A. PROJECT DESCRIPTION

PROJECT IDENTIFICATION

The Refinery LLC ("the applicant") is requesting discretionary approvals in connection with the redevelopment of the former Domino Sugar site along the East River waterfront in Williamsburg, Brooklyn (the "proposed project"). The approximately 11-acre project site comprises two parcels: a waterfront parcel (Block 2414, Lot 1) and an upland parcel (Block 2428, Lot 1) (see Figure S-1). The waterfront parcel is approximately 9.9 acres (excluding the approximately 6.2 acres of land underwater to the pierhead line) and the upland parcel is approximately 1.3 acres. The waterfront parcel is bounded on the west by the East River, on the north by Grand Street, on the east by Kent Avenue, and on the south by South 5th Street, which separates the site from the Williamsburg Bridge immediately to the south. Grand Street ends at Grand Ferry Park, which is a public park that provides access to the East River. The block on which the upland parcel is located is bounded on the west by Kent Avenue, on the north by South 3rd Street, on the east by Wythe Avenue, and on the south by South 4th Street. The project site is located entirely within Brooklyn Community District 1. The project site is currently zoned M3-1 for heavy industrial use.

The proposed project would revitalize and reactivate a vacant waterfront industrial site with public open space, a restored and adaptively reused historic building, and new residential buildings with a substantial amount of affordable housing. The proposed project would include up to 2,400 residential units, up to 127,537 gross square feet (gsf) of retail/commercial space, up to 146,451 gsf of community facility space, and up to 98,738 gsf of commercial office space. The applicant currently intends to build 2,200 residential units on the project site, of which 660 would be affordable to low- and moderate-income households. However, it is assumed for analysis purposes in this Environmental Impact Statement (EIS) that the project could include up to 2,400 residential units (based on an average unit size of approximately 1,000 gsf), 30 percent of which would be affordable to low- and moderate-income households. The complex of landmarked buildings along the waterfront known as the Refinery would be adaptively reused. The project's approximately four acres of public open space would include an esplanade along the water's edge, linking the project site to Grand Ferry Park, a large open lawn between the esplanade and the Refinery that would highlight this restored historic structure, and new connections that are intended to provide visual and physical access to the waterfront from all streets leading to the project site.

The proposed project would require a number of discretionary approvals from the City Planning Commission (CPC), as summarized below:

- Zoning map amendments (i) from M3-1 to R8 with a C2-4 commercial overlay for a section of the waterfront parcel; (ii) from M3-1 to C6-2 for portions of the waterfront parcel; and (iii) from M3-1 to R6 with a C2-4 commercial overlay on the upland parcel;

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Project Site Boundary and Area of General Large Scale Plan

0 1000 FEET

SCALE

Project Site Location

Figure S-1

- Zoning text amendments to apply the Inclusionary Housing program to the project site and to modify the requirements of non-conforming signs to permit a sign on the Refinery as per the approval from the New York City Landmarks Preservation Commission (LPC);
- Special Permits to allow transfer of floor area development rights across Kent Avenue, and modifications to: height and setback, dimensions on an inner court recess, required distance between windows in an inner court, rear yard regulations, and distance between buildings regulations;
- A Special Permit to modify the location of use provisions;
- A Special Permit to permit, within the General Large Scale Development, the northern parking facility on the waterfront parcel to exceed the prescribed maximums for accessory parking spaces in order to accommodate the project's anticipated demand;
- Authorizations to modify certain requirements of the Waterfront Public Access Areas to permit the phased implementation of waterfront public access in coordination with phased development of the project site;
- CPC Chair certifications for compliance with waterfront public access and visual corridor requirements and to permit the subdivision of a waterfront zoning lot; and
- Coastal Zone Consistency determination (because the project site is within the Coastal Zone).

Additionally, the proposed project will require approvals of a Joint Permit Application from the U.S. Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC) for reconstruction of the existing waterfront platform and installation of a new sheet pile bulkhead. Approvals will also be required for the two proposed stormwater outfalls to be located at the end of South 2nd and South 3rd Streets. A State Pollution Discharge Elimination System (SPDES) permit from NYSDEC will also be required for stormwater discharges during the construction period because construction on the project site involves more than one acre.

The rezoning and land use actions are subject to the Uniform Land Use Review Procedure (ULURP), requiring approvals by CPC and the City Council. CPC is the City Environmental Quality Review (CEQR) lead agency, and several additional agencies are involved or interested agencies in the environmental review, including the New York City Department of Housing Preservation and Development (HPD), the New York City Department of Environmental Protection (DEP), the New York City Department of Transportation (DOT), LPC, the New York City Department of Parks and Recreation (DPR), the New York City School Construction Authority (SCA), the New York City Housing Development Corporation (HDC), NYSDEC, USACE, and the State Historic Preservation Officer (SHPO).

PROJECT BACKGROUND

The Refinery LLC is owned by Refinery Management LLC, which is a joint venture of CPC Resources, Inc. and Katan Group LLC. CPC Resources is the Managing Member of The Refinery LLC and is the for-profit development arm of the Community Preservation Corporation, a not-for-profit corporation formed in 1974 that specializes in financing affordable housing.

The now vacant project site was purchased by the applicant in June 2004, subsequent to the closure of sugar processing operations. Although sugar refining had taken place on the project site since

the 1850s, the oldest existing buildings remaining on the site were built in the 1880s and the most recent in the 1960s. The site operated under the name Domino Sugar until 2001, when the Domino brand was acquired by American Sugar Refining. American Sugar closed its refining operations on the site in early 2004 with the exception of some limited packaging and warehousing operations, which ceased operating in mid-2004.

The project site is adjacent to the area rezoned in May 2005 as part of the Greenpoint-Williamsburg rezoning. The area rezoned under that action had previously been zoned for either heavy industrial use (M3 zoning), as is the project site, or light industrial use (M1 zoning), and also included the Special Northside Mixed Use District. As part of the Greenpoint-Williamsburg rezoning, approximately 184 blocks were rezoned to allow residential and mixed residential/industrial use, making use of a combination of R6 and R8 districts along the waterfront to the north of the project site to facilitate residential redevelopment with public waterfront access and open space. The Greenpoint-Williamsburg rezoning also incorporated an inclusionary zoning mechanism to incentivize the development of affordable housing, with 20 percent of the floor area in a development being affordable to low-income households or 25 percent affordable to a mix of low- and moderate-income households. Because the project site was still being used for sugar refining when the Greenpoint-Williamsburg Rezoning proposal was formulated, it was not included in that rezoning. The proposed project would be consistent with that rezoning's objectives. The proposed project's zoning would help to achieve City goals of creating affordable housing and providing public access to the waterfront similar to the residential districts mapped on waterfront sites to the north of the project site from North 3rd Street to Newtown Creek.

PROJECT GOALS AND OBJECTIVES

Consistent with the Greenpoint-Williamsburg rezoning changes in the area of the Williamsburg waterfront, and in keeping with the mission of CPC Resources, the proposed project seeks to meet the following objectives:

- In accordance with CPC Resources' mission, and to address community concerns that affordable housing is still not achievable for existing working-class residents of Williamsburg, the proposed project would offer 660 housing units as affordable, with a portion of those units affordable to households with income levels reaching as low as 30 percent of Area Median Income (AMI). This goal exceeds the low-income incentive zoning requirements of the Greenpoint-Williamsburg rezoning, and provides affordable units at income levels substantially lower than those required by the Greenpoint-Williamsburg rezoning. The balance of the proposed project's residential units would be market rate and would serve to cross-subsidize the substantial affordable housing component, which cannot be financed solely through existing government subsidy programs;
- Create physical and visual access to the waterfront, including a substantial amount of public open space, and link the site to the existing Grand Ferry Park to the north of the project site and to South 5th Street to the south of the site;
- Redevelop a former waterfront industrial site into an economically integrated mix of residential, retail/commercial, and community facility uses with a high quality design, including massing consistent with the redevelopment of nearby waterfront sites to the north and south and complementary to the existing neighborhood; and
- Adaptively reuse the three buildings that comprise the complex of buildings known as the Refinery.

DESCRIPTION OF THE PROJECT SITE

Reflecting the project site's historical use, the entire development site is currently zoned M3-1, a zoning designation that permits heavy industrial and manufacturing uses and limited commercial uses. The waterfront portion of the site, which stretches for approximately 1,300 feet along the East River, is a complex of industrial buildings ranging in height from one to 16 stories. These buildings include warehouses, sugar processing buildings, power-generating facilities, and research and design structures. The buildings on the project site are currently unoccupied. LPC designated the three buildings which comprise the Refinery (individually known as the Filter House, the Pan House, and the Finishing House) as New York City Landmarks (NYCLs) on September 25, 2007 (see Figure S-2). The Filter House, located along the riverfront, is 12 stories tall. The Pan and Finishing Houses, located along Kent Avenue, are each eight stories. The interiors of the buildings do not consist of discrete and continuous floor levels, as in a conventional structure. Many large pieces of vertical processing equipment extend through several floors of the buildings, and in many cases what floor structure does exist was built around the various tanks, hoppers, bins, vats, pipes, and diagonal bracing that fill the structures. Internal columns are cast iron, and the floors consist variously of iron plate, catwalks, and terra cotta arch floor slabs.

The upland parcel, now a vacant lot, was formerly used as a parking lot.

All of the East River shoreline along the project site is developed with a platform and bulkhead. The pier/platform, which covers about 1.3 acres over the water, is a pile-supported deck that is in fair-to-moderate structural condition. It was formerly used for the docking of cargo ships and there are cranes and other maritime infrastructure along the water's edge.

PROPOSED DEVELOPMENT PROGRAM

The proposed project would facilitate a proposal by the applicant to develop approximately 2.81 million gsf above-grade, including the reuse of the Refinery complex. Approximately 2.44 million gsf would be dedicated to residential use, up to 127,537 gsf to retail/commercial use, up to 98,738 gsf to commercial office use, and up to 146,451 gsf to community facility use. The applicant currently intends to build 2,200 residential units on the project site, of which 660 would be affordable to low- and moderate-income households. However, it is assumed for analysis purposes in this Environmental Impact Statement (EIS) that the project could include up to 2,400 residential units (based on an average unit size of approximately 1,000 gsf), 30 percent of which would be affordable to low- and moderate-income households. Although in order to realize the full allowable floor area under the proposed rezoning action, the applicant would be required to allocate 20 percent of the residential floor area as affordable housing, the EIS has assumed 30 percent because it is the applicant's stated intention to provide the 30 percent allocation.

There would also be approximately 1,694 accessory parking spaces located on the project site in enclosed courtyards and below-grade parking garages. Table S-1 below shows the breakdown of floor area and parking spaces by block. As shown on Figure S-3, the project site includes five separate blocks or parcels, sites A through E, as well as the Refinery.

Under the proposed actions, the project site would include three zoning lots. Sites A through D in Table S-1 would comprise a single zoning lot (Zoning Lot A), the Refinery would be Zoning Lot B, and Site E would be Zoning Lot C.

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Project Site Boundary

0 300 FEET
SCALE

DOMINO SUGAR REZONING

Project Site
Figure S-2

12.29.09



Source: Rafael Viñoly Architects

Project Site Boundary

Illustrative Site Plan

Figure S-3

Table S-1
Proposed Development Program

	Site A	Site B	Refinery	Site C	Site D	Site E	TOTAL
Residential							
gsf	203,984	761,727	260,522	576,893	320,742	318,437	2,442,305
Total units	206	740	241	569	317	327	2,400*
Retail							
gsf	30,000	10,769	30,143	10,775	9,850	36,000	127,537
Commercial Office							
gsf	98,738	--	--	--	--	--	98,738
Community Facility							
gsf	42,316	--	104,135	--	--	--	146,451
Total Floor Area							
gsf	375,038	772,496	394,800	587,668	330,592	354,437	2,815,031
Parking Spaces	782	-	127	411	-	374	1,694

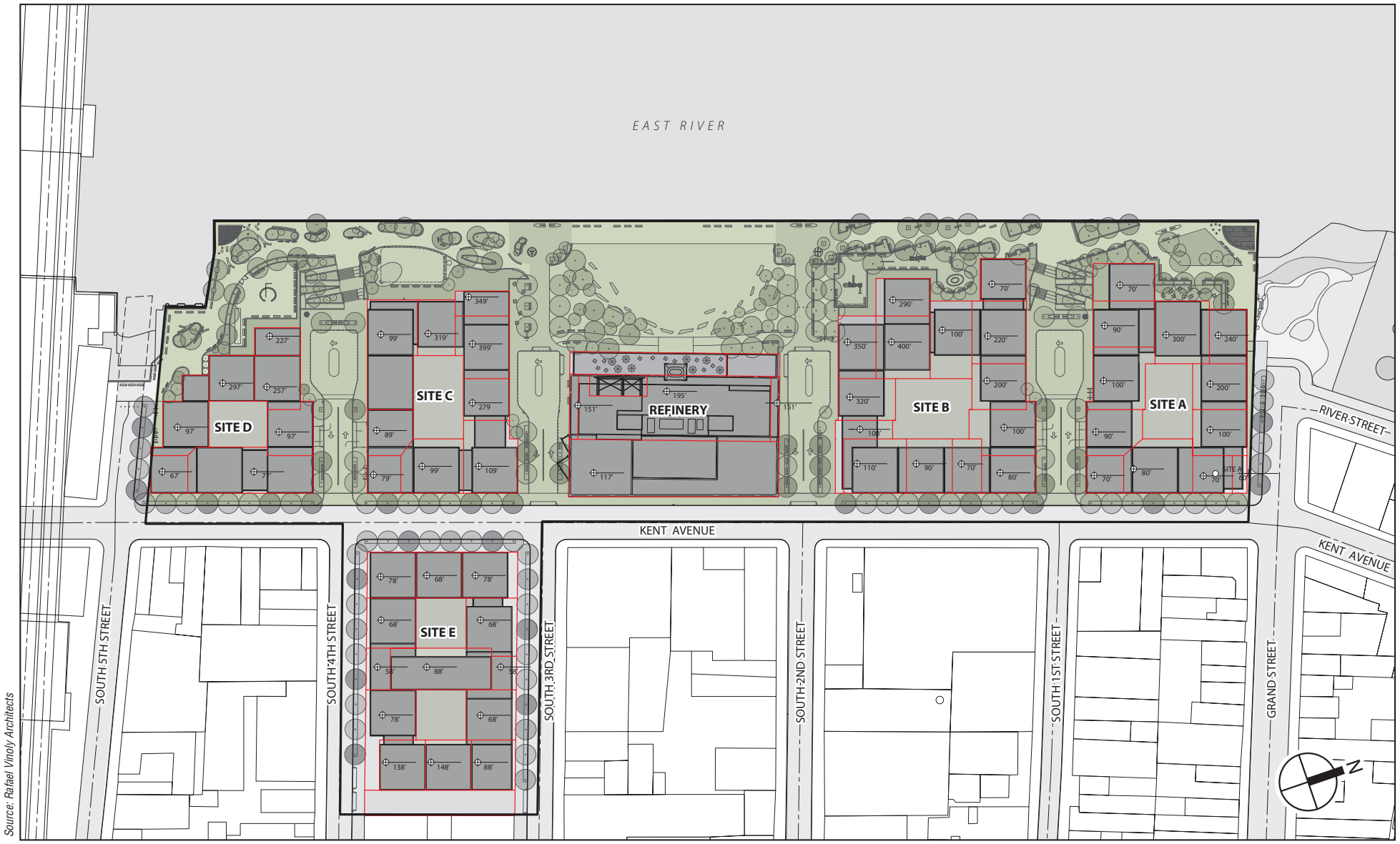
Notes: gsf=gross square feet.
*The number of residential units is estimated based on an average unit size of approximately 1,000 gsf.

The proposed actions would create a zoning envelope within which the maximum permitted floor area could be developed. The maximum zoning envelope is depicted in plan view in Figure S-4 and in elevation on the illustrative renderings in Figures S-5 through S-7. The renderings of buildings shown in these figures are an illustrative depiction of the proposed project as it could be built within the envelope. The maximum zoning envelopes would regulate the heights, size, and shape of footprints, and location of the proposed buildings, which would be required to fall within the envelopes.

Of the 660 housing units dedicated to affordable housing, approximately 15 percent would be rental housing for households at or below 30 percent of AMI; approximately 50 percent would be rental housing for households at or below 60 percent of AMI; approximately 15 percent would be senior rental housing for senior citizens at or below 50 percent of AMI; and approximately 20 percent would be homeownership units at New York City Housing Partnership Program affordability levels (up to 130 percent of AMI). The affordable units would be located on the waterfront and upland parcels. The market-rate units are expected to be condominium units.

If approved, the proposed project would include the preservation and reuse of the Refinery, the construction of new residential and mixed-use structures along the remaining four waterfront blocks between Grand Street and South 5th Street, and a new residential structure on the upland block east of Kent Avenue between South 3rd and South 4th Streets (see Figures S-8a through S-8c). The development on the upland block would be constructed first and approximately half of the residential units built on that site would be allocated as affordable units.

The site plan and proposed buildings are being designed to facilitate public access to the waterfront and the site's public open spaces and it is the applicant's intention to create a varied skyline and streetwall. The proposed new buildings consist of individual components, or modules, that are designed to allow the buildings to meet the neighborhood context at Kent Avenue while stepping up to the towers on the waterfront. The applicant has stated that the buildings would be clad in masonry to reflect Brooklyn's industrial history and the landmarked Refinery, and would become lighter and more transparent at the upper levels of the buildings. The varying heights and façades of the buildings and the modules that would comprise the new buildings would aim to create a diverse streetscape along the project's Kent Avenue frontage, as



Source: Rafael Vinoly Architects

Area of General Large Scale Plan

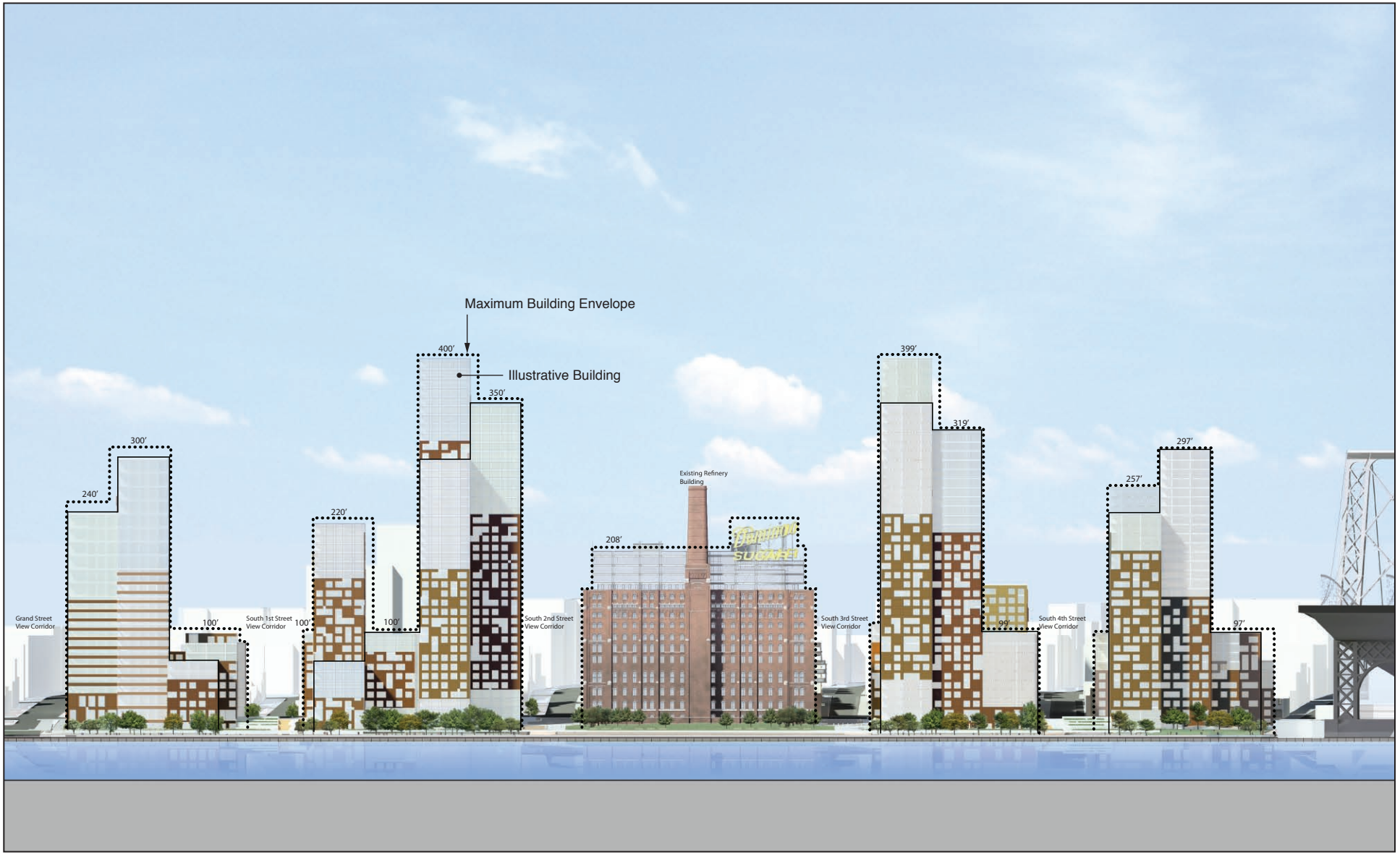
Zoning Envelope

Area of Open Space Plan Approval

NOTE: The proposed buildings are limited to the area within the zoning envelope. However, given the amount of floor area permitted under the proposed zoning, the buildings could not fill out the entire envelope.

Proposed Zoning Envelope

Figure S-4



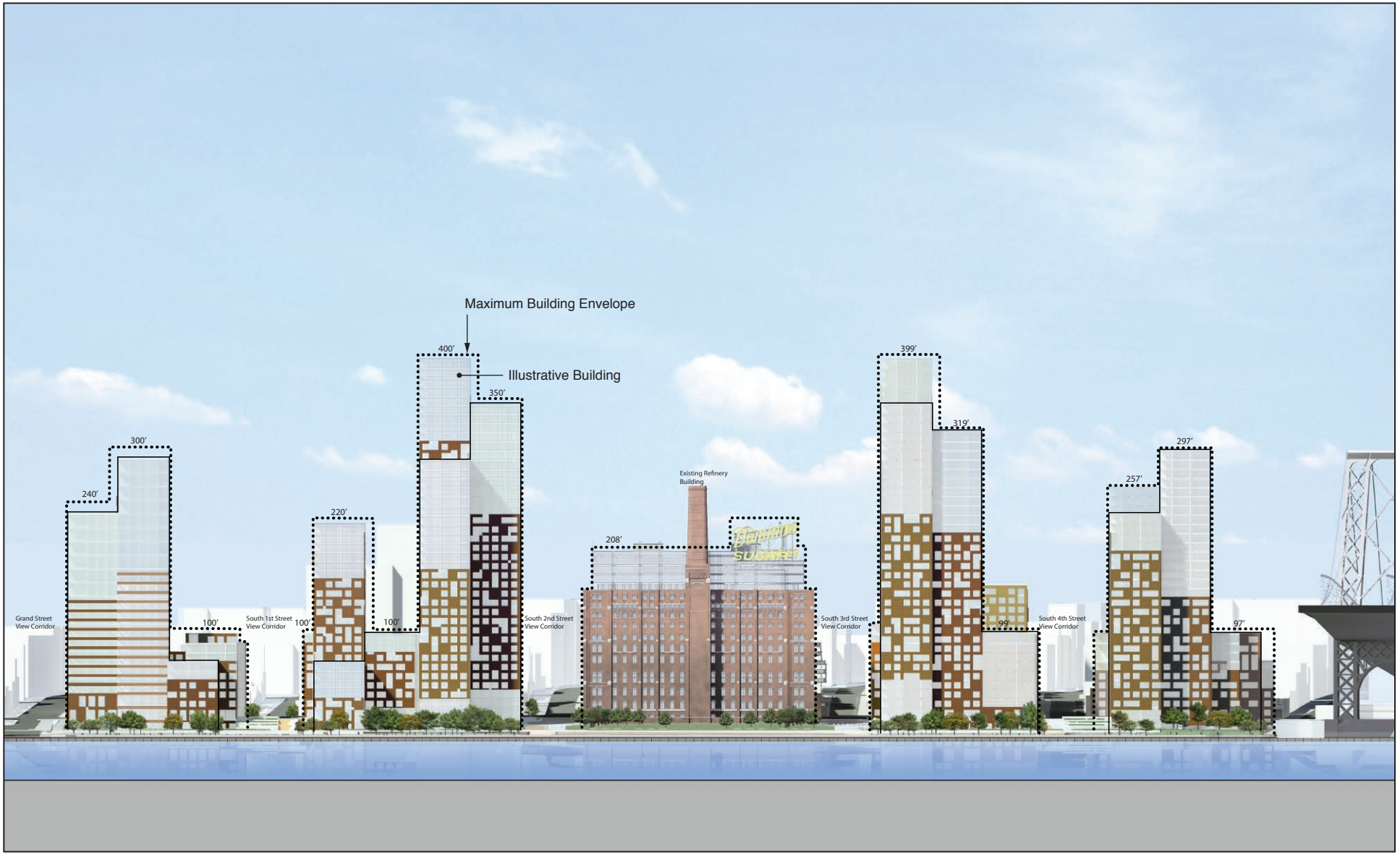
Source: Rafael Viñoly Architects

•••••••••• Maximum Building Envelope

NOTE: The proposed buildings are limited to the area within the zoning envelope. However, given the amount of floor area permitted under the proposed zoning, the buildings could not fill out the entire envelope.

Building Envelopes and Heights: West Elevation

Figure S-5



Source: Rafael Viñoly Architects

•••••••••• Maximum Building Envelope

NOTE: The proposed buildings are limited to the area within the zoning envelope. However, given the amount of floor area permitted under the proposed zoning, the buildings could not fill out the entire envelope.

Building Envelopes and Heights: West Elevation

Figure S-6



Source: Rafael Vinoly Architects

•••••••••• Maximum Building Envelope

NOTE: The proposed buildings are limited to the area within the zoning envelope. However, given the amount of floor area permitted under the proposed zoning, the buildings could not fill out the entire envelope.

Building Envelopes and Heights: North Elevation

Figure S-7



Source: Rafael Vinoly Architects

Illustrative Rendering of Proposed Project from Williamsburg Bridge

Figure S-8a

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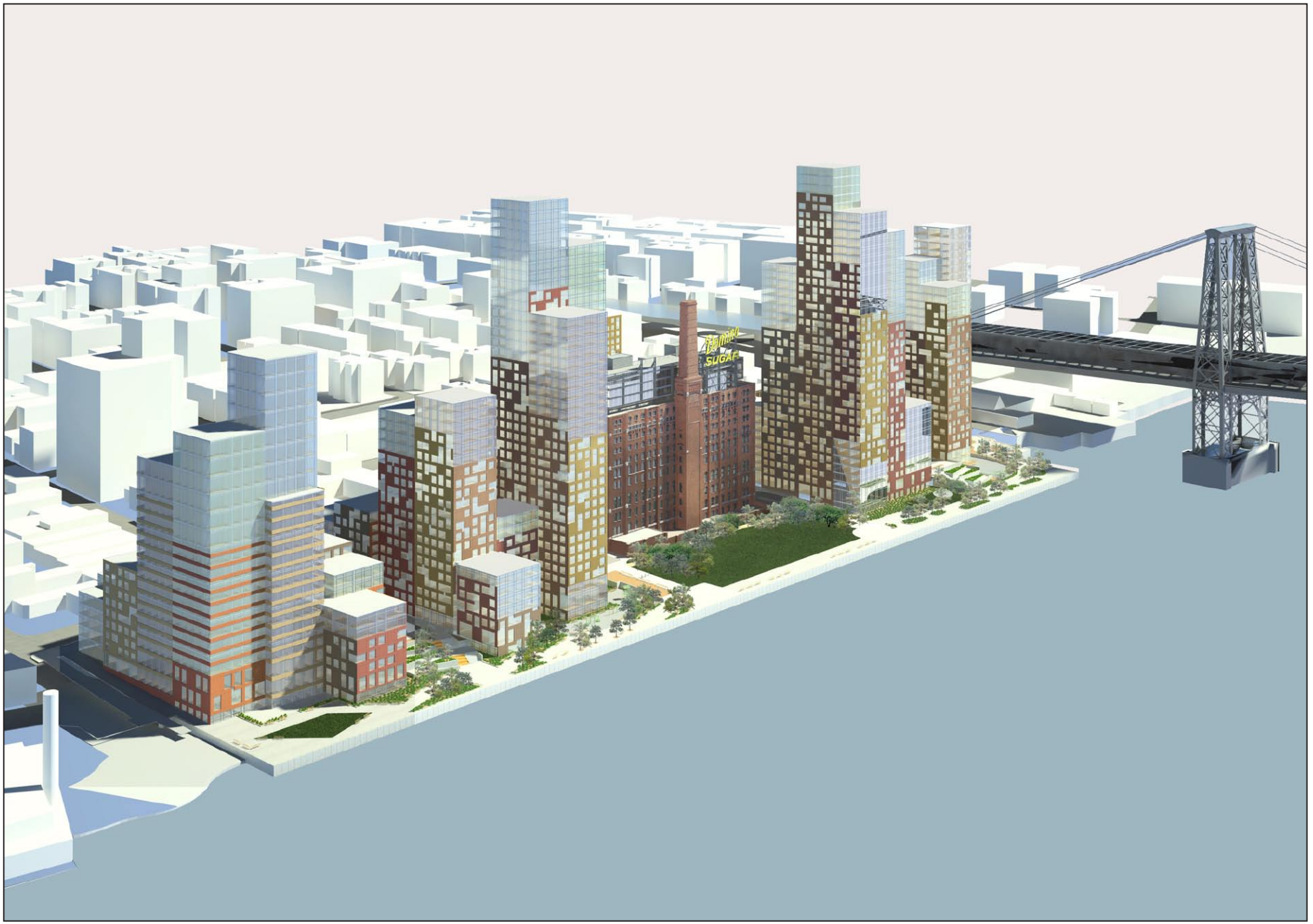

Source: Rafael Vinoly Architects

Illustrative Axonometric View of Proposed Project from the Northwest

Figure S-8b

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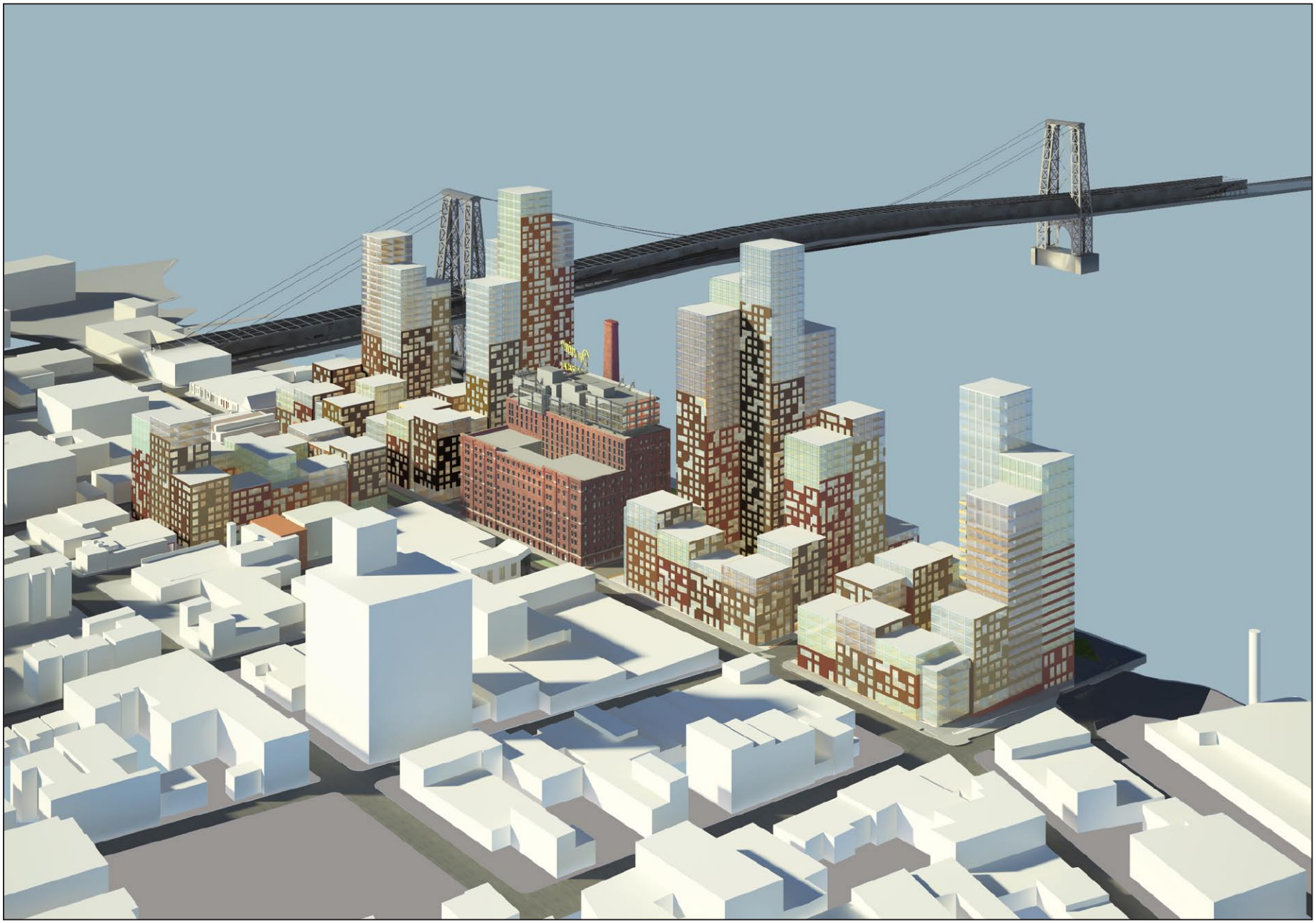

Source: Rafael Vinoly Architects

Illustrative Axonometric View of Proposed Project from the Northeast

Figure S-8c

well as an articulated skyline when viewed from afar. By varying the façades and heights of the buildings, the applicant is intending to break up the massing of each block and create architectural texture that is residential in nature and reflective of the neighborhood. In addition to establishing a zoning envelope, the proposed discretionary actions incorporate design controls relating to building and façade articulation, transparency and glazing, tower floorplate size, and the location of ground floor retail use for all buildings on the site with the exception of the Refinery, which is subject to design controls specified by LPC.

By extending the streets that currently exist to the east of Kent Avenue, the applicant intends for the site plan to integrate the proposed buildings into the existing community and maximize public access to the waterfront. View corridors and public connections to the waterfront would be created at all four streets on the project site, two of which would be created where existing buildings currently block the community from views of the waterfront. Ground-floor retail uses along Kent Avenue would help to activate the streetscape, and the extension of retail uses to the waterfront side of the proposed buildings are intended to draw people onto the project's open space. The retail spaces would be required to have large amounts of glass onto the street to maximize transparency and activate the streetscape.

The applicant's intention is that the design maximize the open space on the site and emphasize the historic Refinery. A public park would be provided at the center of the site on the waterfront in front of the Refinery. Along the entire length of the waterfront would be an esplanade with both passive and active recreation amenities that would be open to the public. Additionally, the site design would create public access ways to the waterfront at each of the four street extensions that enter the site, and an open access to Grand Ferry Park to the north of the site. The proposed project's open space would also connect to South 5th Street at the southern end of the site.

The buildings closest to Kent Avenue on the waterfront parcel would range in height from approximately 60 to 110 feet and would include ground-floor retail/commercial uses along the full length of the project's frontage along Kent Avenue. Closer to the river, the buildings would continue to vary in height; two of the modules would reach heights of up to 300 feet and two would reach up to 400 feet. The buildings on the upland parcel would range generally from 58 to 90 feet, with two modules rising to approximately 138 and 148 feet, respectively. Ground-floor retail/commercial uses would be located along both sides of Kent Avenue throughout the site (See Figure S-8d).

In addition to 203,984 gsf of residential space and approximately 30,000 gsf of retail space, Site A would include approximately 42,316 gsf of community facility space and 98,738 gsf of commercial office space. The portions of Site A that rise to elevations above the height of the nearby New York Power Authority (NYPA) facility exhaust stack would be limited to commercial office and potentially community facility use, and residential use on Site A would be located on the lower floors only. Commercial and community facility uses, which can operate with sealed windows, are appropriate at elevations above 110 feet, in proximity to the NYPA plant,. Residential uses will be located at the lower elevations of the buildings on Site A, where there is no need for a sealed-window condition. A sealed-window condition is not required at any site other than Site A.

REUSE OF THE REFINERY COMPLEX

The proposed project would preserve and adaptively reuse the three buildings which together comprise the Refinery complex. The Refinery is located on the central block of the development site between South 2nd and South 3rd Streets. The complex would be restored and converted to



Source: Rafael Vinoly Architects

Illustrative Rendering of the Proposed Project along Kent Avenue

Figure S-8d

some combination of residential, retail/commercial, and community facility uses (see Figure S-9). The program for the reuse of the Refinery complex has not been finalized but is assumed to include approximately 241 residential units, 30,000 gsf of retail, and 104,135 gsf of community facility uses. The applicant proposes to add three and four floors to a portion of the roof of the Refinery complex to assist in meeting the project's goals and objectives, as discussed above. LPC voted to approve the proposed addition and other minor alterations on June 24, 2008. LPC's findings with respect to the appropriateness of the proposed alterations on the landmarked Refinery are contained in a Status Update Letter issued by LPC on June 26, 2008 but the actual Certificate of Appropriateness has not yet been issued.

To make the complex suitable for residential use, a 50-foot by 100-foot interior courtyard would be created beginning at the roof of the fourth floor of the building. The courtyard would not be visible from the street and therefore would not affect the landmarked exterior of the building.

The proposed three- and four-story addition would be located on top of the Filter House at the western portion of the complex. The proposed addition is a steel and glass form evocative of industrial architecture. Floors two through four of the addition would be set back 10 feet from the façades of the Refinery, and the first floor would be further recessed to set the addition apart from the existing structure. The "Domino Sugar" sign would be located on top of the addition as shown on Figure S-9.

A one-story basement and terrace addition is proposed along the full length of the river-front west façade of the building. This addition would house a parking access ramp down to the basement parking level and a covered loading dock, as well as retail space and a public comfort station. It would also provide a terrace for the retail space overlooking the riverfront open space. It is proposed to be clad in brick, with a stone coping to match the masonry of the existing building. The addition is intended to provide a buffer between the Refinery and the public open space facing the river, and would allow vehicles to enter the Refinery without creating new large openings in its historic arched façades.

The ground-floor openings at all four façades would be converted into retail storefronts and entrances, with masonry openings extended to sidewalk level and filled with historically appropriate storefronts. It is anticipated that entrances to the residential lobbies and community facility space would be located at the north and south sides of the complex.

PUBLIC OPEN SPACE AND WATERFRONT ACCESS

Approximately four acres on the waterfront parcel would be set aside as publicly accessible open space, including an esplanade along the waterfront and an approximately one-acre open space between the Refinery and the water's edge. Under the Zoning Resolution's waterfront zoning provisions, public open space, including a waterfront esplanade and upland connections, and visual corridors to the waterfront are required for new residential development zoned R6 or higher. As shown on Figures S-10 and S-11, the proposed project includes a waterfront esplanade that would connect to Grand Ferry Park to the north and South 5th Street at the southern end of the site. The esplanade would include pedestrian pathways that would extend the length of the site and connect larger gathering spaces and recreational uses. An approximately one-acre lawn in front of the Refinery would gently slope toward the waterfront, accentuating views of the East River and Manhattan, and showcasing the restored historic complex. Trees and plantings would be located along the pathway in planters at grade. Shade structures would be provided at the northernmost and southernmost edges of the esplanade. Several active recreation areas would be located along the esplanade, including tot lots, playgrounds, and an active play

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Source: Rafael Vinoly Architects

Rendering of the Refinery with Proposed Addition

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Open Space Plan
Figure S-10

12.29.09



View of Refinery lawn **1**



View south along esplanade **2**

Illustrative Rendering of Proposed Open Space

Figure S-11

lawn with a water feature that could function as an ice rink in winter. Industrial artifacts salvaged from the existing buildings on the site would be used within the open space as design elements to retain a sense of the site's industrial history. Throughout the project site, the applicant's stated intention is that the open space connect the neighborhood to the esplanade and enhance the views of the Manhattan skyline, the harbor, and three landmarked bridges.

Connections from the waterfront to Kent Avenue would be provided at South 1st, South 2nd, South 3rd, and South 4th Streets to facilitate public visual and physical access to the waterfront. Along the upland connections at South 1st and South 4th Streets, a series of steps, seating areas, and ramps would bridge the grade change between Kent Avenue and the waterfront esplanade. It is the applicant's intention that these features would create an entrance to the waterfront while also providing gathering spaces from which people can view the water from elevations higher than the esplanade. The esplanade would also create a new connection to Grand Ferry Park at the northern end of the project site and improvements to South 5th Street at the southern end of the site. Bicycle racks would be provided at each entrance to the project site.

It is expected that the esplanade and adjoining passive and active recreation areas as well as the 1-acre lawn adjacent to the Refinery would be owned, maintained, and operated by DPR, with the exception of a buffer of up to 10 feet around the buildings to allow for routine building maintenance activities.

The proposed open space, which comprises approximately 41 percent of the project site's waterfront parcel, would more than double the Zoning Resolution's requirement that at least 20 percent of the waterfront parcel be publicly accessible open space.

PARKING AND CIRCULATION

Approximately 1,694 accessory parking spaces would be provided on the project site in below-grade garages on both the waterfront and upland parcels. The waterfront parcel would have three below-grade parking facilities, including one at the north end of the site with 782 spaces, one in the Refinery with 127 spaces, and one at the south end of the site with 411 spaces. A fourth parking facility with 374 parking spaces would be located on the upland parcel. Access to the garages would be provided along South 1st, South 3rd, and South 4th Streets on the waterfront parcel and would include driveways with drop-off areas. Access to the parking garage on the upland parcel would be provided from South 4th Street. The upland parcel would also contain a covered loading dock on the eastern boundary of the site.

Although only 1,042 parking spaces would be required under the proposed zoning, the proposed project includes additional accessory parking spaces to meet the anticipated demand on-site, for a total of 1,694 accessory parking spaces. A maximum of 1,541 accessory spaces are permitted under the Zoning Resolution. As described below under "Required Public Approvals," a proposed Special Permit would include provisions to allow the proposed parking facility at the northern end of the site to exceed the prescribed maximums for parking under the Zoning Resolution in order to accommodate the project's anticipated demand.

It is anticipated that the development could also be served by water taxi service and/or shuttle bus service to transit locations. While the project could accommodate a water taxi service, it would require its own USACE/NYSDEC approval for permitting of dock designs and operations for which the design and location have not been specified at this time. Additionally, other site plan and open space plan approvals by CPC may be required to accommodate the passenger dock.

SUSTAINABLE DESIGN

Sustainable design integrates architectural elements and engineering systems to optimize performance of proposed buildings and their interaction with the environment. The proposed project would include a number of sustainable design features, including:

- Energy efficient design that would exceed the building energy performance required under the current building code by at least 10 percent;
- Landscaping design that would substantially increase pervious surface that would help decrease stormwater run-off;
- Incorporating local plant species to minimize water for irrigation;
- Stormwater system design that allows runoff directly into the East River rather than into the combined sewer system, thereby minimizing the project's potential contribution to combined sewer overflow events. The developer would construct and install the stormwater system and new sewer lines.
- Reuse of existing and recycled materials to the extent practicable; and
- Provision of bicycle storage and changing rooms for 5 percent of the occupants.

The applicant would have an independent commissioning agent review the design team's work from the earliest stages of design and implement QA/QC procedures at every stage of the design and construction cycle to ensure environmentally responsible practices are being followed.

CONSTRUCTION SCHEDULE AND PHASING

Construction would begin with the upland parcel and subsequently proceed from south to north along the waterfront for the new buildings, as set forth in the Restrictive Declaration. Construction would begin in 2011, and the project would be fully built in 2020. It is currently anticipated that the renovation of the Refinery would begin concurrent with the construction of the buildings on Sites C and D immediately to the south. A Construction Protection Plan (CPP) would be prepared to protect the Refinery during the rehabilitation of the Refinery itself and during the construction of the adjacent new buildings. While the existing pilings and platform are currently functional, the platform would be demolished and a new deck would be built over the same footprint.

As each of the five sites along the waterfront is built out, the public open space required under the Zoning Resolution would be completed at the time the buildings on any particular site are completed.

REQUIRED PUBLIC APPROVALS

In order to achieve the proposed project's goals of providing a substantial amount of affordable housing in the Southside community of Williamsburg, creating public access to and recreational use of the waterfront, and restoring and adaptively reusing the Refinery complex, a number of discretionary actions are necessary.

- Zoning map change from M3-1 to R8 with a C2-4 commercial overlay for a section of the waterfront parcel; from M3-1 to C6-2 for portions of the waterfront parcel; and from M3-1 to R6 with a C2-4 commercial overlay on the upland parcel. The proposed zoning is shown in Figure S-12. The waterfront parcel would consist of Zoning Lots A and B (Zoning lot B

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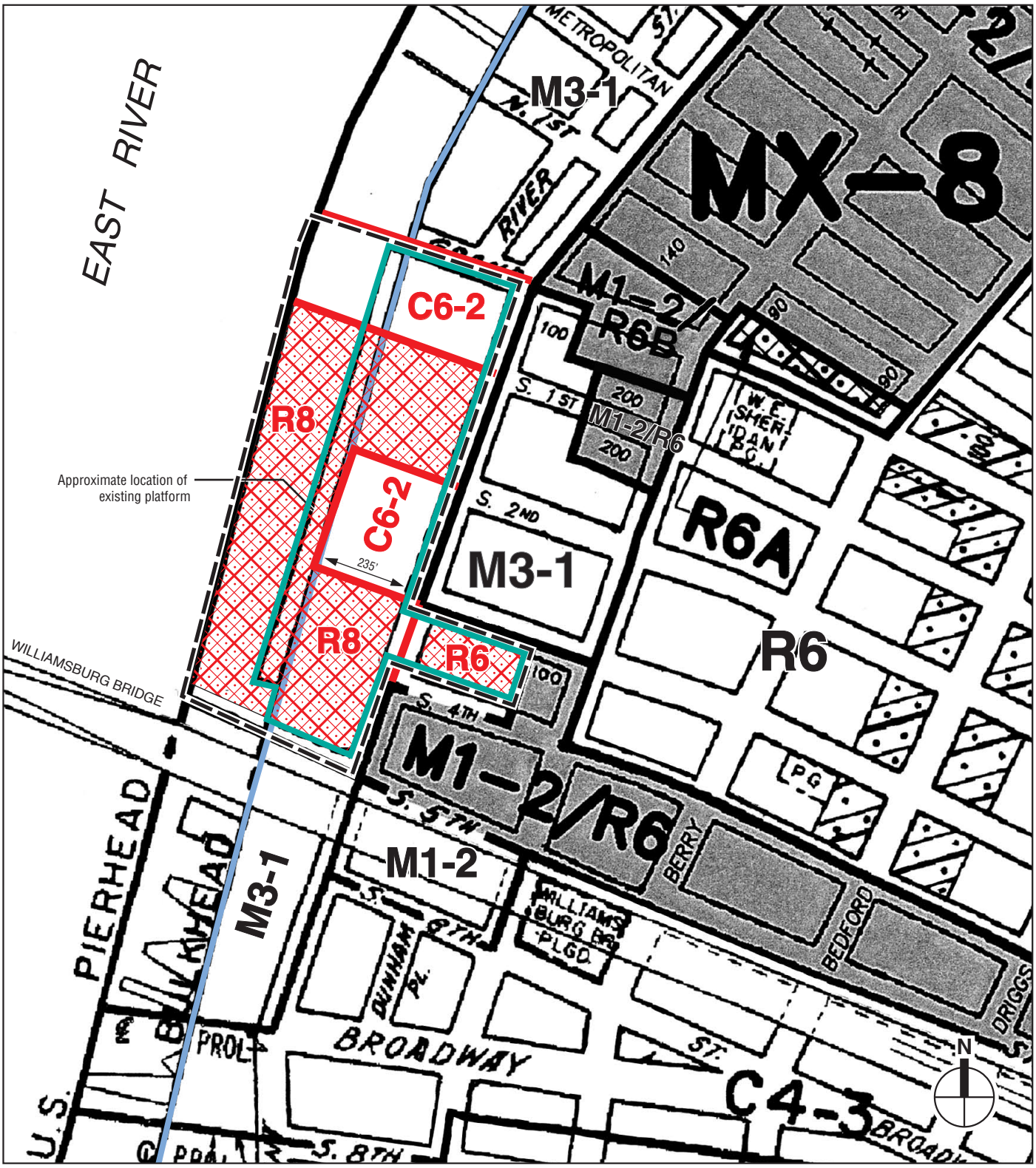


DOMINO SUGAR REZONING

Proposed Zoning
Figure S-12

being the proposed C6-2 district located on the Refinery), while the upland parcel would consist of Zoning Lot C. (ULURP No. 100185ZMK)

- Zoning text amendments to the following ZR sections (ULURP No. 100186ZRK):
  - ZR 23-953, ZR 62-35, ZR 62-352, and Appendix F of the ZR to apply the Inclusionary Housing program to the project site. The regulations currently only apply to certain areas of Greenpoint-Williamsburg and in R7-3 zoning districts in Brooklyn Community District 1. The Inclusionary Housing program permits a floor area bonus from 2.43 to 2.75 for R6 districts and from 4.88 to 6.5 for R8 districts.
  - ZR Section 52-83 to modify the requirements of non-conforming signs to permit a sign on the Refinery as per the approval from LPC. The applicant is requesting an amendment to ZR Section 52-83, which deals with non-conforming advertising signs. The text amendment would permit a non-conforming sign to be structurally altered, reconstructed, replaced or relocated on the same zoning lot in Community District 1 or within a General Large Scale Development containing such zoning lot, pursuant to a Certificate of Appropriateness from LPC. Additionally, the text amendment would make the discontinuance provisions of ZR Section 52-61 inapplicable, provided that the sign is reconstructed on the landmark building before it receives a temporary certificate of occupancy for its reuse. This would permit a sign on the Refinery as per what was shown in the approval received from LPC for the addition and minor building modifications for the adaptive reuse of the Refinery on June 24, 2008.
- Special Permits for a General Large Scale Development pursuant to ZR 74-74: transfer of floor area development rights across Kent Avenue pursuant to ZR 74-743(a)(1), modification of waterfront height and bulk regulations pursuant to ZR 74-743(a)(2), and modification of location of use requirements pursuant to ZR 74-744(b). Figures S-13 through S-15 illustrate the required height, setback, inner court, and rear yard waivers required for the proposed project and described below. (ULURP No. 100187ZSK)
- Zoning Floor Area: the Special Permit would allow for the transfer of approximately 187,187 square feet (sf) of floor area development rights across Kent Avenue to the upland parcel (Zoning Lot C) from the waterfront parcel (Zoning Lot A). Pursuant to the proposed C6-2 and R8/C2-4 Inclusionary district, Zoning Lot A would be permitted a floor area ratio (FAR) of 6.5 including bonus) and would generate approximately 2,305,141 sf of floor area. Pursuant to the proposed R6/C2-4 Inclusionary district, Zoning Lot C would be permitted an FAR of 2.75 (including bonus) and would generate approximately 158,389 sf of floor area. After the transfer of approximately 187,187 sf of floor area, Zoning Lot A would be left with approximately 2,117,954 sf of floor area (of which approximately 2,018,155 sf will be utilized, at an FAR of approximately 5.69) and Zoning Lot C would have approximately 345,576 sf of floor area and an FAR of approximately 6.0. Taken together, Zoning Lot A and the Refinery on Zoning Lot B would not exceed an FAR of 5.6.
- Height and Setback: The Special Permit proposes to modify the following:
  - ZR Section 62-341(a)(2), to permit portions of buildings to encroach upon the initial setback distance of 10 feet from a wide street, 15 feet from a narrow street, and 30 feet from the boundary of a shore public walkway.
  - ZR Section 62-341(c)(1), to permit portions of buildings to exceed the maximum base heights of 60 feet in the R6 district and 70 feet in the R8 district.
  - ZR Section 62-341(c)(2), to permit portions of buildings to exceed the maximum building heights of 110 feet in the R6 district and 210 feet in the R8 district.



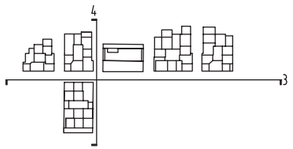
Project Site Boundary

Height Waiver

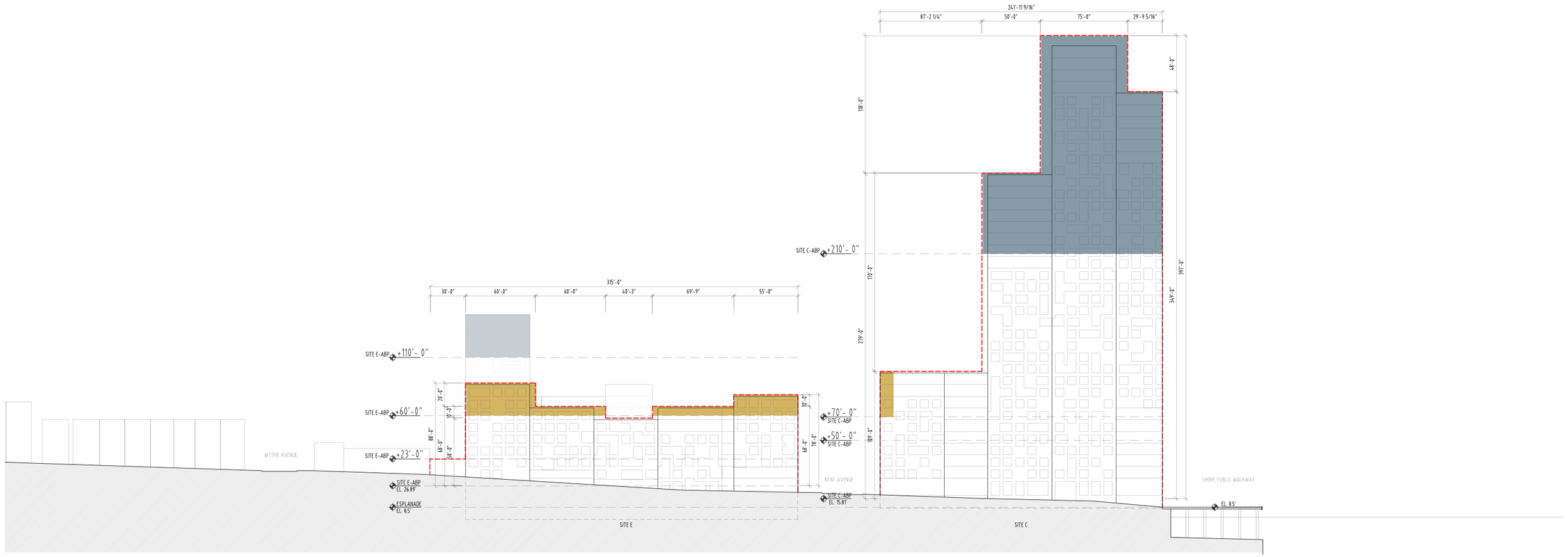
Setback Waiver

DOMINO SUGAR REZONING

Proposed Waivers: Site Plan
Figure S-13



3. KENT AVENUE ELEVATION



4. SOUTH THIRD STREET ELEVATION

Height Waiver

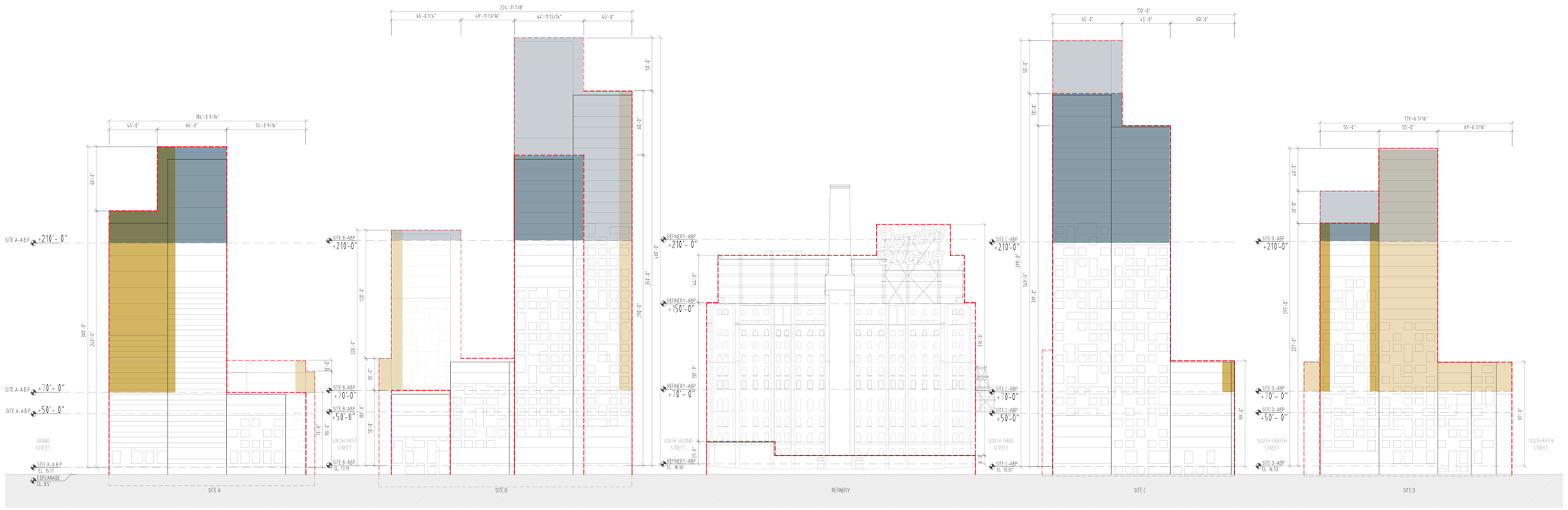
Setback Waiver

Maximum Zoning Envelope

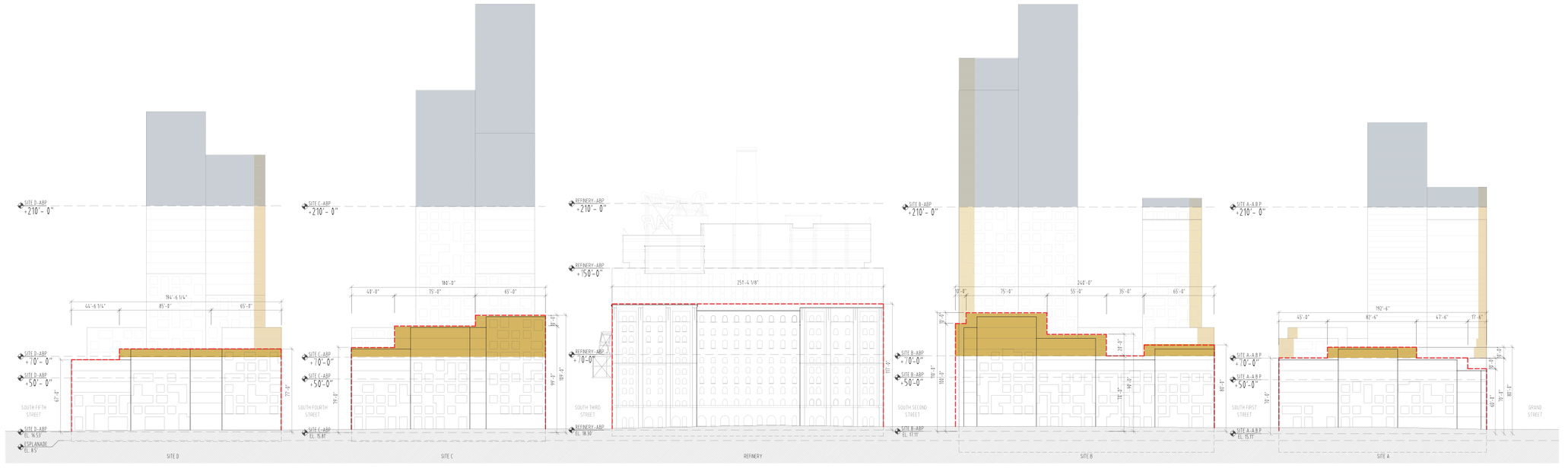
Illustrative Building Elevation

Proposed Waivers: Sectional View, Site E

Figure S-14



1. ESPLANADE ELEVATION



2. KENT AVENUE ELEVATION

Height Waiver

Setback Waiver

Maximum Zoning Envelope

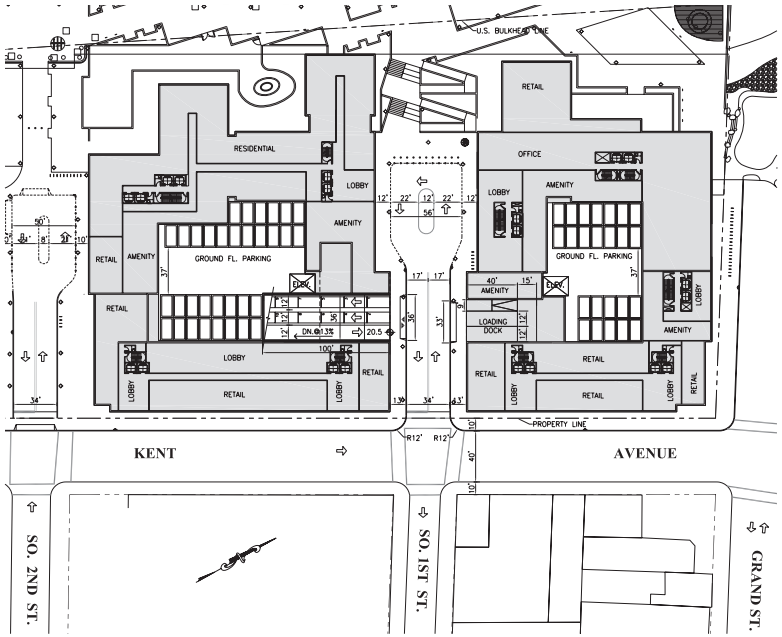
Illustrative Building Elevation

Proposed Waivers: Sectional View, Sites A, B, C, D, and Refinery

Figure S-15

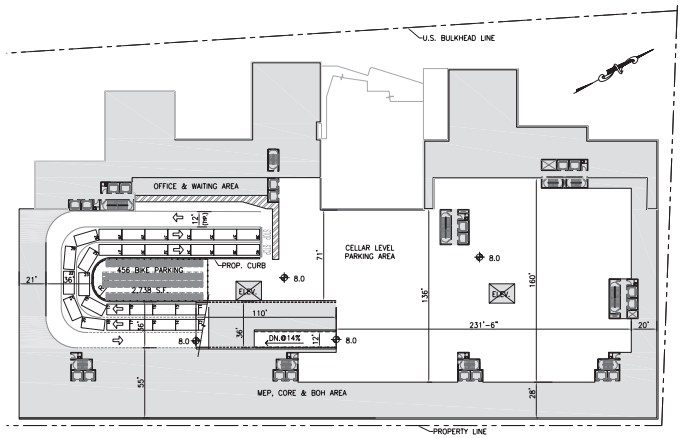
  - ZR Section 62-341(c)(4), to permit portions of the residential towers on the waterfront parcel to exceed 8,100 sf at elevations above the maximum base height and to permit portions of the residential tower on the upland parcel to exceed 7,000 sf at elevations above the maximum base height.
  - ZR Section 62-341(c)(5), to permit portions of the walls of certain buildings facing the shoreline to exceed 100 feet above the maximum base height.

- Inner Court: ZR Section 23-863 requires that a minimum distance of at least 60 feet be maintained between two legally required windows in an inner court when a wall above the required window is at a height of at least 120 feet. The zoning envelope for Site A would provide a north to south distance of 56 feet 6 inches within a portion of the inner court, the zoning envelope for Site B would provide a distance of 50 feet between a portion of an inner court, and the zoning envelope for Site D would provide a distance of 55 feet within the inner court. Therefore, the Applicant is seeking to waive the 60 foot requirement by between 3 feet 6 inches and 10 feet.
- Inner Court Recess: ZR Section 23-852 requires that the width of an inner court recess be at least twice the depth of the recess, unless the recess opening is 60 feet or more in width. A portion of the proposed building on Site B may violate this requirement, depending on how the building is constructed within the envelope.
- Rear Yard: ZR Section 23-533 requires that for through-lots, a rear yard equivalent of one of the following be provided: an open area with a minimum depth of 60 feet between the two street lines on which such through-lot fronts, two open areas, each adjoining and extending along the full length of the street line and each with a minimum depth of 30 feet, or an open area adjoining and extending along the full length of each side lot line with a minimum width of 30 feet. A portion of the building on Zoning Lot C would constitute a through-lot and although it would provide an open area with a depth of 60 feet along portions of the lot, it would not do this continuously and requires a waiver from this requirement.
- Rear Yard: ZR Section 62-332 requires a 40-foot rear yard for waterfront lots. Zoning Lot A provides a waterfront yard equal to and greater than 40 feet along the majority of the width of the Site, with the exception of small portion at the Site's northern and southern ends, where the yard narrows to approximately 36 feet (at both ends).
- Minimum distance between building segments: Section 23-711 requires a minimum distance of 60 feet between two legally required windows in building segments. A distance of less than 60 feet is provided between two segments on Site B.
- Location of Use: ZR Section 32-422 requires that in any building or portion of a building occupied by residential uses, commercial uses be located only on a story below the lowest story occupied in whole or in part by such residential uses. Site A contains building segments with both residential and commercial uses. Although these uses are in separate building segments with no access between them, the uses are located at the same levels and therefore require a waiver from this requirement. (ULURP No. 100188ZSK)
- A special permit pursuant to ZR Section 74-53 to permit within the General Large Scale Development the north parking facility to exceed the prescribed maximum of ZR Sections 25-12 and 36-12 by up to 316 spaces. Figure S-16 shows the special permit parking plan for the north parking facility. (ULURP No. 100189ZSK)
- Authorizations pursuant to ZR Section 62-822 (ULURP No. 100190ZAK):



GROUND FLOOR LEVEL

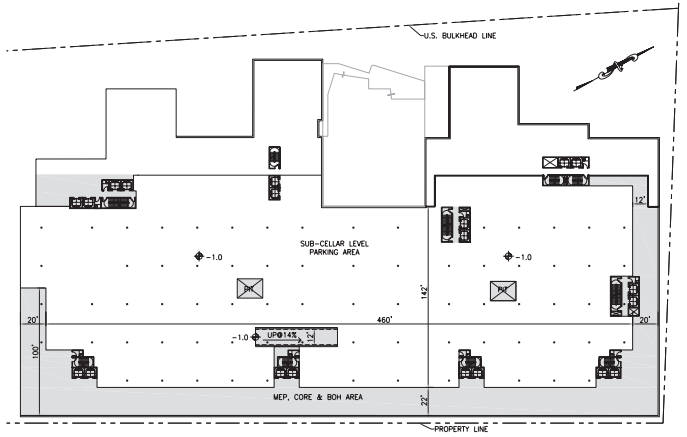
SCALE: 1"=30'



CELLAR LEVEL

SCALE: 1"=30'

GARAGE AREA CAPACITY CALCULATIONS				
	GROUND FL.	CELLAR	SUB-CELLAR	TOTAL
GARAGE FLOOR AREA (S.F.)	21,712	56,090	67,288	145,090
NUMBER OF 2-CAR STACKERS	57	0	0	57
NUMBER OF BIKE PARKING PROVIDED	0	456	0	456
NUMBER OF ATTENDANT-PARKING SPACES REQUESTED				782
NUMBER OF RESERVOIR SPACES REQUIRED				39



SUB-CELLAR LEVEL

SCALE: 1"=30'

Site A Special Permit Parking Plan

Figure S-16

- Authorization pursuant to ZR Section 62-822(a) to modify the requirements of Section 62-50 (General Requirements for Visual Corridors and Waterfront Public Access Areas). Although the proposed project provides a shore public walkway with a width of 40 feet along the majority of the waterfront parcel, this shore public walkway narrows to a width of 25 feet 7 inches at South 5th Street. The narrowing of the shore public walkway results from a narrowing of the site itself at its southern end. In addition, although the proposed project provides all of the required visual corridors, the visual corridors at South 1st and South 4th Streets do not meet the grade level requirements established by the ZR because of the presence of the proposed below-grade parking garages. It should be noted that clear, unobstructed views to the waterfront will still be provided at these locations.
- CPC authorization pursuant to ZR Section 62-822(b) to modify the requirements of Section 62-513 (Permitted obstructions in visual corridors) and Section 62-60 (Design Requirements for Waterfront Public Access Areas). Although the proposed project complies with the majority of the waterfront public access and visual corridor requirements, the applicant is proposing modifications to the shore public walkway, the upland connections, the supplemental access areas, and the permitted obstructions in order to achieve a superior open space design.
- An authorization for phased implementation of waterfront access requirements pursuant to ZR 62-822(c) to permit the phased implementation of waterfront public access improvements in coordination with phased development of the site.

- CPC Chair certification pursuant to ZR Section 62-811 for compliance with waterfront public access and visual corridor requirements. (ULURP No. 100191ZCK)
- CPC Chair Certification pursuant to ZR Section 62-812 to permit the subdivision of the waterfront parcel zoning lot. As described above, the waterfront parcel would be divided into Zoning Lot A, the "Non-Refinery Parcel" and Zoning Lot B, the "Refinery Parcel." (ULURP No. 100192ZCK)
- Because the project site is within the Coastal Zone, a Coastal Zone Consistency determination by CPC is also necessary.

In addition, the proposed project will require approvals of a Joint Permit Application from NYSDEC and USACE for reconstruction of the existing waterfront platform and installation of a new sheet pile bulkhead. Approvals will also be required for the two proposed stormwater outfalls to be located at the end of South 2nd and South 3rd Streets. This draft Joint Permit Application is expected to be submitted to USACE and DEC for their review shortly after the public issuance by CPC of the Draft Environmental Impact Statement (DEIS) and its Notice of Completion. An SPDES permit from NYSDEC will also be required for stormwater discharges during the construction period because construction on the project site involves more than one acre.

These actions are subject to environmental review and will be conducted through a coordinated review with the CPC, the lead agency. The proposed project would also require a permit from NYSDEC for work during construction. Approvals may also be necessary from City and state agencies (such as HDC and HPD) for the allocation of funds for affordable housing. Consultation with SHPO will also be necessary in relation to USACE and NYSDEC review of permits for in-water work.

RESTRICTIVE DECLARATION

To ensure that the proposed project, if approved, is constructed consistent with the drawings shown on the site plan approved by CPC and the City Council pursuant to ULURP, that access to the project is at the locations analyzed in the EIS, and that the mix of uses in the project is substantially consistent with the proposed project as described above and as analyzed in the EIS, the applicant will execute and record a Restrictive Declaration at the time all land use related actions required to authorize the project's development are approved. The Restrictive Declaration would:

- Provide design standards and requirements, and an envelope within which the project's bulk and heights would be arranged, including a limitation on the FAR for the waterfront portion of the site to 5.6 and the upland portion of the site to 6.0.
- Require that the project be developed substantially in accordance with the development program studied in the EIS.
- Provide for the implementation of Project Components Related to the Environment and mitigation measures, consistent with the EIS.
- Require use of the Inclusionary Housing Program under Section 23-90 of the Zoning Resolution to gain the full height and setback waivers and requested FAR.
- Provide requirements for the completion of portions of the waterfront public access areas as a condition of issuance of Certificates of Occupancy, as well as for the transfer of title and conveyance of public access easements.
- Provide that height and setback waivers under the General Large Scale Development Special Permit will be utilized in connection with use of the Inclusionary Housing Program under Section 23-90 of the Zoning Resolution.

In addition, measures related to the remediation of hazardous materials on the site would be implemented in accordance with a separate DEP-approved Restrictive Declaration for the project site. With these measures in place, significant adverse impacts related to hazardous materials would be avoided during and after construction.

B. ANALYTICAL FRAMEWORK

An EIS analyzes the effects of a proposed project on its environmental setting. For each technical chapter, a description of existing conditions, an assessment of conditions in the future without the proposed project for the year that the project would be completed ("No Action Condition"), and an assessment of conditions for the same year with the completion of the proposed project are included. The prediction of a proposed project's effects is made for the "analysis year" or the "Build year," which is the year when the project would be completed and substantially operational. It is expected that the proposed project would be completed and occupied by 2020.

This EIS provides a description of "existing conditions" for 2009 and assessments of the No Action Condition and of the future with the proposed project in 2020. The assessment of existing conditions establishes a baseline—not against which the proposed project is measured, but from which future conditions can be projected. Data from the New York City Department of Finance's Real Property Assessment Database (RPAD) has been used to update the census population to reflect new development in the study area since 2000.

For the No Action Condition, the EIS analyzes and incorporates other projects forecast to be completed that would affect conditions in the study area in 2020 including development projects projected or underway within approximately ½ mile of the project site, as well as the full projected buildout of the Greenpoint-Williamsburg rezoning. The analyses of the No Action condition for some technical areas, such as traffic, add a background growth factor, as a further conservative measure, to account for a general increase in activity unrelated to known projects in addition to anticipated future projects. The analyses of the No Action condition must also consider other future changes that will affect the environmental setting. These could include technology changes, such as advances in vehicle pollution control and roadway improvements, and changes to City policies, such as zoning regulations.

Absent the proposed project, the applicant would develop the project site with uses permitted under the existing M3-1 zoning. The No Action condition includes the retention of the Refinery complex, which would remain vacant due to the high cost of adaptive reuse, development of a storage facility on the waterfront parcel between South 3rd and South 5th Streets, a building materials storage yard along the waterfront between South 2nd and South 1st Streets, and a new distribution facility along the waterfront immediately south of Grand Ferry Park. On the upland portion of the site, a new two-story building with a catering hall/restaurant on the upper floor and parking on the ground floor would be constructed. The Boiler House, which is located between the Refinery and the waterfront, would also remain as a vacant building due to the high cost of demolition. Under the No Action scenario, all buildings on the site except for the Refinery and the Boiler House would be demolished. The total development program for this scenario includes approximately 106,300 sf of industrial distribution space, approximately 60,000 sf of storage space, 40,000 sf of catering hall/restaurant space, and 61,000 sf of land used for building material storage (as well as 5,000 sf of office space for this use). The assessment of impacts in the EIS is based on the incremental effects of the proposed project as compared to development under the No Action condition for the same 2020 analysis year as the proposed project.

For each technical analysis, primary and secondary study areas were delineated to define the locations most likely to be potentially affected, either directly or indirectly, by the proposed project.

C. LAND USE, ZONING, AND PUBLIC POLICY

LAND USE

The proposed project would have a strong positive effect on land use by creating a vibrant new mixed-use development with public waterfront access and open space on a site that is currently vacant and would otherwise be occupied by industrial and commercial uses with no public open space or waterfront access and limited views of the water. The proposed project would make possible the adaptive reuse of the landmarked Refinery, which would otherwise remain vacant. The new housing, retail, and open space would bring activity to the site and would serve both residents of the proposed project's buildings and the larger community. The project's community facility space would serve project site residents and the surrounding community. The proposed office use would also draw activity to the project site and contribute to its mixed-use character.

The new uses introduced by the proposed project would be compatible with the existing and anticipated future mix of residential, retail, and light industrial uses in the surrounding area. The

proposed project would complement the upland residential neighborhood and would be an extension of the existing trend in which vacant or underutilized waterfront sites are being redeveloped with housing, retail space, and public open space. The proposed project's retail uses along Kent Avenue would complement the retail uses that currently exist along Grand Street and Broadway, as well as new retail uses that have emerged along Kent Avenue, Wythe Avenue, and South 5th Street.

The industrial uses near the project are predominantly warehousing, distribution, and light manufacturing and already coexist with residential uses on the adjacent blocks. Nearby industrial uses on adjacent blocks and the NYPA North 1st Street gas turbine power generating facility and the Con Edison North 1st Street Oil Terminal, a fuel transfer station, along the waterfront to the north of the project site would not adversely affect the residential uses in the proposed project.

Therefore, the proposed project would be compatible with land uses in the surrounding study area and would not result in significant adverse impacts with respect to land use.

ZONING

The zoning actions proposed for the project site would facilitate the creation of affordable housing, open space, and public access to the waterfront. These zoning changes would be compatible with zoning in the study area. Like the residential districts mapped on waterfront sites to the north of the project site from North 3rd to the Newtown Creek as part of the Greenpoint-Williamsburg rezoning, the proposed project's zoning would help to achieve City goals of creating affordable housing and public access to the waterfront. The proposed residential and commercial districts on the project site would also be compatible with nearby mixed-use districts such as those mapped along Grand, South 4th, and South 5th Streets. The removal of M3-1 zoning on the project site would ensure that heavy industrial uses that are not compatible with these adjacent districts do not locate on the project site. While M3-1 zoning districts would remain directly to the north and east of the project site, these would not adversely affect the proposed project. M3 districts have increased performance standards near residential districts to minimize potential impacts on residential uses, including a requirement that all manufacturing uses be fully enclosed within 300 feet of a residential district. The entire adjacent M3-zoned area is within 300 feet of the proposed residential district and adjacent existing residential districts. Therefore, this enclosure requirement would apply to the entirety of the adjacent M3-zoned blocks if the proposed rezoning were approved.

Therefore, the proposed project would not result in any significant adverse impacts with respect to zoning.

PUBLIC POLICY

The proposed project would support City goals for the creation of affordable housing by creating a substantial amount of affordable housing in accordance with the Mayor's housing plan and PlaNYC. The proposed project's creation of approximately four acres of public open space, including a waterfront esplanade, would further City goals for developing new open space and increasing waterfront access as called for by PlaNYC, the Waterfront Revitalization Program (WRP), and the Plan for the Brooklyn Waterfront. The proposed project would also include environmental remediation and redevelopment of a former industrial site consistent with PlaNYC's recommendation that former industrial sites be cleaned up and redeveloped. The proposed project would not introduce residential development into an Industrial Business Zone

(IBZ) or ombudsman area and would therefore be compatible with City policies relating to industrial businesses.

Therefore, the proposed project would not result in any significant adverse impacts on public policy.

D. SOCIOECONOMIC CONDITIONS

The socioeconomic conditions analysis examines the potential effects of the proposed project on population and housing characteristics, economic activity, and businesses and employment within an area most likely to be affected by the proposed project

In accordance with the guidelines presented in the *CEQR Technical Manual*, five specific factors that could create significant adverse socioeconomic impacts in an area were evaluated: (1) direct residential displacement; (2) direct business and institutional displacement; (3) indirect residential displacement; (4) indirect business and institutional displacement; and (5) adverse effects on specific industries not necessarily tied to a project site or area.

The analysis finds that by 2020, the proposed project would not result in significant adverse impacts due to changes in socioeconomic conditions. Findings with respect to the *CEQR Technical Manual*'s five areas of potential socioeconomic impact are below.

DIRECT RESIDENTIAL DISPLACEMENT

Direct, or primary residential displacement is defined by the involuntary displacement of residents from the actual site of (or sites directly affected by) a proposed action. The project site is currently unoccupied; thus the proposed project would not result in direct residential displacement.

DIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

Direct business or institutional displacement is defined as the involuntary displacement of a business or institution from the actual site or (or sites directly affected by) a proposed action. The project site is currently unoccupied; thus the proposed project would not result in direct business displacement.

INDIRECT RESIDENTIAL DISPLACEMENT

Indirect, or secondary residential displacement can occur when a project increases property values and thus rents throughout the study area, making it difficult for some existing residents to afford their homes. The proposed project would not result in significant adverse indirect residential displacement. For this analysis, demographic and economic studies and field investigations are used to describe existing population and housing conditions in the proposed project area and within the primary and secondary study areas.

A preliminary assessment could not rule out the possibility of indirect residential displacement, because the proposed project would add a substantial new population with different socioeconomic characteristics compared to the size and character of the existing population. Therefore, a detailed analysis of indirect residential displacement was conducted to identify whether there is a population in the study area vulnerable to displacement, and to assess the extent to which the proposed project could influence displacement pressures.

According to the detailed analysis of indirect residential displacement, the study area contains an estimated 181 unprotected units housing 570 residents, all within Census Tract 525, who are potentially vulnerable to displacement if their rents were to increase. Given the existing, documented trend towards increased rents in the study area, these households will be vulnerable to displacement irrespective of the proposed project. By 2020, the study area is expected to gain approximately 6,093 housing units in developments unrelated to the proposed project, and these projects will introduce a substantial new population with high incomes relative to the existing population. While there is the potential for limited indirect residential displacement as a result of the proposed project, such displacement would not have the potential to generate significant adverse effects on socioeconomic conditions in the study areas, for the following reasons. First, the project site is a distance away from the population at risk, limiting its potential to influence residential trends in that area. Second, housing units in Census Tract 525 have a higher turnover rate than other census tracts in the study area, and residents are likely to change over the next decade regardless of the proposed project. Third, the proposed project would create a mix of market-rate and affordable housing, with 30 percent of the new housing units expected to be affordable.[1] The proposed project's affordable housing component would help ensure that a substantial number of affordable units would be available to the at-risk population, and that a substantial portion of the new population would have incomes that more closely reflect, and may be lower than, existing household incomes in the study area.

INDIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

The proposed project would not result in significant adverse impacts due to indirect business and institutional displacement. The types of uses to be introduced include housing, retail, office, community facilities, and open space. The primary and secondary study areas encompass mixed-use neighborhoods with substantial amounts of housing and retail as well as small office uses and scattered community facilities and open spaces. Because these uses already exist in both study areas, it is not likely that the proposed project would alter or accelerate existing economic patterns. Furthermore, there is already a well-established economic trend toward residential and commercial redevelopment that is expected to continue independent of the proposed project.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

According to the *CEQR Technical Manual*, a significant adverse impact may occur if an action would measurably diminish the viability of a specific industry that has substantial economic value to the city's economy. The proposed project is not likely to cause a significant adverse impact on any industry within or outside the study area.

[1] Although in order to realize the full allowable floor area under the proposed rezoning action, the applicant would be required to allocate 20 percent of the residential floor area as affordable housing, the EIS has assumed 30 percent because it is the applicant's stated intention to provide the 30 percent allocation. The difference between the provision of 20 percent and 30 percent affordable housing does not alter the conclusion that the proposed project would not result in significant adverse impacts due to indirect residential displacement.

E. COMMUNITY FACILITIES

PUBLIC SCHOOLS

The project site is located in Community School District (CSD) 14. Since the proposed project would result in the introduction of a new residential population, which would generate a demand on local school resources, the EIS assessed the effects on school capacity within a ½-mile radius of the project site and on all schools within CSD 14, as well as high schools within the borough of Brooklyn.

The proposed project would introduce 2,400 residential units to the ½-mile study area in CSD 14. The proposed project would generate approximately 696 elementary, 288 intermediate, and 336 high school students in the ½-mile study area by 2020. The assessment concludes that the student population introduced by the proposed project would not result in any significant adverse impacts on schools within the CSD 14 study area or on high schools. However, the new population introduced by the proposed project would result in a significant adverse impact on elementary and intermediate schools within the ½-mile study area surrounding the project site.

The schools analysis does not account for the K-8 school that the City has committed to within the Greenpoint-Williamsburg rezoning with the approval of that rezoning. Although the Department of Education (DOE) *2010-2014 Five-Year Capital Plan* has budgeted for a new 738-seat elementary/intermediate school in CSD 14 to accommodate demand from the buildout of that rezoning, this school is not yet under construction, and therefore the schools analysis assumes that capacity would remain constant. Should the proposed 738-seat elementary/intermediate school be completed as planned, there would be additional elementary school capacity within CSD 14 and, depending on the location of the school, within the ½-mile study area.

According to the *CEQR Technical Manual*, if a proposed action causes an increase of five percent or more in a deficiency of available seats, a significant adverse impact may result. The proposed project is projected to add 696 elementary and 288 intermediate school students, which would increase the deficiency of available seats by more than 5 percent in the study area by 2020. The shortfall of seats that this analysis identifies within the ½-mile study area is based on conservative assumptions regarding future background growth. It is assumed that 6,093 new housing units would be developed in the ½-mile study area by 2020 in addition to the proposed project. Because the proposed project parcels would be developed sequentially, the potential to result in an increase in a deficiency of available school seats by five percent could occur when the proposed project completes construction of 244 residential units (upon completion of Site E together with the completion of 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites). Should this high level of background growth not occur, the shortfall of elementary and intermediate school seats in the ½-mile study area would be reduced but not eliminated.

If the demand for school seats from the future background development combined with the proposed project is as high as the methodology in this analysis projects and the shortfall of school seats occurs, either one or a combination of the following measures, as noted in the *CEQR Technical Manual*, would need to be undertaken: shifting the boundaries of school catchment areas within CSD 14 to move students to schools with available capacity; creating new satellite facilities in less crowded schools; expanding the capacity of existing schools;

creating new capacity by constructing or leasing new school facilities; and/or other measures deemed appropriate by SCA and DOE.

At this time, there has been no commitment to adopt any of the above-mentioned administrative actions and/or capital solutions. Preliminary discussions have been held with the SCA, and are expected to continue with SCA and DOE between the Draft and Final EIS, with regard to the provision of school space in the Refinery building. Absent a commitment to implement one or more of the above measures, the proposed project would result in an unmitigated significant adverse impact on public schools if projections prove correct.

LIBRARIES

The analysis considers the proposed project's impact on the Williamsburgh Library Branch, the only library within a ¾-mile radius of the project site. The analysis concludes that there would not be a significant adverse impact on library services in the study area in 2020 as a result of the proposed project.

CHILD CARE FACILITIES

Based on the most recent updates to the *CEQR Technical Manual*, an action may generate a sufficient number of eligible children to affect the availability of slots at publicly funded child care facilities if it produces substantial numbers of subsidized, low-to moderate-income family housing units. It is assumed for the purposes of the community facilities analysis that the proposed project could introduce up to 720 new low- to moderate-income units by 2020, and therefore it would result in an increase in demand on public child care facilities.

According to the *CEQR Technical Manual*, a significant adverse impact to public child care facilities could result if a proposed action results in: (1) a demand for slots greater than the remaining capacity of child care facilities serving the area of the proposed action; and (2) that demand constitutes an increase of 5 percent or more of the collective capacity of the child care facilities in the study area. The proposed project would introduce 128 children potentially eligible for subsidized child care. These additional child care eligible children would exacerbate a deficit of slots within the study area over the No Action condition, and would constitute an increase of more than five percent of the collective capacity of the study area's public child care facilities. Therefore, the proposed project would result in the potential for a significant adverse impact on publicly-funded child care and Head Start facilities. Because the proposed project parcels would be developed sequentially, the potential to result in an increase in a deficiency of available child care slots by five percent or more could occur when the proposed project completes construction of 572 affordable residential units (upon completion of Site B together with the completion of 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites and the number of subsidized group child care and Head Start slots within the study area remains the same).

At this point it is not possible to know exactly which type of mitigation would be most appropriate or when its implementation would be necessary, because the demand for publicly funded child care depends not only on the amount of residential development in the area but on the proportion of new residents who are children of low-income families (not all children meet the social and income eligibility criteria). Furthermore, several factors may limit the number of children in need of publicly funded child care slots. For example, families in the 1-½-mile study area could make use of alternatives to publicly funded group child care facilities. There are slots at homes licensed to provide family child care that families of eligible children could elect to use

instead of publicly funded group child care facilities. Parents of eligible children may use Administration for Children's Services (ACS) vouchers to finance care at private child care facilities in the study area. Additionally, parents of eligible children are not restricted to enrolling their children in child care facilities in a specific geographical area, and could use the ACS voucher system to make use of public and private child care providers beyond the 1-½-mile study area (some parent/guardians choose a child care center close to their employment rather than their residence).

Possible mitigation measures for this significant adverse impact include adding capacity to existing facilities if determined feasible through consultation with ACS or providing a new child care facility within or near the project site. As a City agency, ACS does not directly provide new child care facilities, instead it contracts with providers in areas of need. ACS is also working to create public/private partnerships to facilitate the development of new child care facilities where there is an area of need. As part of that initiative, ACS may be able to contribute capital funding, if it is available, towards such projects to facilitate the provision of new facilities.

The applicant will work with ACS to develop appropriate measures to provide additional capacity, if needed, as the project is completed. Absent the implementation of any needed mitigation measures, the proposed project could have an unmitigated significant adverse impact on child care facilities.

HEALTH CARE FACILITIES

The analysis considers the proposed project's impacts on area hospitals and other outpatient clinic facilities within one mile of the project site. The analysis finds that the proposed project would result in a negligible increase in the number of emergency room visits expected in the future without the proposed project. Therefore, the proposed project would not result in a significant adverse impact with respect to health care services.

POLICE AND FIRE PROTECTION

The proposed project would not result in direct effects on the physical operations of, or access to and from, a New York City Police Department (NYPD) precinct house or Fire Department (FDNY) or Emergency Medical Services (EMS) facilities. Therefore, the proposed project would not result in significant adverse impacts on police protection services, fire protection, or emergency medical services.

F. OPEN SPACE

The proposed project would create approximately four acres of public open space on the project site, including a public open space along the waterfront that would highlight the landmarked Refinery. This publicly accessible open space is intended to provide physical and visual access to the East River waterfront and would include an approximately ¼-mile-long waterfront esplanade, connections from the esplanade to Kent Avenue, and several active and passive recreation areas along and adjacent to the esplanade.

DIRECT EFFECTS

The proposed project's development on Site A would result in several hours of incremental midday shadow on Grand Ferry Park throughout the year, which would cause a significant adverse shadows impact on this open space during the fall, winter, and early spring. However,

the proposed project would create a substantial amount of new public open space that would connect to Grand Ferry Park, thereby enhancing this park and extending waterfront access south to South 5th Street. During the spring, summer, and fall seasons, the project-created open space would provide some sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow. The significant adverse shadows impact on Grand Ferry Park would not result in a significant adverse open space impact because Grand Ferry Park would remain a usable open space and would be connected to the approximately 4 acres of landscaped public waterfront open space proposed as part of the project. Approximately 40 percent of the project's waterfront parcel would be dedicated to open space for both active and passive uses, which would exceed the waterfront open space requirements under the Greenpoint-Williamsburg Rezoning. The proposed project would also provide private open space for residents of the proposed project and users of the commercial office space and, although not accounted for in the quantitative analysis, could offset some project-generated demand for open space. In addition, several smaller parks and open spaces just outside the study area would continue to provide almost 6 acres of open space.

The proposed project would result in a temporary disruption to the southern edge of Grand Ferry Park during construction of the connection between the proposed project's public open space and Grand Ferry Park. Measures would be taken to minimize the temporary disruption to this open space during construction. Therefore, construction of the proposed project would not result in a significant adverse impact on this open space.

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

INDIRECT EFFECTS

The proposed project would result in a 3 percent decrease in the passive open space ratio for workers in the commercial (¼-mile) study area, but this ratio would still exceed the City's recommended guidelines substantially. The proposed project would also result in a 7 percent decrease in the passive ratio for the combined population of residents and workers in the commercial study area, but this decrease would not overburden existing facilities. In the residential (½-mile) study area with the proposed project, the passive open space ratio for the combined population would remain the same as in the No Action condition. The active open space ratio, passive open space ratio, and total open space ratio per 1,000 residents would decrease by less than 3 percent. All of the ratios in the residential study area are currently below, and would continue to be below, the City's guidelines.

The proposed project would result in decreases in five open space ratios: (1) the passive open space ratio for workers in the commercial study area, (2) the passive open space ratio for the combined population of residents and workers in the commercial study area, (3) the active open space ratio in the residential study area, (4) the passive open space ratio per 1,000 residents in the residential study area, and (5) the total open space ratio in the residential study area. These ratios would experience decreases that would not result in a substantial change in the open space ratios or in an overburdening of existing facilities. In addition, by adding a new, high-quality public waterfront open space with on-site active open space, the proposed project would result in an improvement to the area's open space condition that is not clearly reflected in the quantitative analysis due to the new open space's design, waterfront location, and potential for connections to other waterfront open spaces. Open spaces nearby but beyond the ¼- and ½-mile study areas, such as McCarren Park, would help to alleviate any open space shortage, particularly the active

open space shortage. Based on the open space analysis presented in this chapter, the proposed project would not result in significant adverse impacts on open space and recreational facilities in either the commercial or residential study areas.

G. SHADOWS

A shadows analysis was performed to assess whether the proposed project would result in new shadows that would adversely impact any nearby sun-sensitive resources, including publicly-accessible open spaces, historic resources with sunlight-dependent architectural features, or important natural features. The analysis concluded that the proposed project's development on Site A would result in more than three-and-a-half hours of new midday shadows on portions of Grand Ferry Park throughout the year. During the fall, winter, and early spring the utility of the park will be significantly impacted due to increased shadows on sun-sensitive features used by park visitors (e.g., benches, picnic tables, etc.) and the park's vegetation would also be adversely affected. The significant adverse impact would occur upon full construction of Site A, which is projected to be completed in 2020.

During the primary growing season (April through October), all areas of the park would continue to get several hours of sun in the morning, and most areas of the park would get sun later in the afternoon as well. However, several hours of new midday shadow would be cast on the park. In December, under the No Action condition, sunlight is already limited throughout the day, and the proposed project would remove all or most of the remaining sunlight for about two hours around midday. Portions of the park would continue to receive direct sunlight throughout the day during the spring, summer, and fall. However, the several hours of incremental midday shadow would cause a significant adverse impact to the users of this open space during the fall, winter, and early spring, and would likely also adversely impact the park's vegetation. Most trees and many plants require a minimum of between four to six hours of sunlight to maintain healthy growth during normal conditions. The long duration of increased shadow during the spring, as well as the increased shadows during the remainder of the year, have the potential to reduce the amount of sunlight to a level below that needed for plant and tree survival.

The *CEQR Technical Manual* identifies several different measures that could mitigate significant adverse shadow impacts on open spaces. These measures include: relocating facilities within an open space to avoid sunlight loss; relocating or replacing vegetation; undertaking additional maintenance to reduce the likelihood of species loss; or providing replacement facilities on another nearby site. CEQR guidelines also discuss alternatives that may reduce or eliminate shadow impacts, including reorientation of building bulk or reorientation of the site plan. Due to the narrowness of the project site and its immediate proximity to Grand Ferry Park, it is not possible to alter the site plan so as to avoid a substantial amount of shadow being cast on this open space. In order to substantially reduce the extent of incremental shadows on the park on the March 21/September 21 analysis day, the Site A tower (maximum zoning envelope) would need to be reduced in height from 300 feet to approximately 130 feet. On the December 21 analysis day, when shadows are longest, even the 60-foot-high building in the No Action scenario would cast large shadows on the park for most of the analysis day, leaving only small areas of sun on the north side. In order to prevent the proposed project's additional shadow from removing the remaining sunlight for about two hours on December 21, the Site A building would have to be limited in height to a 70-foot-high podium with no tower. A 70-foot building would also cast very little incremental shadow on March 21/September 21. It should be noted that the proposed project would create approximately four acres of new public open space,

including a connection to Grand Ferry Park. During all seasons, the project-created open space would provide new sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow.

Of the measures listed above, potentially feasible mitigation for the significant adverse impact on Grand Ferry Park could include replacing some vegetation with more shade-tolerant species; undertaking additional maintenance to reduce the likelihood of species loss; providing additional maintenance funding and/or helping to enhance other nearby open spaces. The applicant will consult with DPR and the DCP between the DEIS and FEIS to develop suitable mitigation to partially offset this significant adverse impact to park users and the park's vegetation. If feasible mitigation is found, the impact will be considered partially mitigated. In the absence of feasible mitigation, the proposed project would result in an unmitigated significant adverse shadow impact on Grand Ferry Park.

No other significant adverse shadow impacts would occur as a result of the proposed project.

H. HISTORIC RESOURCES

To consider the potential for the proposed project to affect historic resources, a historic resources analysis has been prepared in accordance with CEQR, the State Environmental Quality Review Act (SEQRA), and the New York State Historic Preservation Act of 1980 (SHPA). These laws and regulations require that City and state agencies, respectively, consider the impacts of their actions on historic properties. This technical analysis follows the guidance of the *CEQR Technical Manual*. This analysis has also been prepared in accordance with Section 106 of the National Historic Preservation Act.

PROJECT SITE

The former Domino Sugar site has been determined eligible for listing on the State and National Registers of Historic Places (S/NR). Additionally, the Refinery has been designated an NYCL. The proposed project would retain and adaptively re-use the Refinery. Proposed alterations relating to reuse of the Refinery include, but are not limited to, a new internal structural system, new historically appropriate windows, and a rooftop addition. These alterations to the Refinery have been reviewed and LPC voted to approve the alterations on June 24, 2008. LPC's findings with respect to the appropriateness of the proposed alterations on the landmarked Refinery are contained in a Status Update Letter issued by LPC on June 26, 2008. A Status Update Letter is issued when LPC has voted to approve as appropriate changes to a landmark, but the actual Certificate of Appropriateness has not been issued. The proposed project would demolish the remainder of the S/NR-eligible buildings on the site. As a result, the proposed project would have a significant adverse impact on architectural resources on the project site.

SHPO is also reviewing the proposed renovation of the Refinery. A study was undertaken to evaluate the feasibility of retaining the other S/NR-eligible buildings on the project site. The study concluded that it is not feasible to retain these other buildings for residential use. The buildings were built as specialty industrial structures to store, process, and package sugar. As such, they do not provide footprints, configuration, or layouts feasible for residential use. Significant alterations would be required to convert the structures, compromising their industrial character. Further, the buildings contain approximately 60 percent less floor area than proposed for the project, and retaining any structures in addition to the Refinery would not allow the project to meet its goals and objectives—to provide a significant amount of affordable housing

and to activate the East River waterfront with new residential uses and open space. In a letter dated November 6, 2008, SHPO concurred that there is no feasible alternative to the demolition of all the structures on the project site except for the buildings that comprise the Refinery.

Prior to construction of the proposed project, construction protection measures would be developed and implemented in consultation with SHPO and LPC. A CPP would be prepared in coordination with a licensed professional engineer. It would describe the measures to be implemented during the rehabilitation of the Refinery itself, as well as measures to be taken to protect the Refinery during construction of the mixed-use development. The CPP would follow the guidelines set forth in section 523 of the *CEQR Technical Manual,* including conforming to LPC's *New York City Landmarks Preservation Commission Guidelines for Construction Adjacent to a Historic Landmark* and *Protection Programs for Landmark Buildings*. The CPP would also comply with the procedures set forth in DOB's *Technical Policy and Procedure Notice* (TPPN) #10/88.[1]

STUDY AREA

PHYSICAL (DIRECT) IMPACTS

There are two former American Sugar Refinery Buildings separated from the project site by Kent Avenue, an approximately 60-foot roadway. To avoid any construction-related impacts on these two resources, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a CPP would be developed prior to project construction and implemented in consultation with LPC and SHPO. The former Matchett Candy factory, located at 386-394 Wythe Avenue/52-58 South 4th Street, is located within 90 feet of the upland parcel and therefore would be included in the CPP.

The project site is located in close proximity to the Williamsburg Bridge, which has been determined eligible for listing on the S/NR. Therefore, this resource would be included in the CPP and implemented prior to project construction so as to protect it during construction activities. Protection measures would be developed in coordination with SHPO, LPC, and DOT.

There are no other architectural resources located within 90 feet of either the waterfront or the upland parcel.

CONTEXTUAL IMPACTS

The proposed project would result in the construction of new residential mixed-use buildings, two of which would rise to a height of 300 feet and two of which would rise to a height of 400 feet. These new towers would partially block views to the south and southwest of the Williamsburg Bridge—a renowned visual landmark in the study area. However, the bridge would continue to be prominent in views north and west, without obstruction. Further, the proposed project would also create a new public esplanade that would allow for expansive and unobstructed views of the bridge which have not been previously available, and would also allow this important resource to be viewed in context with the East River and the Brooklyn and

[1] TPPN #10/88 was issued by DOB on June 6, 1988, to supplement Building Code regulations with regard to historic structures. TPPN #10/88 outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

Manhattan skylines. Overall, the proposed project would not have a significant adverse contextual impact on the Williamsburg Bridge.

Despite the change in context, the proposed project would not have a significant adverse effect on the two former American Sugar Refinery buildings, located on the east side of Kent Avenue and north of South 2nd Street. The American Sugar Refinery buildings are located directly across Kent Avenue from a large vacant area on the waterfront parcel. There is no visual relationship between the vacant parcel on the project site and the former American Sugar Refinery buildings. Other nearby project site buildings include the plainly designed Research and Development Lab Building constructed in the early 1960s, which has no significant architectural relationship to the former American Sugar Refinery buildings, and the late 19th-century Refinery which would be preserved with the proposed project. Therefore, there would be no adverse impacts to the former American Sugar Refinery buildings with the proposed project.

The former Matchett Candy factory is located across South 4th Street from the upland parcel, a currently vacant lot. There would be no adverse contextual impacts to the former Matchett Candy factory from the proposed project, and there is no meaningful historic or architectural relationship between the vacant parcel on the project site and this historic resource. Additionally, the proposed project would not visually overwhelm the former factory or detract from its visual appearance.

The proposed project would not have significant adverse impacts on the two historic districts identified within the study area: The Dunham and Broadway Historic District and the Grand Street Historic District. The Dunham and Broadway Historic District is located several blocks south of the project site and is visually separated from it by the Williamsburg Bridge. The Grand Street Historic District is located near the north end of the waterfront parcel, across Kent Avenue. There is no significant historic or architectural relationship between the project site and this historic district. The project site building located closest to the historic district is the Research and Development Lab building, constructed in the 1960s, which does not relate historically or architecturally with the historic district. Further, the proposed buildings along Kent Avenue between Grand Street and South 1st Street would be lower-scale, with heights of 60 to 80 feet. Generally, the project's proposed buildings would step up in height moving west from Kent Avenue, with the taller buildings located towards the river side of the project site. The lower buildings, located closest to the historic district, would create a transition between the lower-rise context of the historic district and the taller proposed buildings.

Overall, there would not be any adverse contextual impacts to any of the other architectural resources in the study area. These other resources are located at least 300 to 400 feet from the waterfront parcel, with buildings intervening. In addition, even in the No Action condition, a number of new developments are currently under construction, and others are anticipated in the future which will alter the context of existing resources. The proposed project would not obstruct views to such resources or alter their visual prominence along the streets where they are located.

The buildings on the project site have been determined to be S/NR-eligible. The proposed project would demolish all structures—with the exception of the Refinery—on the project site. Therefore, the proposed project would have a significant adverse impact on architectural resources. This adverse impact would occur when the S/NR-eligible buildings are demolished on the site. Measures to partially mitigate the impact, which could include archival photographic documentation and the reuse of industrial artifacts within the proposed project, will be developed in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) between the DEIS

and FEIS. The mitigation measures would be set forth in a Memorandum of Agreement (MOA) to be signed by the project sponsors, SHPO, and USACE.

I. URBAN DESIGN AND VISUAL RESOURCES

URBAN DESIGN

The proposed project would positively affect the urban design of the project site. It would substantially alter the urban design, as it would redevelop a former waterfront industrial site with a mixed-use development with a unified design that is intended to reactivate the East River waterfront (including increasing pedestrian activity), and the proposed site plan is intended to provide visual and physical access to the waterfront including the creation of much-needed publicly accessible open space with connections to an existing park.

The proposed new buildings would be designed with a variety of heights to include shorter buildings on Kent Avenue to transition to the lower-rise neighboring context while stepping up to towers on the waterfront. The applicant has stated the new buildings would be clad primarily in masonry to complement the landmarked Refinery on the site and the majority of the surrounding built context, with glass at the upper levels to add transparency at the taller sections of the buildings. The staggered heights of the buildings and the slender module design are also intended to break up the massing of each block.

The proposed project would also extend the existing street network into the project site and the site plan is intended to connect the surrounding community to the new public open spaces—including a central open space and a new waterfront esplanade—to be created on the project site. The applicant's intention is that the proposed project design maximize the amount of open space on the site and emphasize the historic Refinery. A public park would be provided at the center, immediately west of the Refinery, and would provide new views to this resource. Along the entire length of the waterfront would be a publicly accessible landscaped esplanade. These open spaces would provide substantial greenery in an area where few such amenities exist. The site design would also create public accessways to the waterfront at each of the four streets that enter the site, an open access to Grand Ferry Park to the north of the site, and access to the waterfront at South 5th Street. The proposed project is intended to activate the streetscape by providing ground-floor retail along Kent Avenue. The ground-floor retail spaces are intended to draw pedestrians to the project site. The new retail uses would extend along the base of the buildings to the western façades. This is intended to draw pedestrians to the waterfront esplanade. The retail spaces would be required to have large amounts of glass onto the streets to maximize transparency and activate the streetscape.

With the proposed project, the Refinery, which is currently vacant, would be renovated for use as a mixed residential, retail, and community facility space. The renovation of the Refinery would include a new three- and four-story glass and steel addition located on top of the western portion of the building. The Domino Sugar sign, currently located on another structure, would be preserved and relocated to the top of the addition. The renovation and re-use of the Refinery, including exterior restoration, would reactivate a significant formerly industrial resource and is intended to improve its appearance.

An assessment was undertaken to determine whether the project site would experience pedestrian level wind speeds that would potentially result in a significant adverse urban design impact. Although the proposed project would create some elevated pedestrian wind conditions during the winter months, essentially minimized by landscaping features, these conditions would

be similar to those at comparable locations in the City. The open space plan balances the potential for elevated pedestrian wind conditions with urban design considerations, including the goals of maintaining view corridors, maximizing views to the East River and East River waterfront, maintaining pedestrian circulation and access, and not impeding or blocking circulation and access for emergency service vehicles. The project's Restrictive Declaration will include provisions defining circumstances under which the final tree planting layout detailed in the construction drawings may be required to undergo wind tunnel analysis to confirm its effectiveness in addressing the potential for elevated pedestrian wind conditions. Therefore, no significant adverse urban design impacts would result from potential pedestrian wind conditions.

VISUAL RESOURCES

The proposed project would not have any significant adverse impacts to visual resources on the project site or in the surrounding area. While the proposed project would demolish the Bin Building—a visual resource on the project site—this would not be a significant adverse impact, as this building will be demolished in the No Action condition. The proposed project would also retain the most visually significant feature of this resource, the formerly illuminated "Domino Sugar" sign, and relocate it on top of the renovated Refinery. The sign would face the waterfront and is intended to be reminiscent of its former location. The proposed project would have a positive impact on the Refinery, also a visual resource on the project site. It would be restored, and the new open space proposed west of the Refinery would provide new views to this resource, as well as allow for new and expanded views from the East River and Manhattan.

While the proposed project would block some views of visual resources in the study area, including the Williamsburg Bridge and the Manhattan skyline, it would also create new and expansive views of these resources. The waterfront esplanade would create new viewing opportunities for these two resources which are currently not available and will not be available under the No Action condition. The new vantage points from the proposed project's esplanade would also allow the Williamsburg Bridge to be viewed in the larger context of the Brooklyn and Manhattan waterfronts. The waterfront esplanade would also create new views to the Manhattan and Brooklyn Bridges. Finally, the proposed project would create new and uninterrupted views of the Manhattan skyline from the new waterfront public open space.

J. NEIGHBORHOOD CHARACTER

The proposed project would transform the project site from a vacant industrial site to a residential and mixed-use development. The proposed project would have a strong positive effect on the area by creating a vibrant new mixed-use development with public waterfront access and open space on a site that is currently vacant and would otherwise be occupied by industrial and commercial uses with no public open space or waterfront access and limited views of the water.

The new waterfront development anticipated with the proposed project would revitalize a large, vacant waterfront site and continue the pattern emerging throughout Greenpoint and Williamsburg of mid- to high-rise waterfront developments transitioning to lower-scale, mixed use upland neighborhoods. It would create a new publicly accessible waterfront open space and reconnect the street network through the project site. Although the proposed project would demolish most of the existing buildings on the project site, it would retain, restore, and adaptively reuse the Refinery complex and incorporate the Domino Sugar sign, two elements of the site that contribute to the character of the surrounding neighborhood by recalling the

industrial history of the Brooklyn waterfront. The new development would be visible in the surrounding neighborhood, but would not obstruct any existing significant view corridors. It would also create new views of important visual resources that contribute to the existing character of the area.

The proposed project would redevelop the project site with residential, retail, commercial office, and community facility uses, which would be consistent with the mixed-use character of the study area. Although the proposed project would introduce a substantial new population, the mix of market-rate and affordable housing would ensure that a substantial portion of the new population would have incomes that reflect existing household incomes. Further, the proposed retail uses already exist throughout the study area, and it is not likely that they would alter or accelerate existing economic patterns, or result in significant adverse indirect business displacement.

The new development would also result in increased vehicular and pedestrian traffic. This increased traffic would result in significant adverse impacts at a number of intersections during one or more of the peak hours analyzed. However, a variety of mitigation measures could be implemented to address all of these impacts and, therefore, these impacts would not constitute neighborhood character impacts. With the recent reconfiguration of Kent Avenue from a two-way north-south to a one-way northbound roadway, there is the potential that traffic from the proposed project could result in additional significant adverse traffic impacts. It is expected that the majority of the traffic impacts resulting from the reconfiguration of Kent Avenue would likely be mitigated through the implementation of standard traffic engineering improvement measures. Nonetheless, there is a possibility that additional mitigation measures would be required at some impacted locations along Wythe Avenue. The effects of the Kent Avenue reconfiguration on study area traffic conditions—including the need for additional mitigation measures at impacted locations—will be analyzed between the DEIS and FEIS once the travel patterns in the study area have stabilized.

The increased traffic in the study area and near the project site would also result in an increase in noise levels. At some locations, the increased activity and noise levels would be noticeable, but not significantly adverse to neighborhood character. The area is already experiencing an increase in activity levels that is anticipated to continue in the No Action condition.

Overall, the proposed project would not result in any significant adverse impacts to neighborhood character.

K. NATURAL RESOURCES AND WATER QUALITY

An analysis was conducted in accordance with the *CEQR Technical Manual* to consider the potential for the proposed project to affect terrestrial natural resources and the floodplain within the approximately 11-acre project site, and aquatic natural resources and water quality of the East River near the project site. Federal and state regulatory programs that protect floodplains, wildlife, threatened or endangered species, aquatic resources, or other natural resources within the project site that may pertain to the proposed project are described. The analysis concludes that the proposed project would not cause any significant adverse environmental impacts on groundwater, floodplains, wetlands, water quality or aquatic biota of the East River, or terrestrial plant communities or wildlife, as described below.

GROUNDWATER

The project site is within the area designated for the Brooklyn Queens Sole Source Aquifer. However, groundwater is not used as a potable water supply in this part of Brooklyn and non-potable use is limited. Groundwater occurs between 6 and 24 feet below grade and is anticipated to flow west toward the East River, located at the western boundary of the project site. Significant adverse impacts to groundwater are not expected to occur as a result of construction or operation of the proposed project. The contaminants detected in soil samples collected from the project site were attributed to the presence of urban fill material. These contaminants were detected at concentrations that would not pose a significant adverse impact to human health or the environment and would not result in significant adverse impacts to groundwater.

FLOODPLAINS

Most of the upland area within the 100-year floodplain would comprise the open space area proposed between South 2nd and South 3rd Streets, and the waterfront esplanade. Clean fill may be placed over portions of the project site designated for the open space area adjacent to the esplanade or other open space areas that would not be covered by impervious surface or structures. The possible placement of clean fill within the open space areas and reconstruction of the overwater platform would not exacerbate flooding conditions near the project site. The floodplain within and adjacent to the project site is affected by coastal flooding. Unlike fluvial flooding, which is affected by activities within the floodplain of a river, coastal flooding is influenced by tidal and meteorological forces and is not affected by activities within the floodplain. Therefore, the use of a portion of the 100-year floodplain for open space areas would not adversely affect flooding of areas adjacent to the project site.

The top of the reconstructed overwater platform would be 1 foot above the current 100-year flood elevation and would be above the New York City Panel on Climate Change (NPCC) projected increased 100-year flood elevation in the 2020s. The elevation of the lowest floor of the proposed buildings would be about 11 feet above the current 100-year flood elevation and would be well above the NPCC projected increased 100-year flood elevation in the 2020s. Therefore, the design for these structures would minimize the potential for public and private losses due to flood damage under current and projected flood conditions, and there would be no significant adverse impacts to the 100-year floodplain.

WETLANDS

The construction of the stone riprap aprons associated with the two stormwater outfalls and the new sheet pile bulkhead would adversely affect NYSDEC-designated littoral zone tidal wetlands. However, these adverse impacts would be minimal and would be offset by the restoration of bottom material between the Mean High Water (MHW) elevation and the new landward location of the sheet pile bulkhead.

The construction of the two stone riprap aprons to be located below the stormwater outfalls at the western terminus of South 3rd and South 2nd Streets would result in the removal of approximately 142 cubic yards (cy) of bottom material within an approximately 1,275-square-foot area (0.03 acres), and replacement with an equal volume of stone riprap to generally match the existing bottom profile. The proposed installation of new sheet piling and backfill within the project site would adversely affect approximately 414 sf, or 0.01 acres, of NYSDEC-designated shaded littoral zone tidal wetlands and their use as aquatic habitat. The permanent loss of a small amount of shaded littoral zone tidal wetlands within the area of disturbance for the new sheet

bulkhead north of South 2nd Street would not be expected to result in significant adverse impacts to NYSDEC littoral zone tidal wetlands within the East River and would be offset through the restoration of at least an equal area of shaded aquatic habitat expected to include littoral zone wetlands. Restoration would be achieved through removal of upland material between the MHW elevation and the new sheet pile bulkhead location for portions of the shoreline south of South 2nd Street. Therefore, the proposed project would not result in significant adverse impacts to littoral zone tidal wetlands.

WATER QUALITY

The East River is a NYSDEC Use Classification I water. The water quality in the part of the lower East River in the vicinity of the project site is generally good and meets the water quality requirements of its use classification.

Implementation of erosion and sediment control measures and stormwater management measures as part of the Stormwater Pollution Prevention Plan (SWPPP) during construction and operation of the proposed project would minimize potential impacts to water quality of the East River associated with stormwater runoff during land-disturbing activities that would occur in upland areas. Additionally, the increase in pervious surface within the project site (i.e., from 4 to 17 percent) that would result from the proposed project reduces the rate that stormwater is discharged to the East River from the project site.

The construction of in-water project elements (i.e., stone riprap aprons associated with the two stormwater outfalls, new sheet pile bulkhead, and new piles for the replacement overwater platform), has the potential to result in minor, short-term increases in suspended sediment, and as a consequence, resuspension and re-deposition of sediment-associated contaminants known to occur throughout the New York-New Jersey Harbor Estuary. These temporary effects would be localized and confined to the immediate vicinity of construction activities. Appropriate measures (i.e., floating boom and silt curtain) to capture floating debris and contain sediment resuspended during bottom-disturbing construction activities would be implemented to minimize increases of suspended sediment. Therefore, there would be no significant adverse impacts to surface water quality with the proposed project.

AQUATIC BIOTA

As described above, the construction of in-water project elements (i.e., stone riprap aprons associated with the two stormwater outfalls, new sheet pile bulkhead, and new piles for the replacement overwater platform), would have the potential to result in temporary adverse impacts to fish and macroinvertebrates due to increases in suspended sediment. However, these increases would be localized and temporary and would not result in significant adverse impacts to aquatic biota of the East River.

Because the proposed project would replace the existing overwater platform with a new overwater platform of the same size, there would be no increase in the amount of aquatic habitat affected by shading.

The temporary loss of aquatic habitat within the area of disturbance for the stone riprap aprons, the small loss of shaded aquatic habitat for benthic macroinvertebrates and fish within the area of disturbance for the new sheet pile bulkhead and piles, the loss of some benthic macroinvertebrates within the area of disturbance for these in-water construction activities, and the loss of open water habitat that would become unavailable with the installation of the new

sheet pile bulkhead north of South 2nd Street[1], would not be expected to result in significant adverse impacts to populations of aquatic species using shaded habitats within the East River, or to Estuary Essential Fish Habitat (EFH).

Operation of the proposed project would not result in any significant adverse impacts on water or sediment quality. Therefore, no significant adverse impacts would occur to the federally and state-listed endangered shortnose sturgeon, or to the Atlantic sturgeon. The four turtle species noted by NMFS, when present within in-shore waters, are more likely to occur in Long Island Sound and Peconic/Southern Bays. Because they neither nest nor reside in the area year-round, and are only rarely observed in this portion of the estuary, they are not expected to be adversely affected by the construction or operation of the proposed project.

TERRESTRIAL RESOURCES

The proposed project would result in the demolition of existing structures, grading, and excavation during construction that would result in the removal of the existing urban structure exterior habitat and small urban vacant lot areas within the project site. The loss of this habitat would have the potential to adversely affect some individual birds and other wildlife currently using the limited wildlife habitat within the project site should these individuals be unable to find suitable available habitats nearby. However, the wildlife species expected to occur within this area are common to urban areas, and the loss of some individuals would not result in a significant adverse impact on the bird and wildlife community of the New York City region. Therefore, no significant adverse impacts to terrestrial resources are expected as a result of construction of the proposed project.

Potential benefits to natural resources that would result from the proposed project include improved habitat for birds and other wildlife within the waterfront park and other open space areas. Street trees would also provide habitat for urban-tolerant birds and other wildlife. The landscaping that would be present as a result of the proposed project would also have the potential to provide improved resting or stopover habitat for migratory songbirds during the spring and autumn migrations.

Construction and operation of the proposed project would not be expected to result in significant adverse impacts to the use of the Williamsburg Bridge for nesting by peregrine falcons. Peregrine falcons are accustomed to the intensely developed habitats of New York City and are not expected to experience a significant adverse impact due to the proposed project. Additional coordination would be conducted with NYSDEC, NYNHP, and DEP prior to the anticipated start of construction with respect to peregrine falcon nesting activity on the Williamsburg Bridge. These measures would focus on minimizing potential impacts to nesting, foraging or roosting activity by adult falcons and offspring in the vicinity of proposed construction. Potential measures could include bird control devices on the tops of cranes or other tall construction equipment to prevent young falcons from landing on such equipment and becoming entangled or otherwise injured.

The proposed esplanade and open space area along the waterfront would receive incremental shadow in the mornings throughout the year but would be sunlit during afternoons. Shade-

[1] The existing concrete retaining wall north of South 2nd Street has an approximately 4.5-foot-wide ledge that is exposed to the river. With the proposed installation of the new sheet pile bulkhead, this ledge would no longer be exposed to the river.

tolerant native plants would thrive in these areas and would provide habitat for wildlife. This level of shading would not be expected to result in significant adverse impacts to wildlife habitat or populations.

L. HAZARDOUS MATERIALS

Any hazardous materials in buildings to be demolished would be handled and removed in accordance with all applicable regulations and would thus avoid any significant adverse impacts. Further, any storage tanks or contaminants in the soil would be handled according to a site-specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) to avoid adverse impacts to construction workers, the surrounding community, and future occupants.

Based on the environmental studies conducted at the project site, it has been concluded that there would be no anticipated significant adverse impacts associated with the proposed project with respect to hazardous materials.

Hazardous materials would be appropriately addressed prior to or during the demolition of the on-site buildings, including abatement of identified asbestos-containing materials, which would be removed prior to demolition.

Site investigation activities did reveal the presence of semi-volatile organic compounds and metals in the site subsurface associated with historic fill material, but the presence of these compounds do not pose a significant adverse impact to human health or the environment.

Pursuant to a Restrictive Declaration to be recorded against the property, development activities, including any remediation, will be conducted in accordance with the DEP-approved RAP and CHASP under the oversight of DEP and/or the New York City Mayor's Office of Environmental Remediation (NYCOER). This would avoid any significant adverse impacts to construction workers, the surrounding community, and future site occupants. The RAP and CHASP outline procedures for removal of any storage tanks and management of excavated soil during the construction activities, and requirements for vapor controls and a site cap to prevent future exposure to future occupants of the project site.

Following development of the proposed project, future use of the project site would further be governed by the terms of the Restrictive Declaration.

M. WATERFRONT REVITALIZATION PROGRAM

The proposed project is located in the coastal zone designated by New York State and City and is subject to coastal zone management policies. Based on the consistency assessment, the proposed project would be consistent with citywide policies for fostering residential and commercial development, creating public access in the coastal zone, and protecting sensitive natural and historic resources. In addition, although the proposed project would result in disturbance and permanent loss of a small amount of aquatic habitat, it would implement measures to minimize potential impacts to littoral zone tidal wetlands and would be consistent with the policy to protect and preserve tidal wetlands. Therefore, the proposed project would be consistent with the City's 10 WRP policies and standards.

N. INFRASTRUCTURE

Although the proposed project would create new demand for water and treatment of sewage, the existing municipal services could handle these increases in demand, and no significant adverse infrastructure impacts are expected to result from the proposed project. The proposed project would result in a small increase in water demand that would not have a significant adverse impact on the City's water supply. An increase in sanitary sewage resulting from the proposed project is neither anticipated to adversely impact the Newtown Creek Water Pollution Control Plant (WPCP) nor cause it to exceed its design capacity or SPDES permit flow limit.

Because the proposed project would result in an increase in pervious surface that would result in a decrease in surface runoff generated within the project site and would incorporate stormwater best management practices (BMPs), the proposed project would not result in significant adverse impacts with respect to stormwater.

The modeling undertaken to analyze the projected effects of the proposed project on CSO indicates that the proposed project's new sanitary wastewater generation is anticipated to slightly increase CSO discharges to the East River and tributaries of Newtown Creek but would result in reduced stormwater discharges. With the new storm sewers in place, a portion of the site's stormwater currently reaching the combined sewers would discharge directly to the river after receiving treatment. The results of the modeling analyses indicate that the proposed project would result in one additional CSO discharge event at two individual outfalls.

The water quality modeling results indicate that the increase in CSO volumes projected for the proposed project would not result in a significant adverse impact on the water quality of the East River or Newtown Creek. Therefore, CSO discharges associated with the proposed project would not result in a significant adverse impact on the City's sanitary sewage systems or on water quality for the receiving waters.

O. SOLID WASTE

The solid waste analysis concludes that the solid waste systems serving the project site have adequate capacity to meet the relatively modest increase in demand for solid waste handling generated by the proposed project. Therefore, the proposed project would not result in significant adverse impacts on sanitation services.

P. ENERGY

The *CEQR Technical Manual* recommends a detailed assessment of energy impacts only for actions that could significantly affect the transmission or generation of energy or that generate substantial indirect consumption of energy. This analysis concludes that because the proposed project would not significantly affect the transmission or generation of energy there would be no potential for significant adverse impacts on energy.

Q. TRAFFIC AND PARKING

VEHICULAR TRAFFIC

Traffic conditions were evaluated at 48 and 37 intersections for the weekday and Saturday conditions, respectively. The analysis indicates that in the future with the proposed project there would be the potential for significant adverse impacts at a total of 18 signalized and nine

unsignalized intersections during one or more of the peak hour periods analyzed, including: 19 intersections during the weekday AM peak hour, 10 intersections during the weekday midday peak hour, 23 intersections during the weekday PM peak hour, and six intersections during the Saturday midday peak hour at one or more lane-groups or approaches.

All of the potential traffic impacts at the 18 signalized and nine unsignalized locations identified above would be mitigated by implementing a variety of mitigation measures including signal timing modifications, lane restripings, changes to parking regulations, new stop controls, and installation of new traffic signals. Table S-2 summarizes all the measures contained in the mitigation plan for the primary study area intersections for the weekday AM, midday, and PM, and Saturday midday peak hours. Measures for the secondary study area intersections are summarized in Table S-3. These measures would be subject to review and approval from DOT. In addition, installation of new traffic signals at the unsignalized locations would require detailed Signal Warrant Studies, which are also subject to review and approval from DOT.

With the proposed mitigation measures in place, all of the impacted approaches/lane groups would be mitigated back to the same or better service conditions than the 2020 No Action conditions.

KENT AVENUE RECONFIGURATION

Recently, Kent Avenue has been reconfigured in terms of traffic flow direction and geometric configuration in the study area. Specifically, since late September/early October 2009 the traffic flow direction on Kent Avenue has been changed from two-way north-south operation to one-way northbound operation between Clymer and North 14th Streets. In addition to the traffic flow direction change, new northbound-southbound bicycle lanes were installed on the west side of Kent Avenue in October 2009.

The traffic patterns resulting from the reconfiguration of Kent Avenue have not yet stabilized. Further, DOT is planning to assess the efficacy of the new Kent Avenue configuration and to determine whether additional network modifications are needed. Given the not yet stabilized network, the DEIS traffic analysis has assumed two-way volumes on Kent Avenue.

With the reconfiguration of Kent Avenue, there is the potential that incremental traffic from the proposed project could result in additional significant adverse traffic impacts when compared to the 2020 future with the proposed project condition analyzed in this DEIS due to the projected increase in baseline traffic volumes, as well as the reassignment of some of the southbound project-generated trips from Kent Avenue to Wythe Avenue. In general, the reassignment of project-generated trips from Kent Avenue to Wythe Avenue is expected to result in up to approximately 300 and 175 additional peak hour vehicles on Wythe Avenue between South 3rd and South 4th Streets during the weekday and Saturday conditions, respectively. Other segments of Wythe Avenue between South 3rd and Grand Streets are expected to experience approximately 65 to 200 additional peak hour vehicles during the weekday and Saturday conditions, respectively.

Table S-2
Significantly Impacted Locations and Mitigation Measures
Primary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Midday Peak Hour (1)
Signalized Intersections				
Metropolitan Avenue and Kent Avenue	Daylight the WB approach for 150 feet. Shift the center median on the WB approach by 2 feet to the south to create two 11-feet moving lanes.	Daylight the WB approach for 150 feet. Shift the center median on the WB approach by 2 feet to the south to create two 11-feet moving lanes.	Daylight the WB approach for 150 feet. Shift the center median on the WB approach by 2 feet to the south to create two 11-feet moving lanes. Shift 1 second of green time from the EB/WB phase to the NB/SB phase	Daylight the WB approach for 150 feet. Shift the center median on the WB approach by 2 feet to the south to create two 11-feet moving lanes.
Kent Avenue and South 3rd Street	Shift 7 seconds of green time from the EB phase to the NB/SB phase. Reduce the bike lane buffer on the SB approach by 2-feet and restripe the SB approach to provide a 13-feet moving lane.	Not Impacted	Shift 5 seconds of green time from the EB phase to the NB/SB phase Reduce the bike lane buffer on the SB approach by 2-feet and restripe the SB approach to provide a 13-feet moving lane.	Not Impacted
Kent Avenue and Broadway	Reduce the width of the median on the WB approach by 10 feet for 150 feet from corner and restripe this approach for one 10-feet exclusive right-turn lane and one 10-feet left-and-through lane. Reduce the width of the center median and the width of the bike lane buffer by 4 feet and by 1 feet for 150 feet, respectively on the SB approach. Restripe the SB approach to provide a 16-feet moving lane.	Not Impacted	Reduce the width of the median on the WB approach by 10 feet for 150 feet from corner and restripe this approach for one 10-feet exclusive right-turn lane and one 10-feet left-and through lane. Reduce the width of the center median and the width of the bike lane buffer by 4 feet and by 1 feet for 150 feet, respectively on the SB approach. Restripe the SB approach to provide a 16-feet moving lane. Shift 7 seconds of green time from the EB/WB phase to the NB/SB phase.	Not Impacted
Metropolitan Avenue and Bedford Avenue	Not Impacted	Not Impacted	Shift 2 seconds of green time from the NB phase to the EB/WB phase.	Not Impacted
Bedford Avenue and South 6th Street	Not Impacted	Not Impacted	Shift 8 seconds of green time from the NB phase to the WB phase.	Not Impacted
Metropolitan Avenue and Driggs Avenue	Daylight the WB approach for 150 feet. Shift 5 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted	Shift 4 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted
Driggs Avenue and Broadway	Shift 6 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted	Shift 5 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted
Roebling Street and South 3rd Street	Not Impacted	Shift 1 second of green time from the NB/SB phase to the EB phase.	Shift 2 seconds of green time from the NB/SB phase to the EB phase.	Not Impacted
Roebling Street and South 4th Street	Shift 5 seconds of green time from the EB/WB phase to the SB phase.	Shift 2 seconds of green time from the EB/WB phase to the SB phase.	Shift 2 seconds of green time from the EB/WB phase to the SB phase.	Shift 1 seconds of green time from the EB/WB phase to the SB phase.
Metropolitan Avenue and Havemeyer Street	Not Impacted	Not Impacted	Daylight the WB approach for 150 feet.	Not Impacted
Broadway and Havemeyer Street	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	Shift 3 seconds of green time from the NB phase to the EB/WB phase.	Not Impacted
Metropolitan Avenue and Marcy Avenue	Not Impacted	Not Impacted	Shift 10 seconds of green time from the EB/WB phase to the WB protected left/through phase.	Not Impacted
Marcy Avenue and Broadway	Prohibit parking along the eastern side of the SB approach for 150 feet. Install a No Standing Anytime sign on the east and west sides of Marcy Avenue (receiving segment) to prohibit parking activities for approximately 100 feet. Restripe the SB approach to provide two 11.5-feet left-through-right lanes. Shift 3 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted	Prohibit parking along the eastern side of the SB approach for 150 feet. Install a No Standing Anytime sign on the east and west sides of Marcy Avenue (receiving segment) to prohibit parking activities for approximately 100 feet. Restripe the SB approach to provide two 11.5-feet left-through-right lanes. Shift 3 seconds of green time from the SB phase to the EB/WB phase.	Not Impacted
Intersection	**Weekday AM Peak Hour**	**Weekday Midday Peak Hour**	**Weekday PM Peak Hour**	**Saturday Midday Peak Hour (1)**
Unsignalized Intersections				
Kent Avenue and Grand Street	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 24 3 2 NB/SB 56 3 2 Cycle Length = 90 Seconds	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 24 3 2 NB/SB 56 3 2 Cycle Length = 90 Seconds	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 19 3 2 NB/SB 61 3 2 Cycle Length = 90 Seconds	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 24 3 2 NB/SB 56 3 2 Cycle Length = 90 Seconds
Kent Avenue and South 4th Street	Prohibit parking for 150 feet along the north and south curbs of the WB approach and shift the bicycle lane to the south curb to provide one 13-feet right turn and one 12-feet shared left-and-through lane. Reduce the northbound bicycle lane buffer by 3 feet and widen the northbound traffic lane from 11 to 14 feet. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 22 3 2 NB/SB 58 3 2 Cycle Length = 90 Seconds	Prohibit parking for 150 feet along the north and south curbs of the WB approach and shift the bicycle lane to the south curb to provide one 13-feet right turn and one 12-feet shared left-and-through lane. Reduce the northbound bicycle lane buffer by 3 feet and widen the northbound traffic lane from 11 to 14 feet. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 22 3 2 NB/SB 58 3 2 Cycle Length = 90 Seconds	Prohibit parking for 150 feet along the north and south curbs of the WB approach and shift the bicycle lane to the south curb to provide one 13-feet right turn and one 12-feet shared left-and-through lane. Reduce the northbound bicycle lane buffer by 3 feet and widen the northbound traffic lane from 11 to 14 feet. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 17 3 2 NB/SB 63 3 2 Cycle Length = 90 Seconds	Prohibit parking for 150 feet along the north and south curbs of the WB approach and shift the bicycle lane to the south curb to provide one 13-feet right turn and one 12-feet shared left-and-through lane. Reduce the northbound bicycle lane buffer by 3 feet and widen the northbound traffic lane from 11 to 14 feet. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB 24 3 2 NB/SB 56 3 2 Cycle Length = 90 Seconds

Table S-2 (cont'd)
Significantly Impacted Locations and Mitigation Measures
Primary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Midday Peak Hour (1)
Unsignalized Intersections				
Kent Avenue and South 5th Street	Not Impacted	Not Impacted	Install 6-feet curbside bulb-outs on the NB and SB Kent Avenue approaches. Shift the center median on the SB approach by 1 feet to the east and reduce the bike lane buffer on the NB receiving segment by 1 feet. Restripe the SB approach to provide a 15-feet moving lane. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB / 11 / 3 / 2 NB/SB / 69 / 3 / 2 Cycle Length = 90 Seconds	Not Impacted
Kent Avenue and South 6th Street	Change existing "No Parking Anytime" regulation along north curb of WB approach to "No Standing Anytime"; and stripe for one 12-feet wide exclusive right turn and one 11-feet wide shared through and left-turn lane. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 23 / 3 / 2 NB/SB / 57 / 3 / 2 Cycle Length = 90 Seconds	Change existing "No Parking Anytime" regulation along north curb of WB approach to "No Standing Anytime"; and stripe for one 12-feet wide exclusive right turn and one 11-feet wide shared through and left-turn lane. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 23 / 3 / 2 NB/SB / 57 / 3 / 2 Cycle Length = 90 Seconds	Change existing "No Parking Anytime" regulation along north curb of WB approach to "No Standing Anytime"; and stripe for one 12-feet wide exclusive right turn and one 11-feet wide shared through and left-turn lane. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 30 / 3 / 2 NB/SB / 50 / 3 / 2 Cycle Length = 90 Seconds	Change existing "No Parking Anytime" regulation along north curb of WB approach to "No Standing Anytime"; and stripe for one 12-feet wide exclusive right turn and one 11-feet wide shared through and left-turn lane. Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 23 / 3 / 2 NB/SB / 57 / 3 / 2 Cycle Length = 90 Seconds
Wythe Avenue and South 2nd Street	Not Impacted	Not Impacted	Replace Two-Way Stop-Control with All-Way Stop-Control	Not analyzed for Saturday conditions
Wythe Avenue and South 3rd Street	Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted	Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted
Wythe Avenue and South 6th Street	Not Impacted	Not Impacted	Replace Two-Way Stop-Control with All-Way Stop-Control	Not Impacted
Broadway and Roebling Street - SBR (2)	Provide 3 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 31 / 3 / 2 SBR / 55 / 3 / 2 EB/WB / 19 / 3 / 2 Cycle Length = 120 Seconds	Provide 3 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 20 / 3 / 2 SBR / 40 / 3 / 2 EB/WB / 15 / 3 / 2 Cycle Length = 90 Seconds	Provide 3 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 31 / 3 / 2 SBR / 55 / 3 / 2 EB/WB / 19 / 3 / 2 Cycle Length = 120 Seconds	Provide 3 phase signal with the following timing plan: Phase / Green / Amber / Red EB/WB / 20 / 3 / 2 SBR / 40 / 3 / 2 EB/WB / 15 / 3 / 2 Cycle Length = 90 Seconds

Notes: L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.
(1) The Saturday analysis is new for the DEIS.
(2) The proposed signal timing plan is developed in accordance with the upstream signalized intersection of Broadway and Roebling Street.

Table S-3
Significantly Impacted Locations and Mitigation Measures
Secondary Study Area Intersections

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Midday Peak Hour (1)
Signalized Intersections				
Kent Avenue and Division Avenue	Shift 5 seconds of green time from the EB/WB phase to the NB/SB phase.	Not Impacted	Not Impacted	Not Impacted
Kent Avenue and Clymer Street	Reduce the center median on the west side of the NB approach by 3 feet and widen the NB exclusive left-turn lane from 11-feet to 14-feet.	Not Impacted	Not Impacted	Not Impacted
Kent Avenue and Classon Avenue - NB Service Road	Shift 4 seconds of green time from the EB/WB phase to the NB phase.	Not Impacted	Not Impacted	Not Impacted
Flushing Avenue and Williamsburg Street - SB Service Road	Restripe the SB approach to provide an exclusive right-turn lane and two shared through and left-turn lanes. Provide the following revised signal timing plan: Phase / Green / Amber / Red EB/WB / 47 / 3 / 2 WBL & SBR / 8 / 3 / 2 SB / 50 / 3 / 2 Cycle Length = 120 Seconds	Restripe the SB approach to provide an exclusive right-turn lane and two shared through and left-turn lanes. Provide the following revised signal timing plan: Phase / Green / Amber / Red EB/WB / 32 / 3 / 2 WBL & SBR / 8 / 3 / 2 SB / 35 / 3 / 2 Cycle Length = 90 Seconds	Restripe the SB approach to provide an exclusive right-turn lane and two shared through and left-turn lanes. Provide the following revised signal timing plan: Phase / Green / Amber / Red EB/WB / 40 / 3 / 2 WBL & SBR / 8 / 3 / 2 SB / 57 / 3 / 2 Cycle Length = 120 Seconds	Not Impacted
Flushing Avenue and Classon Avenue - NB Service Road	Shift 4 seconds of green time from the NB phase to the EB/WB phase.	Shift 1 second of green time from the NB phase to the EB/WB phase.	Shift 1 second of green time from the NB phase to the EB/WB phase.	Not Impacted
Unsignalized Intersections				
Kent Avenue and Williamsburg Street East	Provide 2 phase signal with the following timing plan: Phase / Green / Amber / Red EB / 42 / 3 / 2 EBT & WB / 68 / 3 / 2 Cycle Length = 120 Seconds	Not Impacted	Not Impacted	Not Impacted

Notes: L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound.
(1) The Saturday analysis is new for the DEIS.

The majority of the traffic impacts resulting from the reconfiguration of Kent Avenue would likely be mitigated through the implementation of standard traffic engineering improvement measures such as those identified for the proposed project in the preceding section. However, there is a possibility that additional mitigation measures would be required at some of the impacted locations along Wythe Avenue to improve the traffic conditions. Specifically, additional mitigation involving installation of new traffic signals could be required at the intersections of Wythe Avenue at South 2nd, South 3rd and South 6th Streets. Under the proposed project, these intersections would only require the change in intersection control from a Two-Way Stop to an All-Way Stop. However, in order to process the increased traffic volumes—resulting from the Kent Avenue reconfiguration and potential reassignment of project-generated trips—installation of traffic signals may be required at these locations. Furthermore, with the Kent Avenue reconfiguration, mitigation measures identified for the intersections of Kent Avenue at Clymer Street, Division Avenue, Broadway, South 5th Street, and South 3rd Street either may not be required or may be of lesser magnitude as compared to the measures identified under the two-way Kent Avenue configuration. This is due to the fact that under the reconfigured Kent Avenue, the southbound traffic volumes would be eliminated, resulting in fewer vehicular conflicts and increased green-time for northbound traffic volumes travelling through these intersections.

A detailed analysis of the effects of the Kent Avenue reconfiguration on study area traffic conditions—including the reassignment of trick trips as well as the need for additional mitigation measures at impacted locations—will be undertaken between the DEIS and FEIS once the travel patterns in the study area have stabilized.

PARKING

The proposed project would create garages that would provide approximately 1,694 accessory parking spaces. These spaces would accommodate the majority of the parking demand generated by the proposed project during the weekday and Saturday conditions. However, there would be a shortfall of a maximum of up to 45 parking spaces during the weekday morning (9 AM–10 AM) hour, and a maximum of up to 20 parking spaces during the Saturday late evening hours (9 PM–11 PM) at the project site garages. It is expected that this overflow parking demand during the weekday and Saturday conditions would be accommodated by off-site parking available in the ¼-mile study area and beyond. Therefore, the proposed project would not result in significant adverse parking impacts in the study area.

PEDESTRIAN SAFETY

An analysis of the most recent three-year accident history available for the study area intersections indicates that the intersections of Marcy Avenue at Metropolitan Avenue and Havemeyer Street at Broadway (South 6th Street) as high pedestrian and bicycle accident locations. A review of pedestrian and bicycle accident reports at the intersection of Marcy Avenue and Metropolitan Avenue reveals that a majority of the accidents are caused by driver inattention, while a review of the pedestrian and bicycle accident reports at the intersection of Havemeyer Street at Broadway (South 6th Street) does not reveal an identifiable pattern of accidents. The T-intersection of Marcy Avenue and Metropolitan Avenue is equipped with regular crosswalks across the eastbound Metropolitan Avenue and across Marcy Avenue. In addition, the eastbound and westbound approaches on Metropolitan Avenue are equipped with signs warning turning vehicles to yield to pedestrians. Safety at this location could be improved by providing a high visibility crosswalk across the westbound Metropolitan Avenue and by restriping the faded crosswalks across the eastbound Metropolitan Avenue and across Marcy

Avenue with high visibility crosswalks. The intersection of Havemeyer Street and Broadway (South 6th Street) is equipped with high visibility crosswalks across Broadway. Safety at this location could be improved by restriping the Havemeyer Street approaches with high visibility crosswalks and installing signs warning turning vehicles to yield to pedestrians on the northbound, eastbound, and westbound approaches. Based on the operational analyses of the future pedestrian conditions and consideration of relative changes in pedestrian levels, it was determined that, with the installation of the improvements noted above, project-generated trips would not result in significant adverse impacts on pedestrian safety in the study area.

With the above mitigation measures in place, all of the impacted primary and secondary study area intersections would operate at the same or better service levels than the No Action conditions. All the proposed mitigation measures discussed above will be subject to review and approval from DOT.

MITIGATION PHASING

Because the proposed project would be developed sequentially, the potential significant adverse impacts on traffic conditions in the study area would first occur with the completion of Site E on the upland parcel which involves construction of approximately 327 residential units, 6,000 sf of local retail space, 30,000 sf of supermarket space and 374 accessory parking spaces. With the completion of Site E by the year 2013, seven of the study area intersections could experience significant adverse traffic impacts during one or more of the analysis peak hours. To improve traffic operating conditions at these intersections, mitigation measures identified for the 2020 Build conditions would have to be advanced to 2013. It should be noted that the mitigation measures proposed for the 2020 Build conditions were developed incorporating the traffic activities generated by the full build-out of the proposed project together with the 11 percent background growth as well as the completion of the 32 anticipated future background developments and the Greenpoint-Williamsburg rezoning projected sites within the 1-½ mile study area. Therefore, there is a possibility that implementing these mitigation measures in 2013 could "over-mitigate" the traffic conditions at some of the impacted locations.

R. TRANSIT AND PEDESTRIANS

The proposed project would result in increased transit and pedestrian volumes within the study area. The project site is served by the Metropolitan Transportation Authority-New York City Transit (NYCT) J/M/Z (Marcy Avenue station) and L (Bedford Avenue station) subway lines, and the Q59, B39, and B61 buses. In addition, most of the project-generated pedestrian trips would be anticipated to occur at Berry Street and North 4th Street; Bedford Avenue and North 7th Street; Bedford Avenue and Metropolitan Avenue; and Bedford Avenue and Grand Street.

In total, the proposed project would generate approximately 270 and 350 bus-only trips and 1,120 and 1,350 subway trips during the AM and PM peak periods, respectively. The proposed project would also generate approximately 3,060 and 4,630 pedestrian trips during the AM and PM peak periods, respectively. The project-generated transit and pedestrian volumes were distributed throughout the transit and pedestrian networks based upon their proximity to subway stations and bus routes.

SUBWAY STATION OPERATIONS

Based on the result of the transit analysis, the proposed project would not result in significant adverse stairway impacts at either the Bedford Avenue or Marcy Avenue stations during any analysis peak periods. However, the proposed project would result in significant adverse impacts to the Marcy Avenue station's Manhattanbound control area during the AM peak period and to the Queensbound control area during the PM peak period. There would be no significant adverse impacts to the Bedford Avenue subway station elements during any of the analysis peak periods.

The proposed project would result in a projected decline in service levels at the Manhattan-bound control area during the AM peak period and at the Queens-bound control area during the PM peak period at the Marcy Avenue J/M/Z subway station. Projected conditions at the Manhattan-bound control area (located at the north side of Broadway/Havemeyer Street) would decline from LOS E with a 1.00 v/c ratio under the No Action condition to LOS F with a 1.31 v/c ratio under the future with the proposed project condition during the AM analysis peak period. The Queens-bound control area, on the south side of Broadway/Havemeyer Street, would decline from LOS E with a 0.93 v/c ratio under the No Action condition to LOS F with a 1.22 v/c ratio under the future with the proposed project condition during the PM analysis peak period.

Due to the proposed project, the Marcy Avenue station's Manhattan-bound secondary control areas (in the vicinity of Havemeyer Street) for the J/M/Z subway line would exceed optimum capacity under the future with the proposed project condition during the AM peak period, while the Queens-bound secondary control area would exceed optimum capacity during the PM peak period, resulting in significant adverse impacts. Typically, mitigation to address control area impacts focuses on increasing the capacity of the control area by adding turnstiles and/or high entry/exit gates. However, due to space constraints at this location, installation of additional turnstiles and/or gates at the Manhattan-bound and Queens-bound control areas is not possible.

However, other alternative strategies to mitigate the significant adverse impact identified for the aforementioned subway station control areas could be undertaken including:

- The "Control Area Operational Change Option," which would require consideration of operational changes within the control area, such as changing the High Entrance-Exit Turnstiles (HEETs) to exit-only turnstiles. This operational change would encourage subway riders to use the main control area located at the Marcy Avenue and Broadway intersection approximately 100 yards east of the secondary control areas, and would mitigate the control area impacts.
- The "Shuttle Bus Service Option," which would require implementation of shuttle bus service to subway riders traveling to/from the proposed project site. This strategy could include provision of a shuttle bus route to provide a direct connection between the project site and the Marcy Avenue (J/M/Z subway lines) station. The shuttle bus route would shift project-generated transit trips from the Marcy Avenue station's secondary control areas (in the vicinity of Havemeyer Street) to the main control area, thereby potentially mitigating the impact by reducing the number of project generated transit trips using the secondary control areas during the AM and PM peak periods.
- Other Transit Management Options: As part of the transit management strategies, a multitude of alternative commuting options may also be provided which could divert potential subway and/or bus riders to other modes of transportation, such as express bus

service to Manhattan or other measures as identified through the consultation process with the Metropolitan Transportation Authority-New York City Transit (NYCT).

The feasibility of the measures listed above will be explored further between the Draft and Final EIS in consultation with the NYCT. The provision of a water taxi service will also be considered. A water taxi service would require additional discretionary approvals for permitting of dock designs and operations, as well as, other site plan and open space plan approvals to accommodate the passenger dock.

The FEIS will identify any feasible mitigation. Absent the feasibility of any mitigation measures, the proposed project would result in an unmitigated significant adverse transit impact.

BUS LINE HAUL

The proposed project would result in significant adverse bus line haul impacts as the projected passenger volumes in the future with the proposed project condition would exceed the NYCT guideline capacity of 54 passengers per bus. Specifically, the proposed project would result in significant adverse impacts to the following bus routes:

- Eastbound B39 bus route during the PM peak period and the westbound B39 bus route during the AM peak period;
- Northbound and southbound B61 bus route during both the AM and PM peak periods; and
- Eastbound and westbound Q59 bus route during both the AM and PM peak periods.

The westbound and eastbound B39 bus route would operate over capacity under both the No Action and future with the proposed project conditions during the AM and PM peak periods, respectively. One additional westbound and one additional eastbound bus (for a total of five westbound and five eastbound buses during the AM and PM peak periods) would be required to mitigate the projected impacts to No Action operating conditions. To mitigate these significant adverse impacts back to acceptable levels, two additional (or six total) westbound and eastbound buses would be required during the AM and PM peak periods, respectively.

The northbound and southbound B61 bus routes would operate over capacity under both the No Action and future with the proposed project conditions during both the AM and PM peak periods. Seven additional (or 14 total) northbound and three additional (or 10 total) southbound buses would be required to mitigate the projected impacts to No Action operating conditions during the AM peak period. To mitigate these significant adverse impacts back to acceptable levels, 13 additional (or 20 total) northbound buses and six additional (or 13 total) southbound buses would be required during the AM peak period.

Six additional (or 13 total) northbound buses and eight additional (or 14 total) southbound buses would be required to mitigate the projected impacts to No Action operating conditions during the PM peak period. To mitigate these significant adverse impacts back to acceptable levels, nine additional (or 16 total) northbound buses and 13 additional (or 19 total) southbound buses would be required during the PM peak period.

Both the eastbound and westbound Q59 bus route would operate over capacity under both the No Action and future with the proposed project conditions during both the AM and PM peak periods. Eight additional eastbound and three additional westbound buses (for a total of 14 eastbound and nine westbound buses) would be required to mitigate the projected impacts to No Action operating conditions during the AM peak period. To mitigate these significant adverse

impacts back to acceptable levels, eleven additional (or 17 total) eastbound buses and six (or 12 total) westbound buses would be required during the AM peak period.

Five additional eastbound and eight additional westbound buses (for a total of nine eastbound and 13 westbound buses) would be required to mitigate the projected impacts to No Action operating conditions during the PM peak period. To mitigate these significant adverse impacts back to acceptable levels, seven additional (or eleven total) eastbound buses and eleven additional (or 16 total) westbound buses would be required during the PM peak period.

Table S-4 provides a comparison of existing service and the numbers of buses required to fully mitigate the identified significant adverse line haul impacts along the B39, B61, and Q59 bus routes. While NYCT routinely monitors changes in bus ridership and would make the necessary service adjustments where warranted, these service adjustments are subject to the agencies' fiscal and operational constraints and, if implemented, are expected to take place over time.

Table S-4
2020 Mitigated Future With The Proposed Project Condition (Capacity Improvement): Bus Line Haul Levels

Route	Peak Period	Northbound/Eastbound Buses per Hour		Southbound/Westbound Buses per Hour	
		Existing	Mitigation	Existing	Mitigation
B39	AM	3	--	4	6
	PM	4	6	4	--
B61	AM	7	20	7	13
	PM	7	16	6	19
Q59	AM	6	17	6	12
	PM	4	11	5	16

Note: The B39, B61, and Q59 bus routes operate standard buses with a guideline capacity of 54 passengers per bus.

There are several development projects in and near the study area that are projected to be completed prior to, or concurrent with, the planned completion of the proposed project. All of these development projects, along with the trips generated by the projected development from the *Greenpoint-Williamsburg Rezoning FEIS*, were included in the future No Action analysis. It should be noted that some of these future projects ultimately may not be constructed, thereby resulting in lower 2020 No Action pedestrian and transit volume networks (as compared to the ones against which the impacts from the proposed project were evaluated). In such a case, the significant adverse transit and pedestrian impacts projected to occur with the proposed project would be of lesser magnitude (thereby requiring lesser mitigation). Consistent with NYCT's established policy and practice, NYCT would monitor the changes in the bus ridership levels and would make necessary service adjustments to accommodate the increased demand generated by the future development projects as well as by the projected developments identified as part of Greenpoint-Williamsburg rezoning. Adherence to that policy would mitigate any significant adverse bus impact. In the event that fiscal or operational constraints do not permit the necessary service adjustments, there would be unmitigated impact to bus service.

STREET LEVEL PEDESTRIAN OPERATIONS

Pedestrian trips associated with the proposed project would result in increased volumes at the analysis locations. As a result, the proposed project would result in a significant adverse pedestrian impact on the south crosswalk at Bedford Avenue and North 7th Street during the AM peak period.

Bedford Avenue and North 7th Street

- *Weekday AM peak period:* The south crosswalk would deteriorate from LOS D to LOS E (15.7 SFP to 13.9 SFP).

Restriping the crosswalk from 12.0 feet wide to 12.3 feet wide would mitigate the significant adverse impact to the south crosswalk at the Bedford Avenue and North 7th Street intersection.

MITIGATION PHASING

Because the proposed project would be developed sequentially, the potential significant adverse impacts on transit and pedestrian conditions in the study area would first occur when the proposed project constructs approximately 327 residential units, 6,000 sf of local retail space, 30,000 sf of supermarket space and 374 accessory parking spaces. This development would take place upon completion of Site E on the upland parcel together with the completion of the 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites within the 1-½ mile study area.

Specifically, with the completion of Site E, there could be significant adverse impacts on the bus line-hauls for the B39, B61 and Q59 bus routes as well as at the Marcy Avenue station's Manhattan-bound and Queens-bound secondary control areas for the J/M/Z subway line. In addition, the pedestrian trips generated by Site E could also result in significant adverse pedestrian impact at the Bedford Avenue and North 7th Street intersection.

In order to mitigate these pedestrian and transit impacts, mitigation measures proposed for the 2020 Build conditions would have to be advanced to 2013. It should be noted that the mitigation measures proposed for the 2020 Build conditions were developed incorporating the transit and pedestrian activities generated by the full build-out of the proposed project together with the 11 percent background growth as well as the completion of the 32 anticipated future background developments and the Greenpoint-Williamsburg Rezoning projected sites within the 1-½ mile study area. Therefore, there is a possibility that enforcing these mitigation measures in 2013 could "over-mitigate" the conditions for some of the impacted pedestrian and transit facilities. Air quality and greenhouse gas emissions

AIR QUALITY

Ambient air quality is affected by numerous sources and activities that introduce air pollutants into the atmosphere. A comprehensive assessment of potential air quality impacts from the proposed project was performed. The analyses were performed utilizing the general procedures recommended in the *CEQR Technical Manual*. However, in some cases more detailed analyses were undertaken to characterize potential air quality impacts from the proposed project, or because of changes in state or local policies and procedures for conducting and evaluating air quality impacts from a proposed project.

Air quality impacts can be either direct or indirect. Direct impacts stem from emissions generated by stationary sources associated with the proposed project, such as emissions from fuel burned on site for heating, ventilation, and air conditioning (HVAC) systems. Indirect effects include emissions from motor vehicles ("mobile sources") traveling to and from a project.

The analysis concludes that the proposed project would not cause any significant adverse air quality impacts on sensitive uses in the surrounding community, nor would the proposed project be adversely affected by new or existing air emission sources in the project area.

Concentrations of carbon monoxide (CO) and fine particulate matter (PM_{10}) from project-generated traffic would not result in any violations of National Ambient Air Quality Standards (NAAQS). CO impacts would also not exceed CEQR *de minimis* criteria, while $PM_{2.5}$ increments would not exceed the City's current interim guidance criteria. Concentrations of CO from the elevated Williamsburg Bridge adjacent to Site D would be below NAAQS. Impacts from the proposed project's parking facilities would not result in significant adverse impacts on air quality.

Emissions and dispersion of nitrogen dioxide (NO_2), CO, and PM_{10} from the proposed project's stationary sources would not violate NAAQS. Likewise, the maximum incremental increases in 24-hour and annual average $PM_{2.5}$ concentrations from stationary sources would be below significant impact thresholds at both on-site and off-site locations. However, to ensure the avoidance of impacts, limitations on fuel type and minimum stack heights and locations would be included in the Restrictive Declaration for the proposed project.

Nearby existing sources from manufacturing or processing facilities were analyzed for their potential impacts on the proposed project. The results of the industrial source analysis demonstrated that there would be no significant adverse air quality impacts on the proposed project.

The analysis was performed to assess pollutant levels from the existing NYPA facility. The analysis determined that the maximum concentrations of NO_2, CO, and PM_{10} from the NYPA facility, when added to ambient background levels, would be well below the NAAQS. Emissions of $PM_{2.5}$ were analyzed in accordance with the City's current $PM_{2.5}$ interim guidance criteria, which determined that the maximum incremental increases in $PM_{2.5}$ concentrations from this source on the proposed project would be below the annual significant impact criterion of 0.3 micrograms per cubic meter ($\mu g/m^3$), as well as the 24-hour average interim guidance criterion of 5 $\mu g/m^3$. Maximum 24-hour average $PM_{2.5}$ incremental concentrations from the NYPA facility could exceed the City's 24-hour interim guidance criterion of 2 $\mu g/m^3$ at a limited number of locations on elevated receptors on Sites A and B under the modeled conservative operating scenario. Exceedances on Site B were determined not to be significant, consistent with the City's application of this criterion, based on the magnitude, and the limited frequency and extent of these occurrences. To ensure the avoidance of any potential significant adverse impacts on Site A from the NYPA facility, limitations on the placement of operable windows and air intakes would be included in the Restrictive Declaration for the proposed project. With these measures in place, no significant adverse air quality impact is predicted from emissions of $PM_{2.5}$ from the NYPA facility.

GREENHOUSE GAS EMISSIONS

An analysis of the potential Greenhouse Gas (GHG) emissions associated with the proposed project is presented in this section. Specific measures to reduce GHG emissions and improve energy efficiency that are either included as part of the proposed project or are under consideration are discussed as well.

The proximity of the proposed development to public transportation, its mixed-use program, and dense design are all factors that contribute to the energy efficiency of the proposed project, resulting in lower GHG emissions.

Overall, the site selection, the reuse of the existing building, the dense and mixed-use design, the commitment to achieve a significant reduction in energy use, and other measures incorporated in the

proposed project would result in lower GHG emissions than would otherwise be achieved by similar residential and commercial uses, and, thus, would advance New York City's GHG reduction goals as stated in PlaNYC.

S. NOISE

The analysis concludes that the traffic generated by the proposed project would be expected to produce significant adverse noise impacts at noise receptor Site 4 (located on South 3rd Street between Kent and Wythe Avenues) and Site 5 (located on South 4th Street between Kent and Wythe Avenues). At these sites, all of the adjacent residential buildings have double-glazed windows and many have some form of alternative ventilation (i.e., window or through-wall air conditioning units). To mitigate the significant adverse noise impacts at these sites, window air conditioning units would be made available by the applicant to residences that do not have an alternate means of ventilation. This could include apartments at 37 South 3rd Street and 28-38 South 4th Street. Consequently, even during warm weather conditions, interior noise levels would be approximately 30-35 dBA less than exterior noise levels. The double-glazed windows and alternative ventilation at these residential structures would provide a substantial amount of sound attenuation, and would result in interior noise levels during much of the time that are below 45 dBA $L_{10,}$ which would meet CEQR interior noise level criteria. Therefore, the provision of window air conditioning units by the applicant would fully mitigate the significant adverse noise impacts.

Attenuation would be required at certain sites due to the high existing background noise levels to achieve interior residential noise levels of 45 dBA or lower in residential zoning districts. This attenuation would be mandated for the proposed project via the Restrictive Declaration. With the incorporation of these attenuation levels, noise levels within the proposed buildings would comply with all applicable requirements.

The proposed design for all project buildings includes the use of well-sealed double-glazed windows and air conditioning units. The proposed buildings' façades, including these elements, would be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating greater than or equal to the attenuation requirements listed in Table S-5. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise. By adhering to these design requirements, the proposed buildings will thus provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA L_{10}. Based upon the predicted $L_{10(1)}$ values at the project site, the proposed project's design measures would be expected to provide sufficient attenuation to achieve the CEQR interior noise level requirements.

Building designs for buildings on the streets listed below would be required to provide at least the level of building attenuation specified in Table S-5. Buildings on other streets that are part of this action would be required to provide either a minimum of 35 dBA attenuation, or to provide noise analyses which show that sufficient building attenuation would be provided to satisfy CEQR building attenuation requirements as shown in Table S-6.

Table S-5
Minimum Building Attenuation to Comply With CEQR Requirements at the Project Site

Site	Proposed Land Use	Governing Noise Sites	Required Building Attenuation* (dBA)
A	Residential/Retail/Office/Community Facility	2,6	35 on East Façade, 30 on all other façades
B	Residential/Retail	2,6	35 on East Façade, 30 on all other façades
C	Residential/Retail	6,7	35 on East Façade, 30 on all other façades
D	Residential/Retail	6,7	35 on East Façade, 30 on all other façades
E	Residential/Retail	4,5,6	35 on West and North Façades, 30 on all others
Refinery	Residential/Retail/Community Facility	4,6	35 on East Façade, 30 on all other façades

Notes: * The required attenuation values shown are for residential and certain community facility uses. Required attenuation for retail, and office uses would be 5 dBA less.

Table S-6
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Acceptable	Marginally Unacceptable		Clearly Unacceptable		
Noise Level With Proposed Action	$65 < L_{10} \leq 70$	$70 < L_{10} \leq 75$	$75 < L_{10} \leq 80$	$80 < L_{10} \leq 85$	$85 < L_{10} \leq 90$	$90 < L_{10} \leq 95$
Attenuation*	25 dB(A)	(I) 30 dB(A)	(II) 35 dB(A)	(I) 40 dB(A)	(II) 45 dB(A)	(III) 50 dB(A)

Note: ***** The above composite window-wall attenuation values are for residential dwellings. Commercial office spaces and meeting rooms would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

Source: DEP.

T. CONSTRUCTION IMPACTS

The potential environmental effects resulting from construction of the proposed project have been analyzed based on an assessment of likely construction activities throughout the construction period. The total anticipated period of construction for the proposed project is approximately nine years, starting in 2011 and finishing in late 2020.

The duration of construction on individual sites would range from approximately 2 to 3.5 years. As currently contemplated, construction would begin on the upland parcel and proceed along the waterfront parcel from south to north. This construction schedule and phasing would be set forth in the Restrictive Declaration. The duration and timing of construction would vary from building to building on the various sites. The shortest task would be the construction of the buildings on Site E on the upland parcel of the site, which would take about two years. The longest construction period would be for Site B, the largest of the waterfront sites, which would be constructed over a period of about 43 months. Typically, construction would occur simultaneously on two of the parcels throughout the nine-year construction period.

Key findings of the construction impact analyses regarding open space, historic resources, traffic and parking, transit and pedestrians, air quality, and noise are described below. Of these, significant adverse impacts during construction would occur only for traffic and noise. The proposed project would not result in significant adverse impacts during construction on open space, historic resources, parking, transit and pedestrians, and air quality, as well as, land use, socioeconomic conditions, hazardous materials, natural resources, infrastructure, vibration, and

rodent control. As noted in the sections that follow, the project sponsors would commit to a variety of measures—including an emissions reduction program and noise reduction measures—to reduce or eliminate the potential significant adverse effects of construction of the proposed project.

OPEN SPACE

Construction of the building on Site A would occur immediately adjacent to Grand Ferry Park. As a result, special measures would be taken to prevent construction activities from intruding into the park. A solid fence would be erected along the perimeter of the site that borders the park. The fence would have no openings between the construction site and the park and would be high enough to reduce sound from construction activity on the project site and to minimize dust. The hoists, cranes, and other equipment would be located on the side of the building away from the park. As the superstructure is being erected, netting would be installed on the side of the building facing the park to prevent any materials from falling into the park. Construction activities would be conducted with the care mandated by the close proximity of an open space to the project site. Dust control measures—including watering of exposed areas and dust covers for trucks—would be implemented to ensure compliance with the New York City Air Pollution Control Code, which regulates construction-related dust emissions.

A connection would be constructed between the proposed project's public open space and Grand Ferry Park. Creating this connection would require construction activity within the southern portion of the park. This connection would enhance the use of Grand Ferry Park by providing access to the larger waterfront esplanade running the length of the project site. Measures would be taken to minimize the temporary disruption to this open space during construction.

Therefore, construction of the proposed project would not result in significant adverse impacts on open space.

HISTORIC RESOURCES

A CPP for the Refinery would be prepared in coordination with a licensed professional engineer. It would describe the measures to be implemented during the rehabilitation of the Refinery itself, as well as measures to be taken to protect the Refinery during construction of adjacent buildings on the project site.

The project site is located within 90 feet of three historic resources: the Williamsburg Bridge, the former American Sugar Refinery buildings and the former Matchett Candy factory. Construction of the project could result in inadvertent physical impacts to these resources if proper precautions are not taken. To avoid any construction-related impacts on the latter two resources, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a CPP would be developed in consultation with SHPO and LPC.

The Williamsburg Bridge is separated from the project site by South 5th Street, which is 60 feet wide. Protection measures for this resource would be developed in coordination with SHPO, LPC, and DOT.

With these measures in place, construction of the proposed project would not result in any significant adverse impacts on historic resources.

TRAFFIC AND PARKING

Because the proposed development program would result in buildings completed and occupied at different times, the total project-generated traffic during construction, beginning with the completion of the first building, would encompass both construction and operational traffic. Trip-making attributable to construction activities would peak in the first quarter of 2016. A secondary peak construction scenario in early 2020 was also reviewed to determine the appropriate and representative peak construction condition for assessing potential construction traffic impacts. This review showed that peak construction vehicle trips are expected to be twice as high in the first quarter of 2016 as those projected for the first quarter of 2020. However, the operational trips in the first quarter of 2016 would be less than half of the operational trips in the first quarter of 2020.

With the construction and operational trips combined, the 2016 first quarter construction scenario would yield more 6 to 7 AM construction peak hour vehicle trips but fewer 3 to 4 PM and 5 to 6 PM construction peak hour vehicle trips than the 2020 first quarter construction scenario. For the early morning 6 to 7 AM construction peak hour, components of the proposed project would generate minimal operational trips; hence, the scenario with the higher construction trips (2016 first quarter) would yield the most total project-generated trips. For the afternoon 3 to 4 PM and 5 to 6 PM hours, however, the scenario with the higher operational trips (2020 first quarter) would yield the most total project-generated trips. Compared to the 2020 full build-out of the proposed project, both construction scenarios would yield fewer total project-generated trips. Hence, overall traffic conditions during construction in the traffic study area are expected to be better than the 2020 future with the proposed project condition. However, construction-related traffic would travel through some intersections that were determined to operate at unacceptable levels during commuter peak hours in existing conditions and the future without the proposed project. It is possible that significant adverse traffic impacts could occur at some or many of these locations during construction. In order to alleviate construction traffic impacts, measures recommended to mitigate impacts associated with the proposed project could be implemented during construction before completion of the proposed project.

For the FEIS, a quantified traffic analysis, based on the traffic patterns developed for the newly configured Kent Avenue, will be prepared to identify significant adverse traffic impacts during construction that may differ from those identified for the project's final build-out and which may require different mitigation measures. As discussed above, the 2020 first quarter construction scenario would result in more total combined project-generated trips during two of the three construction peak hours than the 2016 first quarter construction scenario. However, because the construction trip component during the first quarter of 2020 would make up a very small portion of the total trips (construction and operational) associated with the proposed project, the conditions would be more reflective of those in the final build-out, which is being addressed elsewhere in this EIS. Therefore, it is more appropriate to consider the 2016 first quarter construction scenario as the representative worst-case condition for assessing potential construction traffic impacts and mitigation measures. This analysis will evaluate locations where travel patterns are expected to be different during construction and where there would be significant adverse impacts under the full build-out of the proposed project.

Because the majority of construction activities would be accommodated on-site, construction trucks would be staged primarily within the project site, or on newly completed streets on the project site adjacent to or south of active construction sites. However, construction of the

proposed project may result in the temporary closure of curb lanes or sidewalks on Kent Avenue and temporary narrowing or relocating of Kent Avenue bicycle lanes.

Construction vehicle parking would be accommodated on the project site; therefore, construction of the proposed project would not result in significant adverse parking impacts.

TRANSIT AND PEDESTRIANS

Approximately 25 percent of construction workers would travel to and from the project sites via transit. Based on the peak 2016 projections, the construction-related transit trip demand during the morning and afternoon peak construction hours would represent only nominal increases in transit demand and would occur along each of those routes and at each of the transit access locations during hours within and outside of the typical commuter peak periods. Hence, no further evaluation of nearby transit services is required, and there would be no significant adverse transit impacts attributable to the projected construction-worker transit trips. Any temporary relocation of bus stops along bus routes that operate adjacent to the project site would be coordinated with and approved by DOT and Metropolitan Transportation Authority-New York City Transit (NYCT) to ensure proper access is maintained.

Approximately 5 percent of construction workers would travel to and from the project sites on foot. Based on the peak 2016 projections, the construction-related walk trips would be small in number, primarily occur outside of peak hours, and would be distributed among numerous sidewalks and crosswalks in the area, there would be no significant adverse pedestrian impacts attributable to the projected construction-worker pedestrian trips. During construction, where temporary sidewalk closures are required, adequate protection or temporary sidewalks and appropriate signage would be provided in accordance with DOT requirements.

AIR QUALITY

During construction, emissions from on-site construction equipment and on-road construction-related vehicles, and any congestion caused by construction traffic, have the potential to impact air quality. To ensure that the construction of the proposed project results in the lowest practicable diesel particulate matter (DPM) emissions and fugitive dust emissions, the project sponsors would implement an emissions reduction program for all construction activities. The program would minimize diesel equipment use, utilize ultra low fuel diesel fuel exclusively, use best available technology to reduce emissions of diesel particulate matter, and utilize equipment designed to meet EPA Tier 2 or newer standards. With control measures in place, the on-site emissions levels during construction are expected to be very low when compared with typical construction activity. In addition, construction activities associated with the proposed project are not expected to cause new exceedances of the National Ambient Air Quality Standards (NAAQS) for any pollutant, and would not significantly increase concentrations of particulate matter with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$) at any location. Therefore, construction activities for the proposed project would not result in any significant adverse air quality impacts. Components of the emissions control program may be adjusted between draft and final EIS.

NOISE

Construction of the proposed project would implement measures to control noise sources (i.e., reducing noise levels at the source or during most sensitive time periods) and noise pathways (e.g., placement of equipment, implementation of barriers between equipment and sensitive

receptors). Even with these measures, a screening analysis determined that the noise levels due to construction activities at sensitive receptors, including residential uses, around the project site are expected to exceed City Environmental Quality Review (CEQR) impact criteria for two or more consecutive years, resulting in significant adverse noise impacts. Many of these receptors have double-glazed windows and some form of air conditioning (window units, through-wall, or Packaged Terminal Air Conditioners), which would provide substantial attenuation of the incident construction noise and result in acceptable interior noise levels according to CEQR criteria during most times of day. Between the draft and final EIS, a more detailed construction noise analysis will be performed in order to quantify the magnitude of the noise level increases at the nearby sensitive receptors and determine the practicability and feasibility of additional control measures to reduce or eliminate the significant adverse noise impacts.

U. PUBLIC HEALTH

This analysis concludes that the proposed project would not result in any significant adverse public health impacts.

V. ALTERNATIVES

In accordance with CEQR, alternatives to the proposed project were analyzed. Alternatives selected for consideration in an EIS are generally those which are feasible and have the potential to reduce, eliminate, or avoid adverse impacts of a proposed action while meeting some or all of the goals and objectives of the action. In addition to a comparative impact analysis, the alternatives in this chapter are assessed to determine to what extent they would meet the goals and objectives of the proposed project.

This chapter considers five alternatives to the proposed project:

- A No Action Alternative that assumes the continuation of the existing M3-1 zoning on the site and the demolition and redevelopment of the site under that zoning;
- A Reduced Density Alternative, which considers a smaller project that would reduce the development program and building heights;
- A Hotel Alternative, in which a hotel would be developed in a portion of the Refinery under the proposed C6-2 zoning designation, replacing a portion of the community facility and residential space;
- A Cogeneration Energy Supply Alternative that explores the potential for the proposed project to include a distributed generation and combined heat and power (CHP) system, including cogeneration to improve energy efficiency and reliability while reducing GHG emissions. This alternative specifically responds to Energy Initiative #9 of PlaNYC; and
- A No Unmitigated Significant Adverse Impacts Alternative, which considers a project program that would eliminate the proposed project's unmitigated significant adverse impacts.

The conclusion of the alternatives analysis is that three of the five alternatives—the No Action Alternative, the Reduced Density Alternative, and the No Unmitigated Significant Adverse Impacts Alternative—would not substantively meet the goals and objectives of the proposed project. The Hotel Alternative, which would introduce a hotel use to the project site in place of a portion of the proposed project's residential and community facility space should market conditions indicate that a potential hotel use is a viable development option, would satisfy the

goals of the proposed project. The remaining alternative, the Cogeneration Energy Supply Alternative, would only differ from the proposed project by including on-site facilities to generate electricity, heat, and cooling (cogeneration); however, this alternative was identified as economically infeasible.

For each alternative, the principal conclusions of the analysis are as follows:

NO ACTION ALTERNATIVE

Consideration of the No Action Alternative is mandated by CEQR and is intended to provide the lead and involved agencies with an assessment of the consequences of not selecting the Proposed Actions. The No Action Alternative assumes that the following actions would not occur: zoning map amendments; designation as a General Large Scale Development; various special permits for height, bulk, inner court, rear yard, and parking; waterfront access authorization; zoning text amendments; or other discretionary actions sought by the proposed project. Without a zoning change, the residential and community facility uses envisioned under the proposed project would not be allowed on the project site. Under this alternative, it is assumed that the project site would be developed with uses permitted under the existing M3-1 manufacturing zoning. The total development program for the No Action Alternative would include approximately 106,300 sf of industrial distribution space, approximately 60,000 sf of storage space, 40,000 sf of catering hall/restaurant space, and 61,000 sf of land used for a building materials storage yard (as well as 5,000 sf of office space for this use). The new structures that would be built as part of the No Action Alternative range in height from 18 to 60 feet.

With substantially less overall development on the project site and no residential uses, the No Action Alternative would avoid the proposed project's significant adverse impacts relating to elementary and intermediate schools, child care facilities, shadows, traffic, transit and pedestrians, and noise levels. The No Action Alternative would result in the demolition of all project site buildings except for the Refinery—an NYCL—and the Boiler House; the proposed project would demolish all project site buildings, including the Boiler House, and would retain only the Refinery.[1] Although LPC has designated only the Refinery complex as a landmark, SHPO has determined that all structures on the site are S/NR-eligible. Therefore, both the No Action Alternative and the proposed project would result in a significant adverse impact on architectural resources. At the same time, however, the No Action Alternative would fail to meet all four of the proposed project's principal goals, which include the creation of affordable housing, providing physical and visual access to the waterfront including the creation of a substantial amount of publicly accessible open space, redevelopment of a former waterfront industrial site into a mix of active residential, retail/commercial, and community facility uses; and the adaptive reuse of the Refinery.

REDUCED DENSITY ALTERNATIVE

The Reduced Density Alternative, which was developed in response to a public comment on the Draft Scope of Work which requested shorter building heights, assumes the same mix of uses as the proposed project, but with a lesser amount of total development. The Reduced Density

[1] Under the No Action Alternative, the Refinery would be maintained but would remain vacant due to the high cost of adaptive reuse, and the Boiler House would remain as vacant building due to the high cost of demolition. The proposed project would redevelop the Refinery into a mix of residential, commercial, and community facility uses.

Alternative would achieve 4.7 FAR on the waterfront parcel and 2.42 FAR on the upland parcel; in comparison, the proposed project would achieve 5.6 FAR on the waterfront parcel and 6.0 FAR on the upland parcel. This FAR would be consistent with what is permitted on waterfront sites further north in Williamsburg and in Greenpoint under the Greenpoint-Williamsburg rezoning. On the project site, the Reduced Density Alternative would include the same overall site plan layout—including location of buildings and open space—as those currently contemplated for the proposed project. Like the proposed project, the Reduced Density Alternative would provide residential, commercial (retail and office), community facility space, publicly accessible open space, and enclosed accessory parking. Overall, the Reduced Density Alternative would have shorter building heights—up to 300 feet along the waterfront (the heights of the tallest buildings along the waterfront in the proposed project is 400 feet)—resulting in 549 fewer residential units overall, 350 fewer affordable units, and a slight reduction in the amount of commercial office space.

The Reduced Density Alternative would result in significant adverse environmental impacts similar to those of the proposed project while failing to realize a principal project goal—to provide a substantial amount of affordable housing. Like the proposed project, this alternative would result in significant adverse impacts to: public schools; shadows on Grand Ferry Park (even though this alternative has shorter buildings); historic resources; pedestrians; noise; and construction. Of these—and similar to the proposed project—the impacts from shadows and on historic resources are unavoidable. The proposed project has identified mitigation measures that would fully or partially mitigate the significant adverse impacts in other affected analysis areas, and these mitigation measures would apply with the Reduced Density Alternative as well. Unlike the proposed project, the Reduced Density Alternative would not result in significant adverse impacts to publicly funded child care facilities.

This alternative would satisfy three of the four goals of the proposed project, including access to the waterfront and the creation of a substantial amount of publicly accessible open space, redevelopment of this former waterfront industrial site into an active mix of uses, and adaptive reuse of the Refinery. However, as noted above, this Reduced Density Alternative would substantially fail to meet the proposed project's principal goal of providing a substantial amount of affordable housing.

HOTEL ALTERNATIVE

In the Hotel Alternative, a 112,000-square-foot hotel with approximately 150 rooms would occupy several floors of the Refinery in place of a portion of the proposed project's residential and community facility space, resulting in 57 fewer market-rate residential units and approximately 49,000 gsf less community facility space in the Refinery. This alternative is intended to provide flexibility for possible future program adjustments in response to changing market demands and conditions. Otherwise, the Hotel Alternative would provide the same site plan as the proposed project, including the same amount of open space, commercial office space, and retail space, and would also provide the same number of affordable units (720) as the proposed project. The proposed C6-2 zoning on the site of the Refinery would permit a range of commercial uses, including a hotel. However, the General Large Scale Development Plan, as envisioned under the proposed project, would not permit a hotel on the project site and would thus need to be modified to allow for this use, triggering the need for future review and approvals, including discretionary actions subject to review under ULURP and CEQR.

The Hotel Alternative would result in significant adverse impacts similar to the proposed project. Like the proposed project, this alternative would result in significant adverse impacts to: public schools; shadows on Grand Ferry Park (even though this alternative has shorter buildings); historic resources; pedestrians; noise; and construction. Of these—and similar to the proposed project—the impacts from shadows and on historic resources are unavoidable. Compared to the proposed project, the Hotel Alternative would introduce a greater number of vehicle trips during the weekday midday and Saturday midday peak hours. Therefore, it is possible that this alternative could result in greater traffic impacts during the weekday midday and Saturday midday peak hours. Where the proposed project has identified mitigation measures to fully or partially mitigate its significant adverse impacts, the same mitigation measures would apply with the Hotel Alternative as well. In all other analysis areas, as with the proposed project, the Hotel Alternative would not result in significant adverse impacts.

The Hotel Alternative would satisfy the principal goals of the proposed project. This alternative would redevelop the project site with a mix of residential, retail/commercial, and community facility uses, and would adaptively reuse the Refinery. In addition, this alternative would have the same site plan and the same open space as the proposed project, and would therefore meet the proposed project's goals to create physical and visual access to the East River waterfront, including the creation of a substantial amount of publicly accessible open space. The Hotel Alternative would meet the proposed project's affordable housing goals, although in this alternative the hotel use would—in addition to the market-rate units—cross-subsidize the affordable units.

COGENERATION ENERGY SUPPLY ALTERNATIVE

The Cogeneration Supply Alternative was given consideration by the applicant as part of the City's PlaNYC 2030 policy to improve energy efficiency and reliability while minimizing GHG emissions. This alternative considers the construction of on-site distributed generation and CHP facilities and was based on the same development program as the proposed project. While the Cogeneration Supply Alternative would offer the opportunity to achieve greater energy efficiency and reduced GHG emissions, it was identified as economically infeasible because of the long payback period as well as the complexities of facility ownership among the various proposed users on the project site. The required upfront capital investment and long payback period would adversely affect the project's ability to meet its affordable housing objectives.

NO UNMITIGATED SIGNIFICANT ADVERSE IMPACTS ALTERNATIVE

To eliminate all unmitigated significant adverse impacts, the proposed project would have to be reduced in size or modified to a point where it would not be feasible and could not realize the principal goals of the proposed project. This analysis finds that:

- To eliminate the proposed project's significant adverse shadow impact on Grand Ferry Park, this alternative would limit the northernmost building on the project site (Site A) to a maximum height of 70 feet, ten feet higher than the building that would be developed at that location in the future without the proposed project. A reduction in the height of this building to 70 feet would either result in a reduction of approximately 115,000 sf in the proposed density on the project site, or result in a reduction in the total amount of proposed open space on the project site. Reducing the density on the project site would reduce the cross-subsidization opportunities that would maximize the development of affordable housing units and would therefore fail to meet the proposed project's principal goal of providing a

substantial amount of affordable housing. In order to maintain the proposed density on the site, the building design would need to be modified and relocated elsewhere, including portions of the project site currently envisioned as open space; in this case, this alternative would fail to meet the proposed project's goal of providing physical and visual access to the East River waterfront through the creation of a substantial amount of publicly accessible open space.

- The buildings on the project site have been determined eligible for listing on the S/NR, and the proposed project would demolish all structures on the project site, with the exception of the Refinery. Therefore, any substantial development on the project site would result in unmitigated significant adverse impacts to historic resources. As this alternative would not include any substantial redevelopment of the project site, it would fail to meet the proposed project's goals and objectives.

W. UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS

SHADOWS

The shadows analysis found that the proposed project's development on Site A would result in a significant adverse impact on the 1.8-acre Grand Ferry Park. During the fall, winter, and early spring the utility of the park will be significantly impacted due to increased shadows on sun-sensitive features used by park visitors (e.g., benches, picnic tables, etc.) and the park's vegetation would also be adversely affected. During the warmer months (April through October), all areas of the park would continue to get several hours of sun in the morning, and most areas of the park would get sun later in the afternoon as well. However, several hours of new midday shadow would be cast on the park. The several hours of incremental midday shadow would cause a significant adverse impact to the users of this open space during the fall, winter and early spring, and would likely also adversely impact the park's vegetation.

The *CEQR Technical Manual* identifies several different measures that could mitigate significant adverse shadow impacts on open spaces. CEQR guidelines also discuss alternatives that may reduce or eliminate shadow impacts, including reorientation of building bulk or reorientation of the site plan. Due to the narrowness of the site and its immediate proximity to Grand Ferry Park, it is not possible to alter the site plan so as to avoid a substantial amount of shadow being cast on this open space. It should be noted that the proposed project would create approximately four acres of new public open space, including a connection to Grand Ferry Park. During all seasons, the project-created open space would provide new sunlit areas during times when Grand Ferry Park is experiencing areas of incremental shadow.

Between the DEIS and FEIS, the applicant will continue to work with the New York City Department of Parks and Recreation (DPR) to develop suitable mitigation to partially offset this significant adverse impact to park users and the park's vegetation. However, any mitigation measures would only partially offset this significant adverse shadows impact; it would not be completely eliminated. Therefore, it would constitute an unavoidable significant adverse impact on Grand Ferry Park as a result of the proposed project.

HISTORIC RESOURCES

The buildings on the project site have been determined eligible for listing on the State and National Registers of Historic Places (S/NRs). The proposed project would demolish all structures on the

project site with the exception of the complex known as "the Refinery," which was designated a New York City Landmark on September 25, 2007. The Refinery would be preserved and renovated under the proposed project, and the New York City Landmarks Preservation Commission (LPC) has approved the project's plans for their renovation and adaptive reuse. The demolition of the remaining S/NR-eligible buildings would constitute a significant adverse impact on architectural resources. Measures to partially mitigate the impact of the demolition of this historic resource, which could include archival photographic documentation and the reuse of industrial artifacts within the proposed project, will be developed in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) between the DEIS and FEIS. However, despite these mitigation measures, this impact would not be completely eliminated. Therefore, it would constitute an unavoidable significant adverse impact on this historic resource as a result of the proposed project.

X. GROWTH-INDUCING ASPECTS OF THE PROPOSED PROJECT

The proposed project is not expected to induce additional notable growth outside of the project site. The residential growth anticipated with the proposed project would occur independent of the proposed project, and the new uses introduced by the proposed project would not trigger additional residential development. It is possible that development resulting from the proposed project and other developments in the area could prompt some new retail development from those looking to capitalize on the area's increased consumer base. While the project would improve existing infrastructure on and around the project site, including water and sewer lines, roadways, sidewalks, and open space, the infrastructure in the study area is sufficiently well-developed such that improvements associated with the proposed project would not induce additional growth.

Y. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

There are a number of resources, both natural and built, that would be expended in the construction and operation of the proposed project. These resources include the materials used in construction; energy in the form of gas and electricity consumed during construction and operation of the project; and the human effort (time and labor) required to develop, construct, and operate various components of the program. They are considered irretrievably committed because their reuse for some purpose other than the project would be highly unlikely. The development of the project site with open space and a mix of residential, retail, commercial office, and community facility uses constitutes a long-term commitment of land resources, thereby rendering land use for other purposes highly unlikely in the foreseeable future. These commitments of resources and materials are weighed against the proposed project's goals of providing a substantial amount of affordable housing in the area of Williamsburg known as the Southside community, creating public access to and recreational use of the waterfront, and restoring and adaptively reusing the Refinery complex. ✷