A. INTRODUCTION

An open space assessment may be necessary if a Proposed Action could potentially have a direct or indirect effect on open space resources in the area. According to the *New York City Environmental Quality Review Technical Manual* (*CEQR Technical Manual*), a direct open space impact would "physically change, diminish, or eliminate an open space or reduce its utilization or aesthetic value." An indirect effect may occur when the population generated by a proposed project would be sufficient to noticeably diminish the ability of an area's open space to serve the existing or future population. The Proposed Action and associated RWCDS would result in an increase in the number of new residents and daytime users in the study area beyond the *CEQR Technical Manual*'s thresholds, and therefore has the potential to affect the way residents and daytime users of the surrounding community use parks, playgrounds, and other open spaces in the area.

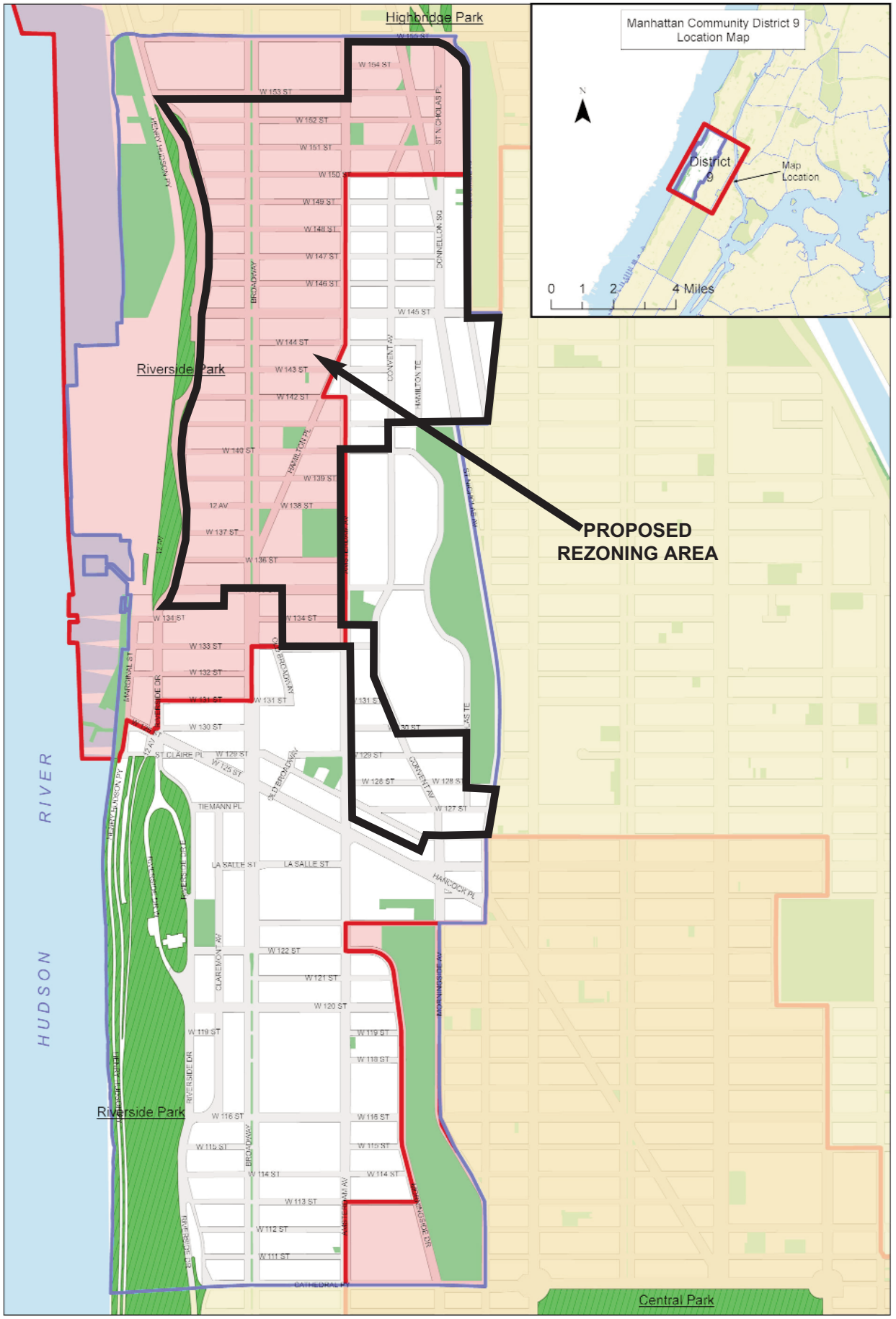
According to the *CEQR Technical Manual*, an open space analysis is generally conducted if a proposed project would generate more than 200 residents or 500 employees. However, the need for an analysis varies in certain areas of the city that have been identified as either underserved or well-served by open space.[1] If a project is located in an underserved area, the threshold for an open space analysis is 50 residents or 125 workers. If a project is located in a well-served area, the threshold for an open space analysis is 350 residents or 750 workers. Maps in the Open Space Appendix of the *CEQR Technical Manual* identify much of the proposed rezoning area as well-served (refer to Figure 5-1), though the eastern and southeastern blocks of the proposed rezoning area, which contain a number of projected development sites, are not within the well-served area. Thus, to be conservative, the analysis threshold used in this analysis is for an area that is neither well-served nor underserved (i.e., a threshold of 200 residents or 500 employees is used).

The Proposed Action would rezone an area encompassing approximately 90 blocks. For analysis purposes, as described in Chapter 1, "Project Description," two reasonable worst-case development scenarios (RWCDSs) have been identified for two of the projected development sites, resulting in a total of four different RWCDSs for the Proposed Action, identified as scenarios 1 through 4. These four scenarios represent the upper bounds of residential, retail commercial and/or community facility and parking uses for the purposes of impact analysis. The analyses in this EIS examine the scenario with the greater potential environmental impact for each impact area. As summarized in Table 5-1 below, all four RWCDSs would result in a net increase in the number of residents and employees as compared with No-Action conditions, and this increase would exceed the *CEQR Technical Manual* thresholds requiring a detailed analysis. Therefore, an open space assessment is warranted to examine the change in total population relative to the total open space in the area, to determine whether the increase in user population would significantly reduce the amount of open space available for the area's population. The analysis year for the Proposed Action is 2021.

[1] The *CEQR Technical Manual* defines underserved areas as areas of high population density in the City that are generally the greatest distance from parkland, where the amount of open space per 1,000 residents is currently less than 2.5 acres. Well-served areas are defined as having an open space ratio above 2.5 accounting for existing parks that contain developed recreational resources; or are located within 0.25 mile (approximately a 10-minute walk) from developed and publicly accessible portions of regional parks.

Figure 5-1

Areas Well Served by Open Space



Two RWCDSs are used for the open space analysis: the analysis for the nonresidential study area is based on RWCDS 1, which, as shown in Table 5-1, maximizes the amount of commercial and community facility space and therefore maximizes the Action-generated worker population; the analysis for the residential study area uses RWCDS 4, which introduces the maximum amount of residential use (1,034 units) and therefore maximizes the residential population that could be introduced by the Proposed Action. Given that both RWCDSs could not be realized simultaneously, the actual demands placed on open space by the Action-generated residential and worker populations would be less than what is indicated by the quantified analysis.

TABLE 5-1
RWCDS and Population Summary for Development Scenarios 1 to 4, Compared to No-Action Conditions

USE	No-Action Condition (GSF)	RWCDS 1 (Deed Restriction + Conversion)	RWCDS 2 (Deed Restriction + New Development)	RWCDS 3 (No Deed Restriction + Conversion)	RWCDS 4 (No Deed Restriction + New Development)
Residential	454,199 GSF (465 units)	772,226 GSF (809 units – incl. 61 affordable)	837,196 GSF (879 units – incl. 61 affordable)	915,933 GSF (964 units – incl. 82 affordable)	980,903 GSF (1,034 units – incl. 82 affordable)
Retail	45,888 GSF	151,924 GSF	176,408 GSF	151,924 GSF	176,408 GSF
Other Commercial (Office)	399,655 GSF	480,509 GSF	415,540 GSF	480,509 GSF	415,540 GSF
Community Facility (CF)	301,490 GSF	596,650 GSF	566,625 GSF	477,187 GSF	447,162 GSF
Parking	-	35,800 SF (129 spaces)	42,800 SF (164 spaces)	45,000 SF (175 spaces)	52,000 SF (210 spaces)
No-Action to With-Action Increment		**344 Units (incl. 61 affordable) 106,036 gsf Retail 80,854 gsf Office 295,160 gsf CF 129 parking spc.**	**414 Units (incl. 61 affordable) 130,520 gsf Retail 15,885 gsf Office 265,135 gsf CF 164 parking spc.**	**499 Units (incl. 82 affordable) 106,036 gsf Retail 80,854 gsf Office 175,697 gsf CF 175 parking spc.**	**569 Units (incl. 82 affordable) 130,520 gsf Retail 15,885 gsf Office 145,672 gsf CF 210 parking spc.**
POPULATION/ EMPLOYMENT (1)	**No-Action Condition (GSF)**	**RWCDS 1 (Deed Restriction + Conversion)**	**RWCDS 2 (Deed Restriction + New Development)**	**RWCDS 3 (No Deed Restriction + Conversion)**	**RWCDS 4 (No Deed Restriction + New Development)**
Residents	1,195 residents	2,079 residents	2,259 residents	2,477 residents	2,657 residents
Workers	2,760 workers	4,403 workers	4,120 workers	4,011 workers	3,728 workers
No-Action to With-Action Increment		**884 Residents 1,643Workers**	**1,064 Residents 1,360Workers**	**1,283 Residents 1,251Workers**	**1,463 Residents 968 Workers**

(1) Assume 2.57 persons per DU (based on census data for 1/4-mile), 1 employee per 250 SF of office, 3 employees per 1000 SF of retail, as well as 1 employee per 25 DUs. For community facility uses, assume 1 employee per 300 sf of community facility/institutional space and for parking assume 1 employee per 10,000 sf of parking floor area.

As shown in the analysis below, the Proposed Action would not result in significant adverse impacts to open space ratios in either the ¼-mile nonresidential or the ½-mile residential open space study areas.

B. PRINCIPAL CONCLUSIONS

According to the *CEQR Technical Manual*, a Proposed Action may result in a significant impact on open space resources if (a) there would be direct displacement/alteration of existing open space within the study area that has a significant adverse effect on existing users; or (b) it would reduce the open space ratio and consequently result in the overburdening of existing facilities or further exacerbates a deficiency in open space. The *CEQR Technical Manual* also states that "if the area exhibits a low open space ratio indicating a shortfall of open space, even a small decrease in the ratio as a result of the action may cause an adverse effect." A five percent or greater decrease in the open space ratio is considered to be "substantial," and a decrease of less than one percent is generally considered to be insignificant unless open space resources are extremely limited.

The Proposed Action would not have a direct impact on any open space resource in the study area. No open space would be displaced and no significant shadows would be cast on any publically accessible open spaces. The Proposed Action would not affect any particular user group, nor would it introduce a population with any unusual characteristics. The Proposed Action would not increase the amount of publicly accessible open space in the study area, although the proposed contextual zoning districts to be mapped as part of the Proposed Action require that new residential developments provide on-site recreation space for building residents in accordance with the provisions of the Quality Housing program. This on-site recreation space would help to partially offset the increased residential population's additional demand on the study area's open space resources.

With the Proposed Action, the percentage changes in open space ratios range from a 1.22% reduction to a 6.37% reduction. The greatest change is seen in the nonresidential study area, where there would be a reduction of 6.37% in the passive open space ratio compared to No-Action conditions; however, the NYCDCP guideline is still exceeded, so this decline is not considered significant. Similarly, the combined total population ratio in the nonresidential study area would also decline, but would be higher than the recommended weighted average for residents and nonresidents, and therefore this decline is also not considered significant. As such, daytime users of passive open space will be well-served by the resources available, and there would be no significant adverse open space impacts in the nonresidential study area as a result of the Proposed Action.

With respect to the reductions in open space within the residential study area, the total and active open space ratios would remain below NYCDCP guidelines in the future with the Proposed Action. The total decline in the residential study area would be 1.24%; and the reduction in the active open space ratio would be 1.22%. Although the passive open space ratio for residents would decline by 1.25%, and the combined passive open space ratio for residents and non-residents would decline by 1.81%, both ratios would remain above the NYCDCP guidelines (refer to Table 5-10 below), indicating that the study area would be well-served by passive open space.

Although the residential study area is not adequately served by total or active open spaces, the decrease of 1.24% in the total open space ratio and 1.22% in the active open space ratio is not considered significant. According to *CEQR Technical Manual* guidelines, a significant adverse open space impact may occur if a Proposed Action would reduce the open space ratio by more than 5 percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents. There is a shortfall of total and active open space within the defined residential study area under existing, No-Action, and With-Action conditions. However, as described below, the combination of the availability of a variety of open spaces such as recreational areas, spaces for walking and biking, pools, and school playgrounds, and the large regional open space resources in the vicinity of the open space study area all add to the open space conditions under existing, No-Action and With-Action scenarios. Therefore, the increased demand resulting from the Proposed Action would not result in any significant adverse open space impacts.

C. OPEN SPACE STUDY AREA AND METHODOLOGY

The analysis of open space resources has been conducted in accordance with the guidelines established in the *CEQR Technical Manual*. Using CEQR methodology, the adequacy of open space in the study area is assessed quantitatively using a ratio of usable open space acreage to the study area population, referred to as the open space ratio. This quantitative measure is then used to assess the changes in the adequacy of open space resources in the future, both without and with the Proposed Action. In addition, qualitative factors are considered in making an assessment of the Proposed Action's effects on open space resources.

Open Space Study Area

According to CEQR, worker and residential populations use different open space areas. Workers typically use passive open spaces within walking distance of their workplaces. Residents are more likely to travel farther to reach parks and recreational facilities, and they use both passive and active open spaces. According to CEQR methodologies, the open space study area is based on the distance a person is assumed to walk to reach a neighborhood open space. Workers or daytime users of open space are assumed to walk approximately 10 minutes (¼-mile distance) to reach neighborhood open spaces, and residents are assumed to walk approximately 20 minutes (½-mile distance). Because the Proposed Action would have components that would generate both new residents and workers in excess of the CEQR threshold for analysis, two study areas were evaluated: a worker or nonresidential study area based on a ¼-mile distance from the proposed rezoning area, and a residential study area based on a ½-mile distance.

Nonresidential Study Area

Pursuant to CEQR guidelines, the nonresidential open space study area comprises all census tracts that have 50 percent or more of their area located within ¼ mile of the proposed rezoning area. Those census tracts with less than 50 percent of their area in the ¼-mile radius were excluded, and the study area boundary was adjusted accordingly. The study area boundary was adjusted further to include portions of two regional parks that fall within the ¼-mile radius (Highbridge and Morningside Parks), which would likely be used by the study area's daytime populations. Figure 5-2 shows the resultant nonresidential open space study area boundary. All open spaces, as well as all employees and residents within the defined study area for nonresidents were included in the analysis.

Residential Study Area

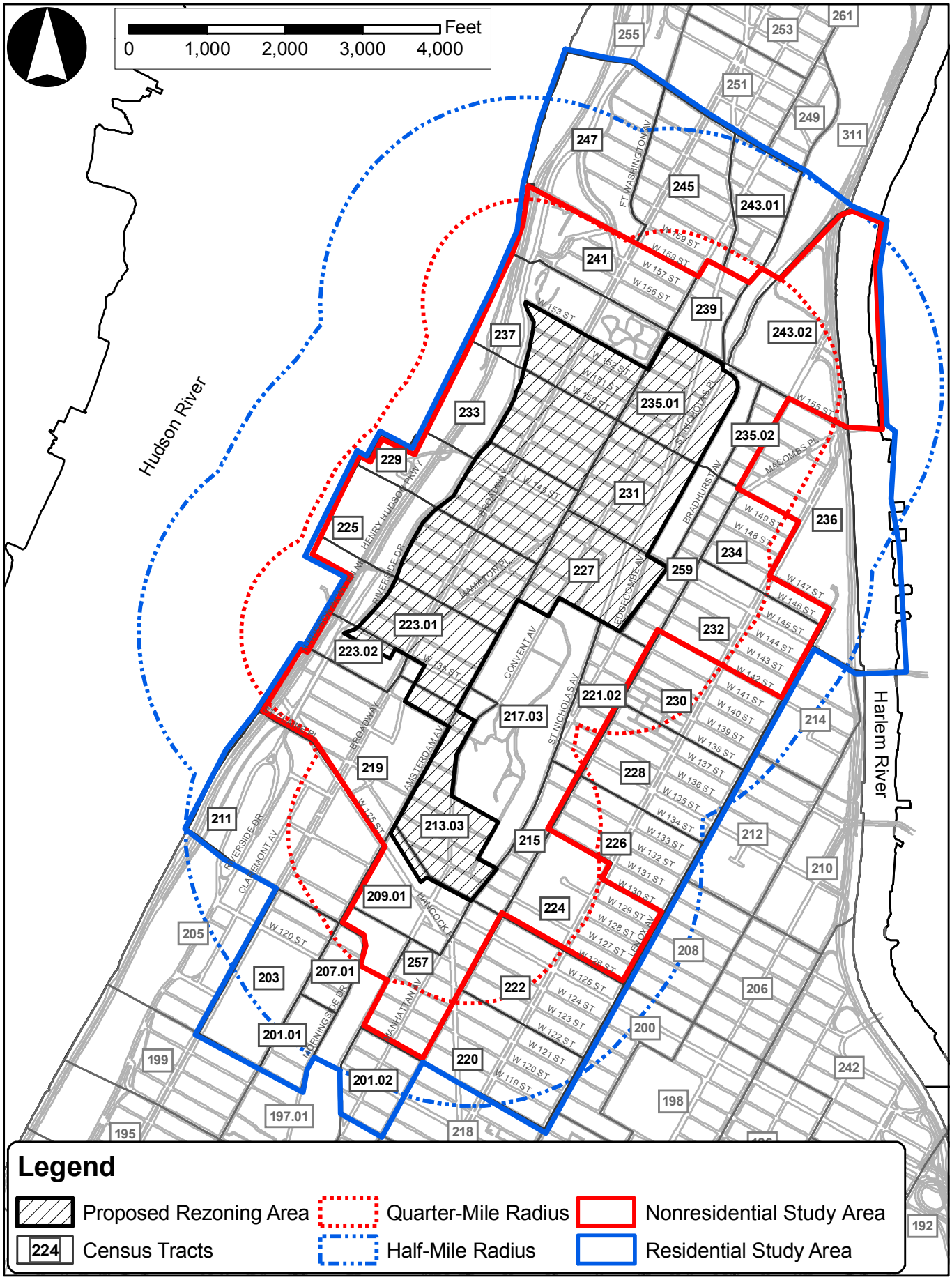
Pursuant to CEQR guidelines, the residential open space study area includes all census tracts that have at least 50 percent of their area located within ½-mile of the proposed rezoning area. The study area boundary was adjusted further to include portions of two regional parks that fall within the ½-mile radius (Highbridge and Morningside Parks, each essentially comprising its own census tract), which would likely be used by the study area's residents. Figure 5-2 shows the resultant residential open space study area boundary. All open spaces, as well as residents and employees of the residential study area were included in the analysis. As described above, residents typically walk up to ½-mile for recreational spaces. While it is likely that visitors to Highbridge Park or Morningside Park, which extend beyond the study area, would venture farther south or north, beyond the approximately ½-mile boundary, for conservative analysis purposes, only those portions falling within the ½-mile radius are included in the study area and used in the quantitative analysis. The areas of those two open spaces which fell beyond a ½-mile radius were not included in the quantitative analysis but were described qualitatively.

Analysis Framework

Direct Effects Analysis

According to the *CEQR Technical Manual*, a proposed action would have a direct effect on an open space if it causes the physical loss of public open space because of encroachment onto the space or displacement of the space; changes the use of an open space so that it no longer serves the same user population; limits public access to an open space; or causes increased noise or air pollutant emissions, odors, or shadows that would affect its usefulness, whether on a permanent or temporary basis. The direct effects analysis is included as part of the detailed analysis in Section D of this chapter.

Figure 5-2
Open Space Study Area



Indirect Effects Analysis

Indirect effects occur to an area's open spaces when a proposed action would add enough population, either workers or residents, to noticeably diminish the ability of an area's open space to serve the existing or future population. The *CEQR Technical Manual* methodology suggests conducting an initial quantitative assessment to determine whether more detailed analyses are appropriate, but also recognizes that for projects that introduce a large population in an area that is underserved by open space, it may be clear that a full, detailed analysis should be conducted.

With an inventory of available open space resources and potential users, the adequacy of open space in the two study areas can be assessed both quantitatively and qualitatively. The quantitative approach computes the ratio of open space acreage to the population in the study area and compares this ratio with certain guidelines. The qualitative assessment examines other factors that can affect conclusions about adequacy, including proximity to additional resources beyond the study area, the availability of private recreational facilities, and the demographic characteristics of the area's population. Specifically, the analysis in this chapter includes:

- Characteristics of the two open space user groups: residents and workers/daytime users. To determine the number of residents in the study areas, 2010 census data have been compiled for census tracts comprising the nonresidential and residential open space study areas. Because the study areas are characterized by a workforce and daytime population that may also use open spaces, the number of employees in the study areas has also been calculated, based on reverse journey-to-work census data (2000 Census). This information was updated for 2010 based on an annual growth rate derived from a comparison of New York State Department of Labor (NYSDOL) private sector employment data for zip codes 10026, 10027, 10030, 10031, 10032, 10037, and 10039 (comprising the approximate ½-mile area surrounding the rezoning area) for the 3rd quarter of 2000 and the 3rd quarter of 2010. Additionally, the daytime population estimate was adjusted to include the student population of major colleges/universities in each study area.
- An inventory of all publicly accessible passive and active recreational facilities in the nonresidential and residential open space study areas.
- An assessment of the quantitative ratio of open space in the two study areas by computing the ratio of open space acreage to the population in each study area and comparing this open space ratio with certain guidelines. For the residential population, there are generally two guidelines that are used to evaluate residential open space ratios. The New York Department of City Planning (NYCDCP) generally recommends a comparison to the median ratio for community districts in New York City, which is 1.5 acres of open space per 1,000 residents. Alternately, the NYCDCP has established an optimal level, or planning goal, of 2.5 acres of open space per 1,000 residents, including 2.0 acres of active open space and 0.5 acres of passive open space. To determine the adequacy of open space resources for the worker or daytime user population, the NYCDCP has established a ratio of 0.15 acres of passive open space per 1,000 workers/daytime users as representing a reasonable amount of open space. The needs of workers and residential populations are also considered together in each study area because it is assumed that both will use the same passive open spaces. Therefore, a weighted average is also considered for the analysis that balances the amount of open space necessary to meet the NYCDCP guideline of 0.50 acres of passive open space per 1,000 residents and 0.15 acres of passive open space per 1,000 nonresidents. Because this ratio changes depending on the proportion of residents and nonresidents in each study area, the tables summarizing the open space ratios outline the amount of open space needed in each condition in each study area, and calculate the weighted average ratio of passive open space acres per 1,000 combined residents and nonresidents.
- An evaluation of qualitative factors affecting open space use.
- A final determination of the adequacy of open space in the nonresidential and residential open space study areas.

Impact Assessment

Impacts are based in part on how a project would change the open space ratios in the study area. According to the *CEQR Technical Manual*, if a proposed project would result in a decrease in open space ratios compared with those in the future without the project, the decrease is generally considered to be a substantial change, warranting a detailed analysis, if it would approach or exceed 5 percent. Or, if a study area exhibits a low open space ratio (e.g., below 1.5 acres per 1,000 residents or 0.15 acres of passive space per 1,000 nonresidential users), indicating a shortfall of open space, smaller decreases in that ratio as a result of the action may constitute significant adverse impacts. In addition to the quantitative factors cited above, the *CEQR Technical Manual* also recommends consideration of qualitative factors in assessing the potential for open space impacts. These include the availability of nearby destination resources, the beneficial effects of new open space resources provided by a project, and the comparison of projected open space ratios with established city guidelines. It is recognized that the open space ratios of the city guidelines described above are not feasible for many areas of the city, and they are not considered impact thresholds on their own. Rather, these are benchmarks that indicate how well an area is served by open space.

D. PRELIMINARY ASSESSMENT

According to the *CEQR Technical Manual*, an initial quantitative open space assessment may be useful to determine if a detailed open space analysis is necessary, or whether the open space assessment can be targeted to a particular user group. This initial assessment calculates an open space ratio by relating the existing residential and nonresidential populations to the total open space in the study area. It then compares that ratio with the open space ratio in the future with the proposed action. If there is a decrease in the open space ratio that would approach or exceed 5 percent, or if the study area exhibits a low open space ratio from the onset (indicating a shortfall of open spaces), a detailed analysis is warranted. The detailed analysis examines passive and active open space resources available to both residents and nonresidents (e.g., daily workers and visitors) within study areas delineated in accordance with the *CEQR Technical Manual*.

Pursuant to the guidelines of the *CEQR Technical Manual*, a preliminary open space assessment was conducted. As the residential study area exhibits a low open space ratio (i.e., below the citywide average of 1.5 acres per 1,000 residents) under existing conditions and in the future with the Proposed Action, a detailed open space analysis is warranted and is provided below.

E. DETAILED ANALYSIS

Existing Conditions

Study Area Population

Nonresidential (¼-Mile) Study Area

Nonresidential Population

As shown in Table 5-2, based on 2000 Census reverse journey to work data compiled by NYCDCP, the 2000 worker population for the nonresidential open space study area is estimated at approximately 18,330

workers. Using an annual growth rate of 7.07%[2], the current 2010 worker population is estimated at approximately 36,294 for the nonresidential open space study area.

In addition, City College of New York is located in census tract 217.03 within the nonresidential study area. In total, approximately 15,553 full-time and part-time students were enrolled at City College of New York as of Fall 2010 (12,384 undergraduates and 3,169 graduates). For analysis purposes, all students (100 percent of the enrollment) were considered visitors to the area, even though this population does not exist year-round and only a portion of the entire student population visits the campus on any given day. Therefore, the 2010 total adjusted daytime population in the nonresidential study area, including both workers and students, is estimated at 51,847.

TABLE 5-2
Existing Worker Population in Open Space Study Areas

Census Tract*	2000 Worker Population		Census Tract*	2000 Worker Population
NON-RESIDENTIAL STUDY AREA				
209.01	835		227.02*	70
209.02*	455		229	725
213.01*	385		231.01	870
213.02*	60		231.02*	55
217.01*	1,160		232	825
217.02*	145		233	830
219	2,395		234	550
221.01*	870		235.01*	640
221.02*	180		235.02	110
223.01	875		237	550
223.02	380		239	265
224	1,000		241	930
225	720		243.02	310
227.01	2,140			
TOTAL 2000 WORKER POPULATION				**18,330**
ADJUSTED 2010 TOTAL WORKER POPULATION (1)				**36,294**
ADDITIONAL CENSUS TRACTS WITHIN RESIDENTIAL STUDY AREA				
201.01	3,455		226	525
201.02	105		228	1,150
203	5,410		230	555
207.01	525		236	435
207.02*	195		243.01	625
211	1,710		245	1,480
220	665		247	530
222	3,170			
SUBTOTAL 2000 WORKER POPULATION				***20,535***
2000 TOTAL FOR RESIDENTIAL STUDY AREA				***38,865***
ADJUSTED 2010 TOTAL WORKER POPULATION (1)				***76,955***

* Some of the 2000 census tract boundaries have been altered in the 2010 census: tracts 207.02 and 209.02 have been combined as 2010 census tract 257; tracts 213.01 and a portion of tract 217.01 have been combined as 2010 census tract 213.03; tracts 213.02 and 217.02 have been combined as 2010 census tract 215; portions of tracts 217.01 and 221.01 have been combined as 2010 census tract 217.03; tracts 227.02 and 231.02 have been combined as 2010 census tract 259; and 2010 census tract 235.01
(1) For the worker population, 2010 population is estimated by increasing 2000 census data by an annual growth rate of 7.07%, based on a comparison of NYSDOL private sector employment data for zip codes within an approximate 1/2-mile radius (10026, 10027, 10030, 10031, 10032, 10037, 10039) for the 3rd quarter of 2000 and the 3rd quarter of 2010.

[2] Based on a comparison of NYSDOL private sector employment data for zip codes 10026, 10027, 10030, 10031, 10032, 10037, and 10039, which are equivalent to an approximate ½-mile radius, for the 3rd quarter of 2000 and the 3rd quarter of 2010.

Residential Population

To determine the residential population served by existing open space resources, 2010 Census data were compiled for the census tracts comprising the nonresidential study area. As shown in Table 5-3, 2010 Census data indicate that the study area has a residential population of approximately 125,832 people. As shown in the table, people between the ages of 20 and 64 make up the majority (approximately 64 percent) of the residential population. Children and teenagers (0 to 19 years old) account for approximately 25 percent of the entire residential population. Persons 65 years and over account for approximately 11 percent of the nonresidential study area population.

Total User Population

Within the nonresidential study area, the total population (residents plus nonresidents) is estimated at 177,679 (refer to summary Table 5-4 below). Although this analysis conservatively assumes that the residents and employees 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 nonresidential populations overlap, resulting in a more conservative analysis.

Residential (½-Mile) Study Area

The residential study area includes all of the census tracts comprising the nonresidential study area, plus 14 additional census tracts, as illustrated in Figure 5-2.

Nonresidential Population

As shown in Table 5-2, based on 2000 Census reverse journey to work data compiled by NYCDCP, the 2000 worker population for the residential open space study area is estimated at approximately 38,865 workers. Using an annual growth rate of 7.07%[3], the current 2010 worker population is estimated at approximately 76,955 for the residential open space study area.

In addition, there are two large universities located within the residential study area, City University (described above), and Columbia University, which is located in census tract 203. Columbia University had an enrollment of approximately 7,934 undergraduates and 19,672 graduate students (total enrollment of 27,606 students) as of Fall 2010. The university offers student housing to both undergraduates and graduate students. For analysis purposes, all students (100 percent of the enrollment) at both schools were considered visitors to the area, even though this population does not exist year-round and only a portion of the entire student population visits the two campuses on any given day. Additionally, while Columbia University provides housing for both undergraduate and graduate students, it was assumed that all students would be visitors even though some students may live in student housing. The combined student populations from both Columbia University and City College would add an additional 43,159 daytime users to the overall residential study area daytime population totals. Therefore, the 2010 total adjusted daytime population in the ½-mile residential study area, including both workers and students, is estimated at 120,114 (refer to Table 5-4 below).

[3] Based on a comparison of NYSDOL private sector employment data for zip codes 10026, 10027, 10030, 10031, 10032, 10037, and 10039, which are equivalent to an approximate ½-mile radius, for the 3rd quarter of 2000 and the 3rd quarter of 2010.

TABLE 5-3
2010 Residential Population and Age Distribution in the Nonresidential and Residential Open Space Study Areas

2010 Census Tract	Total Population	Under 5		5 to 9		10 to 14		15 to 19		20 to 64		65+ Years		Median Age
		#	%	#	%	#	%	#	%	#	%	#	%	
NON-RESIDENTIAL STUDY AREA														
209.01	3,673	212	5.8	234	6.4	280	7.6	308	8.4	2,113	57.5	526	14.3	34.5
213.03	5,619	369	6.6	324	5.8	308	5.5	350	6.2	3,768	67.1	500	8.9	33.8
215	3,068	177	5.8	187	6.1	224	7.3	313	10.2	1,888	61.5	279	9.1	32.8
217.03	6	0	0.0	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0	25.5
219	6,023	373	6.2	408	6.8	456	7.6	596	9.9	3,466	57.5	724	12.0	32.0
221.02	2,175	106	4.9	73	3.4	75	3.4	121	5.6	1,599	73.5	201	9.2	39.6
223.01	7,917	415	5.2	483	6.1	522	6.6	612	7.7	5,055	63.8	830	10.5	31.4
223.02	3,385	177	5.2	179	5.3	219	6.5	304	9.0	2,017	59.6	489	14.4	35.3
224	6,427	436	6.8	449	7.0	482	7.5	552	8.6	3,859	60.0	649	10.1	32.4
225	10,149	567	5.6	457	4.5	511	5.0	713	7.0	6,671	65.7	1,230	12.1	34.4
227	4,864	245	5.0	235	4.8	214	4.4	239	4.9	3,460	71.1	471	9.7	35.3
229	8,300	458	5.5	416	5.0	443	5.3	603	7.3	5,536	66.7	844	10.2	33.1
231	5,865	285	4.9	247	4.2	280	4.8	326	5.6	4,114	70.1	613	10.5	35.5
232	7,980	593	7.4	571	7.2	611	7.7	755	9.5	4,869	61.0	581	7.3	30.1
233	6,527	386	5.9	347	5.3	329	5.0	391	6.0	4,506	69.0	568	8.7	32.1
234	4,465	316	7.1	310	6.9	243	5.4	281	6.3	3,068	68.7	247	5.5	32.4
235.01	6,004	347	5.8	351	5.8	349	5.8	418	7.0	3,859	64.3	680	11.3	34.1
235.02	1,819	114	6.3	104	5.7	130	7.1	145	8.0	1,134	62.3	192	10.6	31.3
237	6,811	380	5.6	335	4.9	397	5.8	542	8.0	4,412	64.8	745	10.9	34.2
239	2,371	116	4.9	113	4.8	145	6.1	169	7.1	1,463	61.7	365	15.4	34.6
241	7,642	358	4.7	297	3.9	333	4.4	456	6.0	4,762	62.3	1,436	18.8	40.6
243.02	7,370	478	6.5	579	7.9	629	8.5	785	10.7	4,052	55.0	847	11.5	31.5
257	3,876	282	7.3	221	5.7	222	5.7	188	4.9	2,653	68.4	310	8.0	35.7
259	3,496	306	8.8	220	6.3	193	5.5	201	5.7	2,408	68.9	168	4.8	32.5
Total for Non-Residential Study Area	**125,832**	**7,496**	**6.0**	**7,140**	**5.7**	**7,595**	**6.0**	**9,368**	**7.4**	**80,738**	**64.2**	**13,495**	**10.7**	**33.5**
ADDITIONAL CENSUS TRACTS WITHIN RESIDENTIAL STUDY AREA														
201.01	1,731	36	2.1	22	1.3	23	1.3	152	8.8	1,418	81.9	80	4.6	22.2
201.02	3,865	266	6.9	234	6.1	225	5.8	196	5.1	2,688	69.5	256	6.6	32.8
203	3,633	62	1.7	32	0.9	18	0.5	1,498	41.2	1,948	53.6	75	2.1	21.1
207.01	3,329	113	3.4	60	1.8	28	0.8	105	3.2	2,814	84.5	209	6.3	28.2
211	10,330	430	4.2	387	3.7	432	4.2	454	4.4	7,238	70.1	1,389	13.4	33.2
220	5,370	385	7.2	306	5.7	286	5.3	337	6.3	3,699	68.9	357	6.6	33.5
222	2,644	187	7.1	159	6.0	152	5.7	175	6.6	1,796	67.9	175	6.6	33.8
226	3,778	232	6.1	201	5.3	220	5.8	227	6.0	2,519	66.7	379	10.0	33.8
228	5,248	307	5.8	285	5.4	304	5.8	341	6.5	3,576	68.1	435	8.3	34.4
230	8,106	536	6.6	486	6.0	552	6.8	638	7.9	4,995	61.6	899	11.1	33.3
236	6,404	367	5.7	390	6.1	388	6.1	447	7.0	3,572	55.8	1,240	19.4	39.7
243.01	3,946	212	5.4	220	5.6	232	5.9	305	7.7	2,679	67.9	298	7.6	33.5
245	14,934	890	6.0	805	5.4	880	5.9	1,153	7.7	9,601	64.3	1,605	10.7	33.3
247	7,074	360	5.1	303	4.3	360	5.1	446	6.3	4,456	63.0	1,149	16.2	38.4
Subtotal	**80,392**	**4,383**	**5.5**	**3,890**	**4.8**	**4,100**	**5.1**	**6,474**	**8.1**	**52,999**	**65.9**	**8,546**	**10.6**	**32.2**
Total for Residential Study Area	***206,224***	***11,879***	***5.8***	***11,030***	***5.3***	***11,695***	***5.7***	***15,842***	***7.7***	***133,737***	***64.9***	***22,041***	***10.7***	***33.1***
Total for Manhattan	***2,504,700***	***177,198***	***7.1***	***159,391***	***6.4***	***156,563***	***6.3***	***170,684***	***6.8***	***1,553,231***	***62.0***	***287,633***	***11.5***	***34.1***

Source: 2010 US Census data, Table SF1-P1.

Residential Population

2010 Census data were compiled for the census tracts comprising the residential study area. As shown in Table 5-3, 2010 Census data indicate that the study area has a residential population of approximately 206,224 people. As shown in the table, people between the ages of 20 and 64 make up the majority (approximately 65 percent) of the residential population. Children and teenagers (0 to 19 years old) account for approximately 24 percent of the entire residential population, and persons 65 years and over account for approximately 11 percent of the residential study area population. The median population age for individual census tracts within the residential study area ranges from a high of 40.6 years (census tract 241) to a low of 21.1 years (census tract 203) as shown in Table 5-3. The study area's average median age of 33.1 is younger than the median age for Manhattan as a whole, which is 34.1 years.

Within a given area, the age distribution of a population affects the way open spaces are used and the need for various types of recreational facilities. Typically, children 4 years old or younger use traditional playgrounds that have play equipment for toddlers and preschool children. Children ages 5 through 9 typically use traditional playgrounds, as well as grassy and hard-surfaced open spaces, which are important for activities such as ball playing, running, and skipping rope. Children ages 10 through 14 use playground equipment, court spaces, little league fields, and ball fields. Teenagers' and young adults' needs tend toward court game facilities such as basketball and field sports. Adults between the ages of 20 and 64 continue to use court game facilities and fields for sports, as well as more individualized recreation such as rollerblading, biking, and jogging, requiring bike paths, promenades, and vehicle-free roadways. Adults also gather with families for picnicking, ad hoc active sports such as Frisbee, and recreational activities in which all ages can participate. Senior citizens engage in active recreation such as tennis, gardening, and swimming, as well as recreational activities that require passive facilities. The demographic data for the residential open space study area suggest a need for facilities geared towards the recreational needs of adults, as the study area exhibits a very high percentage of residents in the 20 to 64 year age bracket, as well as a need for various kinds of active and passive recreation facilities in the study area, including those with amenities that can be used by adults and senior citizens.

Total User Population

As shown in Table 5-4 below, within the defined residential study area, the total current population (residents plus nonresidents) is estimated to be 326,338. Although this analysis conservatively assumes that residents and daytime users are separate populations, it is possible that some of the residents live near their workplace or university. As a result, there is likely to be some double counting of the daily user population in the study area, resulting in a more conservative analysis.

TABLE 5-4
Summary of 2010 Open Space User Groups Within the Two Study Areas

User Group	Nonresidential Study Area 2010 Population	Residential Study Area 2010 Population
Residents	125,832	206,224
Workers/Daytime Users[1]	51,847	120,114
Combined Residents and Nonresidents	177,679	326,338

1. The adjusted 2010 daytime population estimate includes an additional 15,553 daytime users in the nonresidential study area (to account for students at City College of New York), and an additional 43,159 daytime users in the residential study area (to account for students from both City College of New York and Columbia University).

Inventory of Publicly-Accessible Open Space

According to the *CEQR Technical Manual*, open space may be public or private and may be used for active or passive recreational purposes. Pursuant to CEQR, public open space is defined as facilities open to the public at designated hours on a regular basis and is assessed for impacts under CEQR rules, whereas private open space is not accessible to the general public on a regular basis, and is therefore only considered qualitatively. Field surveys and secondary sources were used to determine the number, availability and condition of publicly accessible open space resources in the nonresidential and residential study areas.

An open space is determined to be active or passive by the uses which the design of the space allows. Active open space is the part of a facility used for active play such as sports or exercise and may include playground equipment, playing fields and courts, swimming pools, skating rinks, golf courses, lawns and paved areas for active recreation. Passive open space is used for sitting, strolling, and relaxation, and typically contains benches, walkways and picnicking areas. However, some passive spaces can be used

for both passive and active recreation; such as a green lawn or riverfront walkway, which can also be used for ball playing, jogging or rollerblading.

All of the publicly accessible open space and recreational resources within the two defined study areas are shown in Figure 5-3 and listed in Table 5-5.

Nonresidential (¼-Mile) Study Area

As shown in Table 5-5, the nonresidential study area contains a total of 171.16 acres of open space, of which approximately 93.00 acres are passive open space and 78.16 acres are active open space. As shown in Figure 5-3 and Table 5-5, 47 publicly accessible open space and recreational resources are located within the nonresidential study area. They consist of a mix of city playgrounds, community gardens, larger city parks with a mix of passive and active recreational facilities, and planted street malls. Five of the largest open spaces within the nonresidential study area are described below.

Riverbank State Park

Riverbank State Park (No. 17 in Figure 5-3) is under the ownership of the New York State Office of Parks, Recreation and Historic Preservation. The park is located along the Hudson River between West 137th Street and West 145th Street on the roof of the North River Water Pollution Control Plant. The 28-acre park provides a significant amount of active uses, with basketball courts, handball courts, a softball field, tennis courts, a running track with a football/soccer field, and a skating rink, as well as a 2,500-seat athletic complex with fitness room, and two playgrounds. The playgrounds have swings, slides, and jungle gyms. Additionally, there is an Olympic-size swimming pool, an outdoor 25-yard lap pool and an outdoor wading pool. For passive uses, there are several paved walkways, benches, picnic areas and a waterfront amphitheatre.

Jackie Robinson Park

Jackie Robinson Park is a 12.77-acre park that extends from West 155th Street south to 145th Street, between Bradhurst and Edgecombe Avenues (No. 6 in Figure 5-3), which provides ten blocks of recreational resources. The park was originally built as a neighborhood playground to encourage organized play for city children, and is one of the ten original parks to receive a City pool. Along with its pool opening in 1936, a recreation center was created the same year. Equipped with traditional cardiovascular equipment, weight room, and gymnasium, the recreation center also includes a library, computer resource center, and an arts & crafts room, among other features. The park's other features include two baseball diamonds, basketball courts, volleyball courts, and two playgrounds, one with a water play area. In addition, Jackie Robinson Park includes a bandshell that hosts concerts throughout the warm season.

Riverside Park North and Riverside Park Recreation Area

The northern section of Riverside Park (No. 16 in Figure 5-3) is located within the nonresidential study area and contains both active and passive amenities, although it is predominately occupied by passive space. This 13.35-acre section of the park is bounded by Riverside Drive, West 135th to West 153rd streets, and includes a number of playgrounds, and barbecuing areas. The 23.09-acre recreational area stretches along the Hudson River from West 145th Street to West 155th Street (No. 14 in Figure 5-3), and contains basketball, handball, and tennis courts, baseball and soccer fields, a playground, as well as trees, benches and paths.

Figure 5-3
Open Space Resources

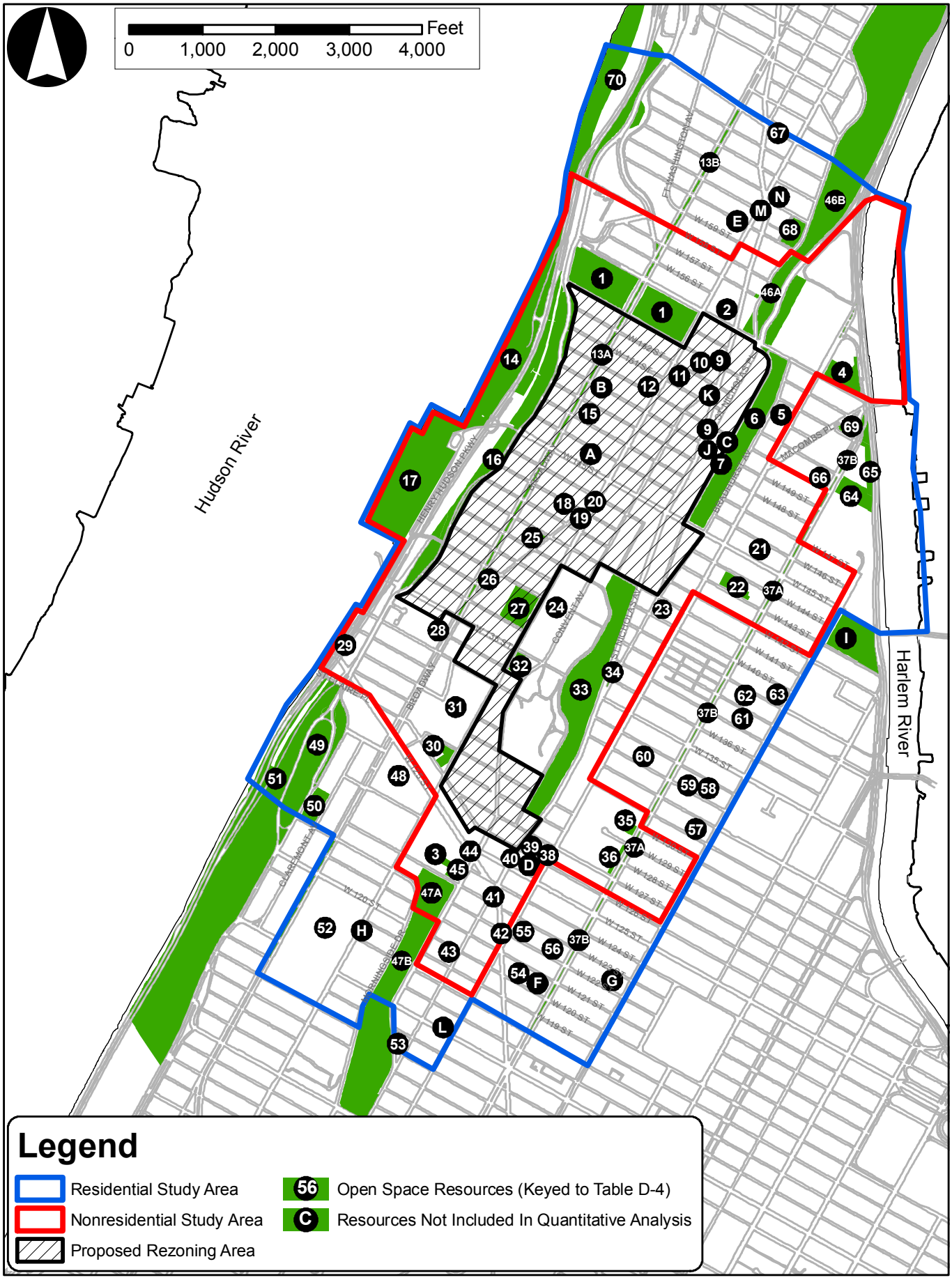


TABLE 5-5
Inventory of Existing Open Space and Recreational Facilities

MAP NO	PARK NAME	LOCATION	OWNER	DESCRIPTION	HOURS OF ACCESS	TOTAL ACRES	% PASSIVE	PASSIVE ACRES	% ACTIVE	ACTIVE ACRES	CONDITION	UTILIZATION
NONRESIDENTIAL STUDY AREA												
1	Trinity Cemetery	W. 155th St., Amsterdam Ave., W. 153rd, Riverside Drive	Trinity Church Corp.	Historic cemetery, trees, benches, paths	Sun-Sat 9am-5pm	24.00	100%	24.00	0%	0.00	Excellent	Light
2	Orville and Wilbur Playground	St. Nicholas Ave & W. 156th St	NYCDPR	Benches, playground, basketball, handball court, volleyball court	Dawn to Dusk	0.58	100%	0.58	0%	0.00	Good	Heavy
3	General Grant Houses II	W 123 to 125 Streets, Amsterdam to Morningside Avenue	NYCHA	Basketball courts, benches, grass, playground, jungle gym	8 AM - Dusk	2.50	26%	0.65	74%	1.85	Fair	Moderate
4	P.S. 156/Holcombe Rucker Playground	W 155th St., 8th Ave. to Harlem River Drive	NYCDPR	Benches, playground, basketball, handball court, baseball field	Dawn to Dusk	3.13	0%	0.00	100%	3.13	Good	Heavy
5	Bradhurst Avenue Gardens	Bradhurst Ave. & W. 152nd St.	NYCDPR/NYCHPD/ CENYC	Community garden, picnic area, benches	M-F 12pm-5pm	0.09	100%	0.09	0%	0.00	Poor	Light
6	Jackie Robinson Park	W. 155th & Dyckman Sts., Edgecombe & Amsterdam Aves	NYCDPR	Trees, benches, paths, playground, handball, basketball, baseball field, volleyball court, pool, exercise equipment, dog run, BBQ areas, picnic area, historic bridge	Dawn to Dusk	12.77	80%	10.22	20%	2.55	Good	Moderate
7	Sugar Hill Garden	Edgecombe Avenue and West 150th Street	NYCDPR	Tables, benches, plants	Dawn to Dusk	0.07	100%	0.07	0%	0.00	Good	Light
8	Donnellan Square	St Nicholas Ave., W. 150th St. to St Nicholas Pl.	NYCDPR	Community garden with plantings, trees, benches	Dawn to Dusk	0.11	100%	0.11	0%	0.00	Good	Light
9	Harris Garden	W. 153rd Street & St. Nicholas Ave.	NYCDEP	Garden, trees, benches, trellis, picnic bench	M-F 12:00-8:00pm, Sat-Sun 12:00-8:00pm	0.11	100%	0.11	0%	0.00	Good	Moderate
10	Senior Citizens Sculpture Garden	W. 153rd St. & St. Nicholas & Amsterdam Aves.	CENYC/ NYCDPR/NYCDEP	Trees, benches, path, garden, sculptures	M-F 9am-4pm	0.41	100%	0.41	0%	0.00	Good	Light
11	Carmansville Playground	Amsterdam Avenue, West 151st to 152nd Streets	NYCDPR	Playground, handball courts, benches	Dawn to Dusk	0.57	0%	0.00	100%	0.57	Good	Heavy
12	The Friendship Garden	499 W. 150th St., Amsterdam Ave. & Broadway	NYRP	Garden, gravel path, picnic area	Sun 5-7; Mon-Thur 10-2PM; Fri 10-6PM; Sat 11-	0.03	100%	0.03	0%	0.00	Excellent	Light
13A	Broadway Malls (1)	Broadway, West 135th to 158th Street	NYCDPR	Benches, trees, planters	Dawn to Dusk	2.34	100%	2.34	0%	0.00	Good	Moderate
14	Riverside Park Recreation Area (2)	W 145 to W 155th Street between Henry Hudson Parkway and Hudson River	NYCDPR	Trees, benches, paths, playground, basketball, handball courts, baseball and soccer fields	Dawn to Dusk	23.09	30%	6.93	70%	16.16	Good	Light
15	Mo' Pals	545 W. 147th St. & Broadway and Amsterdam Aves.	TPL/ CENYC	Community garden	M-Sat 10:00am-12:00pm, 2:00-4:00pm	0.04	100%	0.04	0%	0.00	Good	Light
16	Riverside Park North	W 135 to W 158th Street between Riverside Drive and Henry Hudson Parkway	NYCDPR	Skateboard park, ballfields, playgrounds, paved walkways, trees, planters, benches	Dawn to Dusk	13.35	60%	8.01	40%	5.34	Excellent	Heavy
17	Riverbank State Park	W 137th to 145th along Henry Hudson Parkway	NYSOPRHP	Skating rink, pool, jungle, swings, slides, paved walkways, trees, benches, planters, football fields, waterfront amphitheatre, carousel, cultural center	6AM - 11PM	28.00	13%	3.60	87%	24.40	Excellent	Moderate
18	Frank White Neighborhood Service Community Center	506-508 West 143rd Street	NYCDPR	Tress, planters, flowers	Mon-Sun 9-7PM	0.09	100%	0.09	0%	0.00	Good	Light
19	Hope Stevens Garden	1656 Amsterdam Avenue	TPL	Community garden	Mon, Wed, Sat 10-5PM	0.06	100%	0.06	0%	0.00	Excellent	Light

(1) The Broadway Malls have been split based on their location within either the non-residential study area or the residential study area. Thus, "total acres" refers to the total open space within the specified section only.

(2) Riverside Park has been divided into three subsections, including: Riverside Park, Riverside Park North, and Riverside Park Recreation Area. These are each referred to separately

TABLE 5-5 (cont'd)
Inventory of Existing Open Space and Recreational Facilities

MAP NO	PARK NAME	LOCATION	OWNER	DESCRIPTION	HOURS OF ACCESS	TOTAL ACRES	% PASSIVE	PASSIVE ACRES	% ACTIVE	ACTIVE ACRES	CONDITION	UTILIZATION
20	Johnny Hartman Plaza	Amsterdam Avenue between West 143rd Street and Hamilton Place	NYCDPR	Benches, trees, planters	Dawn to Dusk	0.02	100%	0.02	0%	0.00	Good	Light
21	Bradhurst Urban Renewal Park	W 146th between Adam C Powell and Fredrick Douglass Blvds	NYCDPR	Field, trees, benches	Dawn to Dusk	0.44	100%	0.44	0%	0.00	Poor	Light
22	P.S. 194/Renaissance Playground	W 143rd to 144th between Adam C Powell and Fredrick Douglass Blvds	NYCDPR	Basketball courts, handball courts, water fountain, playground/jungle gym	Dawn to Dusk	1.34	20%	0.27	80%	1.07	Good	Heavy
23	P.S. 123	Edgecombe Ave., b/t W 140 and W 141 streets	NYCDOE	Slides, basketball courts, jungle gym, trees	Dawn to Dusk	0.57	90%	0.51	10%	0.06	Excellent	Moderate
24	Open Spaces at CUNY	CUNY Campus	CUNY	Campus greens, seating areas, benches, landscaping	24 hours/day	5.84	30%	1.76	70%	4.08	Excellent	Heavy
25	Alexander Hamilton Playground	Hamilton Place from West 140th Street to West 141st Street	NYCDPR	Swings, slides, handball courts, paved walkways, benches, jungle gyms, trees, planters	Dawn to Dusk	0.81	25%	0.65	75%	0.16	Good	Light
26	Montefiore Park	West 138th Street between Broadway and Hamilton Place	NYCDPR	Paved walkways, tress, planters	Dawn to Dusk	0.34	100%	0.34	0%	0.00	Good	Light
27	P.S. 192/Jacob Schiff Playground	Amsterdam Avenue between West 136th and 138th Streets	NYCDPR	Swings, slides, baseball/softball fields, paved walkways, benches, jungle gyms	Dawn to Dusk	3.85	60%	2.31	40%	1.54	Excellent	Heavy
28	I.S. 195 Roberto Clemente	Broadway Between West 133rd and 135th Streets	NYCDOE	Paved basketball courts, jungle gym	Dawn to Dusk	0.68	0%	0.00	100%	0.68	Good	Moderate
29	West Harlem Piers	Henry Hudson Parkway between St. Clair Place and W 135th Street	NYCDPR	Local piers/docking stations	24 hours/day	4.71	100%	4.71	0%	0.00	Excellent	Moderate
30	Sheltering Arms Park	West 126th Street to 129th Streets between Amsterdam Avenue and Broadway	NYCDPR	Slides, paved walkways, benches, jungle gyms, pool	Dawn to Dusk	1.43	5%	0.07	95%	1.36	Excellent	Moderate
31	Manhattanville Houses	West 129th to 133rd Streets between Amsterdam Avenue and Broadway	NYCHA	Benches, basketball courts, jungle gym, paved walkways, tress, benches	Dawn to Dusk	1.94	40%	0.79	60%	1.15	Fair	Moderate
32	Annunciation Park	W 134th to 135th and Amsterdam Ave	NYCDPR	Slides, benches, jungle gyms, paved walkways, trees	Dawn to Dusk	1.24	80%	0.99	20%	0.25	Good	Moderate
33	St. Nicholas Park	St. Nicholas Ave to St. Nicolas Terrace, W 128th to W 141 Streets	NYCDPR	Jungle gyms, swings, basketball courts, grass, BBQ areas, handball courts, spray showers, dog run, water fountains, playground, benches, trees	Dawn to Dusk	22.74	58%	13.25	42%	9.49	Good	Heavy
34	Dorrence Brook Square	West 136th Street to West 137th Street between St. Nicolas and Edgecombe Avenues	NYCDPR	Paved walkways, benches, tress, planters	Closes at 10 PM	0.04	100%	0.04	0%	0.00	Good	Light
35	St. Nicolas Playground (North)	Adam Clayton Powell Blvd and West 130th Street	NYCDPR	Basketball court, jungle gyms, sprinkler, swings, benches	Dawn to Dusk	0.66	10%	0.07	90%	0.59	Excellent	Moderate
36	St. Nicolas Playground (South)	Adam Clayton Powell Blvd between W 127th and 129th Streets	NYCDPR	Jungle gyms, basketball court, swings, benches, spray shower	Dawn to Dusk	0.67	20%	0.13	80%	0.54	Excellent	Heavy
37A	Powell Malls (3)	7 Ave, W 126 to W 131 and 142 to W 150th Streets	NYCDPR	Plantings, benches, paths, trees	24 hours/day	0.33	100%	0.33	0%	0.00	Good	Light
38	State Office Building Plaza	W 126 Street and Frederick Douglass Blvd	NYS	Benches, plantings	24 hours/day	0.50	100%	0.50	0%	0.00	Excellent	Heavy
39	William B. Washington Memorial Garden	321-325 West 126th Street	NYCHPD	Community garden	Sat 1-5/ Sun 11-4PM	0.08	100%	0.08	0%	0.00	Excellent	Light
40	Clayton Williams Community Garden	303 West 126th Street	NYCTPL	Community garden	Mon-Sun 11-2PM	0.11	100%	0.11	0%	0.00	Excellent	Light

(3) The Powell Malls have been split based on their location within either the non-residential study area or the residential study area. Thus, "total acres" refers to the total open space within the specified section only.

TABLE 5-5 (cont'd)
Inventory of Existing Open Space and Recreational Facilities

MAP NO	PARK NAME	LOCATION	OWNER	DESCRIPTION	HOURS OF ACCESS	TOTAL ACRES	% PASSIVE	PASSIVE ACRES	% ACTIVE	ACTIVE ACRES	CONDITION	UTILIZATION
41	Hancock Park	W 123 Street b/t St. Nicolas and Manhattan Aves	NYCDPR	Tress, planters, benches	Dawn to Dusk	0.07	100%	0.07	0%	0.00	Good	Light
42	Harriet Tubman Plaza	W 122nd Street at St. Nicholas Ave and Fredrick Douglass Blvd	NYCDPR	Portrait sculpture, seating area, shrubs	24 hours/day	0.04	100%	0.04	0%	0.00	Good	Light
43	P.S. 180	W 119th to 120th Streets and Manhattan Avenue	NYCDPR	School playground	Dawn to Dusk	0.72	0%	0.00	100%	0.72	Excellent	Light
44	Roosevelt Triangle / Square	Morningside Avenue W 125th Streets	NYCDPR	Benches, plantings, Harlem Hybrid	24 hours/day	0.04	100%	0.04	0%	0.00	Excellent	Moderate
45	P.S. 125 Ralph Bunche Playground	Morningside Avenue towards Amsterdam, W 123 to W 124th Streets	NYCDPR	Playground, jungle gym, play area	Mon-Fri 8-4 PM	1.69	89%	1.52	11%	0.17	Good	Moderate
46A	Highbridge Park (4)	West 155th to 160th between Harlem River and Edgecombe Avenue	NYCDPR	Trees, benches, paths, playground, handball, basketball courts, baseball field, volleyball court, pool, exercise equipment, dog run, BBQ areas, picnic area, historic bridge	Dawn to Dusk	3.72	80%	2.98	20%	0.74	Good	Heavy
47A	Morningside Park (5)	W 121 to W 123 Street b/t Morningside Avenue and Morningside Drive	NYCDPR	Swings, slides, basketball courts, handball courts, paved walkways, benches, jungle gyms, trees, planters	Dawn to Dusk	5.20	70%	3.64	30%	1.56	Excellent	Moderate
				NON-RESIDENTIAL STUDY AREA TOTAL		**171.16**	**54%**	**93.00**	**46%**	**78.16**		
ADDITIONAL OPEN SPACES WITHIN RESIDENTIAL STUDY AREA												
13B	Broadway Malls (1)	Broadway, West 158th to 165th Street	NYCDPR	Benches, trees, planters	Dawn to Dusk	0.66	100%	0.66	0%	0.00	Good	Moderate
37B	Powell Malls (3)	7 Ave, W 118 to W 126, W 131 to W 142 and W 150 to W 152nd Streets	NYCDPR	Plantings, benches, paths, trees	24 hours/day	1.35	100%	1.35	0%	0.00	Good	Light
46B	Highbridge Park (4)	West 160th to 165th between Harlem River and Edgecombe Avenue	NYCDPR	Trees, benches, paths, playground, handball, basketball courts, baseball field, volleyball court, pool, exercise equipment, dog run, BBQ areas, picnic area, historic bridge	Dawn to Dusk	8.78	80%	7.02	20%	1.76	Good	Heavy
47B	Morningside Park (5)	W 116 to W 121 Street b/t Morningside Avenue and Morningside Drive	NYCDPR	Swings, slides, basketball courts, handball courts, paved walkways, benches, jungle gyms, trees, planters	Dawn to Dusk	9.80	70%	6.86	30%	2.94	Excellent	Moderate
48	General Grant Houses I	LaSalle to W 125 Street, Broadway to Amsterdam Ave	NYCHA	Basketball courts, benches, grass, playground, jungle gym	8 AM - Dusk	2.33	26%	0.61	74%	1.72	Fair	Moderate
49	General Grant National Memorial Park	Riverside Dr West to Riverside Dr. East	NPS	Pavilion, benches, trees, grass	Sunrise to 1 Am	0.76	100%	0.76	0%	0.00	Excellent	Moderate
50	Sakura Park	Riverside Drive, Clermont Avenue to West 122nd St	NYCDPR	Swings, central statue, grass	Dawn to Dusk	2.07	95%	1.97	5%	0.10	Good	Moderate
51	Riverside Park (2)	West of Riverside Drive, W 122 to St. Claire Place	NYCDPR	Playground, spray shower, paved walkways, trees, planters, benches	Dawn to Dusk	20.68	80%	16.54	20%	4.14	Excellent	Heavy
52	Columbia University Morningside Campus	W 116 Street, Broadway to Amsterdam Avenues	Columbia University	Campus greens, seating areas, benches, landscaping	24 hours/day	13.96	98%	13.70	2%	0.26	Excellent	Heavy
53	Lafayette Square	W 114th Street between Manhattan and Morningside Avenues	NYCDPR	Trees, benches, monument	24 hours/day	0.02	100%	0.02	0%	0.00	Good	Light

(1) The Broadway Malls have been split based on their location within either the non-residential study area or the residential study area. Thus, "total acres" refers to the total open space within the specified section only.

(2) Riverside Park has been divided into three subsections, including: Riverside Park, Riverside Park North, and Riverside Park Recreation Area. These are each referred to separately

(3) The Powell Malls have been split based on their location within either the non-residential study area or the residential study area. Thus, "total acres" refers to the total open space within the specified section only.

(4) As Highbridge Park extends all the way to Dyckman Avenue in northern Manhattan, only that portion that falls within the nonresidential and residential study areas is included in the quantitative analysis. Thus, "total acres" refers to the total open space within the specified section

(5) As Morningside Park extends south to West 110th Street, only that portion that falls within the nonresidential and residential study areas is included in the quantitative analysis. Thus, "total acres" refers to the total open space within the specified section only.

TABLE 5-5 (cont'd)
Inventory of Existing Open Space and Recreational Facilities

MAP NO	PARK NAME	LOCATION	OWNER	DESCRIPTION	HOURS OF ACCESS	TOTAL ACRES	% PASSIVE	PASSIVE ACRES	% ACTIVE	ACTIVE ACRES	CONDITION	UTILIZATION
54	P.S. 76	W 120th to 121st between Adam C Powell Blvd and St. Nicholas Ave	NYCDPR	Playground, benches	Dawn to Dusk	0.43	0%	0.00	100%	0.43	Excellent	Heavy
55	Our Little Green Acre/Garden 8	W 122nd between Adam Clayton Powell and Fredrick Douglass Blvds	NYCDPR	Toolshed, seating area, paved walkways, grill, tables, planters, trees	8-2PM Everyday	0.05	100%	0.05	0%	0.00	Fair	Light
56	Joseph Daniel Wilson Garden (Garden #8)	W 122nd Street, Adam Clayton Powell to Frederick Douglass Blvd	NYCDPR	Trees, plantings, benches, tables	Tues & Thurs: 12-5:30	0.06	100%	0.06	0%	0.00	Excellent	Light
57	132nd Street Block Association Park	W 132 Street, Lenox Avenue to Adam Clayton Powell Blvd	NYCDPR	Trees, plantings, flowers, benches, tables	Fri 12-7, Sat-Sun 12-7	0.17	100%	0.17	0%	0.00	Excellent	Light
58	Parks Council Success Garden	W. 134 St., Lenox Ave., Adam C Powell Blvd.	NYCDPR	Trees, plantings, benches, flowers, gazebo	Mon-Fri 8-6PM; Sat-Sun 12-4PM	0.25	100%	0.25	0%	0.00	Excellent	Light
59	Margrichante Memorial Garden	155-159 W. 133rd Street Btwn. Lenox & 7th Ave	NYCDPR	Community garden	Mon-Sun 8-10; Tue & Thurs 12-8; Wed 3-6; Fri 10-1	0.17	100%	0.17	0%	0.00	Excellent	Light
60	P.S. 92	W 133 St to W134 Streets b/t Frederick Douglass Blvd and Adam Clayton Powell Jr. Blvd	NYCDOE	Swings, slides, basketball courts, paved walkways, benches, jungle gyms, trees, planters	Dawn to Dusk	0.71	80%	0.57	20%	0.14	Excellent	Moderate
61	Elizabeth Langley Memorial Garden	W 137 Street, Adam Clayton Powell Blvd to Lenox Ave	NYCDPR	Benches, plantings, shrubs, flowers, tables	8 AM - Dusk	0.10	100%	0.10	0%	0.00	Excellent	Moderate
62	Abyssinian Tot Lot	W 139th Street between Lenox Ave and Adam C Powell Blvd	NYCDPR	Playground	Dawn to Dusk	0.12	0%	0.00	100%	0.12	Fair	Heavy
63	Fred Samuel Playground	Lenox Avenue between West 139th and West 140th Streets	NYCDPR	Play area, benches, basketball courts, spray showers	8 AM - Dusk	0.69	20%	0.14	80%	0.55	Good	Moderate
64	Frederick Johnson Park	7th Ave., W. 150th to W. 151st Sts.	NYCDPR	Tennis courts, handball courts, playground, chess tables, benches, paths	Dawn to Dusk	2.45	20%	0.49	80%	1.96	Good	Heavy
65	Harlem Lane Playground	Harlem River, W. 151st to W. 154th Sts.	NYCDPR	Basketball court, playground, trees, benches	Dawn to Dusk	1.64	0%	0.00	100%	1.64	Good	Light
66	Bill "Bojangle" Robinson Playground	W. 150th St., 7th Ave.	NYCDPR	Playground, Basketball court, benches	Dawn to Dusk	0.17	0%	0.00	100%	0.17	Good	Heavy
67	Col. Charles Young Triangle	7th Ave., Macombs Pl, at W. 153rd St.	NYCDPR	Trees, benches, walking path, plantings	24 hours/day	0.88	100%	0.88	0%	0.00	Good	Light
68	Roger Morris Park	Jumel Terr to Edgecombe Ave., W. 160th to W. 162nd Sts.	NYCDPR	Historic mansion and open space	Wed-Sun 10am-4pm	1.52	100%	1.52	0%	0.00	Good	Light
69	McKenna Square	W 165th between Amsterdam and Audubon Aves	NYCDPR	Covered monument, benches, trees	24 hours/day	0.34	100%	0.34	0%	0.00	Good	Moderate
70	Fort Washington Park	West of Riverside Drive, W 158 to W 165th Streets	NYCDPR	Baseball fields, basketball and tennis courts, playground, dog runs	Dawn to Dusk	14.19	30%	4.26	70%	9.93	Good	Light
				1/2-MILE RESIDENTIAL STUDY AREA		**255.51**	**59%**	**151.50**	**41%**	**104.01**		
Resources Not Included in Quantitative Analysis												
A	Serenity Gardens	522 West 146th Street	Manhattan Land Trust	Flowers, benches, gazebo	N/A	0.09	100%	0.09	0%	0.00	Good	Light
B	Maggie's Garden	564 W. 149th St. between Amsterdam Ave. & Broadway	NYRP/ CENYC	Gravel path, shrubs, threes, vegetables, benches	Summer: Sun-M: 10-4:30PM, Fall: Sun-M: 11-4PM	0.08	100%	0.08	0%	0.00	Good	Light
C	C.S. 46 "Tappan School Garden of Heroes"	339-341 Edgecombe Avenue & W 149th and W 150th Streets	NYCDOE/CENYC	School community garden	N/A	2.00	100%	2.00	0%	0.00	Good	Light

TABLE 5-5 (cont'd)
Inventory of Existing Open Space and Recreational Facilities

MAP NO	PARK NAME	LOCATION	OWNER	DESCRIPTION	HOURS OF ACCESS	TOTAL ACRES	% PASSIVE	PASSIVE ACRES	% ACTIVE	ACTIVE ACRES	CONDITION	UTILIZATION
D	CEP Community Garden	W 126 Street and Frederick Douglass Blvd	NYCDPR	Benches, plantings	N/A	0.06	100%	0.06	0%	0.00	Poor	Light
E	P.S. 4/Duke Ellington Harmony Garden	500 W 160th Street	NYCDOE/CENYC	School community garden	N/A	0.15	100%	0.15	0%	0.00	Good	Light
F	P.S. 76 Garden	W 120th between Adam C Powell Blvd and St. Nicholas Ave	NYCDOE/CENYC	School community garden	N/A	0.05	100%	0.05	0%	0.00	Fair	Light
G	New 123rd Street Block Assc. Garden	W 123rd between Lenox Ave and Adam C Powell Blvd	NYCDPR	Community garden	N/A	0.14	100%	0.14	0%	0.00	Excellent	Light
H	Old Croton Aqueduct Gatehouse	W 118th to 119th Street on Amsterdam Avenue	NYCDPR	Former aqueduct gatehouse	N/A	0.15	100%	0.15	0%	0.00	Fair	Light
I	Colonel Young Playground	W 143rd to 145th Streets between Harlem River Drive and Lenox Ave	NYDPR	Baseball fields, basketball courts, handball courts, jungle gym	Dawn to Dusk	4.68	30%	1.40	70%	3.28	Good	Moderate
J	Edgecombe Park	339-341 Edgecombe Ave.	NYCDPR/CENYC	Community garden, benches	Sat. 8am-1pm	0.11	100%	0.11	0%	0.00	Good	Light
K	Convent Garden	Convent & St. Nicholas Aves. & W. 151st & 152nd Sts.	NYCDPR/CENYC	Community garden, plantings, gazebo, picnic benches	Sat: 10am-2pm	0.13	100%	0.13	0%	0.00	Good	Light
L	Garden of Love	W 116th between 5th and Manhattan Avenues	NYCDPR	Trees, plantings, benches	Tue & Thur 4-8PM, Sat 10-2PM; Sun 12-6PM	0.09	100%	0.09	0%	0.00	Excellent	Light
M	Veteran's Triangle	W. 161st St. & Amsterdam Ave.	NYCDPR	Planted triangle	24 hours/day	0.01	100%	0.01	0%	0.00	Good	Light
N	Morris Jumel Ecological Garden	455-457 W. 162nd St. & Edgecombe & St. Nicholas/ Amsterdam Aves.	NYCDPR/CENYC	Community garden with plantings, trees, benches	M:12-2PM, Sat:12-4PM, Sun:12-4PM	0.10	100%	0.10	0%	0.00	Good	Light
				TOTAL ADDITIONAL OPEN SPACE NOT INCLUDED		**7.75**	**59%**	**4.56**	**42%**	**3.28**		

St. Nicholas Park

St. Nicholas Park stretches from West 128th Street to West 141st Street between St. Nicholas Avenue and St. Nicholas Terrace (No. 33 in Figure 5-3). The 22.74-acre park is devoted to both active and passive uses. Such amenities as swings, slides, basketball courts, handball courts, and jungle gyms enable visitors to enjoy the park's active open space. In addition, paved walkways, benches, trees, and planters are part of the passive open space.

Trinity Cemetery

The study area also includes the 24-acre Trinity Cemetery, which lies on both sides of Broadway between West 153rd and West 155th streets (No. 1 in Figure 5-3). Calvert Vaux, co-designer of Central Park in Manhattan and Prospect Park in Brooklyn, designed a Gothic-style bridge across Broadway on the south side of West 155th Street, which linked the two properties owned by Trinity Church. The bridge stood from 1872 to 1911, when it was demolished to make way for a large chapel on the eastern corner. The only remaining active cemetery in Manhattan, this quiet retreat includes giant hundred-year-old oaks and elms overlooking grassy knolls and manicured walkways, and provides seating and views of the Hudson River.

Residential (½-Mile) Study Area

The residential study area includes all open spaces in the nonresidential study area. In addition to the 47 open space resources within the nonresidential study area, there are 23 other publicly accessible open spaces and recreational facilities within the residential study area that serve the surrounding residential and commercial populations (refer to Table 5-5 and Figure 5-3). The residential study area contains a total of approximately 255.51 acres of publicly accessible open space (including all of the public parks and open spaces listed in the nonresidential study area). Of this total, approximately 151.50 acres are passive space and 104.01 acres are active space (see Table 5-5). The open spaces within this study area consist of a mix of city playgrounds, community gardens, larger city parks with a mix of passive and active recreational facilities, and planted street malls. In addition to the five open spaces described above, other prominent open spaces that fall within the residential study area are described below.

Fort Washington Park

Fort Washington Park stretches between Riverside Drive and the Hudson River, from West 158th Street to West 179th Street (No. 70 in Figure 5-3), and comprises 182.9 acres, of which an estimated 12.96 acres fall within the boundaries of the residential study area. The park provides baseball fields, basketball courts, tennis courts, handball courts, and a playground, as well as benches and planted areas with scenic views of the Hudson River. In addition, the park also includes the Jeffrey's Hook lighthouse, erected in 1880 and moved to its current site in 1921, which has become widely known as the children's literary landmark "The Little Red Lighthouse."

Riverside Park

The 222-acre Riverside Park covers a 4-mile area along the Hudson River starting at West 72nd Street to St. Clair Place, with recreational facilities that include a range of sports courts and fields, a skate park, a large portion of the Manhattan Waterfront Greenway (for bicycles), and the 110-slip public marina at 79th street, an important part of New York State's Water Trail. The portion of Riverside Park that is included in the residential study area spans from approximately West 122nd Street to St. Clair Place (No. 51 in Figure 5-3), and comprises an estimated 10.10 acres. This northern portion of Riverside Park is comprised mainly of trees and planted areas with benches and walking paths.

Columbia University Campus Open Space

The approximately 13.96-acre Columbia University campus open spaces located within the study area (No. 52 in Figure 5-3) are noted as passive open spaces used mostly by college students for picnicking, studying and other activities. The campus is also open to the casual stroller, and the open spaces available to the public include campus greens, benches and tables and other gathering spaces. The campus' active open spaces, such as the gymnasium and athletic fields, are not counted for purposes of this analysis.

Highbridge Park

Highbridge Park is a 118.75-acre park that extends from West 155th Street north to Dyckman Street, between Edgecombe and Amsterdam Avenues. The park is widely known for its important landmarks, the Highbridge tower and the High Bridge (the city's oldest standing bridge), and also offers natural beauty and recreational fun, including a recreation center with pool, open vistas and an unusual geologic makeup. Among its strongest features are the magnificent cliffs and large rock outcroppings that dominate the park. The Highbridge Recreation Center and Pool were erected on the site of the former reservoir in 1936. The facility at Highbridge Park was one of eleven city pools built with labor supplied by the Works Progress Association and opened during the hot summer of 1936. Several playgrounds and ballfields have been constructed throughout the park over the last century. The residential open space study area includes that portion of Highbridge Park that extends north from West 155th Street to approximately West 165th Street, which falls within the ½-mile radius (estimated at approximately 12.5 acres).

Morningside Park

Morningside Park is an approximately 29.89-acre park that extends from West 110th to West 123rd streets and is enclosed by Morningside Drive on the West and Morningside Avenue on the East. The park has an irregular shape owing to its topography and the street grid changes around it, and is much longer than it is wide. The design of the park focuses on the natural bedrock outcroppings onsite, which make this park unique and attractive. The park amenities include baseball fields and basketball courts at the south end, various monuments, a large pond and waterfall, arboretum, playgrounds and a recreation center at the north end of the park. The residential open space study area includes that portion of Morningside Park that extends from approximately West 116th Street to 123th Street, which falls within the ½-mile radius (estimated at approximately 15.0 acres).

Assessment of Open Space Adequacy

Nonresidential (¼-Mile) Study Area

As described above, the analysis of the nonresidential study area focuses on passive open spaces that may be used by workers and other daytime users in the area. To assess the adequacy of the open spaces in the area, the ratio of nonresidents to acres of passive 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 nonresidents and residents in the area is compared with the recommended weighted average ratio.

Quantitative Assessment

The nonresidential study area includes a total of 171.16 acres of open space, of which approximately 93.0 acres are passive space. A total of 125,832 residents live within this study area, and 51,847 people work or study within the nonresidential study area boundary. The combined residential and nonresidential population is 177,679.

Based on *CEQR Technical Manual* methodology, the area has a passive open space ratio of 1.794 acres of passive open space per 1,000 nonresidents; which is substantially higher than the City's guideline of 0.15 acres (see Table 5-6 below). The combined passive open space ratio is 0.523 acres per 1,000 residents and nonresidents, which is higher than the recommended weighted average ratio of 0.398 acres per 1,000 combined users (refer to Table 5-6 below). Thus, there is sufficient passive open space within the nonresidential study area to serve the nonresident and the combined nonresident and resident populations.

Qualitative Assessment

As shown in Table 5-5, the nonresidential study area open spaces are mostly in good or excellent condition, and use levels are moderate at the majority of these facilities. The nonresidential study area includes a large proportion of passive open space with features such as lawns, benches, and pathways suitable for use by the worker and other nonresidential populations in the area.

It should also be noted that several open space facilities located within the nonresidential open space study area were not taken into account as part of the quantitative analysis but their presence should be noted. As shown in Table 5-5, there are a number of community gardens that were not included in the quantitative assessment because they either had limited hours or did not have posted hours, were very small, or did not include any seating or other amenities. Although they are not included in the quantitative analysis, these community gardens are open to the public by appointment or on special occasions, and provide additional passive recreational opportunities.

Residential (½-Mile) Study Area

Quantitative Assessment

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 nonresidents.

With a total of 255.51 acres of open space, of which approximately 104.01 acres are for active use and 151.50 acres are for passive use, and a total residential population of 206,224, the residential study area has an overall open space ratio of 1.239 acres per 1,000 residents (see Table 5-6). This is less than the City's planning guideline of 2.5 acres of combined active and passive open space per 1,000 residents. The study area's residential passive open space ratio is 0.735 acres of passive open space per 1,000 residents, which is above the City's planning goal of 0.5 acres per 1,000 residents. The area's residential active open space ratio is 0.504 acres per 1,000 residents, which is below the City's planning guideline of 2.0 acres per 1,000 residents, indicating that there is a shortfall of active open space in the study area.

When the employees who work within the residential study area are added to the population, the passive open space ratio is lower. As described earlier, workers and other daytime users typically use passive open spaces during the workday, so the passive open space ratio is the relevant ratio for consideration. With a combined nonresidential and residential population of 326,338, the combined passive open space ratio in the residential study area is 0.464 per 1,000 users, which is above the recommended weighted average guideline ratio of 0.371 acres per 1,000 residents and nonresidents.

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

	Total Population	Open Space Acreage			Open Space Ratios Per 1,000 People			NYCDCP Open Space Guidelines		
		Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Non-Residential Study Area										
Non-Residents	51,847	171.16	93.00	78.16	N.A.	1.794	N.A.	N.A.	0.15	N.A.
Combined Non-Residents and	177,679				N.A.	0.523	N.A.	N.A.	0.398 *	N.A.
Residential Study Area										
Residents	206,224	255.51	151.5	104.01	1.239	0.735	0.504	2.50	0.50	2.00
Combined Residents and Non Residents	326,338				N.A.	0.464	N.A.	N.A.	0.371 *	N.A.

* Based on a target 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. Non-residents typically use passive spaces; therefore, for the nonresidential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

Qualitative Assessment

As shown in Table 5-5, the residential study area open spaces are mostly in good or excellent condition, and use levels are moderate at the majority of these facilities. While the study area includes a number of parks with active recreational facilities such as ball fields and playgrounds, given that the age distribution in the residential study area includes slightly more children and teens than Manhattan as a whole, it is desirable to have a higher proportion of active open space. Although the residential study area currently has a shortage of active open space, it should be noted that there are also destination open space resources nearby that provide additional active open space resources, such as the remainder of Riverside Park, the rest of Fort Washington Park, Morningside Park, and Highbridge Park, as well as Colonel Young Playground, and others.

Riverside Park extends south to West 72nd Street[4] and contains many active and passive recreation amenities, including numerous playgrounds, ballfields, tennis courts, walking and bicycle paths, volleyball courts, and a skateboarding park. Similarly, Fort Washington Park extends further north of the residential study area, and contains a significant amount of passive open space acreage, as well as baseball fields, basketball and tennis courts, and a playground. Both Highbridge Park and Morningside Park also extend beyond the defined study area boundaries, and provide significant additional acreage, comprising both active and passive facilities, that is not included in the quantitative analysis. While these open space resources extend beyond the boundary of the residential study area and are therefore not included in the quantitative analysis, they are considered "destination parks," and residents would typically travel farther than the ½-mile extent of the residential study area to enjoy the open space and recreational amenities within these parks. There are several pathways within these parks that provide access beyond the residential study area boundary to other areas within the parks. It is therefore likely that visitors to these parks would venture farther south or north into Riverside, Highbridge, Morningside, and Fort Washington Parks, beyond the approximately ½-mile boundary of the residential study area, to use existing facilities.

In addition, the 4.68-acre Colonel Young Playground, which is located partially within a ½-mile radius, falls outside the study area boundaries and has therefore been excluded from the quantitative analysis. While this facility is conservatively excluded from the quantitative analysis, it is likely that it would be

[4] Riverside Park South is also located immediately to the south of Riverside Park. It currently contains 12.93 acres of parkland south of West 72nd Street, and will ultimately comprise approximately 22.51 acres between West 72nd and West 59th streets.

used by people who live and work in the residential study area, who would likely be drawn to its active and passive recreational resources.

Moreover, as noted above, the quantitative analysis is conservative as it assumes that residents and daytime users are separate populations, whereas it is possible that some of the residents live near their workplace or university, resulting in some double counting of the daily user population in the study area. Finally, although the total open space ratio in the residential study area as a whole falls below the NYCDCP measure of adequacy, it should be noted that significant parts of the defined study area have been identified as well-served areas per the open space appendix of the *CEQR Technical Manual* (refer to Figure 5-1 above), indicating that they have an open space ratio above 2.5 or are located within 0.25 mile from regional parks.

The Future Without the Proposed Action (No-Action)

Study Area Population

Nonresidential (¼-Mile) Study Area

In the absence of the Proposed Action, it is expected that the existing zoning, land uses and recent development patterns within the nonresidential study area would continue. The recent trends in development demonstrate a continued demand for housing, as well as a substantial demand for local retail and community facility uses. As discussed in Chapter 2, "Land Use, Zoning, and Public Policy," 19 of the projected development sites within the proposed rezoning area are anticipated to be redeveloped (either new development or conversion) in the 2021 future without the Proposed Action. These projected development sites are anticipated to add approximately 465 new dwelling units, 45,888 gsf of retail, 399,655 gsf of other commercial uses, and 301,490 gsf of community facility uses. This would increase the nonresidential study area population by approximately 1,195 residents and 2,760 workers (refer to Table 5-1 above).

In addition to these projected development sites identified within the proposed rezoning area, a number of new residential, commercial, community facility, and mixed-use projects are expected to be completed in the nonresidential study area, resulting in an increase in residential and worker populations by the 2021 analysis year. As shown in Table 5-7, planned development projects expected to be completed by 2021 within the nonresidential study area, include the Sugar Hill development, the first phase and part of the second phase of Columbia University's Manhattanville project, the Community Health Academy of the Heights School, the Mother Hale MTA bus garage, the New Harlem Children's Zone Charter School and affordable housing project, and several of the sites projected for development as part of the 125th Street Corridor Rezoning project (refer to Chapter 2, "Land Use, Zoning, and Public Policy," for details). Those planned development projects that are expected to be completed by 2021 would add an estimated 10,293 workers, 2,583 students, and 5,155 residents to the nonresidential study area. This would bring the study area's daytime population to 64,723 persons in the future without the Proposed Action, and the combined residential and daytime population in the nonresidential study area is projected at 195,710 persons.

Residential (½-Mile) Study Area

Residential and worker populations within the residential study area are also expected to increase by 2021 in the future without the Proposed Action. As shown in Table 5-7, in addition to the projects included in the nonresidential study area, one additional development is projected within the residential study area.

The West 155th Street Rezoning project is estimated to add 1,076 residents and 64 works to the study area. Therefore, as shown in Table 5-7, all of the planned development projects that are expected to be

completed by 2021 would generate an estimated additional 6,231 residents, 10,357 employees, and 2,583 students within the residential study area by 2021. This would bring the study area's 2021 population to an estimated 212,455 residents and 133,054 daytime users, for a total combined residential and nonresidential population of 345,509 persons. No substantial changes in the age group structure of the residential population are expected by 2021.

TABLE 5-7
Development Projects Anticipated to be Completed in the No-Action Within the Defined Open Space Study Areas

Project Name *	Address	No-Action Residents [2]	No-Action Employees [3]	Other No-Action Daytime Users [3]	Nonresidential Study Area?	Residential Study Area?
West Harlem Rezoning No-Action RWCDS	varies	*1,195*	*2,760*		Yes	Yes
Sugar Hill Rezoning	404-414 West 155th St	315	74		Yes	Yes
Columbia University. P1 (By 2015)	Generally from 12 Av and east of Bwy btw West 125th and West	262	1,716	2,583 (students)	Yes	Yes
Columbia University. P2 (By approx. 2021)[1]	Generally from 12 Av and east of Bwy btw West 125th and West	-	1,499		Yes	Yes
West 155th Street Rezoning	Parts of two blocks bounded by West 155th and West 154th Streets, Bradhurst Avenue and Macombs	1,076	64		No	Yes
Community Health Academy of the Heights School	500 West 158th Street	-	57		Yes	Yes
Mother Hale MTA Bus Garage	721 Lenox Ave	-	412		Yes	Yes
& New Affordable Housing at St. Nicholas Houses [4]	West 129th St bt Frederick Douglass and Adam Clayton Powell blvds	492	360		Yes	Yes
125h Street Corridor Rezoning and Related Actions (Expanded Arts Bonus Alternative) [5]	125th Street FEIS	2,891	3,415		Yes	Yes
TOTALS FOR NONRESIDENTIAL STUDY AREA		***5,155***	***10,293***	**2,583**		
TOTALS FOR RESIDENTIAL STUDY AREA		***6,231***	***10,357***	**2,583**		

Notes:

* Refer to Table 2-4 in Chapter 2 for development programs for each site.

[1] Based on info from Manhattanville FEIS Table S-3: Illustrative Plan by Development Site (in GSF)

[2] Based on information provided in respective environmental review documents or, if unavailable, an assumption of 2.57 residents per unit, based on average number of residents per occupied housing unit calculated from 2010 Census data for the rezoning area and surrounding 1/4-mile radius.

[3] Based on information provided in respective environmental review documents or, if unavailable, an assumption of 1 employee per 250 SF of office, 3 employees per 1000 SF of retail, and 1 employee per 300 SF of community facility, as well as 1 employee per 25 DUs.

[4] A lawsuit was filed against this project on July 21, 2011. It should also be noted that the Harlem Children's Zone (HCZ) environmental assessment studied housing as a potential development option in the future (200 new DUs and 49 accessory parking spaces), although HCZ does not have a fully-fleshed out building program for the residential component. However, this potential component is included in the No-Build list, as it may possible for HCZ to decide to develop the residential component in a 10-year time span.

[5] For the open space analysis, only those projected development sites identified in the 125th Street Corridor that fall west of Lenox Avenue.

Open Space Resources

Some additional open space resources are expected to be added within the study areas by the 2021 analysis year. This includes some of the privately owned, publicly accessible passive open space planned as part of the Manhattanville project, which is expected to occur in two phases. For analysis purposes, all of the open space projected to occur in Phase 1 (2015) is included, as well as approximately 50% of the open space projected to occur in Phase 2 (2030). The Phase 1 open space includes a total of 22,355 sf (0.51 acres) of passive open space on the block bounded by Broadway and Twelfth Avenue, West 125th and West 130th streets, and at the western tip of the triangle at Broadway between West 125th and West 129th streets. Phase 2 includes a total of approximately 2.16 acres of passive open space, including "The Square" between West 130th and West 131st streets, a north-south midblock open area between West 131st and West 133rd streets, and an east-west midblock open area between Broadway and Old Broadway. With the privately owned publicly accessible open space planned as part of Phase 1 and 50% of the open space planned as part of Phase 2, an estimated 1.59 acres of new passive open space is expected to be added to both the nonresidential and residential study areas in the future without the Proposed Action.

Assessment of Open Space Adequacy

Nonresidential (¼-Mile) Study Area

As discussed above, it is anticipated that new development in the study area will result in an increase in the population in the future without the Proposed Action. At the same time, the supply of passive open space in the study area is expected to increase by 1.59 acres from existing conditions. The ratio of passive open space per 1,000 nonresidents will be 1.461 in the future No-Action, well above the city's guideline ratio of 0.15 (see Table 5-8). The ratio for the combined population of residents and nonresidents will be 0.483, again above the calculated recommended weighted ratio of 0.384. Therefore, in the future without the Proposed Action, the nonresidential study area will remain well served by passive open spaces to meet the needs of the nonresidential and residential populations.

Residential (½-Mile) Study Area

In 2021, the additional population introduced to the study area by expected developments in the future without the Proposed Action will increase the demand on the area's open spaces. With that new population and the additional open space expected to be added in conjunction with the Manhattanville project, the residential study area will continue to be underserved by open spaces in comparison to the city's guideline ratios. The overall open space ratio will decrease from 1.239 acres per 1,000 residents under existing conditions to 1.210 acres per 1,000 residents, which will remain considerably lower than the city's planning guideline ratio of 2.5 acres of total open space per 1,000 residents and the citywide median of 1.5 acres per 1,000 residents (see Table 5-8). The active open space ratio will decrease from 0.504 to 0.490 acres per 1,000 residents, and will continue to fall well below the city's planning guideline of 2.00 acres of active open space. The passive open space ratio for residents is projected to remain above city guidelines for passive open space, with 0.721 acres per 1,000 residents.

TABLE 5-8
No-Action Conditions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios Per 1,000 People			NYCDCP Open Space Guidelines		
		Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Non-Residential Study Area										
Non-Residents	*64,723*	172.75	94.59	78.16	N.A.	*1.461*	N.A.	N.A.	0.15	N.A.
Combined Non-Residents and	*195,710*				N.A.	0.483	N.A.	N.A.	0.384 *	N.A.
Residential Study Area										
Residents	*212,455*	257.10	153.09	104.01	*1.210*	*0.721*	*0.490*	2.50	0.50	2.00
Combined Residents and Non Residents	*345,509*				N.A.	0.443	N.A.	N.A.	0.365 *	N.A.

* Based on a target 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. Non-residents typically use passive spaces; therefore, for the nonresidential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

The combined passive open space ratio of 0.443 acres per 1,000 total users will be above the calculated recommended weighted ratio of 0.365 acres per 1,000 residents and nonresidents.

The total and active open space ratios within the residential study area would remain substantially below the guideline of adequacy in the future without the Proposed Action. As under existing conditions, there are several large parks that are outside of the study area (some have portions within the study area that are included in the analysis), as well as other larger open space areas in close proximity to the study area that would add considerable accessible active and passive open space for the residential population.

The Future With the Proposed Action (With-Action)

This section describes the open space conditions that would result from the RWCDS associated with the Proposed Action by 2021. It evaluates the potential for the Proposed Action to result in significant adverse impacts to open space resources directly and indirectly based on a comparison of the No-Action condition (described above) to the With-Action condition.

For purposes of conducting a conservative open space analysis, two RWCDSs are assumed for the open space analysis – one for the nonresidential study area and one for the residential study area. The RWCDS analyzed for the nonresidential study area – RWCDS 1 – would introduce a total of 2,079 new residents and 4,403 new workers, while the RWCDS for the residential study area – RWCDS 4 – would introduce 2,657 new residents and 3,728 new workers. Residential population estimates for the RWCDS are based on the 2010 Census average household size of 2.57 persons per household for the census tracts comprising the rezoning area and an approximate ¼-mile radius around it, and conservatively assume full occupancy. Worker population estimates are based on standard industry ratios of employment per square foot for the projected uses.

Direct Effects Analysis

None of the projected development sites identified as part of the RWCDS for the Proposed Action currently contain any open space resources. As such, the Proposed Action would not have a direct effect on any study area open spaces. Construction and operation of the RWCDS projected development sites associated with the Proposed Action would not cause the physical loss of public open space because of encroachment or displacement of the space; would not change the use of an open space so that it no longer serves the same user population; and would not limit public access to an open space. In addition, as discussed in other chapters of this EIS, the Proposed Action would not cause increased noise or air pollutant emissions, odors, or shadows that would significantly affect the usefulness or utilization of any study area open spaces, whether on a permanent or temporary basis.

Indirect Effects Analysis

Open Space Study Area Population

Nonresidential (¼-Mile) Study Area

RWCDS 1—analyzed for the nonresidential study area—would introduce 2,079 new residents and 4,403 new workers (see Table 5-1 above). With the additional residents and workers introduced by the Proposed Action, the nonresidential study area would contain an estimated total of 69,126 daytime users and 133,066 residents, for a total population of 202,192 workers/daytime users and residents in the future with the Proposed Action in 2021.

Residential (½-Mile) Study Area

The RWCDS for the residential study area—RWCDS 4—would introduce 2,657 new residents and 3,728 new workers (see Table 5-1 above). With the additional residents and workers introduced by the Proposed Action, the residential study area would include an estimated total of 215,112 residents and 136,782 workers for a total population of 351,894 residents and workers/daytime users in the future with the Proposed Action in 2021.

Open Space Resources

The Proposed Action does not include the development of new open space resources. Therefore, the total acreage of open space resources in the nonresidential open space study area would remain at 172.75 acres in the future With-Action scenario (94.59 acres of passive open space and 78.16 acres of active space). For the residential study area, the total open space acreage would remain at 257.10 acres, comprised of 153.09 acres of passive open space and 104.01 acres of active open space.

Assessment of Open Space Adequacy

Nonresidential (¼-Mile) Study Area

Quantitative Assessment

In the future with the Proposed Action, the nonresidential study area would remain well served by passive open spaces to meet the needs of the nonresidential and residential populations. The ratio of passive open space per 1,000 daytime users would decrease from 1.461 in the No-Action to 1.368 in the With-Action, but would remain well above the city's guideline ratios (see Table 5-9 below). The ratio of passive open space for the total population (nonresidents and residents) in the nonresidential study area would also decrease, from a ratio of 0.483 in the No-Action to a ratio of 0.468 acres per 1,000 users in the With-Action. However, this ratio would also still exceed the weighted guideline ratio of 0.380 acres per 1,000 total users.

TABLE 5-9
With-Action Conditions: Adequacy of Open Space Resources

	Total Population	Open Space Acreage			Open Space Ratios Per 1,000 People			NYCDCP Open Space Guidelines		
		Total	Passive	Active	Total	Passive	Active	Total	Passive	Active
Non-Residential Study Area										
Non-Residents	*69,126*	172.75	94.59	78.16	N.A.	*1.368*	N.A.	N.A.	0.15	N.A.
Combined Non-Residents and	*202,192*				N.A.	*0.468*	N.A.	N.A.	*0.380* *	N.A.
Residential Study Area										
Residents	*215,112*	257.10	153.09	104.01	*1.195*	*0.712*	*0.484*	2.50	0.50	2.00
Combined Residents and Non Residents	*351,894*				N.A.	*0.435*	N.A.	N.A.	0.364 *	N.A.

* Based on a target 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. Non-residents typically use passive spaces; therefore, for the nonresidential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

Qualitative Assessment

In the future with the Proposed Action, the nonresidential study area population will continue to be well-served by the passive open spaces in the study area. As discussed above, the nonresidential study area open spaces are mostly in good or excellent condition, and use levels are moderate at the majority of these facilities. The nonresidential study area includes a large proportion of passive open space with features such as lawns, benches, and pathways suitable for use by the worker and other nonresidential populations in the area.

Residential (½-Mile) Study Area

Quantitative Assessment

Under With-Action conditions, total open space ratios in the residential (½-mile) study area would decrease slightly, from 1.210 in the No-Action to 1.195 acres per 1,000 residents in the With-Action (see

Table 5-9). The active open space ratio would decrease slightly compared to No-Action conditions, from 0.490 to 0.484 acres per 1,000 residents, which would continue to be below the city's guidance ratio of 2.0 acres per 1,000 residents. The passive open space ratios per 1,000 residents would also decrease compared to No-Action conditions, from 0.721 to 0.712 acres per 1,000 residents, and would remain above the city's guideline ratio of 0.50. The passive open space ratio for combined residential and nonresidential populations would decrease from 0.443 under No-Action conditions to 0.435 acres per 1,000 users, and would be above the calculated guidance ratio of 0.364.

Qualitative Assessment

Given the small incremental decreases in the open space ratios resulting from the Proposed Action, the introduction of new population resulting from the Proposed Action would only mildly affect these conditions. While the amount of total and active open space resources in the study area are, and would continue to be, deficient in comparison to NYCDCP guidelines, the quality of park and recreational space in the study area, as well as the availability of high quality regional open space resources located just outside of the study area, would help offset this quantitative deficit. As noted above, the Proposed Action would neither result in any direct displacement of existing open space resources in the study area, nor would the Proposed Action significantly exacerbate the deficiency in open space.

Although the Proposed Action would not increase the amount of publicly accessible open space in the study area, the proposed contextual zoning districts to be mapped as part of the Proposed Action require that new residential developments provide on-site recreation space for building residents in accordance with the provisions of the Quality Housing program. This on-site recreation space would help to partially offset the increased residential population's additional demand on the study area's open space resources.

As detailed in Chapter 6, "Shadows," although some incremental shadows would be cast as a result of the Proposed Action on some of the open spaces in the study area (including Jackie Robinson Park, Highbridge Park, Riverside Park North, Broadway Malls, Serenity Gardens, Sheltering Arms Park, and General Grant Houses I), these increments would be not be significant due to their limited extent and/or duration, the season in which they would be cast, and other site specific factors, and would therefore not adversely affect the utilization or enjoyment of any of these open spaces.

As described above in the demographic profile of the residential study area, 24 percent of all people within the residential study area are age 19 or younger, and are more likely to be users of active recreation amenities. It is recognized that the shortage of active open space within the residential study area results in an active open space ratio (0.484) that is significantly below NYCDCP's guideline of 2.0 acres of active space per 1,000 residents. However, several large regional open space resources lie partially or completely outside the study area and have active open space amenities that are accessible to residents within the study area. The large regional open space resources that are nearby with active open space resources available to residents of the residential study area include: the area of Morningside Park located to the south of the study area; Fort Washington Park, located to the north of the study area; the area of Highbridge Park north of the study area; and Riverside Park, located to the south of the study area. In addition, Colonel Young Playground is located just to the east of the study area boundary and falls partially within a ½-mile radius. Although these open spaces are located beyond the defined open space study area boundary (and were therefore excluded from the quantitative analysis), it is likely that residents, particularly those in census tracts along the study area's edges, would occasionally take advantage of the recreational resources that these parks have to offer, and therefore the proximate location of these large regional open space resources would serve to moderate the shortfall of active open space resources identified in the immediate residential study area.

The combination of the availability of a variety of open spaces such as recreational areas, spaces for walking and biking, gardens and school playgrounds, all add to the open space conditions under existing,

No-Action and With-Action conditions. Moreover, the Proposed Action's residential open space study area has a significant amount of existing open space in comparison to many other areas in Manhattan, and as noted above, significant parts of the defined study area have been identified as well-served areas per the open space appendix of the *CEQR Technical Manual*.

Determining Impact Significance

As stated above and in the *CEQR Technical Manual*, a ratio of 2.5 acres per 1,000 residents represents an area well-served by open spaces, and is consequently used as an optimal benchmark for residential populations in large-scale plans and proposals. Ideally, this would comprise 0.50 acres of passive open space and 2.0 acres of active open space per 1,000 residents. The *CEQR Technical Manual* also states that to be considered reasonably well served, an area should have at least 1.5 acres of open space per 1,000 residents (which a citywide survey had indicated is the median of the ratios for the city's community districts). The City seeks to attain a planning goal of a balance of 20 percent passive open space and 80 percent active open space.

A significant adverse open space impact may occur if a Proposed Action would reduce the open space ratio by more than 5 percent in areas that are currently below the City's median community district open space ratio of 1.5 acres per 1,000 residents. In areas that are extremely lacking in open space, a reduction as small as 1 percent may be considered significant, depending on the area of the City. These reduction may result in overburdening existing facilities or further exacerbating a deficiency in open space. Table 5-10 expresses the percentage change from No-Action to With-Action conditions for both the nonresidential and residential study areas.

Nonresidential (¼-Mile) Study Area

In the future with the Proposed Action, the ¼-mile nonresidential study area would remain well-served by passive open spaces, with a ratio of 1.368 acres of passive open space per 1,000 nonresidents and 0.468 acres of passive open space per 1,000 total daytime users. Although the passive open space ratio would decrease by 6.37% for nonresidents and by 3.11% over No-Action conditions for the total daytime population (see Table 5-10), the ratios would remain well above the city's guideline ratio of 0.15 acres per 1,000 nonresidents, and the calculated guidance ratio of 0.380 acres per 1,000 total population (nonresidents and residents). As the passive open space ratio for nonresidents in the With-Action condition would be over 9 times higher than the NYCDCP guideline measure for adequacy, the study area would continue to be well-served by passive open space, and there would be no significant adverse open space impacts in the nonresidential study area as a result of the Proposed Action.

Residential (½-Mile) Study Area

In the future with the Proposed Action, ratios of open spaces to residents would continue to be lower than both the 1.5 acres per 1,000 residents measure of open space adequacy and the optimal planning goals furnished by NYCDCP.

As shown in Table 5-10, the residential study area's total open space ratio in the future with the Proposed Action would be 1.195 acres/1,000 residents, which represents a reduction of approximately 1.24% (0.015 acres/1,000 residents) from No-Action conditions. Although the total open space ratio would continue to be below the level recommended by the City, it is recognized that this goal is not feasible for many areas of the City, and it is not considered an impact threshold. Moreover, the qualitative assessment indicates that the quality and range of amenities of a number of the study area open spaces, combined with the availability of a significant amount of open spaces outside of the study area, would somewhat alleviate the burden on open spaces in the With-Action condition. Therefore, the decrease of approximately 0.015

total acres per 1,000 residents would not be considered a substantial change, and no significant adverse impacts to total open space ratios in the residential study area would be expected as a result of the Proposed Action.

TABLE 5-10
2021 Future With the Proposed Action: Open Space Ratios Summary

RATIO	DCP Open Space Guideline	Open Space Ratios Per 1,000			Percent Change
		Existing	No-Action	With-Action	Future No-Action to Future With Action
Non-Residential Study Area					
Passive - Nonresidents	0.15	1.794	*1.461*	*1.368*	*-6.37%*
Passive - Total Population	Weighted 0.398 / 0.384 / *0.380** Existing / No-Action / With Action	0.523	0.483	*0.468*	*-3.11%*
Residential Study Area					
Total - Residents	2.5	1.239	*1.210*	*1.195*	*-1.24%*
Passive - Residents	0.5	0.735	*0.721*	*0.712*	*-1.25%*
Passive - Total Population	Weighted 0.371 / 0.365 / 0.364* Existing / No-Action / With Action	0.464	0.443	*0.435*	*-1.81%*
Active - Residents	2.0	0.504	*0.490*	*0.484*	*-1.22%*

* Based on a target 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. Non-residents typically use passive spaces; therefore, for the nonresidential study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated. Weighted average combining 0.15 acres per 1,000 non-residents and 0.50 acres per 1,000 residents.
Because this guideline depends on the proportion of non-residents and residents in the study area's population, it is different for existing, No Build, and Build conditions. Each of these ratios is listed in this table.

The active open space ratio in the future with the Proposed Action would be 0.484 acres/1,000 residents, which represents a reduction of approximately 1.22% (0.006 acres/1,000 residents) from No-Action conditions. Although the active open space ratio would continue to be well below the level recommended by the City, it is recognized that the goal of 2.0 acres of active open space per 1,000 residents is not feasible for many areas of the City, and is not considered an impact threshold. Moreover, as noted above, there are destination open space resources nearby that provide additional active open space resources that were not included in the quantitative analysis, such as the remainder of Riverside Park, the rest of Fort Washington Park, as well as the remainder of Highbridge and Morningside Parks, as well as Colonel Young Playground, and others. While these facilities are conservatively excluded from the quantitative analysis, it is likely that they would be used by people who live in the study area, particularly those in census tracts along the study area's edges, who would likely be drawn to their active recreational resources. Therefore, the decrease of approximately 0.006 active acres per 1,000 residents would not be considered a substantial change, and no significant adverse impacts to active open space ratios in the residential study area would be expected as a result of the Proposed Action.

The passive open space ratio for residents in the future with the Proposed Action would be 0.712 acres/1,000 residents, which represents a reduction of approximately 1.25% (0.009 acres/1,000 residents) from No-Action conditions. While the passive open space ratio for residents would experience a 1.25%

reduction as a result of the Proposed Action, it would continue to be higher than the NYCDCP guideline ratio of 0.50 acres of passive open space per 1,000 residents. Therefore, the residential study area would continue to be well-served by passive open space, and there would be no significant adverse impacts to passive open space resources for residents as a result of the Proposed Action.

The passive open space ratio for the combined population (residents and nonresidents) would decrease by approximately 1.81%, to 0.435 acres per 1,000 total users. Although the passive open space ratio for the combined population would decrease by 1.81% over No-Action conditions, it would remain well above the calculated guidance ratio of 0.364 acres per 1,000 total population (nonresidents and residents). As passive open space ratio for the combined population (residents and nonresidents) would be higher than the NYCDCP guideline measure for adequacy, the study area would continue to be well-served by passive open space, and there would be no significant adverse impacts to passive open space resources for the combined population as a result of the Proposed Action.