1,000 people. The passive open space ratio would increase to 0.47 acres per 1,000 residents, but would be below the City's recommended guideline of 0.5 acres.

For the total worker and resident populations, the passive open space ratio would increase to 0.11 acres. This ratio would remain below the City's recommended weighted average guideline ratio of 0.24 acres per 1,000 residents and workers.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2019

DIRECT EFFECTS ANALYSIS

As described in Chapter 7, "Shadows," the Proposed Actions could result in a significant adverse shadow impact at the Tenth Avenue Site to the proposed open space that will constructed directly east of the project site. As a result of the construction of the Tenth Avenue Site building, much of the future open space would be in shadow from early afternoon to the end of the day during each analysis day. The design for this open space resource is still in development. If it assumed that the entire open space would be heavily programmed with passive open space features, such as benches and other sitting areas, then the shadows that would result from the Proposed Actions could cause a significant adverse impact. However, if the design of the open space results in a layout where the features requiring sunlight would be located in areas of the open space where shadows would be cast for a short duration, which maximizes the usability of the space, then a significant adverse impact could be avoided. However, since the design of the open space is not known at this time, it is conservatively assumed that the Proposed Actions would result in a significant adverse impact.

STUDY AREA POPULATION

In the 2019 Future with the Proposed Actions, it is anticipated that both of the Additional Housing Sites would be fully developed. As described above, the Ninth Avenue Site would be completed by 2016 and would be developed with approximately 108 affordable housing units, 6,750 sf of retail use, and 30,000 sf of office use. By 2018, the Tenth Avenue Site would be completed and would be developed with approximately 204 affordable housing units and 10,800 sf of retail space.

These two developments would generate approximately 780 residents[1] and 56 workers[2] to the study area population. With these additional residents and workers, the study area population would consist of 72,284 residents and 204,937 workers. The total population would be 277,221.

STUDY AREA OPEN SPACES

No additional publicly-accessible open space would be added to the AHS Study Area as a result of the Proposed Actions. In the 2019 Future with the Proposed Actions, the amount of open space would remain unchanged from the 2019 Future without the Proposed Actions condition.

However, development at the Additional Housing Sites would comply with the recreation space requirements of the New York City Zoning Resolution Quality Housing Program. To comply with the requirements, the proposed developments would provide a minimum amount of recreation space for the buildings residents to utilize. While this space could only be utilized by the building's

[1] The number of residents generated by the residential component of the Additional Housing Sites' development is estimated by multiplying the total number of residential units (312) by an assumed average household size (2.5) for affordable housing.

[2] The number of workers is estimated by assuming 1 worker per 25 residential units and 1 worker per 400 sf of retail space.

residents and is not considered public-accessible for the purposes of the quantitative analysis in this chapter, the additional space would provide an on-site resource for the proposed residents.

ADEQUACY OF OPEN SPACES

The following analysis of the adequacy of open space resources within the AHS Study Area considers the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and workers and compares them to both the No Build ratios as well as the DCP open space guidelines.

In the 2019 Future with the Proposed Actions, all of the open space ratios would remain unchanged from the Future without the Proposed Actions condition (see Table 6-16). As described above, all of the open space ratios are below the City's recommended guideline. This indicates that in the Future with the Proposed Actions the populations within the AHS Study Area would continue to be underserved by passive open spaces. The total open space ratio would remain at 0.61 acres per 1,000 residents, which is below the City's recommended ratio of 2.5 acres of combined active and passive open space per 1,000 people. The active open ratio would remain at 0.14 acres per 1,000 residents and the passive open space ratio would remain at 0.47 acres per 1,000 residents. Each of these ratios would be below the City's recommended guideline of 0.5 acres. For the total worker and resident populations, the residential study area would continue to have a passive open space ratio of 0.11 acres per 1,000 residents and workers.

Table 6-16
Future with the Proposed Actions—2019: Open Space Ratios and Guidelines

Ratio*	City Guideline	Open Space Ratios		
		Existing Conditions	2019 Future Without the Proposed Actions	2019 Future With the Proposed Actions
Residential (½-Mile) Study Area				
Total/Residents	2.5	0.59	0.61	0.61
Active/Residents	2.0	0.14	0.14	0.14
Passive/Residents	0.5	0.45	0.47	0.47
Passive/Total Population	Weighted: 0.23 / 0.24 / 0.24**	0.10	0.11	0.11

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it can different for existing, Future without the Proposed Actions, and Future with the Proposed Actions conditions. Each of these ratio guidelines is listed in this table (Existing / 2019 Future without the Proposed Actions / 2019 Future with the Proposed Actions).

The *CEQR Technical Manual* indicates that a change of approximately five percent is considered substantial. The Proposed Actions would not substantially affect the open space ratios within the study area, which would remain below the City's guidelines, but greater than existing conditions. Although the open space ratios would be below the levels recommended by the City, it is recognized that these goal is not feasible for many areas of the City, and they are not considered impact thresholds. Therefore, since the ratios would not decline in the Future with the Proposed Actions, the Proposed Actions would not result in a significant adverse impact on open spaces within the AHS Study Area.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2017

STUDY AREA POPULATION

In the 2017 Future with the Proposed Actions, it is anticipated that the Ninth Avenue Site would be developed with approximately 108 affordable housing units, 6,750 sf of retail use, and 30,000 sf of office use for the New York City Transit (NYCT). This development would add generate approximately 270 residents[1] and 21 workers[2] to the study area population. With these additional residents and workers, the study area population would consist of 71,774 residents and 204,902 workers. The total population would be 276,676.

STUDY AREA OPEN SPACES

In the 2017 Future with the Proposed Actions, no additional publicly accessible open space resources would be added to the AHS Study Area. The amount of open space would consist of 37.44 total acres of open space divided between 28.74 acres of passive open space and 8.70 acres of active open space.

However, development at the Additional Housing Sites would comply with the recreation space requirements of the New York City Zoning Resolution Quality Housing Program. To comply with the requirements, the proposed developments would provide a minimum amount of recreation space for the buildings residents to utilize. While this space could only be utilized by the building's residents and is not considered publicly accessible for the purposes of the quantitative analysis in this chapter, the additional space would provide an on-site resource for the proposed residents.

ADEQUACY OF OPEN SPACES

The following analysis of the adequacy of open space resources within the AHS Study Area considers the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 combined residents and non-residents and compares these to the Future without the Proposed Actions condition.

In the Future with the Proposed Actions, the populations within the AHS Study Area would continue to be underserved by passive open spaces. However, while all of the open space ratios would remain below the City guidelines, there would be a very minor change in the ratios between the conditions in the Future with and without the Proposed Actions. The total open space ratio would remain at 0.61 acres per 1,000 people, which is below the City's recommended ratio of 2.5 acres of combined active and passive open space per 1,000 people (see Table 6-17).

[1] The number of residents generated by the residential component of the Additional Housing Sites' development is estimated by multiplying the total number of residential units (312) by an assumed average household size (2.5).

[2] The number of workers is estimated by assuming 1 worker per 25 residential units and 1 worker per 400 sf of retail space. The proposed office space would be used as a training facility for the NYCT associated with the adjacent existing facility and would not introduce any new workers.

Table 6-17
Future with the Proposed Actions—2017:
Open Space Ratios and Guidelines

Ratio	City Guideline	Open Space Ratios		
		Existing Conditions	2017 Future Without the Proposed Actions	2017 Future With the Proposed Actions
Residential (½-Mile) Study Area				
Total/Residents	2.5	0.59	0.61	0.61
Active/Residents	2.0	0.14	0.14	0.14
Passive/Residents	0.5	0.45	0.47	0.47
Passive/Total Population	Weighted: 0.23 / 0.24 / 0.24**	0.10	0.11	0.11

Notes:
* Ratios in acres per 1,000 people.
** Target open space ratio established by creating a weighted average of the amount of open space necessary to meet the City guideline of 0.15 acres of passive space per 1,000 non-residents and 0.50 acres of passive space per 1,000 residents. Because this guideline depends on the proportion of non-residents and residents in the study area's population, it can be different for existing, Future without the Proposed Actions, and Future with the Proposed Actions conditions. Each of these ratio guidelines is listed in this table (Existing / 2017 Future without the Proposed Actions / 2017 Future with the Proposed Actions).

The active open ratio would remain at 0.14 acres per 1,000 residents and the passive open space ratio would remain at 0.47 acres per 1,000 people. For the total worker and resident populations, the residential study area would continue to have a combined passive open space ratio of 0.11 acres per 1,000 residents and workers. Each of these ratios would continue to be below their respective recommended City guideline.

Although the open space ratios would be below the levels recommended by the City, it is recognized that these goals are not feasible for many areas of the City, and they are not considered impact thresholds. Additionally, the open space ratios in the Future with the Proposed Actions would increase from the ratios that would be present under existing conditions. The *CEQR Technical Manual* indicates that a change of approximately five percent is considered substantial. As described above, the Proposed Actions would not substantially affect the existing deficiencies in open space. Therefore, the Proposed Actions would not result in a significant adverse impact on either active or passive open space. ✷