Chapter 5:

Shadows

A. INTRODUCTION

This chapter examines whether the Proposed Actions would result in a significant adverse shadow impact on any sunlight-sensitive resources. According to the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, sunlight-sensitive resources of concern include public open space, sunlight-dependent features of historic architectural resources, natural resources that depend on sunlight, and planted areas within unused portions of roadbeds that are part of the Greenstreets program. A shadow assessment is required for actions that would result in new structures or additions to existing structures at least 50 feet in height.

As described in Chapter 1, "Project Description," two of the three reasonable worst-case development scenarios (RWCDS), the Baseline Scenario and Overbuild Scenario, would result in the development or enlargement of several structures within the Project Area. The Baseline Scenario would introduce three new structures—the Gateway Building, Building 11, and Building 21—while the Overbuild Scenario would introduce two new structures—the Gateway Building and Building 21—and allocate additional bulk to Buildings 3, 4, 5, 6, 7, 8, 19, 22/23, and 24 as rooftop enlargements. For purposes of the shadows analysis, the maximum development bulk under the Baseline Scenario and Overbuild Scenario are considered together (the Shadow Assessment Scenario).

PRINCIPAL CONCLUSIONS

A detailed shadow analysis was conducted to determine the extent and duration of new shadow cast on sunlight-sensitive resources in the Shadow Assessment Scenario. The detailed analysis concluded that the shadow cast in the Shadow Assessment Scenario would not result in a significant adverse shadow impact, but would cast incremental shadow on two sunlight-sensitive resources: D'Emic Playground and the Upper New York Bay, as well as on the three narrow courtyards located between the Finger Buildings. D'Emic Playground, an open space resource, would be cast in new afternoon shadow in the summer, spring, and fall. The short duration of new shadow would not substantially reduce the direct sunlight on the playground and would allow over 7 daily hours of direct sunlight to reach the affected playground vegetation throughout the growing season. The Shadow Assessment Scenario new shadow would not significantly alter the utilization of the resource or the variety of plant life supported within it.

The Upper New York Bay, a natural resource, would be cast in new shadow throughout the year. Although the total duration of new shadow within the analysis timeframe would last for, at least, three hours, it would only fall on a small portion of the Bay and would not alter its natural condition.

New shadow would also be cast on portions of the Industry City Courtyards, three courtyards located between Buildings 1 and 2, 3 and 4, and 5 and 6. Under the combined Shadow Assessment Scenario, the majority of the total courtyard area would not be cast in more than one hour of new shadow on any given day throughout the year. Although the courtyards are open to the public at

most times, under CEQR, they do not meet the technical definition of a public open space; they are not a sunlight-sensitive resource and cannot experience a significant adverse shadow impact.

Therefore, the Shadow Assessment Scenario, and the Proposed Actions as a whole, would not result in a significant shadow impact on a sunlight-sensitive resource.

B. DEFINITIONS AND METHODOLOGY

This analysis has been prepared in accordance with CEQR procedures and follows the guidelines of the *CEQR Technical Manual*.

DEFINITIONS

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. Such resources generally include the following:

- *Public open space* such as parks, beaches, playgrounds, plazas, schoolyards (if open to the public during non-school hours), greenways, and landscaped medians with seating. Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- Features of architectural resources that depend on sunlight for their enjoyment by the public. Only the sunlight-sensitive features need be considered, as opposed to the entire resource. Such sunlight-sensitive features might include design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource's condition or microclimate. Such resources could include surface waterbodies, wetlands, or designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources include, for the purposes of CEQR:

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space); and
- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist.

A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

METHODOLOGY

Following the guidelines of the *CEQR Technical Manual*, this assessment considers shadow cast between 90 minutes after sunrise and 90 minutes before sunset (the analysis day). A preliminary screening assessment is first conducted to determine whether shadow cast within this timeframe under the Shadow Assessment Scenario could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines the longest shadow study area around the building footprints of all structures within the Project Area that would be developed or enlarged under the Shadow Assessment Scenario and require shadow assessment. If there are sunlight-sensitive resources within this study area, the analysis proceeds to the second tier, which reduces the area that could be affected by new shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the projected and potential developments sites due to the path of the sun through the sky at the latitude of New York City.

If the second tier of analysis does not eliminate the possibility of new shadows on sunlightsensitive resources, a third tier of screening analysis further refines the area that could be reached by new shadow by determining the maximum extent of shadow on four representative analysis days.

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 Shadow Assessment Scenario. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadow on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

C. PRELIMINARY SCREENING ASSESSMENT

The *CEQR Technical Manual* requires a shadow assessment for actions that would result in new structures or additions to existing structures at least 50 feet in height or, when adjacent to a sunlight-sensitive resource, for all new structures or additions of any height. Although not all structures developed or enlarged under the Shadow Assessment Scenario would increase in size more than 50 feet, the Project Area is adjacent to two sunlight-sensitive resources, D'Emic Playground and the Upper New York Bay. Therefore, this shadow assessment considers all structures developed or enlarged under the Shadow Assessment Scenario (the Shadow Assessment Structures). The proposed maximum heights of the Shadow Assessment Structures used in the analysis are described below and in **Table 5-1**.

A base map was developed using Geographic Information Systems (GIS)¹ showing the location of the development sites and the surrounding street layout (see **Figure 5-1**). In coordination with the land use and historic and cultural resources assessments presented in other chapters of this EIS, potential sunlight-sensitive resources were identified and shown on the map.

¹ Software: Esri ArcGIS 10.3; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.



Iter 2: Area south of site that could never be shaded by proposed building

Public Open Space Resource

Finger Building Open Space

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Shadow Analysis Sites

	Tier I Longest Snadow Study Ar				
Building	Maximum Height (in Feet)	Maximum Height with Rooftop Mechanical Equipment	Longest Shadow (in Feet)		
Gateway Building	170	185	796		
3	110	125	538		
4	110	125	538		
5	110	125	538		
6	110	125	538		
7	110	125	538		
8	110	125	538		
11	170	185	796		
19	150	165	710		
21	150	165	710		
22/23	150	165	710		
24	150	165	710		
Note: Longest shadow occurs on December 21 at start of analysis day					

Table 5-1 Tier 1 Longest Shadow Study Areas

TIER 1 SCREENING ASSESSMENT

For the Tier 1 assessment, the longest shadow that the structures enlarged or developed under the Shadow Assessment Scenario could cast throughout the year is calculated, and, using this length as the radius, a perimeter is drawn around the footprint of the Shadow Assessment Structures. Anything outside this perimeter could never be affected by new shadow, while anything inside the perimeter needs additional assessment.

According to the *CEQR Technical Manual*, the longest shadow that a structure can cast at the latitude of New York City occurs on December 21, the winter solstice, at the start of the analysis day at 8:51 AM, and is equal to 4.3 times the height of the structure.

The Shadow Assessment Scenario conservatively considers hypothetical structures without setbacks and heights of 110 through 170 feet above street level. An additional 15 feet is added to the maximum height to account for the placement of rooftop mechanical equipment. The resulting heights used in shadow assessment and the longest shadow they could cast are listed in **Table 5-1**. Using the longest shadow lengths as radii, a perimeter was drawn around the Shadow Assessment Sites (see **Figure 5-1**). Three sunlight-sensitive resources are located within the longest shadow study area: D'Emic Playground, an open space resource, the Upper New York Bay, a natural resource, and a Greenstreet resource. Although the Industry City Courtyards are open to the public at most times, under CEQR, they do not meet the technical definition of a public open space and are not a sunlight-sensitive resource. A Tier 2 assessment is required to determine if any of the sunlight-sensitive resources are within the portion of the longest shadow study area that, when accounting could never be cast in new shadow.

TIER 2 SCREENING ASSESSMENT

In the northern hemisphere, no shadow can be cast in a triangular area south of any given structure. In New York City and within the analysis timeframe (90 minutes after sunrise to 90 minutes before sunset), this area lies between -108 and +108 degrees from true north. **Figure 5-1** illustrates this triangular area south of the Shadow Assessment Structures. The complementing area to the north within the longest shadow study area represents the remaining area that could potentially experience new shadow. Within the longest shadow study area, the relative position of D'Emic

Playground, the Upper New York Bay, and the Industry City Courtyards could allow them to be potentially cast in new shadow under the Shadow Assessment Scenario. Therefore, a Tier 3 assessment is required to model shadows cast by the Shadow Assessment Structures on specific representative days of the year.

TIER 3 SCREENING ASSESSMENT

The direction and length of shadows vary throughout the course of the day and also differ depending on the season. Shadows move constantly but more quickly at the start and the end of the day than they do in the middle of the day. In order to determine whether shadow generated by the Shadow Assessment Structures could fall on a sunlight-sensitive resource, three-dimensional computer mapping software is used in the Tier 3 assessment to calculate and display the incremental shadows from the development sites and adjacent potential development on individual representative days of the year. A computer model was developed containing three-dimensional representations of the elements in the base map used in the preceding assessments, the topographic information of the study area, and the massing of the Shadow Assessment Structures.

REPRESENTATIVE DAYS FOR ANALYSIS

Following the guidance of the *CEQR Technical Manual*, shadows on the summer solstice (June 21), winter solstice (December 21), and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, the day halfway between the summer solstice and the equinoxes (i.e., May 6 or August 6) which have approximately the same shadow patterns.

TIMEFRAME WINDOW OF ANALYSIS

The shadow assessment considers shadows occurring between 90 minutes after sunrise and 90 minutes before sunset. Within the 90 minutes after sunrise and the 90 minutes before sunset, the sun is low on the horizon, producing shadows that are long, move fast, and generally blend with shadows from existing structures. Consequently, shadows occurring in these two 90-minute periods are not considered significant under CEQR, and their assessment is not required.

TIER 3 SCREENING ASSESSMENT RESULTS

Figure 5-2 illustrates the range of shadows that would occur, in the absence of intervening buildings, from the Shadow Assessment Structures on the four representative analysis days. The extent of shadow is shown between the start of the analysis day (90 minutes after sunrise) to the end of the analysis day (90 minutes before sunset).

The Tier 3 assessment finds that on the four analysis days, shadows cast by Shadow Assessment Structures, in the absence of existing and planned structures, would reach D'Emic Playground, the Upper New York Bay, and the Industry City Courtyards. The extent and duration of incremental shadow that may fall on the resources identified in the Tier 3 assessment are determined with a detailed shadow analysis.

D. DETAILED ANALYSIS

The purpose of the detailed shadow analysis is to determine the extent and duration of incremental shadows that could fall on the two sunlight-sensitive resources identified in the Tier 3 assessment as a result of the Proposed Actions and to assess their potential effects. Under CEQR, the Industry City Courtyards are not considered a sunlight-sensitive resource and any new shadow being cast



May 6/August 6



March 21/Sept. 21











Shadow Analysis Sites Public Open Space Resource

Finger Buliding Open Space

Tier 3 Shadow - Analysis Timeframe Daily Shadow Extent

Notes:

1. Daylight Saving Time not used.

2. Shadows are shown occurring at approximately one hour intervals from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset). The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed project's shadow across the landscape, without accounting for any existing buildings and their shadows.

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on them is assessed qualitatively. To complete the analysis, three-dimensional representations of the existing buildings are appended to the Tier 3 assessment model. The shadows cast in the future without the Proposed Actions (the No Action condition) can then be compared to those cast in the Shadow Assessment Scenario (the With Action condition). Absent the Proposed Actions, the tax lots of which the Shadow Assessment Structures are located would not be redeveloped with taller buildings and all existing structures would remain.

ANALYSIS RESULTS

The detailed shadow analysis finds that incremental shadow would fall on two sunlight-sensitive resources, D'Emic Playground and the Upper New York Bay, as well as on the Industry City Courtyards. However, neither sunlight-sensitive resource would be significantly impacted by new shadow. **Table 5-2** shows the entry and exit times and total duration of incremental shadow originating from Shadow Assessment Structures on the affected open space and natural resources. The total duration of new shadow on the Industry City Courtyards is discussed qualitatively only and not included in the table.

Figures 5-3 through 5-9 illustrate the duration of shadows and direct sunlight on the affected sunlight-sensitive resources in the No Action and With Action conditions. The area of the resource affected by incremental shadow is outlined in red. Below is a description of the resources and the duration and extent of incremental shadow.

			Incremental Shadow Durations			
Analysis day and timeframe window	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		
D'Emic Playground	3:55 PM-4:29 PM	4:35 PM–5:18 PM	4:55 PM–6:01 PM	_		
Upper New York Bay	7:36 AM–1:15 PM	6:27 AM-11:30 AM	5:57 AM-11:45 AM	8:51 AM-12:30 PM		
	Total: 6 hr 39 min	Total: 5 hr 3 min	Total: 5 hr 12 min	Total: 3 hr 39 min		
Notes: Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource. Daylight saving time is not used—times are Eastern Standard Time, per <i>CEQR Technical Manual</i> guidelines. However, as Eastern Daylight Time is in effect for the March/September, May/August and June analysis periods, add one hour to the given times to determine the actual clock time.						

Table 5-2 Incremental Shadow Durations

AFFECTED RESOURCES

D'EMIC PLAYGROUND

D'Emic Playground is a 1.13-acre playground located on the east side of 3rd Avenue between 34th and 35th Streets (see **Figure 5-3 through 5-5**). It includes features such as playground equipment, spray showers, basketball courts, and benches, as well as a generous tree canopy. The Sunset Park High School is located adjacent to the resource but does not reserve special access to the park beyond that allowed to the general public. An afternoon (and after school closing hours) site visit found the playground in adequate condition and heavily utilized by the public.

In the With Action condition, D'Emic Playground would be cast in incremental shadow on three of the four analysis days. On March 21/September 21, beginning at 3:55 PM, new shadow would enter the resource at the southwest corner of the playground, and then grow in geographic extent until the end of the analysis day at 4:29 PM. During this timeframe, the trees, benches, and other sunlight-sensitive features located in the southwest quadrant of the playground would be partially covered by no more than 30 minutes of incremental shadow.



Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include addtional height for rooftop mechanical equpment.

Detailed Shadow Analysis D'Emic Playground March 21/September 21 Figure 5-3

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Sunlight-Sensitive Open Space Resource

Existing and No Action Shadow

Direct Sunlight on Resource

Incremental Shadow on Resource



Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include addtional height for rooftop mechanical equpment.

Detailed Shadow Analysis D'Emic Playground May 6/August 6 Figure 5-4

INDUSTRY CITY

Sunlight-Sensitive Open Space Resource

Existing and No Action Shadow

Incremental Shadow on Resource

Direct Sunlight on Resource





Shadow Analysis Sites

Sunlight-Sensitive Open Space Resource Existing and No Action Shadow Incremental Shadow on Resource Direct Sunlight on Resource Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include additional height for rooftop mechanical equpment.

Detailed Shadow Analysis D'Emic Playground June 21 Figure 5-5

0

200 FEET







Detailed Shadow Analysis Upper New York Bay March 21/September 21 Figure 5-6

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Incremental Shadow on Resource

Direct Sunlight on Resource







Shadow Analysis Sites Existing and No Action Shadow Incremental Shadow on Resource Direct Sunlight on Resource Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include additional height for rooftop mechanical equpment.

Detailed Shadow Analysis Upper New York Bay May 6/August 6 Figure 5-7







Shadow Analysis Sites
Existing and No Action Shadow
Incremental Shadow on Resource
Direct Sunlight on Resource

Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include additional height for rooftop mechanical equpment.

Detailed Shadow Analysis Upper New York Bay June 21 Figure 5-8







Shadow Analysis Sites
Existing and No Action Shadow
Incremental Shadow on Resource
Direct Sunlight on Resource

Note: Shadow Analysis Sites are modeled from maximum heights without setbacks. Labeled maximum heights are measured from curb level and include additional height for rooftop mechanical equpment.

Detailed Shadow Analysis Upper New York Bay December 21 Figure 5-9

On May 6/August 6, beginning at 4:35 PM, new shadow would enter the resource at its western edge and then gradually grow in size until the end of the analysis day at 5:18 PM. During this timeframe, the individual sunlight-sensitive features located in the western half of the playground would be cast in, at most, 25 minutes of incremental shadow.

On June 21, beginning at 4:55 PM, new shadow would enter the resource from its western edge and then gradually grow in size until the end of the analysis day at 6:01 PM. During this timeframe, almost all sunlight-sensitive features located in the playground would be covered by no more than 30 minutes of incremental shadow. Small playground areas that feature benches and vegetation would be partially covered by 45 minutes of incremental shadow.

Determination of Significance

In the With Action condition, incremental shadows would fall on D'Emic Playground on three of the four analysis days, March/September 21, May 6/August 6, and June 21.

On March 21/September 21, incremental shadow cast in the With Action condition would fall on the playground for the last 34 minutes of the analysis day. Playground vegetation, benches, and play equipment cast in new shadow on this day would continue to receive over 7 hours of direct sunlight. The short duration of new shadow would not significantly decrease the total hours of direct sunlight available to the playground and would not significantly alter the utilization of the resource's benches and playground equipment. The quantity of direct sunlight available would not threaten the affected vegetation's growth.

On May 6/August 6, incremental shadow cast in the With Action condition would fall on the playground for the last 43 minutes of the analysis day. Playground area cast in new shadow on this day would continue to receive over 10 hours of direct sunlight throughout the analysis day. The short duration of new shadow would not significantly decrease the total hours of direct sunlight available to the playground and would not significantly alter the utilization of the resource's benches and playground equipment. The quantity of direct sunlight available would not threaten the affected vegetation's growth.

On June 21, incremental shadow cast in the With Action condition would fall on the playground for slightly over one hour, from 4:55 PM to 6:01 PM. Playground equipment and benches cast in new shadow on this day would continue to receive over 10 hours of direct sunlight. The affected basketball courts would receive at least 7 hours of direct sunlight. The short duration of new shadow would not significantly decrease the total hours of direct sunlight available to the playground and would not significantly alter the utilization of the resource's benches, playground equipment, and basketball courts. All vegetation within the playground would receive over 10 hours of direct sunlight throughout the day and its growth would not be threatened.

Due to the remaining direct sunlight and the short duration of new shadow on discrete resource areas, the public would not be expected to alter their use of the resource due to incremental shadow. In the warmer months of the year, benches and seating areas are less susceptible to utilization impacts from new shadow. Including existing shadow, all of the affected sunlight-sensitive features of the resource would receive at least 7 hours of direct sunlight through the analysis day, which, according to the *CEQR Technical Manual*, would allow for the survival of a variety of plant life. Therefore, new shadow under the Shadow Assessment Scenario, and the Proposed Actions as a whole, would neither threaten the viability of vegetation within D'Emic Playground nor substantially reduce its usability, and would not result in a significant shadow impact on the resource.

UPPER NEW YORK BAY

Upper New York Bay is a large natural resource consisting of the upper portion of New York Bay; the portion located south of Manhattan, west of Brooklyn, north of Staten Island, and east of Bayonne (see **Figures 5-6 through 5-9**). Several species such as phytoplankton, macroalgae, and many fish species live in the bay.

In the With Action condition, Upper New York Bay would be cast in incremental shadow on all four analysis days. Throughout the year, incremental shadow would fall on the Upper New York Bay in the vicinity of 39th through 41st Streets from the beginning of the analysis day. Depending on the season, incremental shadow would remain on the Bay for, approximately, 5 to 6 hours and 30 min before exiting the resource at 1:15 PM on March 21/September 2, 11:30 AM on May 6/August 6, 11:45 AM on June 21, and 12:30 PM on December 21. New shadow on the Bay would never extend beyond approximately 600 feet from the shoreline and would cover, at most, approximately 0.5 acres.

Determination of Significance

In the With Action condition, incremental shadow would fall on Upper New York Bay throughout the year. Although the total duration of new shadow would be long, lasting for, at most, 6 hours and 39 minutes, the geographic extent of new shadow would be extremely small compared to the total area of the Bay. Shadows can have minor impacts on fish by reducing foraging or habitat use or affecting behaviors that rely on light cues. However, these potential effects would be limited to the shaded areas and none of the species that could potentially live in the Upper New York Bay would be affected by the small incremental change this shadow would cause. Phytoplankton would pass through the affected area of the Bay quickly and would not be affected. Macroalgae would not be affected because the incremental shadow does not significantly change the amount of time exposed to light. Fish would be expected to move out of shadowed areas that become undesirable and benthic macroinvertebrates are unlikely to be adversely affected by shadow. Given the limited duration of new shadow and extent relative to the Bay as a whole and the continued availability of un-shaded habitat, incremental shadows generated by the Proposed Actions would not have significant adverse impacts on primary productivity (the rate at which solar energy and simple chemicals are converted to organic biomass through photosynthesis or chemosynthesis) or fish within the Upper New York Bay. Therefore, incremental shadow resulting from the Proposed Actions would not result in a significant shadow impact on the Upper New York Bay.

INDUSTRY CITY COURTYARDS

The Industry City Courtyards are open spaces located between Industry City Buildings 1 and 2 (Courtyard 1/2), 3 and 4 (Courtyard 3/4), and 5 and 6 (Courtyard 5/6) and feature benches, tables, chairs, and planted vegetation. Although the Industry City Courtyards are regularly open to the public, they do not have designated daily periods of access—a requirement of public open space under CEQR.

Under the Shadow Assessment Scenario, portions of the Courtyards would be cast in new shadow throughout the year. Within spring, summer, and fall days, new shadow would be cast on most areas of Courtyards 3/4 and 5/6 and the eastern half of Courtyard 1/2. New shadow cast on a majority of the affected area would prevent no more than 1 hour of direct sunlight from reaching the courtyards. Within these seasons, new shadow would remain longest on portions of Courtyard 1/2 immediately adjacent to the proposed Gateway Building. On winter days, new shadow would be cast only on the easternmost portion of Courtyard 1/2. On these days, new shadow would prevent up to 1 hour and 30 minutes of sunlight from reaching most of the affected courtyard area.

The remaining affected area of Courtyard 1/2, less than 1/10th of an acre in size, could be cast in, at most, 3 hours of additional shadow.

Determination of Significance

Although the Industry City Courtyards are regularly open to the public, under CEQR, they do not meet the technical definition of a public open space and are not a sunlight-sensitive resource and cannot experience a significant adverse shadow impact.

Therefore, the Shadow Assessment Scenario, and the Proposed Actions as a whole, would not result in a significant shadow impact on the Industry City Courtyards or any other sunlight-sensitive resource.