Chapter 6: Shadows*

6.1 Introduction

This chapter assesses the potential for the Proposed Actions to result in incremental shadows long enough to reach any nearby publicly accessible open spaces or other sunlight-sensitive resources. Public open spaces, historic resources, and natural resources are all potentially sunlight-sensitive resources, and, thus, this chapter is closely linked to the information presented in other chapters of the environmental impact statement (EIS), particularly Chapter 5, "Open Space," and Chapter 7, "Historic and Cultural Resources."

As described in Chapter 1, "Project Description," the Jerome Avenue Rezoning consists of a series of land use actions (collectively, the "Proposed Actions") intended to facilitate the implementation of the objectives of the Jerome Avenue Neighborhood Plan (the "Plan"). The affected area comprises an approximately 92-block area primarily along Jerome Avenue and its east west commercial corridors in Bronx Community Districts (CDs) 4, 5, and 7 (the "rezoning area"). The rezoning area is generally bounded by 184th Street to the north and East 165th Street to the south, and also includes portions of 183rd Street, Burnside Avenue, Tremont Avenue, Mount Eden Avenue, 170th Street, Edward L. Grant Highway, and East 167th Street.

According to the *City Environmental Quality Review (CEQR) Technical Manual*, a shadows assessment is required if a proposed action would result in structures (or additions to existing structures) of 50 feet in height or greater, or those that would be located adjacent to, or across the street from, a sunlight-sensitive resource. As discussed in Chapter 1, "Project Description," the reasonable worst case development scenario (RWCDS) for the Proposed Actions identifies 45 projected development sites and 101 potential development sites in the Jerome Avenue rezoning area. The redevelopment of the projected development sites, and the less likely development of the potential development sites is expected to result in new buildings greater than 50 feet in height over the No-Action condition at most development sites. As such, a detailed shadows analysis was prepared to determine the potential for the Proposed Actions to result in significant adverse impacts on sunlight-sensitive resources.

6.2 Principal Conclusions

A detailed shadows analysis concludes that development resulting from the Proposed Actions would result in significant adverse shadow impacts on eight sunlight-sensitive resources. The 146 projected and potential development sites identified in the RWCDS would result in incremental shadow coverage

* This chapter has been revised since the DEIS to include figures showing the components of each impacted resource.

on 41 open space resources. The detailed shadows analysis identified significant adverse impacts at eight of these resources. No historic resources would be affected by incremental shadows. The detailed shadows analysis identified significant adverse impacts at eight open space resources. The analysis determined that six resources (Bronx School of Young Leaders, PS 306 Schoolyard, Mount Hope Playground, Goble Playground, Inwood Park, Keltch Park) would experience significant incremental shadow coverage, duration, and/or periods of complete sunlight loss that could have the potential to affect open space utilization or enjoyment. Two resources (Edward L Grant Greenstreet, Jerome Avenue/Grant Avenue Greenstreet) would not receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) as a result of incremental shadow coverage and vegetation at these resources could be significantly impacted. As discussed in Chapter 21, "Mitigation," it has been determined that there are no feasible or practicable mitigation measures that can be implemented to mitigate the significant adverse impacts identified on the open space resources and Greenstreets, and the Proposed Actions' significant adverse shadows impacts on these resources would therefore remain unmitigated.

6.3 Methodology

According to the *CEQR Technical Manual*, the longest shadow a structure will cast in New York City, except for periods close to dawn or dusk, is 4.3 times its height. For projects or actions resulting in structures less than 50 feet tall, a shadow assessment is generally not necessary, unless the site is adjacent to a park, historic resource, or important natural feature (if the feature that makes the structure significant depends on sunlight).

First, a preliminary screening assessment must be conducted to ascertain whether shadows resulting from a project could reach any sunlight-sensitive resource at any time of year. The *CEQR Technical Manual* defines sunlight-sensitive resources as those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. The following are considered to be sunlight-sensitive resources:

- *Public open space* (e.g., parks, playgrounds, plazas, schoolyards, greenways, and landscaped medians with seating). Planted areas within unused portions or roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources. The use of vegetation in an open space establishes its sensitivity to shadows. This sensitivity is assessed for both (1) warm-weather dependent features, like wading pools and sandboxes, or vegetation that could be affected by loss of sunlight during the growing season (i.e., March through October); and (2) features, such as benches, that could be affected by a loss of winter sunlight. Uses that rely on sunlight include: passive use, such as sitting or sunning; active use, such as playfields or paved courts; and such activities as gardening, or children's wading pools and sprinklers. Where lawns are actively used, the turf requires extensive sunlight. Vegetation requiring direct sunlight includes the tree canopy, flowering plants, and plots in community gardens. Generally, four to six hours a day of sunlight, particularly in the growing season, is a minimum requirement.

- *Features of historic architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features are considered, as opposed to the entire architectural resource. Sunlight-sensitive features include the following: design elements that are part of a recognized architectural style that depends on the contrast between light and dark (e.g., deep recesses or voids, such as open galleries, arcades, recessed balconies, deep window reveals, and prominent rustication); elaborate, highly carved ornamentation; stained glass windows; exterior building materials and color that depend on direct sunlight for visual character (e.g., the polychromy [multicolored] features found on Victorian Gothic Revival or Art Deco facades); historic landscapes, such as scenic landmarks, including vegetation recognized as an historic feature of the landscape; and structural features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as an historic landmark.

- *Natural resources where the introduction of shadows could alter the resource's condition or microclimate.* Such resources could include surface water bodies, wetlands, or designated resources, such as coastal fish and wildlife habitats.

The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed buildings representing the longest shadow that could be cast. If there are sunlight-sensitive resources within the radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project-generated shadows by accounting for a specific range of angles that can never receive shade in New York City due to the path of the sun in the northern hemisphere. If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by new shadows by looking at specific representative days of the year and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. Per the guidance of the *CEQR Technical Manual*, shadows on sunlight-sensitive resources of concern were modeled for four representative days of the year. For the New York City area, the months of interest for an open space resource encompass the growing season (i.e., March through October) and one month between November and February representing a cold-weather month (usually December). Representative days for the growing season are generally the March 21st vernal equinox (or the September 21st autumnal equinox, which is approximately the same), the June 21st summer solstice, and a spring or summer day halfway between the summer solstice and equinoxes, such as May 6th or August 6th (which are approximately the same). For the cold-weather months, the December 21st winter solstice is included to demonstrate conditions when open space users rely most heavily on available sunlight warmth. As these months and days are representative of the full range of possible shadows, they are also used for assessing shadows on sunlight-sensitive historic and natural resources.

The *CEQR Technical Manual* defines the temporal limits of a shadow analysis period to fall from an hour and a half after sunrise to an hour and a half before sunset.

The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The result of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text. As described in the *CEQR Technical Manual*, an incremental shadow is generally not considered significant when its duration is no longer than ten minutes at any time of year and the resource continues to receive substantial direct sunlight. A significant shadow impact generally occurs when an incremental shadow of ten minutes or longer falls on a sunlight-sensitive resource and results in one of the following:

- *Vegetation:* a substantial reduction in sunlight available to sunlight-sensitive features of the resource to less than the minimum time necessary for its survival (when there would be sufficient sunlight in the future without the project) or a reduction in direct sunlight exposure where the sensitive feature of the resource is already subject to substandard sunlight (i.e., less than the minimum time necessary for its survival).

- *Historic and cultural resources:* a substantial reduction in sunlight available for the enjoyment or appreciation of the sunlight-sensitive features of an historic or cultural resource.

- *Open space utilization:* a substantial reduction in the usability of open space as a result of increased shadow, including information regarding anticipated new users and the open space's utilization rates throughout the affected time periods.

- *For any sunlight-sensitive feature of a resource:* complete elimination of all direct sunlight on the sunlight-sensitive feature of the resource, when the complete elimination results in substantial effects on the survival, enjoyment, or, in the case of open space or natural resources, the use of the resource.

In general, a significant adverse shadow impact occurs when the incremental shadow added by a proposed action falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources.

6.4 Preliminary Screening Assessment

First, an assessment of the 45 projected and 101 potential development sites was performed in order to determine which sites required a preliminary screening assessment. As noted above, per the guidance of the *CEQR Technical Manual*, only new development or enlargement that would result in an incremental increase of 50 feet or more compared to the No-Action alternative require assessment. In addition, any development site adjacent to, or across the street from, a sunlight-sensitive resource requires a preliminary screening, regardless of its height.

Table 6-1, "RWCDS Sites Warranting Preliminary Shadow Analyses," below summarizes this initial screening. As indicated in the table, new structures of greater than 50 feet in incremental height are anticipated on 43 of the 45 projected development sites and 100 of the 101 potential development

sites, and consequently require a preliminary screening assessment. Of the 3 remaining sites that would be developed with incremental heights of less than 50 feet, 2 were not adjacent to sunlight-sensitive resources, as defined in the *CEQR Technical Manual*, and therefore, no further analysis was warranted for these sites.

A base map was prepared (see Figure 6-1) showing the projected and potential development sites identified for analysis in Table 6-1, "RWCDS Sites Warranting Preliminary Shadow Analyses," as well as the proposed rezoning area, the surrounding street layout, and all sunlight-sensitive resources (publicly-accessible open spaces, architectural resources, natural resources, and Greenstreets).

Table 6-1: RWCDS Sites Warranting Preliminary Shadow Analyses

Sites Warranting Preliminary Shadow Analysis		Sites Not Warranting Preliminary Shadow Analysis
Sites with 50-Foot or Greater Height Increment[1]	**Sites with Less than 50-Foot Height Increment Adjacent to Sunlight-Sensitive Resources**	**Sites with Less than 50-Foot Height Increment Not Adjacent to Sunlight-Sensitive Resources**
Projected Sites		
1-16, 18-42, 44-45	None	17, 43
Potential Sites		
1-71, 73-101	72	None
Notes: [1] Based on maximum zoning envelopes.		

Source: PHA, 2017

TIER 1 SCREENING ASSESSMENT

According to the *CEQR Technical Manual*, the longest shadow that a structure will cast in New York City, except for periods close to dawn or dusk, is 4.3 times its height. The maximum shadow radius for each of the 146 development sites warranting a preliminary shadow analysis was determined using each site's maximum zoning envelope. The maximum shadow radius for each development site was merged to form the longest shadow study area (Tier 1 Assessment).

Within this longest shadow study area, there are a number of potentially sunlight-sensitive open spaces and historic resources. Therefore, further screening was warranted in order to determine whether any resources could be affected by project-generated shadows.

TIER 2 SCREENING ASSESSMENT

Due to the path of the sun across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City, this area lies between -108 and +108 degrees from true north. The purpose of the Tier 2 screening is to determine whether the sunlight-sensitive resources identified in the Tier 1 screening are located within portions of the longest shadow study area that can receive shade from the projected and potential developments.

Figure 6-1 provides a base map illustrating the results of the Tier 1 and Tier 2 screening assessments (i.e., the portion of the longest shadow study area lying within -108 degrees from the true north and +108 degrees from true north as measured from southernmost portions of the development sites). A

total of 62 open space resources and one historic resource were identified as sunlight-sensitive resources that warranted further assessment. A list of all sunlight-sensitive resources that warranted further assessment is provided below in Table 6-2, “Sunlight-Sensitive Resources Warranting Further Analysis Based on Tier 1 and 2 Screening.”

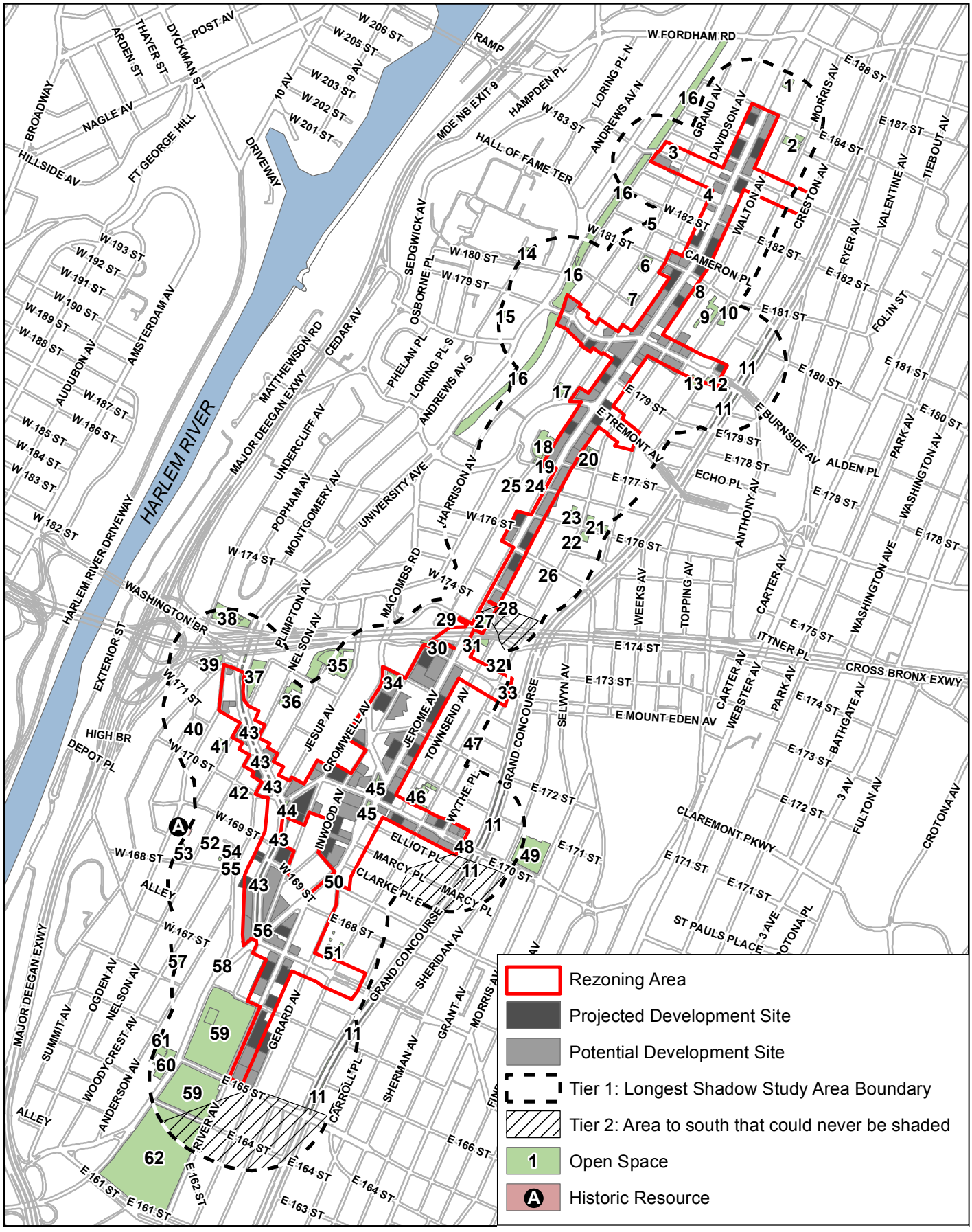


Figure 6-1

Jerome Avenue Rezoning EIS

LONGEST SHADOW STUDY AREA
Tier 1 and Tier 2 Screening

TIER 3 SCREENING ASSESSMENT

According to the *CEQR Technical Manual*, a Tier 3 screening assessment should be performed to determine if, in the absence of intervening buildings, shadows resulting from the Proposed Actions can reach a sunlight-sensitive resource, thereby warranting a detailed shadow analysis. The Tier 3 screening assessment is used to determine if shadows resulting from the Proposed Actions can reach a sunlight-sensitive resource at any time between 1.5 hours after sunrise and 1.5 hours before sunset on representative analysis dates.

As project-generated shadows could reach a number of sunlight-sensitive resources, a Tier 3 assessment was performed using three dimensional (3D) computer mapping software. The 3D model was used to calculate and display project-generated shadows on individual representative analysis dates. The model contained 3D representations of the elements in the base map used in the preceding assessments and a 3D model of the projected and potential developments. At this stage of the assessment, surrounding buildings within the study area were not included in the model so that it may be determined whether project-generated shadows would reach any sunlight-sensitive resources.

Table 6-2: Sunlight-Sensitive Resources Warranting Further Analysis Based on Tier 1 and 2 Screening

No.[1]	Open Space Resources	34	Goble Playground
1	PS 33 Schoolyard	35	West Bronx Recreation Center
2	Middle School 399 Playground	36	PS 199 Schoolyard
3	IS 206 Schoolyard	37	Plimpton Playground
4	Jardin De Las Rosas	38	Sedgwick Playground
5	PS 91 Schoolyard	39	Bridge Playground
6	Grand Playground	40	Highbridge Voices
7	Davidson Playground	41	Ogden Plimpton Playground
8	Walton Park	42	Planned Corporal Fischer Park
9	PS 279 Schoolyard	43	Edward L Grant Greenstreet
10	Morris Garden	44	W 170th Street and Edward L Grant Highway
11	Grand Concourse Greenstreet	45	Keltch Park
12	Devanney Triangle	46	PS 64 Schoolyard
13	Mount Hope Garden	47	Walton/Rockwood Playground
14	Bronx Community College	48	East 170th Street Greenstreet
15	PS396 Schoolyard	49	Taft High School Field
16	Aqueduct Walk	50	Jerome/Gerard Greenstreet
17	Leave it Better Kids' Garden	51	PS/IS 218 Schoolyard
18	Bronx School of Young Leaders	52	Sacred Heart School and Head Start
19	PS 306 Schoolyard	53	Noonan Plaza
20	Mount Hope Playground	54	Siena House Shelter
21	lS 117 Schoolyard	55	Martin Luther King Triangle
22	176th Street Community Garden	56	Jerome/Grant Greenstreet
23	PS 236 Langston Hughes Schoolyard	57	Las Casitas Community Garden

Table 6-2 (continued): Sunlight-Sensitive Resources Warranting Further Analysis Based on Tier 1 and 2 Screening

No.[1]	Open Space Resources	58	Jerome/Shakespeare Greenstreet
24	Graham Windham Early Learning	59	Mullaly Park
25	1789 Davidson Avenue Playground	60	Jerome Slope
26	Townsend Garden	61	PS 073 Schoolyard
27	Jennie Jerome Playground	62	Macombs Dam Park
28	Townsend Walk	**No.[1]**	**Historic Resources**
29	Featherbenches	A	Highbridge Community Church
30	Inwood Park		
31	Jerome Playground South		
32	PS 170 Schoolyard		
33	Mount Eden Malls (Greenstreet)		
Note: [1] Numbers keyed to Figure 6-1			

Source: PHA, 2017

The Tier 3 analysis showed that some sunlight-sensitive resources would not receive project-generated shadows on any of the four analysis days, and these resources therefore did not require any further analysis. Table 6-3, "Tier 3 Assessment Results," presents a summary of the Tier 3 assessment, showing the 46 open spaces that could, in the absence of intervening buildings, receive project-generated shadows, and on which analysis days the new shadows would occur. No historic resources would receive project-generated shadows on any of the four analysis days.

Table 6-3: Tier 3 Assessment Results

No.[1]	Name	March 21/Sept. 21 7:36 AM – 4:29 PM	May 6/August 6 6:27 AM – 5:18 PM	June 21 5:57 AM – 6:01 PM	December 21 8:51 AM – 2:53 PM	Number of Analysis Days
Open Space Resources						
1	PS 33 Schoolyard	NO	NO	NO	YES	1
2	Middle School 399 Playground	YES	YES	YES	NO	3
3	IS 206 Schoolyard	YE	YES	NO	YE	3
4	Jardin De Las Rosas	YES	YES	YES	YES	4
5	PS 91 Schoolyard	NO	NO	NO	NO	0
6	Grand Playground	YE	YE	YE	YES	4
7	Davidson Playground	YE	YES	YES	YE	4
8	Walton Park	YES	YES	YES	YES	4
9	PS 279 Schoolyard	YE	YE	YES	YE	4
10	Morris Garden	NO	NO	NO	NO	0
11	Grand Concourse Greenstreet	YES	YES	YES	YE	4
12	Devanney Triangle	NO	YES	YES	NO	2
13	Mount Hope Garden	NO	YE	YE	NO	2
14	Bronx Community College	NO	NO	NO	NO	0
15	PS 396 Schoolyard	NO	NO	NO	NO	0
16	Aqueduct	YE	YE	YE	YES	4
17	Leave it Better Kids' Garden	YE	YE	YE	YES	4
18	Bronx School of Young Leaders	YES	YE	YE	YES	4
19	PS 306 Schoolyard	YES	YE	YE	YES	4
20	Mount Hope Playground	YE	YE	YE	YES	4
21	IS 117 Schoolyard	NO	NO	YE	NO	1
22	176th Street Community Garden	NO	NO	YES	NO	1
23	PS 236 Langston Hughes	YE	YE	YES	NO	3
24	Graham Windham Early Learning	YE	YE	YES	YE	4
25	1789 Davidson Avenue Playground	YE	YE	YES	YE	4
26	Townsend Garden	NO	YES	YES	NO	2

Table 6-3 (continued): Tier 3 Assessment Results

No.[1]	Name	March 21/Sept. 21 7:36 AM – 4:29 PM	May 6/August 6 6:27 AM – 5:18 PM	June 21 5:57 AM – 6:01 PM	December 21 8:51 AM – 2:53 PM	Number of Analysis Days
Open Space Resources						
27	Jennie Jerome Playground	NO	NO	NO	NO	0
28	Townsend Walk	YES	YES	YES	NO	3
29	Featherbenches	NO	NO	NO	NO	0
30	Inwood Park	YE	YES	YES	YES	4
31	Jerome Playground South	YE	YE	NO	YES	3
32	PS 170 Schoolyard	YE	NO	NO	NO	1
33	Mount Eden Malls (Greenstreet)	NO	NO	YE	NO	1
34	Goble Playground	YE	YE	YE	YES	4
35	West Bronx Recreation Center	NO	NO	NO	NO	0
36	PS 199 Schoolyard	NO	NO	YE	YES	2
37	Plimpton Playground	YE	YE	YE	YES	4
38	Sedgwick Playground	NO	NO	NO	NO	0
39	Bridge Playground	YE	YE	YE	YES	4
40	Highbridge Voices	NO	NO	YE	NO	1
41	Ogden Plimpton Playground	NO	YE	YE	YES	3
42	Planned Corporal Fisher Park	YE	YE	YE	NO	3
43	Edward L Grant Greenstreet	YE	YE	YE	YES	4
44	W 170th St and Edward L Grant	YE	YE	YE	YES	4
45	Keltch Park	YE	YE	YE	YES	4
46	PS 64 Schoolyard	YE	YE	YE	YES	4
47	Walton/Rockwood Playground	NO	NO	NO	NO	0
48	East 170th Street Greenstreet	YE	YE	YE	YES	4
49	Taft High School Field	NO	NO	NO	NO	0
50	Jerome/Gerard Greenstreet	YE	YE	YE	YES	4
51	PS/IS 218 Schoolyard	YE	YE	YE	NO	3
52	Sacred Heart School and Head Start	NO	NO	NO	NO	0
53	Noonan Plaza	NO	NO	NO	NO	0
54	Siena House Shelter	NO	NO	NO	YES	1
55	Martin Luther King Triangle	YE	YE	YE	YES	4
56	Jerome/Grant Greenstreet	YE	YE	YE	YES	4
57	Las Casitas Community Garden	NO	NO	NO	NO	0
58	Jerome/Shakespeare Greenstreet	YE	YE	YE	YES	4
59	Mullaly Park	YE	YE	YE	YES	4
60	Jerome Slope	NO	NO	NO	NO	0
61	PS 073 Schoolyard	NO	NO	NO	NO	0
62	Macombs Dam Park	NO	NO	NO	NO	0
Historic Resources						
A	Highbridge Community Church	NO	NO	NO	NO	0

Note: [1]Numbers keyed to Figure 6-1

Source: PHA, 2017

6.5 Detailed Analysis of Shadow Impacts

SHADOWS ANALYSIS

Per the guidance of the *CEQR Technical Manual*, shadow analyses were performed for the 46 sunlight-sensitive resources identified above on four representative days of the year: March 21/September 21, the equinoxes; May 6, the midpoint between the summer solstice and the equinox (and equivalent to August 6); June 21, the summer solstice and the longest day of the year; and December 21, the winter solstice and shortest day of the year. These four representative days indicate the range of shadows over the course of the year. CEQR guidelines define the temporal limits of a shadow analysis period to fall from 1.5 hours after sunrise to 1.5 hours before sunset. As discussed above, the results of the shadows analysis show the incremental difference in shadow impact between the No-Action and With-Action conditions (see Table 6-4, "Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)").

As shown in Table 6-4 "Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)," incremental project-generated shadows would reach 41 of the 46 sunlight-sensitive resources identified in the Tier 3 assessment. Increases in shadow coverage would occur at 33 resources on March 21/September 21; 31 resources on May 6/August 6; 34 resources on June 21; and 30 resources on December 21. Figures 6-2 through 6-27, provided at the end of this chapter, show representative shadow views for the 41 sunlight-sensitive resources of concern on each of the four representative analysis days.

Table 6-4: Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)

Resource	Analysis Day	March 21/Sept. 21	May 6/August 6	June 21	December 21
		7:36 AM – 4:29 PM	6:27 AM – 5:18 PM	5:57 AM – 6:01 PM	8:51 AM – 2:53 PM
PS 33 Schoolyard	Shadow enter-exit time	--	--	--	2:25 – 2:36 PM 2:45 – 2:53 PM
	Incremental shadow duration	--	--	--	11 minutes 8 minutes
Middle School 399 Playground	Shadow enter-exit time	4:25 – 4:29 PM	4:52 – 5:18 PM	5:21 – 6:01 PM	--
	Incremental shadow duration	4 minutes	26 minutes	40 minutes	--
IS 206 Schoolyard	Shadow enter-exit time	11:34 – 4:29 PM	2:47 – 5:18 PM	--	10:15 AM – 2:53 PM
	Incremental shadow duration	4 hours 55 minutes	2 hours 31 minutes	--	4 hours 38 minutes
Jardin De Las Rosas	Shadow enter-exit time	7:36 – 8:15 AM 11:06 AM – 12:34 PM	6:27 – 9:07 AM	5:57 – 9:42 AM	8:51 AM – 1:01 PM
	Incremental shadow duration	39 minutes 1 hour 28 minutes	2 hours 40 minutes	3 hours 45 minutes	4 hours 10 minutes
Grand Playground	Shadow enter-exit time	--	--	--	8:51 – 9:50 AM
	Incremental shadow duration	--	--	--	59 minutes
Davidson Playground	Shadow enter-exit time	7:36 – 9:06 AM	6:27 – 7:29 AM	5:57 – 6:50 AM	8:51 – 11:00 AM
	Incremental shadow duration	1 hour 30 minutes	1 hour 2 minutes	53 minutes	2 hours 9 minutes
Walton Park	Shadow enter-exit time	1:48 – 4:29 PM	1:05 – 5:18 PM	12:58 – 6:01 PM	2:30 – 2:53 PM
	Incremental shadow duration	2 hours 41 minutes	4 hours 13 minutes	5 hours 3 minutes	23 minutes
PS 279 Schoolyard	Shadow enter-exit time	1:37 – 4:13 PM 4:24 – 4:29 PM	--	--	1:37 – 2:53 PM
	Incremental shadow duration	2 hours 36 minutes 5 minutes	--	--	1 hour 16 minutes
Grand Concourse Greenstreet	Shadow enter-exit time	4:01 – 4:29 PM	4:18 – 5:18 PM	4:30 – 6:01 PM	--
	Incremental shadow duration	28 minutes	1 hour	1 hour 31 minutes	--
Mount Hope Garden	Shadow enter-exit time	--	--	5:57 – 6:03 AM	--
	Incremental shadow duration	--	--	6 minutes	--
Aqueduct Walk	Shadow enter-exit time	7:36 AM – 1:53 PM	6:27 AM – 1:05 PM	5:57 AM – 12:54 PM	8:51 AM – 2:40 PM
	Incremental shadow duration	6 hours 17 minutes	6 hours 38 minutes	6 hours 57 minutes	5 hours 49 minutes
Leave it Better Kids' Garden	Shadow enter-exit time	7:36 – 9:29 AM	6:59 – 8:46 AM	7:02 – 7:48 AM	8:51 – 9:01 AM 9:18 – 10:30 AM
	Incremental shadow duration	1 hour 53 minutes	1 hour 47 minutes	46 minutes	10 minutes 1 hour 12 minutes
Bronx School of Young Leaders	Shadow enter-exit time	7:36 AM – 1:20 PM	6:27 AM – 12:44 PM	5:57 AM – 12:36 PM	8:51 AM – 1:53 PM
	Incremental shadow duration	5 hours 44 minutes	6 hours 17 minutes	6 hours 39 minutes	5 hours 2 minutes
PS 306 Schoolyard	Shadow enter-exit time	7:36 AM – 1:20 PM	6:27 AM – 12:44 PM	5:57 AM – 12:36 PM	8:51 AM – 1:53 PM
	Incremental shadow duration	5 hours 44 minutes	6 hours 17 minutes	6 hours 39 minutes	5 hours 2 minutes
Mount Hope Playground	Shadow enter-exit time	12:42 – 4:29 PM	12:19 – 5:18 PM	12:21 – 6:01 PM	12:56 – 2:53 PM
	Incremental shadow duration	3 hours 47 minutes	4 hours 59 minutes	5 hours 40 minutes	1 hour 57 minutes
IS 117 Schoolyard	Shadow enter-exit time	--	--	5:41 – 6:01 PM	--
	Incremental shadow duration	--	--	20 minutes	--
PS 236 Schoolyard	Shadow enter-exit time	4:06 – 4:29 PM	4:07 – 5:18 PM	4:16 – 6:01 PM	--
	Incremental shadow duration	23 minutes	1 hour 11 minutes	1 hour 45 minutes	--

Table 6-4 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)

Resource	Analysis Day	March 21/Sept. 21	May 6/August 6	June 21	December 21
		7:36 AM – 4:29 PM	6:27 AM – 5:18 PM	5:57 AM – 6:01 PM	8:51 AM – 2:53 PM
Graham Windham Early Learning	Shadow enter-exit time	7:36 – 9:17 AM	6:27 – 7:38 AM	5:57 – 7:07 AM	8:51 – 11:07 AM 12:00 – 1:47 PM
	Incremental shadow duration	1 hour 41 minutes	1 hour 11 minutes	1 hour 10 minutes	2 hours 16 minutes 1 hour 47 minutes
1789 Davidson Avenue Playground	Shadow enter-exit time	7:36 – 7:47 AM	--	--	9:46 – 11:03 AM
	Incremental shadow duration	11 minutes	--	--	1 hour 17 minutes
Townsend Garden	Shadow enter-exit time	--	--	5:40 – 6:01 PM	--
	Incremental shadow duration	--	--	21 minutes	--
Townsend Walk	Shadow enter-exit time	7:36 – 8:41 AM	6:27 – 9:32 AM	6:15 – 10:06 AM	--
	Incremental shadow duration	1 hour 5 minutes	3 hours 5 minutes	3 hours 51 minutes	--
Inwood Park	Shadow enter-exit time	7:36 AM – 4:29 PM	6:27 AM – 5:18 PM	5:57 AM – 6:01 PM	8:51 AM – 2:53 PM
	Incremental shadow duration	8 hours 53 minutes	10 hours 51 minutes	12 hours 4 minutes	6 hours 2 minutes
Jerome Playground South	Shadow enter-exit time	3:24 – 4:29 PM	3:27 – 5:18 PM	--	12:23 – 2:53 PM
	Incremental shadow duration	1 hour 5 minutes	1 hour 51 minutes	--	2 hours 30 minutes
PS 170 Schoolyard	Shadow enter-exit time	4:05 – 4:29 PM	--	--	--
	Incremental shadow duration	24 minutes	--	--	--
Mount Eden Malls	Shadow enter-exit time	--	--	5:48 – 6:01 PM	--
	Incremental shadow duration	--	--	13 minutes	--
Goble Playground	Shadow enter-exit time	7:36 – 7:46 AM 8:50 AM – 4:29 PM	6:27 – 7:53 AM 9:41 AM – 5:18 PM	5:57 – 8:07 AM 10:15 AM – 6:01 PM	8:51 AM – 2:53 PM
	Incremental shadow duration	10 minutes 7 hours 39 minutes	1 hour 26 minutes 6 hours 37 minutes	2 hours 10 minutes 7 hours 46 minutes	6 hours 2 minutes
PS 199 Schoolyard	Shadow enter-exit time	--	--	5:56 – 6:01 PM	2:31 – 2:53 PM
	Incremental shadow duration	--	--	5 minutes	23 minutes
Plimpton Playground	Shadow enter-exit time	2:24 – 4:29 PM	2:54 – 5:18 PM	3:59 – 6:01 PM	1:35 – 2:53 PM
	Incremental shadow duration	2 hours 5 minutes	2 hours 24 minutes	2 hours 2 minutes	1 hour 18 minutes
Bridge Playground	Shadow enter-exit time	7:36 – 10:43 AM	6:27 – 9:22 AM	6:02 – 8:37 AM	8:51 – 10:52 AM
	Incremental shadow duration	3 hours 7 minutes	2 hours 55 minutes	2 hours 35 minutes	2 hours 1 minute
Ogden Plimpton Playground	Shadow enter-exit time	--	6:27 – 7:59 AM	5:57 – 8:10 AM	8:51 – 9:11 AM
	Incremental shadow duration	--	1 hour 32 minutes	2 hours 13 minutes	20 minutes
Edward L Grant Greenstreet	Shadow enter-exit time	7:36 AM – 12:13 PM 12:31 – 4:29 PM	6:27 – 11:27 AM 1:08 – 5:18 PM	5:57 – 11:19 AM 1:37 – 6:01 PM	8:51 AM – 2:53 PM
	Incremental shadow duration	4 hours 37 minutes 3 hours 58 minutes	5 hours 4 hours 10 minutes	5 hours 22 minutes 4 hours 24 minutes	6 hours 2 minutes
W 170th St Greenstreet	Shadow enter-exit time	7:36 AM – 12:22 PM	6:27 – 11:50 AM	5:57 – 11:48 AM	8:51 AM – 12:30 PM
	Incremental shadow duration	4 hours 46 minutes	5 hours 23 minutes	5 hours 51 minutes	3 hours 39 minutes
Keltch Park	Shadow enter-exit time	7:36 – 11:15 AM 2:15 – 4:29 PM	6:27 – 10:24 AM 2:08 – 5:18 PM	5:57 – 10:05 AM 2:14 – 6:01 PM	8:51 AM – 12:31 PM 1:42 – 2:53 PM
	Incremental shadow duration	3 hours 39 minutes 2 hours 14 minutes	3 hours 57 minutes 3 hours 10 minutes	4 hours 8 minutes 3 hours 47 minutes	3 hours 40 minutes 1 hour 11 minutes
PS 64 Schoolyard	Shadow enter-exit time	8:37 – 11:47 AM 2:59 – 4:29 PM	9:28 – 10:43 AM 3:31 – 5:18 PM	3:42 – 6:01 PM	8:51 AM – 2:53 PM
	Incremental shadow duration	3 hours 10 minutes 1 hour 30 minutes	1 hour 15 minutes 1 hour 47 minutes	2 hours 19 minutes	6 hours 2 minutes
E 170th St Greenstreet	Shadow enter-exit time	1:25 – 4:29 PM	12:51 – 5:18 PM	12:47 – 6:01 PM	2:00 – 2:53 PM
	Incremental shadow duration	3 hours 4 minutes	4 hours 27 minutes	5 hours 14 minutes	53 minutes
Jerome/Gerard Greenstreet	Shadow enter-exit time	3:51 – 4:29 PM	5:00 – 5:18 PM	5:51 – 6:01 PM	2:37 – 2:53 PM
	Incremental shadow duration	38 minutes	18 minutes	10 minutes	16 minutes

Table 6-4 (continued): Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)

Resource	Analysis Day	March 21/Sept. 21	May 6/August 6	June 21	December 21
		7:36 AM – 4:29 PM	**6:27 AM – 5:18 PM**	**5:57 AM – 6:01 PM**	**8:51 AM – 2:53 PM**
PS/IS 218 Schoolyard	Shadow enter-exit time	3:40 – 4:29 PM	4:43 – 5:18 PM	5:05 – 6:01 PM	--
	Incremental shadow duration	49 minutes	35 minutes	56 minutes	--
MLK Triangle	Shadow enter-exit time	7:36 – 9:01 AM	6:27 – 7:09 AM	5:57 – 6:56 AM	8:51 – 10:43 AM
	Incremental shadow duration	1 hour 25 minutes	42 minutes	59 minutes	1 hour 52 minutes
Jerome/Grant Greenstreet	Shadow enter-exit time	7:36 AM – 12:34 PM 2:09 – 4:29 PM	6:27 – 11:52 AM 2:07 – 5:18 PM	5:57 – 11:20 AM 2:23 – 6:01 PM	8:51 AM – 12:49 PM 2:46 – 2:53 PM
	Incremental shadow duration	4 hours 58 minutes 2 hours 20 minutes	5 hours 25 minutes 3 hours 11 minutes	5 hours 23 minutes 3 hours 38 minutes	3 hours 57 minutes 7 minutes
Jerome/Shakespeare Greenstreet	Shadow enter-exit time	8:11 – 8:37 AM	6:27 – 7:20 AM	5:57 – 6:55 AM	--
	Incremental shadow duration	26 minutes	53 minutes	57 minutes	--
Mullaly Park	Shadow enter-exit time	7:36 – 11:55 AM	6:27 – 11:03 AM	5:57 – 10:48 AM	8:51 AM – 12:45 PM
	Incremental shadow duration	4 hours 19 minutes	4 hours 36 minutes	4 hours 51 minutes	3 hours 54 minutes

Note: All times are Eastern Standard Time; Daylight Savings Time was not accounted for per *CEQR Technical Manual* guidelines.
Table indicates the entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource.
Source: PHA, 2017

It should be noted that, per the guidance of the *CEQR Technical Manual*, all times reported herein are Eastern Standard Time and do not reflect adjustments for daylight savings time that is in effect from mid-March to early November. As such, the times reported in this chapter for March 21/September 21, May 6/August 6, and June 21 need to have one hour added to reflect the Eastern Daylight Saving Time.

Open Space Resources

PS 33 SCHOOLYARD

The PS 33 Schoolyard is an approximately 0.28-acre open space located on Jerome Avenue between East Fordham Road and East 184th Street. The northern portion of the schoolyard features a basketball court, handball court, a small running track, and blacktop games (hopscotch, etc.). The southern portion of the schoolyard features a jungle-gym and bench seating.

This open space resource would experience incremental shadow coverage during the December 21 analysis day (see Table 6-4, "Duration of Shadows on Sunlight-Sensitive Resources (Increment Compared to No-Action)"). Incremental shadows would be limited to small areas containing basketball and handball courts, a small running track, blacktop games, a jungle-gym, and benches for a total of 19 minutes shortly before sunset (see Figure 6-2). Given the limited extent of incremental shadow coverage and brief duration, the playground's active recreational uses and seating would only be temporarily affected. Therefore, the Proposed Actions would not result in significant adverse shadow impacts on the PS 33 Playground.

MIDDLE SCHOOL 399 PLAYGROUND

The Middle School 399 Playground is an approximately 0.54-acre open space located on Morris Avenue between East 184th Street and Field Place. The Morris Avenue frontage features multiple basketball

courts and blacktop games. The western portion of the playground along Walton Avenue features additional basketball courts as well as handball courts.

The shadows analysis determined that the duration and coverage of incremental shadows on the Middle School 399 Playground would be limited. Incremental shadow coverage would range from approximately 4 minutes on March 21 to 40 minutes on June 21 (see Figure 6-3). Given the limited extent of incremental shadow coverage and brief duration, the playground's active recreational uses such as basketball and handball would only be temporarily affected. Therefore, the Proposed Actions would not result in significant adverse shadow impacts on the Middle School 399 Playground.

IS 206 SCHOOLYARD

The IS 206 Schoolyard is an approximately 0.13-acre open space located on West 183rd Street between Aqueduct Avenue East and Grand Avenue. The playground is entirely paved and features a basketball court.

The Proposed Actions would result in new incremental shadows of varying duration and coverage on three representative analysis days. Incremental shadows would last for a total of approximately 4 hours 55 minutes (from 11:34 AM to 4:29 PM) on March 21, approximately 2 hours 31 minutes (from 2:47 to 5:18 PM) on May 6, and approximately 4 hours 38 minutes (10:15 AM to 2:53 PM) on December 21 (see Table 6-4).

On March 21, no incremental shadows would enter the open space before 11:34 AM and the schoolyard would continue to receive some direct sunlight throughout the morning hours. By 12 PM, incremental shadows would reach a small southern area along the West 183rd Street frontage comprised of a basketball court (see Figure 6-3). Throughout the afternoon incremental shadows would shift eastward and would result in a complete loss of sunlight from 3:30 to the end of the analysis day at 4:29 PM (59 minutes).

On May 6, no incremental shadows would enter the open space before 2:47 PM and the schoolyard would continue to receive some direct sunlight throughout the morning and early afternoon hours. By 3 PM, incremental shadows would reach a hardly discernable southern area along the West 183rd Street frontage (see Figure 6-3). Throughout the afternoon incremental shadows would shift eastward and would exit the open space completely by the end of the analysis day at 5:18 PM.

On December 21 incremental shadow coverage would reach most areas of the schoolyard. By 11 AM, incremental shadows would reach a small central portion of the open space comprised of a basketball court (see Figure 6-3). Throughout the afternoon incremental shadows would shift eastward and would result in a complete loss of sunlight from 11:29 to the end of the analysis day at 2:53 PM (3 hours 24 minutes).

Assessment

On March 21 and May 6, incremental shadow coverage on IS 206 Schoolyard would affect an active recreational amenity (basketball court). As shadows are not static and move from west to east throughout the day, this amenity would continue to receive some direct sunlight on these representative analysis days (see Figure 6-3). In addition, incremental shadows on active recreational

uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the IS 206 Playground.

JARDIN DE LAS ROSAS

Jardin de las Rosas is an approximately 0.06-acre community garden located on Buchanan Place between Davidson and Jerome avenues. Jardin de las Rosas is comprised of trees, planting beds, grassy areas, and bench seating.

This open space resource would experience incremental shadow coverage on all four representative analysis days ranging from 2 hours and 7 minutes on March 21 to 4 hours and 10 minutes on December 21 (see Table 6-4). On all days, incremental shadows would generally be limited to small portions of the open space containing trees, planting beds, grassy areas, and bench seating during the morning hours (see Figure 6-3). From 6:27 to 8:20 AM (1 hour 53 minutes) on May 6, incremental shadows would result in a complete loss of sunlight at the community garden. Similarly, on December 21 incremental shadows would result in a complete loss of sunlight from 8:51 AM to 1:01 PM (4 hours 10 minutes). However, as the December 21 analysis day falls outside of the growing season, and the community garden would only experience small incremental shadows on the other three representative analysis days while the majority of the garden would continue to receive adequate direct sunlight (at least the four to six hour minimum specified in the *CEQR Technical Manual*), vegetation would not be affected. During the December 21 analysis day, incremental shadows would temporarily affect seating areas within the open space, which are typically utilized less during the winter months. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact Jardin de las Rosas.

GRAND PLAYGROUND

Grand Playground is an approximately 0.38-acre open space located on the northwest corner of Grand Avenue and West 181st Street. The playground has a basketball court at its center and is lined with trees.

The shadows analysis determined that the duration and coverage of incremental shadows on Grand Playground would be limited. The playground would experience incremental shadow coverage during the December 21 analysis day (see Table 6-4). Incremental shadows would cover a small southwestern area of the playground for approximately 59 minutes shortly after sunrise (see Figure 6-5). Given the limited extent of incremental shadow coverage and brief duration, the playground's active recreational uses such as the basketball court would only be temporarily affected. Further, as the playground would only experience incremental shadow coverage on the December 21 analysis day, which falls outside the plant growing season as defined by the *CEQR Technical Manual*, vegetation would not be affected. Therefore, the Proposed Actions would not result in significant adverse shadow impacts on Grand Playground.

DAVIDSON PLAYGROUND

Davidson Playground is an approximately 0.21-acre open space located on the southeast corner of Davidson Avenue and West 180th Street. The playground features two centrally located jungle-gyms surrounded by bench seating, picnic tables, shrubs, and trees.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 1 hour 30 minutes (from 7:36 to 9:06 AM) on March 21, approximately 1 hour 2 minutes (from 6:27 to 7:29 AM) on May 6, approximately 53 minutes (from 5:57 to 6:50 AM) on June 21, and approximately 2 hours 9 minutes (from 8:51 to 11:00 AM) on December 21 (see Table 6-4).

On March 21, incremental shadows would reach most areas of the playground during the early morning hours. The areas affected include portions of the jungle-gyms, bench seating, picnic tables, shrubs, and trees. From 7:36 to 8:16 AM (40 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 9:06 AM and the open space would continue to receive direct sunlight throughout the remainder of the day (see Figure 6-5).

On May 6, incremental shadows would generally be limited to southern and central portions of the playground during the early morning hours. The areas affected include portions of the jungle-gyms, bench seating, picnic tables, shrubs, and trees. By 7:15 AM, incremental shadows would shift eastward and the majority of the open space would receive direct sunlight. No incremental shadows would enter the open space after 7:29 AM and the open space would continue to receive direct sunlight throughout the remainder of the day (see Figure 6-5).

On June 21, incremental shadows would generally be limited to southern and eastern portions of the playground during the early morning hours. The areas affected include small portions of the jungle-gyms, bench seating, shrubs, and trees. No incremental shadows would enter the open space after 6:50 AM and the open space would continue to receive direct sunlight throughout the remainder of the day (see Figure 6-5).

On December 21, incremental shadows would reach most areas of the playground during the morning hours. The areas affected include jungle-gyms, bench seating, picnic tables, shrubs, and trees. From 8:51 to 10:09 AM (1 hour 18 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 11 AM and the open space would continue to receive some direct sunlight throughout the remainder of the day (see Figure 6-5).

Assessment

On March 21, May 6, and June 21, incremental shadow coverage on Davidson Playground would affect both active (jungle-gyms) and passive (benches, picnic tables) amenities. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these representative analysis days (see Figure 6-5). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would

continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and any vegetation present would not be affected.

On December 21, while the playground would receive sizeable incremental shadow coverage, it would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Davidson Playground.

WALTON PARK

Walton Park is an approximately 0.34-acre open space located on the southwest corner of Walton Avenue and East 181st Street. There is a basketball court in the northeast corner of the park. The western and southern side of the park are lined with benches and trees.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 2 hours 41 minutes (from 1:48 to 4:29 PM) on March 21, approximately 4 hours 13 minutes (from 1:05 to 5:18 PM) on May 6, approximately 5 hours 3 minutes (from 12:58 to 6:01 PM) on June 21, and approximately 23 minutes (from 2:30 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, May 6, and June 21, no incremental shadows would enter the park until 12:58 PM, and the park would continue to receive some direct sunlight throughout the morning hours. Incremental shadow coverage would generally be limited to western and central portions of the park during the afternoon hours and would affect a basketball court, trees, and benches. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these representative analysis days with the exception of 4:02 to 4:29 PM (27 minutes) on March 21, 4:06 to 5:18 PM (1 hour 12 minutes) on May 6, and 4:19 to 6:01 PM (1 hour 42 minutes) on June 21 when incremental shadows would result in a complete loss of sunlight (see Figure 6-5). While the Proposed Actions would result in a complete loss of sunlight at the park on each of these days, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer are not expected to significantly affect the usability of the open space. In addition, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected.

On December 21, incremental shadows would be limited to a small western area for a 23 minute span shortly before sunset. Given the brief coverage and duration, incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore,

the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Walton Park.

PS 279 SCHOOLYARD

The PS 279 Schoolyard is an irregularly shaped, approximately 0.61-acre open space on Morris Avenue between East 181st Street and East Burnside Avenue. The northwestern portion of this open space resource functions as a playground with a jungle-gym and blacktop games. To the east of the playground area is a basketball court with frontage along Morris Avenue. Just south of the basketball court in the center of the open space are a small running track, blacktop games, and trees. The southwestern portion of this open space resource features multiple jungle-gyms.

This open space resource would experience incremental shadow coverage on the March 21 and December 21 analysis days (see Table 6-4). On March 21, no incremental shadows would enter the park until 1:37 PM, and the park would continue to receive some direct sunlight throughout the morning hours. While incremental shadows would reach the schoolyard for a total of 2 hours and 41 minutes, incremental shadow coverage would be limited to a small area at the southernmost extent of the park where a jungle-gym is located (see Figure 6-5). As the affected jungle-gym and other jungle-gyms located within the schoolyard would continue to receive some direct sunlight throughout this period of the afternoon, incremental shadows would not significantly affect the utilization or enjoyment of this open space resource.

On December 21, incremental shadows would last for a total of 1 hour and 16 minutes shortly before sunset and would reach western and central portions of the open space where jungle-gyms, blacktop games, and trees are located. Incremental shadows would temporarily affect these amenities, which are typically utilized less during the winter months. In addition, as the December 21 analysis day falls outside of the growing season, vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the PS 279 Schoolyard.

GRAND CONCOURSE GREENSTREET

This open space resource serves as a median for Grand Concourse, stretching the entire five mile length of the street from East 140th Street in the south to Mosholu Parkway in the north. Each block of the Greenstreet is predominantly paved with trees interspersed at varying intervals.

On March 21, May 6, and June 21, no incremental shadows would enter the Greenstreet before 4:01 PM, and the Greenstreet would continue to receive some direct sunlight throughout the morning and early afternoon hours (see Table 6-4). Incremental shadow coverage would generally be limited to hardly discernable portions of the Greenstreet between East Burnside Avenue and East 180th Street (see Figure 6-7) and between Elliot Place and East 171st Street (see Figure 6-22). While the Greenstreet would receive up to 1 hour and 31 minutes of incremental shadow on June 21, the affected areas are predominantly paved and feature few trees. In addition, the open space would still receive adequate sunlight during the growing season (at least the four to six hours specified in the *CEQR Technical Manual*), and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the Grand Concourse Greenstreet.

MOUNT HOPE GARDEN

Mount Hope Garden is an approximately 0.28-acre open space located on the west side of Creston Avenue between East Burnside Avenue and East 179th Street. The northern portion of the garden features a jungle-gym. The garden has many trees, shrubs, and plants throughout, as well as benches located in the center along a circular paved path.

This open space resource would experience limited incremental shadow coverage during the June 21 representative analysis day (see Table 6-4). There would be no incremental shadows cast on this open space on the other three analysis days. On June 21, incremental shadows would cover a small portion of the open space in the early morning before sunrise for approximately 6 minutes, from 5:57 to 6:03 AM (see Figure 6-7). The incremental shadow coverage would be small and hardly discernable, as the open space would still receive adequate sunlight during the growing season (at least the four to six hours specified in the *CEQR Technical Manual*), and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to cause significant adverse impacts to Mount Hope Garden.

AQUEDUCT WALK

Aqueduct walk is an approximately 4.93-acre open space located along Aqueduct Avenue stretching from West Kingsbridge Road to the north and West Tremont Avenue to the south. The walk is intersected by Morton Place, West Burnside Avenue, West 181st Street, West 183rd Street, West Fordham Road, West 190th Street, and West 192nd Street. Aqueduct Walk varies from block to block, but amenities include trees, plants, shrubs, paved recreational paths, jungle-gyms, benches, basketball courts, fitness equipment, and handball courts. Further, it should be noted that there are a significant number of mature trees located along Aqueduct Path.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 6 hours 17 minutes (from 7:36 AM to 1:53 PM) on March 21, approximately 6 hours 38 minutes (from 6:27 AM to 1:05 PM) on May 6, approximately 6 hours 57 minutes (from 5:57 AM to 12:54 PM) on June 21, and approximately 5 hours and 49 minutes (from 8:51 AM to 2:40 PM) on December 21 (see Table 6-4). Incremental shadows are concentrated on the areas of the open space closest to the West 183rd Street and West Burnside Avenue intersections.

On March 21, incremental shadows would reach large areas of the open space during the morning and early afternoon hours. The areas affected in proximity to the intersection of West 183rd Street include trees, plantings, paved recreational paths, and bench seating, while only trees would be affected in proximity to the intersection of West Burnside Avenue. By 1 PM incremental shadows would be limited to the eastern portions of the open space, allowing for direct sunlight at most amenities. No incremental shadows would enter the open space after 1:53 PM (see figures 6-3 and 6-4).

On May 6, incremental shadows would reach large areas of the open space during the morning and early afternoon hours. The areas affected in proximity to the intersection of West 183rd Street include trees, plantings, paved recreational paths, and bench seating, while only trees would be affected in proximity to the intersection of West Burnside Avenue. By 9:45 AM incremental shadows would be

limited to the eastern portions of the open space, allowing for direct sunlight at most amenities. No incremental shadows would enter the open space after 1:05 PM (see figures 6-3 and 6-4).

On June 21, incremental shadows would reach large areas of the open space during the morning and early afternoon hours. The areas affected in proximity to the intersection of West 183rd Street include trees, plantings, paved recreational paths, and bench seating, while only trees would be affected in proximity to the intersection of West Burnside Avenue. By early morning (between 9 and 10 AM), incremental shadows would be limited to the eastern portion of the open space, allowing direct sunlight at most amenities. No incremental shadows would enter the open space after 12:54 PM (see figures 6-3 and 6-4).

On December 21, incremental shadows would reach large areas of the open space during the morning and early afternoon hours. The areas affected in proximity to the intersection of West 183rd Street include trees, plantings, paved recreational paths, and bench seating, while only trees and a paved recreational path would be affected in proximity to the intersection of West Burnside Avenue. By 11 AM, incremental shadows would have shifted to the northern portions of each respective open space area (i.e. the portions of open space closest to both West 183rd Street and West Burnside Avenue). Incremental shadows would remain in the open space for a majority of the analysis day, exiting the open space at 2:40 PM (see figures 6-3 and 6-4).

Assessment

On March 21, May 6, and June 21, the Aqueduct Walk would receive sizeable incremental shadow coverage during the morning and early afternoon hours. Incremental shadows would affect both active recreational uses such as the paved recreational paths, as well as passive recreational uses such as bench seating. As shadows are not static and move from west to east throughout the day, paved recreational paths in proximity to both West 183rd Street and West Burnside Avenue as well as bench seating in proximity to West 183rd Street would continue to receive some direct sunlight on these three representative analysis days (see figures 6-3 and 6-4). In addition, incremental shadows on active recreational uses such as the recreational paths in proximity to both West 183rd Street and West Burnside Avenue during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation in proximity to both West 183rd Street and West Burnside Avenue would not be significantly affected.

On December 21, while the affected paved recreational paths and trees in proximity to both West 183rd Street and West Burnside Avenue as well as the plantings and bench seating in proximity to West 183rd Street would receive sizeable incremental shadow coverage, they would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the Aqueduct Walk.

LEAVE IT BETTER KIDS GARDEN

Leave it Better Kids Garden is an approximately 0.23-acre open space located on the northeast corner of Grand Avenue and West Tremont Avenue. The approximate southern half of the garden features raised planting beds, while the northern portion features trees, benches, and other seating areas.

This open space resource would experience incremental shadow coverage on all four representative analysis days (see Table 6-4). The Proposed Actions would result in new incremental shadow coverage during the morning hours ranging from 46 minutes on June 21 to 1 hour 53 minutes on March 21. On all days, incremental shadow coverage would generally be small and hardly discernable (see Figure 6-8). Given the limited coverage of incremental shadows, seating areas within the open space would only be temporarily affected. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and any vegetation present would not be affected. On December 21, vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the Leave It Better Kids Garden.

BRONX SCHOOL OF YOUNG LEADERS

The Bronx School of Young Leaders schoolyard is an approximately 1.09-acre open space located on West 177th Street between West Tremont Avenue and Jerome Avenue. The playground is predominantly paved and features a number of amenities including a basketball court, baseball diamond, and small running track in the center of the schoolyard, as well as handball courts and other blacktop games along the southern and western perimeter (see Figure 6-9a).

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 5 hours 44 minutes (from 7:36 AM to 1:20 PM) on March 21, approximately 6 hours 17 minutes (from 6:27 AM to 12:44 PM) on May 6, approximately 6 hours 39 minutes (from 5:57 AM to 12:36 PM) on June 21, and approximately 5 hours and 2 minutes (from 8:51 AM to 1:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would reach most areas of the open space during the morning and early afternoon hours. The areas affected include the basketball and handball courts, baseball diamond, running track, and blacktop games. From 7:36 to 8:05 AM (29 minutes) incremental shadows would result in a complete loss of sunlight at the open space. By 12 PM incremental shadows would be limited to the eastern half of the open space, allowing for direct sunlight at most amenities. No incremental shadows would enter the open space after 1:20 PM (see Figure 6-9).

On May 6, incremental shadows would reach southern and central portions of the open space during the morning and early afternoon hours. The areas affected include the basketball and handball courts, baseball diamond, running track, and blacktop games. From 6:27 to 7:27 AM (1 hour) incremental shadows would result in a complete loss of sunlight at the open space. By 9:30 AM incremental shadows would be limited to approximately half of the open space, allowing for direct sunlight at most amenities. No incremental shadows would enter the open space after 12:44 PM (see Figure 6-9).

On June 21, incremental shadows would reach southern and central portions of the open space during the morning and early afternoon hours. The areas affected include the basketball and handball courts, baseball diamond, running track, and blacktop games. From 5:57 to 7:20 AM (1 hour 23 minutes) incremental shadows would result in a complete loss of sunlight at the open space. By 9:30 AM incremental shadows would be limited to approximately half of the open space, allowing direct sunlight at most amenities. No incremental shadows would enter the open space after 12:36 PM (see Figure 6-9).

On December 21, incremental shadows would reach southern and central portions of the open space during the morning and early afternoon hours. The areas affected include the basketball and handball courts, baseball diamond, running track, and blacktop games. From 8:51 to 9:28 AM (27 minutes) incremental shadows would result in a complete loss of sunlight at the open space. By 12 PM incremental shadows would be limited to approximately half of the open space, allowing direct sunlight at most amenities. No incremental shadows would enter the open space after 1:53 PM (see Figure 6-9).

Assessment

On March 21, May 6, and June 21, the Bronx School of Young Leaders schoolyard would receive sizeable incremental shadow coverage during the morning hours when children are likely to be at recess and during the early afternoon hours when the schoolyard would be open to the general public. Incremental shadows would predominantly affect active recreational uses such as basketball and handball courts, a baseball diamond, running track, and blacktop game areas. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-9). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space.

On December 21, while the affected basketball and handball courts, baseball diamond, running track, and blacktop game areas would receive sizeable incremental shadow coverage, they would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. However, given the extended nature of incremental shadow coverage and periods of complete sunlight loss, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore it is expected that the Bronx School of Young Leaders would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

PS 306 SCHOOLYARD

PS 306 Schoolyard is an approximately 0.05-acre open space located immediately southeast of the Bronx School of Young Leaders schoolyard along West 177th Street. The schoolyard features a jungle-gym and bench seating (see Figure 6-9a).

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 5 hours 44 minutes (from 7:36 AM to 1:20 PM) on March 21, approximately 6 hours 17 minutes (from 6:27 AM to 12:44 PM) on May 6,

approximately 6 hours 39 minutes (from 5:57 AM to 12:36 PM) on June 21, and approximately 5 hours and 2 minutes (from 8:51 AM to 1:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would cover most areas of the open space during the morning and early afternoon hours. The areas affected include a jungle-gym and bench seating. From 7:36 to 11:05 AM (3 hours 29 minutes) incremental shadows would result in a complete loss of sunlight at the open space. By 12 PM incremental shadows would shift eastward and approximately one-third of the open space would receive direct sunlight. No incremental shadows would enter the open space after 1:20 PM (see Figure 6-9).

On May 6, incremental shadows would cover most areas of the open space during the morning and early afternoon hours. The areas affected include a jungle-gym and bench seating. From 6:27 to 10:33 AM (4 hours 6 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 12:44 PM (see Figure 6-9).

On June 21, incremental shadows would cover most areas of the open space during the morning and early afternoon hours. The areas affected include a jungle-gym and bench seating. From 5:57 to 10:55 AM (4 hours 58 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 12:36 PM (see Figure 6-9).

On December 21, incremental shadows would cover most areas of the open space during the morning and early afternoon hours. The areas affected include a jungle-gym and bench seating. From 8:51 to 10:24 AM (1 hour 33 minutes) incremental shadows would result in a complete loss of sunlight at the open space. By 12 PM incremental shadows would shift eastward and approximately one-third of the open space would receive direct sunlight. No incremental shadows would enter the open space after 1:53 PM (see Figure 6-9).

Assessment

On all four representative analysis days, the PS 306 schoolyard would receive sizeable incremental shadow coverage during the morning hours when children are likely to be at recess and early afternoon hours when the schoolyard would be open to the general public. Incremental shadows would affect a jungle-gym and bench seating. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight during the afternoon on these representative analysis days (see Figure 6-9). However, given the extended nature of incremental shadow coverage and periods of complete sunlight loss, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore, it is expected that the PS 306 Schoolyard would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

MOUNT HOPE PLAYGROUND

Mount Hope Playground is an approximately 0.7-acre open space located on East 177th Street between Jerome Avenue and Walton Avenue. The northern portion of the playground features two full length basketball courts and the southern portion features jungle-gyms, swing sets, benches, and trees (see Figure 6-10a).

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 3 hours 47 minutes (from 12:42 to 4:29 PM) on March 21, approximately 4 hours 59 minutes (from 12:19 to 5:18 PM) on May 6, approximately 5 hours 40 minutes (from 12:21 to 6:01 PM) on June 21, and approximately 1 hour and 57 minutes (from 12:56 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would cover most areas of the open space during the late afternoon hours. The areas affected include a jungle-gym, basketball courts, bench seating, trees, and plantings. No incremental shadows would enter the open space before 12:42 PM (see Figure 6-10).

On May 6, incremental shadows would cover most areas of the open space during the late afternoon hours. The areas affected include a jungle-gym, basketball courts, bench seating, trees, and plantings. From 5:16 to 5:18 PM (2 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space before 12:19 PM (see Figure 6-10).

On June 21, incremental shadows would cover most areas of the open space during the late afternoon hours. The areas affected include a jungle-gym, basketball courts, bench seating, trees, and plantings. From 5:31 to 6:01 PM (30 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space before 12:21 PM (see Figure 6-10).

On December 21, incremental shadows would cover large areas in the southern and western portions of the open space during the late afternoon hours. The areas affected include a jungle-gym, basketball courts, bench seating, trees, and plantings. No incremental shadows would enter the open space before 12:56 PM (see Figure 6-10).

Assessment

On all four representative analysis days, the Mount Hope Playground would receive sizeable incremental shadow coverage during the late afternoon hours. Incremental shadows would affect both active (jungle-gym, basketball courts) and passive (bench seating) amenities. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these representative analysis days (see Figure 6-10). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. Further, the open space would still receive adequate sunlight during the growing season (at least the four to six hours specified in the *CEQR Technical Manual*), and vegetation (trees, plantings) would not be affected. However, given the extended nature of incremental shadow coverage, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore, it is expected that the Mount Hope Playground would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

IS 117 SCHOOLYARD

The IS 117 Schoolyard is an approximately 0.48-acre open space with frontage on Walton Avenue to the west and East 176th Street to the south. The schoolyard is predominantly paved and features a number of amenities including basketball courts, a small running track, and other blacktop games.

This open space resource would experience incremental shadow coverage during the June 21 analysis day (see Table 6-4). There would be no incremental shadows cast on this open space resource on the other three representative analysis days. On June 21, incremental shadows would cover a small northwestern portion of the open space comprised of blacktop for approximately 20 minutes (see Figure 6-11). Given the short duration of incremental shadows, the open space would only be temporarily affected. Further, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the Proposed Actions would not result in significant adverse shadow impacts on the IS 117 Schoolyard.

PS 236 SCHOOLYARD

The PS 236 Schoolyard is an approximately 0.27-acre open space on Walton Avenue between Mt. Hope Place and East 176th Street. The central and northern portions of the schoolyard feature three jungle-gyms. To the south is a paved blacktop space. A row of trees is located in the center of the schoolyard, with shrubs and other landscaping located along the southeastern and northwestern perimeter.

This open space resource would experience incremental shadows shortly before sunset on three of the representative analysis days. Incremental shadows would last for a total of approximately 23 minutes (from 4:06 to 4:29 PM) on March 21, approximately 1 hour 11 minutes (from 4:07 to 5:18 PM) on May 6, and approximately 1 hour 45 minutes (from 4:16 to 6:01 PM) on June 21 (see Table 6-4).

On March 21, incremental shadows would reach a small southern portion of the open space (see Figure 6-11). The areas affected include paved blacktop space. No incremental shadows would enter the open space before 4:06 PM and the open space would continue to receive some direct sunlight throughout the morning and afternoon hours.

On May 6, incremental shadows would be concentrated in the northern portion of the open space (Figure 6-11). The areas affected include the northernmost jungle-gym as well as shrubs and other landscaping. No incremental shadows would enter the open space before 4:07 PM and the open space would continue to receive some direct sunlight throughout the morning and afternoon hours.

On June 21, incremental shadows would be concentrated in the northern portion of the open space (see Figure 6-11). The areas affected include the northernmost jungle-gym as well as shrubs and other landscaping. No incremental shadows would enter the open space before 4:16 PM and the open space would continue to receive some direct sunlight throughout the morning and early afternoon hours. From 5:41 to 6:01 PM (20 minutes), incremental shadows would result in a complete loss of sunlight at the open space.

Assessment

On March 21, May 6, and June 21, the PS 236 Schoolyard would receive incremental shadow coverage during the late afternoon shortly before sunset. Incremental shadows would predominantly affect the northern portion of the open space where one of three jungle-gyms is located along with shrubs and other landscaping. As shadows are not static and move from west to east throughout the day, the affected jungle-gym, shrubs and other landscaping would continue to receive some direct sunlight on these three representative analysis days. In addition, incremental shadows on active recreational uses, such as the jungle-gym, during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the PS 236 Schoolyard.

GRAHAM WINDHAM EARLY LEARNING

Graham Windham Early Learning is an approximately 0.10-acre open space located on the east side of Davidson Avenue between West 177th Street and West 176th Street. The open space features a central play area with jungle-gyms located to both the north and south, and has trees planted throughout.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 1 hour 41 minutes (from 7:36 to 9:17 AM) on March 21, approximately 1 hour 11 minutes (from 6:27 to 7:38 AM) on May 6, approximately 1 hour 10 minutes (from 5:57 to 7:07 AM) on June 21, and approximately 4 hours 3 minutes (from 8:51 to 11:07 AM and 12 to 1:47 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would reach southern and central portions of the open space during the early morning hours. The areas affected include a jungle-gym and trees. No incremental shadows would enter the open space after 9:17 AM (see Figure 6-9).

On May 6, incremental shadows would reach southern and central portions of the open space during the early morning hours. The areas affected include a jungle-gym and trees. From 6:27 to 6:47 AM (20 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 7:38 AM (see Figure 6-9).

On June 21, incremental shadows would cover most areas of the open space during the early morning hours. The areas affected include two jungle-gyms and trees. From 5:57 to 6:35 AM (38 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 7:07 AM (see Figure 6-9).

On December 21, incremental shadows would cover most areas of the open space during the morning and early afternoon hours. The areas affected include two jungle-gyms and trees. From 8:51 to 9:57 AM (1 hour 6 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space after 1:47 PM (see Figure 6-9).

Assessment

On March 21, May 6, and June 21, incremental shadows on Graham Windham Early Learning would predominantly affect active recreational uses such as jungle-gyms, as well as trees. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-9). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and any vegetation present would not be affected.

On December 21, the open space would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Graham Windham Early Learning.

1789 DAVIDSON AVENUE PLAYGROUND

1789 Davidson Avenue Playground is an approximately 0.22-acre playground located on Davidson Avenue between East 177th and East 176th streets. The playground features a number of amenities including a jungle-gym, basketball court, benches, a small lawn, and trees.

The shadows analysis determined that the duration and coverage of incremental shadows on 1789 Davidson Avenue Playground would be limited (see Table 6-4). This open space resource would experience incremental shadow coverage during the March 21 and December 21 analysis days. There would be no incremental shadows cast on this open space resource on the other two representative analysis days. On March 21, incremental shadows would cover hardly discernable portions of the playground containing trees for approximately 11 minutes during the early morning, from 7:36 to 7:47 AM (see Figure 6-9). On December 21, incremental shadows would cover a small central portion containing the jungle-gym and bench seating for approximately 1 hour and 17 minutes, from 9:46 to 11:03 AM (see Figure 6-9). The jungle-gym and seating areas within the open space would only be temporarily affected and while the affected area does include trees, the open space would still receive adequate sunlight during the growing season (at least the four to six hours specified in the *CEQR Technical Manual*), and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact 1789 Davidson Avenue Playground.

TOWNSEND GARDEN

Townsend Garden is an approximately 0.15-acre open space located on the south side of East 175th Street between Walton Avenue and Townsend Avenue. The open space functions as a community garden and is filled with trees, raised beds, and plantings throughout. The eastern portion of the garden contains a shed and the western portion features a gazebo.

This open space resource would experience incremental shadow coverage during the June 21 representative analysis day (see Table 6-4). There would be no incremental shadows cast on this open space on the other three analysis days. On June 21, incremental shadows would cover southern portions of the community garden in the late afternoon before sunset for approximately 21 minutes, from 5:40 to 6:01 PM. From 6:00 to 6:01 pm (1 minute) incremental shadows would result in a complete loss of sunlight at the open space. However, the open space would still receive adequate sunlight during the growing season (at least the four to six hours specified in the *CEQR Technical Manual*), and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to cause significant adverse impacts to Townsend Garden.

TOWNSEND WALK

Townsend Walk is an approximately 0.05-acre open space located adjacent the Cross Bronx Expressway between Townsend Avenue and Jerome Avenue. The walk is an extension of sidewalk connecting Jerome Avenue and Townsend Avenue, running along the elevated Cross Bronx Expressway. The open space features trees along the walkway.

This open space resource would experience incremental shadow coverage on the March 21, May 6, and June 21 representative analysis days (see Table 6-4). There would be no incremental shadows cast on this open space resource on the other representative analysis day. The Proposed Actions would result in new incremental shadow coverage during the morning hours ranging from 1 hour 5 minutes on March 21 to 3 hours 51 minutes on June 21. From 6:27 to 6:56 AM (29 minutes) on May 6 and from 6:15 to 6:27 AM (12 minutes) on June 21, incremental shadows would result in a complete loss of sunlight at the open space. However, on all days, incremental shadow coverage would generally be small and hardly discernable (see Figure 6-13). Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and any vegetation present would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the Townsend Walk.

INWOOD PARK

Inwood Park is an approximately 0.36-acre open space located on West Mount Eden Avenue between Jerome Avenue and Inwood Avenue. The park is comprised of paved blacktop with trees and benches located along the perimeter (see Figure 6-14a).

This open space resource would experience incremental shadow coverage on all four representative analysis days, with incremental shadow duration ranging from approximately 6 hours and 2 minutes on

December 21 to 12 hours and 4 minutes on June 21 (see Figure 6-14). While the park would receive sizeable incremental shadow coverage, shadows are not static and would move from west to east throughout the day, allowing the affected benches and trees to continue to receive some direct sunlight on all representative analysis days (see Figure 6-14). In addition, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and any vegetation present would not be affected.

On December 21, trees and vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. In addition, some benches would receive direct sunlight throughout the afternoon, an important period of the day for users of this resource during the winter timeframe. Bench seating would also be available nearby at Jerome Playground South, which is located approximately one block to the east of Inwood Park. However, given the extended nature of incremental shadow coverage, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore, it is expected that Inwood Park would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

JEROME PLAYGROUND SOUTH

Jerome Playground South is an approximately 0.29-acre open space located on Jerome Avenue between the Cross Bronx Expressway and East 174th Street. The open space is divided in half by a concrete wall that is used for handball and also features benches.

This open space resource would experience incremental shadow coverage during the late afternoon shortly before sunset on the March 21, May 6, and December 21 representative analysis days. Incremental shadow duration would range from approximately 1 hour and 5 minutes on March 21 to 2 hours and 30 minutes on December 21 (see Figure 6-14). As shadows are not static and move from west to east throughout the day, the handball courts and benches would continue to receive some direct sunlight on these three representative analysis days. In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Jerome Playground South.

PS 170 SCHOOLYARD

PS 170 Schoolyard is an approximately 0.08 open space located on Townsend Avenue between E 174th Street and E Mt. Eden Avenue. The schoolyard features a jungle-gym and green space.

This open space resource would experience incremental shadow coverage during the late afternoon shortly before sunset on the March 21 representative analysis day. On this analysis day, the incremental shadow would enter the open space from 4:05 to 4:29 PM for a duration of 24 minutes (see Figure 6-15). From 4:10 to 4:29 PM (19 minutes) incremental shadows would result in a complete loss of sunlight at the open space. However, as shadows are not static and move from west to east throughout the day, the jungle-gym and green space would continue to receive some direct sunlight on these three representative analysis days. In addition, incremental shadows on active recreational uses during the

months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the PS 170 Schoolyard.

MOUNT EDEN MALLS

This open space resource serves as a median for East Mount Eden Avenue (located between Walton Avenue and Grand Concourse) and the Mount Eden Parkway (located between Grand Concourse and Weeks Avenue). The mall features a number of trees and shrubs as well as bench seating.

The shadows analysis determined that the duration and coverage of incremental shadows on Mount Eden Malls would be limited. Incremental shadow coverage would only enter the open space on the June 21 representative analysis day for 13 minutes on a small section on the westernmost portion of the mall (see Table 6-4). The incremental shadow would reach the open space between 5:48 and 6:01 PM on June 21, which would only temporarily affect a limited number of trees and shrubs found in that portion of the mall (see Figure 6-15). Further, the open space would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the Mount Eden Malls.

GOBLE PLAYGROUND

Goble Playground is an approximately 0.38-acre open space located on the south side of Goble Place between Inwood Avenue and Macombs Road. The central portion of the playground features a basketball court, swing set, and jungle-gym. The eastern portion of the playground features two handball courts with a shared concrete wall. Other amenities include bench seating, shrubs, and trees (see Figure 6-16a).

The Proposed Actions would result in new incremental shadows of varying duration and coverage on all four representative analysis days at Goble Playground. Incremental shadows would last for a total of approximately 7 hours 49 minutes (from 7:36 to 7:46 AM and 8:50 AM to 4:29 PM) on March 21, approximately 8 hours 3 minutes (from 6:27 to 7:53 AM and 9:41 AM to 5:18 PM) on May 6, approximately 9 hours 56 minutes (from 5:57 to 8:07 AM and 10:15 AM to 6:01 PM) on June 21, and approximately 6 hours 2 minutes (from 8:51 AM to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadow coverage would vary throughout the day. Shortly after sunrise, incremental shadows would be limited to a small northern portion of the playground. By 9 AM, incremental shadows would re-enter from the southern edge of the open space, gradually shifting north and eastward. By 1 PM, incremental shadows would cover the majority of the playground including the basketball court, jungle-gym, and handball courts, as well as some bench seating areas, shrubs, and trees. Shadows would shift eastward throughout the afternoon and coverage would continue until the end of the analysis day at 4:29 PM (see Figure 6-16).

On May 6, incremental shadow coverage would vary throughout the day. Shortly after sunrise, incremental shadows would be limited to central and northern portions of the playground, affecting portions of the basketball and handball courts, benches, shrubs, and trees. By 10 AM, incremental

shadows would re-enter from the southern edge of the open space, gradually shifting north and eastward. By 1:30 PM, incremental shadows would cover portions of the basketball and handball courts, jungle-gym, bench seating areas, shrubs, and trees. Shadows would shift eastward throughout the afternoon and coverage would continue until the end of the analysis day at 5:18 PM (see Figure 6-16).

On June 21, incremental shadow coverage would vary throughout the day. Shortly after sunrise, incremental shadows would be limited to the northeastern corner of the playground, affecting portions of the basketball and handball courts, benches, shrubs, and trees. Shortly after 10 AM, incremental shadows would re-enter from the southern edge of the open space, gradually shifting north and eastward. By 2 PM, incremental shadows would reach central areas of the open space including portions of the basketball and handball courts, jungle-gym, bench seating areas, shrubs, and trees. Shadows would shift eastward throughout the afternoon and coverage would continue until the end of the analysis day at 6:01 PM (see Figure 6-16).

On December 21, incremental shadows would reach most areas of the playground. By 9:30 AM, incremental shadows would cover most areas of the playground, affecting portions of the basketball and handball courts, jungle-gym, swing set, benches, shrubs, and trees. By 1:30 PM, incremental shadows would shift eastward but all amenities would remain affected by incremental shadow coverage. Shadows would shift eastward throughout the afternoon and coverage would continue until the end of the analysis day at 2:53 PM (see Figure 6-16).

Assessment

On March 21, May 6, and June 21 incremental shadows would generally be limited to portions of the open space that feature active recreational uses such as basketball and handball courts, a jungle-gym, and swings. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-16). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected.

On December 21, while the playground would receive sizeable incremental shadow coverage, affected amenities would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, bench seating areas would only be temporarily affected by incremental shadows, and a number of benches would receive direct sunlight throughout the afternoon, an important period of the day for users of this resource during the winter timeframe. Further, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. However, given the extended nature of incremental shadow coverage and periods of complete sunlight loss, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore, it is expected that Goble Playground would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

PS 199 SCHOOLYARD

PS 199 Schoolyard is an approximately 0.85-acre open space located on the south side of West 172nd Street between Nelson Avenue and Shakespeare Avenue. The southern portion of the schoolyard features a baseball court, basketball court, multi-purpose court, and running track. The northern and central portion of the schoolyard feature blacktop games.

This open space resource would experience limited incremental shadow coverage during the late afternoons shortly before sunset on the June 21 and December 21 representative analysis days; the open space resource would not experience any incremental shadow coverage on the March 21 and May 6 representative analysis days. Incremental shadow duration would range from approximately 5 minutes on June 21 to 23 minutes on December 21 (see Table 6-4). The limited incremental shadows would cover small portions of the open space on the easternmost sections of the schoolyard which mostly feature blacktop recreational activities such as hopscotch. On June 21, no incremental shadow would enter the open space before 5:56 PM, while on December 21 no incremental shadow would enter before 2:31 PM (see Figure 6-17). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the PS 199 Schoolyard.

PLIMPTON PLAYGROUND

Plimpton Playground is an approximately 1.0-acre open space located on Plimpton Avenue between West 172nd Street and Edward L Grant Highway. The playground includes two jungle-gyms, swings, and slides. Throughout the playground, there are trees and benches.

This open space resource would experience incremental shadows of varying duration and coverage on all four representative analysis days. Incremental shadows would last for a total of approximately 2 hours and 5 minutes (from 2:24 to 4:29 PM) on March 21, approximately 2 hours and 24 minutes (from 2:54 to 5:18 PM) on May 6, approximately 2 hours and 2 minutes (from 3:59 to 6:01 PM) on June 21, and approximately 1 hour and 18 minutes (from 1:35 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, shadow coverage would reach northern, southern, and western portions of the open space during the late afternoon hours. At 3 PM incremental shadows would cover southern portions of the open space, which include jungle-gyms, trees, and benches. By 4 PM incremental shadows would reach western and northern portions of the open space, which include jungle-gyms, trees, and benches. No incremental shadow would enter the open space before 2:24 PM (see Figure 6-17).

On May 6, incremental shadows would be limited to southern and central portions of the open space during the late afternoon. By 3:30 PM, incremental shadows would reach a small section of the southernmost portion of the open space, which includes a small section of grass and trees. By 4:30 PM, a larger incremental shadow would enter the open space, covering the central portion of the playground, which includes playground equipment, trees, and benches. No incremental shadow would enter the open space before 2:54 PM (see Figure 6-17).

On June 21, incremental shadows would be limited to western portions of the open space during the late afternoon before sunset. By 5 PM incremental shadows would reach a small central portion of the open space that include jungle-gyms, trees, and benches. No incremental shadow would enter the open space before 3:59 PM (see Figure 6-17).

On December 21, incremental shadows would reach central and northern portions of the open space during the late afternoon before sunset. By 2:45 PM incremental shadows would cover a large portion of the central northeastern portion of the open space that include jungle-gyms, trees, and benches. No incremental shadows would enter the open space before 1:35 PM (see Figure 6-17).

Assessment

On March 21, May 6, and June 21 incremental shadows would generally be limited to paved portions of the open space that feature active recreational uses such as playground equipment, but would also include some benches and trees. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-17). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected.

On December 21, the jungle-gyms would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Plimpton Playground.

BRIDGE PLAYGROUND

Bridge Playground is an approximately 0.61-acre open space located on Boscobel Place between Dr. Martin Luther King Jr. Boulevard and Undercliff Avenue. The central and eastern areas of the open space feature basketball courts. The western portion of the open space features paved walking paths, small lawns, and trees.

This open space resource would experience incremental shadows of varying duration and coverage on all four representative analysis days. Incremental shadows would last for a total of approximately 3 hours and 7 minutes (from 7:36 to 10:43 AM) on March 21, approximately 2 hours and 55 minutes (from 6:27 to 9:22 AM) on May 6, approximately 2 hours and 35 minutes (from 6:02 to 8:37 AM) on June 21, and approximately 2 hours and 1 minute (from 8:51 to 10:52 AM) on December 21 (see Table 6-4).

On March 21, shadow coverage would reach western, central, and eastern portions of the open space during the early morning hours. At 8 AM incremental shadows would cover western and central portions

of the open space, which include lawns, trees, pathways, and basketball courts. By 9:30 AM incremental shadows would cover central and eastern areas of the open space including portions of the basketball courts. All incremental shadows would exit the open space by 10:43 AM (see Figure 6-18).

On May 6, incremental shadows would be limited to southern and central portions of the open space during the early morning. By 8:30 AM incremental shadows would reach central portions of the open space that include the basketball courts. No incremental shadows would enter the open space after 9:22 AM (see Figure 6-18).

On June 21, incremental shadows would be limited to small southern and western portions of the open space during the early morning. By 8:37 AM incremental shadows would reach a small central portion of the open space that includes the basketball courts. No incremental shadows would enter the open space after 8:37 AM (see Figure 6-18).

On December 21, shadow coverage would generally be limited to eastern portions of the open space during the early morning that include trees. Throughout the morning, incremental shadows would move eastward and by 10:52 AM all incremental shadows would exit the open space (see Figure 6-18).

Assessment

On March 21, May 6, and June 21 incremental shadows would generally be limited to paved portions of the open space that feature active recreational uses such as basketball courts, but would also include some lawns and trees. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-18). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected.

On December 21, the basketball courts would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Bridge Playground.

OGDEN PLIMPTON PLAYGROUND

Ogden Plimpton Playground is an approximately 0.23-acre open space fronting the west side of Plimpton Avenue between West 170th Street and Edward L Grant Highway. The southern portion of the playground features a basketball court. The northern portion of the playground features a jungle-gym and a pavilion. Trees and benches are located on the northern portion of the site.

This open space resource would experience limited incremental shadow coverage during the early morning hours shortly after sunrise on the May 6, June 21, and December 21 representative analysis days; the open space resource would not experience any incremental shadow coverage on the March 21 representative analysis day. Incremental shadow duration would range from approximately 20 minutes on December 21 to 2 hours and 13 minutes on June 21 (see Figure 6-19). On June 21 from 5:57 to 6:33 AM (36 minutes) and on December 21 from 8:51 to 8:57 AM (6 minutes) incremental shadows would result in a complete loss of sunlight at the open space. As shadows are not static and move from west to east throughout the day, the basketball courts, jungle-gyms, trees, and benches would continue to receive some direct sunlight on these three representative analysis days. In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Ogden Plimpton Playground.

EDWARD L GRANT GREENSTREET

This open space resource serves as a median for Edward L Grant Highway, stretching the entire length of the street from University Avenue in the north to Jerome Avenue in the south. Each block of the Greenstreet is predominantly paved with trees interspersed at varying intervals (see Figures 6-17a, 6-19a, 6-20a, 6-25a, and 6-26a).

This Greenstreet would experience incremental shadow coverage on all four representative analysis days ranging from 6 hours 2 minutes on December 21 to 9 hours 46 minutes on June 21 (see Table 6-4). While incremental shadows would last up to 9 hours 46 minutes, the areas affected by incremental shadows are predominantly paved and feature few trees. As shadows are not static and move from west to east throughout the day, the Greenstreet would continue to receive some direct sunlight on all representative analysis days (see figures 6-17, 6-19, 6-20, 6-25, 6-26). However, some areas of the Edward L Grant Greenstreet could be significantly impacted and the Greenstreet may no longer be able to support a variety of plant life, as compared to the No-Action condition. Therefore, Edward L. Grant Greenstreet would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

WEST 170TH STREET GREENSTREET

West 170th Street Greenstreet is a 0.03-acre open space located at the intersection of West 170th Street and Edward L Grant Highway. The open space resource functions as a paved crosswalk with planted shrubs.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 4 hours 46 minutes (from 7:36 AM to 12:22 PM) on March 21, approximately 5 hours 23 minutes (from 6:27 to 11:50 AM) on May 6, approximately 5 hours 51 minutes (from 5:57 to 11:48 AM) on June 21, and approximately 3 hours and 39 minutes (from 8:51 AM to 12:30 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would cover most areas of the open space during the morning hours. The areas affected include plantings. No incremental shadows would enter the open space after

12:22 PM (see Figure 6-20). From 7:36 to 11:16 AM (3 hours 40 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

On May 6, incremental shadows would cover most areas of the open space during the morning hours. The areas affected include plantings. No incremental shadows would enter the open space after 11:50 AM (see Figure 6-20). From 6:27 to 10:41 AM (4 hours 14 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

On June 21, incremental shadows would cover most areas of the open space during the morning hours. The areas affected include plantings. No incremental shadows would enter the open space after 11:48 AM (see Figure 6-20). From 5:57 to 10:45 AM (4 hours 48 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

On December 21, incremental shadows would cover most areas of the open space during the morning hours. The areas affected include plantings. No incremental shadows would enter the open space after 12:30 PM (see Figure 6-20). From 8:51 to 11:27 AM (2 hours 36 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

Assessment

On the March 21, May 6, and June 21 representative analysis days, the West 170th Street Greenstreet would not receive any incremental shadow coverage after 12:22 PM. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these representative analysis days (see Figure 6-20). The Greenstreet would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. On December 21, which falls outside the plant growing season defined by the *CEQR Technical Manual*, vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the West 170th Street Greenstreet.

KELTCH PARK

Keltch Park is an approximately 0.29-acre open space bounded by Jerome Avenue to the east, Plaza Drive to the west, Macombs Road to the north, and Elliot Place to the south. The open space is divided into northern and southern portions by West 170th Street. Both sections of the park feature trees, shrubs, and benches. The northern section of the park includes a fast-food restaurant (see Figure 6-21a).

This open space resource would experience incremental shadows of varying duration and coverage on all four representative analysis days. Incremental shadows would last for a total of approximately 5 hours 53 minutes (from 7:36 to 11:15 AM, and from 2:15 to 4:29 PM) on March 21, approximately 7 hours 7 minutes (from 6:27 to 10:24 AM, and from 2:08 to 5:18 PM) on May 6, approximately 7 hours 55 minutes (from 5:57 to 10:05 AM, and from 2:14 to 6:01 PM) on June 21, and approximately 4 hours 51 minutes (from 8:51 AM to 12:31 PM, and from 1:42 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would cover large areas of the space during the morning and late afternoon hours, where the northern section of the park would be the most affected. No incremental shadows would enter the open space between 11:15 AM and 2:15 PM (see Figure 6-21). The areas

affected include plantings, trees, and benches. From 3:59 to 4:29 PM (30 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

On May 6, incremental shadows would cover most areas of the open space during the morning and late afternoon hours. No incremental shadows would enter the open space between 10:24 AM and 2:08 PM (see Figure 6-21). The areas affected include plantings, trees, and benches.

On June 21, incremental shadows would cover most areas of the open space during the morning and late afternoon hours. No incremental shadows would enter the open space between 10:05 AM and 2:14 PM (see Figure 6-21). The areas affected include plantings, trees, and benches. From 5:57 to 6:48 AM (51 minutes) and from 5:56 to 6:01 PM (5 minutes) incremental shadows would result in a complete loss of sunlight at the open space for a total of 56 minutes.

On December 21, incremental shadows would be limited to the northern portion of the open space during the morning hours. No incremental shadows would enter the open space between 12:31 and 1:42 PM (see Figure 6-21). The areas affected include plantings, trees, and benches.

Assessment

On the March 21, May 6, and June 21 representative analysis days, incremental shadows would be concentrated in the morning and afternoon hours. As shadows are not static and move from west to east throughout the day, the park's amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-21). Between 11:15 AM and 2:08 PM, the park would not receive any incremental shadow coverage and would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*). On December 21, which falls outside the plant growing season defined by the *CEQR Technical Manual*, vegetation would not be affected. However, given the extended nature of incremental shadow coverage, incremental shadows may have the potential to affect the public's enjoyment of this resource, and therefore, it is expected that Keltch Park would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

PS 64 SCHOOLYARD

The PS 64 Schoolyard is an approximately 0.68-acre paved open space bounded by Walton Avenue, Townsend Avenue, East 170th Street, and East 171st Street. The southern portion of the schoolyard features a small synthetic turf and small running track along the Townsend Avenue frontage and a jungle-gym and picnic tables on the Walton Avenue frontage. Basketball courts are located to the north of the synthetic turf. The northeast corner of the open space contains a swing set and blacktop games. Benches and trees are found in multiple locations throughout the open space.

The Proposed Actions would result in new incremental shadows of varying duration and coverage on all four representative analysis days at PS 64 Schoolyard. Incremental shadows would last for a total of approximately 4 hours 40 minutes (from 8:37 to 11:47 AM and 2:59 to 4:29 PM) on March 21, approximately 3 hours 2 minutes (from 9:27 to 10:43 AM and 3:31 to 5:18 PM) on May 6, approximately 2 hours 19 minutes (from 3:42 to 6:01 PM) on June 21, and approximately 6 hours 2 minutes (8:51 AM to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadow coverage would vary throughout the day. At 9 AM, incremental shadows would be limited to a narrow strip along the southern portion of the open space where the synthetic turf, running track, and jungle-gym are located. By 4 PM, incremental shadows would re-enter from the western edge of the open space, reaching portions of the synthetic turf, running track, and basketball courts. Shadows would gradually shift eastward until the end of the analysis day at 4:29 PM (see Figure 6-21).

On May 6, incremental shadow coverage would vary throughout the day. At 9:45 AM, incremental shadows would be limited to a small area along the southeastern edge of the open space occupied by picnic tables. By 4:30 PM, incremental shadows would re-enter from the southwestern corner of the open space, reaching portions of the synthetic turf, running track, and basketball courts. Shadows would gradually shift eastward until the end of the analysis day at 5:18 PM (see Figure 6-21).

On June 21, incremental shadow coverage would be limited western, southern, and central portions of the schoolyard during the afternoon hours. No incremental shadows would enter the schoolyard before 3:42 PM and the open space would continue to receive direct sunlight throughout the morning hours (see Figure 6-21). By 4 PM, incremental shadows would reach portions of the synthetic turf, running track, basketball courts, and jungle-gym. Shadows would shift eastward throughout the afternoon and coverage would continue until the end of the analysis day at 6:01 PM.

On December 21, incremental shadow coverage would vary throughout the day. At 9:30 AM, incremental shadows would generally be limited to a triangular area along the Walton Avenue frontage that includes picnic tables. By 1:30 PM, incremental shadows would enter the schoolyard from the west, reaching portions of the basketball courts (see Figure 6-21).

Assessment

On March 21, May 6, and June 21 incremental shadows would generally be limited to portions of the open space that feature active recreational uses such as the synthetic turf, running track, basketball courts, and jungle-gym. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-21). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected.

On December 21, affected amenities would continue to receive some direct sunlight as shadows move from west to east throughout the day. Incremental shadow coverage on December 21, when temperatures would be colder and the use of the active recreational space would not be as high (compared to warmer months), would not affect the utilization or enjoyment of this open space resource. In addition, bench seating areas would only be temporarily affected by incremental shadows, and some benches would receive direct sunlight throughout the afternoon, an important period of the day for users of this resource during the winter timeframe. Further, any vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing

season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the PS 64 Schoolyard.

EAST 170TH STREET GREENSTREET

The East 170th Street Greenstreet is an approximately 0.12-acre open space located on the roadway of E 170th Street between Grand Concourse and Wythe Place. The Greenstreet features brick walkways, plantings, and trees.

This open space resource would experience incremental shadows of varying duration and coverage on all four representative analysis days. Incremental shadows would last for a total of approximately 3 hours 4 minutes (from 1:25 to 4:29 PM) on March 21, approximately 4 hours 27 minutes (from 12:51 to 5:18 PM) on May 6, approximately 5 hours 14 minutes (from 12:47 to 6:01 PM) on June 21, and approximately 53 minutes (from 2:00 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would reach western and central areas of the open space during the afternoon hours. No incremental shadows would enter the open space before 1:25 PM (see Figure 6-22). The areas affected include plantings and trees.

On May 6, incremental shadows would cover most areas of the open space during the afternoon hours. No incremental shadows would enter the open space before 12:51 PM (see Figure 6-22). The areas affected include plantings and trees. From 3:41 to 5:18 PM (1 hour 37 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

On June 21, incremental shadows would cover most areas of the open space during the afternoon hours. No incremental shadows would enter the open space before 12:47 PM (see Figure 6-22). The areas affected include plantings and trees.

On December 21, incremental shadows would be limited to a western portion of the open space during the afternoon hours. No incremental shadows would enter the open space before 2 PM (see Figure 6-22). The areas affected include plantings and trees. From 2:40 to 2:53 PM (13 minutes) incremental shadows would result in a complete loss of sunlight at the open space.

Assessment

On the March 21, May 6, and June 21 representative analysis days, the Greenstreet would not receive any incremental shadow coverage before 12:47 PM. The Greenstreet would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. On December 21, which falls outside the plant growing season defined by the *CEQR Technical Manual*, vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the East 170th Street Greenstreet.

JEROME AVENUE/GERARD AVENUE GREENSTREET

The Jerome Avenue/Gerard Avenue Greenstreet is an approximately 0.10-acre plaza at the intersection of Jerome and Gerard avenues that features a monument with landscaping and trees.

The shadows analysis determined that the duration and coverage of incremental shadows on the Jerome Avenue/Gerard Avenue Greenstreet would be limited. Incremental shadow coverage would range from approximately 10 minutes on June 21 to 38 minutes on March 21 (see Figure 6-23). While incremental shadows would result in the complete loss of sunlight from 4:16 to 4:29 PM (13 minutes) on March 21 and from 2:48 to 2:53 PM (5 minutes) on December 21, given the limited duration of incremental shadow coverage, the Greenstreet would only be temporarily affected. Further, the Greenstreet would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. On December 21, which falls outside the plant growing season defined by the *CEQR Technical Manual*, vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the Jerome Avenue/Gerard Avenue Greenstreet.

PS/IS 218 SCHOOLYARD

PS/IS 218 Schoolyard is an approximately 0.45-acre open space between Walton Avenue to the east, Gerard Avenue to the west, East 168th Street to the north, and East 167th street to the south. The schoolyard includes a paved parking lot, a playground, landscaping, a basketball court, a tennis court, and a track.

The shadow analysis determined that the duration and coverage of incremental shadows on the PS/IS 218 Schoolyard would be limited. Incremental shadow coverage would range from approximately 35 minutes on May 6 to 56 minutes on June 21 (see Figure 6-24). There were no incremental shadows recorded for the representative analysis day December 21. While incremental shadows would result in the complete loss of sunlight from 5:06 to 5:18 pm (12 minutes) on May 6 and from 5:38 to 6:01 (23 minutes) on June 21, given the limited duration of incremental shadow coverage, the schoolyard would only be temporarily affected. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these three representative analysis days (see Figure 6-24). In addition, incremental shadows on active recreational uses during the months surrounding the summer solstice when temperatures are warmer would not significantly affect the usability of the open space. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of the PS/IS 218 Schoolyard.

MARTIN LUTHER KING TRIANGLE

Martin Luther King Triangle is an approximately 0.11-acre open space bounded by West 168th Street, Woodycrest Avenue, and Shakespeare Avenue. The triangle is a paved plaza featuring trees and benches.

This open space resource would experience incremental shadow coverage on all four representative analysis days. The Proposed Actions would result in new incremental shadow coverage during the morning hours ranging from approximately 42 minutes on May 6 to 1 hour 52 minutes on December 21 (see Figure 6-25). On all days, incremental shadow coverage would generally be limited to small portions of the open space. Given the limited coverage of incremental shadows, seating areas within the open would only be temporarily affected. Further, the open space would continue to receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. On December 21, vegetation would not be affected by incremental shadows, as the December 21 analysis day falls outside the plant growing season defined by the *CEQR Technical Manual*. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the usability of Martin Luther King Triangle.

JEROME AVENUE/EDWARD L GRANT HIGHWAY GREENSTREET

Jerome / Grant Greenstreet is an approximately 0.04-acre open space located at the intersection of Jerome Avenue and Edward L Grant Highway. The open area is a paved space with shrubs.

This open space resource would experience incremental shadows on all four representative analysis days. Incremental shadows would last for a total of approximately 7 hours 18 minutes (from 7:36 AM to 12:34 PM, and from 2:09 to 4:29 PM) on March 21, approximately 8 hours 36 minutes (from 6:27 to 11:52 AM, and from 2:07 to 5:18 PM) on May 6, approximately 9 hours 1 minute (from 5:57 to 11:20 AM) on June 21, and approximately 4 hours and 5 minutes (from 8:51 AM to 12:49 PM, and from 2:46 to 2:53 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would cover most areas of the open space during the morning and late afternoon hours. The areas affected include plantings. From 7:36 to 7:46 AM (10 minutes), from 9:11 to 11:15 AM (2 hours 4 minutes), and from 3:02 to 4:29 PM (1 hour 27 minutes) incremental shadows would result in a complete loss of sunlight at the open space for a total of 3 hours 41 minutes. No incremental shadows would enter the open space between 12:34 and 2:09 PM, where the open space would receive direct sunlight for that duration (see Figure 6-26).

On May 6, incremental shadows would cover most areas of the open space during the morning and late afternoon hours. The areas affected include plantings. From 6:27 to 8:42 AM (2 hours 15 minutes), from 9:54 – 10:45 AM (51 minutes), and from 2:52 to 5:18 PM (2 hours 26 minutes) incremental shadows

would result in a complete loss of sunlight at the open space for a total of 5 hours 32 minutes. No incremental shadows would enter the open space between 11:52 AM and 2:07 PM, where the open space would receive direct sunlight for that duration (see Figure 6-26).

On June 21, incremental shadows would cover most areas of the open space during the morning and late afternoon hours. The areas affected include plantings. From 5:57 to 9:00 AM (3 hours 3 minutes) and from 3:12 to 6:01 PM (2 hours 49 minutes) incremental shadows would result in a complete loss of sunlight at the open space for a total of 5 hours 52 minutes. No incremental shadows would enter the open space between 11:20 AM and 2:23 PM, where the open space would receive direct sunlight for that duration (see Figure 6-26).

On December 21, incremental shadows would cover most areas of the open space during the morning and afternoon hours. The areas affected include plantings. From 8:51 to 11:45 AM (2 hours 54 minutes) incremental shadows would result in a complete loss of sunlight at the open space. No incremental shadows would enter the open space between 12:49 and 2:46 PM (see Figure 6-26).

Assessment

On all four representative analysis days, the Jerome/Grant Greenstreet would receive sizeable incremental shadow coverage during the morning and late afternoon hours. Incremental shadows would primarily affect plantings found within the open space. As shadows are not static and move from west to east throughout the day, these amenities would continue to receive some direct sunlight on these representative analysis days (see Figure 6-26). Though the open space would continue to receive uninterrupted direct sunlight throughout portions of the afternoon, it may not receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and as a result, this open space resource may no longer be able to support a variety of plant life, as compared to the No-Action condition. Therefore, it is expected that Jerome Avenue/ Edward L. Grant Highway Greenstreet would experience a significant adverse shadow impact due to development resulting from the Proposed Actions.

JEROME AVENUE/SHAKESPEARE AVENUE GREENSTREET

The Jerome Avenue/Shakespeare Avenue Greenstreet is an approximately 0.06-acre median at the intersection of Jerome and Shakespeare avenues that features shrubs and trees.

The shadows analysis determined that the duration and coverage of incremental shadows on the Jerome Avenue/Shakespeare Avenue Greenstreet would be limited. Incremental shadow coverage would range from approximately 26 minutes on March 21 to 57 minutes on June 21 (see Figure 6-26). While incremental shadows would result in the complete loss of sunlight from 8:11 to 8:28 AM (17 minutes) on March 21 and 6:27 to 7:05 AM (38 minutes) on May 6, given the limited duration of incremental shadow coverage, the Greenstreet would only be temporarily affected. Further, the Greenstreet would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact the Jerome Avenue/Shakespeare Avenue Greenstreet.

MULLALY PARK

Mullaly Park is a 15.08-acre open space roughly bounded by Jerome Avenue, River Avenue, East 164th Street, and McClellan Street. The open space resource functions as a park with dog friendly areas, bathrooms, and jungle-gyms. The northern portion of the park, bisected by East 165th Street, features jungle-gyms, baseball fields, a soccer field, and a multi-purpose recreational court. The southern portion of the park features a recreational area, additional jungle-gyms, an outdoor swimming pool, a skate park, and handball courts. Bench seating and trees are located throughout the park.

Portions of Mullaly Park would experience incremental shadows of varying duration and coverage on all four representative analysis days. Incremental shadows would last for a total of approximately 4 hours 19 minutes (from 7:36 to 11:55 AM) on March 21, approximately 4 hours 36 minutes (from 6:27 to 11:03 AM) on May 6, approximately 4 hours 51 minutes (from 5:57 to 10:48 AM) on June 21, and approximately 3 hours 54 minutes (from 8:51 AM to 12:45 PM) on December 21 (see Table 6-4).

On March 21, incremental shadows would stretch further west in the section of the park north of East 165th Street during the morning hours. No incremental shadows would enter the open space after 11:55 AM (see Figure 6-27). The areas affected include ball fields, jungle-gyms, plantings, and trees.

On May 6, incremental shadows would cover large areas of open space during the morning hours. No incremental shadows would enter the open space after 11:03 AM (see Figure 6-27). The areas affected include ball fields, jungle-gyms, plantings, and trees.

On June 21, incremental shadows would cover large areas in the northernmost and central portions of the open space during the morning hours. No incremental shadows would enter the open space after 10:48 AM (see Figure 6-27). The areas affected include ball fields, jungle-gyms, plantings, and trees.

On December 21, incremental shadows would be limited to the northern portion of the open space during the morning hours. No incremental shadows would enter the open space after 12:45 PM (see Figure 6-27). The areas affected include ball fields, jungle-gyms, plantings, and trees.

Assessment

On the March 21, May 6, and June 21 representative analysis days, Mullaly Park would not receive any incremental shadow coverage after 11:55 AM. The park would receive adequate sunlight during the growing season (at least the four to six hour minimum specified in the *CEQR Technical Manual*) and vegetation would not be affected. On December 21, which falls outside the plant growing season defined by the *CEQR Technical Manual*, vegetation would not be affected. Further, at no point during any of the representative analysis days would an incremental shadow result in a complete loss of sunlight on the open space. As shadows are not static and move from west to east throughout the morning, the park's amenities would continue to receive adequate sunlight during the growing season. Therefore, the incremental shadows that could result from the Proposed Actions are not anticipated to adversely impact Mullaly Park.

PS 33 Schoolyard

2:50 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-2

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

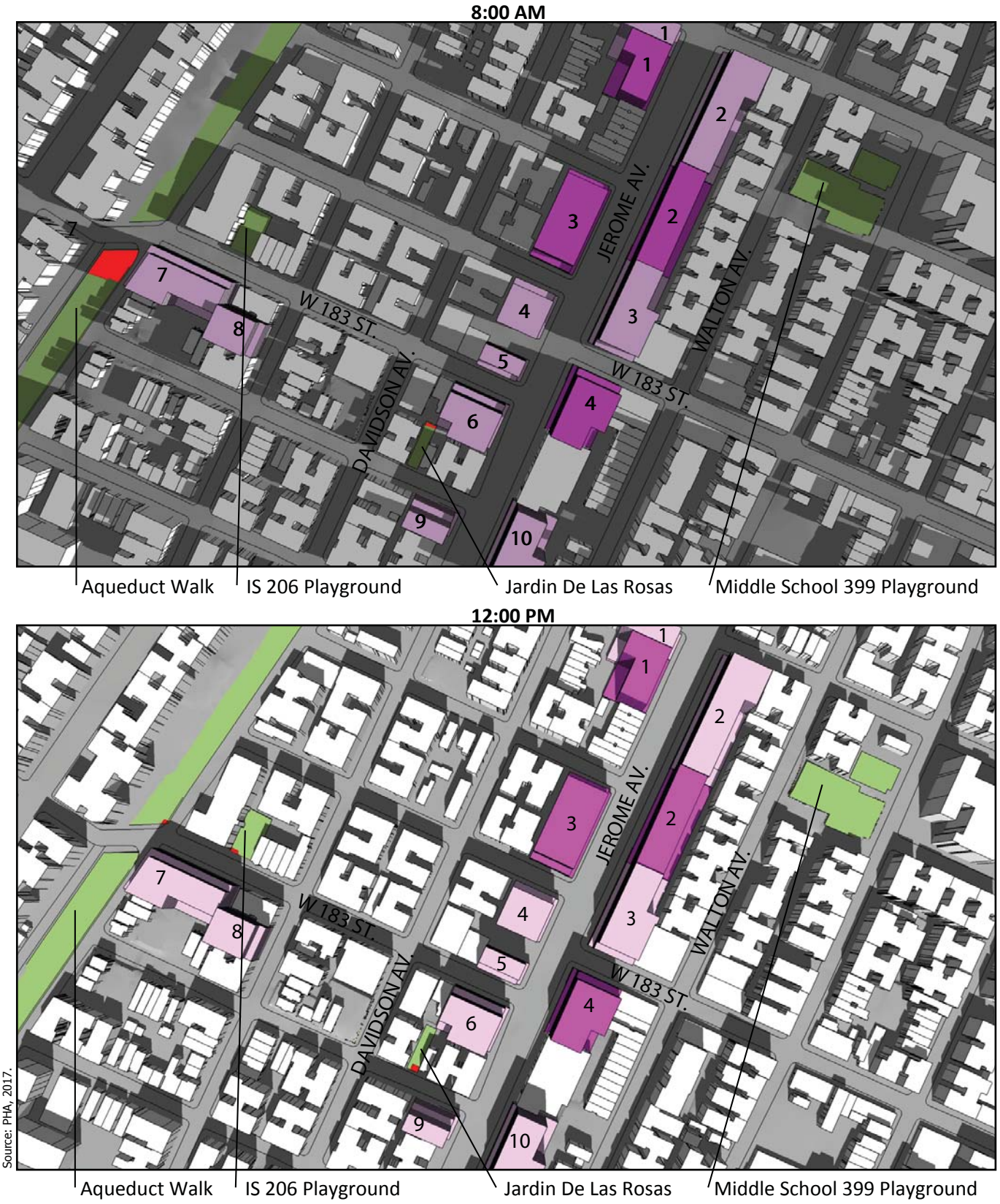


Figure 6-3

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

4:29 PM

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-3

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

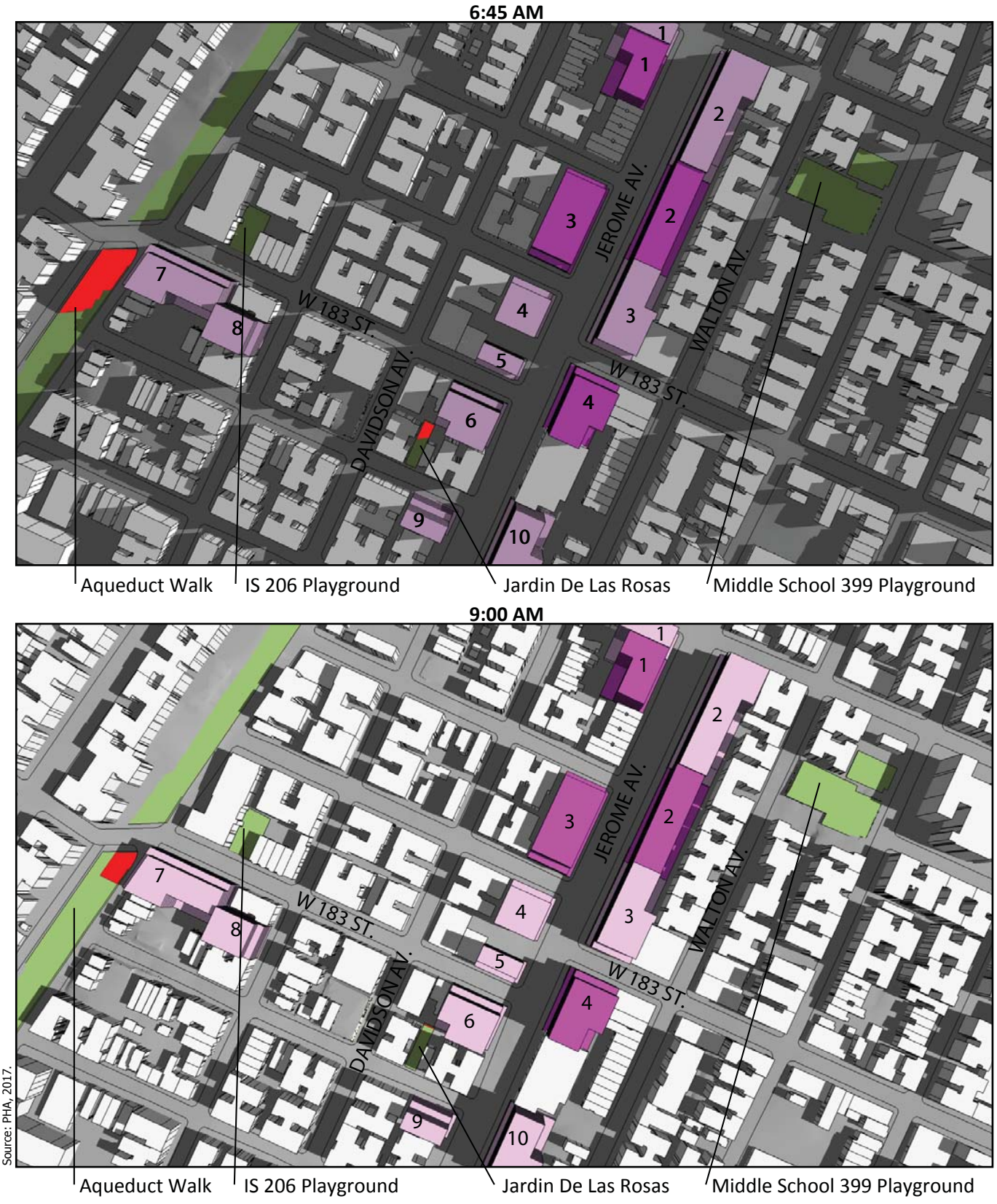


Figure 6-3

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

3:00 PM

5:15 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-3

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

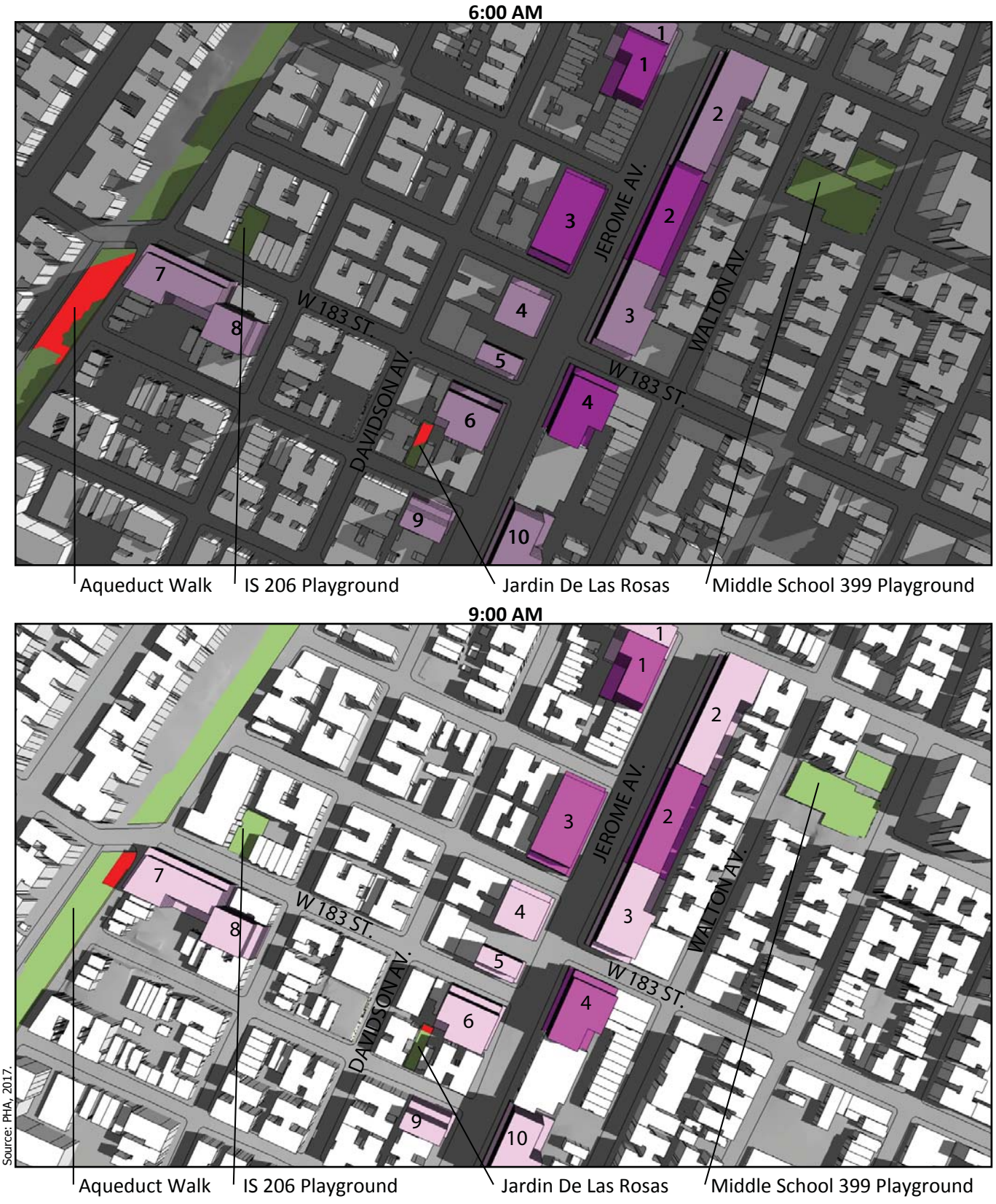


Figure 6-3

Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk

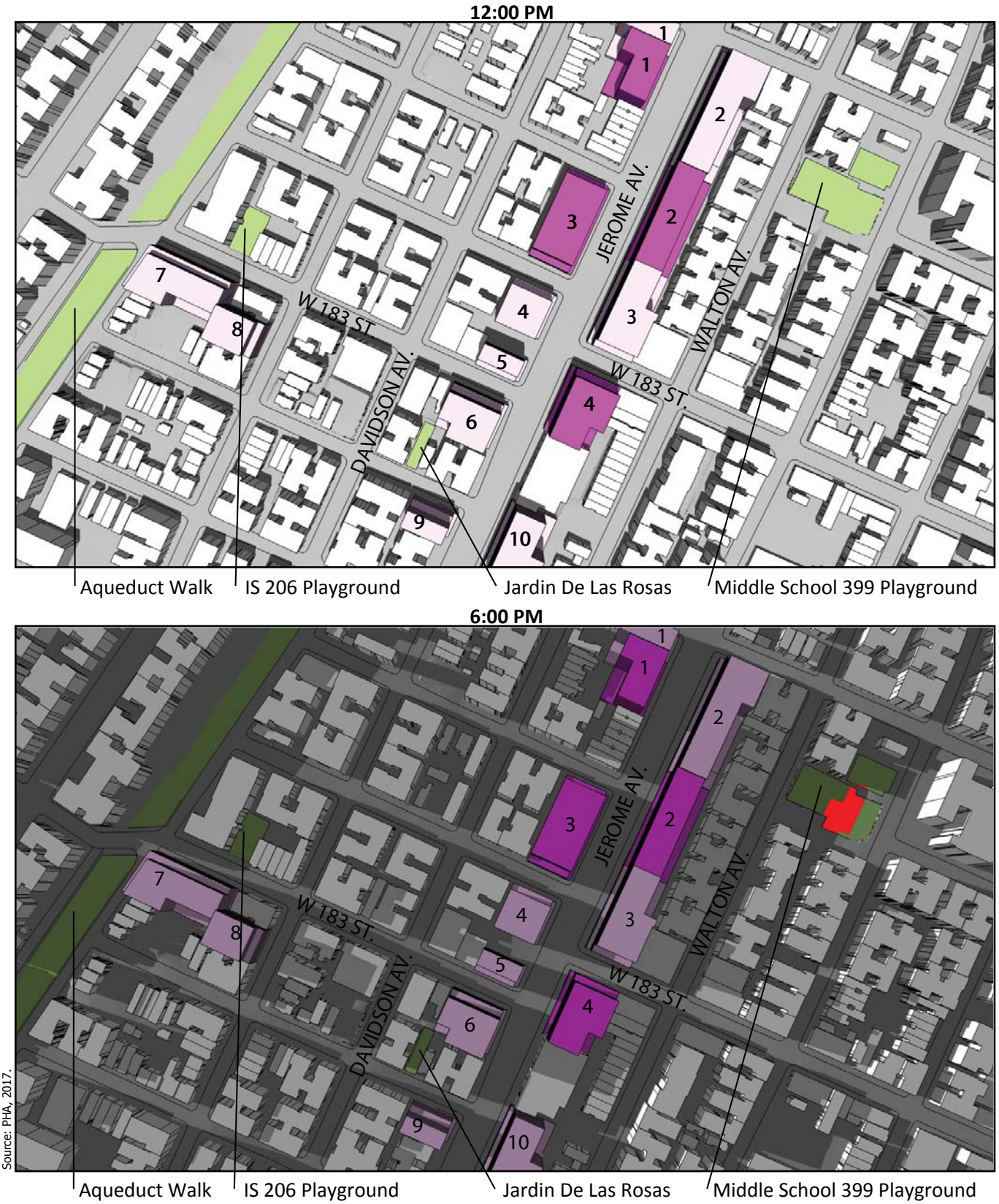
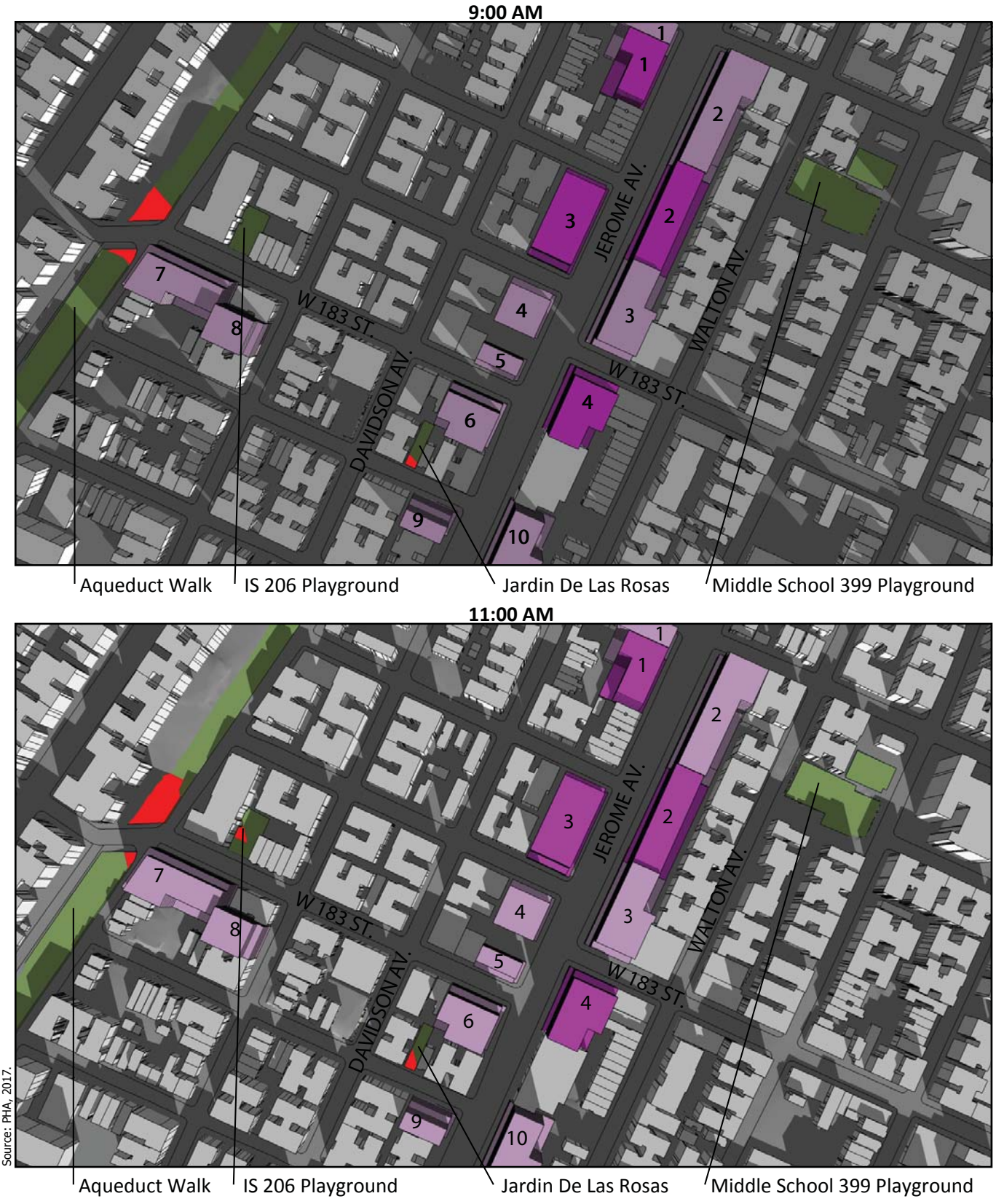


Figure 6-3

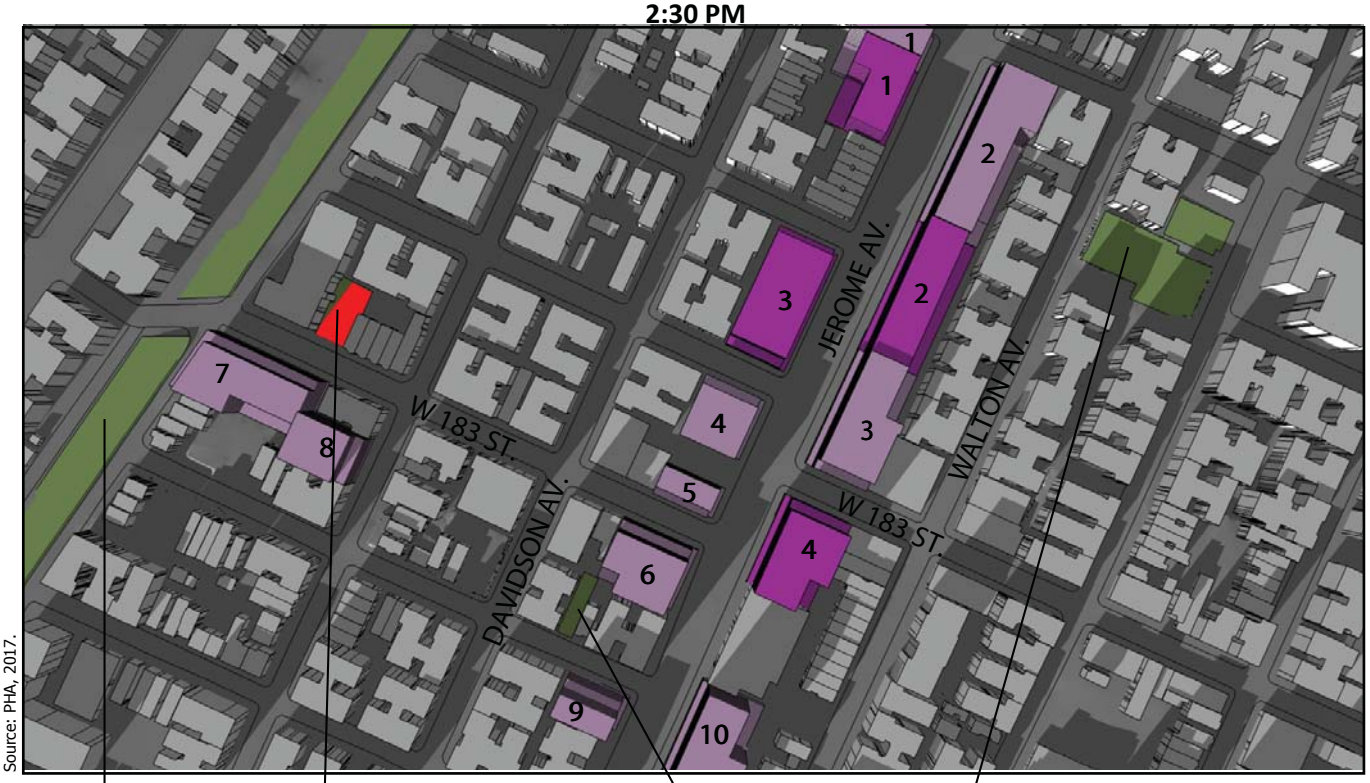
Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk



Source: PHA, 2017.

Figure 6-3

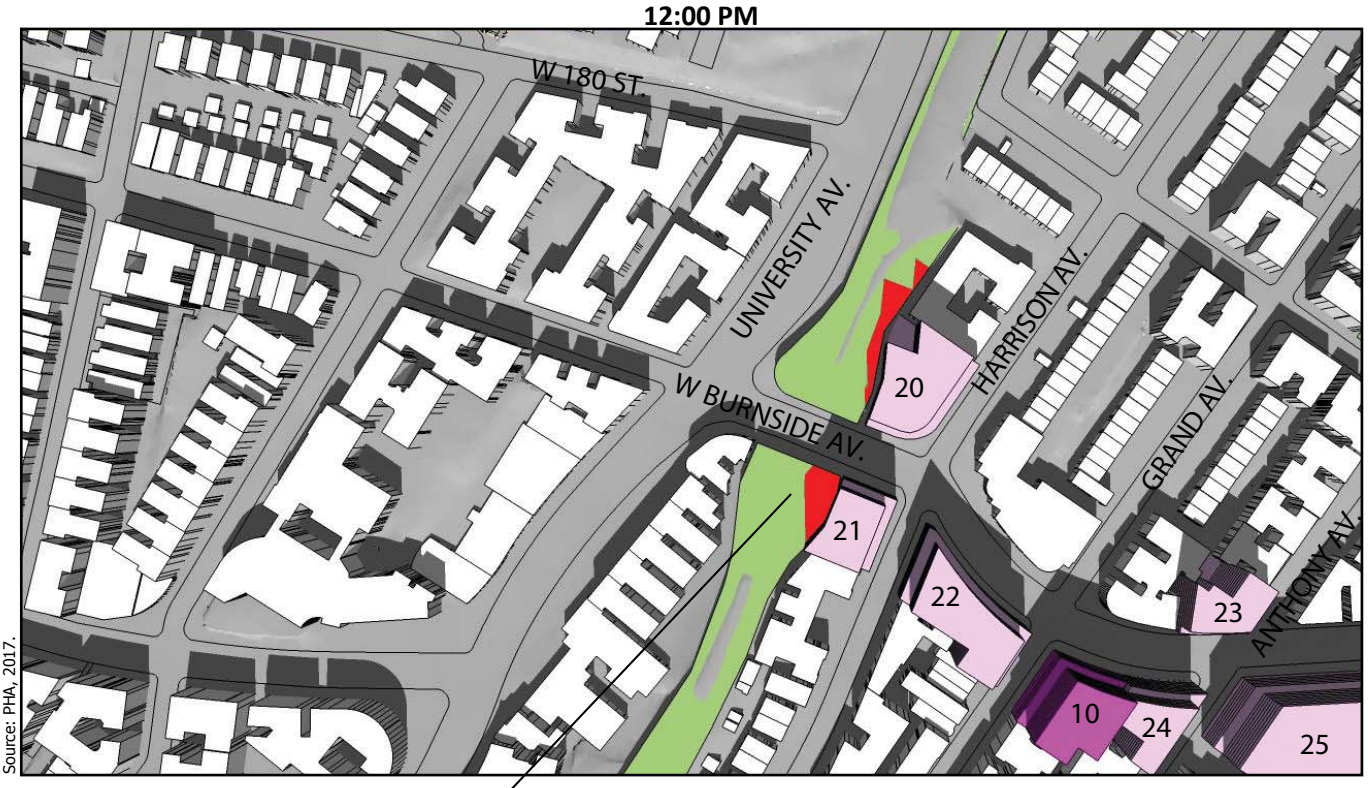
Middle School 399 Playground, IS 206 Playground, Jardin De Las Rosas, and Aqueduct Walk
2:30 PM



Projected Development
Potential Development
Open Space
Incremental Shadow

N

Figure 6-3



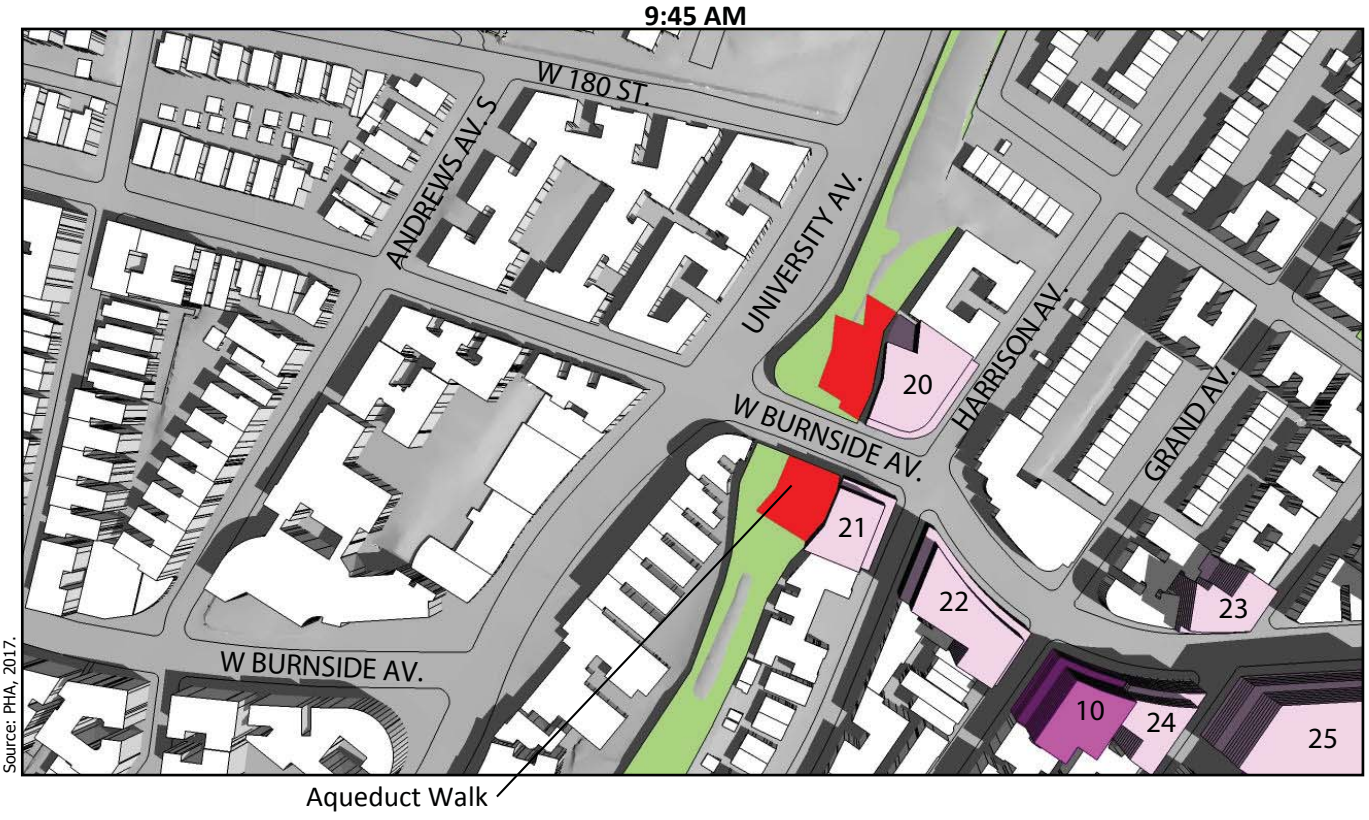
Source: PHA, 2017.

Projected Development **Open Space** **Incremental Shadow**

Potential Development

N

Figure 6-4



Source: PHA, 2017.

Projected Development | **Open Space** | **Incremental Shadow**

Potential Development

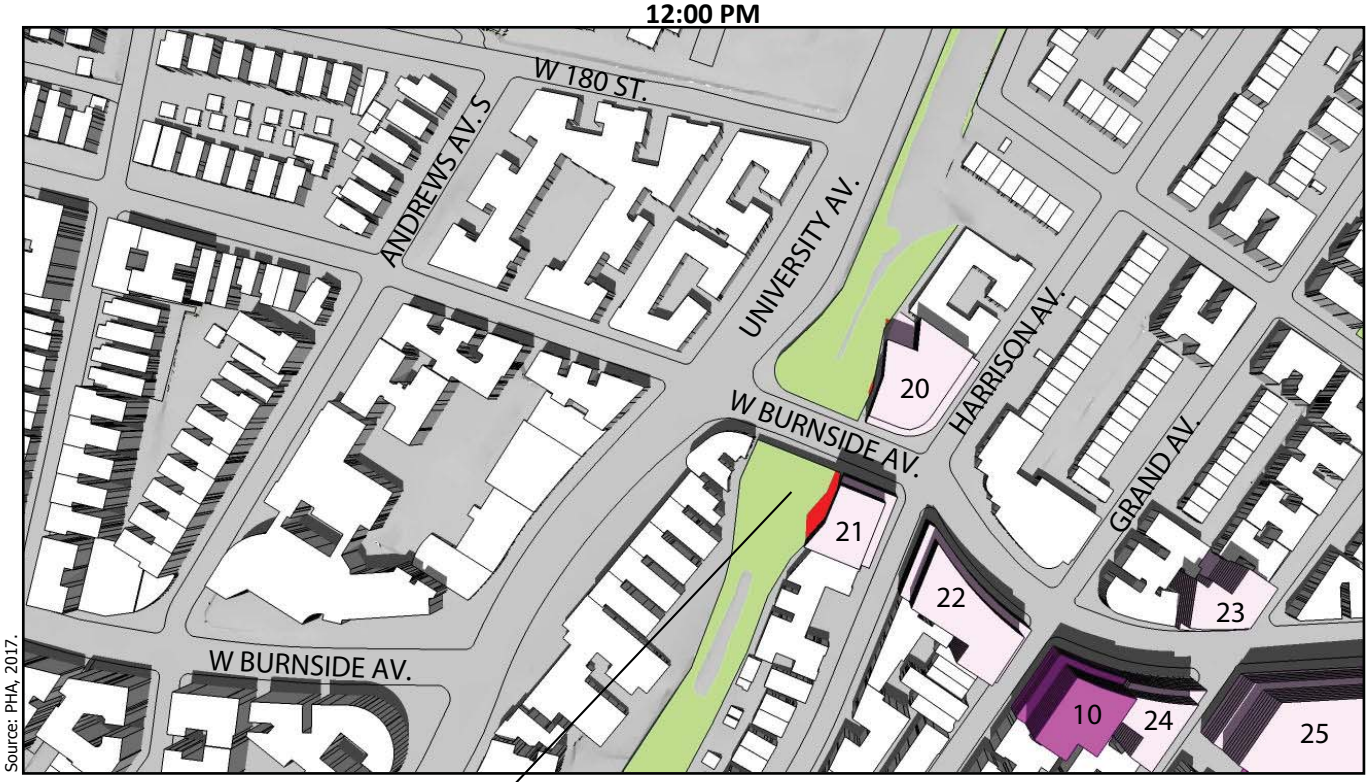
N

Figure 6-4

Source: PHA, 2017.

Figure 6-4

12:00 PM



Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-4

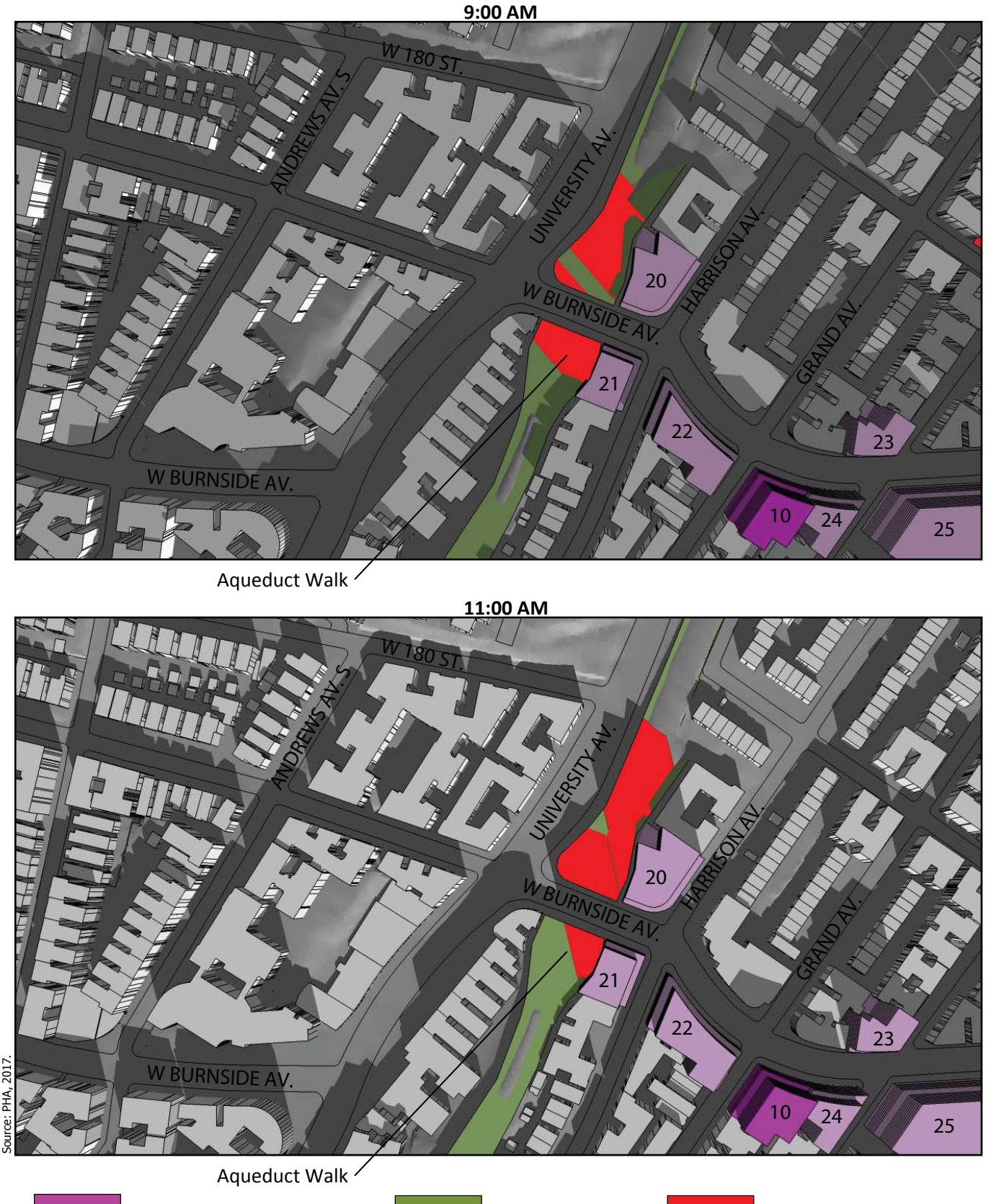

9:00 AM
W 180 ST.
ANDREWS AV. S
UNIVERSITY AV.
HARRISON AV.
GRAND AV.
W BURNSIDE AV.
20
21
22
23
10
24
25
Aqueduct Walk
11:00 AM
W 180 ST.
ANDREWS AV. S
UNIVERSITY AV.
HARRISON AV.
GRAND AV.
W BURNSIDE AV.
20
21
22
23
10
24
25
Aqueduct Walk
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-4

2:30 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-4

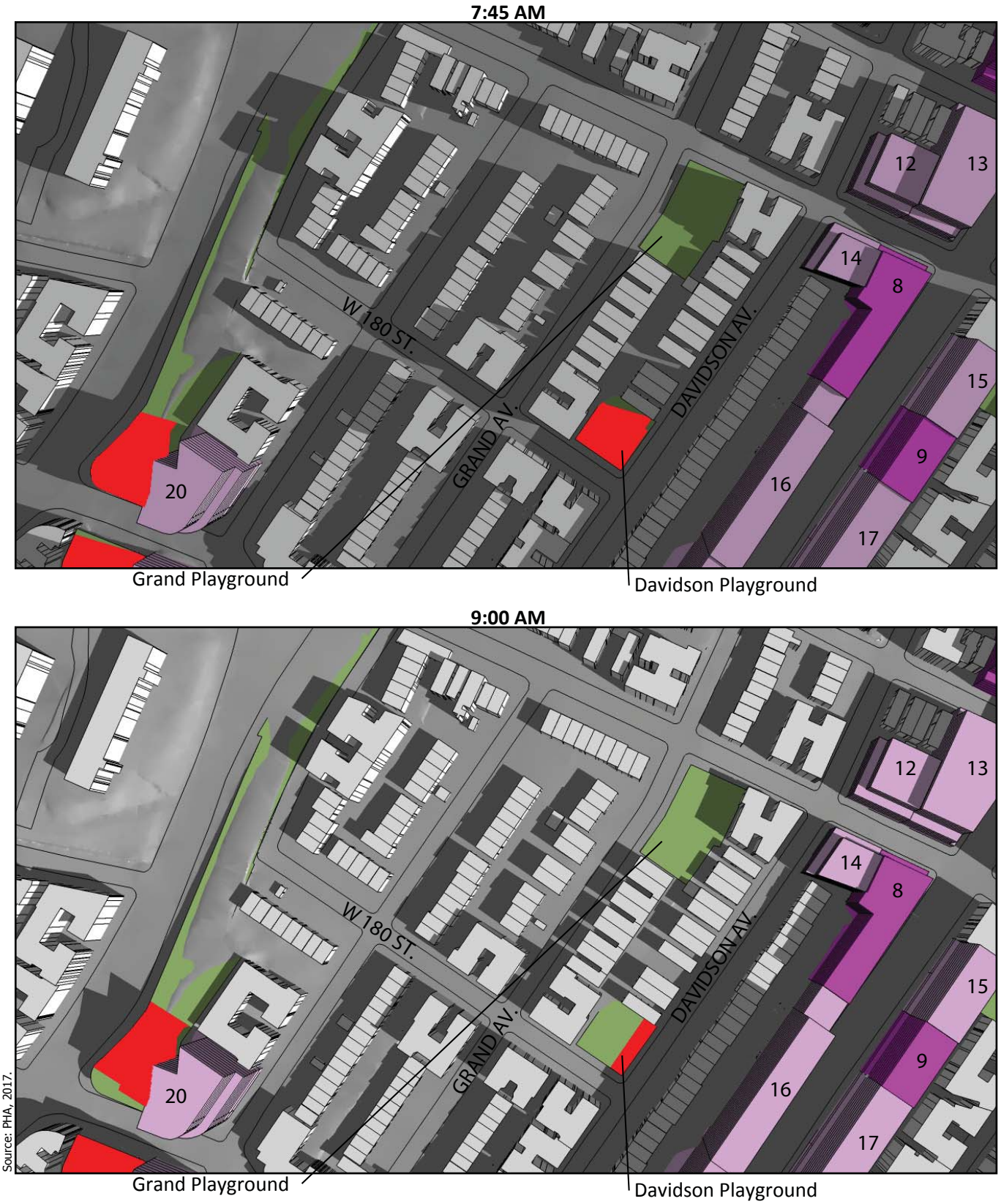
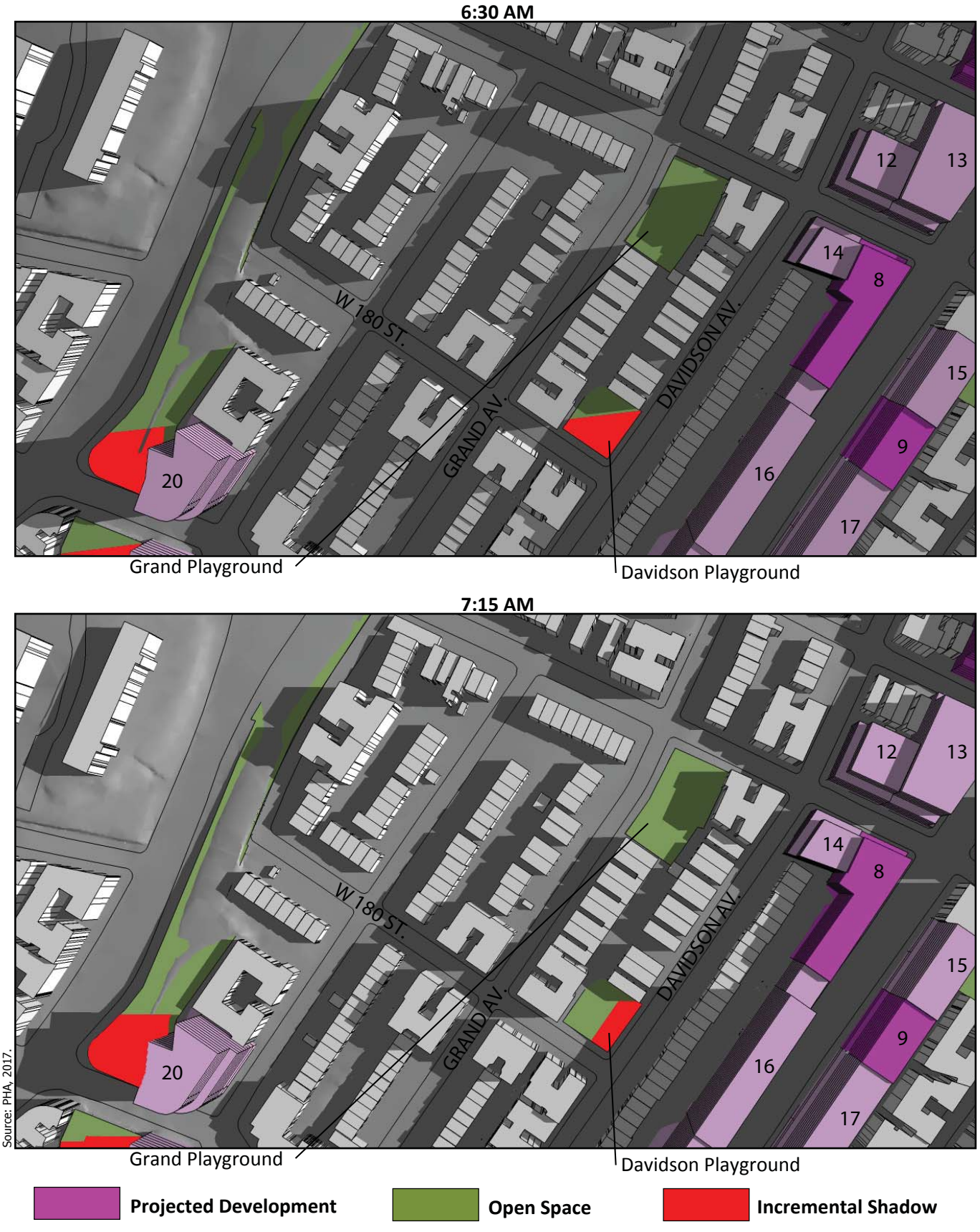

7:45 AM
W 180 ST.
GRAND AV.
DAVIDSON AV.
12
13
14
8
15
9
16
17
20
Grand Playground
Davidson Playground
9:00 AM
W 180 ST.
GRAND AV.
DAVIDSON AV.
12
13
14
8
15
9
16
17
20
Grand Playground
Davidson Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-5

Grand Playground and Davidson Playground



Source: PHA, 2017.

Figure 6-5

Grand Playground and Davidson Playground

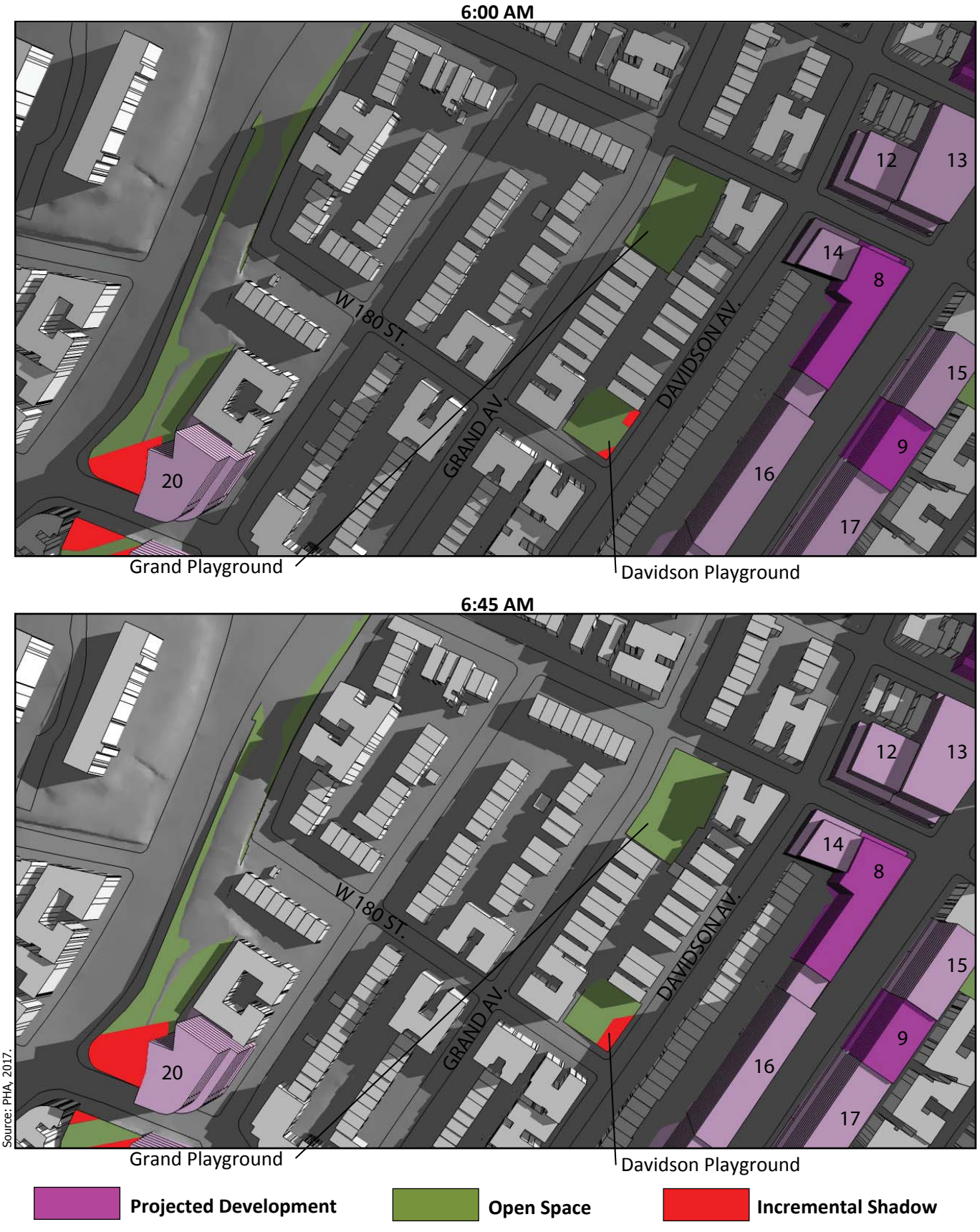


Figure 6-5

Grand Playground and Davidson Playground

Figure 6-5

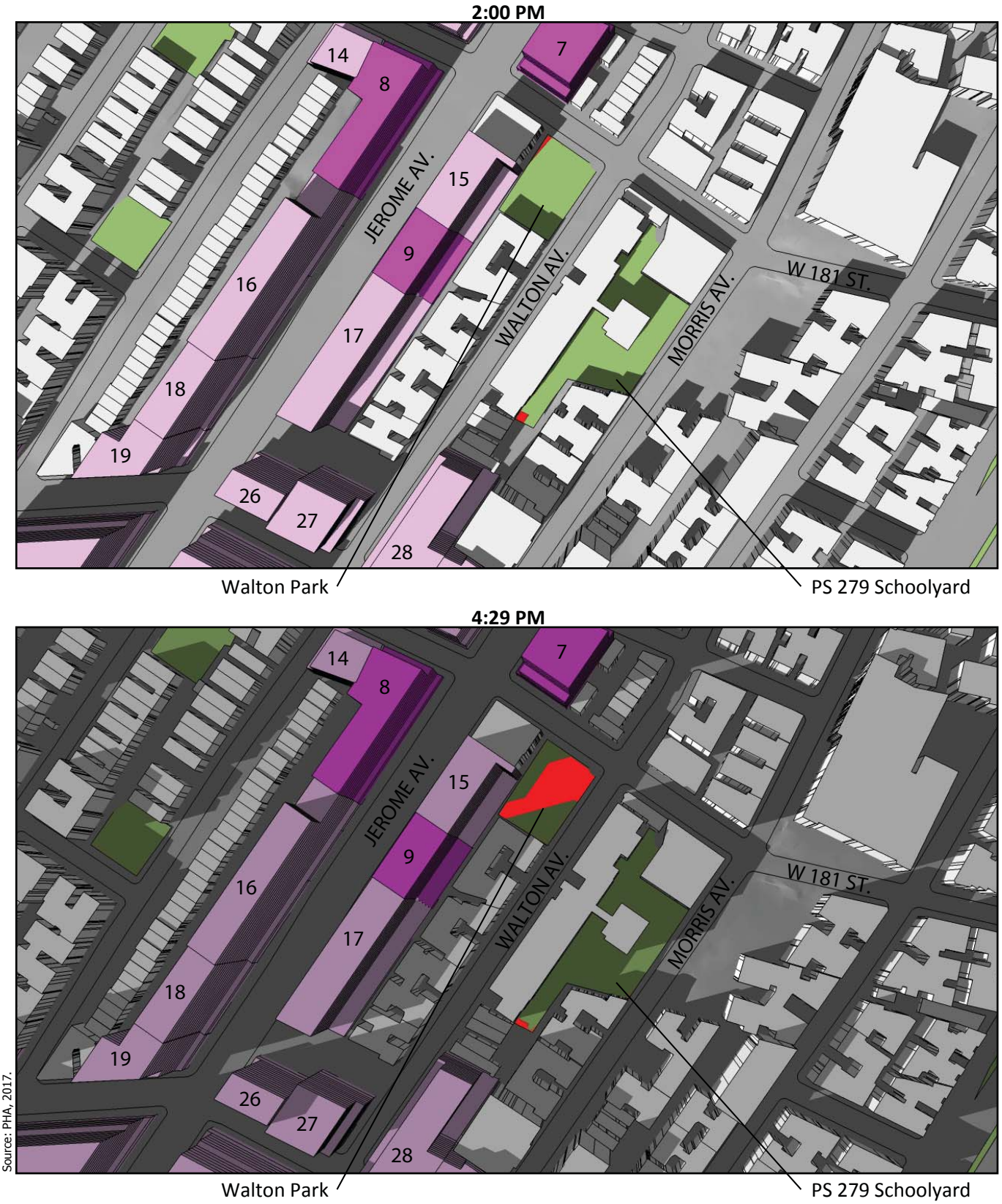
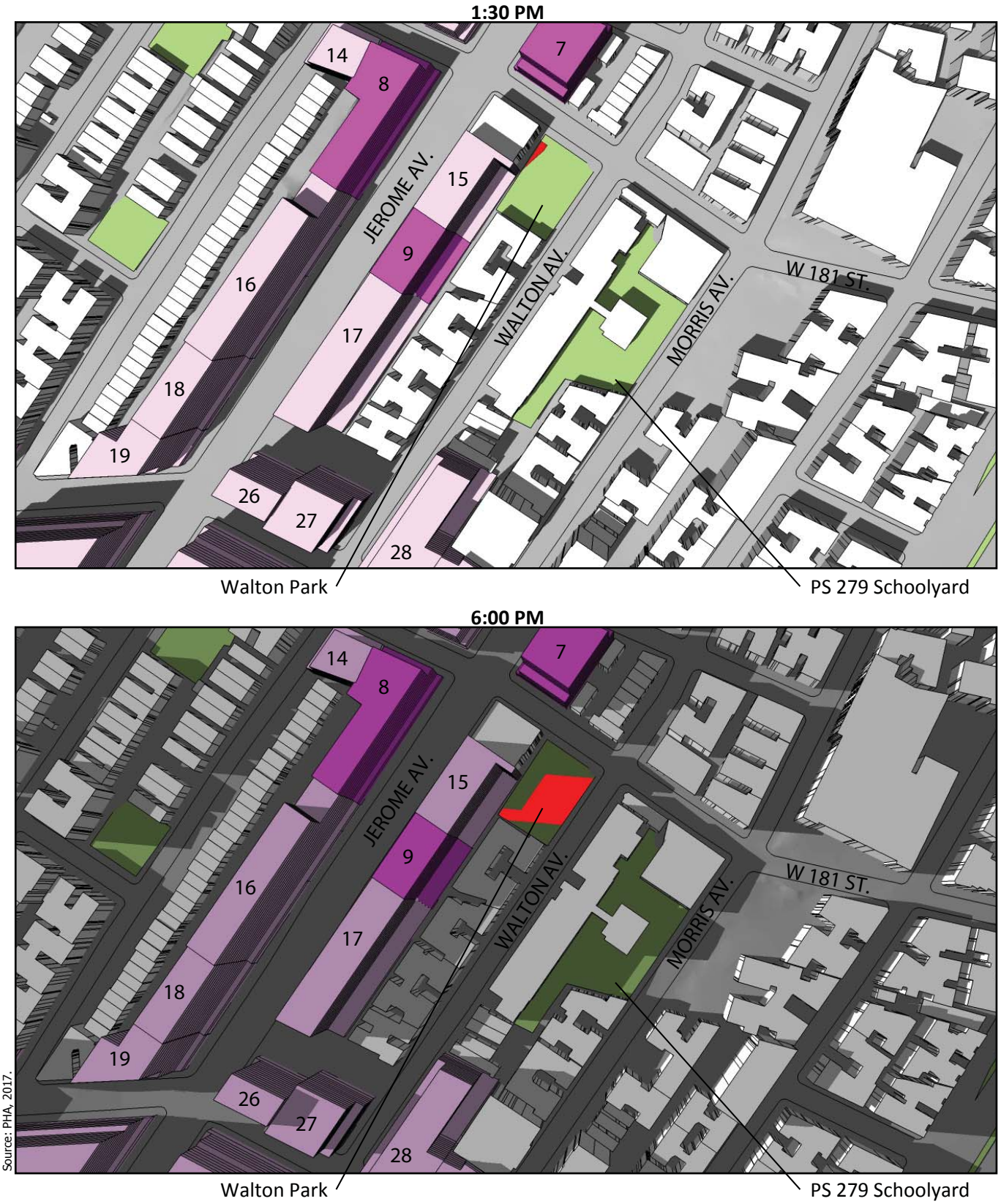

2:00 PM
14
8
7
15
9
16
17
18
19
26
27
28
JEROME AV.
WALTON AV.
MORRIS AV.
W 181 ST.
Walton Park
PS 279 Schoolyard
4:29 PM
14
8
7
15
9
16
17
18
19
26
27
28
JEROME AV.
WALTON AV.
MORRIS AV.
W 181 ST.
Walton Park
PS 279 Schoolyard
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-6



Source: PHA, 2017.

Figure 6-6

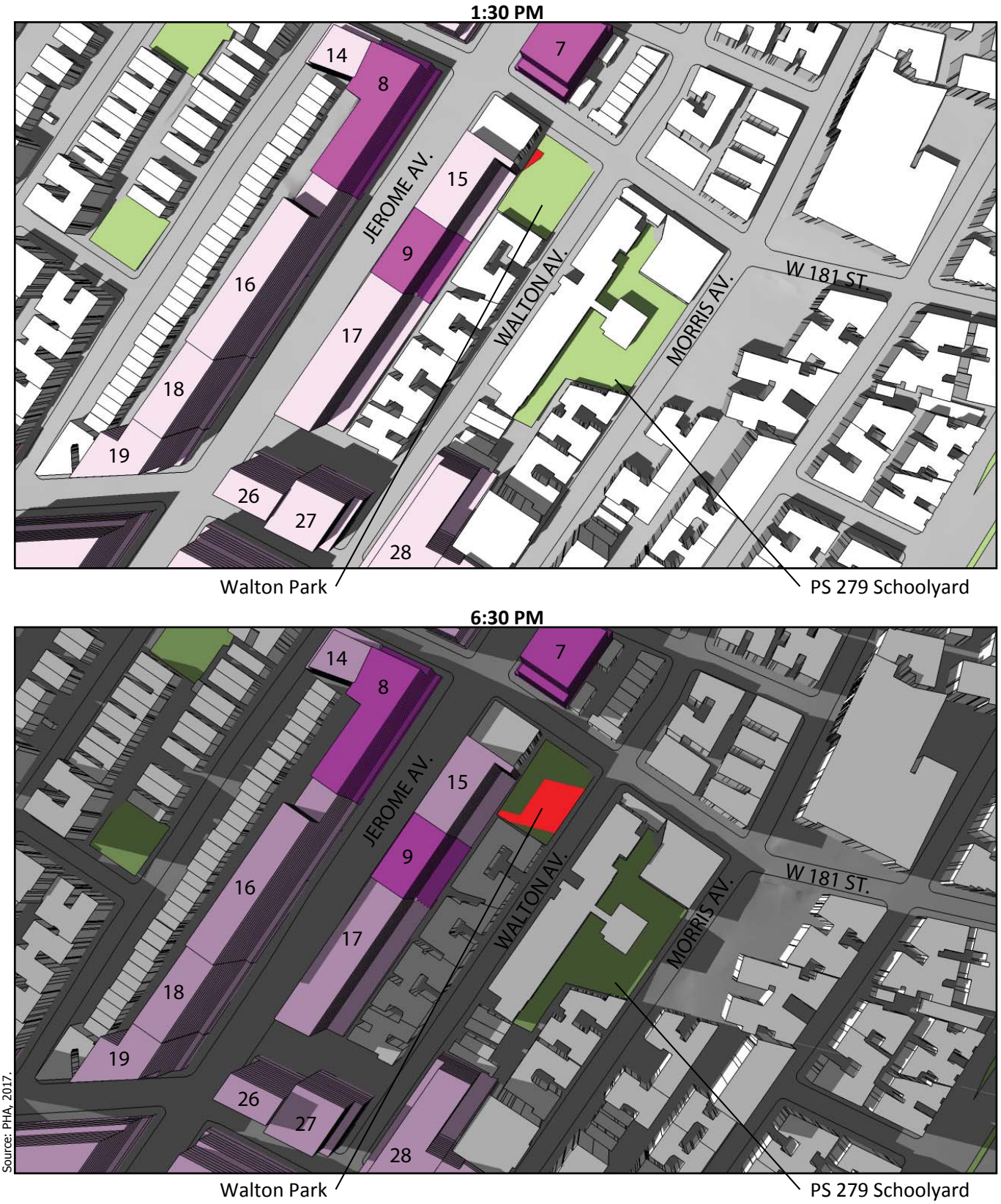

1:30 PM
14
8
7
JEROME AV.
15
9
16
17
WALTON AV.
MORRIS AV.
W 181 ST.
18
19
26
27
28
Walton Park
PS 279 Schoolyard
6:30 PM
14
8
7
JEROME AV.
15
9
16
17
WALTON AV.
MORRIS AV.
W 181 ST.
18
19
26
27
28
Walton Park
PS 279 Schoolyard
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-6

Walton Park and PS 279 Schoolyard

2:45 PM

N

Figure 6-6

Grand Concourse Greenstreet and Mount Hope Garden

5:15 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-7

Grand Concourse Greenstreet and Mount Hope Garden

Figure 6-7

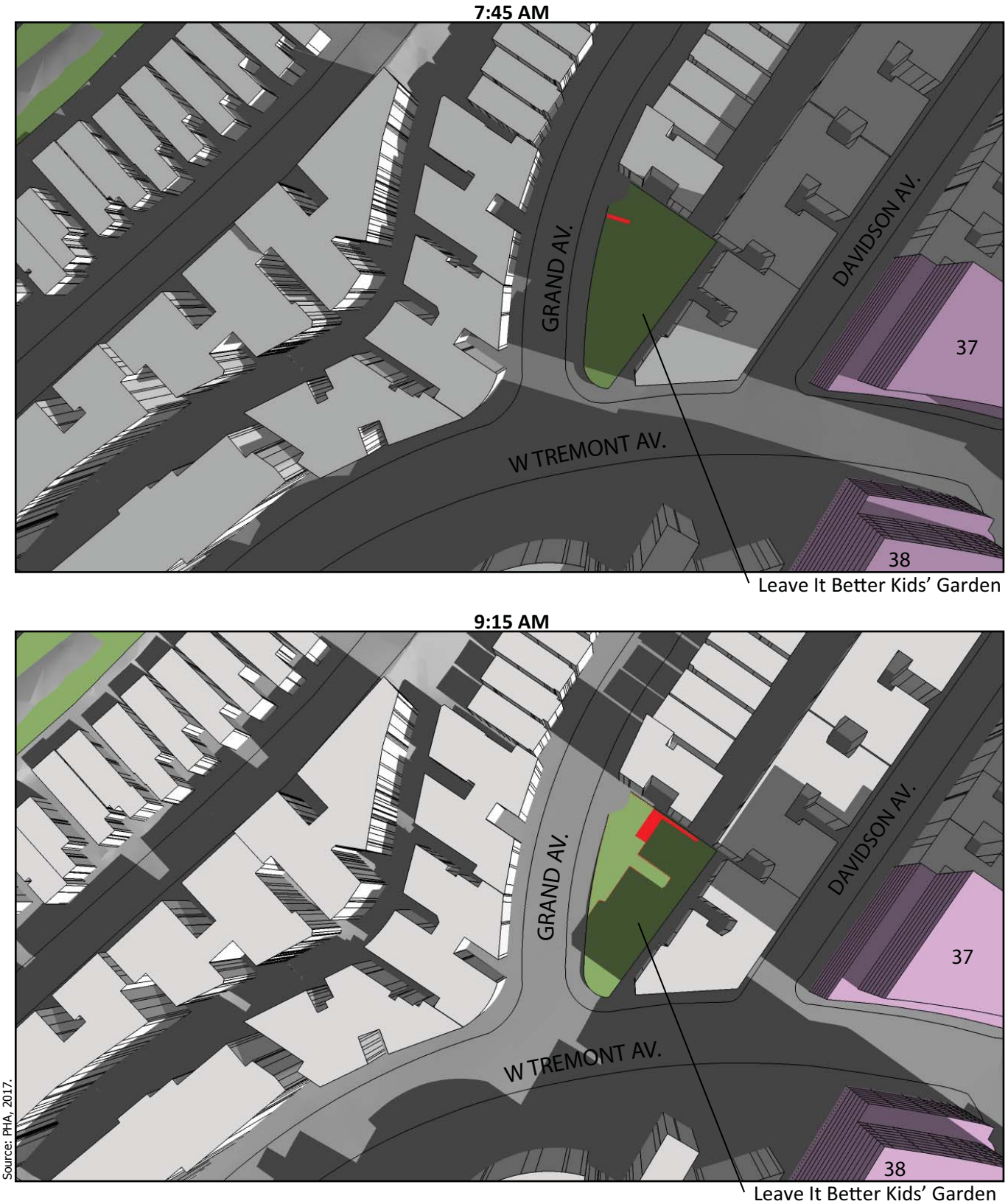

7:45 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
9:15 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-8

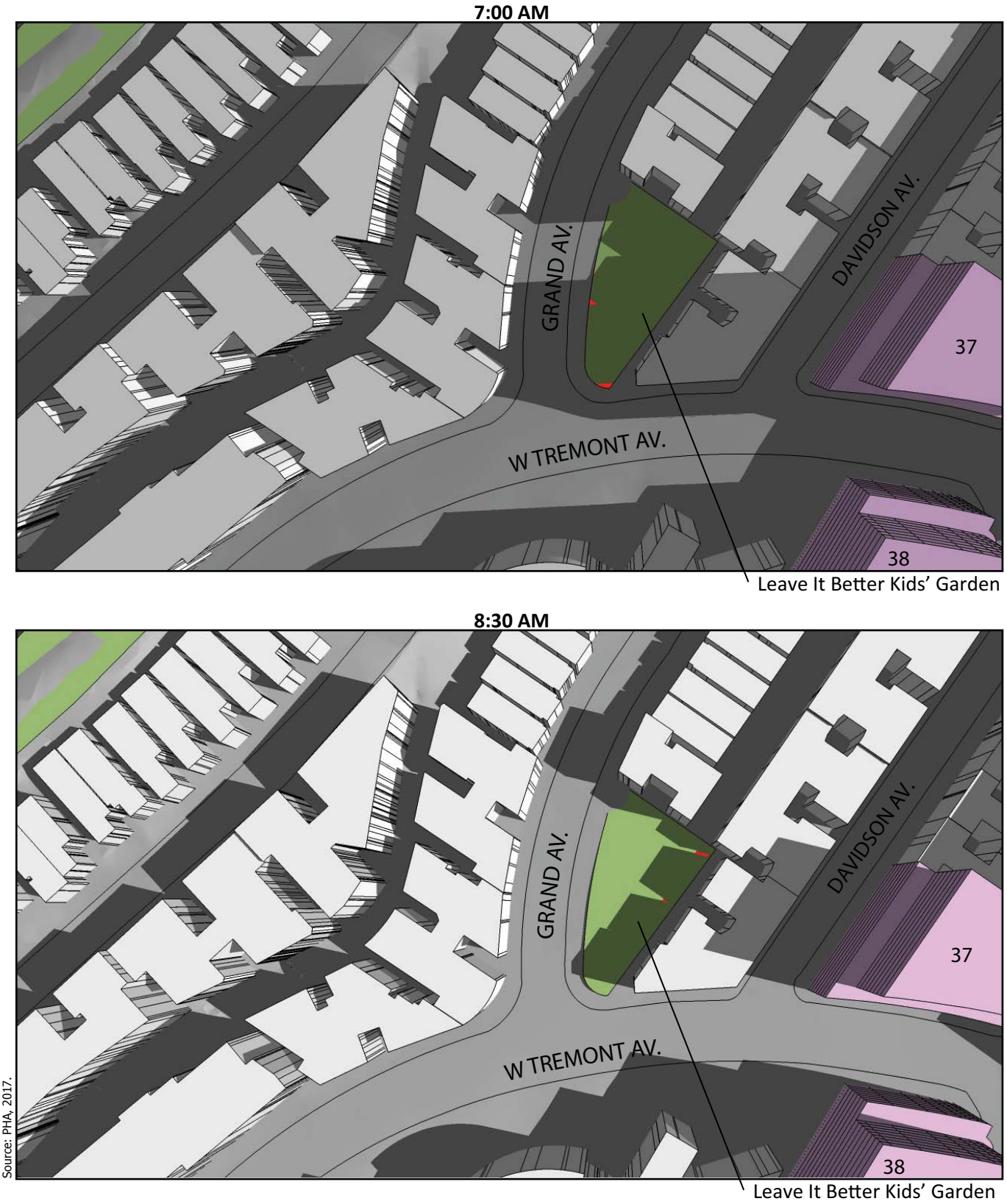

7:00 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
8:30 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-8

Leave It Better Kids' Garden

7:30 AM

Source: PHA, 2017.

PS 33 Schoolyard

Projected Development

Potential Development

Open Space

Incremental Shadow

N

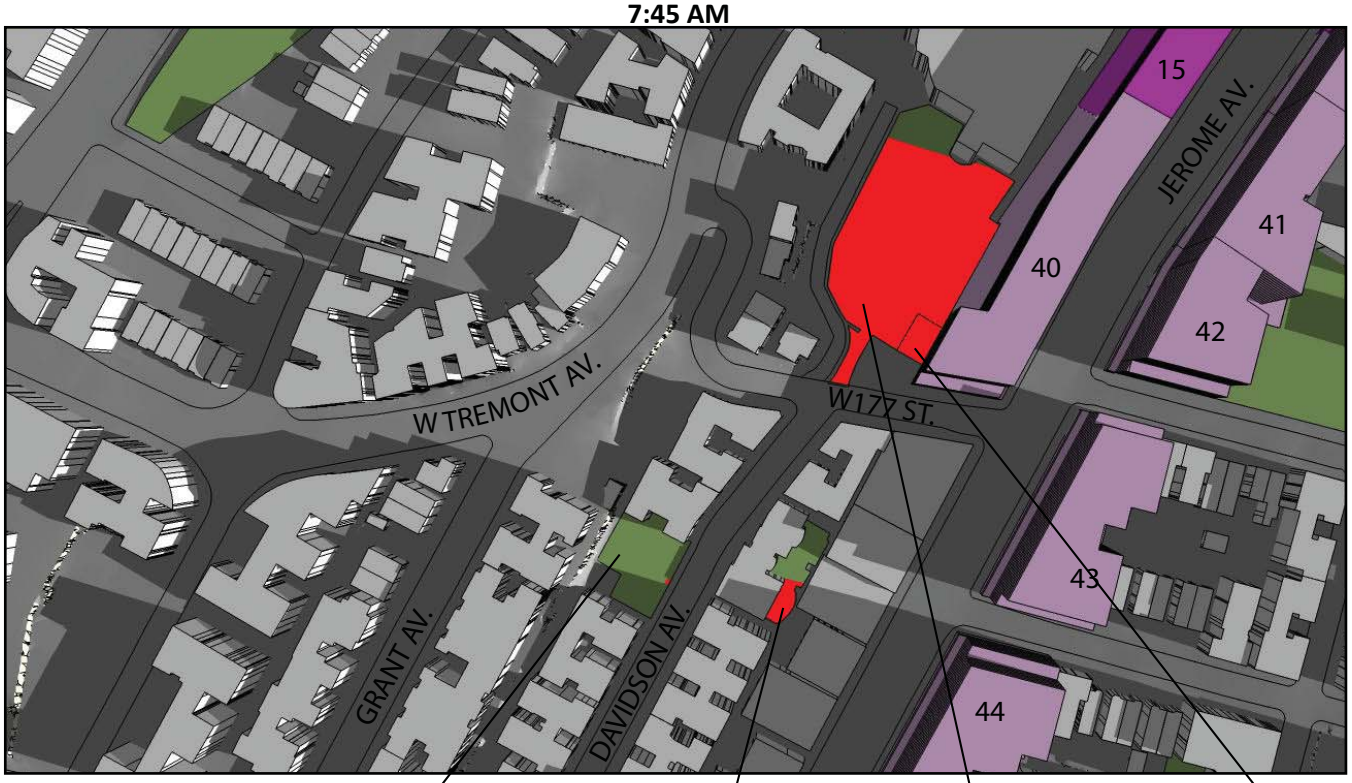
Figure 6-8


8:55 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
9:45 AM
GRAND AV.
DAVIDSON AV.
W TREMONT AV.
37
38
Leave It Better Kids' Garden
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

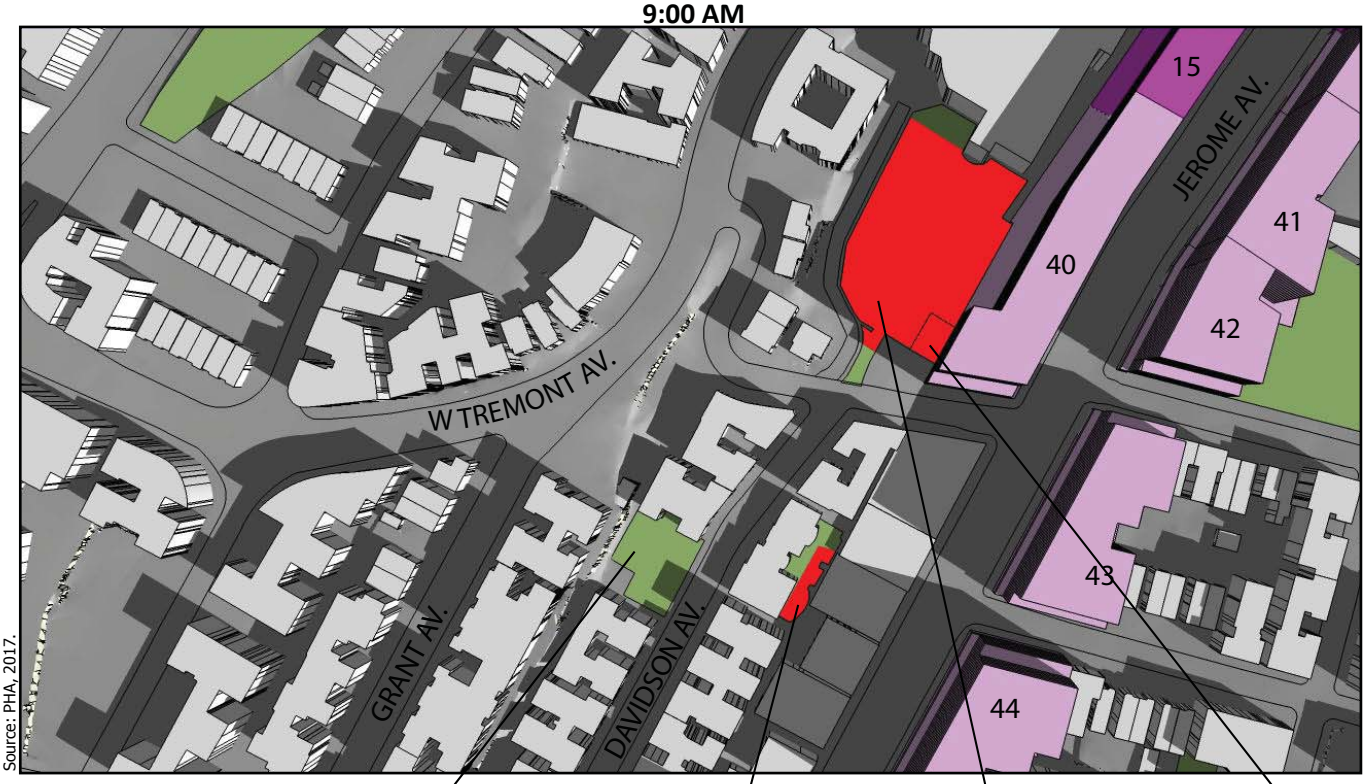
Figure 6-8

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.

7:45 AM



9:00 AM



Source: PHA, 2017.

Projected Development **Open Space** **Incremental Shadow**

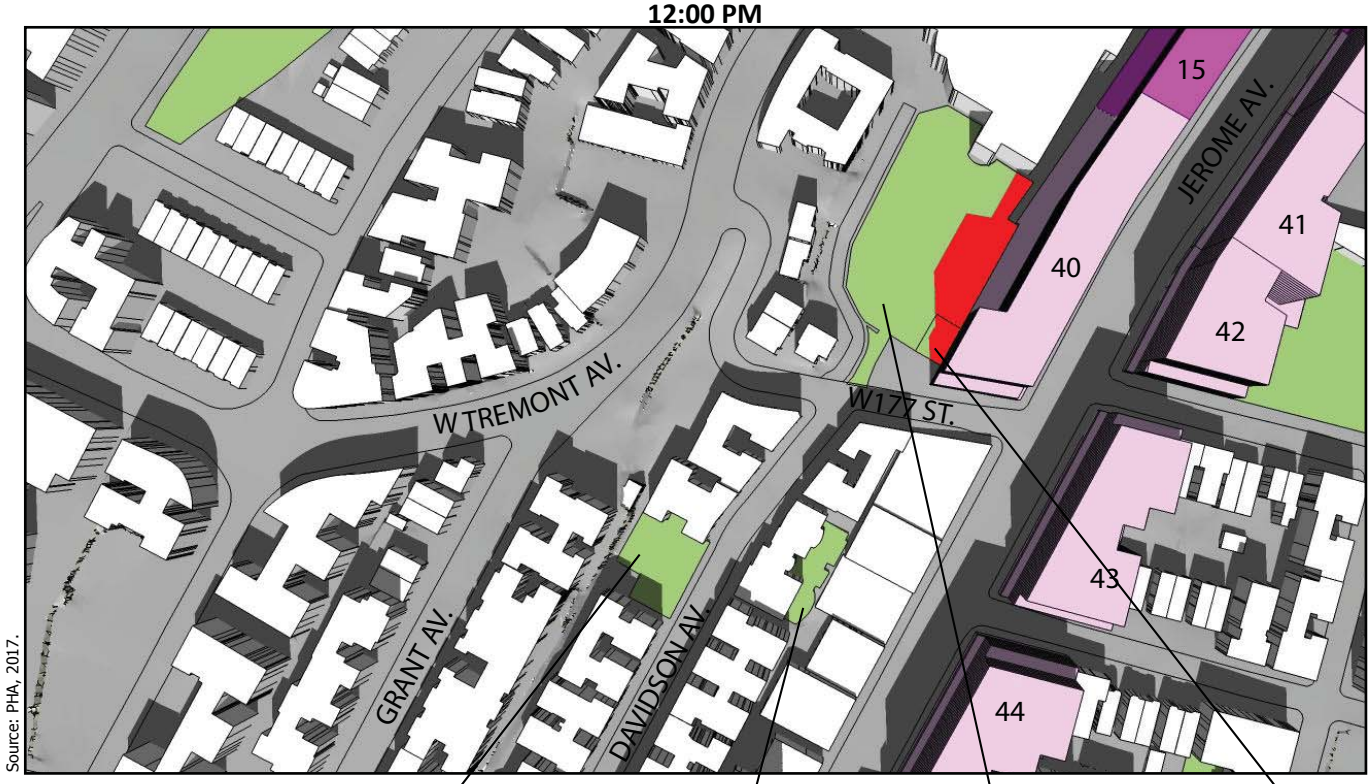
Potential Development

N

Figure 6-9

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.

12:00 PM

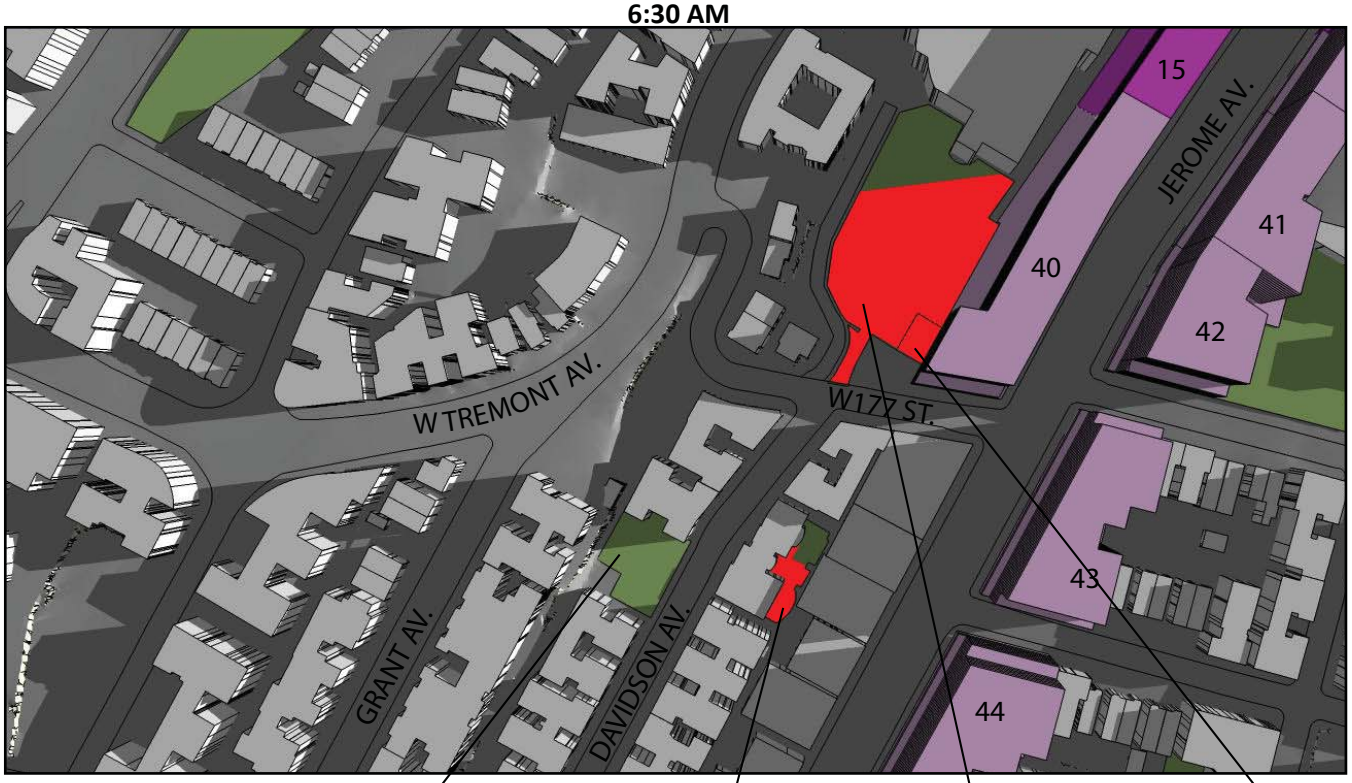


N

Figure 6-9

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.

6:30 AM



9:30 AM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

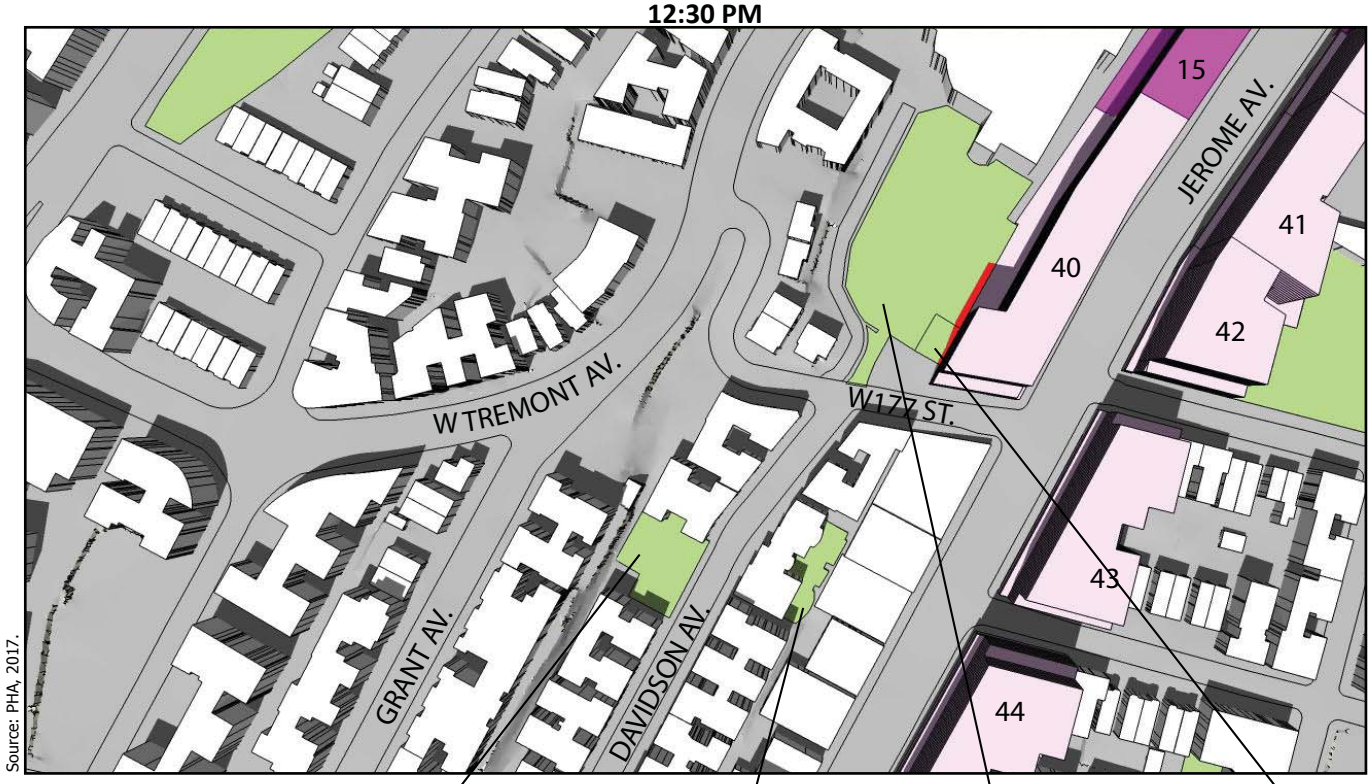
Incremental Shadow

N

Figure 6-9

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.

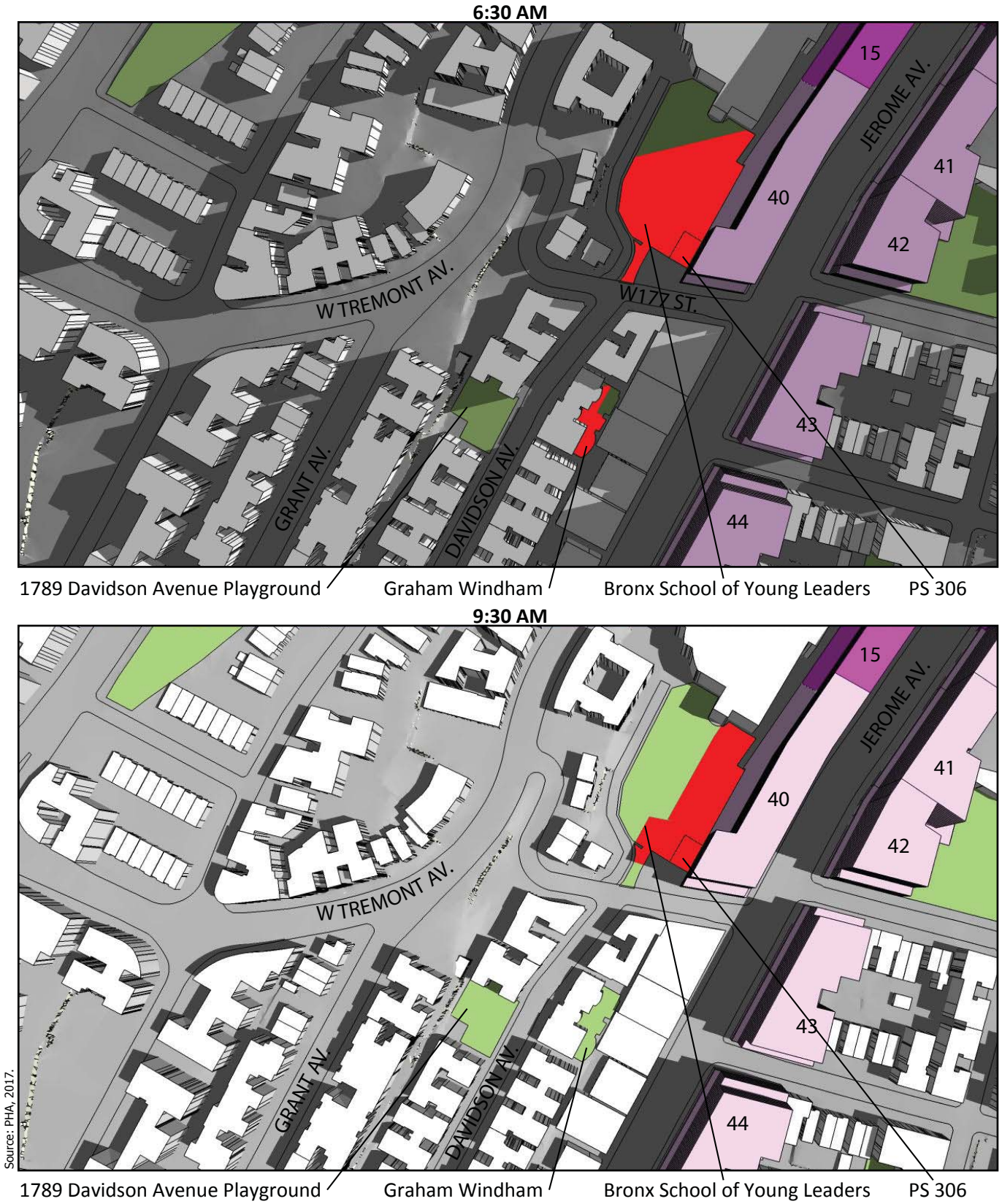
12:30 PM



N

Figure 6-9

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.



Source: PHA, 2017.

Figure 6-9

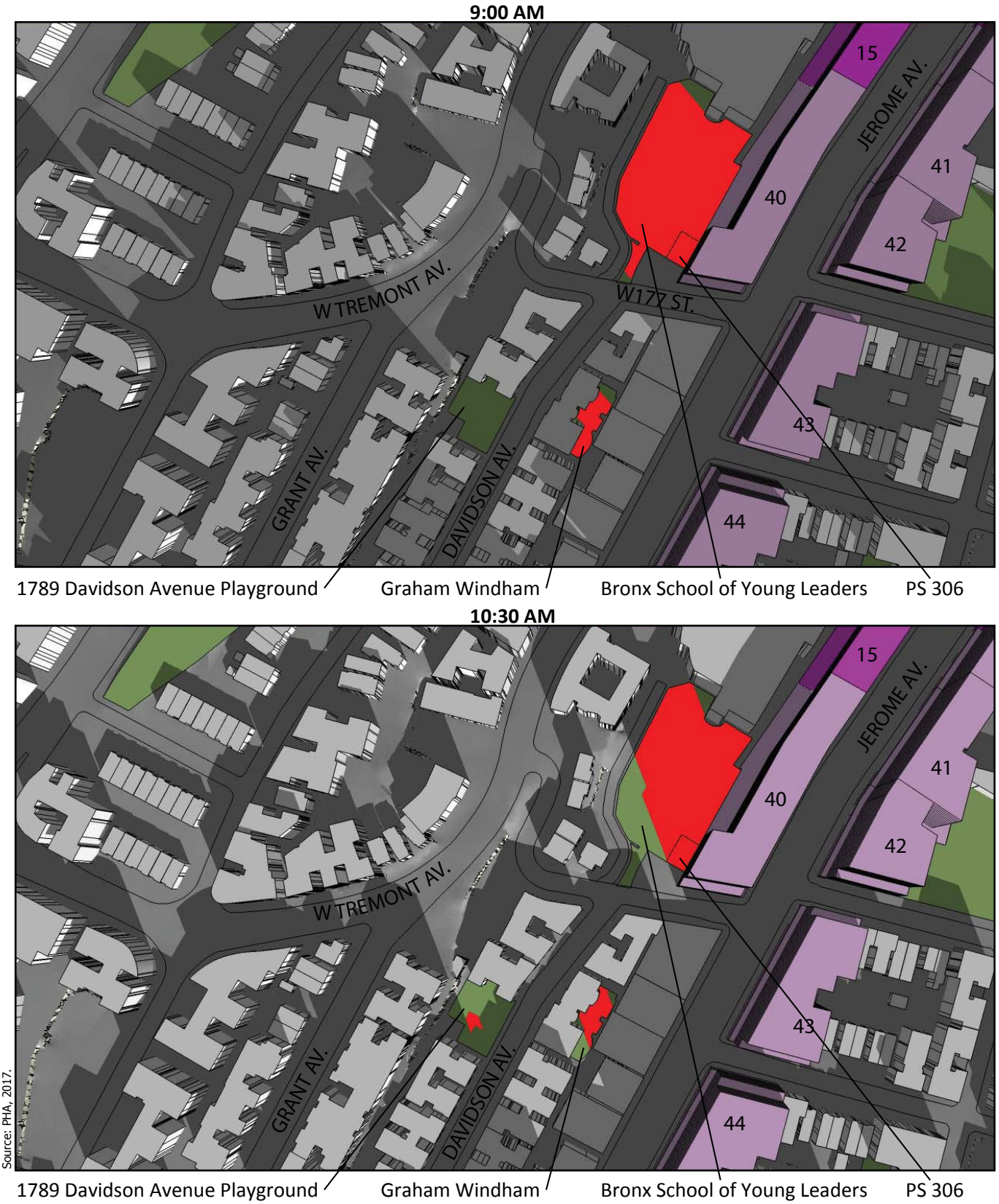
Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.

12:30 PM

N

Figure 6-9

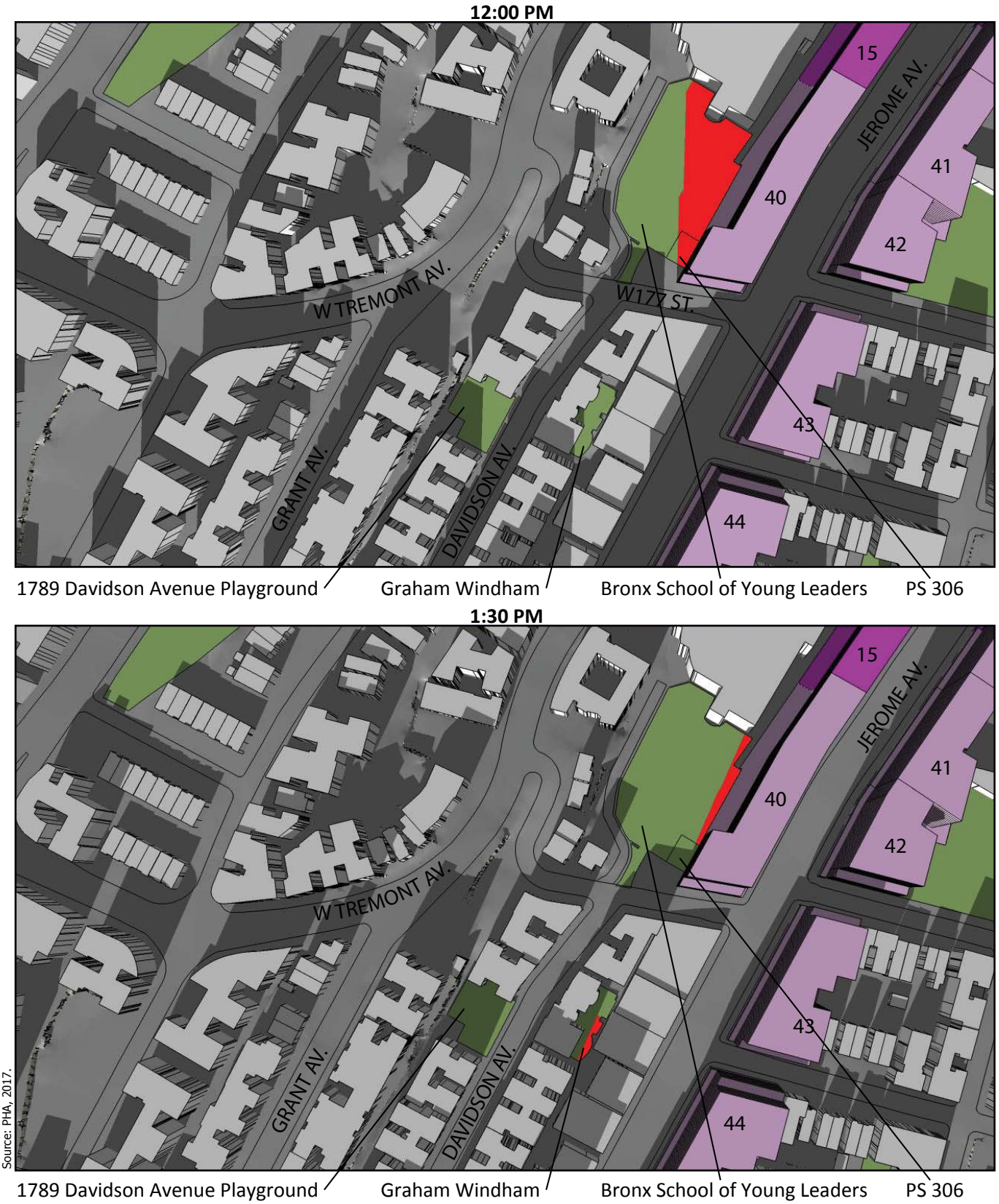
Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.



Source: PHA, 2017.

Figure 6-9

Bronx School of Young Leaders, PS 306 Schoolyard, Graham Windham, 1789 Davidson Av.



Source: PHA, 2017.

Figure 6-9

Bronx School of Young Leaders Schoolyard and PS 306 Schoolyard

N

Figure 6-9a

IMPACTED RESOURCE - BRONX SCHOOL OF YOUNG LEADERS AND PS 306 SCHOOLYARD

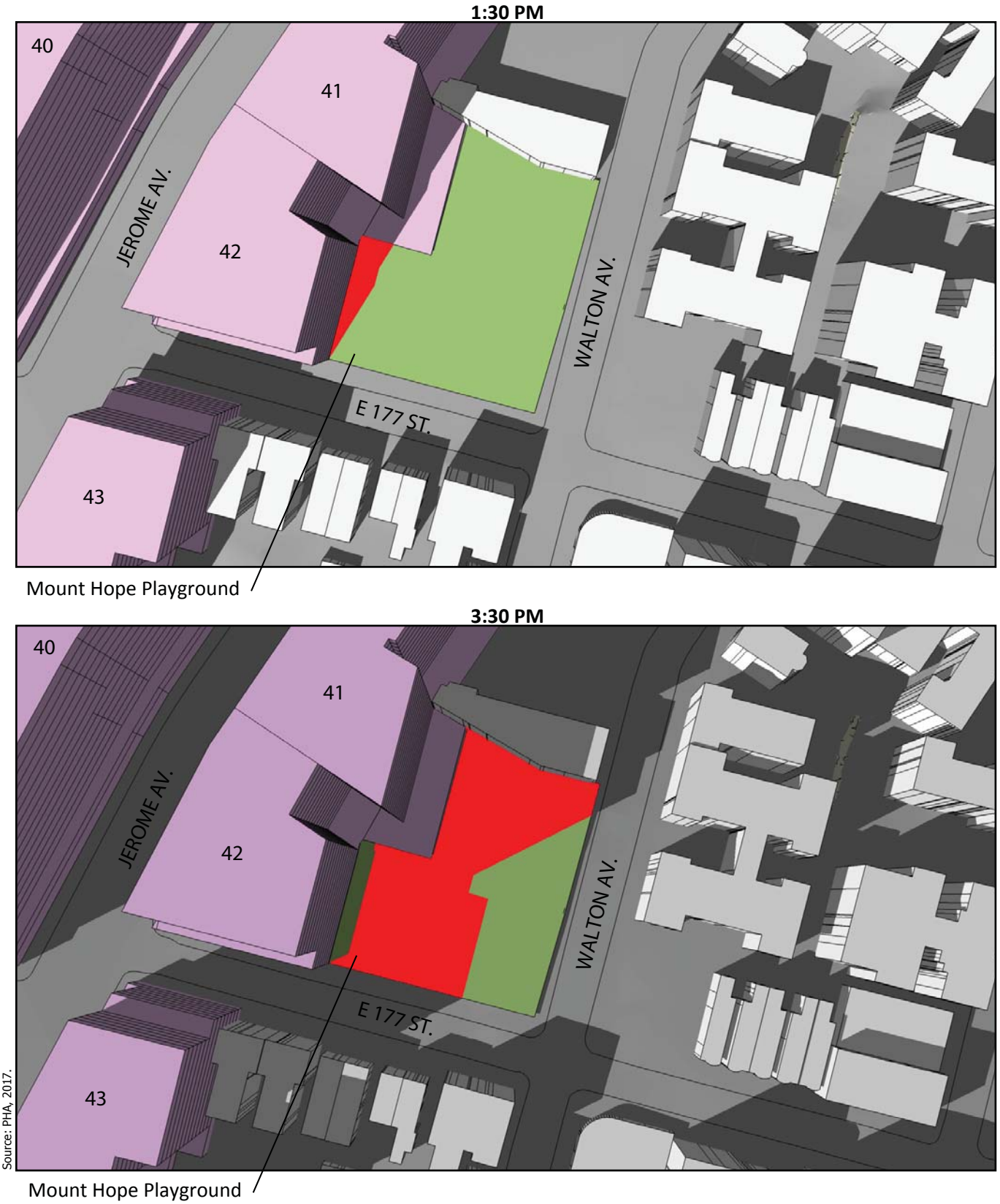

1:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
3:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-10

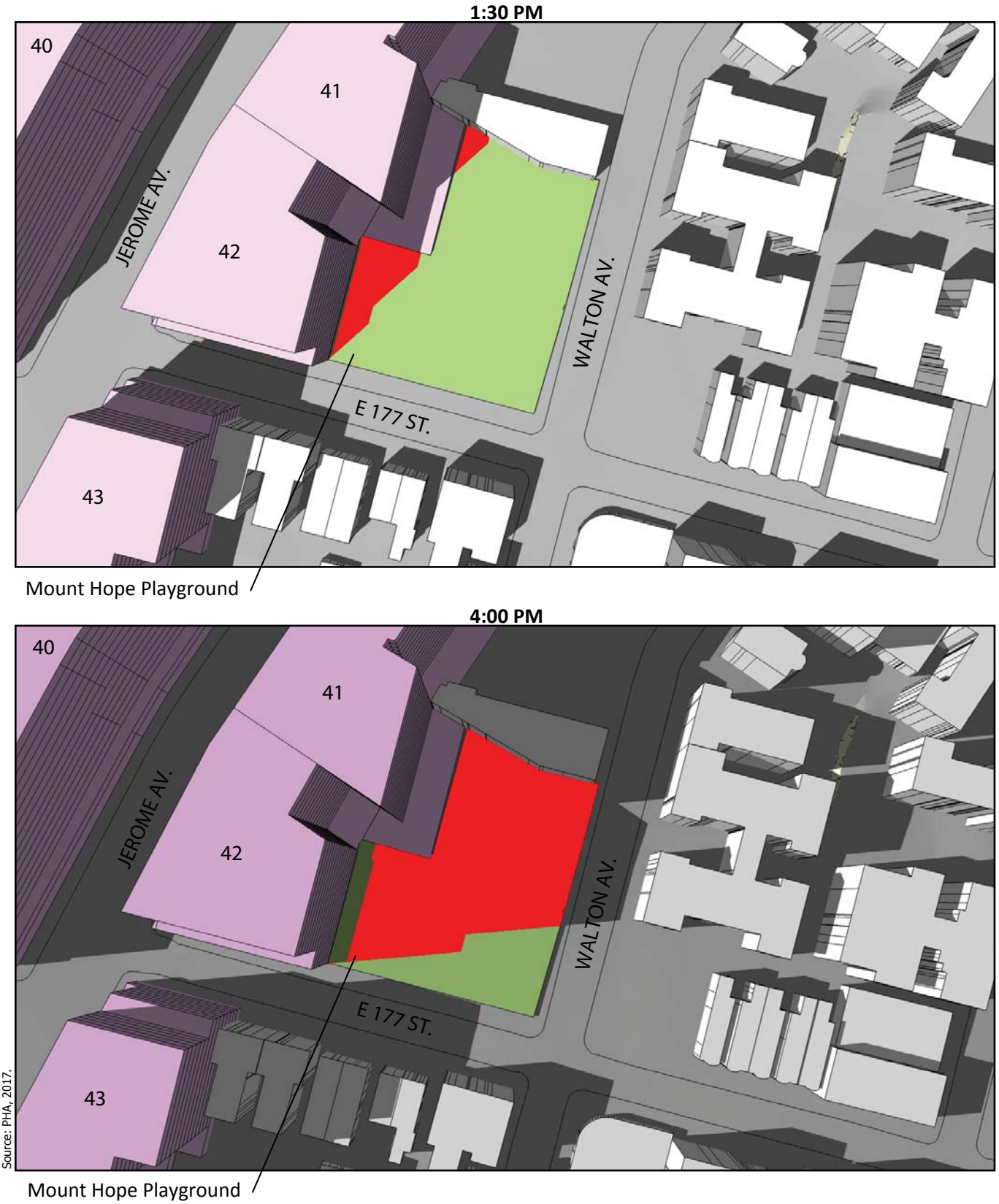

1:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
4:00 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-10

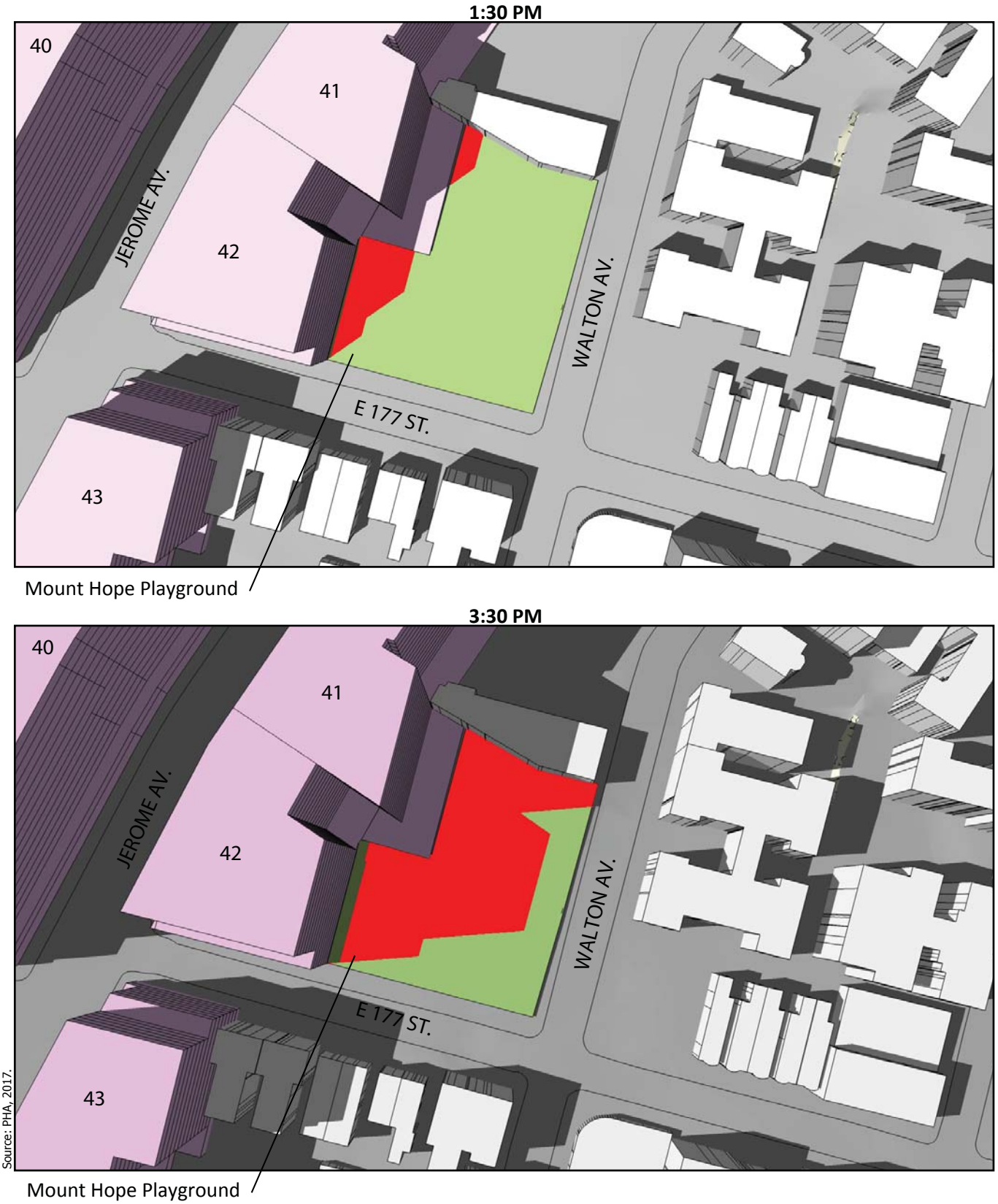

1:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
3:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-10

Mount Hope Playground

5:30 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-10

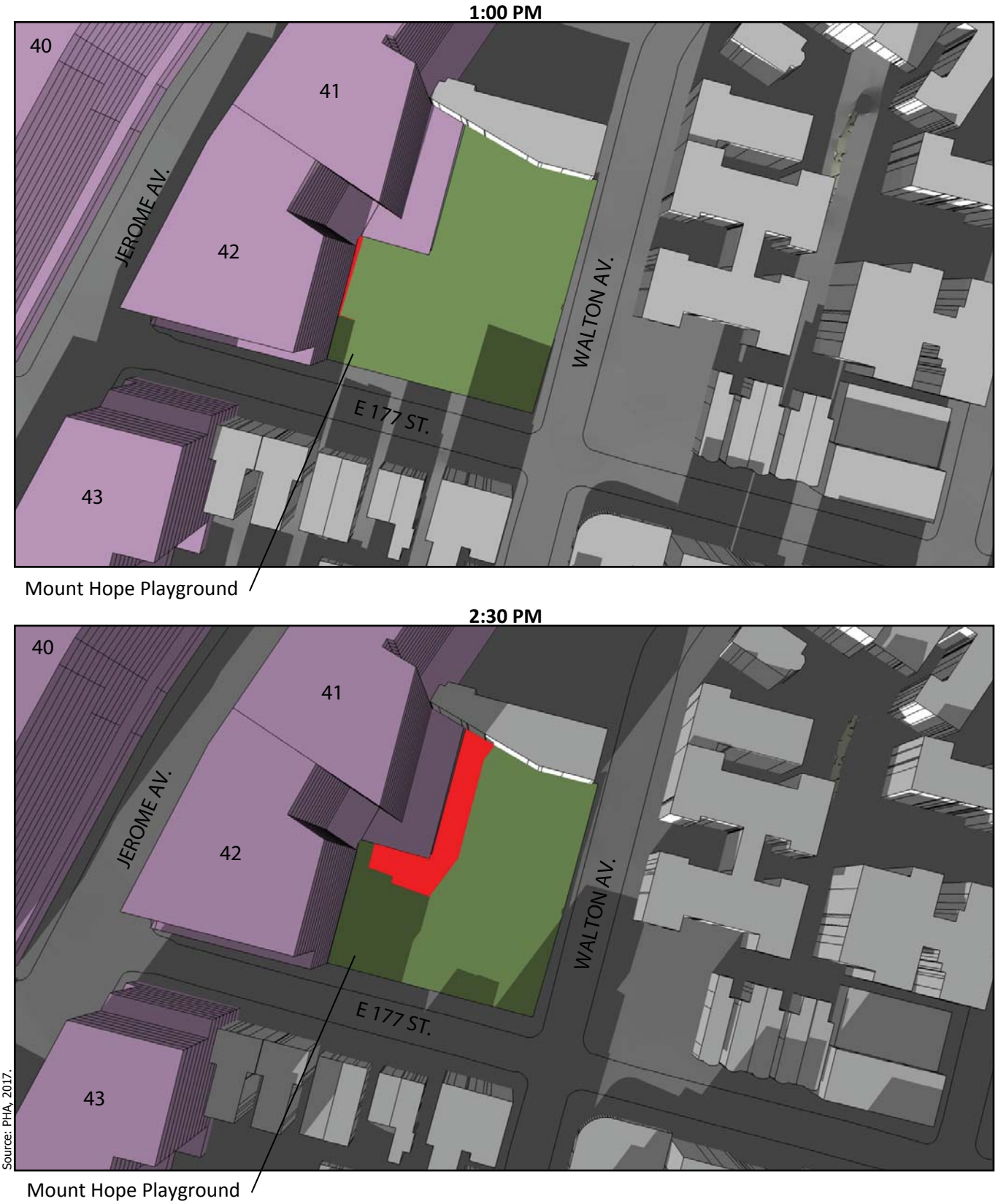

1:00 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
2:30 PM
40
41
42
43
JEROME AV.
WALTON AV.
E 177 ST.
Mount Hope Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-10

Mount Hope Playground

N

Figure 6-10a

IMPACTED RESOURCE - MOUNT HOPE PLAYGROUND

IS 117 Schoolyard and PS 236 Schoolyard

4:20 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-11

IS 117 Schoolyard and PS 236 Schoolyard

5:15 PM

N

Figure 6-11

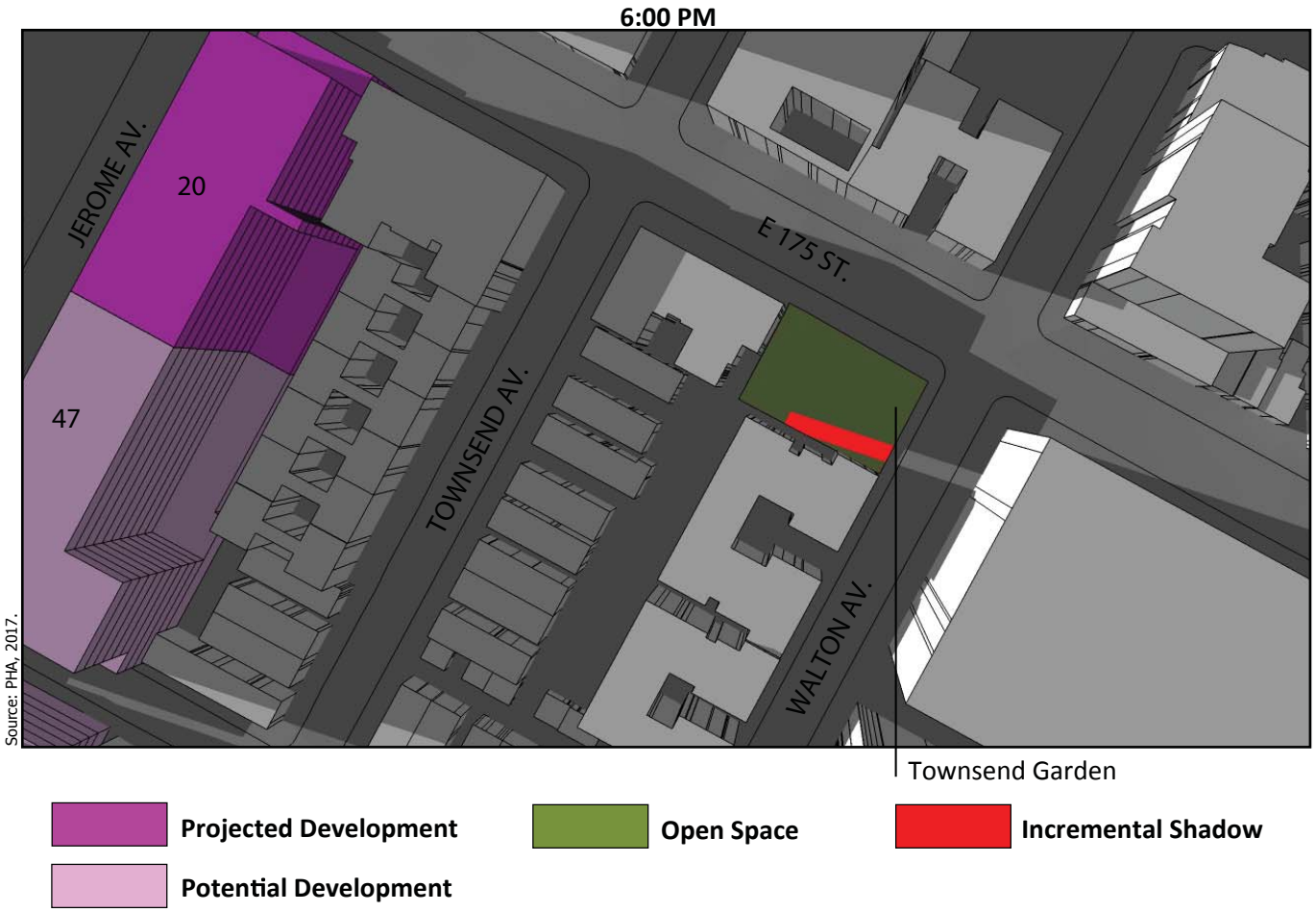
IS 117 Schoolyard and PS 236 Schoolyard

5:45 PM

Source: PHA, 2017.

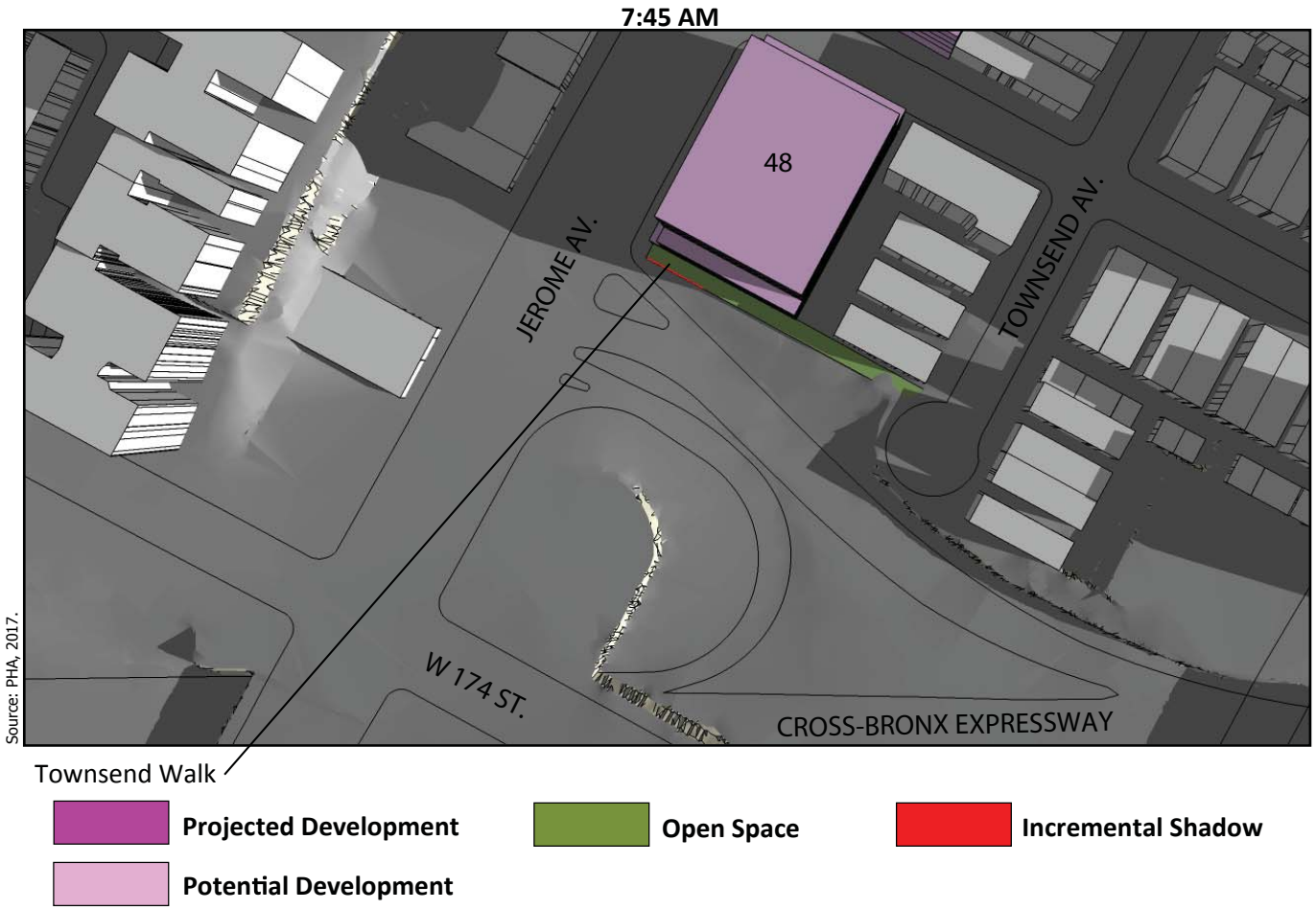
N

Figure 6-11


6:00 PM
JEROME AV.
20
47
E 175 ST.
TOWNSEND AV.
WALTON AV.
Townsend Garden
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow

N

Figure 6-12


7:45 AM
48
JEROME AV.
TOWNSEND AV.
W 174 ST.
CROSS-BRONX EXPRESSWAY
Source: PHA, 2017.
Townsend Walk
Projected Development
Potential Development
Open Space
Incremental Shadow

N

Figure 6-13

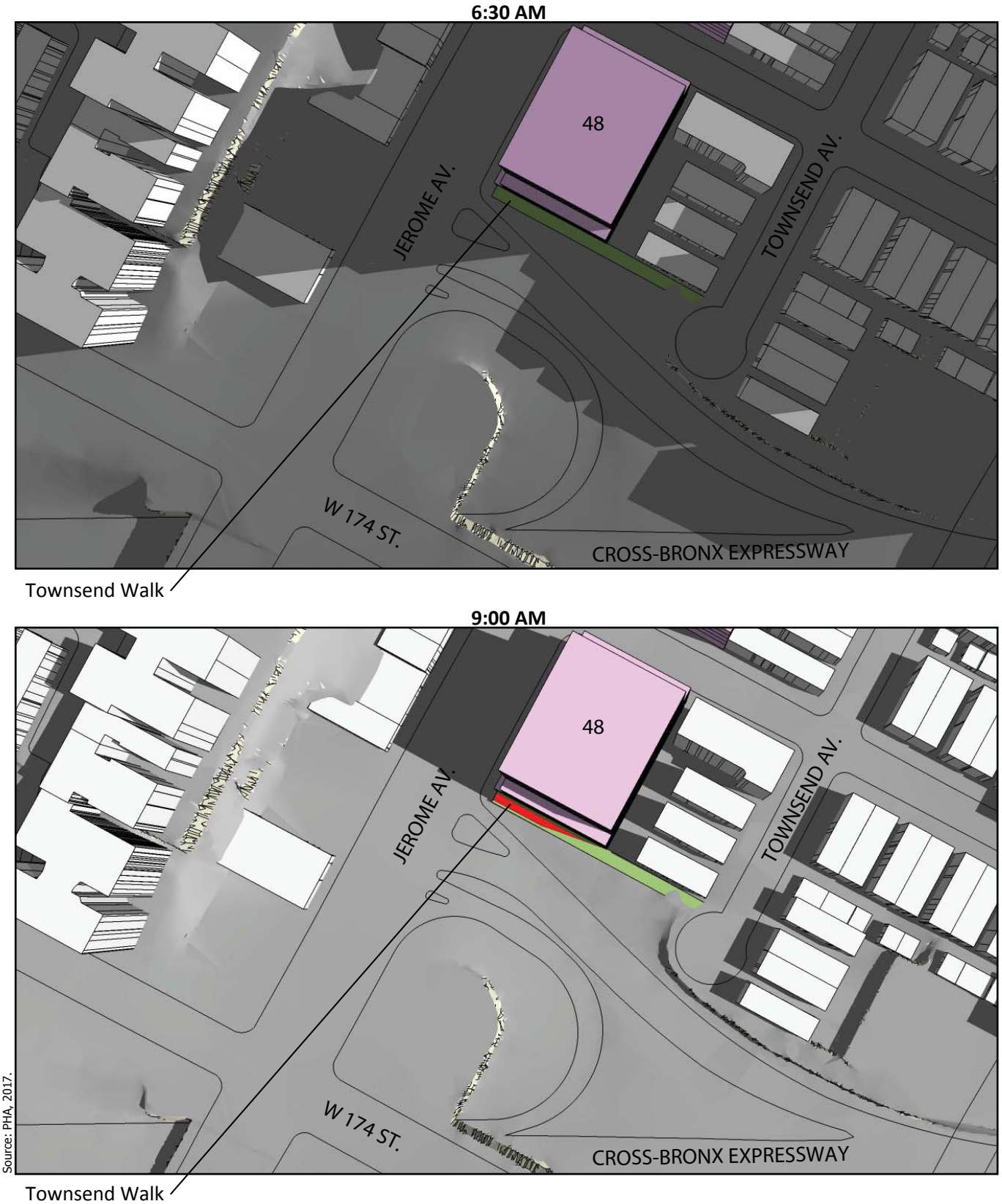

6:30 AM
48
JEROME AV.
TOWNSEND AV.
W 174 ST.
CROSS-BRONX EXPRESSWAY
Townsend Walk
9:00 AM
48
JEROME AV.
TOWNSEND AV.
W 174 ST.
CROSS-BRONX EXPRESSWAY
Townsend Walk
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-13

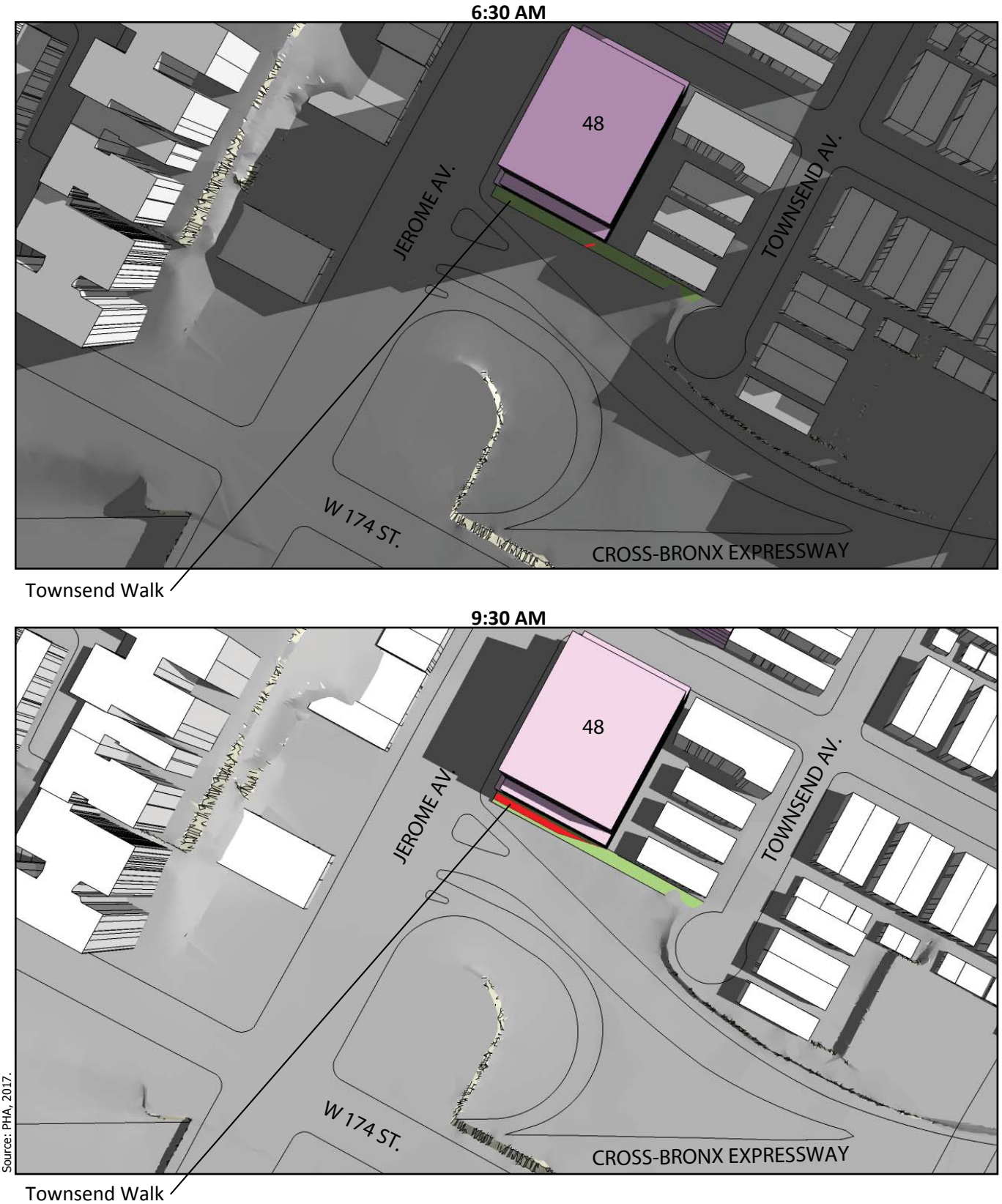

6:30 AM
48
JEROME AV.
TOWNSEND AV.
W 174 ST.
CROSS-BRONX EXPRESSWAY
Townsend Walk
9:30 AM
48
JEROME AV.
TOWNSEND AV.
W 174 ST.
CROSS-BRONX EXPRESSWAY
Townsend Walk
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-13

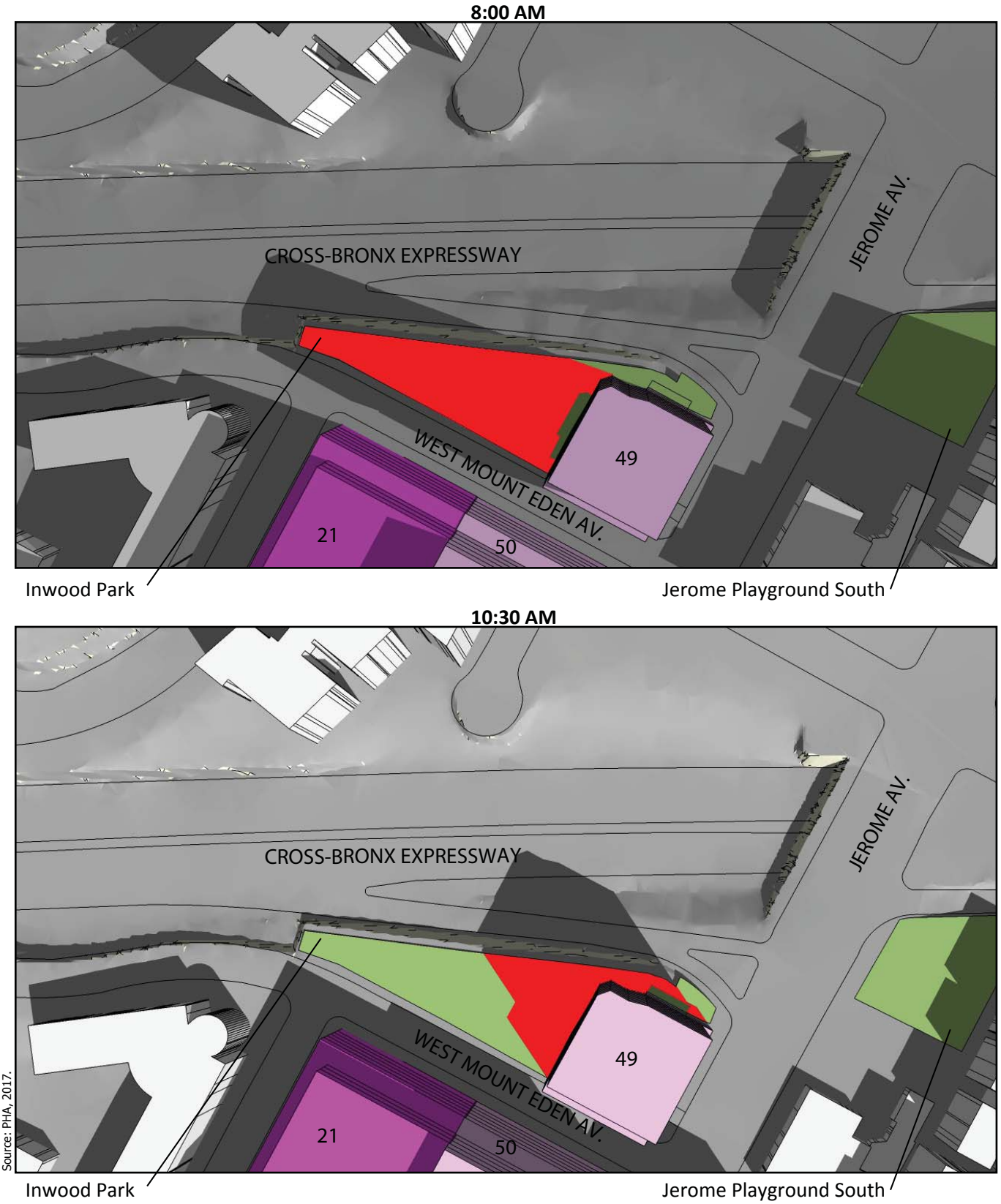

8:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
10:30 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14

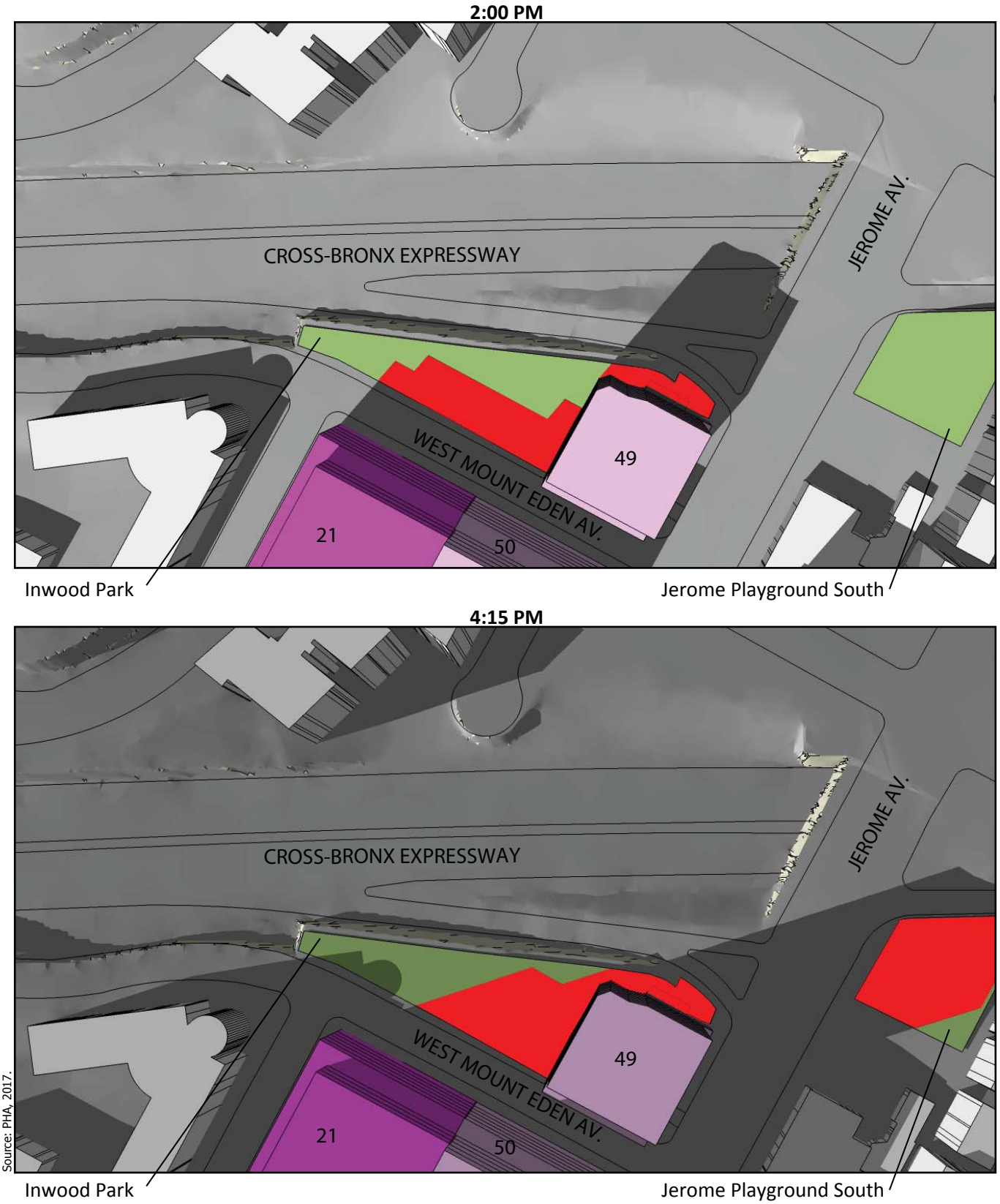

2:00 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
4:15 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14

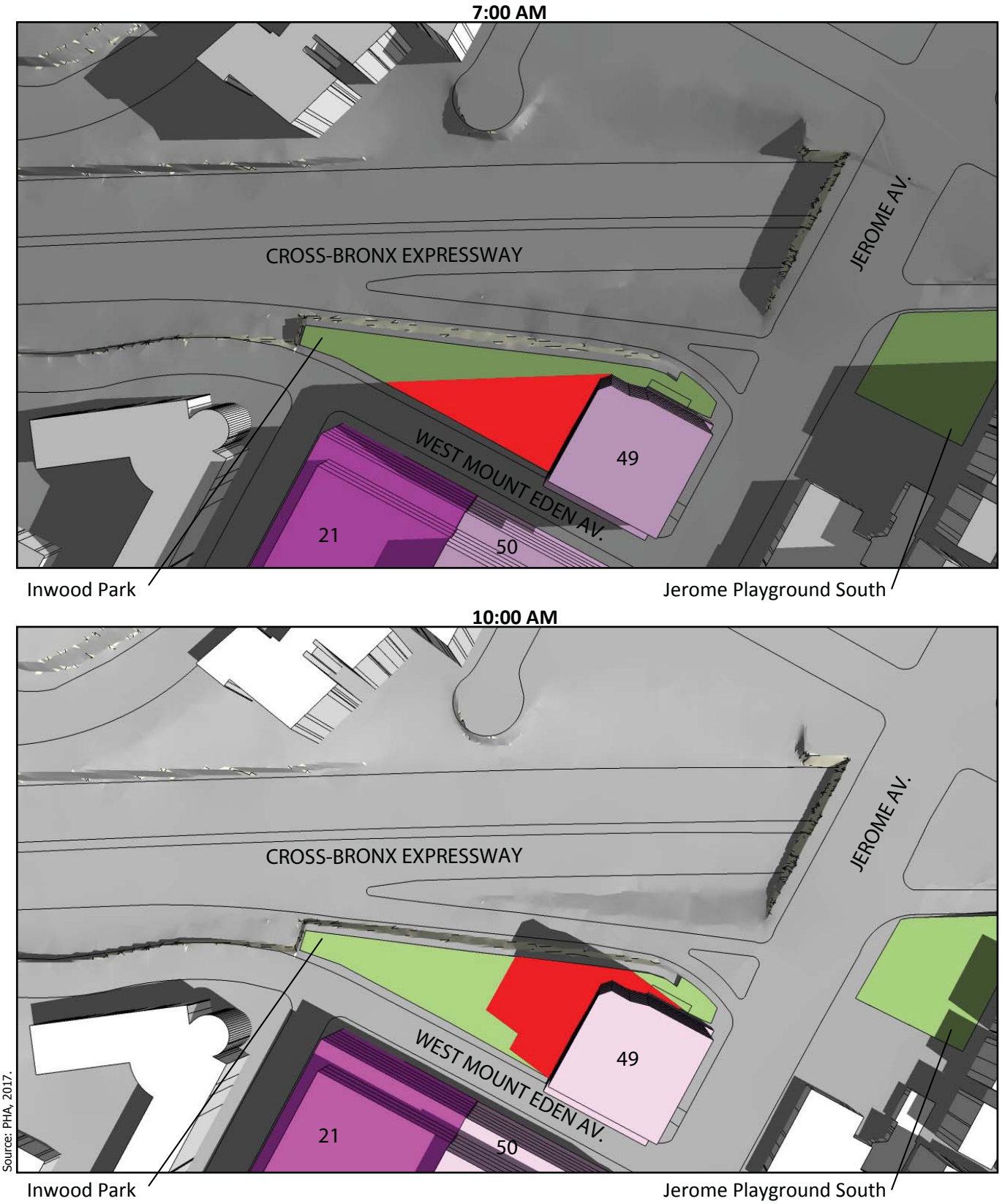

7:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
10:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14


1:00 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
4:30 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14


6:30 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
10:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-14


2:00 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
5:30 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14

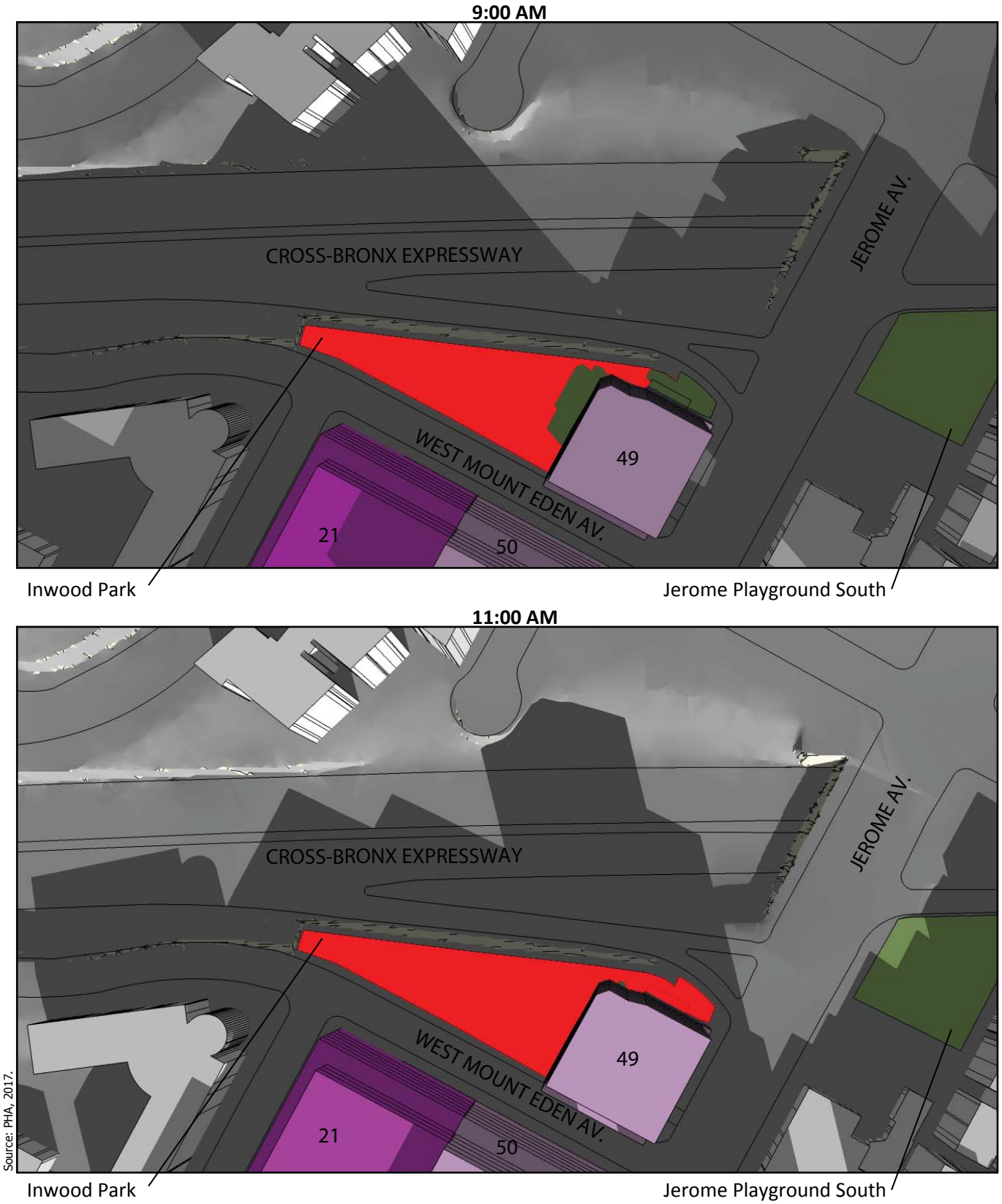

9:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
11:00 AM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14

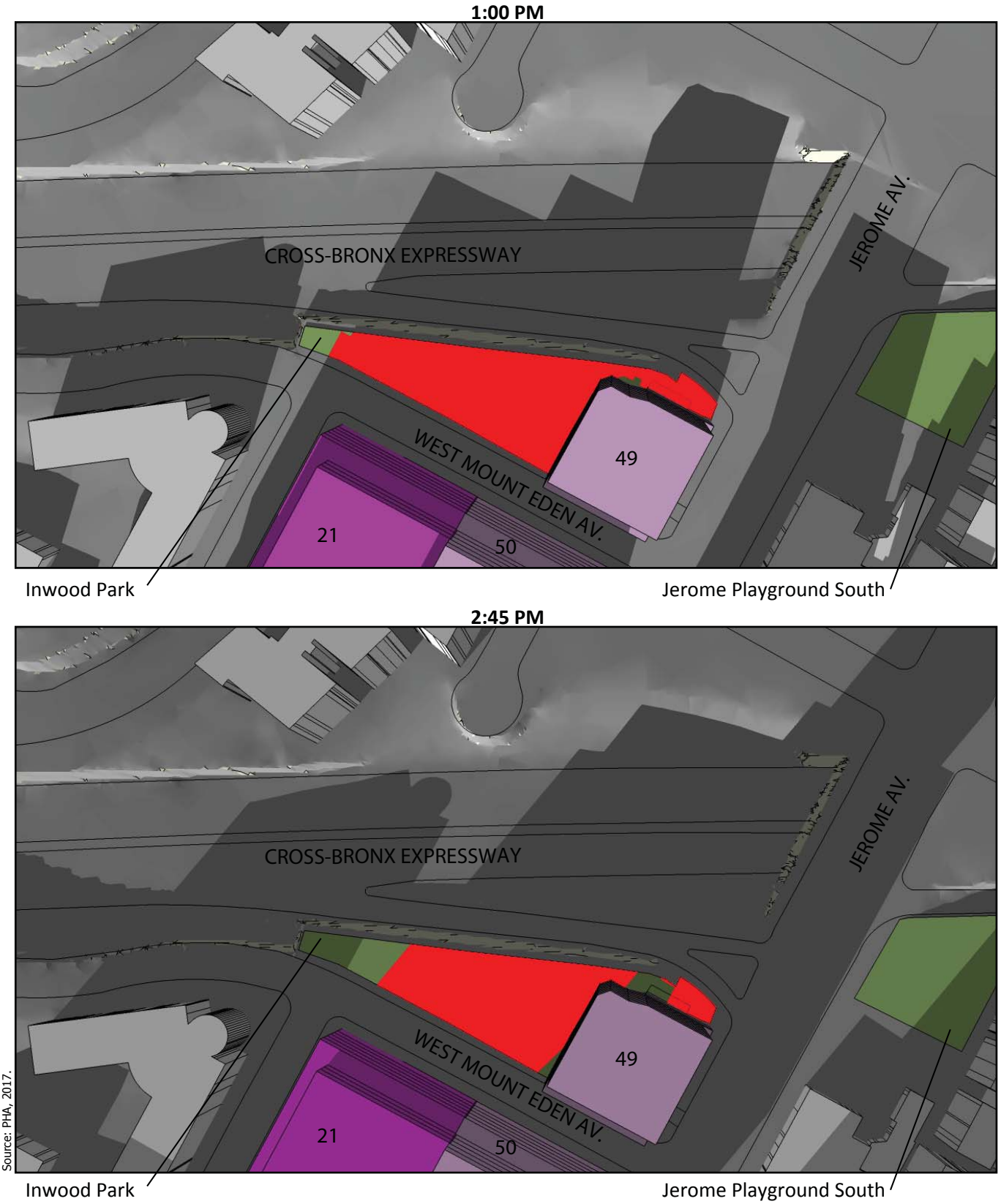
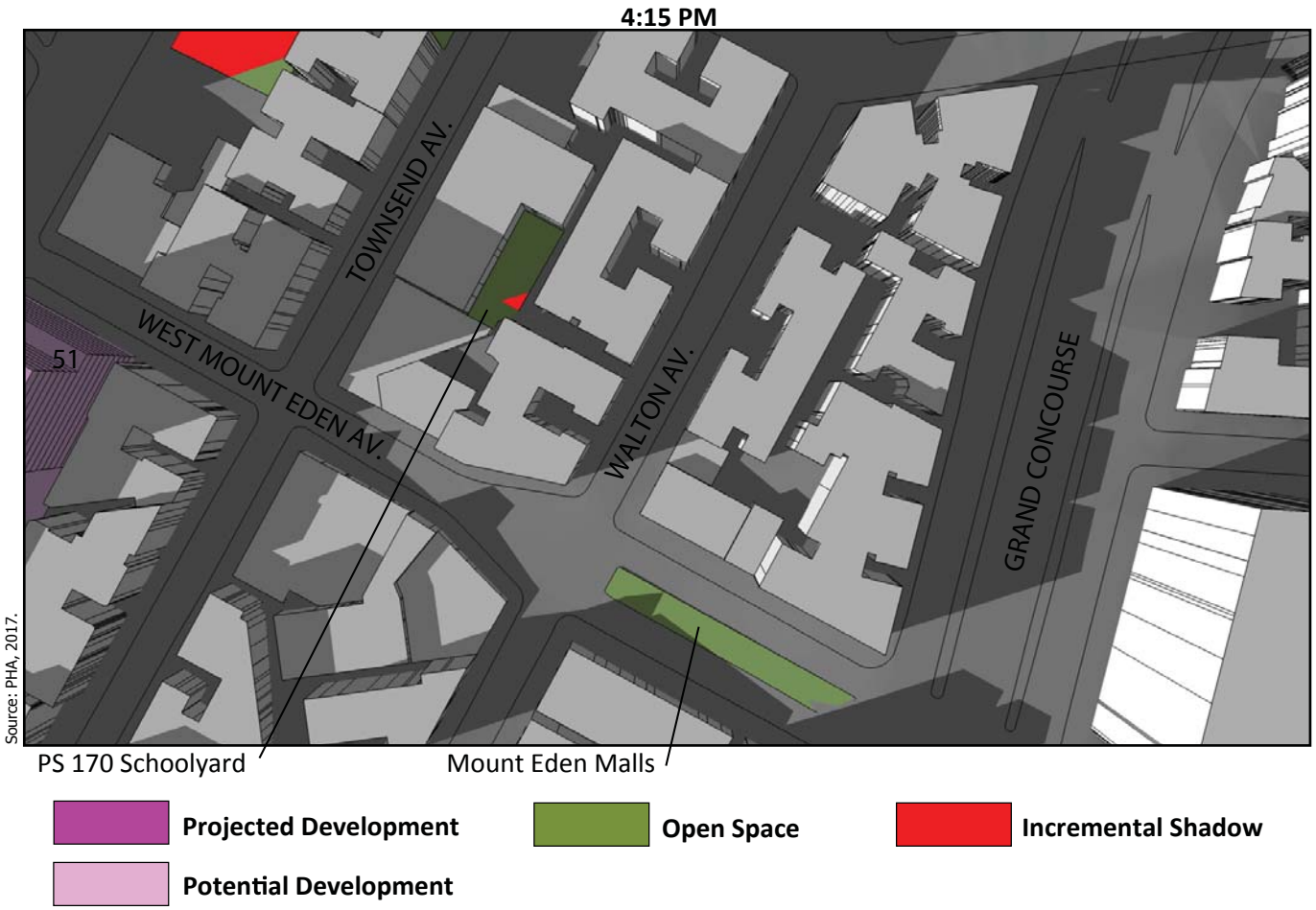

1:00 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
2:45 PM
CROSS-BRONX EXPRESSWAY
JEROME AV.
WEST MOUNT EDEN AV.
49
21
50
Inwood Park
Jerome Playground South
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-14

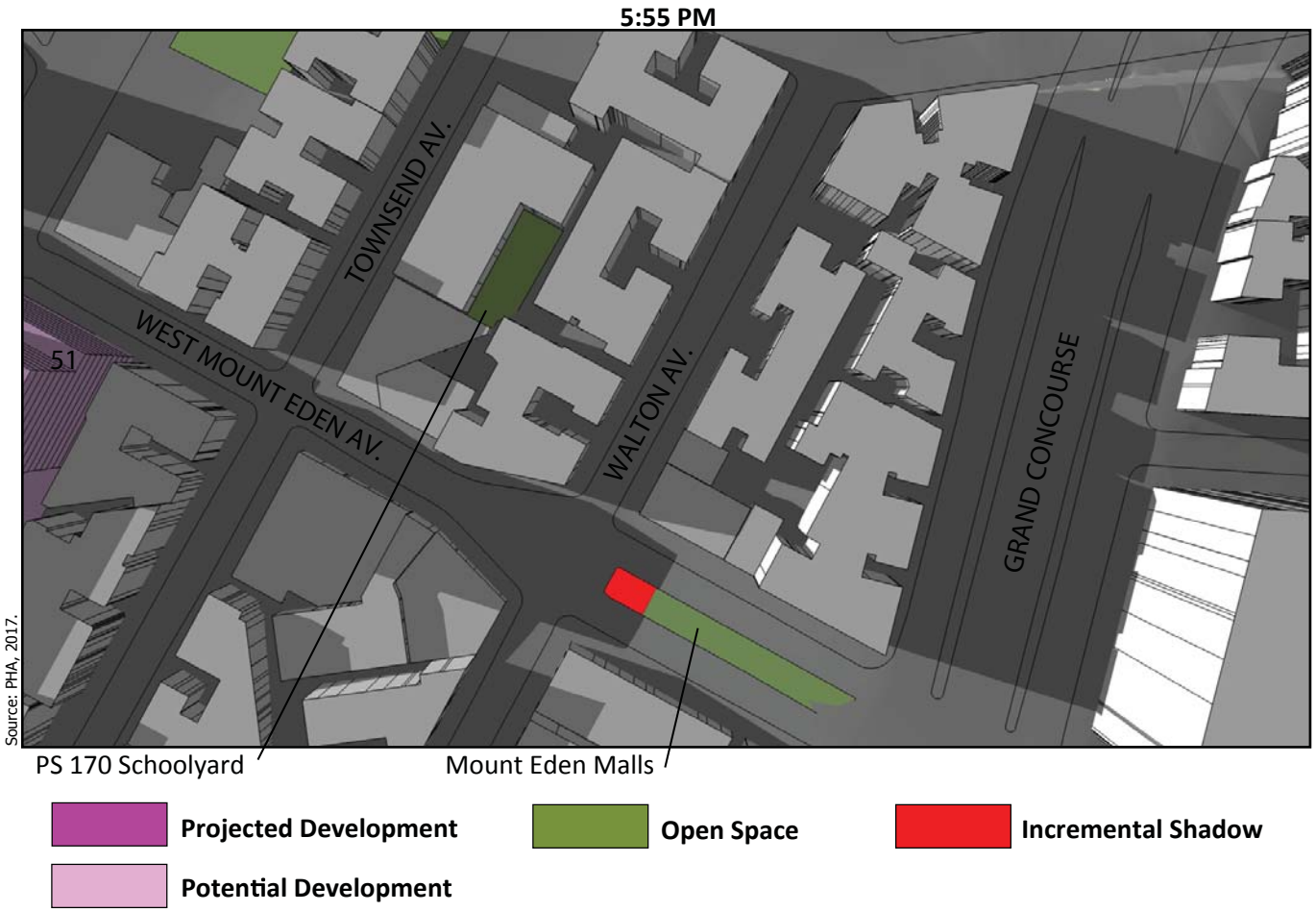
PS 170 Schoolyard and Mount Eden Malls



N

Figure 6-14

PS 170 Schoolyard and Mount Eden Malls



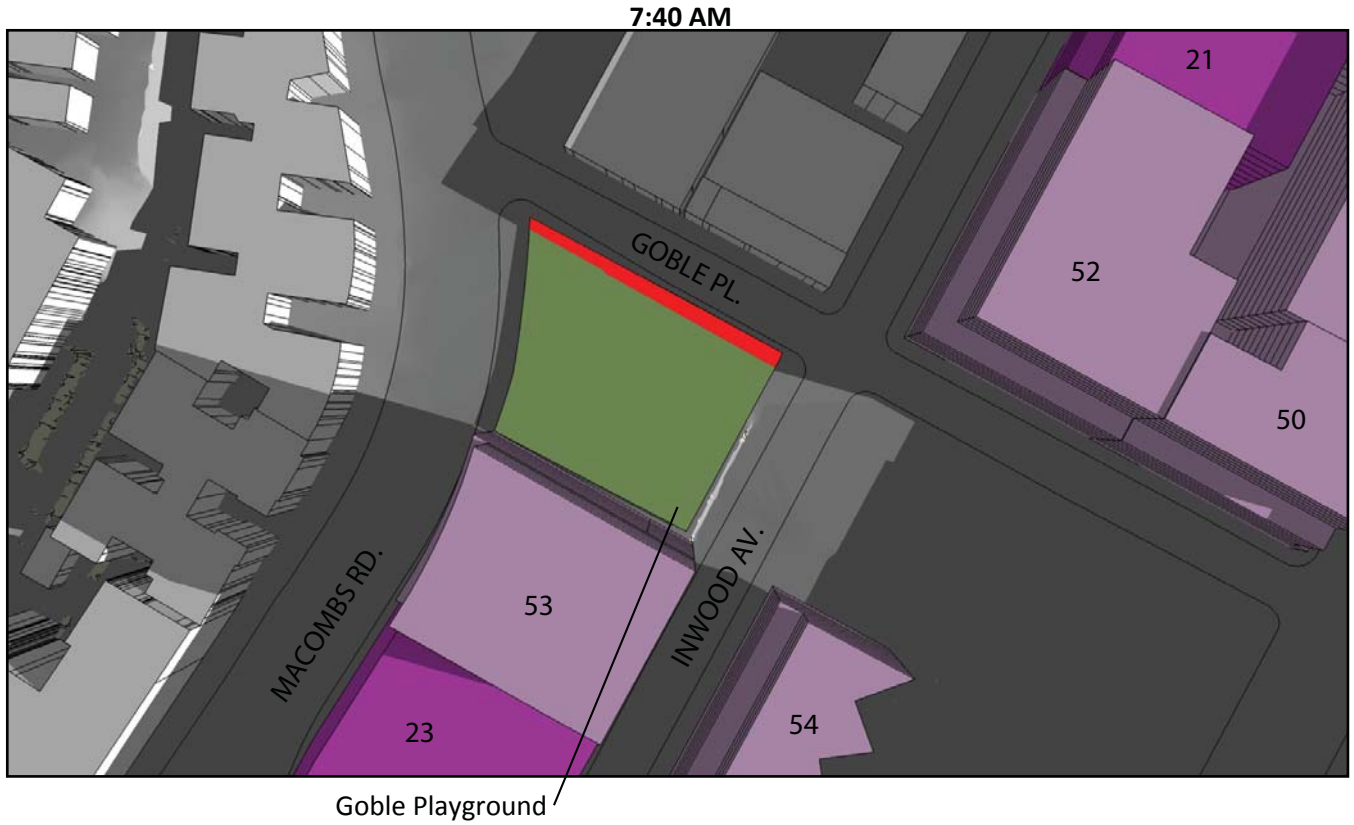
N

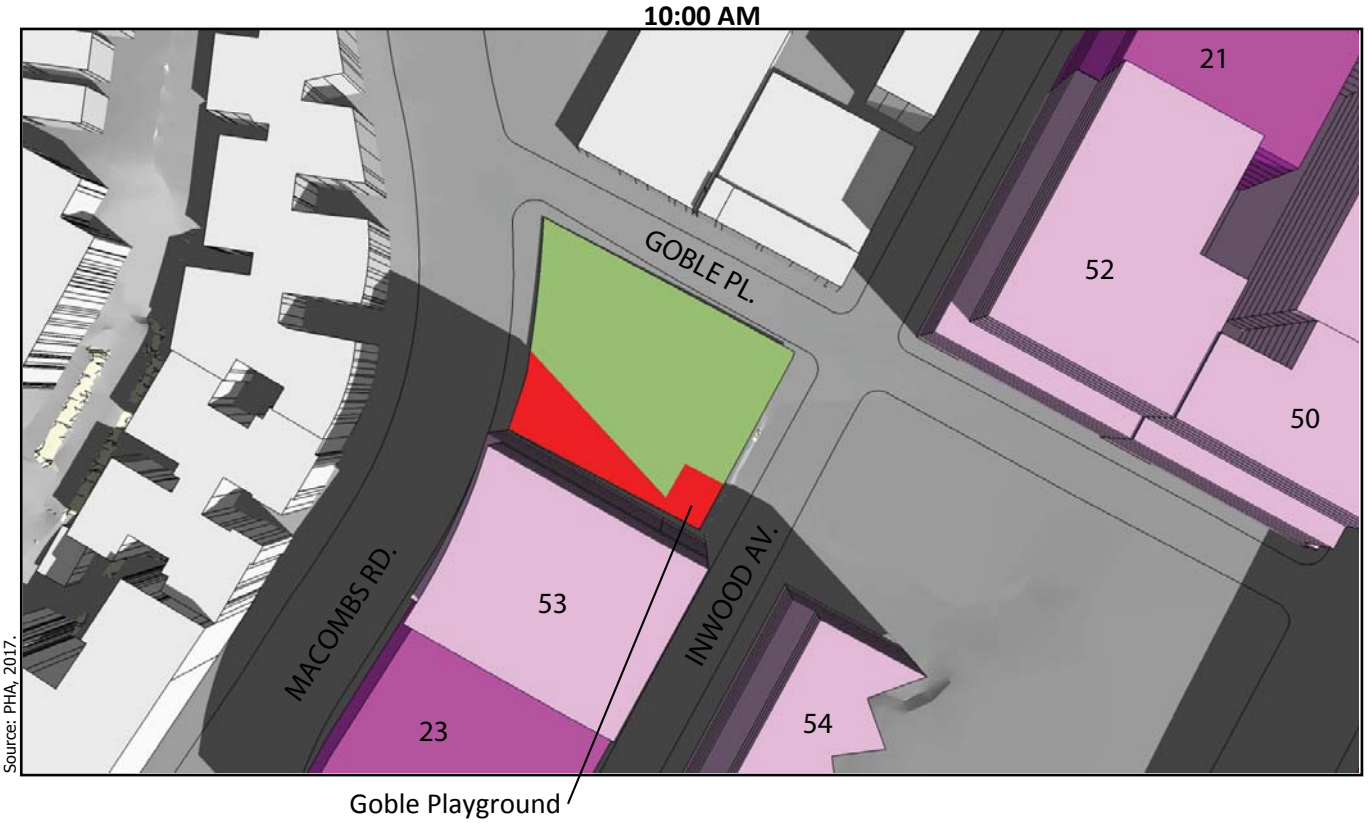
Figure 6-14

Inwood Park

N

Figure 6-14a





Source: PHA, 2017.

Projected Development
Open Space
Incremental Shadow
Potential Development

N

Figure 6-16


1:00 PM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
4:00 PM
21
52
GOBLE PL.
50
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16

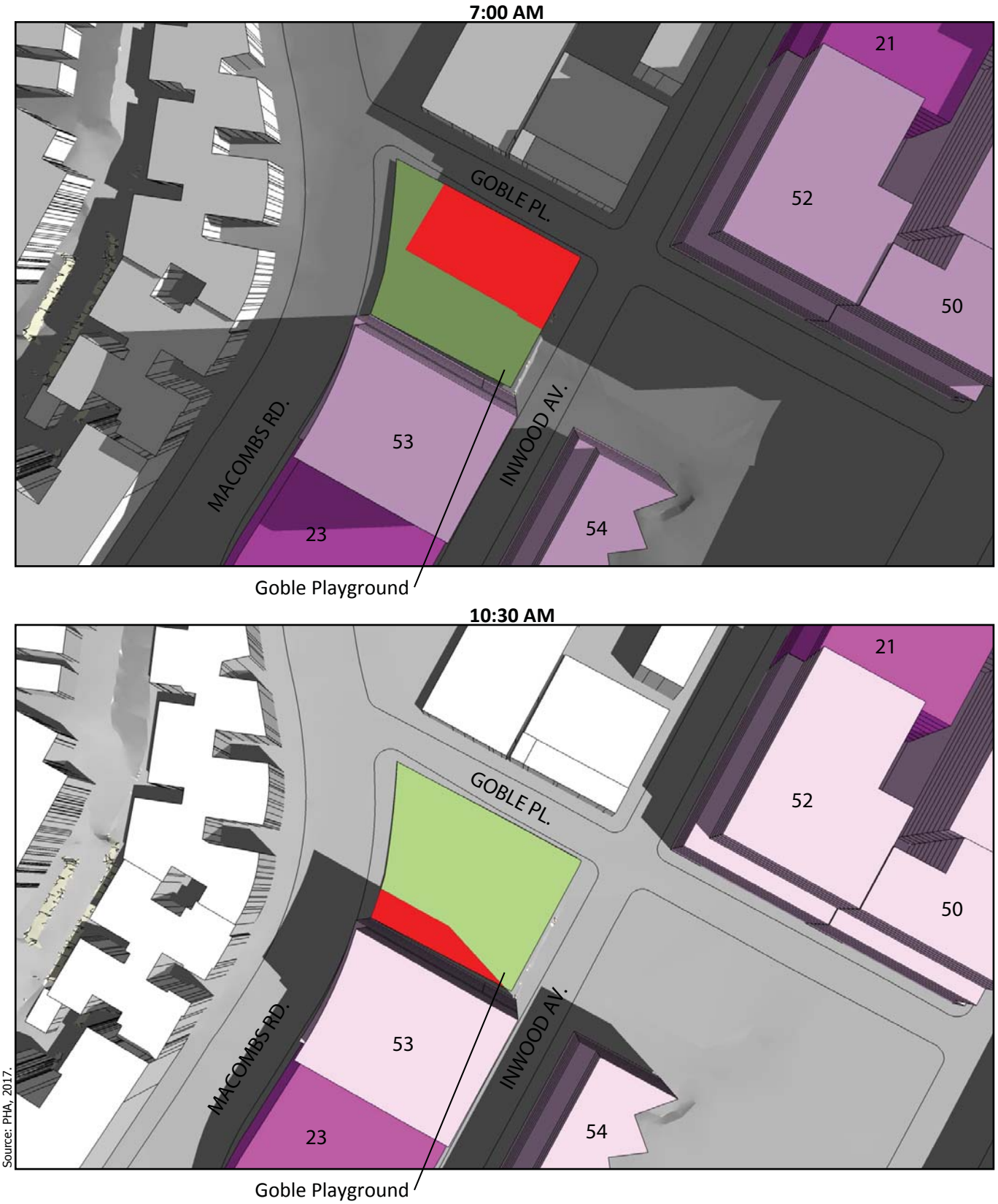

7:00 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
10:30 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16


1:30 PM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
4:30 PM
21
52
GOBLE PL.
50
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16

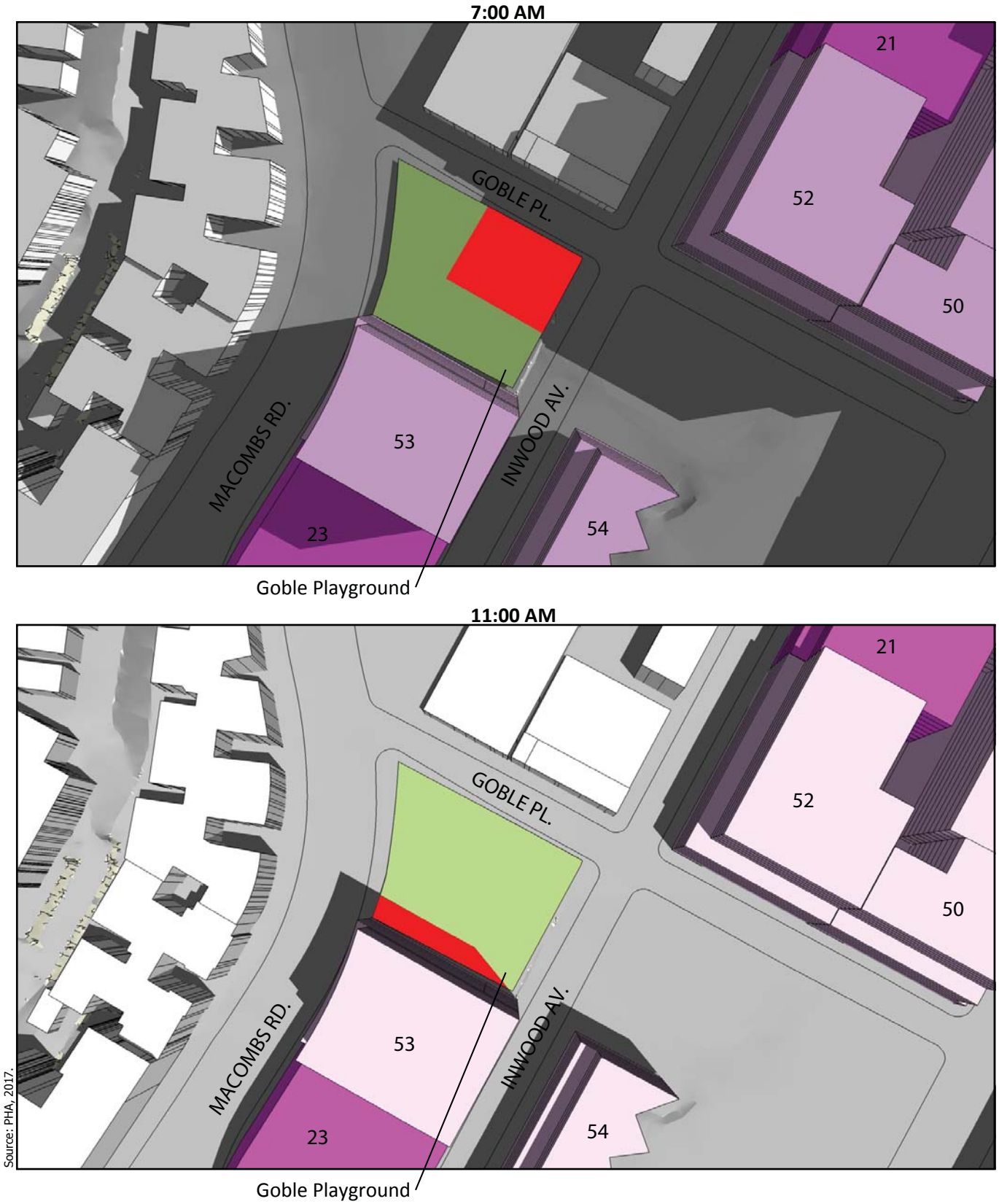

7:00 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
11:00 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16

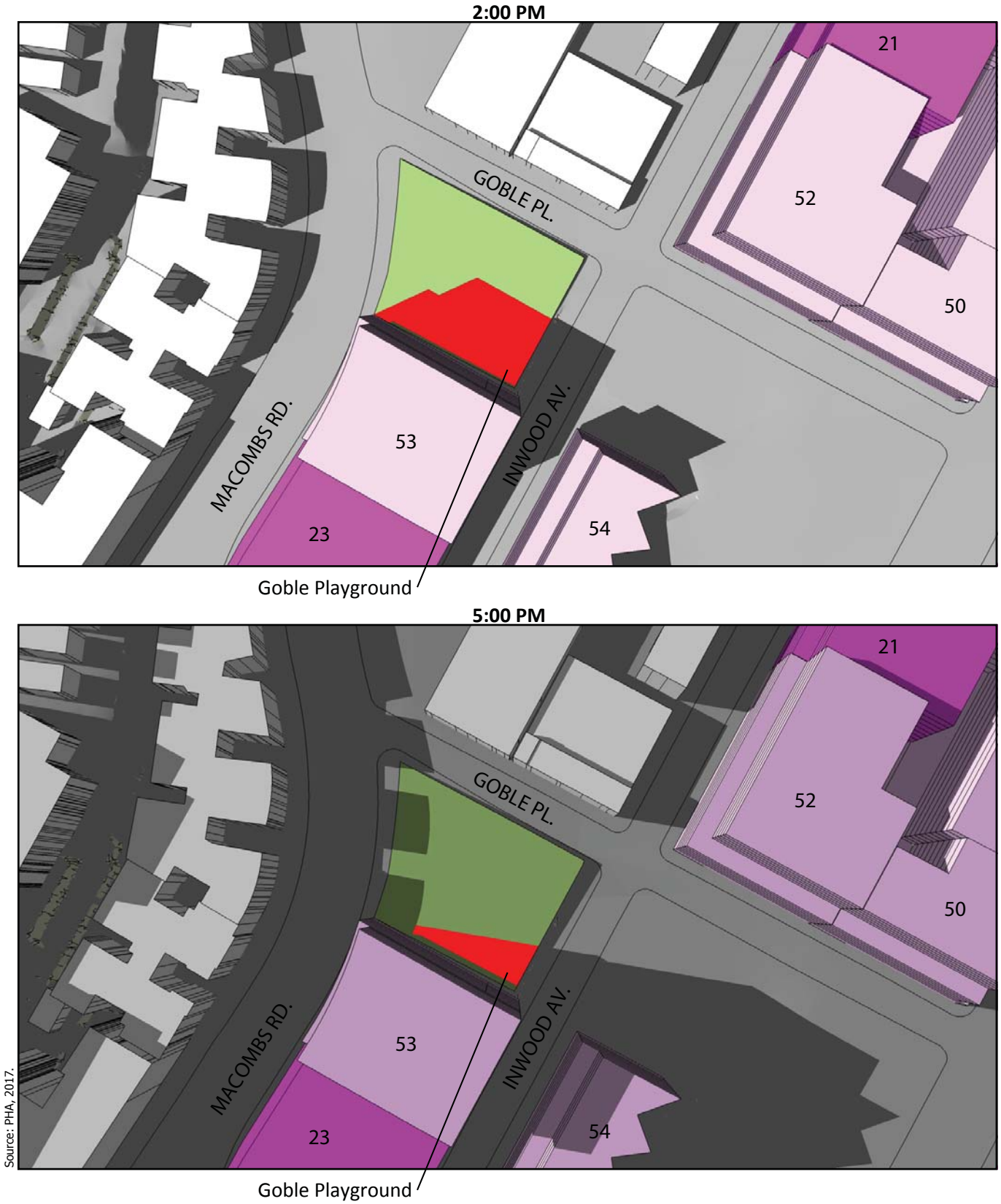

2:00 PM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
5:00 PM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16

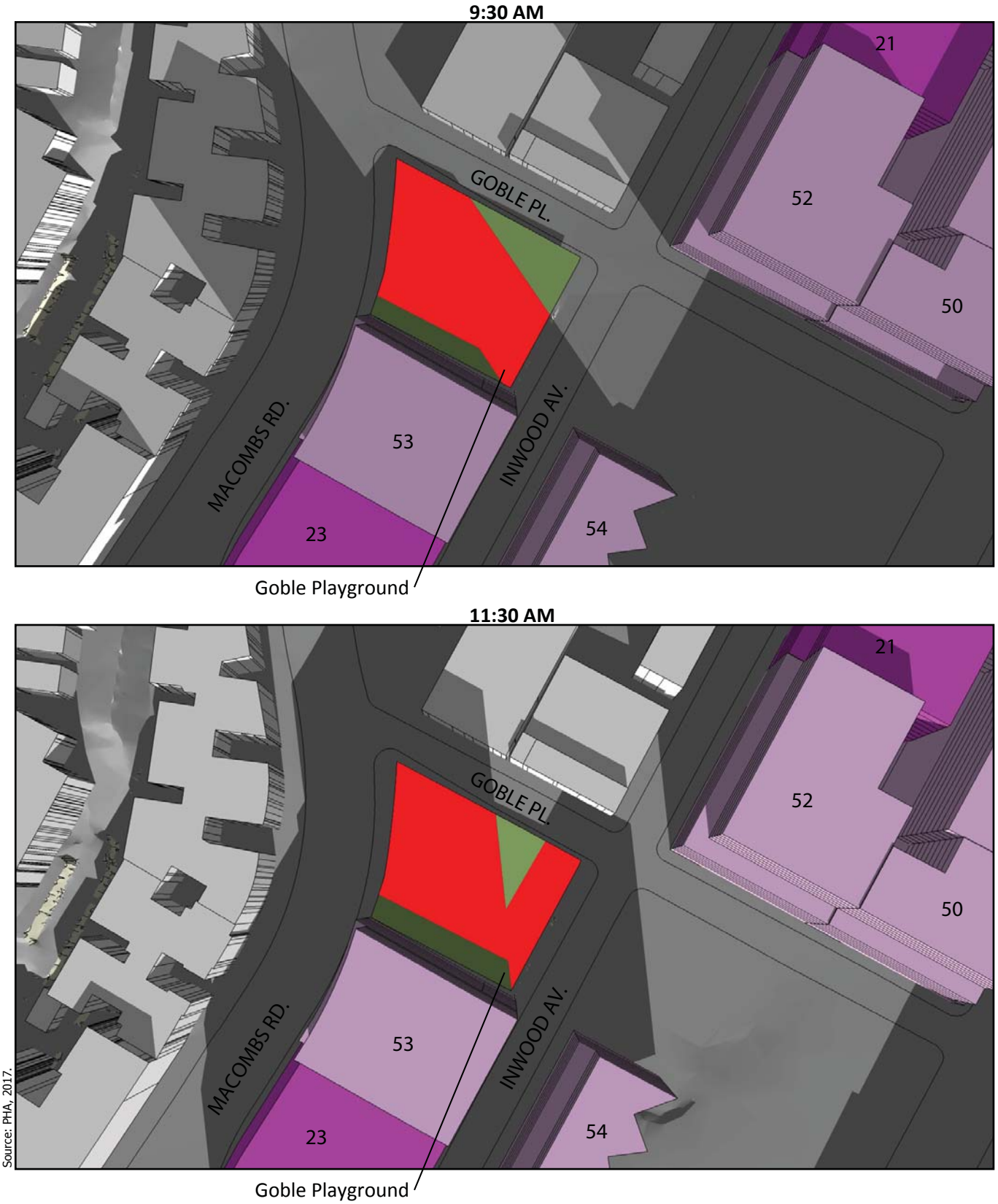
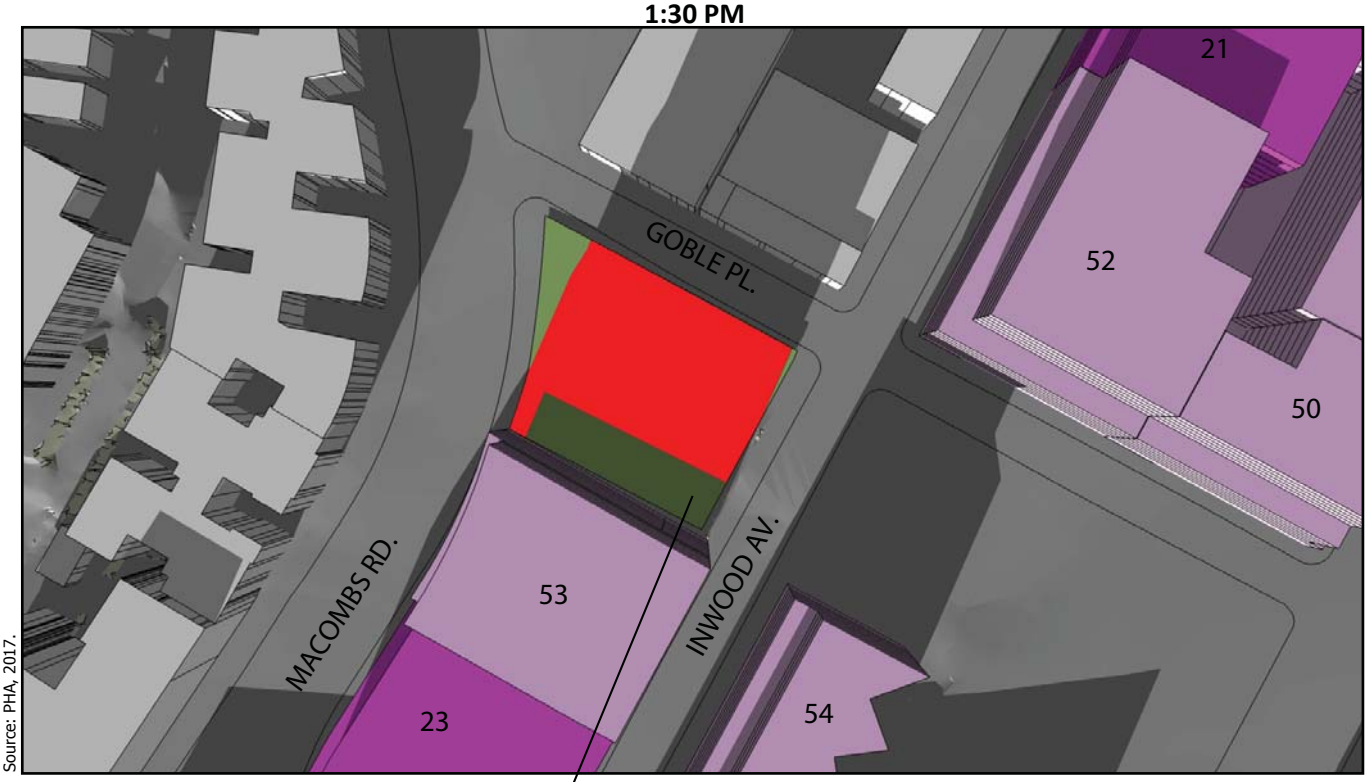

9:30 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
11:30 AM
21
52
50
GOBLE PL.
MACOMBS RD.
53
INWOOD AV.
23
54
Goble Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-16

Goble Playground

1:30 PM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-16

Goble Playground

N

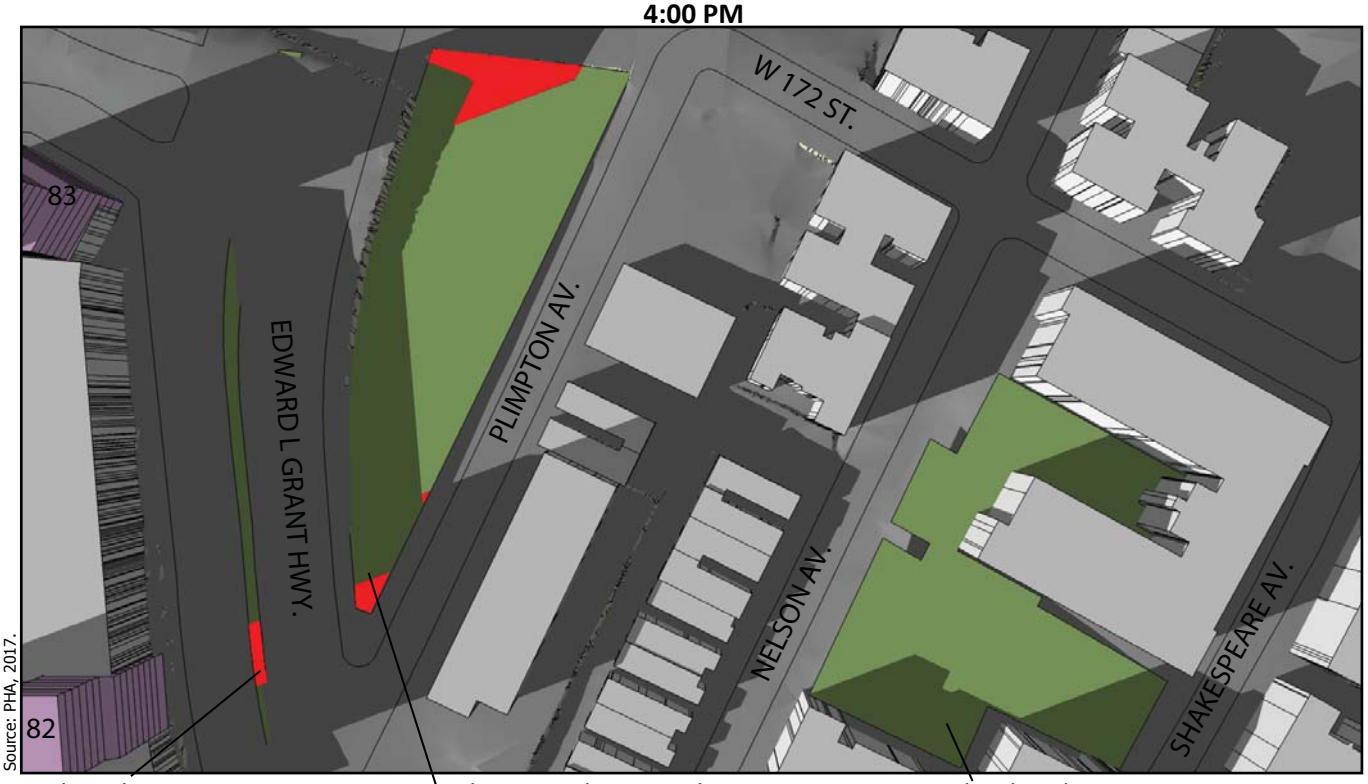
Figure 6-16a

IMPACTED RESOURCE - GOBLE PLAYGROUND

PS 199 Schoolyard, Plimpton Playground, and Edward L Grant Greenstreet

3:00 PM

4:00 PM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-17

PS 199 Schoolyard, Plimpton Playground, and Edward L Grant Greenstreet

3:30 PM

4:30 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-17

PS 199 Schoolyard, Plimpton Playground, and Edward L Grant Greenstreet

4:30 PM

6:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

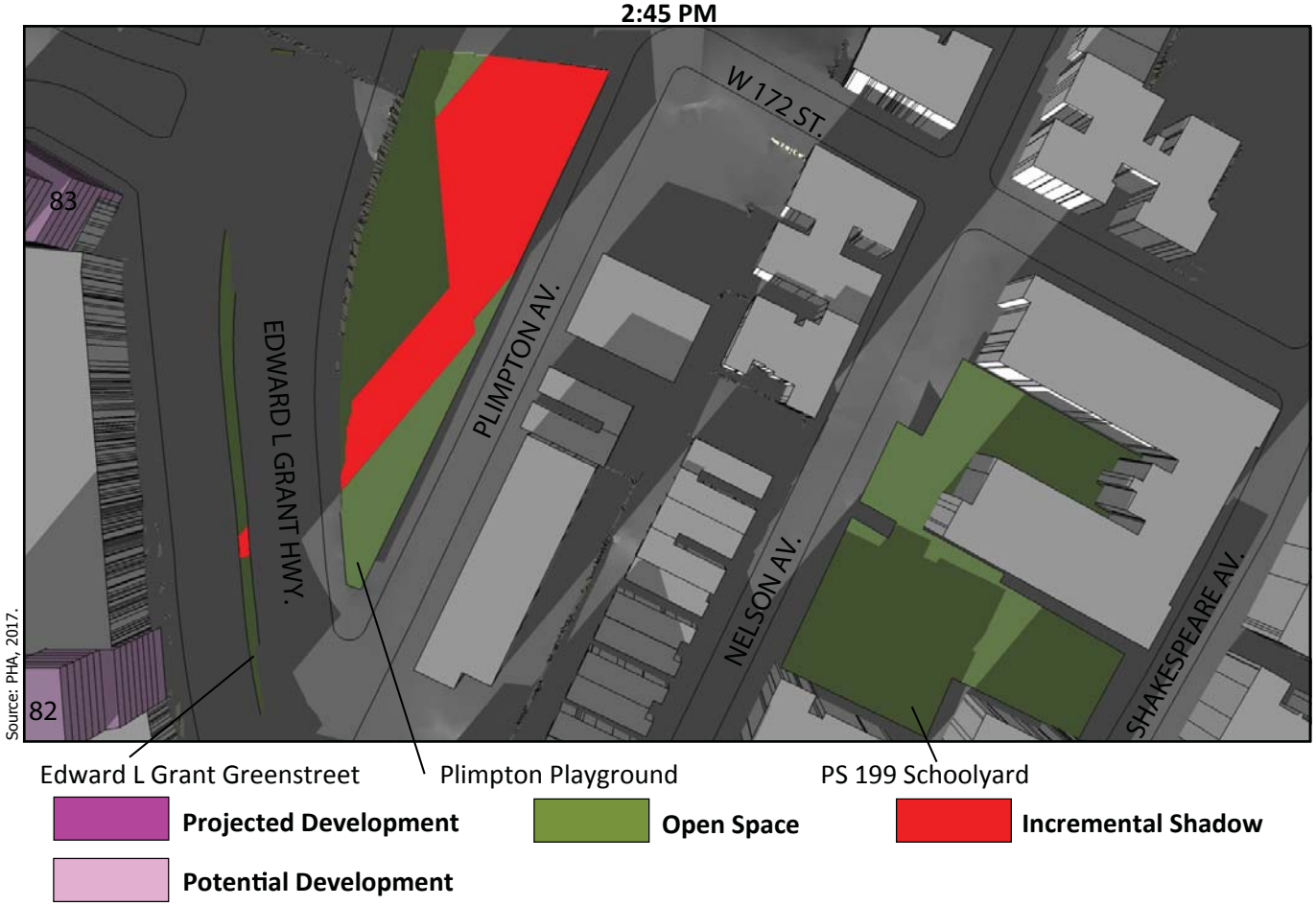
Incremental Shadow

N

Figure 6-17

PS 199 Schoolyard, Plimpton Playground, and Edward L Grant Greenstreet

2:45 PM



N

Figure 6-17

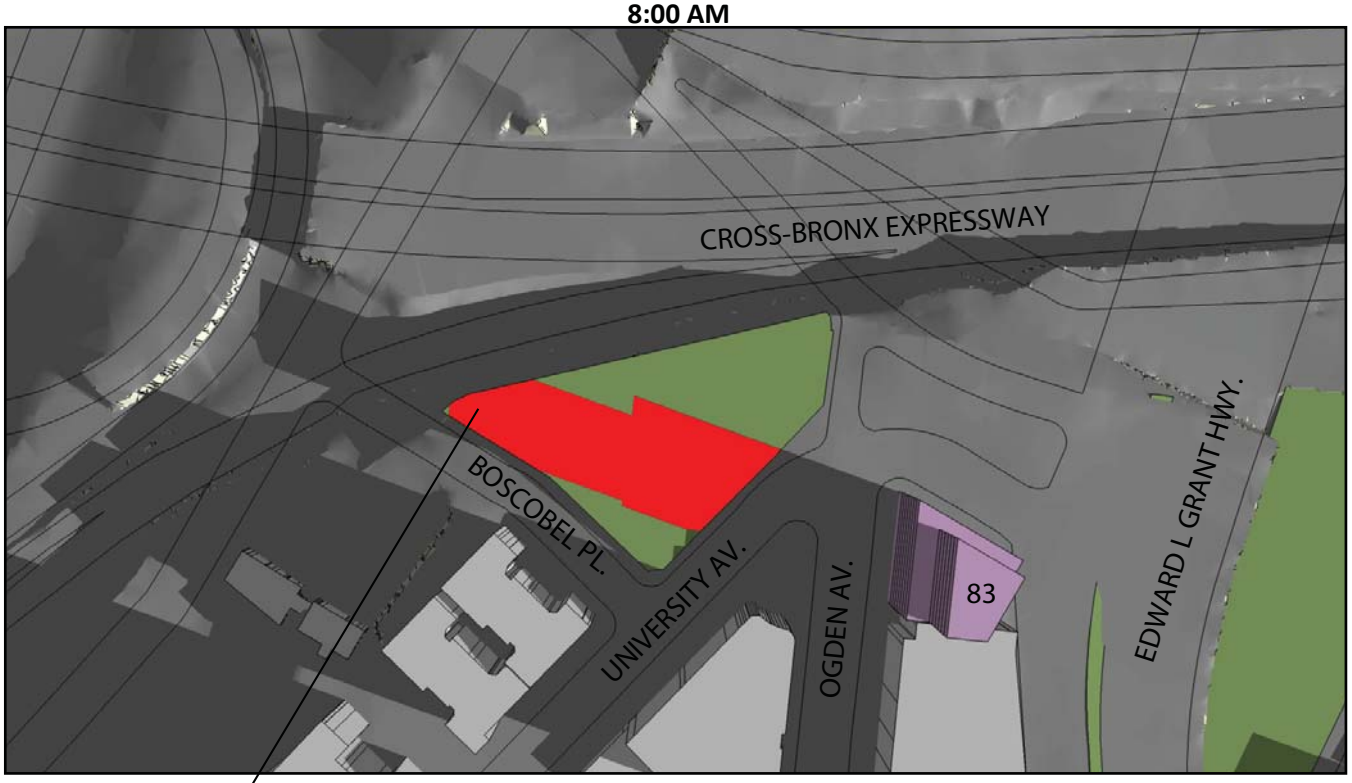
Edward L. Grant Highway Greenstreet

N

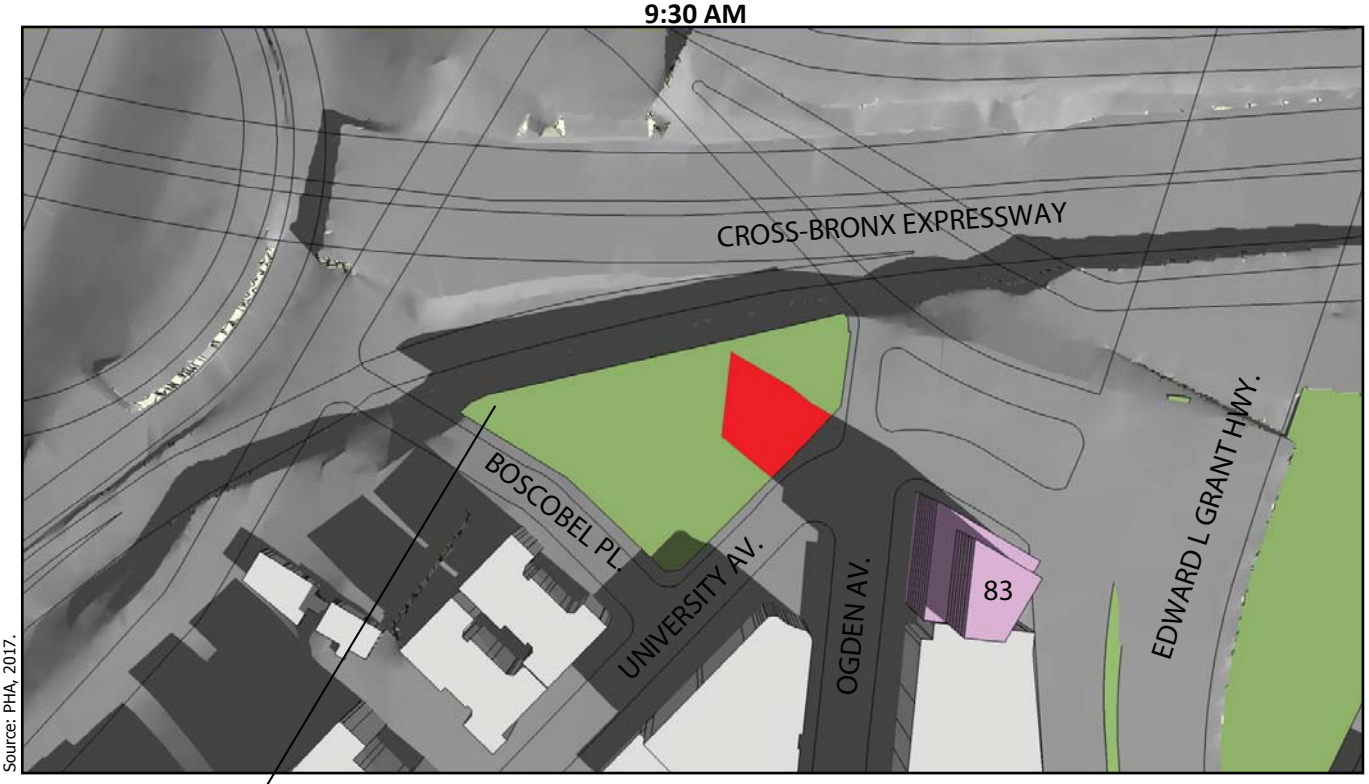
Figure 6-17a

IMPACTED RESOURCE - EDWARD L. GRANT HIGHWAY GREENSTREET

8:00 AM



9:30 AM



Source: PHA, 2017.

Projected Development | **Open Space** | **Incremental Shadow**

Potential Development

N

Figure 6-18

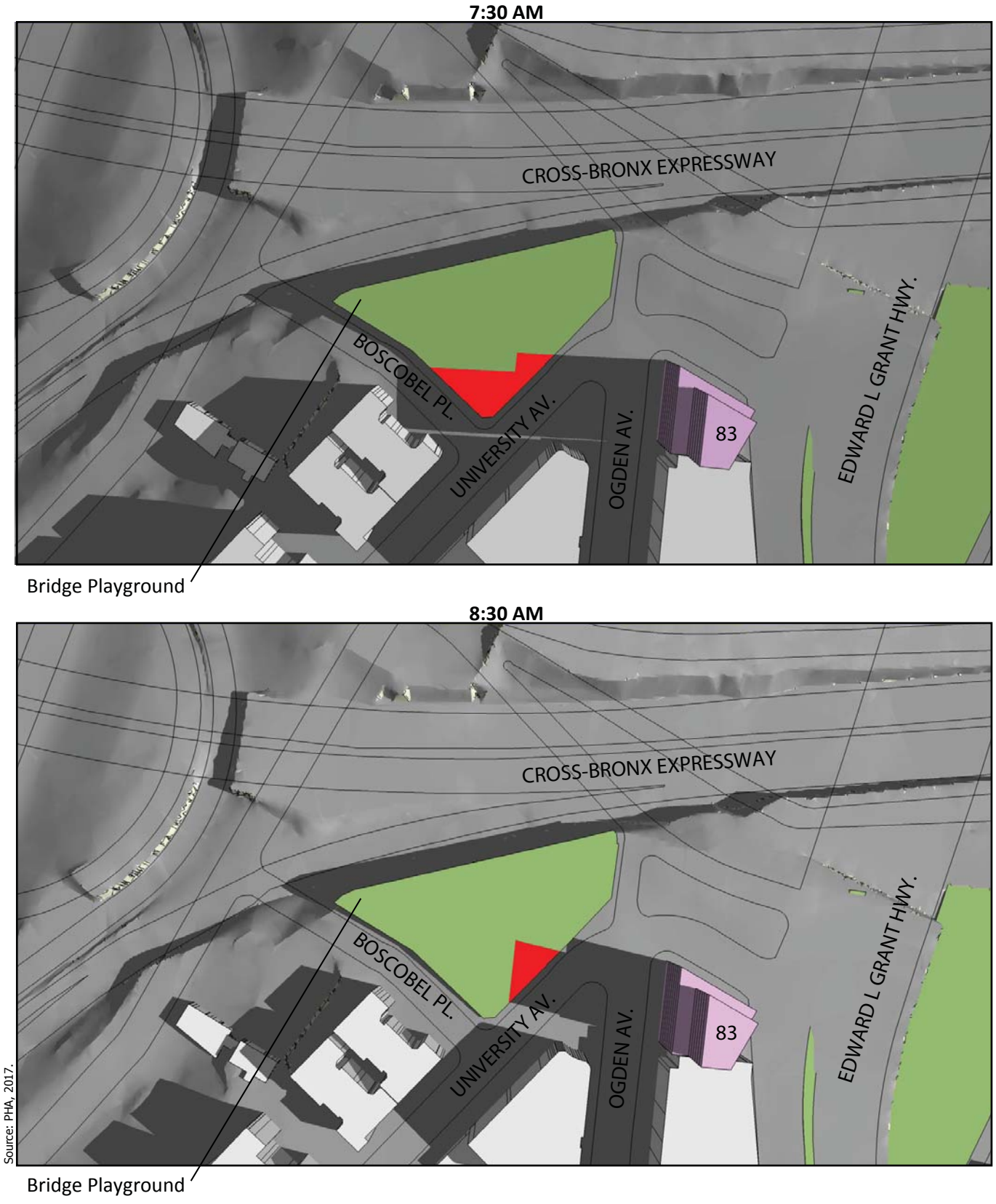

7:30 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
8:30 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-18

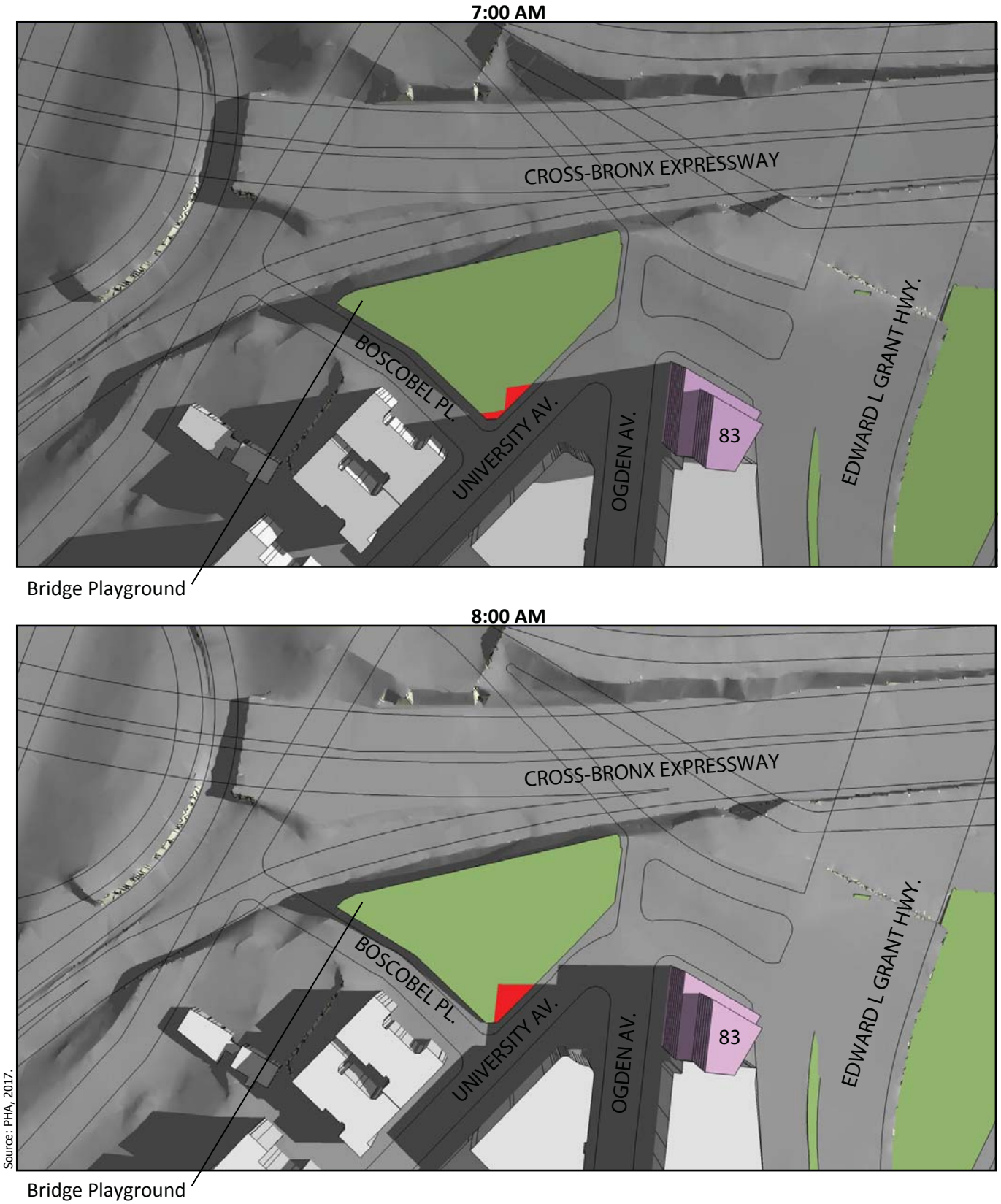

7:00 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
8:00 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-18

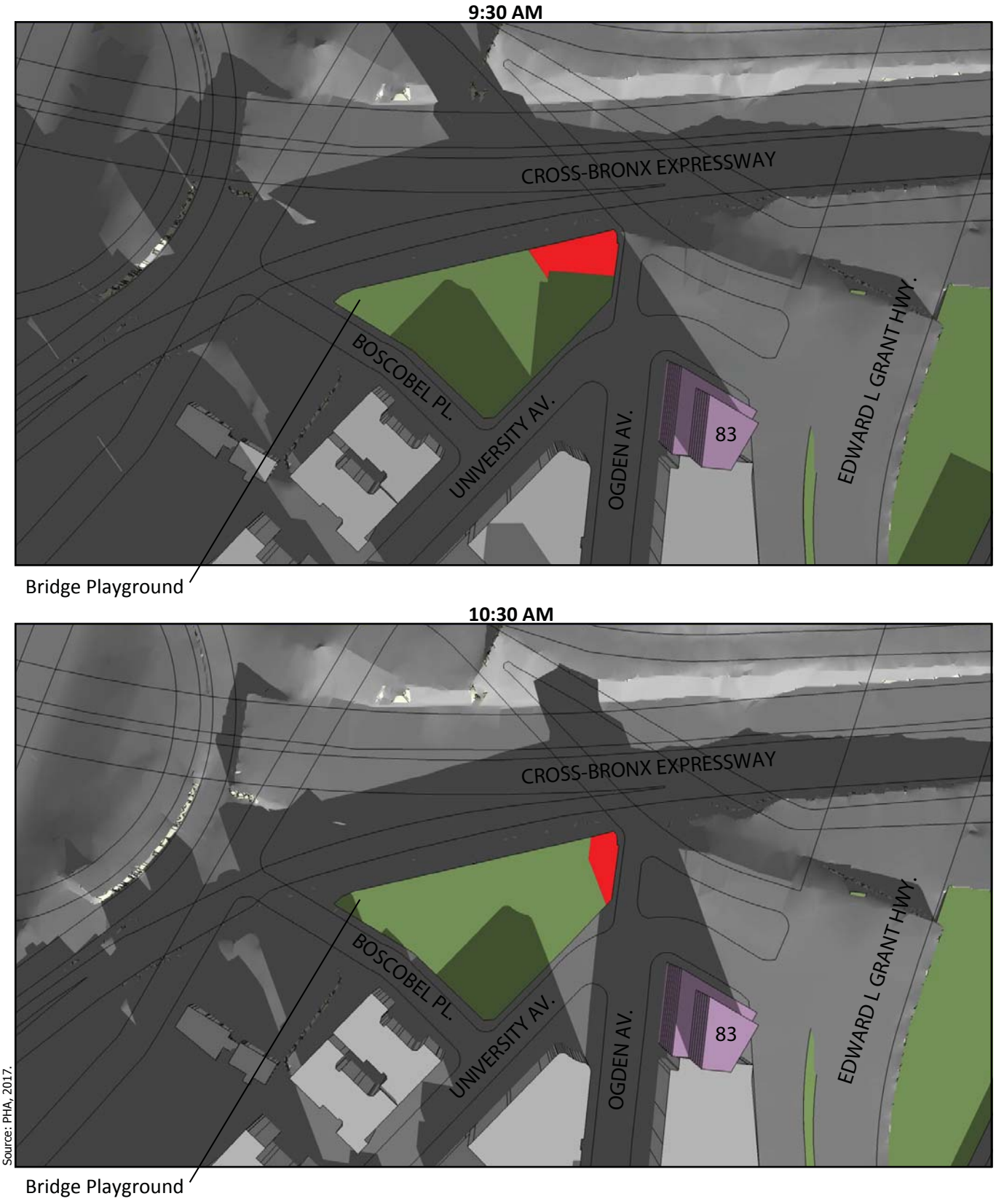

9:30 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
10:30 AM
CROSS-BRONX EXPRESSWAY
BOSCOBEL PL.
UNIVERSITY AV.
OGDEN AV.
83
EDWARD L GRANT HWY.
Bridge Playground
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-18

Ogden Plimpton Playground and Edward L Grant Greenstreet

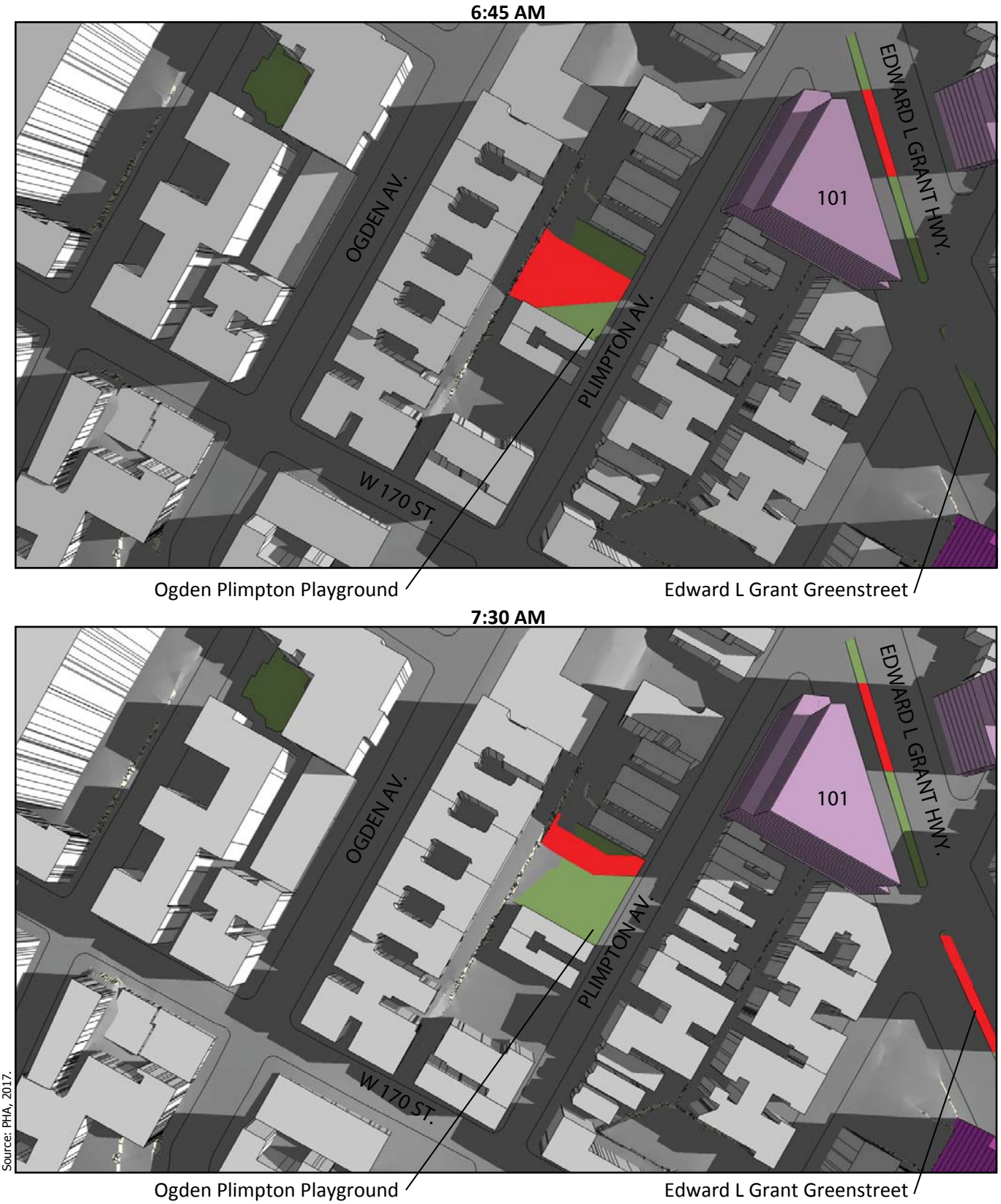


Figure 6-19

Ogden Plimpton Playground and Edward L Grant Greenstreet

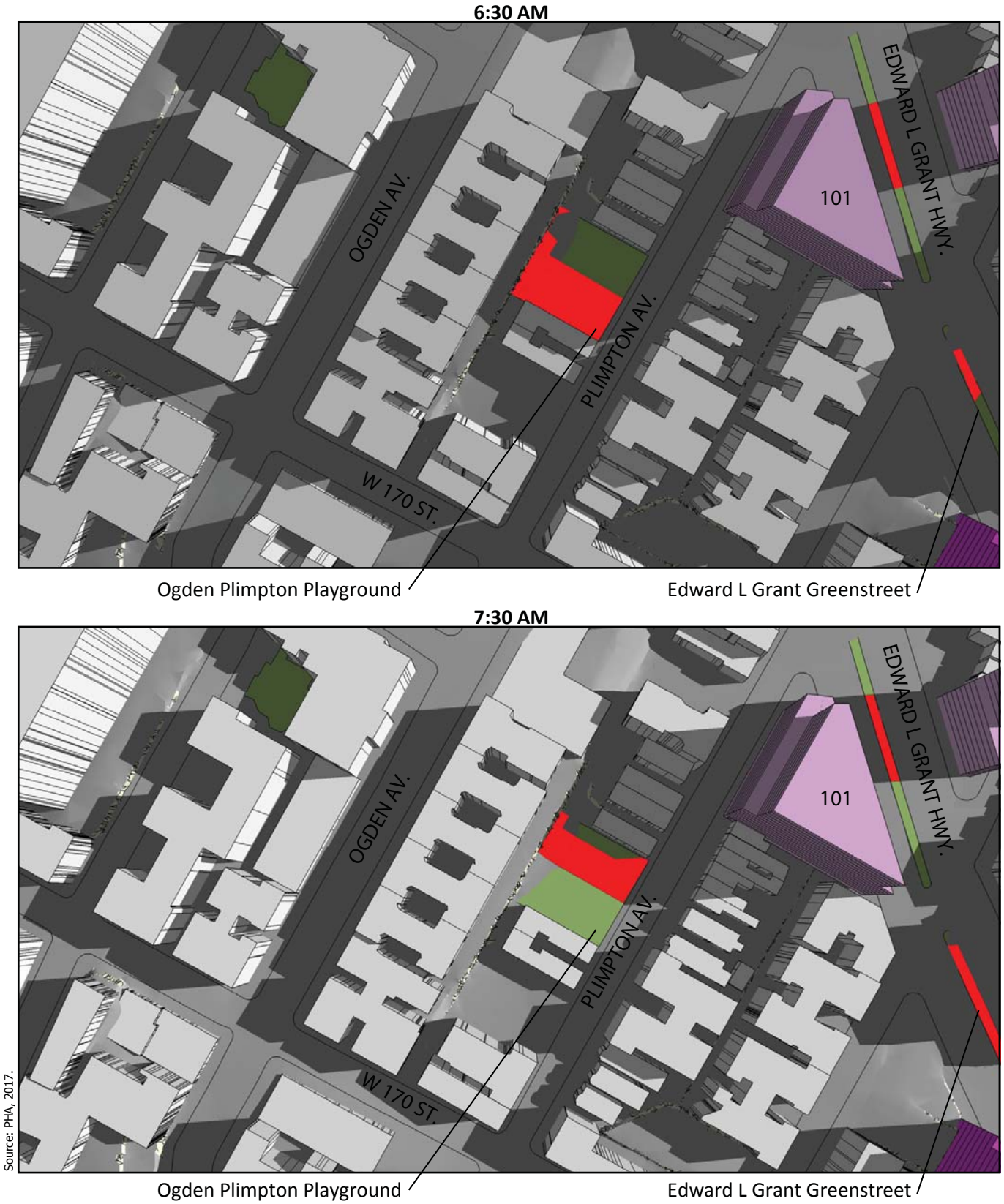


Figure 6-19

Ogden Plimpton Playground and Edward L Grant Greenstreet

9:00 AM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-19

Edward L. Grant Highway Greenstreet

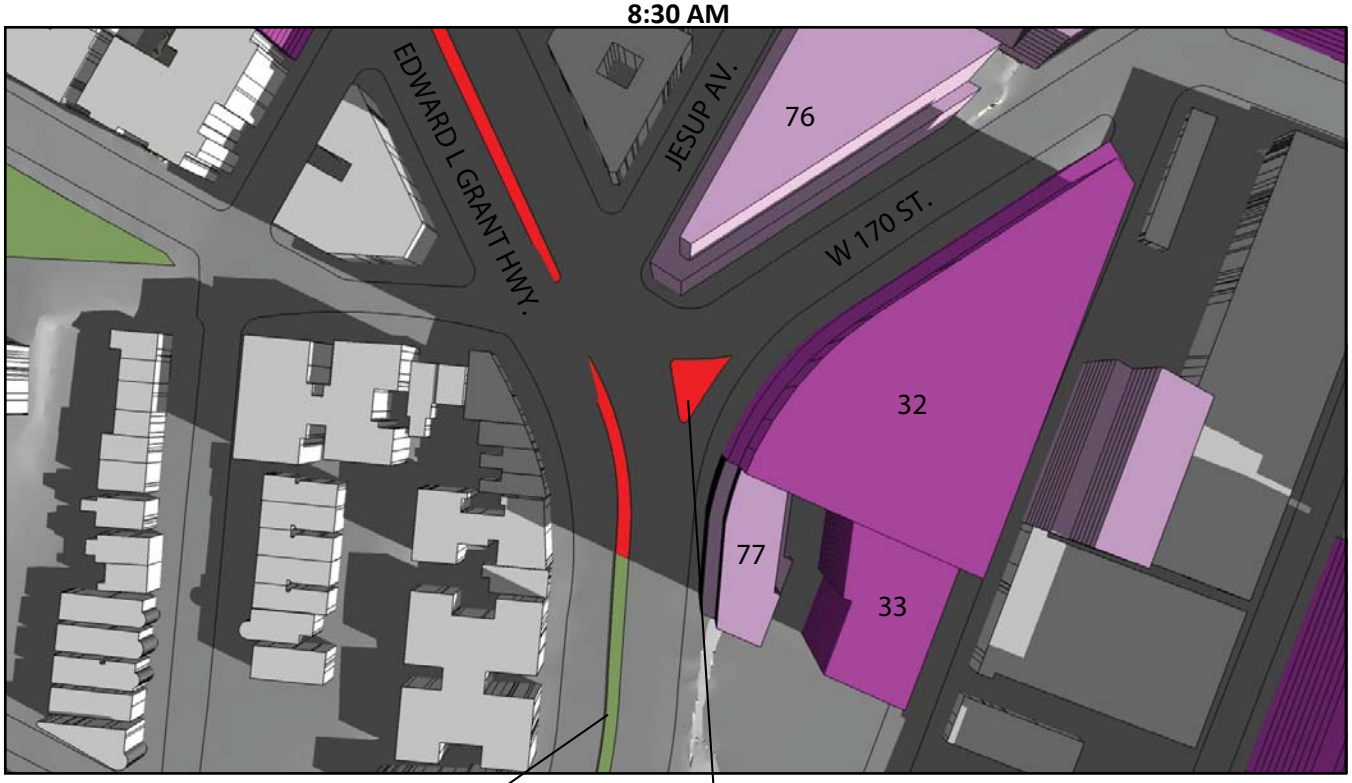
N

Figure 6-19a

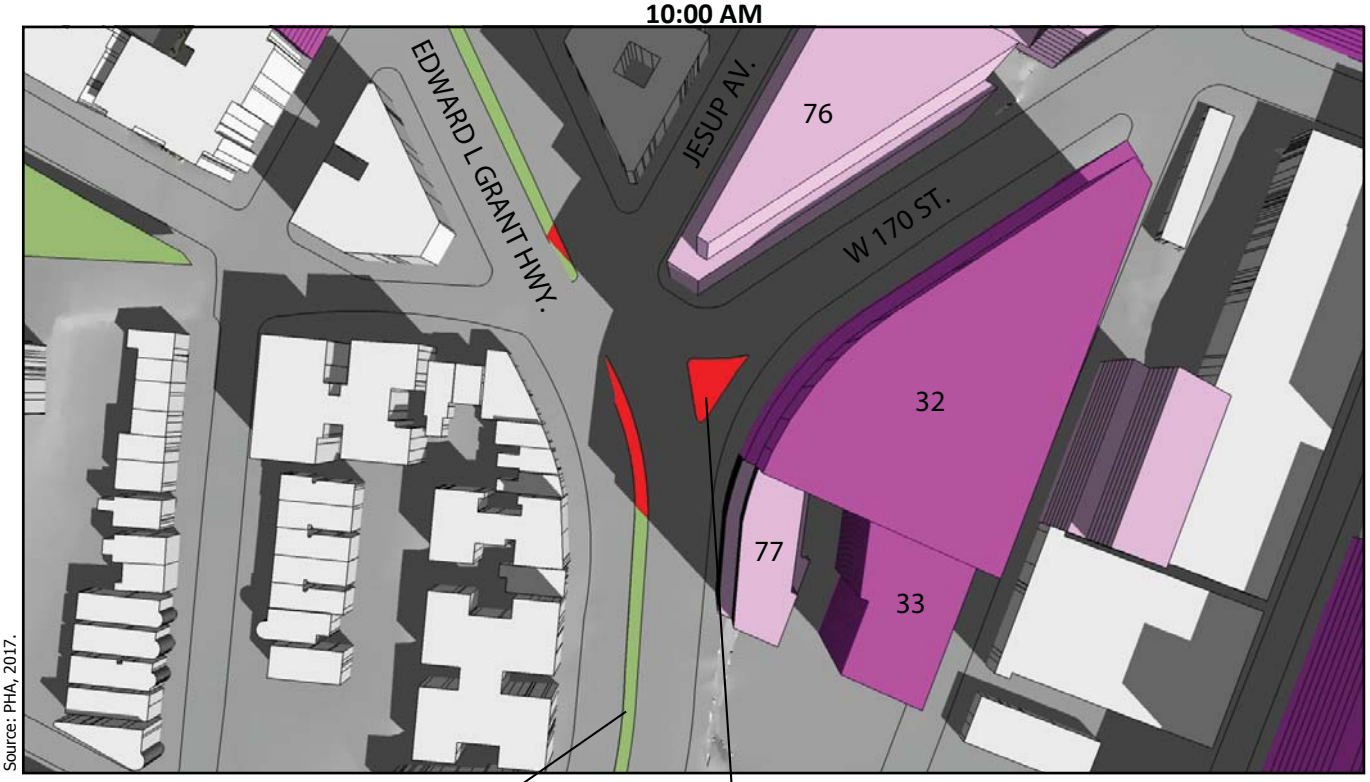
IMPACTED RESOURCE - EDWARD L. GRANT HIGHWAY GREENSTREET

West 170th Street Greenstreet and Edward L Grant Greenstreet

8:30 AM



10:00 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-20

West 170th Street Greenstreet and Edward L Grant Greenstreet

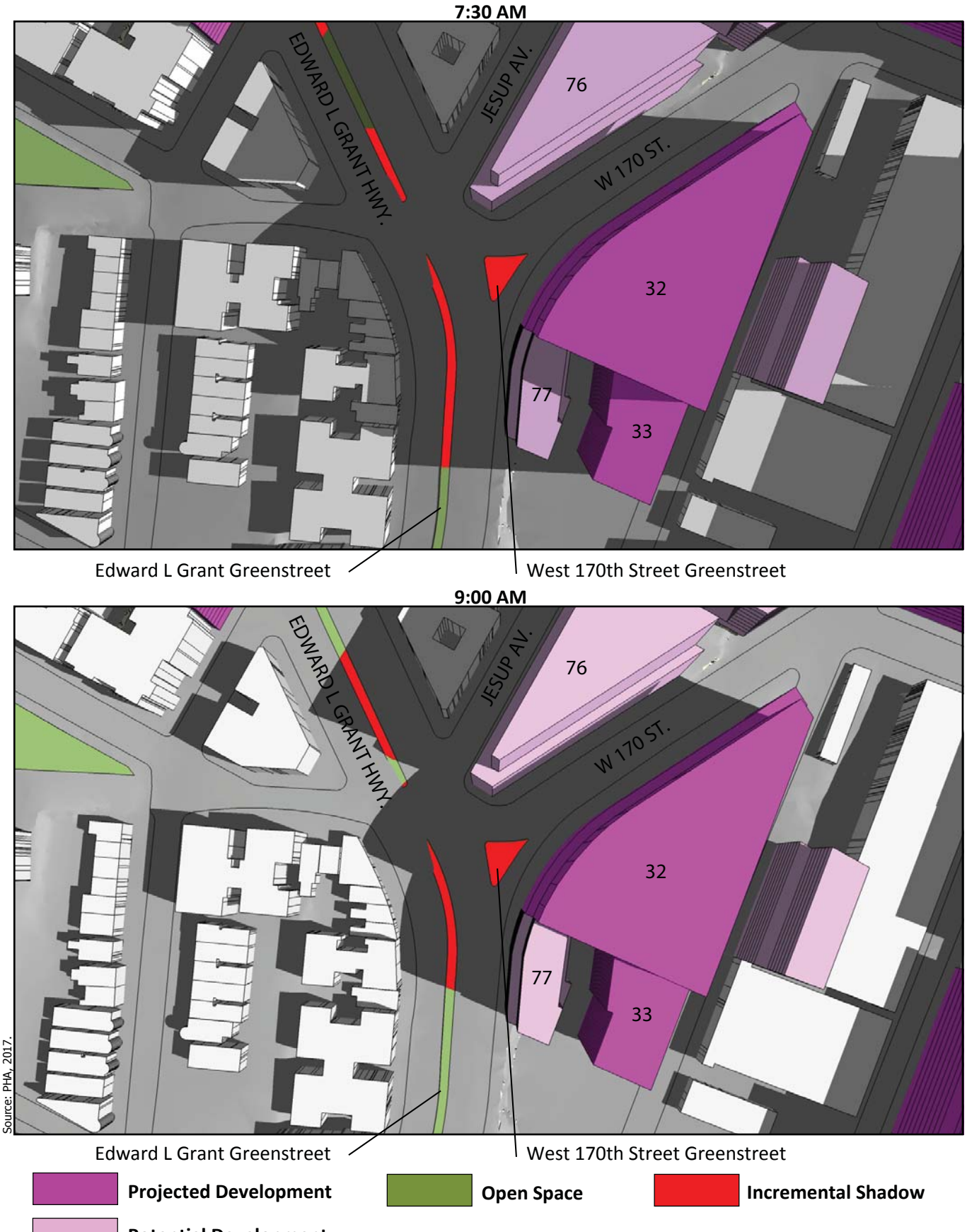
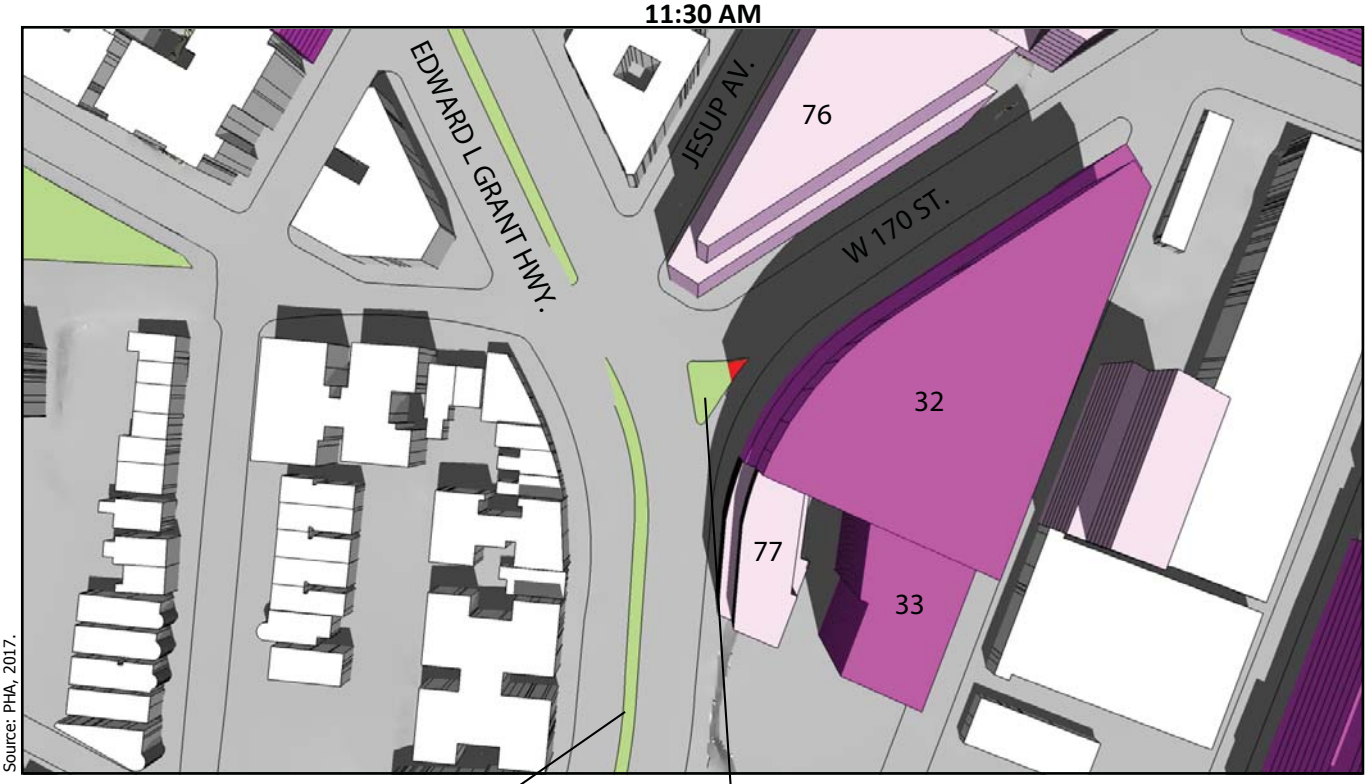


Figure 6-20

West 170th Street Greenstreet and Edward L Grant Greenstreet

11:30 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

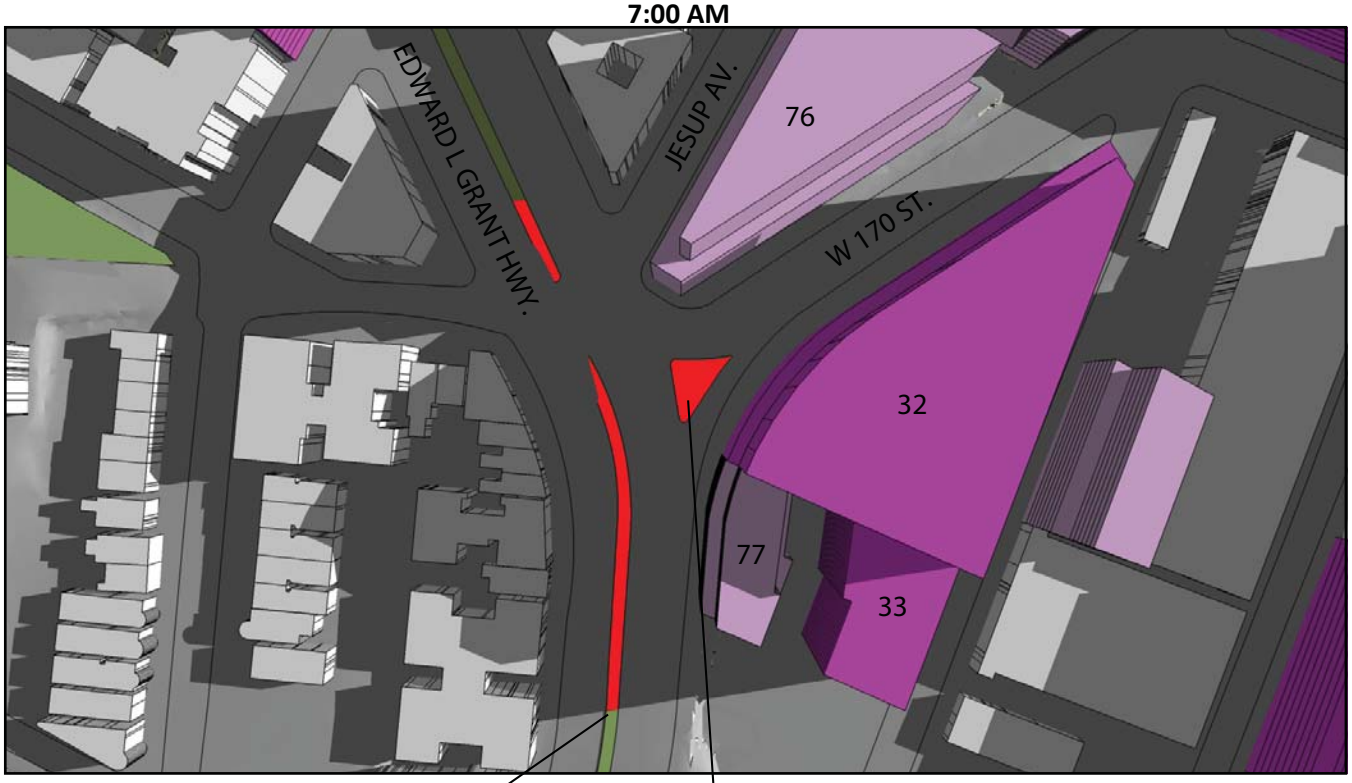
Incremental Shadow

N

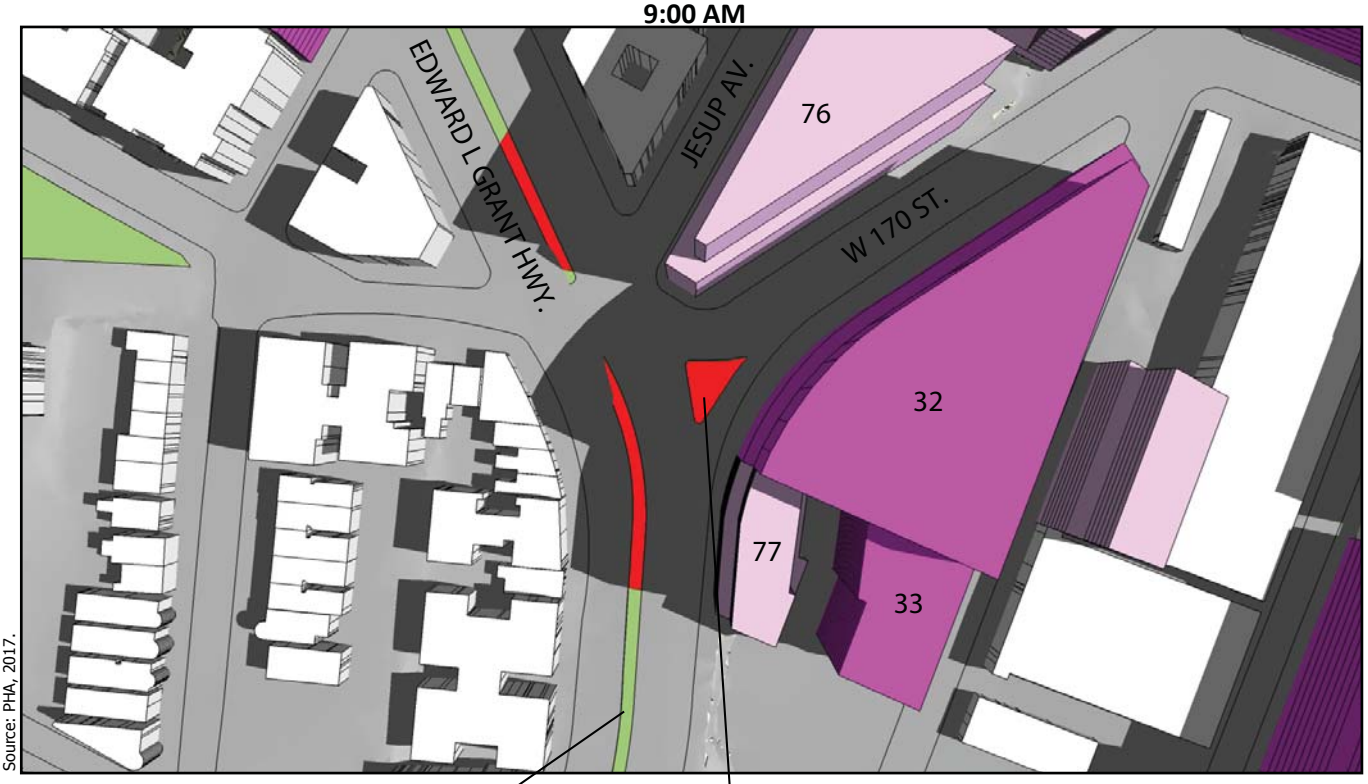
Figure 6-20

West 170th Street Greenstreet and Edward L Grant Greenstreet

7:00 AM



9:00 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

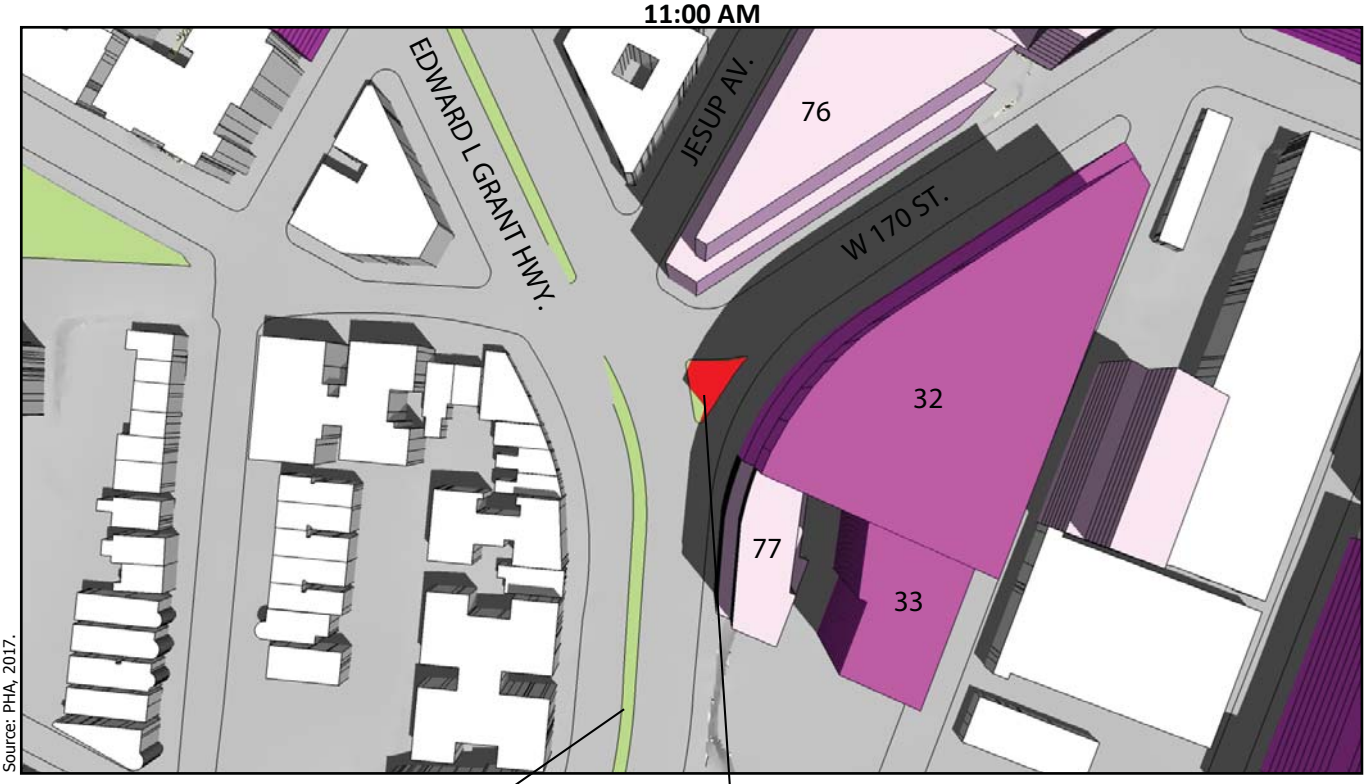
Incremental Shadow

N

Figure 6-20

West 170th Street Greenstreet and Edward L Grant Greenstreet

11:00 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

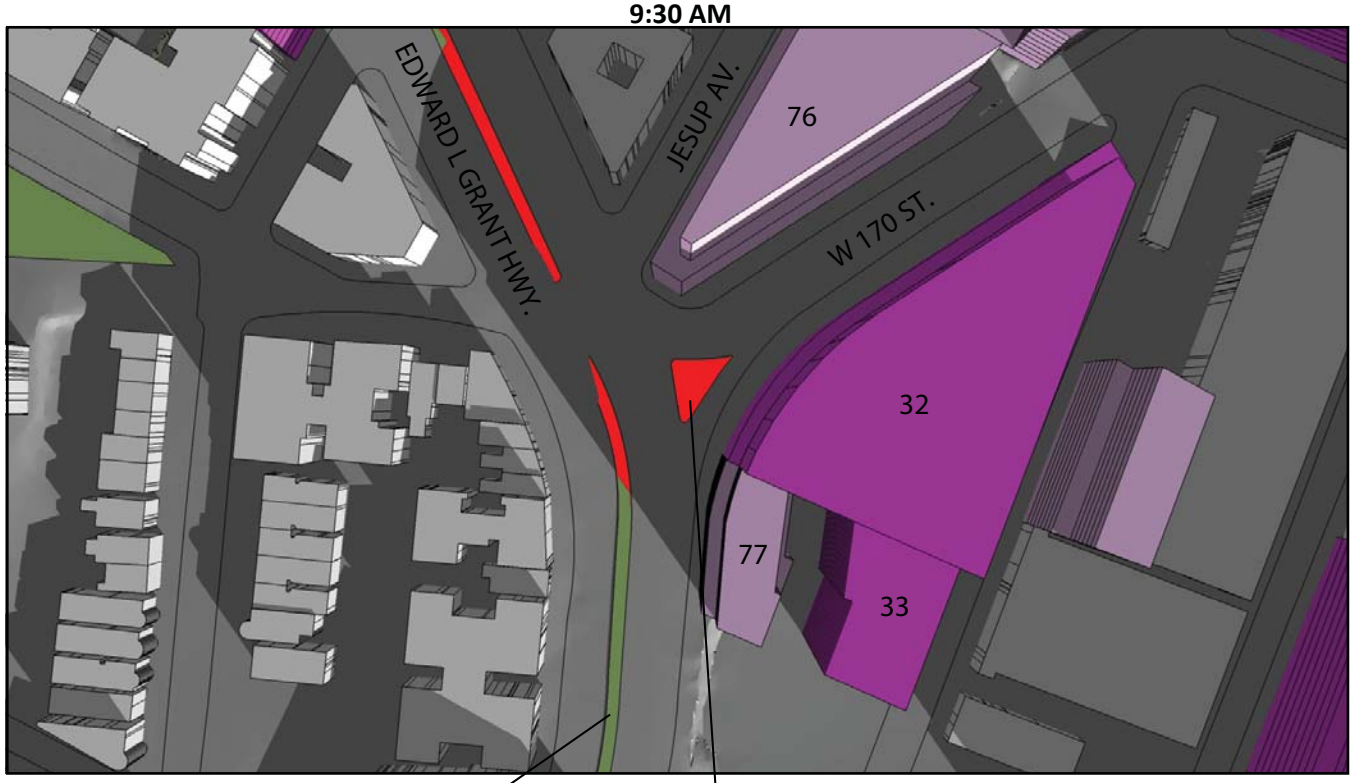
Incremental Shadow

N

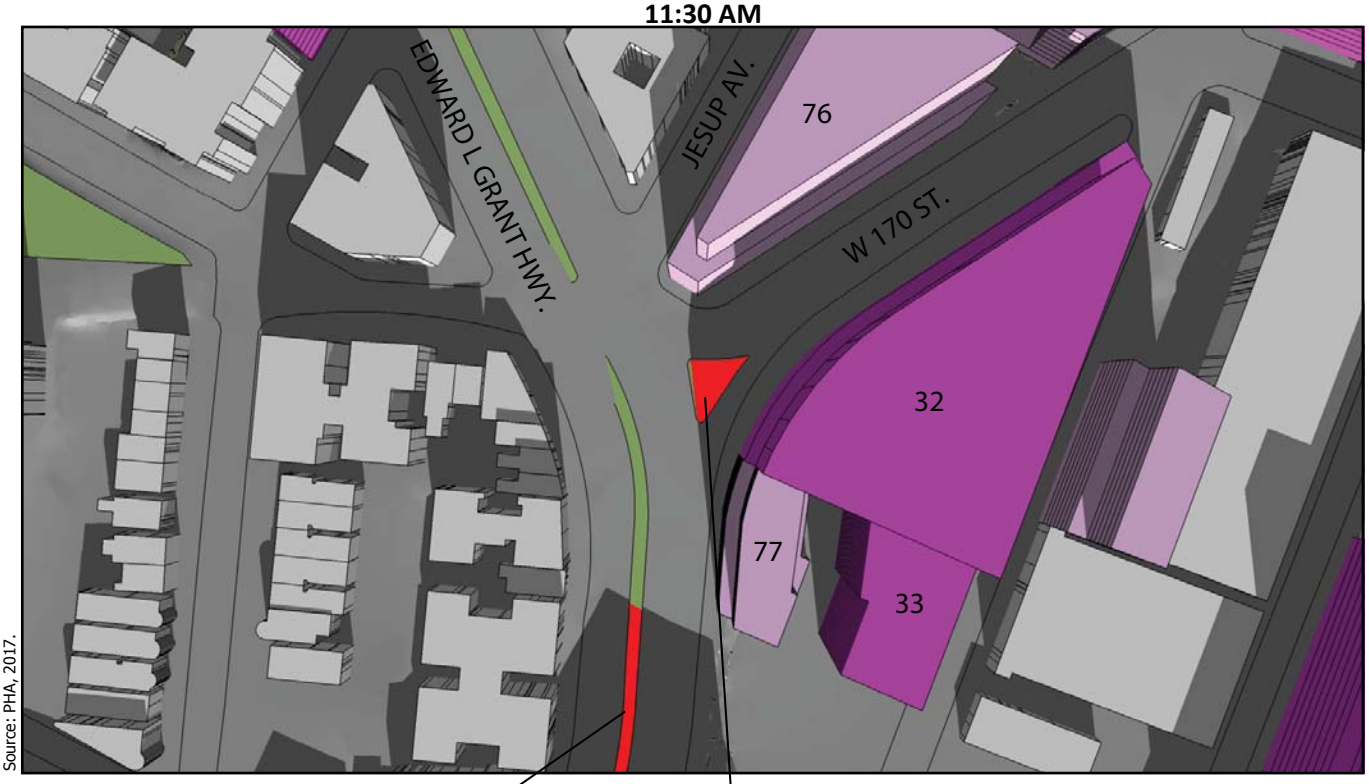
Figure 6-20

West 170th Street Greenstreet and Edward L Grant Greenstreet

9:30 AM



11:30 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-20

Edward L. Grant Highway Greenstreet

N

Figure 6-20a

IMPACTED RESOURCE - EDWARD L. GRANT HIGHWAY GREENSTREET


9:00 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
11:00 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21


3:00 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
4:00 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21


8:45 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
9:45 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21

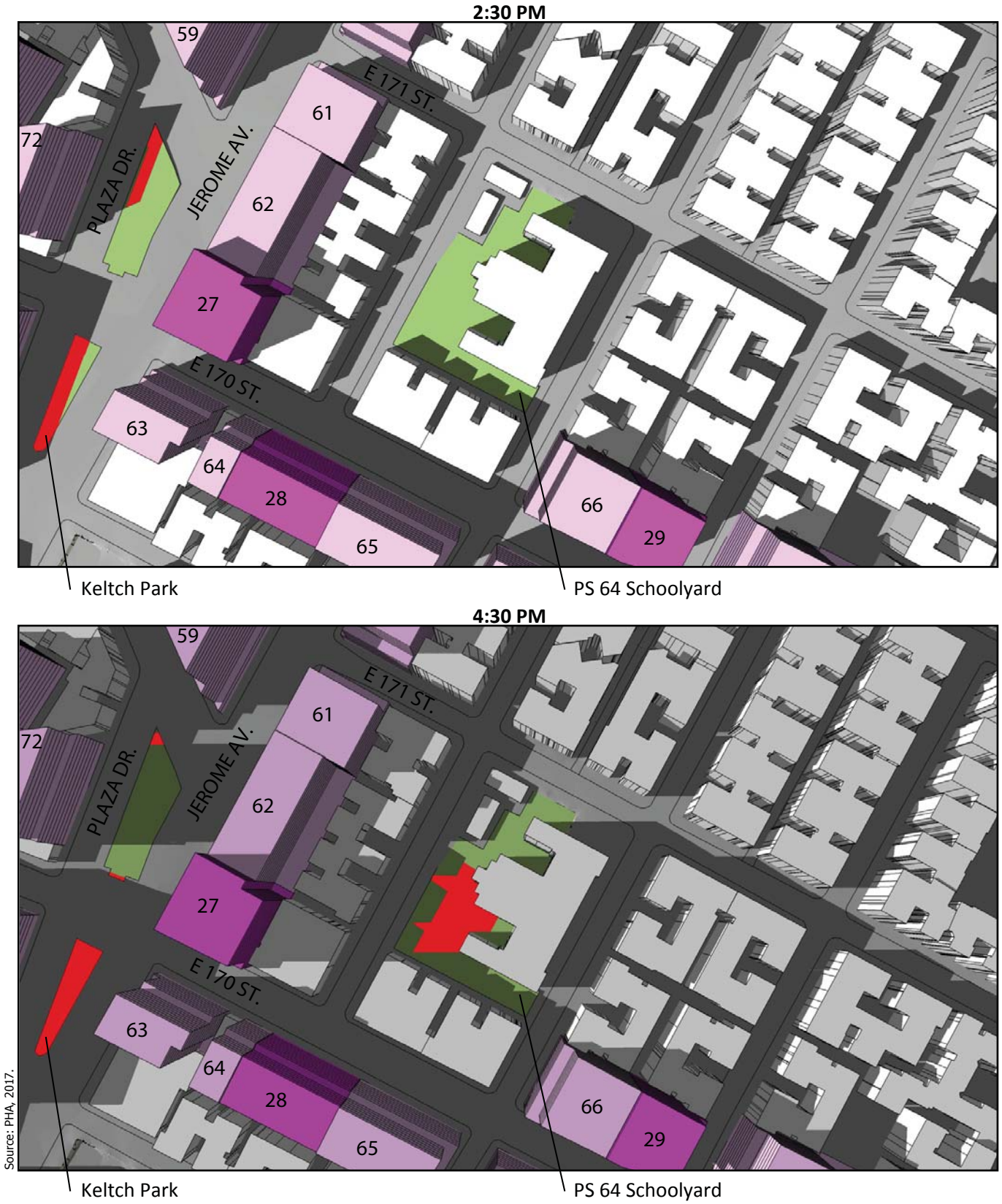

2:30 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
4:30 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-21


7:00 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
9:30 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21


4:00 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
5:00 PM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21


9:30 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
11:30 AM
59
E 171 ST.
61
72
PLAZA DR.
JEROME AV.
62
27
E 170 ST.
63
64
28
65
66
29
Keltch Park
PS 64 Schoolyard
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-21

Keltch Park and PS 64 Schoolyard

1:30 PM

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-21

N

Figure 6-21a

IMPACTED RESOURCE - KELTCH PARK

East 170th Street Greenstreet and Grand Concourse Greenstreet

2:00 PM

3:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

4:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

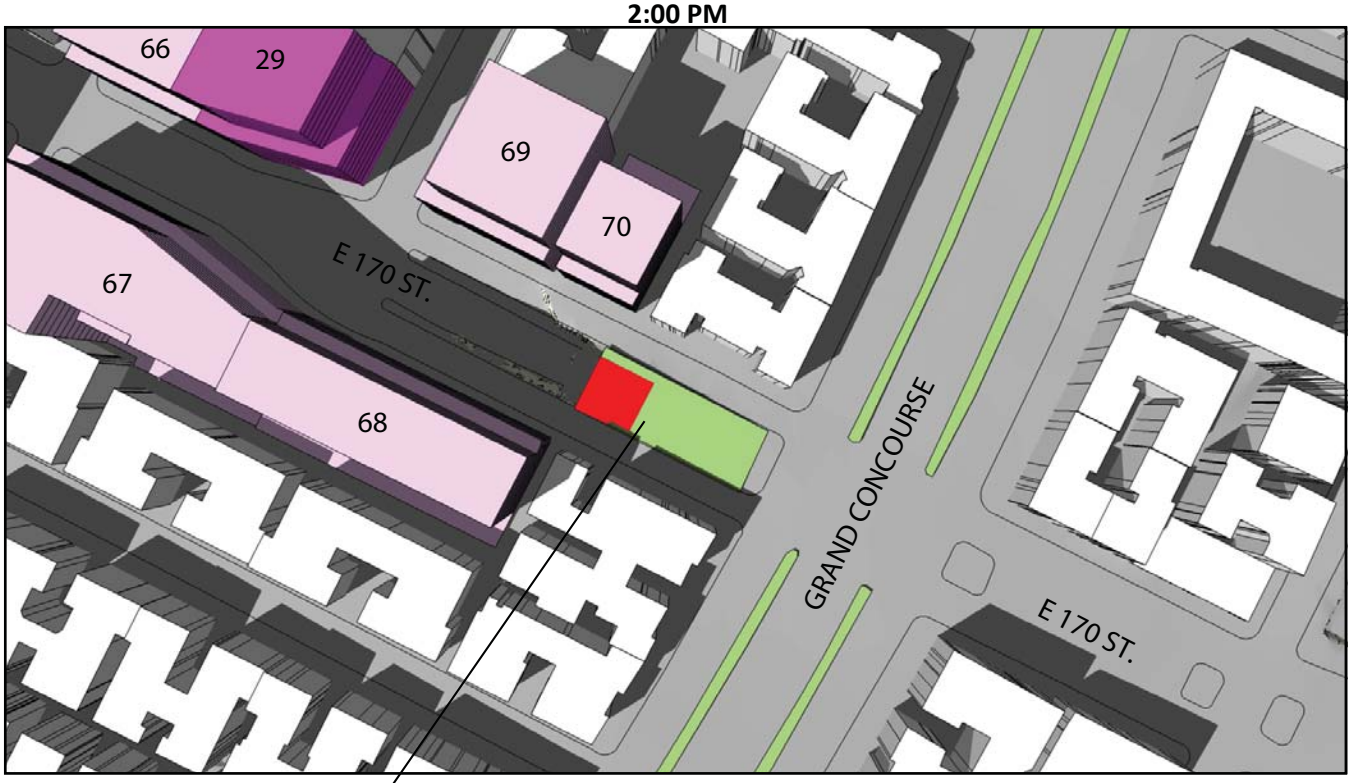
Incremental Shadow

N

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

2:00 PM



3:30 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

5:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

5:30 PM

Source: PHA, 2017.

East 170th Street Greenstreet

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-22

East 170th Street Greenstreet and Grand Concourse Greenstreet

2:30 PM

Source: PHA, 2017.

East 170th Street Greenstreet

Projected Development

Potential Development

Open Space

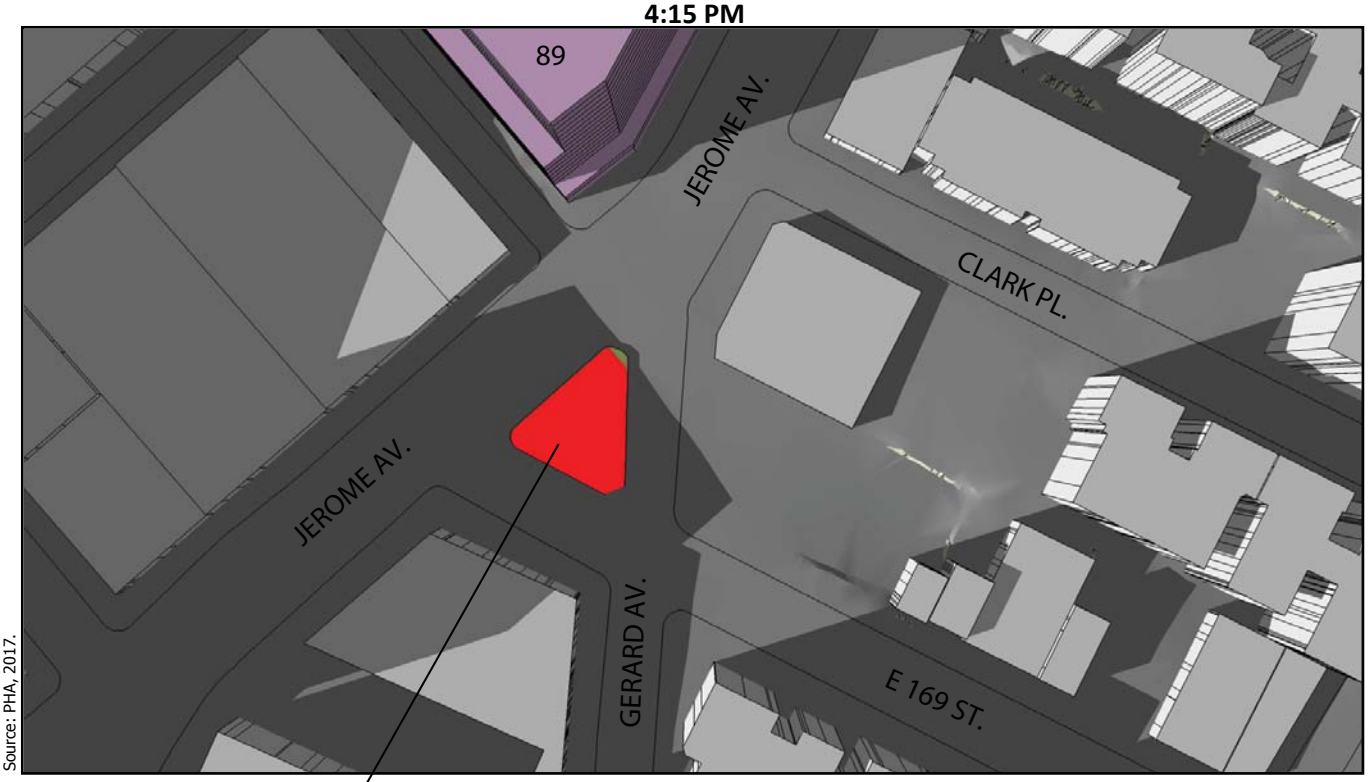
Incremental Shadow

N

Figure 6-22

Jerome Avenue/Gerard Avenue Greenstreet

4:15 PM



Source: PHA, 2017.

Jerome Avenue/Gerard Avenue Greenstreet

Projected Development

Potential Development

Open Space

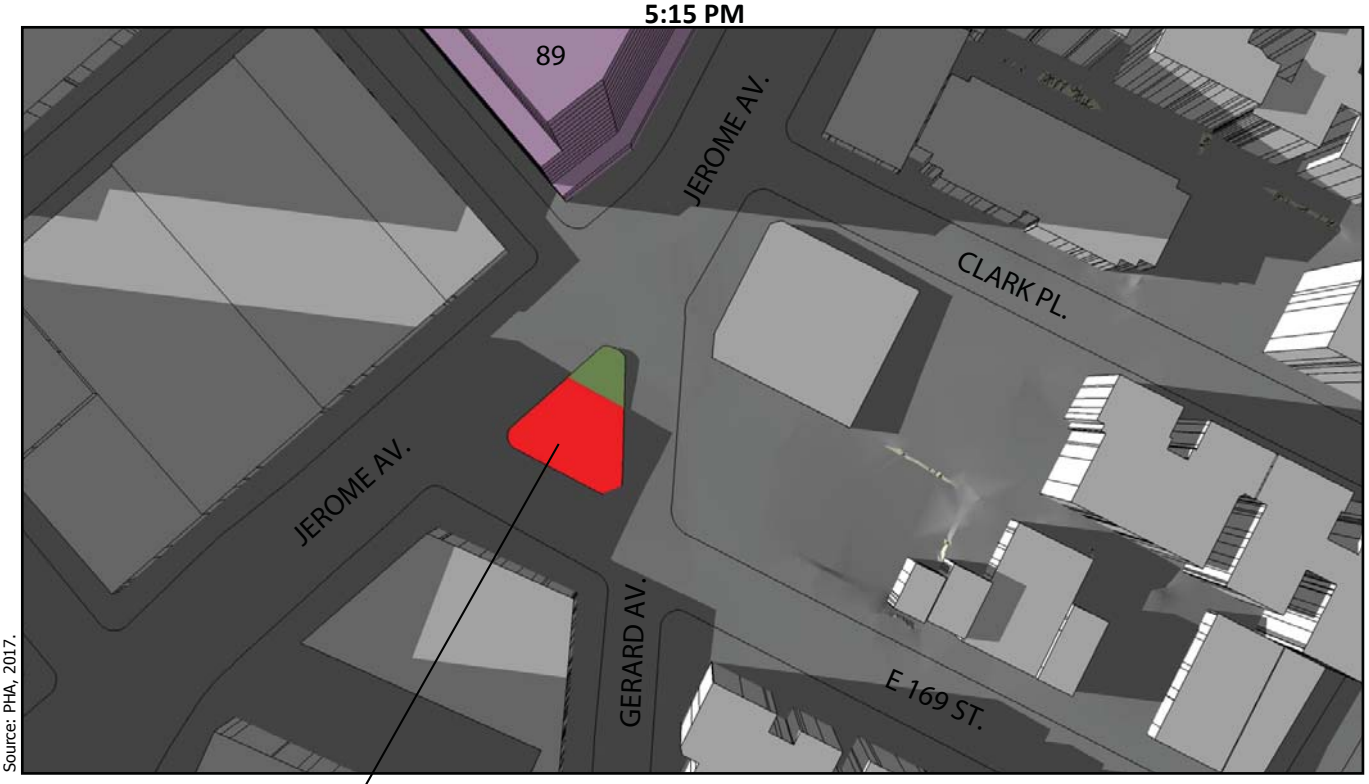
Incremental Shadow

N

Figure 6-23

Jerome Avenue/Gerard Avenue Greenstreet

5:15 PM



Source: PHA, 2017.

Jerome Avenue/Gerard Avenue Greenstreet

Projected Development

Potential Development

Open Space

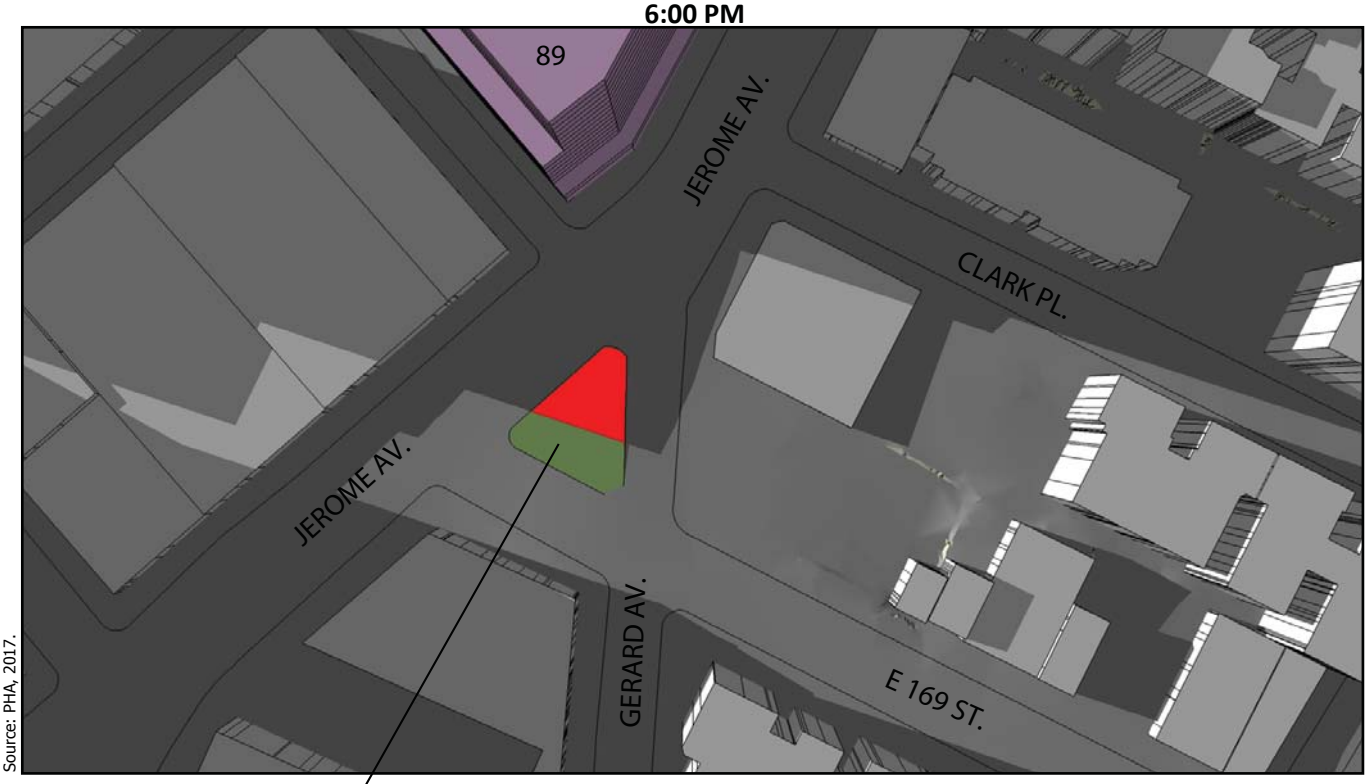
Incremental Shadow

N

Figure 6-23

Jerome Avenue/Gerard Avenue Greenstreet

6:00 PM



Source: PHA, 2017.

Jerome Avenue/Gerard Avenue Greenstreet

Projected Development

Potential Development

Open Space

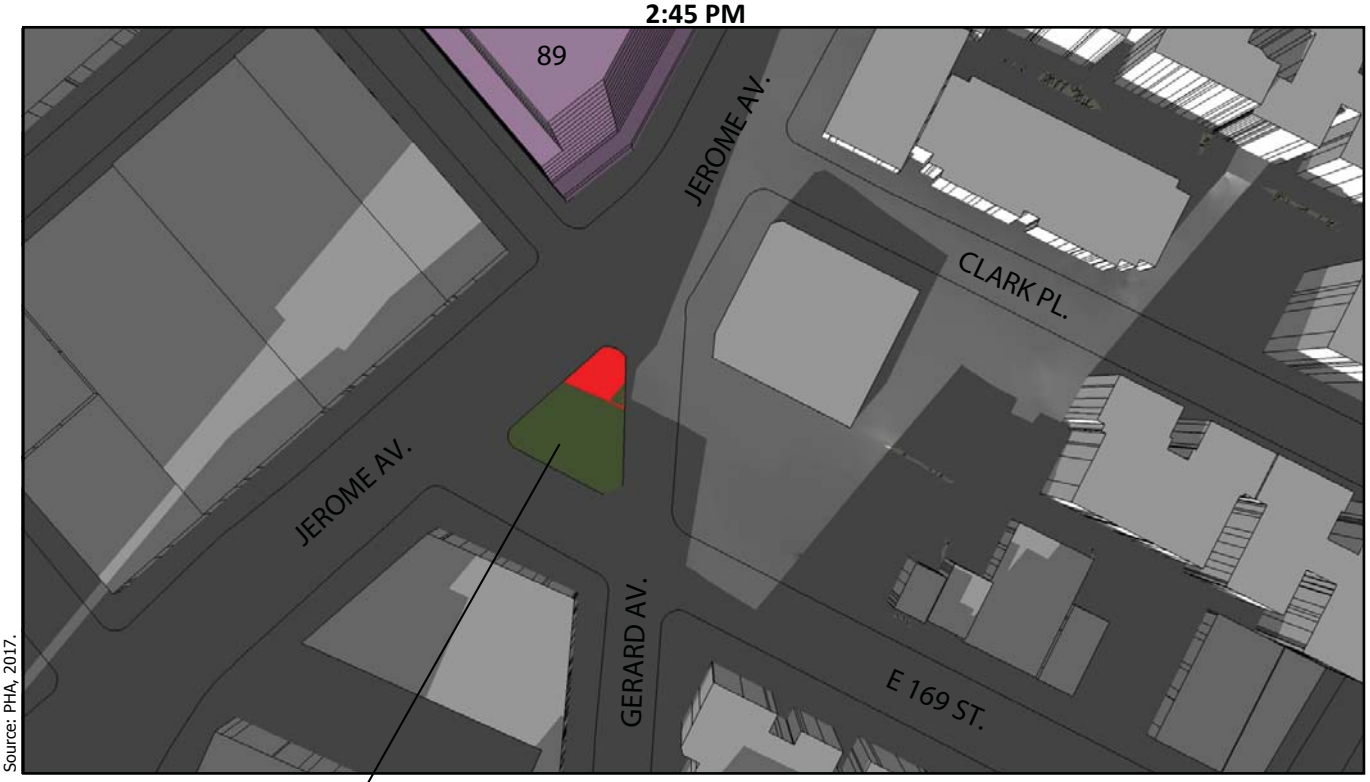
Incremental Shadow

N

Figure 6-23

Jerome Avenue/Gerard Avenue Greenstreet

2:45 PM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-23

PS/IS 218 Schoolyard

4:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-24

5:00 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-24

PS/IS 218 Schoolyard

5:30 PM

Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

N

Figure 6-24

Martin Luther King Triangle and Edward L Grant Greenstreet

8:00 AM

8:30 AM

Source: PHA, 2017.

Projected Development | **Open Space** | **Incremental Shadow**

Potential Development

N

Figure 6-25

Martin Luther King Triangle and Edward L Grant Greenstreet

6:45 AM

Source: PHA, 2017.

Projected Development

Potential Development

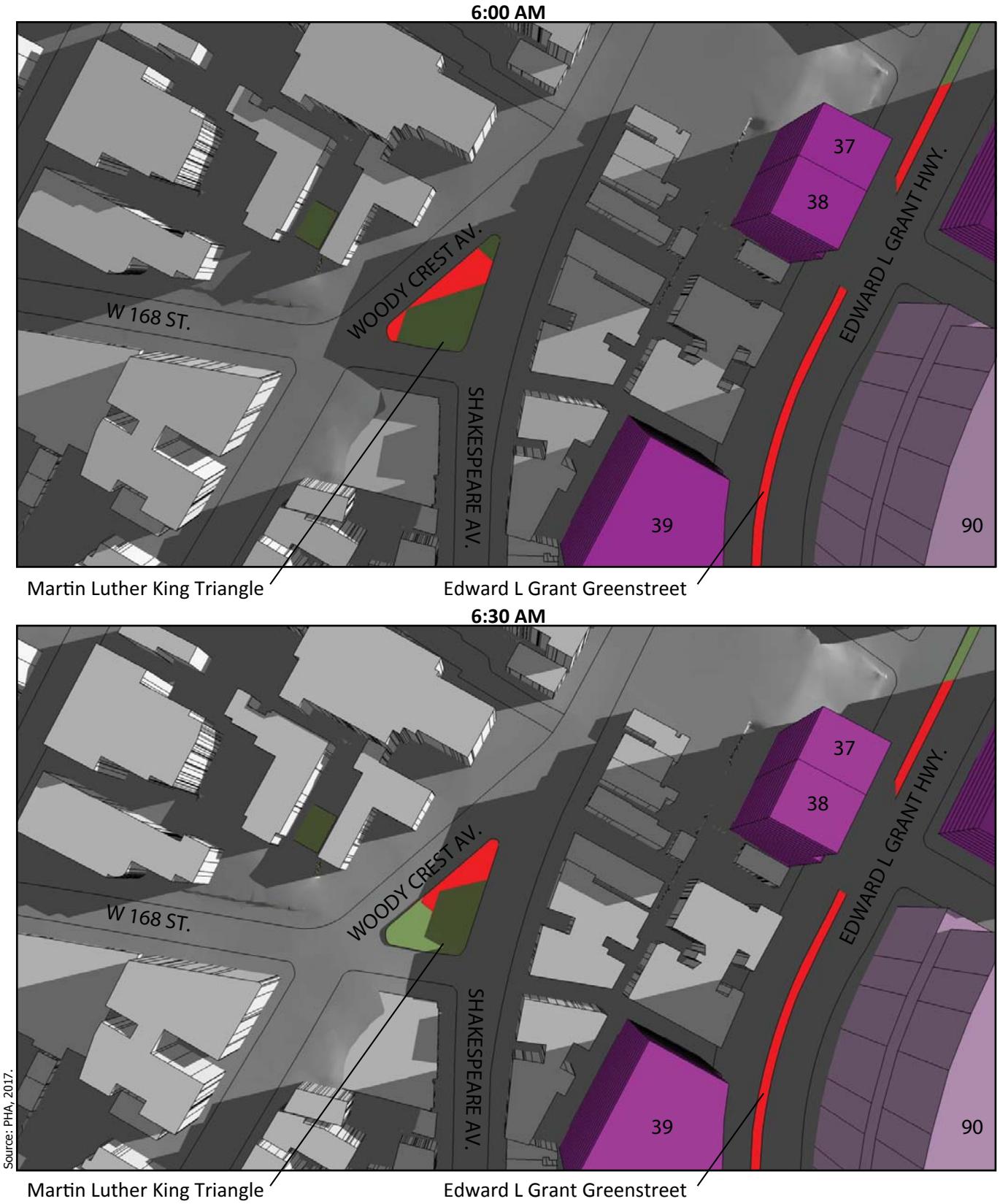
Open Space

Incremental Shadow

N

Figure 6-25

Martin Luther King Triangle and Edward L Grant Greenstreet



Source: PHA, 2017.

Figure 6-25

Martin Luther King Triangle and Edward L Grant Greenstreet

Source: PHA, 2017.

Figure 6-25

Edward L. Grant Highway Greenstreet

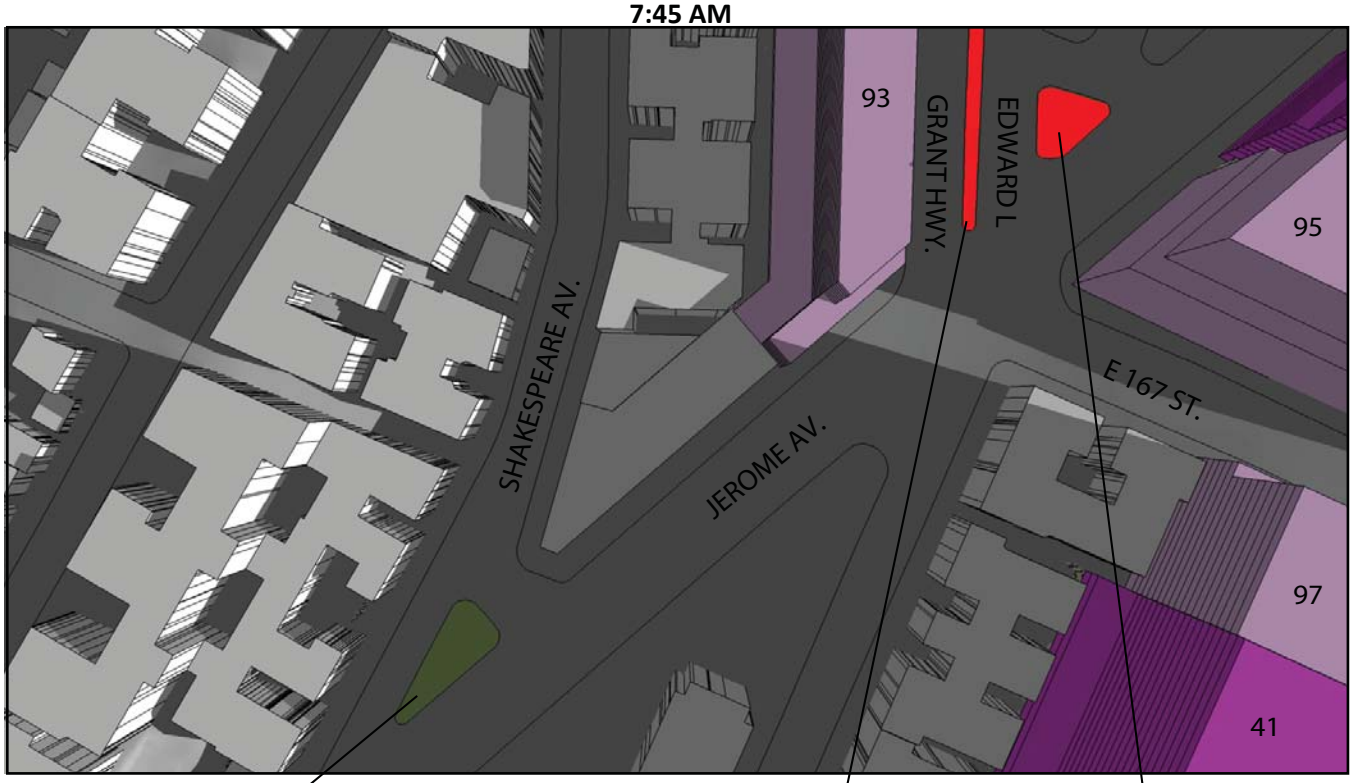
N

Figure 6-25a

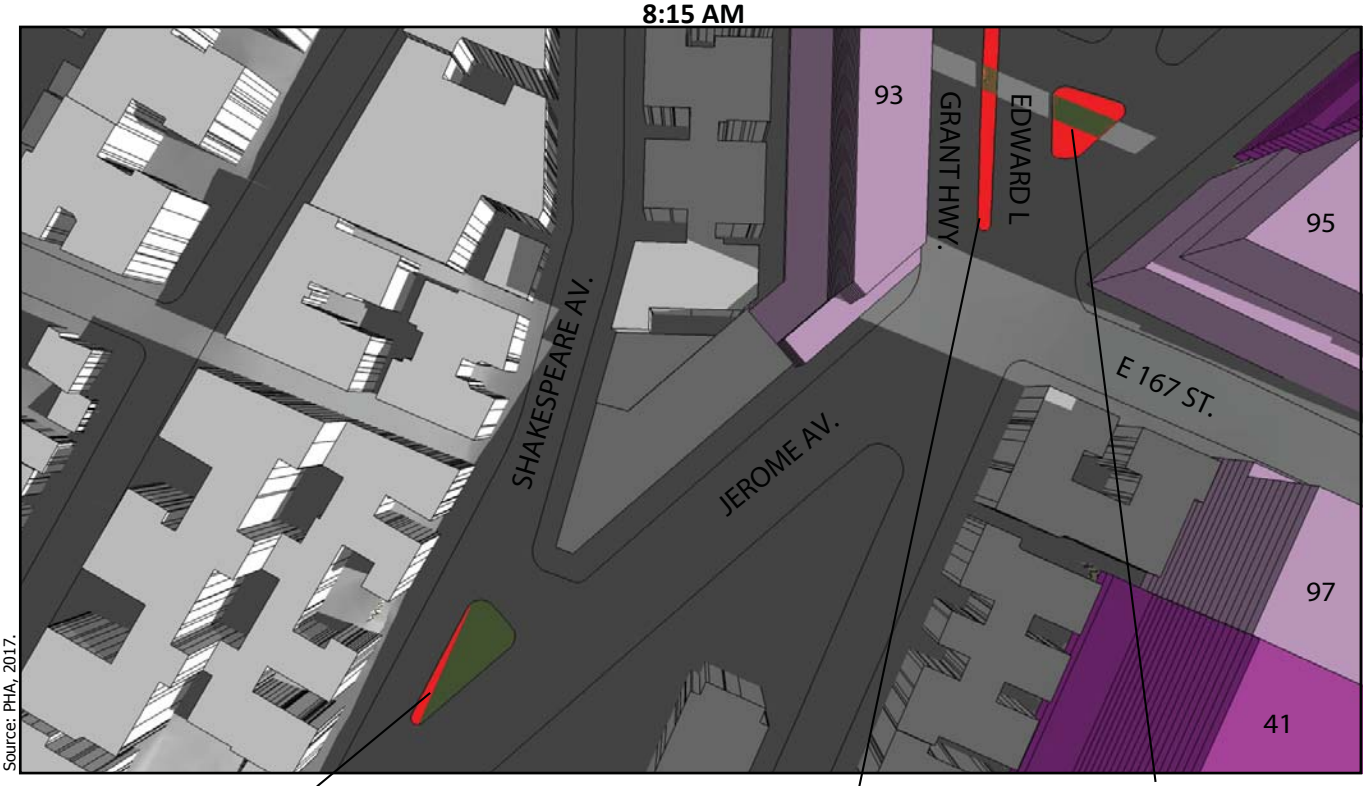
IMPACTED RESOURCE - EDWARD L. GRANT HIGHWAY GREENSTREET

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

7:45 AM



8:15 AM



Source: PHA, 2017.

Projected Development

Potential Development

Open Space

Incremental Shadow

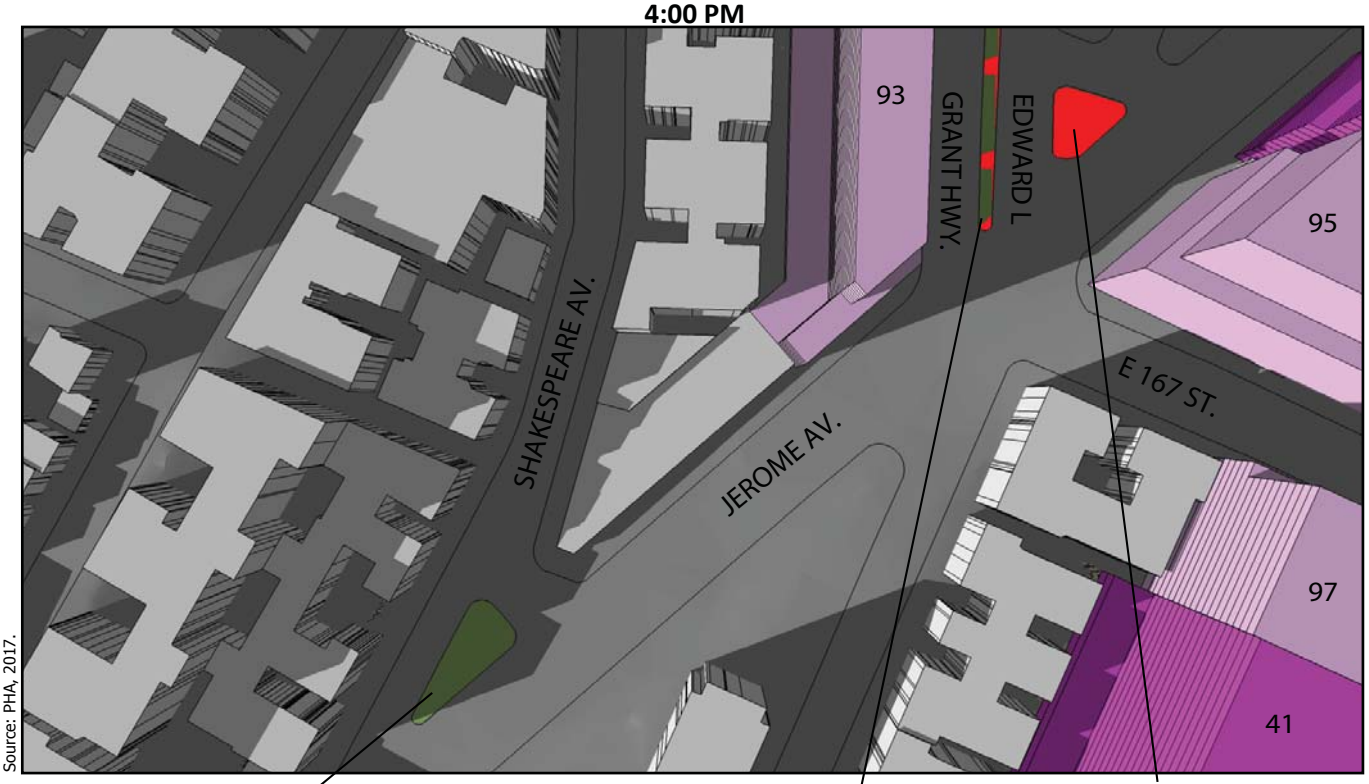
N

Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

12:00 PM

4:00 PM



Source: PHA, 2017.

Projected Development

Potential Development

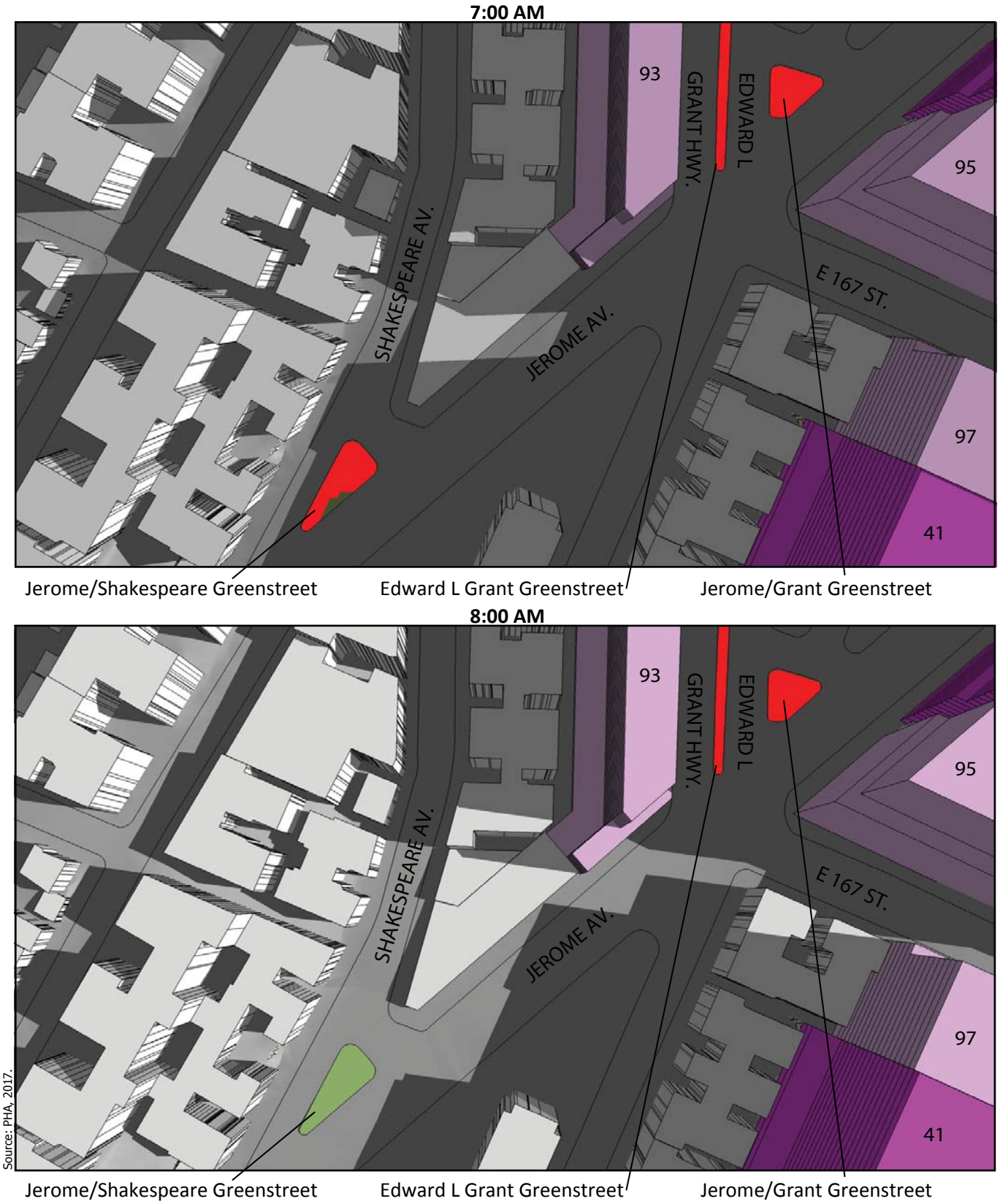
Open Space

Incremental Shadow

N

Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet



Source: PHA, 2017.

Figure 6-26

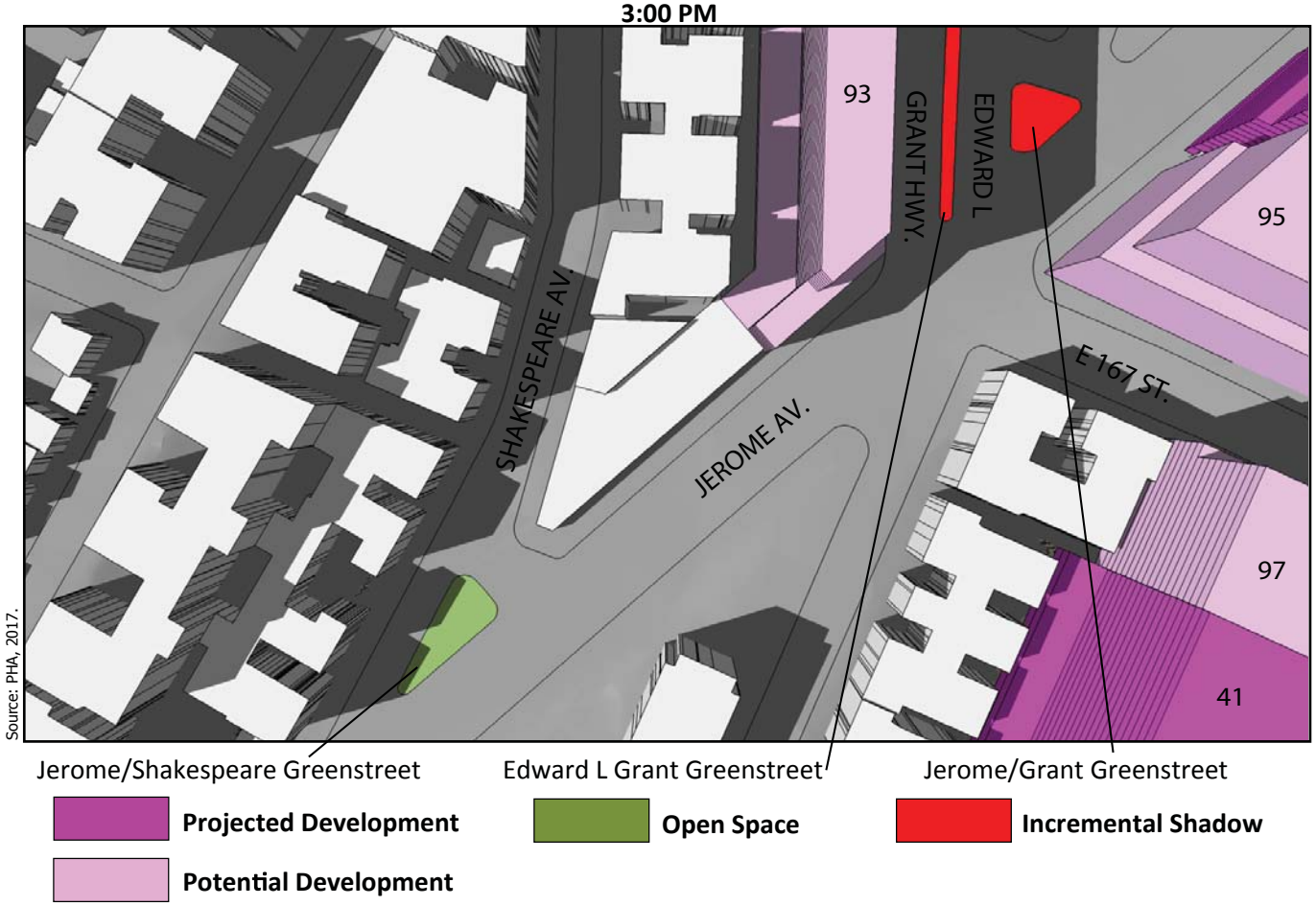
Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

Source: PHA, 2017.

Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

3:00 PM



N

Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

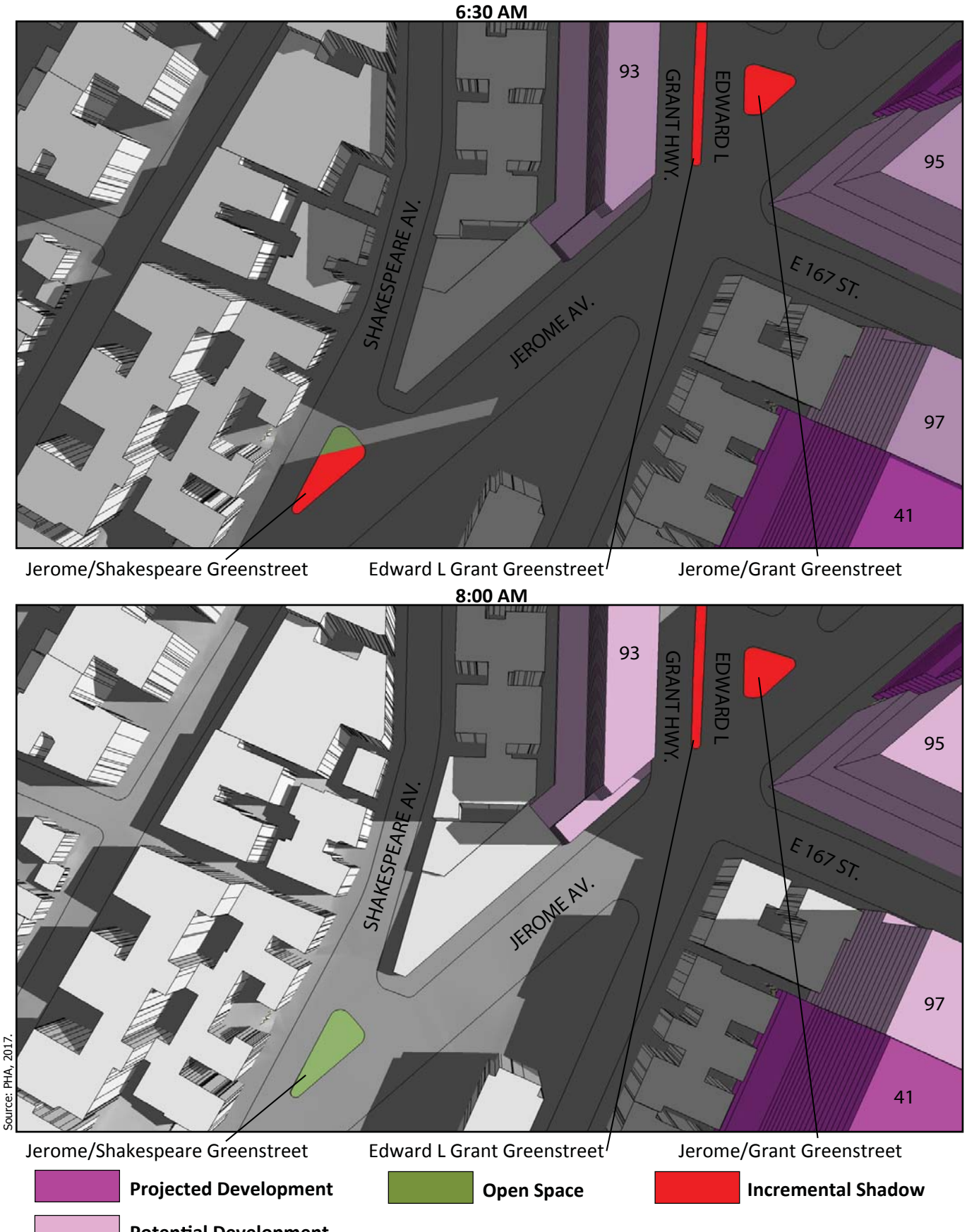
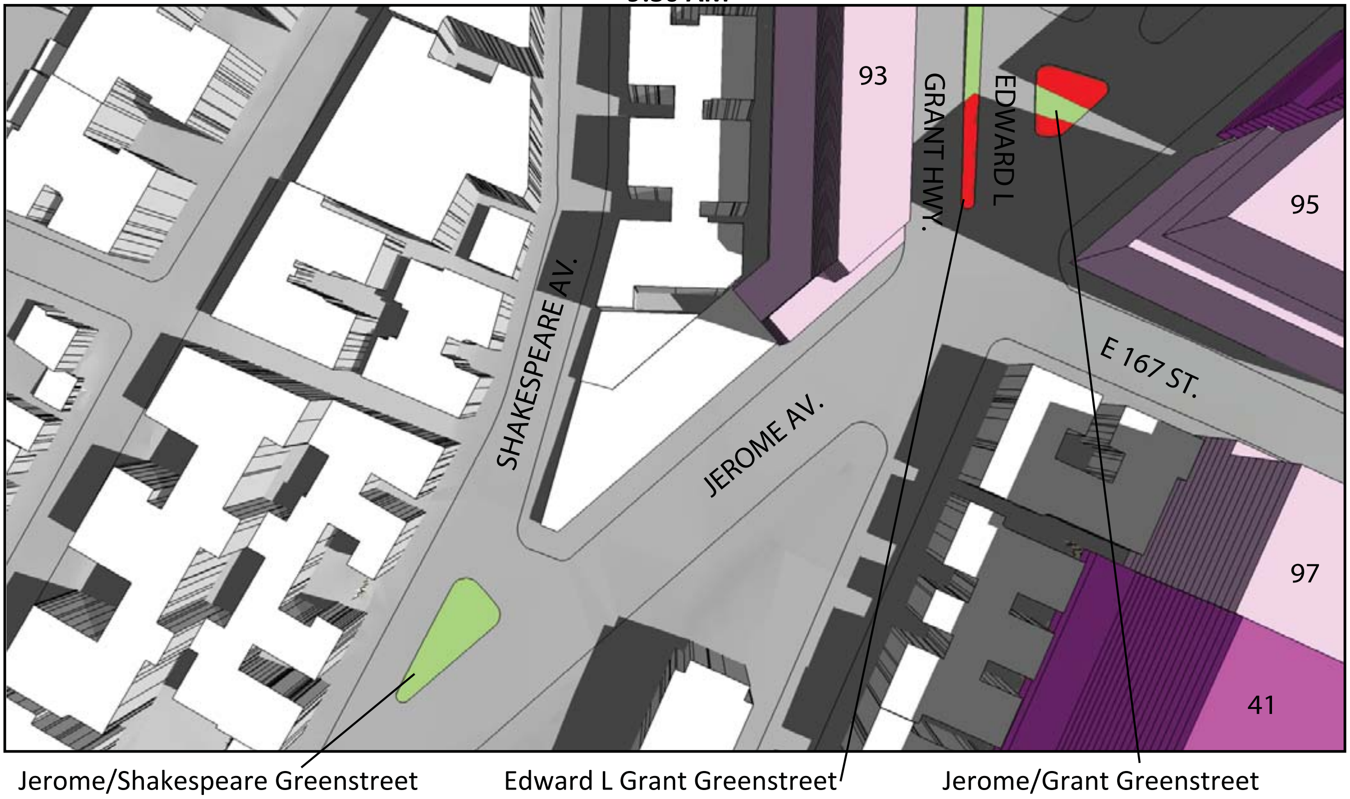


Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

9:30 AM



10:30 AM

Source: PHA, 2017.

Projected Development | **Open Space** | **Incremental Shadow**

Potential Development

N

Figure 6-26

INCREMENTAL SHADOWS - June 21

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

3:30 PM

N

Figure 6-26

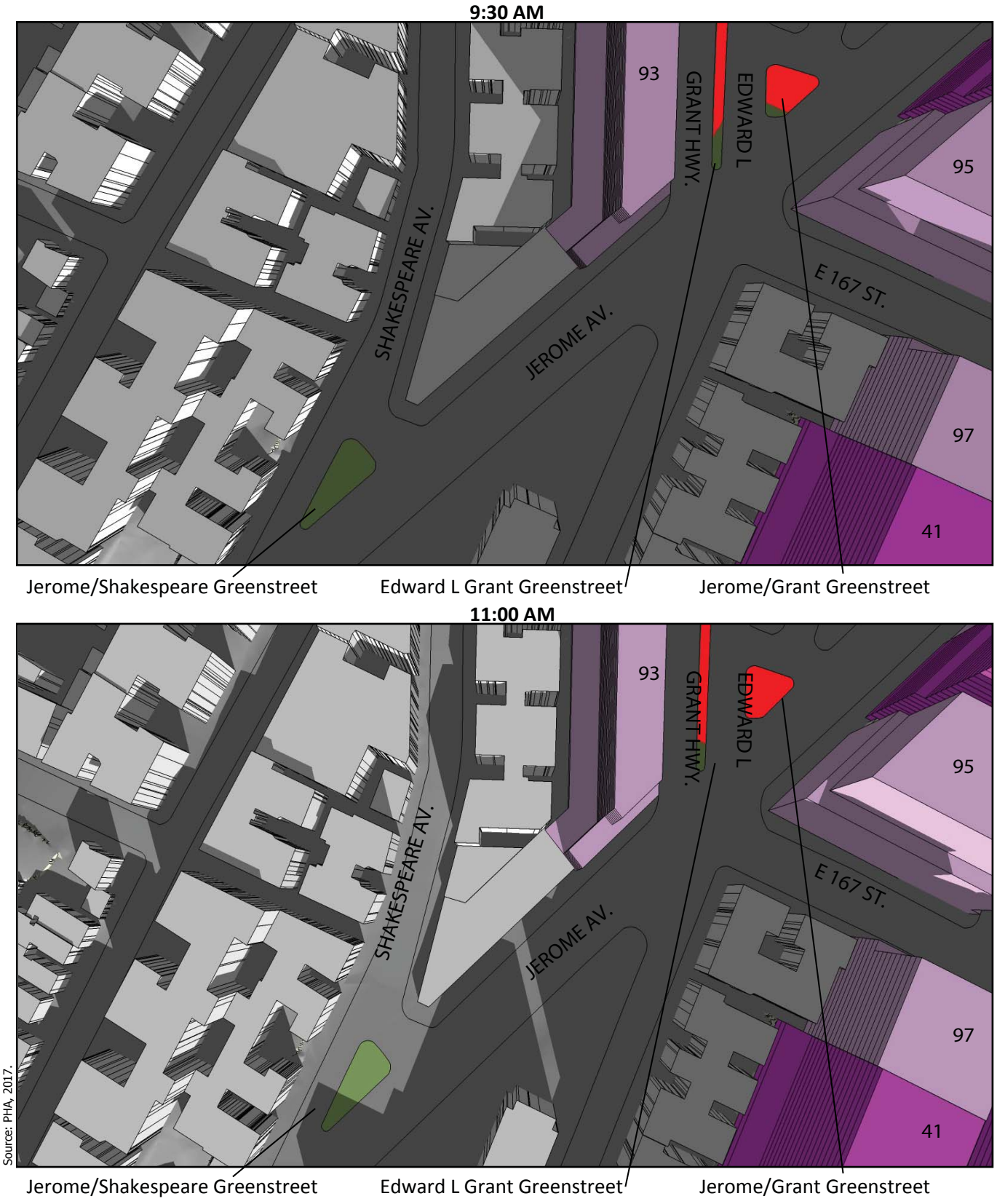
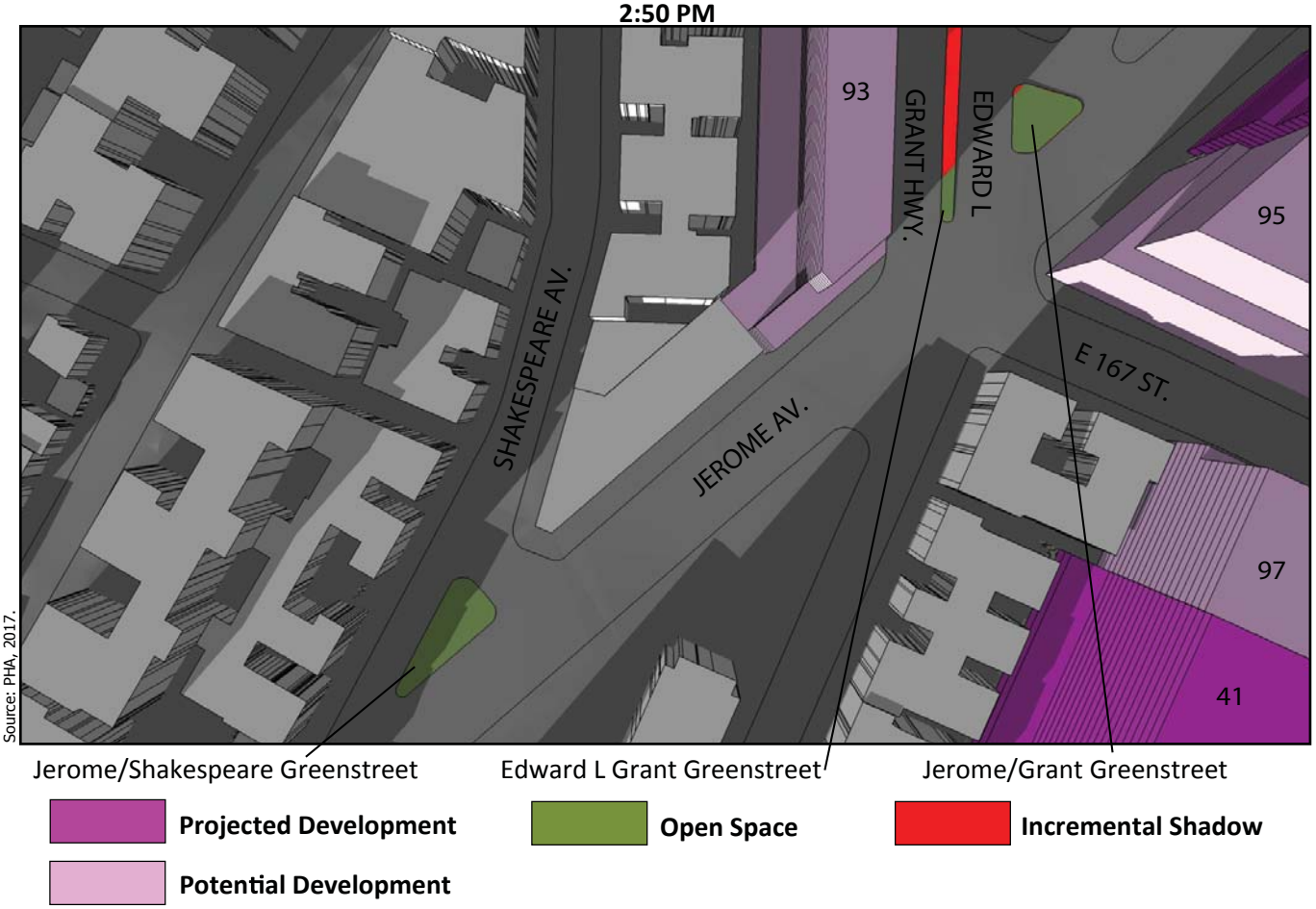

9:30 AM
93
GRANT HWY.
EDWARD L
95
SHAKESPEARE AV.
E 167 ST.
JEROME AV.
97
41
Jerome/Shakespeare Greenstreet
Edward L Grant Greenstreet
Jerome/Grant Greenstreet
11:00 AM
93
GRANT HWY.
EDWARD L
95
SHAKESPEARE AV.
E 167 ST.
JEROME AV.
97
41
Jerome/Shakespeare Greenstreet
Edward L Grant Greenstreet
Jerome/Grant Greenstreet
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-26

Jerome/Grant Greenstreet, Edward L Grant Greenstreet, Jerome/Shakespeare Greenstreet

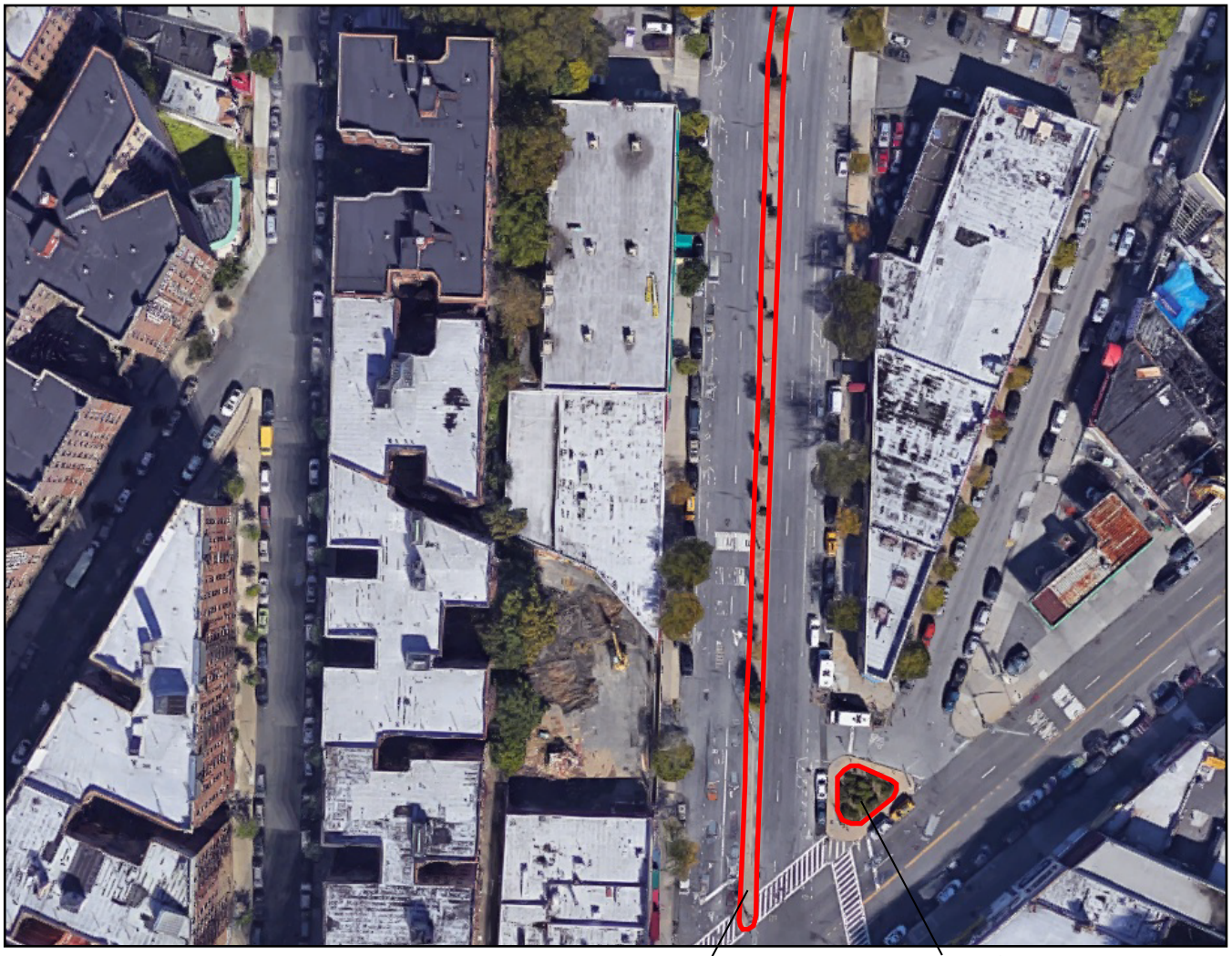
2:50 PM



N

Figure 6-26

Jerome/Grant Greenstreet and Edward L. Grant Highway Greenstreet



N

Figure 6-26a

IMPACTED RESOURCE - EDWARD L. GRANT HIGHWAY GREENSTREET

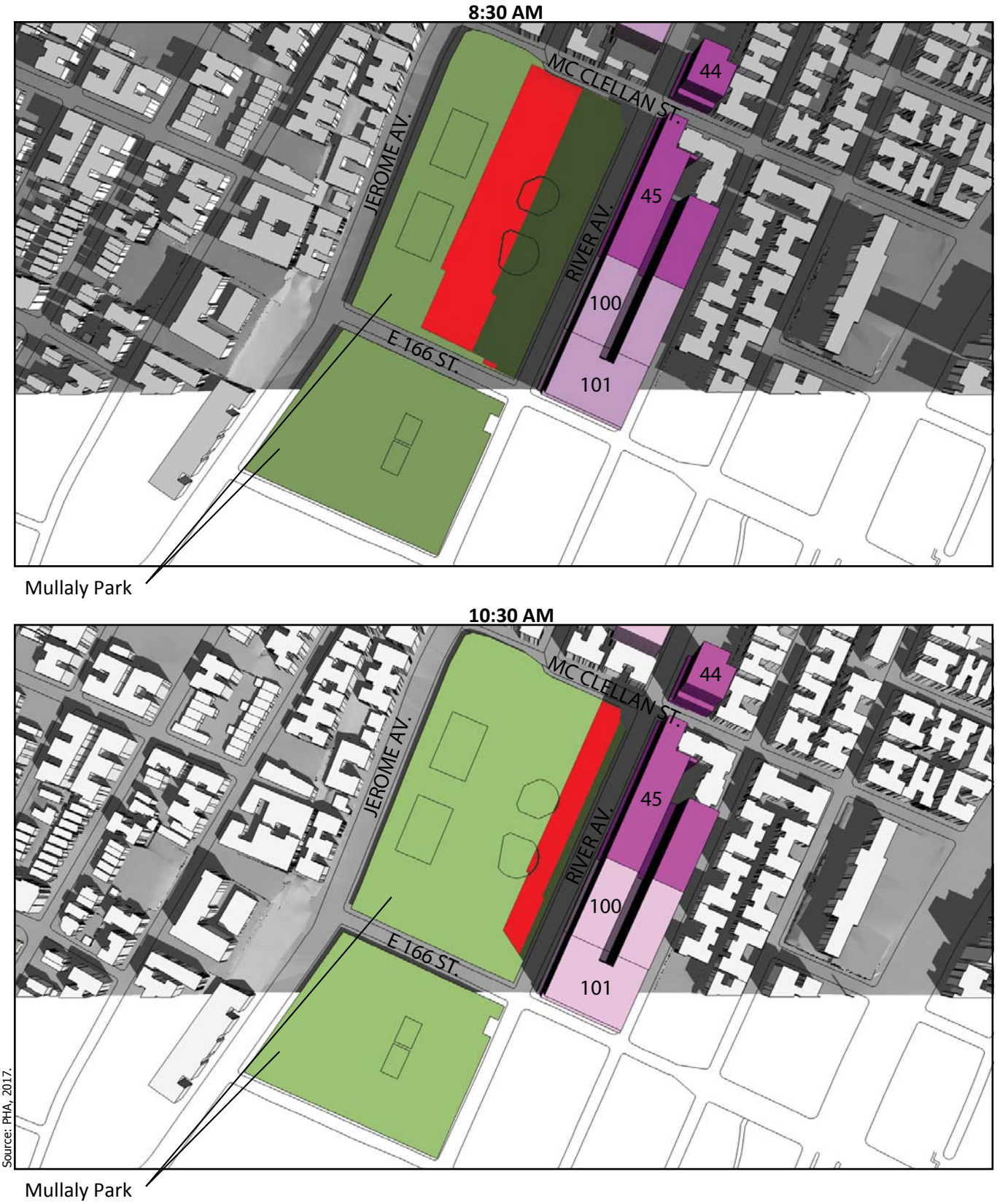

8:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
10:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-27

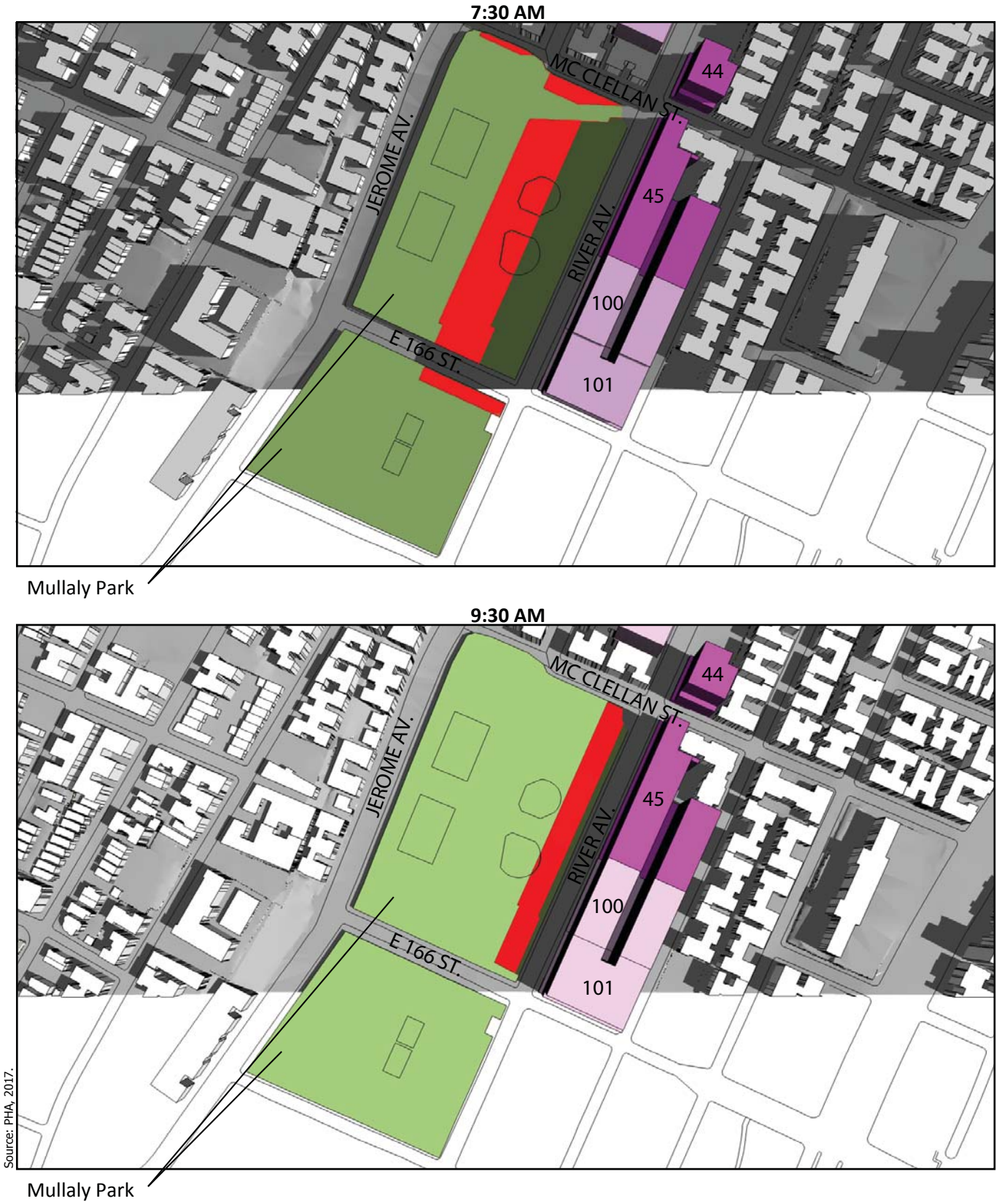

7:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
9:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-27

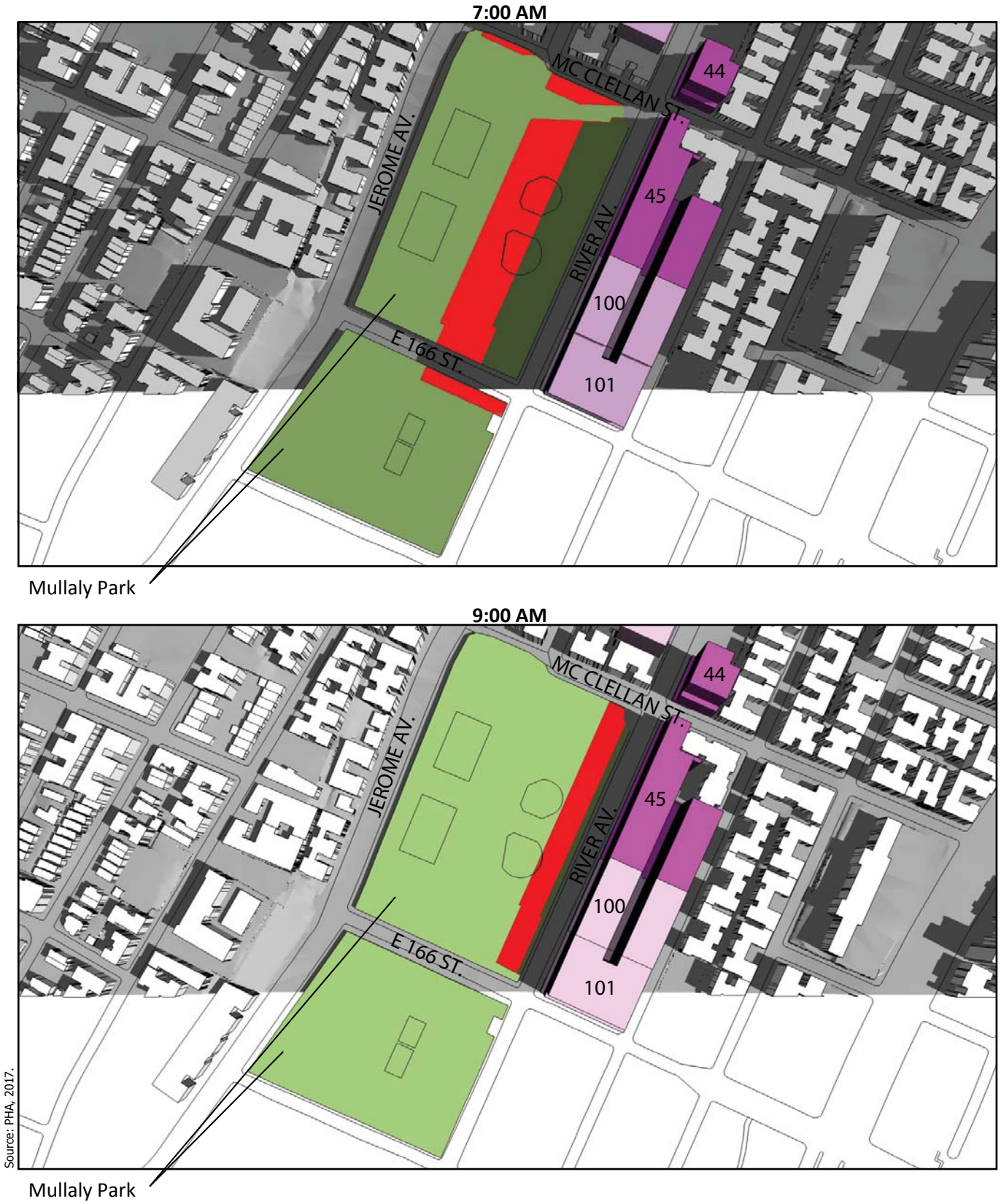

7:00 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
9:00 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
Source: PHA, 2017.
Projected Development
Open Space
Incremental Shadow
Potential Development
N

Figure 6-27

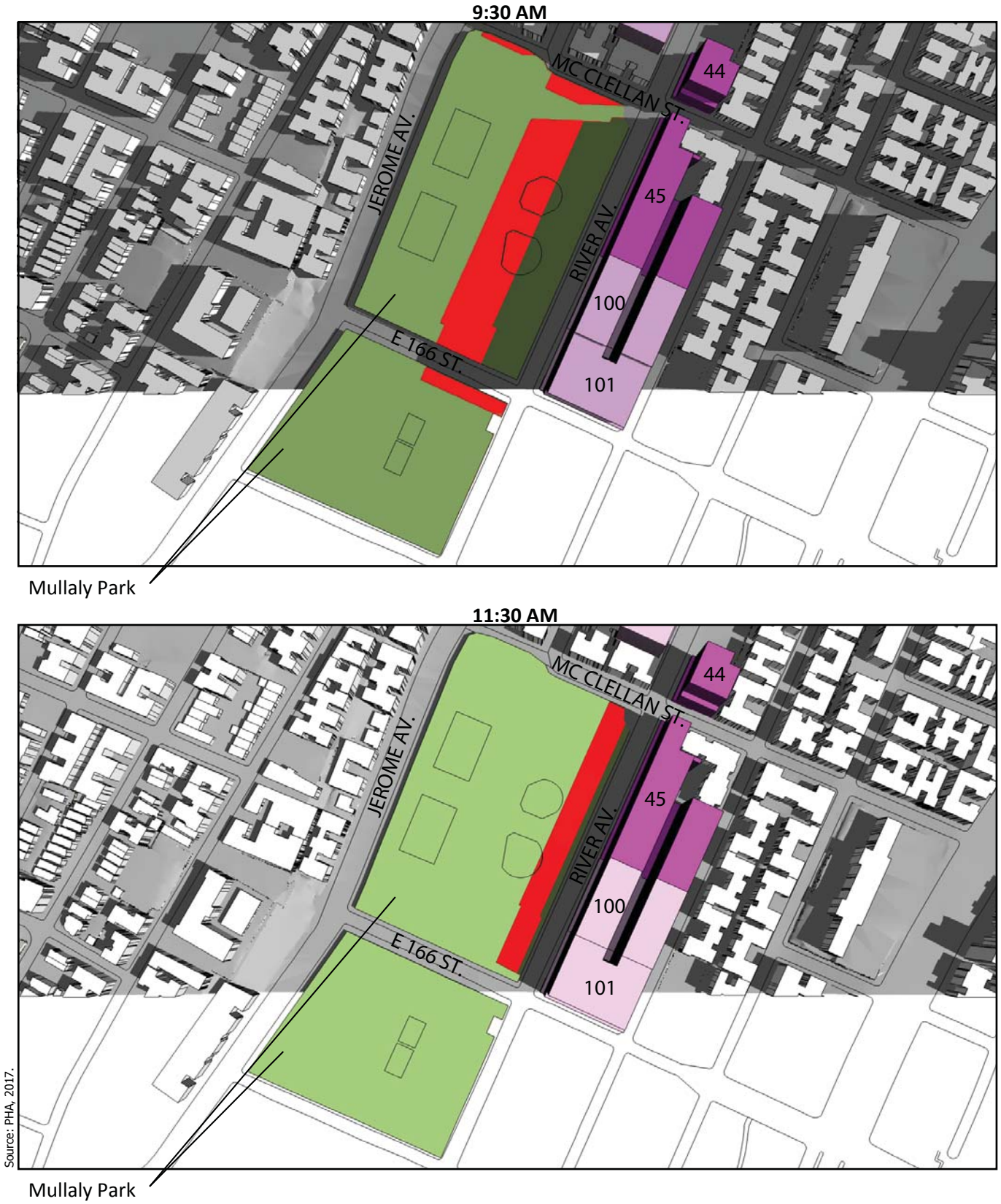

9:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
11:30 AM
MC CLELLAN ST.
JEROME AV.
RIVER AV.
E 166 ST.
44
45
100
101
Mullaly Park
Source: PHA, 2017.
Projected Development
Potential Development
Open Space
Incremental Shadow
N

Figure 6-27