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FINAL ENVIRONMENTAL IMPACT STATEMENT

Date: September 22, 2008

CEQR No. 07DME014Q

ULRUP Nos. 080221 MMQ, 080381 ZMQ, 080382 ZRQ, 080385 HDQ, 080383 HGQ, 080384 HUQ

Project: Willets Point Development Plan

Please find enclosed the Notice of Completion and Final Environmental Impact Statement (FEIS) for the Willets Point Development Plan. On September 12, 2008, the FEIS was certified as complete by the Office of the Deputy Mayor for Economic Development, the lead agency for the environmental review. Additional copies of these documents are available for downloading from the Mayor's Office of Environmental Coordination (http://www.nyc.gov/oec/) or the New York City Economic Development Corporation (http://www.nycedc.com/willetspoint).

The project was certified by the City Planning Commission on April 21, 2008, which marked the beginning of the City's Uniform Land Use Review Procedure (ULURP). A public hearing on the Draft EIS and ULURP application was held on August 13, 2008. Written comments on the DEIS were accepted until August 25, 2008.

Thank you for your continuing interest in this project. If you have questions concerning the Final Environmental Impact Statement or any other project issues, please feel free to contact Asma Syed of the New York City Economic Development Corporation at 212-312-4220 or asyed@nycedc.com.

Sincerely,

Robert R. Kulikowski, Ph.D.
Assistant to the Mayor
On behalf of the Deputy Mayor for Economic Development

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WILLETS POINT DEVELOPMENT PLAN



Final Generic Environmental Impact Statement

CEQR No.: 07DME014Q

Lead Agency:
Office of the Deputy Mayor for Economic Development

September 2008

WILLETS POINT DEVELOPMENT PLAN

FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT

September 2008

CEQR No.:	07DME014Q
ULURP Nos.:	080221 MMQ 080381 ZMQ 080382 ZRQ 080385 HDQ 080383 HGQ 080384 HUQ
Project Location:	Queens, New York Area generally bounded to the east by the Van Wyck Expressway and a lot owned by the Metropolitan Transportation Authority, to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard.
Lead Agency:	Office of the Deputy Mayor for Economic Development
Lead Agency Contact:	Robert R. Kulikowski, Ph.D. Assistant to the Mayor 253 Broadway, 14th Floor New York, NY 10007 Phone: (212) 788-2937
Prepared by:	AKRF, Inc. Eng-Wong, Taub & Associates HDR-LMS

Foreword*

This document is the Final Generic Environmental Impact Statement (FGEIS) for the Willets Point Development Plan. The Draft Generic Environmental Impact Statement (DGEIS) was certified as complete by the City's Office of the Deputy Mayor for Economic Development as lead agency under City Environmental Quality Review (CEQR) and made available for public review in April 2008. Concurrently with the ULURP public hearing, a public hearing was held on the DGEIS on August 13, 2008. The public comment period for submission of comments extended from April 18, 2008 through August 25, 2008.

This FGEIS reflects all relevant substantive comments made on the DGEIS during the public comment period. All comments received at the hearing and all comments submitted in writing to the New York City Economic Development Corporation (NYCEDC), Department of City Planning (DCP), or the lead agency were considered in the preparation of this FGEIS. The comments are summarized and responded to in Chapter 29, "Response to Comments on the DGEIS." This FGEIS reflects all substantive changes made during public review, as well as any changes to the proposed Plan that were made subsequent to the issuance of the DGEIS. Subsequent to publishing the DGEIS, the following principal changes were made:

- In order to allow the existing 72-inch water main that runs beneath Willets Point Boulevard to remain in place, the proposed Plan's illustrative site plan has been modified to maintain the current alignment of Willets Point Boulevard. The DGEIS considered two potential locations for the convention center – one in the northeastern portion of the District and a second in the southeastern portion of the District. Maintaining the current alignment of Willets Point Boulevard eliminates the potential for the convention center to be located in the southern location, thus limiting it to the northern portion of the District.
- A number of sustainable features have been incorporated into the proposed Plan since the DGEIS was certified. These sustainable features, which are reflected in the Special District text as well as the illustrative site plan, are described in Chapter 1, "Project Description."
- As part of the expanded sustainability efforts, the Special District text has been revised to allow for the development of a water reclamation facility in the District by special permit from the Board of Standards and Appeals (BSA). Although such a facility is not included as part of the illustrative site plan and would be subject to subsequent environmental review, a description of the facility has been added to Chapter 1, "Project Description," and other chapters of the FGEIS where appropriate.
- The parking component of the anticipated development on Citi Field Lot B described in the DGEIS has been relocated to a surface parking area known as Lot D located on the south side of Roosevelt Avenue. All FGEIS analyses have been revised accordingly.

* This chapter is new to the FGEIS.

- Further detail on the proposed Plan's affordable housing component (income eligibility) has been added to Chapter 1, "Project Description," and Chapter 4, "Socioeconomic Conditions."
- Additional detail on the business relocation assistance and workforce training services offered to displaced businesses and employees has been added to Chapter 4, "Socioeconomic Conditions."
- Where necessary, the analysis in the DGEIS was updated to account for changes in the baseline background assumptions.
- Chapter 28, "Potential Effects of Acquisition and Relocation," has been added to the FGEIS. The chapter discloses, to the extent possible at this time, the effects of relocating any businesses for which relocation sites have been identified.
- Chapter 29, "Response to Comments," has been prepared to address the substantive oral and written comments on the DGEIS. These comments are included as Appendix K.
- Appendix I, "Municipal Services Alternative – Infrastructure Analysis," has been added to the FGEIS. Key conclusions from this study have been incorporated into Chapter 24, "Alternatives."
- A quantitative traffic analysis for eight critical intersections during the peak construction period has been added to Chapter 21, "Construction Impacts."
- Updates were made to Chapter 12, "Hazardous Materials," to reflect Phase I Environmental Site Assessments (ESAs) completed since issuance of the DGEIS.
- As a result of comments from the public, a discussion of the potential effects of climate change on the proposed Plan has been added to Chapter 14, "Infrastructure."

Where appropriate, the FGEIS text was revised in response to comments or changes in the project. Revisions made by the addition of new text are indicated by double underlines. Revisions resulting in deletions from the DGEIS are not shown. No double-underlining was used in this Foreword, in Chapters 28 or 29, or in Appendices I, J, or K, which are presented for the first time in this FGEIS. ✷

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A. PROJECT DESCRIPTION

PROJECT IDENTIFICATION

The Office of the Deputy Mayor for Economic Development, with the New York City Department of Housing Preservation and Development (HPD) and the New York City Department of City Planning (DCP), proposes to rezone, create an urban renewal area, and implement the Willets Point Development Plan ("proposed Plan") in Willets Point, Queens (see Figure S-1).

The proposed Plan's main goal is to transform a largely underutilized site with substandard conditions and substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination. The approximately 61-acre Willets Point Development District ("District") would be redeveloped with residential, retail, hotel, convention center, entertainment, commercial office, community facility, open space, and parking uses. In addition, the proposed Plan would connect the Van Wyck Expressway with the District. Although there is currently no specific development plan, the maximum permitted development under the proposed Plan would be 8.94 million gross square feet (gsf).

The actions necessary to implement the proposed Plan are subject to environmental review under the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR). Other public processes involved in implementation of the proposed Plan include the City's Uniform Land Use Review Procedure (ULURP) and potentially the Eminent Domain Procedure Law (EDPL).

Because it has been determined that the proposed Plan would result in significant adverse impacts, it requires review and the preparation of a Generic Environmental Impact Statement (GEIS) under CEQR.

PROJECT PURPOSE AND NEED

The Willets Point peninsula is an underutilized industrial area with extensive environmental contamination, open building code violations, poor road and sidewalk conditions, chronic flooding, and limited storm and sanitary sewer infrastructure. Site conditions within the District have hindered redevelopment efforts for decades, and present numerous challenges to any future development efforts in the Willets Point Development District. Two of the greatest challenges are site contamination and site elevation; up to seven feet of fill are required to raise the grade of the District so that it is out of the Federal Emergency Management Agency (FEMA) 100-year floodplain.

The proposed Plan evolved from the Downtown Flushing Development Framework—a land use and economic planning strategy developed between 2002 and 2004 by the Downtown Flushing Task Force, a group of public officials and private representatives that the City requested to

identify growth and improvement opportunities in Downtown Flushing, the Flushing River waterfront, and the Willets Point area. The Task Force outlined the following redevelopment goals for the Willets Point area:

- Create a regional destination that would enhance economic growth in Downtown Flushing and Corona;
- Improve environmental conditions in the District and reflect the sensitive nature of its waterfront setting;
- Create a larger, expanded Flushing core by integrating the two sides of the Flushing River through land use and design;
- Complement the adjacent recreational and sporting facilities;
- Optimize use of existing highway, public transit, and parking infrastructure to minimize local traffic impacts; and
- Create substantial positive economic value for the City and provide a source of quality jobs for area residents.

The City has adopted these goals in the proposed Plan and also aims to achieve the following goals, which are consistent with the vision of the Downtown Flushing Development Framework:

- Provide a substantial number of new housing units to help meet the growing demand for housing in Queens and the City as a whole;
- Ensure that District housing would be affordable to a mix of incomes;
- Provide a world-class example of superior urban design, with a focus on green building and sustainable design practices; and
- Strengthen the role of Flushing and Corona as commercial centers in northern Queens, while helping to meet the demand for office space in Queens and the City as a whole.

PROJECT BACKGROUND

Since World War II, there have been numerous attempts to redevelop Willets Point, which became known for its many auto repair businesses and junkyards. Since 2000, planning efforts have accelerated. In 2001, HPD's design workshop explored potential redevelopment ideas and recommended land uses that would connect Willets Point with neighboring communities and complement nearby attractions and facilities. Suggested land uses included entertainment facilities; an international commercial center; restaurants and retail shops that would profit from visitors to downtown Flushing, Flushing Meadows-Corona Park, and Shea Stadium; and hotels serving LaGuardia and Kennedy Airports. In 2002, the City created the Downtown Flushing Task Force, which outlined land use and economic goals for the redevelopment of Willets Point in its Downtown Flushing Development Framework. The proposed Plan represents a critical step in implementing this development Framework.

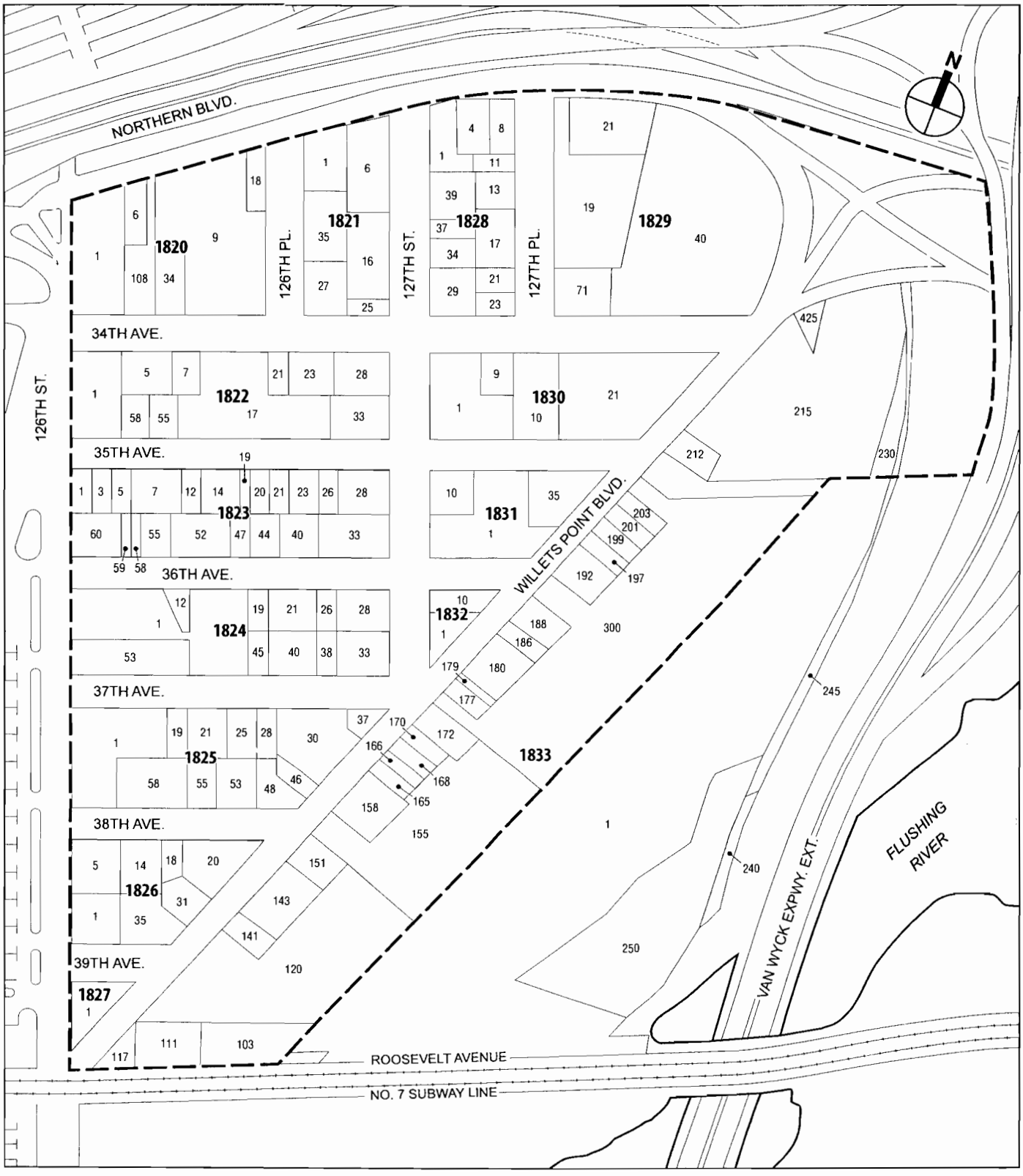
PROJECT DESCRIPTION

EXISTING CONDITIONS IN THE DISTRICT

Of the District's approximately 61.4 acres, approximately 15.8 acres are within public street rights-of-way, approximately 45.0 acres are privately owned land, and approximately 0.6 acres are owned by the Metropolitan Transportation Authority (MTA). The District comprises 128 tax lots and one partial lot (block 1833, lot 1) located on 14 blocks (see Table S-1 and Figure S-2). It



Figure S-1
Development District Site



Willets Point Development District Boundary

1826 *Block Number*

14 *Lot Number*

This figure has been updated since the DGEIS

Figure S-2

Block and Lot Map

contains approximately 260 businesses (primarily a mix of automotive repair and auto body shops, other auto-related retail establishments, junkyards, wholesalers, and construction companies) that employ an estimated 1,711 workers.

Table S-1
Blocks and Lots Affected by Proposed Plan

Blocks	Lots
1820	1, 6, 9, 18, 34, 108
1821	1, 6, 16, 25, 27, 35
1822	1, 5, 7, 17, 21, 23, 28, 33, 55, 58
1823	1, 3, 5, 7, 12, 14, 19, 20, 21, 23, 26, 28, 33, 40, 44, 47, 52, 55, 58, 59, 60
1824	1, 12, 19, 21, 26, 28, 33, 38, 40, 45, 53
1825	1, 19, 21, 25, 28, 30, 37, 46, 48, 53, 55, 58
1826	1, 5, 14, 18, 20, 31, 35
1827	1
1828	1, 4, 8, 11, 13, 17, 21, 23, 29, 34, 37, 39
1829	19, 21, 40, 71
1830	1, 9, 10, 21
1831	1, 10, 35
1832	1, 10
1833	1 (partial)*, 103, 111, 117, 120, 141, 143, 151, 155, 158, 165, 166, 168, 170, 172, 177, 179, 180, 186, 188, 192, 197, 199, 201, 203, 212, 215, 230, 300, 425

Note: * Approximately 24,600 sf of block 1833, lot 1 (owned by MTA) is included in the Willets Point Development District. The remaining approximately 429,000 sf of that lot, which extends along the Flushing River waterfront, is outside of the District.

Only nine of the District's tax lots utilize more than 50 percent of the allowable square footage.[1] The remaining 119 lots (or 93 percent) are considered to be underutilized. Of these, 27 lots (21 percent) use only 11 to 25 percent of their development potential, and 50 lots use no more than 10 percent of their development potential. Many of these lots are unimproved and are used as open-air storage areas for building supplies, junkyards, and waste transfer uses.

Building code violations are common in the District. There were 192 open building code violations as of January 2008. Many of these violations were for Work Without a Permit, Occupancy Contrary to Certificate of Occupancy, and Failure to Maintain Building. Violations were reported for buildings located on half of the tax lots in the study area, many recording multiple violations. These violations indicate that numerous structures in the District have either been built or altered illegally, are not adequately maintained, or are occupied by businesses not permitted to be operating on site.

Site conditions in the District have hindered past redevelopment efforts and present complex challenges to any future redevelopment. Much of the land area within the District is below the FEMA 100-year floodplain, and up to seven feet of fill would be required to grade and raise the

[1] Data were gathered from the New York City Department of Finance Real Property Assessment Data (RPAD).

District above the floodplain. The District lacks sanitary sewers and adequate storm sewers, and its roadways and sidewalks are in poor condition. In addition, as a result of past uses and recent activities in the District, soil and groundwater have been contaminated. In 2001, 21 junkyards and 35 individuals were indicted for violating State environmental laws by dumping vehicle fluids onto the ground and into storm drains and Flushing Bay. Several area businesses have also been indicted for auto theft, insurance fraud, and racketeering. The illegal activities and harmful environmental practices in the District have created a condition that is threatening to the environment and to the neighboring communities, and a continuation of these practices would burden the health of New York City's residents and economy.

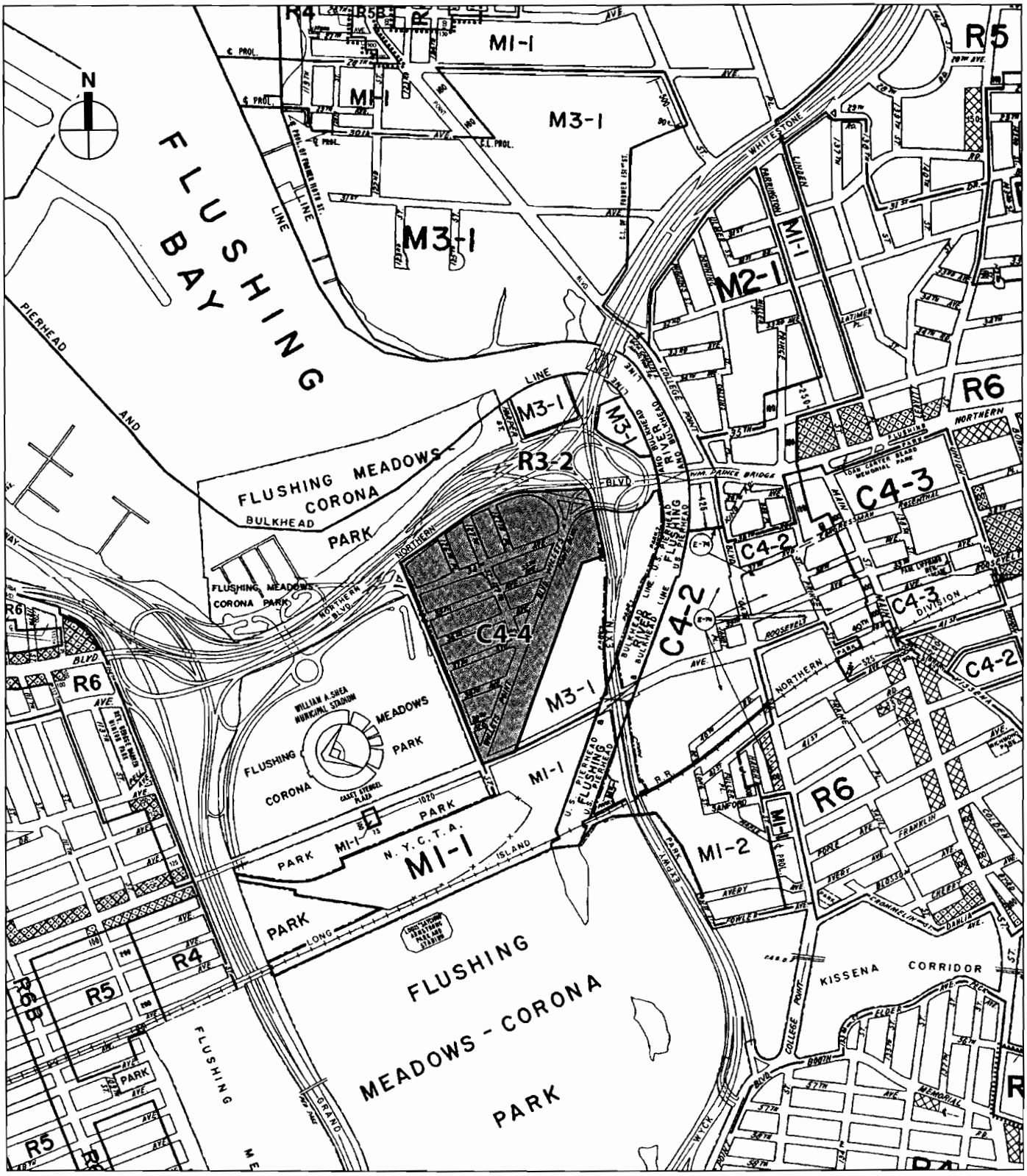
PROPOSED ACTIONS

The proposed Plan would require a number of City, State, and federal approvals. The discretionary actions required or that may be required for the proposed Plan include:

City Discretionary Approvals

- The adoption of a Willets Point Urban Renewal Plan (URP) by HPD to define District boundaries and the area to be redeveloped, as well as to establish maximum development envelopes, in accordance with the City's redevelopment goals.
- Acquisition of property in accordance with the URP.
- Disposition of property within the District for development in accordance with the URP.
- A change to the underlying zoning of the District from the existing M3-1 and R3-2 districts[1] to a C4-4 district, pursuant to New York City Planning Commission (CPC) approval (see Figure S-3). The proposed C4-4 zoning would allow for the range of uses anticipated. The existing permitted floor area ratio (FAR) in the M3-1 district is 2.0. A maximum permitted FAR of 3.4 would apply across the entire District, as established by the proposed Special Willets Point District, described below.
- Creation of a zoning Special District to further guide development in the District, pursuant to CPC approval. To promote redevelopment of Willets Point consistent with the goals and objectives of the proposed Plan and to eliminate unnecessary rigidities that would prevent the achievement of the best possible site plan, the proposed Special District would waive certain C4-4 district requirements and the need for certain CPC and New York City Board of Standards and Appeals (BSA) special permits. To create an appropriate scale and density within the District's surroundings, the urban renewal area would have special provisions regarding streetscape and urban design components.
- Demapping of streets within the District, pursuant to CPC approval. To allow maximum flexibility in the creation of the redevelopment site plan, the proposed Plan would include the demapping of some or all streets within the District.
- Possible acquisition of property by the City pursuant to EDPL.
- Possible approval by the Borough Board of the business terms of the disposition pursuant to Section 384(b)(4) of the City Charter.

[1] A small part of the Willets Point Development District is in an R3-2 district. The portion of the District that is zoned R3-2 contains roadway connections to Northern Boulevard.



Special Willets Point District

Zoning District Boundary

Figure S-3
Proposed Zoning

State/Federal Discretionary Approvals

- Review and approval of a Freeway Access Modification Report by the New York State Department of Transportation (NYSDOT) and the Federal Highway Administration (FHWA) for new access ramps to and from the Van Wyck Expressway, a highway on the Interstate System.

COMPONENTS OF THE PROPOSED PLAN

As shown in Table S-2, the proposed Plan envisions residential and retail space as the core uses in the District. Office, hotel, and convention center uses would complement these main uses and enhance Flushing and Corona's roles as regional economic centers (see Figure S-4). Community facilities and open space would provide amenities and improve the quality of life for residents and visitors.

The URP prescribes a maximum permitted floor area of 8.94 million gsf in the District but allows flexibility in the combination of uses to be developed, and prescribes separate maximum permitted floor areas for residential and commercial uses in the District, including 5,850,000 gsf of residential use and 3,160,000 gsf of commercial use. The zoning Special District would ensure the development of a dynamic, pedestrian-oriented community by determining the placement of uses, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions.

Since the flexibility provided in the URP could result in a variation in the future development in the District, this Final GEIS (FGEIS) analyzes two development scenarios—the proposed Plan, which includes an approximately 400,000-square-foot convention center, and the No Convention Center Scenario, in which the convention center is replaced with an additional 350,000 sf of residential use and 50,000 sf of retail use. The anticipated uses are shown in Table S-2.

Table S-2
Willets Point Development Plan

Use	Urban Renewal Plan	Proposed Plan	No Convention Center Scenario
Residential	Up to 5,850,000 gsf	5,500,000 gsf (*5,500 units*)	5,850,000 gsf (*5,850 units*)
Retail	Up to 3,160,000 gsf	1,700,000	1,750,000
Office		500,000	500,000
Convention Center		400,000	0
Hotel		560,000 (*700 rooms*)	560,000 (*700 rooms*)
Community Facility	—	150,000 gsf	150,000 gsf
School (K-8)*	—	130,000 gsf (*Approx. 850 Seats*)	130,000 gsf (*Approx 900 Seats*)
Parking Spaces**	—	Approx. 6,700	Approx. 6,000
Publicly Accessible Open Space	Minimum 8 Acres	Minimum 8 Acres	Minimum 8 Acres
Total gsf	8,940,000 gsf Maximum	8,940,000 gsf	8,940,000 gsf

Notes:
* The capacity of the proposed school would meet the project-generated shortfall in school seats. A 130,000-sf school would accommodate up to approximately 900 seats; the square footage of the new school may be smaller if the project-generated shortfall in seats is less than anticipated.
** The number of proposed parking spaces would be determined based on anticipated project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

Residential

Under the proposed Plan, 20 percent of the proposed units would be reserved for households earning between 60 percent and 130 percent of the U.S. Department of Housing and Urban Development (HUD) Income Limit for New York City. As is typical for units developed under New York City's affordable housing program, approximately half of the affordable units developed under the proposed Plan would likely be two- and three-bedroom units. Income levels are based on HUD Income Limits, which are set annually for metropolitan areas and non-metropolitan counties by HUD. As of 2008 the HUD Income Limit for New York City was $76,800 for a family of four. Therefore, a family of four would need to earn between approximately $46,080 and $99,840 in order to qualify for an affordable housing unit in the District. Because housing units in the District would offer rental and homeownership opportunities for a range of incomes, housing constructed under the proposed Plan would support the goals outlined in the Mayor's New Housing Marketplace Plan, which commits to the construction or rehabilitation of 165,000 affordable housing units in the City.

Retail

The accessibility of the District via mass transit and highways presents an opportunity to create a first-class retail, recreation, and entertainment destination that would attract people from both Queens and the larger tri-state area. Entertainment venues would satisfy local and citywide demand while providing activities for before and after sporting events that occur in the area.

Office

New office space in the District would strengthen the role of Flushing and Corona as commercial centers in northern Queens and help meet demand for office space in Queens and the City as a whole. Given its proximity to two major airports and the thriving and expanding Downtown Flushing office district, the District is a suitable location for new office development.

Convention Center

In 2004, a study commissioned by the Queens Chamber of Commerce showed a strong demand for a conference and exhibition facility in Willets Point.[1] Convention center visitors would include residents of Queens and the broader metropolitan region attending one-day events or tradeshows, as well as visitors from outside the region attending multi-day conventions and staying at the nearby hotel.

Hotel

Redevelopment of the District offers an opportunity to create a premier hotel facility in northern Queens. Demand for the hotel would be driven by its proximity to LaGuardia and JFK Airports, the growing Flushing community, the future Citi Field, the USTA National Tennis Center, and the proposed convention center.

[1] HVS Convention, Sports, & Entertainment Facilities Consulting, Queens, New York Conference/Exhibition Center and Hotel Feasibility Study, 2004.

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Illustrative rendering of the District

This figure has been updated since the DGEIS

Figure S-4
Illustrative Rendering - View Northeast

Community Facility

Community facility space could include medical offices, day care facilities, community recreation space, dance studios, art galleries, theaters, community arts centers, museums, or a library.

School

A new public school would be provided to serve District residents and would be programmed to meet the project-generated shortfall in school capacity.

Open Space

A minimum of eight acres of publicly accessible open spaces (including a centrally located, approximately two-acre recreational park) would serve the new residents, workers, tourists, and shoppers that would be introduced by the proposed Plan. The Special District regulations would require the central park and pedestrian amenity areas or open landscaped areas at various locations along the perimeter of the District. In addition, the New York City Economic Development Corporation (NYCEDC) would encourage future developers to incorporate ground-level active open space and other recreational resources, such as rooftop and interior programming of recreational amenities, into the project design as part of their formal request for proposals (RFP) process.

Parking

Parking would be provided to meet the demand generated by the proposed Plan. Parking is expected to be dispersed throughout the District in above- and below-grade parking facilities located in the bases of the proposed buildings. Limited on-street parking would also be available in parts of the District.

Van Wyck Expressway Connection

A new connection between the Van Wyck Expressway and the District would be provided to facilitate the movement of traffic into and out of the District and minimize traffic on nearby local roadways. NYSDOT is currently considering conceptual design alternatives, which include new entrance and exit ramps that touch down in the northeast portion of the District and connect with the primary connector streets in the District (see Figure S-5).

Site Grading

The District would be graded and elevated above the floodplain. One of the greatest barriers to redevelopment in the District is that much of the land area within the District is below the FEMA 100-year floodplain level of 14 feet Above Mean Sea Level (AMSL).[1] Depending on the existing elevation, up to seven feet of fill would be required to raise the District out of the floodplain. Development at the existing grade would require costly engineering measures for flood control on lower floors.

Site Remediation

Comprehensive environmental remediation would be implemented across the District, employing such strategies as removing and/or capping contaminated soils and establishing

[1] Referencing National Geodetic Vertical Datum of 1929 (NGVD29).

minimum engineering and/or institutional controls (e.g., vapor barriers under new buildings or restrictions on change in use). This comprehensive approach enables the City to establish a cohesive remediation goal and end use for the entire District, while ensuring that a mechanism is in place to prevent recontamination from surrounding uses or off-site contaminants.

Infrastructure and Other Improvements

New sanitary and stormwater lines would be installed, and stormwater detention would be provided on-site. A new sanitary pump station and force main would be constructed to convey sanitary flow from the District to the existing 96-inch-diameter City sewer at 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). The pump station and force main would be designed and constructed to New York City Department of Environmental Protection (DEP) standards. The Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. This facility would support the City's goal to incorporate the latest innovative building and planning technologies in the District. The water reclamation facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District, and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. If a water reclamation facility were constructed, it would obviate the need for a new pump station.

While the 72-inch water main beneath Willets Point Boulevard would remain in place, other water and sewer lines within the District may be replaced and realigned, depending on the site plan that is ultimately selected, to serve the new uses in the District. The proposed Plan would ensure that project-generated demand for energy is met by providing additional power lines in the District and potentially providing a new cogeneration facility and/or substation, provided they would primarily serve the District. New roadways would also be provided.

DESIGN CONSIDERATIONS

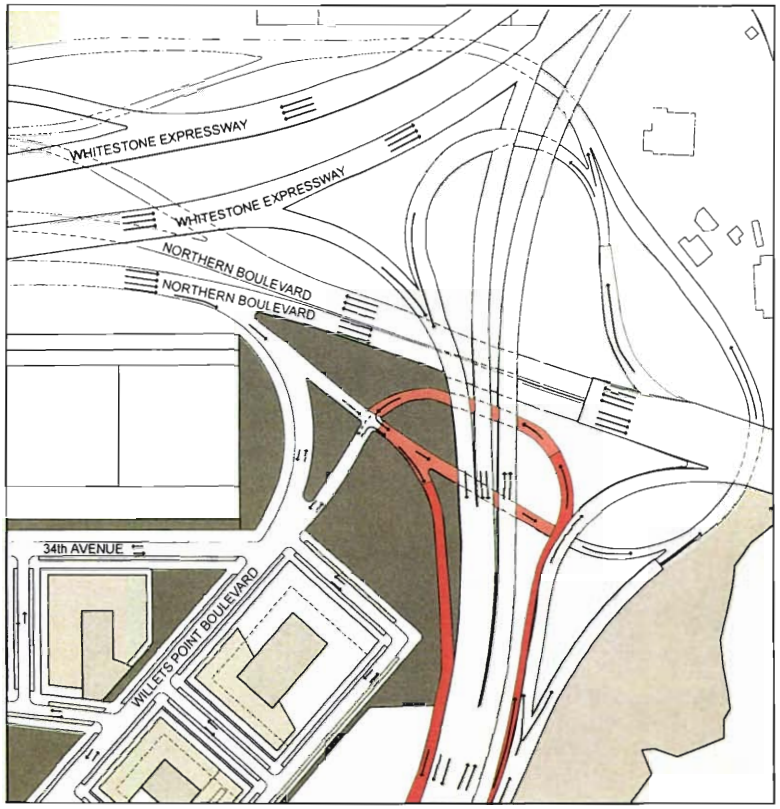
The proposed Plan would be guided by the Special Willets Point District urban design regulations, addressing such elements as the location of uses, building heights and setbacks, street hierarchies, streetscape design, and other site planning and design provisions. Key elements of the Special District and its intended purpose are described below.

Site Plan and Urban Design

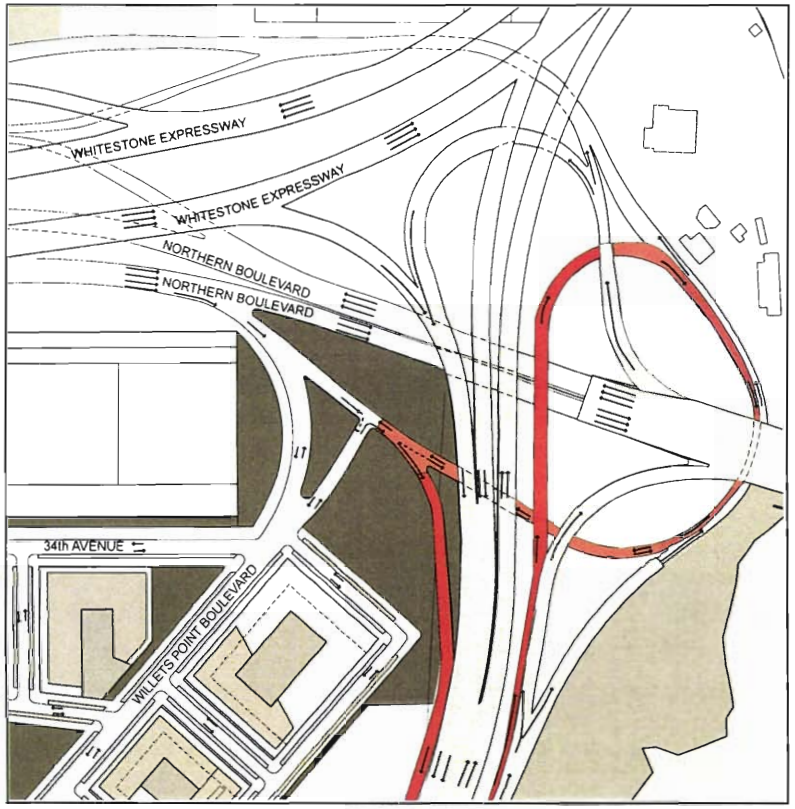
The site planning and urban design of the District are intended to create a dynamic community by integrating regional attractions and residential, retail, and other uses within a network of pedestrian-scaled streetscapes throughout the District. As shown in Figure S-6, the Special District regulations would allow for three zones with distinct land uses and designs.

- The **commercial and entertainment center** would be located in the western portion of the District. This area would contain mixed-use structures with restaurant, entertainment, and nightlife uses along 126th Street, and a mix of retail shops on primary and secondary retail streets east of 126th Street. The upper stories of the buildings could contain residential, office, or community facility uses (see Figure S-7). Large commercial anchor blocks would be located at Northern Boulevard and Roosevelt Avenue along 126th Street, with retail uses concentrated close to the new Citi Field. The proposed commercial and entertainment center would create a synergy between the new Citi Field and the District, and function as a new regional attraction.

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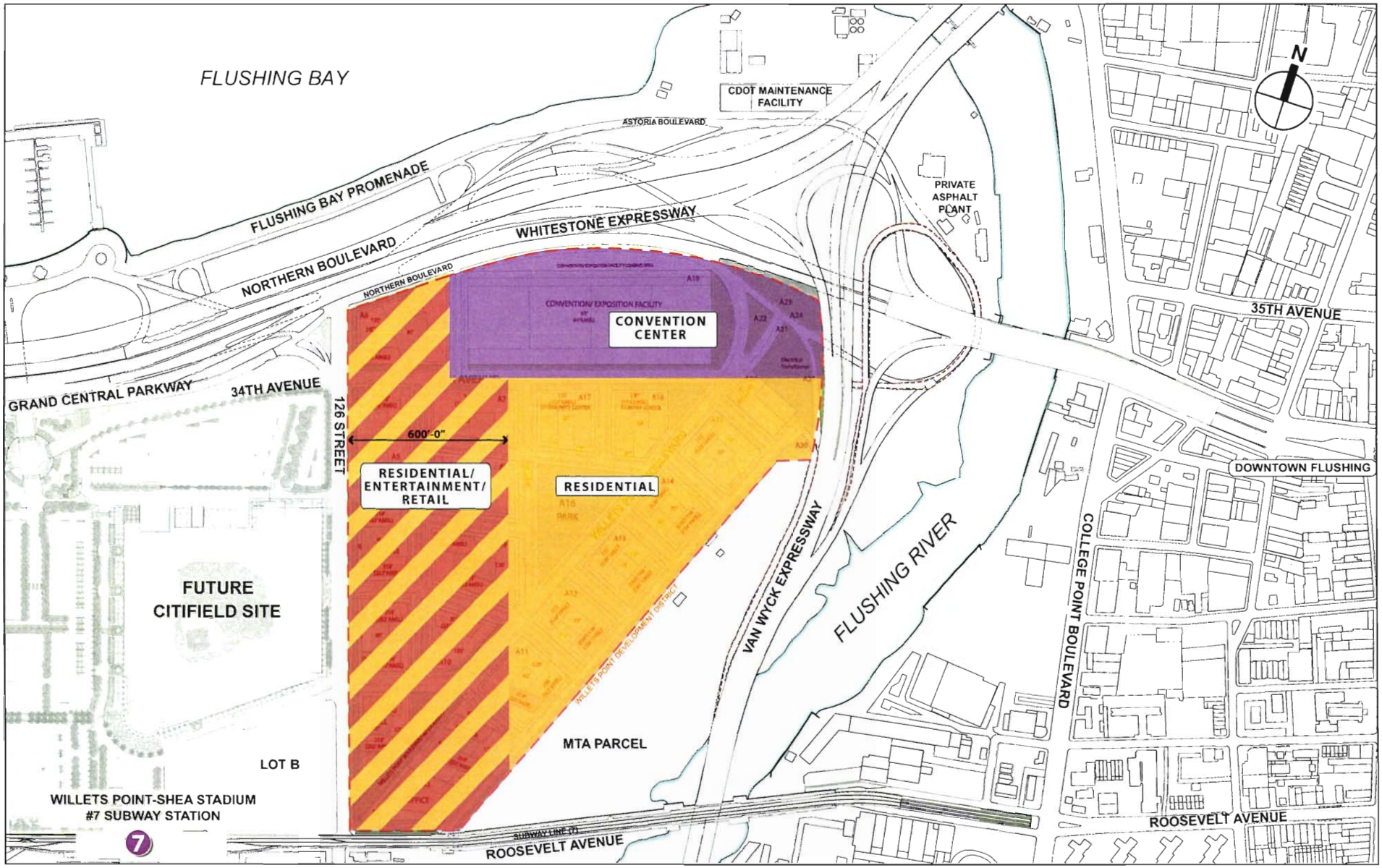


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Figure S-5

Van Wyck Access Ramp Alternatives

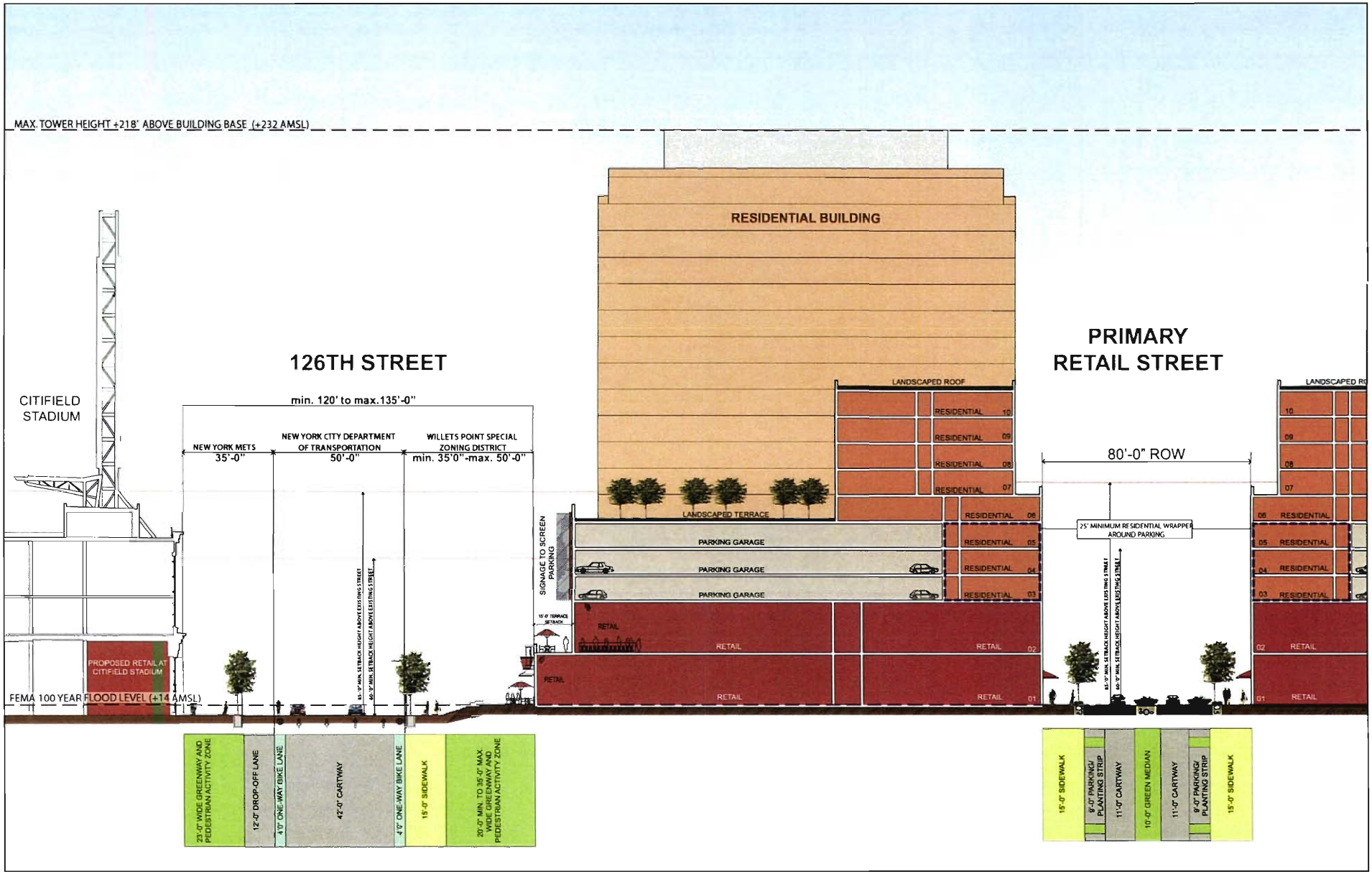
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Figure S-6

Proposed Special District Zones



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Figure S-7

WILLETS POINT DEVELOPMENT PLAN

Entertainment and Commercial Center - Elevation

- The **residential community** would be located in the eastern part of the District and include residential, office, community facility, ground-floor local retail, and parking uses. Design measures would encourage a pedestrian-friendly neighborhood environment (see Figure S-8).
- A **convention center** would be permitted in the northeastern portion of the District, with frontage oriented along one of the two required connector streets. The convention center would be permitted in one of two locations: within 1,800 feet of the intersection of Roosevelt Avenue and 126th Street, or within 650 feet of Northern Boulevard. The hotel and accessory parking would be located close to the convention center. In the No Convention Center Scenario, additional residential and ground-floor retail uses would be developed in place of the convention center at these locations.

The Special District would regulate the general layout of the principal private streets, by mandating four or five specific intersections along 126th Street and establishing design parameters for six different street types (see Figure S-9). These streets would establish the basic form of the District and ensure that the future uses in the District are integrated into a cohesive site design. Two connector streets would be required. One would extend from 34th Avenue east into the District, and the other would extend east into the District from Citi Field's southern edge. Bicycle lanes would be required on connector streets within the redeveloped District. The illustrative street network and illustrative site plan maintain the current alignment of Willets Point Boulevard in order to allow continued operation and maintenance of the existing 72 -inch water main that runs beneath it. A mapped easement would ensure adequate access to the water main in the future. The Special District regulations would require the creation of one primary and two to three secondary retail streets within the entertainment and commercial center, and residential streets within the residential community. An eastern perimeter street would be located within 20 feet of the eastern boundary of the District, extending between Roosevelt Avenue and a connector street. Service streets may be located as one of the streets bounding each anchor block.

The Special District would create a walkable, urban streetscape environment by requiring that all off-street parking facilities be fully enclosed and wrapped by active uses so as not to be visible from adjacent sidewalks or open spaces (with some exceptions, including along parts of Northern Boulevard and the eastern perimeter street and service streets, and upper-level parking along 126th Street). The Special District would establish dimensions and design parameters addressing sidewalk width, travel lanes, parking lanes, bicycle lanes, street trees, and other pedestrian amenities. It would also ensure the development of a minimum of eight acres of publicly accessible open space, including a two-acre centrally located park in the residential community with frontage on connector streets.

Figure S-10 illustrates how the land uses and massing could be distributed across the District. The eventual built configuration of uses will be subject to change based on the results of the environmental review, market factors, and engineering considerations, but would be subject to all Special Willets Point District restrictions and regulations.

The City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and NYCEDC is currently seeking funding and approvals to implement these improvements. The bicycle lanes required on connector streets within the redeveloped District would connect to this area-wide bicycle and greenway network, improving connectivity between Willets Point and surrounding areas.

Building Heights

Buildings constructed in the proposed Plan would range in maximum height from approximately 60 feet to 218 feet above ground level. (The maximum height would be no greater than the new Citi Field, which is approved for 218 feet above ground level.) Across most of the District, development is subject to height restrictions established by the Federal Aviation Administration (FAA) and the Port Authority of New York and New Jersey (PANY/NJ), and height limits are determined by the distance from LaGuardia Airport and the area in which the site is located. Points within the District have different maximum heights, as dictated by their distance from the runway. The building height restrictions that apply to the District are also regulated by special controls in Article VI of the New York City Zoning Resolution.

Sustainable Design

Not only would the proposed Plan create a transit-oriented urban infill development that would leverage the District's superior transit and highway infrastructure, it would also encourage the latest innovative building and planning technologies. The proposed Plan represents an opportunity to incorporate integrated sustainable design measures and has been accepted as a pilot Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) project by the United States Green Building Council (USGBC). The illustrative site plan (shown in Figure S-10) has been designed to achieve LEED-ND certification, and the City would require any future development in the District to achieve LEED-ND certification.

A number of sustainable features have been incorporated into the proposed Plan. These sustainable features are reflected in the Special District text as well as the illustrative site plan (Figure S-10).

In addition, the proposed school would be built according to the New York City Green Schools Guide, published by the New York City School Construction Authority in March 2007. The New York City Green Schools Rating System contains requirements that are as stringent as those for LEED New Construction (version 2.2), required to obtain a LEED Certified rating.

B. PROCEDURAL AND ANALYTICAL FRAMEWORK

PUBLIC REVIEW PROCESSES

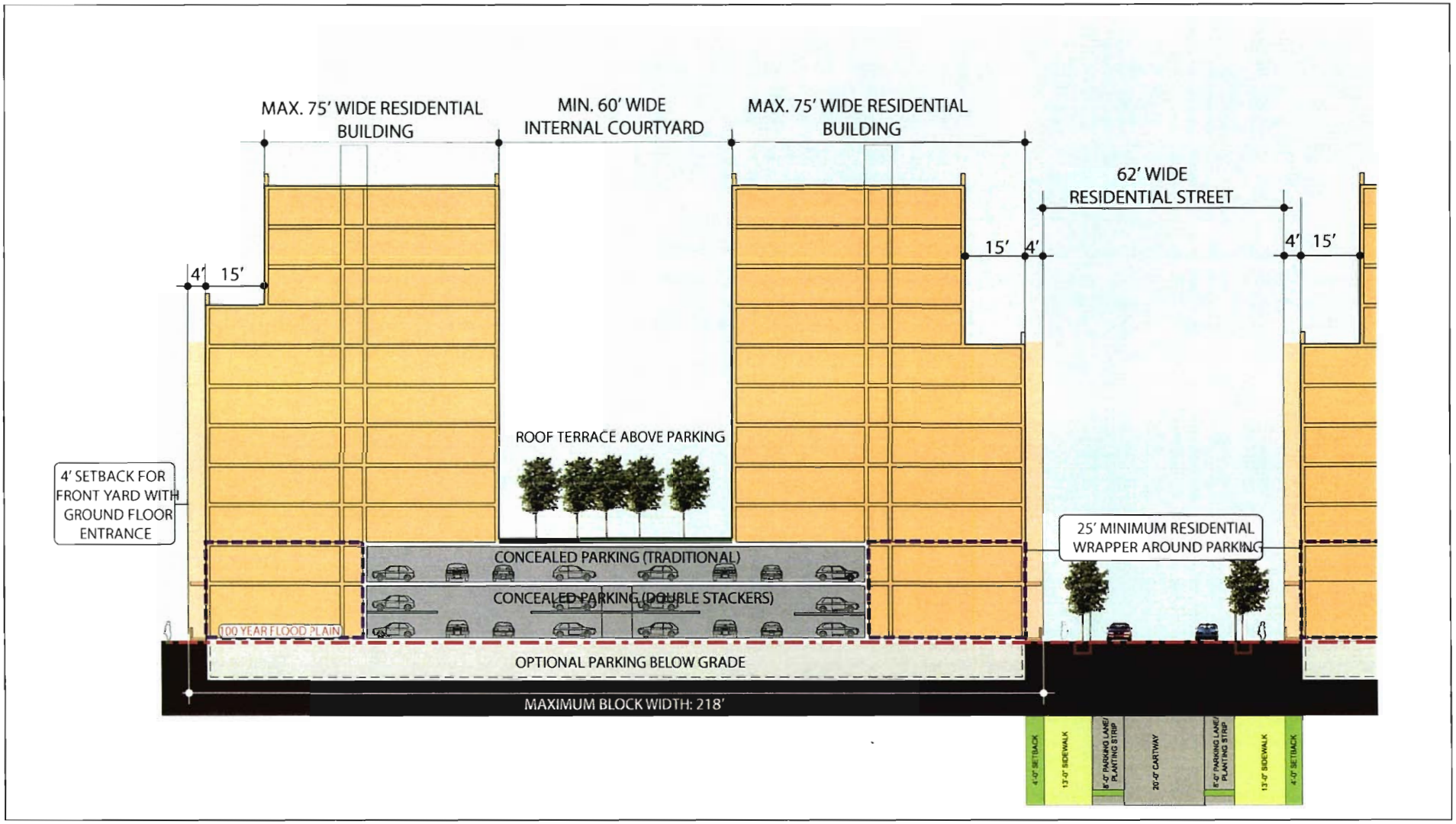
SEQRA/CEQR

The actions necessary to implement the proposed Plan are subject to environmental review under SEQRA and CEQR. This FGEIS has been prepared in accordance with SEQRA and uses for guidance the *CEQR Technical Manual,* where applicable. The environmental review process allows decision-makers to evaluate the proposed Plan's environmental effects, evaluate reasonable alternatives, and identify measures to mitigate significant adverse impacts. The process also provides the opportunity for the public to comment on the Draft GEIS (DGEIS). The lead agency for the proposed Plan's environmental review is the City's Office of the Deputy Mayor for Economic Development.

ULURP

Several of the proposed actions are subject to ULURP, which is mandated by Sections 197-c and 197-d of the City Charter. ULURP was enacted to allow public review by the local Community

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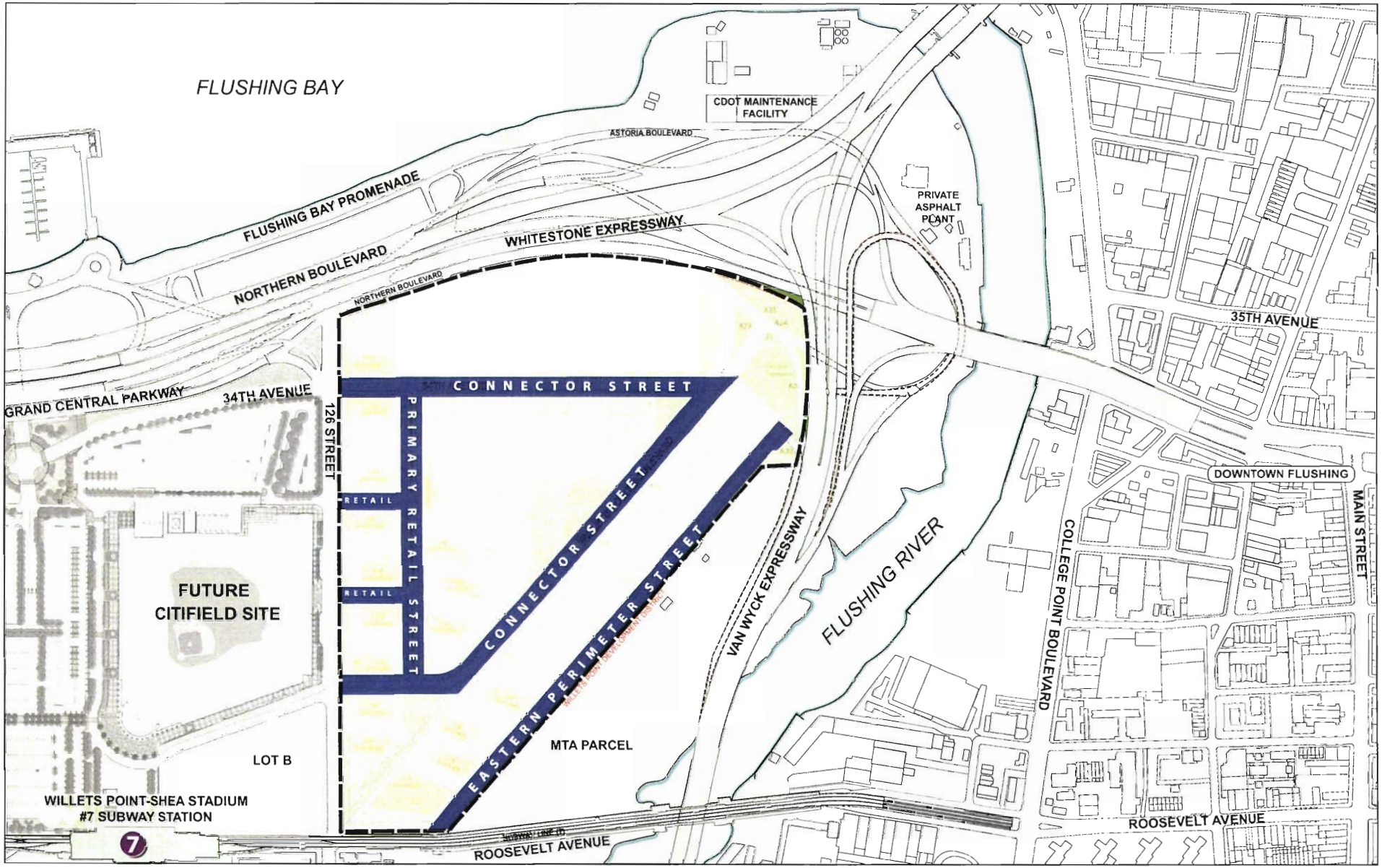
FOR ILLUSTRATIVE PURPOSES

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Figure S-8

Residential Community Elevation

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Willets Point Development District

FOR ILLUSTRATIVE PURPOSES

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Figure S-9

Proposed Street Network

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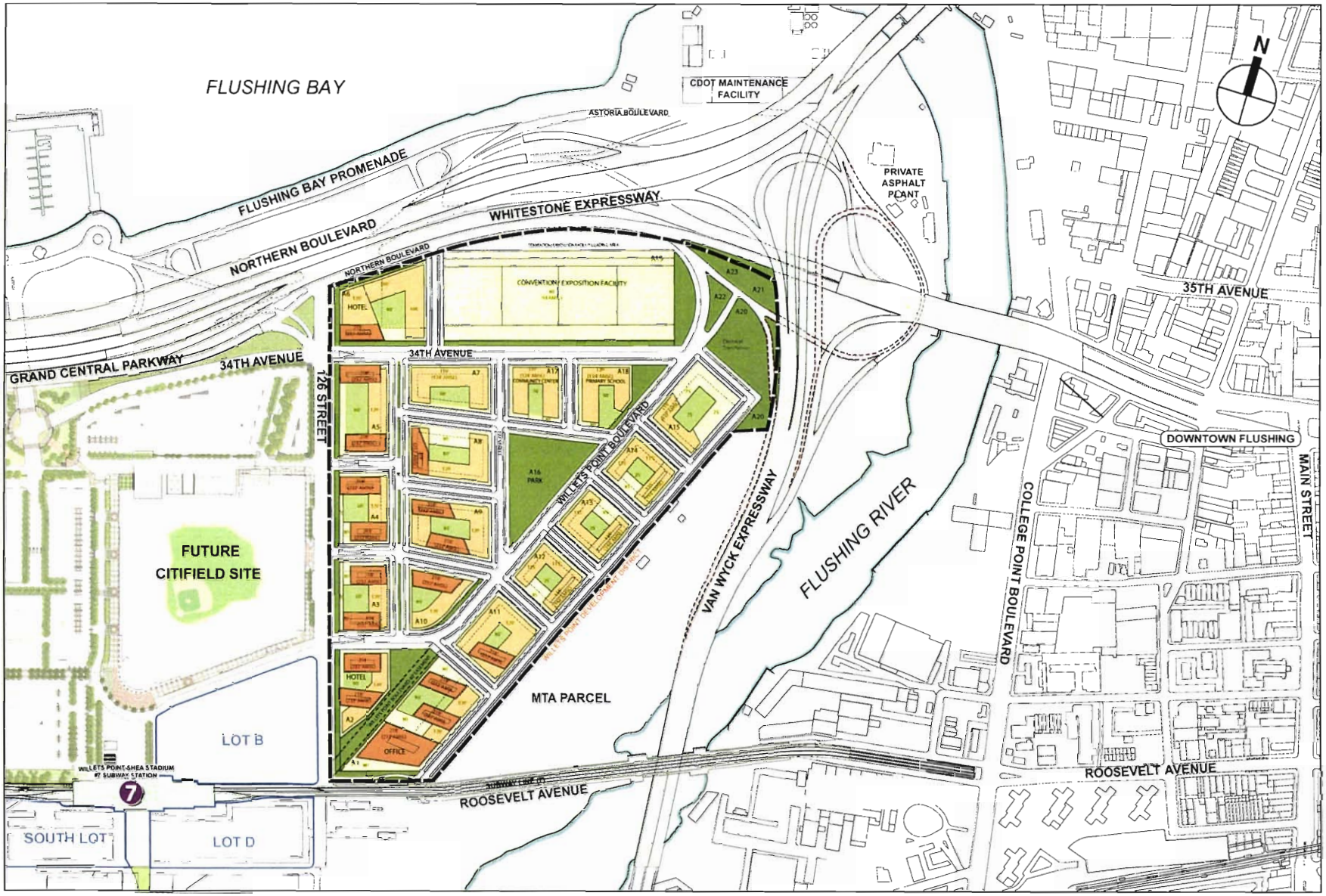


Retail
Office
Housing
Rooftop Courtyard
Hotel
Publicly Accessible Open Space
Convention Center
Primary School, Community Facility Use
Parking

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Figure S-10
Illustrative Site Plan

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Willets Point Development District Boundary

0 200 500 FEET
SCALE

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Figure S-11

Lot B and Lot D Development Sites

Board, the Borough President, CPC, and—for certain applications—the City Council and Mayor, of certain types of proposed actions, including rezonings and purchase of property of the City.

The ULURP process begins with certification by DCP that the ULURP application is complete. The certified ULURP application must be accompanied by the DGEIS and its Notice of Completion, and marks the commencement of the ULURP process. The application is then referred to the local Community Board, which has up to 60 days to review the proposal, hold a public hearing, and adopt a resolution regarding the proposal. Next, the Borough President has up to 30 days to perform the same steps. CPC then has up to 60 days to approve, disapprove, or approve the application with modifications, and during that time, a ULURP public hearing is held. This hearing is typically in conjunction with the CEQR public hearing on the DGEIS. Following the hearing, CPC may approve, approve with modifications, or deny the application. CPC then forwards the application to the City Council, which has up to 50 days to act on the application. Following the Council's vote, the Mayor has five days in which to approve or veto the Council's action. The City Council may override a mayoral veto within 10 days.

CITY ACQUISITION THROUGH EMINENT DOMAIN

The proposed Plan includes the creation of a URP by HPD. To facilitate implementation of the proposed Plan, the City may acquire property through the use of the eminent domain process. There has been no determination at this time to acquire property by means of eminent domain. Any such acquisition of property would be done in compliance with the provisions of the Eminent Domain Procedure Law.

FRAMEWORK FOR ENVIRONMENTAL ANALYSIS

ANALYSIS APPROACH

For each technical analysis in the GEIS, the assessment includes a description of existing conditions, an assessment of conditions in the future without the proposed Plan, and an assessment of conditions with the proposed Plan. It is assumed that the proposed Plan would be constructed starting in late 2009 and would be built out by 2017. Thus, conditions in the future with the proposed Plan are evaluated in comparison with conditions in the future without the proposed Plan for the 2017 analysis year.

Some analyses in this GEIS use primary and secondary study areas. The primary study area is closest to the District and therefore is most likely to be potentially affected. The primary study area receives the most thorough analysis. The secondary study area is farther away and, with respect to some technical areas, receives less detailed analysis.

This FGEIS assesses the reasonable worst-case impacts that may occur as a result of the proposed Plan. Since the flexibility provided in the URP could result in a variation in the uses included in the maximum development envelope, this FGEIS analyzes two development scenarios: the proposed Plan, which includes an approximately 400,000-square-foot convention center; and the No Convention Center Scenario, in which the convention center is replaced with an additional 350,000 gsf of residential use and 50,000 gsf of retail use (see Table S-1, above).

CUMULATIVE IMPACT ANALYSIS—POTENTIAL DEVELOPMENT ON CITI FIELD LOTS B AND D

The District is located directly across 126th Street from Citi Field, which is currently under construction (see Figure S-11). It is anticipated that if the proposed Plan is approved, additional development could occur on Citi Field parking lot B (Lot B) and on Lot D, a surface parking lot south of Roosevelt Avenue that is currently used by commuters, as well as for Mets games and USTA National Tennis Center events. Any program for Lot B or Lot D would be developed as a collaborative effort between the City and Queens Ballpark Company, LLC ("QBC")—a development entity for the New York Mets—or an affiliate. While specific development plans have not yet been proposed, it is anticipated that approximately 280,000 square feet (sf) of office and 184,500 sf of retail could potentially be developed on Lot B, and that a five-level parking garage containing approximately 1,543 parking spaces could be developed on Lot D. The Lot B development could include a one-story retail structure and a 10-story office building.

Both Lot B and Lot D, which are located on property owned by the City, are currently under the jurisdiction of the New York City Industrial Development Agency (NYCIDA) and under lease to QBC, which in turn has entered into a sublease with the New York Mets that grants certain rights with respect to Lots B and D to the Mets. Any future development on Lots B and D would be undertaken by QBC or an affiliate and would require an amendment to the current lease agreement and discretionary approval by the NYCIDA, acting through the New York City Department of Parks and Recreation (DPR), which administers the NYCIDA lease. These actions would be the subject of a separate environmental review process subject to CEQR.

Lot B and the associated parking garage on Lot D could be independently developed with a new office, retail, and parking program and is not dependent upon the Willets Point Development Plan. However, because of the proximity of this potential development to the Willets Point Development District, and because additional commercial development on Lot B could enhance the synergy between the Citi Field premises and the proposed Plan, Lot B's development would be more likely to occur as a result of the proposed Plan. While each project would require separate actions—each with its own approvals and environmental review processes—together they would add substantial new development to the immediate area. Therefore, in addition to evaluating the proposed Plan's potential to have environmental impacts, this FGEIS incorporates the cumulative impacts of both projects (the proposed Plan and the potential retail, office and parking development on Lots B and D). The purpose of this analysis is to ensure that the full extent of potentially required mitigation is identified for any significant adverse impacts.

The cumulative projected maximum development for both the Willets Point Development Plan and the Lot B and D development is a total of 9,404,500 gsf of new development and 8,243 parking spaces (see Table S-3). For most technical areas in this FGEIS, impacts associated with the Lot B development program and associated Lot D parking are assessed under "Probable Impacts of the Proposed Plan." Since the development program and precise timing of development for Lots B and D is unknown, the construction impacts associated with these properties cannot be addressed in this FGEIS. However, given that any future development on Lots B and D would require separate approval and environmental review processes, these impacts would be examined in greater detail as part of any subsequent environmental review process for those properties.

Table S-3
Cumulative Development for Analysis

Use	Lot B Development and Lot D Parking Garage (gsf)	Proposed Plan (gsf)	Cumulative - Proposed Plan and Lots B and D (gsf)	No Convention Center Scenario (gsf)	Cumulative - No Convention Center Scenario and Lots B and D(gsf)
Residential		5,500,000	5,500,000	5,850,000	5,850,000
Number of Units		*5,500*	*5,500*	*5,850*	*5,850*
Retail	184,500	1,700,000	1,884,500	1,750,000	1,934,500
Office	280,000	500,000	780,000	500,000	780,000
Convention Center		400,000	400,000	0	0
Hotel		560,000	560,000	560,000	560,000
Number of Rooms		*700*	*700*	*700*	*700*
Community Facility		150,000	150,000	150,000	150,000
School (K-8)		130,000	130,000	130,000	130,000
*Number of Seats**		*Approx. 850**	*Approx. 850**	*Approx. 900**	*Approx. 900**
Parking	1,543 spaces	6,700 spaces**	8,243 spaces	6,000 spaces**	7,543 spaces
Publicly-Accessible Open Space		Minimum 8 acres	Minimum 8 acres	Minimum 8 acres	Minimum 8 acres
Total	**464,500 gsf**	**8,940,000 gsf**	**9,404,500 gsf**	**8,940,000 gsf**	**9,404,500 gsf**

Notes:

* The capacity of the proposed school would meet the project-generated shortfall in school seats.

** The number of proposed parking spaces would be determined based on expected project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

C. PROBABLE IMPACTS OF THE PROPOSED PLAN

LAND USE, ZONING, AND PUBLIC POLICY

LAND USE

The proposed Plan would dramatically change land uses in the District by replacing predominantly low-density auto-related and industrial uses with a new mixed-use neighborhood that includes residential, retail, office, hotel, and convention center uses. Additionally, community facilities and open space would support the residential and commercial uses, and improve the quality of life for area residents and visitors.

While the proposed Plan would result in a significant land use change, the effects of this change would not be adverse. The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed Plan would create synergy between the new Citi Field and the proposed District through a pedestrian-oriented regional entertainment and commercial center along 126th Street. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses are prevalent in nearby areas, especially Downtown Flushing, and would be compatible with much of the land use study area.

Although some of the uses proposed for the District would not be compatible with the industrial activities permitted on the adjacent MTA property, the placement of high-density mixed-use or residential districts next to heavy manufacturing districts is not uncommon in the City, and would not constitute a significant adverse impact. The proposed Plan would also not be consistent with the industrial uses located along the waterfront to the north and east of the District. However, these uses are separated from the District by the Whitestone Expressway and Northern Boulevard, as well as the Flushing River. Furthermore, as a result of ongoing development trends, it is expected that some of these properties would be redeveloped even without the proposed Plan. New development would likely include higher-density residential and commercial uses and waterfront access, which would be compatible with land uses under the proposed Plan.

If the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, it is likely that this could generate increased demand for additional development on nearby Lots B and D. Based on existing land use patterns and zoning regulations in the surrounding area, it is unlikely that the proposed Plan and development on Lots B and D would alter land use patterns in the primary study area. Given the recent trend to redevelop underutilized sites near the Flushing River waterfront, it is possible that the proposed Plan and new development on Lots B and D could encourage further redevelopment of some nearby underutilized sites along the Flushing River. Such a change would not constitute an adverse impact on land uses in the study area because the potential new uses (including primarily residential, retail, and other commercial uses) would reflect a continuation of an existing trend, would be compatible with other uses in the area, and would conform to existing zoning and public land use policies. Overall, the proposed Plan would not result in significant adverse land use impacts.

Zoning and Public Policy

As described above, the proposed Plan would result in a change to the underlying zoning of the District from an existing M3-1 district (and a small area zoned R3-2) to a C4-4 district, and would include the creation of a zoning Special District. As part of the proposed Plan, HPD would also create a URP to define District boundaries and the area to be redeveloped in accordance with the City's redevelopment goals.

The proposed C4-4 is consistent with the zoning that exists throughout much of the Downtown Flushing area. Some of the uses permitted in the proposed C4-4 district (such as residential and community facility uses) would not be compatible with the M3-1 zoning of the adjacent MTA property. However, as described above, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront. The other M3-1 districts located on the Willets Point peninsula are separated from the District by the Whitestone Expressway and Northern Boulevard.

The presence of a denser mixed-use development in the District could possibly generate further redevelopment of nearby underutilized sites along the eastern bank of the Flushing River, which were rezoned to C4-2 to allow denser mixed-use development. However, redevelopment in this area is already under way, and is expected to conform to existing zoning and public policies. No significant adverse zoning impacts would result from the proposed Plan.

In terms of public policy, the proposed Plan represents a critical step in implementing the Downtown Flushing Development Framework and would advance a number of the Framework's fundamental goals, including: the creation of a regional destination that would enhance

economic growth in Downtown Flushing; improvement of environmental conditions; and integration of new development in the District with surrounding amenities, including the Flushing Bay Promenade, the new Citi Field, Flushing Meadows-Corona Park, and Downtown Flushing.

The proposed Plan would be consistent with and vital to the advancement of several of the goals of PlaNYC, which aims to create a more sustainable New York by the year 2030. The proposed Plan would also be consistent with the coastal policies set forth in the New York City Waterfront Revitalization Program. Overall, the proposed Plan is not expected to result in significant adverse impacts on land use, zoning, and public policy.

NO CONVENTION CENTER SCENARIO

As with the proposed Plan, the No Convention Center Scenario would change the development potential of the District in a manner consistent with the proposed URP and Special Willets Point District. The effects of the No Convention Center Scenario on land use conditions would be largely the same as with the proposed Plan. As with the proposed Plan, the No Convention Center Scenario would not have significant adverse land use or zoning impacts.

With respect to public policy, the No Convention Center Scenario, like the proposed Plan, would advance several of the Downtown Flushing Development Framework's fundamental goals, including improvement of environmental conditions, integration of new development in the District with surrounding amenities, and the provision of housing affordable to a mix of incomes. Although this scenario does not include a convention center, the primary regional attraction in the No Convention Center Scenario would be the pedestrian-oriented entertainment and commercial center, which would create a synergy between the new Citi Field and the proposed District, and attract and retain visitors to the area. Overall, the No Convention Center Scenario would not result in significant adverse impacts on land use, zoning, or public policy.

SOCIOECONOMIC CONDITIONS

Development resulting from the proposed Plan would generate substantial economic benefits for New York City and New York State and would not cause any significant adverse impacts related to direct residential displacement, indirect residential displacement, direct business and institutional displacement, indirect business and institutional displacement, or effects on specific industries.

DIRECT RESIDENTIAL DISPLACEMENT

The one residential unit (one household) in the District would be displaced under both the proposed Plan and the No Convention Center Scenario. The displacement of one household would not have the potential to result in significant adverse impacts due to direct residential displacement. Should the proposed Plan be approved, this household would be provided with relocation assistance.

INDIRECT RESIDENTIAL DISPLACEMENT

The proposed Plan would not result in significant adverse impacts due to indirect residential displacement. It would introduce 5,500 new residential units, or an estimated 14,795 new residents, to the study area. Under the No Convention Center Scenario, 5,850 units, or an estimated 15,737 residents, would be introduced to the study area. Either scenario would

represent a substantial addition to the study area population, and compared with the existing study area population, the population that would be introduced by the proposed Plan could include a larger proportion of households at higher incomes.

A detailed analysis of indirect residential displacement determined that the study area contains an estimated 2,134 households (approximately 5,726 residents) in eight Census tracts (381, 853, 865, 867, 871, 875, 889.02, and 907) that are considered to be "at risk" of indirect residential displacement if their rents were to increase. However, there are a number of reasons why indirect residential displacement of the population identified as at risk would not actually take place in the future as a result of the proposed Plan. First, the District is geographically separated from the identified at-risk population, limiting its potential to influence residential trends in those areas. Planned residential developments located between the District and the identified at-risk population (i.e., Flushing Commons and Sky View Parc) are likely to have a greater influence on residential market trends in those tracts than the proposed Plan. Second, by adding new housing units, the proposed Plan could serve to relieve rather than increase market pressure in the study area. Third, the proposed Plan and the No Convention Center Scenario would introduce 1,100 and 1,170 affordable housing units, respectively, to the study area. Although the population that would be introduced by the proposed Plan may include a larger proportion of households at higher incomes as compared with the existing study area population, the proposed Plan's affordable housing component would ensure that a substantial portion of the new population would have incomes that would more closely reflect existing incomes in the study area.

DIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

The proposed Plan would not result in significant adverse impacts due to direct business and institutional displacement. Under either scenario (with or without the convention center), the proposed Plan would directly displace approximately 260 businesses and institutions (approximately 1,711 employees) that provide a variety of products and services within numerous economic sectors, including manufacturing, wholesale trade, retail trade, transportation and warehousing, accommodation and food services, and repair and maintenance. The majority of businesses that would be displaced (87 percent, or 227 of 260 businesses) are in auto-related sectors. Other industries with a notable presence include food wholesalers and waste transfer facilities.

Although the proposed Plan would displace businesses and institutions that employ many workers, and offer products and services valued by certain consumers, these businesses and institutions were determined not to be of substantial economic value to the region or City as defined under CEQR. The District's businesses are not unique; similar services and products are provided throughout Queens, the City, and the region. In addition, the vast majority of these businesses and institutions would be able to relocate to other properties within Queens or the City. Although rental costs would likely increase—as a result of the significantly lower rents currently paid in the District compared with other manufacturing areas, and a competitive industrial real estate market citywide—most of these businesses would remain viable elsewhere.

Although the proposed Plan and the resulting business and institutional displacement would alter the neighborhood character within the District, this change in neighborhood character is one of the key goals of the proposed Plan and would not substantially alter the neighborhood character of the study area as a whole. The economic sectors with the highest employment in the study area (those which define the character of the area in an economic sense) are not found within the

District. In fact, the new uses resulting from the proposed Plan would be comparable to those in the surrounding study area.

Should the proposed Plan be approved, businesses currently located in the District would be offered a relocation package by NYCEDC, which would include financial coverage for certain moving costs, re-establishment fees, and use of brokerage services to find alternative locations. NYCEDC is currently working with owner-occupied businesses in the District to identify viable relocation properties within New York City and has been engaged in outreach to tenant businesses since January 2008. In addition, the City has selected a business relocation consultant to supplement the relocation assistance that NYCEDC is providing. Since publication of the DGEIS, the City has identified viable relocation sites for three businesses and also has reached an agreement to acquire two additional properties, although no relocation sites for the tenant businesses have been identified. In addition, NYCEDC has retained LaGuardia Community College (LAGCC) to develop a Workforce Assistance Plan for District workers who would be displaced by the proposed Plan. The program would provide displaced workers with services such as job training and job placement services, English as a Second Language (ESL) and General Educational Development (GED) coursework, and additional social services.

INDIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

The proposed Plan would not result in significant indirect business and institutional displacement impacts due to increased rents under either scenario (with or without the convention center). While the introduction of new residents, workers, and visitors to the District would alter existing economic patterns within the District, these changes would not lead to substantial indirect business displacement within the broader study area. Existing local retail establishments in the study area would continue to be more convenient to study area residents outside of the District, while the proposed Plan's residents and visitors—especially convention center and hotel visitors—would shop and dine primarily at retail establishments in the District. The proposed Plan would therefore not result in substantial changes in demand for goods and services that would alter economic conditions in the broader study area. The proposed Plan would represent a continuation of existing trends toward the development of retail, office, hotel, and residential uses in the study area, rather than the introduction of a new trend that would change existing economic patterns in the study area.

A detailed analysis was undertaken to assess whether the proposed Plan could affect neighborhood character by affecting the viability of neighborhood shopping areas through competition, thereby becoming an environmental concern. Retail establishments within the District are expected to draw a large portion of their repeat business from District residents as a result of more convenient access, shorter travel time and distance, and shoppers' propensity to take advantage of a major shopping resource close to home. The competition analysis assesses capture rates within Primary (five-mile radius) and 1½-Mile Trade Areas to determine potential effects due to competition. A capture rate is a measure that compares expected spending by consumers in a trade area (retail demand) with the volume of retail sales in the trade area.

The analysis finds that the proposed Plan would not substantially raise retail capture rates within the Primary Trade Area and, therefore, would not have the potential to adversely affect competitive stores in the Primary Trade Area. The analysis concludes that within the Primary Trade Area, the proposed Plan would increase the capture rate by 12 percent over existing conditions, and that all retail categories except building materials and garden supplies (which has a capture rate in excess of 100 percent even under existing conditions since sales figures

include sales to contractors as well as individual households) would remain within the 70 to 80 percent capture rate range characteristic of trade areas that are satisfying the retail demand of trade area households. Given that the proposed Plan would not substantially raise retail capture rates within the Primary Trade Area, and that capture rates in the future with the proposed Plan would be influenced by the presence of several large new projects in the Primary Trade Area (notably, Sky View Parc and Rego Park Mall) that due to their scale and mix of retail offerings would draw from areas not included within the Primary Trade Area, the proposed Plan would not have the potential to significantly affect competitive stores in the Primary Trade Area.

Within the 1½-Mile Trade Area, the analysis focuses on grocery stores in particular, because grocery stores often serve as anchors for local retail concentrations, and it is assumed that the proposed Plan could include retailers (such as a supermarket or wholesale club) whose product offerings substantially overlap with typical grocery store offerings. The analysis concludes that local residents would continue to shop at existing grocery stores for their convenience, specialized goods and services familiar to their ethnic communities, and public transit accessibility. Although a potential supermarket or wholesale club in the District could compete with nearby supermarkets and grocery stores within the 1½-Mile Trade Area, it is not expected to have a substantial negative effect on nearby grocery stores, nor would it jeopardize the viability of any retail strips in the study area.

Therefore, the amount of indirect business displacement due to competition from the proposed Plan would be minimal, is not expected to jeopardize the viability of any neighborhood retail strips, and is not expected to diminish the level of services provided. Therefore, the proposed Plan would not result in significant adverse impacts due to competition.

EFFECTS ON SPECIFIC INDUSTRIES

The proposed Plan would not result in significant adverse impacts on any specific industry under either scenario (with or without the convention center). Although a large concentration of auto-related uses (227 businesses) would be displaced from the District, these displaced businesses and their associated employment would not significantly impact the industry as a whole. The potentially displaced businesses and employment represent less than 5 percent of citywide employment within the auto-related sectors, and the businesses could relocate within the City, potentially in other auto-related clusters, thereby maintaining existing business and employment counts within the industry. Additionally, with 3,642 auto-related businesses within New York City, auto-related goods and services are available elsewhere. Therefore, the potential displacement of these uses from the District would not jeopardize the viability of any industries that rely on those services.

ECONOMIC AND FISCAL BENEFITS AND PUBLIC COSTS

Construction period impacts would include the displacement of the existing economic activity from the site and the construction activity associated with developing the proposed Plan or the No Convention Center Scenario.

Existing Economic Activity to Be Displaced

In the future with the proposed Plan, although existing businesses would be displaced from the site, this economic activity would continue within the City to the extent that those businesses are relocated here. The proposed Plan would directly displace approximately 1,711 employees. The total employment associated with the economic activity on the site, including off-site jobs

generated from the on-site activity, is estimated to equal 2,538 permanent jobs within New York City and a total of 2,981 jobs in New York State. The direct wages and salaries from the annual operation of the existing activity on the site are estimated at $70.93 million (all amounts in 2007 dollars). Total direct and generated wages and salaries resulting from the annual operation of the existing economic activity on the site are estimated at $106.98 million in New York City and a total of $125.62 million in New York State.

The direct effect on the local economy from the operation of the existing economic activity on the site, measured as economic output or demand, is estimated at approximately $352.07 million annually. The total economic activity, including indirect expenditures (those generated by the direct expenditures), that result from the operation of the existing activity on the site is estimated at $675.01 million annually in New York State, of which $556.30 million annually occurs in New York City. The annual operation of the existing activity on the site has tax revenues associated with it, including property tax-related revenues and non-property-tax revenues. The operation of the existing activity on the site is estimated to generate approximately $25.11 million annually in non-property-related tax revenues for New York City, MTA, and New York State. In addition, in fiscal year 2007/2008, the City is estimated to receive property tax revenues from the existing development on the site equal to approximately $2.49 million.

Employment and Economic Benefits from Construction Activity

The development of either the proposed Plan or the No Convention Center Scenario would result in the substantial investment of funds into the area. The direct employment from construction activity is estimated at about 17,017 person-years of employment for the No Convention Center Scenario or 17,561 person-years of employment for the proposed Plan. (A person-year is the equivalent of one employee working full-time for one year.) Total direct and generated employment from construction activity is estimated at 25,883 to 26,736 person-years in New York City and 32,157 to 33,199 in the larger New York State economy, with the first figure in each case for the No Convention Center Scenario and the second for the proposed Plan.

The direct wages and salaries during the construction period are estimated at $1.13 to $1.17 billion. Total direct and generated wages and salaries resulting from construction activity are estimated at $1.67 to $1.73 billion in New York City and $2.04 to $2.11 billion in the broader New York State economy. The total effect on the local economy from construction activity, measured as economic output or demand, is estimated at $6.94 to $7.20 billion in New York State, of which $5.30 to $5.50 billion would occur in New York City. In total, the construction activity is estimated to generate approximately $345.87 to $352.94 million in tax revenues for New York City, MTA (which collects a 0.25 percent sales tax and tax surcharges on business and utility taxes within the City and MTA 12-county region), and New York State, including about $220.88 to $226.10 million for New York State and MTA, and about $124.99 to $126.84 million for New York City. In addition, New York City would receive mortgage recording fees both from the developers and from the owners of the condominium portion of the residential property, and the City would receive real-property-related revenues (i.e., real estate tax payments) during the development period.

Employment and Economic Benefits from Annual Operation

The completion and annual operation of either scenario would have associated with it permanent employment, wages and salaries, other effects on the local economy, and tax revenues for New York City, MTA, and New York State. The direct on-site employment in the completed development is estimated at approximately 7,220 to 7,251 permanent jobs (with, again, the first

number corresponding to the No Convention Center Scenario and the second to the proposed Plan). This employment would represent an increase of 5,388 to 5,419 over the area's existing employment of 1,711. Total direct and generated jobs from the annual operation of the completed development are estimated at 10,691 to 11,843 jobs within New York City and 12,340 to 13,526 jobs in New York State.

The direct on-site wages and salaries from the operation of the completed development are estimated at $313.02 to $317.69 million annually (all figures in 2007 dollars). Total direct and generated wages and salaries are estimated at $472.41 to $510.36 million in New York City and $547.13 to $588.88 million in New York State. The direct on-site effect on the local economy from the completed development, measured as economic output or demand, is estimated at approximately $1.18 to $1.30 billion annually. The total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from the operation of the completed development is estimated at $2.21 to $2.49 billion in New York State, of which $1.90 to $2.17 billion would occur in New York City.

The operation of the completed development is estimated to generate approximately $134.75 to $144.62 million annually in non-property-related tax revenues for New York City, MTA, and New York State, including approximately $77.03 to $82.24 million for New York State and MTA, and about $57.72 to $62.38 million for New York City. For either scenario, the above non-property-related tax receipts do not include income tax paid by the residents of the residential portion of the Plan or income tax from secondary employment generated by such residents. Such revenue would be additional. In addition, the City would receive annual property tax revenues. These revenues would be expected to be changing from year to year, and in any year would be based on the taxable assessed value and the applicable tax rate.

Public Sector Costs

The developer of the proposed Plan would fund all site preparation, infrastructure improvements, and construction within the District, with the exception of the new pump station if constructed within District boundaries. It is anticipated that the City would fund certain infrastructure improvements that are necessary to support the proposed Plan, including the pump station and modified access to and from the Van Wyck Expressway. Costs associated with these City-funded improvements are preliminarily estimated at approximately $150 million.

COMMUNITY FACILITIES AND SERVICES

Neither the proposed Plan nor the No Convention Center Scenario would directly displace any existing community facilities or police or fire facilities.

SCHOOLS

The proposed Plan would be located within Zone 2 of Community School District 25 (CSD 25).

The analysis of high schools considers the impact on the entire Borough of Queens. The assessment finds that neither the proposed Plan nor the No Convention Center Scenario would have a significant adverse impact on elementary or middle schools within the one-mile study area or within Zone 2 of CSD 25 in the analysis year of 2017, or high schools in Queens.

Proposed Plan

The proposed Plan would introduce approximately 5,500 residential units to Zone 2 of CSD 25, with 20 percent of the units anticipated to be set aside for affordable housing. Based on the projected public school pupil ratios from Table 3C-2 in the *CEQR Technical Manual*, the proposed Plan would generate approximately 858 elementary and 418 intermediate students within Zone 2 of CSD 25 by 2017.

The proposed Plan would include the development of a new public school that would alleviate the potential elementary school seat shortfall created by the Plan. In the future with the proposed Plan, an approximately 850-seat school would be constructed to alleviate the elementary school shortfall. With the inclusion of an approximately 850-seat school, elementary schools within the one-mile study area would operate at 103 percent capacity, with a shortfall of approximately 95 seats, which would exist in the future without the proposed Plan. With the 850-seat school, Zone 2 schools would have capacity for 6,442 students and elementary schools within Zone 2 would operate at 102 percent capacity, with a shortfall of approximately 156 seats, which would exist in the future without the proposed Plan. Elementary schools within CSD 25 as a whole would operate at 94 percent of capacity, with a total enrollment of 17,704 elementary students and 1,175 available seats. Therefore, in the future with the proposed Plan the utilization rate in each study area would not change from the future without the proposed Plan. The *CEQR Technical Manual* considers an increase in utilization rate above 5 percent as a significant adverse impact. Therefore, the proposed Plan would not result in any significant adverse impacts on public elementary schools within the one-mile study area, Zone 2, or within CSD 25.

These new project-generated intermediate school students would increase enrollment in the one-mile study area to 1,485 students and in Zone 2 to 2,051 students. Schools within the one-mile study area would operate at 102 percent of capacity, with a deficit of 26 seats. Schools in Zone 2 of CSD 25 would operate at 81 percent of capacity with a surplus of 466 seats. Intermediate school enrollment within CSD 25 would increase to 4,588 by 2017 and would operate at 59 percent of capacity, with a surplus of 3,162 seats. Therefore, the middle schools within Zone 2 and throughout CSD 25 would operate below capacity, but increased enrollment attributable to the proposed Plan would not be expected to result in significant adverse impacts on public intermediate schools. While the utilization rate within the one-mile study area would increase by approximately 38 percent, the one-mile study area would have a shortfall of only 26 seats. This shortfall could be easily be accommodated by the significant surplus of school seats available in both Zone 2 and throughout CSD 25. Therefore, the proposed Plan would not result in any significant adverse impacts on public intermediate schools within the one-mile study area.

No Convention Center Scenario

The No Convention Center scenario would introduce approximately 5,850 residential units to Zone 2 of CSD 25, with 20 percent of the units anticipated to be set aside for affordable housing. The No Convention Center Scenario would generate approximately 913 elementary and 445 intermediate students.

As with the proposed Plan, the No Convention Center Scenario would include a new K-8 public school that would alleviate the potential project-generated elementary school shortfall. Under this development scenario, an approximately 900-seat school would be provided. The approximately 913 elementary school students generated by the No Convention Center Scenario would cause school enrollment within the one-mile study area to increase to 3,510 students, while enrollment within Zone 2 of CSD 25 would increase to 6,653 students. With the inclusion

of the approximately 900-seat school within the District, elementary schools within the one-mile study area would have an operating capacity of 103 percent and the zone would have an operating capacity of 102 percent, with approximately 100 and 161 seat deficits, respectively, which would exist in the future without the proposed Plan. Elementary schools within CSD 25 as a whole would operate at 94 percent of capacity. Therefore, the elementary school utilization rate for both study areas would not increase from the future without the proposed scenario conditions. Finally, elementary schools within the entire CSD 25 would operate at 94 percent capacity with 1,170 seats. Therefore, the No Convention Center Scenario would not result in any significant adverse impacts on public elementary schools within Zone 2 or within CSD 25.

Intermediate/Middle Schools

The No Convention Center Scenario would introduce approximately 445 intermediate students in the one-mile study area and in Zone 2 of CSD 25. The additional students would increase enrollment within the one-mile study area to 1,512 students. M.S. 237—the only school located in close proximity to the one-mile study area—would operate at 104 percent with a shortage of 53 seats.

With the additional students introduced by the No Convention Center Scenario, 2,079 intermediate school students would be enrolled in Zone 2 of CSD 25, which would operate at 83 percent of capacity with a surplus of 439 seats. Intermediate school enrollment within CSD 25 would increase to 4,615 and would operate at 60 percent of capacity, with a surplus of 3,135 seats. Therefore, the middle schools within Zone 2 and throughout CSD 25 would operate below capacity, but increased enrollment attributable to the No Convention Center Scenario would not be expected to result in significant adverse impacts on public intermediate schools. While the utilization rate within the one-mile study area would increase by approximately 41 percent, the one-mile study area would have a shortfall of only 50 seats. This shortfall could be easily be accommodated by the significant surplus of school seats available in both Zone 2 and throughout CSD 25. Therefore, the No Convention Center Scenario would not result in any significant adverse impacts on public intermediate schools within the one-mile study area.

LIBRARY AND HEALTH CARE FACILITIES

The analysis considered the proposed Plan's impact on Flushing Library, the only library within a ¾-mile radius of the District. No significant adverse impacts are anticipated in the study area in 2017 as a result of the proposed Plan or the No Convention Center Scenario. The analysis also considered the proposed Plan's impacts on Flushing Hospital Medical Center and the New York Hospital Medical Center of Queens, which are both located in close proximity to the study area. No significant adverse impacts on area hospitals are anticipated in the study area in 2017 as a result of the proposed Plan or the No Convention Center Scenario.

DAY CARE FACILITIES

While the assessment found that the proposed Plan for the District would not result in significant adverse impacts on public schools, libraries, or health care facilities, it could result in a significant adverse impact on the availability of day care services within a one-mile radius of the District. To mitigate the potential impact on day care facilities, NYCEDC would require, as part of the developer's agreement, that a future developer consult with the New York City Administration for Children's Services (ACS) to determine the appropriate way to meet demand for publicly funded day care services generated by affordable housing development in the District.

POLICE AND FIRE PROTECTION SERVICES

A detailed analysis of police and fire protection services is usually only conducted if a proposed project would affect the physical operations of, or access to and from, a fire station or police precinct house. The proposed Plan would not physically affect either type of facility. Therefore, the proposed Plan would not result in significant adverse impacts to police or fire protection services. In response to comments on the DGEIS, the analysis considers the adequacy of emergency response times to the District. The analysis concludes that emergency responders are and would remain able to adequately serve the District.

OPEN SPACE

Neither the proposed Plan nor the No Convention Center Scenario is expected to result in significant adverse open space impacts.

The proposed Plan would create a minimum of eight acres of publicly accessible open space. In the future with the proposed Plan, the area surrounding the District would continue to have adequate active and passive open space resources. Although open space ratios would decline, for the most part the open space ratios would exceed existing City guidelines. Only the active open space ratio per 1,000 residents and the passive open space ratio per 1,000 workers would be below the recommended ratio; the total open space ratios would be well above City goals. The open space ratios indicate that workers and residents would have adequate open space to meet their needs in the future with either the proposed Plan or the No Convention Center Scenario. Furthermore, these quantitative analyses do not consider the extensive open space resources just beyond the study area boundaries, particularly the numerous active recreational amenities in the remaining portions of Flushing Meadows-Corona Park. Based on the open space analysis presented in this chapter, neither the proposed Plan nor the No Convention Center Scenario is expected to result in significant adverse impacts on study area open spaces.

SHADOWS

The shadows analysis concludes that while some incremental shadow would be cast onto Flushing Bay, the Flushing Bay Promenade, and the Flushing River in some seasons, none of these resources would receive incremental shadow on all four analysis days. Furthermore, throughout the spring, summer, and fall seasons, incremental shadow would be limited to an hour or less on any given resource and would cover relatively small areas. In the winter, when shadows are longest, over two hours of project-generated shadow would be cast on Flushing Bay and the Flushing Bay Promenade in the morning, but large areas of these resources would remain free of incremental shadow during these times, and would receive sunlight for the remainder of the analysis day. Therefore, there would be no significant adverse shadow impacts as a result of either the proposed Plan or the No Convention Center Scenario.

A shadows screening analysis was performed, and concluded that the potential development in Lots B and D would not cause a significant adverse impact on any sun-sensitive resources.

HISTORIC RESOURCES

Both the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) have determined that the District is not sensitive for archaeological resources. Therefore, neither the proposed Plan nor the No Convention Center Scenario has the potential to affect archaeological resources.

The former Empire Millwork Corporation Building—located within the boundaries of the District and which is now in use by Fodera Foods—was found by OPRHP to be eligible for listing on the State and National Registers of Historic Places (S/NR). Demolition of this building under the proposed Plan or the No Convention Center Scenario would therefore constitute a significant adverse impact on architectural resources.

One of the key aspects of the Special District regulations and the URP is to allow for flexibility of uses and building locations within the District; retaining the former Empire Millwork Corporation Building would limit this flexibility. Keeping the building would also be challenging from a site grading and engineering perspective, since the proposed Plan seeks to raise the elevation of the District above the FEMA 100-year floodplain. If this site were not raised, it would be significantly more vulnerable to flooding because it would remain below the 100-year floodplain level and because the surrounding topography would be raised, directing water run-off into lower areas. Raising the grade in a majority of the District while maintaining the existing grade on the former Empire Millwork Corporation Building site would require special engineering measures to protect the building during site preparation and construction to prevent future flooding on the site, and to visually and functionally integrate the building with the rest of the District despite the differences in grade.

Demolition of the former Empire Millwork Corporation building would constitute a significant adverse impact on historic resources. Measures to mitigate this impact would be developed in consultation with OPRHP. These measures could include recording the building through a Historic American Buildings Survey (HABS)-level photographic documentation and accompanying narrative.

There are no architectural resources located on Lots B or D, and the sites were determined not sensitive for archaeological resources during the environmental review process for the Citi Field project. Therefore, any development on Lots B or D would not affect archaeological or architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

Both the proposed Plan and the No Convention Center Scenario would dramatically alter and greatly improve the urban design and general appearance of the District. The site is currently underdeveloped with low-scale buildings primarily related to automotive repair, as well as larger industrial buildings. The proposed Plan and the No Convention Center Scenario would result in new buildings of various heights, and introduce active uses that would increase the vitality of the District and increase pedestrian traffic to the District and the surrounding area. The appearance of the District would also be improved by providing new streets and streetscape elements. The District and surrounding area would be integrated by creating a new pedestrian-scaled street network and adding new publicly accessible open spaces. A new street pattern—including two main connector streets, a primary retail street, two secondary retail streets, residential streets, eastern perimeter street, and service streets—and new block forms would be established in the District.

Overall, the District would be transformed into a mixed-use area with retail, entertainment, and restaurant uses, and by creating a pedestrian-friendly environment that would complement the proposed residential area. The proposed Plan would significantly alter the urban design of the District, and would ultimately have a beneficial impact on the overall appearance and feel of the District.

In terms of visual resources, neither the proposed Plan nor the No Convention Center Scenario would have a significant adverse impact on visual resources, including Flushing Bay, the Flushing Bay Promenade, Flushing Meadows-Corona Park, and the 1964 World's Fair structures.

NEIGHBORHOOD CHARACTER

The proposed Plan would dramatically change neighborhood character in the District. The new, active mix of residential, retail/entertainment, office, open space, hotel and conference center, and community facility uses would be an improvement over conditions in the future without the proposed Plan. Development within the District would be scaled to enhance pedestrian activity, with prescribed streetwall heights and locations, mandatory pedestrian circulation space, and other design elements to enhance building façades. The Special District would also mandate the provision of street trees, adequate sidewalks, and planted medians, and the development of a minimum of eight acres of publicly accessible open space. The proposed Plan would also include environmental remediation, grading and elevating the District above the floodplain, the installation of new sanitary and storm sewer lines, and the creation of a new connection to the Van Wyck Expressway.

The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses would be consistent with the uses and character in the surrounding area, particularly those within the dense commercial center of Downtown Flushing. Additionally, the site planning and urban design of the District would serve to integrate the District with surrounding entertainment and recreational uses.

Although the proposed residential and community facility uses would not be compatible with industrial uses on the adjacent MTA property, it is not uncommon to find this type of juxtaposition in older manufacturing districts near the waterfront. Traffic, transit, pedestrian, and noise conditions would be adversely affected by the proposed Plan, but not (particularly with the mitigation measures proposed) to the degree that neighborhood character would experience significant adverse impacts.

Overall, the redevelopment of Lots B and D and the proposed Plan would result in an improvement in neighborhood character and would not have a significant adverse impact.

The effects of the No Convention Center Scenario on neighborhood character would be largely the same as with the proposed Plan; overall, it would not result in significant adverse neighborhood character impacts.

NATURAL RESOURCES

Neither the proposed Plan nor the No Convention Center Scenario would result in significant adverse impacts on terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern. In fact, development would offer benefits to natural resources (such as improved habitat) and is expected to include sustainable design elements.

HAZARDOUS MATERIALS

The District has a long history of industrial, automotive, manufacturing, and commercial uses. Evidence of contaminants on this site includes volatile and semivolatile organic compounds, polychlorinated biphenyls (PCBs), heavy metals, pesticides, herbicides and rodenticides. Throughout the District, asbestos-containing materials, lead-based paint, and PCB-containing equipment are likely to be present inside buildings. In addition, soil and groundwater have been impacted in varying degrees, possibly resulting in vapor intrusion issues within the buildings.

Development within the District under the proposed Plan would involve the demolition of the existing structures, roadways, and specific existing above- and below-ground utilities; and excavation, disturbance, and removal of much of the existing fill and soil.

By implementing remediation measures (such as removal and/or capping of contaminated soils), performing work under appropriate health and safety procedures, and engineering/institutional controls (such as installing vapor barriers under new buildings and restrictions on change in use), it is expected that potential exposure to hazardous materials would be minimized, and thus no significant adverse impacts related to hazardous materials would occur during or after construction of the proposed Plan or the No Convention Center Scenario. E-designations and subsequent Restrictive Declarations would require these engineering and institutional controls. The E-designations would also require mandatory construction-related HASPs, which would be subject to review and approval by DEP. All remedial plans would be required to be in accordance with all applicable City, State, and federal regulations.

Although some hazardous materials would likely remain in the subsurface following construction of the proposed Plan and development of Lots B and D, with the remedial measures for both the District and Lots B and D, there would be no exposure pathways and thus no further potential for significant adverse impacts.

WATERFRONT REVITALIZATION PROGRAM (WRP)

Both the proposed Plan and the No Convention Center Scenario 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. Thus, the proposed Plan would be consistent with the City's 10 WRP policies and standards.

INFRASTRUCTURE

Although the proposed Plan would generate new demand on infrastructure, the municipal systems serving the District and surrounding area, as enhanced under the proposed Plan, would have adequate capacity to meet the needs of the proposed Plan and Lots B and D.

WATER SUPPLY

The proposed Plan and anticipated development on Lots B and D would increase water demand by approximately 4.36 million gallons of water per day (mgd). This additional demand would not result in a significant adverse impact on the City's water supply system. This projected flow would be supplied by the existing 72-inch water main serving the District, which may need to be relocated as a result of the proposed Plan, depending on the site plan that is ultimately selected.

Under the proposed Plan, the existing 72-inch prestressed reinforced concrete pipe (PRCP) water main within Willets Point Boulevard would remain in place. In order to provide acceptable

access to the existing main, the developer would provide a permanent easement mapped on the City map. The width and designation of this easement shall be determined in consultation with New York City Department of Environmental Protection (DEP) and in accordance with DEP requirements.

SANITARY SEWAGE

Under the proposed Plan, the District would be connected to the City's sanitary sewer system, replacing the current reliance on septic tanks. Sanitary wastewater from the District would be conveyed to a new sanitary pump station, which would most likely be constructed within the District. Sanitary wastewater from Lots B and D would be connected to the pumped discharge utilized by Citi Field subject to the verification of its adequacy. The new District pump station would be designed and constructed to DEP standards. A new force main would be constructed to convey sanitary flow from the District to the existing 96-inch-diameter City sewer at 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). This new force main route would cross beneath 126th Street and the Grand Central Parkway.

The proposed Plan and the anticipated development on Lots B and D would result in an increase of sanitary flow to the Bowery Bay WPCP of approximately 2.8 mgd. The projected available capacity at the Bowery Bay WPCP in 2017 is 28 mgd. The Bowery Bay WPCP has adequate capacity to meet the increased demand associated with the proposed Plan.

STORMWATER

Prior to redevelopment of the site, an amended drainage plan would be prepared by the developer to comprehensively address all the surface runoff and separate handling of the sanitary dry flow that would be generated as a result of the proposed Plan, and drainage features to be included in the development of the District. This drainage plan would accommodate the City's current drainage plan for the area, and easements associated with highway drainage, and would be subject to prior review and approval by DEP.

The proposed Plan would maintain separate stormwater and sanitary sewer systems, in accordance with the City's goals to reduce combined sewer overflow (CSO) events. Since the existing area is largely impervious (the District and Lots B and D are currently largely built with impervious structures including buildings, paved surfaces, and roads, which create surface runoff), its conversion to a high density mixed-use district would not significantly change the overall runoff conditions within the area. The overall stormwater runoff volume in the future with the proposed Plan for the District and Lots B and D would therefore remain largely unchanged from the current runoff volume of 366 cfs. Approximately 327 cfs would be generated from the District with an additional 39 cfs from Lots B and D. Stormwater generated within the District is currently directed without any detention to the two existing outfalls on 126th Street and 127th Street. The current runoff from the District is more than the allowable flow per drainage plan to these two outfalls. The current stormwater conveyance system is not sized to accommodate the uncontrolled runoff being generated, resulting in street flooding during storm events. To eliminate these stormwater management issues, the proposed Plan would require the construction of a new stormwater conveyance system, including piping, sustainable design features, and an adequately sized detention tank, or other equivalent means, to accommodate the 5.13 acre-feet of stormwater to meet the allowable flow to the outfall. Approximately 4.20 acre-feet of the total required detention would be required for the District, with an additional 0.93 acre-feet for Lots B and D. In addition to an amended drainage plan, the

developer would be required to prepare a site stormwater management plan, to be reviewed and approved by DEP, that would specify Best Management Practices and sustainable design features that the project would include.

With the implementation of adequate stormwater management features, stormwater flow could be controlled to remain within the capacity of the two existing outfalls without the need to modify these outfalls. If it is determined that the capacity of the two existing outfalls, as supplemented by stormwater management features selected for the detailed development is not adequate, a new outfall would be proposed to augment the existing system.

The proposed Plan would require coverage under the current State Pollutant Discharge Elimination System (SPDES) general permit program for stormwater discharges from construction activities, as well as post construction (Build) conditions. Prior to the initiation of construction activities, a Stormwater Pollution Prevention Plan (SWPPP) would be developed pursuant to the requirements of the general permit and would be enforced throughout the sequence of construction activities and after construction is complete. Since Flushing Bay is a regulated water body, stormwater would have to be pre-treated prior to discharge to ensure that applicable discharge criteria would be met after construction is completed. Such pre-treatment measures would be subject to DEP review and approval. These actions would ensure that pollution prevention measures are in place during and after construction activity and enable adequate control of potential sources of pollution relating to stormwater management.

GLOBAL CLIMATE CHANGE ADAPTATION

Given the District's location within the 100-year floodplain, the potential effects of global climate change on the proposed Plan have been considered. Although a large range of sea level rise is possible depending on the precise emissions and response scenarios used for global modeling, there is sufficient information to suggest an increment of approximately 1.6 feet by the end of the century based on warming and some ice cap, sea ice, and glacial melting. The proposed elevation of 14 feet under the Plan is well above that stillwater level, so an increase of 1.6 feet would not impact the project area under normal conditions.

The main components that inform infrastructure planning are storm surge and the frequency of severe storms. These components are much more uncertain at this time.

The current 100-year floodplain is currently the only regulatory standard relating to elevation of new development. Under the proposed Plan, the District would be raised above the floodplain, reducing the District's vulnerability to storm surges as compared to existing conditions. The City has established an interagency group to work with the Federal Emergency Management Agency (FEMA) to revise the Flood Insurance Rate Maps for the City. It is anticipated that the map revisions will be completed in 2010. Subsequent development within the District will reflect any changes to the floodplain elevations.

The City is also engaged in several initiatives related to better assessing potential local climate change impacts and developing City-wide strategies to adapt to projected effects of climate change.

The development would include a number of features, in addition to the requirements of the building code and current DEP drainage standards, designed to absorb or retain stormwater and reduce the potential for flooding. These features would form part of a site stormwater

management plan that would be reviewed by DEP in light of its developing understanding of the effects of climate change on infrastructure. Furthermore, the developer would be required to submit to the City, prior to the placement of fill, an assessment of the appropriate grade for the District in light of all available information concerning potential sea level and other changes due to climate change. If appropriate and if warranted by data available at that time, the City would have the authority to require an increase in the proposed grade of the District at that time, but other measures could be used if more appropriate.

As detailed local climate change projections become available and are adopted into the City's infrastructure design criteria, such criteria would be incorporated into the development program. In addition, the City's agreement with the developer would require the preparation of an engineering study prior to commencement of construction that would assess the feasibility of implementing adaptation strategies for climate change impacts into the design of the development program in light of the most current climate change projections. Based on that engineering study, the City would require the developer to implement the adaption strategies that it determines are practicable.

SOLID WASTE AND SANITATION

No significant adverse impacts on solid waste and sanitation services would result from the proposed Plan and the anticipated development on Lots B and D. Similarly, although the No Convention Center Scenario would result in a marginally higher demand for solid waste and sanitation services, this scenario would also not have a significant adverse impact. The municipal systems serving the District have adequate capacity to meet the projected increases in demand. In addition, proposed local improvements in City services would address the needs of the Plan.

The proposed Plan would displace two waste transfer businesses from the District—Tully Environmental and Crown Container. The permitted capacity of Crown Container is small, and the waste generated at that facility could be absorbed at other facilities. Tully Environmental currently processes putrescible municipal waste under a contract with the City. The North Shore marine transfer station (MTS) is expected to be operational by 2011, and will have the capacity to process the waste currently handled by Tully. If Tully were displaced from the District before the North Shore MTS became operational, New York City Department of Sanitation (DSNY) waste currently processed by Tully would temporarily be transported to facilities in New Jersey in DSNY trucks. Therefore, the displacement of the two waste transfer businesses would not significantly impact the waste transfer industry within Queens or New York City.

ENERGY

The proposed Plan and the anticipated development on Lots B and D would increase demands on electricity and gas. However, relative to the capacity of these systems and the current levels of service within New York City, these increases in demand would be insignificant. Improvements would be made to the local electric and gas distribution grids that would ensure proper service to the District. Therefore, the cumulative demands of the proposed Plan and the anticipated development on Lots B and D would not result in a significant adverse impact on the supplies of electricity and gas in the region or the City as a whole, and with the future improvements to the distribution network, no impact would occur locally with respect to

electrical or gas utilities. The No Convention Center Scenario would result in marginally lower energy demand and thus would also not result in a significant adverse impact.

TRAFFIC AND PARKING

VEHICULAR TRAFFIC

The future baseline (future No Build) volumes, to which the traffic generated by the proposed Plan and Lot B would be added, and the future levels of service are expected to be significantly worse than existing conditions due directly to the approximately 90 background developments planned in the study area and a projected background traffic growth of approximately 11.5 percent. Therefore, traffic generated by the proposed Plan and Lot B would be in addition to high baseline volumes and poor levels of service at many of the analysis intersections and along key sections of the highway network, resulting in numerous significant impacts.

The proposed Plan and Lot B are expected to be a significant traffic generator on the highways surrounding the District—including the Grand Central Parkway, the Van Wyck Expressway, and the Whitestone Expressway—and the local street network. The Build volume increments generated by the proposed Plan and Lot B would be 3,685 vehicles per hour (vph) in the AM peak hour, 5,434 vph in the midday peak hour, and 6,752 vph in the PM peak hour on a typical weekday without a Mets home game. The volume increment generated by the proposed Plan and Lot B during a typical Saturday midday peak hour without a Mets home game would be 7,099 vph—the highest increment of all the analyzed peak hours. For peak hours with a Mets home game, the proposed Plan is expected to generate 5,199 vph in the weekday PM (evening) pre-game peak hour, 5,544 vph in the Saturday midday pre-game peak hour, and 5,128 vph in the Saturday PM (afternoon) post-game peak hour.

As a result, of the 29 intersections analyzed, the proposed Plan and Lot B are expected to have significant traffic impacts at 21 intersections in the weekday AM peak hour, 17 in the weekday midday peak hour, 23 in the weekday PM peak hour, and 21 in the non-game-Saturday midday peak hour. During the PM pre-game weekday peak hour there would be significant traffic impacts at 24 intersections and during the Saturday pre-game and post-game peak hours there would be significant impacts at 23 intersections. (See Table S-4).

Although the proposed Plan would include new access ramps to and from the Van Wyck Expressway at the northeastern corner of the District, it is projected that some sections of the highway mainlines and critical ramp junctions would be significantly impacted as well. Furthermore, the new access ramps are expected to reduce the use by project-generated traffic of certain local streets to access the District. However, project generated traffic would also cause significant traffic increases and level of service degradations on the Van Wyck Expressway mainline in both directions in the vicinity of the District.

Table S-4
2017 Build Condition Significant Impact Summary

Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Astoria Boulevard at 108th Street			x		x		
Northern Boulevard at 108th Street	x		x	x	x	x	x
Northern Boulevard at 114th Street	x		x		x	x	x
Northern Boulevard at 126th Street	x	x	x	x	x	x	x
Northern Boulevard at Prince Street	x	x	x	x	x	x	x
Northern Boulevard at Main Street	x		x	x	x	x	x
Northern Boulevard at Union Street	x	x	x	x	x	x	x
Northern Boulevard at Parsons Boulevard	x	x	x	x	x	x	x
34th Avenue at 114th Street							
34th Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 108th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 111th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 114th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at College Point Boulevard	x	x	x	x	x	x	x
Roosevelt Avenue at Prince Street	x	x	x	x	x	x	x
Roosevelt Avenue at Main Street	x	x	x	x	x	x	x
Roosevelt Avenue at Union Street			x	x	x	x	x
Roosevelt Avenue at Parsons Boulevard	x	x	x	x	x	x	x
Kissena Boulevard at Main Street							
Sanford Avenue at College Point Boulevard	x		x	x	x	x	x
Sanford Avenue at Union Street	x	x	x	x	x	x	x
Sanford Avenue at Parsons Boulevard	x	x	x	x	x	x	x
32nd Avenue at College Point Boulevard					x	x	x
World's Fair Marina at Boat Basin Road	x	x	x	x	x	x	x
Northern Boulevard at College Point Boulevard	x	x	x	x	x	x	x
Stadium Road at Grand Central Parkway							
New Willets Point Boulevard at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at New Citi Field Internal Street							

Notes: x means the intersection would be significantly impacted.

Table S-5 presents a summary of significant adverse traffic impacts and their ability to be mitigated.

The overall finding of the traffic mitigation analysis is that the majority of analyzed locations would be significantly impacted, and that the need for a broad range of mitigation measures would be substantial. Approximately one-half, or less, depending on the peak hour, of the significantly impacted locations could be fully or partially mitigated with traffic signal operation changes, such as signal phasing and/or timing changes, or the signalization of an unsignalized intersection, and limited parking prohibitions, while an additional location could be fully mitigated with a turn prohibition. Using signal timing modification measures, installation of new traffic signal equipment, limited parking prohibitions, and a minor turn prohibition, significant impacts occurring in one or more of the analysis peak hours could be fully or partially mitigated at the following traffic study area locations:

Table S-5
Traffic Impact Mitigation Summary—Year 2017

Study Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday PM Pre-game	Saturday Midday Pre-game	Saturday PM Post-game
No Significant Impact	7	11	5	7	4	5	5
Fully Mitigated Impact	7	8	7	6	9	7	8
Partially Mitigated Impact	3	2	3	3	2	4	3
Unmitigated Impact	12	8	14	13	14	13	13

- Astoria Boulevard at 108th Street (fully mitigated);
- Northern Boulevard at Prince Street (fully mitigated);
- Northern Boulevard at Main Street (partially mitigated);
- Northern Boulevard at Union Street (partially mitigated);
- Northern Boulevard at Parsons Boulevard (partially mitigated);
- 126th Street at 34th Avenue (partially mitigated);
- Roosevelt Avenue at 108th Street (fully mitigated);
- Roosevelt Avenue at 111th Street (fully mitigated);
- Roosevelt Avenue at Parsons Boulevard (partially mitigated);
- Sanford Avenue at College Point Boulevard (fully mitigated);
- Sanford Avenue at Union Street (fully mitigated);
- Sanford Avenue at Parsons Boulevard (partially mitigated);
- College Point Boulevard at 32nd Avenue (fully mitigated);
- Northern Boulevard service road at College Point Boulevard (fully mitigated); and
- Boat Basin Road at World's Fair Marina (fully mitigated).

Table S-6 presents a summary of the intersections that could only be partially mitigated or not mitigated at all during one or more time periods.

During game-day peak periods, modifications to the traffic control measures currently implemented by New York City Police Department (NYPD) traffic enforcement agents near Shea Stadium would be required at critical intersections in the vicinity of Citi Field in addition to the more standard types of mitigation measures listed above. This complete set of mitigation measures represents the standard range of traffic capacity improvements that are available to improve operating conditions and mitigate impacts, and that are deployed by the New York City Department of Transportation (NYCDOT) and/or NYPD.

Table S-6
Summary of Unmitigated Intersections

Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Astoria Boulevard at 108th Street							
Northern Boulevard at 108th Street	x		x	x	x	x	x
Northern Boulevard at 114th Street	x		x		x	x	x
Northern Boulevard at 126th Street	x	x	x	x	x	x	x
Northern Boulevard at Prince Street	x		x	x	x	x	x
Northern Boulevard at Main Street	x		x	x	x	x	
Northern Boulevard at Union Street	x		x	x	x		x
Northern Boulevard at Parsons Boulevard							
34th Avenue at 114th Street							
34th Avenue at 126th Street		x	x	x			x
Roosevelt Avenue at 108th Street							
Roosevelt Avenue at 111th Street							
Roosevelt Avenue at 114th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at College Point Boulevard	x	x	x	x	x	x	x
Roosevelt Avenue at Prince Street	x	x	x	x	x	x	x
Roosevelt Avenue at Main Street	x	x	x	x	x	x	x
Roosevelt Avenue at Union Street			x	x	x	x	x
Roosevelt Avenue at Parsons Boulevard							
Kissena Boulevard at Main Street							
Sanford Avenue at College Point Boulevard							
Sanford Avenue at Union Street							
Sanford Avenue at Parsons Boulevard					x		
32nd Avenue at College Point Boulevard							
World's Fair Marina at Boat Basin Road							
Northern Boulevard at College Point Boulevard						x	
Stadium Road at Grand Central Parkway							
New Willets Point Boulevard at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at New Citi Field Internal Street							

Notes: x means the intersection is unmitigated or partially mitigated in the corresponding peak hour.

In order to verify the need and effectiveness of the proposed mitigation measures identified in the FGEIS, the lead agency would develop and conduct a detailed traffic monitoring plan at full buildout of the proposed Plan. The lead agency would inform NYCDOT of the progress of the Plan's development and submit for NYCDOT's review and approval a scope of work that would include all locations where significant traffic impacts have been indentified in the FGEIS where NYCDOT believes improvement measures will be warranted. Data collection to be conducted for the monitoring plan would include 24-hour Automatic Traffic Recorder (ATR) machine counts, manual turning movement counts, vehicle classification counts, pedestrian counts, intersection geometry and field information, signal timing and signal progression, and any relevant information necessary for conducting the traffic monitoring plan. In the areas where parking prohibitions would be needed to mitigate significant impacts, such as Downtown Flushing and Corona, curbside utilization surveys will be conducted to determine the number of

vehicles that would be displaced and where the displaced vehicles would be accommodated. Additionally, the traffic monitoring program would include an origin-destination survey to be performed for the destination retail component of the project. The traffic monitoring program would also include intersection capacity and level of service analyses and signal progression analyses to determine whether actual future Build conditions have, in fact, resulted in significant traffic impacts and verify the need for mitigation measures identified in the FGEIS or similar measures recommended in the traffic monitoring plan.

Effects of Traffic Mitigation on Air Quality and Noise

With regard to air quality, analysis results show that with the proposed traffic mitigation measures, future concentrations of pollutants with the proposed Plan and the anticipated development on Lot B would not result in any significant adverse air quality impacts, the exceedance of *de minimis* thresholds for CO, or the $PM_{2.5}$ interim guidance criteria.

In terms of noise, $L_{eq(1)}$ noise levels due to project-generated traffic with or without the proposed traffic mitigation plan would exceed the *CEQR Technical Manual's* impact criteria and result in significant adverse noise impacts during the non-game Saturday midday time period at noise receptor 3 (World's Fair Marina Park). There would be no feasible or practicable measures to mitigate this impact. Noise barriers or berms are impractical at this location due to space constraints. As a result, this would be an unmitigatable significant adverse impact.

While this noise level increase does exceed the CEQR threshold for a significant impact, the resultant L_{eq} of 72.4 dBA is not an uncommon level for a park in New York City. Noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways. The noise levels and the impacts shown exclude noise from aircraft operations at LaGuardia Airport, which is adjacent to the District. Excluding aircraft noise results in lower baseline levels and therefore a more conservative analysis, as the project-generated noise causes a larger increase on a lower baseline level. If the noise from aircraft operations were included in the baseline noise levels, it is unlikely that the impact identified at the World's Fair Marina Park would occur.

The noise impact with the traffic mitigation measures would occur at the same location and time as would occur without mitigation. While the addition of a traffic signal at this location would increase noise levels, and increase the magnitude of the impact during the Saturday midday time period, the changes in noise levels are less than a decibel, and would have no perceptible effect.

PARKING

The proposed Plan would provide sufficient new off-street and on-street parking as part of the development to service its demand. The proposed Plan would include the demapping and realignment of the local street network within the boundaries of the District, which is expected to increase the available on-street parking supply. Moreover, the proposed Plan's expected parking needs would be provided within the District. Consequently, it is not expected that traffic generated by the proposed Plan would have to seek parking opportunities outside of the District.

The Citi Field Lot B development project would displace 660 existing parking spaces for game-day stadium traffic. These spaces would be replaced within a new parking structure on Lot D, located on the south side of Roosevelt Avenue to the east of the South Lot. Within the footprint of the new structure, a total of 1,543 spaces would be constructed, 573 of which would replace the existing Lot D surface spaces lost to the new structure. The remaining 970 spaces would

accommodate Mets game day traffic and the Lot B development and would be sufficient to accommodate the maximum parking demand.

NO CONVENTION CENTER SCENARIO

As compared with the proposed Plan, the No Convention Center Scenario would have approximately 6 percent more residential development and approximately 3 percent more retail development, and would result in an overall reduction equal to approximately 7 to 14 percent of the total number of generated trips during each of the peak hours. The greatest trip reductions would be in the weekday PM peak hour, the weekday evening pre-game peak hour, and the Saturday afternoon post-game peak hour. Since the assignment of convention center trips assumes predominant use of the highway routes to and from the District, it is expected that the No Convention Center Scenario would show some improvement in highway levels of service, but would not necessarily mean a reduction in the number of significant impacts on the highways. There would also be level of service improvements at highway ramp approaches to the intersections on 126th Street at 34th Avenue and at Northern Boulevard due to the reduction in convention center traffic to and from the highway network.

TRANSIT AND PEDESTRIANS

The proposed Plan and anticipated development on Lot B would result in significant adverse transit impacts on the street-level stairway on the north side of Roosevelt Avenue at the Willets Point-Shea Stadium subway station, and for the Q48 and Q66 bus routes. The proposed Plan and Lot B would also result in significant adverse pedestrian impacts at the east crosswalk at the intersection of Northern Boulevard and 126th Street; at the north, east, and west crosswalks at the intersection of Roosevelt Avenue and 126th Street; and for the north crosswalk at the newly signalized intersection of Roosevelt Avenue and the Lot B driveway.

To mitigate the projected street-level stairway impact, a 4.25-foot widening from its existing width of 8 feet to 12.25 would be required. The implementation of this mitigation measure would be coordinated with MTA/New York City Transit (NYCT) to allow enough time for design and specification approvals by MTA/NYCT and for the construction that would address the increased demand that would result from development of the proposed Plan and Lot B by 2017.

To mitigate the projected bus impacts on the Q48 bus route, 14 additional or 20 total eastbound buses and 8 additional or 13 total westbound buses would be required during the AM peak period. During the PM peak period, 27 additional or 31 total eastbound buses and 24 additional or 28 total westbound buses would be required. To mitigate the projected bus impacts of the Q66 route, 9 additional or 24 total eastbound buses would be required during the AM peak period and 3 additional or 14 total eastbound buses would be required during the PM peak period. The above considers potential service improvements to only the bus routes currently serving the immediate vicinity of the District. While MTA/NYCT routinely monitor changes in bus ridership and would make necessary service adjustments where warranted, the projected service demand is significant in magnitude. These service adjustments are subject to the agencies' fiscal and operational constraints and, if implemented, are expected to take place over time. Recognizing that these improvements may not be operationally viable or adequate in accommodating the projected future demand from developments planned for the District, discussions were initiated with NYCT to explore opportunities to extend existing bus routes from adjacent neighborhoods (e.g., downtown Flushing) and/or create new bus routes. Potential

bus service improvements discussed include: 1) increasing service frequency on the Q19 and providing westbound stop/loop service to Willets Point; 2) extending some or all bus routes that currently terminate in downtown Flushing to Willets Point, including the Q12, Q13, Q14, Q15, Q16, Q17, Q26, Q27, and Q28; and 3) possibly extending the limited QBx1 along Roosevelt Avenue and rerouting the X15 through Willets Point. To accommodate these potential service improvements, new bus stops and layover areas would be needed in and around the District. The City will collaborate with MTA/NYCT during and after this environmental review process to establish development guidelines and provisions to ensure that adequate bus service improvements would be implemented.

To mitigate the projected crosswalk impacts at the Roosevelt Avenue intersections with 126th Street and the Lot B driveway, restriping the existing crosswalks to widen the available crossing width would be necessary. However, because the extent of these widenings is limited, per NYCDOT standards, by the widths of the adjoining sidewalks, the projected significant adverse pedestrian impacts at the north, east, and west crosswalks at Roosevelt Avenue and 126th Street, and at the north crosswalk at the newly signalized intersection of Roosevelt Avenue and the Lot B driveway may remain unmitigated or partially mitigated.

AIR QUALITY

The proposed Willets Point Development Plan and the anticipated development on Lots B and D would not result in any significant adverse air quality impacts from either mobile or stationary sources.

The maximum predicted pollutant concentrations and cumulative concentration increments from mobile sources with the proposed Plan and the anticipated development on Lots B and D would be in compliance with the applicable guidance thresholds and ambient air quality standards. The parking facilities associated with the proposed Plan and on Lot D would also not result in any significant adverse air quality impacts. Similarly, emissions associated with the parking facilities on Citi Field parking Lot C, closest to the proposed District, and with the traffic along the elevated portion of Northern Boulevard adjacent to proposed uses would result in concentrations in the proposed District that would be in compliance with applicable standards and thresholds. Thus, the proposed Plan and Lots B and D would not result in significant adverse impacts from mobile source emissions.

Based on stationary source screening analyses, there would be no potential for significant adverse air quality impacts from the heat and hot water systems of the proposed Plan and the anticipated development on Lot B, provided that restrictions described in the text are imposed on the placement of heating, ventilation, and air conditioning (HVAC) stacks of some uses. Nearby existing sources from manufacturing or processing facilities were analyzed for their potential impacts on the development that would be introduced under the proposed Plan. The results of that industrial source analysis conclude that there would be no significant adverse air quality impacts from existing industrial uses within 1,000 feet of the District.

NOISE

Traffic generated by the proposed Plan and Lots B and D would result in a significant increase in noise levels only at the World's Fair Marina Park during the Saturday midday time period. As a result of the proposed Plan and the potential anticipated development on Lot B, a substantial amount of additional traffic would pass by this park when accessing the westbound Grand Central Parkway. There would be no feasible or practicable measures to mitigate this impact.

Noise barriers or berms are impractical because of space constraints. As a result, this would be an unmitigatable significant adverse impact.

While this noise level increase does exceed the CEQR threshold for a significant impact, the resultant L_{eq} of 72.4 dBA is not an uncommon level for a park in New York City. Noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways.

The noise levels shown and the impacts shown exclude noise from aircraft operations at LaGuardia airport, which is adjacent to the study area. If this noise were included in this analysis, baseline levels would increase such that it is unlikely that an impact would occur at this location during this time period.

To meet CEQR interior noise level requirements, buildings in the District would be required through a Restrictive Declaration to provide between 30 and 37 dB of building attenuation (e.g., using double-glazed windows with good sealing properties; alternate ventilation, such as central air-conditioning; and additional building insulation).

Citi Field Lot B could potentially be developed with a commercial use that would be subject to CEQR interior noise criteria. However, any future development at Lot B would be subject to a separate approval and environmental review process, and any required building attenuation would be developed at that time. Lot D could potentially be developed with a parking garage, which would not require noise attenuation measures.

The noise attenuation requirements for the No Convention Center Scenario would be the same as with the proposed Plan. The No Convention Center Scenario would likely generate less traffic than the proposed Plan, and therefore, is not expected to generate any additional noise impacts.

CONSTRUCTION IMPACTS

The construction of the proposed Plan would take place from 2009 to 2017. Because the District is isolated from the surrounding neighborhoods, no significant adverse impacts related to land use, neighborhood character, or community facilities are expected.

The proposed Plan contemplates demolition of the former Empire Millwork Corporation Building. Demolition of this historic resource would constitute a significant adverse impact on architectural resources. As discussed above, measures to fully or partially mitigate this adverse impact would be explored.

The preparation and enforcement of a Health and Safety Plan (HASP) is expected to prevent any significant adverse impacts from hazardous materials. The installation of a vapor control system, if necessary, would prevent vapors from volatile organic compounds (VOCs) that may remain in the soil from entering the buildings and harming public health.

Traffic from construction would be substantially less than traffic generated by the full operation of the proposed Plan at most intersections, with the exception of the intersection of College Point Boulevard at Roosevelt Avenue, 126th Street at Roosevelt Avenue, and 126th Street at 24th Avenue. These intersections would experience slightly higher traffic volumes due to limited availability of direct highway access to the District, as the new access ramps to/from the Van Wyck Expressway would not yet be constructed. Impacts at some locations could be addressed with the early implementation of measures to mitigate significant adverse impacts from the proposed Plan. Nevertheless, unmitigatable impacts could occur at some locations that have been identified as having unmitigatable impacts from operation of the Plan.

Air pollutant emissions from construction equipment and trucks would be reduced to the extent practicable by the enforcement of Local Law 77 of 2005, which requires all City-sponsored construction to reduce construction-related emissions of diesel particulate matter (DPM) by using the best available technology (BAT) to control emissions, and which applies to this project, as well as other measures. The District is large, and much of it is well-removed from publicly accessible locations where people would be expected to be present for extended durations. Although the majority of the construction would not affect the public, residents and workers in some of the buildings completed early in the Plan would be located adjacent to construction sites during construction of the later buildings. Measures would be taken to address both the emissions levels and the location of sources relative to such receptor locations, to ensure that significant impacts on air quality during construction would not occur. These measures would include minimizing the use of diesel equipment; ensuring that all nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets would utilize the best available tailpipe technology for reducing DPM emissions; locating large emission sources further than 50 feet from sensitive receptors, to the extent practicable; and ensuring that comprehensive fugitive dust control plans are implemented.

For noise impact determination purposes, significant adverse impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. While increases exceeding the CEQR impact criteria for a shorter period of time may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The District is large, and much of it is well-removed from any sensitive receptor. Previous analyses, such as those prepared for the Manhattanville and Atlantic Yards projects, have found that significant adverse noise impacts occur only at sensitive receptors that are close to and with a direct line of sight to the construction activity. In addition, little night work is expected, and any exceedances of the CEQR criteria at sensitive locations would occur during the day. Therefore, no long-term significant adverse noise impacts are expected from construction activities.

PUBLIC HEALTH

The proposed Plan and anticipated development on Lots B and D would not result in any significant adverse public health impacts related to air quality, noise, or hazardous materials.

D. UNAVOIDABLE ADVERSE IMPACTS

HISTORIC RESOURCES

As described above, the proposed Plan contemplates demolition of the former Empire Millwork Corporation Building. Demolition of this building would constitute a significant adverse impact on this historic resource. Measures to partially mitigate this impact, which could include archival photo documentation, would be developed in consultation with OPRHP. However, 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 Plan.

TRAFFIC

Out of the 29 intersections analyzed in the traffic study area during the seven peak hours, all significant adverse traffic impacts could be fully mitigated with the following exceptions:

- In the weekday AM peak hour, there would be three partially mitigated intersections—Northern Boulevard at Parsons Boulevard, 34th Avenue at 126th Street, and Sanford Avenue at Parsons Boulevard—and 12 unmitigatable intersections, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; Roosevelt Avenue at 114th, 126th, Prince, and Main Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the non-game weekday midday peak hour, the Northern Boulevard intersection at Union Street and Parsons Boulevard would be partially mitigated, and 8 intersections could not be mitigated, including: Northern Boulevard at 126th Street; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, and Main Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the non-game weekday PM peak hour, the Parsons Boulevard intersections at Northern Boulevard and Roosevelt Avenue, and at Sanford Avenue would be partially mitigated, and 14 intersections would not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the non-game Saturday midday peak hour, there would be three partially mitigated intersections—Parsons Boulevard at Northern Boulevard. Roosevelt Avenue and Sanford Avenue—and 13 unmitigatable intersections, including: Northern Boulevard at 108th, 126th, Main, Prince, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the weeknight pre-game peak hour, Northern Boulevard at Parsons Boulevard and 34th Avenue at 126th Street could only be partially mitigated, and 14 intersections could not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; Sanford Avenue at Parsons Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the Saturday pre-game peak hour, Northern Boulevard at Union Street and at Parsons Boulevard, Sanford Avenue at Parsons Boulevard, and 34th Avenue at 126th Street would be partially mitigated, while 13 intersections could not be mitigated at all, including: Northern Boulevard at 108th, 114th, 126th, Prince, and Main Streets; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; College Point Boulevard at the Northern Boulevard service road; and 126th Street at the new Willets Point Boulevard.
- In the Saturday post-game peak hour, there would be three partially mitigated intersections—Northern Boulevard at Parsons Boulevard, Roosevelt Avenue at Parsons Boulevard, and Sanford Avenue at Parsons Boulevard—and 13 intersections could not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.

PEDESTRIANS

The significant adverse pedestrian impacts at the north, east, and west crosswalks at the intersection of Roosevelt Avenue and 126th Street, and at the north crosswalk at the newly signalized intersection of Roosevelt Avenue and the Lot B driveway during the weekday midday peak period, the weekday PM peak period, the weekday pre-game peak period, the Saturday non-game peak period, the Saturday pre-game peak period, and the Saturday post-game period could be mitigated by restriping these crosswalks to achieve wider crossing widths. If such widenings could not be achieved, the projected significant adverse impacts during these time periods would remain unmitigated or partially mitigated.

NOISE

As described above, noise levels due to project-generated traffic would result in a significant adverse noise impact during the non-game Saturday midday time period at noise receptor 3 (World's Fair Marina Park). There would be no feasible or practicable measures to mitigate this impact. Noise barriers or berms are impractical because of space constraints. As a result, this would be an unmitigatable significant adverse impact.

E. ALTERNATIVES

This FGEIS examines five alternatives to the proposed Plan: a No Action Alternative; a No Unmitigated Impact Alternative; a Flushing Bridge Alternative; a Municipal Services Alternative; and a Staged Acquisition Alternative.

The No Action Alternative represents conditions that would exist if the proposed Plan were not implemented. The No Unmitigated Impact Alternative examines the level of development that would be necessary to avoid all the potential unmitigated impacts associated with the proposed Plan. The Flushing Bridge Alternative assesses the proposed Plan with construction of a new pedestrian bridge connecting the District and Downtown Flushing. The Municipal Services Alternative evaluates conditions that would be likely to occur if the District was not rezoned but additional municipal services were provided to the District. The Staged Acquisition Alternative assumes that properties in the District would be acquired and infrastructure developed over time.

NO ACTION ALTERNATIVE

The No Action Alternative would avoid some of the adverse environmental impacts of the proposed Plan. However, because this alternative would allow the continued industrial use of the District, it would not allow for development of affordable housing, community facilities, and public open space. It also would not comprehensively remediate contaminated soils and groundwater, nor provide new sanitary and storm sewers, and as a result, there would continue to be degraded water quality and potential impacts to aquatic biota through the continued recharge of wastewater, polluted stormwater, and sediments from the District to the Flushing River, Flushing Bay, and groundwater aquifers. Because the No Action Alternative would not develop new retail and entertainment uses, it would not generate the substantial economic and civic benefits resulting from the proposed Plan in the way of new jobs and tax revenues. Moreover, this alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and Corona, improvement of environmental conditions, and integration of new development in the District with surrounding amenities.

NO UNMITIGATED IMPACT ALTERNATIVE

The No Unmitigated Impact Alternative explores modifications to the proposed Plan that would mitigate project impacts to historic resources, traffic, pedestrians, and noise:

- For historic resources, this alternative would avoid the demolition of the Empire Millwork Corporation Building that would occur with the proposed Plan. Although this could be achieved through adaptive reuse, exterior elements such as windows and façades would still need to be upgraded to comply with building codes and noise attenuation requirements. Furthermore, the building is located below flood elevation, and its site could not be raised if it would remain. Therefore, flood protection measures such as gates or pumps would be required to comply with flood insurance requirements. Overall, this alternative would reduce the footprint of any new development, which would result in greater density in the remainder of the District, fewer housing units, less open space, or some combination of these possibilities. The preservation of this resource would also significantly constrain the design of the proposed Plan in ways that could make future development of the District more difficult and may undermine the benefits of the proposed Plan. The former Empire Millwork Corporation Building could be demolished as-of-right under existing conditions, and mitigation measures such as photographic documentation would not be required.
- For traffic, the proposed Plan and anticipated development on Lots B and D would result in significant adverse traffic impacts that cannot be fully alleviated with practical mitigation measures. Because of existing congestion at a number of intersections, even a minimal increase in traffic would result in unmitigated impacts. Based on a sensitivity analysis of intersections within the study area, it was determined that the addition of five cars during the Saturday midday peak period would trigger an impact that cannot be fully mitigated. Thus, almost any new development in the District, including new industrial development that could be constructed as-of-right, would result in unmitigated traffic impacts, and no reasonable alternative could be developed to avoid such impacts.
- For pedestrian conditions, the proposed Plan and anticipated development on Lots B and D would result in significant adverse pedestrian impacts at four study area crosswalks that may not be fully mitigated because the widening of these crosswalks via restriping is limited by, per NYCDOT standards, the widths of the adjoining sidewalks. In order to make full mitigation possible, the incremental pedestrian volumes would have to be reduced by approximately 30 percent and the parking associated with the Lot B development would have to be located on the north side of Roosevelt Avenue. This would require a substantial reduction in the development program.
- In terms of noise, to avoid the significant adverse noise impact expected at one location (World's Fair Marina Park—Receptor 3) during a single analysis period, project-generated traffic increases on roadways adjacent to Receptor 3 would have to decrease. Traffic-generated volumes would need to decrease by approximately 29 percent on Boat Basin Road and 12 percent on World's Fair Marina to eliminate the significant impact at Receptor 3. Such reductions would necessitate a substantial reduction in the proposed Plan development program, and no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed Plan's stated goals. The noise level anticipated at World's Fair Marina Park in the future with the proposed Plan frequently occurs at parks or portions of parks that are adjacent to heavily trafficked roadways.

FLUSHING BRIDGE ALTERNATIVE

The Flushing Bridge Alternative would result in the same development within the District as the proposed Plan, and any impacts and associated mitigation identified for the proposed Plan would also be the same for the Flushing Bridge Alternative. The bridge itself would occupy land outside the District, including mapped wetlands along the Flushing River and within a parking lot at the foot of 37th Avenue. The bridge would need to be designed and engineered to minimize any effects on these wetlands, and subsequent investigation would be required to determine the potential for archaeological sensitivity and whether areas of soil disturbance contain hazardous materials. Like the proposed Plan, the Flushing Bridge Alternative would result in substantial public benefits from redevelopment of the District. The Flushing Bridge Alternative would also improve pedestrian access to the District, increase access to proposed open space, and help integrate new development in the District with surrounding amenities.

MUNICIPAL SERVICES ALTERNATIVE

The Municipal Services Alternative would allow the continuation of industrial uses within the District but would provide for new public infrastructure (streets and utilities) to serve existing and future businesses. Unlike the proposed Plan, this alternative would not result in the creation of a dynamic, sustainable community that integrates regional attractions and residential, retail, and other uses. It would not provide for new affordable housing units, community facilities, or open space within the District. Also unlike the proposed Plan, the Municipal Services Alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and Corona, and integration of new development in the District with surrounding amenities.

Under the Municipal Services Alternative, the zoning of the District would not be changed, a URP would not be adopted, and a Special District would not be created. Similarly, the demapping or mapping of streets or acquisition of rights-of-way associated with the proposed Plan would not occur. As the improvements would largely be limited to public property, and existing private properties would remain developed with buildings at their current grade, this alternative presents more serious complications with respect to the feasibility of effectively upgrading the area's infrastructure than would whole-scale redevelopment of the District as would occur under the proposed Plan.

The existing storm sewer system in the area, which drains to outfalls at 126th Street and 127th Street, is insufficiently sized to accommodate the runoff that is currently being generated. To eliminate this deficiency, a new storm sewer system, including new piping and infrastructure, such as manholes and catch basins, would need to be installed. Based on the elevation of the existing streets and outfalls, and the various distances over which stormwater would be required to travel, there is not sufficient elevation in all areas of the District to make an adequately sized and properly functioning storm sewer system. A substantial portion of the streets in the southern portion of the District would have to be raised to a grade sufficient to allow the system to function hydraulically.

Unlike the proposed Plan, the Municipal Services Alternative would not result in the filling of District to flood elevation. The District streets would not be elevated to the 100-year floodplain elevation—to do so would be infeasible given that the grades of existing developed lots would remain at their current elevation. However, streets in a substantial portion of the District would need to be raised between approximately 1 and 3 feet. Such changes would create differences in

elevation between the new streets and the existing lots that abut them, which would create a serious complication with respect to successfully engineering an effective drainage plan. Specifically, each lot would have to install pumps to convey stormwater from that lot into the new stormwater system, which would exist at a higher grade than the lot. Any private parcel requiring a pump and hook up to the stormwater system would be required to meet DEP pretreatment requirements. Pretreatment on certain lots may not be feasible due to lack of adequate space to install and operate the necessary equipment. While the provision of new storm sewer lines and new or expanded outfalls would decrease the frequency and severity of flooding in the District (assuming that pumps are installed on privately owned lots), there would still be potential for flooding during storm conditions, since much of the District, including the new streets, would remain below the 100-year floodplain.

Because the District would remain built out with industrial uses, unlike the proposed Plan, an on-site detention tank or other comparable detention feature necessary to avoid expanding the existing outfalls or constructing a new outfall could not be provided. Therefore, in order to accommodate stormwater runoff generated onsite that is beyond the discharge capacity of the existing outfalls on 126th Street and 127th Street, these outfalls and sections of their piping would need to be reconstructed; alternatively, a new outfall could be provided in combination with rebuilding the existing outfalls, although that option would be the least cost effective. In order for the new storm sewer system to meet the DEC discharge water quality requirements, pretreatment of stormwater would be necessary prior to the point of discharge.

Although any necessary remediation of hazardous materials would be undertaken in areas of utility construction, a comprehensive remediation plan for the District would not be implemented, and some soil and groundwater would continue to be contaminated.

Similar to the proposed Plan, the Municipal Services Alternative would require a new pump station and main to transmit sanitary flow from the District to the existing 96-inch-diameter City sewer in 108th Street (which flows to the Bowery Bay WPCP). The new pump station would most likely be constructed within the southern area of the District on a lot purchased from private lot owners, or alternatively would be constructed at a location outside the District. The sanitary force main route would be directed across the area occupied by the Citi Field parking lots to connect to the nearest system at 108th Street en route to the Bowery Bay WPCP.

The Municipal Services Alternative would not change the allowable development density of the District; however, it is likely that some new industrial uses could occur within the District once the new infrastructure has been provided. This potential new development would generate vehicle trips (although less than the proposed Plan), and like the proposed Plan, the Municipal Services Alternative could result in significant adverse traffic impacts at a majority of study area locations, given the substantial no-build traffic in the study area even without development from the proposed Plan. The Municipal Services Alternative would not result in the business relocation associated with the proposed Plan and would not result in permanent direct residential or business displacement; however, it may result in some temporary displacement of businesses to provide for an on-site pump station. Due to the extensive sewer reconstruction that would be required, some temporary displacement and access impacts may be relatively long term.

STAGED ACQUISITION ALTERNATIVE

The Staged Acquisition Alternative would result in a development program that is the same as the proposed Plan, but properties would be acquired and developed over time to allow the City additional time to find suitable relocation sites and to spread the cost of property acquisition and

infrastructure improvements over time. It is anticipated that the western portion of the District would be developed by 2013, with the eastern portion of the site to be built out by 2017. There would be no lag time between development of the western and eastern portions of the District.

At full build-out, this Alternative would develop the District with the same gross floor area and mix of uses as the proposed Plan. In general, the most substantial differences between the Staged Acquisition Alternative and the proposed Plan are the timing of property acquisition and construction phasing. While the necessary remediation, grading, and infrastructure improvements would take place across the District at the beginning stages of construction for the proposed Plan, they would occur more incrementally under this alternative. This could require additional safeguards to ensure that existing hazardous materials contamination on the eastern portion of the District would not migrate to the western portion of the District subsequent to the remediation of the western properties. It could also require a more complex stormwater management plan, since new storm systems put in place prior to 2013 would need to ensure adequate retention and discharge of stormwater in the western portion of the District, and after 2013 would need to be integrated with new stormwater systems put in place on the eastern portion of the site to ensure efficient District-wide stormwater management. Roadway access to the eastern portion of the site would need to be maintained for several years while the western portion of the site is being developed, and until such time when the City acquires the eastern properties for development under the full build-out.

The Staged Acquisition Alternative would have differences in the siting of certain uses and the layout of the District's street grid when compared with the proposed Plan. Under the Staged Acquisition Alternative, new connections to the Van Wyck Expressway would conform to the existing street network. The southern portion of 127th Street and all of 34th Avenue would remain in their current alignments. Willets Point Boulevard would remain in place in order to allow access to existing utilities beneath it, and would remain open to vehicular traffic except for its southern end, which would serve as a pedestrian boulevard and open space.

The siting of uses would be the same under the Staged Acquisition Alternative and proposed Plan. The layout of the District's street grid would also be the same as under the proposed Plan. However, under the Staged Acquisition Alternative, new connections to the Van Wyck Expressway would conform to the existing street network. Before complete acquisition of the eastern portion of the District, east-west streets would be elevated above the floodplain in the western portion of the District, and would be graded to slope down to the existing streets to the east, allowing continued access to and from remaining businesses in the District. After acquisition of the eastern properties, streets in that area would be raised above the floodplain. Streets in the redeveloped western portion of the District that were constructed to slope down to existing eastern streets would be regraded to meet the new elevated streets to the east.

The Staged Acquisition Alternative, like the proposed Plan, would utilize E-designations and Restrictive Declarations to ensure that there would be no significant adverse impacts with respect to hazardous materials, noise attenuation, and air quality (specifically associated with the heating, ventilation, and air conditioning systems [HVAC]).

In general, traffic generated in 2013 under the Staged Acquisition Alternative would be approximately 60 to 70 percent of the traffic generated under the full build-out of the Proposed Plan, or the full build-out of the Staged Acquisition Alternative. An examination of eight critical intersections during the Saturday midday non-game and Saturday pre-game peak hours indicates that, in general, the extent of significant adverse traffic impacts in 2013 under the Staged Acquisition Alternative would be similar to those identified in 2017 with the proposed Plan.

Mitigation measures for 2013 would also be similar to those identified for the proposed Plan in 2017.

In 2013, the number of transit and pedestrian trips generated as a result of the Staged Acquisition Alternative would be substantially fewer than those projected for the proposed Plan. Nonetheless, the Staged Acquisition Alternative in 2013 is expected to result in significant adverse impacts at the same street-level subway stairway. Although the amount of stairway widening necessary for mitigation would be less in 2013, it is anticipated that the full widening that would take place with the proposed Plan would also take place under this alternative by 2013. Compared with the proposed Plan, the Staged Acquisition Alternative in 2013 would have virtually the same significant adverse impacts on bus operations in the study area. However, under this alternative, the impacts would not be as severe, and fewer additional buses would be needed to mitigate the impacts. Similarly, this Alternative in 2013 would yield fewer and less severe significant adverse pedestrian impacts than the proposed Plan, and mitigation measures would be less.

Like the proposed Plan, this alternative in 2013 and 2017 would not result in any significant adverse air quality impacts from either mobile or stationary sources.

Noise levels in 2017 with the Staged Acquisition Alternative would be the same as for the full build-out of the proposed Plan. However, unlike the proposed Plan, there would be no significant adverse noise impacts in 2013 with the Staged Acquisition Alternative. As with the proposed Plan, window/wall attenuation measures would be included in buildings constructed by both 2013 and 2017 to achieve acceptable interior noise levels. ✷

A. PROJECT IDENTIFICATION

The Office of the Deputy Mayor for Economic Development, in coordination with the New York City Department of Housing Preservation and Development (HPD) and the Department of City Planning (DCP), proposes to rezone, create an urban renewal area and implement a comprehensive development plan—the Willets Point Development Plan ("proposed Plan")—in a portion of Willets Point, Queens (see Figures 1-1 and 1-2). The overarching goal of the proposed Plan is to transform a largely underutilized site with substandard conditions and substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination.

The proposed Plan calls for the redevelopment of the Willets Point Development District ("District"), an approximately 61-acre area generally bounded to the east by the Van Wyck Expressway and an undeveloped lot owned by the Metropolitan Transportation Authority (MTA), to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. The development program for the District includes a mix of uses, including residential, retail, hotel, convention center, entertainment, commercial office, community facility, open space, and parking. In addition, the proposed Plan includes a new connection between the Van Wyck Expressway and the District. Although no specific development plan is in place at this time, the maximum permitted development under the proposed Plan would be 8.94 million gross square feet (gsf) of new construction.

Adoption of the proposed Plan would require public review, including by the local Community Board and the Queens Borough President, and approvals by a number of government agencies, including the Office of the Deputy Mayor for Economic Development, HPD, the New York City Planning Commission (CPC), and the City Council. Additionally, approvals would be required from the New York State Department of Transportation (NYSDOT) and the Federal Highway Administration (FHWA) regarding the proposed new connection to the Van Wyck Expressway. Because it has been determined that the proposed Plan may result in significant adverse impacts, it requires review and the preparation of a Generic Environmental Impact Statement (GEIS) under City Environmental Quality Review (CEQR).

B. PROJECT PURPOSE AND NEED

The Willets Point peninsula is an underutilized industrial area with extensive environmental contamination issues, numerous open building code violations, poor road and sidewalk conditions, and limited storm and sanitary sewer infrastructure. Site conditions within the District have hindered redevelopment efforts for decades, and present numerous challenges to any future development efforts in the Willets Point Development District. Two of the greatest challenges are site contamination and site elevation; up to seven feet of fill are required to raise the grade of the District so that it is out of the Federal Emergency Management Agency (FEMA)

100-year floodplain. These issues are discussed below under "Components of the Proposed Plan."

The Willets Point Development Plan is an outgrowth of the Downtown Flushing Development Framework ("Framework"), a land use and economic planning strategy for the growth of Downtown Flushing, the Flushing River waterfront, and the Willets Point peninsula.[1] The Framework was developed between 2002 and 2004 by the Downtown Flushing Task Force, a group of city and state technical agencies, local developers and business owners, community board members, and local elected officials that the City requested to identify opportunities for growth and improvement in Downtown Flushing, the Flushing River waterfront, and the Willets Point area.

Recognizing the importance of Willets Point to the environmental, economic, and aesthetic welfare of the broader community, the Task Force outlined specific redevelopment goals for the Willets Point area, including:

- Create a regional destination that would enhance economic growth in Downtown Flushing and Corona;
- Improve environmental conditions in the District and reflect the sensitive nature of its waterfront setting;
- Create a larger, expanded Flushing core, by integrating the two sides of the Flushing River through land use and design;
- Complement the adjacent recreational and sporting facilities;
- Optimize use of existing highway, public transit, and parking infrastructure to minimize local traffic impacts; and
- Create substantial positive economic value for the City and provide a source of quality jobs for area residents.

The City has adopted these goals as part of the proposed Plan. In addition, the proposed Plan aims to achieve the following goals, which are consistent with the overall Framework vision, but are not specifically articulated in the 2004 report:

- Provide a substantial number of new housing units to help meet the growing demand for housing in Queens and the City as a whole;
- Ensure that District housing would be affordable to a mix of incomes;
- Provide a world-class example of superior urban design, with a focus on green building and sustainable design practices; and
- Strengthen the role of Flushing and Corona as commercial centers in Northern Queens, while helping to meet the demand for office space in Queens and the City as a whole.

[1] The *Downtown Flushing Development Framework*, released in May 2004, was sponsored by Mayor Michael R. Bloomberg, Deputy Mayor Daniel L. Doctoroff, the New York City Economic Development Corporation, and the New York City Department of City Planning.

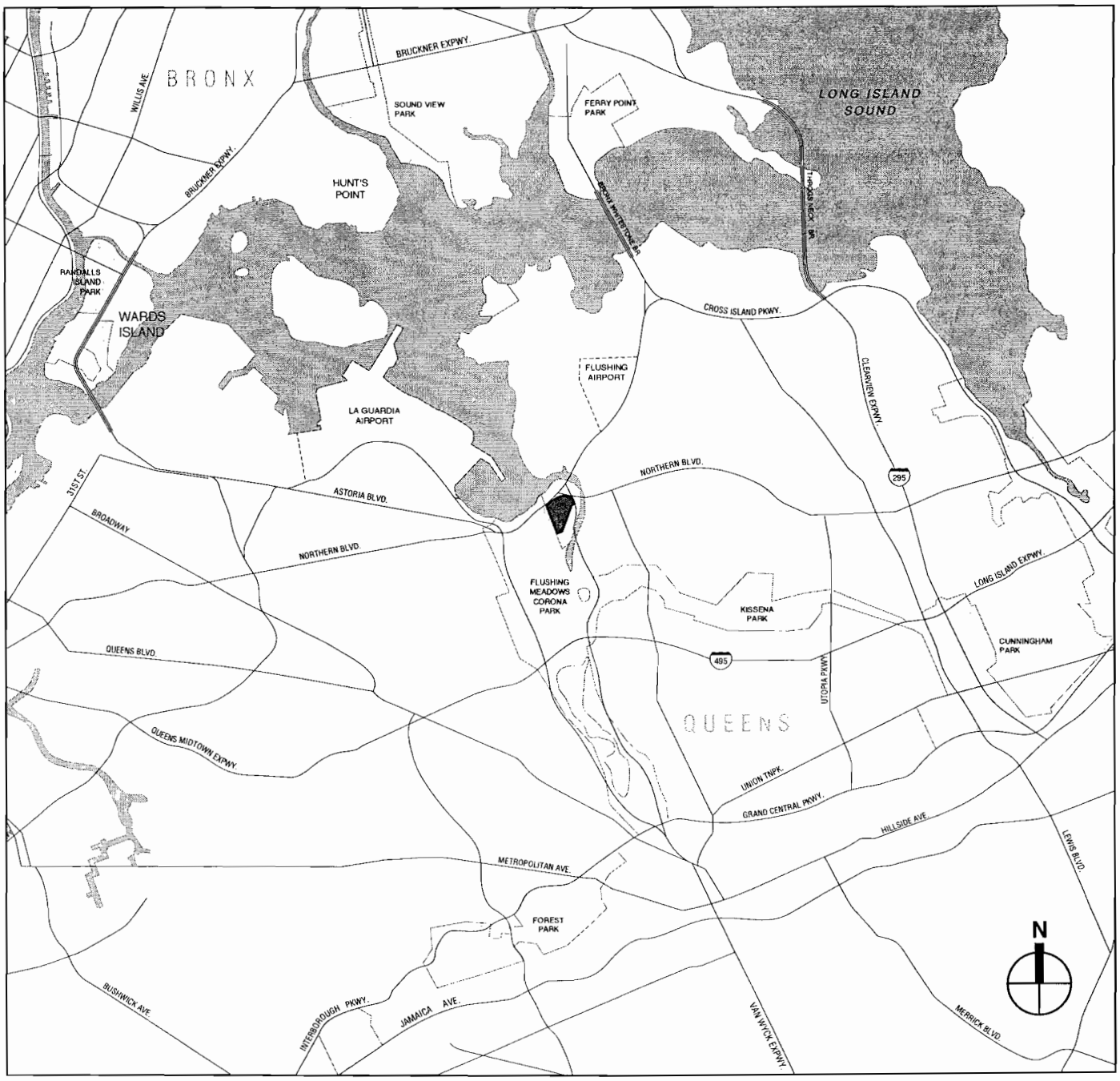


Figure 1-1
Project Location

1.25.08



Willets Point Development District

Figure 1-2
Development District Site

C. PROJECT BACKGROUND

HISTORY OF WILLETS POINT[1]

The history of the Willets Point area is closely connected to the fast-paced development history of Queens and New York City in the late 1800s and early 1900s. In 1850, the District was part of a swamp on the banks of the Flushing River, used primarily for recreation. By the turn of the century, the City's population was pushing farther east, following new roads and railroad lines that made the once remote area accessible to cars and trains. Around 1900, the city of Queens leased a large portion of the swamp stretching from the mouth of the Flushing River to what is known today as Forest Hills to a Brooklyn ash removal company. Fishhooks McCarthy, the owner of the company, also acquired the right to dump incineration ashes into the tidal marshland. In the years that followed, historical sources estimate that McCarthy dumped approximately 50 million cubic yards of ash into the swampland—the equivalent of about 100 railroad cars of ashes per day between 1906 and 1932. The dumping left the area with a layer of ash 30 feet thick on average, with mountains of ash rising up to 90 feet, an eerie sight that led F. Scott Fitzgerald to declare the area a "valley of ashes" in his novel *The Great Gatsby*.

During this time the area became a breeding ground for rats and mosquitoes, and it is reported that the smell of garbage and smoke was noticeable within a mile of the site. At the same time, nearby villages and towns such as Corona began to expand, and by the early 1930s political opposition to the use of the Willets Point area for dumping began to mount. In response to this opposition, the City cancelled its contract with McCarthy in 1934.

It was also in the mid-1930s that Robert Moses developed his vision of a World's Fair in New York City to be located at the former dumpsite. In the years leading to New York's first World's Fair in 1939, the ash hills were leveled, the Grand Central Parkway was constructed, and the World's Fair complex was built. Although included in Robert Moses' vision, the Willets Point area never became an integral part of the overall World's Fair complex. However, as part of the World's Fair construction, the street grid in the District, including Willets Point Avenue, was put in place. Historical United States Geological Survey (USGS) maps from 1947 identify Willets Point Boulevard, some interior roadways, and a few buildings within the area.

The enormous construction effort required for the World's Fair, combined with the excellent road and direct rail access at Willets Point, may have been the main reason why contractors, heavy manufacturers, and equipment rental businesses were among the first to settle in the District. USGS maps from 1947 and 1955 and an aerial photograph from 1954 indicate that it was not until the end of the 1940s that the Willets Point area started to take on its present character, with a mix of auto-related uses operating out of small structures and lots. It did not take long for the area to become known for its junkyards and stacked car frames. It was during this time that the District first acquired its long-lasting reputation as the "Iron Triangle."

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[1] Information on the history of Willets Point was gathered from a number of sources including: Metropolitan Waterfront Alliance (MWA), East River Neighborhoods Series: "Willets Point," 2005; *The Village Voice*, "Melting the Iron Triangle," June 2006; and Harrison, Helen A., *From Dump to Glory: Robert Moses and the Flushing Meadow Improvement*, as presented in Robert Moses: Single Minded Genius, edited by Joann P. Krieg, Interlaken, New York, 1989.

REDEVELOPMENT EFFORTS

Since World War II, there have been numerous attempts to redevelop Willets Point. Not long after auto repair businesses and junkyards first settled in the area, City officials made their first attempt to steer development in the area in a different direction. In 1960 Robert Moses proposed including Willets Point in the redevelopment plan for the City's second World's Fair. This proposal was subsequently abandoned.

Throughout the 1960s and 1970s, the number of auto-repair and junkyard uses in Willets Point greatly increased. An aerial photograph from 1974 indicates that the numerous auto repair shops and related businesses covered the majority of the District, and that the area had almost reached its present day condition.

By the mid 1980s Willets Point again became the subject of renewal and redevelopment plans when the area was viewed as a location for a stadium to house the New Jersey Generals football team. The plan was abandoned when the USFL ceased to exist and the Generals were dissolved.

In the early 1990s, Willets Point was the focus of a planning study prepared by NYCEDC (at that time operating as the New York City Public Development Corporation) that examined a number of redevelopment options for the area, all focused on retaining industrial uses on the site. In 1993, the Queens Borough President's office released a study entitled "Willets Point—A New Direction," which proposed the redevelopment of Willets Point into a major commercial center or as an international trade center that would be used to host import/export shows and to provide exhibition and office space for wholesalers and retailers.

Planning efforts related to Willets Point have accelerated since 2000. In 2001, HPD held a design workshop that explored potential redevelopment ideas for Willets Point. The workshop recommended land uses that would connect Willets Point with its neighboring communities and complement the nearby attractions and facilities. Suggested land uses included entertainment facilities such as movie theaters, an international commercial center that would utilize the mixed backgrounds of the surrounding communities, restaurants and retail shops that would profit from visitors coming to downtown Flushing, Flushing Meadows-Corona Park or Shea Stadium, and hotels servicing nearby LaGuardia and Kennedy Airports.

In 2002, the City created the Downtown Flushing Task Force to undertake a community planning process focused on the Downtown Flushing area of Queens. As described earlier under "Project Purpose and Need," the Task Force developed the Downtown Flushing Development Framework, which outlined land use and economic goals for the redevelopment of Willets Point. The proposed Plan represents a critical step in implementing this development Framework.

D. PROJECT DESCRIPTION

EXISTING CONDITIONS ON PROJECT SITE

Willets Point is located in northern Queens, adjacent to Shea Stadium, the USTA National Tennis Center, and Flushing Meadows-Corona Park (see Figure 1-2). The neighborhood of Corona is located just west of Shea Stadium, and Downtown Flushing is located east of Willets Point across the Flushing River. The District is located at the intersection of several major arterial highways, bordered to the east by the Van Wyck Expressway and an undeveloped lot owned by MTA, to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. In addition to highway access, the District connects to the New York

City metropolitan area via the Long Island Rail Road (LIRR) and the No. 7 subway line, and is located in close proximity to both LaGuardia and JFK International Airports.

The District is approximately 61.4 acres in size, of which approximately 15.8 acres are within public street rights-of-way, approximately 45.0 acres are privately owned land, and approximately 0.6 acres are owned by MTA. The District comprises 128 tax lots and one partial lot (block 1833, lot 1) located on 14 blocks (see Table 1-1 and Figure 1-3). It contains approximately 260 businesses—primarily a mixture of automotive repair and auto body shops, junkyards, wholesalers, construction companies, and auto-related retail establishments—that employ an estimated 1,711 workers. As illustrated by the aerial photograph presented in Figure 1-4, the site contains a patchwork of small structures with some larger buildings located on the eastern and northern portions of the site; auto uses are scattered throughout the site.

Table 1-1
Blocks and Lots Affected by Proposed Action

Blocks	Lots
1820	1, 6, 9, 18, 34, 108
1821	1, 6, 16, 25, 27, 35
1822	1, 5, 7, 17, 21, 23, 28, 33, 55, 58
1823	1, 3, 5, 7, 12, 14, 19, 20, 21, 23, 26, 28, 33, 40, 44, 47, 52, 55, 58, 59, 60
1824	1, 12, 19, 21, 26, 28, 33, 38, 40, 45, 53
1825	1, 19, 21, 25, 28, 30, 37, 46, 48, 53, 55, 58
1826	1, 5, 14, 18, 20, 31, 35
1827	1
1828	1, 4, 8, 11, 13, 17, 21, 23, 29, 34, 37, 39
1829	19, 21, 40, 71
1830	1, 9, 10, 21
1831	1, 10, 35
1832	1, 10
1833	1 (partial)*, 103, 111, 117, 120, 141, 143, 151, 155, 158, 165, 166, 168, 170, 172, 177, 179, 180, 186, 188, 192, 197, 199, 201, 203, 212, 215, 230, 300, 425

Note: * Approximately 24,600 sf of block 1833, lot 1 (owned by the MTA) is included in the Willets Point Development District. The remaining approximately 429,000 sf of that lot, which extends along the Flushing River waterfront, is outside of the District.

Most properties in the District are underutilized. Utilization rates were determined by comparing actual square feet of built space on the property with the built square feet allowable under applicable zoning (zoning square feet).[1] Only 9 of 128 tax lots were found to utilize more than 50 percent of the allowable square footage. The remaining 119 lots, or 93 percent, are considered to be underutilized. Of these lots, 27 lots (21 percent) are significantly underutilized, using only 11 to 25 percent of their development potential, and 50 lots (39 percent) are considered to be severely underutilized, utilizing no more than 10 percent of their development potential. Many of these lots are unimproved and are used as open air storage areas for building supplies, junkyards, and waste transfer uses.

[1] Data were gathered from the New York City Department of Finance Real Property Assessment Data (RPAD).

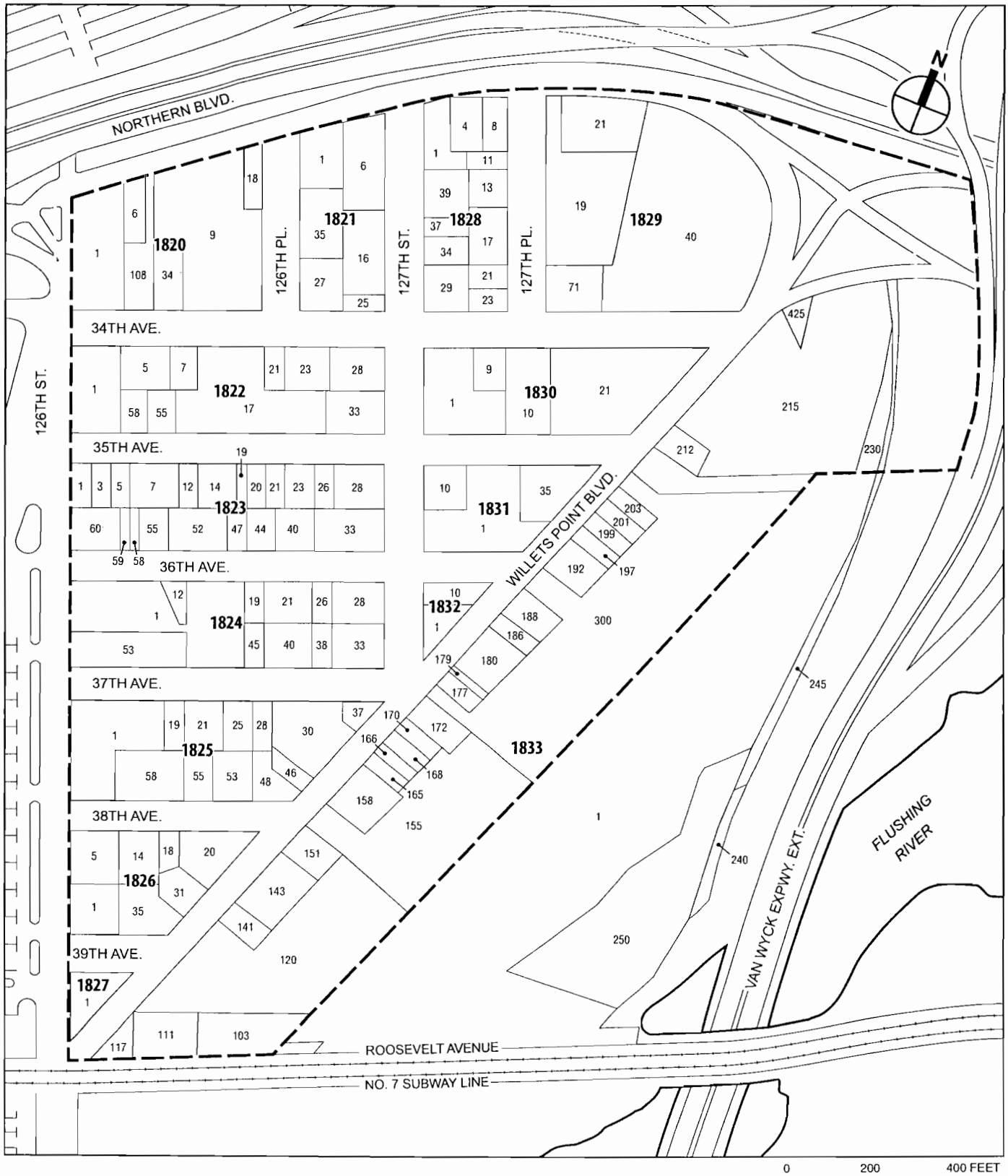
Building code violations are common in the District. According to the Department of Building's Business Information System, there were 192 open building code violations in the District as of January 2008, many of which were for Work without a Permit, Occupancy Contrary to Certificate of Occupancy, and Failure to Maintain Building. Violations were reported for buildings located on half of the tax lots in the study area, many recording multiple violations. These violations indicate that numerous structures on the project site have either been built or altered illegally, not adequately maintained, or are occupied by businesses not permitted to be operating on site.

Site conditions within the District have hindered past redevelopment efforts and present complex challenges to any future redevelopment. Much of the land area within the District is below the FEMA 100-year floodplain; up to seven feet of fill is required to grade and raise the District above the floodplain. The District lacks sanitary sewers and adequate storm sewers, and its roadways and sidewalks are in poor condition.

Site contamination is another challenge facing future development in the District. As indicated above, the area's historical use in the early 1900s was as a dumping site for ash. Today, some of the existing automotive repair and service businesses and junkyard operations have continued to add contamination to the area through illegal dumping and poor housekeeping. As a result of Willets Point's history and past uses, soil and groundwater have been impacted in varying degrees throughout the District. In 2001, the State Attorney General announced the indictment of 21 junkyards and 35 individuals for violating State environmental laws by dumping motor oil, antifreeze, transmission fluid, and other vehicle fluids onto the ground and into storm drains and Flushing Bay. All of the indicted businesses were convicted, which resulted in the payment of more than $100,000 in fines and forfeitures, and the entry of civil consent judgments requiring businesses to clean up their properties. The forfeited equipment was released only if businesses presented a plan to adequately address the environmental problems identified in the indictments. Monetary assets, however, were released only if a convicted business employed an environmental consultant, who would help to remediate the environmental issues. According to the Attorney General's Office, only a few companies entered into a comprehensive agreement and invested in remediation activities.

Environmental crime investigations and the resulting indictments were a byproduct of the criminal sting operation, conducted to battle car theft and the resale of stolen parts. In recent years, law enforcement entities have uncovered criminal activity in the District, and the New York State Attorney General and the New York City Police Department (NYPD) have issued several indictments for auto theft, insurance fraud, and racketeering. Most recently, on April 3, 2008, the NYPD seized eight tractor-trailer loads of counterfeit sneakers, handbags, and other goods from a large warehouse building located in the northeast portion of the District (Block 1833, Lot 215). The seizure, which included 50,000 pairs of sneakers, 30,000 to 40,000 handbags, and 5,000 pieces of clothing, is believed to be one of the largest seizures of fake goods in the history of New York City.[1] The illegal activities and harmful environmental practices in the District have created a condition that is threatening to the environment and to the neighboring communities, and a continuation of these practices would burden the health of New York City's residents and economy.

[1] Mason, Bill "Police Seize Millions in Massive Counterfeit Bust." www.newsday.com. April 4, 2008.



Willets Point Development District Boundary

1826 *Block Number*

14 *Lot Number*

This figure has been updated since the DGEIS

Figure 1-3

Block and Lot Map

9.11.08



Willets Point Development District Boundary

0 400 800 FEET

SCALE

Figure 1-4
Aerial View

PROPOSED ACTIONS

Redevelopment of the District to meet the City's stated goals and objectives and facilitate development of the proposed Plan would require a number of City, State, and Federal approvals. Most of these are discretionary actions requiring review under CEQR/State Environmental Quality Review Act (SEQRA)/National Environmental Policy Act (NEPA); others are ministerial and do not require environmental review. The discretionary actions required or that may be required for the proposed Plan include:

CITY DISCRETIONARY APPROVALS

- The adoption of a Willets Point Urban Renewal Plan (URP) by HPD, to define District boundaries and the area to be redeveloped, as well as to establish maximum development envelopes, in accordance with the City's redevelopment goals. The draft URP is appended to this document as Appendix A.
- Acquisition of property in accordance with the URP.
- Disposition of property within the District for development in accordance with the URP.
- A change to the underlying zoning of the District from the existing M3-1 and R3-2 districts[1] to a C4-4 district (see Figures 1-5 and 1-6), pursuant to CPC approval. The proposed C4-4 zoning would allow for the range of uses anticipated. The existing permitted FAR in the M3-1 district is 2.0. A maximum permitted FAR of 3.4 would apply across the entire District, as established by the proposed Special Willets Point District, described below.
- Creation of a zoning Special District to further guide development in the District, pursuant to CPC approval. In order to promote redevelopment of Willets Point consistent with the goals and objectives of the proposed Plan and to eliminate unnecessary rigidities that would prevent the achievement of the best possible site plan, the proposed Special District would waive certain C4-4 district requirements and the need for certain CPC and New York City Board of Standards and Appeals (BSA) special permits. To create an appropriate scale and density within the District's surroundings, the urban renewal area would have special provisions regarding streetscape and urban design components. A summary of the proposed Special District regulations is appended to this document as Appendix B.
- Demapping of streets within the District, pursuant to CPC approval. In order to allow maximum flexibility in the creation of the redevelopment site plan, the proposed Plan would include the demapping of some or all streets within the District. The development rights generated from the demapping of these streets would be utilized in the development of the associated blocks and lots. Streets to be demapped may include:
  - 126th Place between Northern Boulevard and 34th Avenue;
  - 127th Street between Northern Boulevard and Willets Point Boulevard;
  - 127th Place between Northern Boulevard and 34th Avenue;
  - 34th Avenue between 126th Street and Willets Point Boulevard;
  - 35th Avenue between 126th Street and Willets Point Boulevard;
  - 36th Avenue between 126th Street and Willets Point Boulevard;
  - 37th Avenue between 126th Street and Willets Point Boulevard;

[1] A small area within the Willets Point Development District is included within an R3-2 district. The portion of the District that is zoned R3-2 district contains roadway connections to Northern Boulevard.

- 38th Avenue between 126th Street and Willets Point Boulevard;
- 39th Avenue between 126th Street and Willets Point Boulevard; and
- Willets Point Boulevard between 126th Street and Northern Boulevard.[1]

- Possible acquisition of property by the City pursuant to the Eminent Domain Procedure Law (EDPL).
- Possible approval by the Queens Borough Board of the business terms of the disposition pursuant to Section 384(b)(4) of the New York City Charter.

STATE/FEDERAL DISCRETIONARY APPROVALS

- Review and approval of a Freeway Access Modification Report by NYSDOT and FHWA for new access ramps to and from the Van Wyck Expressway, a highway on the Interstate System.

COMPONENTS OF THE PROPOSED PLAN

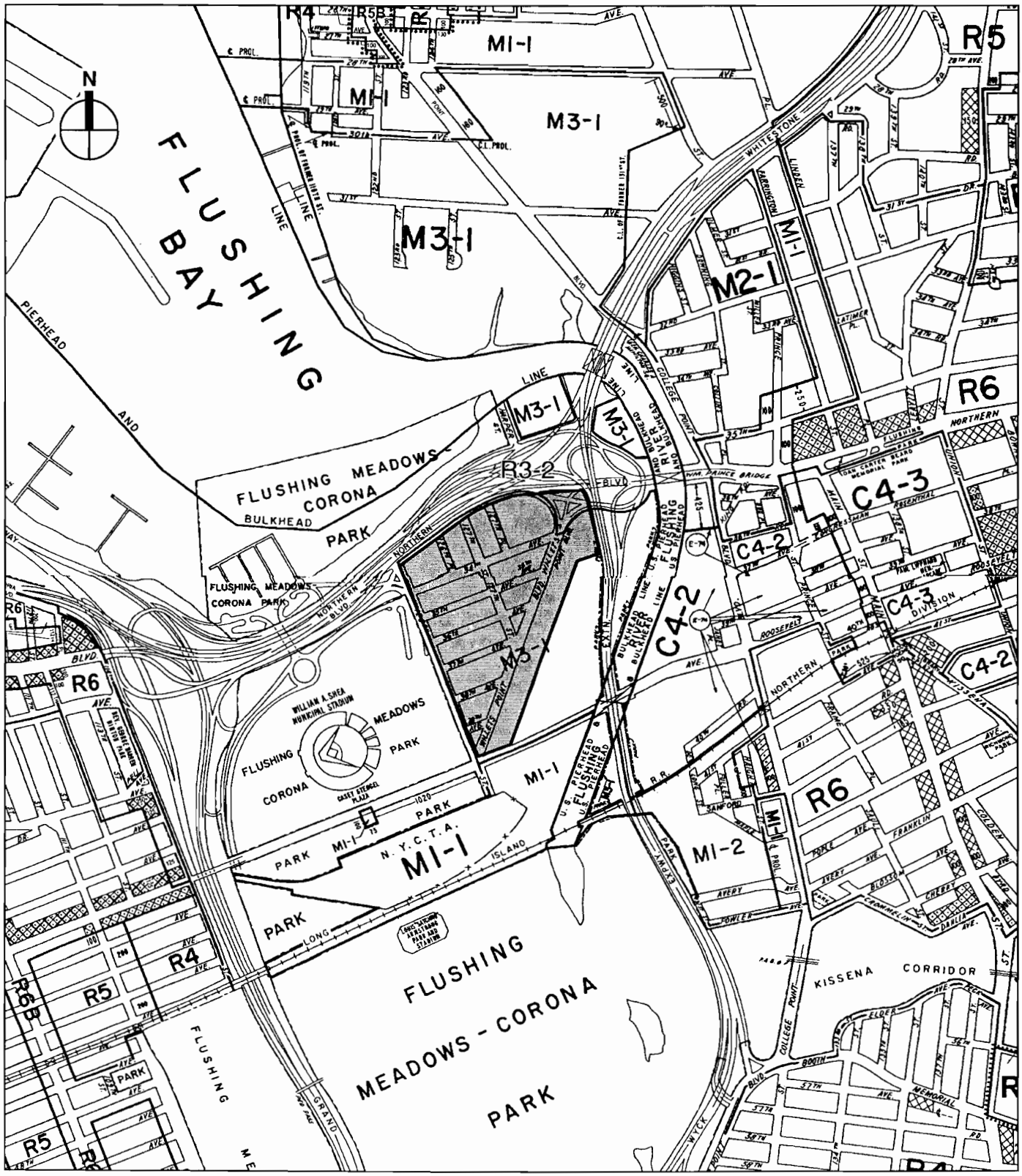
The proposed Plan is intended to stimulate the redevelopment of the District in accordance with the proposed zoning Special District and URP. The proposed Plan envisions residential and retail uses as the core activities within the District. Office, hotel, and convention center uses would complement this foundation, enhancing Flushing and Corona's roles as regional economic centers, while community facilities and open space would provide amenities and enhance the quality of life for area residents and visitors (see Figures 1-7 through 1-9). Although no developer or specific development plan is in place at this time, the URP prescribes a maximum permitted floor area of 8.94 million gsf in the District, and allows flexibility in the combination of uses to be developed in the District. The zoning Special District would ensure the development of a dynamic, pedestrian-oriented community, by determining elements such as the placement of uses within the District, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions, as described in greater detail below.

Since the flexibility provided in the URP could result in a variation in the future development in the District, this DGEIS analyzes two development scenarios—the proposed Plan, which includes an approximately 400,000-square-foot convention center, and the No Convention Center Scenario, in which the convention center is replaced with an additional 350,000 sf of residential use and 50,000 sf of retail use. The anticipated uses are shown in Table 1-2, and the various components of the proposed Plan are described in greater detail below and in Chapter 2, "Analytical and Procedural Framework."

RESIDENTIAL

According to the most current New York City Housing and Vacancy Survey data published by HPD, the residential vacancy rate in Queens was only 2.82 percent in 2005, slightly lower than the citywide average of 3.09 percent. At the same time, the most recent DCP demographic study, *New York City Population Projections by Age/Sex and Borough* (2006), estimates that the

[1] In order to ensure adequate access to the existing 72-inch water main that runs beneath Willets Point Boulevard, a permanent easement would be mapped on the City Map. The width and designation of this easement would be determined in consultation with and in accordance with the requirements of New York City Department of Environmental Protection (DEP).



Willets Point Development District

Zoning District Boundary

Figure 1-5
Existing Zoning

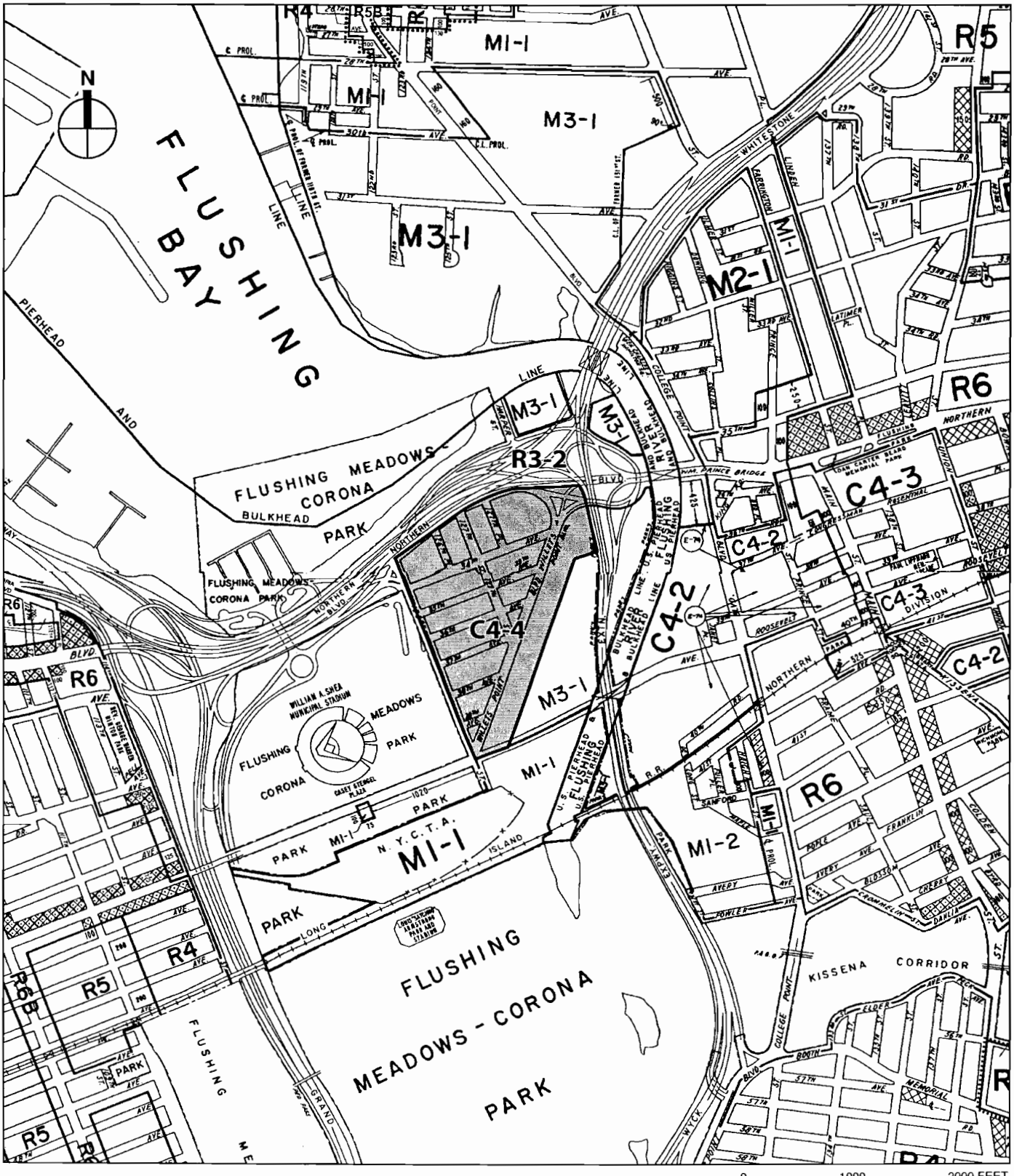


Figure 1-6
Proposed Zoning

9.12.08



Illustrative rendering of the District

This figure has been updated since the DGEIS

Figure 1-7

Illustrative Rendering - View Northeast

9.10.08



Illustrative rendering within the District

This figure has been added since the DGEIS

Figure 1-8

Illustrative Rendering - Commercial and Entertainment Center

9.10.08



Illustrative rendering within the District

This figure has been added since the DGEIS

Figure 1-9

Illustrative Rendering - Residential Community

Table 1-2
Willets Point Development Plan

Use	Urban Renewal Plan	Proposed Plan	No Convention Center Scenario
Residential	Up to 5,850,000 gsf	5,500,000 gsf (*5,500 units*)	5,850,000 gsf (*5,850 units*)
Retail	Up to 3,160,000 gsf	1,700,000	1,750,000
Office		500,000	500,000
Convention Center		400,000	0
Hotel		560,000 (*700 rooms*)	560,000 (*700 rooms*)
Community Facility	—	150,000 gsf	150,000 gsf
School (K-8)*	—	130,000 gsf (*Approx. 850 Seats*)	130,000 gsf (*Approx 900 Seats*)
Parking Spaces**	—	Approx. 6,700	Approx. 6,000
Publicly Accessible Open Space	Minimum 8 Acres	Minimum 8 Acres	Minimum 8 Acres
Total gsf	8,940,000 gsf Maximum	8,940,000 gsf	8,940,000 gsf

Notes:
* The capacity of the proposed school would meet the project-generated shortfall in school seats. A 130,000-sf school would accommodate up to approximately 900 seats; the square footage of the new school may be smaller if the project-generated shortfall in seats is less than anticipated.
** The number of proposed parking spaces would be determined based on anticipated project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

population in Queens will increase by 15.1 percent between 2000 and 2030. The proposed Plan would permit a substantial amount of housing to be constructed in the District, which would help accommodate future population growth in Queens, and contribute to the City's overall efforts to meet its short- and long-term demands for housing. Under the proposed Plan, 20 percent of the proposed units would be reserved for households earning between 60 percent and 130 percent of the U.S. Department of Housing and Urban Development (HUD) Income Limit for New York City. As is typical for units developed under New York City's affordable housing program, approximately half of the affordable units developed under the proposed Plan would likely be two- and three-bedroom units. Income levels are based on HUD Income Limits, which are set annually for metropolitan areas and non-metropolitan counties by HUD. As of 2008 the HUD Income Limit for New York City was $76,800 for a family of four. Therefore, a family of four would need to earn between approximately $46,080 and $99,840 in order to qualify for an affordable housing unit in the District. Because housing units in the District would offer rental and homeownership opportunities for a range of incomes, housing constructed under the proposed Plan would support the goals outlined in the Mayor's New Housing Marketplace Plan, which commits to the construction or rehabilitation of 165,000 affordable housing units in the City.

RETAIL

With a population of greater than 2 million, Queens is significantly underserved by retail of all types. The potential spending pool of Queens' residents is able to support far more retail space and entertainment venues than are currently available in the borough. Based on the most current retail sales and expenditure data compiled by ESRI, a national provider of geographic planning data, retail and food and drink stores in Queens are capturing only 55 percent of the demand generated for those goods by Queens households.[1] Many Queens residents travel to regional malls in Nassau County, Westchester County, and New Jersey, and to entertainment venues

[1] ESRI, Retail MarketPlace Profile, 2007.

outside the borough. The accessibility of the District via mass transit and highways presents an opportunity to create a first-class retail, recreation, and entertainment destination that would attract people from all over the borough, as well as the larger tri-state area. Entertainment venues would satisfy local and City-wide demand while providing activities for before and after the sporting events that occur in the area.

OFFICE

New office space in the District would strengthen the role of Flushing and Corona as commercial centers in Northern Queens and would help meet demand for office space in Queens and the City as a whole. As of the end of the second quarter in 2007, the office vacancy rate in Queens was 8.0 percent, which is lower than the vacancy rates for adjacent counties of Brooklyn (8.7 percent) and Nassau (10.1 percent), indicating that demand for office space in the borough is high.[1] Given its proximity to two major airports and the thriving and expanding Downtown Flushing office district, the District is a suitable location for new office development.

CONVENTION CENTER

A convention center would offer substantial benefits to Queens and the City by hosting large tradeshows, consumer shows, festivals, conferences, corporate events, banquets, and local events. Currently, there are no facilities in Queens that are suitable to host such events. In 2004, the Queens Chamber of Commerce commissioned a study to examine the market for a conference and exhibition space in the Borough of Queens. The study shows a strong demand for such a facility at Willets Point.[2] Convention center visitors would include residents of Queens and the broader metropolitan region attending one-day events or tradeshows, as well as visitors from outside the region attending multi-day conventions and staying at the nearby hotel.

HOTEL

Demand for the hotel would be driven by its proximity to LaGuardia and JFK airports, the growing Flushing community, the future Mets stadium, the USTA National Tennis Center, and the proposed convention center. Occupancy rates at hotels in the area are high and much of the hotel stock in the area is aging. Redevelopment of the District offers an opportunity to create a premier hotel facility in northern Queens.

COMMUNITY FACILITY

The community facility space could include a mix of facilities, including medical offices, day care facilities, community recreation space, or uses such as dance studios, art galleries, theaters, community arts centers, museums, or a library.

SCHOOL

A new public school would be provided to serve the District residents and would be programmed to meet the project-generated shortfall in school capacity. The new school could be either elementary (kindergarten through 5th grade) or combined elementary and intermediate

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[1] The CoStar Office Report, "Long Island Office Market, Mid-Year 2007."

[2] HVS Convention, Sports, & Entertainment Facilities Consulting, Queens, New York Conference/Exhibition Center and Hotel Feasibility Study, 2004.

(kindergarten through 8th grade). However, based on the projected shortfall in elementary school seats in the future with the proposed Plan (see Chapter 5, "Community Facilities"), it is currently anticipated that the school would be programmed to serve elementary students.

OPEN SPACE

A minimum of eight acres of publicly accessible open spaces would be created to serve the range of user groups introduced by the proposed Plan, including residents, workers, tourists, and shoppers. This would include an approximately two-acre park programmed primarily for active recreational use, which would be centrally located within the District. The Special District regulations would also require pedestrian amenity areas or open landscaped areas at various locations along the perimeter of the District. In addition, NYCEDC would encourage the future developer to incorporate ground level active open space and other recreational resources, such as rooftop and interior programming of recreational amenities, into the project design as part of their formal request for proposals (RFP) process.

PARKING

Off-street parking would be provided to meet the demand generated by the proposed uses, which is estimated to be approximately 6,700 spaces with the proposed Plan, or 6,000 spaces with the No Convention Center Scenario. It is anticipated that parking would be dispersed throughout the District, in above- and below-grade parking facilities located in the bases of the proposed buildings. Limited on-street parking would also be available in parts of the District.

VAN WYCK EXPRESSWAY CONNECTION

A new connection between the Van Wyck Expressway and the District would be provided to facilitate the movement of traffic into and out of the District and minimize traffic on nearby local roadways. NYSDOT is currently considering conceptual design alternatives, which include new entrance and exit ramps that touch down in the northeast portion of the District and connect with the primary connector streets in the District (see Figure 1-10).

SITE GRADING

The District would be graded and elevated above the floodplain. One of the greatest barriers to redevelopment in the District is that much of the land area within the District is below the FEMA 100-year floodplain level of 14 feet Above Mean Sea Level (AMSL).[1] Depending on the existing elevation, up to seven feet of fill would be required to raise the District out of the floodplain. Development at the existing grade would require costly engineering measures for flood control on lower floors.

SITE REMEDIATION

Environmental remediation would take place across the District as part of the proposed Plan. As a result of past uses in the area, soil and groundwater have likely been impacted in varying degrees throughout the District, possibly resulting in vapor intrusion issues within the existing buildings. Under the proposed Plan, environmental remediation would take place across the site, employing strategies such as the removal and/or capping of contaminated soils and the

[1] Referencing National Geodetic Vertical Datum of 1929 (NGVD29).

establishment of minimum engineering and/or institutional controls (e.g., vapor barriers under new buildings). This comprehensive approach enables the City to establish a cohesive remediation goal and end use for the entire District, while ensuring that a mechanism is in place to prevent recontamination from surrounding uses or off-site contaminants.

INFRASTRUCTURE IMPROVEMENTS

New and sanitary and stormwater lines would be installed as part of the proposed Plan. In order to accommodate stormwater flow within the District, and alleviate the current flooding conditions, stormwater detention would be provided on-site. A new sanitary pump station and force main would be constructed to convey sanitary flow from the District to the existing 96-inch-diameter City sewer at 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). The pump station and force main would be designed and constructed to DEP standards. The Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. This facility would support the City's goal to incorporate the latest innovative building and planning technologies in the District, as described in greater detail below. The water reclamation facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The product of wastewater treatment is sludge, which is compressed and removed once every one to three days. It is anticipated that a water reclamation facility would be a centralized structure approximately 11,000 sf in size. If proposed by a future developer, a water reclamation facility would require a special permit by the Board of Standards and Appeals (BSA) and likely a permit from DEC, and would be subject to separate environmental and public review processes. If a water reclamation facility were constructed, it would obviate the need for a new pump station.

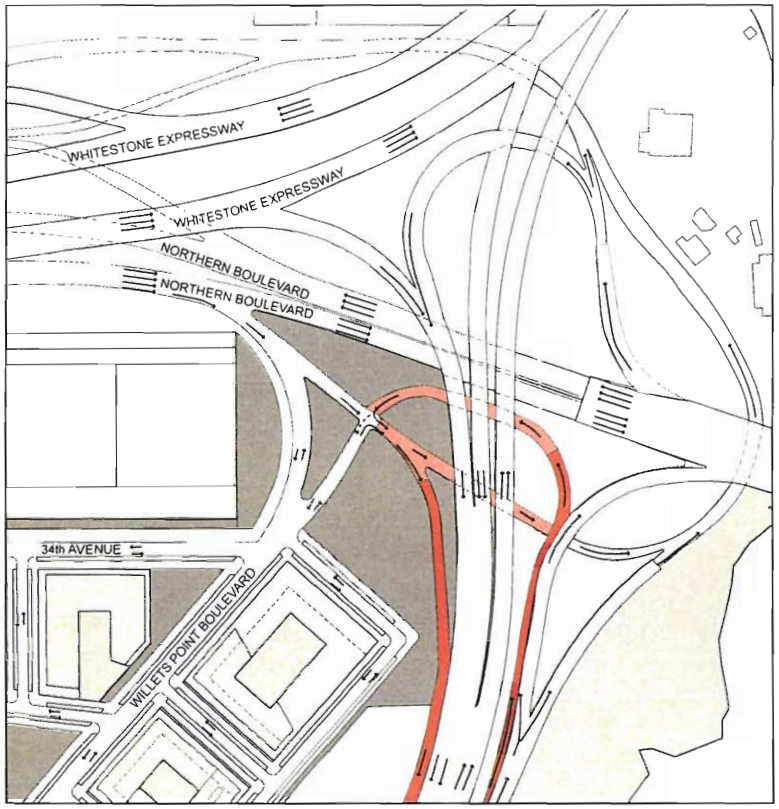
While the 72-inch water main beneath Willets Point Boulevard would remain in place, other water and sewer lines within the District may be replaced and realigned, depending on the site plan that is ultimately selected, to serve the new uses in the District. New roadways would also be provided as part of the proposed Plan.

The proposed Plan would ensure that project-generated demand for energy is met by providing additional power lines in the District and potentially providing a new cogeneration facility and/or substation, provided they would primarily serve the District. If proposed, these uses would be subject to separate environmental and public review processes. The cogeneration facility would require approval by the BSA, as well as air quality permits from DEP and DEC. The substation would require authorization by the City Planning Commission (CPC). For the water reclamation facility and cogeneration facility, the Special District text requires that the reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including emissions limits, as well as the concealment of such uses with building enclosures, landscaping, buffer zones, or other methods.

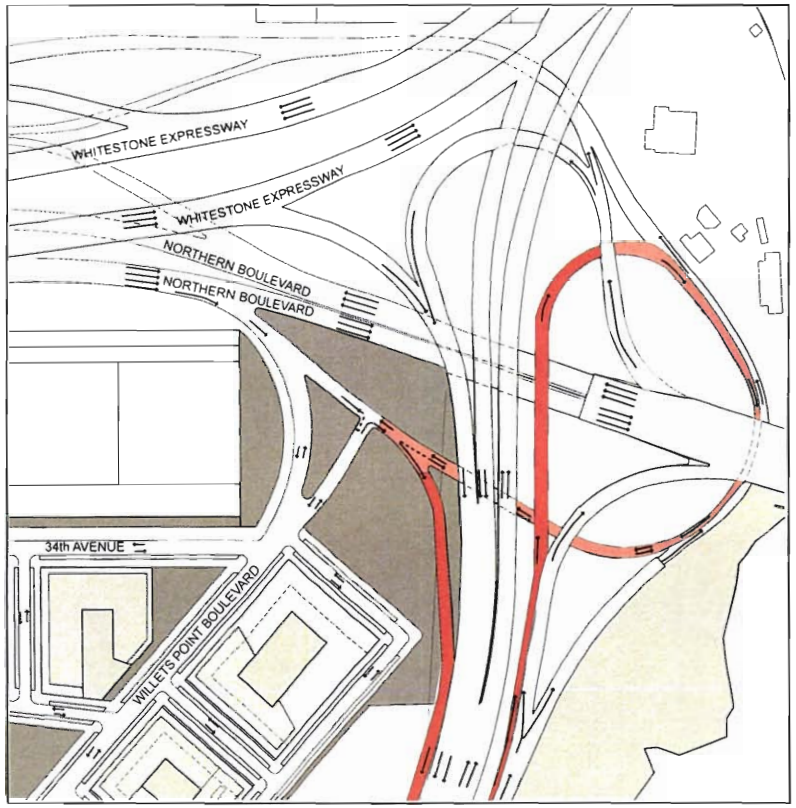
DESIGN CONSIDERATIONS

Placement of uses within the District would be guided by urban design regulations set forth in the Special Willets Point District, a zoning Special Purpose District. These regulations address design elements such as the placement of uses within the District, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions. Key elements of the Special District and its intended purpose are described below.

9.10.08



FOR ILLUSTRATIVE PURPOSES



This figure has been updated since the DGEIS

Figure 1-10

Van Wyck Access Ramp Alternatives

SITE PLAN AND URBAN DESIGN

The site planning and urban design of the District are intended to create a dynamic community by integrating regional attractions and residential, retail, and other uses within a network of pedestrian-scaled streetscapes throughout the District.

The Special District regulations would allow for the provision of three zones with distinct land use and design provisions: a commercial and entertainment center, a residential community, and a convention center zone (see Figure 1-11).

The commercial and entertainment center would be located in the western portion of the District, with a lively, pedestrian-oriented retail corridor extending approximately 600 feet east of 126th Street. This area would contain mixed-use structures with extensive restaurant, entertainment, and nightlife uses along 126th Street, and a mix of retail shops on primary and secondary retail streets east of 126th Street. The upper stories of the buildings in this zone could contain residential, office, or community facility uses (see Figure 1-12). Large commercial anchor blocks would be located at Northern Boulevard and Roosevelt Avenue along 126th Street, with retail uses concentrated in proximity to the new Citi Field. The proposed commercial and entertainment center would create a synergy between the new Citi Field and the District, and would function as a new regional attraction.

The residential community would be located in the eastern part of the District, and could include residential, office, community facility, ground-floor local retail, and parking uses. Design parameters such as setbacks, maximum block dimensions, and building entrances on each blockfront would encourage a pedestrian-friendly neighborhood environment (see Figure 1-13).

The Special District regulations would permit a convention center to be located in the northeastern portion of the district, within 650 feet from Northern Boulevard. Accessory uses—including a hotel and accessory parking—would be located in proximity to the convention center. In the No Convention Center Scenario, additional residential and ground floor retail uses would be developed in place of the convention center.

The Special District would regulate the general layout of the principal private streets, by mandating four or five specific intersections along 126th Street and establishing design parameters for six different street types (see Figure 1-14). These streets would establish the basic form of the District and ensure that the future uses in the District are integrated into a cohesive site design. Two connector streets would be required. One would extend from the intersection of 126th Street and 34th Avenue east into the District, and the other would extend east into the District from Citi Field's southern edge. The illustrative street network and illustrative site plan maintain the current alignment of Willets Point Boulevard in order to allow continued operation and maintenance of the existing 72-inch water main that runs beneath it. A mapped easement would ensure adequate access to the water main in the future. The Special District regulations would require the creation of one primary and two to three secondary retail streets within the entertainment and commercial center, and residential streets within the residential community. An eastern perimeter street would be located within 20 feet of the eastern boundary of the District, extending between Roosevelt Avenue and a connector street. Service streets may be located as one of the streets bounding each anchor block.

The Special District would create a walkable, urban streetscape environment by requiring that off-street parking facilities be fully enclosed and wrapped by active uses so as not to be visible from adjacent sidewalks or open spaces (with some exceptions, including along parts of Northern Boulevard and the eastern perimeter street and service streets, and upper level parking

along 126th Street). The Special District would establish dimensions and design parameters addressing sidewalk width, travel lanes, parking lanes, bicycle lanes, street trees, and other pedestrian amenities. It would also ensure the development of a minimum of eight acres of well-designed open spaces, including a two-acre centrally located park in the residential community with frontage on a connector street. Together, these features would create a lively, pedestrian-oriented streetscape throughout the District.

Figure 1-15 provides an illustrative view of how the land uses and massing could be distributed across the District. The eventual built configuration of uses will be subject to change based on the results of the environmental review, market factors, and engineering considerations, but would be subject to all restrictions and guidelines outlined in the Special Willets Point District.

The City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and NYCEDC is currently seeking funding and approvals to implement these improvements. (See Chapter 6, "Open Space," for an illustration of the proposed improvements.) The bicycle lanes required on connector streets within the redeveloped District would connect to this area-wide bicycle and greenway network, improving connectivity between Willets Point and surrounding areas.

BUILDING HEIGHTS

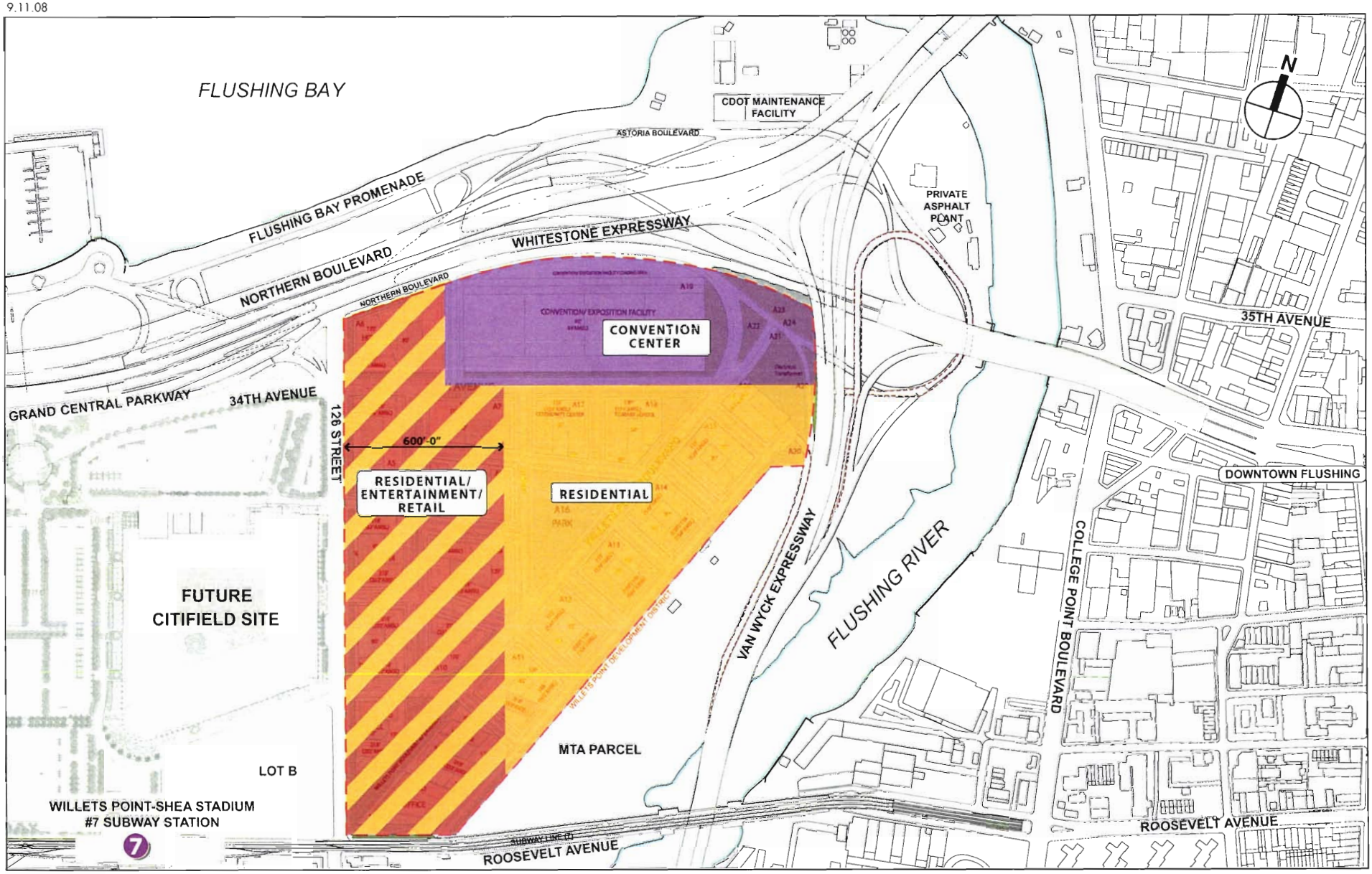
Buildings constructed under the proposed Plan would range in maximum height from approximately 60 feet to 218 feet above ground level. Due to its proximity to LaGuardia Airport, the District is subject to height restrictions established by the Federal Aviation Administration (FAA) and the Port Authority of New York and New Jersey (PANY/NJ). Across a majority of the District, height limits are determined by the distance from LaGuardia Airport and the "slope area" in which the site is located. Each point within the slope areas has a different allowable height associated with it, as dictated by its distance from the runway, as shown in Figure 1-16.

Buildings in the northeastern section of the District are located within the International Civil Aviation Organization (ICAO) Engine Out Splay area and are permitted to rise one vertical foot AMSL for every 62.5 feet away from the end of the runway. Buildings located in the FAA Departure Splay area farther southwest are permitted to rise one vertical foot AMSL for every 40 feet away from the end of the runway. Buildings in the splay areas along the northern boundary of the District would have a maximum height of between approximately 94 feet AMSL and 133 feet AMSL, while points in the splay areas near the southern boundary may rise as high as approximately 172 feet AMSL. The building height restrictions that apply to the District are also regulated by special controls provided in Article VI of the New York City Zoning Resolution. The southwestern portion of the District falls outside of the ICAO and FAA splay areas. Buildings on this portion of the site may be built to a maximum height that is no greater than the new Citi Field, which is approved for 218 feet above ground level, or 232 feet AMSL. As described previously, up to seven feet of fill would be used to grade and raise the District to an elevation of between 14 and 17 feet AMSL. However, the buildings developed as a result of the proposed Plan would not exceed the maximum AMSL height limits described above.

SUSTAINABLE DESIGN

The size and scope of the proposed Plan represent an opportunity to incorporate integrated sustainable design measures in meaningful ways. Not only would the proposed Plan create a

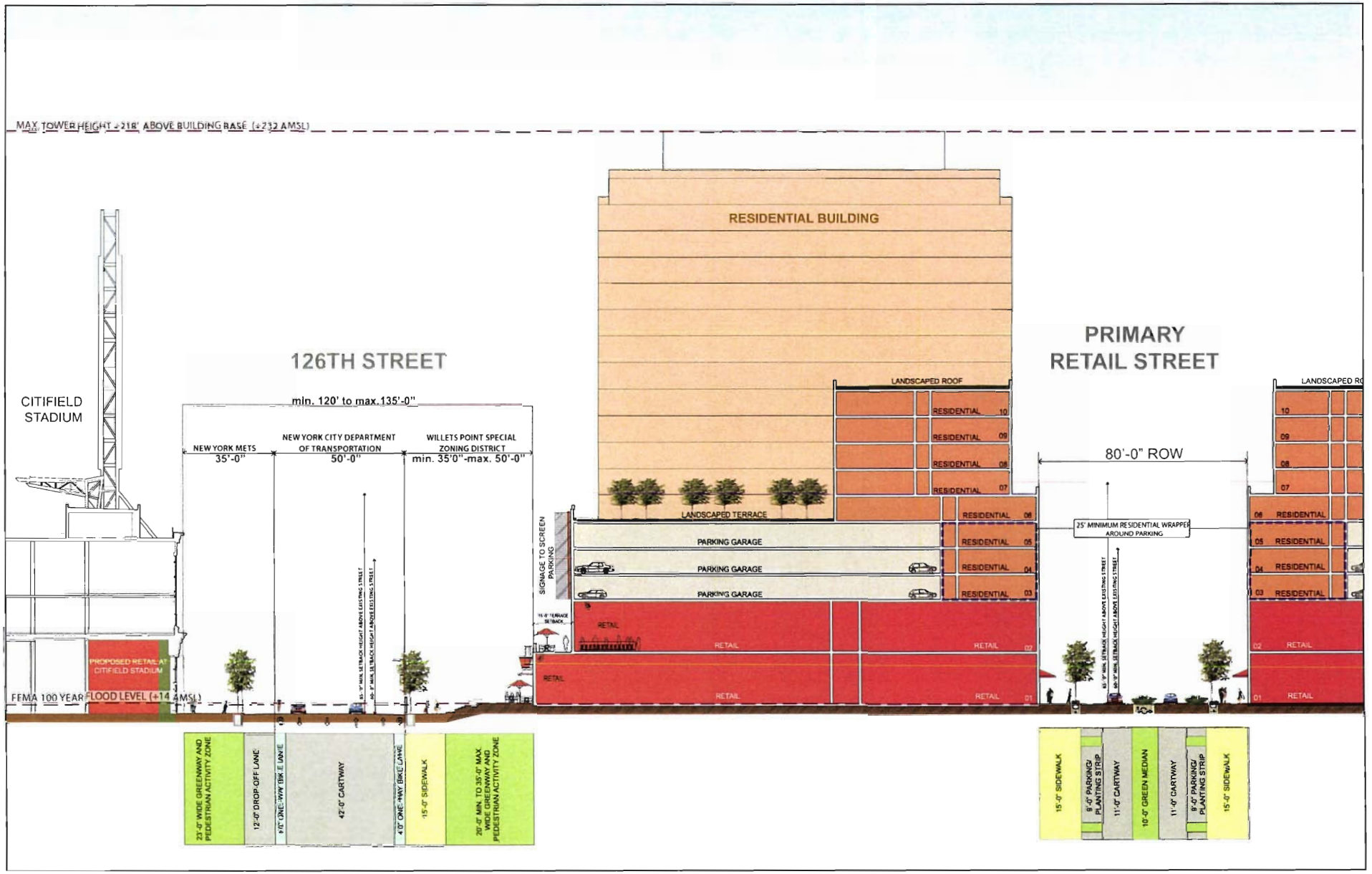
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Figure 1-11

Proposed Special District Zones



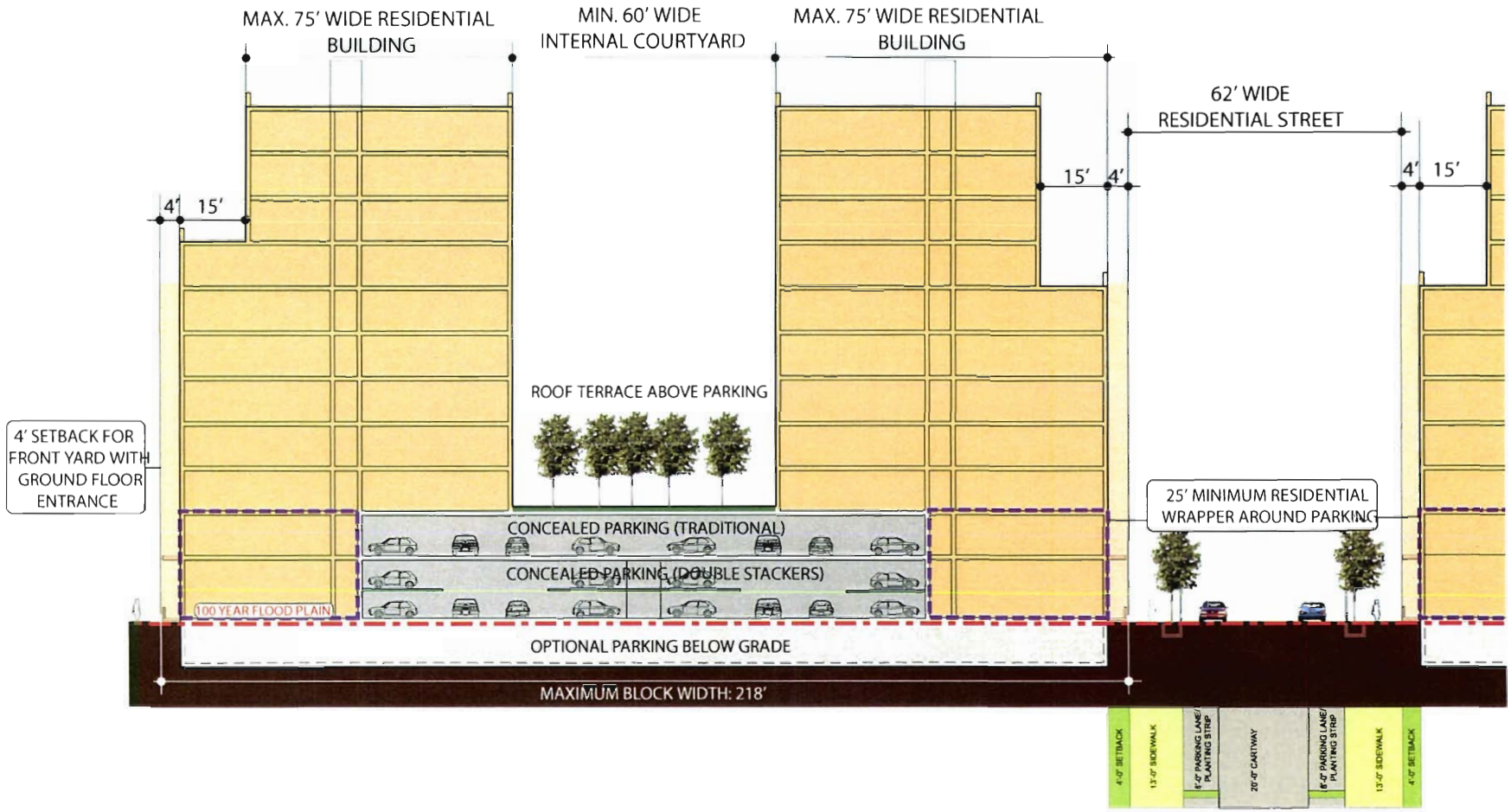
FOR ILLUSTRATIVE PURPOSES

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Figure 1-12

Entertainment and Commercial Center - Elevation

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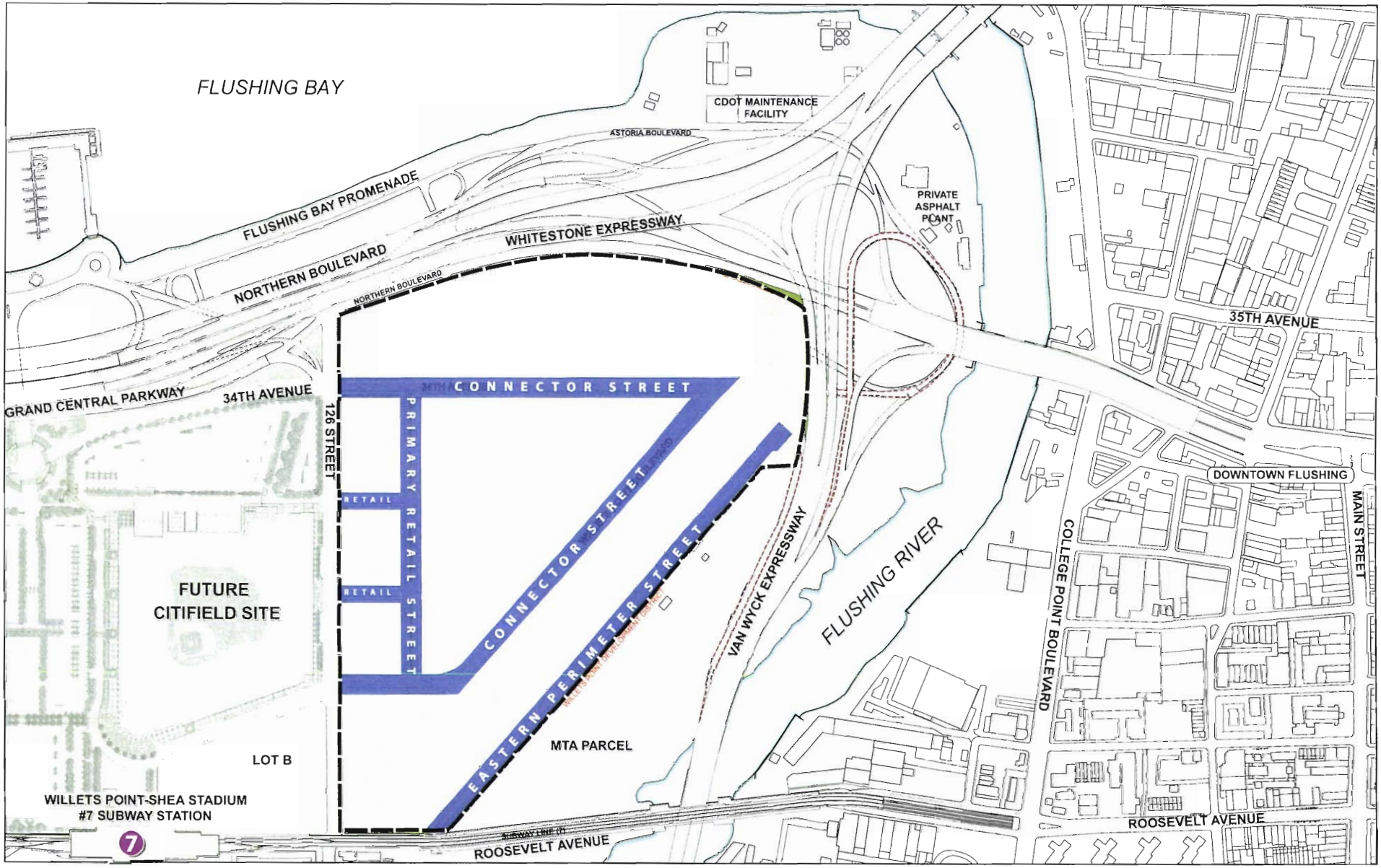
FOR ILLUSTRATIVE PURPOSES

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Figure 1-13

Residential Community Elevation

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Willets Point Development District

FOR ILLUSTRATIVE PURPOSES

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Figure 1-14

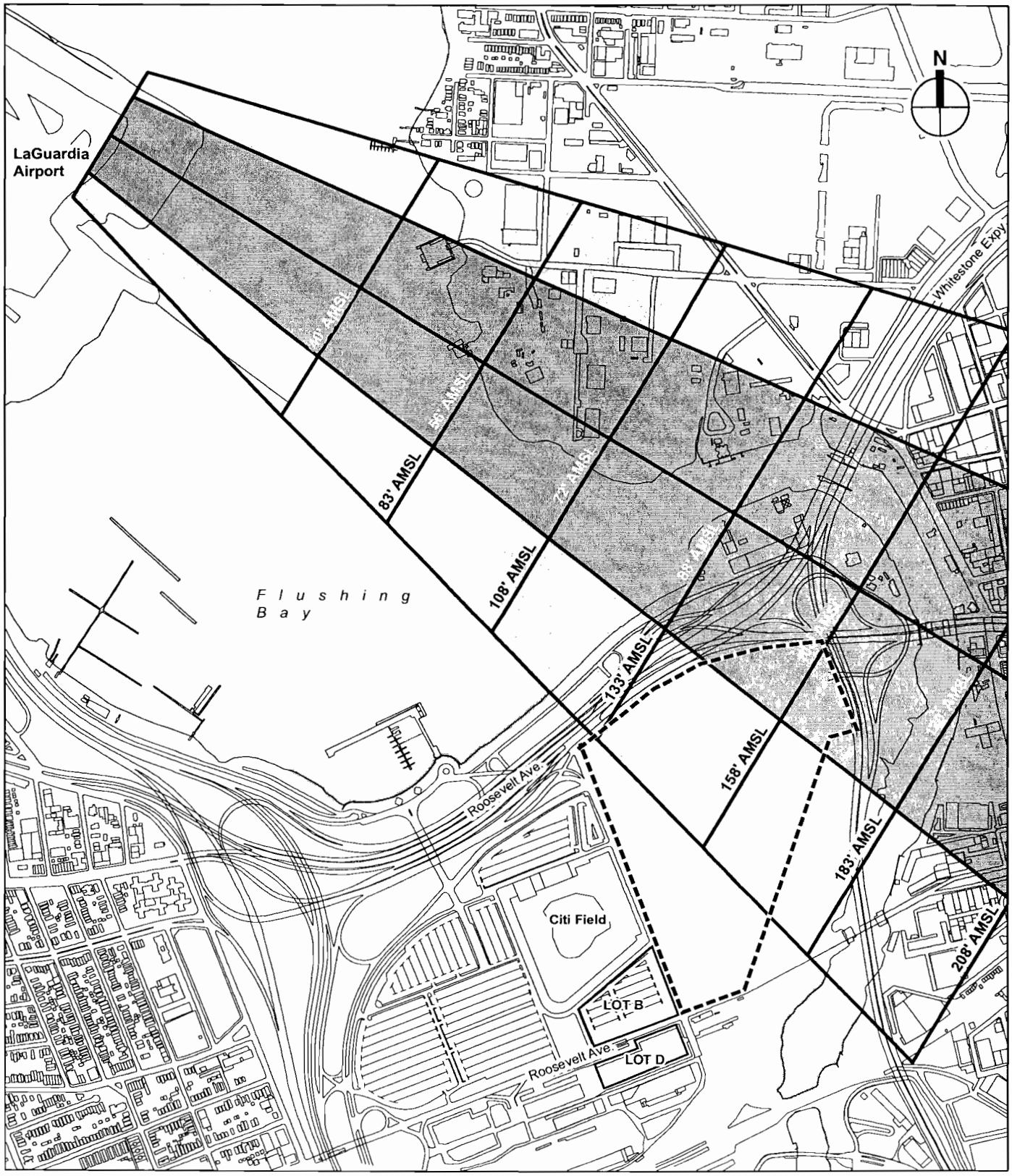
Proposed Street Network

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Figure 1-15
Illustrative Site Plan



Willets Point Development District

International Civil Aviation Organization (ICAO) Engine Out Splay

Federal Aviation Administration (FAA) Departure Splay

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Figure 1-16

ICAO and FAA Heights Limits

transit-oriented urban infill development that would leverage the District's superior transit and highway infrastructure, it would also encourage the latest innovative building and planning technologies.

The Willets Point Development Plan has been accepted as a pilot Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) project by the United States Green Building Council (USGBC). The illustrative site plan (as shown in Figure 1-15) has been designed to achieve LEED-ND certification, and the City would require any future development in the District to achieve LEED-ND certification.

In accordance with LEED-ND certification requirements, the proposed Plan (and the No Convention Center Scenario) may incorporate a number of sustainable practices from the following LEED categories:

- Smart Location and Linkage: Includes Floodplain Avoidance, Brownfield Redevelopment, Reduced Automobile Dependence, Bicycle Networks, Housing and Jobs Proximity, School Proximity, Restoration of Wetlands, and Conservation Management of Wetlands.
- Neighborhood Pattern and Design: Includes Compact Development, Diversity of Uses, Affordable Housing, Reduced Parking Footprint, Walkable Streets, Transit Facilities, Transportation Demand Management, Access to Surrounding Vicinity, Public Spaces, and Active Public Spaces, Universal Accessibility, and Community Outreach and Involvement.
- Green Construction and Technology: Includes LEED Certified Green Buildings, Energy Efficiency in Buildings, Reduced Water Use, Contaminant Reduction in Brownfields Remediation, Stormwater Management, Heat Island Reduction, Solar Orientation, On-site Energy Generation and Renewable Energy Sources, District Heating and Cooling, Infrastructure Energy Efficiency, Wastewater Management, Recycled Content in Infrastructure, Construction Waste Management, and Light Pollution Reduction.
- Innovation and Design Process.

A number of sustainable features have been incorporated into the proposed Plan. These sustainable features, which are reflected in the Special District text as well as the illustrative site plan (Figure 1-15), include:

- The primary retail street would have an option to include a 10-foot landscaped median that could be utilized for stormwater management. If a median is provided, the right-of-way could be expanded from 70 to 80 feet wide.
- Seventy-five percent of residential towers in the District would face within 25 degrees of true south. This would allow for more passive maintenance of interior thermal comfort, decreasing overall energy consumption by reducing the need for traditional heating and cooling systems.
- The off-street parking garages within the District would include a combination of traditional, valet, and stacked parking, which would reduce the overall floor area needed to accommodate District parking. This modification allows some residential buildings to be C-shaped (as opposed to Donut-shaped), which encourages greater energy efficiency by allowing more light into the building and the rooftop courtyard areas.
- Up to five percent of the off-street parking spaces would be available for vehicles being shared by multiple households (e.g., car-sharing vehicles), in order to promote efficiency in parking and provide an increased range of transportation options for residents.

- Indoor accessory bicycle parking would be required for all developments. Residential buildings with greater than 10 units would require 1 bicycle space per every 2 units, with a maximum of 200 spaces. Office use would require 1 space for every 5,000 sf of office area, to a maximum 200 spaces. Retail use would require 1 space for every 10,000 sf of retail area, to a maximum of 100 spaces.

In addition, the proposed school would be built according to the New York City Green Schools Guide, published by the New York City School Construction Authority in March 2007, which guides the sustainable design, construction, and operation of new schools, modernization projects, and school renovations in New York City. The New York City Green Schools Rating System contains requirements that are as stringent as those for LEED New Construction (version 2.2), required to obtain a LEED-certified rating. Green school improvements reduce operating costs, improve indoor air quality, conserve natural resources, and enhance the learning environment by making schools healthier and more comfortable places to work and learn. ✷

Chapter 2: Procedural and Analytical Framework

A. INTRODUCTION

The Willets Point Development Plan ("proposed Plan" or "Plan") entails the comprehensive redevelopment of the approximately 61-acre Willets Point Development District ("the District") in northern Queens. This Generic Environmental Impact Statement (GEIS) considers a maximum development envelope that represents the upper limit of new development that is likely to occur within the District as a result of the proposed Plan.

The maximum development envelope anticipated under the proposed Plan includes up to 8.94 million gross square feet (gsf) of new buildings, which would include residential, retail, office space, a hotel and convention center, as well community facilities and open space. The size and scope of the proposed Plan have led to the determination that the Plan may generate significant environmental impacts and, as a result, that an Environmental Impact Statement (EIS) should be prepared.

This chapter provides an overview of the environmental review process and a description of the analytical framework used to guide the technical analyses presented in subsequent chapters of this GEIS. It also identifies the other projects that have recently been completed, or are expected to be completed, in the area surrounding the District by 2017, the analysis year analyzed in this GEIS. Where relevant, these background projects are considered in the forecast of future conditions that forms the basis for assessing impacts of the proposed Plan.

B. ENVIRONMENTAL REVIEW PROCESS

All state, county, and local government agencies in New York, except the State Legislature and the courts, must comply with the State Environmental Quality Review Act (SEQRA). The City of New York established City Environmental Quality Review (CEQR) regulations in accordance with SEQRA. This GEIS has been prepared in accordance with the guidelines set forth in the 2001 *CEQR Technical Manual*, where applicable. The environmental review process allows decision-makers to systematically consider the environmental effects of a proposed action, to evaluate reasonable alternatives, and to identify measures to mitigate significant adverse environmental effects. The process also facilitates public involvement in the process by providing the opportunity for public comment on the Draft GEIS. The environmental review process is outlined below.

- **Establishing a Lead Agency.** Under CEQR, the "lead agency" is the public entity responsible for conducting the environmental review. Usually, the lead agency is also the entity primarily responsible for carrying out, funding, or approving a proposed action. For the proposed Plan, the lead agency is the City's Office of the Deputy Mayor for Economic Development.
- **Determination of Significance.** The lead agency's first charge is to determine whether a proposed action might have a significant adverse impact on the environment. To make this determination, an Environmental Assessment Statement (EAS) was prepared. Based on the

information contained in the EAS, the lead agency determined that the proposed Plan could have the potential to result in significant adverse environmental impacts and issued a Positive Declaration on March 30, 2007, initiating the preparation of an EIS.

- **Scoping.** "Scoping," or creating the scope of work, focuses the environmental impact analyses on the key issues to be studied. In addition to the Positive Declaration, the lead agency issued a Draft Scope of Work for the GEIS on March 30, 2007. This was widely distributed to concerned citizens, public agencies, and other interested groups. A public scoping meeting was held for the proposed Plan on May 1, 2007, at the Flushing Branch of the Queens Public Library at 41-17 Main Street, Flushing, New York. Written comments were accepted through May 14, 2007, and a Final Scope of Work, reflecting comments made during scoping, was issued on April 16, 2008.

- **Draft Generic Environmental Impact Statement (DGEIS).** A GEIS is an EIS that analyzes the impacts of a concept or overall plan rather than a specific project plan for a development, and should discuss the logic and rationale for the choices advanced. GEISs and the findings based on them should set forth specific conditions or criteria under which future actions will be undertaken or approved, including requirements for any subsequent SEQRA compliance. Since the actual development, if approved, will depend on developer proposals and future market conditions, a GEIS that analyzes a maximum development envelope has been prepared. The DGEIS, prepared in accordance with the Final Scope of Work, is a comprehensive document that systematically considers the expected environmental effects of a proposed action, evaluates reasonable alternatives, and identifies feasible mitigation measures that, to the maximum extent practicable, address the significant adverse environmental impacts of the proposed action. The lead agency reviews all aspects of the DGEIS to determine its adequacy and adherence to the work effort outlined in the Final Scope of Work. Once the lead agency was satisfied that the DGEIS was complete for the purposes of public review and comment, it issued a Notice of Completion on April 18, 2008 and circulated the DGEIS for review among public agencies and the general public. Circulation of the DGEIS marked the beginning of a public review period, during which time a public hearing was held to solicit comments on the DGEIS.

Public Review. Publication of the DGEIS and issuance of the Notice of Completion signal the beginning of the public review period. During this time, which must extend for a minimum of 30 days, the public may review and comment on the DGEIS, either in writing or at a public hearing convened for the purpose of receiving such comments. Where the CEQR process is coordinated with another City process that requires a public hearing, such as Uniform Land Use Review Procedure (ULURP), described below, the hearings may be held jointly. The lead agency must publish a notice of the hearing at least 14 days before it takes place and must accept written comments for at least 10 days following the close of the hearing. The public hearing for the DGEIS prepared for the Willets Point Development Plan was held on August 13, 2008 at Tishman Auditorium of Vanderbilt Hall, 40 Washington Square South in Manhattan, New York. The public hearing was noticed in the following publications: New York Daily News (Island Edition) on July 23, 2008, Times-Ledger Newspaper on July 24, 2008, Queens Tribune on July 24, 2008, Queens Courier on July 23, 2008, Hoy on July 23, 2008, Korean Central Daily on July 23, 2008, and the World Journal on July 23, 2008.

The public review period for interested and involved agencies and for the public to review and comment on the DGEIS was held open through August 25, 2008. All substantive comments received on the DGEIS, at the hearing or during the comment period, become part of the CEQR record and have been summarized and responded to in this Final Generic Environmental Impact

Statement (FGEIS). Chapter 29, "Response to Comments," provides a summary of the substantive comments received during the public comment period for the proposed project.

- **Final Generic Environmental Impact Statement (FGEIS).** Once the public comment period for the DGEIS closes, a FGEIS is prepared. This document includes a summary of, and response to, each substantive comment made about the DGEIS. Once the lead agency determines that the FGEIS is complete, it issues a Notice of Completion and circulates the FGEIS.
- **Statement of Findings.** To demonstrate that the responsible public decision-makers have taken a hard look at the environmental consequences of a proposed action, any agency taking a discretionary action regarding an action must adopt a formal set of written findings, reflecting its conclusions about the significant adverse environmental impacts, potential alternatives, and potential mitigation measures. Findings based on GEISs should set forth specific conditions or criteria under which future actions will be undertaken or approved, including requirements for any subsequent SEQR compliance. The findings may not be adopted until 10 days after the Notice of Completion has been issued for the FGEIS. Once findings are adopted, the lead and involved agencies may take their actions (or take "no action").
- **Subsequent Proposed Action**. If a subsequent action or actions are proposed after the FGEIS Notice of Completion has been issued, further SEQR compliance would be required if the action is not in conformance with the conditions and thresholds established in the FGEIS or its findings statement. If the subsequent proposed action was adequately addressed in the FGEIS but not in the findings statement, an amended findings statement must be issued. If the subsequent proposed action is not adequately addressed in the FGEIS and would not result in any significant adverse impacts, a Negative Declaration must be prepared. If the subsequent proposed action could result in significant adverse impacts not adequately addressed in the FGEIS, a supplement to the FGEIS must be prepared.

COORDINATION WITH OTHER REVIEW PROCESSES

The CEQR environmental process is intended to provide decision-makers with an understanding of the environmental consequences of actions undertaken by an agency. Often, the environmental review process is integrated and coordinated with other decision-making processes utilized by government agencies. There are two key public processes involved in implementation of the proposed Plan: ULURP; and potential property acquisition under the Eminent Domain Procedure Law (EDPL).

UNIFORM LAND USE REVIEW PROCEDURE (ULURP)

Several of the proposed actions are subject to ULURP, which is mandated by Sections 197-c and 197-d of the City Charter. ULURP was enacted to allow public review by the local Community Board, the Borough President, the City Planning Commission (CPC), and—for certain applications—the City Council and Mayor, of certain types of proposed actions, including rezonings and purchase of property by the City. ULURP procedures set time limits for review at each stage to ensure a maximum review period of approximately seven months.

The process begins with certification by the New York City Department of City Planning (DCP) that the ULURP application is complete. The certified ULURP application must be accompanied by the DGEIS and its Notice of Completion, and marks the commencement of the ULURP

process. The application is then forwarded to the local Community Board, which has up to 60 days to review and discuss the proposal, hold public hearings, and adopt a resolution regarding its advisory recommendation on the application. The Community Board will then forward the application to the Borough President, who has up to 30 days to review the application and issue a recommendation. Next, CPC has up to 60 days to review the application, during which time a ULURP public hearing will be held. When a DGEIS accompanies the ULURP application, as with this proposal, the CEQR public hearing can be held jointly with the ULURP hearing. Following the hearing, CPC may approve, approve with modifications, or deny the application. CPC then forwards the application to the City Council. With respect to the proposed Plan, review by the City Council of the proposed zoning map amendment and property disposition is mandatory. The City Council has up to 50 days to act on the application. Following the Council's vote, the Mayor has five days in which to approve or veto the Council's action. The City Council may override a mayoral veto within 10 days.

CITY ACQUISITION THROUGH EMINENT DOMAIN

The proposed Plan includes the creation of a URP by HPD. To facilitate implementation of the proposed Plan, the City may acquire property through the use of the eminent domain process. There has been no determination at this time to acquire property by means of eminent domain. Any such acquisition of property would be done in compliance with the provisions of the Eminent Domain Procedure Law.

C. FRAMEWORK FOR ENVIRONMENTAL ANALYSIS

SCOPE OF ENVIRONMENTAL ANALYSIS

As set forth in the Positive Declaration, the lead agency has determined that the proposed Plan may result in one or more significant adverse environmental impacts and, thus, preparation of this GEIS is required. This document uses methodologies and follows the guidelines set forth in the *CEQR Technical Manual*. These are considered to be the most appropriate technical analysis methods and guidelines for environmental impact assessment of discretionary actions in the City.

For each technical analysis in the GEIS, the assessment includes a description of existing conditions, an assessment of conditions in the future without the proposed Plan for the year that the action would be completed, and an assessment of conditions for the same year with the proposed Plan.

ANALYSIS YEAR

An EIS analyzes the effects of a proposed action on its environmental setting. Since development under the proposed Plan, if approved, would be completed in the future, the environmental setting is not the current environment but the environment as it would exist at the Plan's completion, in the future. Therefore, future conditions must be projected. This prediction is made for a particular year, generally known as the "analysis year" or the "Build year," which is the year when a proposed action would be substantially operational. It is assumed that the proposed Plan would be constructed incrementally starting in late 2009, and would be built out by 2017. Thus, 2017 has been selected as the analysis year for the proposed Plan. Conditions in the future with the proposed Plan have been evaluated in comparison to conditions in the future without the proposed Plan for this analysis year.

DEFINITION OF STUDY AREAS

Study areas relevant for each analysis category are defined. These are the geographic areas most likely to be potentially affected by the proposed Plan for a given category. Appropriate study areas differ depending on the type of analysis. Because of the magnitude of the proposed Plan, it is appropriate for some analyses contained in this GEIS to use primary and secondary study areas. The primary study area is closest to the District and therefore is most likely to be potentially affected. The primary study area receives the most thorough analysis. The secondary study area is farther away and, with respect to some technical areas, receives less detailed, more qualitative analysis. Generally, the Plan's effects can be predicted with greater certainty in the primary study area, while the secondary study area could experience indirect effects. It is anticipated that the principal direct effects of the Plan would occur within the District. The specific methods and study areas are discussed in the individual technical analysis chapters.

DEFINING BASELINE CONDITIONS

EXISTING CONDITIONS

This GEIS provides a description of "existing conditions" for 2007 and assessments of future conditions without the proposed Plan ("future without the proposed Plan") and with the proposed Plan ("probable impacts of the proposed Plan"). The assessment of existing conditions establishes a baseline—not against which the proposed Plan is measured, but from which future conditions can be projected. The prediction of future conditions begins with an assessment of existing conditions because these can be measured and observed. Studies of existing conditions are generally selected based on the anticipated future reasonable worst-case conditions. For example, traffic counts are taken during the periods when the greatest numbers of new vehicular, pedestrian, and transit trips to and from the District would occur. The Plan's impacts are then assessed for those same traffic peak periods.

DEFINITION OF FUTURE WITHOUT THE PROPOSED PLAN

The future without the proposed Plan condition provides a baseline condition that is evaluated and compared with the incremental changes due to the proposed Plan for the 2017 analysis year.

The future without the proposed Plan condition uses existing conditions as a baseline and adds to it changes that are known or expected to be in place at various times in the future. For many technical areas, the future without the proposed Plan condition incorporates known development projects that are likely to be built by the analysis year and provides a baseline against which the incremental changes generated by the proposed Plan can be evaluated. This includes development currently under construction or that can be reasonably anticipated due to the current level of planning and public approvals. This GEIS assumes that the conditions currently present within the District would remain the same in the future without the proposed Plan.

The analyses of the future without the proposed Plan for some technical areas, such as traffic, add a background growth factor as a further measure, to account for a general increase in activity unrelated to known projects in addition to anticipated future projects. The analyses of the future without the proposed Plan 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.

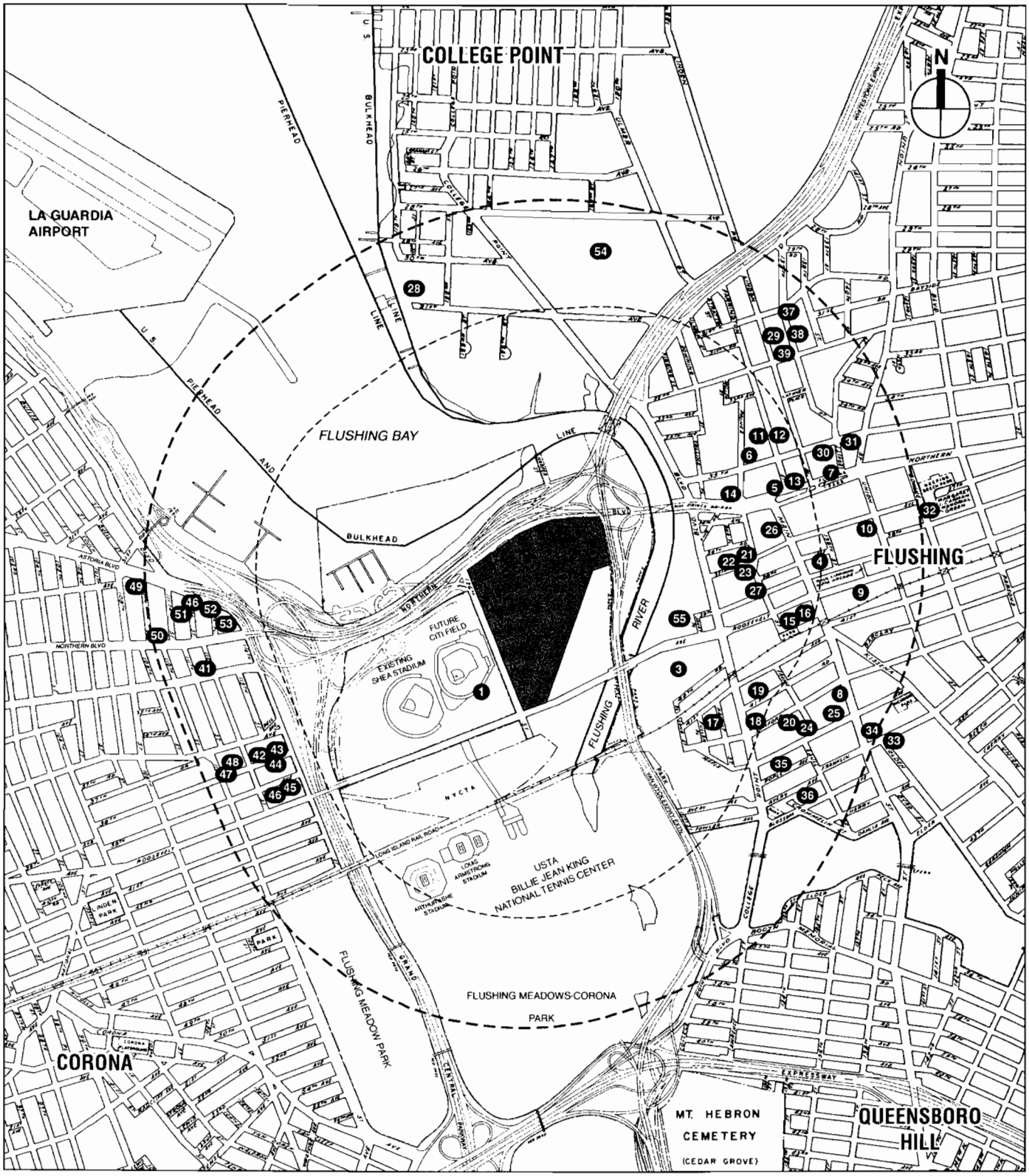
This GEIS analyzes and incorporates other projects expected to be completed and that would affect conditions in any of the relevant study areas by 2017. The future baseline in all technical chapters—the future without the proposed Plan—assumes that none of the discretionary

approvals proposed as part of the proposed Plan would be adopted. Development in the future without the proposed Plan would be limited to those projects that are developed independently of the proposed Plan. Known development projects within ½ mile and ¾ mile of the District are listed in Table 2-1 and presented in Figure 2-1.

Table 2-1
Projects in the Study Area Expected to be Completed by 2017

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year
1	Shea Stadium Redevelopment	New 44,100-seat stadium (to replace existing 56,000-seat stadium) and redistribution of 8,800 existing parking spaces	primary	2009
2	Downtown Flushing One-Way Pair	Transportation project - Main Street to become one-way northbound; Union Street to become one-way southbound	primary/ secondary	2010
3	Sky View Parc - College Point Blvd and 40th Road	750 residential units, 760,000 sf retail, a 51,800 sf restaurant, 3,000 parking spaces (the residential component may be developed in phases)	primary	2008 (UC)
4	Queens Crossing - Main Street and 39th Avenue	144,400 sf office, 110,000 sf retail, 29,600 sf community facility, 400 parking spaces	primary	2007 (UC)
5	RKO Keith Theater - Main Street and Northern Boulevard	200 residential units, 10,000 sf retail, 12,500 sf community facility, 229 parking spaces	primary	TBD
6	New Millennium - 134-03 35th Avenue	84 residential units, 33,600 sf community facility, 3,600 sf retail, 222 parking spaces	primary	2008
7	New Millennium Northern Boulevard - 137-61 Northern Boulevard	91 residential units, 60 hotel rooms, 35,722 sf community facility, 17,167 sf retail, 223 parking spaces	secondary	2008
8	Victoria Tower - 41-60 Main Street	178 residential units	secondary	2007-8 (UC)
9	Caldor Site - 136-20 Roosevelt Avenue	155,000 sf retail	secondary	TBD
10	Flushing Commons (Municipal Parking Lot 1) - 138th Street, 37th Avenue, 39th Avenue, and Union Street	500 residential units; 200,000 sf of retail; 100,000 sf of office; 100,000 sf of community facility space; 1,600 parking spaces, including 760 accessory spaces; and either 250 hotel rooms or an additional 120,000 sf of office	secondary	2011
11	33-34 Farrington Street	20,469 sf storage facility	primary	2007 (UC)
12	33-35 Farrington Street	9,887 sf hotel	primary	2007 (UC)
13	137-07 Northern Boulevard	38 residential units	primary	2007 (UC)
14	134-39 Northern Boulevard	12,212 sf expansion to existing office building	primary	2007 (UC)
15	135-11 40th Road	14 residential units, 55,170 sf office	primary	2007 (UC)
16	40-22 Main Street	17,015 sf retail	primary	2007 (UC)
17	41-18 Haight Street	6 residential units	primary	
18	41-55 College Point Boulevard	50 residential units	primary	2007 (UC)
19	132-27 to 132-61 41st Road	43 residential units	primary	2007 (UC)
20	5-10 Summit Court	18 residential units	secondary	2007 (UC)
21	133-53 37th Avenue	47 residential units	primary	2007 (UC)
22	133-51 37th Avenue	9,050 sf office	primary	2007 (UC)
23	133-40 37th Avenue	12,742 sf office	primary	2007 (UC)
24	132-73 Maple Avenue	8 residential units	secondary	2007 (UC)
25	134-43 Maple Avenue	23 residential units	secondary	2007 (UC)
26	36-36 Main Street	26,936 sf office	primary	2007 (UC)
27	133-47 39th Avenue	12,270 sf office, 11,420 sf retail, 9,755 sf medical office	primary	2008

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Willets Point Development District

Primary Study Area Boundary (1/2-Mile Perimeter)

Secondary Study Area Boundary (3/4-Mile Perimeter)

❶ *No Build Project Location (See Table 2-1 for reference)*

This figure has been updated since the DGEIS

Figure 2-1

No Build Project Locations

Table 2-1 (cont'd)
Projects in the Study Area Recently Completed or Expected to be Completed by 2017

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year
28	North Shore Marine Transfer Station - 31st Avenue & 122nd Street	Converted facility will receive and containerize DSNY-managed waste from Queens Community Districts 7 through 14	secondary	2011
29	31-33 Linden Place	8 residential units	primary	2007 (UC)
30	136-16 35th Avenue	28 residential units	secondary	2007 (UC)
31	138-06 35th Avenue	9 residential units	secondary	2007 (UC)
32	143-21 38th Avenue	25 residential units	secondary	2007 (UC)
33	P.S. 244 - 137-20 Franklin Avenue	441-seat primary school	secondary	2007 (UC)
34	42-33 Main Street	66 residential units	secondary	2007-8
35	132-25 Pople Avenue	14 residential units	secondary	2007 (UC)
36	133-20 Avery Avenue	26 residential units	secondary	2007 (UC)
37	137-04 31st Road	3 residential units	secondary	2007 (UC)
38	31-27 137th Street	9 residential units	secondary	2007 (UC)
39	31-38 137th Street	16 residential units	secondary	2007 (UC)
40	32-01 112th Street	4 residential units	secondary	2007 (UC)
41	111-17 34th Avenue	2 residential units	secondary	2007 (UC)
42	112-31 38th Avenue	18 residential units	secondary	2007 (UC)
43	112-37 38th Avenue	8 residential units	secondary	2007 (UC)
44	112-26 38th Avenue	18 residential units	secondary	2007 (UC)
45	112-34 39th Avenue	8 residential units	secondary	2007 (UC)
46	112-32 39th Avenue	8 residential units	secondary	2007 (UC)
47	111-03 38th Avenue	3 residential units	secondary	2007 (UC)
48	111-13 38th Avenue	8 residential units	secondary	2007 (UC)
49	108-04, 14, 16 Astoria Blvd [2]	84 residential units, 69,930 sf community facility	secondary	2013
50	110-09 Northern Boulevard [2]	31 residential units, 15,500 sf of commercial use	secondary	2013
51	111-10, 12, 16 Astoria Blvd; 32-20 112th Street; 32-19 111th Street [2]	78 residential units, 65,242 sf community facility, 51 parking spaces	secondary	2013
52	112-12, 18, 24 Astoria Blvd [2]	38 residential units, 32,068 sf community facility	secondary	2013
53	Block bounded by Astoria Blvd, Northern Blvd, and 112th Place [2]	147 residential units, 73,329 sf of commercial use	secondary	2013
54	College Point Police Academy - 129-05 31st Avenue	450,000-square-foot physical training area, 250 beds for visiting law enforcement agencies, 250 classrooms, firing range and fields for emergency-vehicle and other training exercises	secondary	2012
55	River Park Place - 39-08 Janet Place	475 residential units, 10,200 sf retail, 1,500 sf community facility, 251,000 sf office, and either 175 hotel rooms or an additional 96,500 sf of office	primary	2011

Notes:
UC = Under Construction when data used for analysis purposes was compiled.
[1] See Figure 2-1.
[2] Projects anticipated as a result of the North Corona Rezoning (CEQR No. 03DCP058Q).
Sources: AKRF, Inc., New York City Department of City Planning, New York City Department of Buildings.

The analysis of traffic impacts includes a larger study area and additional developments in predicting future baseline conditions besides those listed in Table 2-1. These additional developments are described in Chapter 17, "Traffic and Parking."

ANALYSIS FRAMEWORK FOR THE ENVIRONMENTAL REVIEW

The proposed Plan would change the development potential of sites within the District in a manner consistent with the proposed Willets Point Urban Renewal Plan (URP) as well as the proposed Special Willets Point zoning district. As a result, a range of new development could occur within the District. While the actual development will depend on developer proposals and future market conditions, among other things, the URP would establish a maximum development envelope for the District, which is used as a framework to assess potential impacts in the GEIS. To the extent that actual development proposals differ from this framework, they would be subject to additional environmental review as appropriate.

This GEIS assesses the impacts that may occur as a result of the proposed Plan. The URP prescribes a maximum permitted total floor area of 8.94 million gross square feet (gsf) in the District. However, the URP allows flexibility in the combination of uses to be developed in the District, and prescribes separate maximum permitted floor areas for residential and commercial uses in the District, including 5,850,000 gsf of residential use and 3,160,000 gsf of commercial use. Since the flexibility provided in the URP could result in a variation in the uses included in the maximum development envelope, this GEIS analyzes two development scenarios—the proposed Plan, which includes an approximately 400,000-square-foot convention center, and the No Convention Center Scenario, in which the convention center is replaced with an additional 350,000 square feet (sf) of residential use and 50,000 sf of retail use (see Table 2-2).

Table 2-2
Willets Point Development Plan

Use	Urban Renewal Plan	Proposed Plan	No Convention Center Scenario
Residential	Up to 5,850,000 gsf	5,500,000 gsf (*5,500 units*)	5,850,000 gsf (*5,850 units*)
Retail	Up to 3,160,000 gsf	1,700,000	1,750,000
Office		500,000	500,000
Convention Center		400,000	0
Hotel		560,000 (*700 rooms*)	560,000 (*700 rooms*)
Community Facility	—	150,000 gsf	150,000 gsf
School (K-8)	—	130,000 gsf (*Approx. 850 Seats*)	130,000 gsf (*Approx 900 Seats*)
Parking Spaces**	—	Approx. 6,700	Approx. 6,000
Publicly Accessible Open Space	Minimum 8 Acres	Minimum 8 Acres	Minimum 8 Acres
Total gsf	8,940,000 gsf Maximum	8,940,000 gsf	8,940,000 gsf

Notes:

* The capacity of the proposed school would meet the project-generated shortfall in school seats. A 130,000-sf school would accommodate up to approximately 900 seats; the square footage of the new school may be smaller if the project-generated shortfall in seats is less than anticipated.

** The number of proposed parking spaces would be determined based on anticipated project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

PROPOSED PLAN

The proposed Plan includes the following components:

- *Residential*: It is anticipated that up to 5.5 million sf, or up to 5,500 units, would be developed. Approximately 20 percent of the units in the District would be set aside for low- and moderate income households.
- *Retail*: The District would include up to 1.7 million sf of retail, including a multi-screen movie theater with up to 2,700 seats, and approximately 150,000 sf of neighborhood retail and services, which would primarily serve the new residential population.
- *Office*: The District would contain up to 500,000 sf of office space.
- *Convention Center*: It is anticipated that a convention center of up to 400,000 sf would be developed in the northeast portion of the District.
- *Hotel*: A full-service hotel of approximately 560,000 sf, with up to 700 rooms and ancillary banquet and restaurant facilities, would be developed.
- *Community Facility*: The District would include community facility uses up to a total of 150,000 sf.
- *School*: Although the details of the proposed school building have not yet been determined, for purposes of analysis, the facility is assumed to be approximately 130,000 sf in size and would serve grades K–8. The program and capacity of the school would be developed in consultation with the Department of Education and would be designed to alleviate the shortfall in seats projected to be generated by the proposed Plan within Zone 2 of Community School District 25.
- *Parking:* Off-street parking would be provided to meet the demand expected to be generated by the proposed uses, which is estimated to be approximately 6,700 spaces with the proposed Plan, or 6,000 spaces with the No Convention Center Scenario.
- *Open Space*: A minimum of eight acres of new publicly accessible open space would be required.

The proposed Plan would also include the creation of a new connection between the Van Wyck Expressway and the District, as described in Chapter 1. Modification of access to and from the Van Wyck Expressway requires the preparation of a Freeway Access Modification Report, and review and approval by the Federal Highway Administration and the New York State Department of Transportation (NYSDOT).

NO CONVENTION CENTER SCENARIO

Since the URP would allow flexibility in the combination of uses to be developed in the District, the GEIS analyzes a development scenario in which the convention center is replaced with additional residential and retail development (i.e., the No Convention Center Scenario). In this development scenario, the approximately 400,000-sf convention center would be replaced with approximately 350,000 sf of residential use (approximately 350 units) and 50,000 sf of retail use. The parking demand associated with the No Convention Center Scenario is anticipated to be approximately 6,000 spaces. As described above, the URP's maximum development envelope of 8.94 million gsf would also apply to the No Convention Center Scenario.

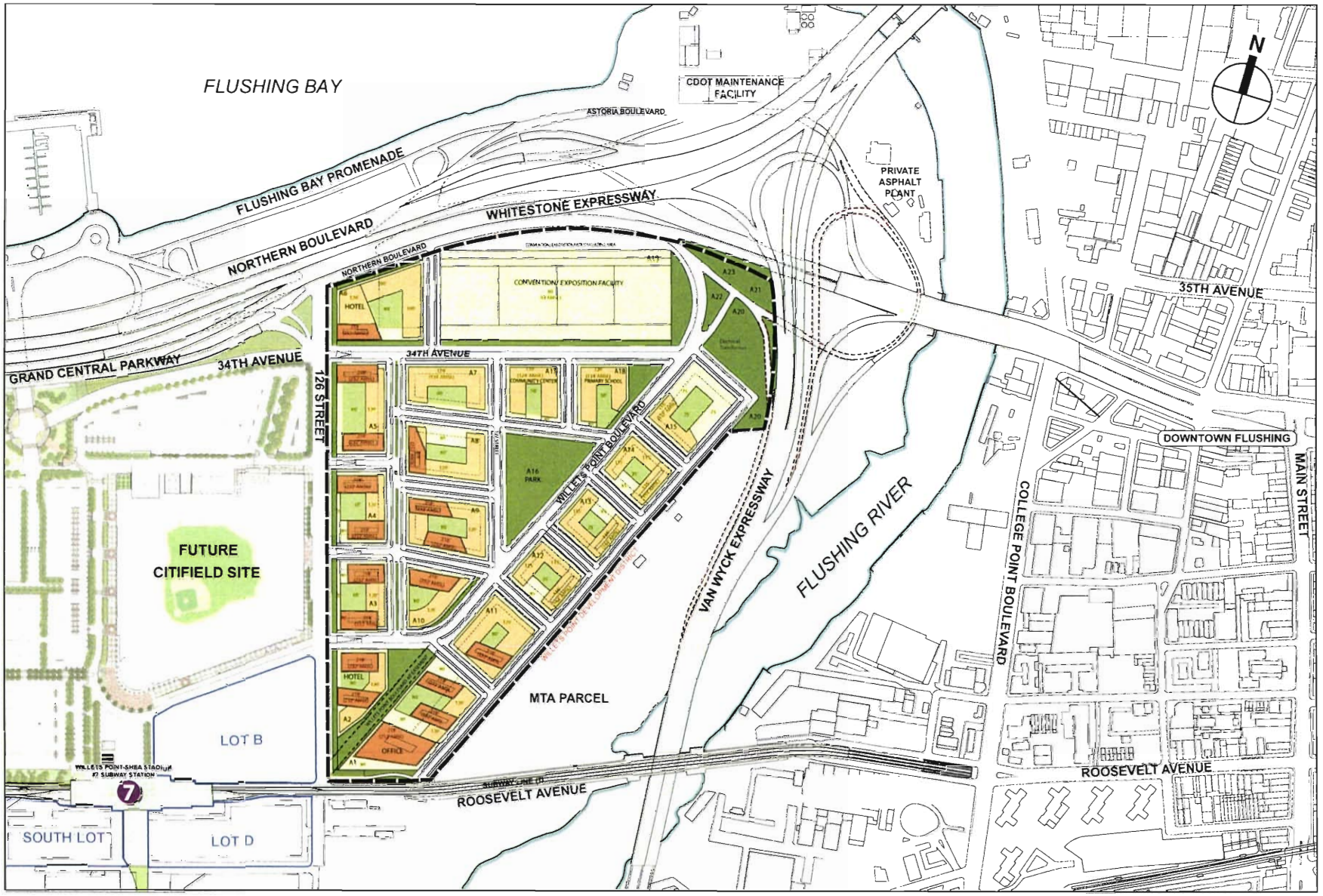
CUMULATIVE IMPACT ANALYSIS—POTENTIAL DEVELOPMENT ON CITI FIELD LOTS B AND D

The Willets Point Development District is located directly across 126th Street from the new Citi Field currently under construction, as well as Citi Field surface parking lots B and C, located to the south and north of the new stadium, respectively. It is anticipated that if the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, additional development could occur on Citi Field parking lot B (Lot B) and on Lot D, a surface parking lot south of Roosevelt Avenue that is currently used by commuters, as well as for Mets games and USTA National Tennis Center events. Any program for Lot B or Lot D would be developed as a collaborative effort between the City and Queens Ballpark Company, LLC ("QBC")—a development entity for the New York Mets—or an affiliate. While specific development plans have not yet been proposed, it is anticipated that approximately 280,000 sf of office and 184,500 sf of retail could potentially be developed on Lot B, and that a five-level parking garage containing approximately 1,543 parking spaces could be developed on Lot D. The Lot B development could include a one-story retail structure and a 10-story office building. The potential development of Lots B and D would complement Citi Field and the mix of new uses proposed as part of the Willets Point Development Plan, furthering the synergy between Citi Field and the proposed Plan. Figure 2-2 shows the locations of Lots B and D.

As part of the Citi Field development project, Lot B was initially planned to contain approximately 660 parking spaces after construction of the new stadium is completed. Lot B is currently being used as a staging area for construction activities associated with Citi Field, and the parking uses previously at that location have been temporarily relocated to the South Lot, a surface parking area adjacent to Lot D (see Figure 2-2). If Lot B is redeveloped with new office and retail uses, and a new 1,543-space parking structure is constructed on Lot D, this garage would replace the parking uses on Lot B (660 spaces) and Lot D (573 spaces), and provide additional parking to serve the new office and retail uses developed on Lot B (310 spaces). During construction of the new office, retail, and parking development, the parking uses at Lot B and Lot D would be temporarily relocated to a nearby location.

Both Lot B and Lot D, which are located on property owned by the City, are currently under the jurisdiction of the New York City Industrial Development Agency (NYCIDA) and under lease to QBC, which in turn has entered into a sublease with the New York Mets that grants certain rights with respect to Lots B and D to the Mets. Any future development on Lots B and D would be undertaken by QBC or an affiliate and would require an amendment to the current lease agreement and discretionary approval by the NYCIDA, acting through the New York City Department of Parks and Recreation (DPR), which administers the NYCIDA lease. These actions would be the subject of a separate environmental review process subject to CEQR.

The Lot B development and associated parking garage on Lot D could be independently developed and are not dependent upon the Willets Point Development Plan. However, because of the proximity of this potential development to the Willets Point Development District, and because additional commercial development on Lot B could enhance the synergy between the Citi Field premises and the proposed Plan, this development would be more likely to occur as a result of the proposed Plan. While each project would require separate actions—each with its own approvals and environmental review processes—together they would add substantial new development to the immediate area. Therefore, in addition to evaluating the proposed Plan's potential to have environmental impacts, this GEIS has been prepared to incorporate the cumulative impacts of both projects (the Willets Point Development Plan and the potential retail,



This figure has been updated since the DGEIS

Figure 2-2

Lot B and Lot D Development Sites

office and parking development on Lots B and D) under the Probable Impacts of the Proposed Plan. The purpose of this analysis is to ensure that the full extent of potentially required mitigation is identified for any significant adverse impacts.

The cumulative projected maximum development for both the Willets Point Development Plan and the Lot B development is a total of 9,404,500 gsf of new development (see Table 2-3). Each section of this GEIS addresses the environmental effects associated with the Lot B development and associated Lot D parking. For most technical areas in this GEIS, impacts associated with the development programs for Lots B and D are assessed under Probable Impacts of the Proposed Plan, based on the cumulative development scenario presented in Table 2-3. These technical areas include Land Use, Zoning, and Public Policy; Socioeconomic Conditions; Community Facilities and Services; Open Space; Shadows; Historic Resources; Urban Design and Visual Resources; Neighborhood Character; Natural Resources; Hazardous Materials; Waterfront Revitalization Program; Infrastructure, Solid Waste and Sanitation Services; Energy; Traffic and Parking; Transit and Pedestrians; Air Quality; Noise; and Public Health. Since the development program and precise timing of development for Lots B and D are unknown, the construction impacts associated with these properties cannot be addressed in this GEIS. However, given that any future development on Lots B and D would require separate approval and environmental review processes, these impacts would be examined in greater detail as part of any subsequent environmental review process for those properties. The scope of the environmental review would depend on how the specific project design and other future conditions compare with the reasonable worst case scenario analyzed in this GEIS.

Table 2-3
Cumulative Development for Analysis

Use	Lot B Development and Lot D Parking Garage (gsf)	Proposed Plan (gsf)	Cumulative - Proposed Plan and Lots B and D (gsf)	No Convention Center Scenario (gsf)	Cumulative - No Convention Center Scenario and Lots B and D (gsf)
Residential		5,500,000	5,500,000	5,850,000	5,850,000
Number of Units		*5,500*	*5,500*	*5,850*	*5,850*
Retail	184,500	1,700,000	1,884,500	1,750,000	1,934,500
Office	280,000	500,000	780,000	500,000	780,000
Convention Center		400,000	400,000	0	0
Hotel		560,000	560,000	560,000	560,000
Number of Rooms		*700*	*700*	*700*	*700*
Community Facility		150,000	150,000	150,000	150,000
School (K-8)		130,000	130,000	130,000	130,000
*Number of Seats**		*Approx. 850**	*Approx. 850**	*Approx. 900**	*Approx. 900**
Parking	1,543 spaces	6,700 spaces**	8,243 spaces	6,000 spaces**	7,543 spaces
Publicly-Accessible Open Space		Minimum 8 acres	Minimum 8 acres	Minimum 8 acres	Minimum 8 acres
Total	**464,500 gsf**	**8,940,000 gsf**	**9,404,500 gsf**	**8,940,000 gsf**	**9,404,500 gsf**

Notes:

* The capacity of the proposed school would meet the project-generated shortfall in school seats.

** The number of proposed parking spaces would be determined based on expected project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

MITIGATION

Potential mitigation measures for all significant adverse impacts identified in this FGEIS are described in Chapter 23, "Mitigation." CEQR requires that any significant adverse impacts identified in the EIS be minimized or avoided to the fullest extent practicable. In the DGEIS, options for mitigation were presented for public review and discussion, without the lead agency having selected those that will be implemented. Where no practicable mitigation is available, the EIS must disclose the potential for unmitigated significant adverse impacts.

ALTERNATIVES

Chapter 24, "Alternatives," assesses several alternatives to the proposed Plan. CEQR and SEQRA require that a description and evaluation of a range of reasonable alternatives to the proposed action be included in an EIS at a level of detail sufficient to allow a comparative assessment of the alternatives. Alternatives and the rationale behind their selection are important in the disclosure of environmental effects of a proposed action. Alternatives provide options to the proposed action and a framework for comparison of potential impacts. If the environmental assessment and consideration of alternatives identify a feasible alternative that eliminates or minimizes adverse impacts while substantially meeting an action's goals and objectives, the lead agency considers whether to adopt that alternative as the proposed action. CEQR/SEQRA also requires consideration of a "No Action Alternative," which evaluates environmental conditions that are likely to occur in the future without the proposed action.

The alternatives analyzed in this GEIS were identified, in part, based on comments received during the scoping process, and include the No Action Alternative as well as a No Unmitigated Impact Alternative, which assesses a change in density or program design in order to avoid the potential for any unmitigated significant adverse impacts that may be associated with the proposed Plan. The GEIS also includes a Flushing Pedestrian Bridge Alternative, which evaluates conditions associated with the creation of a new pedestrian bridge connecting the District and Downtown Flushing; a Municipal Services Alternative, which evaluates conditions that would be likely to occur in the future without the proposed Plan if additional municipal services and infrastructure were provided to the District; and a Staged Acquisition Alternative, which would entail the City's initial acquisition of the western portion of the redevelopment site, followed by the acquisition of the eastern portion of the site.

POTENTIAL EFFECTS OF ACQUISITION AND RELOCATION

As described in Chapter 1, "Project Description," the District currently contains an estimated 260 businesses that, along with their employees, would be directly displaced by the proposed Plan. In addition to the City's efforts to offer assistance to individual employees working at businesses that are subject to direct displacement, since issuance of the DGEIS, the City has reached several individual agreements to purchase properties in Willets Point from their owners. As part of its ongoing relocation planning effort, to date the City has identified viable relocation sites for three businesses. Chapter 28, "Potential Effects of Acquisition and Relocation," discusses and evaluates—to the extent possible at this time—the potential effects of relocating these businesses. ✱

A. INTRODUCTION

The proposed Plan would significantly change land use on the Willets Point peninsula by transforming a largely underutilized site with substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination. Willets Point is located at the nexus of the commercial, entertainment, cultural, and recreational regional destinations of Downtown Flushing, Shea Stadium, and Flushing Meadows-Corona Park. The Willets Point Development District (the District) is located between several major arterial highways, including the Van Wyck Expressway, the Grand Central Parkway, and Northern Boulevard, and is located in close proximity to the Long Island Rail Road (LIRR) and the No. 7 subway line, as well as LaGuardia Airport. The proposed Plan would facilitate the development of a regional economic center containing up to 8.94 million gross square feet (gsf) of new buildings, which would include residential, retail, a hotel and convention center, office space, community facilities, and open space (see Chapter 2, "Procedural and Analytical Framework," for a detailed description of the proposed Plan). A new connection between the Van Wyck Expressway and the northeastern portion of the District would facilitate the movement of traffic into and out of the District. Because this is a major land use plan situated in a key location in Queens, the potential for impacts on land use in the District and in the surrounding area and neighborhoods is an important consideration in this Generic Environmental Impact Statement (GEIS).

The proposed Plan also involves issues relating to public policy. The City's Plan for Willets Point represents a critical step in implementing the Downtown Flushing Development Framework, a land use and economic planning strategy for the growth of Downtown Flushing, the Flushing River waterfront, and the Willets Point peninsula. Implementation of the proposed Plan requires the creation of a Willets Point Urban Renewal Plan (URP), which will prescribe the maximum permitted floor area in the District and will allow for flexibility in the combination of uses to be developed in the District. The proposed Plan would also establish a zoning Special District (Special Willets Point District), which would govern all future development within the District, including site planning, land uses, and densities, and would establish design controls for the proposed Plan's buildings, open spaces, and other features.

PRINCIPAL CONCLUSIONS

PROPOSED PLAN

Land Use

The proposed Plan would dramatically change land uses in the District by replacing predominantly low-density auto-related and industrial uses with a new mixed-use neighborhood. As part of the proposed Plan, residential and retail uses would be the core activities in the District, and office, hotel, and convention center uses would complement these uses to create a regional

economic center. Community facilities and open space would support the residential and commercial uses and improve the quality of life for area residents and visitors.

While specific development plans have not been formulated, the Special Willets Point District would create a dynamic, sustainable community by integrating regional attractions and residential, retail, and other uses within a network of pedestrian-scaled streetscapes throughout the District. The Special District regulations would determine elements such as the placement of uses within the District, building heights and setbacks, street controls (i.e., mandatory intersections and street types), streetscape design, and basic site planning and design provisions.

While the proposed Plan would result in a significant land use change, the effects of this change would not be adverse. The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed Plan would create a pedestrian-oriented regional entertainment and commercial center along 126th Street, which would complement the new retail uses planned along the west side of 126th Street as part of Citi Field, creating synergy between the new Citi Field and the proposed District. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses are prevalent throughout the study area, particularly within the dense commercial center of Downtown Flushing. The residential and community facility uses proposed for the District would not be compatible with the industrial activities permitted on the adjacent Metropolitan Transportation Authority (MTA) property. However, the placement of high-density mixed-use or residential districts next to heavy manufacturing districts is not uncommon in the City, and would not result in a significant adverse impact.

The proposed Plan would not be consistent with the industrial uses currently located along the waterfront to the north and east of the District. However, these uses are separated from the District by the Whitestone Expressway and Northern Boulevard, as well as the Flushing River, and therefore would not result in significant adverse land use impacts on the proposed uses. Furthermore, as a result of the rezoning of properties on the eastern side of the Flushing River waterfront, it is expected that some of these properties would be redeveloped over the long term in the future without the proposed Plan with new higher-density mixed residential and commercial uses, including waterfront access, which would be compatible with the uses proposed for the District under the proposed Plan.

As described in Chapter 2, if the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, it is likely that this could generate increased demand for additional development on nearby Lots B and D. While any future development on Lots B and D would occur independent of the proposed Plan, together the proposed Plan and development on Lots B and D would add substantial new development to the immediate area, and therefore, the cumulative impacts of both projects are assessed. Based on existing land use patterns and zoning regulations in the surrounding area, it is unlikely that the proposed Plan and development on Lots B and D would alter land use patterns in the primary study area. Given the recent trend to redevelop underutilized sites near the Flushing River waterfront, it is possible that the proposed Plan and new development on Lots B and D could encourage further redevelopment of some nearby underutilized sites along the Flushing River which do not rely on the waterfront for barging materials. Such a change would not constitute an adverse impact on land uses in the study area because the potential new uses (including primarily residential, retail, and other commercial uses) would reflect a continuation of an existing trend, would be compatible with other uses in the area, and would conform to existing zoning and public land use policies. Overall, the proposed Plan would not result in significant adverse land use impacts.

Zoning and Public Policy

The proposed Plan would result in a change to the underlying zoning of the District from an existing M3-1 district (and a small area zoned R3-2) to a C4-4 district. The proposed C4-4 zoning would allow for the range of residential, commercial, and community facility uses anticipated. The proposed Plan would include the creation of a zoning Special District, which would mandate a maximum District-wide floor area ratio (FAR) of 3.4, and would govern all future development within the District, including site planning, land uses, and densities, and would establish design controls for the proposed Plan's buildings, streets and streetscapes, open spaces, and other features.

The adjacent MTA property, which would be primarily unaffected by the proposed Plan and would remain zoned M3-1, would not be compatible with all of the uses permitted in the proposed C4-4 district, such as residential and community facility uses. However, as described above, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront. The other M3-1 districts located on the Willets Point peninsula are separated from the District by the Whitestone Expressway and Northern Boulevard. The proposed C4-4 is similar to the zoning that exists throughout much of the Downtown Flushing area. The presence of a denser mixed-use development in the District could possibly generate further redevelopment of nearby underutilized sites along the eastern bank of the Flushing River, which were rezoned to C4-2 to allow denser mixed-use development. However, redevelopment in this area is already under way, and is expected to conform to existing zoning and public policies. No significant adverse impacts with respect to zoning would result from the proposed Plan.

As part of the proposed Plan, the New York City Department of Housing Preservation and Development (HPD) would create a URP to define District boundaries and the area to be redeveloped as per the City's redevelopment goals. The URP would establish maximum permitted floor areas for residential and commercial uses in the District and require the creation of a minimum of eight acres of open space.

The proposed Plan represents a critical step in implementing the Downtown Flushing Development Framework. The Plan would advance a number of the Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing, improvement of environmental conditions, and integration of new development in the District with surrounding amenities, including the Flushing Bay Promenade, the new Mets stadium (Citi Field), Flushing Meadows-Corona Park, and Downtown Flushing.

The proposed Plan would be consistent with and vital to the advancement of several of the goals of PlaNYC, which aims to create a more sustainable New York by the year 2030. The proposed Plan would also be consistent with the coastal policies set forth in the New York City Waterfront Revitalization Program. Overall, no significant adverse zoning and public policy impacts are anticipated to occur as a result of the proposed Plan.

NO CONVENTION CENTER SCENARIO

Since the URP would allow flexibility in the combination of uses to be developed in the District, the GEIS analyzes a development scenario in which the convention center is replaced with additional residential and retail development (the No Convention Center Scenario). As with the proposed Plan, the No Convention Center Scenario would change the development potential of the District in a manner consistent with the proposed URP and the Special Willets Point District.

The effects of the No Convention Center Scenario on land use conditions would be largely the same as with the proposed Plan. Both development scenarios would dramatically change land uses in the District, replacing predominantly low-density industrial uses with a new higher-density mixed-use neighborhood. Residential and retail uses would be the core activities, supported by office, hotel, community facility, and open space uses. The No Convention Center Scenario would not require any changes to the proposed zoning or Special District text and, as with the proposed Plan, no significant adverse impacts on zoning would occur.

With respect to public policy, the No Convention Center Scenario, like the proposed Plan, would advance several of the Framework's fundamental goals, including improvement of environmental conditions, integration of new development in the District with surrounding entertainment and recreational amenities, and the provision of a substantial number of new housing units that would be affordable to a mix of incomes. Although this scenario does not include a convention center—one of the uses that would strengthen Flushing and Corona's roles as regional economic centers—the primary regional attraction in the No Convention Center Scenario would be the pedestrian-oriented entertainment and commercial center, which would create a synergy between the new Citi Field and the proposed District, and attract and retain visitors to the area. Overall, the No Convention Center Scenario would also not result in any significant adverse impacts on land use, zoning, or public policy.

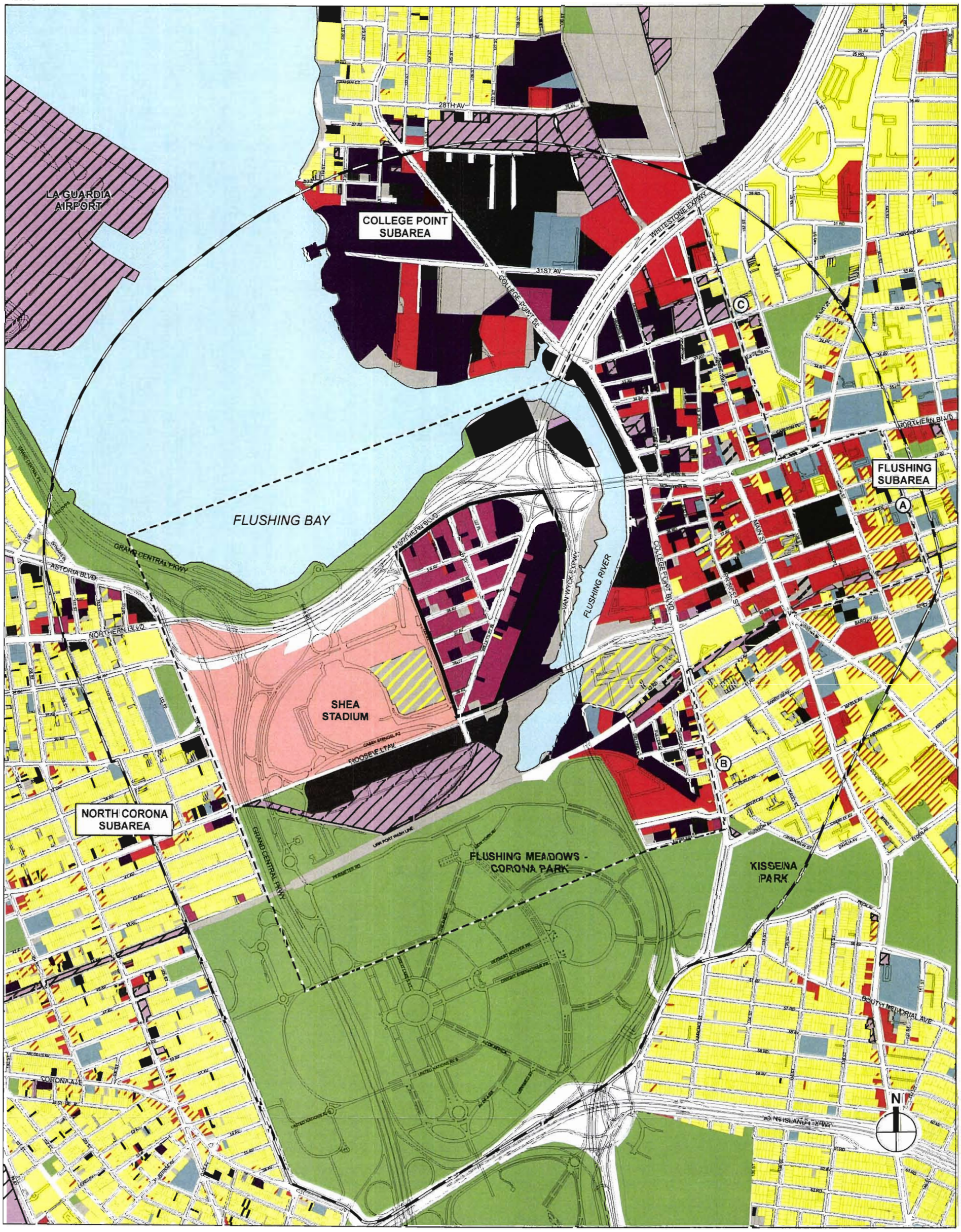
B. METHODOLOGY

This chapter describes existing land use conditions and future conditions without the proposed Plan, and analyzes the probable impacts that the proposed Plan, as well as the No Convention Center Scenario, may have on land use. In accordance with the approach outlined in Chapter 2, this chapter assesses the cumulative impact of both the Willets Point Development Plan and the anticipated development on Citi Field parking lot B (Lot B) and Lot D. Because of the scale of the proposed Plan, this analysis considers both a primary and secondary study area. The primary study area is the area generally located within ½ mile from the Willets Point Development District, and includes Shea Stadium, Downtown Flushing, and portions of Flushing Meadows-Corona Park (see Figure 3-1). The secondary study area is the area generally located between ½ and ¾ mile from the District, and includes portions of the North Corona, College Point, and greater Flushing neighborhoods. The overall study area generally stretches from Bowne Street in Flushing to the east, to 111th Street in North Corona to the west; and from 28th Avenue in College Point to the north, to the Long Island Expressway (LIE) in Flushing Meadows-Corona Park to the south.

The primary and secondary land use study area boundaries are not defined solely by the ½- and ¾-mile perimeters, but rather are defined to reflect natural and man-made barriers and current land use patterns. Portions of several neighborhoods are within the study areas; therefore, the impact analysis addresses each neighborhood as follows:

- Flushing Subarea: This area extends east of the Flushing River from Kissena Park to the Whitestone Expressway. The land use and zoning discussion separates the Flushing Subarea into three sections, which generally reflect the different land use patterns within the overall area, including: the area between the LIRR and Northern Boulevard (Downtown Flushing—Subarea A); the area between the LIRR and Kissena Park (Flushing Subarea B); and the area between Northern Boulevard and the Whitestone Expressway (Flushing Subarea C).

1.25.08



- *Willets Point Development District Boundary*
- *Primary Study Area Boundary*
- *Secondary Study Area Boundary*
- *Flushing Subareas*
- *Residential*
- *Residential with Commercial Below*
- *Hotels*
- *Commercial and Office Buildings*
- *Institutional*
- *Entertainment*
- *Auto-Related Use*
- *Industrial and Manufacturing*
- *Transportation and Utility*
- *Open Space and Outdoor Recreation*
- *Parking Facilities*
- *Vacant Land*
- *Under Construction*

0 2000 FEET
SCALE

Figure 3-1
Land Use Study Area

Although a portion of Downtown Flushing (Flushing Subarea A) is located outside of the ½-mile perimeter, the entire Downtown Flushing area is considered within the primary study area, as a cohesive district. In Flushing Subarea B, College Point Boulevard is approximately ½ mile from the District, and generally divides distinct land use patterns; therefore, the area to the west of College Point Boulevard is considered within the primary study area, and the area to the east is considered within the secondary study area. Similarly, in Flushing Subarea C, Linden Place is approximately ½ mile from the District and generally divides distinct land use patterns; therefore, the area to the west of Linden Place is considered within the primary study area, and the area to the east is considered within the secondary study area.

- North Corona Subarea: This area is roughly bounded by the Grand Central Parkway to the north, 44th Avenue to the south, 111th Street to the west, and 114th Street to the east. The North Corona Subarea is located between the ½- and ¾-mile perimeters, and is therefore considered in the secondary area.
- College Point Subarea: This area extends south of 28th Avenue and west of the Whitestone Expressway to Flushing Bay. While a portion of College Point is located within ½ mile of the District, the entire College Point Subarea is considered within the secondary study area, as it is separated from the District by Flushing Bay and the Whitestone Expressway.
- Flushing Meadows-Corona Park: The park area considered within the primary study area is roughly within the ½-mile perimeter. However, the park area considered within the secondary study area includes the remainder of the park to the north of the LIE (which is beyond the ¾-mile perimeter), to reflect the intrinsic cohesiveness of the amenities and uses in that section of the park.

As described in Chapter 2, this analysis assesses future conditions in 2017, when full development of the proposed Plan is anticipated.

C. EXISTING CONDITIONS

LAND USE

DISTRICT

The Willets Point Development District covers approximately 61.4 acres on the Willets Point peninsula, generally bounded to the east by the Van Wyck Expressway and an undeveloped parcel owned by MTA, to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. The District is mostly isolated from the surrounding neighborhoods by several natural and man-made barriers. Immediately to the west of the District is Shea Stadium—the existing home of the New York Mets baseball team—and the development site for the future new Mets stadium, Citi Field, located in a former stadium parking lot. To the east of the Van Wyck Expressway lies the Flushing River, and beyond that, the vibrant urban core of Downtown Flushing. To the north of Northern Boulevard lies Flushing Bay, with the industrial area of College Point on its northern shore. To the south of Roosevelt Avenue are the LIRR tracks for the Port Washington Line, a rail yard for LIRR trains, and several parking lots that are available for parking for Mets games.

Of the approximately 61.4 acres in the District, approximately 15.8 acres are within public street rights-of-way, approximately 45.0 acres are privately-owned land, and approximately 0.6 acres

are owned by MTA. Land uses in the District primarily consist of auto-related services and industrial uses. Auto-related services are the most prevalent use in the District, occupying approximately 80 percent of all lots in the District. These services consist of auto-body repair, auto glass, car washes and auto detailing, used and new auto part sales, tire sales, and vehicle towing. For the most part, these auto-related businesses occupy one-story garage buildings and Quonset-type structures, many of which contain multiple auto-related businesses. There are also a number of car junkyards in the District, which support auto salvage businesses. Due to the concentration of auto-related services in the District, the area has come to be known as the "Iron Triangle."

The District also contains several industrial uses, including warehousing and distribution, construction-related services and materials, and waste transfer and recycling. Lot areas in the District vary greatly in size and range from approximately 2,000 to 173,000 square feet (sf); the industrial uses generally occupy the larger lots. Two waste transfer businesses (Tully Environmental and Crown Container) are currently operating in the District. Tully Environmental and Crown Container process putrescible waste, and construction and demolition debris. Two large food production and distribution uses—Fodera Enterprises and House of Spices—are located in the northern portion of the District, east of Willets Point Boulevard. Ten undeveloped lots in the District all contain either open-air storage of construction materials or used auto parts.

In addition to the auto-related and industrial uses, several commercial uses throughout the District cater to the existing businesses and employees in the area. These include delis, check-cashing establishments, a health club, and a clothing and supply store. The District contains one institutional use—a private, members-only motorcycle club. Although residential uses are not permitted under the existing zoning, there is one residential unit in the District, located on Willets Point Boulevard.

Existing uses and structures in the District are similar to the primarily industrial uses along the Flushing River and Flushing Bay waterfronts, but contrast sharply with most of the uses and types of development in the nearby communities, such as the higher-density commercial and residential development in Downtown Flushing, and the primarily low- to mid-density residential neighborhood of Corona to the west of Shea Stadium. Deteriorated sidewalks, large potholes and mud puddles, corrugated metal building façades, and the widespread use of streets and sidewalks for vehicle parking and storage for adjacent automotive uses contribute to an unappealing streetscape and create uninviting and unsafe pedestrians conditions. Despite its transit-oriented location and proximity to Downtown Flushing and several thriving neighborhoods, Willets Point contains virtually none of the land use characteristics or patterns of its neighbors.

PRIMARY STUDY AREA

The primary study area includes portions of Flushing Meadows-Corona Park, Downtown Flushing, and the greater Flushing area. Also included in the primary study area are the other uses on the Willets Point peninsula that lie outside the Willets Point Development District. Directly east of the District is a large undeveloped MTA property located along the Flushing River waterfront, a majority of which is leased to Tully Environmental, Inc., which operates a construction and demolition debris recycling operation on the site. To the north of the District, across Northern Boulevard, is a New York City Department of Transportation (NYCDOT) Maintenance and Repair facility, and between Northern Boulevard and the Van Wyck

Expressway is an asphalt plant. To the northwest of the District, across Northern Boulevard, is the Flushing Bay Promenade, which is within the boundary of Flushing Meadows-Corona Park, and which is described below. To the south of the District—south of Roosevelt Avenue, near the LIRR tracks—are the New York City Transit (NYCT) Corona Yards. The Yards, which are not part of the Flushing Meadows-Corona Park, contain a storage area for subway cars as well as repair shops. The NYCT Casey Stengel Bus Depot is adjacent to the Corona Yards.

Flushing Meadows-Corona Park

Flushing Meadows-Corona Park is a major recreational and cultural destination for Queens residents and visitors from throughout the New York metropolitan area. The park covers approximately 1,255 acres and is under the jurisdiction of the New York City Department of Parks and Recreation (DPR). The park is bounded by several major thoroughfares: the Grand Central Parkway to the west, the Van Wyck Expressway to the east, and the beginning of the Whitestone Expressway to the north. The primary and secondary study areas cover the northern section of Flushing Meadows-Corona Park, which is separated from the southern section of the park by the LIE.

The primary study area includes the portion of the park that extends from Flushing Bay to the USTA National Tennis Center. To the immediate west of the Willets Point Development District across 126th Street is the construction site for Citi Field, a new stadium for the New York Mets, which is described below in Section D, "Future without the Proposed Plan." Immediately west of the Citi Field construction site is Shea Stadium, the current home of the Mets, which opened on April 17, 1964 and seats 56,000 fans. The No. 7 subway line services the stadium by elevated subway above Roosevelt Avenue. The LIRR also has a stop in Flushing Meadows-Corona Park that services the stadium on game days. Both stations are connected to the stadium and to the park by the Passerelle Ramp, which is for pedestrian use.

To the north of Northern Boulevard is the Flushing Bay Promenade, which winds along Flushing Bay for approximately 1.4 miles from LaGuardia Airport to the Willets Point peninsula and provides access to the World's Fair Marina and a restaurant located north of Shea Stadium, as well as many sitting areas located throughout the promenade. There are more than 1,000 parking spaces located to the east and west of the marina, which are also available for parking for Mets games.

The primary study area also covers a portion of Flushing Meadows-Corona Park to the south of Roosevelt Avenue, which contains the USTA National Tennis Center and other recreational activities, described below. The Tennis Center contains three stadiums and is host to year-round tennis events, including the U.S. Open, played each year for two weeks at the end of August and the beginning of September. The Tennis Center contains the Louis Armstrong Stadium, which was originally constructed in the park as the "Singer Bowl" for the 1964 World's Fair and seats 10,000 people. Arthur Ashe Stadium was constructed in 1996; it seats 23,000 people. The remainder of the complex consists of a smaller 3,500-seat stadium and 30 additional tennis courts. The courts are open during the year for tennis clinics and camps, as well as for general public use. There is a small parking lot located near the Tennis Center, however, during the U.S. Open, Shea Stadium lots are also used for parking. East of the Tennis Center, the park contains a pitch and putt golf center, and a large area available for passive and active recreation, with trees, pathways, and sitting areas.

This section of the park also contains three DPR facilities. The Olmsted Center, located near the LIRR rights-of-way and the Tennis Center, contains offices for the design and construction

supervision divisions of DPR. The Passerelle Building, located under the Passerelle Ramp, contains offices and support facilities for the park. The Allied Building, located near the Van Wyck Expressway, contains DPR offices and storehouses.

The secondary study area contains a number of cultural institutions, as well as recreational and sporting facilities. There are several baseball and soccer fields, and a number of playgrounds for children of all ages and abilities. The Playground For All Children, a special playground for both able-bodied and disabled children—one of a few of its kind in the country—is located in this area.

A number of cultural institutions are housed in buildings dating from the 1939 and 1964 World's Fairs. The 1939 New York City Pavilion currently contains the World's Fair Ice Rink and the Queens Museum of Art (QMA). The museum opened in 1972 and attracts approximately 200,000 visitors a year. The QMA primarily exhibits contemporary art, but also contains the New York Panorama, a scale model of New York City that was constructed for the 1964 World's Fair and is updated every few years to reflect the development of New York City. Many other sculptures and structures remain from the World's Fairs. The most famous of these is the Unisphere, which has become a symbol for the park and is a New York City Landmark (NYCL). The Unisphere is located at the Fountain of the Continents, which was the center of the 1964 World's Fair and stands outside the QMA.

The New York Hall of Science is located in the 1964 Space Park structures. The Hall of Science is New York City's largest hands-on science and technology museum, attracting approximately 275,000 visitors each year. There is a large parking lot with more than 500 spaces adjacent to the museum. The Queens Wildlife Center is located in the park near the Hall of Science. The aviary for the Wildlife Center is located in a geodesic dome designed by Buckminster Fuller for the 1964 Fair. The Port Authority Heliport for the 1964 Fair has been renamed Terrace on the Park and is now a catering/restaurant facility, with its own parking lot. The New York State Pavilion, designed by Philip Johnson for the 1964 Fair, is now used as theater space. The Queens Botanical Garden is located in the far eastern portion of the park. The Queens Botanical Garden began as a "Gardens On Parade" exhibit at the 1939 Fair. Today, the Garden covers 39 acres, with a 21-acre arboretum, and hosts educational programming and other events.

The southern portion of the park, which is located south of the LIE and is outside of the land use study area, primarily contains two man-made lakes—Willow Lake and Meadow Lake. This section of the park also includes recreational uses such as a cricket pitch, boat rental, baseball fields, and playgrounds.

In addition to the various cultural institutions, sporting events, and recreational activities in the park, Flushing Meadows-Corona Park is host to numerous festivals and gatherings throughout the year, attracting hundreds of thousands of visitors. Many ethnic groups hold daylong events, such as the Peruvian, Colombian, and Dominican festivals. Other well known festivals held in the park are the Hong Kong Dragon Boat Festival, the Korean Harvest and Folklore Festival, and DPR's Spring Festival.

Flushing Subarea

Flushing is a thriving business and residential area, as well as a center for ethnic goods and culture. Downtown Flushing and the greater Flushing area contain a substantial Asian population, with large Chinese and Korean communities, and there are many specialty food and retail stores, restaurants, and other services that are utilized not only by the local population, but also serve as a destination for people living outside of the community. The primary study area in

Flushing contains Downtown Flushing, a regional transportation and commercial hub for Queens. While most of the commercial and cultural activity is centered along Northern Boulevard, Roosevelt Avenue, and Main Street, the Downtown Flushing study area (Flushing Subarea A) generally extends between the Flushing River to the west, Northern Boulevard to the north, Bowne Street to the east, and the LIRR tracks located south of Roosevelt Avenue to the south. Also located within the primary study area are the predominantly industrial areas in Flushing which are generally located along the Flushing River, within approximately ½ mile of the District. To the south of the LIRR Port Washington Line (Flushing Subarea B), industrial uses are concentrated west of College Point Boulevard. To the north of Northern Boulevard (Flushing Subarea C), a large industrial district extends east of the Flushing River to Linden Place.

Downtown Flushing—Flushing Subarea A

Downtown Flushing is a center of commercial and cultural activity in Queens, and contains many Asian specialty food stores, restaurants, and retail stores that cater to the local population and also serve as a regional destination. Commercial uses predominate and are concentrated along Roosevelt Avenue, Northern Boulevard, Main Street, Union Street, and Prince Street. Industrial uses are mostly located west of College Point Boulevard, along the Flushing River. Some residential and community facility uses are scattered throughout Downtown Flushing. East of Union Street, the neighborhood begins to transition to a more predominantly residential area.

The Downtown Flushing area has been changing in character in recent years as more high-density residential and large-scale mixed-use developments are either under construction or planned throughout the area. Two large mixed-use development projects, Queens Crossing and Flushing Commons, will be located between Main and Union Streets, north of 39th Avenue. Two large mixed-use developments—Sky View Parc and River Park Place—are either under construction or planned on a sites located near the Flushing River. These and other planned development projects are described below in Section D, "Future without the Proposed Plan."

Residential Uses

Residential uses in Downtown Flushing are primarily located east of Union Street, where the neighborhood becomes more residential in character. In this area, residential uses primarily consist of mid-rise apartment buildings between six and 10 stories with retail uses on the ground floor, as well as three-story rowhouses, some of which contain ground-floor retail uses. Some residential uses are interspersed between the commercial uses in Downtown Flushing to the west of Union Street. The 400-unit New York City Housing Authority (NYCHA) Bland Houses are located at the southeast corner of Roosevelt Avenue and College Point Boulevard, and a 60-unit residential building is located at the corner of 39th Avenue and College Point Boulevard. In addition, a row of low-rise apartment buildings are located on Janet Place, and several older detached residences are located east of Prince Street between 37th and 38th Avenues.

Commercial Uses

Ethnic retail uses are prevalent on most streets in the area, which are lined with numerous retail shops, food establishments, convenience goods stores, and neighborhood services. As mentioned previously, Roosevelt Avenue, Northern Boulevard, Main Street, and Prince Street are the primary commercial corridors in the District. Two major commercial centers, Assi Plaza and the Flushing Mall, are located near the intersection of College Point Boulevard and 39th Avenue and contain a collection of businesses catering to the area's Asian population. In addition, a 173-room Sheraton hotel is located on 39th Avenue between Prince and Main Streets.

Manufacturing and Industrial Uses

Most industrial uses are located west of College Point Boulevard, along the eastern bank of the Flushing River. These include a 110,000-sf U-Haul facility and an asphalt plant that utilizes barges for transporting materials to and from its facility.

Transportation and Utility Uses

The No. 7 subway line has a terminal station at Roosevelt Avenue and Main Street. The rights-of-way for the LIRR Port Washington Line forms the southern boundary of this subarea, with a station located at Main Street and 41st Avenue.

There are several municipal parking lots in Downtown Flushing. Municipal Lot No. 1, located between Union Street, 138th Street, and 37th and 39th Avenues, contains approximately 1,100 public parking spaces, and is the site of a proposed mixed-use development known as Flushing Commons, described below in Section D, "Future without the Proposed Plan." Flushing Municipal Lot No. 2 is located on the east side of Prince Street between 38th and 39th Avenues and contains 89 parking spaces. Flushing Municipal Lot No. 4 is located underneath the Northern Boulevard viaduct and contains 93 parking spaces.

Community Facilities and Open Space

Notable community facilities in Downtown Flushing include several structures listed on the State and National Registers of Historic Places (S/NR), such as: Flushing Town Hall, which is located on Northern Boulevard and is used as a concert hall and cultural center; the Flushing Armory, located on Northern Boulevard, which houses the New York City Police Department (NYPD) Queens North task force unit; the Friends Meeting House, also on Northern Boulevard; and St. George's Church on Main Street between 38th and 39th Avenues. Other community facilities in this area include a YMCA building on Northern Boulevard, the Macedonia African Methodist Episcopal Church located adjacent to Municipal Lot No. 1, and Flushing House Community Residence, a 319-unit nursing home located on Bowne Street and 38th Avenue.

The only open space in this area is within the grounds of the NYCHA Bland Houses and is located at the corner of Prince Street and 40th Road. The Bland Houses contain approximately 1.7 acres of publicly accessible open space, with amenities such as basketball courts, walkways, and benches.

Flushing Subarea B

The portion of the primary study area located south of the LIRR tracks and west of College Point Boulevard is characterized by a mix of industrial, commercial, and residential uses. Since this area is adjacent to Flushing Meadows-Corona Park and there is no outlet for streets running west of College Point Boulevard, traffic is light on these streets.

Residential Uses

Residential uses in this area are generally located within one to two blocks of College Point Boulevard and are interspersed with active industrial and commercial uses. The residential uses here are generally low-density, consisting of two-story attached residences, as well as a cluster of single family homes located on Haight Street.

Commercial Uses

The most prominent commercial use in this area is a 150,000-sf Home Depot, located on Avery Avenue just west of College Point Boulevard. Neighborhood retail establishments are also

prevalent along College Point Boulevard, and include small retail service establishments, convenience stores, and fast-food restaurants.

Manufacturing and Industrial Uses

A variety of light manufacturing, warehousing, and automotive uses are found in this area, including sign stores, a furniture warehouse, and an auto body repair shop. On the corner of College Point Boulevard and Fowler Avenue, the New York City Department of Environmental Protection (DEP) has recently constructed a 28 million gallon sewage retention tank.

Transportation and Utility Uses

The rights-of-way for the LIRR Port Washington Line form the northern boundary of this subarea, and the Van Wyck Expressway forms the western boundary.

Community Facilities and Open Space

There are no community facility uses in this subarea. Flushing Meadows-Corona Park, described above, is located west of the Van Wyck Expressway and south of Fowler Avenue. There are no other publicly accessible open spaces in this area.

Flushing Subarea C

The portion of the primary study area located west of Linden Place between Northern Boulevard and the Whitestone Expressway primarily consists of industrial and manufacturing uses, with some commercial, office, neighborhood retail, and residential uses generally located east of Prince Street.

Residential Uses

Residential uses are limited in this area, and are interspersed with surrounding commercial, industrial, and warehouse uses. Residential buildings are primarily located east of Prince Street between 32nd and 35th Avenues. The residential buildings in this area are a mix of single-family attached and detached homes and mid-rise buildings, some of which contain commercial uses on the ground floor.

Commercial Uses

There is a mix of large commercial uses and dense neighborhood retail and office uses along the two main thoroughfares in this area—the Whitestone Expressway and Northern Boulevard. Commercial uses concentrated along the Whitestone Expressway include fast-food restaurants, a bowling alley, commercial office space, a bank, and a car wash. Large commercial buildings, including auto-related uses and commercial distributing uses, are located west of Prince Street and north of 35th Avenue. Neighborhood commercial and office uses, such as gas stations, restaurants, realtors, and nail salons, are mostly located along Northern Boulevard, and in the area east of Prince Street and south of 35th Avenue.

Manufacturing and Industrial Uses

Manufacturing and industrial uses are the predominant uses in this area, and include building material companies, such as cement, concrete, lumber and tile, warehousing uses, and some auto-related uses. Some of the heavy industrial uses on the Flushing River waterfront, such as the cement and asphalt operations, use barges to transport materials to and from their sites. The area north of 35th Avenue and west of Prince Street primarily contains warehousing, distribution, and wholesale for ethnic goods.

Transportation and Utility Uses

The Whitestone Expressway forms the northern boundary of this subarea. Utility uses include a DEP sewer maintenance facility, located on Downing Street at 32nd Avenue, and Con Edison maintenance and vehicle storage facilities, located on 32nd Avenue near Farrington Street, as well as on College Point Boulevard near 35th Avenue.

Community Facilities and Open Space

Community facilities in this area are limited, but include religious facilities such as the Queens Alliance Church, Calvary World Mission, and the Disciples Church of New York. There are no open space areas in this area.

SECONDARY STUDY AREA

The secondary study area, described more generally below, is the area generally located between ½ and ¾ miles from the District, and which includes portions of the North Corona, College Point, and Flushing neighborhoods. In Flushing, the secondary study area subareas are extensions of the neighborhoods in the primary study area. The secondary study area also includes portions of the North Corona and College Point neighborhoods, which are separated from the District either by a substantial distance or by significant natural or man-made barriers.

North Corona Subarea

The predominantly residential neighborhood of North Corona is located west of Shea Stadium. The portion of the North Corona neighborhood within this subarea is generally located between the Grand Central Parkway to the north, 44th Avenue and Flushing Meadows-Corona Park to the south, 111th Street to the west, and 114th Street to the east. Its main thoroughfares are Roosevelt Avenue and Northern Boulevard, which are lined with commercial and retail establishments such as delis, grocery stores, retail services, and restaurants. North Corona contains a variety of housing types, including detached one- and two-family residences on narrow lots, attached row-houses and multi-family dwelling units, and apartment buildings. Other prominent residential uses include the 301-unit Dorie Miller Cooperative housing development located on 114th Street between Northern Boulevard and 34th Avenue, and the 132-unit Meadow Manor housing development located at 113th Street and 34th Avenue. To the south of these high-density residential buildings, on 114th Street and 37th Avenue, is a 214-room Holiday Inn hotel. The blocks between Astoria Boulevard and Northern Boulevard are more mixed, with several parking facilities and light industrial uses as well as residential uses. However, recent and anticipated development is replacing these low-density uses with higher-density mixed residential and commercial uses.

The 3.7-acre Hinton Park stretches from 34th to 37th Avenues between 113th and 114th Streets and features game tables, benches, baseball diamonds, and play areas. Directly opposite Hinton Park is the Louis Armstrong School (P.S. 143), with 1,244 students. The No. 7 subway line, which is elevated above Roosevelt Avenue, has stations in Corona at 103rd Street/Corona Plaza, and 111th Street.

College Point Subarea

The College Point Subarea is a predominantly industrial area located on the Flushing Bay waterfront, and extends to 28th Avenue to the north and the Whitestone Expressway to the east. This subarea contains heavy industrial and commercial uses located on large lots, and is partially located within the College Point Corporate Park, which covers the area north and east of College

Point Boulevard and the Whitestone Expressway. Several heavy industrial uses located along the waterfront are water-dependent, and use barges to transport materials to and from their facilities.

Large industrial and manufacturing uses in this subarea include Ferraro Brothers Cement, St. Lawrence Cement, and Crystal Windows and Doors, as well as large municipal facilities, such as the DSNY North Shore marine transfer station (MTS) and the NYPD tow pound. The DSNY North Shore MTS, located on Flushing Bay at 31st Avenue, has not operated since 2001 and is proposed for conversion to an intermodal facility as part of DSNY's long-term waste export program. In addition, the City has proposed a plan to develop a new NYPD police academy on the site of the current NYPD tow pound. These projects are described in greater detail below in Section D, "Future without the Proposed Plan."

This subarea also includes several large-scale commercial uses. A Home Depot is located on 31st Avenue, west of College Point Boulevard. Several commercial uses are located along the Whitestone Expressway, including a shopping center with a mutiplex cinema, Toys 'R' Us, and Office Depot, and the Whitestone Executive Plaza, which contains office space and several commercial establishments. Other commercial uses are located along College Point Boulevard and include a Marriott Fairfield Inn hotel, as well as auto-related uses such as towing, car wash, and a truck dealer and repair. In addition, Williamsburgh Yacht Club is located on Flushing Bay at 28th Avenue.

One large institutional use is located in this area—the Korea World Mission Center, which also houses the Full Gospel Christian School. There are no residential or open spaces in this area.

Flushing

The portions of Flushing located in the secondary study area consist of the predominantly residential areas located to the north and south of Downtown Flushing. There are a number of community facility and institutional uses here, supporting the greater Flushing area. Commercial uses are generally located along main thoroughfares such as Main and Union Streets.

Flushing Subarea B

This subarea is generally located south of the LIRR Port Washington Line and east of College Point Boulevard. Main Street, which divides the area, is the main commercial corridor with retail uses common to Downtown Flushing. The area east of Main Street is characterized by mid-rise residential structures with ground-floor retail interspersed with several large low-rise commercial buildings. The area west of Main Street is primarily residential, with tree-lined streets and low-rise row houses, though recent and ongoing construction activities are replacing some of the low-density residential buildings in this area with new, higher-density development.

Institutional uses are primarily concentrated east of Main Street and include the Flushing branch of the Queens Public Library at the intersection of Main Street and Kissena Boulevard, Saint Michael's Church on Union Street between Barclay Avenue and 41st Avenue, the Free Synagogue of Flushing at the corner of Kissena Boulevard and Sanford Avenue, P.S. 20 at Sanford Avenue and Union Street, and the Flushing Post Office on Main Street between Sanford and Maple Avenues. The Boy's Club of New York is located west of Main Street, at the intersection of Frame Place and 41st Road.

As stated previously, the LIRR Port Washington Line forms the northern boundary of this subarea, with a station located at Main Street and 41st Avenue. Flushing Municipal Lot No. 3 is adjacent to the LIRR station on 41st Avenue, with 157 parking spaces.

This subarea is bounded on the south by Kissena Corridor West, a 100-acre park that links Flushing Meadows-Corona Park to Kissena Park. Kissena Corridor West contains the Queens Botanical Gardens, as well as natural areas and other recreational amenities.

Flushing Subarea C

This subarea is generally located east of Linden Place, between the Whitestone Expressway and Northern Boulevard, and contains the residential neighborhood surrounding Leavitt Field, a large park.

Residential buildings in this area are a mix of single- and multi-family homes and mid- to high-rise apartment buildings. High-rise apartment buildings are located north of 32nd Avenue. Single- and multi-family homes and some mid-rise apartment buildings are generally located south of 32nd Avenue. A 424-unit NYCHA apartment complex is located south of 32nd Avenue, adjacent to Leavitt Field. In recent years the character of this residential area has been transforming, as several older lower-density and single-family residences are being replaced with new higher-density residential construction in close proximity to Leavitt Field. Leavitt Field, an approximately 7.5-acre park bounded by 32nd Avenue, Leavitt Street, and 137th Street, primarily contains active recreational uses, including tennis courts and ballfields.

Neighborhood commercial and office uses are primarily located along Northern Boulevard and Union Street. Commercial uses on Union Street are located on the ground floor with residential units above.

There are numerous community facilities in this area. Educational institutions include Queens Academy High School, P.S. 242, and H.S. 460 (Flushing High School). Several churches are located along Union Street and 35th Avenue. Other community facilities include the Union Plaza Health Care Facility, and Flushing Town Hall, an NYCL, located on Northern Boulevard.

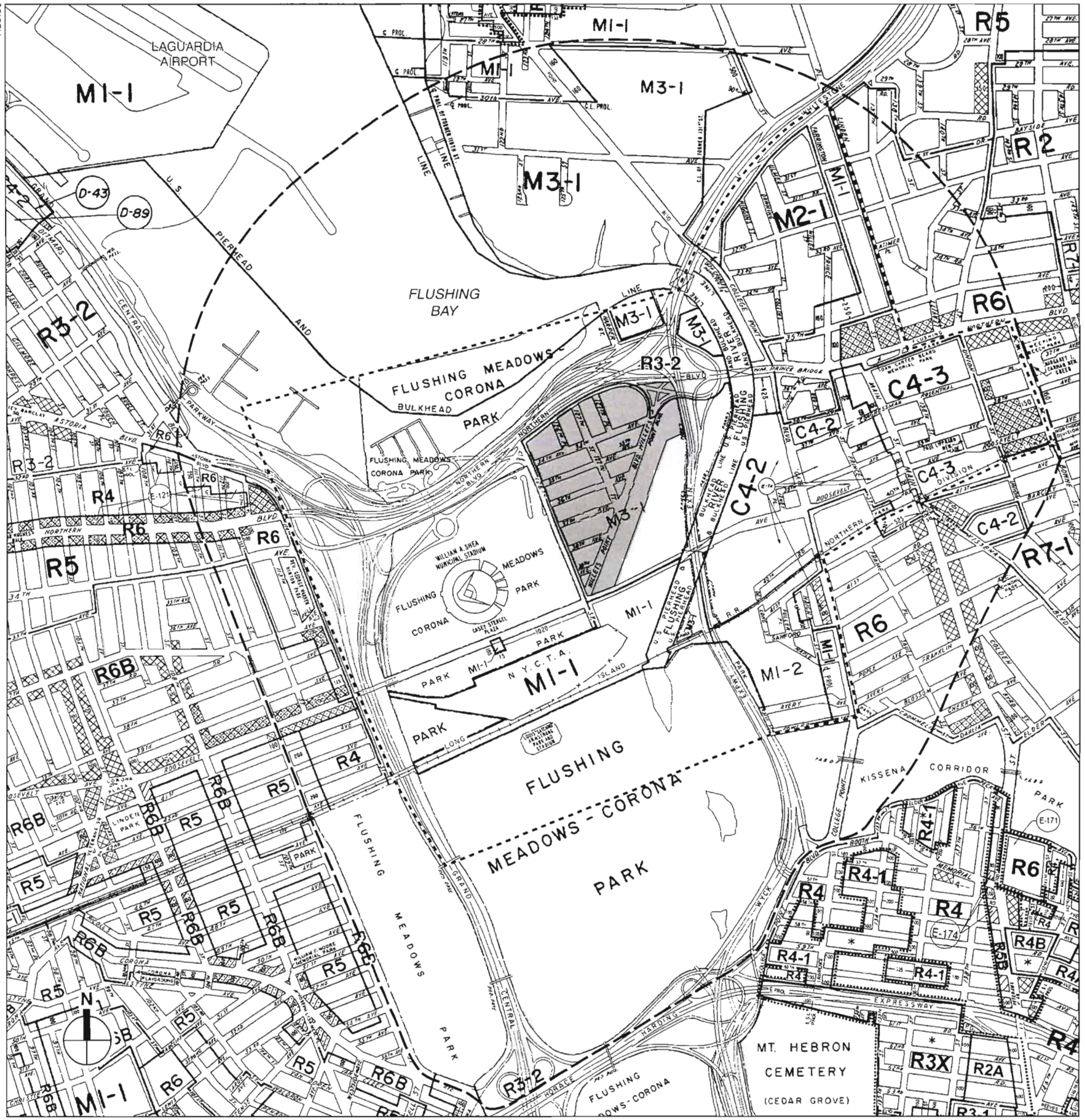
ZONING

Zoning is a tool for implementing the City's planning and development objectives by regulating land use, density, and building bulk. Existing zoning and its relationship to land use character are described below. The existing zoning in the Willets Point Development District and surrounding study areas are shown in Table 3-1 and Figure 3-2.

DISTRICT

The entire Willets Point peninsula is located in a manufacturing M3-1 district, with the exception of an area along Northern Boulevard that is zoned residential R3-2, and portions of the Flushing Bay waterfront area that are mapped as parkland. M3 districts allow heavy industrial uses that generate noise, traffic, or pollutants. They are typically located on waterfronts or in industrial sectors, where they can be buffered from residential areas. M3-1 districts allow a maximum FAR of 2.0, and parking is required. The R3-2 district that is mapped on the Willets Point Peninsula contains only transportation infrastructure related to Northern Boulevard, the Whitestone Expressway, and the Van Wyck Expressway. A small area within the Willets Point Development District is included within the R3-2 district; it contains roadway connections to Northern Boulevard.

1.25.08



- Willets Point Development District
- Primary Study Area Boundary
- Secondary Study Area Boundary
- Zoning District Boundary
- C1-2 Overlay
- C1-3 Overlay
- C1-4 Overlay
- C2-2 Overlay
- C2-3 Overlay
- C2-4 Overlay

Figure 3-2
Existing Zoning

Table 3-1
Zoning Districts Located in Primary and Secondary Study Areas

Zoning District	Maximum FAR[1,2]	Uses/Zone Type
Residential Districts		
R3-2	0.5 R plus 0.20 attic allowance[3]	General residence district; low-density housing
R4	0.75 R plus 0.20 attic allowance[3]	General residence district; low-density housing
R5	1.25 R, 2.0 CF	General residence district; low-density housing
R6	0.78 to 2.43 R, 3.0 QH, 4.8 CF	General residential district, medium-density housing
R6B	2.0 R, 2.0 CF	Contextual residence district, allowing medium-density housing, low-rise buildings with greater lot coverage
R7-1	3.44 R, 4.0 QH, 4.8 CF	General residence district; medium-density housing
Commercial Districts		
C1-2[4]	2.0 C (in R6 to R10), follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C2-2[4]	2.0 C (in R6 to R10), follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C2-3[4]	2.0 C (in R6 to R10), follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C2-4[4]	2.0 C (in R6 to R10), follows bulk residential and community facility regulations of mapped residential district	Local shopping and services
C4-2	3.4 C, 2.43 R, 4.8 CF	Major commercial centers outside of central business district
C4-3	3.4 C, 2.43 R, 4.8 CF	Major commercial centers outside of central business district
Manufacturing Districts		
M1-1	1.0 M, 1.0 C, 2.4 CF	Light manufacturing and most commercial uses, located adjacent to low-density residential areas
M1-2	2.0 M, 2.0 C, 4.8 CF	Light manufacturing and most commercial uses, older industrial areas, strict manufacturing performance standards
M2-1	2.0 M, 2.0 C	Medium manufacturing and most commercial uses, moderate manufacturing performance standards
M3-1	2.0 M, 2.0 C	Heavy manufacturing and most commercial uses, minimum manufacturing performance standards

Notes:

[1] Floor area ratio (FAR) is a measure of density establishing the amount of development allowed in proportion to the base lot area. For example, a lot of 10,000 square feet (sf) with a FAR of 1 has an allowable building area of 10,000 square feet. The same lot with an FAR of 10 has an allowable building area of 100,000 sf.

[2] CF=Community Facility, R=Residential, QH=Quality Housing, C=Commercial, M=Manufacturing.

[3] The maximum FAR is increased by the attic allowance which provides up to 20 percent additional FAR for space beneath a pitched roof that has structural headroom of between five and eight feet.

[4] Commercial overlay districts are often mapped with residential districts (R5 and above) along the study area's heavily traveled roadways.

Source: New York City Zoning Resolution.

PRIMARY STUDY AREA

While much of the area to the west and south of the District is mapped as parkland (part of Flushing Meadows-Corona Park), the area south of Roosevelt Avenue containing the LIRR tracks and railyard is zoned M1-1. The M1-1 district allows light industrial uses that comply with more stringent performance standards, such as warehousing, storage facilities, and auto repair shops. A maximum FAR of 1.0 is permitted in M1-1 districts.

Flushing Subarea

The Flushing Subarea contains a mix of zoning districts, with manufacturing (M3-1, M2-1, M1-2, and M1-1) and commercial (C4-2) districts located near the Flushing River waterfront, and commercial C4-3 and residential R6 districts located farther east.

Downtown Flushing—Subarea A

The Downtown Flushing Subarea contains commercial C4-2 and C4-3 districts and a residential R6 district. The C4-2 district generally extends west of Main Street to the Flushing River waterfront. The Flushing River waterfront area that extends roughly between the LIRR and 36th Avenue was rezoned by the New York City Department of City Planning (DCP) in 1998 from manufacturing zoning to a C4-2 district, to encourage residential and commercial development along the waterfront. The zoning also requires new development to provide public access to the waterfront in accordance with a Waterfront Access Plan (WAP). The WAP includes provisions for a shore public walkway with upland connections, new water-view park locations, and visual corridors to the waterfront.

The blocks between Main and Union Streets are generally mapped C4-3, and a R6 district extends east of Union Street. C4 districts are mapped in regional commercial districts and allow medium density commercial development and uses such as specialty and department stores, which serve the needs of a larger area. Both the C4-2 and C4-3 districts allow residential uses at a maximum FAR of 2.43 and commercial uses at a maximum FAR of 3.4.

Residential R6 districts are medium-density residential districts which allow a maximum FAR of 2.43. The character of R6 districts typically range from row houses to larger tower developments. Much of the R6 district in this subarea contains either a commercial C1-2 or C2-2 overlay. Commercial overlays within residential districts generally serve the local retail needs of the surrounding neighborhoods. Within the R6 district, both commercial overlays permit commercial uses at an FAR of 2.0.

Just south of Northern Boulevard, close to the Flushing River, are manufacturing M2-1 and M1-1 districts. As stated above, M1 districts contain strict performance standards and are for lighter industrial uses, while M2 districts are typically mapped in the City's older industrial areas along the waterfront, and allow industrial uses that comply with medium performance standards. For example, smoke is permitted, and industrial activities need not be entirely enclosed. M1-1 districts permit a maximum FAR of 1.0, while M2-1 districts permit a maximum FAR of 2.0.

Flushing Subarea B

This subarea, which generally extends south of the LIRR tracks and west of College Point Boulevard, is generally zoned for manufacturing uses. Zoning districts to the west of College Point Boulevard are predominantly M1-1 and M1-2 with a small enclave zoned M3-1. As stated above, M1 districts are for lighter industrial uses, while M2 districts allow industrial uses that comply with medium performance standards, and M3 districts are for heavy industrial uses and contain minimum performance standards. M1-1 districts permit a maximum FAR of 1.0, while M1-2 and M3-1 districts permit a maximum FAR of 2.0. Both zoning districts have parking requirements, which vary depending on the type of use and size of the establishment.

A small portion of this area is within a residential R6 district, with a commercial C2-3 overlay extending along a stretch of College Point Boulevard. The R6 district allows medium-density residential development with a maximum FAR of 2.43. The commercial C2-3 overlay mapped in this R6 district allows commercial use at 2.0 FAR.

Flushing Subarea C

This subarea, which is generally located west of Linden Place between the Whitestone Expressway and Northern Boulevard, is predominantly zoned M1-1 and M2-1, which are described above. A small area to the north of Northern Boulevard is within a residential R6

district with a C2-2 commercial overlay. The R6 district allows medium-density residential development with a maximum FAR of 2.43. The commercial C2-2 overlay mapped in this R6 district allows commercial use at 2.0 FAR.

SECONDARY STUDY AREA

Zoning within the secondary study area is described below. In Flushing, the subareas are extensions of the neighborhoods in the primary study area. The secondary study area also includes portions of the North Corona and College Point neighborhoods.

North Corona Subarea

The North Corona Subarea is zoned primarily for medium-density residential districts, including R6 and R6B. Smaller portions of this subarea—generally located south of Roosevelt Avenue and north of Northern Boulevard—are within R4 or R5 districts, which are lower-density residential districts. An R6 district is mapped in the eastern portion of the area along 114th Street, and along Northern Boulevard with a C2-4 commercial overlay. Commercial businesses along this corridor are permitted at 2.0 FAR.

To the west of the R6 district, an R6B contextual residential district generally stretches from 34th Avenue to Roosevelt Avenue. The R6B zoning district allows a maximum FAR of 2.0 and restricts density, limits building heights, and requires minimum setbacks in relation to the building's height, thereby maintaining a contextual residential neighborhood with single and multiple-dwelling homes rising four or five stories in height. Within the R6B district along Roosevelt Avenue, a C2-4 commercial overlay is mapped along the north side of the street, and a C2-2 overlay is mapped along the south side.

The southern portion of the study area, south of Roosevelt Avenue, contains lower-density R4 and R5 zoning districts. R5 districts permit a variety of housing stock, including three-story attached houses and small apartment buildings, but limit development to 1.25 FAR with a maximum building height of 40 feet. R4 zoning districts are similar to the R5 district with respect to multi-family development and front, side, and rear-yard requirements; however, they have a lower maximum FAR of 0.75 (up to 0.9 FAR with a 20 percent increase for an attic allowance), which is generally accommodated in the pitched roof design of homes common to this district. Another R4 district is mapped in the northern portion of the study area, generally located between Northern and Astoria Boulevards.

In 2003, much of the North Corona Subarea was rezoned by DCP. The North Corona rezoning, which encompassed 120 blocks, was meant to maintain neighborhood character and prevent out-of-scale residential development, while promoting commercial development along the existing commercial corridors of Northern Boulevard and Roosevelt Avenue. Specifically within the secondary study area, the area north of Northern Boulevard from 110th Street to 112th Place was rezoned from R5 to R4; various commercial overlays previously located along Northern Boulevard were changed to a single C2-4 commercial overlay; the area west of 114th Street was rezoned from R5 and R6 zoning districts to a single R6 zoning district; and the area west of that was changed from an R6 district to an R6B district.

Flushing Subarea B

This subarea, which is generally located south of the LIRR tracks and east of College Point Boulevard, is primarily zoned R6, although small areas north of Kissena Boulevard are within C4-2 and R7-1 districts. Within the R6 district, a commercial C1-2 overlay is mapped along

Main Street, which allows commercial uses at 2.0 FAR. The C4-2 district, as described above, allows major retail businesses and larger local establishments to exist in a high-density area. The R7-1 district allows residential development similar to R6 districts, although a higher FAR (up to 3.44 FAR) is permitted with less lot coverage.

Flushing Subarea C

This subarea, generally located east of Linden Place between the Whitestone Expressway and Northern Boulevard, is primarily within a residential R6 district. As described above, R6 districts allow a range of residential development, from row houses to larger tower developments. A commercial C2-2 overlay is mapped within this R6 district along Northern Boulevard to the west of Union Street, which allows commercial use at 2.0 FAR.

College Point Subarea

The College Point Subarea is predominantly zoned M3-1, with the exception of the area north of 30th Avenue and west of College Point Boulevard, which is zoned M1-1. M3 districts typically contain heavy industries, such as fuel supply depots or solid waste transfer facilities, which generate noise, traffic, or pollutants, while M1-1 districts are for light industries. M3-1 districts allow a maximum FAR of 2.0, while M1-1 allows a maximum FAR of 1.0.

PUBLIC POLICY

The Willets Point and Downtown Flushing areas have been the focus of numerous planning studies and policy initiatives for decades. During the 1960s and 1980s, Willets Point was subject to high-profile proposals for uses such as a football stadium and parkland. In the early 1990s, and then later in 2004, the City undertook studies which focused on the long-range vision for Downtown Flushing and its surrounding areas, including Willets Point. In 1993, the Queens Borough President's office released a study entitled "Willets Point—A New Direction," which proposed the redevelopment of Willets Point into a major commercial center or as an international trade center that would be used to host import/export shows and to provide exhibition and office space for wholesalers and retailers. In 2001, HPD held a design workshop that explored potential redevelopment ideas for Willets Point. The workshop recommended land uses that would reconnect Willets Point with its neighboring communities and attract visitors from nearby attractions and facilities such as Downtown Flushing, Flushing Meadows-Corona Park, Shea Stadium, and hotels servicing nearby LaGuardia and Kennedy Airports.

Around the same time, in 2002, the City created the Downtown Flushing Task Force to undertake a community planning process involving City and State agencies, local and State elected officials, community members, advocacy groups, and local business leaders. The resulting development framework, the Downtown Flushing Development Framework (Framework), was completed in May 2004. The Framework, which is described in detail below, identified a set of land use and economic goals to revitalize Downtown Flushing, the Flushing River waterfront, and Willets Point, and to strengthen the area as a regional center, with enhanced connections to neighboring amenities and communities.

Additional public policies that apply to either the District or the study areas are also described below.

DOWNTOWN FLUSHING DEVELOPMENT FRAMEWORK

The Downtown Flushing Development Framework, initiated by the New York City Economic Development Corporation (NYCEDC) and DCP, is a land use planning strategy for the future growth and sustainability of Downtown Flushing, the Flushing River waterfront, and the Willets Point peninsula. The Framework considered opportunities for mixed-use development, improved connections with adjacent regional destinations, enhancements to public open spaces and streetscapes, and transportation and parking strategies.

The Framework looked at the development potential of the Willets Point peninsula, examining the opportunity to create a large-scale economic impact and transform the Flushing area into a regional destination. It also discussed the need to improve the environmental quality of the area. The Framework identified the creation of a long-term redevelopment plan for the Willets Point area as one of the principal implementation goals. Based on an analysis of the area's assets and development constraints, the Framework identified the following land use and economic goals to be achieved through development within Willets Point:

- Create a regional destination that would enhance economic growth in Downtown Flushing and Corona;
- Improve environmental conditions in the District and reflect the sensitive nature of its waterfront setting;
- Create a larger, expanded Flushing core by integrating the two sides of the Flushing River through land use and design;
- Complement the adjacent recreational and sporting facilities;
- Optimize use of the existing highway, public transit, and parking infrastructure to minimize local traffic impacts; and
- Create substantial positive economic value for the City and provide a source of quality jobs for area residents.

The Framework identified ways to renew the central business, residential, and shopping core in Downtown Flushing by enhancing the pedestrian experience and retail options. Specific recommendations included a series of streetscape improvements, façade upgrades, a coordinated marketing program, and improvements to the design of critical gateway intersections connecting Downtown Flushing to the surrounding areas. Other recommendations focused on leveraging Downtown Flushing's significant transportation assets to enhance mobility, improve the pedestrian environment, and enhance mass transit proximity to the waterfront.

The Framework identified the Flushing River waterfront as the greatest unifying element, with the potential to connect activity at Willets Point to the Downtown Flushing area, and envisioned the waterfront area as containing a combination of open space and mixed-use development that would attract residents and visitors to the waterfront. The Framework set forth a number of recommendations for the waterfront area, including: improving the environmental quality of the river and surrounding wetlands; facilitating the creation of an esplanade along the eastern shore of the Flushing River; introducing a new community open space at the northern anchor of the esplanade; and improving access to the waterfront and creating a continuous open space system around the Flushing River.

PLANYC 2030 (2007)

Released by the City in April 2007, this 128-point plan was prepared to create an environmentally sustainable city over the next two decades. PlaNYC focuses on the many facets of New York's environment—its transportation network, housing stock, land and park system, energy network, water supply, and air quality—and sets a course to achieve 10 goals to create a more sustainable New York by the year 2030. Specific goals of the plan include:

- Create enough housing for almost a million more people, and find ways to make housing more affordable;
- Ensure that every New Yorker lives within a 10-minute walk of a park;
- Add to the capacity of New York City's regional mass transit system;
- Develop critical back-up systems for New York City's water network, ensuring a dependable source of water;
- Reach a full "state of good repair" for New York City's roads, subways, and rails;
- Provide cleaner, more reliable power by upgrading New York City's energy infrastructure;
- Reduce New York City's global-warming emissions by more than 30 percent by 2030;
- Achieve the cleanest air quality of any big city in America;
- Clean up all contaminated land in New York City; and
- Open 90 percent of New York City's rivers, harbors, and bays for recreation by reducing water pollution and preserving natural areas.

WATERFRONT REVITALIZATION PLAN

The District is located within the New York City coastal zone boundary. The federal Coastal Zone Management (CZM) Act of 1972 was established to support and protect the distinctive character of the waterfront, and to assist coastal states in establishing policies for managing their coastal zone areas. In 1982, New York adopted a state Coastal Management Program, designed to balance economic development and preservation in the coastal zone by promoting waterfront revitalization and water-dependent uses while protecting fish and wildlife, open space and scenic areas, public access to the shoreline and farmland, and minimizing adverse changes to ecological systems and erosion and flood hazards. The State program provides for local implementation when a municipality adopts a local waterfront revitalization program that is consistent with the federal CZM Act.

In accordance with the State program, New York City adopted a local waterfront revitalization program, the New York City Waterfront Revitalization Program (WRP), in 1982. The WRP, as amended, incorporates the State's 44 coastal policies, and contains an additional 10 policies. The program is administered by DCP. It establishes the City's policies for development and use of the waterfront and provides a framework for evaluating activities proposed in the coastal zone. The proposed Plan is located within the coastal zone designated by New York City and, therefore, is subject to New York City's coastal zone management policies, contained within the WRP. Chapter 13, "Waterfront Revitalization Program," reviews the New York City coastal zone policies and assesses the consistency of the proposed Plan with these policies.

COLLEGE POINT CORPORATE PARK

A portion of the College Point Subarea lies within the College Point Corporate Park, a 550-acre corporate park formed in 1969 on land acquired through eminent domain under the College Point II Urban Renewal Plan. The corporate park is currently managed by NYCEDC, which sells the land to various developers. All property disposition in the park includes covenants that restrict land use, guide future design, and require contribution to an improvement fund. The park contains approximately 175 businesses and employs around 5,500 people. Large industrial businesses include *The New York Times* printing and distribution plant and the North American headquarters for Skanska (a Swedish construction company). There are also several big box retailers in the park, including a Target Greatland, BJ's Warehouse, TJ Maxx, and Circuit City. Additional retailers in the park include Old Navy, Staples, Toys 'R' Us, Babies 'R' Us, a Walbaums supermarket (including a Walbaums corporate training center), Boulder Creek Steakhouse, and a multiplex cinema. The former Flushing Airport site, which is within the corporate park, comprises 16 percent of developable land within the park.

D. FUTURE WITHOUT THE PROPOSED PLAN

Development of new residential, commercial, and entertainment uses is expected to continue between now and 2017 in the primary and secondary study areas. The most prominent development project is the new Citi Field that is currently under construction adjacent to the Willets Point Development District. The District itself is not expected to experience substantial change in the future without the proposed Plan. The projects identified as likely to be completed by 2017 are listed in Table 2-1 in Chapter 2.

Zoning in the District is expected to be the same without the proposed Plan. Zoning and public policy are anticipated to continue to support commercial and residential growth and development in the study area. Specifically, recent rezonings in North Corona and along the Flushing River waterfront are expected to result in new higher-density mixed-use development over the long term in the future without the proposed Plan.

LAND USE

The Downtown Flushing and North Corona neighborhoods have experienced significant growth in recent years, which may be attributed to recent efforts to direct growth and development in appropriate areas, through City-sponsored rezonings and public policy initiatives such as the Downtown Flushing Development Framework, as well as to the strong Citywide trend for new residential and commercial development. A substantial amount of new development is either under construction or planned within the study areas, including several large-scale mixed-use redevelopment projects, primarily located in Downtown Flushing, and numerous residential developments in the North Corona and greater Flushing areas.

DISTRICT

As discussed above in Section C, "Existing Conditions," the properties in the District have remained relatively unchanged, even while development has occurred in the nearby neighborhoods of Downtown Flushing and North Corona. While some redevelopment or improvements may occur, overall, the Willets Point Development District is not anticipated to experience substantial change in the future without the proposed Plan by 2017 due to the low-density industrial zoning regulations, contamination concerns, and other unappealing conditions.

Without the proposed Plan, it is expected that the District would continue to be relatively isolated from surrounding neighborhoods.

PRIMARY STUDY AREA

In the future without the proposed Plan, the existing uses on the remainder of the Willets Point peninsula, including the undeveloped MTA property to the east of the District, are expected to remain unchanged.

Approximately 20 development projects are either under construction or proposed for the primary study area by 2017. Immediately west of the District, the new home of the New York Mets, Citi Field, is currently under construction and is scheduled to be completed in 2009. This 44,000-seat stadium will replace the existing 56,000-seat Shea Stadium, located immediately to its west. Along 126th Street, the stadium will provide ground-floor retail space and Mets executive offices within a four-story, 100,000-sf building. The retail uses are likely to primarily include team apparel and other Mets-related items, as well as food service for stadium visitors. The existing traffic circle north of the stadium that connects Meridian Road with Boat Basin Road and provides access to the northern parking area will be converted to a standard four-legged, signalized intersection. The reconfiguration of the existing traffic circle is intended to provide improved access to the new main gateway into the stadium parking area. In addition, a bus parking area will be located north of Meridian Road, in a lot that is currently being used for stadium visitor parking.

Across the Flushing River from the District, a large mixed-use development called Sky View Parc is under construction, with the initial phase of construction expected to be completed in 2008. This development will ultimately include 750 residential units, 760,000 sf of retail, a 51-800 sf restaurant, and 3,000 parking spaces. It will also include a 40-foot-wide waterfront esplanade along the Flushing River, with an upland connection to 40th Road, as required by zoning as part of the WAP. Another large mixed-use development is planned on the east side of the Flushing River waterfront just north of Roosevelt Avenue, and is expected to be completed in 2011. Current plans for this development—called River Park Place—include 475 residential units, 251,000 sf office 10,200 sf of retail, 1,500 sf community facility, and either a 175-room hotel or an additional 96,500 sf of office. This project will also include a waterfront esplanade, as required by the WAP. In recent years, there has been increased interest in the further development of mixed-use projects along the Flushing River waterfront. It is expected that the trend of new mixed-use development along the waterfront would continue over the long term without the proposed Plan, following current development projects and alongside other initiatives proposed as part of the Framework to improve connections between Downtown Flushing and the Flushing waterfront.

Several large-scale mixed-use developments are either under construction or planned for Downtown Flushing. In the heart of Downtown Flushing, a mixed-use development called Queens Crossing was recently completed. It contains 144,000 sf of office space, 110,000 sf of retail space, 29,600 sf of community facility space, and 400 parking spaces. Immediately east of this site, Flushing Commons, a new mixed-use project proposed for development on Municipal Lot No. 1, is expected to contain approximately 508 residential units, 219 hotel rooms, 436,000 sf of retail space, 85,000 sf of community facility space, and 1,603 parking spaces. The former Caldor building at Roosevelt Avenue and Main Street may also be redeveloped with new retail uses. Several other new office buildings and residential developments are under construction in the vicinity of Prince Street. In addition, in an effort to relieve traffic congestion in Downtown

Flushing, Main and Union Streets will each be converted from two-way to one-way streets, running north and south, respectively.

North of Northern Boulevard in Flushing, several projects, including a hotel, storage facility, office space expansion, and a new 38-unit residential building, are either under construction or recently completed, and two mixed-use projects are proposed for development. These include a proposed development on 35th Avenue with 84 residential units, community facility, retail, and approximately 220 parking spaces; and a proposed development on Northern Boulevard with approximately 90 new residential units, 60 hotel rooms, community facility, retail, and parking. In addition, although the redevelopment of RKO Keith's Theater (a 1920s movie house) is currently on hold, it is anticipated that this site would be redeveloped by 2017.

SECONDARY STUDY AREA

Approximately 33 development projects are proposed for the secondary study area by 2017. Several new multi-family and mid-rise and residential apartment buildings are currently under construction in the North Corona Subarea. Seven new residential buildings within the area between Roosevelt and 37th Avenues will bring a total of 71 new units to the area. Six additional projects are projected to be developed in the area between Northern and Astoria Boulevards by 2013, as a result of the recent North Corona Rezoning. If developed, these large mixed-use projects would bring a combined 378 new residential units to the area, along with new retail and community facility space.

In the residential area south of Roosevelt Avenue in Flushing, several taller residential buildings are under construction. These include Victoria Tower, a new 178-unit residential building, and two new residential buildings just east of College Point Boulevard with 50 and 43 residential units. Six additional residential projects are either planned or under construction in this area that will collectively introduce approximately 155 new residential units. In addition, a new 441-seat primary school is being constructed at Franklin and Golden Avenues.

North of Northern Boulevard in Flushing, two multi-unit residential buildings have recently been completed on 35th Avenue. Just north of Leavitt Field on 137th Street, several residential projects are under construction, which together will introduce approximately 74 new units to the area.

Two major projects are expected to be completed in the College Point Subarea in the future without the proposed Plan. These include the proposed North Shore converted MTS on Flushing Creek at 31st Street, and a new NYPD police academy on 31st Avenue at College Point Boulevard. The converted MTS is included in DSNY's Solid Waste Management Plan for long-term waste export, and would receive and containerize waste from Queens Community Districts 7 through 14, exporting waste by barge. The MTS facility was originally proposed for operation in 2006, and is expected to begin operating in 2011, once the required permits are granted by the New York State Department of Environmental Conservation (DEC). A new police academy, which is planned to be constructed by 2012, will include a 30-acre campus with 250 classrooms, 250 beds for visiting law enforcement agencies, firing ranges, indoor and outdoor tracks, and areas for simulated training activities.

ZONING

In the future without the proposed Plan, no zoning changes are anticipated in the District. Most of the Willets Point peninsula (with the exception of the Flushing Bay Promenade and a small area zoned R3-2) would remain zoned for heavy manufacturing use. The heavy manufacturing

zoning on the Willets Point peninsula would remain in sharp contrast to the higher-density mixed-use commercial and residential zoning districts associated with Downtown Flushing and the growing residential neighborhood of North Corona to the west of the District.

No zoning changes are anticipated to occur in the primary study area by 2017. In the secondary study area, one zoning change is proposed in connection with the Flushing Commons project. To facilitate this project, the entire block bounded by 138th Street, 37th Avenue, 39th Avenue, and Union Street would be rezoned from a C4-3 district to a C4-4 district. The proposed C4-4 district is similar to C4-3 in use but allows slightly higher density and less required parking. If approved, the permitted commercial FAR (3.4) would not change, but the permitted residential FAR would increase from 2.43 to 3.44 and permitted community facility FAR would increase from 4.80 to 6.50.

No changes to zoning are expected in the College Point Subarea in the future without the proposed Plan. Much of the residential College Point neighborhood was rezoned by DCP in 2005. The rezoning covered a 161-block area and was proposed to comprehensively establish contextual zoning districts for the residentially developed portions of College Point in order to preserve the one- and two-family character of the neighborhood. Since the manufacturing zoning in the study area south of 28th Avenue was preserved, it is not anticipated that the zoning in this area would change in the near future.

As described previously, most of the North Corona Subarea was recently rezoned by DCP. Therefore, zoning in this area is not anticipated to change in the near future.

PUBLIC POLICY

In the future without the proposed Plan, no new policies are expected for the District, or the primary and secondary study areas. Without the proposed Plan, an essential component of the Downtown Flushing Development Framework—the redevelopment of the Willets Point peninsula—would not proceed, and many of the Framework's goals, which focus on facilitating future growth and sustainability of the area through the redevelopment of Willets Point, would not be achieved. It is expected that the City would continue to explore opportunities to advance the other components of the Framework, such as opportunities for mixed-use development in Downtown Flushing, enhancements to public open spaces and streetscapes, improved connections between Downtown Flushing and the Flushing waterfront, and transportation and parking strategies. Specific objectives outlined in the Framework include upgrading streetscapes between the Downtown Flushing core and the waterfront, and improving pedestrian conditions along College Point Boulevard. However, goals such as improving environmental conditions in the District and enhancing adjacent regional destinations would not likely be achieved in the future without the proposed Plan.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

The proposed Plan would require creation of a Willets Point URP to support the major mixed-use development as described below, by establishing the boundaries and maximum development envelope for the District. This plan, together with the zoning regulations established within the Special Willets Point District, would govern all future development within the District, including site planning, land uses, and densities, and would establish design controls for the proposed Plan's buildings, open spaces, and other features. The Plan would also require the following land use-related actions: a change to the underlying zoning of the District from the existing M3-1 and

R3-2 districts to a C4-4 district; demapping some or all of the streets within the District; and possible acquisition of property by the City pursuant to the Eminent Domain Procedure Law (see Chapter 1, "Project Description," for a complete list of required actions).

The analysis below addresses the potential for land use, zoning, and public policy impacts in terms of direct displacement of other uses on the District, compatibility of the proposed uses and proposed density with surrounding uses and densities, and consistency of the proposed uses and densities with public land use and development policy.

PROPOSED PLAN

LAND USE

District

The proposed Plan would change the development potential of the District in a manner consistent with the proposed URP and the Special Willets Point District. As a result, a range of new development could occur within the District. While the actual development will depend on developer proposals and future market conditions, among other things, the City has developed a maximum development envelope for analysis in the GEIS. The maximum development envelope anticipated under the proposed Plan includes up to 8.94 million gsf of new buildings, which would include residential, retail, office space, a hotel and convention center, as well as community facilities and open space. The proposed uses are described in detail in Chapters 1 and 2.

In addition, the Plan would include construction of a new connection between the Van Wyck Expressway and the District to facilitate the movement of traffic into and out of the District and minimize traffic on nearby local roadways. The New York State Department of Transportation (NYSDOT) is currently considering conceptual design alternatives, which include new entrance and exit ramps that touch down in the northeast portion of the District and connect with the primary connector streets in the District.

The proposed Plan would include environmental remediation, the installation of new sanitary and storm sewer lines, and the grading and elevation of the entire District above the 100-year floodplain, and would result in the displacement of all existing uses in the District. Overall, the proposed Plan would dramatically change land uses in the District, replacing predominantly low-density auto-related, manufacturing, warehousing and distribution, and waste transfer and recycling uses with a new mixed-use neighborhood (see Figure 3-3). As part of the Plan, residential and retail uses would be the core activities, and office, hotel, and convention center uses would complement these uses to create a regional economic center. Community facilities and open space would support the residential and commercial uses and improve the quality of life for area residents and visitors.

While specific development plans have not been formulated, the Special Willets Point District would create a sustainable, dynamic community by integrating regional attractions—such as the convention center and destination retail—and residential, community facility, and other uses within a network of pedestrian-scaled streetscapes throughout the District. The Special District regulations would determine elements that would apply to each area, such as the placement of uses within the District, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions.

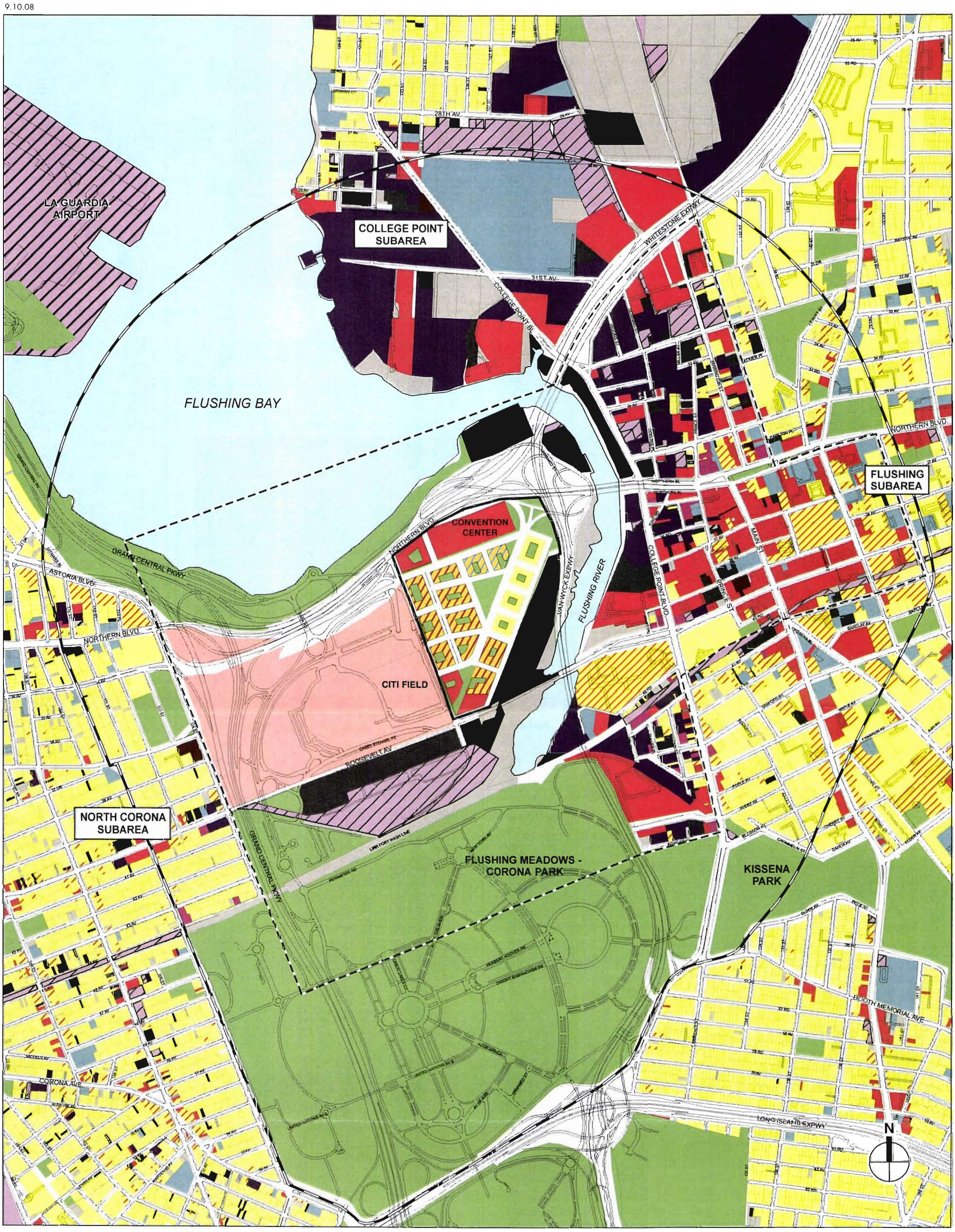
The Special District would regulate the general layout of the principal streets—by mandating four or five specific intersections along 126th Street and establishing design parameters for five street types—thereby establishing the basic form of the District and ensuring that the future uses in the District are integrated into a cohesive site design. The Special District would require two connector streets—one would extend from 34th Avenue east into the District, and the other would extend east into the District from Citi Field's southern edge. The Special District would require the creation of one primary and two or three secondary retail streets within an entertainment and commercial center, and residential streets within the residential community, as described below. The Special District would also require an eastern perimeter street, which would be located within 20 feet of the eastern boundary of the District, extending between Roosevelt Avenue and a connector street. Finally, the Special District would allow the provision of service streets, which would be one of the streets bounding each anchor block, as described below

The Special District would facilitate development of a pedestrian-oriented regional entertainment and commercial center along 126th Street by requiring continuous retail and service uses on the ground floor level, and would encourage the pedestrian orientation of these uses by requiring transparent ground floor façades and restricting the width of building entryways or lobbies. This area would extend approximately 600 feet east of 126th Street, and would combine retail, residential, and parking uses in mixed-use structures rising up to 218 feet in height. The lower levels of structures would include intensive restaurant, entertainment, and nightlife uses along 126th Street, while the upper stories would contain residential or office uses. A mix of shops and apparel stores would be located along the primary and secondary retail streets within the zone. The Special District would establish large commercial anchor blocks at Northern Boulevard and Roosevelt Avenue along 126th Street, so that retail uses would be concentrated in the center of the zone, in proximity to the new Citi Field.

East of the 126th Street corridor, the Special District would provide more flexibility in the placement of various uses and of architectural design, within established parameters, to ensure the compatibility of adjacent uses and the adequate provision of light and air within the District. The convention center would be located in the northeastern portion of the district, within 650 feet from Northern Boulevard. Accessory uses—including a hotel and accessory parking—would be located in proximity to the convention center.

The Special District would encourage the development of a residential community in the eastern part of the District. While this area would be predominantly residential, community facility, office, and ground-floor retail uses would also be permitted, creating a lively streetscape. The residential community would also include an approximately two-acre centrally located park, with frontage on a connector street, programmed primarily for active recreational use. The Special District includes design parameters such as setbacks, maximum block dimensions, and building entrances on each blockfront to encourage a pedestrian-friendly neighborhood environment.

The Special District regulations allow the development of a wastewater reclamation facility, a cogeneration facility and an electrical utility substation within the District, provided they would primarily serve the District. If proposed, these uses would be subject to separate environmental and public review processes. The water reclamation facility would require approval by the Board of Standards and Appeals (BSA). The cogeneration facility would require approval by the BSA, as well as air quality permits from DEP and DEC. The substation would require authorization by the City Planning Commission (CPC). For the water reclamation facility and cogeneration



- *Willets Point Development District Boundary*
- *Primary Study Area Boundary*
- *Secondary Study Area Boundary*
- *Residential*
- *Residential with Commercial Below*
- *Hotels*
- *Commercial and Office Buildings*
- *Institutional*
- *Residential with Community Facility Below*
- *Entertainment*
- *Auto-Related Use*
- *Industrial and Manufacturing*
- *Transportation and Utility*
- *Open Space and Outdoor Recreation*
- *Parking Facilities*
- *Vacant Land*
- *Under Construction*

NOTE: *Land Uses within the Willets Point Development District are Illustrative (based on Illustrative Site Plan)*

0 2000 FEET
SCALE

This figure has been updated since the DGEIS

Figure 3-3
Land Use Study Area
Future with the Proposed Plan

facility, the Special District text requires that reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including emissions limits, as well as the concealment of such uses with building enclosures, landscaping, buffer zones, or other methods. Additionally, the architectural design and landscaping of the water reclamation facility would be required to minimize the interruption of retail frontage and blend harmoniously with the surrounding area. Furthermore, it would be required to meet high performance standards and would not result in any noxious odors or noise. As a result of these requirements, each of these potential facilities would be compatible with the surrounding uses in the District.

The Special District would create a walkable, urban streetscape environment by requiring that off-street parking facilities be fully enclosed and wrapped by active uses (with some exceptions, including along parts of Northern Boulevard and the eastern perimeter street and service streets, and upper level parking along 126th Street). The Special District would mandate the provision of street trees, adequate sidewalks, and planted medians, and the development of a minimum of eight acres of publicly accessible open space, including a centrally located park, as well as pedestrian amenity areas or open landscaped areas at various locations along the perimeter of the District. Together, these features would create a lively, pedestrian-oriented streetscape throughout the District.

Building heights are expected to be highest in the western portion of the District, where buildings may be constructed to a maximum height of 218 feet above ground level (or 232 feet Above Mean Sea Level [AMSL]), which is approximately the same height of the new Citi Field. In the eastern portion of the District, where the residential community and convention center would be located, building heights would not exceed the Federal Aviation Administration (FAA) height restrictions and special zoning controls that apply around major airports, which range between 175 and 94 feet AMSL. Development within the District would be scaled to enhance pedestrian activity, with prescribed streetwall heights and locations, mandatory pedestrian circulation space, and other design elements to enhance building façades.

The site planning and urban design of the District would serve to integrate the District with surrounding entertainment and recreational uses. In the future with the proposed Plan, 126th Street would connect the entertainment and commercial center and the adjacent Citi Field with pedestrian-oriented design requirements. In addition, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. The Special District regulations would require new bicycle lanes on the connector streets in the District, which would connect to this area-wide bicycle and greenway network, and indoor accessory bicycle parking for all new residential, office, and retail uses developed in the District. Together, these measures will improve connectivity between Willets Point and surrounding areas.

While the proposed Plan would result in a significant land use change, the effects of this change would not be adverse. The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed Plan would create a pedestrian-oriented retail corridor along 126th Street, which would complement the new retail uses planned along the west side of 126th Street as part of the new Citi Field, creating a synergy between the new Citi Field and the District. Overall, the proposed Plan would create a dynamic new mixed-use neighborhood with pedestrian-scaled

streetscapes, provide new attractions and amenities, and integrate the District with surrounding entertainment and recreational uses.

Lots B and D

If the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, it is likely that this could generate increased demand for additional development on Citi Field parking lot B, located across 126th Street from the District, directly south of the stadium, and Lot D, a surface parking lot south of Roosevelt Avenue. Lot B and Lot D, which are located on property owned by the City, are currently under the jurisdiction of the New York City Industrial Development Agency (NYCIDA) and under lease to QBC, which in turn has entered into a sublease with the New York Mets. As described in Chapter 2, any future development on Lots B and D would occur independent of the proposed Plan, and would require separate discretionary actions, each with its own approvals and environmental review processes. However, together they would add substantial new development to the immediate area, and therefore the cumulative impacts of both projects (the Willets Point Development Plan and the potential development on Lots B and D) are assessed.

While specific development plans for Lots B and D have not yet been proposed, it is anticipated that parking uses on Lot B may be replaced with new office and retail development. This development could include a one-story retail development and 10-story office building containing approximately 184,500 sf of retail and 280,000 sf of office use. In addition, a five-level parking garage containing approximately 1,543 parking spaces could be developed on Lot D. The garage on Lot D would replace the parking uses on Lot B and Lot D, and additional parking would be provided to serve the new office and retail uses. It is anticipated that any future development on Lots B and D would not exceed the height of the new Citi Field, which was approved by FAA at approximately 218 feet.

The potential development of Lots B and D would complement Citi Field and the mix of new uses proposed as part of the Willets Point Development Plan. The additional commercial uses on Lot B would help attract and retain visitors to the area, adding to the synergy created between Citi Field and the proposed Plan. The anticipated development on Lot B would bring new active uses to the corner of 126th Street and Roosevelt Avenue and along 126th Street, which would enhance the streetscape and support the pedestrian-oriented entertainment and commercial center and regional destination that would be created under the proposed Plan. The parking capacity on Lots B and D, and additional parking to serve the new commercial uses on Lot B, would be consolidated in a new garage south of Roosevelt Avenue.

Primary Study Area

Land use issues associated with the proposed Plan focus on the compatibility of the new land uses with those that are already established and anticipated to occur in the primary study area without the proposed Plan, the effect on adjacent land use patterns of introducing dense development in the District, and the likelihood for the new land uses to generate land use change in the study area, as discussed below.

Land Use Compatibility

Of the range of uses proposed as part of the Plan, only the convention center would be new to the primary study area. Commercial office, retail, hotel, community facility, open space, parking, and residential uses are prevalent throughout the primary study area, particularly within the dense commercial center of Downtown Flushing. The proposed land uses in the District and

anticipated development on Lots B and D would be more compatible with the adjacent neighborhoods than the existing industrial and auto-related uses, and would reflect the new trend of higher-density mixed-use development that is occurring throughout Downtown Flushing and expected to continue along the Flushing River waterfront.

The proposed convention center use is not common in the primary and secondary study areas—a convention center, by its nature, is singular; there are few such facilities in the region. However, the proposed convention center use would be located in close proximity to LaGuardia airport, and would be compatible with the prevailing land uses in Downtown Flushing—commercial office and retail—as well as recreational and cultural uses in Flushing Meadows-Corona Park.

The new Mets Stadium, Citi Field, will be one of the land uses located in closest proximity to the District. In other cities, large sports facilities have proven to be particularly successful in combination with a strong mix of commercial and residential land uses, both as proposed elements of a larger master plan or as a catalyst for urban development. Prime examples include: San Diego's PETCO Park, which was developed as part of a master plan that included approximately 4,600 residential units, 280,000 sf of office space, 500,000 sf of retail, and 2,200 hotel rooms; and San Francisco's AT&T Park, a baseball stadium that has helped to spur adjacent municipally-sponsored redevelopment plans for approximately 6,000 residences, 800,000 sf of retail space, a 500-room hotel, and 6 million sf of university-related uses.

In the future with the proposed Plan it is expected that the adjacent MTA property would continue to be undeveloped, and would contain industrial uses that are the same as or similar to the construction and demolition debris recycling operation that exists there today. The proposed Plan would require the development of an eastern perimeter street, as well as a landscaped open space between 8 and 15 feet wide, which would provide a buffer between the District and the adjacent MTA property. Nonetheless, the residential and community facility uses proposed for the District would not be compatible with the industrial activities permitted on the nearby MTA property. However, the industrial use on the MTA property is not expected to result in a significant adverse land use impact on the District. The placement of high-density mixed-use or residential districts adjacent to heavy manufacturing districts is not uncommon in the City. Other City-sponsored initiatives, such as the rezoning of West Chelsea in Manhattan and Greenpoint/Williamsburg in Brooklyn, have resulted in new higher-density residential districts adjacent to older heavy manufacturing districts. These efforts reflect the City's desire to respond to documented land use trends and to facilitate redevelopment of underutilized properties on the waterfront with new mixed-use development.

The proposed Plan would not be consistent with the industrial uses currently located along the waterfront to the north and east of the District. However, these uses are separated from the District by the Whitestone Expressway and Northern Boulevard, as well as the Flushing River, and therefore would not result in significant adverse land use impacts on the proposed uses. The proposed uses would also not interfere with the active industrial waterfront uses—including barge operations—in the Flushing River and Flushing Bay. The proposed Plan would be consistent with ongoing land use and development trends expected to continue in this area without the proposed Plan, as higher-density development is expected to extend toward the waterfront, and further mixed-use development is anticipated to replace some older industrial uses along the waterfront. Overall, the proposed Plan would not result in significant adverse land use impacts as they pertain to land use compatibility.

Land Use Density

As described above, the proposed Plan would transform an underutilized area into a new higher-density mixed-use neighborhood. As a result of this development, it is anticipated that additional office and retail would occur on Lot B. However, given existing land use patterns and zoning regulations in the surrounding area, it is unlikely that the proposed Plan would alter land use patterns in the primary study area.

Given the recent trend to redevelop underutilized sites near the Flushing River waterfront, such as the proposed Sky View Parc and River Park Place developments described above in Section D, "Future without the Proposed Plan," it is possible that the proposed Plan and new development on Lots B and D could encourage further redevelopment of some nearby underutilized sites along the Flushing River with uses that do not rely on the waterfront for barging materials. The presence of an active, high-density mixed-use development in the District could lead to new development on the eastern bank of the Flushing River, much of which has been rezoned to allow higher-density, mixed-use waterfront development. Such a change to uses on nearby underutilized sites would not constitute an adverse impact on land uses in the study area, because the potential new uses—including retail, office, convention center, hotel, residential, community facility, and open space uses—would reflect a continuation of an existing trend, would be compatible with other uses in the area, and would conform to existing zoning and public land use policies, including the Downtown Flushing Development Framework. Potential new mixed-use development in these areas would be more compatible with surrounding uses than existing auto-related and industrial uses, and would serve to further integrate the District with the rapidly expanding Downtown Flushing area, as well as to create new opportunities to access the Flushing River waterfront. In addition, the density and height of the proposed development—which would range between 94 and 232 feet AMSL—is consistent with the existing land use patterns in Downtown Flushing, as well as new development that is under construction or planned in the greater Flushing area. Therefore, the proposed Plan would not result in a significant adverse impact on land use within the primary study area.

Related Impacts

The land use changes in the District would create the potential for off-site effects from changes in visual quality, as well as changes in socioeconomic conditions, traffic, noise, and air quality generated by the increase in the number of people using (living, working, and visiting) the site. These analyses are provided in later chapters of this GEIS and are analyzed cumulatively in Chapter 10, "Neighborhood Character."

Secondary Study Area

The secondary study area, roughly between ½ and ¾ mile from the District, is farther from the District than the primary study area, and land use in the secondary study area is therefore less likely to be affected by the proposed Plan.

By 2017, the current trend toward redevelopment of vacant or underutilized properties to medium- and high-density residential and mixed uses is expected to continue independent of the proposed Plan throughout the greater Flushing neighborhood. Similarly, low-density residential uses and vacant or underutilized sites in North Corona are expected to be redeveloped to higher-density residential and mixed uses without the proposed Plan by 2017, particularly along Northern Boulevard and in the area immediately adjacent to Shea Stadium.

The proposed Plan would not be consistent with the large industrial uses located in the College Point Subarea. However, these uses are separated from the District by Flushing Bay, as well as by the Whitestone Expressway and Northern Boulevard, and therefore would not result in significant adverse land use impacts on the proposed uses. The College Point Subarea is expected to remain industrial in nature, primarily due to the predominant uses by DSNY, NYPD, Con Edison, and well-established cement companies, as well as requirements in place within the College Point Corporate Park. The proposed Plan would not interfere with these industrial uses, nor would it affect the active industrial waterfront uses operating in Flushing Bay. The proposed Plan would not result in a significant adverse impact on land use within the secondary study area.

ZONING AND PUBLIC POLICY

District

Underlying Zoning

The proposed Plan would result in a change to the underlying zoning of the District from the existing M3-1 and R3-2 districts to a C4-4 district (see Figure 3-4). The proposed C4-4 zoning would allow for the range of residential, commercial, and community facility uses anticipated. The existing permitted FAR in the M3-1 district is 2.0. In the future with the proposed Plan, a maximum permitted far of 3.4 would apply across the entire District, as established by the proposed Special Willets Point District. As stated previously, C4 districts are mapped in regional commercial centers that are located outside of central business districts, and they typically contain medium-density residential uses, as well as specialty and department stores, theaters, and other commercial and office uses. Uses that would disrupt the desired continuous retail frontage, such as home maintenance and auto repair establishments, are not permitted. Accessory off-street parking is required; the required number of spaces is determined based on the type and amount of a specific use.

Special District

The proposed Plan would include the creation of a zoning Special Willets Point District, which would guide future development in the District consistent with the goals and objectives of the proposed Plan. The Special District would mandate a maximum District-wide FAR of 3.4. In order to promote redevelopment of Willets Point consistent with the goals and objectives of the Plan and to eliminate unnecessary rigidities that would prevent the achievement of the best possible site plan, the proposed Special District would waive certain C4-4 district requirements and CPC and New York City Board of Standards and Appeals (BSA) special permits.

The Special District would effectuate the goals of the proposed Plan by regulating a number of urban design elements to create a lively, pedestrian-oriented streetscape throughout the District, and an overall site design that would serve to integrate the District with surrounding entertainment and recreational uses. The Special District would require four or five intersections along 126th Street and six different street types, thereby establishing the basic form of the District and ensuring that the future uses in the District are integrated into a cohesive site design. The Special District would also regulate elements such as the placement of uses within the District, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions, as described previously. The proposed Special District text is provided in Appendix B.

Public Policy

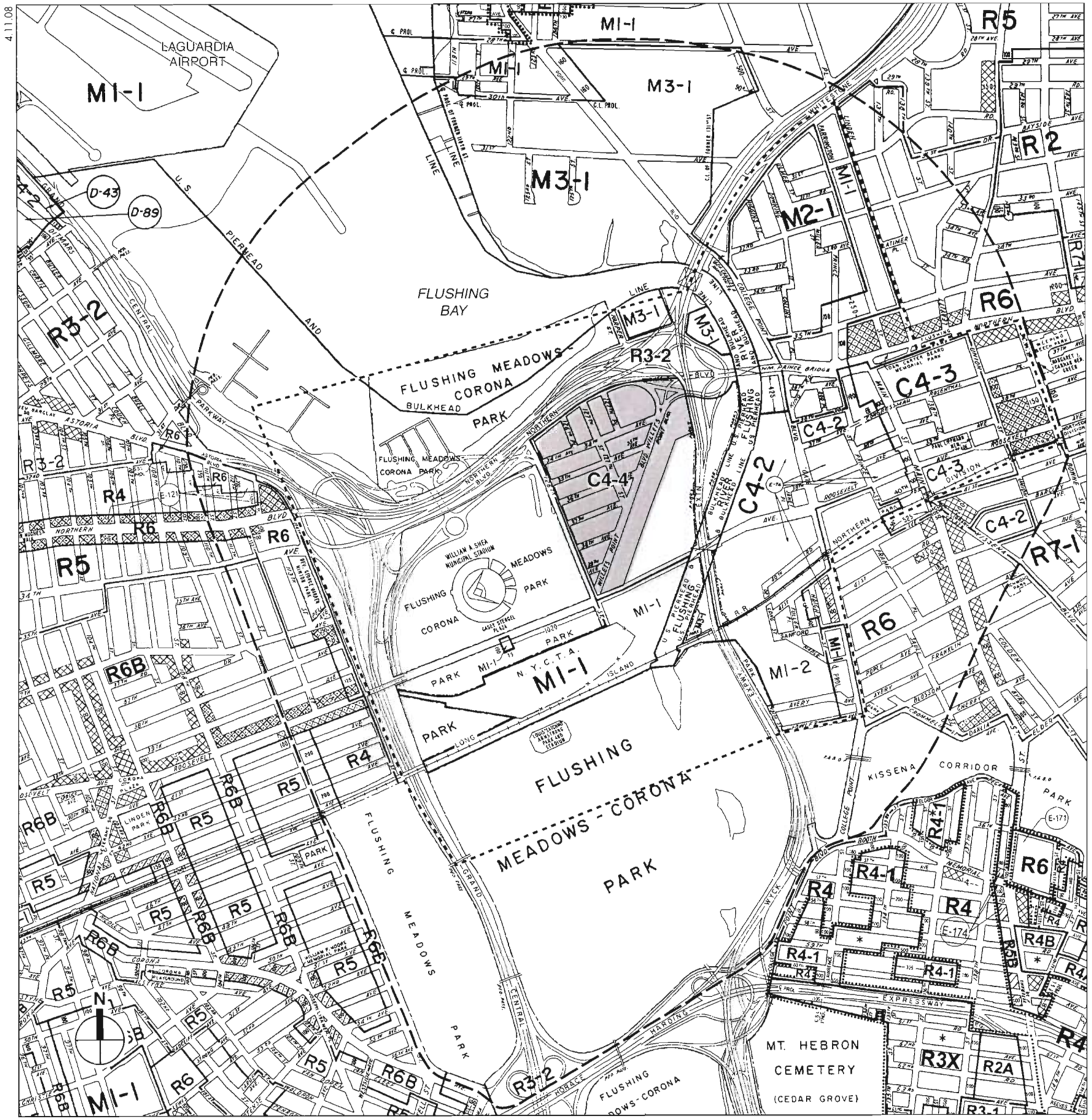
The proposed Plan represents a critical step in implementing the Downtown Flushing Development Framework. The proposed Plan would advance a number of the Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing, improvement of the environmental conditions, and the integration of new development in the District with surrounding amenities, including the Flushing Bay Promenade, a new Mets stadium (Citi Field), Flushing Meadows-Corona Park, and Downtown Flushing and Corona. In addition, the Plan would provide a substantial number of new housing units that would be affordable to a mix of incomes to help meet the growing demand for housing in Queens and the City as a whole, and would provide a world-class example of superior urban design, with a focus on green building and sustainable design practices.

The proposed Plan would result in the creation of a Willets Point URP to define District boundaries and the area to be redeveloped according to the City's redevelopment goals. As described in Chapter 2, the URP would establish a maximum permitted floor area for both residential and commercial uses, including 5,850,000 gsf of residential use and 3,160,000 gsf of commercial use. However, the overall maximum permitted floor area in the District would be 8.94 million gsf. The Special District regulations and the URP would also require the creation of a minimum of eight acres of open space.

The proposed Plan would be consistent with and vital to the advancement of the goals of PlaNYC, specifically, the following:

- *Create homes for almost a million more New Yorkers while making housing more affordable and sustainable*: As discussed in Chapter 1, the proposed Plan would result in the construction of up to approximately 5,500 housing units, 20 percent of which would be reserved for affordable housing. Housing units in the District would offer rental and homeownership opportunities for a range of incomes.
- *Ensure that all New Yorkers live within a 10-minute walk of a park:* The proposed Plan would create a minimum of eight acres of publicly accessible open space, including a park of at least two acres in size, which would be located within a 10-minute walk of anywhere in the District.
- *Achieve the cleanest air quality of any big city in America / Reduce global warming emissions by more than 30 percent:* As discussed in Chapter 1, the City would require any future development in the District to achieve Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) certification.
- *Develop critical backup systems for the aging water network to ensure long-term reliability*: As discussed in further detail in Chapter 14, "Infrastructure," new water, stormwater, and sanitary sewer lines would be constructed within the District. In addition, a new pump station and force main would be constructed to convey sanitary flow from the District to the existing City sewer system.
- *Clean up all contaminated land in New York*: As discussed in further detail in Chapter 12, "Hazardous Materials," environmental remediation would take place across the District as part of the proposed Plan.
- *Open 90 percent of New York City's rivers, harbors, and bays for recreation by reducing water pollution and preserving natural areas:* As discussed in Chapter 14, the proposed Plan

4.11.08



- Special Willets Point District
- Primary Study Area Boundary
- Secondary Study Area Boundary
- Zoning District Boundary
- C1-2 Overlay
- C1-3 Overlay
- C1-4 Overlay
- C2-2 Overlay
- C2-3 Overlay
- C2-4 Overlay

Figure 3-4
Proposed Zoning

would eliminate potentially polluting septic fields, and stormwater would be pre-treated prior to discharge. The proposed Plan is expected to result in improved stormwater quality and, consequently, improved water quality in Flushing Bay.

- *Embark on a broad effort to adapt our City to the unavoidable climate shifts ahead*: As discussed in Chapter 14, "Infrastructure," the proposed Plan would require the developer to consider the most up-to-date information on the effects of climate change in the City and implement adaptation strategies where appropriate and feasible.

The proposed Plan would be consistent with the coastal policies set forth in the New York City WRP, as described in Chapter 13.

Primary and Secondary Study Areas

The proposed Plan would change the zoning in the District from M3-1 and R3-2 to C4-4. The adjacent MTA property, which is zoned M3-1, would not be compatible with all of the uses permitted in the proposed C4-4 district, such as residential and community facility uses. However, as described above, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront. Furthermore, zoning requires that when a manufacturing district adjoins a residential district, the manufacturing uses must adhere to stricter performance standards with respect to noise, vibration, and flammable materials. Therefore, no significant adverse impacts with respect to zoning would result from the proposed Plan.

The other M3-1 districts located on the Willets Point peninsula are separated from the District by the Whitestone Expressway and Northern Boulevard, and therefore would not result in significant adverse impacts on the proposed uses. The proposed C4-4 district is similar to the zoning that exists throughout much of the Downtown Flushing area.

While greatly increasing the overall development potential within the District, the proposed Plan would not introduce or expand high-density zoning districts, and so would not set a precedent for denser zoning in the primary and secondary study areas. Furthermore, development of this density in the District would allow the Flushing and Corona areas to benefit from the future regional demand for commercial and residential development in the area, generated by the proposed Plan.

The presence of a denser mixed-use development in the District could possibly generate further redevelopment of nearby underutilized sites within the primary study area along the eastern bank of the Flushing River, which were recently rezoned to C4-2 to allow denser mixed-use development. However, redevelopment in this area is already under way, and is expected to conform to existing zoning and public policies. Thus, no significant adverse zoning and public policy impacts are anticipated for the primary and secondary study areas as a result of the proposed Plan.

NO CONVENTION CENTER SCENARIO

Since the URP would allow flexibility in the combination of uses to be developed in the District, this GEIS analyzes a development scenario in which the convention center is replaced with additional residential and retail development (the No Convention Center Scenario). As with the proposed Plan, the No Convention Center Scenario would change the development potential of the District in a manner consistent with the proposed URP and the Special Willets Point District. In this development scenario, the overall maximum development envelope in the District would remain 8.94 million gsf; however, the approximately 400,000-sf convention center would be replaced with approximately 350,000 sf of residential use (approximately 350 units) and 50,000

sf of retail use. The other anticipated uses in the District, such as the office, hotel, open space, and community facility uses would remain the same.

The additional residential and retail development in the No Convention Center Scenario would be located in the northeastern portion of the District, and the regulations pertaining to the residential community zone within the Special District would apply. There would be no changes to the provisions in the Special District text with respect to streets and streetscapes, the entertainment and lifestyle center, the residential community, open space, parking and loading, and signage. As in the future with the proposed Plan, it is anticipated that the No Convention Center Scenario may result in the development of Lot B with additional office and retail uses, and the development of Lot D with structured parking.

As compared with the proposed Plan, the effects of the No Convention Center Scenario on land use conditions would be largely the same. Both development scenarios would dramatically change land uses in the District, replacing predominantly low-density industrial uses with a new higher-density mixed-use neighborhood. Residential and retail uses would be the core activities, supported by office, hotel, community facilities, and open space uses. Without the convention center, the entertainment and commercial center would be the primary regional attraction within the District. As with the proposed Plan, the No Convention Center Scenario would not result in any significant adverse impacts with respect to land use compatibility or density. As described above, the No Convention Center Scenario would not require any changes to the proposed zoning or Special District text and, as with the proposed Plan, no significant adverse impacts on zoning would occur.

With respect to public policy, the No Convention Center Scenario would advance several of the Framework's fundamental goals, including improvement of environmental conditions, integration of new development in the District with surrounding entertainment and recreational amenities, and the provision of a substantial number of new housing units that would be affordable to a mix of incomes. Although this scenario does not include a convention center—one of the uses that would strengthen Flushing and Corona's roles as regional economic centers—the primary regional attraction in the No Convention Center Scenario would be the pedestrian-oriented entertainment and commercial center which would create a synergy between the new Citi Field and the proposed District, and attract and retain visitors to the area. Similar to the proposed Plan, the No Convention Center Scenario would advance several of the goals of PlaNYC. Overall, the No Convention Center Scenario would not result in any significant adverse impacts on land use, zoning, or public policy. ✷

A. INTRODUCTION

This chapter examines the potential effects of the proposed Plan on population and housing characteristics, economic activity, and the commercial real estate market within an area most likely to be affected by the proposed Plan. The Plan calls for the redevelopment of the Willets Point Development District (the District), an approximately 61-acre area generally bounded to the east by the Van Wyck Expressway and an undeveloped lot owned by the Metropolitan Transportation Authority (MTA), to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. The proposed Plan for the District includes a mix of residential, retail, hotel, convention center, entertainment, commercial office, community facility, a primary school, publicly accessible open space, and parking uses. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lot B.

One of the primary issues concerning socioeconomic conditions is the involuntary displacement of residents, businesses, and institutions (and their associated employment). Currently, the approximately 61-acre District contains one residential unit and an estimated 260 businesses and institutions, which generate an estimated 1,711 jobs. The District's residents, businesses and institutions, and employees would be directly displaced by the proposed Plan. In addition, because the proposed Plan would result in substantial new development that is markedly different from existing development patterns in the District, indirect (or secondary) displacement could occur outside of the District.

In accordance with the guidelines presented in the 2001 *City Environmental Quality Review (CEQR) Technical Manual*, this chapter evaluates five specific factors that could create significant adverse socioeconomic impacts in an area: (1) direct displacement of a residential population; (2) direct displacement of existing businesses and institutions; (3) indirect displacement of a residential population; (4) indirect displacement of businesses and institutions due to either increased rents or competition; and (5) adverse effects on specific industries not necessarily tied to a project site or area. Although not required by the *CEQR Technical Manual*, this chapter also presents estimates of the fiscal and economic benefits and public sector costs of new development in the District.

This chapter is organized as follows:

- Section A presents an introduction and summary of principal conclusions;
- Section B provides an overview of the methodology utilized in assessing potential socioeconomic impacts;
- Section C presents the preliminary assessments of residential, business, and institutional displacement (both direct and indirect), and the preliminary assessment of potential adverse effects on specific industries;

- Section D presents a detailed analysis of direct business and institutional displacement;
- Section E presents a detailed analysis of indirect residential displacement;
- Section F presents a detailed analysis of indirect business displacement due to competition;
- Section G presents a detailed analysis of the adverse effects on specific industries; and
- Section H presents the estimated fiscal and economic benefits and public costs that are likely to result from the proposed Plan.

PRINCIPAL CONCLUSIONS

By 2017, the proposed Plan and anticipated development on Lot B would not result in any significant adverse impacts as measured by the five socioeconomic areas of concern prescribed in the *CEQR Technical Manual* (numbered above). Development resulting from the proposed Plan and Lot B would generate substantial economic benefits for New York City and New York State. The principal conclusions drawn from the analyses are summarized below.

DIRECT RESIDENTIAL DISPLACEMENT

There is one residential unit (one household) in the District. This household would be displaced under both the proposed Plan and the No Convention Center Scenario. The displacement of one household would not have the potential to result in significant adverse impacts due to direct residential displacement. Should the proposed Plan be approved, this household would be provided with relocation assistance.

INDIRECT RESIDENTIAL DISPLACEMENT

The proposed Plan and anticipated development on Lot B would not result in significant adverse impacts due to indirect residential displacement. The proposed Plan would introduce 5,500 new residential units, or an estimated 14,795 new residents, to the study area. Under the No Convention Center Scenario, 5,850 units, or an estimated 15,737 residents, would be introduced to the study area. Either scenario would represent a substantial addition to the study area population. Compared with the existing study area population, the population that would be introduced by the Plan could include a larger proportion of households at higher incomes. A detailed analysis of indirect residential displacement has determined that the study area contains an estimated 2,134 households (approximately 5,726 residents) in eight Census tracts (381, 853, 865, 867, 871, 875, 889.02, and 907) that are considered to be "at risk" of indirect residential displacement if their rents were to increase. However, there are a number of reasons why indirect residential displacement of the population identified as at risk would not actually take place in the future as a result of the proposed Plan or anticipated development on Lot B. First, the District is geographically separated from the identified at-risk population, limiting its potential to influence residential trends in those areas. In addition, planned residential developments located between the District and the identified at-risk population (i.e., Flushing Commons and Sky View Parc) are likely to have a greater influence on residential market trends in those tracts than the proposed Plan and Lot B. Second, by adding new housing units, the proposed Plan could serve to relieve rather than increase market pressure in the study area. Third, the proposed Plan would introduce 1,100 affordable housing units to the study area. Although the population that would be introduced by the proposed Plan may include a larger proportion of households at higher incomes as compared with the existing study area population, the proposed Plan's affordable housing component would ensure that a substantial portion of the new population would have incomes that would more closely reflect existing incomes in the study area.

DIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

The proposed Plan and anticipated development on Lot B would not result in significant adverse impacts due to direct business and institutional displacement. Under either scenario (with or without the convention center), the proposed Plan would directly displace approximately 260 businesses and institutions (approximately 1,711 employees) that provide a variety of products and services within numerous economic sectors, including manufacturing, wholesale trade, retail trade, transportation and warehousing, accommodation and food services, and repair and maintenance services. The majority of businesses that would be displaced (87 percent or 227 of 260 businesses) are in auto-related sectors, including 163 auto repair, service and maintenance establishments, 5 salvage operations, 54 auto parts retail establishments, and 5 towing services. Other industries with a notable presence include food wholesalers and waste transfer facilities.

Although the proposed Plan would displace businesses and institutions that employ many workers, and offer products and services valued by certain consumers, these businesses and institutions were determined not to be of substantial economic value to the region or City as defined under CEQR. The District's businesses are not unique; similar services and products are provided throughout Queens, the City, and the region. In addition, the vast majority of these businesses and institutions would be able to relocate to other properties within Queens or the City. Although rental costs would likely increase—as a result of the lower rents currently paid in the District compared with other manufacturing areas, and a competitive industrial real estate market citywide—most of these businesses would remain viable elsewhere.

Although the proposed Plan and the resulting business and institutional displacement would alter the neighborhood character within the District, as described in Chapter 10, "Neighborhood Character," this change in neighborhood character is one of the key goals of the proposed Plan. The loss of displaced businesses and institutions due to the Plan would not substantially alter the neighborhood character of the study area as a whole; the economic sectors with the highest employment in the study area (those which define the character of the area in an economic sense) are not found within the District. In fact, the new uses resulting from the Plan would be comparable to those in the surrounding study area.

Should the proposed Plan be approved, businesses currently located in the District would be offered a relocation package by the New York City Economic Development Corporation (NYCEDC), which would likely include financial coverage for certain moving costs, re-establishment fees, and use of brokerage services to find alternative locations. NYCEDC is currently working with owner-occupied businesses in the District to identify viable relocation properties within New York City and has been engaged in outreach to tenant businesses since January 2008. In addition, the City has selected a business relocation consultant to supplement the relocation assistance that NYCEDC is providing. Since publication of the Draft Generic Environmental Impact Statement (DGEIS), the City has identified viable relocation sites for three businesses.[1] In addition, NYCEDC has retained LaGuardia Community College (LAGCC) to develop a Workforce Assistance Plan for District workers who would be displaced by the proposed Plan. The program would provide displaced workers with services such as job training and job placement services, ESL and GED coursework, and additional social services.

[1] The City has also reached an agreement to acquire one additional property, although no relocation sites for the tenant businesses have been identified.

INDIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

Indirect Displacement Due to Changes in Property Values and Rent

One issue for indirect business and institutional displacement is whether an action would increase property values and thus rents in the study area, making it difficult for some categories of business or institutions to remain at their current locations.

The proposed Plan and anticipated development on Lot B would not result in significant indirect business and institutional displacement impacts due to increased rents under either scenario (with or without the convention center). While the introduction of new residents, workers, and visitors to the District would alter existing economic patterns within the District, these changes would not lead to substantial indirect business displacement within the broader study area. Existing local retail establishments in the study area would continue to be more convenient to study area residents outside of the District, while the proposed Plan's residents and visitors—especially convention center and hotel visitors—would shop and dine primarily at retail establishments in the District. The proposed Plan would therefore not result in substantial changes in demand for goods and services that would alter economic conditions in the broader study area. The proposed Plan and anticipated development on Lot B would represent a continuation of existing trends toward the development of retail, office, hotel, and residential uses in the study area, rather than the introduction of a new trend that would change existing economic patterns in the study area.

Indirect Displacement Due to Competition (Primary Trade Area and 1½-Mile Trade Area)

The issue of competition as described in the *CEQR Technical Manual* is whether a proposed action could affect neighborhood character by affecting the viability of neighborhood shopping areas through competition, thereby becoming an environmental concern. A detailed competition analysis was performed for two areas: a "Primary Trade Area," defined as an approximately 5-mile radius surrounding the District, and a smaller, local, "1½-Mile Trade Area," from which the District is expected to draw a large portion of its repeat business as a result of more convenient access, shorter travel time and distance, and shoppers' propensity to take advantage of a major shopping resource close to home. The competition analysis assesses capture rates within the Primary and 1½-Mile Trade Areas to determine potential effects due to competition. A capture rate is a measure that compares expected spending by consumers in a trade area (retail demand) to the volume of retail sales in the trade area.

The analysis finds that the proposed Plan would not substantially raise retail capture rates within the Primary Trade Area and, therefore, would not have the potential to adversely affect competitive stores in the Primary Trade Area. The analysis concludes that within the Primary Trade Area, the proposed Plan would increase the capture rate by 12 percent over existing conditions, and that all retail categories except building materials and garden supplies (which have a capture rate in excess of 100 percent even under existing conditions, since sales figures include sales to contractors as well as to individual households) would remain within the 70 to 80 percent capture rate range characteristic of trade areas that are satisfying the retail demand of trade area households. In addition, this capture rate analysis conservatively includes 100 percent of estimated sales from several other large new retail developments in the Primary Trade Area (notably, Sky View Parc and Rego Park Mall) even though these developments will likely draw sales from areas beyond the Primary Trade Area due to their scale and mix of retail offerings. Given that the proposed Plan would not raise retail capture rates within the Primary Trade Area

to the extent that retail supply would out proportion demand, the proposed Plan would not have the potential to significantly affect competitive stores in the Primary Trade Area.

Within the 1½-Mile Trade Area, the analysis focuses on grocery stores in particular, because grocery stores often serve as anchors for local retail concentrations, and it is assumed that the proposed Plan could include retailers (such as a supermarket or wholesale club) whose product offerings substantially overlap with typical grocery store offerings. The analysis concludes that local residents would continue to shop at existing grocery stores for their convenience, specialized goods and services familiar to an ethnic community, and public transit accessibility. Although a potential supermarket or wholesale club in the District would compete with nearby supermarkets and grocery stores within the 1½-Mile Trade Area, it is not expected to have a substantial negative effect on nearby grocery stores, nor would it jeopardize the viability of any retail strips in the study area.

Overall, the amount of indirect business displacement due to competition from the proposed Plan and Lot B would be minimal, is not expected to jeopardize the viability of any neighborhood retail strips, and is not expected to diminish the level of services provided. Therefore, the proposed Plan and Lot B would not result in significant adverse impacts due to competition.

EFFECTS ON SPECIFIC INDUSTRIES

The proposed Plan and anticipated development on Lot B would not result in significant adverse impacts on any specific industry under either scenario (with or without the convention center). Although a large concentration of auto-related uses (227 businesses) would be displaced from the District, these displaced businesses and their associated employment would not significantly impact the industry as a whole. The potentially displaced businesses and employment represent less than 5 percent of citywide employment within the auto-related sectors (including wholesale trade, retail trade, transportation and warehousing, and other services), and the businesses could relocate within the City, potentially in other auto-related clusters, thereby maintaining existing business and employment counts within the industry. Additionally, with 3,642 auto-related businesses within New York City, auto-related goods and services are available elsewhere. Therefore, the potential displacement of these uses from the District would not jeopardize the viability of any industries that rely on those services.

ECONOMIC AND FISCAL BENEFITS AND PUBLIC COSTS

Construction period impacts would include the displacement of the existing economic activity from the District and the construction activity associated with developing the proposed Plan or the No Convention Center Scenario.

Existing Economic Activity to Be Displaced

In the future with the proposed Plan, although the existing economic activity would be displaced from the site, it would continue within the City to the extent that it is relocated here. The proposed Plan would directly displace approximately 1,711 employees. The total employment associated with the economic activity on the site, including off-site jobs generated from the on-site activity, is estimated to equal 2,538 permanent jobs within New York City and a total of 2,981 jobs in New York State. The direct wages and salaries from the annual operation of the existing activity on the site are estimated at $70.93 million (all amounts in 2007 dollars). Total direct and generated wages and salaries resulting from the annual operation of the existing economic activity on the site are estimated at $106.98 million in New York City and a total of $125.62 million in New York State.

The direct effect on the local economy from the operation of the existing economic activity on the site, measured as economic output or demand, is estimated at approximately $352.07 million annually. The total economic activity, including indirect expenditures (those generated by the direct expenditures), that result from the operation of the existing activity on the site is estimated at $675.01 million annually in New York State, of which $556.30 million annually occurs in New York City. The annual operation of the existing activity on the site has tax revenues associated with it, including property tax-related revenues and non-property-tax revenues. The operation of the existing activity on the site is estimated to generate approximately $25.11 million annually in non-property-related tax revenues for New York City, MTA (which collects a 0.375 percent sales tax and tax surcharges on business and utility taxes within the City and the MTA 12-county region), and New York State. In addition, in fiscal year 2007/2008, the City is estimated to receive property tax revenues from the existing development on the site equal to approximately $2.49 million.

Employment and Economic Benefits from Construction Activity

The development of either the proposed Plan or the No Convention Center Scenario would result in the substantial investment of funds into the area. As a result of this expenditure, the direct employment from construction activity is estimated at about 17,017 person-years of employment for the No Convention Center Scenario or 17,561 person-years of employment for the proposed Plan. (A person-year is the equivalent of one employee working full-time for one year.) Total direct and generated employment from construction activity is estimated at 25,883 to 26,736 person-years in New York City and 32,157 to 33,199 in the larger New York State economy, with the first figure in each case for the No Convention Center Scenario and the second for the proposed Plan.

The direct wages and salaries during the construction period are estimated at $1.13 to $1.17 billion. Total direct and generated wages and salaries resulting from construction activity are estimated at $1.67 to $1.73 billion in New York City and $2.04 to $2.11 billion in the broader New York State economy. The total effect on the local economy from construction activity, measured as economic output or demand, is estimated at $6.94 to $7.20 billion in New York State, of which $5.30 to $5.50 billion would occur in New York City. In total, the construction activity is estimated to generate approximately $345.87 to $352.94 million in tax revenues for New York City, MTA, and New York State, including about $220.88 to $226.10 million for New York State and MTA, and about $124.99 to $126.84 million for New York City. In addition, New York City would receive mortgage recording fees both from the developers and from the owners of the condominium portion of the residential property, and the City would receive real-property-related revenues (i.e., real estate tax payments) during the development period.

Employment and Economic Benefits from Annual Operation

The completion and annual operation of either scenario would have associated with it permanent employment, wages and salaries, other effects on the local economy, and tax revenues for New York City, MTA, and New York State. The direct on-site employment in the completed development is estimated at approximately 7,220 to 7,251 permanent jobs (with, again, the first number corresponding to the No Convention Center Scenario and the second to the proposed Plan). This employment would represent an increase of 5,509 to 5,540 over the area's existing employment of 1,711. Total direct and generated jobs from the annual operation of the completed development are estimated at 10,691 to 11,843 jobs within New York City and 12,340 to 13,526 jobs in New York State.

The direct on-site wages and salaries from the operation of the completed development are estimated at $313.02 to $317.69 million annually (all figures in 2007 dollars). Total direct and generated wages and salaries are estimated at $472.41 to $510.36 million in New York City and $547.13 to $588.88 million in New York State. The direct on-site effect on the local economy from the completed development, measured as economic output or demand, is estimated at approximately $1.18 to $1.30 billion annually. The total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from the operation of the completed development is estimated at $2.21 to $2.49 billion in New York State, of which $1.90 to $2.17 billion would occur in New York City.

The operation of the completed development is estimated to generate approximately $134.75 to $144.62 million annually in non-property-related tax revenues for New York City, MTA, and New York State, including approximately $77.03 to $82.24 million for New York State and MTA, and about $57.72 to $62.38 million for New York City. For either scenario, the above non-property-related tax receipts do not include income tax paid by the residents of the residential portion of the Plan or income tax from secondary employment generated by such residents. Such revenue would be additional. In addition, the City would receive annual property tax revenues. These revenues would be expected to be changing from year to year, and in any year would be based on the taxable assessed value and the applicable tax rate.

Public Sector Costs

The developer of the proposed Plan would fund all site preparation, infrastructure improvements, and construction within the District, with the exception of the new pump station if constructed within District boundaries. It is anticipated that the City would fund certain infrastructure improvements that are necessary to support the proposed Plan, including the pump station and modified access to and from the Van Wyck Expressway. Costs associated with these City-funded improvements are preliminarily estimated at approximately $150 million.

B. METHODOLOGY

CEQR OVERVIEW

Under CEQR, the socioeconomic character of an area is defined in terms of its population, housing, and economic activities. The assessment of socioeconomic conditions usually distinguishes between the socioeconomic conditions of area residents and area businesses. However, actions affect either or both of these segments in the same ways: They may directly displace residents or businesses, or they may alter one or more of the underlying forces that shape socioeconomic conditions in an area and thus indirectly displace residents or businesses.

Direct displacement is defined as the involuntary displacement of residents, businesses, or institutions from the actual site of (or sites directly affected by) a proposed project. Examples include proposed redevelopment of a currently occupied site for new uses or structures, or a proposed easement or right-of-way that would take a portion of a parcel and thus render it unfit for its current use. Since the occupants of a particular site are usually known, the disclosure of direct displacement focuses on specific businesses and employment, and an identifiable number of residents and workers.

Indirect or secondary displacement is defined as the involuntary displacement of residents, businesses, or employees in an area adjacent or close to a project site that results from changes in socioeconomic conditions created by a proposed project. Examples include rising rents in an area that result from a new concentration of higher-income housing introduced by a proposed

project, which ultimately forces out lower-income residents; a similar turnover of industrial to higher-rent commercial tenancies induced by the introduction of a successful office project in an area; or the flight from a neighborhood that can occur if a proposed project creates a condition that breaks down the community (e.g., a highway dividing the area).

Even where a project does not directly or indirectly displace businesses, it may affect the operation of a major industry or commercial operation in the City. In these cases, CEQR review may assess the economic impacts of the project on the industry in question.

DETERMINING WHETHER A SOCIOECONOMIC ASSESSMENT IS APPROPRIATE

Under CEQR, socioeconomic assessments should be conducted if a proposed project may be reasonably expected to create substantial socioeconomic changes within the area affected by the project that would not be expected to occur absent the project. According to Section 200 of the *CEQR Technical Manual*, there are five circumstances that would typically require a socioeconomic assessment:

1) The project would directly displace residential populations so that the socioeconomic profile of the neighborhood would be substantially altered.
2) The project would directly displace substantial numbers of businesses or employees, or would directly displace a business or institution that is unusually important, as follows:
   - It has a critical social or economic role in the community and unusual difficulty in relocating successfully;
   - It is of a type or in a location that makes it the subject of other regulations or publicly adopted plans aimed at its preservation;
   - It serves a population uniquely dependent on its services in its present location; or
   - It is particularly important to neighborhood character.

   If any of these possibilities cannot be ruled out, an assessment should be undertaken.
3) The project would result in substantial new development that is markedly different from existing uses, development, or activities within the neighborhood. Such a project could lead to indirect displacement. Typically, projects that are small to moderate in size would not have significant socioeconomic effects unless they are likely to generate socioeconomic conditions that are very different from existing conditions in the area. Residential development of 200 units or less or commercial development of 200,000 sf or less would typically not result in significant socioeconomic impacts.
4) Notwithstanding the above, the project may affect conditions in the real estate market not only on the site anticipated to be developed, but also in a larger area. When this possibility cannot be ruled out, an assessment may need to be undertaken to address indirect displacement. Such projects can include those that would raise or lower property values in the surrounding area.
5) The project may adversely affect economic conditions in a specific industry.

If a project would exceed any of these initial thresholds, an assessment of socioeconomic conditions is generally appropriate. The geographic area and socioeconomic conditions to be assessed and the methods and level of detail by which they are studied depend on the nature of the proposed project. Considering the five circumstances listed above can help identify those issues of socioeconomic assessment that apply to a particular project.

With the proposed Plan, only one of the five circumstances outlined above can be ruled out: direct (or primary) residential displacement. (There is only one household in the District, and the displacement of one household would not have the potential to result in significant adverse impacts.) Therefore, this chapter addresses the four remaining areas of CEQR concern:

1) Direct (or primary) business displacement;
2) Indirect (or secondary) residential displacement;
3) Indirect (or secondary) business displacement; and
4) Effects on specific industries.

ASSESSMENT METHODS

ANALYSIS FORMAT

This chapter follows the preliminary and detailed assessment methodologies established in the 2001 *CEQR Technical Manual*. In conformance with *CEQR Technical Manual* guidelines, the analyses of the four areas of concern outlined above begin with a preliminary assessment. The approach of the preliminary analyses is to learn enough about the effects of the proposed Plan either to rule out the possibility of significant adverse impacts or to determine that more detailed analyses will be required to resolve the question.

The detailed assessments are framed in the context of existing conditions and evaluations of future conditions without the proposed Plan (the future without the proposed Plan) and future conditions with the proposed Plan (probable impacts of the proposed Plan). Existing conditions are as of March 2008. Development projects that would occur in the area in the future without the proposed Plan are identified, and the possible changes in socioeconomic conditions that would result, such as potential increases in population, changes in the income characteristics of the study area, new residential developments, possible changes in rents or sales prices of residential units, new commercial or industrial uses, or changes in employment or retail sales. Those conditions (future conditions without the proposed Plan) are then compared with the probable impacts of the proposed Plan to determine the potential for significant adverse impacts. For each area of potential socioeconomic concern, the effect of the proposed Plan including the convention center is considered first, and is followed by an assessment of the No Convention Center Scenario.

The preliminary and detailed assessments of the CEQR socioeconomic issues of concern are followed by a description of the economic and fiscal benefits and public costs that would be generated by the proposed Plan. The economic benefits analysis—performed using the U.S. Bureau of Economic Analysis' Regional Input-Output Modeling System (RIMS II)—estimates the number of direct and indirect jobs, tax revenues, and economic output generated by the construction and operations of the development expected to result from the proposed Plan.

STUDY AREA DEFINITION

A study area is defined as the area most likely to be affected by a proposed project. Following the guidelines of the *CEQR Technical Manual*, the study areas for the socioeconomic analyses are similar to the study area defined in Chapter 3, "Land Use, Zoning, and Public Policy."

The study area for the indirect residential displacement analysis (residential study area) includes all Census block groups that are at least 50 percent within the ¾-mile perimeter of the District. As shown in Figure 4-1, the residential study area has been divided into the following subareas, which approximate the District and the neighborhoods that surround it:

- Willets Point Development District: overlaps block group 1 of Census tract 383.
- Greater Flushing: includes the entire eastern portion of the study area, and has been subdivided into the following areas:
  - North Flushing: includes block groups 3, 4, and 5 of Census tract 899.01, and block group 1 of Census tract 899.02.[1]
  - Downtown Flushing: includes block group 1 of Census tract 867, block groups 1 and 2 of Census tract 871, and block groups 1 and 2 of Census tract 865.[2]
  - South Flushing: includes block group 1 of Census tract 875, block groups 1 and 2 of Census tract 851, block group 1 of Census tract 853, block group 2 of Census tract 855, and block group 2 of Census tract 797.
- North Corona: includes block groups 1 and 2 of Census tract 381 and block group 1 of Census tract 399.

The study area for other areas of analysis (direct business and institutional displacement, indirect business and institutional displacement due to increased rents, and the effects on specific industries) was defined using zip code boundaries so that the profile of the potentially displaced businesses within the District could be compared with the profile of businesses in surrounding neighborhoods, using New York State Department of Labor (NYSDOL) data.[3] As shown in Figure 4-2, the study area (business study area) includes three zip codes: 11354, 11355, and 11368. The profile of existing employment in the District and employment that would be introduced by the proposed Plan and Lot B is compared with the employment profile of the study area zip codes, as well as Queens and New York City.

The study area for the analysis of indirect business and institutional displacement due to competition was defined as the area from which the bulk of new stores' sales are likely to be derived. Given the scale and type of retail offerings possible under the proposed Plan, the Primary Trade Area was defined as the area within an approximately 5-mile radius around the District. The 1½-Mile Trade Area was defined based on the area from which the retail under the proposed Plan and Lot B would have the greatest potential to draw frequent, repeat visits from customers of existing retail concentrations, thereby affecting the business environment of those areas.

DATA SOURCES

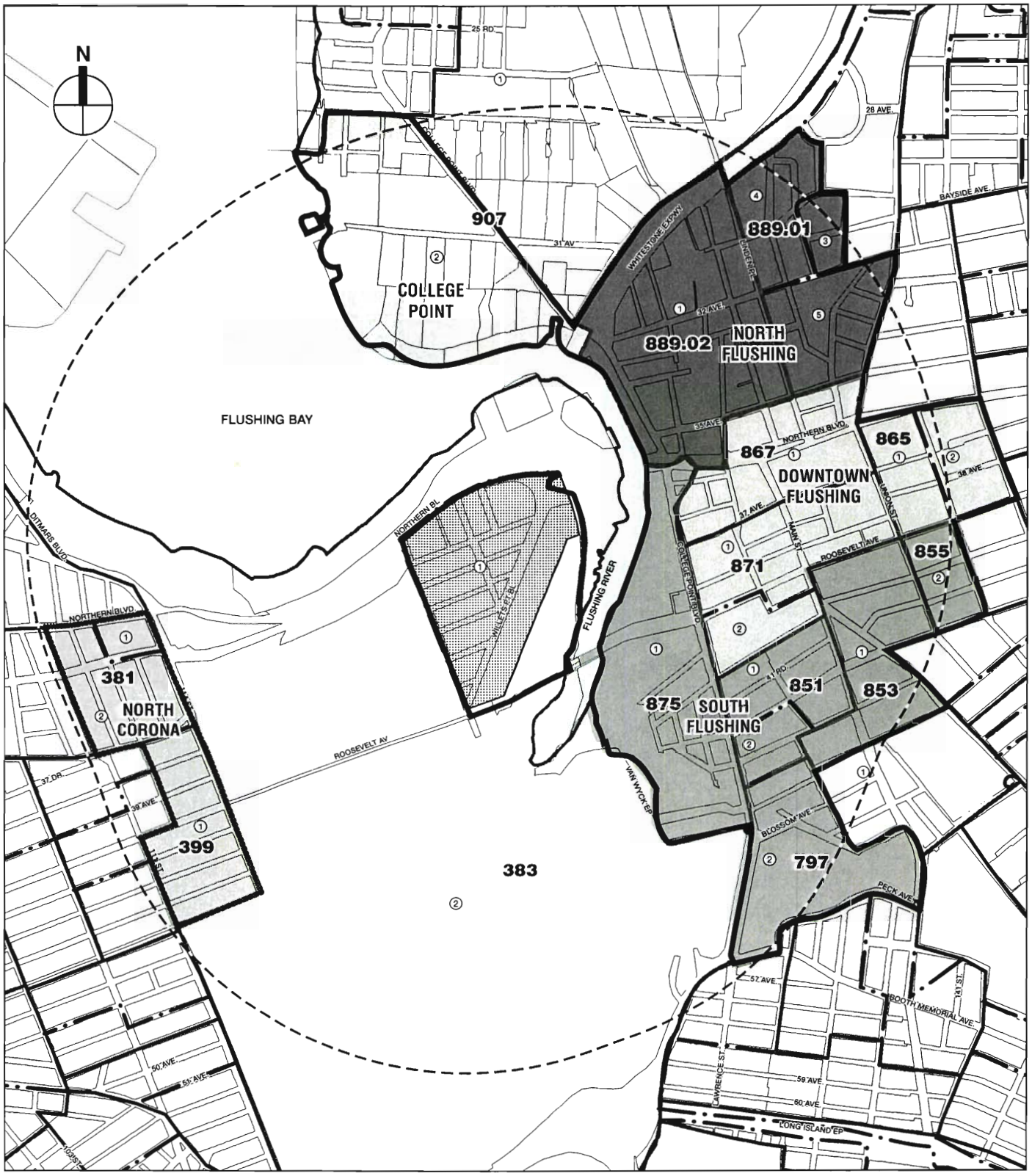
Information used in the preliminary assessment for direct residential displacement and indirect residential displacement was gathered from the U.S. Census Bureau's 1990 and 2000 Census and

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[1] Census block group boundaries in 1990 and 2000 are not the same. To provide a coterminous area for North Flushing in 1990 and 2000, North Flushing includes block groups 3, 4, and 5 of Census tract 889 in 1990.

[2] Block group 2 of Census track 865 was included in Downtown Flushing to account for changes in block group boundaries in 1990 and 2000.

[3] Three zip codes—11355, 11354, and 11368—overlap the ¾-mile area around the District. These zip codes extend beyond the ¾-mile boundary; however, most of the commercial and industrial development in zip codes 11354 and zip code 11355 is located within the ¾-mile area. Also, zip code 11368 includes the District, and the commercial and industrial development in the western portion of the study area.



Willets Point Development District

Residential Study Area Boundary

3/4-Mile Perimeter

415 *Census Tract*

① *Census Block Group*

Figure 4-1

Neighborhood Study Area

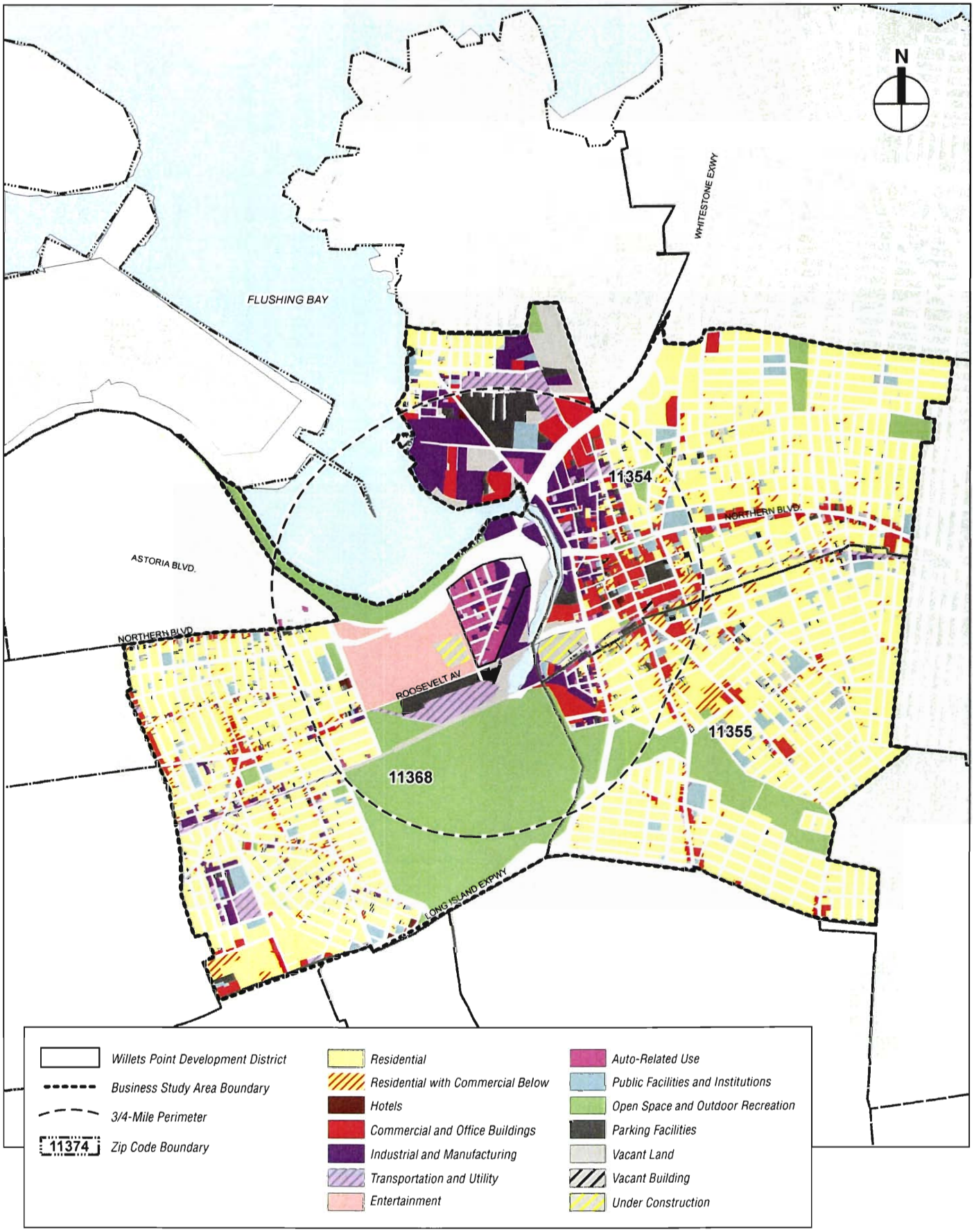


Figure 4-2
Business Study Area

2005 Annual Population Estimate; the New York City Department of Finance's Real Property Assessment Data (RPAD) 2006 database; NYSDOL; various real estate firms and Web sites, such as *The New York Times*, Prudential Douglas Elliman, and Kalman Dolgin; and field surveys. Retail sales and expenditure data for Queens was obtained from ESRI, a national provider of geographic planning data.

The assessments of direct and indirect business and institutional displacement and effects on specific industries consider business and employment trends in the District, the larger study area, Queens, and New York City. The data for the District—which were used to estimate the total number and types of businesses and jobs that could be directly displaced by the proposed Plan—were based on business surveys conducted by Howard/Stein-Hudson Associates, NYSDOL estimates, field investigations conducted by AKRF, Inc., and by tenant information provided by the New York City Economic Development Corporation (EDC). The analysis of employment trends for the study area, county and city are based on NYSDOL data. Property/rent values and relocation options were obtained from the Howard/Stein-Hudson retail survey and from interviews with real estate professionals and online listings. Data on retail sales and retail demand within the Primary Trade Area and the 1½-Mile Trade Area was obtained from ESRI Business Analyst, a national provider of geographic planning data.[1]

C. PRELIMINARY ASSESSMENT

Under *CEQR Technical Manual* guidelines, the first step in a socioeconomic impact analysis is a preliminary assessment. This section examines four areas of potential socioeconomic impact in relation to the proposed Plan and Lot B.[2] The goal of a preliminary assessment is to learn enough about the potential effects of a proposed project either to rule out the possibility of significant impacts, or to establish that a more detailed analysis will be required to determine whether the proposed project would lead to significant adverse impacts.

For all four issue areas—direct business and institutional displacement, indirect residential displacement, indirect business and institutional displacement, and adverse effects on a specific industry—the preliminary assessment indicates that a more detailed analysis is necessary to adequately assess whether the proposed Plan and Lot B would have significant adverse impacts. The detailed analyses follow this preliminary assessment.

DIRECT BUSINESS DISPLACEMENT

The *CEQR Technical Manual* defines direct business displacement as the involuntary displacement of businesses from the site of, or a site directly affected by, a proposed project. A

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[1] ESRI is a geographic information system (GIS) software provider. ESRI Business Analyst is a set of GIS tools and data designed for business applications, such as analyzing retail sales within a trade area. ESRI's business data is extracted from a comprehensive list of businesses licensed from infoUSA®, as well as data from the Directory of Major Malls, Inc. The business list contains information on more than 11 million U.S. businesses including name and location, franchise code, SIC code, number of employees, and sales volume. The data is current as of January 2007. infoUSA® compiles business data from annual reports, county courthouse filings, SEC and 10k filings, and Secretary of State data and confirms it with phone calls to businesses.

[2] Analysis of direct residential displacement (the fifth area of socioeconomic concern) is not warranted. Census, RPAD data, and field surveys indicate that there is one residential unit (one household) in the District. The displacement of one household would not have the potential to adversely affect socioeconomic conditions in the study area. Therefore, no analysis of this issue is required.

preliminary assessment of direct business displacement looks at the employment and business value characteristics of the affected businesses to determine the significance of the potential impact. A significant adverse direct displacement impact may exist if the businesses or institutions in question have substantial economic value to the City or region; are the subject of regulations or publicly adopted plans to preserve, enhance or otherwise protect them; or substantially contribute to a defining element of the neighborhood character.

A profile of the businesses currently in the District is provided below, followed by the preliminary assessment.

PROFILE OF DIRECTLY DISPLACED BUSINESSES AND INSTITUTIONS

There are 260 businesses and institutions located within the District[1]. As detailed in Table 4-1, these businesses and services include: auto repair, service and maintenance; automotive retail; wholesale distribution; waste transfer services; manufacturing; and several limited service eating establishments.

Table 4-1
District Employment by Business Type and Sector

North American Industry Classification System (NAICS) Economic Sector	Number of Businesses/ Institutions	Percent of Businesses/ Institutions	Number of Jobs	Jobs as a Percentage of Total
Auto-Related Businesses	227	87%	1,057	62%
Retail Trade (NAICS 44 &45)	54	21%	423	25%
Repair & Maintenance Services (NAICS 811)	163	63%	561	33%
Wholesale Trade (NAICS 42) – *scrap yards*	5	2%	58	3%
Transportation & Warehousing (NAICS 48)	5	2%	15	1%
Non Auto-Related Businesses	33	13%	642	38%
Construction (NAICS 236 & 238)	8	3.1%	153	9%
Manufacturing (NAICS 31-33)	5	2%	79	5%
Wholesale Trade (NAICS 42)	5	2%	210	12%
Administrative and Support and Waste Management and Remediation Services (NAICS 56)	6	2.3%	180	11%
Arts, Entertainment & Recreation (NAICS 71)	1	0.4%	11	0.6%
Accommodation & Food Services (NAICS 72)	7	3%	21	1%
Other Services (NAICS 813)	1	0.4%	0	0%
Total District Businesses	260	100%	1,711	100%

Notes: Employment figures for auto repair and maintenance establishments were derived from AKRF site visits, interviews by Howard/Stein-Hudson and NYCEDC business interviews, and estimates for businesses based on NYSDOL sector averages for Queens County.
Sources: AKRF, Inc., Howard/Stein-Hudson Business Survey, NYCEDC, NYSDOL

Approximately 87 percent of all businesses located in the District (227 establishments) are in auto-related sectors. The largest proportion of auto-related businesses (163 of the 227 establishments) offer repair services, including general engine repair and maintenance, auto-body and paint work, and glass or tire replacement. Other auto-related businesses in the District include salvage yards selling recycled automotive parts, retail establishments selling new and used parts and tires, and towing companies.

Other industries with a notable presence in the District include specialty food product wholesalers, construction companies, and waste transfer businesses. The two businesses in the

[1] Business estimates based on Howard/Stein-Hudson Business Survey (January 2007) and AKRF, Inc. field surveys (Fall 2006).

grocery wholesale sector are House of Spices and Fodera Enterprises. House of Spices distributes and manufactures South Asian food products to specialty grocery stores and restaurants in the New York City metropolitan area, and has eight distribution centers nationally. Fodera Food Enterprises distributes food products to a mostly local client base, including ethnic bakeries, pasta stores, and doughnut shops.

The largest of the construction businesses is Tully Construction, a general contractor that works on large infrastructure projects primarily for New York City and New York State. The company employs approximately 100 workers on site, making it one of the largest employers in the District. Additional construction companies include smaller general contractors. Tully Environmental and its subsidiary—Evergreen Recycling of Corona—and Crown Container Company operate waste transfer stations and construction recycling businesses within the District, and require M3 zoning and special permits, which cannot be transferred to another site.

The one institutional use, the Queensboro Motorcycle Club, is a private membership club that holds weekly meetings and holds social events for motorcycle enthusiasts. There is no District employment associated with this institutional use.

A more detailed description of current business activity in the District is provided in Section D, "Detailed Analysis of Direct Business and Institutional Displacement."

CEQR ASSESSMENT CRITERIA

As part of the CEQR preliminary assessment, the following threshold indicators (numbered in italics below) are considered to determine the potential for significant adverse impacts.

1. Do the businesses or institutions in question have substantial economic value to the City or regional area, and can they be relocated only with great difficulty or not at all?

As set forth in the *CEQR Technical Manual*, the consideration of a business or institution's economic value is based on the following criteria: (1) its products and services; (2) its location needs, particularly whether those needs can be satisfied at a different location; and (3) the potential effects on both businesses and consumers of losing the displaced business as a product or service.

The proposed Plan would directly displace the approximately 259 businesses and one institutional use currently located within the District. This includes the large concentration of auto-related businesses detailed above, as well as the wholesale food distributors, the manufacturing facilities, and the waste transfer facilities.

Auto-related uses are common throughout Queens and New York City. However, the District contains such a large concentration of these businesses (227 out of 260 total District businesses) that a more detailed analysis is warranted to determine if the products and services provided by these establishments represent a significant economic value to the City and the region. Wholesale food distributors, construction companies, manufacturers, and waste transfer facilities are not unique to the study area; however, it is difficult to determine without further investigation whether the particular products and services provided by these businesses (e.g., specialty food products, construction waste, iron manufacturing, and sawdust) may be found elsewhere in the City. In addition, specific locational needs and permitting requirements for industries such as waste transfer and iron works could make it challenging for some of the on-site businesses to relocate. Overall, the effect of the displacement of the existing business and institutional uses on other businesses and consumers is difficult to determine without more thoroughly examining the businesses and their potential for relocation.

Given these businesses' potential for economic value, their specific locational needs, and the unknown potential effects that the displacement would have on businesses and consumers, a detailed analysis is required to determine if the proposed Plan would result in significant adverse impacts due to direct business displacement.

2. Is the category of businesses or institutions that may be directly displaced the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect it?

The 260 businesses and institutions that would be displaced by the proposed Plan are not subject to existing public policy initiatives to preserve or protect them. Though the proposed Plan would result in a loss of manufacturing-zoned land within New York City, this loss would not be considered significant. The District is not part of a designated Industrial Business Zone (IBZ) as identified in the *New York City Industrial Policy: Protecting and Growing New York City's Industrial Job Base* (January 2005), which created 14 such zones within the five boroughs to protect existing industrial uses and encourage future growth. In addition, the predominant uses in the District are in auto-based sectors, which are not identified in this or other policy initiatives as needing special protection.

3. Do the businesses or institutions in question define or contribute substantially to a defining element of neighborhood character, or do a substantial number of businesses or employees that would be displaced collectively define the character of the neighborhood?

The proposed Plan would completely change the character of the District from an auto-related and industrial area to a mixed-use community with residential, retail, office, convention center, and community facility uses. As described in Chapter 10, this change in character is one of the key goals of the Plan.

Although the proposed Plan would have a dramatic effect on the character of the District itself, the displacement of the existing businesses is not expected to alter the character of the broader study area. According the *CEQR Technical Manual*, neighborhood character is defined by features such as land use, urban design, visual resources, historic resources, socioeconomic conditions, and traffic or noise, which, depending on the neighborhood in question, create its distinct "personality." As described in Chapter 3, the District is mostly isolated from its surrounding neighborhoods. The existing Shea Stadium (and future Citi Field) separate the District from the lower-density, predominantly residential Corona neighborhood to the west; the Van Wyck Expressway and the Flushing River separate the District from the commercial center of Downtown Flushing to the east; Flushing Bay separates the area from industrial College Point to the north; and Roosevelt Avenue and the Long Island Rail Road (LIRR) tracks separate the District from areas to the south. Due to the relative isolation of the District, the existing auto-related and industrial uses have little impact on the character of the surrounding study area; thus, their displacement is unlikely to affect the neighborhood character of the broader study area and the distinct neighborhoods located within it.

Another way to analyze the potential impact of direct business and institutional displacement on the socioeconomic character of the study area is by comparing the types of businesses and employment in the District with the types of businesses and employment that are most prevalent in the study area and that define its character. As shown in Table 4-2, in 2006 the study area had a wide range of employment types, including large concentrations in the health care and social assistance sector, accommodation and food service sector, and the retail trade sector, and smaller concentrations of employment in the transportation and warehousing sector, the manufacturing sector, educational services, and professional and waste management services. In total, all industries employed approximately 42,289 workers.

Table 4-2
Study Area Employment by Industry

Industry	Employment	Percent of Study Area Employment
Utilities	N/A	N/A
Construction	2,831	6.7%
Manufacturing	2,118	5.0%
Wholesale Trade	1,529	3.6%
Retail Trade	5,408	12.8%
Transportation and Warehousing	1,443	3.4%
Information	1,236	2.9%
Finance, Insurance, Real Estate and Rental and Leasing	2,661	6.3%
Professional, Scientific, Management, Administrative, and Waste Management Services	1,562	3.7%
Educational Services	476	1.1%
Health Care and Social Assistance	12,277	29.0%
Arts, Entertainment and Recreation	2,110	5.0%
Accommodation and Food Services	5,454	12.9%
Other Services (except public administration)	2,032	4.8%
Unclassified	1,169	2.8%
Government	N/A	N/A
Total	**42,289**	**100**

Sources: NYSDOL, 3rd Quarter, 2006

The three sectors that contain a majority of the employment in the study area are health and social services, accommodation and food services, and retail trade. The health and social services sector is the largest employer within the study area (12,753 jobs or 29.0 percent), followed by the accommodation and food services sector with 5,454 workers (12.9 percent of total study area employment), and the retail sector with 5,408 workers (12.8 percent). Employment in these three sectors represents over 55 percent of all employment in the study area, nearly half of which is located in the Greater Flushing subarea just east of the District, across the Flushing River and the Van Wyck Expressway.

These data indicate that the economic sectors that contribute most significantly in terms of defining neighborhood character—those with the highest employment in the study area—are for the most part not the sectors that would be displaced within the District. As shown in Table 4-1, the three largest sectors within the District (repair and maintenance services, auto-related retail trade, and wholesale trade) are not prevalent in the broader study area. On the contrary, existing businesses and employment within the District contrast sharply with those in the surrounding study area, which includes the higher density commercial and residential neighborhood of Downtown Flushing and the low- to mid-density residential community of Corona, as well as the industrial and retail College Point neighborhood to the north. In fact, as shown in Table 4-3, less than one percent of employment in the top two study area sectors (health care and social assistance, and accommodation and food services) would be displaced as a result of the proposed Plan, as would less than 8 percent of jobs within the third highest sector (retail trade). In general, the new businesses and community facilities to be introduced with the proposed Plan would be more consistent with the character of the broader study area than the existing uses are.

Table 4-3
Directly Displaced Employment as a Percentage of Study Area Employment

Industry	Displaced Employment	Displaced Employment as Percent of Study Area Employment
Agriculture	0	0.0%
Construction	153	5.4%
Manufacturing	79	1.2%
Wholesale Trade	268	17.5%
Retail Trade	**423**	**7.8%**
Transportation and warehousing and utilities	15	1.0%
Information	0	0.0%
Finance, insurance, real estate, and rental and leasing	0	0.0%
Professional, scientific, management, administrative, and waste management services	180	11.5%
Educational Services	0	0.0%
Health Care and Social Assistance	**0**	**0.0%**
Arts, Entertainment, Recreation	11	0.5%
Accommodation and Food Services	**21**	**0.4%**
Other services (except public administration)	561	27.6%
Unclassified	0	0.0%
Total	**1,711**	**4.0%**

Sources: AKRF, Inc., Howard/Stein-Hudson Associates, NYCEDC, 2006 NYSDOL.

The displacement of existing uses within the District would not significantly alter the neighborhood character of the study area and, therefore would not result in significant adverse impacts with respect to this criterion.

NO CONVENTION CENTER SCENARIO

The number and type of businesses and institutions that would be displaced by the proposed Plan would be the same with or without the convention center. The potential for significant adverse impacts due to direct business and institutional displacement under the No Convention Center Scenario would be the same as described above.

CONCLUSION

The preliminary assessment for direct business displacement demonstrates that the proposed Plan would not directly displace categories of businesses or institutions that are the subject of regulations or publicly adopted plans to preserve them, and that the Plan would not displace businesses, institutions, or employees that define the character of the study area. However, the preliminary assessment cannot rule out the possibility that the businesses in question have substantial economic value to the City and that they can be relocated only with great difficulty or not at all. Therefore, a detailed analysis of direct business and institutional displacement is required (see Section D, "Detailed Analysis of Direct Business and Institutional Displacement").

INDIRECT RESIDENTIAL DISPLACEMENT

Indirect residential displacement is the involuntary displacement of residents due to a change in socioeconomic conditions created by a proposed action. In most cases where it occurs, indirect residential displacement is caused by increased property values generated by an action, which then results in higher rents in an area, making it difficult for some existing residents to continue to afford their homes.

The preliminary assessment for indirect residential displacement is based on population and housing data that is presented later in this chapter (see Section D, "Detailed Analysis of Direct Business and Institutional Displacement"). The information includes: population and housing unit counts, socioeconomic indicators such as median household income and poverty status, housing values and median contract rents, vacancy rates, presence of population groups particularly vulnerable to economic changes (e.g., low income residents) and overall development trends in the area.

This preliminary assessment is based on the screening criteria outlined in Section 322.1 of the *CEQR Technical Manual* (numbered in italics below), which describe circumstances that can generate potentially significant impacts.

1. Would the project add substantial new population with different socioeconomic characteristics compared with the size and character of the existing population?

According to the *CEQR Technical Manual*, if a proposed project would increase the study area population by more than 5 percent, it could be large enough to affect socioeconomic trends significantly. The study area had an estimated 2006 population of 38,324 (see Section E, "Detailed Analysis of Indirect Residential Displacement"). The proposed Plan would add up to 5,500 new housing units to the study area, or approximately 14,795 new residents[1], a population equivalent to 38.6 percent of the existing (2006) study area population. Thus, the proposed Plan would add a substantial new population to the study area.

In 1999, half of the households in the study area had incomes below $38,960, 19 percent had incomes between $51,947 and $77,920, and 19 percent had incomes above $77,921 (see Section E, "Detailed Analysis of Indirect Residential Displacement"). Compared with the existing study area population, the population that would be introduced by the Plan may include a larger proportion of households at higher incomes. Because the proposed Plan would increase the study area 2006 population by approximately 31.8 percent, and may include households with higher incomes, a detailed analysis is required to determine whether or not the Plan would generate significant adverse impacts due to indirect residential displacement (see Section D, "Detailed Analysis of Direct Business and Institutional Displacement").

2. Would the project directly displace uses or properties that have had a "blighting" effect on property values in the area?

The District is characterized by substandard conditions such as environmental contamination, lack of infrastructure, and building code violations. Roads and sidewalks in the District are substandard or nonexistent, with large portions unpaved. Sanitary sewers have not been built, requiring septic fields throughout, which could be a source of contamination if functioning inadequately or if used for non-sanitary liquids. Storm sewers are present; however, substantial flooding after rain storms indicates they are non-functional or severely blocked.

These substandard conditions appear to be limited to the District itself. The District is isolated from surrounding residential neighborhoods by several natural and man-made barriers. Shea Stadium, the existing home of the New York Mets baseball team, and Citi Field, the development site for the future New York Mets stadium, are to the immediate west of the study area. East of the study area are the Van Wyck Expressway and the Flushing River. North of the study area are Northern Boulevard and Flushing Bay. South of the study area are Roosevelt

[1] Based on the 2000 average household size for Community District 7 (2.69 persons per household).

Avenue, the LIRR tracks for the Port Washington Line, a rail yard for LIRR trains, and several parking lots for Mets games. These natural and man-made barriers severely limit the potential for conditions within the District to affect residential real estate values in surrounding areas.

One indication that the District has not had a "blighting" effect on property values in the area is the amount of development that is expected to be completed by 2017. As discussed below, 3,184 residential units are expected to be added to the study area in the future without the proposed Plan. The trend toward residential development in the study area indicates that the District has not had a "blighting" effect on property values outside of the District. Other indications that the District has not had a "blighting" effect on property values are the increasing rental rates and sales prices in housing units in the surrounding areas, which are also discussed in Section D, "Detailed Analysis of Direct Business and Institutional Displacement."

3. Would the project directly displace enough of one or more components of the population to alter the socioeconomic composition of the study area?

As discussed above, the District contains one residential unit, which would be displaced by the proposed Plan. Displacement of this magnitude would not have the potential to alter the socioeconomic composition of the study area. Additionally, in the event that the proposed Plan displaces a portion of the employee population, further analysis is provided in Section D, "Detailed Analysis of Direct Business and Institutional Displacement."

4. Would the project introduce a substantial amount of a more costly type of housing compared with existing housing and housing expected to be built in the study area by the time the project is completed?

As described earlier, 20 percent of the housing introduced by the proposed Plan would be affordable housing. Nevertheless, because the proposed Plan includes 4,400 market-rate housing units, which may be more costly than what is typical of the existing housing stock in the study area, further analysis is required to determine whether the proposed Plan could result in a significant adverse indirect residential displacement impact.

5. Would the project introduce a "critical mass" of non-residential uses such that the surrounding area becomes more attractive as a residential neighborhood complex?

As described in Chapter 1, "Project Description," the overall purpose of the proposed Plan is to create a dynamic, mixed-use, sustainable community and regional destination. The proposed Plan, along with the anticipated development on Lot B, would introduce approximately 1.9 million sf of retail, including a multi-screen movie theater with up to 2,700 seats and approximately 150,000 sf of neighborhood retail and services. Furthermore, a large portion of the retail in the District would be destination retail.

The proposed Plan and Lot B would introduce a significant amount of new retail, but would not increase the desirability of the surrounding area to the extent that residential property values would increase, making it difficult for some study area residents to continue to afford their homes. Based on RPAD data, the study area currently contains approximately 3.4 million sf of retail. This includes destination retail such as Macy's and Assi Plaza—an Asian food item store, as well as local retailers that cater to the ethnic Asian population of Flushing and the greater New York City. In addition, approximately 1.3 million sf of retail has been recently completed or is expected to be completed by 2017, such as the Sky View Parc, which will have 811,800 sf of retail and restaurant space, and Flushing Commons, which will have 200,000 sf of retail (see Table 2-1 in Chapter 2). Residents living in most parts of the study area already have access to a variety of retail goods and

services within walking distance from their homes, and that retail access will continue to expand in the future without the proposed Plan.

The proposed Plan would introduce 500,000 sf of office space, and it is anticipated that approximately 280,000 sf of office space would be built on Lot B. The study area already contains 2.3 million sf of office space, and several developments that include office development have been recently completed or are expected to be completed by 2017 (see Table 2-1 in Chapter 2). For example, Queens Crossing is expected to contain 144,400 sf of office space, and Flushing Commons is expected to contain 100,000 sf of office space and possibly a 120,000-sf office tower. Viewed in context of the existing office inventory and the trend toward office development in the future without the proposed Plan, the introduction of 780,000 sf of office space under the proposed Plan and Lot B would not represent a critical mass that would make the study area more attractive as a residential location.

The open space in the proposed Plan would provide a valuable amenity to the residential and worker population in the study area; however, it would not introduce a critical mass of nonresidential uses that would substantially increase the area's desirability as a neighborhood complex. As described in Chapter 6, "Open Space," the study area currently contains 96.3 acres of active and passive open space in several parks, including the Flushing Bay Promenade and Flushing Meadows-Corona Park, which extends south and west from the southern portion of the study area. At 1,255 acres, Flushing Meadows-Corona Park is the largest park in Queens and one of the largest in New York City. Therefore, although the publicly accessible open space introduced by the proposed Plan would serve as a valuable amenity, it would not represent a new land use or amenity in the study area and would therefore not make the area more attractive as a neighborhood complex.

The proposed Plan's convention center would represent a new economic use in the study area; however, it would not necessarily make the area more attractive as a neighborhood complex. A convention center could make a positive contribution to the neighborhood by hosting events such as trade shows, consumer shows, corporate events, and local events. However, it would not provide amenities that would be used on a regular basis by the local residents and as such, would not make the area a substantially more attractive place to live.

Similarly, the hotel would be a regional resource that would be used by visitors to the convention center, as well as travelers flying into or out of LaGuardia and JFK airports, and visitors to the future Mets stadium (Citi Field) and the USTA National Tennis Center. This facility would also not be used on a regular basis by local residents and as such would not make the area more attractive as a residential location.

Finally, the proposed Plan includes a new K-8 school. This school would primarily serve to meet the additional demand generated by the 5,500 new households, and would not make the surrounding area substantially more attractive as a residential neighborhood complex.

6. Would the project introduce a land use that could offset positive trends in the study area, impede efforts to attract investment to the area, or create a climate for disinvestment?

The proposed Plan and anticipated development on Lot B would not impose any type of change that would diminish investment in the study area. On the contrary, the Plan would introduce new uses and populations to the District that would generate substantial direct and induced economic activity within the study area, Queens, and New York City. The Plan would also help meet the growing demand for housing within Queens and New York City. As discussed in Chapter 1, the most recent New York City Department of City Planning (DCP) demographic study, New York

City Population Projections by Age/Sex and Borough (2006), estimates that the population in Queens will increase by 15.1 percent between 2000 and 2030. Also, according to the New York City Department of Housing Preservation and Development (HPD)'s New York City Housing and Vacancy Survey, the residential vacancy rate in Queens was only 2.82 percent in 2005. The proposed Plan would permit housing to be constructed in the study area, which would help accommodate future population growth in Queens, and contribute to the City's overall efforts to meet its short- and long-term demands for housing.

NO CONVENTION CENTER SCENARIO

Compared with the proposed Plan, the No Convention Center Scenario would result in an additional 350 housing units (an estimated 942 residents), 50,000 sf of retail, and 50 school seats. The percentage of affordable housing introduced under the No Convention Center Scenario would be the same as under the proposed Plan (20 percent). Parking would be reduced by 700 spaces, and no convention center would be built. The No Convention Center Scenario would have the same potential for impacts as the proposed Plan. Because this preliminary assessment was able to answer "no" to only four of the six CEQR questions, a more detailed analysis is necessary.

CONCLUSION

The preliminary assessment for indirect residential displacement demonstrates that neither the proposed Plan nor the No Convention Center Scenario would directly displace uses or properties that have a "blighting" effect on property values in the area, directly displace enough of one component of the population to alter the socioeconomic composition of the study area, introduce a "critical mass" of non-residential uses such that the surrounding area becomes more attractive as a residential neighborhood complex; or introduce a land use that could offset positive trends in the study area, impede efforts to attract investment to the area, or create a climate for disinvestment. However, the preliminary assessment could not rule out the possibility that the proposed Plan would add a substantial new population with different socioeconomic characteristics compared to the size and character of the existing population, or would introduce a substantial amount of a more costly type of housing compared to existing housing and housing expected to be built in the study area by the time the Plan is complete. Therefore, a detailed analysis of indirect residential displacement is required (see Section D, "Detailed Analysis of Indirect Residential Displacement").

INDIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

According to Section 322.2 of the *CEQR Technical Manual*, in most cases the issue for indirect displacement of businesses or institutions is that a project would increase property values and thus rents throughout a study area, making it difficult for some categories of businesses to remain in the area. While the proposed Plan is expected to attract customers from a broad region, it is the businesses in close proximity to the District that could be subject to indirect displacement pressures due to increased rents (as a result of increased business in the area generated by customers of the Plan). Such displacement can be of concern when it would result in changes to land use, population patterns, or community character. In addition, the *CEQR Technical Manual* also identifies competition as a potential issue for indirect business and institutional displacement in cases where proposed retail uses may overlap with the existing retail base in an area and attract sales from existing stores. While these competitive socioeconomic impacts do not necessarily generate environmental concerns, they can become an environmental concern if they have the potential to affect neighborhood character by affecting

the viability of neighborhood shopping areas. The preliminary assessment is based on the screening criteria outlined in Section 322.2 of the *CEQR Technical Manual*, which describe circumstances that can generate potentially significant impacts. The following section first presents an economic profile of the study area, followed by responses to the CEQR assessment criteria, which are numbered in italics below.

This preliminary assessment finds that the proposed Plan and anticipated development on Lot B would not result in significant adverse socioeconomic impacts related to indirect business and institutional displacement due to increased rents, but that there would be the potential for indirect displacement due to competition because the proposed Plan would introduce retail that would offer products and services similar to those offered at existing retail establishments nearby. Therefore, a detailed analysis of indirect business and institutional displacement due to competition is required (see Section F, "Detailed Analysis of Indirect Business Displacement due to Competition").

STUDY AREA EMPLOYMENT

In 2006 there were approximately 42,289 people employed at businesses and institutions within the three zip codes that comprise the business study area (see Figure 4-2).[1] Table 4-4 shows 3rd quarter 2006 employment for the three zip codes, Queens, and New York City. Of the 42,289 employees in the study area, 38.6 percent worked in zip code 11354 (which includes College Point, North Flushing, and Downtown Flushing), 33.5 percent worked in zip code 11355 (which includes South Flushing), and 27.9 percent worked in zip code 11368 (which includes North Corona and the District). The employees in the study area represent approximately 8.7 percent of all employment in Queens.

Approximately 29 percent of the employment within the study area, or 12,277 workers, were in the health care and social assistance sector. Over 62 percent of these workers were employed in zip code 11355, largely due to employment at two hospitals: New York Hospital Queens and Flushing Hospital.

Industrial sectors (construction, manufacturing, wholesale trade, and transportation, warehousing, and utilities) collectively employed the next largest segment of the study area's worker population, with 18.7 percent of total employment. Zip code 11354, which includes College Point, and zip code 11368, which includes the District, had higher concentrations of industrial employment, with approximately 25.1 and 24.2 percent of employment, respectively. However, these sectors represented only 6.9 percent of employment in zip code 11355. In comparison, the study area had a lower share of its workers employed in industrial-related sectors than Queens (31.7 percent) and a higher share than New York City (13.4 percent).

[1] Three zip codes—11355, 11354, and 11368—overlap the ¾-mile study area. These zip codes extend beyond the study area; however, most of the commercial and industrial development in zip codes 11354 and 11355 is located within the study area. Also, zip code 11368 includes the District and the commercial and industrial development in the western portion of the study area.

Table 4-4
3rd Quarter 2006 Employment by Industry

Industry	3 zip code area		11354		11355		11368		Queens		New York City	
	Total Emp.	% of Total Emp.	Total Emp.	% of Total Emp.	Total Emp.	% of Total Emp.	Total Emp.	% of Total Emp.	Total Emp.	% of Total Emp.	Total Emp.	% of Total Emp.
Total Employment	42,289	100%	16,305	100%	14,185	100%	11,799	100%	485,147	100%	3,542,771	100%
Agriculture Forestry Fishing	NA	NA	0	0.0%	D	NA	0	0.0%	0	0.0%	0	0.0%
Utilities	NA	NA	D	NA	0	0.0%	0	0.0%	2,511	0.5%	15,116	0.4%
Construction	2,831	6.7%	922	5.7%	521	3.7%	1,388	11.8%	43,629	9.0%	117,593	3.3%
Manufacturing	2,118	5.0%	1,197	7.3%	148	1.0%	773	6.6%	29,017	6.0%	104,403	2.9%
Wholesale Trade	1,529	3.6%	895	5.5%	238	1.7%	396	3.4%	24,052	5.0%	138,153	3.9%
Retail Trade	5,408	12.8%	2,641	16.2%	1,490	10.5%	1,277	10.8%	50,921	10.5%	279,949	7.9%
Transport & Warehousing	1,443	3.4%	1,075	6.6%	67	0.5%	301	2.6%	54,616	11.3%	100,841	2.8%
Information	1,236	2.9%	295	1.8%	786	5.5%	155	1.3%	8,497	1.8%	153,951	4.3%
Finance & Insurance	1,450	3.4%	912	5.6%	391	2.8%	147	1.2%	16,405	3.4%	337,058	9.5%
Real Estate & Rental & Leasing	1,211	2.9%	753	4.6%	377	2.7%	81	0.7%	14,655	3.0%	116,398	3.3%
Professional Scientific & Technology	748	1.8%	466	2.9%	222	1.6%	60	0.5%	10,676	2.2%	310,168	8.8%
Management Of Companies	NA	NA	D	NA	D	NA	D	NA	1,582	0.3%	57,236	1.6%
Administrative & Support Services	814	1.9%	311	1.9%	161	1.1%	342	2.9%	22,305	4.6%	184,469	5.2%
Educational Services	476	1.1%	169	1.0%	199	1.4%	108	0.9%	12,251	2.5%	114,095	3.2%
Health Care & Social Assistance	12,277	29.0%	3,309	20.3%	7,688	54.2%	1,280	10.8%	98,165	20.2%	534,157	15.1%
Arts Entertainment & Recreation	2,110	5.0%	64	0.4%	83	0.6%	1,963	16.6%	4,912	1.0%	62,092	1.8%
Accommodation & Food Service	5,454	12.9%	1,625	10.0%	926	6.5%	2,903	24.6%	31,168	6.4%	218,470	6.2%
Other Services	2,032	4.8%	1,100	6.7%	536	3.8%	396	3.4%	20,299	4.2%	136,188	3.8%
Unclassified	1,057	2.5%	491	3.0%	338	2.4%	228	1.9%	5,823	1.2%	25,788	0.7%
Government	NA	NA	D	NA	0	0.0%	0	0.0%	33,661	6.9%	536,645	15.1%

Sources: NYSDOL, 3rd Quarter, 2006

The retail trade sector employed 12.8 percent of employees in the study area, which was a higher share compared with Queens (10.5 percent) and New York City (7.9 percent). Nearly half of the retail employment in the study area was in zip code 11354, which is likely due to the concentration of retail in Downtown Flushing. Retail employment in the other zip codes was similar to Queens, with 10.5 percent in zip code 11355 and 10.8 percent in zip code 11368.

The accommodation and food service sector employed a higher percentage of workers in the study area than Queens and New York City. As shown in Table 4-4, 12.9 percent of employment was in this sector in the study area, compared with only 6.4 percent in Queens and 6.2 percent in New York City. Over half of these employees were in zip code 11368, likely due to food service contractors at Shea Stadium and the USTA Tennis Center. Similarly, the arts, entertainment, and recreation sector had a higher percentage of employees in the study area (5.0 percent) compared with Queens (1.0 percent) and New York City (1.8 percent). 93.0 percent of these employees were in zip code 11368, again likely due to employees at Shea Stadium and Flushing Meadows-Corona Park.

Currently, there are approximately 1,711 employees within the District (see Table 4-5), representing 4.0 percent of employment in the study area. Within the District, employment in sectors associated with industrial uses made up 30.0 percent of employees, with 268 employees in the wholesale trade sector, followed by 153 construction employees, 79 manufacturing employees, and 15 transportation, warehousing, and utilities employees. These employees in industrial-related sectors in the District represent 6.5 percent of industrial employment in the study area.

Table 4-5
2007 District Employment by Industry

	Total District Employment	Industry Employment as a Percent of Employment in the District	Industry Employment as a Percent of Total Employment in the 3 Zip Code Area
Industry	1,711	100%	4.0%
Agriculture, forestry, fishing and hunting and mining	0	0.0%	NA
Construction	153	8.8%	5.4%
Manufacturing	79	4.6%	3.7%
Wholesale trade	268	15.7%	17.5%
Retail trade	423	24.4%	7.8%
Transportation and warehousing and utilities	15	0.9%	1.0%
Information	0	0.0%	0.0%
Finance, insurance, real estate and rental and leasing	0	0.0%	0.0%
Professional, scientific, management, administrative, and waste management services	180	10.4%	11.5%
Educational, health and social services	0	0.0%	0.0%
Arts, entertainment, recreation, accommodation and food services	32	1.8%	0.4%
Other services (except public administration)	561	32.4%	27.6%
Public administration	0	0.0%	NA
Armed forces	0	0.0%	NA

Sources: District employment is from AKRF, Inc., Howard/Stein-Hudson Associates, NYCEDC. Employment from the study area is from NYSDOL.

CEQR PRELIMINARY ASSESSMENT CRITERIA

1. Would the project introduce enough of a new economic activity to alter existing economic patterns?

The proposed Plan and Lot B would introduce several types of economic activities/uses to the District: residential units, retail space, office space, a convention center, a hotel, community facility use, and a school. As discussed below, most of these uses are not new to the study area, and would not alter existing economic patterns in the study area.

Based on RPAD data, there is currently 2.3 million sf of office space in the study area. Also, there is an additional 621,000 sf of office space that is expected to be built in the future without the proposed Plan.[1] Thus, the combined 780,000 sf of office space that would be introduced by the proposed Plan and anticipated development on Lot B would not represent a new economic activity in the study area. Similarly, as of 2005, the study area contained an estimated 14,268 housing units and 527,089 sf of hotel space. Thus, the 5,500 residential units and the 700-room hotel introduced under the proposed Plan would not represent economic activities that are new to the study area.

The study area contains 3.4 million sf of retail, and known projects in the study area are expected to add an estimated 1.3 million sf of additional retail space in the future without the proposed Plan. The 1.9 million sf of retail envisioned under the proposed Plan and anticipated development on Lot B would be a substantial addition, but it would not be a new economic activity within the study area.

The proposed convention center would represent a new economic activity in the study area. As described in Chapter 1, the convention center would host large trade shows, consumer shows, festivals, conferences, corporate events, banquets, and local events. In general, convention centers draw a large number of visitors who typically purchase goods and services at businesses in the surrounding area. In most cases, it is possible for a convention center to increase demand for certain types of goods and services (e.g., restaurants) in the surrounding area, causing some effect on existing economic patterns along retail corridors located within close proximity to the convention center. However, in the case of the proposed Plan, it is not likely that the proposed convention center would cause an increase in demand for goods and services in the surrounding area, since the majority of its visitors would shop and dine at the proposed retail adjacent to the convention center. Thus, visitors to the convention center would not represent a substantial new customer base for businesses in the study area, and the presence of the convention center would not likely lead to an increase in commercial rents.

2. Would the project add to the concentration of a particular sector of the local economy enough to alter or accelerate an ongoing trend to alter existing economic patterns?

The proposed Plan and anticipated development on Lot B would not add to the concentration of a particular sector such that it would alter or accelerate an ongoing trend to alter existing economic patterns within the study area.

The Plan and Lot B would add a substantial amount of retail to the study area, and would allow the potential for Queens to recapture sales dollars currently flowing out of the area. Total retail

[1] This total includes the 100,000 sf of office space that is part of the Flushing Commons mixed-use project. The Flushing Commons project also will include either a 120,000-sf office tower or a 250-room hotel. Since this office tower has not been confirmed, it was not included in the total.

sales in Queens are estimated to be $9.3 billion (see Table 4-6). However, potential retail expenditures are approximately $15.5 billion, indicating that Queens residents are spending over $6 billion outside of the area, which may include Brooklyn, Manhattan, Nassau County, Westchester County, or New Jersey. Thus, the retail in the proposed Plan would enable Queens to recapture dollars being spent by Queens residents outside of the borough.

Table 4-6
Household Retail Expenditures and Total Retail Sales, Queens

	Retail Sales in Queens[1]	Retail Demand from Queens Households[1]	Amount Not Being Captured in Queens[1]	Queens Capture Rate
Retail Sales Total[2]	$9,297	$15,449	$6,152	60%

Notes:
[1] All values are in millions of 2008 dollars.
[2] Total does not reflect total expenditures or sales for all retail in Queens - only those retail categories included in the Shoppers' Goods, Convenience Goods, and Eating and Drinking Places categories. Retail establishments not included in this total are building materials and garden supply, auto-related businesses, and non-store retailers.
Source: ESRI, Inc.

There is also an existing trend in the study area toward the development of retail, as evidenced by the several projects that have recently been completed, or are expected to be completed by 2017, including Sky View Parc (811,800 sf retail), Queens Crossing (110,000 sf retail), the Caldor site (155,000 sf retail), and Flushing Commons (200,000 sf retail). Given the existing established trend toward retail development within the study area, the increase in retail represents a continuation of an existing trend and would not change existing economic patterns in the study area.

However, with the proposed Plan there is the potential for overlap between the possible retail uses and the existing retail base in the area, which could result in indirect displacement due to competition. A detailed analysis is necessary to determine whether the proposed actions could lead to indirect business displacement in the study area or Primary Trade Area, and whether such displacement, if it were to occur, would result in significant adverse impacts. See Section F, "Detailed Analysis of Indirect Business Displacement due to Competition," below.

The proposed office space would not alter or accelerate an ongoing trend to alter existing economic patterns. According to RPAD, there is 2.3 million sf of office space in the study area. Based on known projects in the study area in the future without the proposed Plan, an additional 621,000 sf of office space will be added to the study area by 2017. Thus, the combined 780,000 sf of office space that would be introduced by the proposed Plan and anticipated development on Lot B would represent a continuation of an existing trend toward office development in the study area.

As of 2005, the study area contained an estimated 14,268 housing units. The study area already exhibits a strong trend toward residential development, including several large projects such as Sky View Parc (750 residential units) and Flushing Commons (approximately 500 residential units). The 5,500 households that would be introduced under the proposed Plan would shop at some existing retail establishments, but would likely do a large portion of their shopping at the retail that would be introduced in the District. Therefore, it is not likely that the new households would substantially alter existing retail patterns in the study area.

The 700-room hotel introduced under the proposed Plan would not add to a particular sector of the local economy such that it would affect overall ongoing economic trends in the study area.

According to RPAD data, the study area has 527,089 sf of hotel space. In addition, three hotels are expected to be completed by 2017, including Flushing Commons, which could include a 250-room hotel, and the New Millennium development, which is expected to have 60 hotel rooms. Thus, there is an existing trend toward hotel development in the study area.

As discussed above, the convention center would represent a new economic use in the study area. However, since it is likely that most of the visitors to the convention center would make retail purchases at establishments in the District, the convention center would not alter existing economic patterns in the broad study area.

Some industries or occupations tend to be considered more vulnerable than others to indirect displacement pressures. Businesses most vulnerable to indirect displacement due to increased rents are typically those businesses whose uses are less compatible with the economic trends that are creating upward rent pressures in the study area; i.e., those businesses that tend to not directly benefit in terms of increased business activity from the market forces generating the increases in rent. For example, if a neighborhood is a more desirable place to live, uses that are less compatible with residential conditions (such as manufacturing) would be less able to afford increases in rent due to increases in property values compared with a neighborhood service use, such as a bank, which could see increased business activity from the increased residential presence.

Industrial uses within the study area would not capture any value from these customer trips, while a retail use could potentially capture additional sales from cross-shopping activity. Therefore, industrial uses in the study area could be considered vulnerable to indirect displacement, as a property owner could decide to convert an existing industrial property to a retail use. However, the possibility for this type of indirect displacement is limited by the underlying zoning. College Point and North Flushing are zoned for light manufacturing (M3-1 and M2-1, respectively), which limits the type and size of commercial retail uses without discretionary actions. Also, industrial uses include large municipal facilities, such as the New York City Department of Sanitation (DSNY) North Shore marine transfer station (MTS) in College Point. There are other prominent industrial uses in the study area, including the College Point Corporate Park, a 550-acre corporate park that includes large industrial businesses such as *The New York Times* printing and distribution plant, Skanska's North American headquarters, and Ares Printing and Packaging. The industrial uses on these properties would maintain the strong industrial character of the area.

3. Would the project displace uses or properties that have had a "blighting" effect on commercial property values in the area, leading to rises in commercial rents?

As discussed above in "Indirect Residential Displacement," the District has several substandard conditions, such as environmental contamination, lack of infrastructure, and building code violations. These substandard conditions appear to be limited to the District itself due to its relative isolation, with Shea Stadium to the west, the Van Wyck Expressway and the Flushing River to the east, Northern Boulevard and Flushing Bay to the north, and Roosevelt Avenue, the LIRR tracks, the LIRR rail yard, and parking lots to the south. These natural and man-made barriers limit the potential for conditions within the District to adversely affect commercial property values in surrounding areas.

To the north of the District is College Point, which is predominantly an industrial area. A low vacancy rate in College Point indicates that this area has not been affected by a "blighting" effect of the District. According to a 2003 *New York Times* article, the industrial properties in College

Point had a low availability rate that was under 3 percent.[1] This low rate was slightly lower than a vacancy rate of under 5 percent that was quoted for industrial properties in Queens and New York City as a whole by Kalman Dolgin in July 2007. Downtown Flushing, to the east of the District, also has not been affected by a "blighting" effect. This area is a regional destination and is a center of commercial and cultural activity in Queens, with many Asian specialty food shops, restaurants, and retail stores that cater to the local population and draw visitors from outside of the community.

Another indication that the District has not had a "blighting" effect on commercial property values in the area is the amount of development that is under construction or planned for the area. For example, Queens Crossing, which is in Downtown Flushing, approximately ½ mile from the District, will be completed by the end of 2007. It is expected to contain 144,000 sf of office space, 110,000 sf of retail space, 29,600 sf of community facility space, and 400 parking spaces. Flushing Commons, which is also in Downtown Flushing, less than ¾ mile from the District, is another large mixed-use project that is expected to contain approximately 500 residential units, 200,000 sf of retail space, 100,000 sf of community facility space, 100,000 sf of office space, 1,600 parking spaces, and either a 250-room hotel or an additional 120,000 of office space. These projects indicate that the District has not had a "blighting" influence on Downtown Flushing.

4. Would the project directly displace uses of any type that directly support businesses in the area or bring to the area people that form a customer base for local businesses?

The proposed Plan would not displace uses that bring people who form a customer base for local businesses to the area. It is likely that most customers drive to Willets Point for the sole purpose of obtaining automotive services. Although it is possible that some of the current customers of the auto-related establishments in the District may shop or dine at commercial establishments in the study area, this is likely to be infrequent and is expected to be a small portion of the existing customer base. For non-auto-related uses in the District, customers of construction companies and wholesale food establishments order their goods online or by telephone, and have the products shipped to their locations. Therefore, business establishments within the study area do not rely on District employees or visitors for their customer base.

Business establishments in the study area also do not rely on the products or services offered by District businesses. To the extent that products and services offered by District establishments may be utilized by businesses in the surrounding study area, these would still be available in the future with the proposed Plan in other areas of Queens and the City. Study area businesses do not require proximity to District businesses, and would not be adversely affected by the proposed Plan.

5. Would the project directly or indirectly displace residents, workers, or visitors who form the customer base of existing businesses in the area?

As discussed above in "Direct Residential Displacement" and "Direct Business Displacement," the proposed Plan would directly displace one household and approximately 1,711 employees. The single household that would be displaced would not have the potential to adversely affect socioeconomic conditions in the study area. The 1,711 employees that would be displaced by the proposed Plan represent 4.0 percent of the employment in the study area based on NYSDOL

[1] "Industrial Hub Emerges in College Point," *The New York Times,* November 23, 2003.

data from 3rd quarter 2006. The displacement of these employees would not represent a significant portion of the customer base for existing businesses. Furthermore, although the new residents, workers, and visitors would do the majority of their retail purchases in the District, it is likely that the existing retail businesses in the study area would capture a small portion of their retail expenditures. Based on household expenditure patterns from 2007 ESRI data, the new residents in the District could bring up to approximately $148.2 million in annual retail expenditure potential to the study area.

The proposed Plan and anticipated development on Lot B are projected to generate approximately 8,851 employees. The majority of these employees (53.2 percent) would be employed in retail stores, followed by 35.2 percent in office jobs. The remaining 1,020 jobs would be from the residential units (220 jobs), hotel (259 jobs), community facility (150 jobs), parking (153 jobs), convention center (160 jobs), and school (77 jobs). Similar to the new residents, while most of their spending would be in the proposed retail in the District, a portion would be captured by the retail in the study area. In addition, some new District employees may live in the study area, increasing the likelihood that a larger proportion of their retail dollars would be spent at existing study area businesses. The influx of residents, employees, and visitors to the study area would create a sizable new customer base for existing and future retail services and businesses.

6. Would the project alter land use patterns such that the project offsets positive trends in the area, impedes efforts to attract investment to the area, or creates a climate for disinvestment that could lower property values?

The proposed Plan and anticipated development on Lot B would not impose any type of change that would diminish investment in the study area. On the contrary, the Plan would reinforce the trend toward increasing residential and retail investment, drawing direct investment to the area through building construction, open space creation, transportation improvements, and the creation of physical connections between the District and the surrounding areas. The Plan would also introduce office, hotel, and convention center uses, which would enhance Flushing and Corona's roles as regional economic centers. In addition, the Plan and Lot B would introduce new workers and residents to the study area. This would increase the area's spending power and thus benefit the existing commercial establishments.

NO CONVENTION CENTER SCENARIO

Compared with the proposed Plan, the No Convention Center Scenario would result in an additional 350 housing units, 50,000 sf of retail, and 50 school seats. Parking would be reduced by 700 spaces, and no convention center would be built. Overall, the No Convention Center Scenario would produce 30 fewer jobs than the proposed Plan.

None of these changes would affect the conclusions presented above under the proposed Plan. Without the convention center, the Plan would not introduce any economic activities that are not already present in the study area. The amount of office, hotel, and community facility space would remain the same under the No Convention Center Scenario, and changes to the amount of retail would be minimal. Therefore, the No Convention Center Scenario, like the proposed Plan, would not add to the concentration of a particular sector such that it would alter existing economic patterns. Direct displacement under the No Convention Center Scenario would be the same as under the proposed Plan, and the potential for indirect displacement would be unchanged. Therefore, the No Convention Center Scenario would not displace uses or properties that have had a "blighting" effect on property values in the study area, or displace uses or

populations that support businesses in the area, or bring to the area people who form a customer base for local businesses. The No Convention Center Scenario would not lead to significant adverse indirect business or institutional displacement impacts due to increased rents. However, like the retail introduced under the proposed Plan, the retail introduced under the No Convention Center Scenario would potentially overlap with the existing retail base of the area, and a detailed analysis is necessary to determine whether the No Convention Center Scenario could lead to indirect business displacement due to competition, and whether such displacement, if it were to occur, would result in significant adverse impacts.

CONCLUSION

Based on the preliminary assessment presented above, neither the proposed Plan nor the No Convention Center Scenario with Lot B would result in significant adverse impacts on socioeconomic conditions due to indirect business displacement due to increased rents. However, a detailed analysis is necessary to determine whether the proposed Plan and Lot B could lead to indirect business displacement due to competition, and whether such displacement, if it were to occur, would result in significant adverse impacts. This is discussed in Section F, "Detailed Analysis of Indirect Business Displacement due to Competition," below.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

As set forth in the *CEQR Technical Manual* guidelines, a significant adverse impact may occur if a proposed project would measurably affect the operation and viability of a specific industry, not necessarily tied to a specific location. An example cited in the *CEQR Technical Manual* would be new regulations that prohibit or restrict certain processes that are critical to specific industries. A more detailed examination is therefore appropriate if the following considerations cannot be answered with a clear "no."

1. Would the project significantly affect business conditions in any industry or any category of businesses within or outside the study area?

As described in the preliminary and detailed analyses of direct business and institutional displacement, 260 businesses and institutions employing an estimated 1,711 workers would be displaced from the District as a result of the proposed Plan. The businesses that would be displaced represent various industry sectors, including construction, manufacturing, wholesale trade, retail trade, waste management, accommodation and food services, and other services.

In total, 87 percent of the businesses that would be displaced from the District are in auto-related sectors (227 of 260 total businesses). This includes the 163 auto repair, maintenance and service establishments, 54 automotive retail businesses, 5 auto wholesalers and salvage yards, and 5 towing companies that are currently located in the District. Due to the size of this concentration, a detailed assessment of the auto industry is required to determine if the potential displacement would have a significant adverse impact on the auto industry as a whole in New York City.

Two wholesale food distributors, Fodera Enterprises and House of Spices, have a significant presence within the District. Fodera Enterprises distributes food products to bakeries and restaurants in Queens and throughout the City. With 423 food product wholesalers located within Queens and 1,654 in New York City[1], the displacement of this business from the District would not significantly impact the City's food product wholesale industry, or other industries

[1] NYSDOL, 2006

that rely on food wholesalers, as they would be able to purchase products from other establishments.

House of Spices is the largest distributor of South Asian food products in the City. The business manufactures and distributes Indian spices and other specialty foods from its Willets Point facility to local and regional restaurants and groceries, and ships products to eight distribution centers around the country. Interviews with real estate brokers and property listings indicate that spaces comparable to the one House of Spices currently occupies are available in other manufacturing-zoned areas in Queens and the City, which have similar highway and transit access. If House of Spices were to relocate within the City, the effect on businesses that purchase its products would be minimal. If House of Spices did not relocate within New York City, the cost of products at groceries and restaurants that depend on their products could increase, either because shipping costs from House of Spices would increase, or because businesses would need to obtain spices from another wholesaler, which could have higher prices. However, existing groceries and restaurants in the City would continue to be able to obtain spices, and business conditions in these industries would not be significantly affected. Overall, the displacement of House of Spices from the District would not significantly affect business conditions in any industry or category of businesses within or outside of the study area.

Displacement of the two waste transfer businesses (Tully Environmental and Crown Container) would not significantly impact the waste transfer industry within Queens or New York City. As discussed in Chapter 15, "Solid Waste and Sanitation," Crown Container is authorized to process 375 tons per day (tpd) of mostly construction and demolition debris. The permitted capacity of Crown Container represents only 3 percent of the City's construction and demolition capacity.[1] There are four other facilities in Queens and 24 other facilities in the City that process construction and demolition waste. If Crown Container were displaced, the waste currently processed there could be processed at one of these other facilities. Tully Environmental currently processes putrescible municipal waste (up to 900 tpd) under contract with the City. As described in Chapter 15, in September 2007 the New York State Department of Environmental Conservation (DEC) permitted the construction and operation of the converted North Shore Marine Transfer Station (MTS) in College Point. The North Shore MTS, when completed, will have the capacity to process the waste currently handled by Tully. If Tully were displaced from the District before the North Shore MTS became operational, there would be a reduction in long-haul tractor trailers leaving the District with City waste, and a temporary increase in DSNY trucks driving Queens waste to and from facilities in New Jersey. Therefore, the displacement of Crown Container and Tully Environmental would not significantly impact the waste transfer industry within Queens or New York City.

Bono Sawdust is one of two businesses within New York City that manufacture sawdust-based sweeping compounds and industrial absorbents. The displacement of this business would not harm overall business activity within the absorbent and sweeping compound industry, or within industries that utilize these products. Sawdust is only one of many absorbent compounds utilized for the cleanup of oil and other industrial spills. More commonly utilized materials include kitty litter-like clay compounds (often referred to as "Quick Dry" or "Oil Dry"), fiberclay (a recycled paper compound), and absorbent pads and rolls. These absorbent materials, and sawdust-based

[1] http://www.nylpi.org/pub/Distribution___Capacities_of_Solid_Waste_Trasfer_Stations.pdf (November 2007).

sweeping compounds, are readily available through other businesses and distributors within the City and the region that deliver products directly to customers.

The remaining businesses subject to direct displacement within the District vary in type and size, and are not concentrated in any particular industry sector. None of these businesses are essential to the survival of other industries located outside the study area and within New York City or the region. The remaining businesses that would be displaced are not the exclusive suppliers of goods and services to an entire industry or category of business within New York City or the region. Therefore, the proposed Plan would not have a significant adverse impact on any of these remaining industries within or outside of the study area.

2. Would the project indirectly substantially reduce employment or impair the economic viability in the industry or category of businesses?

The preliminary assessment cannot rule out that the proposed Plan would not indirectly substantially reduce employment or impair the economic viability of the auto industry. Therefore, a detailed analysis of the auto industry is required.

As described above, displacement of non-auto-related businesses in the District would not significantly affect business conditions in any industry or category of business within or outside of the study area. The general products and services offered by these businesses can be found elsewhere in the City; therefore, the displacement of these non-auto businesses would not indirectly substantially reduce employment or impair the economic viability in any industry or category of businesses.

NO CONVENTION CENTER SCENARIO

Direct business and institutional displacement would be the same under the proposed Plan and the No Convention Center Scenario. Therefore, the effects of either scenario on specific industries would be the same.

CONCLUSION

Based on the preliminary assessment presented above, the proposed Plan would not have the potential to result in significant adverse impacts on most industries represented in the District. However, due to the size of the auto-related business concentration in the District, a detailed analysis is required to determine if the potential displacement would have a significant adverse impact on the auto industry as a whole in New York City.

D. DETAILED ANALYSIS OF DIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

The potential for the proposed Plan and anticipated development on Lot B to cause significant direct business and institutional displacement cannot be ruled out through the preliminary assessment presented in Section C, "Preliminary Assessment." Based on guidelines in Section 331.2 of the *CEQR Technical Manual*, a detailed analysis of direct business displacement is necessary because the preliminary assessment cannot rule out the possibility that the displaced businesses have substantial economic value to the City or the regional area and could be relocated with great difficulty or not at all.

EXISTING CONDITIONS

This section describes the business characteristics within the District and its context within the study area, beginning with a description of the businesses and institutions that could be displaced, their economic value to the City and region, and their relocation options.

PROFILES OF DIRECTLY DISPLACED BUSINESSES AND INSTITUTIONS

This section provides a detailed description of the existing businesses and institutions within the District, including their general industry classification, products and services, employment characteristics, and customer base.

Based on site visits conducted by AKRF, Inc. in fall 2006 and winter 2008, information provided by NYCEDC, and business and employment data from NYSDOL, approximately 259 businesses and one institution are located within the District. Based on business data from NYSDOL, and on interviews with on-site businesses conducted by NYCEDC and by Howard/Stein-Hudson Associates, these businesses and institutions employ approximately 1,711 persons.

The majority of the 260 businesses and institutions that would be displaced by the proposed Plan are involved in automotive trades (227 businesses or 87 percent). As detailed above in Table 4-1, these establishments specialize in various auto-related activities, including wholesale trade (five businesses), retail trade (54 businesses), transportation and warehousing (five businesses), and automotive repair and maintenance services (163 businesses). The non-auto-related businesses include eight construction businesses, five manufacturing businesses, five wholesale trade establishments, six administrative and support, and waste management and remediation services, one recreational facility, and seven limited-service food services. Additionally, one institution—a private motorcycle membership club—would be displaced.

Auto-Related Businesses

In total, 227 of the 260 businesses located in the District are in auto-related sectors (87 percent of all businesses). These businesses employ an estimated 1,057 workers, accounting for 62 percent of all employment within the District.

Approximately 71 percent of the auto-related businesses (163 of 227) are in the repair and maintenance services sector. These businesses include 63 general automotive repair shops, 50 auto body/paint/interior repair shops, 23 automotive glass replacement establishments, 19 automotive exhaust repair shops, and eight other maintenance and repair businesses. These businesses are found throughout the District, with the largest concentrations along Willets Point Boulevard on the eastern boundary of the District and 126th Street on the western boundary, between 38th and 39th Avenues. Approximately 561 workers are employed by these businesses (33 percent of total displaced employment in the District), most of them at establishments that employ fewer than five workers. An additional five towing companies employing a combined 15 workers would also be displaced from the District.

The five auto-related wholesalers located in the District employ a total of approximately 58 persons (three percent of District employment). Most of these businesses operate as scrap or junkyards, actively dismantling and storing recycled automobile parts, which are then sold to local and regional auto repair shops and dealers, including those located in the District. These businesses operate on larger open lots with small administrative offices. Businesses include Sambucci Brothers, Metal Green Recycling, Good Luck Used Auto Parts, United Steel Products, and ACDC Scrap Metal. Though categorized as wholesalers for the purposes of this analysis,

many could also be categorized as used auto part dealers, depending upon classification standards.

In addition to the auto-related wholesale businesses, 54 auto-related retail establishments are located within the District. These businesses specialize in the sale of various automotive parts and supplies, including tires, new and used parts, and accessories. In total, 423 jobs at these locations (25 percent of total employment) would be displaced as a result of the proposed Plan.

Non Auto-Related Businesses

The remaining 33 businesses represent only 13 percent of all establishments in the District, but their workers make up 38 percent of all District employment (654 jobs).

Five businesses operate in wholesale trade with a total of 210 employees (13 percent of all District jobs). The majority of this employment is found at two specialty grocery wholesalers, House of Spices and Fodera Enterprises. House of Spices[1] is a regional distributor of South Asian food products for specialty food stores and restaurants and employs approximately 100 workers. In addition to its District facility, the company operates eight distribution facilities throughout the United States. Fodera Enterprises has 60 employees. The company supplies Italian food products to restaurants and bakeries. Other wholesalers include: T. Mina Supply, Inc. which distributes construction related materials; T&T Supply Company, which sells welding and gas supply equipment; Mets Metal, a non-ferrous metal wholesaler and distributor; a street sweeping vehicle distributor; and a wholesale sheet metal distributor.

Eight businesses are in the construction industry and employ a total of 153 persons (nine percent of total District jobs). Tully Construction, with approximately 100 on-site employees, makes up the majority of employment in this sector. Tully operates an infrastructure construction business from the site, as well as a construction material waste transfer facility. The remaining seven businesses are general contractors; commercial and institutional construction firms; and plumbing, heating, and air conditioning contractors. These seven businesses employ a total of 53 people.

The six businesses in the Administrative and Support and Waste Management and Remediation Services Sector have a total of 180 employees (11 percent of all employment). The majority of jobs are located at Crown Container Company and Tully Environmental (and Evergreen Recycling of Corona, a subsidiary of Tully), employing 60 and 100 workers, respectively. Crown Container Company operates transfer stations for construction and demolition waste, and commercial waste. Tully Environmental operates a composting facility and waste transfer facility for DSNY, and runs a construction material recycling business (Evergreen Recycling of Corona). The remaining businesses include a tour bus operator and security systems company.

The five manufacturing businesses with 79 total employees include two iron works manufacturers (Feinstein Iron Works, QC Iron Works), a furniture manufacturer, a sawdust mill, and a sign manufacturer. Feinstein Iron Works is a structural steel fabricator specializing in steel stairs and decking for buildings of various types and sizes. The company works throughout New York City, as well as in Westchester, Nassau, and Suffolk counties, and employs 40 workers on site. QC Iron works is a smaller steel fabrication company, employing 12 people. GS Sign and Awning is a sign manufacturing company that employs 16 people. Iron King employs five

[1] The primary business activity at House of Spices is wholesale distribution, and is therefore categorized in this sector. However, several food products distributed by the company are also manufactured on-site.

people and manufactures institutional furniture, and Bono Sawdust (six employees) manufactures industrial absorbents and sweeping compounds, which are used at local airports and locations throughout the New York City metropolitan area.

The District also contains seven limited-service food establishments (delis and coffee shops), which employ a total of 21 workers, as well as a gas station and a sports club. These businesses cater to the local workers and do not attract customers from surrounding neighborhoods.

Institutional Uses

The District contains a single institutional use—the Queensboro Motorcycle Club—located on 34th Avenue. The club has existed in the District since 1940 and caters to motorcycle enthusiasts. The facility is used for organizational activities, including weekly member meetings and social events. The club has no employees.

ECONOMIC VALUE OF DISPLACED BUSINESSES AND INSTITUTIONS

As set forth in the *CEQR Technical Manual*, the consideration of a business or institution's economic value is based on the following criteria: (1) its products and services; (2) its location needs and whether those needs can be satisfied at other locations; and (3) the potential effects on businesses or on consumers of losing the displaced business or institution as a product or service. This section will discuss each of the three criteria individually, both for auto-related and non-auto-related businesses.

Products and Services

Auto-Related Uses

As discussed earlier, the majority of businesses (87 percent) that would be displaced as a result of the proposed Plan are in auto-related sectors, including repair and maintenance services, retail trade, wholesale trade, and transportation and warehousing.

The 163 auto repair and maintenance shops, 54 auto parts stores, and five towing services collectively employ approximately 999 workers. Although this represents a significant percentage of the potentially displaced businesses and employment, auto repair businesses, parts retailers, and towing services are not unique to the District. According to NYSDOL data, there were 1,224 auto repair, service, towing, and parts dealers in Queens County in 2006. The 163 firms located within the District represent only 17 percent of total auto repair, towing, and parts locations in Queens, and less than 6 percent of locations within New York City. As shown in Figure 4-3, these auto repair and parts dealers are found throughout Queens, with several located within the study area in Flushing, Corona, and along Northern Boulevard[1], and other clusters identified in Jamaica and Long Island City.

Additional locations and clusters are located throughout the City, particularly in Hunts Point (Bronx), Eastchester (Bronx), along Jerome Avenue (Bronx), around 65th Street in Bay Ridge (Brooklyn), and throughout Staten Island, including a cluster located between the Port Richmond and West New Brighton neighborhoods. Similar to the District, these areas include businesses in a number of different auto-related sectors, including general automotive repair, automotive parts and accessories, and glass replacement shops, with general automotive repair shops representing

[1] Locations of auto repair locations and parts retailers were identified through listings in the Verizon business pages.

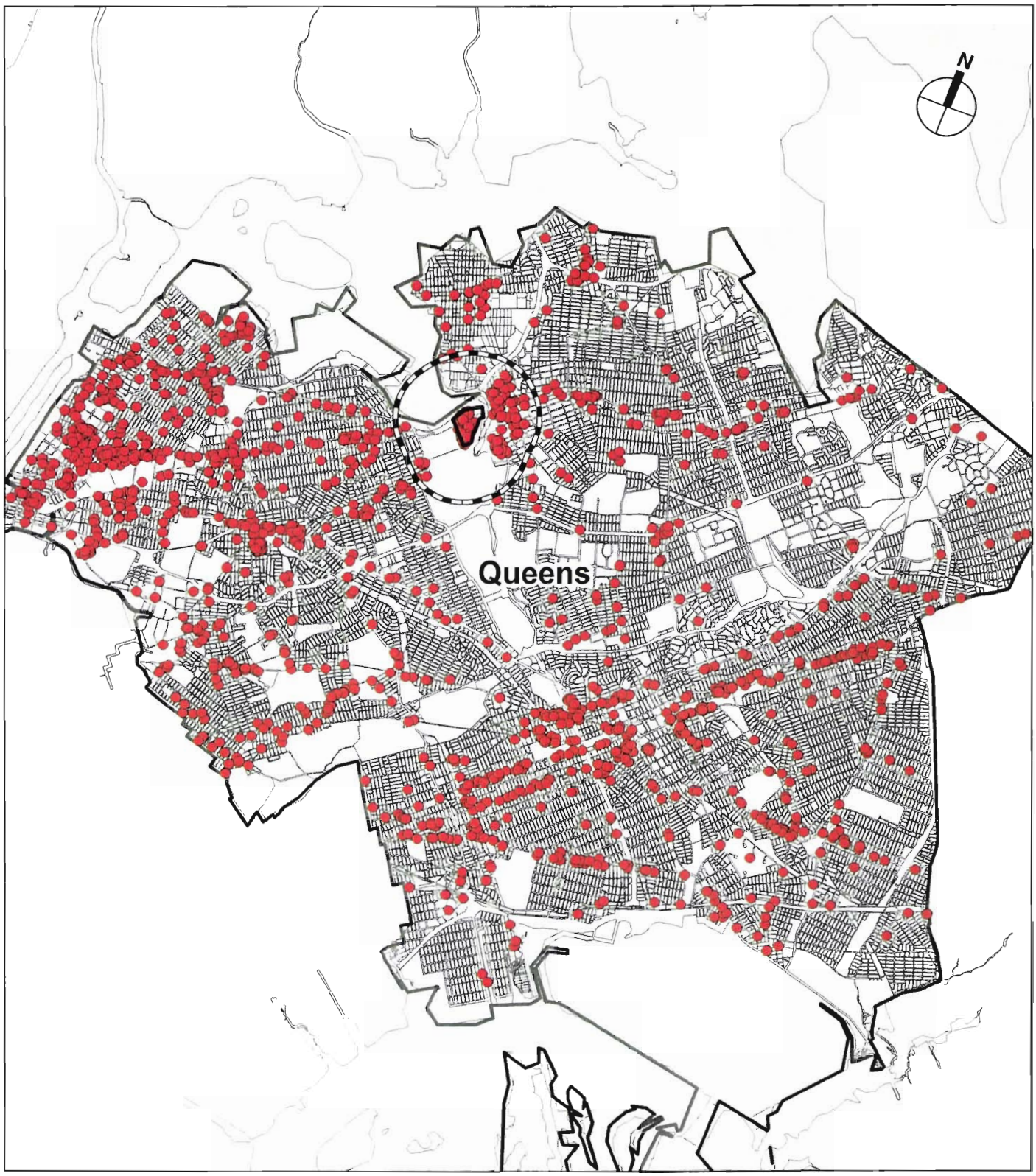


Figure 4-3
Auto Repair Businesses

the largest proportion of businesses.[1] Figures 4-4 through 4-6 show the geographic distribution of auto-related businesses in selected auto clusters—Hunts Point, Bay Ridge, and Port Richmond/West New Brighton.

The five auto-related businesses categorized in the wholesale sector (under "recyclable material wholesale merchant wholesalers") are predominantly junkyards that dismantle automobiles on site and sell the used automotive parts to auto repair and maintenance shops within the District, as well as to locations throughout Queens, New York City, and other metropolitan area communities. These businesses are not unique to the District; auto salvage wholesale operations are located throughout Queens, including in the surrounding study area as well as in Jamaica and Long Island City, and in other areas such as the Hunts Point auto cluster, identified above. Therefore, the wholesale salvage yards located in the District are not unique to Queens or to New York City.

Since publication of the DGEIS, the City has identified viable relocation properties in College Point, Queens, for two auto-related businesses. Therefore, these businesses would continue to offer their products and services in the future with the proposed Plan.

In sum, although there is a large cluster of auto-related uses within the District, the products and services these businesses provide are not unique to the area and can be found in other neighborhoods in Queens and New York City. The City has already come to a relocation agreement with two auto-related businesses and will continue to work to identify relocation sites for others should the proposed Plan be approved. The displacement of the products and services provided by the auto-related businesses in the District would not represent a significant adverse impact.

Non Auto-Related Uses

The five wholesale trade establishments located in the District include the two food distributors (House of Spices and Fodera Enterprises), a metal wholesaler (Mets Metal), and two building supply companies (T. Mina Supplies and T&T Supply Company). With nearly 2,500 wholesale businesses located in Queens, including 425 wholesale food distributors and 286 building supply wholesalers, similar facilities provide the products and services throughout Queens and New York City. The City has already identified a viable relocation property for one wholesale trade business in College Point, Queens. Therefore, this business would continue to offer its products and services in the future with the proposed Plan. House of Spices is the largest distributor of specialty South Asian food products in the country, and this facility acts as its primary distribution center. As indicated earlier under the analysis of adverse effects on specific industries, if House of Spices were unable to relocate within the City, the cost of products at groceries and restaurants that depend on their products could increase, either because shipping costs from House of Spices would increase, or because businesses would need to obtain spices from another wholesaler, which could have higher prices. However, existing groceries and restaurants in the City would continue to be able to obtain spices, and business conditions in these industries would not be significantly affected.

The eight construction sector companies include the four general contractors (Concrete by Design, Empire General Contracting, Dom's Home Improvement, and St. John Enterprises, with 20 combined employees); and Tully Construction (100 employees), which works on large infrastructure projects for the City and State of New York. According to NYSDOL, in 2006 there were over 4,300 construction firms of various sizes and types located within Queens, and

[1] Businesses were identified through Yellow Pages searches in November 2007 and were classified into auto-related sectors based on business names and selected field work.

over 11,800 within New York City. Therefore, construction businesses are not unique to the District.

The six businesses within the administrative and support and waste management services sector include two waste transfer businesses, Tully Environmental (and its subsidiary, Evergreen Recycling of Corona) and Crown Container Company, as well as a tour bus operator (Kum Gang Tour, Inc./Atlantic Express) and a security systems service (Unix CCTV Corp). According to a recent study prepared for DSNY, there were 69 waste transfer facilities located in the five boroughs as of March 2004, including 17 in Queens[1] that provide services outside the District. As indicated earlier under the preliminary assessment for adverse effects on specific industries, the permitted capacity of Crown Container represents only 3 percent of the City's construction and demolition capacity[2] and there are four other facilities in Queens and 24 other facilities in the City that process construction and demolition waste. As also described earlier, the New York State Department of Environmental Conservation (DEC) has permitted the construction and operation of the converted North Shore Marine Transfer Station (MTS) in College Point. The North Shore MTS, which is expected to be operational in 2011, will have the capacity to process the waste currently handled by Tully. If Tully were displaced from the District before the North Shore MTS became operational, there would be a reduction in long-haul tractor trailers leaving the District with City waste, and a temporary increase in DSNY trucks driving Queens waste to and from facilities in New Jersey. Therefore, the services provided by the District waste transfer businesses are not unique and can be obtained elsewhere.

The five manufacturing businesses include two metal manufacturers, a furniture manufacturer, a sign manufacturer, and a sawdust manufacturer. The products and services provided by the iron works can be found elsewhere in the City. NYSDOL estimates that in 2006, there were 53 metal manufacturers in the City, and six in Queens. The products and services of sign manufacturers are found at nearly 35 locations in Queens and over 110 in the City as a whole. Institutional furniture is manufactured in nearly 100 locations within Queens and over 300 citywide. Bono Sawdust is one of two identified manufacturers of sawdust-based industrial absorbents and sweeping compounds within New York City. The absorbent and sweeping compounds they manufacture and sell can be obtained from additional manufacturers/suppliers in the New York City region, which ship large quantities directly to customers. Additionally, as indicated earlier, other absorbent materials are more commonly utilized than sawdust, and those absorbent materials are readily available through other businesses and distributors within the City and the region.

The products and services offered by the seven limited-service eating establishments, the K2 Boxing Club, and the gas station located in the District are available at other establishments located throughout the study area, Queens, and the City. In addition, it is likely that these businesses are patronized primarily by District employees, so their displacement would not have a substantial effect on the study area population.

In conclusion, neither the products nor services provided by the potentially displaced businesses classify them either individually or collectively as having substantial economic value to the City

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[1] Commercial Waste Management Study, March 2004. Prepared for DSNY by Henningson, Durham & Richardson Architecture and Engineering, P.C.

[2] http://www.nylpi.org/pub/Distribution___Capacities_of_Solid_Waste_Trasfer_Stations.pdf (November 2007).

12.21.07

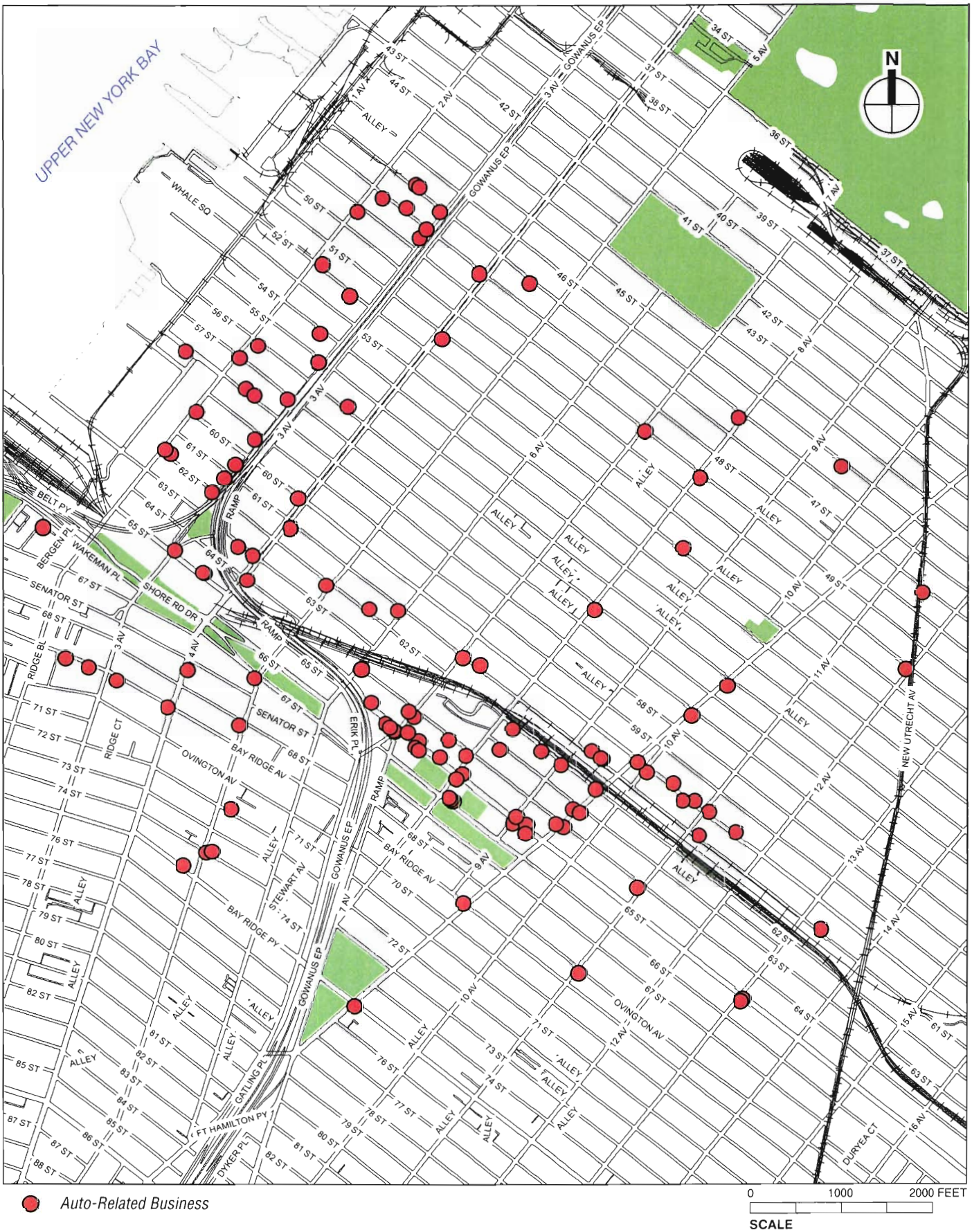


Figure 4-4

Bay Ridge, Brooklyn Auto Cluster

12.21.07



Figure 4-5

Hunts Point, Bronx Auto Cluster

12.21.07

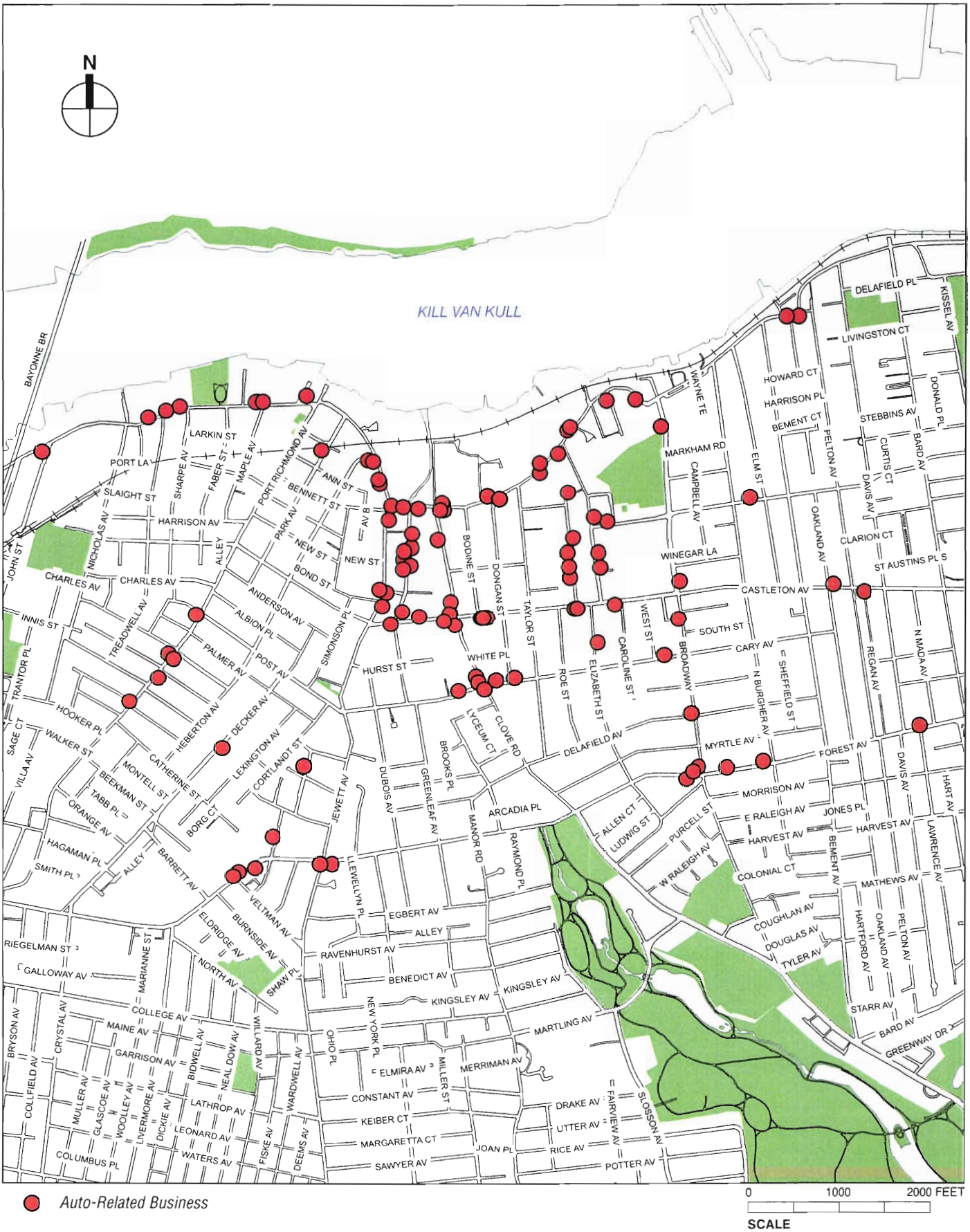


Figure 4-6

Port Richmond/West New Brighton
Staten Island Auto Cluster

or the region. Because House of Spices is the largest distributor of South Asian food products in the City, its displacement from the City could have some effect on consumers. However, this effect is not expected to be significantly detrimental to existing businesses and, as described below, there is potential for House of Spices to relocate within Queens.

Location Needs

Location needs for the various businesses located within the District differ by sector, and are therefore discussed in terms of auto-related and non auto-related sectors below.

Auto-Related Uses

Location in Willets Point is not essential to the viability of these businesses. In the business surveys conducted by Howard/Stein-Hudson, auto repair and maintenance owners stated the concentration of automotive businesses is a primary reason for these establishments to locate and remain within the District. The concentration is a draw for regular customers seeking their services, with new business derived through word of mouth or through the use of "promoters" that hail potential customers driving through the area with no specific shop in mind. However, other businesses indicated that location within Willets Point is not required.

Although many of the auto-related business owners stated that the cluster of auto uses in Willets Point contributed substantially to the success of their business, Willets Point is not the only cluster of such uses within Queens or the City as a whole. As highlighted in Figure 4-3, large clusters of auto uses are also located in Jamaica, Long Island City, and just outside the District in Flushing, with smaller clusters in Queens Village, Hollis, Springfield Gardens, South Ozone Park, and along Northern Boulevard in Elmhurst between Junction Boulevard and 111th Street. As discussed above, there are additional clusters in other boroughs, such as Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue, and Flatlands Avenue in Brooklyn; and several on Staten Island. These clusters of auto uses indicate that businesses currently located in the District could relocate to other areas of the City and still be situated in close proximity to substantial numbers of other auto businesses.

Like the auto repair locations, there are additional wholesale automotive junkyards located throughout Queens, including in the surrounding study area as well as in Jamaica and Long Island City, and in other areas such as the Hunts Point auto cluster identified above. This indicates that automotive junkyards can successfully operate in other areas of Queens and New York City, particularly those that contain clusters of auto repair and maintenance establishments.

Relocation options were researched through conversations with local brokers at Massey Knakal, Kalman Dolgin, CB Richard Ellis, and Shalom & Zuckerbrot, as well as through online property searches. Though the industrial real estate market throughout the City is tight due to a loss of manufacturing-zoned land due to recent rezoning efforts, brokers indicated that space is available for automotive repair and service establishments, as well as the wholesale businesses, most likely in Jamaica, along Northern Boulevard in Elmhurst, in portions of Long Island City, and in areas of the Bronx and Brooklyn. A search of available industrial spaces suitable for these businesses indicated yearly rent for industrial spaces ranged from $6 to $17 per square foot (psf)[1] (depending on type of facility and location), which are mostly higher than the $5 to $8 psf range currently paid by auto-related businesses that participated in the Howard/Stein-Hudson

[1] Rental costs psf obtained by DY Realty (www.dyrealty.com), Kalman Dolgin (www.kalmondolgin.com), Shalom & Zuckerbrot (www.s-z.com), July 2007

business survey. However, brokers indicated that rents within the District are considerably lower than in other manufacturing areas as a result of substandard infrastructure conditions and environmental contamination concerns. Therefore, though these businesses may have to pay more in yearly lease costs (up to $10 psf or more), other manufacturing locations offer better facilities and business environments. The same is true for properties for sale. Average prices for Willets Point properties are in the $130 psf range, compared with $150 to $250 psf citywide.

Location could also impact the District workforce. In the survey conducted by Howard/Stein-Hudson, owners of auto repair and maintenance businesses stated that a large percentage of their employees reside in Queens, with many in the surrounding communities of Corona and Flushing. These employees often walk, bike, or take public transportation to their place of work. Those in the wholesale sectors, however, said their employees often drive and come from farther away. However, other auto clusters are located directly along or nearby public transportation routes (subway and bus), providing access to workers throughout Queens. And since most workers in the auto-related wholesale sectors drive to work, location in Willets Point is not essential for access.

In conclusion, although location in Willets Point was reported to be advantageous by existing auto-related businesses, phone book research and conversations with local real estate brokers indicate that there are other areas of Queens where similar businesses are clustered and where the District businesses could likely relocate. While rents may be higher in available commercial and industrial spaces outside of the District, these locations offer better infrastructure and higher quality space than what is currently available in the District.

Since publication of the DGEIS, the City has identified viable relocation properties in College Point, Queens, for two auto-related businesses. Other potential relocation sites are being investigated, and would be located throughout Queens and other parts of New York City.

Non Auto-Related Businesses

The wholesale businesses within the District require large warehouse spaces (food wholesalers) or open storage yards (building material suppliers) within Queens or New York City for their operations. Proximity to highways is also important, since the majority of customers are local and have products shipped directly by truck. The location of these businesses within the District, however, is not tied to their viability. As described above, customers of the food distributors (House of Spices and Fodera Enterprises), as well as those of the building supply companies (T. Mina Supplies, T&T Suppliers) and metal wholesaler (Mets Metal), are located throughout the City, and for House of Spices, throughout the country. Customers order goods primarily by telephone or online, which are then shipped directly. Therefore, these businesses could locate elsewhere, since goods could be shipped from alternate locations with similar access to highway infrastructure. Conversations with real estate brokers, and online listings, also indicated that potential spaces are available in Queens for these businesses. In particular, relocation options for the food wholesalers are available in Long Island City and Maspeth, both of which have highway and bridge access. As shown in Table 4-7, large warehouse spaces up to 135,000 sf and vacant sites up to 15,000 sf were identified, with rents ranging from $6 psf to $16 psf, depending on size and amenities. One-story spaces with high ceilings are most desired, according to brokers. Brokers indicated that industrial spaces throughout the City are selling for between $150 and $250 psf. Prices vary based on the condition of the structure, and attributes such as ceiling heights, loading spaces, and access to transportation. As noted above, a viable relocation site has already been identified for one wholesale business.

Additionally, the majority of the workforce at these businesses reaches the District by mass transit or by car; therefore, relocation to these sites, particularly in Jamaica or Long Island City, would not significantly affect workers.

The eight construction companies within the District work primarily with a local clientele. Therefore, location within Queens or New York City near highways and public transportation is required for the movement of supplies and workers. Although the District provides the desired location, highway, and transit access, location within the District is not essential to the viability of these businesses. The locations occupied by these businesses within the District are predominantly used for administrative office use and materials storage (e.g., Tully Construction, one of the largest employers in the District), with the majority of work activity occurring at off-site client locations in Queens, the City and beyond. Comparable office and storage space is available in other areas of the City, as indicated in Table 4-7, and with the majority of employment working off-site, relocation of office and storage space outside the District would not significantly affect workers.

Table 4-7
Industrial Rents: Queens County, July 2007

Neighborhood	Square Feet	Yearly Rent (psf)
Jamaica	5,000	$11.00
Jamaica	5,300	$16.00
Jamaica	20,000	$14.00
Jamaica	61,000	$11.00
Long Island City	2,500	$14.00
Long Island City	3,000	$17.00
Long Island City	6,000	$10.50
Long Island City	10,000	$12.00
Long Island City (vacant land)	15,000	$6.00
Long Island City	23,000	$9.50
Long Island City	30,000	$13.00
Long Island City	80,000	$10.00
Long Island City	106,000	$14.00
Long Island City	120,000	$10.00
Maspeth	13,000	$13.00
Maspeth	51,000	$9.00
Maspeth	135,000	$6.00
Ridgewood	7,500	$8.50
Ridgewood	20,000	$12.00

Sources: DY Realty (www.dyrealty.com), Kalman Dolgin (www.kalmondolgin.com), Shalom & Zuckerbrot (www.s-z.com), July 2007

The six businesses within the administrative and support and waste management services sector include the two waste transfer businesses (Crown Container and Tully Environmental), the tour bus operator (Kum Gang Tour, Inc., and Atlantic Express), the landscaping services firm (S&K Tree Services), and the security systems service (Unix CCTV Corp). Location of waste transfer facilities is limited to M3 zones and requires special permits that may be difficult to obtain based on strict regulations and environmental justice review. Additionally, existing permits are non-transferable from one location to another. Therefore, relocation of the District waste transfer businesses within Queens or other parts of the City could be difficult. However, vacant M3 land has been identified within Queens and other parts of the City. Therefore, although relocation would likely be difficult due to limited availability of M3 zoned parcels within the City, with proper permits, the potential for relocation does exist. Further, as described above, the waste

currently handled by Crown Container could be handled at other facilities in the City, and the MTS recently approved for College Point will have the capacity to process the waste currently handled by Tully Environmental in the future with or without the proposed Plan. The remaining businesses within the sector (tour bus operator, landscaping services, and security systems service) would likely be able to relocate in other manufacturing zones within Queens or New York City.

The five manufacturing businesses include two iron works, a furniture manufacturer, a sign manufacturer and a sawdust manufacturer. These businesses do not require location within the District to remain viable; however, location near highways is beneficial for receiving raw materials and shipping finished products. The iron works and sawdust operations require facilities in M-3 zoned areas, custom designed spaces, and special permits to operate. Feinstein Ironworks and QC Iron Works require special permits that allow the use of flammable materials utilized at their operations. Bono Sawdust requires non-transferable permits from the New York City Fire Department (FDNY) and the New York City Department of Environmental Protection (DEP). Broker information, however, suggests space is available for these operations in areas of Queens and the City. Numerous iron works, furniture, and sign manufacturer locations were identified in areas with vacant industrial spaces, including areas in Queens such as Jamaica, Maspeth, and Long Island City. Bono Sawdust's manufacturing operations could be relocated to a suitable industrial space in an M3-zoned district, such as Maspeth, where a similar business was identified.

The seven limited-service eating establishments can be located in all commercial zones. According to real estate brokers, these businesses would likely be able to relocate within the study area, or in other areas of Queens, since retail space is readily available. However, rental costs would likely increase, since rents in the District are depressed compared with other areas of the Queens and the City, due to substandard infrastructure and contamination issues.

As noted above, the City has identified a viable relocation property for one wholesale business in College Point, Queens.

Effect on Businesses and Consumers

Auto-Related Uses

The displacement of the 227 auto-related businesses would not have an adverse effect on businesses within the study area because there are other auto-related clusters located throughout Queens and the City, allowing businesses who purchase auto supplies and products to do so elsewhere. In addition, as discussed above, the potential exists for District auto businesses to relocate to other locations within Queens and the City. Although the cost of some products at auto-related businesses outside of the District could be higher than at District businesses, those products would still be readily available to study area businesses, and at price points that are common throughout New York City.

Study area businesses would not lose a substantial customer base with the displacement of District businesses. Because the District is isolated from its surrounding subareas (Downtown Flushing, Corona, and College Point), businesses in the study area would not miss spillover business from District customers, since these customers likely go to the District without patronizing other businesses.

Nor would consumers be adversely impacted by the displacement of the auto-related businesses. As discussed above, consumers who utilize the automotive repair, maintenance, wholesale and

retail businesses that are located within the District have numerous opportunities to obtain similar services throughout Queens and the City, even locally in Flushing and along Northern Boulevard in Corona and Elmhurst. Furthermore, the City has identified viable relocation properties in Queens for two auto-related businesses. Consumers may be able to continue to utilize the services of these businesses. Some auto-related goods and services could be more costly at businesses outside the District, but those goods and services would still be available at prices that are common throughout New York City. Displacement of existing auto-related businesses in the District would not have a substantial effect on consumers.

Non Auto-Related Uses

The displacement of the 33 businesses within the District that do not work in auto-related trades would not adversely impact businesses or consumers within the surrounding study area. As described above, businesses within the District are physically isolated from establishments within the surrounding study area. Therefore, study area businesses do not rely on District businesses for their consumer base. In addition, since the majority of goods and services provided by the food wholesalers and construction companies are shipped directly from District locations to clients, study area businesses do not require proximity to District establishments.

Similarly, consumers would not be adversely impacted by the displacement of the non-auto-related businesses from the District. The wholesale food establishments are not retail establishments; therefore, few individual consumers come to the District to purchase goods. Customers (specialty food stores and restaurants) order substantial quantities via telephone or online, and have them shipped to their individual locations. Similarly, construction company products are shipped directly to off-site project locations, where the construction services are performed. Waste transfer clients would have other options within Queens and the City to dispose of waste materials.

As noted above, the City has identified a viable relocation property for one wholesale business. Consumers and businesses would be able to continue to utilize the services of this business.

Institutions

Institutional uses are often more adversely affected by displacement than business uses because they must relocate nearby in order to continue to serve to a local membership or clientele. However, this is not the case for the Queensboro Motorcycle Club, because its membership is not limited to the community living within the study area. The facility is used for weekly organizational meetings, with members who live throughout Queens and beyond. Large events sponsored by the club, such as their annual Motorcycle Rodeo, are held outside City limits. The institution could be relocated and still serve its membership.

THE FUTURE WITHOUT THE PROPOSED PLAN

This section describes the business and economic conditions that are expected in the future without the proposed Plan between now and 2017 in the study area. As discussed in Chapter 3, the District itself is not expected to experience substantial change in the future without the proposed Plan. Though some redevelopment or improvements may occur, the overall low-density, industrial zoning regulations, substandard infrastructure, and contamination concerns are expected to prevent substantial change within the District. Therefore, absent the proposed Plan, it is expected the overall business activity and employment will continue, and remain relatively isolated from activity and changes in the surrounding neighborhoods.

Zoning and public policy is anticipated to continue to support commercial and residential growth and development in the study area surrounding the District, with the most prominent development project, the new Citi Field, currently under construction in the parking lot of Shea Stadium, directly across the street from the Willets Point Development District. Approximately 55 additional development projects are either under construction or proposed for the study area. These include several large-scale mixed-use developments, such as the approximately 250,000-sf Queens Crossing in Downtown Flushing; Flushing Commons, the hotel, residential, retail and office complex on Municipal Lot #1; and the proposed MTS and NYPD academy, both in College Point. Overall, known developments planned for the study area would add an estimated 5,618 employees to the study area, increasing total study area employment by 13 percent over existing conditions.

THE FUTURE WITH THE PROPOSED PLAN

In the future with the proposed Plan, the 260 businesses and institutions and their 1,711 employees would be directly displaced from the District.

As described above under "Existing Conditions," auto-related businesses would account for the largest number of displaced businesses (227 of 260) with a total of 1,057 jobs, or 62 percent of District employment. This includes 163 businesses that specialize in auto repair, maintenance and service (561 jobs); the 54 retail trade establishments selling new and used automotive parts (423 jobs); the 5 wholesale trade businesses which specialize in salvage operations and resale of parts (58 jobs); and the 5 towing companies in the transportation and warehousing sector (15 jobs).

An additional 32 businesses and one institutional use, which employ a combined 654 workers (38 percent of total District jobs) would also be displaced as a result of the proposed Plan. Five wholesale trade businesses employing 210 workers would be displaced, including specialty food distributors House of Spices and Fodera Enterprises, building supply wholesalers T. Mina Supplies, metal wholesaler and distributor Mets Metal, and welding supplier T&T Supply Company. Five manufacturing sector businesses which employ 79 persons would also be displaced, including Bono Sawdust, a sign manufacturer, and an industrial kitchen equipment manufacturer. Eight construction sector businesses (153 jobs), including four general contractors and a large District employer, Tully Construction, would be displaced. Two waste transfer facilities with a combined 160 employees, Crown Container and Tully Environmental (and its subsidiary, Evergreen Recycling of Corona), would be displaced, as would the tour bus operator, the landscaping service, and the security systems service (20 employees combined). Seven limited-service food establishments employing a total of 21 people, as well as a gas station and a health club (with two and 11 employees, respectively) would also be displaced. Finally, one institutional use, the Queensboro Motorcycle Club, would be displaced. It has no employees.

The displacement of the above businesses as a result of the proposed Plan would not have an adverse impact on consumers and businesses within the study area or the City as a whole. Businesses in the surrounding study area do not rely on the potentially displaced District businesses for their customer base, nor do they need to be within close proximity to the potentially displaced establishments, many of whom ship goods directly to customers. Additionally, customers can find the products and services provided by the displaced businesses at other locations within the study area or within Queens and the City.

Should the proposed Plan be approved, all businesses currently located in the District would be offered a relocation package, which would likely include financial coverage for certain moving

costs, re-establishment fees, and use of brokerage services to find alternative locations. NYCEDC is currently working with owner-occupied businesses in the District to identify viable relocation properties within New York City and has been engaged in outreach to tenant businesses since January 2008.

In addition, the City has selected a business relocation consultant to supplement the relocation assistance that NYCEDC is providing. Should the proposed Plan be approved, the relocation consultant would provide real estate and relocation services to the impacted businesses in the District. These services would include outreach, site research, presenting sites to participating businesses, facilitating negotiations, and providing logistical relocation support including moving and storage. It is reasonable to expect that employees of relocated businesses would be able to retain their jobs.

Since publication of the DGEIS, the City has had ongoing discussions with the owner-occupied businesses within the District. As noted in the section above, the City has identified viable relocation properties for three businesses.[1] These relocation sites are located in College Point and Maspeth, Queens. In some cases, the relocation properties are City-owned and no acquisition is needed; in other cases, the City is in the process of acquiring a privately owned site. Other potential relocation sites are being investigated and would be located throughout Queens and other parts of New York City.

For the three relocation sites noted above, the potential for their relocations to result in significant adverse impacts is examined to the degree possible at this time in Chapter 28, "Potential Effects of Acquisition and Relocation." Aside from these identified relocation sites, it is not possible to predict exactly where District businesses would relocate if they were displaced by the proposed Plan. However, it can be assumed that they would relocate to other parts of the City that are zoned to permit auto-related and these uses.[2] Aside from Tully Environmental and Crown Container,[3] none of the remaining businesses located in the District are large emitters of air pollutants (none require a State Facility or Title 5 permit), and none have unique operational characteristics that might cause them to have particular potential for effects on the environment. Therefore, it is unlikely that individual District businesses would have the potential to result in significant adverse impacts in the areas to which they would relocate. As most District businesses would relocate individually, it is not expected that particular neighborhoods would experience an influx of new industrial uses. However, for the remaining businesses with no specific relocations plans available, any definitive assessment of the potential for significant adverse impacts would be speculative. Consequently, it is not possible to make site-specific

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[1] The City has also reached an agreement to acquire one additional property, although no relocation sites for the tenant businesses have been identified.

[2] In general, the auto clusters described above are zoned to allow auto-related uses. However, recent and proposed rezonings in Jamaica and Hunts Point have sought to limit the areas where auto-related uses can locate and have required that many auto-related uses be located in enclosed buildings. Although these regulations may make it difficult for some auto-related uses—such as open-air junkyards—to relocate to these areas, there are other areas of the city where auto uses are clustered and where zoning allows new auto-related uses.

[3] Tully Environmental has a permit to operate as a Putrescible Solid Waste Transfer Station with a permitted capacity of 900 tons per day, and an associated operation, Willets Point Asphalt, has a DEC State Facility air permit. Crown Container has a permit to operate as a Non-putrescible Solid Waste Transfer Station with a permitted capacity of 375 tons per day.

conclusions about the potential for significant adverse impacts due to business relocation activity.

If the proposed Plan is approved, the City would offer assistance to individual employees working at businesses that are subject to direct displacement. In partnership with the New York City Department of Small Business Services (SBS), NYCEDC has retained LAGCC to develop a Workforce Assistance Plan for District workers who would be displaced by the proposed Plan. The workforce assistance program, which would commence after the Uniform Land Use Review Procedure (ULURP) process is completed, would include job training to prepare workers for job opportunities, and job placement for eligible participants. Job training would include vocational, soft skill training, GED coursework, and ESL where necessary. LAGCC plans to use existing career centers to provide educational, job placement, and career counseling services. LAGCC would conduct extensive outreach efforts to allow eligible District workers to gain access to their services. In addition, LAGCC would screen candidates to match qualified job seekers with jobs from employers in the auto, industrial and manufacturing sectors. NYCEDC is offering financial incentives to encourage participation by District workers in the program, such as stipends and transportation support (i.e., Metrocards).

Although the displacement of the 260 businesses and institutions and their associated employment would significantly alter the neighborhood character of the District itself, it would not contribute to a change in neighborhood character within the study area as a whole. The physical isolation of the District would prevent these changes from altering the distinct neighborhoods within the study area surrounding it. The economic sectors with the highest employment in the study area (those that define its character) are health and public assistance, accommodation and food services, and retail trade, and are not defining elements of the District. Therefore, the displacement of the businesses and institution within the District would not constitute a substantial shift in the neighborhood character of the overall study area such that a significant impact would occur. In fact, new employment resulting from the proposed Plan (the majority in retail and office uses) would be more consistent with the surrounding study area.

DETERMINING IMPACT SIGNIFICANCE

According to Section 331.2 of the *CEQR Technical Manual*, the identification of impacts for direct business and institutional displacement depends on whether the businesses and institutions are important to the City's economy, whether they can be relocated within the study area or City as a whole, and whether they are a defining element of neighborhood character. The detailed business and institutional displacement analysis finds that for the most part, the businesses and institutions that would be displaced from the District by the proposed Plan do not, individually or collectively, have a unique or substantial economic value to the City as defined under CEQR; are able to relocate within Queens or the City as a whole; and are not a defining element of the study area's neighborhood character. Though some businesses may have difficulty relocating within the City as a result of increased rents, restrictive zoning and permitting requirements, the products or services they provide are found at other locations within the City, and therefore though impacts would occur, they would not be considered significant. Therefore, the proposed Plan would not result in significant adverse impacts due to direct business and institutional displacement.

THE NO CONVENTION CENTER SCENARIO

The number and type of businesses and institutions that would be displaced by the proposed Plan would be the same with or without the convention center. Therefore, the No Convention Center

Scenario, like the proposed Plan, would not result in a significant adverse impact due to direct business displacement.

E. DETAILED ANALYSIS OF INDIRECT RESIDENTIAL DISPLACEMENT

The preliminary assessment for indirect residential displacement indicated the need for further investigation into the proposed Plan's potential to result in significant adverse impacts. According to Section 332.1 of the *CEQR Technical Manual,* the approach to a detailed analysis of indirect residential displacement is similar to that of the preliminary assessment, but requires more in-depth analysis of Census information and may include field surveys. The objective of this analysis is to characterize existing conditions of residents and housing in order to identify populations that may be vulnerable to displacement (populations "at risk"), to assess current and future socioeconomic trends in the area that may affect these populations, and to examine the potential effects of the proposed Plan on prevailing socioeconomic trends and, thus, its impact on the identified populations at risk.

In accordance with the *CEQR Technical Manual,* this analysis is divided into three sections: existing conditions, which details population and housing characteristics; conditions in the future without the proposed Plan; and potential impacts of the proposed Plan and Lot B, which describe conditions in the future with the proposed Plan and concludes whether they would result in significant adverse indirect residential displacement impacts.

EXISTING CONDITIONS

This section describes the population and housing characteristics of the study area as it relates to potential indirect residential displacement. It outlines trends data since 1989, and compares the study area characteristics with the characteristics of Queens and New York City as a whole. Where available, more recent information is presented from 2006, to provide a more current representation of population and housing demographics within the study area.

POPULATION

The study area had 35,411 persons in 2000, an increase of 9.9 percent from 1990 (see Table 4-8). This is comparable to the population growth in New York City (9.4 percent), but lower than the growth in Queens (14.2 percent). Within the study area, nearly half of the population lived in South Flushing (47.1 percent or 16,671 persons). Between 1990 and 2000, the population in this area increased by 13.7 percent, or 2,006 residents. Over the same period, North Corona's population increased by 18.4 percent, from 5,076 persons in 1990 to 6,008 persons in 2000.

Based on the RPAD 2007 Database, which includes data up to December 2006, approximately 1,082 housing units were added to the study area between 2001 and 2006. The majority of the new units are located in South Flushing (44.3 percent), followed by Downtown Flushing (27.6 percent), North Flushing (13.7 percent), and North Corona (14.3 percent). Applying the study area's 2000 Census figures for household size and occupancy rates to the new residential units, the population in the study area increased by an estimated 2,913 residents between 2001 and 2006 (8.2 percent). This growth rate was higher than the estimated rate of growth in Queens (1.2 percent) and New York City (2.6 percent) for the same period.

Table 4-8
Population Change 1990 to 2006

	1990	2000	Est. 2006	% Change 1990-2000	% Change 2001-2006
Study Area	32,209	35,411	38,324	9.9	8.2
College Point	87	60	62	-31.0	3.9
North Corona	5,076	6,008	6,500	18.4	8.2
Greater Flushing	27,046	29,342	31,760	8.5	8.2
North Flushing	5,471	5,873	6,208	7.4	5.7
Downtown Flushing	6,910	6,798	7,496	-1.6	10.3
South Flushing	14,665	16,671	18,064	13.7	8.4
Queens County	1,951,598	2,229,379	2,255,175	14.2	1.2
New York City	7,322,564	8,008,278	8,214,426	9.4	2.6

Notes: 2006 population for the study area was estimated by applying the 2000 average household size and vacancy rate to the total number of new units added to the study area between 2001 and 2006. Most recent 2006 population for Queens and New York City is from the U.S. Census Bureau's Annual Population Estimates.
Sources: U.S. Department of Commerce, Bureau of the Census, 1990 and 2000 Census, Summary File 1; New York City Department of Finance; Real Property Assessment Data; AKRF, Inc..

For the most part, the study area saw a shift in age, yielding an older population between the ages of 35 and 64 (see Table 4-9). However, similar to Queens and New York City, the study area saw a decrease in the percentage of residents age 65 and older. Both in 1990 and 2000, roughly a quarter of the study area population was between the ages of 35 and 49. This portion of the population saw the highest increase (2.8 percentage points) during these 10 years, due in large part to North Flushing, where the percent of population in this age bracket increased from 18.4 percent to 24.0 percent. While Queens and New York City both experienced growth in the proportion of population age 17 or younger, the study area saw a slight decrease (-0.7 percentage points).

Table 4-9
Age Distribution as Percent of Total Population

1990						
	0-17	18-29	30-34	35-49	50-64	65+
Study Area	20.5	19.6	10.6	22.7	13.4	13.2
College Point	24.1	21.8	4.6	24.1	16.1	9.2
North Corona	23.0	24.2	11.3	20.4	11.7	9.4
Greater Flushing	20.0	18.8	10.5	23.1	13.7	13.9
North Flushing	17.6	17.6	7.2	18.4	15.2	24.1
Downtown Flushing	18.1	18.0	11.2	23.2	13.9	15.6
South Flushing	21.8	19.6	11.3	24.9	13.1	9.4
Queens County	20.9	19.6	9.2	20.7	14.9	14.8
New York City	23.0	20.1	9.2	20.9	13.7	13.0
2000						
	0-17	18-29	30-34	35-49	50-64	65+
Study Area	19.8	18.9	8.9	25.5	14.6	12.3
College Point	20.0	16.7	6.7	16.7	20.0	20.0
North Corona	24.9	25.4	9.8	19.9	11.4	8.7
Greater Flushing	18.7	17.6	8.7	26.7	15.2	13.1
North Flushing	17.0	16.1	6.9	24.0	16.7	19.3
Downtown Flushing	18.6	15.0	8.1	26.8	15.2	16.2
South Flushing	19.4	19.1	9.6	27.7	14.7	9.6
Queens County	22.8	17.9	8.5	23.1	14.9	12.7
New York City	24.2	18.5	8.6	22.4	14.5	11.7

Sources: U.S. Bureau of the Census, 1990 and 2000 Census Summary File 1.

Known residential projects that were recently completed or expected to be completed by 2017 would add approximately 3,184 residential units to the study area by 2017 (see Table 2-1 in Chapter 2). These projects range from smaller residential developments with less than 10 residential units to larger residential developments, such as Sky View Parc with 750 residential units, and Flushing Commons with approximately 500 residential units. In total, the projects would add 8,276 new residents to the study area, increasing the 2006 population of the study area to 46,600.[1]

HOUSEHOLDS AND INCOME

Overall, the study area grew in total households and average household size between 1990 and 2000. In sum, there were 12,643 households in 2000 (see Table 4-10), with an average household size of 2.80—slightly higher than the citywide average (2.59). From 1990 to 2000, the average household size increased by 5.3 percent in the study area, though slightly less in Queens (3.7 percent). On the other hand, New York City decreased its household size by 0.4 percent. With the exception of College Point, average household size grew in all parts of the study area during this time period. North Corona experienced the largest increase in household size over 10 years—11.3 percent—from 3.0 in 1990 to 3.34 in 2000. Downtown Flushing and College Point, while accounting for the smallest portion of the study area's population, experienced a decrease in total number of households (25.7 percent and 2.2 percent, respectively). Total households increased in all other subareas.

Table 4-10
Household Characteristics

	Total Households			Average Household Size		
	1990	2000	% Change	1990	2000	% Change
Study Area	11,898	12,643	6.3	2.66	2.80	5.3
College Point	35	26	-25.7	2.49	2.31	-7.2
North Corona	1,634	1,798	10.0	3.00	3.34	11.3
Greater Flushing	10,229	10,818	5.8	2.61	2.71	3.8
North Flushing	2,340	2,449	4.7	2.34	2.40	2.6
Downtown Flushing	2,798	2,736	-2.2	2.35	2.46	4.7
South Flushing	5,091	5,633	10.6	2.87	2.96	3.1
Queens County	720,149	782,664	8.7	2.71	2.81	3.7
New York City	2,819,401	3,021,588	7.2	2.60	2.59	-0.4

Sources: 1990 and 2000 U.S. Census, Summary File 1 and Summary File 3, AKRF, Inc

As illustrated in Figure 4-7, the poverty rate in the study area in 2000 was 23.6 percent, 9 percentage points higher than the borough-wide rate, and 2.4 percentage points higher than the poverty rate for New York City as a whole (see Table 4-11). With the exception of College Point, which included only 26 households and where all incomes were at or above the poverty level, the poverty rates in the study area ranged from 20.4 percent in North Flushing to 24.6 percent in South Flushing.

[1] Population was projected for the new units based on the 2000 occupancy rate (96.63 percent) and average household size (2.69 persons per household) for Community District 7.

Table 4-11
Income and Poverty Status

	Median Household Income			Poverty Status		
	1989	1999	%Change	1989	1999	%Change
Study Area	$44,984	$39,612	-11.9	19.4	23.6	21.6
College Point	$47,577	$49,165	3.3	32.0	0.0	NA
North Corona	$46,284	$40,781	-11.9	24.2	24.3	0.4
Greater Flushing	$44,786	$39,497	-11.8	18.5	23.5	27.0
North Flushing	$41,680	$37,690	-9.6	15.1	20.4	35.1
Downtown Flushing	$39,536	$33,978	-14.1	22.0	23.3	5.9
South Flushing	$49,025	$43,053	-12.2	18.	24.6	36.7
Queens County	$60,171	$55,115	-8.4	10.9	14.6	33.9
New York City	$52,491	$49,731	-5.3	19.3	21.2	9.8

Notes: Median household income presented in constant 2008 dollars based on the U.S. Department of Labor Bureau of Labor Statistics' January 2008 Consumer Price Index for all urban Consumers for New York-Northern New Jersey-Long Island.
Sources: 1990 and 2000 U.S. Census, Summary File 1 and Summary File 3, AKRF, Inc

Median household income for the study area was $39,612 in 1999, lower than the median incomes for Queens ($55,115) and New York City ($49,731).[1] Within the study area subareas, the median household income ranged from $33,978 in Downtown Flushing to $49,165 in College Point. Between 1989 and 1999, the study area's median household income decreased by 11.9 percent, compared with an 8.4 percent decrease in Queens and a 5.3 percent decrease in New York City.

Table 4-12 shows the distribution of household incomes within the study area in 1999. Over 60 percent of households within the study area had incomes below $51,947. Within the study area, Downtown Flushing had a higher portion of households at this income level (72 percent). In comparison, approximately half of households in Queens and New York City had incomes below $51,947.

Table 4-12
1999 Household Income Distribution

	Less than $19,479		$19,480-$38,960		$38,961-$51,946		$51,947-$77,920		$77,921 and over	
	Population	Percent	Population	Percent	Population	Percent	Population	Percent	Population	Percent
Study Area	3,258	25.4	3,154	24.6	1,479	11.5	2,469	19.2	2,486	19.4
College Point	0	0.0	10	45.5	7	31.8	0	0.0	5	22.7
North Corona	410	22.4	457	24.9	198	10.8	412	22.5	357	19.5
Greater Flushing	2,848	25.9	2,687	24.4	1,274	11.6	2,057	18.7	2124	19.3
North Flushing	689	27.0	628	24.6	242	9.5	506	19.8	488	19.1
Downtown Flushing	874	31.2	700	25.0	435	15.5	366	13.1	423	15.1
South Flushing	1,285	22.8	1,359	24.1	597	10.6	1,185	21.0	1213	21.5
Queens County	134,118	17.1	137,267	17.5	93,964	12.0	151,390	19.3	265,907	34.0
New York City	699,727	23.2	528,944	17.5	328,995	10.9	506,650	16.8	958,161	31.7

Note: Median household income presented in constant 2008 dollars based on the U.S. Department of Labor Bureau of Labor Statistics' January 2008 Consumer Price Index for all urban Consumers for New York-Northern New Jersey-Long Island.
Sources: 2000 U.S. Census, Summary File 3, AKRF, Inc.

Higher income households were underrepresented in the study area, with 19 percent of households with incomes above $77,921. South Flushing had a slightly higher percentage of

[1] All income figures are presented in constant 2008 dollars.

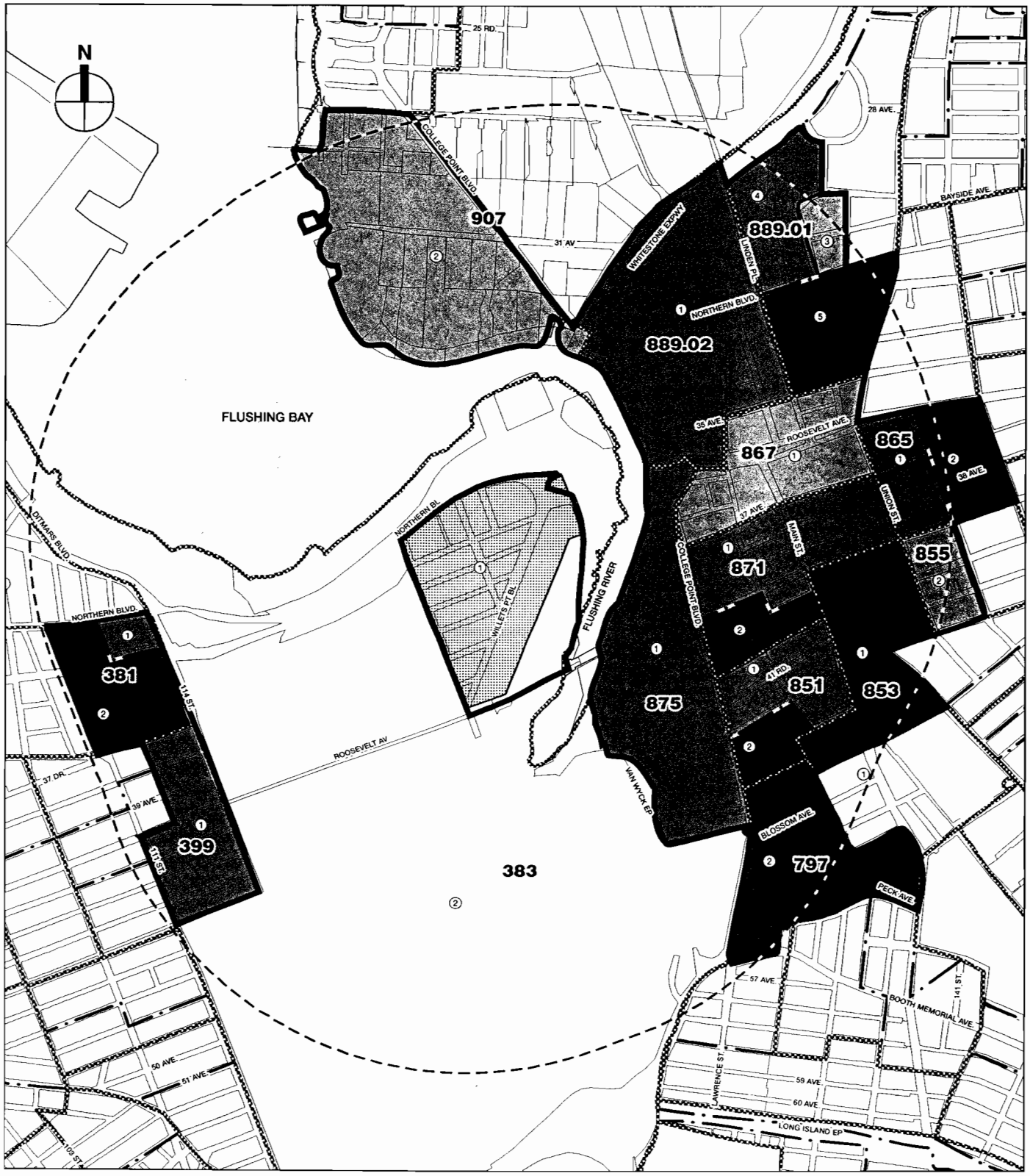


Figure 4-7

Percentage of Population Below Poverty Level, 1999

households at this income level, at 22 percent. However, approximately one-third of households in the City and in Queens had incomes above $77,921 (see Table 4-12).

HOUSING

Between 1990 and 2000, the housing stock in the study area grew by 4.7 percent, compared with an 8.6 percent increase in Queens and a 7.0 percent increase in New York City (see Table 4-13). The greatest increase was in North Corona, where the housing stock increased by 9.6 percent (from 1,726 units in 1990 to 1,891 units in 2000). North Flushing and South Flushing followed, with a 6.2 and 6.1 percent increase, respectively, in the number of housing units between 1990 and 2000. The number of housing units in College Point decreased by 36.6 percent, from 41 housing units in 1990 to 26 housing units in 2000.

As shown in Table 4-13, the vacancy rate in the study area was 3.7 percent in 2000, which was lower than both Queens (4.2 percent) and New York City (5.6 percent). South Flushing had the lowest vacancy rate in the study area, at 1.6 percent. The highest vacancy rate in the study area was in North Flushing (5.7 percent). Owner occupancy in the study area was 23.8 percent, ranging from 12.4 percent in Downtown Flushing to 50.0 percent in College Point. The overall owner occupancy rate in the study area was lower than both Queens and New York City (42.8 percent and 30.2 percent, respectively).

Table 4-13
Housing Unit Characteristics

	Total Housing Units			2000 Vacancy Rate		2000 Tenure, All Occupied Units	
	1990	2000	Est. 2006	% Occupied	% Vacant	% Owner Occupied	% Renter-occupied
Study Area	**12,545**	**13,130**	**14,212**	**96.3**	**3.7**	**23.8**	**76.2**
College Point	41	26	27	100.0	0	50.0	50.0
North Corona	1,726	1,891	2,046	95.1	4.9	32.7	67.3
Greater Flushing	10,778	11,212	12,138	96.5	3.5	22.3	77.7
North Flushing	2,445	2,597	2,745	94.3	5.7	43.9	56.1
Downtown Flushing	2,936	2,888	3,187	94.7	5.3	12.4	87.7
South Flushing	5,397	5,727	6,206	98.4	1.6	17.7	82.3
Queens County	**752,690**	**817,250**	**832,512**	**95.8**	**4.2**	**42.8**	**57.2**
New York City	**2,992,169**	**3,200,912**	**3,311,065**	**94.4**	**5.6**	**30.2**	**69.8**

Notes: 2006 housing units were estimated for the study area based on RPAD from the New York City Department of Finance. All buildings constructed during the period between 2001 and 2006 were considered new housing units and added to the 2000 Census Bureau total. Estimates for 2006 housing units for Queens and New York City were from U.S. Census Bureau's Annual Estimates of Housing Units.
Sources: 1990 and 2000 U.S. Census, Summary File 1, AKRF, Inc.

Based on 2000 Census data, the overall age of the housing stock in the study area closely mirrors that of Queens, with most housing units built between 1940 and 1959 (see Table 4-14). Within the study area, the highest proportion of homes was built between 1940 and 1959 (35.4 percent). The next highest share of housing units were built between 1960 and 1979 (34.3 percent). Of the 4,521 units built during this time, the largest proportion—42.3 percent (1,943 units) were located in South Flushing.

The study area gained approximately 1,082 housing units between 2001 and 2006, bringing the total number of units to 14,212 (an 8.2 percent increase). South Flushing experienced the greatest absolute growth (479 units) while Downtown Flushing experienced the greatest relative growth (10.3 percent).

Table 4-14
2000 Units by Year Built

	Built 1939 or Earlier		Built 1940 to 1959		Built 1960 to 1979		Built 1980 to 2000		Total Housing Units	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Study Area	2,270	**17.2**	4,662	**35.4**	4,521	**34.3**	1,731	**13.1**	13,184	**100.0**
College Point	6	**23.1**	14	**53.8**	6	**23.1**	-	**0.0**	26	**100.0**
North Corona	347	**18.5**	742	**39.6**	477	**25.5**	307	**16.4**	1,873	**100.0**
Greater Flushing	1,917	**17.0**	3,906	**34.6**	4,038	**35.8**	1,424	**12.6**	11,285	**100.0**
North Flushing	374	**14.3**	967	**37.0**	1,106	**42.3**	170	**6.5**	2,617	**100.0**
Downtown Flushing	598	**20.4**	921	**31.4**	989	**33.7**	426	**14.5**	2,934	**100.0**
South Flushing	945	**16.5**	2,018	**35.2**	1,943	**33.9**	828	**14.4**	5,734	**100.0**
Queens County	240,565	**29.4**	336,899	**41.2**	189,669	**23.2**	50,117	**6.1**	817,250	**100.0**
New York City	1,151,286	**36.0**	998,069	**31.2**	762,214	**23.8%**	289,343	**9.0**	3,200,912	**100.0**

Notes: The number of housing units in this table presents sample data from Summary File 3. However, the total number of housing units in Table 4-13, "Housing Unit Characteristics," presents 100 percent data from Summary File 1.
Sources: U.S. Department of Commerce, Bureau of the Census, 1990 and 2000 Census, Summary File 3.

Table 4-15 shows housing value characteristics of the study area, Queens, and New York City. Overall, in 2000 the median contract rent in the study area ($902) was comparable with Queens ($908), but was 10.8 percent higher than New York City as a whole ($814). Within the study area, South Flushing had the highest median contract rent ($974), followed by North Corona ($917) and Downtown Flushing ($904). College Point had the lowest median contract rent in the study area, at $433.

Table 4-15
Households and Housing Value Characteristics

	Total Households			Median Contract Rent			Median Housing Value	
	1990	2000	% Change	1990	2000	% Change	1990[2]	2000
Study Area	**11,898**	**12,643**	**6.26**	**$899**	**$902**	**0.36**	**NA**	**$169,497**
College Point	35	26	-25.7	$1,009	$433	-57.1	NA	$251,911
North Corona	1,634	1,798	10.0	$875	$917	4.8	NA	$228,249
Greater Flushing	10,229	10,818	5.8	$902	$901	-0.1	NA	$153,996
North Flushing	2,340	2,449	4.7	$610	$658	7.8	NA	$101,689
Downtown Flushing	2,798	2,736	-2.2	$986	$904	-8.2	NA	$181,661
South Flushing	5,091	5,633	10.7	$951	$974	2.4	NA	$195,405
Queens County	**720,149**	**782,664**	**8.7**	$851	$908	**6.7**	**NA**	**$259,720**
New York City	**2,819,401**	**3,021,588**	**7.2**	$744	$814	**9.4**	**NA**	**$278,614**

Notes:
1. Median contract rent and median housing value presented in 2008 dollars.
2. Median home values for 1990 and 2000 are not comparable because the Census Bureau's 1990 housing value is based on sample data that excluded multi-unit buildings ("specified owner-occupied units"), while the 2000 median is based on "all owner-occupied units."

Sources: 1990 and 2000 U.S. Census, Summary File 1 and Summary File 3, AKRF, Inc.

The median housing value in the study area was $169,497, which was 34.7 percent lower than Queens ($259,720) and 39.2 percent lower than New York City ($278,614). The median housing value ranged by $150,222, from $101,689 in North Flushing to $251,911 in College Point.

The median home value data reported in the Census are based on respondents' estimates of how much their properties would sell for if they were for sale, and the median contract rent reported by the Census includes data on rent-regulated and rent-controlled apartments. These data do not always accurately reflect true market rental rates and sales prices. To obtain a more accurate picture of current market rate home values and rental rates, additional information was gathered from local real estate sources. These listings indicate that current housing prices are substantially

higher than those reported in the 2000 Census. According to Prudential Douglas Elliman, the median sales price for homes sold between January and June 2007 was approximately $751,354 (in 2008 constant dollars) in zip code 11368, which includes North Corona and the District, but extends beyond the study area (see Figure 4-2). This was approximately 3.3 times more than the median housing value of North Corona and the District as reported by the 2000 Census ($228,249). The median price for homes between January and June 2007 for zip code 11354, which includes College Point, North Flushing, and Downtown Flushing, was $537,666, approximately 4.4 times more than the median home value for College Point, North Flushing, and Downtown Flushing in 2000, which was $120,961 (in 2008 constant dollars). The median price of homes sold between January and June 2007 in zip code 11355, which includes South Flushing, was $495,286,[1] 2.5 times more than the median home value in South Flushing in 2000 ($191,347).

Table 4-16 presents monthly rental rates in North Corona, College Point, and Flushing, based on listings gathered from several real estate sources, such as *The New York Times,* Prudential Douglas Elliman, and Carollo Realty in July 2007 (in 2008 constant dollars). The average monthly rental rate for current apartment listings in North Corona ranges from $983 for a studio to $1,600 for a 3-bedroom unit. College Point's average rental rate for apartments ranges from $1,379 for a studio to $1,820 for a 3-bedroom unit. The high average rental rates in College Point are primarily due to a new luxury building called Waterview Plaza at 14-34 110th Street, with rents ranging from $1,225 to $1,530 per month for a studio, $1,634 per month for a one-bedroom unit, and $2,042 per month for a two-bedroom unit. The average rental rate in Flushing ranges from $988 for a studio to $2,113 for a 3-bedroom unit.

Table 4-16
Current Monthly Rental Rates[1]

	North Corona	College Point[2]	Flushing
Average Monthly Rent			
Studio	$983	$1,379	$988
1 Bedroom	$1,379	$1,468	$1,270
2 Bedroom	$1,447	$1,732	$1,550
3 Bedroom	$1,600	$1,820	$2,113
Median Monthly Rent	$1,328	$1,685	$1,430

Notes:
[1] All figures presented in 2008 constant dollars.
[2] College Point's rental rates are skewed by a new 6-story development, Waterview Plaza, at 14-34 110th Street.
Sources: *The New York Times,* Prudential Douglas Elliman, Carollo Realty, Century21, House.info Real Estate (July 2007)

RENT-REGULATED AND NON-REGULATED HOUSING

The rental rates for many of the housing units in New York City are controlled through several mechanisms: rent control, rent stabilization, direct public subsidies to landlords, and public ownership. There are two main types of rent regulation programs in New York City: rent control and rent stabilization. Rent control limits the rent an owner may charge for an apartment and restricts the right of an owner to evict tenants. In New York City, the rent control program applies to apartments in residential buildings containing three or more units and constructed before February 1947. For an apartment to fall under rent control, the tenant must have been

[1]Prudential Douglas Elliman: http://www.prudentialelliman.com/MainSite/Neighborhoods/ Neighborhood Detail.aspx?HCode=FLUSHING (July 13, 2007).

living in that apartment continuously since before July 1, 1971. When a rent controlled apartment becomes vacant, it either becomes rent stabilized or, if it is in a building with fewer than six units, is removed from regulation. Rent stabilization limits the annual rate at which rents can increase. In New York City, rent stabilization generally applies to apartments in buildings containing six or more units built between February 1, 1947 and January 1, 1974. An apartment is no longer subject to rent stabilization if it becomes vacant and could be offered at a legal regulated rent of $2,000 or more, or if it is occupied by tenants whose total annual household income exceeds $175,000.[1]

Other types of housing that are rent regulated include Section 8 housing, public housing, Mitchell-Lama developments, and other HPD-owned housing. As described in Chapter 3, the study area contains several public housing complexes; within the ¾-mile study area are Leavitt Street-34th Avenue homes, Latimer Gardens, and James A. Bland homes (all New York City Housing Authority [NYCHA] housing developments). These buildings contain a total of 1,960 residents, representing 5.1 percent of the study area population.

In accordance with *CEQR Technical Manual* guidelines, the number of unregulated units was estimated based on Census data and data obtained from the New York City Department of Finance's RPAD database. Table 4-17 shows the methodology and unit count for the estimated number of unregulated units in the study area. As shown in the table, approximately 1,882 occupied dwelling units in the study area are in buildings of five units or less. There are an additional 2,538 units in buildings with more than five units that are not likely to fall under rent regulation. By applying the 2000 Census owner-occupancy rate to these units (on a tract-by-tract basis), there are an additional 2,021 rental units that are not likely to fall under rent regulation. In total, approximately 3,903 units, or approximately 34.1 percent of the total renter-occupied housing units in the study area, are not likely to be covered by rent control or rent stabilization. The remaining 65.9 percent of the rental units are in structures containing six or more housing units, and were built prior to 1974, and therefore are potentially afforded protection under either rent control or rent stabilization.[2] In comparison, according to the 2005 New York City Housing and Vacancy Survey, approximately 63.4 percent of renter-occupied units in New York City and 53.1 percent of renter-occupied units in Queens were rent protected in 2005.[3]

IDENTIFYING POPULATION AT RISK

According to the *CEQR Technical Manual*, a population at risk of indirect displacement consists of people living in privately held units unprotected by rent control, rent stabilization, or other forms of rent control, whose incomes or poverty status indicate that they could not support substantial rent increases that would occur as a result of the proposed Plan and anticipated development on Lot B. To determine whether a population at risk exists in the study area, the *CEQR Technical Manual* recommends analyzing Census data on income and renters in structures containing fewer than six units, combined with data on other factors, including the presence of subsidized housing and land use.

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[1] Rent regulations obtained from the New York State Division of Housing and Community Renewal, Office of Rent Administration and the New York City Rent Guidelines Board.

[2] The actual percentage of rent-regulated units may be lower, given that some of the units may no longer be subject to rent stabilization based on the stipulations described above.

[3] New York Housing and Vacancy Survey, 2005. Series 1A, Table 14, "Renter Occupied Housing Units by Rent Regulation Status." (http://www.census.gov/hhes/www/housing/nychvs/2005/s1at14.html)

Table 4-17
Unprotected Units

Row			Study Area	Notes
1	Base of Unprotected Units: Units in Buildings with 1-5 Units	Number of occupied renter-units in buildings with 1-4 units	1,724	Number of units in buildings with 1-4 units (RPAD) * renter occupancy rate for buildings with 1-4 units (2000 Census)
2		Number of units in buildings with 5 units	255	Derived from RPAD
3		Number of renter-occupied units in buildings with 5 units	158	(Row 2) * renter occupancy rate for buildings with 5-9 units (2000 Census).
4		Total number of rental units in 1-5 unit buildings	1,882	(Row 1) + (Row 3)
5	Additional Unprotected Units: Units in Buildings Built After January 1, 1974	Total units (renter- and owner-occupied) built between 1974 and 2006	3,644	Derived from RPAD
6		Total units (renter- and owner-occupied) built between 1974 and 2006 and in buildings with 5 units or less	1,023	Derived from RPAD
7		Total units (owner & renter-occupied) in buildings with more than 5 units, built after January 1, 1974	2,538	(Row 5) - (Row 6) - Public housing units built between 1974 and 2006 (RPAD)
8		Number of rental units in buildings with more than 5 units, built after January 1, 1974	2,021	(Row 7) * (renter occupancy rate for buildings with 5+ units)
9	Total Unprotected Rental Units	Percent of renter-occupied units that are unprotected	34.1%	(Row 4) + (Row 8) / (Total number of renter-occupied units)
10		Number of renter-occupied units that are unprotected	3,903	(Row 4) + (Row 8)

Sources: U.S. Department of Commerce, Bureau of the Census, 2000 Census, Summary File 3; New York City Department of Finance; Real Property Assessment Data 2006; AKRF, Inc.

The following steps were used to identify a population at risk:

1. Census 2000 tract-level data were used to determine the average household income of renters in small (one to four units) buildings. As described above, these buildings are not generally subject to rent regulation laws.
2. For each census tract, the average household income for renters in small buildings was compared with the average household income for all renters in Queens ($55,269 in 2008 dollars). If the average for small buildings was lower than the borough-wide average for all renters, the census tract was identified as having a potentially at-risk population.
3. For each census tract identified as having a potentially at-risk population, the number of households in unregulated units was estimated using the methodology shown in Table 4-17.

As shown in Table 4-18, there are eight census tracts in the study area where the average income for renters in unregulated units is lower than the average income for Queens renters (shown in italics in the table). These tracts are highlighted in Figure 4-8 and described below.

Table 4-18
Average Household Income for Renters in Small Buildings and All Renter-Occupied Buildings in Queens (1999)[1] and Number of Unprotected Housing Units by Tract

Census Tract[2]	Average Household Income in Small Buildings[3]	Difference between Small Buildings and Borough Average[4]	Unprotected Units
381	***$51,643***	***$(3,626)***	***294***
383[5]	$49,735	$(5,533)	0
399	$62,189	$6,920	458
797	$65,516	$10,248	220
851	$56,221	$952	694
853	***$37,972***	***$(17,297)***	***506***
855	$58,022	$2,753	0
865	***$44,313***	***$(10,955)***	***699***
867	***$51,375***	***$(3,894)***	***325***
871	***$33,011***	***$(22,257)***	***153***
875	***$28,913***	***$(26,356)***	***52***
889.01	$86,633	$31,364	398
889.02	***$47,202***	***$(8,067)***	***90***
907	***$43,266***	***$(12,003)***	***15***
Total Units			3,903[5]

Notes:
[1] Average household income presented in constant 2008 dollars based on the U.S. Department of Labor Bureau of Labor Statistics' January 2008 Consumer Price Index for all urban Consumers for New York-Northern New Jersey-Long Island.
[2] Census tracts shown in bold italics are those in which the average household income for small renter-occupied buildings is lower than the average household income for all renters in Queens.
[3] The average household income for small renter-occupied buildings is based on renter-occupied units in buildings with one to four units.
[4] This number represents the difference between the average household income for renters in small buildings and the adjusted average household income for all Queens renters ($55,269).
[5] The average household income for renters in small buildings in tract 383 is lower than the average for Queens renters. However, housing units in this tract are located outside of the ¾-mile study area perimeter and therefore are not included in the "unprotected unit" count.
[6] Detailed amounts may not add to totals due to rounding.
Sources: U.S. Census Bureau, 2000 Census, Summary File 3.

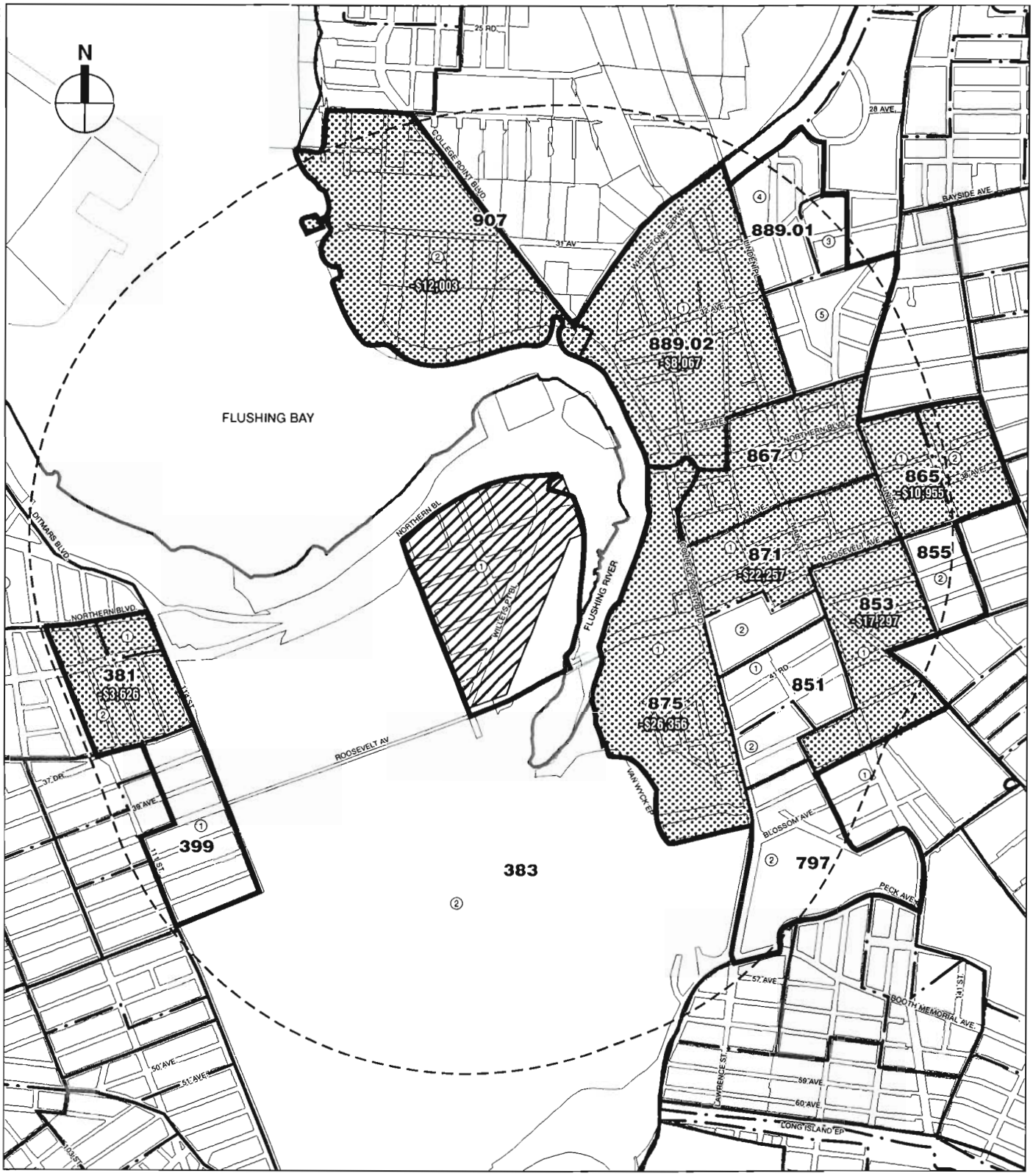
CENSUS TRACT 381

Census Tract 381, located west of the Willets Point Development District[1], forms the northeast portion of North Corona. Consisting mostly of residential use, this tract is separated from the District by Shea Stadium. As of 2000, the housing stock in this part of the study area consisted of smaller, older buildings constructed before 1960. According to RPAD, 70 units were constructed between 2001 and 2006, increasing the 2000 total housing stock by 4.3 percent.

As of the 2000 Census, Tract 381 had an average household size of 3.41 persons per household, roughly 26.8 percent higher than the study area average of 2.69 persons per household. In 1999, the average household income for renters in unprotected buildings in Tract 381 ($51,643) was

[1] Block Groups One and Two in Census Tract 381 are the only block groups within the socioeconomic study area.

4.17.08



Willets Point Development District

Residential Study Area Boundary

3/4-Mile Perimeter

415 *Census Tract*

① *Census Block Group*

Census Tracts with Vulnerable Populations

-$17,297 *Difference between average household income for unprotected units and average household income for all renters in Queens ($55,269)*

Figure 4-8

Census Tracts Containing Population Vulnerable to Indirect Displacement

approximately 6.6 percent lower than the average for all renters living in Queens ($55,269). Of all rental units, there are approximately 1,003 persons living in 294 unprotected units in this tract who are potentially vulnerable to displacement pressures.

CENSUS TRACT 853

Tract 853, is located in the South Flushing subarea. Historically, the tract increased its housing stock by 4.6 percent from 1990 to 2000; however, only 18 residential units were constructed between 2001 and 2006—a 0.8 percent increase. The majority of households in Tract 853 reside in dense high-rise buildings with more 50 units (73.4 percent), including The Stanton (351 units) and The Park Regent (204 units).

Block Group 1 of Census Tract 853 contains 506 unprotected renter-occupied units. The tract's household size of 2.31 persons per household is 16.5 percent smaller than that of the study area (2.69 persons per household). U.S. Census data from 2000 indicate the average household income for renters in small buildings within this tract was $37,972, roughly 31.3 percent lower than the average for all renters in Queens. In total, there are approximately 1,169 residents living in 506 unprotected units in this tract who are potentially vulnerable to displacement pressures.

CENSUS TRACT 865

Census Tract 865 is located in Downtown Flushing at the eastern edge of the study area. The tract primarily comprises high-rise residences, followed by some commercial and institutional uses. Similar to Tract 853, the majority of housing units consisted of buildings with 50 or more units (64.3 percent) in 2000. Most homes are relatively older, with roughly 48.9 percent of residential units constructed before 1960. RPAD data indicate that 129 housing units were built between 2001 and 2006—a 6.7 percent increase over the number of units in 2000.

As of the 2000 Census, households in Tract 865 were smaller than households in other study area tracts, having an average household size of 2.26. Renters in small buildings earned an average household income of $44,313—19.8 percent lower than the Queens average income for renters ($55,269). An estimated 699 housing units in Tract 865 are unprotected. These units contain approximately 1,580 residents.

CENSUS TRACT 867

Census Tract 867 is located in the heart of Downtown Flushing. It is bisected by Northern Boulevard, and includes a mix of primarily commercial and residential uses. Home to 289 housing units in 2000, this tract experienced the most rapid growth in residential units within the study area, increasing its total stock by 41.2 percent (189 units) between 2001 and 2006. By 2017, another 435 residential units are scheduled to be constructed within the tract. Projects with a residential component that are currently planned for the tract include the RKO Theater complex (200 residential units) and New Millennium (91 units).

As of 2000, there were a total of 867 persons living within the study area portion of this tract. The average household size for the tract was 3.19—18.5 percent lower than the study area average. Renters in small buildings earned an income of $51,375—7.6 percent lower than the average income for all Queens renters. There are an estimated 325 unprotected housing units in Census Tract 867, containing approximately 1,036 residents.

CENSUS TRACT 871

Census Tract 871 is located south of Tract 867, and comprises a large portion of Downtown Flushing. Land use within this tract is heavily commercial. The largest residential building is the

400-unit James A. Bland NYCHA complex on Roosevelt Avenue. As of 2000, this complex housed 56.5 percent of the tract's population (937 residents)[1]. A large portion of residential units were constructed between 1950 and 1959 (41.9 percent). Between 2001 and 2006, Tract 871 increased its number of residential units by 7.1 percent (51 units).

Persons residing within Tract 871 earned a median household income ($33,011), which was 40.3 percent lower than the study area's median, due in part to the presence of the James A. Bland public housing complex. The 2000 average household size for the tract was 2.74. An estimated 419 residents living in 153 units are potentially vulnerable to displacement pressures.

CENSUS TRACT 875

Situated directly east of the Flushing River, Census Tract 875 comprises predominantly commercial and industrial land uses, permeated by some residential use along 40th Road, east of College Point Boulevard. With a total of 47 rental units in 2000, this tract contained the lowest number of units among all census tracts in the study area. More than half of the 102 housing units in the tract were built before 1939 (57.8 percent). Between 2001 and 2006, a total of six units were constructed.

Renters living in small buildings earned the lowest average household income in the study area ($28,913), nearly half as much as the Queens average income for all renters. The 2000 average household size for the tract was 3.63. Between 2001 and 2006 only six units were added. Out of all renter-occupied units, 52 units were unprotected; approximately 189 residents living within these units are considered vulnerable to displacement pressures.

CENSUS TRACT 889.02

Census Tract 889.02 forms the northwest portion of North Flushing. While this tract is relatively close in proximity to the District, it is separated from the District by the Flushing River. Land uses in this tract are predominantly industrial, with small pockets of two to three-story residential uses on Prince and Farrington Streets. Approximately 63 percent of residential units in the tract were built before 1939; there were no units added between 2001 and 2006. Two known projects scheduled for construction within this tract include The New Millennium, containing 84 dwelling units; and a new 9,887 square foot hotel.

Census data indicate that there were 602 people living in tract 889.02 in 2000, with an average household size of 3.19 persons per household. The average household income for renters living in small buildings in the tract was $47,202—17.1 percent lower than the average for Queens renters. Out of all renter-occupied units, 90 were unprotected; approximately 287 residents living within these units are considered vulnerable to displacement pressures.

CENSUS TRACT 907

Forming the southwest portion of College Point, the study area portion of Census Tract 907[2], is bordered by 28th Avenue to the north, College Point to the east, and Flushing Bay to the south and west. Industrial and manufacturing uses dominate most of the tract; all residential units are concentrated in the northwest corner. Within this tract, only one unit was built after 1979. The only known project planned for the tract is the North Shore Marine Transfer Station.

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[1] nyc.gov/html/nycha/html/home/home.shtml. New York City Housing Authority (March 3, 2008).

[2] Only Block Group 2 of Census Tract 907 is included in the study area.

As of 2000, the Census reported a total of 60 persons living in 26 housing units in tract 907. The average household size for the tract was 2.87 persons per household. Renters living in small buildings earned an average income of $43,266—27.7 percent lower than the Queens average income for all renters. This analysis identified 15 unprotected units in the tract, containing an estimated 43 residents at risk of displacement.

FUTURE WITHOUT THE PROPOSED PLAN

This section describes the population and housing conditions that are expected in the future without the proposed Plan, and presents development and population changes that are projected to occur in the study area through 2017. The analysis is based on projects known to be planned for the study area.

POPULATION

Based on the 2000 study area average household size (2.69) and occupancy rate (96.6 percent), the study area will gain an additional 8,276 residents by 2017, bringing the total population to 46,600 residents. This is a 21.6 percent increase from the population in 2006. It is not possible to know the socioeconomic characteristics of the estimated 8,276 residents who will be introduced to the study area in the future without the proposed Plan. However, based on the types of residential projects currently planned for the study area (primarily market-rate), it is likely that the new population would have incomes that are substantially higher than the current average for the study area.

HOUSING

The study area is experiencing an influx of new residential development. Absent the proposed Plan, the study area is expected to gain 3,184 residential units by 2017 (see Table 4-19) for a total of 17,396 housing units. Overall, this is a 22.4 percent increase from the number of units in 2006. It is anticipated that the vast majority of new units will be rented or sold at the current market rate value. For example, condominiums are expected to cost between $400,000 and $1.2 million at Sky View Parc.[1] Current rents for available housing units in the area are significantly higher than median contract rents in 2000, as reported in the Census. The median contract rent for current apartment listings in North Corona is $1,328 per month, approximately 45 percent higher than the median contract rent in 2000. The median rental rate in College Point is $1,685 per month, which is approximately 3.9 times more than the 2000 median contract rent. The median contract rent in Flushing is $1,430 per month, which is approximately 59 percent higher than the median contract rent in 2000 (see Table 4-16, above).[2] Thus, new units scheduled to be constructed by 2017, independent of the proposed Plan, would likely rent or sell at these prices or higher.

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[1] Lauren Elkies, "Unlovely Queens gets new suitors," *The Real Deal*, December 2006, http://www.therealdeal. net/issues/DECEMBER_2006/1164919559.php (July 24, 2007).

[2] According to the US Census Bureau, median contract rent is the middle value of the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included. In addition, this figure is based all area rents, including rent-controlled and rent-stabilized housing units, those of which are less frequently advertised. Although median contract rent is not directly comparable to current rental listings, the disparity between the median contract rent in 2000 and current listings indicate that there has been a notable increase in rents.

Table 4-19
Population and Housing Growth: the Future Without the Proposed Plan, 2006-2017

	Housing Units				Population			
	2006	2006-2017 Growth	2017	Percent Growth 2006-2017	2006	2006-2017 Growth	2017	Percent Growth 2006-2017
Study Area	14,212	3,184	17,396	22.4	38,324	8,276	46,600	21.6

Notes: Population growth was calculated by applying the 2000 average household size and vacancy rate of the study area to the number of housing anticipated to be added between 2006 and 2017.
Sources: U.S. Department of Commerce, Bureau of Census: 1990 and 2000 Census.

PROBABLE IMPACTS OF THE PROPOSED PLAN

The analysis of the future with the proposed Plan considers the effects of the proposed Plan and Lot B in the context of existing conditions and the future without the proposed Plan. This section analyzes the uses under the proposed Plan by 2017 and evaluates the potential for indirect residential displacement associated with those uses.

HOUSING AND POPULATION CHANGES

The proposed Plan would result in the addition of up to 5,500 residential units to the study area, increasing the housing stock to 22,896 units in 2017. This addition would increase the residential units by approximately 31.6 percent in the study area by 2017 as compared with the future without the proposed Plan. Based on the 2000 average household size for the study area (2.69), the proposed Plan would add up to 14,795 residents to the study area by 2017, an increase of 31.7 percent compared with the 2017 future without the proposed Plan population (see Table 4-20).

Table 4-20
Population and Housing Growth: Proposed Plan Condition, 2017

	Housing Units				Population			
	2017 without proposed Plan	Project Increment	2017 with Proposed Plan	Percent Growth	2017 without Proposed Plan	Project Increment	2017 with Proposed Plan	Percent Growth
Study Area	17,396	5,500	22,896	31.6	46,600	14,795	61,365	31.7

Notes: Population growth was calculated by applying the 2000 average household size and vacancy rate for the primary and secondary study area to the number of housing anticipated to be added between 2006 and 2017.
Sources: U.S. Department of Commerce, Bureau of Census: 1990 and 2000 Census, AKRF site visits and New York City Department of City Planning.

INDIRECT RESIDENTIAL DISPLACEMENT ANALYSIS

According to the *CEQR Technical Manual,* indirect displacement of a residential population most often occurs when an action increases property values and thus rents throughout a study area, making it difficult for some existing residents to continue to afford to live in the community. The manual states that:

> If the proposed action may introduce a trend or accelerate a trend of changing socioeconomic conditions *and* if the study area contains population at risk, then it can be concluded that the action would have an indirect displacement impact. Understanding the action's potential to introduce or accelerate a socioeconomic trend is a function of the size of the development resulting from the action compared to the study area and the type of action (does it introduce a

> new use or activity that can change socioeconomic conditions in the study area)...Generally, if the proposed action would increase the population by less than 5 percent, it would not be large enough to alter socioeconomic trends significantly.

As mentioned above, the proposed Plan would increase the study area population by 14,795 residents (or 31.7 percent) over the future without the proposed Plan condition. Although the *CEQR Technical Manual* does not suggest thresholds for determining the significance of indirect residential displacement impacts, it does say that an impact could generally be considered significant and adverse if "households or individuals would be displaced by legal means...they would not be likely to receive relocation assistance, and, given the trend created or accelerated by the proposed actions, they would not be likely to find comparable replacement housing in their neighborhood." While there is the potential for limited indirect displacement as a result of the proposed Plan, such displacement would not have the potential to adversely affect socioeconomic conditions in the study areas. This detailed analysis of the potential for indirect residential displacement impacts estimates that the study area contains approximately 2,134 units (5,726 residents) in Census Tracts 381, 853, 865, 867, 871, 875, 889.02, and 907 that could be at risk of indirect displacement if their rents were to increase (see Figure 4-8). This would account for approximately 9.3 percent of units in the study area with the proposed Plan in 2017.

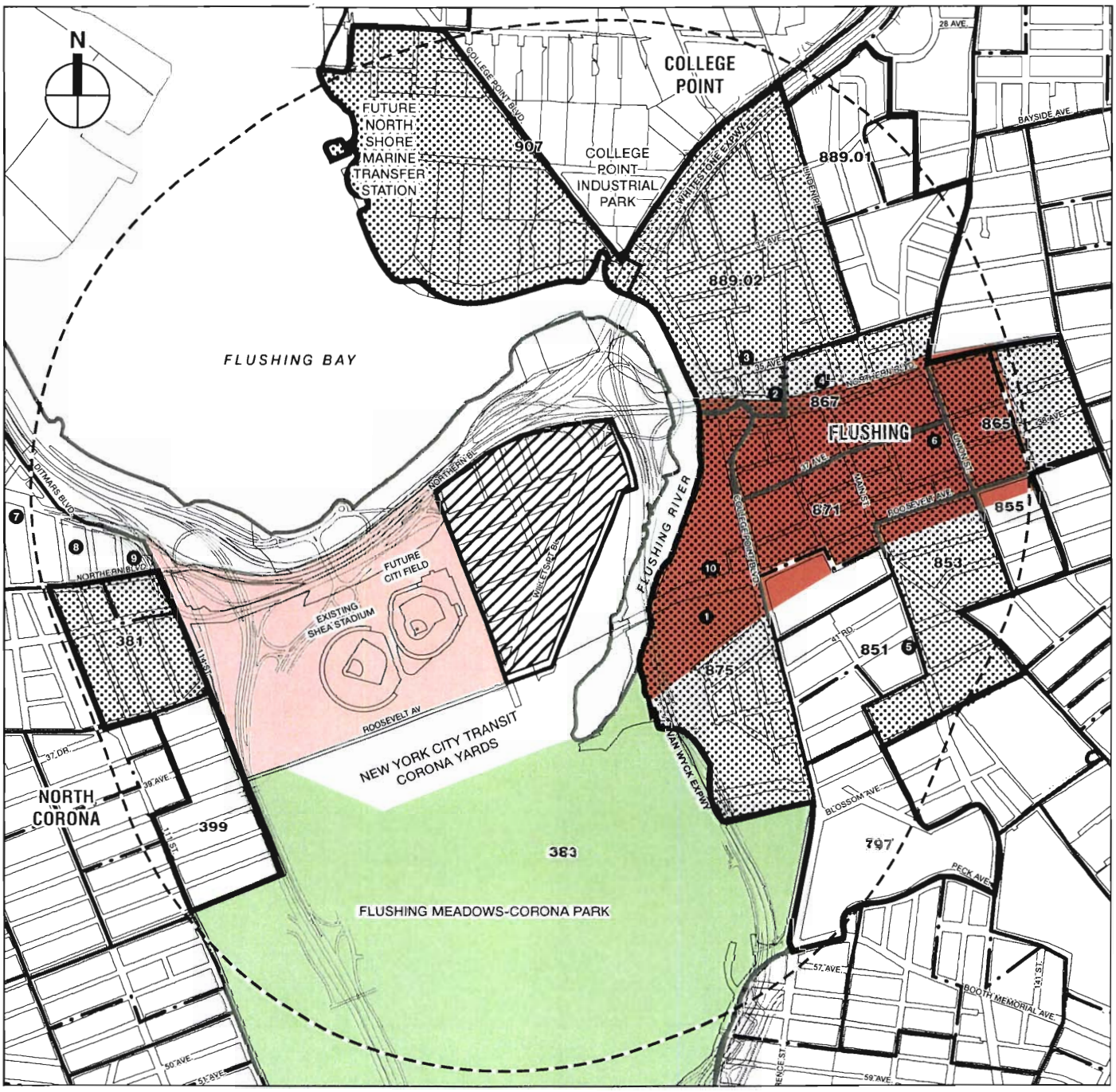
There are a number of reasons why indirect residential displacement of population identified as at risk would not actually take place in the future with the proposed Plan, including:

- **The District is geographically separated from the identified at-risk population, limiting its potential to influence residential trends in those areas.** The potential for development in the District to substantially affect housing values and socioeconomic characteristics in the surrounding study area is limited by the geographic separation of the District from surrounding communities by the Flushing River, Van Wyck Expressway, Flushing Meadows-Corona Park, and the new Citi Field complex, and the well-established nature of those surrounding communities. For example, Tract 865, which contains an estimated 699 at-risk households (the highest number of all tracts in the study area), is separated from the District not only by the Flushing River and the Van Wyck Expressway, but also by heavily concentrated commercial development in Downtown Flushing (see Figure 4-9). Similarly, tract 381, which contains an estimated 294 at-risk households, is separated from the District by Shea Stadium and associated parking fields and by the Hinton Park and Louis Armstrong playgrounds, which are directly west of the Shea Stadium complex. Such barriers limit the visual and physical connection between the District and surrounding areas, making it likely that the District would be considered a distinct neighborhood and separate residential market in the future with the proposed Plan. Pedestrian connectivity between the District and surrounding areas is also limited. Since Roosevelt Avenue serves as the only pedestrian access route to the District from the east, and pedestrians walking to the District from the west need to cross the Shea Stadium parking fields, even the closest at-risk residential units in the study area are located at a ½-mile walking distance from the District. Limited pedestrian access and considerable walking distances reinforce the separation between the District and surrounding communities, making it unlikely that the District could substantially affect residential market trends in the study area. While at-risk households in tracts that are in closest proximity to the District—907, 889.02 and 875 (containing a total of 157 vulnerable units)—may appear more susceptible to displacement, they too are separated by the same physical barriers and intervening uses mentioned above, and are a considerable walking distance from the District. Given the distance between the identified at-risk population and the District, and the intervening uses, market pressures that could cause rents to rise in unprotected units are not anticipated to be particularly strong.

In addition, to the extent that residential displacement would occur in the future, it would be influenced by factors other than the proposed Plan and anticipated development on Lot B. As illustrated in Figure 4-9, there are a number of large-scale residential developments planned for locations between the District and the identified at-risk population. These developments are likely to have a greater influence on residential market trends in those tracts than the proposed Plan and Lot B. For example, Census Tracts 853, 867, and 871 are estimated to contain a total of 984 at-risk households. Flushing Commons, a major mixed-use development scheduled to be completed by 2011, will add 500 residential units to Tract 871, increasing the tract's 2006 housing stock by 68.8 percent—from 727 units to 1,227 units. A project of this scale, located in the immediate vicinity of the identified at-risk housing units, would have greater potential to influence residential market values in Tracts 853, 867 and 871, than the proposed Plan and Lot B. In addition, commercial development in Downtown Flushing further separates these Tracts from the District. Similarly, Sky View Parc is scheduled to introduce 750 residential units to Census Tract 875 by the end of 2008, and the RKO Theater Complex and New Millennium projects will introduce a total of 375 units to Tracts 867 and 889.02, respectively. These projects will exert greater influence on residential market values in Tracts 867 and 889.02 than the proposed Plan. In sum, the presence of geographic boundaries and intervening land uses would limit the possibility for the proposed Plan and Lot B to influence residential market conditions. At the same time, planned residential development in the study area would have greater potential to influence residential market trends in tracts identified as containing at-risk population than the proposed Plan and Lot B.

- **By adding new housing units, the proposed Plan could serve to relieve rather than increase market pressure in the study area.** The proposed Plan would introduce 5,500 new residential units to the study area. By adding a substantial number of new housing units, the proposed Plan could relieve, rather than increase, market pressure in the study area. As of the 2000 Census, the housing vacancy rate in the study area was only 3.7 percent, lower than the vacancy rate for both Queens (4.2 percent) and the City (5.6 percent). Low vacancy rates coupled with the substantial number of market-rate housing units recently completed or currently planned for the study area indicate that demand for housing in the study area is high. It is likely that demand for housing in the study area will continue to increase in the future with or without the proposed Plan. The proposed Plan would provide additional market-rate housing in an area where demand is high. This would decrease pressure to upgrade existing study area housing in order to meet this market-rate demand. Thus, by providing additional housing in an area where demand is high, the proposed Plan could absorb housing demand that might otherwise be expressed through increases in rents in the study area. This could reduce displacement pressures on the at-risk population in the study area.

- **The proposed Plan would introduce 1,100 affordable housing units to the study area.** Although the population that would be introduced by the proposed Plan may include a larger proportion of households at higher incomes, the proposed Plan's affordable housing component would ensure that a substantial portion of the new population would have incomes that would more closely reflect existing incomes in the study area. Under the proposed Plan, 20 percent of the proposed units would be reserved for households earning between 60 percent and 130 percent of the U.S. Department of Housing and Urban Development (HUD) Income Limit for New York City. As is typical for units developed under New York City's affordable housing program, approximately half of the affordable units developed under the proposed Plan would likely be two- and three-bedroom units.



Willets Point Development District

Residential Study Area Boundary

3/4-Mile Perimeter

415 *Census Tract*

Census Tract Containing Vulnerable Population

❶ *Selected Residential Projects to be Completed by 2017*

Flushing

Shea Stadium

Residential Projects to be Completed

❶	*Sky View Parc*	*750 Units*
❷	*RKO Keith Theater Complex*	*200 Units*
❸	*New Millennium*	*84 Units*
❹	*New Milllennium Northern Blvd.*	*91 Units*
❺	*Victoria Tower*	*178 Units*
❻	*Flushing Commons*	*500 Units*
❼	*108-04, 14, 16 Astoria Blvd.*	*84 Units*
❽	*111-110, 12, 16 Astoria Blvd.*	*78 Units*
❾	*Block Bounded by Astoria Blvd., Northern Blvd., and 112th Pl.*	*147 Units*
❿	*River Park Place*	*475 Units*

This figure has been updated since the DGEIS

Figure 4-9

Factors Limiting District's Potential to Affect Housing Values

Income levels are based on HUD Income Limits, which are set annually for metropolitan areas and non-metropolitan counties by HUD. As of 2008 the HUD Income Limit for New York City was $76,800 for a family of four. Therefore, a family of four would need to earn between approximately $46,080 and $99,840 in order to qualify for an affordable housing unit in the District. Additionally, residents of Community Board 7 would be given preference for 50 percent of these affordable units. Overall, some portion of the population introduced under the proposed Plan may have socioeconomic characteristics that are different from the existing study area population; however, this is not expected to lead to significant indirect residential displacement.

F. DETAILED ANALYSIS OF INDIRECT BUSINESS DISPLACEMENT DUE TO COMPETITION

According to the *CEQR Technical Manual,* development activity such as shopping facilities may attract sales from existing stores. While these competitive socioeconomic impacts do not necessarily generate environmental concerns, they can become an environmental concern if they have the potential to affect neighborhood character by affecting the viability of neighborhood shopping areas. The approximately 1.7 million sf of destination and local retail under the proposed Plan and the 184,500 sf of retail on Lot B could potentially result in indirect displacement due to competition. Therefore, this section evaluates whether potential indirect displacement from competition could result in significant adverse impacts.

DELINEATION OF THE TRADE AREA

As described in the *CEQR Technical Manual,* an analysis of the potential effects of competition should encompass a primary trade area from which the bulk of new stores' sales are likely to be derived. As defined by Urban Land Institute's *Shopping Center Development Handbook,* trade areas for shopping centers similar in size to the proposed Plan would generally extend 12 miles from the site, and typically can be reached within a 30-minute drive. Shopping centers expect to draw 70 to 80 percent of their regular customers from this trade area.

Trade areas for major retail projects in New York City are typically smaller than the national standards cited in the *Shopping Center Development Handbook*, due primarily to the density of development in the New York metropolitan area. A 12-mile radius from the District extends throughout Queens and into Brooklyn, Manhattan, and the Bronx, as well as Nassau County, NY; Hudson County, NJ; and Westchester County, NY. This would not be an appropriate trade area for the proposed Plan because many of those traveling from the more distant reaches of a 12-mile trade area would be traveling past destination retail concentrations of equal or greater size to reach the District. For example, residents of Nassau County are more likely to regularly visit closer retail destinations such as Roosevelt Field Mall.

Thus, for purposes of analysis, the Primary Trade Area for the proposed Plan is an adjusted five-mile perimeter around the District (see Figure 4-10). The five-mile perimeter was adjusted to exclude the portions of Manhattan and the Bronx that fall within this area. Thus, the Primary Trade Area is roughly bounded by Long Island Sound on the north, the East River on the west, Alley Pond Park on the east, and Rockaway Boulevard on the south. The proposed Plan would likely draw a substantial number of customers from throughout Queens because of the retail center's proximity to major roadways, its merchandise mix, and the regional attraction created by the 1.7 million sf of retail space. It is expected that 70 to 80 percent of the proposed Plan's customer base would be drawn from the Primary Trade Area.

RETAIL EMPLOYMENT AND SALES TRENDS IN THE PRIMARY TRADE AREA

This analysis assesses employment and sales in four major retail categories: shoppers' goods, convenience goods, building materials and garden supplies, and eating and drinking establishments. These categories were analyzed because the proposed Plan could introduce retail in each category. Shoppers' goods are usually higher value goods—such as clothing, electronics, or furniture—for which consumers compare quality and price at more than one store before making a purchase. Convenience goods are usually lower value goods that are purchased frequently and immediately, often near the home or workplace, with little or no comparison shopping. The building materials and garden supplies category includes goods such as hardware, paint, building materials and supplies, and lawn and garden equipment and supplies. The eating and drinking establishment category includes restaurants, bars, and other special food services, such as caterers.

Employment and sales data for department stores and grocery stores—subsets of the shoppers' goods and convenience goods categories, respectively—are also analyzed. This analysis focuses on these stores in particular because grocery stores and department stores often serve as anchors for retail concentrations, and the proposed Plan could introduce stores offering products that would substantially overlap with typical grocery store or department store offerings.

Between 1987 and 2005, the number of jobs in these four major retail categories (shoppers' goods, convenience goods, building materials and garden supply, and eating and drinking establishments) in Queens increased by 15.1 percent, from 64,757 jobs in 1987 to 74,520 in 2005. Between 1987 and 2002, total retail sales increased by 18.3 percent in constant dollar terms[1], from approximately $9.5 billion in 1987 to $11.2 billion in 2002. As shown in Table 4-21 and Figure 4-11, total retail sales decreased between 1987 and 1992. This mirrors the retail trend in New York City (see Table 4-22 and Figure 4-11), and was attributable to a broad economic downturn in the late 1980s and early 1990s. Sales for all categories increased between 1992 and 2002, which is in line with the economic recovery in the mid 1990s.

Table 4-21
Retail Employment and Sales in Queens, 1987 - 2005

Retail Category[1]	Employment					Sales (millions of 2008 dollars)				
	1987	1992	1997	2002	2005	1987	1992	1997	2002	2005
Shoppers' Goods	17,971	15,919	15,349	17,461	19,931	$3,114	$2,761	$2,986	$3,692	NA
Department Stores	*4,936*	*3,924*	*3,987*	*3,442*	*2,910*	*$772*	*$556*	*$677*	*$693*	*NA*
Convenience Goods	21,119	17,627	19,848	19,663	21,815	$4,321	$3,741	$4,025	$4,473	NA
Grocery stores	*12,964*	*10,432*	*11,625*	*10,611*	*12,062*	*$2,935*	*$2,346*	*$2,327*	*$2,265*	*NA*
Building Materials & Garden Supply	2,002	1,549	3,596	3,927	4,305	$472	$335	$1,125	$1,227	NA
Eating & Drinking Establishments	23,665	20,926	23,139	27,247	28,469	$1,600	$1,482	$1,600	$1,855	NA
Total[2]	**64,757**	**56,021**	**61,932**	**68,298**	**74,520**	**$9,507**	**$8,320**	**$9,735**	**$11,248**	**NA**

Notes:
[1] Shoppers' Goods include general merchandise stores; clothing and accessory stores (including shoes); furniture and home furnishing stores; electronics and appliance stores; optical goods stores; sporting goods, hobby, book and music stores; office supplies, stationery and gift stores; used merchandise stores; and art dealers.
Convenience Goods include food and beverage stores (including delis, bakeries, and supermarkets); all health and personal care stores except for optical goods stores; florists; pet and pet supplies stores; and other miscellaneous store retailers.
Building Materials and Garden Supply includes hardware stores; building material and supplies dealers; and lawn and garden equipment and supplies stores.
[2] Total does not reflect total employment or sales for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: U.S. Census Bureau, Economic Census 1987, 1992, 1997, 2002; County Business Patterns 2005.

[1] All dollar values shown in Section F, "Detailed Analysis of Indirect Business Displacement Due to Competition," are presented in 2008 dollars, i.e., adjusted to account for inflation.

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Willets Point Development District

Primary Trade Area

Figure 4-10
Primary Trade Area

4.10.08

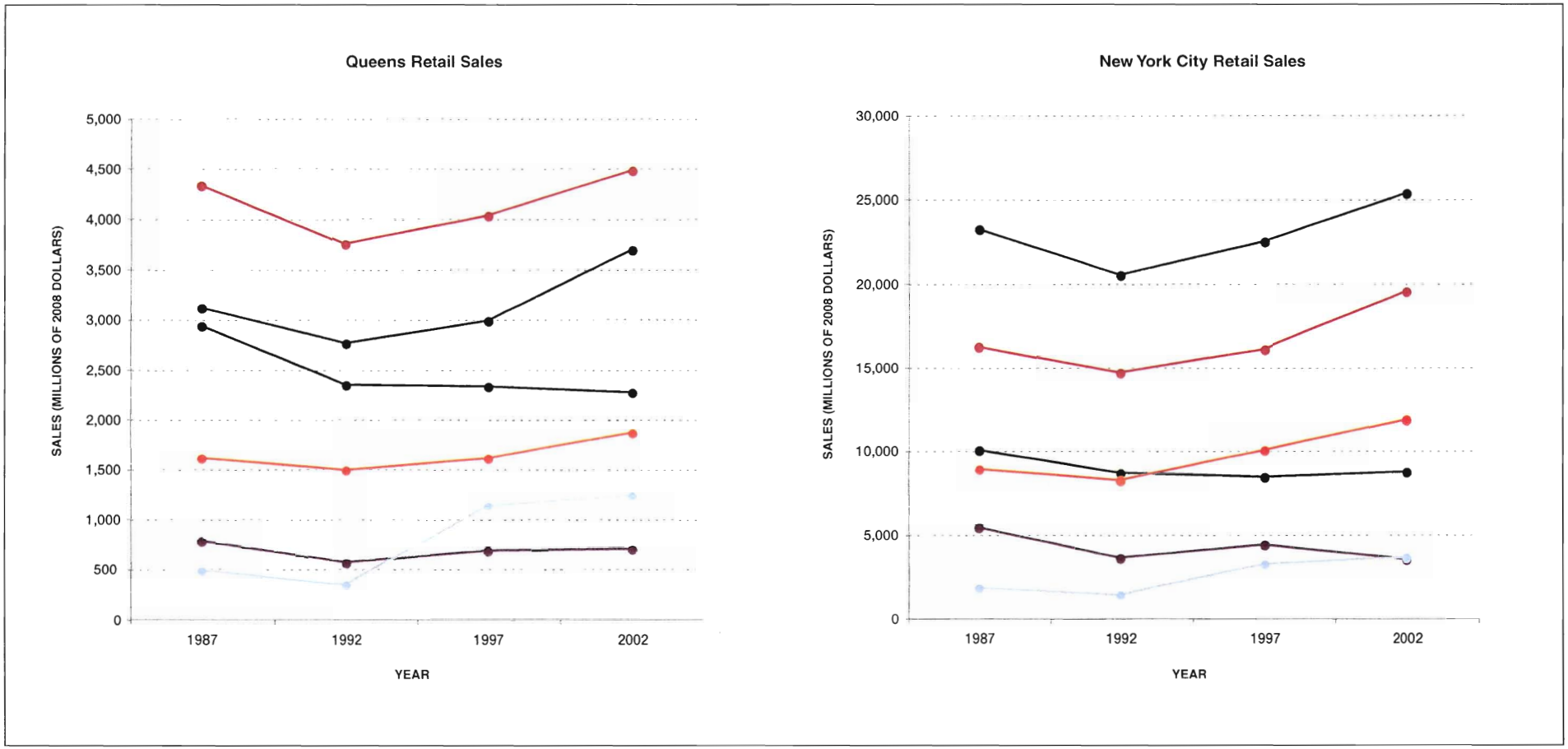


Figure 4-11
Trends in Retail Sales

DEMOGRAPHIC MARKET FACTORS AFFECTING MARKET POTENTIAL

Demographic factors can affect market potential. Changes in the number of people living in a trade area alters the potential customer pool; household income levels affect how much households spend on retail purchases; and car ownership or availability can affect where people shop. These three demographic/household characteristics are discussed below for the Primary Trade Area, and are used to inform the discussion on potential impacts of the proposed Plan and anticipated development on Lot B.

POPULATION AND HOUSEHOLDS

In 2000, there were approximately 1.62 million people living in the Primary Trade Area, representing approximately 73 percent of the population of Queens and approximately 20 percent of New York City as a whole. The Primary Trade Area contained 576,950 households in 2000, 19 percent of all households in the City (see Table 4-23).

Table 4-22
Retail Employment and Sales in New York City, 1987 - 2005

Retail Category[1]	Employment					Sales (millions of 2008 dollars)				
	1987	1992	1997	2002	2005	1987	1992	1997	2002	2005
Shoppers' Goods	119,475	103,272	105,499	114,305	142,155	$23,216	$20,511	$22,491	$25,326	NA
Department Stores	*29,415*	*21,668*	*21,254*	*16,190*	18,348	$5,384	$3,569	$4,361	$3,481	*NA*
Convenience Goods	77,191	68,152	76,634	83,777	94,764	$16,170	$14,658	$16,054	$19,508	NA
Grocery stores	*44,431*	*38,896*	*40,867*	*43,720*	46,406	$10,011	$8,650	$8,417	$8,721	*NA*
Building Materials & Garden Supply	7,447	6,196	10,801	12,148	12,416	$1,761	$1,363	$3,192	$3,610	NA
Eating & Drinking Establishments	130,274	120,383	147,936	173,947	186,077	$8,877	$8,215	$10,008	$11,855	NA
Total[2]	**334,387**	**298,003**	**340,870**	**384,177**	**435,412**	**$50,024**	**$44,747**	**$51,746**	**$60,299**	NA

Notes:
[1] Shoppers' Goods include general merchandise stores; clothing and accessory stores (including shoes); furniture and home furnishing stores; electronics and appliance stores; optical goods stores; sporting goods, hobby, book and music stores; office supplies, stationery and gift stores; used merchandise stores; and art dealers.
Convenience Goods include food and beverage stores (including delis, bakeries, and supermarkets); all health and personal care stores except for optical goods stores; florists; pet and pet supplies stores; and other miscellaneous store retailers.
Building Materials and Garden Supply includes hardware stores; building material and supplies dealers; and lawn and garden equipment and supplies stores.
[2] Total does not reflect total employment or sales for all retail—only those retail categories included in Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Establishments. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Sources: U.S. Census Bureau, Economic Census 1987, 1992, 1997, 2002; County Business Patterns 2005.

Table 4-23
Population and Households, Primary Trade Area, Queens, New York City, 1990-2000

	1990		2000		Growth 1990-2000			
	Population	Households	Population	Households	Population	Households	% Growth in Population	% Growth in Households
Primary Trade Area	1,412,101	537,071	1,619,328	576,950	207,227	39,879	14.7%	7.4%
Queens	1,951,598	720,149	2,229,379	782,664	277,781	62,515	14.2%	8.7%
New York City	7,322,564	2,819,401	8,008,278	3,021,588	685,714	202,187	9.4%	7.2%

Sources: Primary Trade Area: ESRI Business Analyst, based on 1990 and 2000 Census data; Queens and New York City: U.S. Census Bureau, 1990 and 2000 Census, Summary File 1.

Between 1990 and 2000, the population in the Primary Trade Area increased by approximately 207,227 people and by 39,879 households. During this time period, the rate of population growth in the Primary Trade Area (14.7 percent) outpaced the rate in Queens and New York City (14.2 percent and 9.4 percent, respectively). The household growth rate in the Primary Trade Area was 7.4 percent, which was slightly higher than New York City's household growth rate (7.2 percent), but lower than Queens' household growth rate (8.7 percent).

Between 2000 and 2006, approximately 13,409 residential units were constructed in the Primary Trade Area.[1] Applying the 2000 average household size for the Primary Trade Area (2.81 persons per household) to these new households, it is estimated that housing units built between 2000 and 2006 contain approximately 37,679 residents. This brings the total Primary Trade Area population to approximately 1.66 million.

HOUSEHOLD INCOME

In 1999, median household income for the Primary Trade Area, expressed in 2008 constant dollars, was roughly $54,270—approximately $4,539 higher than the citywide median of $49,731 (see Table 4-24). Between 1989 and 1999, the median household income in New York City as a whole decreased by 5.3 percent. The median household income in the Primary Trade Area decreased by 6.7 percent during this time period, which was a slower rate of decline than Queens but a higher rate than New York City as a whole.

Table 4-24
Median Household Income,
Primary Trade Area, Queens, and New York City, 1989 and 1999

Area	1989	1999	Absolute Change 1989-1999	Percent Change 1989-1999
Primary Trade Area	$58,168	$54,270	-$3,898	-6.7%
Queens	$60,171	$55,115	-$5,056	-8.4%
New York City	$52,492	$49,731	-$2,761	-5.3%

Note: All values are expressed in 2008 constant dollars.
Sources: Primary Trade Area: ESRI Business Analyst, based on 1990 and 2000 Census data; Queens and New York City: U.S. Census Bureau, 1990 and 2000 Census, Summary File 3.

VEHICLE AVAILABILITY

Vehicle availability can affect shopping habits. Households with access to at least one vehicle generally travel further distances to make certain household purchases than households without access to a car. For example, a household with access to a car may drive to a wholesale club or major supermarket several miles from home to purchase food products to serve their needs for a week or more. Households without access to a car are more likely to shop at the grocery store closest to their homes, and may be more likely to make more frequent trips, buying smaller quantities of food per trip than driving households.

According to the 2000 Census, approximately 40.9 percent of all households in the Primary Trade Area had access to one car (see Table 4-25). In comparison, Queens had a higher share of households with at least one car (41.1 percent) and New York City as a whole had a lower share (31.6 percent). Also, approximately 18.0 percent of households in the Primary Trade Area had access to two or more cars. This percentage was lower than Queens (21.3 percent) and higher than New York City (12.7 percent).

[1] New York City Department of Finance's RPAD 2006 database

Table 4-25
Vehicles Available for Use by Household Members, Primary Trade Area, Queens, and New York City, 2000

	No Car		One Car		Two Cars		Three or More Cars	
	HH	% of HH	HH	% of HH	HH	% of HH	HH	% of HH
Primary Trade Area	237,132	41.1%	236,174	40.9%	83,340	14.4%	20,720	3.6%
Queens	295,049	37.7%	321,337	41.1%	132,217	16.9%	34,061	4.4%
New York City	1,682,946	55.7%	955,165	31.6%	305,267	10.1%	78,210	2.6%

Sources: Primary Trade Area: ESRI Business Analyst, based on 1990 and 2000 Census data; Queens and New York City: U.S. Census Bureau, Census 2000, Summary File 3.

HOUSEHOLD RETAIL EXPENDITURE POTENTIAL AND TRADE AREA CAPTURE RATES

According to ESRI, households in the Primary Trade Area spent an estimated $14.6 billion on retail goods and services in 2007 (see Table 4-26). Approximately 42 percent was spent on shoppers' goods, 37 percent on convenience goods, 17 percent on eating and drinking establishments, and 3 percent on building materials and garden equipment stores. On a per household basis, Primary Trade Area residents spent roughly $10,763 annually on shoppers' goods, $9,501 annually on convenience goods, $4,298 annually at eating and drinking establishments, and $777 annually at building materials and garden supply stores. Primary Trade Area households spent approximately $5,600 more than households in Queens for these retail categories and $2,891 more than households in New York City as a whole.

Table 4-26
Household Retail Demand in the Primary Trade Area, Queens, and New York City, 2007

	Primary Trade Area		Queens		New York City	
	Total Demand (Millions of 2008 Dollars)[1]	Demand per Household (2008 Dollars)[1]	Total Demand (Millions of 2008 Dollars)[1]	Demand per Household (2008 Dollars)[1]	Total Demand (Millions of 2008 Dollars)	Demand per Household (2008 Dollars)[1]
Shoppers' Goods[2]	$6,210	$10,763	$6,644	$8,488	$27,399	$9,068
Department Stores	*$280*	*$485*	*$386*	*$493*	*$2,039*	*$675*
Convenience Goods[2]	$5,482	$9,501	$4,762	$6,084	$23,290	$7,708
Grocery Stores	*$2,190*	*$3,796*	*$3,006*	*$3,841*	*$14,591*	*$4,829*
Building Materials and Garden Supply	$448	$777	$636	$812	$2,284	$756
Eating and Drinking Establishments[2]	$2,480	$4,298	$3,408	$4,355	$14,860	$4,918
Total[3]	**$14,620**	**$25,340**	**$15,449**	**$19,740**	**$67,833**	**$22,449**

Notes:
1 Demand (retail expenditure potential) estimates the expected amount spent by consumers at retail establishments.
2 Shoppers' goods include general merchandise stores; apparel and accessory stores (including shoes); sporting goods, hobby, book and music stores; electronics and appliance stores; furniture and home furnishing stores; office supplies, stationery, and gift stores; and used merchandise stores. Convenience goods include food stores such as delis, bakeries and supermarkets, drug and proprietary stores, liquor stores; health and personal care stores; florists; and other miscellaneous store retailers. Eating and Drinking places include fast-food and full-service restaurants and bars.
3 Total does not reflect total expenditures or sales for all retail-only those retail categories included in the Shoppers' Goods, Convenience Goods, Eating and Drinking Places, and Building Materials and Garden Supply categories. Retail establishments not included in this total are: auto-related businesses and non-store retailers.
Source: ESRI, Inc.

The amount of money that Primary Trade Area residents spend on retail goods in these retail categories (an estimated $14.6 billion in 2006) is considered the Primary Trade Area demand or retail expenditure potential. This expenditure potential can be compared with total retail sales in the Primary Trade Area to obtain a "capture rate." Capture rates are measures of business

activity in a trade area, indicating the percentage of consumer expenditures for retail goods that are being captured by retailers in the trade area. If the total sales in the trade area are much lower than the area's expenditure potential, then residents are spending a large portion of their available dollars outside of the trade area, and the capture rate is low. If sales are closer in value to expenditure potential, then area residents are likely spending a higher proportion of their available resources within the area, and the capture rate is high. In general, trade areas that are satisfying the retail demand generated by trade area households have capture rates of between 70 and 80 percent.[1]

Capture rates are also affected by money flowing into an area from people who do not live in that area. Some of the sales in the Primary Trade Area, for example, may be from people living in other areas of Queens, other New York City boroughs, Nassau County, and elsewhere, shopping at stores in the Primary Trade Area. It is not possible to know exactly who (residents or nonresidents) is spending money in the area. Therefore, a high capture rate may be indicative of an area with a high proportion of destination retail, i.e., retail that will attract customers from greater distances in order to compare price, quality, and the selection of merchandise. This is the case for New York City as a whole, where the retail capture rate is approximately 93 percent and the capture rate for shopper's goods is well over 100 percent. Despite these uncertainties about the origin of sales in any particular trade area, comparing expenditure and sales data provides a good indication of how much of a trade area's household expenditure potential is being captured by trade area retailers.

Tables 4-27 through 4-29 show the capture rates for the Primary Trade Area, Queens, and New York City. As shown in Table 4-27, total retail sales for shoppers' goods, convenience goods, building materials and garden supply stores, and eating and drinking establishments in the Primary Trade Area were approximately $7.3 billion in 2007. Potential retail expenditures for these goods, on the other hand, were $14.6 billion, indicating that retail stores in the Primary Trade Area are capturing only 50 percent of the Primary Trade Area household expenditure potential. This indicates that Primary Trade Area residents are making a substantial portion of their retail purchases outside of the area, which may include other portions of Queens, other boroughs, and very likely Nassau County as well. In comparison, the retail capture rates for these retail categories for Queens and New York City were 60 percent and 93 percent, respectively (see Tables 4-28 and 4-29). As shown in Table 4-29, the high overall capture rate for New York City is attributable primarily to shoppers' goods sales, which has a capture rate of 120 percent. As indicated above, this suggests that shoppers' goods stores in the City are likely capturing a high percentage of available expenditure potential, plus additional spending from people who live outside of the City, including day-trippers, but also overnight visitors from outside the metropolitan area, including national and international visitors.

THE FUTURE WITHOUT THE PROPOSED PLAN

The primary changes that may affect retail market conditions in the Primary Trade Area in the future without the proposed Plan are population changes, which could increase expenditure potential and generate additional demand for retail goods, as well as new retail projects, which would expand the retail inventory.

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[1] The *Shopping Center Development Handbook,* published by the Urban Land Institute, indicates that shopping centers can expect to draw between 70 and 80 percent of their regular customers from their primary trade area.

Table 4-27
Household Retail Expenditures and Total Retail Sales, Primary Trade Area, 2007

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Amount Not Being Captured in Primary Trade Area[1]	Primary Trade Area Capture Rate
Shoppers' Goods	$2,811	$6,210	$3,398	45%
Department Stores	*$136*	*$280*	*$143*	*49%*
Convenience Goods	$2,478	$5,482	$3,003	45%
Grocery Stores	*$1,230*	*$2,190*	*$960*	*56%*
Building Materials and Garden Supply	$568	$448	-$120	127%
Eating and Drinking Establishments	$1,423	$2,480	$1,057	57%
Total[2]	**$7,281**	**$14,620**	**$7,339**	**50%**

Notes:
[1] All values are in millions of 2008 dollars.
[2] Total does not reflect total expenditures or sales for all retail in the Primary Study Area - only those retail categories included in the Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Places categories. Retail establishments not included in this total are: auto-related businesses, and non-store retailers.
Source: ESRI, Inc.; AKRF, Inc.

Table 4-28
Household Retail Expenditures and Total Retail Sales, Queens, 2007

	Retail Sales in Queens[1]	Retail Demand from Queens Households[1]	Amount Not Being Captured in Queens[1]	Queens Capture Rate
Shoppers' Goods	$3,474	$6,644	$3,169	52%
Department Stores	*$178*	*$386*	*$208*	*46%*
Convenience Goods	$3,112	$4,762	$1,650	65%
Grocery Stores	*$1,597*	*$3,006*	*$1,409*	*53%*
Building Materials and Garden Supply	$664	$636	-$28	104%
Eating and Drinking Establishments	$2,047	$3,408	$1,361	60%
Total[2]	**$9,297**	**$15,449**	**$6,152**	**60%**

Notes:
[1] All values are in millions of 2008 dollars.
[2] Total does not reflect total expenditures or sales for all retail in Queens - only those retail categories included in the Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Places categories. Retail establishments not included in this total are auto-related businesses and non-store retailers.
Source: ESRI, Inc.; AKRF, Inc.

Table 4-29
Household Retail Expenditures and Total Retail Sales, New York City, 2007

	Retail Sales in New York City[1]	Retail Demand from New York City Households[1]	Amount Not Being Captured in New York City[1]	New York City Capture Rate
Shoppers' Goods	$32,927	$27,399	-$5,528	120%
Department Stores	*$1,555*	$2,039	*$484*	*76%*
Convenience Goods	$16,988	$23,290	$6,302	73%
Grocery Stores	*$7,448*	$14,591	*$7,143*	*51%*
Building Materials and Garden Supply	$1,844	$2,284	$440	81%
Eating and Drinking Establishments	$11,240	$14,860	$3,620	76%
Total[2]	**$62,999**	**$67,833**	**$4,834**	**93%**

Notes:
[1] All values are in millions of 2008 dollars.
[2] Total does not reflect total expenditures or sales for all retail in Queens - only those retail categories included in the Shoppers' Goods, Convenience Goods, Building Materials and Garden Supply, and Eating and Drinking Places categories. Retail establishments not included in this total are auto-related businesses and non-store retailers.
Source: ESRI, Inc.; AKRF, Inc.

Based on 2020 forecasts generated by the New York Metropolitan Transportation Council (NYMTC)[1], the population of Queens is projected to grow to approximately 2.49 million people by 2017. Applying the average annual percent change as reported in the NYMTC forecasts to the 2000 population, the 2017 population in the Primary Trade Area will be approximately 1.81 million people. Using the average annual percent change for the number of households as reported in the NYMTC forecasts, the Primary Trade Area will contain approximately 647,475 households in 2017, an increase of 70,525 households from 2000. As shown in Table 4-26, Primary Trade Area households currently spend approximately $25,340 per year on the four retail categories highlighted in this analysis. If the additional households continue to spend the same amount per year, the households would increase the retail demand by $1.78 billion. These households would spend approximately $759.1 million on shoppers' goods (including $34.2 million at department stores), $670.1 million on convenience goods (including $267.7 million at grocery stores), $303.1 million at eating and drinking establishments, and $54.8 million at home improvement stores.

Thus, the total household expenditure potential for retail goods—including the additional households anticipated by 2017—will be approximately $16.4 billion in 2017. This represents a 12.2 percent increase over household expenditures in 2007.

At the same time, retail sales in the Primary Trade Area will also increase as new retail projects are completed. Table 4-30 lists known retail projects expected to be completed in the Primary Trade Area by 2017. These projects would add approximately 4.0 million sf of retail space to the Primary Trade Area. Based on sales per square foot estimates obtained from *Dollars & Cents of Shopping Centers, 2006*, the stores would have annual sales of approximately $2.02 billion, increasing total trade area retail sales by approximately 28 percent, from $7.3 billion in 2007 to $9.3 billion in 2007.

With annual sales of approximately $9.3 billion and household expenditure potential of $16.4 billion, the capture rate for the Primary Trade Area will be approximately 57 percent by 2017, higher than it was in 2006 (50 percent), but still well below the 70 to 80 percent characteristic of trade areas that are satisfying the retail demand generated by trade area households.

PROBABLE IMPACTS OF THE PROPOSED PLAN

ESTIMATED SALES AT STORES INTRODUCED UNDER THE PROPOSED PLAN

As described above, the proposed Plan would include approximately 1.7 million sf of retail. This section analyzes the potential impacts of the No Convention Center Scenario, as it would include an additional 50,000 sf of retail, as well as the development expected on Lot B. The No Convention Center Scenario includes 1,750,000 sf of retail comprising 150,000 sf of neighborhood retail, approximately 1,546,000 sf of destination retail, and an approximately 54,000 square foot movie theater.[2] Lot B is expected to include 184,500 sf of retail. In total, this analysis considers the potential effects of 1,934,500 sf of retail developed in the District and Lot B.

[1] New York Metropolitan Transportation Council, New York Urban Region Population by County: 1970-2030, June 2005.

[2] The theater would include 2,700 seats. The square footage is estimated at 20 sf per seat.

Table 4-30

Estimated Sales for Retail Projects to be Built in the Primary Trade Area by 2017

Project	Square Feet	Estimated Sales (Millions of 2008 Dollars)
Sky View Parc[1]	**811,800**	**$394.17**
Shopper's Goods	537,000	$253.37
Convenience Goods	84,000	$39.63
Eating and Drinking	51,800	$24.44
Bldg Materials	139,000	$76.73
Queens Crossing	**110,000**	**$51.90**
Shopper's Goods	75,000	$35.39
Eating and Drinking	35,000	$16.51
RKO Keith[2]		
Convenience Goods	**10,000**	**$5.67**
New Millennium 35th Avenue[2]		
Convenience Goods	**3,600**	**$2.04**
New Millennium Northern Boulevard[2]		
Convenience Goods	**17,167**	**$9.73**
Caldor Site[3]		
Shopper's Goods	**155,000**	**$76.20**
Flushing Commons[4]	**200,000**	**$98.32**
Shopper's Goods	120,000	$58.99
Convenience Goods	60,000	$29.50
Eating and Drinking	20,000	$9.83
40-22 Main Street[2]		
Convenience Goods	**17,015**	**$9.64**
133-47 39th Avenue[2]		
Convenience Goods	**11,419**	**$6.47**
43-57 Main Street[2]		
Convenience Goods	**2,085**	**$1.18**
110-09 Northern Boulevard[2]		
Convenience Goods	**15,500**	**$8.78**
Queens Tax Block 1707[5]	**73,329**	**$36.12**
Shopper's Goods	15,000	$7.37
Convenience Goods	46,329	$22.82
Eating and Drinking	12,000	$5.92
108-09 Northern Blvd[2]		
Convenience Goods	**8,970**	**$5.08**
106-15 Northern Blvd[2]		
Convenience Goods	**5,502**	**$3.12**
32-56 106th Street[2]		
Convenience Goods	**7,144**	**$4.05**
Rego Park Mall Expansion[6]	**587,700**	**$271.12**
Shopper's Goods (Discount Department Store)	80,000	$44.19
Shopper's Goods (Other)	403,313	$178.58
Convenience Goods	66,700	$30.72
Eating and Drinking	37,687	$17.63
Jamaica Courthouse Redevelopment[5]	**42,800**	**$21.04**
Shopper's Goods	6,000	$2.95
Convenience Goods	26,800	$13.18
Eating and Drinking	10,000	$4.92
"Z Parcel" Rego Park[6]	**80,000**	**$42.58**
Convenience Goods (Supermarket)	60,000	$34.18
Convenience Goods (Other)	20,000	$8.40

Table 4-30 (cont'd)
Estimated Sales for Retail Projects to be Built in the Primary Trade Area by 2017

Project	Square Feet	Estimated Sales (Millions of 2008 Dollars)
Jamaica Rezoning – Local Retail[7]	**665,723**	**$370.76**
Shopper's Goods	287,880	$163.11
Convenience Goods	242,899	$137.63
Eating and Drinking	107,955	$61.17
Bldg Materials	26,989	$8.86
Jamaica Rezoning – Regional Retail[7]	**1,203,137**	**$597.53**
Shopper's Goods	751,960	$369.67
Convenience Goods	225,588	$110.90
Eating and Drinking	125,327	$61.61
Bldg Materials	100,261	$55.35
River Park Place		
Convenience Goods	10,200	$5.78
Total	**4,038,091**	**$2,021.28**
Shopper's Goods	2,431,153	$1,189.82
Discount Department Stores	*80,000*	*$44.19*
Convenience Goods	940,919	$488.49
Grocery Stores	*60,000*	*$34.18*
Eating and Drinking	399,769	$202.04
Bldg Materials	266,250	$140.93

Notes:
1 Sky View Parc is expected to include a home improvement store, a discount department store, and several shopper's goods stores. The retail breakdown is based on tenant requirements from the developer.
2 Assumed to be convenience goods.
3 Assumed to be shopper's goods.
4 Sales estimates were modeled on upper decile sales for US Super Community/Community Shopping Centers as reported in ULI's *Dollars & Cents of Shopping Centers, 2006.*
5 The mix of the retail space was modeled on the typical breakdown of space in neighborhood shopping centers, as reported in ULI's *Dollars & Cents of Shopping Centers, 2006.*
6 The retail mix of the Rego Park Mall Expansion and the Z Parcel mirrors the mix assumed for these developments in the 2005 Rego Park Mall EIS.
7 The Reasonable Worst Case Development Scenario for the 2007 *Jamaica Plan FEIS* proposed approximately 900,000 square feet of "local" retail and 1.25 million square feet of "regional" retail. The retail mix for the local retail was modeled on the typical breakdown of space in convenience shopping centers, as reported in ULI's *Dollars & Cents of Shopping Centers, 2006.* The total for the local retail does not equal 900,000 square feet because it assumed that some of the space would be occupied by neighborhood services and auto-related businesses, which are not included in this analysis. The retail mix for the regional retail was modeled on the typical breakdown of space in super community/community shopping centers, as reported in ULI's *Dollars & Cents of Shopping Centers, 2006.* This mix also assumes that a portion of the space would be occupied by neighborhood service businesses, which are not included in this analysis.

Sources: Sales estimates were derived using per-square-foot sales estimates from Urban Land Institute, *Dollars & Cents of Shopping Centers, 2006*; AKRF, Inc.; New York City Department of City Planning.

Given that specific tenants and store sizes for the proposed Plan and Lot B have not yet been determined, for purposes of providing a conservative assessment of potential socioeconomic impacts, this analysis has developed a reasonable worst-case retail program for the two sites. For the destination retail in the District, this program assumes as anchor tenants: two wholesale clubs totaling 250,000 sf, two discount department stores totaling 230,000 sf, and an 115,000-square foot-home improvement store. The remaining 951,000 sf of destination retail would include eating and drinking establishments and other shopper's goods stores. The neighborhood retail in the District was analyzed with a program including a 50,000-square-foot grocery store, 18,000 sf

of eating and drinking establishments, and 82,000 sf of other convenience goods.[1] It was assumed that Lot B would have 134,500 sf of shopper's goods stores and 50,000 sf of eating and drinking establishments.

This retail program provides a conservative assessment of potential impacts because it assumes that the proposed retail in the District would be tenanted by stores that would offer a variety of goods (such as discount department stores, grocery stores, and wholesale clubs) that could compete with a wide range of existing shoppers' goods and convenience goods retailers in the study areas. The wholesale clubs and grocery stores envisioned for the District in this analysis could also directly compete with grocery stores, a store that often functions as an anchor of local retail concentrations. Furthermore, the retail program conservatively assumes that the District would attract two wholesale clubs and two discount department stores; when complete, the District may only have one or none of either store type.

As shown in Table 4-31, retail sales resulting from the proposed Plan and Lot B are projected to be approximately $906.1 million annually, generated by 1,176,500 sf of shoppers' goods space, 351,000 sf of convenience goods space, 238,000 sf of eating and drinking establishments, and 115,000 sf of home improvement space. Annual sales for shoppers' goods are estimated at $552.8 million, annual sales for convenience goods are estimated to be $189.4 million, annual sales for eating and drinking establishments are estimated to be $100.3 million, and estimated annual sales for home improvement stores are $63.5 million.

Table 4-31

Estimated Retail Sales at Stores Introduced Under the Proposed Plan and Lot B

	Square Feet	Total Sales (Millions of 2008 Dollars)
Convenience Goods	**351,000**	**$189.43**
Grocery at Wholesale Club[1]	150,000	$86.73
Grocery at Discount Department Store[2]	69,000	$32.34
Grocery at Neighborhood Retail	50,000	$30.05
Other Neighborhood Retail	82,000	$40.31
Shoppers Goods	**1,176,500**	**$552.83**
Wholesale Club	100,000	$57.82
Discount Department Store	161,000	$75.46
All Other	915,500	$419.56
Eating and Drinking	**238,000**	**$100.31**
Destination Retail	220,000	$96.47
Neighborhood Retail	18,000	$3.84
Building Materials	**115,000**	**$63.48**
Movie Theater[3]	**54,000**	**NA**
Total	**1,934,500**	**$906.06**

Notes:

1 Based on information from selected 2006 and 2007 SEC 10K filings of typical wholesale clubs, approximately 60 percent of the wholesale club sales are assumed to be from grocery items.

2 Based on information from selected 2006 and 2007 SEC 10K filings of typical discount department stores, approximately 30 percent of sales at the discount department store are assumed to be from grocery items.

3 The movie theater is planned to be 2,700 seats. Square footage was estimated at 20 square feet per seat. Sales at the movie theater are not included in the analysis.

Sources: Wholesale club sales per square foot were estimated based on sales data presented in the 2005 900 Brush Avenue, Bronx EAS, which analyzed potential impacts related to the introduction of a B.J.'s Wholesale Club. Discount department store and home improvement sales were estimated based on proprietary sales data from discount department stores and home improvement stores and shopping centers in the New York Metropolitan Area. Sales for all other shoppers' goods, convenience goods, and eating and drinking establishments were estimated based on data from the Urban Land Institute's *2006 Dollars and Cents of Shopping Centers*.

[1] The other convenience goods in the neighborhood retail component conservatively includes all neighborhood service businesses (e.g., Laundromat, nail salon, etc.)

ESTIMATED CHANGES IN PRIMARY TRADE AREA CAPTURE RATE

As described under "Future Without the Proposed Plan," the Primary Trade Area is expected to grow by approximately 70,525 households by 2017. With these households, the household expenditure potential for retail goods will be approximately $16.4 billion in 2017. Under the No Convention Center Scenario, the proposed Plan would introduce 5,850 households. These households would add approximately $148 million to the trade area expenditure potential, increasing it to $16.6 billion in the future with the proposed Plan. As described above, total sales for the new stores under the proposed Plan and Lot B are projected to be approximately $906.1 million. Adding this to existing sales in the trade area and to sales at retailers that are expected to open in the Primary Trade Area, total projected sales for retail categories analyzed would be approximately $10.2 billion in 2017 with the proposed Plan.

The overall capture rate in the Primary Trade Area would increase to 62 percent in the future with the proposed Plan (see Table 4-32). This capture rate is approximately 5 percentage points higher than it would be in the future without the proposed Plan. Only one retail category—building materials and garden supply—would see a capture rate substantially in excess of the 70 to 80 percent characteristic of trade areas that are satisfying the retail demand generated by trade area households. The capture rate for building materials and garden supply stores would increase by 11 percentage points to 152 percent. The building material and garden supply retail category has a capture rate in excess of 100 percent even under existing conditions. This is typical for the building materials and garden supply retail category, most likely because the sales figures include sales to contractors as well as individual households. Comparing the combined sales from households and contractors with the expenditure potential of households only results in a capture rate that is higher than 100 percent.[1]

The capture rate for department stores in the future with the proposed Plan would be 81 percent. This is only slightly greater than the 70 to 80 percent capture rate that is characteristic of a well-served trade area and would not represent an oversupply of department stores in the Primary Trade Area. This analysis conservatively assumes that 100 percent of the sales for department stores in the trade area come from residents of the trade area. However, given the scale of other retail developments with department stores and the mix of retail offerings (such as Target at the Queens Center Mall in Elmhurst and the department store planned for the Rego Park Mall expansion), it is likely that a portion of the sales at department stores in the trade area come from residents outside of the trade area.

All other retail categories would remain below a 70 percent capture rate. The capture rate for shoppers' goods would increase by approximately 8 percentage points to 65 percent. The capture rate for convenience goods would increase by 3 percentage points, to 51 percent. As a subset of convenience goods, grocery store capture rates would increase to 57 percent. Eating and drinking establishments would capture 61 percent of trade area demand, up from 58 percent in the future without the proposed Plan. The trade area would remain undersupplied by these retail categories.

[1] Although ESRI, Inc. excludes sales to businesses, it is likely that a portion of the sales at home improvement stores includes some sales to smaller contractors.

Table 4-32
Comparison of Estimated Retail Capture Rates in Primary Trade Area: Existing Conditions, Future Without the Proposed Plan and Future With the Proposed Plan

	Retail Sales in Primary Trade Area[1]	Retail Demand from Primary Trade Area Households[1]	Primary Trade Area Capture Rate
Existing Conditions			
Shoppers' Goods	$2,811	$6,210	45%
Department Stores	*$136*	*$280*	*49%*
Convenience Goods	$2,478	$5,482	45%
Grocery	*$1,230*	*$2,190*	*56%*
Eating and Drinking	$1,423	$2,480	57%
Building Materials and Garden Supply	$568	$448	127%
TOTAL	**$7,281**	**$14,620**	**50%**
2017 Without the Proposed Plan			
Shoppers' Goods	$4,001	$6,969	57%
Department Stores	*$181*	*$314*	*58%*
Convenience Goods	$2,967	$6,152	48%
Grocery	*$1,265*	*$2,458*	*51%*
Eating and Drinking	$1,625	$2,783	58%
Building Materials and Garden Supply	$709	$503	141%
TOTAL	**$9,302**	**$16,407**	**57%**
2017 With the Proposed Plan			
Shoppers' Goods	$4,554	$7,032	65%
Department Stores	*$256*	*$317*	*81%*
Convenience Goods	$3,156	$6,207	51%
Grocery	*$1,414*	*$2,480*	*57%*
Eating and Drinking	$1,725	$2,808	61%
Building Materials and Garden Supply	$773	$508	152%
TOTAL	**$10,208**	**$16,555**	**62%**

Note: [1]All dollar values are presented in millions of 2008 dollars.
Sources: See source notes for Tables 4-6 through 4-11.

The proposed Plan and Lot B would increase the capture rate within the Primary Trade Area by only 5 percentage points compared with the future without the proposed Plan. Although building material and garden supply stores would have a capture rate of 152 percent, they have a capture rate over 100 percent under existing conditions and, as described previously, this analysis does not account for sales to smaller contractors that may drive up the capture rate. Further, this retail program is designed to provide a conservative assessment of the proposed Plan's potential socioeconomic impacts, and a home improvement store would not necessarily locate in the District. Likewise, department stores in the future with the proposed Plan would have an 81 percent capture rate, but this analysis conservatively assumes that all sales are to consumers living within the Primary Trade Area. In all other retail categories, capture rates would be below 70 percent. Therefore, the proposed Plan and Lot B would not significantly affect competitive stores within the Primary Trade Area.

PROBABLE IMPACTS ON LOCAL SHOPPING AREAS

As described in the *CEQR Technical Manual*, competitive effects on stores closest to a project site can occur even when there are still substantial unspent dollars within a trade area. While competition does not constitute a significant adverse impact under CEQR guidelines, when competition adversely affects neighborhood character, it could constitute a significant adverse impact. If proposed anchor stores have the potential to affect the operations of competitive stores located on neighborhood commercial strips, and if these competitive stores are the anchor stores on those strips, there would be the potential for neighborhood character impacts. The *CEQR Technical Manual* also states that the number and variety of proposed non-anchor stores could accentuate the potential for impacts.

This section examines the proposed Plan's potential competitive effects within about 1½ miles of the District (the 1½-Mile Trade Area) to determine whether competition with stores in local shopping areas could undermine the viability of retail concentrations, thereby leading to significant adverse impacts on neighborhood character. The 1½-Mile Trade Area, as shown in Figure 4-12, encompasses seven nearby retail corridors and one large shopping center.

The analysis focuses on grocery stores in particular, because grocery stores generally serve as anchors for retail concentrations, and the proposed Plan could introduce three stores offering products that substantially overlap with typical grocery store offerings. Specifically, the reasonable worst-case program analyzed for the proposed Plan includes an approximately 50,000-square-foot grocery store in the neighborhood retail portion of the project. Because of the supermarket's expected size, it would primarily serve the grocery needs of neighborhood shoppers and would compete with other local supermarkets. The proposed Plan as analyzed would also include two wholesale clubs totaling 250,000 sf, of which an estimated 150,000 sf of space would be dedicated to the sale of groceries.[1] Although capture rates for home improvement stores and department stores, respectively, would be 152 percent and 81 percent in the future with the proposed Plan, these store types are not included in this analysis because they do not anchor local retail concentrations near the District and they tend to draw customers from larger trade areas than food stores.

RETAIL CONCENTRATIONS WITHIN THE 1½-MILE TRADE AREA

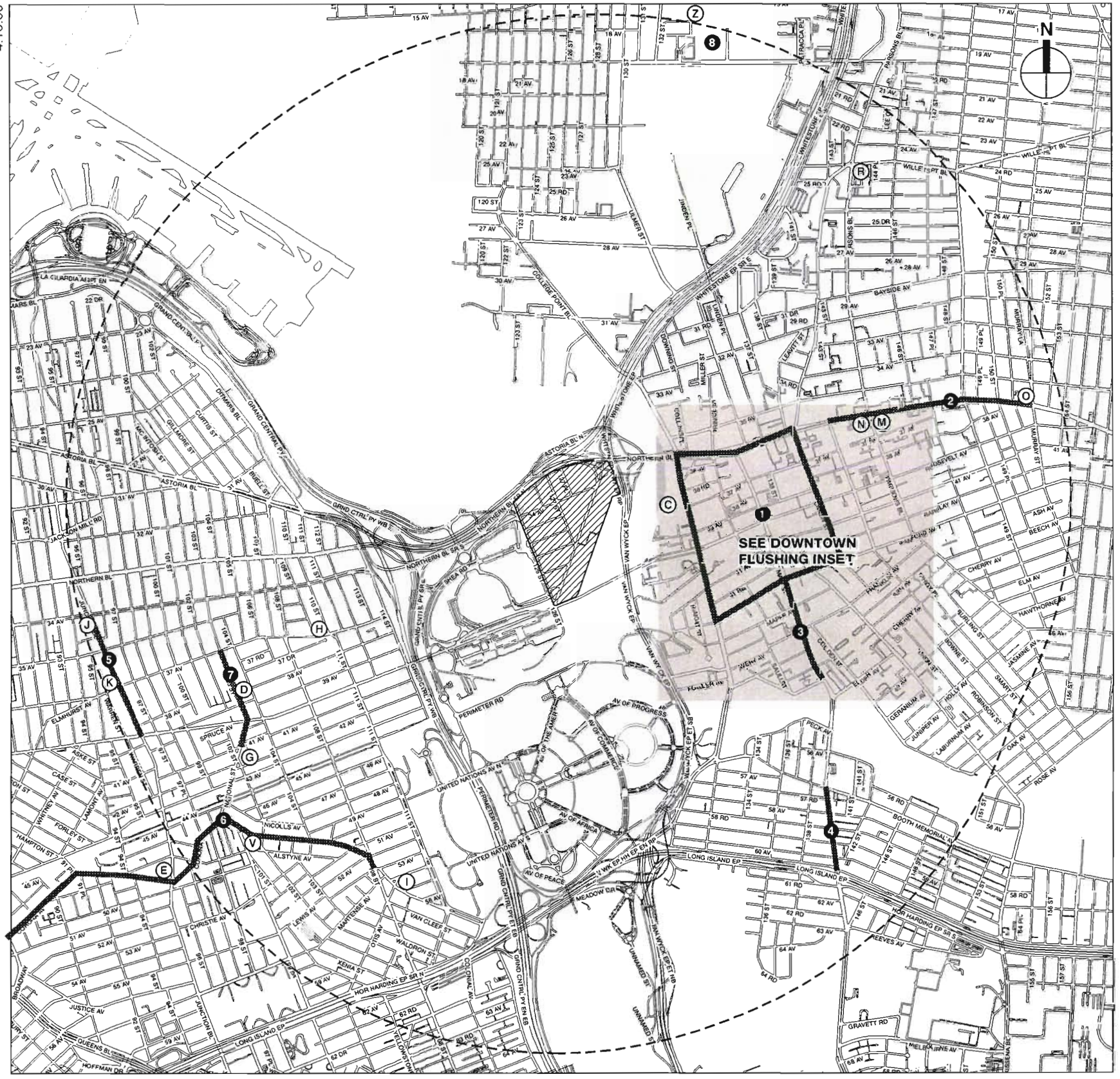
The 1½-Mile Trade Area includes several retail concentrations that play an important role in the economic needs of neighborhood residents as well as the social life of their communities. The retail in the proposed Plan could have the potential to draw customers from existing retail concentrations within the 1½-Mile Trade Area, thereby affecting the business environment of those areas. This section describes major retail concentrations within the 1½-Mile Trade Area, focusing on the types of retail (i.e., shopper's goods, convenience goods, neighborhood services, etc.) in each area. Characterizations of the retail concentrations are based on detailed field visits conducted by AKRF in February 2008. The location of each retail strip is shown in Figure 4-12.

Downtown Flushing

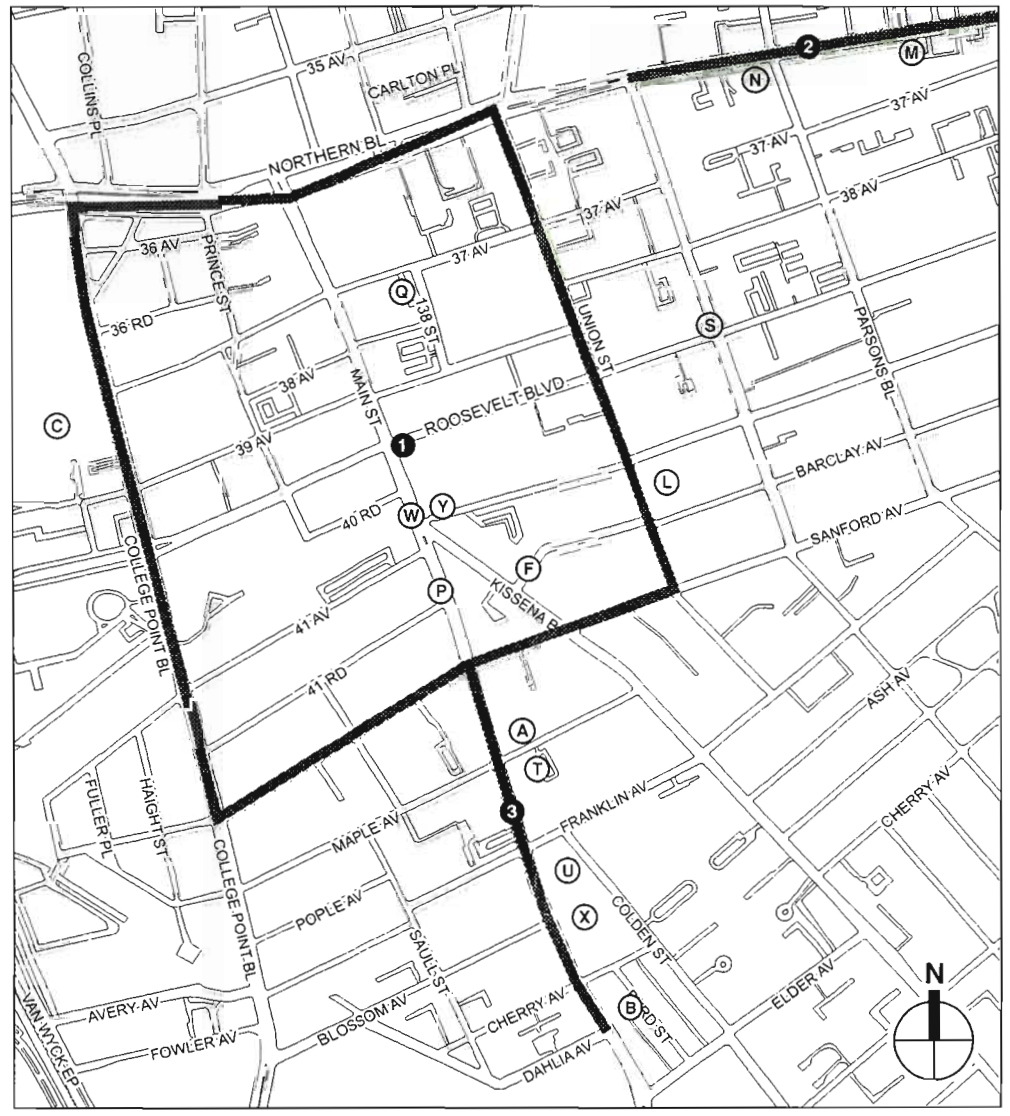
Downtown Flushing is located directly east of the Flushing River from the District. Its retail district is centered at the corner of Main Street and Roosevelt Avenue, but encompasses the area bounded roughly by College Point Boulevard to the west, Sanford Avenue to the south, Northern

[1] Based on wholesale club data from selected 2006 and 2007 SEC 10K filings, approximately 60 percent of the wholesale club sales are assumed to be from grocery items.

4.10.08



DOWNTOWN FLUSHING INSET



Willets Point Development District

1-1/2-mile Trade Area

Retail Concentrations

Supermarket Location

RETAIL CONCENTRATIONS

1. *Downtown Flushing*
2. *Northern Boulevard between Bowne Street and Murray Street*
3. *Main Street from Sanford Avenue to Dahlia Avenue*
4. *Main Street from Booth Memorial Avenue to the Long Island Expressway*
5. *Junction Boulevard from 34th Avenue to 40th Avenue*
6. *Corona Avenue from 90th Street to 108th Street*
7. *103rd Street/National Street from 37th Avenue to 42nd Avenue*
8. *College Point Shopping Center*

Figure 4-12

Retail Concentrations within the 1½-mile Trade Area

Boulevard to the north, and Union Street to the east. Downtown Flushing is a full-scale Central Business District (CBD), with a combination of office and retail uses. Residential uses become more prevalent near the southern and eastern boundaries of the area. Flushing has a vibrant retail district with a broad range of store sizes and types, and an active business community supported by the Downtown Flushing Transit Hub Business Improvement District, which was established in 2003.

Several large national chain stores, including Macy's and Old Navy, are located at or near the corner of Main Street and Roosevelt Avenue. In addition to national chain stores, downtown Flushing also contains a variety of shoppers' goods stores and smaller convenience stores, a large proportion of which cater to the Asian population living in Flushing. Pedestrian traffic is very high throughout most of the downtown area. The Flushing CBD can be reached by the No.7 subway line, which stops at the corner of Main Street and Roosevelt Avenue, or by any of the approximately two dozen bus lines that converge at the downtown area.

Northern Boulevard between Bowne Street and Murray Street

This eastern portion of Northern Boulevard is more auto-oriented than most corridors surveyed, with two lanes of traffic flowing in each direction, few pedestrians, and several establishments offering free off-street parking. Storefronts are generally less concentrated and more scattered along this retail strip. Most of the stores along this strip offer neighborhood services or convenience goods, including three large supermarkets that cater to the Asian population nearby. Many shops are in one-story buildings and several parking lots are dedicated to specific stores, such as a 7-11, Burger King, and the three supermarkets. Residential buildings become denser and taller, as compared with the single-family homes that surround Downtown Flushing.

Main Street from Sanford Avenue to Dahlia Avenue

Main Street continues to function as a retail corridor south of downtown Flushing from Sanford Avenue to Dahlia Avenue. This stretch of Main Street has fewer shopper's goods stores and more neighborhood services and convenience goods. Pedestrian traffic is generally less than within downtown Flushing, but still high overall. This stretch has several small grocery stores and delis, including grocery stores focusing on Asian-Indian groceries and Halal foods.

Main Street from Booth Memorial Avenue to the Long Island Expressway

The southern portion of Main Street is an active retail strip located southeast of the District. The corridor is lined mostly with small, one-story storefronts offering convenience goods and neighborhood services. Local establishments make up the majority of the stores. Compared to other retail concentrations within the 1½-Mile Trade Area, pedestrian and auto traffic is lighter. It is likely that the customer base for this retail concentration comes primarily from the surrounding residential neighborhood.

Junction Boulevard from 34th Avenue to 40th Avenue

This Corona neighborhood retail strip extends from 34th to 40th Avenues along Junction Boulevard. The strip contains a mixture of shoppers' and convenience goods stores, including clothing, shoe, and furniture stores, as well as pharmacies, restaurants, grocery stores, and 99 cent stores. Based on field observations, the strip appears to be more heavily weighted toward shoppers' goods than convenience goods. Larger stores include VIM clothing store, Payless Shoe Source, Food Dimensions grocery store, and a Junction Food Bazaar grocery store at Junction Boulevard and 34th Avenue. Chain retailers have a stronger presence along this corridor compared with other retail concentrations within the 1½-Mile Trade Area. Many of the

stores—food stores and restaurants in particular—cater to a Hispanic population. Transit service to the corridor is good, with a No. 7 subway line express train stop located at Junction Boulevard and Roosevelt Avenue.

Corona Avenue from 90th Street to 108th Street

Corona Avenue is situated southwest of Willets Point, approximately 1 mile from the District. The strip is lined with a mixture of commercial, residential, and institutional uses, with commercial uses most densely clustered at the intersections with 91st Street, Junction Boulevard, and 108th Street. Many of the stores in this concentration offer neighborhood services, and there are also a number of convenience goods stores and restaurants. Shopper's goods, such as clothing, jewelry, or furniture, are scarce. Most of the stores cater to the local Hispanic community, offering Central and South American food products and posting signs written in Spanish in store windows.

103rd Street/National Street from 37th Avenue to 42nd Avenue

The National Street/103rd Street retail concentration is a narrow retail corridor that runs from 37th Avenue to 42nd Avenue and is bisected by Roosevelt Avenue. Stores along this corridor offer mostly convenience goods, such as a 99 cent store, several delis, and a grocery store, as well as neighborhood services like a beauty salon and a barber shop. There are also several limited-service restaurants and a handful of shopper's goods stores, including a carpet and furniture store, a jewelry store, and an athletic shoes store. Several of the stores appear oriented toward serving the local shopping needs of the surrounding Hispanic community. Pedestrian traffic is highest at 103rd Street and Roosevelt Avenue, where the 103rd Street-Corona Plaza No. 7 subway line local train stop is located.

College Point Shopping Center

The College Point Shopping Center is located on 20th Avenue between 132nd Street and the Van Wyck Expressway in College Point. The center opened in 1998 and today includes a variety of destination retail stores, including Old Navy, Modell's Sporting Goods, Babies R Us, BJ's Wholesale Club, Circuit City, TJ Maxx, Target, and Staples, along with chain eating and drinking establishments such as McDonalds and Starbucks.

POTENTIAL IMPACTS ON LOCAL FOOD STORES

The retail corridors within the 1½-Mile Trade Area contain a wide variety of food and beverage stores, including several large chain supermarkets and smaller independent stores such as delis and grocery stores, meat and fish markets, fruit and vegetable markets, and retail bakeries. Supermarkets and grocery stores in the 1½-Mile Trade Area include a few large chain supermarkets, such as Waldbaums, as well as many smaller supermarket chains, such as Associated and C-Town, and several Asian food markets of varying size (see Table 4-33). There are approximately 26 supermarkets or grocery stores in the 1½-Mile Trade Area. The names and addresses of each supermarket or large grocery store are provided in Table 4-33 and are mapped in Figure 4-12. As noted above, the analysis focuses on grocery stores in particular, because grocery stores generally serve as anchors for retail concentrations, and the proposed Plan could introduce stores offering products that substantially overlap with typical grocery store offerings.

Table 4-33
Selected Supermarkets in 1½-Mile Trade Area

Map No.	Name	Address/Location
A	**A&N Food Market**	**41-79 Main St**
B	Al-Habib Halal Meat and Grocery	43-25 Main St
C	**Assi Plaza**	**131-01 39th Ave**
D	Associated Supermarket	39-09 103rd St
E	C Town	94-53 Corona Ave
F	**Chang Jiang Supermarket**	**41-41 Kissena Blvd**
G	**Corona Food Plaza**	**41-25 102nd St**
H	Fine Fare Supermarket	109-01 37th Ave
I	Fine Fare Supermarket	108-02 Otis Ave
J	**Food Bazaar**	**34-20 Junction Blvd**
K	**Food Dimensions**	**35-60 Junction Blvd**
L	Goowha Market	41st Ave and Union St
M	**GW Flushing Market**	**144-50 Northern Blvd**
N	Han Ah Reum (Hmart)	141-40 Northern Blvd
O	**Hanyang Mart**	**150-51 Northern Blvd**
P	Hing Long Supermarket	41-16 Main St
Q	**Hong Kong Supermarket**	**37-13 Main St**
R	**Key Food Supermarket**	**25-03 Parsons Blvd**
S	**Key Food Supermarket**	**142-41 Roosevelt Ave**
T	**Maple Supermarket**	**42-01 Main St**
U	New Subzi Mandi	42-55 Main St
V	**NSA Supermarket**	**99-32 Corona Ave**
W	Ou Jiang Supermarket	40-36/38 Main St
X	Patel Brothers	42-79 Main St
Y	Sunrise Food Market	40-33 Main St
Z	**Waldbaums Supermarket**	**132-01 20th Ave**

Notes: Supermarkets greater than 10,000 sf are listed in **bold**.
Sources: Store square footage based on RPAD data and estimates from aerial photography.

As described below, with the proposed Plan, the amount of competitive business displacement of grocery stores and local retail stores more generally would be minimal, is not anticipated to jeopardize the viability of any neighborhood retail strips, is not expected to diminish the level of services provided and, therefore, is not anticipated to result in significant adverse impacts due to competition.

Local stores would remain more convenient to many shoppers.

Local area residents would continue to make a majority of their shopping trips to stores closest to their homes and closest to public transportation. It is therefore unlikely that a large portion of consumer sales would be diverted from local stores to the proposed retail development under the proposed Plan and Lot B. Many residents, especially those without access to a car, would continue to do the majority of their grocery shopping at the stores on the local retail corridors because they would remain more convenient as well as because transit service to the District would not be convenient for many residents of the 1½-Mile Trade Area. Although the District is served by the No. 7 subway line and the Q19, Q66, and Q48 buses, these transit options do not serve the entirety of the 1½-Mile Trade Area, especially those households in the northern and southern portions of the trade area. Further, it is unlikely that residents would travel out of their way to access a transit route to the District, especially when many existing retail concentrations are well served by buses and subways.

For households not along the transit routes that serve the District, a car would be the most convenient way to access the proposed retail. Approximately 46 percent of households in the 1½-Mile Trade Area do not have a vehicle available to them. The 54 percent vehicle availability rate indicates that while many local households may make trips to area supermarkets once in a while (in cars with friends or family, or by private car service), they are not likely to do their more frequent grocery shopping there and would instead be likely to continue to do a majority of their food shopping at grocery stores closest to their homes and closest to convenient public transportation. In general, local grocery stores and supermarkets would continue to meet the demand by local residents in the 1½-Mile Trade Area for convenience food purchases.

In addition, the central locations of local grocery stores put them at an advantage over the District in some respects. Residents are likely to combine shopping trips for groceries with errands such as trips to the bank or dry cleaner, and may also shop for retail goods such as clothing, shoes, or books on the same trip. Many of the smaller grocery stores in the 1½-Mile Trade Area are located along major commercial corridors that offer a variety of convenience goods, shopping goods, and neighborhood services, or in small retail clusters that include other basic convenience goods stores. Many residents, even those with access to a car, would continue to do the majority of their grocery shopping at these supermarkets because of the opportunity they provide for easily combining trips. It is therefore unlikely that a large portion of their sales would be diverted from local grocery stores to a supermarket in the District.

The development of a wholesale club and supermarket as part of the retail mix of the proposed Plan would not be expected to substantially affect the area's small- and medium-sized food and beverage stores. Specialty stores like meat and fish stores, and bakeries are generally patronized by neighborhood residents who value the convenience of shopping at a smaller store located near to their home, and the high quality of goods and personal service that can be offered by stores that specialize in certain food products. A wholesale club or chain supermarket would not offer the same specialized products or service, and business at specialty food and beverage stores is not expected to be significantly affected by the inclusion of a either a wholesale club or supermarket in the proposed Plan.

Small- to medium-sized, independently owned grocery stores, bodegas, and delis serve a retail function similar to specialty food stores, though they offer a wider variety of food items. In general, these smaller grocery stores tend to act as convenience stores, where customers make frequent trips and purchase fewer items that are in immediate demand, such as milk or bread, or housekeeping supplies such as light bulbs. While shoppers may sometimes purchase these types of goods at chain supermarkets, they typically do not make frequent trips for convenience goods to wholesale clubs or area supermarkets; instead, they are likely to continue to fill their more frequent convenience food and beverage needs at smaller, nearby grocery stores.

Local retail corridors tend to have more convenience goods and neighborhood services stores compared with anticipated uses under the proposed Plan.

Most of the retail corridors in the 1½-Mile Trade Area cater to local communities. As such, these concentrations tend to offer a variety of convenience goods stores and neighborhood service stores. Neighborhood-oriented retail would not compete with the destination retail in the District. Although the proposed Plan includes 150,000 sf of neighborhood retail, including a potential 50,000 sf grocery store, this retail would cater to the 5,850 residential units that are being built as part of the proposed Plan.

Many retail corridors in the 1½-Mile Trade Area cater to specific ethnic groups.

Many neighborhoods in Queens have a distinct character in terms of income levels and ethnic background of their residents. The local retail concentrations reflect the income and ethnic patterns of their local neighborhoods, with local retailers offering specialty goods and services familiar to a specific ethnic community and frequently doing business in a foreign language. For example, shopping areas found along Corona Avenue, Junction Boulevard, 103rd Street/National Street, and Downtown Flushing cater to the local Hispanic and Asian populations. By focusing on a specific, and in some cases, geographically small local market area, these retail concentrations in Queens have maintained strong local support. And despite the fact that many of the local commercial strips draw from a small primary trade area (in some cases a two- or three-block radius), sales are high due to very high population densities throughout the borough. Furthermore, it is unlikely that the proposed retail would offer goods, services, or restaurants that would directly compete with the specialty goods, services, and ethnic restaurants offered by local retailers focusing on a specific ethnic community. Overall, many shopping areas would be likely to retain their customer base.

Supermarkets offer a broader selection of merchandise compared with a wholesale club.

The selection of grocery items at the potential wholesale clubs under the proposed Plan would not be comparable with the selection offered at supermarkets within the 1½-Mile Trade Area. For example, Costco limits the number of different items offered in each product line, carrying an average of approximately 4,000 active stockkeeping units (SKUs) per warehouse.[1] In contrast, the filing indicates supermarkets normally stock between 40,000 and 60,000 SKUs or more. Shoppers who prefer to have a wide assortment of items to choose from would likely continue to shop at area supermarkets.

Some portion of sales at the wholesale club would be diverted from sales at other wholesale clubs.

Although specific tenants have not been confirmed for the proposed Plan, it could potentially include a wholesale club. There is already a BJ's Wholesale Club nearby at the College Point Shopping Center, but some Queens residents nearby may choose not to shop there because they prefer other wholesale retailers, such as Sam's Club and Costco. These consumers may also choose to travel to a Costco at Vernon Boulevard and Broadway in Queens, or outside the borough to a Costco in Lawrence, NY, near JFK Airport, or to a Sam's Club in Linden, NJ. Depending on the wholesale store operator, some of these residents may choose to shop at the new store if the proposed Plan is developed, rather than traveling to stores outside of the borough. Therefore, some portion of sales at the proposed Plan's wholesale club would represent sales that have been diverted from other wholesale clubs, not from local supermarkets.

Cost of membership will discourage some from shopping at a wholesale club.

Households are required to purchase a wholesale club membership card in order to shop at the store. The cost of a membership card at wholesale clubs is typically about $40 to $50 per household. This may serve as a barrier to some households in the 1½-Mile Trade Area. Households who are not able or choose not to pay a $40 membership fee would continue to shop at local supermarkets.

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[1] Costco Wholesale Corporation, 2006 SEC Filing (Form 10-K).

There is an outflow of consumer spending within the 1½-Mile Trade Area.

Stores that are most likely to experience competitive pressure from a wholesale club and large chain supermarket are other large chain supermarkets and large grocery stores. This is because some local residents who currently shop in bulk at existing local supermarkets could decide to do their bulk shopping at the wholesale club or potential supermarket instead. However, a capture rate analysis for the 1½ -Mile Trade Area shows that sales from a new supermarket and wholesale club would change capture rates for grocery stores very little. Sales at new grocery stores would be balanced by population growth resulting from the proposed Plan and developments in the future without the proposed Plan. Overall, the capture rate would decrease in the future with the proposed Plan, from 68 percent to 67 percent (see Table 4-34). This analysis assumes that only a portion of the sales from the retail under the proposed Plan would be generated by households living in the 1½-Mile Trade Area.

In the future without the proposed Plan, new components of demand would be added to the 1½-Mile Trade Area with the construction of the 3,482 No Build units near the District (see Table 17-9 in Chapter 17, "Traffic and Parking"). This would constitute a substantial new customer base in the 1½-Mile Trade Area. As shown above in Table 4-26, households within the Primary Trade Area spend approximately $3,796 per household annually at grocery stores. It is expected that new residents of the 1½-Mile Trade Area would spend a comparable amount at grocery stores, resulting in an additional $13.2 million of grocery expenditure potential, which would increase the grocery expenditure potential of the 1½-Mile Trade Area to $278 million. No new grocery stores are expected in the 1½-Mile Trade Area, and annual grocery store sales would remain approximately $180 million (see Table 4-34). With annual sales of approximately $180 million and annual grocery expenditure potential of $278 million, the capture rate would decrease to 65 percent.

Table 4-34
Comparison of Estimated Grocery Store Capture Rates in the 1½-Mile Trade Area: Existing Conditions and Future Without and With the Proposed Plan

	Grocery Sales in 1½-Mile Trade Area[1]	Grocery Demand in 1½-Mile Trade Area[1]	1½-Mile Trade Area Capture Rate
Existing Conditions			
Grocery Stores	$179.8	$264.7	68%
Future Without the Proposed Plan			
Grocery Stores	$179.8	$277.9	65%
Future With the Proposed Plan			
Grocery Stores	$200.0	$300.1	67%

Notes: [1]All dollar values are presented in millions of 2008 dollars.
Sources: See source notes for Tables 4-26 through 4-31.

In the future with the proposed Plan, an additional 5,850 households would be added to the 1½-Mile Trade Area. These new households would constitute a substantial new customer base in the 1½-Mile Trade Area and would increase the annual grocery store expenditure potential by roughly $22.2 million, to $300 million. In comparison, grocery store sales in the 1½-Mile Trade Area would increase to $200 million, accounting for sales at the potential wholesale club and potential supermarket under the proposed Plan. This sales volume would represent a 67 percent capture rate for grocery items in the 1½-Mile Trade Area. This capture rate would be lower than it is under existing conditions and lower than the 70 to 80 percent capture rate typical of trade areas that are satisfying the retail demand generated by trade area households.

Many individual supermarkets in the 1½-Mile Trade Area are not critical to the survival of local retail concentrations.

Indirect displacement due to competition in itself does not constitute a significant adverse impact under CEQR guidelines. The potential for significant adverse impacts exists only if proposed stores have the potential to affect neighborhood character by affecting the viability of neighborhood shopping areas. The 1½-Mile Trade Area contains approximately 26 supermarkets; 14 of these are large supermarkets that might serve as anchors of their respective retail concentrations. Smaller supermarkets, such as Met Food and C-Town, typically with less than 10,000 sf of space, primarily serve the convenience shopping needs of local residents, and so they would not directly compete with a supermarket or wholesale club in the proposed Plan. Even though one or more of these smaller grocery stores may be present on a local shopping street, they do not typically anchor the commercial mix and are not critical to the survival of surrounding stores, and so would not adversely alter neighborhood character even if they were to be negatively affected by competition.

The section below evaluates whether specific large supermarkets and grocery stores might be vulnerable to competition from a potential wholesale club or supermarket in the District, and whether or not these supermarkets are critical to the survival of the neighborhood commercial strips or shopping centers in which they are located. As discussed below, many of these supermarkets are not critical to the survival of their retail concentration, and those that are would remain competitive for a variety of reasons. Overall, the proposed Plan and anticipated development on Lot B are not expected to result in the displacement of local grocery stores and supermarkets that are critical to the vitality of retail concentrations within the 1½-Mile Trade Area.

A&N Food Market, Assi Plaza, Chang Jiang Supermarket, Hong Kong Supermarket, Key Food Supermarket, and Maple Supermarket in Downtown Flushing: Several large supermarkets are located in Downtown Flushing and the surrounding blocks. Downtown Flushing is the busiest retail concentration in the 1½-Mile Trade Area, and one of the busiest in Queens as a whole. As described above, pedestrian traffic is high, and retailers draw customers from the densely populated residential areas nearby, as well as employees in the Downtown Flushing CBD and other visitors. This retail concentration is served by the No. 7 subway line and many buses, and would continue to attract customers who use mass transit. The area offers a wide variety of shopper's goods, convenience goods, neighborhood services, and eating and drinking establishments, and it is likely that these grocery stores attract customers that prefer to combine grocery trips with trips for other retail offerings. Most of these supermarkets offer a wide array of specialty foods that cater to the local Asian population and would not significantly overlap with the goods offered by a potential supermarket or wholesale club in the District. Furthermore, in the unlikely event that one or more of these supermarkets were displaced due to competition, Downtown Flushing does not depend on any particular one of them for its vitality. There are other stores in the area that function as anchors, such as the Macy's on Roosevelt Avenue. Therefore, given the population density of the area, the strength of the Downtown Flushing CBD, the variety of retail offerings in the area, the proximity to transit, and the retailers' focus on ethnic communities, these supermarkets would not experience detrimental competitive effects from a potential supermarket or wholesale club in the District.

Corona Food Plaza at 42nd Avenue and 102nd Street: The Corona Food Plaza is located near the intersection of 42nd Avenue, 102nd Street, and National Street and serves the densely populated Corona neighborhood. This store is at the southern end of the 103rd Street/National

Street retail concentration and does not serve as a critical anchor for other retail stores in the area. The 103rd Street-Corona Plaza No. 7 subway line local train stop is only a few blocks away, and this store, as well as the retail concentration in general, would continue to attract customers who use mass transit. The retail concentration offers several neighborhood services stores, and the Food Plaza would continue to attract customers who prefer to combine grocery trips with trips for other neighborhood services. Finally, many of the stores in the retail concentration cater to the Hispanic population in the area, and it is expected that these populations would continue to patronize this corridor even with a supermarket or wholesale club in the District. It is not expected that this supermarket would be negatively affected by competitive pressure from the proposed Plan and Lot B. In the unlikely event it is displaced due to competition, it does not serve as a critical anchor for the retail corridor.

Food Bazaar and Food Dimensions on Junction Boulevard between 34th and 40th Avenues: These two supermarkets are located on the retail corridor along Junction Boulevard between 34th and 40th Avenues. Food Bazaar is located at the northern end of the corridor at the intersection of 34th Avenue and Junction Boulevard, and is a free-standing store with a parking lot. Food Dimensions is located at 37th Avenue and Junction Boulevard. Both supermarkets serve the densely populated Elmhurst and Corona neighborhoods and have good access to transit at the No.7 subway line express train stop at Junction Boulevard and Roosevelt Avenue. Furthermore, the supermarkets are located almost 1½ miles from the District, a distance that would deter shopping trips for convenience items. Given the distance from the District and the population density of the area, it is unlikely that the supermarkets would lose a significant amount of sales to a supermarket or wholesale club developed under the proposed Plan.

Waldbaums in the College Point Shopping Center: This Waldbaums is located in the College Point Shopping Center at the northern edge of the 1½-Mile Trade Area, approximately 1½ miles from the District. The shopping center is occupied by several other large chain retailers, including Target and BJ's Wholesale Club, and has a large parking lot. This parking lot, along with the other retailers, allows Waldbaums to attract customers from a broad area that includes Flushing, Whitestone, and College Point. It is likely that many of these customers would continue to find this Waldbaums more convenient than the potential supermarket or wholesale club in the District. The presence of other major brand shops indicates that even in the unlikely event that the Waldbaums is displaced due to competition; it would not have a significant adverse impact on neighborhood character because the College Point Shopping Center does not depend on Waldbaums for its vitality.

GW Flushing Market and Hanyang Mart on Northern Boulevard between Bowne Street and Murray Street: GW Flushing Market and Hanyang Mart are located along Northern Boulevard east of Downtown Flushing. As described above, this retail corridor is more auto-oriented than most corridors surveyed, with two lanes of traffic flowing in each direction, few pedestrians, and free off-street parking. Both of these establishments have their own parking lots. These Asian supermarkets serve the surrounding Asian, particularly Korean, community. As such, it is expected that the products offered at a wholesale club or supermarket in the District would not substantially overlap with the products offered at these stores, and that the Asian community would continue to patronize these stores even with a supermarket or wholesale club in the District. These stores would also continue to draw customers from a wide area due to the availability of parking. Therefore, it is not expected that either store would be significantly adversely impacted by competitive pressure from the retail under the proposed Plan and Lot B.

Key Food Supermarket at Parsons Boulevard and Willets Point Boulevard: Located northeast of the District, this Key Food is a large store with a parking lot. The supermarket is not situated on a major retail corridor and does not serve as an anchor for other neighborhood retail. In addition, the density of residential development in the surrounding neighborhood assures that the store would continue to experience demand for food and other convenience items, supporting its continued viability.

NSA Supermarket at Corona Avenue and 102nd Street: NSA Supermarket is a free-standing store with a parking lot that serves the densely populated Corona neighborhood. This supermarket is located near the center of the Corona Avenue retail corridor. Compared with other retail corridors in the 1½-Mile Trade Area, this one has a broader mix of uses, with residential and institutional uses interspersed among the commercial establishments. Therefore, given the relative sparseness of retail along this corridor, it is likely that many Corona residents purchase their convenience goods at this supermarket. Many stores along the corridor cater to the nearby Hispanic population, and it is expected that this population would continue to patronize the retail corridor even without the NSA Supermarket. In addition, the store is located almost 1½ miles from the District, a distance that would deter shopping trips for convenience items. Therefore, the Corona Avenue retail corridor would not be significantly adversely impacted due to competition from the retail under the proposed Plan and Lot B.

In conclusion, competitive pressure generated by a wholesale club or chain supermarket would be felt most strongly by major supermarkets in the 1½-Mile Trade Area. Smaller food stores and shopping goods stores would experience more moderate competitive pressure, if any, and neighborhood services stores and eating and drinking establishments would not be adversely impacted. Local residents would continue to shop at existing grocery stores for convenience, variety and selection of items, specialized goods and services familiar to an ethnic community, and public transit accessibility. The proposed Plan and Lot B are not expected to alter the number of businesses and services that are located on retail corridors in the 1½-Mile Trade Area, and vacancy rates are not expected to change in the future. While the possibility of some limited indirect business displacement due to competition cannot be ruled out, any displacement that might occur would not jeopardize the viability of any local retail strips. Similarly, although a potential supermarket in the District would compete with nearby supermarkets and grocery stores within the 1½ -Mile Trade Area, it is not expected to have a substantial significant impact on nearby grocery stores, nor would it jeopardize the viability of any retail strips in the study area. Therefore, the proposed Plan and Lot B would not result in significant adverse impacts on neighborhood character due to competition.

G. DETAILED ANALYSIS OF ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

Based on guidelines in Section 333 of the *CEQR Technical Manual*, a detailed analysis is required if the preliminary assessment cannot rule out significant adverse effects on specific industries. The preliminary assessment in Section C, "Preliminary Assessment," identified one industry that requires further analysis: the auto parts and repair industry. Therefore, a detailed analysis of this industry is provided below.

EXISTING CONDITIONS

The District

As detailed in Section C, "Preliminary Assessment," there are 227 businesses within the District engaged in automotive trades, including: 163 automotive repair and maintenance businesses; 5 auto salvage wholesalers; 54 retail establishments; and 5 towing services in the transportation and warehousing sector. In total, these businesses employ 1,057 workers.

Queens and New York City

According to NYSDOL, in 2006, there were approximately 1,400 auto parts and repair related businesses within Queens and nearly 3,800 in all of New York City that employed 6,383 and 17,822 workers, respectively. These businesses provide auto repair, service, and maintenance needs to automobile owners and operators throughout the City, supply new and used automotive parts, and provide towing services. The 227 automotive businesses located in the District represent less than 17 percent of total auto-industry businesses (and jobs) within Queens, and less than 6 percent of total auto-related businesses (and jobs) within New York City.

NYSDOL data from 2000 and 2006 indicates that businesses in auto-related trades within New York City are on the decline. As shown in Table 4-35, the number of establishments in auto-related sectors decreased by 5 percent between 2000 and 2006, and employment by 28 percent. Additionally, employment within auto-related sectors does not make up a significant portion of New York City's job base. In total, only 1.4 percent of total jobs within Queens and less than 1 percent of total jobs within the City are found within the auto-related sectors.[1]

Table 4-35
Auto-Related Firms and Jobs in New York City, 2000 and 2006

	2000	2006	% Change
Auto-Related Firms	3,840	3,642	-5.2%
Auto-Related Jobs	22,386*	16,031*	-28.4%

Notes: *Totals above include establishments and jobs from all auto-related industries, with the exception of "recyclable merchant wholesalers" (salvage yards). The category includes both auto-related and non auto-related recycling establishments, and therefore was not included.

Sources: NYSDOL, 2000 and 2006.

Industry Characteristics

Auto-related businesses within New York City can be located in various manufacturing and commercial zoning districts, depending on the use. Auto repair and maintenance establishments can be located in all manufacturing zones and in C8 commercial zones. Retail supply stores (without repair service) operate in commercial districts (C1, C2, C4, C5, C6, C8) and all manufacturing zones. Automobile wrecking and salvage operations are limited to M3 zones.

These businesses operate both in isolation from one another, and, as discussed in Section D, "Detailed Analysis of Direct Business and Institutional Displacement," in large industry clusters. Business listings identify stand-alone auto repair and maintenance establishments throughout Queens with substantial clusters located in Elmhurst, South Ozone Park, Hollis, and Queens Village. Larger clusters of auto-related businesses are located in M3 zoned areas in Flushing

[1] NYSDOL, 2006

(primarily within the District), Jamaica, and Long Island City. Stand-alone auto businesses are also located throughout the City, with clusters identified in Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue; and Flatlands Avenue in Brooklyn; and across Staten Island. Although the District may have some regional draw for auto repair and maintenance, substantial auto centers are also located just outside the City, in Deer Park on Long Island, and Hillside and Harrison, New Jersey, indicating that customers outside of the City do not rely on District businesses for their automotive repair and supply needs.

Although many auto-related businesses operate independently, a circular supply chain is apparent for those businesses operating within the large clusters (including the District and Jamaica). In clusters, salvage yards and retail establishments supply used and new parts to repair and maintenance shops, while repair and maintenance shops simultaneously supply automobiles to salvage yards to recycle parts for resale. While these cluster businesses consider the concentration beneficial to their operations, proximity to one another is not essential for their viability, as evidenced by the numerous auto repair, maintenance, wholesale and retail businesses operating successfully outside the most substantial clusters (the District and Jamaica). These businesses serve local clients, and order parts and supplies that they either pick up from local salvage yards, or have delivered to their establishments.

THE FUTURE WITHOUT THE PROPOSED PLAN

As discussed in Chapter 3, the District itself is not expected to experience substantial change in the future without the proposed Plan. Though some redevelopment or improvements may occur, the overall low-density, industrial zoning regulations, substandard infrastructure, and contamination concerns are expected to prevent substantial change within the District. Therefore, the auto-related businesses are expected to remain within the District.

Although the District will continue to have a large concentration of auto-related businesses, trends within the auto industry indicate that demand for the products and services currently offered by the establishments within the District could decrease in the future. As part of a long-term trend, the auto repair industry is shifting to dealer-operated or factory-authorized repair businesses, as longer warrantees typically require service to be performed in-house or at authorized facilities using factory supplied parts. (One dealership in the District, Empire Auto, is confirmed to be a factory authorized repair facility.) Additionally, an increase in computerized components and other modern technologies (such as hybrid engines) has transformed the field from one of basic repair services to one that is highly technical and that requires sophisticated training and knowledge.[1] District businesses may find it difficult to provide these services as a result of the above referenced authorized facility restrictions and the finances of the technical training that would be required.

Shifts in auto salvage yard operations could decrease needs of District businesses as well. Modern automobiles last longer, reducing the value of recycled car parts that the majority of District salvage businesses provide. Additionally, technologically advanced salvage operations with online inventory services allow for online ordering and shipment of parts directly to individual customers. Because parts can be obtained easily via these systems, expansive regional facilities away from other auto uses or clusters are possible.

[1] "Industry Overview: The Automotive Repair Industry" (Forbes.com, April, 2006)

In conclusion, although the District has been and will continue to be a successful automotive destination in the future without the proposed Plan, the need for the products and services it provides are likely to diminish to an extent in coming years.

THE FUTURE WITH THE PROPOSED PLAN

In the future with the proposed Plan, the 227 auto-related businesses and their associated 1,057 employees would be directly displaced from the District. Although this displacement would eliminate auto-related industry employment within the District, it would not substantially reduce employment or impair the economic viability of the auto-repair industry within the New York City, or within any industries reliant upon auto repairs. As detailed above, the displacement of these auto-related businesses represents less than 17 percent of all auto-related businesses and employment in Queens, and less than 6 percent citywide, indicating that numerous establishments are located within the City to provide customers with the same products and services as those currently found within the District. This would include both individuals and businesses seeking repair and maintenance services, new and used parts, as well as wholesale recycled parts.

Additionally, although the 227 auto-related businesses would be displaced from the District, many could remain within Queens or the City. As discussed above in Section D, "Detailed Analysis of Direct Business and Institutional Displacement," the potential for relocation exists in Queens and other areas of the City, including properties in other auto clusters with appropriate manufacturing and commercial zoning. NYCEDC is currently working with owner-occupied businesses in the District to reach relocation agreements. Since publication of the DGEIS, the City has identified viable relocation properties in College Point, Queens, for two auto-related businesses. Other potential relocation sites are being investigated, and would be located throughout Queens and other parts of New York City. The number of businesses and jobs within the auto-related sector citywide would not diminish significantly as a result of the proposed Plan and Lot B.

NO CONVENTION CENTER SCENARIO

The number and type of businesses and institutions that would be displaced by the proposed Plan would be the same with or without the convention center. Therefore, the No Convention Center Scenario, like the proposed Plan, would not result in a significant adverse impact due to effects on the auto industry.

H. ECONOMIC AND FISCAL BENEFITS AND COSTS

CONSTRUCTION PERIOD IMPACTS

Construction period impacts would include the displacement of the existing economic activity from the site and the construction activity associated with developing the proposed Plan or the No Convention Center Scenario.

EXISTING ECONOMIC ACTIVITY TO BE DISPLACED FROM THE SITE

Table 4-36 summarizes the existing economic activity that would be displaced from the site under the proposed Plan. Although this economic activity would no longer occur in the District in the future with the proposed Plan, it would continue within the City to the extent that the businesses relocated in the City. Should the proposed Plan be approved, businesses currently located in the District would be offered a relocation package by NYCEDC, which would likely include financial coverage for certain moving costs, re-establishment fees, and use of brokerage

services to find alternative locations. At this time, the City has identified viable relocation sites within New York City for three businesses.

The principal model used to estimate the economic effects of changes within the City's economy is the Regional Input-Output Modeling System (RIMS II), developed by the U.S. Department of Commerce, Bureau of Economic Analysis. The model contains data for New York City on 490 economic sectors, showing how each sector affects every other sector as a result of a change in the quantity of its product or service. A similar RIMS II model for New York State, also developed by the U.S. Department of Commerce, has been used to trace the effects on the State economy. The models have been adjusted to reflect the most recent changes in the New York metropolitan area price level. Using these models and the specific characteristics of the project, the total effect has been projected for New York City and State.

Permanent Employment

As discussed in Section D, "Detailed Analysis of Direct Business and Institutional Displacement," the proposed Plan would directly displace approximately 1,711 employees. As shown in Table 4-36, based on the RIMS II model's economic multipliers for New York City industrial sectors, the total employment associated with the economic activity on the site, including indirect jobs, would equal 2,538 permanent jobs within New York City. In the larger New York State economy, the model estimates that the total direct and generated jobs from the annual operation of the activity on the site would equal 2,981 jobs in New York State.

Wages and Salaries

The direct wages and salaries from the annual operation of the existing activity on the site are estimated at $70.93 million in 2007 dollars (see Table 4-36). Total direct and generated wages and salaries resulting in New York City from the annual operation of the existing economic activity on the site are estimated at $106.98 million. In the broader New York State economy, total direct and generated wages and salaries from the annual operation of the existing activity on the site are estimated at $125.62 million in 2007 dollars.

Annual Effect on the Local Economy

The direct effect on the local economy from the operation of the existing economic activity on the site, measured as economic output or demand, is estimated at approximately $352.07 million annually. Based on the RIMS II model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that results from the operation of the existing activity on the site is estimated at $675.01 million annually in New York State, of which $556.30 million annually occurs in New York City (see Table 4-36).

Fiscal Impacts

The annual operation of the existing activity on the site has associated with it tax revenues for New York City, MTA, and New York State. These tax revenues include property tax-related revenues and non-property-tax revenues. Based on aggregate data for the economic activity on the site, in total, the operation of the existing activity on the site is estimated to generate approximately $25.11 million annually (in 2007 dollars) in non-property-related tax revenues for New York City, MTA, and New York State. Of these tax revenues, the largest portion comes from personal income taxes, sales tax, corporate and business taxes, and similar taxes on the direct and generated economic activity from the existing development. New York State is estimated to receive about $14.55 million annually of the tax revenues generated by the

Table 4-36
Existing Economic Activity

	Portion in New York City	Total New York City And State
Employment (Full- and Part-Time Jobs)		
Direct (On-Site)	1,711	1,711
Indirect (Secondary and Induced)	827	1,270
Total	2,538	2,981
Wages and Salaries (Millions of 2007 Dollars)		
Direct (On-Site)	$70.93	$70.93
Indirect (Secondary and Induced)	$36.05	$54.69
Total	$106.98	$125.62
Total Economic Output or Demand* (Millions of 2007 Dollars)		
Direct (On-Site)	$352.07	$352.07
Indirect (Secondary and Induced)	$204.23	$322.94
Total	$556.30	$675.01
	Fiscal	
Typical Tax Revenues, Exclusive of Real Estate (Constant 2007 dollars)**		
New York City Taxes	$9,760,100	
MTA Taxes	$791,700	
New York State Taxes	$14,554,800	
Total	$25,106,600	

Notes: The above figures do not include the economic activity on Citi Field Parking Lot B. The existing 600 parking spaces on Lot B would be increased to 970 spaces in the future, thus resulting in a net gain in the economic activity associated with the parking spaces in the area.

* The economic output or total effect on the local economy derived from the direct operational spending.

** The amounts are typical based on aggregate data for the economic sectors on the site and do not reflect detailed data on the taxes from the actual establishments on the site. Includes personal income taxes, corporate and business taxes, sales tax, and numerous other taxes on direct on-site and secondary expenditures.

Sources: The employment and economic characteristics of the existing development; the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

operation of the existing development, MTA receives an estimated $0.79 million annually, and New York City receives an estimated $9.76 million annually. In addition, the City receives property tax revenues. These revenues change from year to year, and in any year are based on the taxable assessed value of the property and the applicable tax rate. In fiscal year 2007/2008, these revenues from the existing development on the site equal approximately $2.49 million.

CONSTRUCTION OF THE PROPOSED PLAN

Value of the Construction

The development of the proposed Plan would be undertaken by the investment of funds into the area. Most of the investment funds would be from the private sector. Based on preliminary estimates, the investment for construction of the proposed Plan is estimated for the purpose of this analysis to equal about $3.8 billion. This amount includes site preparation and hard costs (actual construction), and design, legal, and related costs. The total estimated amount of $3.8

billion reflects the cost of physical improvements to the site, and excludes values not directly part of the expenditures for construction, such as financing, the value of the land, marketing, etc. The total cost—including financing, the value of the land, real estate payments, management, initial marketing expenditures, and similar expenditures—would be substantially more.

Employment

The $3.8 billion represents the direct expenditures during the construction period to develop the proposed Plan. As a result of the direct expenditures, the direct employment is estimated at about 17,561 person-years of employment. (A person-year is the equivalent of one employee working full-time for one year.) In addition to direct employment, total employment resulting from construction expenditures would include jobs in business establishments providing goods and services to the contractors and the resulting indirect and generated employment. Based on the model's economic multipliers for New York City industrial sectors, the project would generate an additional 9,175 person-years of employment within New York City, bringing the total direct and generated jobs from the construction of the proposed Plan to 26,736 person-years (see Table 4-37). In the larger New York State economy, the model estimates that the proposed Plan would generate 15,638 person-years of indirect employment, bringing the total direct and generated jobs from construction of the Plan to 33,199 person-years of employment.

Wages and Salaries

The direct wages and salaries during the construction period are estimated at $1.17 billion ($1,169.65 million); see Table 4-37. Total direct and generated wages and salaries resulting in New York City from construction of the proposed Plan are estimated at $1.73 billion ($1,727.54 million). In the broader New York State economy, total direct and generated wages and salaries from construction of the project are estimated at $2.11 billion ($2,110.03 million).

Total Effect on the Local Economy

As indicated above, the total construction cost for the proposed Plan (excluding financing and similar costs) is estimated at approximately $3.8 billion. Based on the RIMS II model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from construction of the proposed Plan is estimated at $7.20 billion ($7,198.48 million) in New York State, of which $5.50 billion ($5,502.41 million) would occur in New York City (see Table 4-37).

Fiscal Impacts

The construction activity would have associated with it tax revenues for New York City, MTA, and New York State. Based on aggregate data on economic activity and tax receipts for the New York City and State economies from development projects, it is estimated that City tax revenues resulting from construction of a project such as this would equal approximately 2.31 percent of the proposed Plan's total economic activity in New York City. New York State and MTA (which collects a 0.375 percent sales tax and tax surcharges on business and utilities taxes within the City and the MTA 12-county region) would receive revenues equal to about 3.14 percent of the Plan's total economic activity in the State. In total, the construction of the proposed Plan is estimated to generate approximately $352.9 million in tax revenues for New York City, MTA, and New York State. Of these tax revenues, the largest portion would come from sales tax, personal income taxes, and corporate, business, and related taxes on direct and induced economic activity. New York State and MTA would receive about $226.10 million (64.06 percent) of the tax revenues generated by construction of the project, and New York City would receive about $126.8 million (35.94 percent) of these tax revenues.

Table 4-37
Employment and Economic Benefits from Construction of the Proposed Plan

	Portion in New York City	Total New York City And State
Employment (Person-years)*		
Direct (Construction)	17,561	17,561
Indirect (Secondary and Induced)	9,175	15,638
Total	26,736	33,199
Wages and Salaries (Millions of 2007 Dollars)		
Direct (Construction)	$1,169.65	$1,169.65
Indirect (Secondary and Induced)	$557.88	$940.39
Total	$1,727.54	$2,110.03
Total Economic Output or Demand (Millions of 2007 Dollars)**		
Direct (Construction)	$3,819.24	$3,819.24
Indirect (Secondary and Induced)	$1,683.17	$3,379.24
Total	$5,502.41	$7,198.48
	Fiscal	
Tax Revenues, Exclusive of Real Estate* (Constant 2007 dollars)**		
New York City Taxes	$126,840,700	
MTA Taxes	$9,619,000	
New York State Taxes	$216,480,500	
Total	$352,940,200	

Notes: The above figures do not include the employment and economic effects from constructing the park and school, which would be additional.
* A person-year is the equivalent of one person working full-time a year.
** The economic output or total effect on the local economy derived from the direct construction spending.
*** Includes sales tax, personal income taxes, corporate and business taxes, and numerous other taxes on construction and secondary expenditures. Figures assume no sales tax on construction materials from the on-site infrastructure and convention center components of the project.
Sources: The characteristics and construction cost of the proposed development; the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

In addition, the proposed Plan would be expected to generate mortgage recording fees for New York City both from the developers and from the owners of the condominium portion of the residential property, and New York City would receive real-property-related revenues (i.e., real estate tax payments) during the development period.

CONSTRUCTION OF THE NO CONVENTION CENTER SCENARIO

Value of the Construction

As with the development of the proposed Plan, the development of the No Convention Center Scenario would be undertaken by the investment of funds into the area. Most of the investment funds would be from the private sector. Based on preliminary estimates, the investment for construction of the No Convention Center Scenario is estimated for the purpose of this analysis to equal about $3.7 billion, approximately $132.2 million less than the construction cost of the proposed Plan. The total estimated amount of $3.7 billion reflects the cost of physical improvements to the site, and excludes other values, such as financing, the value of the land, real estate payments, management, initial marketing expenditures, and similar expenditures.

Employment

The $3.7 billion represents the direct expenditures during the construction period of the No Convention Center Scenario. As a result of the direct expenditures, the direct employment is estimated at about 17,017 person-years of employment. In addition to direct employment, total employment resulting from construction expenditures would include jobs in business establishments providing goods and services to the contractors and resulting indirect and generated employment. Based on the model's economic multipliers for New York City industrial sectors, the project would generate an additional 8,865 person-years of employment within New York City, bringing the total direct and generated jobs from the construction of the No Convention Center Scenario to 25,883 person-years (see Table 4-38). In the larger New York State economy, the model estimates that the No Convention Center Scenario would generate 15,139 person-years of indirect employment, bringing the total direct and generated jobs from construction of the No Convention Center Scenario to 32,157 person-years of employment.

The construction of either scenario (with or without the convention center) would create similar order-of-magnitude employment. In either case, the amount of employment would be significant. Overall, the No Convention Center Scenario would generate slightly fewer (3.1 percent) direct and indirect employees in New York City and State than the proposed Plan.

Wages and Salaries

The direct wages and salaries during the construction period for the No Convention Center Scenario are estimated at $1.13 billion ($1,128.67 million); see Table 4-38. Total direct and generated wages and salaries resulting in New York City from construction of this scenario are estimated at $1.67 billion ($1,665.11 million). In the broader New York State economy, total direct and generated wages and salaries from construction of the No Convention Center Scenario are estimated at $2.04 billion ($2,035.09 million).

The wages and salaries associated with the construction of either scenario would be significant. Total wages and salaries generated by the construction of the No Convention Center Scenario in New York City and New York State would be only slightly lower (3.6 percent) than the wages and salaries generated by the construction of the proposed Plan. In either case, total wages and salaries would total approximately $1.7 billion in New York City and approximately $2.0-$2.1 billion in New York State.

Total Effect on the Local Economy

As indicated above, the total construction cost for the No Convention Center Scenario (excluding financing and similar costs) is estimated at approximately $3.7 billion. Based on the RIMS II model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from construction of the scenario is estimated at $6.94 billion ($6,937.44 million) in New York State, of which $5.30 billion ($5,302.22 million) would occur in New York City (see Table 4-38).

Total economic output associated with the construction of either scenario would be significant. The projected economic output would be only slightly lower (about 3.6 percent) in the No Convention Center Scenario compared with the proposed Plan. Total economic output would still exceed $5.3 billion in New York City and $6.9 billion in New York State.

Table 4-38
Employment and Economic Benefits from Construction of the No Convention Center Scenario

	Portion in New York City	Total New York City And State
Employment (Person-years)*		
Direct (Construction)	17,017	17,017
Indirect (Secondary and Induced)	8,865	15,139
Total	25,883	32,157
Wages and Salaries (Millions of 2007 Dollars)		
Direct (Construction)	$1,128.67	$1,128.67
Indirect (Secondary and Induced)	$536.44	$906.44
Total	$1,665.11	$2,035.09
Total Economic Output or Demand (Millions of 2007 Dollars)**		
Direct (Construction)	$3,687.03	$3,687.03
Indirect (Secondary and Induced)	$1,615.19	$3,250.41
Total	$5,302.22	$6,937.44
	Fiscal	
Tax Revenues, Exclusive of Real Estate* (Constant 2007 dollars)**		
New York City Taxes	$124,989,000	
MTA Taxes	$9,526,500	
New York State Taxes	$211,356,000	
Total	$345,871,500	

Notes:
The above figures do not include the employment and economic effects from constructing the park and school, which would be additional.

* A person-year is the equivalent of one person working full-time a year.

** The economic output or total effect on the local economy derived from the direct construction spending.

*** Includes sales tax, personal income taxes, corporate and business taxes, and numerous other taxes on construction and secondary expenditures. Figures assume no sales tax on construction materials from the on-site infrastructure components of the project.

Sources: The characteristics and construction cost of the proposed development; the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

Fiscal Impacts

The construction activity would have associated with it tax revenues for New York City, MTA, and New York State. Based on aggregate data on economic activity and tax receipts for the New York City and State economies from development projects, it is estimated that City tax revenues resulting from construction of a project such as this would equal approximately 2.36 percent of the No Convention Center Scenario's total economic activity in New York City. New York State and MTA would receive revenues equal to about 3.18 percent of the Plan's total economic activity in the State. In total, the construction of the No Convention Center Scenario is estimated to generate approximately $345.87 million in tax revenues for New York City, MTA, and New York State. Of these tax revenues, the largest portion would again come from sales tax, personal income taxes, and corporate, business, and related taxes on direct and induced economic activity. New York State and MTA would receive about $220.88 million (63.9 percent) of the tax

revenues generated by construction of the project, and New York City would receive about $124.99 million (36.1 percent) of these tax revenues.

Overall, total fiscal impacts would be only slightly lower (about 2 percent) for this scenario compared with the proposed Plan. The fiscal impacts associated with the construction of either scenario would be significant.

As with the construction of the proposed Plan, this scenario would be expected to generate additional revenue for New York City from mortgage recording fees, both from the developers and from the owners of the condominium portion of the residential property, and New York City would receive real-property-related revenues (i.e., real estate tax payments) during the development period.

ANNUAL OPERATION IMPACTS

PROPOSED PLAN

The completion and annual operation of the proposed Plan would have associated with it permanent employment, wages and salaries, other effects on the local economy, and tax revenues for New York City, MTA, and New York State.

Permanent Employment

Based on typical ratios of employees psf, the direct on-site employment in the completed development with the proposed Plan is estimated at approximately 7,251 permanent jobs. Table 4-39 presents the estimated permanent on-site employment generated by the proposed Plan. Of the total 7,251 jobs, approximately 4,250 would come from the retail development, 2,000 from the office development, 259 from the hotel, 220 from the operation and maintenance of the residential development, 160 from the convention center, and the remainder from the community facility space, parking, and the school. The figures for the convention center do not include off-site employment from out-of-town visitor spending associated with the operation of the convention center, which would be additional.

Table 4-39
Estimated Permanent On-Site Employment with the proposed Plan

Type	Employees
Retail Trade	4,250
Office	2,000
Hotel	259
Residential	220
Convention Center	160
Community/Cultural	150
Parking	134
School	77
TOTAL	**7,251**

Note: All figures independently rounded. Figures for the convention center do not include off-site employment from out-of-town visitor spending associated with the operation of the convention center, which would be additional. Employment assumptions include: retail, 1 employee per 400 sf; office, 1 employee per 250 sf; hotel, 1 employee per 2.7 rooms; residential, 1 employee per 25 units; parking, 1 employee per 50 spaces; convention center, 1 employee per 2,500 sf; community/cultural, 1 employee per 1,000 sf; and school, 1 employee per 11 seats.
Source: The characteristics and area of the proposed development, and AKRF, Inc.

This employment figure of 7,251 would be an increase of 5,540 over the area's existing employment figure of 1,711. Not all of this employment, however, would necessarily be new to New York City; some of this employment might represent jobs that relocate to the Willets Point Development District from elsewhere in the City. However, this employment would represent jobs either new or retained in New York City, which might have gone outside the City if the District were not redeveloped.

In addition to direct on-site employment, total employment resulting from the annual operation of the completed proposed Plan would include jobs throughout the City created by out-of-town convention center visitors' spending and indirect jobs in business establishments off-site providing goods and services to the occupants of the on-site buildings. Table 4-40 presents a summary of the employment and economic benefits from the annual operation of the completed proposed Plan.

Table 4-40
Annual Employment and Economic Benefits from Operation of the Completed Proposed Plan

	Portion in New York City	Total New York City and State
Permanent Employment (Full- and Part-Time Jobs)		
Direct:		
On-Site	7,251	7,251
From Convention Center Visitors' Spending	867	867
Indirect (Secondary and Induced)	3,725	5,408
Total	11,843	13,526
Annual Wages and Salaries (Millions of 2007 dollars)		
Direct:		
On-Site	$317.69	$317.69
From Convention Center Visitors' Spending	$18.16	$18.16
Indirect (Secondary and Induced)	$174.51	$253.03
Total	$510.36	$588.88
Total Annual Economic Output or Demand* (Millions of 2007 dollars)		
Direct:		
On-Site	$1,303.26	$1,303.26
From Convention Center Visitors' Spending	$60.96	$60.96
Indirect (Secondary and Induced)	$807.20	$1,130.58
Total	$2,171.42	$2,494.80
	Fiscal	
Annual Tax Revenues, Exclusive of Real Estate (Constant 2007 dollars)**		
New York City Taxes	$62,382,900	
MTA Taxes	$4,679,600	
New York State Taxes	$77,555,800	
Total	$144,618,300	

Notes:
The above projections of economic activity do not include any increase in economic activity from the redevelopment of Citi Field Parking Lot B, which would be additional. The above figures on wages and salaries, economic effect, and tax revenues also do not include the effect from the household income of the residents in the residential portion of the project, which would be additional.

* The economic output or total effect on the local economy derived from the direct operations spending.

** Includes personal income taxes, corporate and business taxes, sales tax, hotel occupancy tax, parking tax, and numerous other taxes on direct and secondary expenditures. The figures do not include property-related payments from the development, which would be additional.

Source: The characteristics of the proposed development; NYCEDC's projection of convention center visitor's spending; the RIMS II, U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

Out-of-town convention center visitors' spending for food and beverage, sports and entertainment, lodging, shopping, and transportation is estimated to create an additional 867 jobs in New York City. Based on the RIMS II model's economic multipliers for New York City industrial sectors, the completed proposed Plan would also generate an additional 3,725 indirect permanent jobs within New York City, bringing the total direct and generated jobs from the annual operation of the completed proposed Plan to 11,843 jobs within New York City. In the larger New York State economy, the model estimates that the completed Plan would generate 5,408 jobs of indirect employment, bringing the total direct and generated jobs from the annual operation of the completed proposed Plan to 13,526 jobs in New York State (see Table 4-40).

Wages and Salaries

Based on average salaries by economic sector from NYSDOL, the direct on-site wages and salaries from the annual operation of the completed proposed Plan are estimated at $317.69 million in 2007 dollars (see Table 4-40). Total direct on-site wages and salaries, and those created from visitors' spending and off-site indirect and generated activity from the annual operation of the completed proposed Plan, are estimated at $510.36 million in New York City. In the broader New York State economy, total direct and generated wages and salaries from the annual operation of the completed proposed Plan are estimated at $588.88 million.

Annual Effect on the Local Economy

The direct on-site effect on the local economy from the completed proposed Plan, measured as economic output or demand, is estimated at approximately $1.30 billion ($1,303.26 million) annually. Based on the RIMS II model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from annual operation of the proposed Plan is estimated at $2.49 billion ($2,494.80 million) in New York State, of which $2.17 billion ($2,171.42 million) would occur in New York City (see Table 4-40).

Fiscal Impacts

The annual operation of the completed proposed Plan would have associated with it tax revenues for New York City, MTA, and New York State. These tax revenues would include property-tax-related revenues and non-property-tax revenues. For either scenario, the tax receipts projected in this section do not include income tax paid by the residents of the residential portion of the proposed Plan or income tax from secondary employment generated by such residents. Such revenue would be additional.

The operation of the completed proposed Plan is estimated to generate approximately $144.62 million annually (in 2007 dollars) in non-property-related tax revenues for New York City, MTA, and New York State (see Table 4-40). Of these tax revenues, the largest portion would come from personal income taxes from employees, sales tax, corporate and business taxes, hotel occupancy tax, parking tax, and similar taxes on the direct and generated economic activity from the completed development. New York State would receive about $77.56 million of the tax revenues generated by the operation of the completed Plan, MTA would receive about $4.68 million, and New York City would receive about $62.38 million. As is the case with the employment from the completed proposed Plan, not all of these tax revenues would necessarily be new to New York City; some of these revenues might represent amounts that would accrue from the proposed Plan that currently occur elsewhere in the City. However, this revenue would represent amounts either new or retained in New York City, which might have gone outside the City if the proposed Plan were not developed.

In addition, the City would receive annual property tax revenues. These revenues would be expected to be based initially on the assessed value of the land, with the assessed value of improvements to the land phased in according to one of the applicable real estate tax programs, such as—for commercial development—the City's Industrial and Commercial Incentive Program; and—for residential development—Section 421-a of the New York State Real Property Tax Law. Taxes would be changing from year to year, and in any year would be based on the taxable assessed value and the applicable tax rate. Over time, the value of the land and improvements would be totally taxable. All of the incremental property taxes from the new development on the project site would be new to New York City.

NO CONVENTION CENTER SCENARIO

The completion and annual operation of the No Convention Center Scenario would have associated with it permanent employment, wages and salaries, other effects on the local economy, and tax revenues for New York City, MTA, and New York State.

Permanent Employment

Based on typical ratios of employees psf, the direct on-site employment in the No Convention Center Scenario is estimated at approximately 7,220 permanent jobs (see Table 4-41). Of the total 7,220 jobs, approximately 4,375 would come from the retail development, and 234 would come from the operation and maintenance of the residential development, slightly more than with the proposed Plan. The remainder of the employment would be essentially the same as with the proposed Plan, except there would be no convention center employment, and the school employment would be marginally greater.

Table 4-41
Estimated Permanent On-Site Employment with the No Convention Center Scenario

Type	Employees
Retail Trade	4,375
Office	2,000
Hotel	259
Residential	234
Community/Cultural	150
Parking	120
School	82
TOTAL	7,220

Notes: All figures independently rounded. Employment assumptions include: retail, 1 employee per 400 sf; office, 1 employee per 250 sf; hotel, 1 employee per 2.7 rooms; residential, 1 employee per 25 units; parking, 1 employee per 50 spaces; community/cultural, 1 employee per 1,000 sf; and school, 1 employee per 11 seats.

Source: The characteristics and area of the proposed development, and AKRF, Inc.

This employment figure of 7,220 would be an increase of 5,509 over the area's existing employment figure of 1,711. As with the proposed Plan, not all of this employment, however, would necessarily be new to New York City; some of this employment might represent jobs that relocate to the Willets Point Development District from elsewhere in the City. However, this

employment would represent jobs either new or retained in New York City, which might have gone outside the City if the proposed Plan were not developed.

In addition to direct employment, total employment resulting from the annual operation of the No Convention Center Scenario would include indirect jobs in business establishments off-site providing goods and services to the occupants of the buildings. Table 4-42 presents a summary of the employment and economic benefits from the annual operation of the No Convention Center Scenario. Based on the RIMS II model's economic multipliers for New York City industrial sectors, the No Convention Center Scenario would generate an additional 3,471 permanent jobs within New York City, bringing the total direct and generated jobs from the annual operation of the completed Plan to 10,691 jobs within New York City. In the larger New York State economy, the model estimates that the No Convention Center Scenario would generate 5,120 jobs of indirect employment, bringing the total direct and generated jobs from the annual operation of the completed Plan to 12,340 jobs in New York State (see Table 4-42).

Table 4-42
Annual Employment and Economic Benefits from Operation of the Completed No Convention Center Scenario

	Portion in New York City	Total New York City and State
Permanent Employment (Full- and Part-Time Jobs)		
Direct (On-Site)	7,220	7,220
Indirect (Secondary and Induced)	3,471	5,120
Total	10,691	12,340
Annual Wages and Salaries (Millions of 2007 dollars)		
Direct (On-Site)	$313.02	$313.02
Indirect (Secondary and Induced)	$159.39	$234.12
Total	$472.41	$547.13
Total Annual Economic Output or Demand* (Millions of 2007 dollars)		
Direct (On-Site)	$1,177.23	$1,177.23
Indirect (Secondary and Induced)	$725.35	$1,033.79
Total	$1,902.57	$2,211.02
	Fiscal	
Annual Tax Revenues, Exclusive of Real Estate (Constant 2007 dollars)**		
New York City Taxes	$57,719,600	
MTA Taxes	$4,384,100	
New York State Taxes	$72,644,900	
Total	$134,748,600	

Notes:
The above projections of economic activity do not include any increase in economic activity from the redevelopment of Citi Field Parking Lot B, which would be additional. The above figures on wages and salaries, economic effect, and tax revenues also do not include the effect from the household income of the residents in the residential portion of the project, which would be additional.

* The economic output or total effect on the local economy derived from the direct operations spending.

** Includes personal income taxes, corporate and business taxes, sales tax, hotel occupancy tax, parking tax, and numerous other taxes on direct and secondary expenditures. The figures do not include property-related payments from the development, which would be additional.

Source: The characteristics of the proposed development; the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

Wages and Salaries

Based on average salaries by economic sector from NYSDOL, the direct wages and salaries from the annual operation of the No Convention Center Scenario are estimated at $313.02 million in 2007 dollars (see Table 4-42). Total direct and generated wages and salaries resulting in New York City from the annual operation of the completed development are estimated at $472.41 million. In the broader New York State economy, total direct and generated wages and salaries from the annual operation of the completed development are estimated at $547.13 million. All figures are in 2007 dollars.

Annual Effect on the Local Economy

The direct effect on the local economy from the No Convention Center Scenario, measured as economic output or demand, is estimated at approximately $1.18 billion ($1,177.23 million) annually. Based on the RIMS II model for New York City and State, the total economic activity, including indirect expenditures (those generated by the direct expenditures), that would result from annual operation of the development is estimated at $2.21 billion ($2,221.02 million) in New York State, of which $1.90 billion ($1,902.57 million) would occur in New York City (see Table 4-42).

Fiscal Impacts

The annual operation of the No Convention Center Scenario would have associated with it tax revenues for New York City, MTA, and New York State. As with the proposed Plan with the convention center, these tax revenues would include property-tax-related revenues and non-property-tax revenues. For either scenario (with or without the convention center), the projected tax receipts in this section do not include income tax paid by the residents at the residential portion of the proposed development or income tax from secondary employment generated by such residents. Such revenue would be additional.

The operation of the No Convention Center Scenario is estimated to generate approximately $134.75 million annually (in 2007 dollars) in non-property-related tax revenues for New York City, MTA, and New York State (see Table 4-42). Of these tax revenues, the largest portion would come from personal income taxes from employees, sales tax, corporate and business taxes, hotel occupancy tax, parking tax, and similar taxes on the direct and generated economic activity from the completed development. New York State would receive about $72.64 million of the tax revenues generated by the operation of the development, the MTA would receive about $4.38 million, and New York City would receive about $57.72 million. As with the proposed Plan, not all of these tax revenues would necessarily be new to New York City; some of these revenues might represent amounts that would accrue from the proposed Plan that currently occur elsewhere in the City. However, this revenue would represent amounts either new or retained in New York City, which might have gone outside the City if the proposed Plan were not developed.

The City would also receive annual property tax revenues. As with the proposed Plan, these revenues would be expected to be based initially on the assessed value of the land, with the assessed value of improvements to the land phased-in according to one of the applicable real estate tax programs, such as—for commercial development—the City's Industrial and Commercial Incentive Program; and—for residential development—Section 421-a of the New York State Real Property Tax Law. Taxes would be changing from year to year, and in any year would be based on the taxable assessed value and the applicable tax rate. Over time, the value of the land and improvements would be totally taxable. As with the proposed Plan, all of the incremental property taxes from the new development with the No Convention Center Scenario would be new to New York City.

PUBLIC SECTOR COSTS

The developer of the proposed Plan would fund all site preparation, infrastructure improvements, and construction within the District, with the exception of the new pump station if constructed within District boundaries. It is anticipated that the City would fund certain infrastructure improvements that are necessary to support the proposed Plan, including the pump station and modified access to and from the Van Wyck Expressway. Costs associated with these City-funded improvements are preliminarily estimated at approximately $150 million. ✷

A. INTRODUCTION

This chapter examines the Willets Point Development Plan's potential effects on community facilities surrounding the Willets Point Development District. The 2001 *City Environmental Quality Review (CEQR) Technical Manual* defines community facilities as public or publicly funded facilities, including schools, health care, day care, libraries, and fire and police protection services. Direct effects may occur when a proposed project physically alters or displaces a community facility. Indirect effects may result from increases in population that place additional demands on community facility service delivery. Because the proposed Plan will not directly displace existing community facilities, this chapter's analyses focus on the potential for indirect effects. The following analyses examine the proposed Plan's impact on schools, health care and day care facilities, and libraries. The *CEQR Technical Manual* recommends performing an assessment of police and fire protection services when a proposed project will directly displace those facilities. Since the proposed Plan would not displace police or fire facilities, these services are not assessed. However, a description of the police and fire facilities that serve the District is provided for informational purposes under "Existing Conditions" and the proposed Plan's effect on emergency response times is discussed under "Probable Impacts of the Proposed Plan," below. The proposed Plan's impact on private facilities and services, such as private schools, is also not assessed.

The *CEQR Technical Manual* provides thresholds that can help make an initial determination of whether a detailed analysis is necessary to determine potential impacts. A preliminary analysis was conducted to determine if the proposed Plan would exceed the established *CEQR Technical Manual* thresholds for these community facilities; detailed studies were prepared for public schools, libraries, and health care and day care facilities.

To determine the proposed Plan's potential impacts on community services, this chapter's detailed analyses describe existing conditions and compare conditions in the future without the proposed Plan with conditions in the future with the proposed Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D. A quantitative assessment is provided for both the proposed Plan and the No Convention Center Scenario, as described in Chapter 2. The assessment finds that the proposed Plan for the Willets Point Development District would not result in significant adverse impacts on public schools, libraries, or health care facilities, but could result in a significant adverse impact on day care facilities. To mitigate the potential impact on day care facilities, the New York City Economic Development Corporation (NYCEDC) would require, as part of the developer's agreement, that a future developer consult with the New York City Administration for Children's Services (ACS) to determine the appropriate way to meet demand for day care services generated by development in the District.

B. PRINCIPAL CONCLUSIONS

PUBLIC SCHOOLS

The proposed Plan would be located within Zone 2 of Community School District 25 (CSD 25). The analysis of potential impacts considers elementary and middle schools within this Zone and the District as a whole, as well as within a one-mile radius surrounding the Willets Point Development District. The analysis of high schools considers the impact on the entire Borough of Queens. The assessment finds that neither the proposed Plan nor the No Convention Center Scenario would have a significant adverse impact on elementary, middle, or high schools within the one-mile study area or within Zone 2 of CSD 25 in the analysis year of 2017.

LIBRARIES

The analysis considers the proposed Plan's impact on Flushing Library, the only library within a ¾-mile radius of the District. No significant adverse impacts are anticipated in the study area in 2017 as a result of the proposed Plan or the No Convention Center Scenario.

HEALTH CARE FACILITIES

The analysis considers the proposed Plan's impacts on Flushing Hospital Medical Center and the New York Hospital Center of Queens. No significant adverse impacts on area hospitals are anticipated in the study area in 2017 as a result of the proposed Plan or the No Convention Center Scenario.

DAY CARE CENTERS

The analysis considers the proposed Plan's impact on the nine public day care facilities within a one-mile radius of the District. The analysis finds that significant adverse impacts could occur in 2017 as a result of either the proposed Plan or the No Convention Center Scenario. To mitigate the potential impact on day care facilities, NYCEDC would require, as part of the developer's agreement, that a future developer consult with ACS to determine the appropriate way to meet demand for day care services generated by development in the District.

POLICE AND FIRE PROTECTION SERVICES

A detailed analysis of police and fire protection services is usually only conducted if a proposed project would affect the physical operations of, or access to and from, a fire station or police precinct house. The proposed Plan would not physically affect either type of facility. Therefore, the proposed Plan would not result in significant adverse impacts to police or fire protection services. In response to comments on the Draft Generic Environmental Impact Statement (DGEIS), the analysis considers the adequacy of emergency response times to the District. The analysis concludes that emergency responders are and would remain able to adequately serve the District.

C. METHODOLOGY

The analysis of community facilities has been conducted in accordance with *CEQR Technical Manual* guidelines. The *CEQR Technical Manual* recommends a community facilities screening analysis for any proposed project that adds 100 or more residential units. Since the residential component of the proposed Plan would exceed the *CEQR Technical Manual* threshold, an analysis of community facilities has been undertaken.

Detailed assessments are warranted if a proposed project may have an impact on the provision of public or publicly funded services available to the community. In general, size, income characteristics, and the age distribution of a new population are factors that could affect the delivery of services. Table 5-1 outlines the thresholds associated with each community facility. If a proposed project would exceed the threshold for a specific facility, a more detailed analysis would be warranted.

Table 5-1
Preliminary Screening Analysis Criteria

Community Facility	Threshold For Detailed Analysis
Public schools	More than 50 elementary/middle school or 150 high school students
Libraries	Greater than 5 percent increase in ratio of residential units to libraries in borough
Health care facilities (outpatients)	More than 600 low- to moderate- income units
Day care centers (publicly funded)	More than 50 eligible children based on number of low- to moderate-income units by borough
Fire protection	Direct effect only
Police protection	Direct effect only
Sources: 2001 *CEQR Technical Manual*	

PUBLIC SCHOOLS

The *CEQR Technical Manual* recommends conducting a detailed analysis of public schools if a proposed project would generate more than 50 elementary/middle school and/or more than 150 high school students. Based on the number of residential units likely to be constructed and the student generation rates presented in Table 3C-2 of the *CEQR Technical Manual*, the proposed Plan would generate approximately 1,463 total students—approximately 858 elementary school students, 418 middle school students, and 187 high school students. The No Convention Center Scenario would generate approximately 1,557 total students—approximately 913 elementary school students, 445 middle school students, and 199 high school students. This number of students warrants a detailed analysis of the proposed Plan's impacts on elementary, middle, and high schools.

The *CEQR Technical Manual* recommends that the study area for detailed analyses of elementary and intermediate schools relate to the individual facility's catchment area. The study area for elementary and intermediate schools generally coincides with the community school district and region serving the District. As described above in "B. Principal Conclusions," the Willets Point Development District is located within CSD 25 of Region 3. CSD 25 covers northeast Queens and the area bounded roughly by the East River to the north, 26th Avenue and Utopia Parkway to the east, Union Turnpike to the south, and the Grand Central Parkway and Flushing Bay to the west. CSD 25 includes the neighborhoods of Flushing, College Point, Whitestone, Linden Hill, Pomonok, and Kew Gardens Hills (see Figure 5-1). The study area for elementary schools and intermediate schools coincides with Zone 2 of CSD 25. The study area for high schools is the entire borough of Queens.

This analysis includes an additional one-mile study area to account for the Willets Point Development District's considerable distance from existing public school facilities within CSD 25. This study area corresponds to a one-mile radius surrounding the District, which includes portions of CSD 25 as well as CSD 24 and CSD 30. While these additional CSDs are located

within the one-mile study area, they were not included in the analysis. The Department of Education's policy is to assign children to elementary and intermediate schools within the CSD in which the children live. Given this policy, children who live within CSD 25 would attend elementary and intermediate schools within that CSD and would not attend school in CSD 24 or CSD 30. As such, the one-mile study area includes only the schools within CSD 25. Within CSD 25, the one-mile study area includes portions of Zone 1 and Zone 2. Zonal boundaries are not fixed boundaries, and it is conceivable that students from the Willets Point Development District could attend proximate elementary or intermediate schools within either Zone 1 or Zone 2, depending on utilization levels. Therefore, the one-mile study area includes elementary and intermediate schools from Zone 1 and Zone 2 of CSD 25.

Pursuant to the *CEQR Technical Manual*, if a detailed analysis determines that a proposed project would increase a deficiency of available seats by 5 percent or more, a significant adverse impact may result, which could require mitigation.

LIBRARIES

Potential impacts on libraries may result from an increased user population. According to the *CEQR Technical Manual*, if a proposed project would increase by more than 5 percent the average number of residential units served by library branches in the borough in which it is located, the proposed project may cause significant impacts on library services and requires further analysis. In Queens, a project that adds 621 residential units passes this threshold. Both the proposed Plan and the No Convention Center Scenario would exceed this residential threshold. Therefore, additional analysis is necessary.

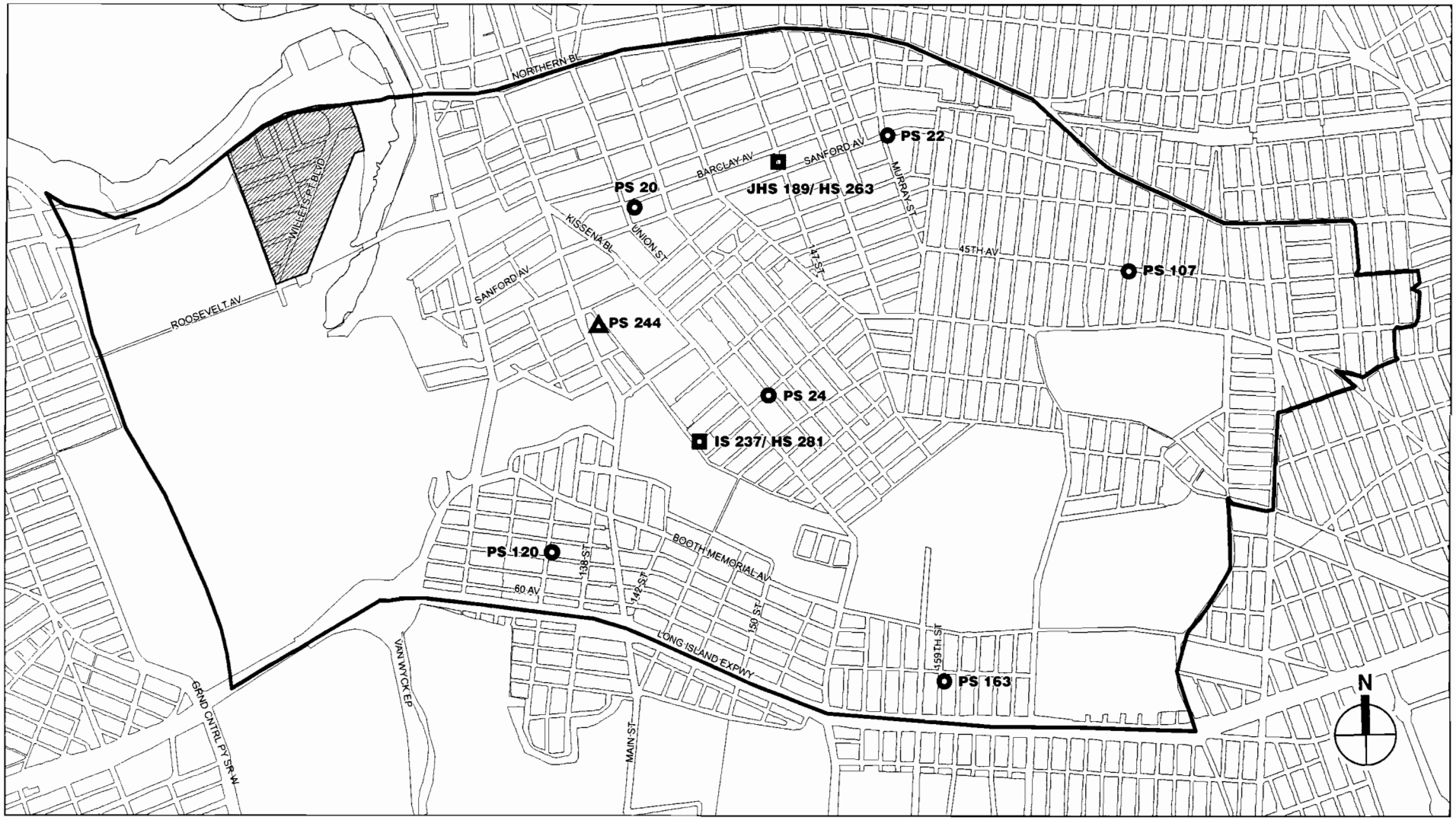
In accordance with the *CEQR Technical Manual*, the study area for the detailed library analysis includes all of the libraries that fall within ¾ mile of the Willets Point Development District (see Figure 5-2). This distance generally corresponds to the distance one might travel to access library services. 2000 U.S. Census Bureau population and reverse-journey-to-work data were gathered for all census tracts with at least 50 percent of their area within the ¾-mile catchment area for the library.

HEALTH CARE FACILITIES

Health care facilities include public, proprietary, and nonprofit facilities that accept funds (usually in the form of Medicare and Medicaid reimbursements) and that are available to any member of the community. Examples of these types of facilities include hospitals, nursing homes, clinics, and other facilities providing outpatient health services. Pursuant to *CEQR Technical Manual* guidelines, the health care assessment focuses on emergency and outpatient ambulatory services that could be affected by the introduction of a large low-income residential population which may rely heavily on nearby hospital emergency rooms and other public outpatient ambulatory services. Potential significant adverse impacts on health care facilities could occur if a proposed project would cause health care facilities within the study area to exceed capacity, or if a proposed project would result in a population increase of 5 percent or more who would seek services at these facilities.

According to the *CEQR Technical Manual,* if a proposed project would generate more than 600 affordable units, there may be increased demand on local public health care facilities, which may warrant further analysis. The proposed Plan would introduce up to 1,100 affordable housing units to the study area, while the No Convention Center Scenario would introduce up to 1,170

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0 2000 FEET

SCALE

Willets Point Development District

Community School District 25, Zone 2 Boundary

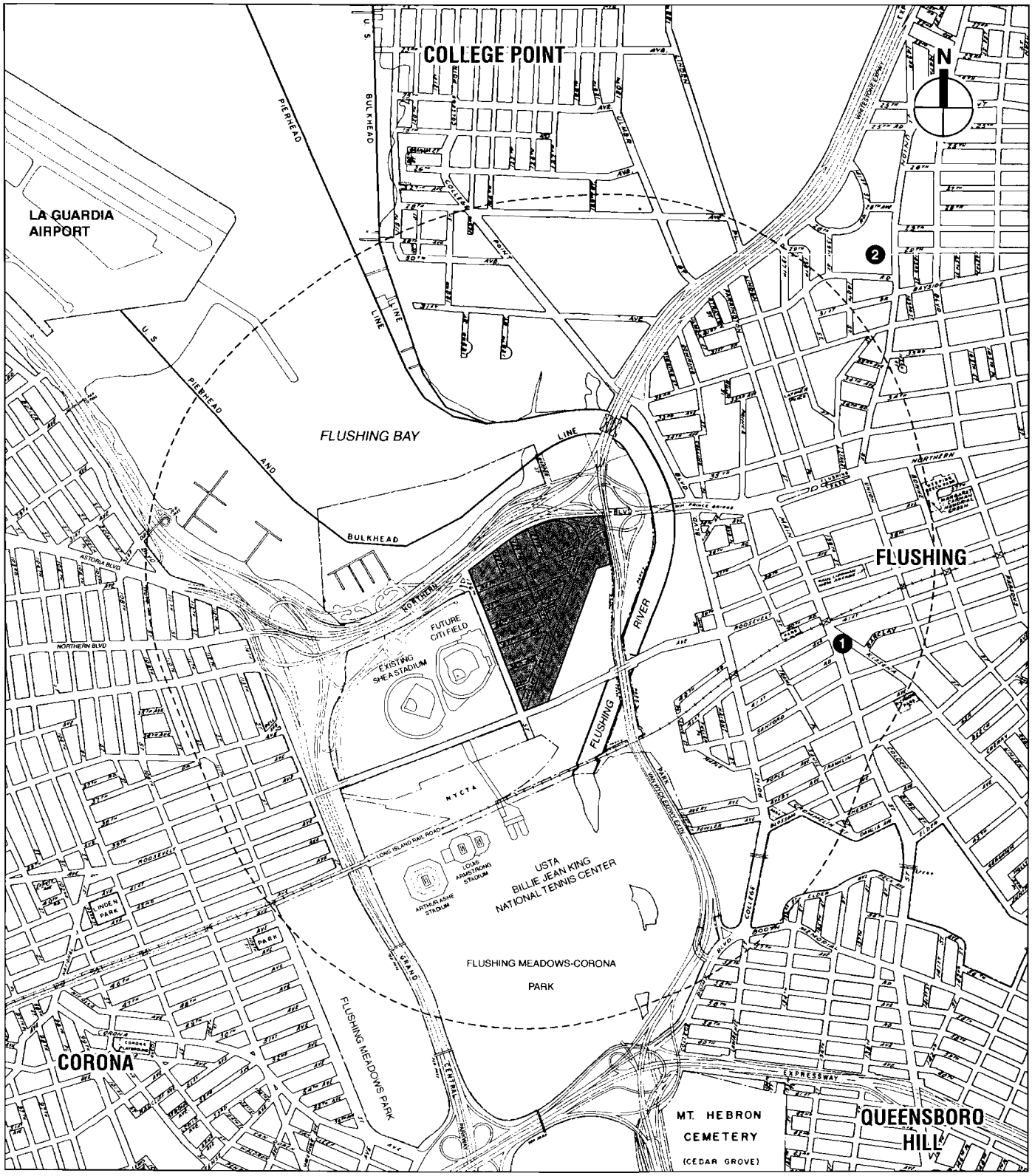
Elementary School

Middle School

School Under Construction

Figure 5-1

School Locations



Willets Point Development District

Study Area Boundary (3/4-Mile Perimeter)

❶ Flushing Library

❷ Mitchell-Linden Library

Figure 5-2
Library Location

affordable housing units;[1] therefore, additional analysis is necessary. Although the *CEQR Technical Manual* does not designate a specific study area for health care resources, all health care facilities within a one-mile radius of the District are mapped and included in the analysis.

DAY CARE CENTERS

According to the *CEQR Technical Manual*, if a proposed project would add more than 50 eligible children to the study area's day care facilities, a detailed analysis of the proposed project's impact on publicly funded day care facilities should be performed. This threshold is based on the number of low- income and low- to moderate- income units within a proposed project. The estimated number of new housing units that would yield 50 eligible children differs in each borough. In Queens, projects that would create 250 units of low-income housing or 278 units of low- to moderate- income housing surpass the threshold for a detailed analysis of day care centers. The proposed Plan would include approximately 1,100 affordable housing units, which would generate approximately 198 children under the age of 12 who could be eligible for publicly funded day care. The No Convention Center Scenario would include approximately 1,170 affordable housing units, which would generate approximately 211 children under the age of 12 who could be eligible for publicly funded day care. Since each development scenario would pass the *CEQR Technical Manual* threshold, a detailed day care analysis was conducted.

The study area for a detailed analysis includes all publicly funded group day care facilities within one mile of the District. If the project would result in a potential demand for slots at these facilities greater than remaining capacity of day care centers, and if that demand constitutes an increase of 5 percent or more of the collective capacity of the day care centers serving the area of the proposed Plan, a significant adverse impact may result, which could require mitigation.

POLICE AND FIRE PROTECTION SERVICES

The *CEQR Technical Manual* recommends detailed analyses of impacts on police and fire service only in cases of direct displacement. The proposed Plan would not directly displace either police or fire services; therefore, no further analysis is necessary. In response to comments on the DGEIS, the analysis considers the adequacy of emergency response times to the District. This discussion is included under "Probable Impacts of the Proposed Plan," below.

D. EXISTING CONDITIONS

PUBLIC SCHOOLS

ELEMENTARY SCHOOLS

As shown in Figure 5-1, three elementary schools are located within the one-mile study area. These schools include P.S. 214 (Cadwallader Colden School) and P.S. 242 (Leonard Stavisky Early Childhood School) from Zone 1, and P.S. 20 (John Bowne School) from Zone 2. As shown in Table 5-2, the New York City Department of Education (DOE)'s 2005-2006[2] school year enrollment

[1] It is currently anticipated that 20 percent of all housing units introduced in both development scenarios as part of the proposed Plan would be set aside for affordable housing. These units were assumed to fall within the low- to moderate-income CEQR category

[2] Based on DOE's Utilization Profiles: Enrollment/Capacity/Utilization, 2005 - 2006, which is the most recently released data.

figures[1] indicate that these schools are cumulatively operating at 104 percent of capacity, with a shortfall of 87 seats.

Table 5-2
Public Elementary and Intermediate Schools Serving the Proposed Plan Area

School	Enrollment in Program	Program Capacity*	Available Seats in Program	Program Utilization (Percent)
Elementary Schools				
One-Mile Study Area				
P.S. 20—John Bowne School**	1,368	1,306	-62	105%
P.S. 214—Cadwallader Colden School***	428	486	58	88%
P.S. 242—Leonard Stavisky Early Childhood School***	360	277	-83	130%
One-Mile Study Area Total	**2,156**	**2,069**	**-87**	**104%**
CSD 25, Zone 2				
P.S. 20—John Bowne School**	1,368	1,306	-62	105%
P.S. 22—Thomas Jefferson School	761	678	-83	112%
P.S. 24—Andrew Jackson School	691	638	-53	108%
P.S. 107—Thomas Dooley School	1,086	1,097	11	99%
P.S. 120	982	891	-91	110%
P.S. 163—Flushing Heights School	524	541	17	97%
Zone 2 Total	**5,412**	**5,151**	**-261**	**105%**
CSD 25 Total	**16,533**	**17,588**	**1,035**	**94%**
Intermediate Schools				
One-Mile Study Area				
M.S. 237—Rachel Carson School****	1,127	1,459	332	77%
One-Mile Study Area Total	**1,127**	**1,459**	**332**	**77%**
CSD 25, Zone 2				
M.S. 189—Daniel Carter Beard School*****	815	1,059	244	77%
M.S. 237—Rachel Carson School	1,127	1,459	332	77%
Zone 2 Total	**1,942**	**2,518**	**576**	**77%**
CSD 25 Total	**5,283**	**7,750**	**2,487**	**69%**

Sources: NYC DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

Notes: DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the CSD totals for the schools analysis includes elementary/intermediate (k-8) schools in the elementary category. Data for intermediate/high school facilities is included in the intermediate category.

* Program capacity is based on the Board of Education's Target Capacity, which assumes 20 children per class for grades K through 3.

** P.S. 20—John Bowne School is located within both the one-mile study area and Zone 2 and is included in both analyses.

*** P.S. 214—Cadwallader Colden School, and P.S. 242—Leonard Stavisky Early Childhood School are both located on Zone 1 and are not included in the Zone 2 analysis.

**** M.S. 237 is located just beyond the one-mile study area perimeter. Due to its proximity to the boundary and the District, it was included in the one-study area analysis.

***** MS 189—Daniel Carter Beard School shares its building with Flushing International High School.

Six elementary schools are located in Zone 2 of CSD 25. These schools include P.S. 20 (John Bowne School), P.S. 22 (Thomas Jefferson School), P.S. 24 (Andrew Jackson School), P.S. 107 (Thomas Dooley School), P.S. 120, and P.S. 163 (Flushing Heights School). P.S. 20 is the only school from Zone 2 that is located within the one-mile study area; however, P.S. 120 is located just beyond the one-mile study area boundary.

As shown in Table 5-2, DOE's 2005-2006[2] school year enrollment figures[1] indicate that schools within Zone 2 are cumulatively operating at 105 percent of capacity, with a shortfall of 261

[1] DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the CSD totals for the schools analysis includes elementary/intermediate (k-8) schools in the elementary category. Data for intermediate/high school facilities is included in the intermediate category.

[2] Based on DOE's Utilization Profiles: Enrollment/Capacity/Utilization, 2005 - 2006, which is the most recently released data.

seats. Total enrollment at the elementary schools throughout all of CSD 25 is 16,533 students, or 94 percent of capacity, with 1,035 available seats.

INTERMEDIATE/ MIDDLE SCHOOLS

There are no intermediate schools located within the one-mile study area. M.S. 237 (Rachel Carson School) is located just beyond the one-mile study area boundary. Given the school's proximity to the study area boundary, it was included in the analysis. M.S. 237 is currently operating below capacity with 1,127 enrolled students (77 percent capacity) and a surplus of 332 seats.

J.H.S 189 (Daniel Carter Beard) and M.S. 237 (Rachel Carson School) are the two middle schools located within Zone 2 of CSD 25. DOE 2005-2006 school year enrollment figures indicate that these two schools are operating at 77 percent of capacity, with a surplus of 576 seats. Total enrollment at the intermediate schools throughout CSD 25 is 5,283 students, or 69 percent of capacity, with a surplus of 2,487 seats.

HIGH SCHOOLS

DOE does not require high school students to attend a specific high school in their neighborhood. Students may attend any of the schools within the borough or City, based on seating availability and admissions criteria. According to DOE's latest admissions guidelines, students who wish to attend their zoned school must rank that particular school among their 12 choices on their applications, and would be given priority in admission. Thus, when students are not matched with schools they have ranked above their zoned school, they are automatically assigned to their zoned school. In cases where students are not accepted to one of their 12 choices and do not list their local zoned school as one of the choices, they are not automatically assigned to their zoned school, and would need to complete a new High School Choice Form.

Two public high schools (see Table 5-3) are located within Zone 2 of CSD 25: Flushing International High School (144-08 Barclay Avenue) and Flushing High School (35-01 Union Street).[2]

Flushing International High School serves recent immigrants to the United States who are new learners of English. The school aims to help each student learn to read, write, and communicate fluently in English while also providing opportunities to maintain their native languages. In the 2005-2006 academic year, the school had a utilization rate of 87 percent, with 32 available seats.

Flushing High School offers a college preparatory curriculum as well as the Thurgood Marshall Academy for Legal Studies, a certificate program for high school students. During the 2005-2006 academic year, Flushing High School had a utilization rate of 118 percent, with an enrollment of 2,661 students and a shortfall of 405 seats.

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[1] DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the CSD totals for the schools analysis includes elementary/intermediate (k-8) schools in the elementary category. Data for intermediate/high school facilities is included in the intermediate category.

[2] H.S. 281-East-West International High School (46-21 Colden Street) falls within Zone 2 of CSD 25 but was not included in the analysis because the school opened in July, 2006 and 2005-2006 DOE enrollment figures were not available for the facility. I.S. 281-East-West International High School is located in the same building as M.S. 237-Rachel Carson School.

Table 5-3
Queens Public High Schools Serving the Study Area

School	Enrollment in Program	Program Capacity	Available Seats in Program	Program Utilization (Percent)
H.S. 263—Flushing International High School	216	248	32	87
H.S. 460—Flushing High School	2,661	2,256	-405	118
Study Area Totals	**2,877**	**2,504**	**-373**	**115**
Queens Totals	**76,746**	**66,203**	**-10,543**	**116**

Sources: DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

The two high schools in Zone 2 of CSD 25 had a combined capacity for 2,504 students, while the enrollment for the 2005-2006 school year was approximately 2,877 students. Thus, overall utilization within Zone 2 of CSD 25 was 115 percent, with a deficit of 373 seats. Throughout Queens, total high school capacity was 66,203 students, while the enrollment for the 2005-2006 school year was approximately 76,746 students, with an overall utilization of 116 percent and a shortage of 10,543 seats.

LIBRARIES

The Queens Borough Public Library system serves all of Queens, including the Willets Point Development District. The Queens Library is an autonomous library system, guided by a 19-member Board of Trustees appointed by the Mayor of the City of New York and the Queens Borough President. The system serves a population of 2.2 million from 63 locations and six Adult Learning Centers. The library is the second largest public library in the U.S. in terms of size of circulation. Since 1994, the Library has circulated more books and other library materials than any other library system in the country.

Libraries provide free and open access to books, periodicals, electronic resources, and non-print materials. Reference, career services, Internet access, and educational, cultural and recreational programming for adults, young adults, and children are also provided.

According to *CEQR Technical Manual* guidelines, the catchment areas for library branches correspond to the distance that one might be expected to travel for such services, typically not more than ¾ mile. As such, the library service study area is defined as the ¾-mile radius around the District. All libraries located within this radius are included in the detailed assessment. The Flushing Library is the only branch library of the Queens Public Library system located within ¾ mile of the District (see Table 5-4 and Figure 5-2). The Flushing Library is located to the east of the District, near downtown Flushing, at the intersection of Kissena Boulevard and Main Street. An individual library's catchment area corresponds to the ¾-mile radius surrounding that library.

The Flushing Library's catchment area includes approximately 79,326 residents (see Table 5-4). The library has 350,069 volumes, and in 2006 had a circulation of 2,604,096 volumes. Thus, the Flushing branch library contains approximately 4.4 volumes per resident—substantially higher than the borough-wide average of 3.1 volumes per resident. In addition to a wide selection of fiction and nonfiction books, periodicals, and audio-visual media, the Flushing Library has a job information center, an international language collection that includes 12 languages ranging from French to Urdu, and 60 computers for public Internet access. Users of the Flushing Library branch can request a volume from any of the other libraries in the Queens Public Library system through inter-library loan.

Table 5-4
Library Locations

Map No[1]	Library	Location	Volumes[2]	2006 Circulation	Catchment Area Population
1	Flushing Library	41-17 Main Street	350,069	2,604,096	79,326
2	Mitchell-Linden Library	29-42 Union Street	74,916	402,741	44,931

Notes: [1] Please refer to Figure 5-2 for library locations. Mitchell-Linden Library is located outside of the study area boundary.
[2] Volumes held as of March 2007. Volumes include books, CDs, DVDs, and videotapes.
Sources: US Census Bureau 2000; Queens Public Library; AKRF, Inc.

In addition, the Mitchell-Linden Library is located just beyond the study area boundary (see Figure 5-2). Residents in the northeastern portion of the study area would be likely to use this branch in addition to the services provided by the Flushing Library. The Mitchell-Linden Library includes 74,916 volumes and had a circulation of 402,741 volumes in 2006.

HEALTH CARE FACILITIES

Health care facilities include public, proprietary, and non-profit facilities that accept public funds (usually in the form of Medicare and Medicaid reimbursements) and that are available to any member of the community. Examples of these types of facilities include hospitals, nursing homes, clinics, and other facilities providing outpatient health services. Pursuant to *CEQR Technical Manual* guidelines, the health care assessment focuses on emergency and outpatient ambulatory services that could be affected by the introduction of a large low-income residential population which may rely heavily on nearby hospital emergency rooms and other public outpatient ambulatory services.

HOSPITALS AND EMERGENCY ROOMS

There are no hospitals within a one-mile radius of the District; however, the Flushing Hospital Medical Center and the New York Hospital Medical Center of Queens, both in Flushing, are located a few blocks from the one-mile study area boundary (see Table 5-5 and Figure 5-3). As the *CEQR Technical Manual* guidelines do not specify a specific study area boundary, the Flushing Hospital Medical Center and the New York Hospital Medical Center of Queens were included in the analysis due to their proximity to the District.

Table 5-5
Hospitals and Emergency Rooms within One Mile of the District

Hospital	Address	Outpatient Department Visits (2005)	Emergency Room Visits (2005)	Beds
Flushing Hospital Medical Center	4500 Parsons Boulevard	64,568	39,717	293
New York Hospital Medical Center of Queens	56-45 Main Street	125,189	64,983	419
	Total	**189,757**	**104,700**	**712**

Sources: United Hospital Fund Health Care Annual Update, 2005 Update.

The Flushing Hospital Medical Center is located at 4500 Parsons Boulevard. It provides a wide range of clinical services: According the United Hospital Fund 2005 Health Care Annual Update, Flushing Hospital Medical Center had 293 beds, 64,568 outpatient department visits and 39,717 emergency room visits. The hospital currently has no expansion plans. The New York Hospital Medical Center of Queens, located at 56-45 Main Street, had 419 beds, 125,189 outpatient visits, and 64,983 emergency room visits.

OTHER OUTPATIENT SERVICES

Table 5-6 and Figure 5-4 show the inventory of the eight specific outpatient locations within the proposed Plan area and the surrounding one-mile study area (as inventoried in the *New York City Department of City Planning Selected Facilities and Program Sites in New York City, 2005 Edition).* These outpatient locations cover the entire area with a full range of ambulatory care facilities.

Table 5-6
Outpatient Health Care Facilities within One Mile Study Area

Map No.	Facility Name	Address	Facility Type
1	Elmhurst Hospital Center & Tzu Chi Foundation	41-60 Main St.	New York City Health and Hospitals Corporation extension clinic
	St. Catherine's Family Health Center		Hospital affiliated health center
2	Flushing House Geriatric Clinic	38-20 Bowne St.	Health center
3	New York Hospital of Queens Family Health Center	35-11 Farrington St.	Hospital affiliated health center
4	Chinatown Action for Progress Primary Care Center	136-26 37th Ave	Health center
5	Elmcor Youth and Adult Activities- Drug Abuse Clinic	107-20 Northern Blvd	Non-medically supervised chemical dependency day service
6	Queens Child Guidance Center Flushing Clinic	41-25 Kissena Blvd	Mental health clinic
	Queens Child Guidance Center		Clinic/day treatment-Mental Retardation/Developmental Disabilities

Notes: Please refer to Figure 5-4 for location of outpatient facilities.
Sources: New York City Department of City Planning, *Selected Facilities and Program Sites, 2005 Edition.*

DAY CARE CENTERS

The New York City Administration for Children's Services (ACS) provides subsidized child care in center-based group day care, family child care, informal child care, and Head Start. ACS does not operate child care programs. Most children are served through contract with private and nonprofit organizations that operate child care programs throughout the City. Registered or licensed providers typically offer family child care in their homes. Informal child care is usually provided by a relative or neighbor for no more than two children. Children aged two months through 12 years old are cared for either in group child care centers licensed by the Department of Health (DOH) or in homes of registered child care providers. ACS also issues vouchers to eligible families, which may be used by parents to pay for child care from any legal child care provider in the City. Head Start is a federally funded child care program that provides parents with part-time child care services.

Publicly financed day care centers, under the auspices of the City's Division for Child Care and Head Start (CCHS) within ACS, provide care for the children of income-eligible households. Space for one child in such day care centers is termed a "slot." These slots may be in group day care or Head Start centers, or they may be in the form of family day care in which 7 to 12 children are placed under the care of a licensed provider and an assistant in a home setting.

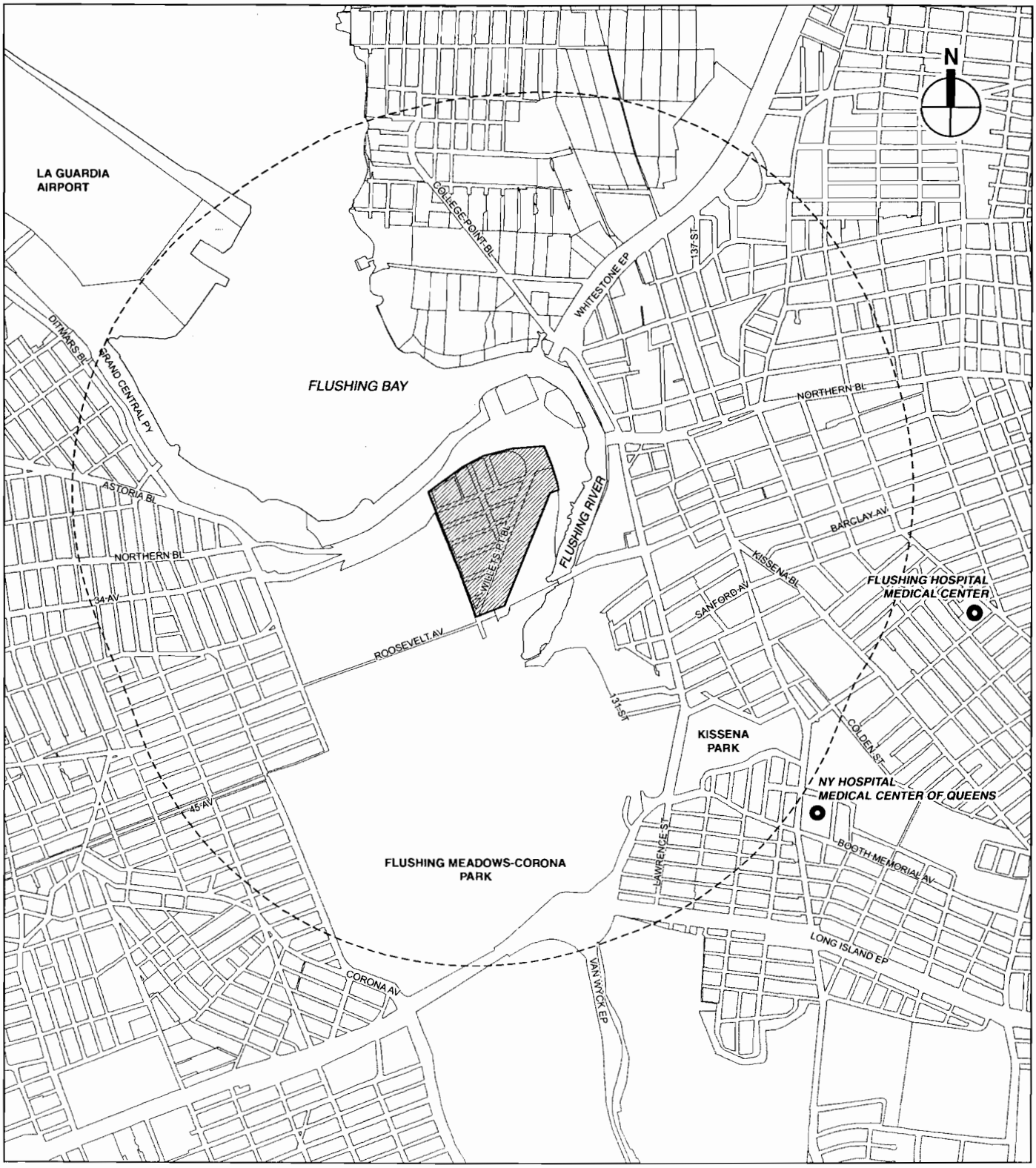
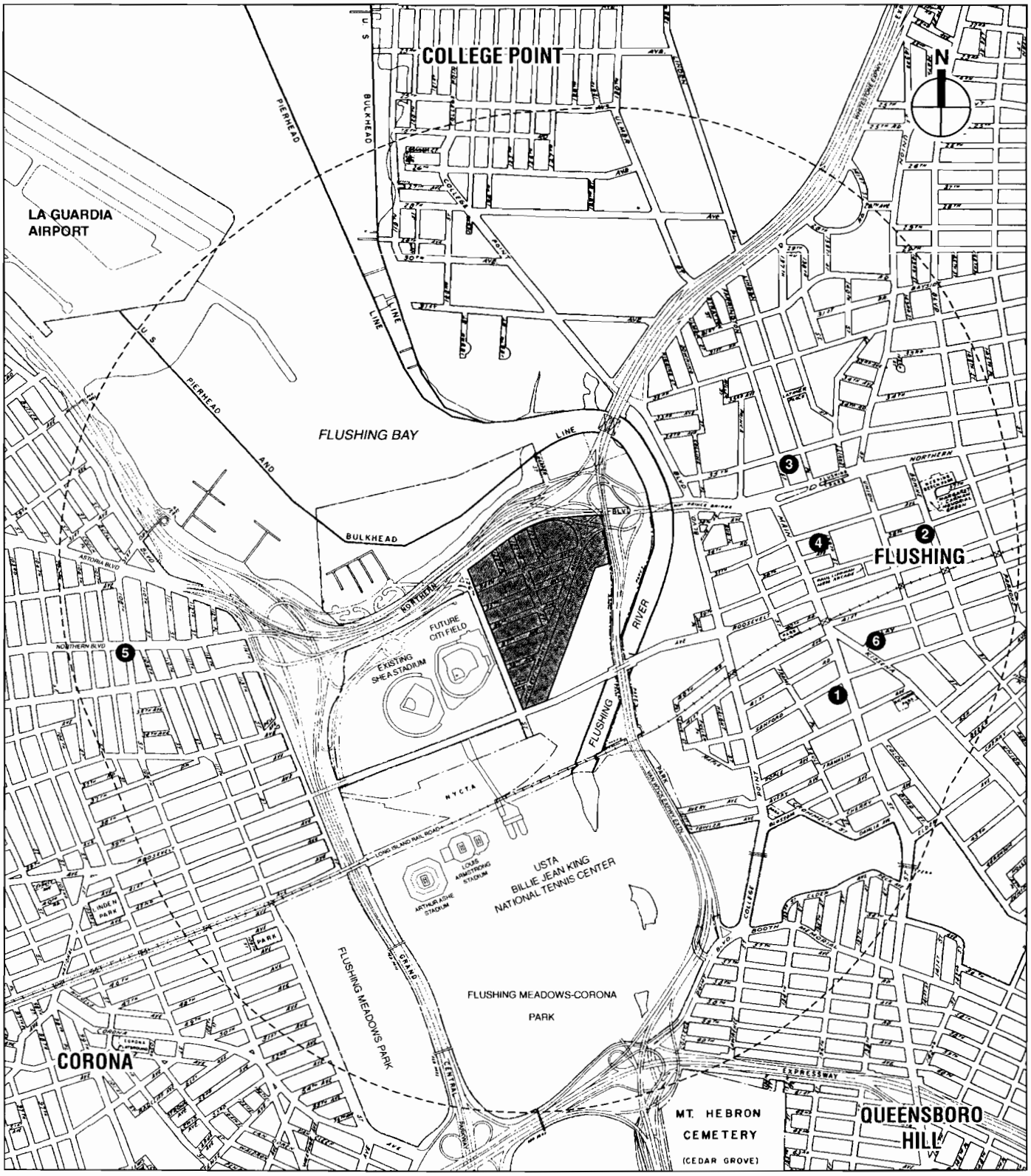


Figure 5-3
Hospitals



Willets Point Development District

Study Area Boundary (1-Mile Perimeter)

❶ *Outpatient Health Service*

0 1000 2000 FEET

SCALE

Figure 5-4

Outpatient Health Services

Publicly financed day care services are available for income-eligible children up to the age of 12. To receive subsidized child care services, a family must meet specific financial and social eligibility criteria that are determined by federal, state, and local regulations. Financial eligibility is determined by a family's gross income, with consideration of family size. To meet the social eligibility for publicly funded day care, a family must have an approved "reason for care," such as involvement in a child welfare case or participation in a "welfare-to-work" program. In order to determine whether a family is eligible for subsidized child care, the parent must appear at an eligibility interview at an ACS child care office.

Since there are no locational requirements for enrollment in day care centers, and some parents or guardians choose a day care center close to their employment rather than their residence, the service areas of these facilities can be quite large and not subject to strict delineation to identify a study area. According to the *CEQR Technical Manual*, the locations of publicly funded group day care centers within a mile or so of the development parcels should be shown. Nevertheless, the center(s) closest to the Willets Point Development District are more likely to be subject to increased demand.

There are nine publicly funded day care facilities located within the one-mile study area, which operate at six different locations. These facilities are well utilized, with a total capacity of 552 and current enrollment of 606 (see Table 5-7 and Figure 5-5).

Table 5-7
Public Day Care Centers within One Mile of the District

Map No.[1]	Name	Address	Capacity	Enrollment	Available Slots
1	Martin L. King Jr. Memorial Day Care	36-06 Prince Street	35	38	-3
2	Macedonia Child Development	37-22 Union Street	35	36	-1
3	Better Community Life Day Care Center # 2	133-16 Roosevelt Avenue	59	59	0
4	Jerome Hardeman Sr. Day Care Center	29-49 Gillmore Street	60	58	2
5	Therese Cervini Family Day Care	35-33 104th Street	46	57	-11
6	Better Community Life Day Care Center # 1	34-10 108th Street	80	76	4
6	Better Community Life Family Day Care	34-10 108th Street	47	71	-24
6	Malcolm X Day Care Center @ Better Community Life	34-10 108th Street	130	105	25
6	Malcolm X Family Day Care @ Better Community Life	34-10 108th Street	60	106	-46
		Total	**552**	**606**	**-54**

Notes: [1] See Figure 5-6 for facility locations.
Sources: Administration for Children's Services (ACS), June 30th, 2007.

In addition to attending group day care centers, eligible children may also be cared for in the homes of family child care providers, also registered by DOH. Family child care providers are professionals who provide care for three to seven children in their residences. Group family child care providers are professionals who care for seven to 12 children, with the help of an assistant, in their homes. The majority of family and group family child care providers in New York City are registered with a child care network, which provides access to training and support services. According to ACS, these home-based facilities tend to absorb unmet demand at day care centers, and more host households are added to the system as demand increases. Finally, ACS vouchers are available for families to utilize private day care facilities.

POLICE AND FIRE SERVICES

Although the *CEQR Technical Manual* recommends detailed analyses of impacts on police and fire service only in cases of direct impacts on facilities, for informational purposes, this section provides a description of existing police and fire facilities that serve the District.

POLICE SERVICES

As shown in Figure 5-6 and Table 5-8, the Willets Point Development District is served by the 110th Precinct of the New York City Police Department (NYPD). The 110th Precinct is located at 94-41 43rd Avenue in Elmhurst. The District is also close to the 109th Precinct, located at 37-05 Union Street in Flushing.

Table 5-8
Police Protection Facilities

Map No.	Police Facility	Address	Facility Type
P1	109th Precinct	37-05 Union Street, Flushing	NYC Police Station
P2	110th Precinct	94-41 43rd Avenue, Elmhurst	NYC Police Station
Sources: Selected Facilities and Program Sites, 2005 Edition, NYC Dept. of City Planning.			

FIRE SERVICES

Citywide, New York City Fire Department (FDNY) engine companies carry hoses; ladder companies provide search, rescue, and building ventilation functions; and rescue companies specifically respond to fires or emergencies in high-rise buildings. In addition, FDNY operates the City's EMS system. As shown in Table 5-9 and in Figure 5-6, there are four fire stations that serve the study area.

Table 5-9
Fire Protection Facilities

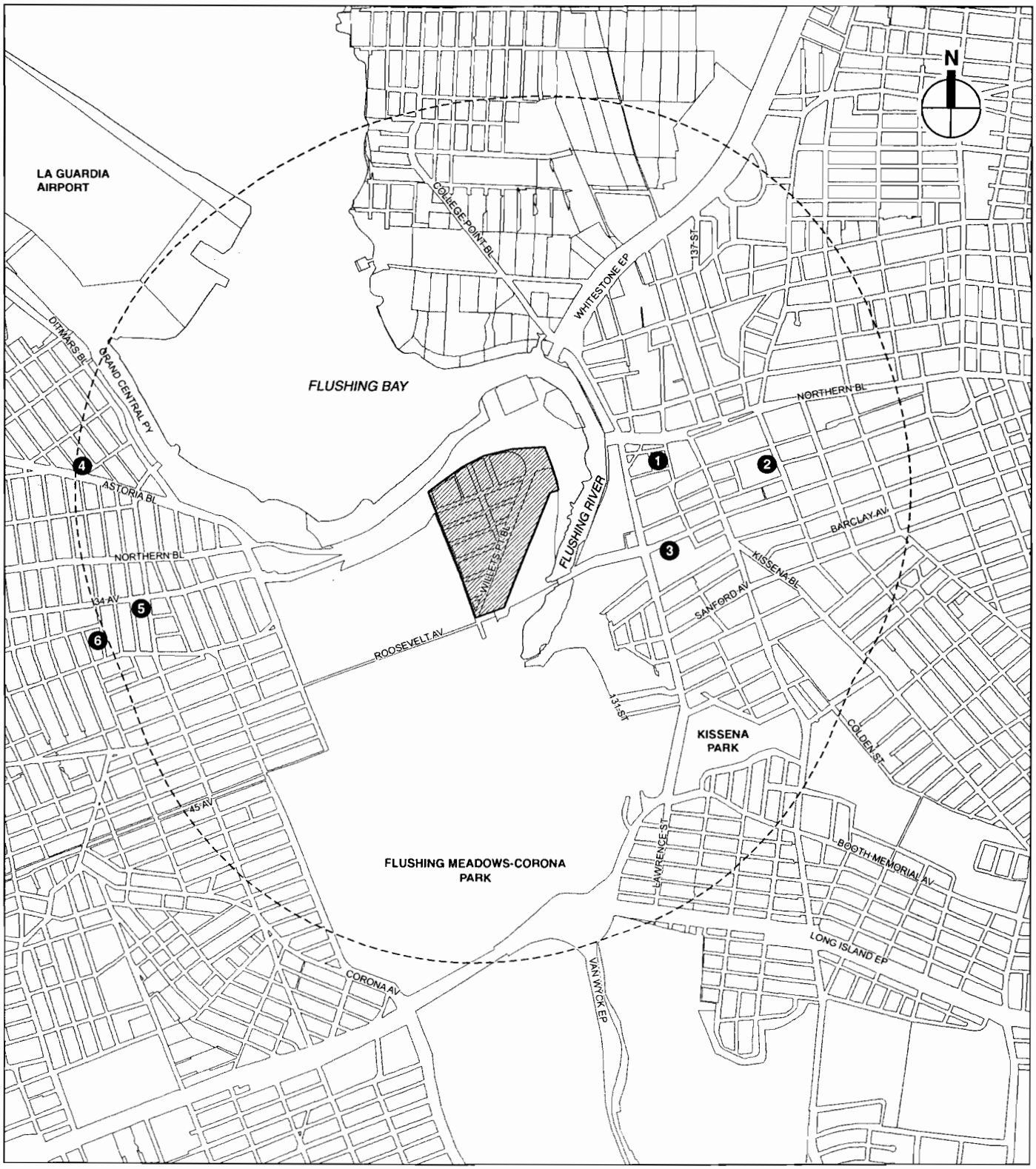
Map No.	Fire Facility	Address	Facility Type
F1	Engine 273 Ladder 129	40-18 Union Street	Fire House
F2	Engine 316	27-12 Kearney Street	Fire House
F3	Engine 289 Ladder 136	41-20 Murray Street	Fire House
F4	Engine 324 Satellite 4 Division	108-01 Horace Harding Expressway	Fire House
Sources: Selected Facilities and Program Sites, 2005 Edition, NYC Dept. of City Planning.			

Units responding to a fire are not limited to ones closest to it. Normally, a total of three engine companies and two ladder companies respond to each call. Each FDNY squad is capable of operating as an engine, ladder, or rescue company, making them versatile for incident commanders. Each squad is also part of the FDNY HazMat Response Group and has a HazMat Tech Unit within each company. FDNY can call on units in other parts of the City as needed.

E. THE FUTURE WITHOUT THE PROPOSED PLAN

PUBLIC SCHOOLS

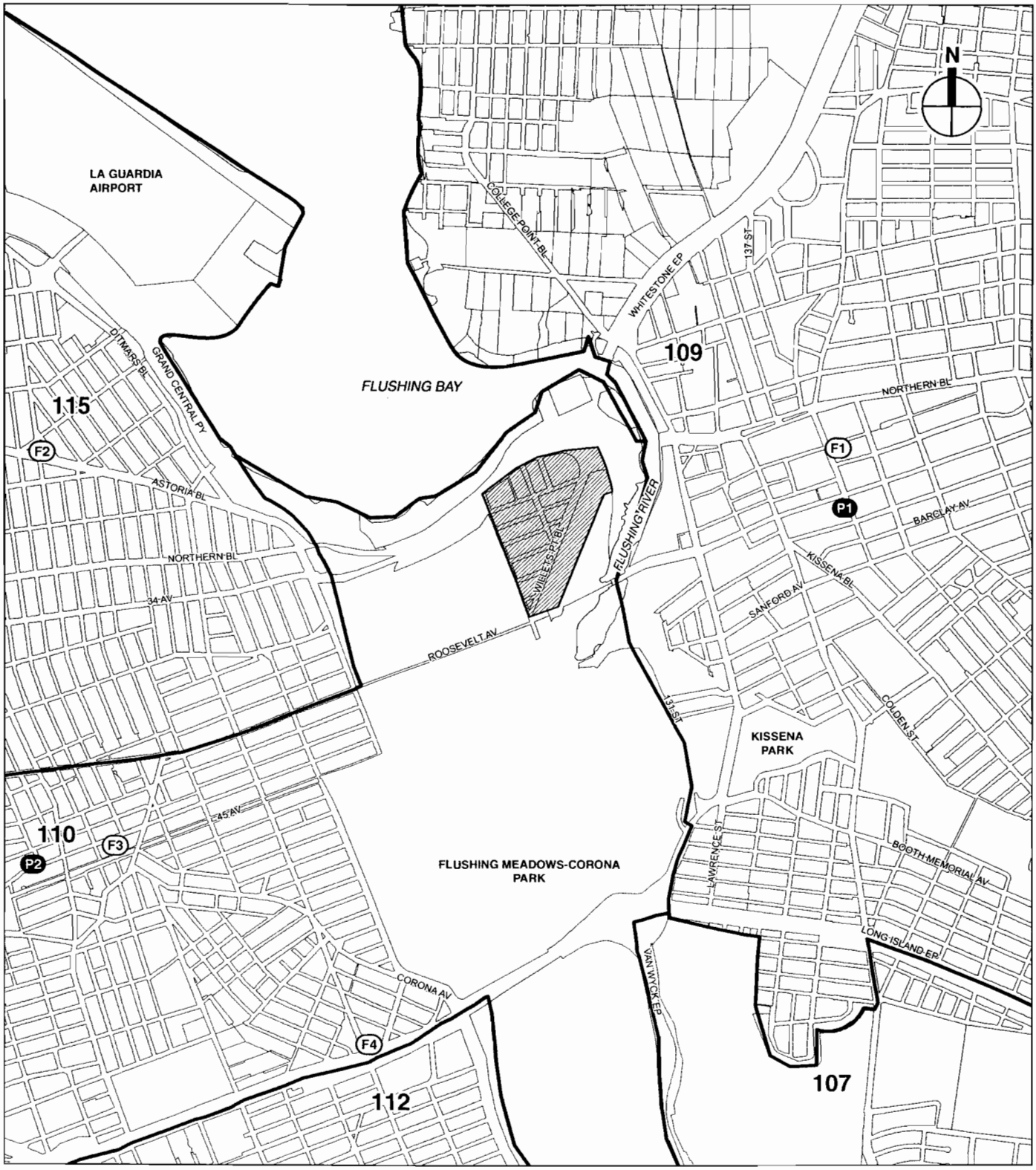
The future utilization rate for school facilities is calculated by adding the estimated enrollment from residential developments expected by 2017 to the enrollment projected by DOE in that school year, and then comparing that number with projected school capacity. DOE does not include charter school enrollment in its enrollment projections. DOE provided the latest



NOTE: See Table 5-7 for reference

Figure 5-5

Publicly Funded Day Care Centers



Willets Point Development District

112 Police Precinct Number and Boundary

F1 Fire Protection Facility

P1 Police Protection Facility

Figure 5-6

Police and Fire Services

available enrollment projections.[1] These enrollment projections do not explicitly account for discrete new residential developments planned for the study area; therefore, the additional populations from the proposed new projects within the study area were also included to ensure a conservative prediction of future enrollment and utilization.

In the future without the proposed Plan, 37 new residential developments would be added in the one-mile study area boundary by 2017. In most cases, the projects that are planned or under construction are market-rate construction projects. However, because specific information on the mix of housing types is not available for some of the planned developments, for the purposes of this analysis, it is conservatively assumed that 20 percent of these planned residential units would be developed for low- to moderate-income households. Overall, approximately 2,326 market rate units and 615 affordable housing units are assumed to be generated within the one-mile study area by 2017 in the future without the proposed Plan.

In the future without the proposed Plan, 27 new residential developments would exist in Zone 2 of CSD 25 by 2017. As described above, the projects that are planned or under construction are market-rate construction projects. Although it is not known whether these developments would include affordable housing units, for the purposes of this analysis, it is conservatively assumed that 20 percent of these planned residential units would be developed for low- to moderate-income households. Overall, approximately 1,898 market rate units and 505 affordable housing units are assumed to be generated within Zone 2 of CSD 25 by 2017 in the future without the proposed Plan. The analysis of the future without the proposed Plan also includes the residential developments outside of Zone 2 but within CSD 25 that are proposed to exist by 2017. Table 5-10 summarizes the residential developments and the assumptions used in this analysis.

Table 3C-2 of the *CEQR Technical Manual* summarizes pupil generation rates, based on the DOE's analysis of income mix and location (by borough) for residential units. As shown in Tables 5-11 and 5-12, development expected in the future without the proposed Plan would add an estimated 460 elementary and 225 middle school students to the one-mile study area. The developments within Zone 2 of CSD 25 would add 376 elementary and 184 middle school students. The developments within CSD 25, but outside of Zone 2, would add approximately 85 elementary students and 41 middle school students.

ELEMENTARY SCHOOLS

The DOE projects that by 2017 elementary school enrollment in CSD 25 would decline to 16,385, a decrease of approximately 0.9 percent. Applying these projection rates to the elementary schools within the one-mile study area results in approximately 2,137 students enrolled in the three schools. This is a 19-student decrease from the current enrollment. The projected decrease indicates that 139 fewer public elementary students would be enrolled in Zone 2 by 2017 than are currently enrolled. As such, elementary school enrollment would be 5,364 in Zone 2.

[1] DOE school projections are calculated only for up to 10 years into the future from current enrollment figures. These enrollment figures reflect actual 2005 enrollment and projected enrollment from 2005 to 2015. To project to 2017, the last year (2015) for which projections were calculated were held constant to the 2017 projection.

Table 5-10
Expected Residential Development: 2017 Future Without the Proposed Plan

Project/Location	Total Housing Units	Market-Rate Units[1]	Low- to Moderate-Income Units[1]
One-Mile Study Area			
Sky View Parc/College Point Blvd and 40th Road[2]	750	600	150
River Park Place-39-08 Janet Place[2]	475	380	95
Victoria Tower 41-60 Main Street[2]	178	142	36
Flushing Commons (Municipal Parking Lot 1)[2]	538	406	132[3]
135-11 40th Road[2]	14	11	3
41-18 Haight Street[2]	6	5	1
132-73 Maple Avenue[2]	8	6	2
134-43 Maple Avenue[2]	23	18	5
143-51 Franklin Avenue[2]	1	1	0
132-14 59th Avenue[2]	2	2	0
132-25 59th Avenue[2]	2	2	0
56-71 136th Street[2]	2	2	0
135-02 Booth Memorial Avenue[2]	3	2	1
57-35 Lawrence Street[2]	4	3	1
132-25 Pople Avenue[2]	14	11	3
42-33 Main Street[2]	66	53	13
38-34 Parsons Boulevard[2]	40	32	8
42-11 Parsons Boulevard[2]	20	16	4
133-20 Avery Avenue[2]	26	21	5
133-53 37th Avenue[2]	47	38	9
41-55 College Point Boulevard[2]	50	40	10
140-22 Beech Avenue[2]	42	34	8
5-10 Summit Court[2]	18	14	4
143-21 38th Avenue[2]	25	20	5
132-27, 132-37, 132-45, 132-49, 132-61 41st Road[3]	43	34	9
137-07 Northern Boulevard[3]	38	30	8
31-18, 31-22 Union Street[3]	30	24	6
140-24 31st Drive[3]	20	16	4
31-33 Linden Place[3]	8	6	2
136-16 35th Avenue[3]	28	22	6
138-06 35th Avenue[3]	9	7	2
32-18 Union Street[3]	8	6	2
137-04 31st Street[3]	3	2	1
31-27 137th Street[3]	9	7	2
31-38 137th Street[3]	16	13	3
RKO Keith/ Main Street and Northern Boulevard[3]	200	160	40
New Millennium 35th Avenue[3]	84	67	17
New Millennium Northern Boulevard[3]	91	73	18
Total, One-Mile Study Area	2,941	2,326	615
CSD 25, Zone 2			
One-Mile Study Area			
Sky View Parc/College Point Blvd and 40th Road	750	600	150
River Park Place-39-08 Janet Place	475	380	95
Victoria Tower 41-60 Main Street	178	142	36
Flushing Commons (Municipal Parking Lot 1)	538	406	132[4]
135-11 40th Road	14	11	3
41-18 Haight Street	6	5	1
41-55 College Point Boulevard	50	40	10
132-27, 132-37, 132-45, 132-49, 132-61 41st Road	43	34	9
5-10 Summit Court	18	14	4
133-53 37th Avenue	47	38	9
132-73 Maple Avenue	8	6	2
134-43 Maple Avenue	23	18	5
143-21 38th Avenue	25	20	5
140-22 Beech Avenue	42	34	8

Table 5-10 (cont'd)
Expected Residential Development: 2017 Future Without the Proposed Plan

Project/Location	Total Housing Units	Market-Rate Units[1]	Low- to Moderate-Income Units[1]
CSD 25, Zone 2 (cont'd)			
One-Mile Study Area (cont'd)			
143-51 Franklin Avenue	1	1	0
143-22 Beech Avenue	2	2	0
42-33 Main Street	66	53	13
38-34 Parsons Boulevard	40	32	8
42-11 Parsons Boulevard	20	16	4
132-25 Pople Avenue	14	11	3
133-20 Avery Avenue	26	21	5
56-71 136th Street	2	2	0
135-02 Booth Memorial Avenue	3	2	1
57-35 Lawrence Street	4	3	1
132-14 59th Avenue	2	2	0
132-25 59th Avenue	2	2	0
136-20 59th Avenue	3	2	1
Total, CSD 25, Zone 2	**2,403**	**1,898**	**505**
CSD 25[5]			
RKO Keith/ Main Street and Northern Boulevard	200	160	40
New Millennium 35th Avenue	84	67	17
New Millennium Northern Boulevard	91	73	18
137-07 Northern Boulevard	38	30	8
31-18, 31-22 Union Street	30	24	6
140-24 31st Drive	20	16	4
31-33 Linden Place	8	6	2
136-16 35th Avenue	28	22	6
138-06 35th Avenue	9	7	2
32-18 Union Street	8	6	2
137-04 31st Street	3	2	1
31-27 137th Street	9	7	2
31-38 137th Street	16	13	3
Subtotal	**544**	**435**	**109**
Total, CSD 25	**2,947**	**2,333**	**614**

Notes:

1. In most cases, the projects that are planned or under construction in the study area are market-rate construction projects. This analysis conservatively assumes that 20 percent of all new housing units will be developed as low- to moderate-income households and the remaining 80 percent will be market rate housing.
2. The one-mile study area includes developments located within Zone 2 as well as developments within CSD 25 but outside Zone 2. These developments are located within Zone 2.
3. These developments are located within the one-study area and within CSD 25 but outside Zone 2.
4. The number of market-rate and low-income units includes development projected to occur as a result of the Rezoning of Block 4978, Lots 25 and 46, as part of the Flushing Commons Mixed Use Development project (as provided by NYCEDC).
5. These residential developments are sited within the land use study area and are proposed for areas within CSD 25 but outside of Zone 2.

Table 5-11
Projected New Housing Units and Estimated Number of Students Generated in Study Area: 2017 Future Without the Proposed Plan

	New Housing Units	Elementary School Students[1]	Middle School Students	High School Students	Total Elementary and Middle School Students Generated
One-Mile Study Area					
Market-Rate	2,326	349	163	70	512
Low- to Moderate-Income	615	111	62	31	173
Total, One-Mile Study Area	**2,941**	**460**	**225**	**101**	**685**
CSD 25, Zone 2					
Market-Rate	1,898	285	133	57	418
Low- to Moderate-Income	505	91	51	25	142
Total, CSD 25, Zone 2	**2,403**	**376**	**184**	**82**	**560**
CSD 25[2]					
Market-Rate	435	65	30	13	96
Low- to Moderate-Income	109	20	11	5	30
Subtotal	**544**	**85**	**41**	**18**	**126**
Total, CSD 25	**2,946**	**461**	**225**	**100**	**686**

Notes:
1. Pupil generation rates based on Table 3C-2 of the *CEQR Technical Manual*
2. These projects are within the land use study area but outside Zone 2.

Sources: DOE *Enrollment Projections*; DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

Table 5-12
Estimated Public Elementary/Middle School Enrollment, Capacity, and Utilization: 2017 Future Without the Proposed Plan

Zone/ District	Projected Enrollment in 2017	Students Generated by New Residential Development	Total Future Enrollment	Program Capacity	Available Seats in Program	Utilization (Percent)
Elementary						
Total, One-Mile Study Area	2,137	460	2,597	2,510	-87	103
Total, Zone 2 of CSD 25	5,364	376	5,740	5,592[1]	-148	103
Total, CSD 25	16,385	461	16,846	18,029[1]	1,183	93
Intermediate						
Total, One-Mile Study Area	842	225	1,067	1,459	392	73
Total, Zone 2 of CSD 25	1,450	184	1,634	2,518	884	65
Total, CSD 25	3,945	225	4,170	7,750	3,580	54

Notes: [1] Includes capacity of 441 seats for P.S. 244 which is under construction and scheduled to open in September 2008.

Sources: DOE *Enrollment Projections*; DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

As mentioned above, new residential developments would add approximately 460 new elementary students to the one-mile study area (see Table 5-11). With the additional students, enrollment is expected to be 2,597 students by 2017. However, DOE has also planned to increase capacity with the development of P.S. 244. The school is currently under construction and scheduled to open in the fall of 2008. The school will be located within the one-mile study and will add 441 school seats. With the additional capacity from P.S. 244, it is anticipated that

there would be an 87-seat deficit (103 percent utilization) in the future without the proposed Plan.

New residential development in Zone 2 of CSD 25 would add approximately 376 new elementary school students to the Zone. With the additional students, the total enrollment in all elementary schools within Zone 2 would be 5,740 by 2017. As described above, with the additional capacity from P.S. 244, it is anticipated that there would be a 148-seat deficit (103 percent utilization) in the future without the proposed Plan. New residential development within CSD 25 would add approximately 461 students. Therefore, total future enrollment in CSD 25 would increase to 16,846 students and there would be approximately 1,183 available seats (93 percent utilization).

Additionally, the DOE five-year year capital plan has budgeted for the addition of a 189-seat school in CSD 25 that would open in 2010. This school is not yet under construction and therefore was not included in the analysis. However, it is expected that the new school would also add to the small surplus of seats in the future without the proposed Plan.

MIDDLE/ INTERMEDIATE SCHOOLS

According to DOE projections, it is expected that intermediate school enrollment within CSD 25 would decline by approximately 25 percent by 2017 to 3,945 intermediate students. Within the one-mile study area, intermediate school enrollment is projected to be 842 in 2017. New residential development within the one-mile study area would generate 225 new intermediate school students. M.S. 237 would operate below capacity (73 percent utilization), with a total intermediate school enrollment of 1,067 and a surplus of 392 seats. Within Zone 2 of CSD 25, intermediate school enrollment is projected to be 1,450 in 2017. New residential development in Zone 2 of CSD 25 would generate 184 new intermediate school students. As such, total intermediate school enrollment within Zone 2 would be 1,634. These schools would be operating well below capacity, with a surplus of 884 seats (65 percent utilization). Within the entire CSD 25, new residential development would generate approximately 225 new intermediate students. With the additional students, intermediate schools within CSD 25 would operate at 54 percent utilization, with a surplus of 3,580 available seats.

HIGH SCHOOLS

DOE does not provide projections of high school students on a local basis. Instead, projections are provided borough-wide. Additional high school students generated by demographic shifts and future development projects in the area would be able to choose from among the City's high schools and are not likely to greatly affect utilization at neighborhood schools.

DOE projects high school enrollment within Queens to decline to approximately 61,989 students by 2017. Development expected in CSD 25 the future without the proposed Plan would introduce an additional 101 high school students. As shown in Table 5-13, these students would increase the total borough-wide high school enrollment within Queens to 62,088 students. Queens' high schools would be expected to operate at 93 percent of capacity with a surplus of 4,712 seats.

Table 5-13
Projected Public High School Enrollment, Capacity, and Utilization: 2017 Future Without the Proposed Plan

	DOE Projected Enrollment in 2017[1]	Students Generated Under No Action[2]	Total Projected Enrollment in 2017	Capacity[3]	Available Seats in Program	Utilization (Percent)
Queens Totals	61,989	101	62,090	66,800	4,710	93

Notes:
1. DOE Enrollment Projections (Projected 2006-2017). DOE enrollment projections include long-term absences. To estimate student enrollment for the high schools in Zone 2 of CSD 25 in 2017, the total number of students enrolled in those schools (DOE Enrollment/Capacity/Utilization Report) in 2005-2006 was divided by the total number of students enrolled in Queens high schools in 2005-2006. The resulting percentage of 3.6 was applied to the Queens projected enrollment in 2015 and was held constant to estimate total enrollment for the study area schools in 2017.
2. The number of students generated by expected development is based on income ratios provided in Table 3C-2 of the *CEQR Technical Manual (2001)*.
3. Capacity numbers: DOE, *Utilization Profiles: Enrollment/Capacity/Utilization, 2005-2006* (High school capacity may include other programs [intermediate, special ed, and charters] housed in high school buildings.)

LIBRARIES

In the future without the proposed Plan, 32 new developments would add approximately 2,810 dwelling units to the library catchment area by 2017. Based on average household size of 2.64 in Community District 7, these developments would add approximately 7,418 new residents to the areas served by the Flushing Library. This represents an increase of approximately 9.4 percent over the existing population in the area. The Queens Public Library currently has no plans to expand service in the study area. Therefore, in the future without the proposed Plan, the Flushing Library branch would continue to have approximately 350,069 volumes, and the study area would continue to have approximately 4.1 volumes per resident in the future without the proposed Plan, compared with 4.4 volumes per resident in the existing condition.

Additionally, although not located within the study area, the Queens Public Library has plans to provide a library branch in the Queens Museum of Art in 2010, once the museum's expansion is completed. Since the branch is outside of the study area, it was not included in the quantified analysis; however, the branch would provide additional library services for area residents near the District.

HEALTH CARE FACILITIES

The Flushing Hospital Medical Center does not have plans to expand their facilities by 2017. The New York Hospital Medical Center of Queens plans to construct a new wing with 80 additional medical/surgical beds. The expansion project will also consolidate many of the hospital's diagnostic and invasive treatment programs, establish a new ambulatory surgery center, and provide for significant infrastructure improvements within the existing campus. Additionally, the hospital will increase the number of operating rooms from five to 10 and aggregate all of the cardiovascular services for heart patients onto one floor. With the additional beds, the hospital's capacity will increase to 499 beds, and the overall capacity within the study area will be 799 beds.

In most cases, the projects that are planned or under construction in the study area are market-rate construction projects. However, for the purpose of this analysis, it is conservatively assumed that 20 percent of the 3,507 planned or proposed housing units within the one-mile study area will be occupied by low-to moderate-income residents. Therefore, absent the proposed Plan, the low- to moderate-income population of the study area is expected to increase by 2,336 persons

(701 new low- to moderate-income units multiplied by the average household size for the census tract where the Plan is located) as a result of the planned residential developments identified.

It is not expected that the increase in the study area population in the future without the proposed Plan would adversely affect the overall provision of health care services. Assuming the national average of roughly 390 annual emergency room visits per 1,000 low-income persons, the 2,336 new low- to moderate-income residents could add approximately 911 annual visits. This incremental change equals approximately 1 percent of annual visits under existing conditions, a small change that is below the *CEQR Technical Manual* guidelines for a significant adverse impact. Furthermore, New York Hospital Medical Center of Queens' expansion plans may help to alleviate demand in the study area.

DAY CARE CENTERS

No new publicly funded day care centers are planned in the study area by 2017. Planned or proposed development projects in the area surrounding the District include 3,507 new housing units. Based on the conservative assumption that 20 percent of these new units would be occupied by low- to moderate-income residents, there would be 701 new low- to moderate-income housing units in the study area by 2017. As per *CEQR Technical Manual* methodology, this amount of development would generate approximately 126 children under the age of 12 who could be eligible for publicly funded day care. Currently, there is a 54-slot overutilization of publicly funded day care facilities within the study area. The additional 126 children would increase the total overutilization of these facilities from 54 to 180 in the future without the proposed project if all of these children attended such facilities.

In such circumstances, day care centers would operate at 133 percent of capacity, compared with 110 percent of capacity in existing conditions. This change in capacity between existing and No Build conditions represents a 21 percent increase in utilization of child care centers within the study area.

Many parents choose to take their children to other day care centers outside of the study area (e.g., closer to work). The full potential increment would also be somewhat reduced by the day care focus on children age five and under, even though children up to age 12 are eligible. The school-age children (pre-K to 6th grade) would be unlikely to utilize the day care slots available in these facilities, since they would be enrolled in public school. Any increased demand for slots could likely be met with family day care slots and vouchers for private day care centers.

F. PROBABLE IMPACTS OF THE PROPOSED PLAN

PUBLIC SCHOOLS

PROPOSED PLAN

The proposed Plan would introduce approximately 5,500 residential units to Zone 2 of CSD 25. It is currently anticipated that 20 percent of the 5,500 units, or 1,100 units, would be set aside for affordable housing. According to *CEQR Technical Manual* guidelines, lower income households have higher generation rates for school-aged children. Based on the projected public school pupil ratios from Table 3C-2 in the *CEQR Technical Manual*, the proposed Plan would generate approximately 858 elementary and 418 intermediate students within Zone 2 of CSD 25 by 2017 (see Table 5-14 and Table 5-15).

Table 5-14
Projected New Housing Units and Estimated Number of Students Generated in Study Area: 2017 Future With the Proposed Plan

	New Housing Units	Elementary School Students[1]	Middle School Students	High School Students	Total Elementary and Middle School Students Generated
Market-Rate Units	4,400	660	308	132	968
Affordable Units	1,100	198	110	55	308
Total units	**5,500**	**858**	**418**	**187**	**1,276**

Note: 1. Pupil generation rates based on Table 3C-2 of the *CEQR Technical Manual*

Table 5-15
Estimated Public Elementary/Middle School Enrollment, Capacity, and Utilization: 2017 Future With the Proposed Plan

Zone/ District	Projected Enrollment in 2017	Students Generated by Proposed Plan	Total Projected Enrollment	Program Capacity	Available Seats in Program	Program Utilization
Elementary						
Total, One-Mile Study Area	2,597	858	3,455	3,360[1]	-95	103%
Total, Zone 2 of CSD 25	5,740	858	6,598	6,442[1]	-156	102%
Total, CSD 25	16,846	858	17,704	18,879[1]	1,175	94%
Intermediate						
Total, One-Mile Study Area	1,067	418	1,485	1,459	-26	102%
Total, Zone 2 of CSD 25	1,634	418	2,052	2,518	466	81%
Total, CSD 25	4,170	418	4,588	7,750	3,162	59%

Notes: 1. Includes capacity of 850 seats that would be added to the District as part of the proposed Plan. *DOE's Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the schools analysis includes elementary/intermediate (K-8) schools in the elementary category.

Sources: NYC DOE *Enrollment Projections*; NYC DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

Elementary Schools

In the future with the proposed Plan, 2,597 students would be enrolled at the elementary schools within the one-mile study area. The proposed Plan would generate approximately 858 elementary students. Projected capacity in existing schools within the study area would be 2,510, without the proposed 850-seat school described in Chapter 1, "Project Description." With the additional students, total projected enrollment would be 3,455 students. Without the proposed school, elementary schools would be operating at 138 percent capacity, with a shortfall of approximately 945 seats.

In the future with the proposed Plan, 5,740 students would be enrolled at elementary schools within Zone 2 of CSD 25. The proposed Plan would generate approximately 858 elementary students. Without the proposed 850-seat school, projected capacity in existing schools within Zone 2 would be 5,592. With the additional students, total projected enrollment in Zone 2 would

be 6,598 students. Without the proposed school, elementary schools would be operating at 118 percent capacity with a shortfall of approximately 1,006 seats.

The proposed Plan includes the development of a new public school (serving kindergarten through eighth grades) that would alleviate the potential elementary school seat shortfall created by the Plan. In the future with the proposed Plan, an approximately 850-seat school would be constructed to alleviate the elementary school shortfall.[1] With the inclusion of an approximately 850-seat school, elementary schools within the one-mile study area would have capacity for 3,360 students and operate at 103 percent, with a shortfall of 95 seats.

With the 850-seat school, Zone 2 would have capacity for 6,442 students. As such, in the future with the proposed Plan, elementary schools within Zone 2 would operate at 102 percent capacity with a shortfall of 156 seats. Elementary schools within CSD 25 as a whole would operate at 94 percent of capacity, with 1,175 available seats and a total enrollment of 17,704 elementary students.

The proposed Plan would introduce new students as well as additional capacity to accommodate the new students. Although elementary schools within the one-mile study area and Zone 2 of CSD 25 would operate at 103 and 102 percent capacity in the future with the proposed Plan, the utilization rate in each study area would not change from the future without the proposed Plan. The *CEQR Technical Manual* considers an increase in utilization rate above 5 percent as a significant adverse impact. Therefore, the proposed Plan would not result in any significant adverse impacts on public elementary schools within the one-mile study area, Zone 2, or within CSD 25.

Intermediate/Middle Schools

The proposed Plan would introduce approximately 418 intermediate students in the one-mile study area and in Zone 2 of CSD 25. These new students would increase enrollment in the one-mile study area to 1,485 students and in Zone 2 to 2,051 students. Schools within the one-mile study area would operate at 102 percent of capacity, with a deficit of 26 seats. Schools in Zone 2 of CSD 25 would operate at 81 percent of capacity with a surplus of 466 seats. Intermediate school enrollment within CSD 25 would increase to 4,588 by 2017 and would operate at 59 percent of capacity, with a surplus of 3,162 seats. Therefore, the middle schools within Zone 2 and throughout CSD 25 would operate below capacity, and increased enrollment attributable to the proposed Plan would not be expected to result in significant adverse impacts on public intermediate schools.

As described above, the *CEQR Technical Manual* considers an increase in utilization rate above 5 percent as a significant adverse impact. The utilization rate within the one-mile study area would increase by approximately 38 percent. While this increase could indicate a potential impact, the one-mile study area would have a shortfall of only 26 seats. This shortfall could be

[1] DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the schools analysis includes elementary/intermediate (K-8) schools in the elementary category. The proposed Plan includes plans for a K-8 school due to standard DOE policy, which is to provide schools with the functionality to serve both elementary and middle school students, giving DOE flexibility in assigning a future school program based on need. However, due to the projected shortfall in elementary seats, it is anticipated that the proposed school will be programmed to serve the elementary school shortfall generated by the proposed Plan.

easily be accommodated by the significant surplus of school seats available in both Zone 2 and throughout CSD 25. Therefore, the proposed Plan would not result in any significant adverse impacts on public intermediate schools within the one-mile study area.

High Schools

Overall, high school enrollment throughout Queens is projected to decline between 2007 and 2017. In the future with the proposed Plan, high school enrollment throughout Queens would be 62,092 students. The proposed Plan is projected to generate an additional 187 high school students by 2017. With the additional 187 students, high schools borough-wide would operate at 93 percent capacity, with approximately 4,523 available seats. Thus, excess capacity exists in Queens high schools, and increased enrollment attributable to the proposed Plan is not expected to result in significant adverse impacts on high schools (see Table 5-16).

Table 5-16
Projected Public High School Enrollment, Capacity, and Utilization: 2017 Future With the Proposed Plan

	DOE Projected Enrollment in 2017[1]	Students Generated Under No Action[2]	Total Projected Enrollment in 2017	Capacity[3]	Available Seats in Program	Utilization (Percent)
Queens Totals	62,090	187	62,277	66,800	4,523	93

Notes: 1. DOE Enrollment Projections (Projected 2006-2017). DOE enrollment projections include long-term absences. To estimate student enrollment for the high schools in Zone 2 of CSD 25 in 2017, the total number of students enrolled in those schools (DOE Enrollment/Capacity/Utilization Report) in 2005-2006 was divided by the total number of students enrolled in Queens high schools in 2005-2006. The resulting percentage of 3.6 was applied to the Queens projected enrollment in 2015 and was held constant to estimate total enrollment for the study area schools in 2017.

2. Capacity numbers: DOE, *Utilization Profiles: Enrollment/Capacity/Utilization, 2005-2006* (High school capacity may include other programs (intermediate, special ed, and charters) housed in high school buildings.)

NO CONVENTION CENTER SCENARIO

The No Convention Center Scenario would introduce approximately 5,850 residential units to Zone 2 of CSD 25. It is currently anticipated that 20 percent of these units would be set aside for affordable housing. Based on the projected public school pupil ratios from Table 3C-2 in the *CEQR Technical Manual*, the No Convention Center Scenario would add approximately 913 elementary and 445 intermediate students to the one-mile study area and Zone 2 of CSD 25 by 2017 (see Table 5-17 and Table 5-18).

Table 5-17
Projected New Housing Units and Estimated Number of Students Generated in Study Area: 2017 Future With the No Convention Center Scenario

	New Housing Units	Elementary School Students[1]	Middle School Students	High School Students	Total Elementary and Middle School Students
Market-Rate Units	4,680	702	328	140	1,030
Affordable Units	1,170	211	117	59	328
Total units	**5,850**	**913**	**445**	**199**	**1,358**

Note: 1. Pupil generation rates based on Table 3C-2 of the *CEQR Technical Manual*

Table 5-18
Estimated Public Elementary/Middle School Enrollment, Capacity, and Utilization: 2017 Future With the No Convention Center Scenario

Zone/ District	Projected Enrollment in 2017	Students Generated by Proposed Plan	Total Projected Enrollment	Program Capacity	Available Seats in Program	Program Utilization
Elementary						
Total, One-Mile Study Area	2,597	913	3,510	3,410[1]	-100	103%
Total, Zone 2 of CSD 25	5,740	913	6,653	6,492[1]	-161	102%
Total, CSD 25	16,846	913	17,759	18,929[1]	1,170	94%
Intermediate						
Total, One-Mile Study Area	1,067	445	1,512	1,459	-53	104%
Total, Zone 2 of CSD 25	1,634	445	2,079	2,518	439	83%
Total, CSD 25	4,170	445	4,615	7,750	3,135	60%

Notes: 1. Includes capacity of 900 seats that would be added to the District as part of the proposed Plan. *DOE's Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the schools analysis includes elementary/intermediate (k-8) schools in the elementary category.

Sources: DOE *Enrollment Projections*; DOE, *Utilization Profiles: Enrollment/ Capacity/ Utilization, 2005- 2006.*

Elementary Schools

With the No Convention Center Scenario, 2,597 students would be enrolled at elementary schools within the one-mile study area. Development associated with the No Convention Center would generate approximately 913 elementary school students. Projected capacity for the elementary schools within the one-mile study area would be 2,510 without the proposed 900-seat elementary school described in Chapter 1, "Project Description." Without the proposed school, the additional students would increase enrollment to 3,510 students, and schools would operate at 140 percent of capacity, with a shortfall of 1,000 seats.

In the No Convention Center Scenario, 5,740 students would be enrolled at elementary schools within Zone 2 of CSD 25. The No Convention Center Scenario would generate approximately 913 elementary students. Without the proposed 900-seat elementary school, projected capacity in existing schools within Zone 2 would be 5,592. With the additional students, total projected enrollment in Zone 2 would be 6,653 students. Without the proposed school, elementary schools would be operating at 119 percent capacity with a shortfall of approximately 1,061 seats.

As with the proposed Plan, the No Convention Center Scenario would include a new K-8 public school that would alleviate the elementary school shortfall.[1] Under this development scenario, an approximately 900-seat school would be provided. The approximately 913 elementary school students that the No Convention Center Scenario would add would cause school enrollment

[1] DOE's *Utilization Profiles: Enrollment/Capacity/Utilization, 2005 – 2006* breaks school levels into categories including elementary, elementary/intermediate, intermediate, intermediate/high school, and high school. As requested by DCP, the schools analysis includes elementary/intermediate (K-8) schools in the elementary category.

within the one-mile study area to increase to 3,510 students, while enrollment within Zone 2 of CSD 25 would increase to 6,653 students. With the inclusion of the approximately 900-seat school within the District, elementary schools within the one-mile study area would have an operating capacity of 103 percent and the zone would have an operating capacity of 102 percent, with a 100 and 161 seat deficit, respectively. Elementary schools within CSD 25 as a whole would operate at 94 percent of capacity, with 1,170 available seats and a total enrollment of 17,759 elementary students.

The No Convention Center Scenario would introduce new students as well as additional capacity. Although elementary schools within the one-mile study area and Zone 2 of CSD 25 would operate at over 100 percent capacity in the future with the proposed Plan, the elementary school utilization rate for both study areas would not increase from the future without the proposed scenario conditions. The *CEQR Technical Manual* considers an increase in utilization rate above 5 percent as a significant adverse impact. The utilization rate within the one-mile study area would remain at approximately 103 percent and the utilization rate within Zone 2 would decrease to 102 percent. Finally, elementary schools within the entire CSD 25 would operate 94 percent capacity with 1,170 seats. Therefore, the proposed Plan would not result in any significant adverse impacts on public elementary schools within Zone 2 or within CSD 25.

Intermediate/Middle Schools

The No Convention Center Scenario would introduce approximately 445 intermediate students in the one-mile study area and in Zone 2 of CSD 25. The additional students would increase enrollment within the one-mile study area to 1,512 students. M.S. 237 would operate at 104 percent with a shortage of 53 seats.

With the additional students introduced by the No Convention Center Scenario, 2,079 intermediate school students would be enrolled in Zone 2 of CSD 25. Schools within Zone 2 of CSD 25 would operate at 83 percent of capacity with a surplus of 439 seats. Intermediate school enrollment within CSD 25 would increase to 4,615 by 2017 and would operate at 60 percent of capacity, with a surplus of 3,135 seats. Therefore, the middle schools within Zone 2 and throughout CSD 25 would operate below capacity, and increased enrollment attributable to the proposed Plan would not be expected to result in significant adverse impacts on public intermediate schools.

As described above, the *CEQR Technical Manual* considers an increase in utilization rate above 5 percent as a significant adverse impact. The utilization rate for intermediate schools within the one-mile study area would increase by approximately 41 percent. Although an increase of this magnitude could indicate the potential for an impact, intermediate schools within the one-mile study area would have a shortfall of only 53 seats. This shortfall could easily be accommodated by the significant surplus of school seats available in both Zone 2 and throughout CSD 25. Therefore, the No Convention Center Scenario would not result in any significant adverse impacts on public intermediate schools within the one-mile study area.

High Schools

The No Convention Center Scenario would generate approximately 199 high school students. These students would increase borough-wide high school enrollment to 62,289. Therefore, Queens high schools would operate at 93 percent capacity with a surplus of 4,511 seats (see Table 5-19).

Table 5-19
Projected Public High School Enrollment, Capacity, and Utilization: 2017 Future With the No Convention Center Scenario

	DOE Projected Enrollment in 2017[1]	Students Generated Under No Action[2]	Total Projected Enrollment in 2017	Capacity[3]	Available Seats in Program	Utilization (Percent)
Queens Totals	62,090	199	62,289	66,800	4,511	93

Notes:
1. DOE Enrollment Projections (Projected 2006-2017). DOE enrollment projections include long-term absences. To estimate student enrollment for the high schools in Zone 2 of CSD 25 in 2017, the total number of students enrolled in those schools (DOE Enrollment/Capacity/Utilization Report) in 2005-2006 was divided by the total number of students enrolled in Queens high schools in 2005-2006. The resulting percentage of 3.6 was applied to the Queens projected enrollment in 2015 and was held constant to estimate total enrollment for the study area schools in 2017.
2. Capacity numbers: DOE, *Utilization Profiles: Enrollment/Capacity/Utilization, 2005-2006* (High school capacity may include other programs (intermediate, special ed, and charters) housed in high school buildings.)

LIBRARIES

PROPOSED PLAN

According to the *CEQR Technical Manual*, if a proposed project would increase the study area population by 5 percent or more over the no action condition, and this increase would impair the delivery of library services in the study area, a significant impact could occur. By 2017, the proposed Plan would add approximately 14,795 additional residents to the Flushing Library catchment area, bringing the total population of the area to 101,539 residents. The additional population represents an increase of approximately 17 percent over the population in the future without the proposed Plan. Although the population increase would be greater than 5 percent, the change would not impair the delivery of library services within the study area. In the future with the proposed Plan, the volumes-to-resident ratio within the study area would be 3.4, which remains substantially higher than the present borough-wide volume-to-resident ratio of 3.1 volumes per resident. As discussed above under "Existing Conditions," residents also have access to the nearby Mitchell-Linden Library branch, which is just outside the study area. If the Mitchell-Linden Library's volumes are included in the analysis, the volume per resident ratio would be approximately 4.2 in the future with the proposed Plan. Additionally, the Queens Public Library has plans to provide a library branch in the Queens Museum of Art in 2010, once the museum's expansion is completed. Willets Point Development District residents would have access to the entire Queens Library through the inter-library system loan and could have volumes delivered directly to their nearest library branch. Therefore, the proposed Plan would not result in any significant adverse impacts on library services in the study area in 2017 as a result of the proposed Plan.

NO CONVENTION CENTER SCENARIO

By 2017, the No Convention Center Scenario would add approximately 15,737 additional residents to the Flushing Library catchment area, bringing the total population of the area to 102,481 residents. The additional population represents an increase of approximately 18 percent over the population in the future without the proposed Plan. Although the population increase would be greater than 5 percent, the change would not impair the delivery of library services within the study area. With the additional population, the volumes-to-resident ratio within the study area would be 3.4, which is higher than the present Queens borough-wide volume-to-resident ratio of 3.1 volumes per resident. As discussed above, residents also have access to the

nearby Mitchell-Linden Library branch. With those additional volumes, the volume per resident ratio would be approximately 4.1 in the future with the proposed Plan. Additionally, the Queens Public Library has plans to provide a library branch in the Queens Museum of Art in 2010, once the museum's expansion is completed. Willets Point Development District residents would have access to the entire Queens Library through the inter-library system loan and could have volumes delivered directly to their nearest library branch. Therefore, the No Convention Center Scenario would not result in any significant adverse impacts on library services in the study area in 2017 as a result of the proposed Plan.

HEALTH CARE FACILITIES

PROPOSED PLAN

According to the *CEQR Technical Manual*, health service impacts can occur if a proposed project results in an increase of 5 percent or more in the demand for services compared to conditions in the future without the proposed project, or if a project results in a facility exceeding its capacity.

As described above under "Public Schools," the proposed Plan would introduce up to 5,500 residential units; 20 percent of these 5,500 units, or 1,100 units, would be affordable housing units. These 1,100 housing units would introduce approximately 3,663 new residents to the District by 2017 (1,100 new affordable units multiplied by the average household size for the census tract). Based on the national average of 390 annual emergency room visits per 1,000 low-income persons, the addition of approximately 3,663 residents of affordable housing could add an estimated 1,429 annual visits to study area emergency rooms. Given the thousands of such visits in the study area currently, the additional affordable housing population would generate a minimal change in demand over the future without the proposed Plan (1.36 percent). This increase is less than the *CEQR Technical Manual*'s threshold of 5 percent and would not result in a significant adverse impact on hospitals and emergency rooms.

NO CONVENTION CENTER SCENARIO

Assuming that 20 percent of the 5,850 residential units are developed as affordable housing, the No Convention Center Scenario would include up to 1,170 affordable housing units, which would introduce approximately 3,896 new residents to the District by 2017 (1,170 new affordable units multiplied by the average household size for the census tract). Based on the national average of 390 annual emergency room visits per 1,000 low-income persons, the addition of approximately 3,896 residents of affordable housing could add an estimated 1,519 annual visits to the study area's emergency rooms. Given the thousands of such visits in the study area currently, the additional affordable housing population would generate a minimal increase in demand over the future without the proposed Plan (1.45 percent). This increase is less than the *CEQR Technical Manual*'s threshold of 5 percent and would not result in a significant adverse impact on hospitals and emergency rooms.

DAY CARE CENTERS

PROPOSED PLAN

Using the day care rates provided in Table 3C-4 of the *CEQR Technical Manual*, the 1,100 affordable housing units anticipated under this scenario could generate approximately 198 children up to the age of 12 eligible for publicly financed child care. According to the *CEQR Technical Manual*, a significant adverse impact could result if a proposed project results in: 1) a

demand for slots greater than remaining capacity of day care centers, and 2) that demand constitutes an increase of 5 percent or more of the collective capacity of the day care centers serving the project area over the No Build conditions. The additional 198 children eligible for subsidized day care could increase the net shortage of child care slots from 180 to 378 if all eligible children generated by the proposed Plan attended publicly funded day care facilities in the study area, thereby potentially increasing the deficit in child care slots by over 100 percent. The potential additional demand of 198 day care slots could increase demand by up to 36 percent over the capacity of 552 publicly funded child care slots.

The proposed Plan could result in significant adverse impacts on publicly funded day care centers in the study area. The proposed Plan could result in an increase of more than 5 percent in a deficiency of day care slots over the No Build condition, which is the *CEQR Technical Manual* threshold for an adverse impact, as described above. Therefore, should this occur, the proposed Plan would require mitigation measures for this impact.

Possible mitigation measures include adding capacity to existing facilities or providing a new day care facility within or near the area surrounding the District. At this point, however, it is not possible to know exactly which type of mitigation would be most appropriate and when, because several factors may limit the number of children in need of publicly funded day care slots. Families in the one-mile study area could make use of alternatives to publicly funded day care facilities, such as homes licensed to provide family day care which families of eligible children could elect to use instead of a public day care center. In addition, parents of eligible children may use ACS vouchers to finance care at private day care centers either within the one-mile study area or could use facilities outside of study area. To mitigate the potential impact on day care facilities, NYCEDC would require, as part of the developer's agreement, that a future developer consult with ACS to determine the appropriate way to meet demand for day care services generated by development in the District.

NO CONVENTION CENTER SCENARIO

Using the day care rates provided in Table 3C-4 of the *CEQR Technical Manual*, the 1,170 affordable housing units anticipated under the No Convention Center Scenario could generate approximately 211 children up to the age of 12 eligible for publicly financed child care. According to the *CEQR Technical Manual*, a significant adverse impact could result if a proposed project results in: 1) a demand for slots greater than remaining capacity of day care centers, and 2) that demand constitutes an increase of 5 percent or more of the collective capacity of the day care centers serving the project area over the No Build conditions. The additional 211 children eligible for subsidized day care could increase the net shortage of child care slots from 180 to 391, thereby increasing the deficit in child care slots by over 100 percent. The additional demand for 211 day care slots could increase demand for day care slots by up to 38 percent over the capacity of 552 publicly funded child care slots.

The No Convention Center Scenario could result in significant adverse impacts on publicly funded day care centers in the study area. The No Convention Center Scenario could result in an increase of more than 5 percent in a deficiency of day care slots over the No Build condition, which is the *CEQR Technical Manual* threshold for an adverse impact, as described above.

Therefore, if such a shortfall occurred, the No Convention Center Scenario could require mitigation measures for this impact. As described above, possible mitigation measures include adding capacity to existing facilities or providing a new day care facility within or near the area surrounding District; however, it is not possible to know exactly which type of mitigation would

be most appropriate and when, because several factors may limit the number of children in need of publicly funded day care slots. For example, families in the one-mile study area could make use of alternatives to publicly funded day care facilities, and parents of eligible children may use ACS vouchers to finance care at private day care centers either within the one-mile study area or could utilize facilities outside of study area. To mitigate the potential impact on day care facilities, NYCEDC would require, as part of the developer's agreement, that a future developer consult with ACS to determine the appropriate way to meet demand for day care services generated by development in the District.

POLICE AND FIRE PROTECTION SERVICES

As described above, both scenarios would not directly displace or physically alter a fire station or police precinct house. Therefore, in accordance with *CEQR Technical Manual* methodologies, the proposed Plan and No Convention Center Scenario would not result in significant adverse impacts to police and fire protection services.

In response to comments on the DGEIS, the analysis considers the adequacy of emergency response times to the District. The analysis concludes that emergency responders are and would remain able to adequately serve the District.

First, throughout the development of the proposed Plan, FDNY has evaluated the proposed Plan to ensure that the District would receive adequate emergency service coverage. If the proposed Plan is approved, the City will ensure that the proposed Plan meets all relevant New York City fire safety standards.

Second, four fire stations are currently located in the area surrounding the Willets Point Development District. The FDNY has indicated that there will continue to be adequate fire protection and provision of emergency services in the area surrounding the District. The Department is well experienced with the logistical issues of providing support for single and simultaneous events occurring at Shea Stadium, Flushing-Meadows Corona Park, and the United States Tennis Association National Tennis Center, in particular the U.S. Open Tennis Tournament.

Third, the proposed Plan includes significant infrastructure improvements for the District, including road grading and paving, as well as improvements to City water service, including fire hydrants. The District is currently characterized by unpaved, potholed roads. As such, the proposed Plan would result in significant improvements to on-site infrastructure that would bolster FDNY's firefighting ability within the District.

Finally, average FDNY response times to all emergencies decreased citywide and boroughwide from 2006 to 2007. During this time, FDNY response times in Queens to structural fires have decreased from 4 minutes and 59 seconds to 4 minutes and 56 seconds. During this same period, citywide EMS response times decreased from 6 minutes and 42 seconds to 6 minutes and 36 seconds.[1]

Overall, for the reasons described above, emergency responders are and would remain able to adequately serve the District. ✷

[1] Mayor's Management Report, NYPD, Fiscal 2008.

A. INTRODUCTION

This chapter examines the Willets Point Development Plan's potential effects on open space resources surrounding the Willets Point Development District. This chapter's analyses rely on the 2001 *City Environmental Quality Review (CEQR) Technical Manual's* guidelines. The *CEQR Technical Manual* guidelines indicate that an open space assessment is necessary when a proposed project results in the physical loss of an open space or introduces 200 or more residents or 500 or more workers to an area. Both the proposed Plan and the No Convention Center Scenario would increase the resident and worker populations above the threshold for a detailed assessment. Therefore, a detailed assessment was undertaken to assess whether a direct impact or indirect impact on local open spaces would result. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D. Quantitative assessments are provided for both the proposed Plan and the No Convention Center Scenario, as described in Chapter 2. This chapter assesses existing open space conditions (both the number of users and condition of resources), probable conditions in the future without the proposed Plan, and potential impacts on open space resources in the future with the proposed Plan.

PRINCIPAL CONCLUSIONS

In the future with the proposed Plan, the area surrounding the District would continue to have adequate active and passive open space resources. Although open space ratios would decline, for the most part the open space ratios would exceed existing City guidelines. Only the active open space ratio per 1,000 residents and the passive open space ratio per 1,000 workers would be below the recommended ratio; the total open space ratios would be well above City goals. The open space ratios indicate that workers and residents would have adequate open space to meet their needs in the future with the proposed Plan or the No Convention Center Scenario. Furthermore, these quantitative analyses do not consider the extensive open space resources just beyond the study area boundaries, particularly the numerous active recreational amenities in the remaining portions of Flushing Meadows-Corona Park. Based on the open space analysis presented in this chapter, neither the proposed Plan nor the No Convention Center Scenario is expected to result in significant adverse impacts on study area open spaces.

B. METHODOLOGY

STUDY AREAS

The *CEQR Technical Manual* recommends establishing study area boundaries as the first step in an open space analysis. Study area boundaries are based upon the distance that a person would walk to reach an open space. Workers are assumed to primarily use passive open spaces and to

walk approximately 10 minutes, typically ¼ mile, to reach open spaces. Residents rely on both active and passive open spaces and will walk 20 minutes, approximately ½ mile, to use these spaces. The proposed Plan includes both residential and commercial development. As such, the following analyses include both commercial (¼ mile) and residential (½ mile) study areas (see Figure 6-1).

As per the *CEQR Technical Manual* guidelines, the commercial study area includes all census tracts that have at least 50 percent of their area within ¼ mile of the District. The same methodology was applied to the ½-mile residential study area boundary. The quantitative analysis does not include open spaces located within ½ mile of the District but in a census tract with less than 50 percent of its area in the ½-mile boundary. The qualitative analysis section will discuss these open space resources.

OPEN SPACE USER POPULATIONS

U.S. Census Bureau population data were compiled for the census tracts within each study area to determine the number of residents who live in the area.[1] The residential population information includes age distribution because different age groups represent different user types: young people and senior citizens may be more reliant on local open spaces than adults of working age. The number of employees within each study area was determined by using the U.S. Census Bureau's 2000 reverse journey-to-work data.

INVENTORY OF OPEN SPACE RESOURCES

The data used to analyze the proposed Plan's open space impacts were gathered through field visits as well as from the New York City Department of Parks and Recreation (DPR) and other City agencies responsible for open spaces within the study areas. The analyses include all publicly accessible open spaces within each study area. The *CEQR Technical Manual* defines a publicly accessible open space as one "that is accessible to the public on a constant and regular basis or for designated daily periods." Open spaces that are not publicly accessible or available to a limited number of people are not included in the quantitative analysis.

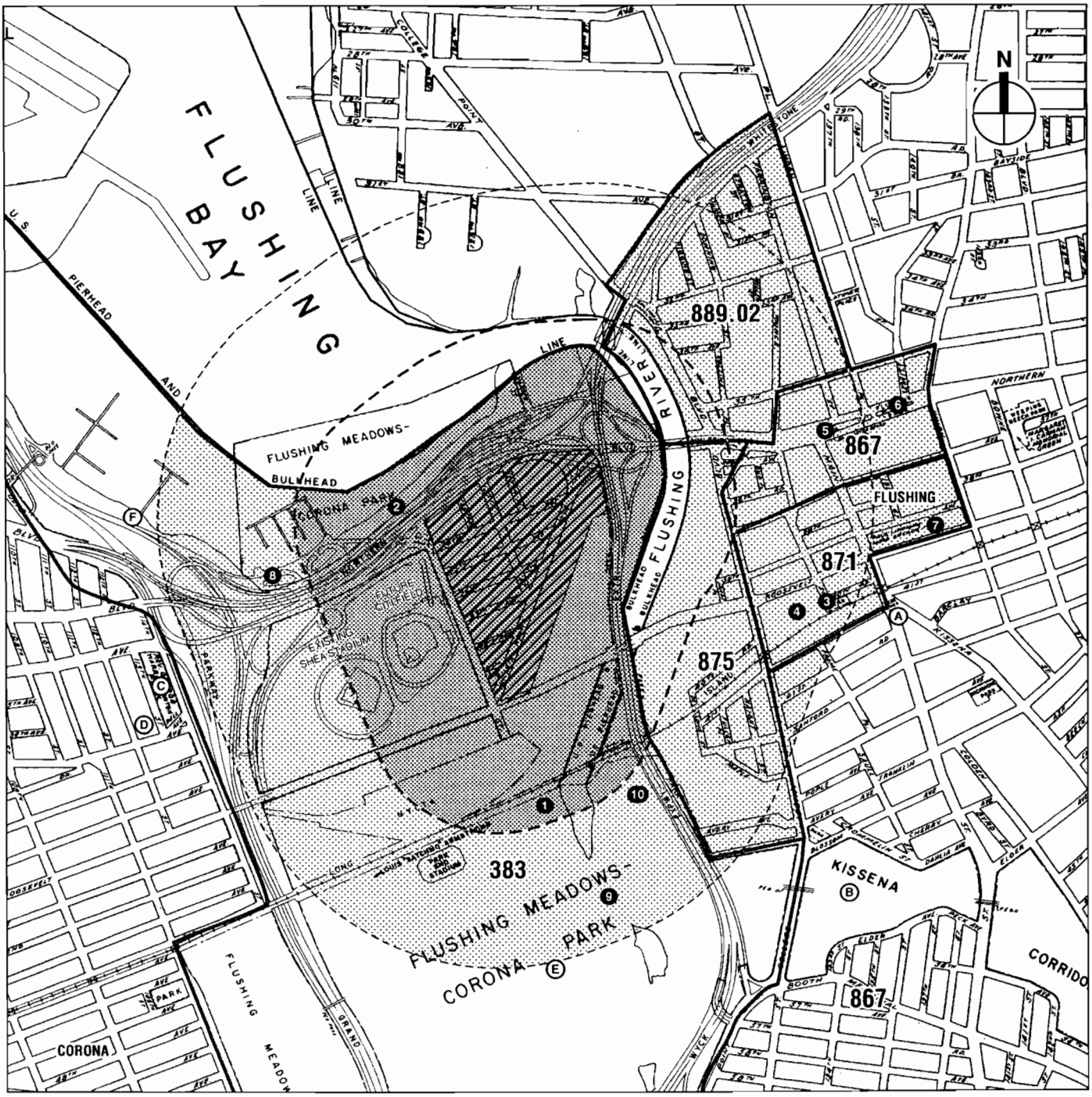
Field visits in May 2007 helped to determine the size, character, and condition of the publicly accessible open spaces and recreational facilities within the commercial and residential study areas. Active and passive uses were noted at each open space. Active uses include basketball and handball courts, jogging paths, ball fields, and playground equipment. Passive open spaces are characterized by picnic areas, walking paths, beaches, or gardens. Certain areas, such as lawns or public esplanades, can serve as both active and passive open spaces.

While the quantitative analysis includes only the open spaces that fall within the commercial and residential study areas, the qualitative analysis also considers the open spaces just beyond the ½-mile residential study area boundary.

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[1] The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate the 2007 residential population.

9.9.08



Willets Point Development District

1/4-Mile Perimeter Boundary

1/2-Mile Perimeter Boundary

❶ Open Space within Study Area (See Table 6-3)

Ⓐ Open Space outside Study Area (See Table 6-3)

Census Tract Boundary

875 Census Tract Number

1/4-Mile Open Space Study Area (Commercial Study Area)

1/2-Mile Open Space Study Area (Residential Study Area)

This figure has been updated since the DGEIS

Figure 6-1

Open Space Resources

ADEQUACY OF OPEN SPACE RESOURCES

The open spaces within the commercial and residential study areas were assessed quantitatively and qualitatively. The quantitative analysis compares the open space ratio—the ratio of usable open space acreage to the study area's population—with the City's guidelines. The City has established that 0.15 acres of passive open space per 1,000 workers is an adequate amount of open space for an area's working (daytime) population. The City uses two sets of guidelines to determine the adequacy of the open space that serves the residential population. The City-wide median open space ratio of 1.5 acres per 1,000 residents serves as the first guideline. The City's optimal planning goal of a ratio of 2.5 acres per 1,000 residents, of which 2.0 acres is active space and 0.5 acres is passive space, serves as the second. The residential population's needs are considered in combination with the worker population because it is assumed that both groups will use the same passive open spaces. Therefore, the quantitative analysis considers a weighted average of the amount of open space necessary to meet the guidelines of 0.50 acres of passive open space per 1,000 residents and 0.15 acres of passive open space per 1,000 workers. Because this ratio changes depending on the proportion of residents and workers in each study area, Table 6-4 outlines the amount of open space needed to meet City guidelines in each condition in each study area, and calculates the recommended weighted average ratio of passive open space acres per 1,000 residents and workers.

How a proposed project alters an area's open space ratios determines the project's potential impacts. Since the City's open space goals are not feasible for many areas in the City, they are not considered impact thresholds. Instead, these goals indicate how well an area is served by open space. A proposed action may result in a significant impact on open space if one of two situations occur: 1) an action causes a direct displacement or alteration of an existing open space within the study area and has a significant adverse effect on existing users, unless the proposed action would provide a comparable replacement; and 2) an action would reduce the open space ratio and consequently result in overburdening existing facilities or further exacerbate a deficiency in open space.

C. EXISTING CONDITIONS

STUDY AREA POPULATION

COMMERCIAL STUDY AREA

Per *CEQR Technical Manual* guidelines, the commercial study area includes all census tracts that have 50 percent or more of their area within ¼ mile of the District. Only census tract 383 was included in the ¼-mile commercial study area. While the area that falls within the commercial study area covers less than 50 percent of the census tract, the tract was included in the commercial study area because it includes the entire District. Census tract 383 covers all of Flushing Meadows-Corona Park as well as a strip of land that runs along the Grand Central Parkway and Ditmars Boulevard toward LaGuardia Airport. To ensure a conservative quantitative analysis, only the portions of the open spaces within a ¼-mile radius of the District were included, but the tract's entire worker and resident populations were included.

The commercial study area has a resident population of 2,136 (see Table 6-1). U.S. Census reverse-journey-to-work data from the 2000 Census estimate that 3,745 people work in tract 383. The commercial study area's total residential and worker population is approximately 5,881.[1]

Table 6-1
Existing Population in Commercial and Residential Study Areas

Census Tract	Commercial Population	Residential Population*	Total User Population
Commercial Study Area			
383	3,745	2,136	5,881
Commercial Study Area Population	**3,745**	**2,136**	**5,881**
Residential Study Area**			
867	2,315	1,305	3,620
871	4,235	1,904	6,139
875	2,045	385	2,430
889.02	2,380	602	2,982
Residential Study Area Population	**14,720**	**6,333**	**21,053**

Notes:
* Residential study area totals include the census tract within the commercial study area.
**The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures.
Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Finance Real Property Assessment Data (RPAD).

This analysis conservatively assumes that residents and workers are entirely distinct populations and that no one lives and works within the same census tract. While this assumption could double-count the daily user population, it also creates a more conservative analysis if the commercial and residential populations overlap.

RESIDENTIAL STUDY AREA

The residential study area consists of five census tracts, including the one census tract within the commercial study area. The study area includes census tracts 383, 867, 871, 875, and 889.02. While the boundaries of census tract 383 cover the entire Flushing Meadows-Corona Park and extend from Northern Boulevard to the Van Wyck Expressway, to ensure a conservative analysis the residential study area includes only the open space acreage within the park that falls

[1] The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures. Employment estimates are not updated and are based on 2000 Census figures.

within a ½-mile radius of the District. As such, the residential study area's southern boundary extends to approximately 49th Avenue and not the southern edge of tract 383. Although the analysis includes only the open spaces within a ½-mile radius of the District, the quantitative analysis conservatively includes the tract's entire worker and resident populations.

Therefore, the residential study area's boundaries extend from Northern Boulevard, the Grand Central Parkway and the Whitestone Expressway to the north, Linden Boulevard and the Van Wyck Expressway to the east, the intersection of the Grand Central Parkway, 49th Avenue to the south and 114th Avenue and the Grand Central Parkway to the west (see Figure 6-1).

The residential study area has an estimated residential population of 6,333. Approximately 14,720 people work in the residential study area, as estimated by the 2000 U.S. Census. The study area's total population, which includes residents and workers, is approximately 21,053. Again, this estimate conservatively assumes that the residential and worker populations are distinct.

Census tracts 383 and 871 contain 67 percent of the residential study area's resident population. Adults between 20 and 64 years old constitute approximately 63 percent of the residential population (Table 6-2). Adults tend to utilize a variety of active and passive open space facilities. Children and teenagers account for approximately 22 percent of the residential study area's residents. This population segment tends to utilize active amenities, such as play equipment and basketball courts, more often than passive facilities. Senior citizens 65 years old or older make up 14 percent of the population and tend to utilize more passive recreational amenities.

Table 6-2
Residential Study Area: Existing Residential Population by Age

Census Tract	Population	Under 5 Years		5 to 9 Years		10 to 14 Years		15 to 19 Years		20 to 64 Years		65 Years and Older	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
383	2,136	96	4.49	96	4.49	105	4.92	87	4.07	1295	60.63	457	21.40
867	867	41	4.73	43	4.96	57	6.57	46	5.31	611	70.47	69	7.96
871	1,775	116	6.54	135	7.61	135	7.61	122	6.87	1059	59.66	208	11.72
875	385	20	5.19	26	6.75	21	5.45	15	3.90	272	70.65	31	8.05
889.02	602	23	3.82	30	4.98	30	4.98	46	7.64	426	70.76	47	7.81
Total:	**5,765**	**296**	**5.13**	**330**	**5.72**	**348**	**6.04**	**316**	**5.48**	**3,663**	**63.54**	**812**	**14.08**

Sources: U.S. Census Bureau, 2000.

STUDY AREA OPEN SPACE INVENTORY

COMMERCIAL STUDY AREA

Portions of Flushing Meadows-Corona Park and the Flushing Bay Promenade, two City-owned parks, fall within the commercial study area. DPR has jurisdiction over each park, and each is open to the public (see Figure 6-1 and Table 6-3). For the purposes of a conservative analysis, only the publicly accessible portions of each park within the commercial study area were included in the analysis. As described in the methodology, the *CEQR Technical Manual* defines a publicly accessible open space as one "that is accessible to the public on a constant and regular basis or for designated daily periods." Open spaces that are not publicly accessible or available to a limited number of people are not included in the quantitative analysis. The analysis of the commercial study area's open spaces did not include Shea Stadium and its associated parking areas as open space resources because this land does not meet the *CEQR Technical Manual* definition for publicly accessible open space.

Table 6-3
Open Space Inventory

Map Number	Name	Owner	Features	Size (acres)	Acres of Active Open Space	Acres of Passive Open Space	Condition/ Utilization
Commercial Study Area							
1	Flushing Meadows-Corona Park	DPR	Benches, paved walkway, tennis courts	2.58	1.29	1.29	Good/ Moderate
2	Flushing Bay Promenade	DPR	Benches, paved walkway	4.01	2.005	2.005	Good/ Moderate
			Commercial Study Area Total	**6.59**	**3.295**	**3.295**	
Residential Study Area							
3	Bland Playground	DPR	Basketball courts, handball courts, benches, swings, jungle gyms, fountain (for children's play)	0.55	0.50	0.05	Good/ Heavy
4	Bland Houses	NYCHA	Basketball courts, walkways, lighting	1.74	0.44	1.30	Fair/ Light
5	Daniel Carter Beard Mall	DPR	Benches	0.66	0.00	0.66	Fair/ Light
6	Flushing Greens	DPR	Trees	0.42	0.00	0.42	Fair/ Light
7	Lippman Arcade	NYC	Trees, seating	0.10	0.00	0.10	Good/ Heavy
8	Flushing Bay Promenade	DPR	Benches, paved walkway	1.50	0.75	0.75	Good/ Moderate
9	Flushing Meadows-Corona Park	DPR	Benches, paved walkway, soccer fields, golf course, tennis court	84.70	42.35	42.35	Good/ Moderate
10	Flushing Meadows-Corona Park Aquatic Center	DPR	Pool	1.5	1.50	0.00	Excellent/Heavy
			Residential Study Area Total	**97.77**	**48.84**	**48.93**	
Outside Residential Study Area (Not Included in Quantitative Analysis)							
A	Flushing Branch Library	Queens Library	Stairway (suitable for sitting)	0.02	0.00	0.02	Good/ Heavy
B	Kissena Corridor West	DPR	Wide variety of active and passive amenities	100	50	50	Good/ Moderate
C	Hinton Park	DPR	Game tables, benches, baseball diamonds, play areas	3.73	3.36	0.37	Very Good/ Moderate
D	Louis Armstrong Playground	DPR	Play areas, basketball courts	1.90	1.90	0.0	Very Good/Moderate
E	Flushing Meadows-Corona Park	DPR	Benches, paved walkway, playfield, golf course, tennis court	1,167	583.50	583.50	Good/Moderate
F	Flushing Bay Promenade	DPR	Benches, paved walkway	1.50	0.75	0.75	Good/Moderate

Notes: See Figure 6-1 for location of open spaces.
Sources: New York City Department of Parks and Recreation open space database; AKRF, Inc. field surveys, May 2007.

At 1,255 acres, Flushing Meadows-Corona Park is Queens' largest park and one of the largest in New York City. The commercial study area covers a small portion of the park that falls within ¼ mile of the District and is publicly accessible. As a result, 2.58 acres of open space within

Flushing Meadows-Corona Park were included in the analysis. Given the significant size of Flushing Meadows-Corona Park, the precise breakdown of active versus passive open space is unknown. This analysis assumed that approximately half of Flushing Meadows-Corona Park is for active recreation and half is dedicated to passive recreation. Therefore, in the commercial study area, approximately 1.29 acres is assumed to be active open space, and the remaining 1.29 acres is for passive open space uses. As described above, Shea Stadium and its associated parking areas were not included in the Flushing Meadows-Corona Park acreage.

The Flushing Bay Promenade is a 1.4-mile greenway that runs along Flushing Bay from LaGuardia Airport to Flushing Meadows. The promenade was built in 2001 and includes an asphalt biking and walking path, benches, and lighting. Shea Stadium Road and Northern Boulevard provide access to the promenade, but the Grand Central Parkway and Northern Boulevard largely isolate the promenade from adjacent residential uses. The portion of the Promenade within the commercial study area includes a biking/walking path and seating, as well as the World's Fair Marina. The World's Fair Marina is a commercial marina facility and, therefore, was not included in the quantitative analysis. As a result, 4.01 acres of the promenade, half of which is considered active space and half of which is considered passive open space, are included in the commercial study area.

Overall, by combining the portions of Flushing Meadows-Corona Park and the Flushing Bay Promenade, the commercial study area includes 6.59 acres of open space divided evenly between active and passive uses (3.295 acres of each).

RESIDENTIAL STUDY AREA

The residential study area has six public open spaces, which total 97.77 acres. Of this total, 48.84 acres are active space and 48.93 acres are passive. Additional portions of the Flushing Meadows-Corona Park and the Flushing Bay Promenade fall within the residential study area. These areas include all of the USTA National Tennis Center, as well soccer fields, a portion of the pitch and putt golf course, and a large field for passive and active uses. In addition to these resources, the recently completed Flushing Meadows-Corona Park Natatorium and Ice Rink is located within the portion of the ½-mile boundary within the Park. This recreational resource includes a public Olympic-sized indoor pool and a National Hockey League regulation-sized ice rink. Construction on the pool was completed in February 2008, while the Ice Rink is scheduled to open in the fall of 2008. The pool portion of this facility operates as a standard DPR recreation facility. The pool is open to any member of the general public who purchases a standard annual membership, ($10 for seniors, $75 for adults, and free for youths under 18) at all times except during swimming meets and other special events. Since the Ice Rink is not yet open, the Natatorium was included in existing conditions and the Ice Rink was not included.

The residential study area also includes the Bland Playground, the Daniel Carter Beard Mall, and the Flushing Green, each of which are under DPR jurisdiction. The Bland Playground is located on the same block as the New York City Housing Authority (NYCHA)'s James A. Bland Houses. The playground covers 0.55 acres and includes 0.50 acres of active uses, such as basketball and handball courts, swings, and jungle gyms, as well as 0.05 acres of passive uses, such as benches. The Bland Houses have 1.74 acres of open space with 0.44 acres of active space, and 1.30 acres of passive space. Open space associated with the Bland Houses includes basketball courts as well as 1.30 acres of passive amenities. The Daniel Carter Beard Mall is a 0.66-acre passive open space with benches available for sitting. Lippman Arcade spans the block

between Roosevelt Avenue and 39th Avenue and features bench seating. The Arcade is 0.10 acres.

QUALITATIVE DISCUSSION

Six additional open spaces fall outside of the residential study area and are located just beyond the ½-mile radius around the District (see Figure 6-1). First, the Flushing Branch library is across the street from the residential study area boundary. Residents can sit on benches outside of the library or on the library's steps. Second, Kissena Corridor West is located just west of Flushing Meadows-Corona Park and the residential study area boundary. Kissena Corridor West is a 100-acre park that links Flushing Meadows-Corona Park to Kissena Park. Kissena Corridor West also includes the Queens Botanical Gardens, as well as active and passive open space resources. Third, Hinton Park lies across 114th Street, just east of the residential study area and includes both passive and active open space amenities, such as two large open play areas, two baseball diamonds, game tables, and benches. Fourth, Louis Armstrong Playground is directly across the street from Hinton Park. Fifth, approximately 1,167 acres of Flushing Meadows-Corona Park are located just beyond the ½-mile boundary. Recreational resources within the portion of Flushing Meadows-Corona Park outside of the ½-mile boundary include tennis courts, soccer fields, sitting areas, and other active and passive resources. While these remaining acres may be outside of the study area boundary, they are entirely contiguous with the portions of the Park within the study area and provide a number of active and passive recreational resources for study area residents. Finally, approximately half of the Flushing Bay Promenade is located outside of the ½-mile boundary; however, the remainder of the Promenade is contiguous with the portion within the study area and would be easily accessible to study area residents.

Given that these resources are located outside of the study area, they are not included in the quantitative analysis. However, it is likely that study area residents take advantage of these parks, particularly the portions of Flushing Meadows-Corona Park and the Flushing Bay Promenade that are located just beyond the ½-mile boundary.

ADEQUACY OF OPEN SPACES

COMMERCIAL STUDY AREA

As described above, the analysis of the commercial study area focuses on passive open spaces that workers may use. The adequacy of the area's open spaces is determined by comparing the ratio of workers to acres of open space with the City's guideline of 0.15 acres of passive space per 1,000 workers. Furthermore, the passive open space ratio for both workers and residents in the area is compared with the recommended weighted average ratio. This ratio considers the needs of residents and workers together and is a weighted average of the amount of open space necessary to meet the City guideline of 0.50 acres of passive open space per 1,000 residents and 0.15 acres of passive open space per 1,000 non-residents.

The commercial study area is currently well served by open space resources and meets the City's guidelines. The commercial study area includes approximately 6.59 acres of open space, of which

approximately 3.295 acres are passive in nature.[1] The commercial study area includes 2,136 residents and 3,745 workers, for a combined residential and commercial population of 5,881 people.

Based on the City guidelines for determining the open space ratio, the commercial study area has a passive open space ratio of 0.88 acres of passive open space per 1,000 workers, which is considerably higher than the City's guidelines of 0.15 acres of open space (see Table 6-4). The combined passive open space ratio is 0.56, which is higher than the recommended weighted average ratio of 0.28 acres of passive open space per 1,000 residents and workers.

Table 6-4
Existing Conditions: Adequacy of Open Space Resources

Population**		Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial Study Area										
Workers	3,745	6.59	3.295	3.295	N/A	N/A	0.88	N/A	N/A	0.15
Combined workers and residents	5,881				N/A	N/A	0.56	N/A	N/A	0.28*
Residential Study Area										
Residents	6,333	97.77	48.84	48.93	15.44	7.71	7.73	2.50	2.0	0.50
Combined residents and workers	21,053				N/A	N/A	2.32	N/A	N/A	0.26*

Notes:
* Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non- residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.
** The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures.
Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

RESIDENTIAL STUDY AREA

The following analysis of the adequacy of open space resources within the residential study area takes into consideration the ratios of active, passive, and total open space resources per 1,000 residents, as well as the ratio of passive open space per 1,000 residents and workers.

As in the commercial study area, the residential study area currently has adequate open space resources. The residential study area contains approximately 97.77 acres of open space, of which approximately 48.84 acres are active open space and 48.93 acres are passive open space. With a residential population of 6,333, the residential study area has a total open space ratio of 15.44 acres per 1,000 residents, considerably above the City's planning guideline of 2.5 acres of

[1] For the purposes of a conservative analysis, the quantitative analysis includes only the publicly accessible open space portions of Flushing Meadows-Corona Park and the Flushing Bay Promenade located within the ¼-mile and ½-mile radii of the District.

combined active and passive open space per 1,000 residents. The total open space ratio is also higher than the City-wide median of 1.5 acres per 1,000 residents.

The residential study area's passive open space ratio is 7.73 acres per 1,000 residents, which is above the City's planning goals of 0.5 acres per 1,000 residents. The active open space ratio is 7.71 acres per 1,000 residents, above the City's guideline of 2.0 acres per 1,000 residents.

With a total worker and residential population of 21,053, the residential study area has a combined passive open space ratio of 2.32 acres per 1,000 residents and workers, which exceeds the City's recommended weighted average guideline ratio of 0.26 acres per 1,000 residents and workers.

QUALITATIVE DISCUSSION

In addition to the open spaces described above, other open space resources located just beyond the ½-mile residential study area boundary were not included in the quantitative analysis. These resources are likely utilized by residents and workers within the residential study area. This is particularly true for the 1,255-acre Flushing Meadows-Corona Park, a flagship park that draws people from throughout the City. Although significant portions of Flushing Meadows-Corona Park are within the ½-mile study area boundary, the majority of the park's acreage is located outside the study area boundary. Therefore, these resources were not included in the quantitative analysis. These resources include three soccer fields and five tennis courts, as well as open fields that could be used for both passive and active use. Even though these resources are located just beyond the ½-mile boundary, residents would be able to easily utilize them due to their proximity to the study area and direct connection to the portion of the park located within the study area boundaries.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

STUDY AREA POPULATION

Several new residential and commercial developments are currently planned for completion within the study area by 2017. These developments will increase both the residential and commercial populations within the study areas. Without the proposed Plan, the Willets Point Development District will remain an industrial area, and the current uses on the site will remain in place.

COMMERCIAL STUDY AREA

The Shea Stadium redevelopment is the one development project that will be completed within the commercial study area by 2017. The project will replace the current Shea Stadium with Citi Field, a new 44,100-seat stadium that will include 100,000 square feet of office space, and 8,800 parking spaces. The new stadium will continue to employ approximately 200 people full time, and approximately 1,600 employees on game dates. Because Citi Field will employ the same number of workers as the current Shea Stadium, there will be no change to total employment within the commercial study area in the future without the proposed Plan. Therefore, no new workers were added to the quantitative analysis of the commercial study area in the future without the proposed Plan. Additionally, the residential population is expected to remain the same in the future without the proposed Plan, as no new housing developments are planned within this study area.

RESIDENTIAL STUDY AREA

As described in Chapter 2, it is expected that 21 development projects will be completed in the residential study area by 2017 (in addition to the Shea Stadium project within the commercial study area). These projects will add approximately 7,484 new residents and 5,653 new workers to the residential study, bringing the residential study area's residential population to 13,817, its commercial population to 20,373, and its combined residential and worker population to 34,190.

STUDY AREA OPEN SPACES

No change to the amount of open space in the commercial study area is expected to occur by 2017. Therefore, the total amount of public open space in the commercial study area will remain unchanged at 6.59 acres. However, the proposed Flushing Commons development, which falls within the residential study area, has programmed 1.52 acres of passive open space into its design. As described above, the Flushing Meadows-Corona Park Natatorium and Ice Rink is located within the ½-mile boundary. This recreational resource includes a public Olympic-sized indoor pool and a National Hockey League regulation-sized ice rink. The Natatorium is open and is included in the Existing Conditions quantitative analysis. The Ice Rink is scheduled to open in the fall of 2008. The Ice Rink will be open to any member of the general public. Admission will be $5 on weekdays and $8 on weekends, and skate rentals will be $5. Since the facility will be available to the general public, its recreational space is included in the quantitative analysis of the future without the proposed Plan as active open space. With the additional passive and active open space, the total amount of open space in the residential study area will increase to 100.61 acres, 50.16 acres of which will be active open space and 50.45 acres will be passive (see Table 6-5).

Table 6-5
2017 Future Without the Proposed Plan
Adequacy of Open Space Resources

Population**		Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial Study Area										
Workers	3,745	6.59	3.295	3.295	N/A	N/A	0.88	N/A	N/A	0.15
Combined workers and residents	5,881				N/A	N/A	0.56	N/A	N/A	0.28*
Residential Study Area										
Residents	13,817	100.61	50.16	50.45	7.28	3.63	3.65	2.50	2.0	0.50
Combined residents and workers	34,190				N/A	N/A	1.48	N/A	N/A	0.29*

Notes:

* Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non- residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

** The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures.

Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database; RPAD.

In the fall of 2007, DPR opened the Fowler Recreation Center, located in Flushing Meadows-Corona Park but outside the residential study area boundary. The 20,000-square-foot recreation center includes an indoor track, racquetball and basketball courts, as well as cardiovascular and strength equipment, in addition to afterschool, teen, and senior programmatic activities. Since the recreation center facility is located just outside of the study area, it was not included in the quantitative analysis.

ADEQUACY OF OPEN SPACES

COMMERCIAL STUDY AREA

By 2017, without the proposed Plan, the number of workers (3,745) and the amount of passive open space (3.295 acres) in the commercial study area are expected to remain the same. Thus, the passive open space ratio is expected to remain 0.88 acres per 1,000 workers, substantially above the City's guidelines. In the future without the proposed Plan, the commercial study area's combined residential and commercial population is expected to remain at 5,881. In the future without the proposed Plan the passive space ratio will be 0.56 and will remain above the City's recommended weighted average ratio of 0.28 acres of passive open space per 1,000 residents and workers.

RESIDENTIAL STUDY AREA

Without the proposed Plan, the residential study area's residential population will increase by 7,484 for a total of 13,817 residents by 2017. The addition of the 1.52 acres of passive open space as part of the Flushing Commons development and the 1.3 acres of active open space as part of the Ice Rink will increase the total amount of open space to 100.61 acres, which will result in a total open space ratio of 7.28 acres of open space per 1,000 residents. This ratio will remain above the City's guideline of 2.5 acres per 1,000 residents as well as the City-wide median of 1.5 acres. The active open space ratio is expected to be 3.63 acres per 1,000 residents, which continues to be above the City's 2.0-acre guideline. The passive open space ratio would decrease to 3.65 acres per 1,000 workers, but would remain above the City's 0.5-acre guideline. The ratio for the combined worker and resident population in the residential study area would decrease to 1.48 acres per 1,000 workers and residents, but will remain above the recommended weighted average ratio of 0.29 acres.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

STUDY AREA POPULATION

COMMERCIAL STUDY AREA

Proposed Plan

As described in Chapter 2, the proposed Plan would replace the existing industrial uses in the District with a new mixed-use community and regional destination. Development associated with the proposed Plan would add approximately 8,851 workers and 14,795 residents to the District. The commercial study area's residential population would total approximately 16,931, and the worker population would total approximately 12,596, for a combined residential and worker population of approximately 29,527.

No Convention Center Scenario

The No Convention Center Scenario would add approximately 15,737 new residents to the commercial study area and approximately 8,821 workers. Therefore, the commercial study area's residential population would total approximately 17,873, and the worker population would total approximately 12,566, for a combined residential and worker population of approximately 30,439.

RESIDENTIAL STUDY AREA

Proposed Plan

The proposed Plan would increase the residential study area's residential and worker population to approximately 28,612 and 29,224, respectively. The combined population would total approximately 57,836.

No Convention Center Scenario

The No Convention Center Scenario would increase the residential study area's residential and worker population to approximately 29,554 and 29,194, respectively. The combined population would total approximately 58,748.

STUDY AREA OPEN SPACES

Each development scenario (proposed Plan or No Convention Center Scenario) would add a minimum of eight acres of privately owned, publicly accessible open space to the study area.[1] As required in the proposed zoning Special District, an approximately two-acre park would be developed with primarily active recreational uses. This park would be centrally located within the residential community in the eastern part of the District. While portions of this park may contain play equipment, fields, or courts used exclusively by the students of the proposed school during school hours, these recreational facilities would be publicly accessible during the remainder of the day and are therefore included in the quantitative assessment. The remaining open space within the District would be programmed primarily for passive use. The Special District would encourage high-quality design of these publicly accessible areas by prescribing design standards largely based on those for public plazas set forth in Section 37-70 of the Zoning Resolution (ZR). Enhanced and adapted to the District plan, the Special District standards would govern such elements as tree and groundcover plantings, seating, moveable chairs and tables, bicycle parking, and water fountains. Moreover, the New York City Economic Development Corporation (NYCEDC) would encourage the future developer to incorporate ground level active open space and other recreational resources, such as rooftop and interior programming of recreational amenities, into the project design as part of their formal request for proposals process (RFP). The Special District regulations would also require pedestrian amenity areas or open landscaped areas, and specify minimum dimensions of these public access areas, at various locations along the perimeter of the District. The regulations ensure that public access areas are

[1] In order to maintain programming and design flexibility, the open space planning is currently only conceptual. Details of the open space elements will be dependent on the developers' response to the City's request for proposal (RFP) process. The design, programming, and quality of those future open spaces would be subject to further review once the RFP responses are reviewed and a developer designated.

developed in conjunction with the surrounding development by stipulating the dimensions of public access areas that must be provided along with certain developments (i.e., with developments or enlargements at least 100,000 sf in size and on zoning lots at least 200,000 sf). Furthermore, as described below, the City is pursuing the potential for promoting new non-vehicular linkages within and around the project area.

The programming of the two-acre open space is currently conceptual. Given the size of the open space and the size requirements of active open space amenities, it is assumed that this open space would be primarily developed with active recreational uses. Although public access of a portion of this open space may be limited during school hours, it would not significantly diminish the public's use of this open space. School yards and playgrounds meet the *CEQR Technical Manual's* criteria for public open space since they would be available to the general public when school is not in session, which often coincides with periods when there would be greater public demand and utilization (e.g., after school, weekends, holidays, spring/summer breaks, etc.).

This analysis assumes that approximately 20 percent of the new open space (1.6 acres) would be for active uses and the remaining 80 percent (6.4 acres) would be programmed for passive use.[1] With the proposed Plan, the amount of open space in the commercial and residential study areas would increase to approximately 14.59 and 108.61 acres, respectively. The commercial study area would feature 9.70 acres of passive open space and 4.89 acres of active open space. The residential study area would have 56.85 acres of passive open space and 51.76 acres of active open space.

ADEQUACY OF OPEN SPACES

COMMERCIAL STUDY AREA

Proposed Plan

As mentioned above, the proposed Plan would add 8,851 workers to the commercial study area. Additionally, the total amount of open space would increase to 14.59 acres. The ratio of passive open space per 1,000 workers would be 0.77, which would be above the City's guideline of 0.15 acres (see Table 6-6). Thus, while the passive open space ratio would decline from 0.88 acres per 1,000 workers in the No Build condition, the worker population would continue to be well served by passive open spaces. The passive open space ratio for the combined worker and residential population would be 0.33 acres per 1,000 people, which is slightly lower than the City's recommended weighted average ratio of 0.35 acres per 1,000 residents and workers.

[1] The open space planning is focused on maximizing its utility for residents, workers, and visitors in the District. Acreage dedicated to passive uses such as walkways, seating, and open lawn space would serve a wider spectrum of users and be more enjoyable to the general public when compared to playing fields, such as tennis courts, baseball diamonds, and soccer fields, whose specialized programming would serve a limited number of users. Additionally, the active recreational resources within Flushing Meadows-Corona Park are located just beyond the ½ mile study area boundary. These resources would help to provide District residents, workers, and residents with active recreational opportunities. Furthermore, NYCEDC will encourage the incorporation of active open space and/or other recreational resources as part of the RFP process for the proposed Plan.

Table 6-6
2017 Future With the Proposed Plan
Adequacy of Open Space Resources
Proposed Plan

Population**		Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial Study Area										
Workers	12,596	14.59	4.89	9.70	N/A	N/A	0.77	N/A	N/A	0.15
Combined workers and residents	29,527				N/A	N/A	0.33	N/A	N/A	0.35*
Residential Study Area										
Residents	28,612	108.61	51.76	56.85	3.80	1.81	1.99	2.50	2.0	0.50
Combined residents and workers	57,836				N/A	N/A	0.98	N/A	N/A	0.32*

Notes:
* Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non- residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.
** The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures.
Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

No Convention Center Scenario

The No Convention Center Scenario would add approximately 8,821 workers to the commercial study area. As described earlier, this development scenario would include the addition of a minimum of eight acres of open space. With the additional open space, the total amount of open space would increase to 14.59 acres.

This scenario would have the same ratio of passive open space per 1,000 workers, 0.77, as the proposed Plan. As described above, this ratio is above the recommended guideline of 0.15 acres per 1,000. Thus, the worker population within the commercial study area would be well served by passive open spaces. The passive open space ratio for the combined worker and residential population would be 0.32 acres per 1,000 people, which is slightly lower than the City's recommended weighted average ratio of 0.36 acres per 1,000 residents and workers (see Table 6-7).

RESIDENTIAL STUDY AREA

Proposed Plan

The proposed Plan would increase the residential study area combined population to approximately 57,836. Of this total, 28,612 residents would live in the residential study area and 29,224 would work in the study area. The total amount of publicly accessible open space in the study area would increase to approximately 108.61 acres; 56.85 acres would be dedicated to passive uses, and the remaining 51.76 acres would be for active uses.

Table 6-7
2017 Future With the Proposed Plan
Adequacy of Open Space Resources
No Convention Center Scenario

Population**		Open Space Acreage			Open Space Ratios per 1,000 People			DCP Open Space Guidelines		
		Total	Active	Passive	Total	Active	Passive	Total	Active	Passive
Commercial Study Area										
Workers	12,566	14.59	4.89	9.70	N/A	N/A	0.77	N/A	N/A	0.15
Combined workers and residents	30,439				N/A	N/A	0.32	N/A	N/A	0.36*
Residential Study Area										
Residents	29,544	108.61	51.76	56.85	3.67	1.75	1.92	2.50	2.0	0.50
Combined residents and workers	58,748				N/A	N/A	0.97	N/A	N/A	0.33*

Notes:
* Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non- residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.
** The residential population figure is an estimate based on the 2000 U.S. Census population data and estimated population growth based on the most current available Real Property Assessment Data (RPAD) from the New York City Department of Finance. The resident population estimate is calculated by multiplying the number of residential units constructed since 2000 by the census tract's housing occupancy rate and average household size. This number is added to the 2000 U.S. Census population figure to estimate 2007 population. The ratio calculations in the future without the proposed Plan and the future with the proposed Plan include estimated 2007 residential population figures.
Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

In the future with the proposed Plan, only the active open space ratio per 1,000 residents would be below the City's recommended guidelines. The total residential open space ratio would be 3.80 acres per 1,000 residents, which is above the recommended 2.50 total acres per 1,000 residents. Thus, residents would be well served by open spaces within the residential study area. The active open space ratio would be 1.81 acres per 1,000 residents, which is below the recommended ratio of 2.0 acres of active space per 1,000 residents. The passive open space would be 1.92 acres per 1,000, considerably above the City's recommended guideline of 0.50 acres. The combined residential and worker passive open space ratio would be 0.98 acres, which is also above the City's recommended weighted average ratio of 0.32 acres per 1,000 workers and residents.

No Convention Center Scenario

The No Convention Center Scenario would increase the residential study area's resident and worker population to approximately 58,748. Of this total, 29,554 residents would live in the residential study area and 29,194 would work in the study area. The total amount of publicly accessible open space in the study area would increase to approximately 108.61 acres; 56.85 acres would be dedicated to passive uses, and the remaining 51.76 acres would be for active uses.

For the No Convention Center Scenario, only the active open space ratio per 1,000 residents would be below the City's recommended guidelines. The total residential open space ratio would be 3.67 acres per 1,000 residents, which is above the recommended City open space guideline of 2.50 total acres per 1,000 residents. As such, residents would be well served by open spaces within the residential study area. The active open space ratio would be 1.75 acres per 1,000 residents, which is below the recommended ratio of 2.0 acres of active space per 1,000 residents. The passive open space ratio would be 1.92 acres per 1,000, considerably above the City's recommended guideline of 0.50 acres.

The combined residential and worker passive open space ratio would be 0.97 acres, which is also above the City's recommended weighted average ratio of 0.33 acres per 1,000 workers and residents.

F. CONCLUSIONS

QUANTITATIVE DISCUSSION

COMMERCIAL STUDY AREA

Proposed Plan

According to the *CEQR Technical Manual*, a 5 percent decrease in open space ratios is considered a substantial change; however, in areas where the open space ratio is very low, a small decrease in the open space ratio may result in a potential significant adverse impact on open space. The passive open space ratio would decline from 0.88 to 0.77, which is an approximately 13 percent decrease. The combined passive open space ratio per 1,000 residents and workers would decline from 0.56 to 0.33, which is an approximately 41 percent decrease (see Table 6-8). Decreases of this size could indicate the potential for significant adverse open space impacts. The combined passive open space ratio would be slightly below the City recommended guideline of 0.35 acres per 1,000 residents and workers. However, the passive open space ratio for workers would exceed the City's recommended guidelines, indicating that the non-residential study area would have sufficient open space resources to serve the worker population's needs. Furthermore, the quantitative analysis does not include the portions of Flushing Meadows-Corona Park or the Flushing Bay Promenade that are contiguous with the study area but just beyond the boundaries, which would likely be used by residents of the study area. The qualitative analysis describes how these additional resources would alleviate any potential significant adverse open space impacts.

Table 6-8
2017 Future With the Proposed Plan: Open Space Ratios Summary
Proposed Plan

Ratio	City Guideline	Open Space Ratios			Percent Change
		Existing Conditions	Future Without the Proposed Plan	Future With the Proposed Plan	Future Without the Proposed Plan to Future With the Proposed Plan
Commercial Study Area					
Passive/Workers	0.15	0.88	0.88	0.77	-13%
Passive/Total Population	Weighted (0.28)*	0.56	0.56	0.33	-41%
Residential Study Area					
Total/Residents	2.5	15.44	7.28	3.80	-48%
Active/Residents	2.0	7.71	3.63	1.81	-50%
Passive/Residents	0.5	7.73	3.65	1.99	-46%
Passive/Total Population	Weighted (0.26)*	2.32	1.48	0.98	-33%

Notes: * Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non- residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.
Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

No Convention Center Scenario

Similar to the proposed Plan, the passive open space ratio per 1,000 workers and the combined passive open space ratio per 1,000 workers and residents would each decrease by more than 5 percent. The passive open space ratio per 1,000 workers would decline from 0.88 to 0.77, which is an approximately 13 percent decrease (see Table 6-9). The combined passive open space ration per 1,000 residents and workers would decline from 0.56 to 0.32, which is an approximately 43 percent decrease.

As described above, the passive open space ratio for workers would exceed the City's recommended guidelines, and the combined ratio per 1,000 workers and residents would be slightly below the recommended ratio. Thus, while the percentage decrease in the passive open space ratios could indicate that the No Convention Center Scenario could result in significant adverse impacts, the ratios indicate that the worker population would be well served by passive open space. Furthermore, the quantitative analysis did not include the additional open spaces just beyond the study area's borders, particularly the remaining portions of Flushing Meadows-Corona Park.

Table 6-9
2017 Future With the Proposed Plan: Open Space Ratios Summary
No Convention Center Scenario

Ratio	City Guideline	Open Space Ratios			Percent Change
		Existing Conditions	Future Without the Proposed Plan	Future With the Proposed Plan	Future Without the Proposed Plan to Future With the Proposed Plan
Commercial Study Area					
Passive/Workers	0.15	0.88	0.88	0.77	-12%
Passive/Total Population	Weighted (0.28)*	0.56	0.56	0.32	-43%
Residential Study Area					
Total/Residents	2.5	15.44	7.28	3.67	-50%
Active/Residents	2.0	7.71	3.63	1.75	-52%
Passive/Residents	0.5	7.73	3.65	1.92	-47%
Passive/Total Population	Weighted (0.26)*	2.32	1.48	0.97	-34%

Notes: * Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non-residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

RESIDENTIAL STUDY AREA

Proposed Plan

In the future with the proposed Plan, only the active open space ratio per 1,000 residents would be below the recommended guidelines. Each of the other ratios would exceed City guidelines. This indicates that the study area residents and workers would be well served by study area open spaces.

The *CEQR Technical Manual* states that "as a planning goal, the City attempts to achieve a ratio of 2.5 acres per 1,000 population for large-scale plans and proposals." While attaining this goal is often not feasible within many parts of the City, the open space ratios within the residential study area would exceed the City's planning goal. Within the residential study area, the total open space ratio would be 3.80 acres per 1,000 residents, which exceeds the City's guidelines and meets that planning goal. Although the ratios are above recommended ratios, the decrease in ratios between the No Build and Build conditions could indicate the potential for significant adverse impacts. The total open space ratio would decline from 7.28 acres to 3.80 acres per 1,000 residents, which is a decrease of approximately 48 percent. The active open space ratio would decrease by approximately 50 percent, from 3.63 acres to 1.81 acres per 1,000 residents. The passive open space ratio would decline from 3.65 acres to 1.99 acres per 1,000 residents, which is a decrease of approximately 46 percent. Finally, the combined passive open space ratio would decrease from 1.48 to .98, a drop of approximately 33 percent. Decreases in the open space ratios of this size indicate that the proposed Plan could result in significant adverse open space impacts, even though only the active open space ratio would be below the City's recommended guidelines.

No Convention Center Scenario

Similar to the proposed Plan, each of the open space ratios would decline between the No Build and Build conditions under the No Convention Center Scenario. The total open space ratio per 1,000 residents would decline by approximately 50 percent, the active open space ratio per 1,000 residents would decline by approximately 52 percent, the passive open space ratio per 1,000 residents would decline by approximately 47 percent, and the combined passive open space ratio per 1,000 residents and workers would decline by 34 percent. As described earlier, these declines could indicate the potential for a significant adverse open space impact, even though only the active open space ratio for 1,000 residents would be below recommended City guidelines. The total open space ratio would be 3.67 acres per 1,000 residents, which exceeds the City's guidelines and meets the planning goal described earlier.

QUALITATIVE DISCUSSION

The proposed Plan would introduce a minimum of eight acres of open space that would serve residents, workers, and visitors alike. As demonstrated by open space ratios in the quantitative analysis, the workers and residents within both study areas would continue to be well served by open spaces. Although the declines in open space ratios between the No Build and Build conditions for each development scenario suggest that a significant adverse impact could result, there are a number of important factors not addressed in the quantitative analysis.

First, NYCEDC would encourage the future developer to incorporate ground level active open space and other recreational resources, such as rooftop and interior programming of recreational amenities, into the project design as part of their formal RFP process. While these recreational amenities may be available only to tenants and residents of the site—and thus have not been included in the quantitative analysis—these amenities would help offset the burden on public active and passive resources resulting from the introduction of new users to the District.

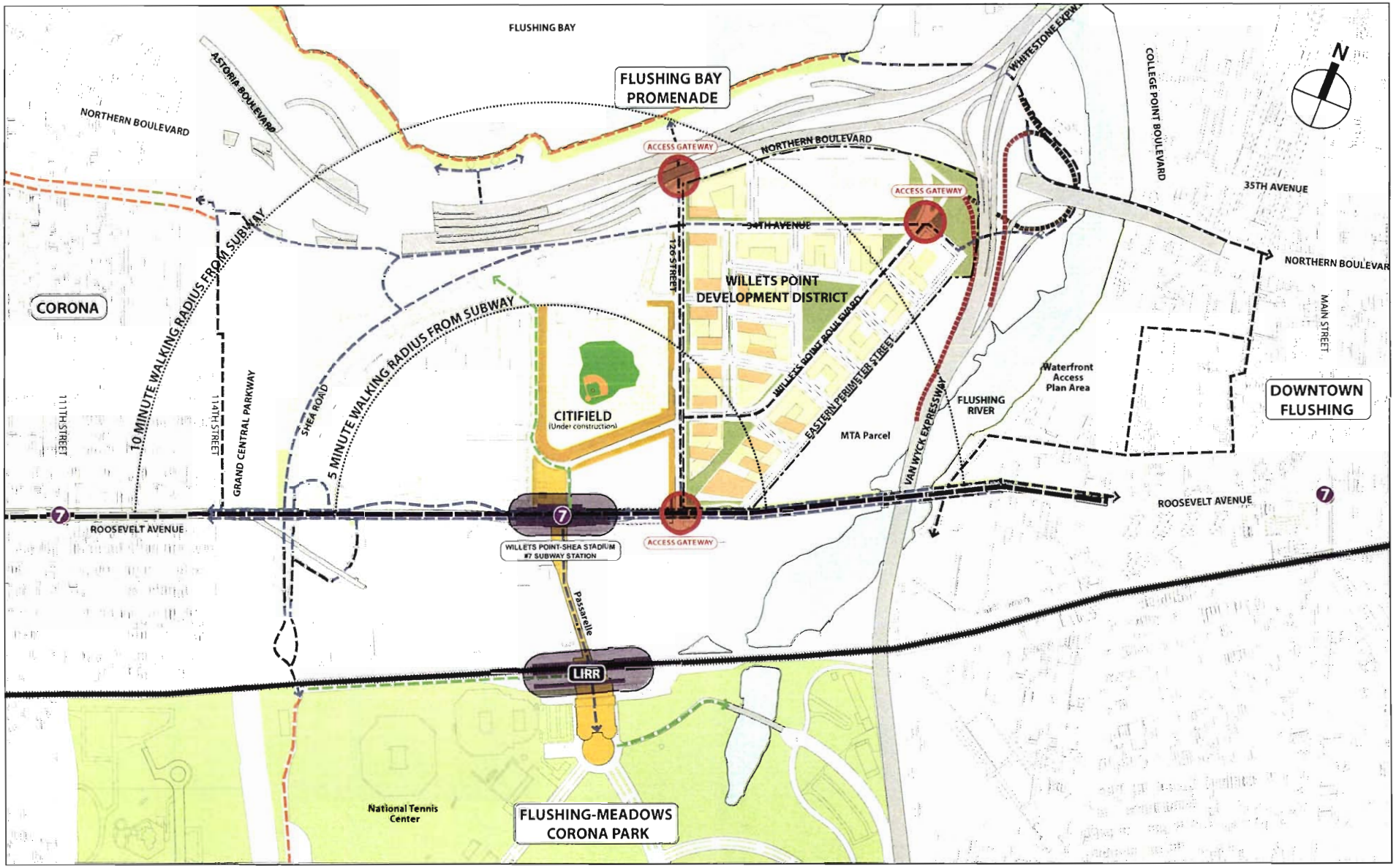
Second, the remainder of the most significant open space in Queens—the 1,255-acre Flushing Meadows-Corona Park—is not included in the quantitative analysis. This park is one of the flagship parks in the DPR inventory and draws residents from throughout the City. In particular, several active open space amenities and recreational facilities that are just beyond the ½-mile boundary were not included in the quantitative analysis. These include three soccer fields and

five tennis courts, as well as open fields that could be used for both passive and active use. Additionally, DPR is also expected to finish construction on the Fowler Recreation Center, located in Flushing Meadows-Corona Park but outside the residential study area boundary. The 20,000-square-foot recreation center will offer an indoor track, racquetball and basketball courts, as well as cardiovascular and strength equipment, in addition to afterschool, teen, and senior programmatic activities.

Bicycle lanes would be required on connector streets within the redeveloped District. In addition, NYCEDC is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade and Flushing Meadows-Corona Park, as well as Downtown Flushing and Corona. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and the City is currently seeking funding and approvals to implement these improvements. (An illustration of the proposed improvements is shown in Figure 6-2.) The bicycle lanes in the District would connect to this area-wide bicycle and greenway network, and indoor accessory bicycle parking would be required for all new residential, office, and retail uses developed in the District. Together, these measures will improve connectivity between Willets Point and surrounding areas, and provide new recreational cycling opportunities for area residents and visitors.

Finally, the 100-acre Kissena Corridor West park is located just outside the residential study area to the east. This large destination park would provide additional active and passive open space resources to residents in the District.

Overall, the proposed Plan would create a minimum of eight acres of open space resources and recreational opportunities for both residents and non-residents. In the future with the proposed Plan, residents and workers would have enough open space resources to meet their needs. Finally, the additional open spaces that lie just beyond the study area boundaries, and were therefore conservatively excluded from the quantitative analysis, would offset any potential open space impacts that could result from development in the District. Therefore, the proposed Plan would not result in significant adverse open space impacts. ✷



This figure has been added since the DGEIS

Figure 6-2

Bicycle and Pedestrian Connections

Chapter 7: Shadows

A. INTRODUCTION

The proposed Willets Point Development Plan would result in the development of new structures taller than 50 feet, which is the threshold provided in the *City Environmental Quality Review (CEQR) Technical Manual* as requiring an assessment of new shadows and their potential effects on nearby public open spaces and other sunlight-dependent resources. Following CEQR guidelines, a detailed shadows analysis was conducted to determine whether the proposed Plan would result in incremental shadow on any publicly accessible open spaces, important natural features or architectural resources with sunlight-dependent features.

PRINCIPAL CONCLUSIONS

The shadows analysis concluded that while some incremental shadow would be cast onto Flushing Bay, Flushing Bay Promenade, and Flushing River in some seasons, the extent and duration of such incremental shadow would not be large or long enough to cause a significant adverse impact on any of these resources.

As discussed in Chapter 2, "Procedural and Analytical Framework," it is anticipated that if the proposed redevelopment is approved, additional development would occur on Citi Field parking lot B (Lot B) and on Lot D, a surface parking lot south of Roosevelt Avenue. A shadows screening analysis was performed, and concluded that the potential future development on Lots B and D would not cause a significant adverse impact on any sun-sensitive resources.

B. METHODOLOGY

Due to its proximity to LaGuardia Airport, the Willets Point Development District is subject to height restrictions established by the Federal Aviation Administration (FAA) and the Port Authority of New York and New Jersey (PANY/NJ). Across a majority of the District, height limits are determined by the distance from LaGuardia Airport (see Figure 7-1). Buildings in the northeastern section of the District are located within the International Civil Aviation Organization (ICAO) Engine Out Splay area and are permitted to rise one vertical foot Above Mean Sea Level (AMSL) for every 40 feet away from the end of the runway. Buildings located in the FAA Departure Splay area farther southwest are permitted to rise one vertical foot AMSL for every 62.5 feet away from the end of the runway. The southwestern portion of the District falls outside of the ICAO and FAA splay areas. Buildings on this portion of the site may be built to a maximum height that is no greater than the new Citi Field stadium, which is approved by the FAA for 218 feet above ground level, or 232 feet AMSL.

Since no developer or specific development plan is in place at this time, the shadows study conservatively analyzed the maximum building heights allowed under the FAA limits throughout the District. In the three-dimensional model used in the analysis, both splay areas that extend through the District were extruded to their maximum heights, each sloping upwards

from northwest to southeast (see Figure 7-2). Buildings in the splay areas along the northern boundary of the District would have a maximum height of between approximately 94 feet AMSL and 133 feet AMSL, while points in the splay areas near the southern boundary may rise as high as approximately 175 feet AMSL. The southwestern portion of the District outside the splay areas was extruded to 232 feet AMSL.

As part of the proposed Plan, up to seven feet of fill would be used to grade and raise the District to an elevation of between 14 and 17 feet AMSL. However, the buildings developed as a result of the proposed Plan would not exceed the maximum AMSL height limits described above.

Following the guidelines of the *CEQR Technical Manual*, this analysis considers shadows on four representative days of the year: March 21/September 21, the equinoxes; May 6/August 6, the midpoints between the summer solstice and the equinoxes; June 21, the summer solstice; and December 21, the winter solstice. In identifying potential effects, CEQR focuses on uses and users of open space, including landscaping, vegetation, and other natural resources; and if there are historic resources, features, or details that are both sunlight-dependent and make such resources significant. The CEQR methodology does not generally consider shadows and incremental increases in shadows within 1½ hours of sunrise or sunset.

The *CEQR Technical Manual* identifies the following situations when a proposed project may result in a significant shadows impact:

- Substantial reduction in sunlight where a sensitive use is already subject to substandard sunlight (i.e., less than the minimum time necessary for survival);
- Reduction in sunlight available to a sensitive use from more to less than the minimum time necessary for its survival;
- Substantial reduction in sunlight to a sun-sensitive use or feature; and
- Substantial reduction in the usability of the open space.

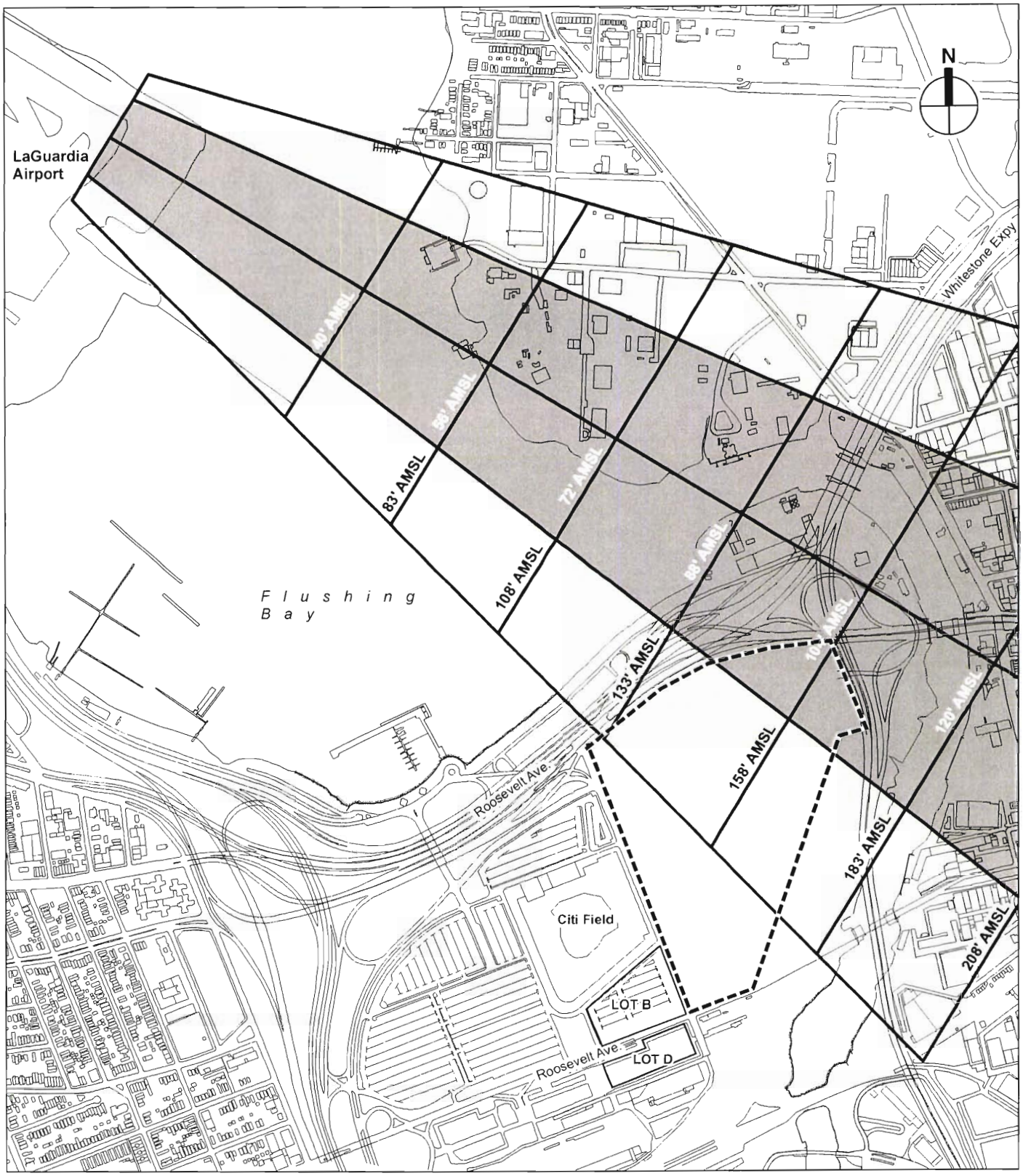
The determination of impact significance is based on an assessment of how a project's incremental shadows specifically affect sun-sensitive features of individual resources. Shadows cast on open spaces that are part of a proposed project or action are not considered impacts of an action because without the action, the open space would not exist.

Shadows were modeled using the solar rendering capabilities of MicroStation V8 software.

C. SCREENING

To identify sun-sensitive resources that could potentially be affected as a result of the proposed Plan, a screening analysis was performed. The longest shadow that any structure can cast during the year (except within 1½ hours of sunrise or sunset) is 4.3 times its height. Per FAA height limits, the tallest structures that would be developed under the proposed Plan would be 232 feet AMSL, so the maximum radius that a shadow from the District could reach would be 997.6 feet. Therefore, in coordination with the open space, historic resources, and natural resources analyses, all sun-sensitive resources within this distance of the District were included in the screening analysis.

Following CEQR guidelines, the screening analysis considered four dates during the year that represent the full range of possible shadows: June 21 and December 21, the dates of the shortest and longest shadows of the year, respectively; March 21 (equivalent to September 21, the equinoxes); and May 6 (equivalent to August 6). Using the *CEQR Technical Manual's* table of



Willets Point Development District

International Civil Aviation Organization (ICAO) Engine Out Splay

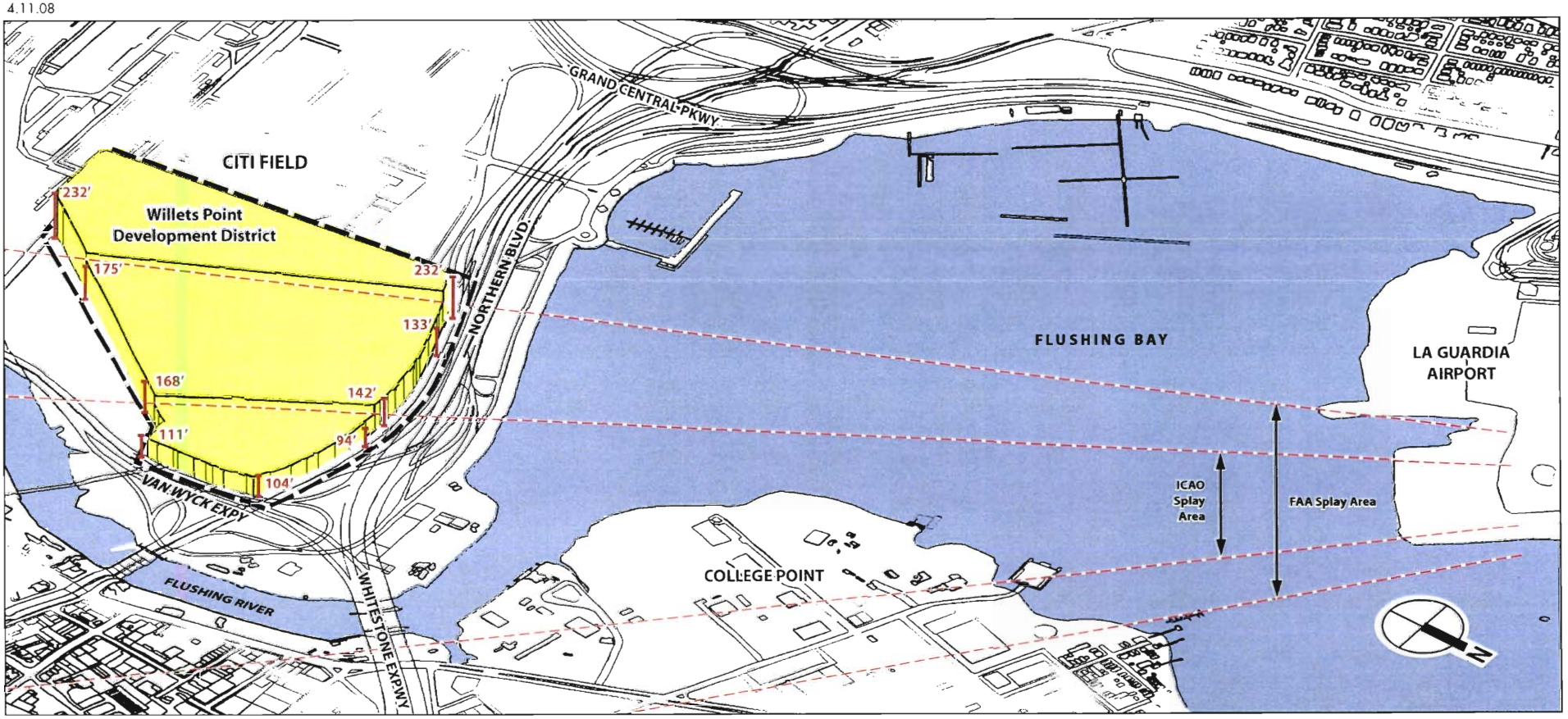
Federal Aviation Administration (FAA) Departure Splay

This figure has been updated since the DGEIS

Figure 7-1

ICAO and FAA Heights Limits

4.11.08



NOTE: All heights are above Mean Sea Level (AMSL)

Willets Point Development District

Figure 7-2

Maximum Development Envelope - View Southwest

shadow length factors, angles, and times of day, the maximum extent of Plan-generated shadow was determined. The analysis indicated that incremental shadow from the proposed Plan could fall on portions of three sun-sensitive resources at certain times of day and year: the benches and paved walkway of the Flushing Bay Promenade; Flushing Bay itself; and the Flushing River.

D. RESOURCES OF CONCERN

The District is located along the western shore of **Flushing Bay** and the **Flushing River**. Flushing Bay is a tidal embayment on the south shore of the upper East River. The Flushing River and the smaller Mill Creek are the primary freshwater inputs to the bay. Much of the original bay was filled for the development of LaGuardia Airport. With the exception of a 150-foot-wide artificial navigational channel maintained at a depth of 14.5 feet (4.4 m), water depths within the bay are generally shallower than the adjacent East River, ranging from a few feet near shore to over 15 feet near the bay's confluence with the East River. Flushing Bay's circulation and salinity structure near the East River are largely determined by conditions in the East River and Long Island Sound.

The Flushing Bay Promenade stretches 1.4 miles along the Flushing Bay, to the north of the District. It features drinking fountains, benches, shrubs, and granite hex block pavers.

E. ASSESSMENT OF SHADOWS

PROPOSED PLAN

The extent and duration of the maximum development envelope's incremental shadow on the four analysis days are noted in Table 7-1 and illustrated in Figures 7-3 through 7-8. The figures depict the extent of incremental shadow on the nearby sun-sensitive resources at various times of each relevant analysis day.

Table 7-1
Incremental Shadow Durations

Resource	March 21 8:36 AM-5:29 PM EDT	May 6 7:27 AM-6:18 PM EDT	June 21 6:57 AM-7:01 PM EDT	December 21 8:51 AM-2:53 PM EST
Flushing Bay	8:36 AM–9:15 AM Total: 39m	—	—	8:51 AM–11:00 AM Total: 2h 9m
Flushing Bay Promenade	8:36 AM–9:30 AM Total: 54m	7:27 AM–7:35 AM Total: 8m	—	8:51 AM–11:30 AM Total: 2h 39m
Flushing River	5:15 PM–5:29 PM Total: 14m	5:45 PM–6:18 PM Total: 33m	6:00 PM–7:01 PM Total: 1h 1m	—

Notes:
EST—Eastern Standard Time
EDT—Eastern Daylight Time
March 21 is the equivalent of September 21.
May 6 is the equivalent of August 6.

MARCH 21/SEPTEMBER 21: 8:36 AM—5:29 PM EDT

At the start of the March 21/September 21 analysis day, at 8:36 AM, the maximum development envelope would cast a shadow to the northwest, reaching across a short section of the Flushing Bay Promenade and onto a small area of Flushing Bay. The incremental shadow would travel

eastward opposite the rising sun (see Figure 7-3) and move off the bay 39 minutes later, at 9:15 AM. Thirty minutes later, at 9:45 AM, the incremental shadow would completely exit the Flushing Bay Promenade.

The shadow cast by the maximum development envelope would move eastward during the day, and at 5:15 PM it would reach small inlets on the western shore of the Flushing River (see Figure 7-4). For the remaining 14 minutes of the analysis day, the incremental shadow would cover a small area of the river.

The short durations and small extents of incremental shadow on Flushing Bay and the Flushing River would not significantly affect aquatic resources (plankton, macroalgae, invertebrates, and fish), nor would they significantly affect any recreational boating. Consequently, proposed Plan-generated shadow would not cause significant adverse impacts on these resources. The nearly one hour of incremental shadow on the Flushing Bay Promenade would affect only a small area of the promenade; other areas of the promenade would receive sun during this hour, and the promenade would receive ample sunlight for the remainder of the day. Therefore, no significant adverse impact would occur on the September 21/March 21 analysis day.

MAY 6/AUGUST 6: 7:27 AM—6:18 PM EDT

At the beginning of the late spring and late summer analysis days (May 6/August 6), the maximum development envelope would cast a shadow to the west, onto a small section of the Flushing Bay Promenade (see Figure 7-5). The shadow would not be long enough on this analysis day to reach the bay. The incremental shadow would exit the promenade eight minutes later, at 7:35 AM.

Late in the afternoon, at 5:45 PM, the incremental shadow would move onto small sections of the Flushing River. Over the course of the remaining 33 minutes of the analysis day, the incremental shadow would extend eastward onto the river, but would still comprise a small proportion of the river's overall area (see Figure 7-6).

The short durations and small extents of the incremental shadow on the May 6/August 6 analysis day would not cause any significant adverse impacts.

JUNE 21: 6:57 AM—7:01 PM EDT

The shadow cast by the maximum development envelope would not be long enough to reach Flushing Bay or the Flushing Bay Promenade on the morning of June 21. The shadow would reach the inlets of the Flushing River at 6:00 PM and would extend eastward, increasing in size, until the end of the analysis period at 7:01 PM (see Figure 7-7). The one hour of incremental shadow in the late afternoon on areas of the Flushing River would not adversely affect aquatic resources, nor would it significantly affect any recreational boating.

DECEMBER 21: 8:51 AM–2:53 PM EST

In the winter, shadows are longest but the days are shorter; shadows are cast to the northwest in the morning, move eastward, and at the end the day fall to the northeast. At 8:51 AM, the start of the December 21 analysis day, the maximum development envelope would cast a shadow northwest across a relatively large section of the Flushing Bay Promenade and onto a smaller section of Flushing Bay. The incremental shadow would move quickly eastward and steadily decrease in size (see Figure 7-8). It would exit the bay completely at 11:00 AM, and would exit the promenade at 11:30 AM.

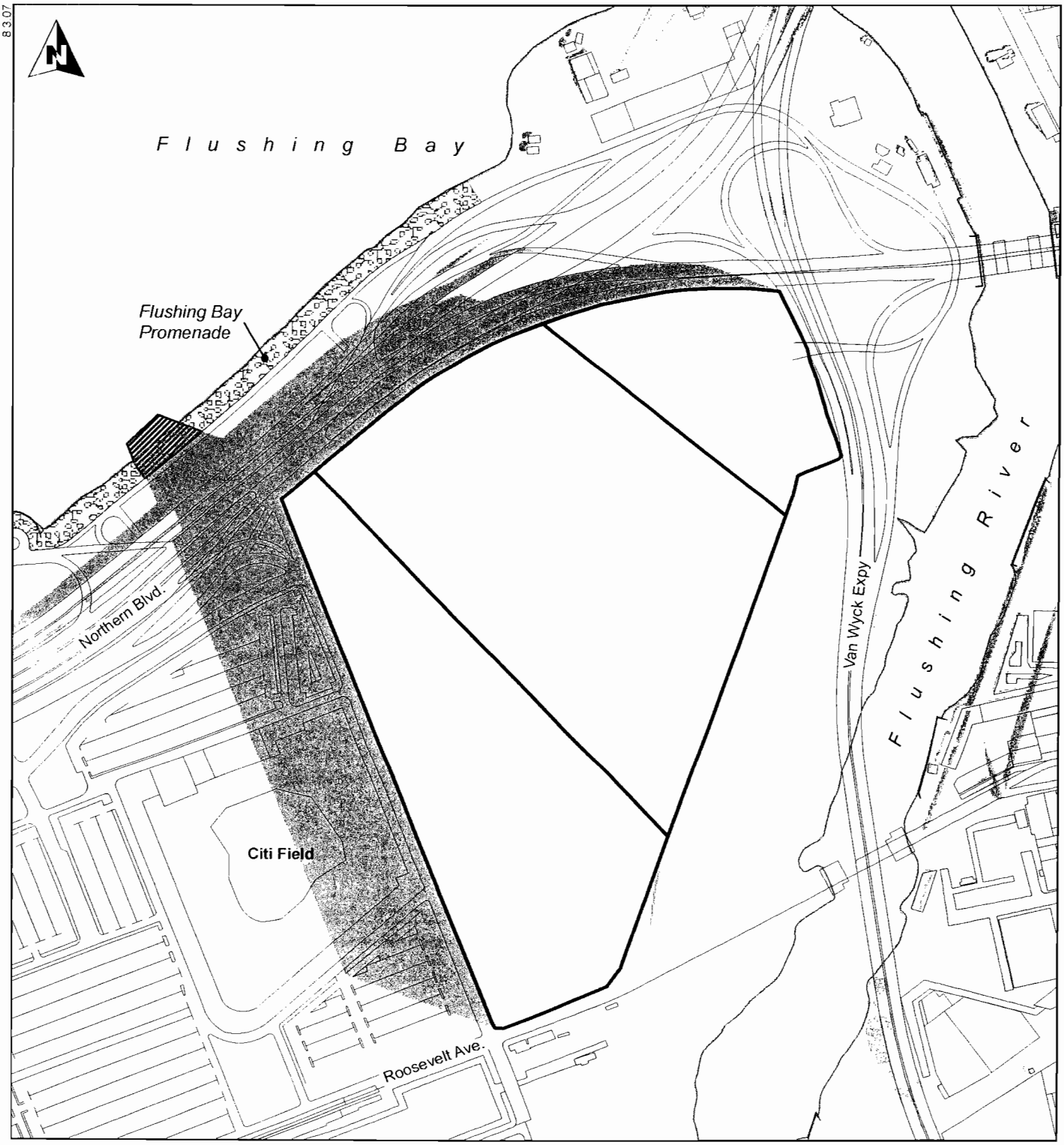


Figure 7-3
Shadows
March 21 / Sept. 21 - 9:00 AM EDT

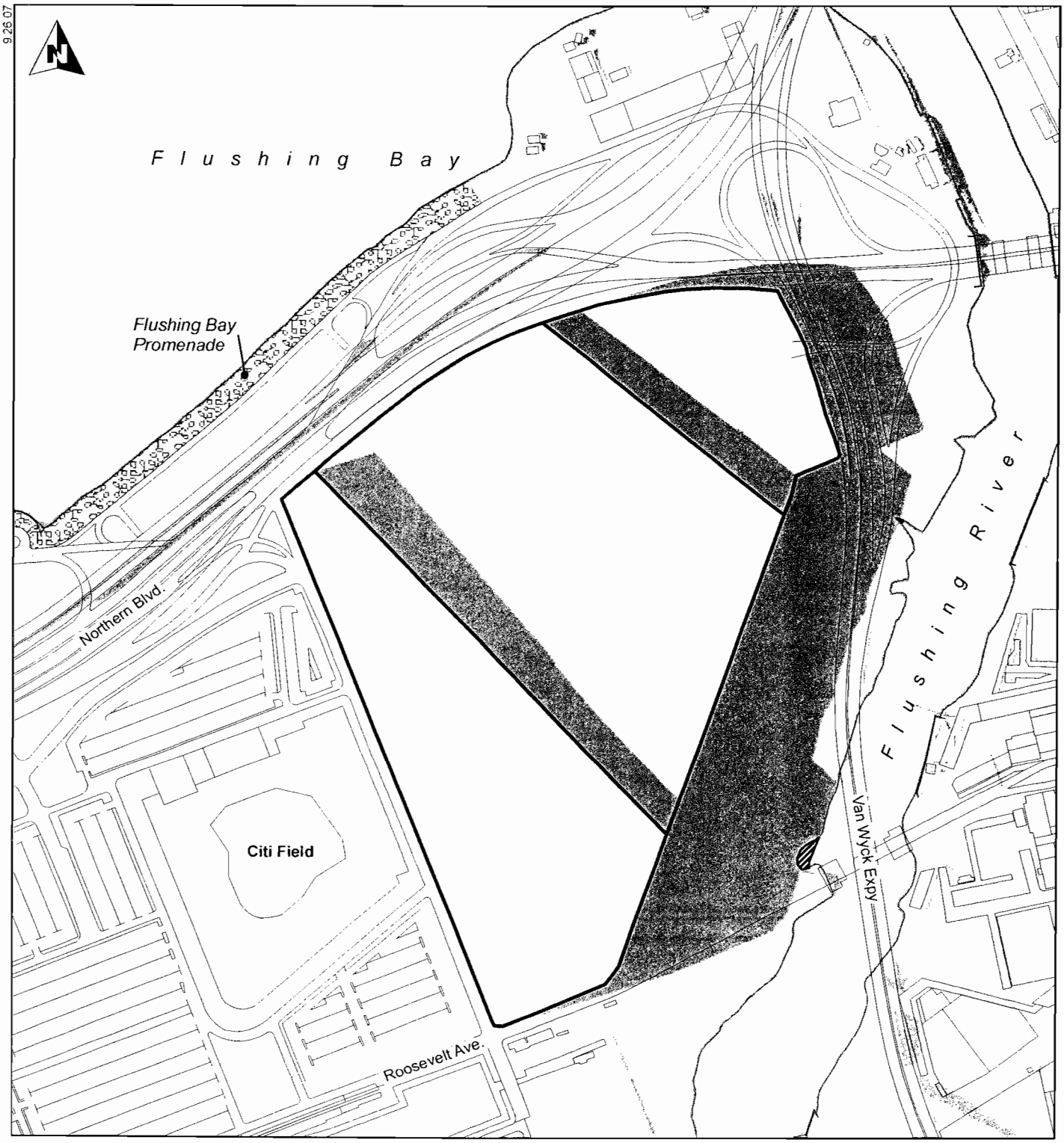


Figure 7-4
Shadows
March 21 / Sept. 21 - 5:15 PM EDT

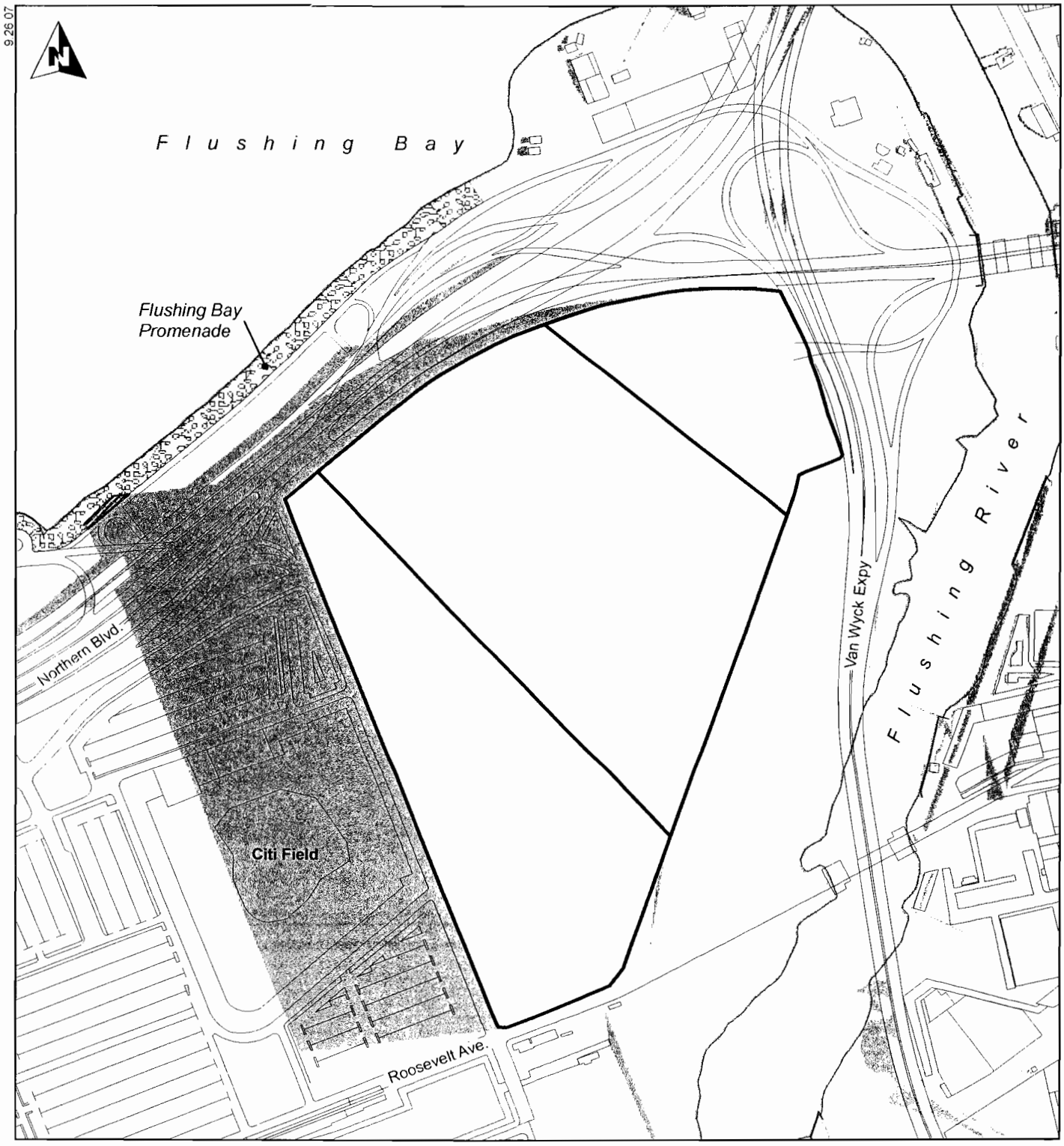


Figure 7-5
Shadows
May 6 / Aug. 6 - 7:30 AM EDT

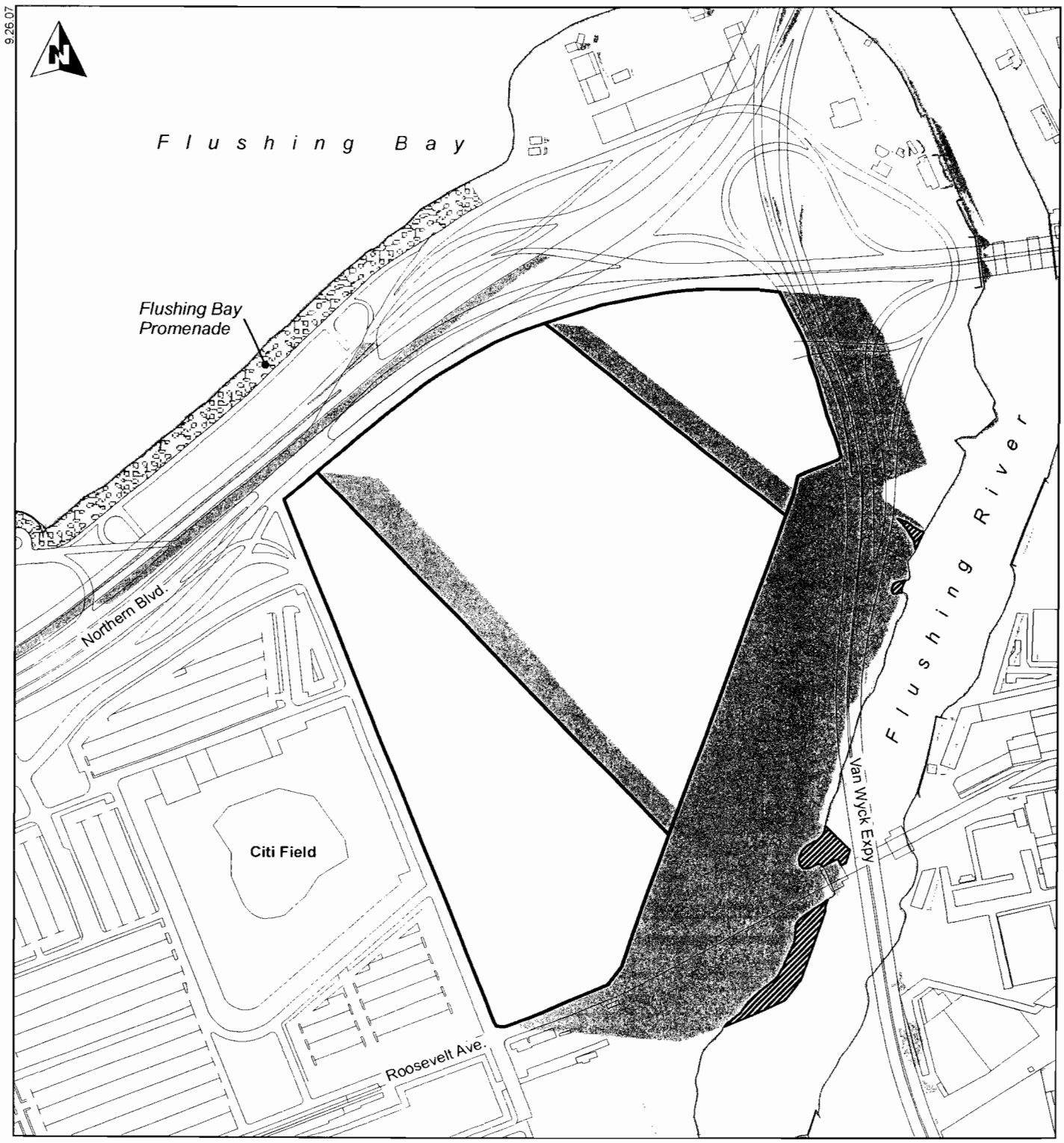


Figure 7-6
Shadows
May 6 / Aug. 6 - 6:00 PM EDT

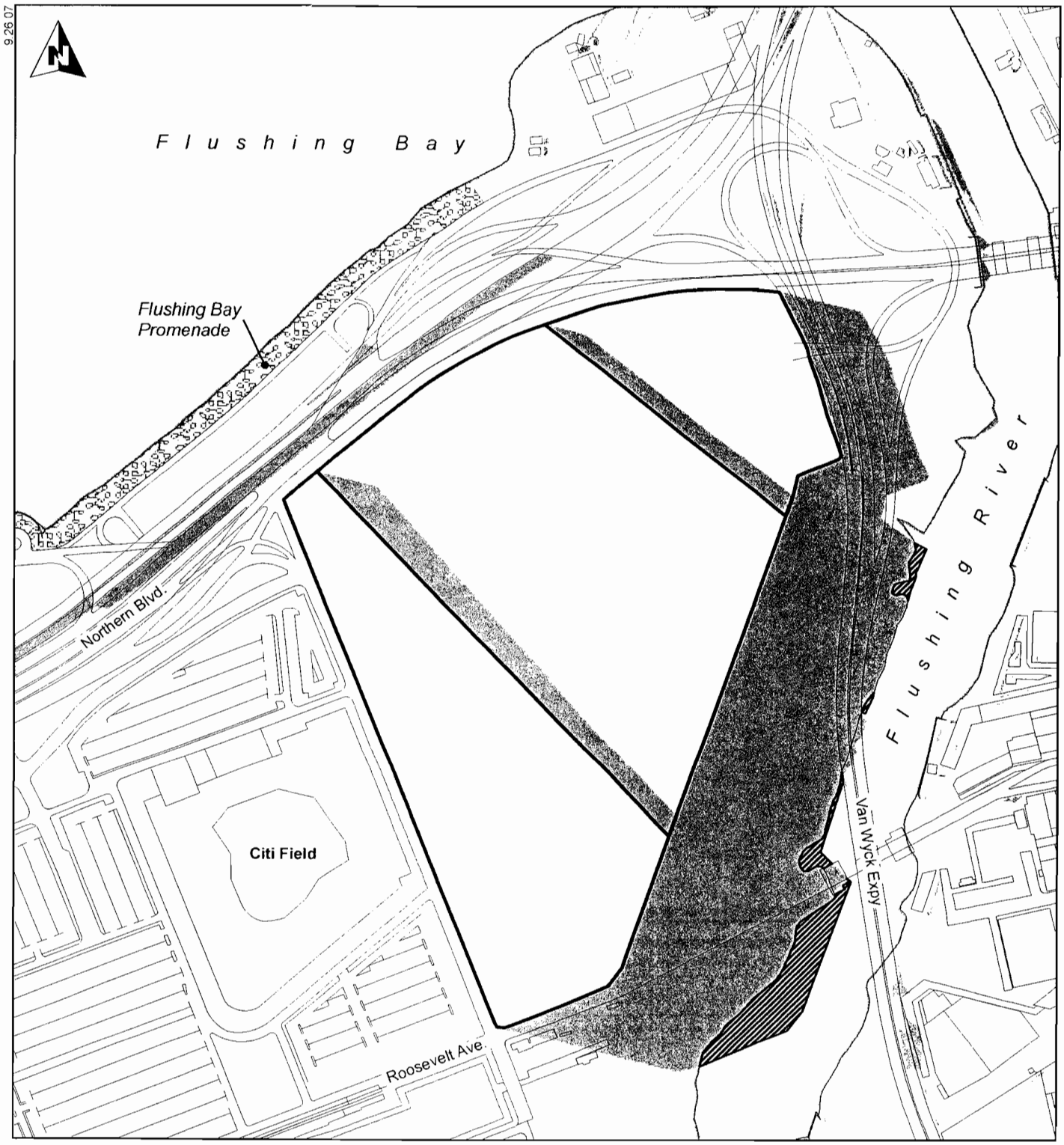


Figure 7-7
Shadows
June 21 - 6:30 PM EDT

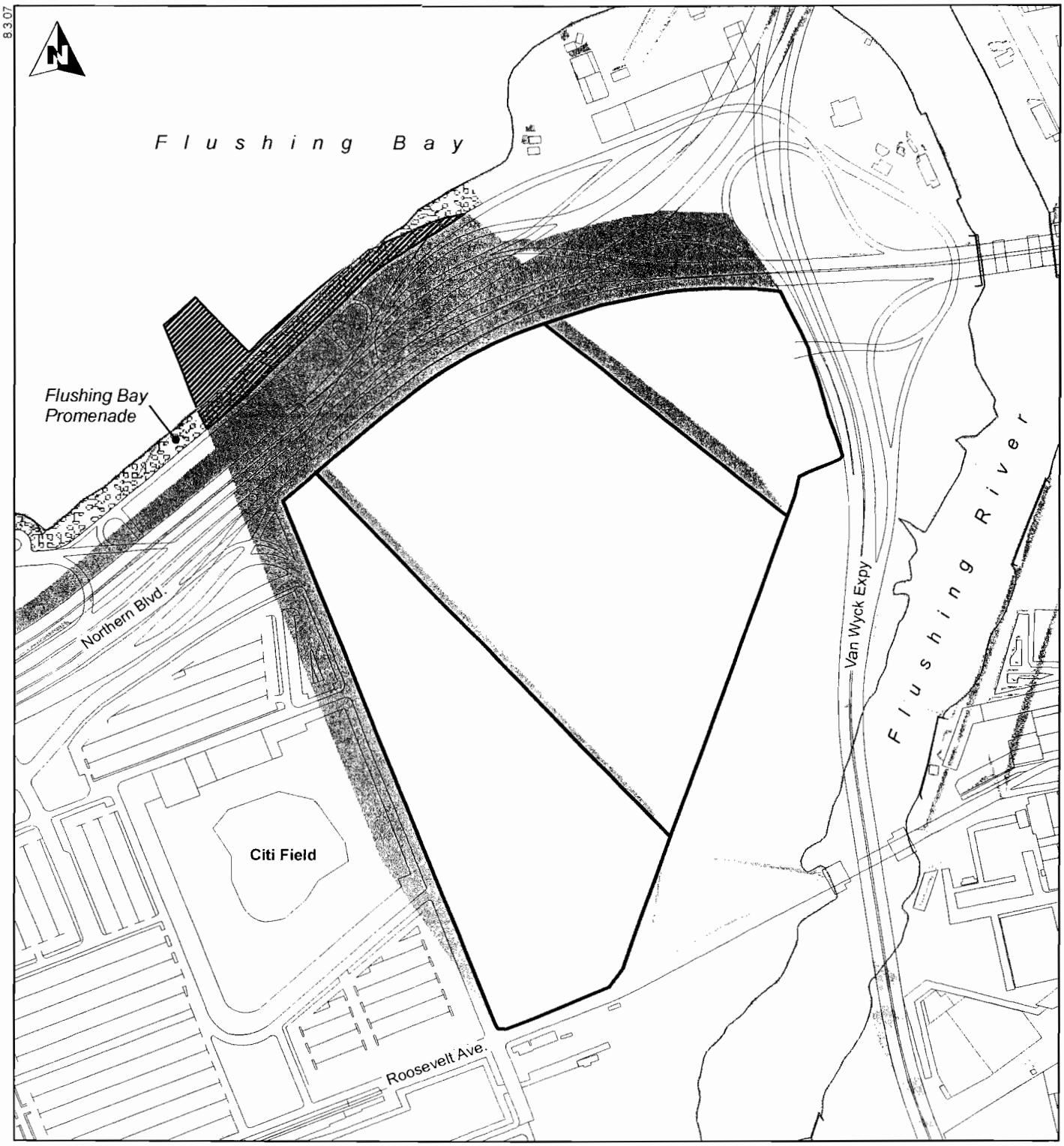


Figure 7-8
Shadows
Dec. 21 - 9:30 AM EST

While the proposed Plan would cast incremental shadow on these two resources for more than two hours, large areas of these resources would remain free of incremental shadow during these times, and both resources would receive ample sunlight for the remainder of the analysis day as well. Consequently, no significant adverse impacts would occur.

LOTS B AND D

A screening analysis was performed to determine whether additional future development on Lots B and D could cause any shadow impacts on nearby sun-sensitive resources. Lots B and D are located outside of the ICAO and FAA splay areas; therefore, as in the analysis of the maximum development envelope in the District, the Lot B and D screening analysis conservatively considered a maximum building envelope for the office and retail components that is no higher than the new Citi Field Stadium, which is approved by the FAA for 218 feet above ground level, or 232 feet AMSL. The parking garage on Lot D was modeled at approximately five stories, as it is anticipated that, based on the site footprint, five levels would be required to accommodate the 1,543 parking spaces at this site. Based on these heights, and using the same methodology described above in Section C, "Screening," it was determined that any development on Lot B could only cast shadow on a small section of the Flushing River for less than 20 minutes at the end of the June 21 analysis day and less than 15 minutes at the end of the May 6 and August 6 analysis days. It would not cast shadow on the river on the other two analysis days, and would not cast shadow on any other sun-sensitive resource at any time of year. The potential parking garage on Lot D would not cast shadows long enough to reach the Flushing River or other sun-sensitive resources at any time of year. Overall, the small extent of additional shadow on the Flushing River that would likely be cast by the potential future development on Lots B and D would not cause a significant adverse impact.

NO CONVENTION CENTER SCENARIO

The shadows analysis presented above examines the maximum building envelope allowed under the FAA limits across the District. Therefore, the shadow effects would be no different under the No Convention Center Scenario than they would be under the proposed Plan, and no significant adverse impacts would occur.

F. CONCLUSIONS

None of the three resources of concern would receive incremental shadow on all four analysis days. Furthermore, throughout the spring, summer, and fall seasons, incremental shadow would be limited to an hour or less on any given resource and would cover relatively small areas. In the winter, when shadows are longest, over two hours of project-generated shadow would be cast on Flushing Bay and the Flushing Bay Promenade in the morning, but large areas of these resources would remain free of incremental shadow during these times, and would receive sunlight for the remainder of the analysis day. No significant adverse impacts would occur on these resources as a result of the proposed Plan or the No Convention Center Scenario. ✷

A. INTRODUCTION

This section considers the potential of the Willets Point Development Plan to affect architectural and archaeological resources in the Willets Point Development District, as well as in the surrounding area. The District is an approximately 61-acre site bounded by the Van Wyck Expressway and an undeveloped parcel owned by the Metropolitan Transportation Authority (MTA) to the east, Roosevelt Avenue to the south, 126th Street to the west, and Northern Boulevard to the north.

Based on potential effects due to on-site construction activities, and to account for visual or contextual impacts, the study area is defined as extending 400 feet from the District (see Figure 8-1). Within the study area, the historic resources that were considered comprise properties listed on the State and National Registers of Historic Places (S/NR) or determined eligible for such listing; National Historic Landmarks (NHLs), New York City Landmarks (NYCLs) and Historic Districts, and properties determined eligible for landmark status.

Architectural resources that are listed on the National Register or that have been found eligible for listing are given a measure of protection from the effects of federally sponsored or assisted projects under Section 106 of the National Historic Preservation Act. Although preservation is not mandated, federal agencies must attempt to avoid adverse impacts on such resources through a notice, review, and consultation process. Properties listed on the State Register are similarly protected against impacts resulting from state-sponsored or state-assisted projects under the State Historic Preservation Act. Private property owners using private funds can, however, alter or demolish their properties without such a review process if no State or federal approvals are required for their projects.

In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D.

PRINCIPAL CONCLUSIONS

ARCHAEOLOGICAL RESOURCES

In a letter dated February 2, 2007, the New York City Landmarks Preservation Commission (LPC) determined that the District is not sensitive for archaeological resources.[1] In a letter dated November 19, 2007, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) confirmed that the District is not sensitive for archaeological resources.

[1] See Appendix C, "Historic Resources Correspondence."

ARCHITECTURAL RESOURCES

In the same letter dated February 2, 2007, LPC determined that the District does not contain any architectural resources.[1] However, OPRHP has determined one building located within the boundaries of the District, the former Empire Millwork Corporation Building, which is now in use by Fodera Foods, to be eligible for listing on the S/NR. Due to site planning goals and engineering concerns in the District, including the need to raise the site above the 100-year floodplain level, it is anticipated that all the buildings on the site, including the former Empire Millwork Corporation Building, would be demolished. Demolition of this historic resource would constitute a significant adverse impact on architectural resources. Measures to fully or partially mitigate this adverse impact would be explored, as discussed in Chapter 23, "Mitigation."

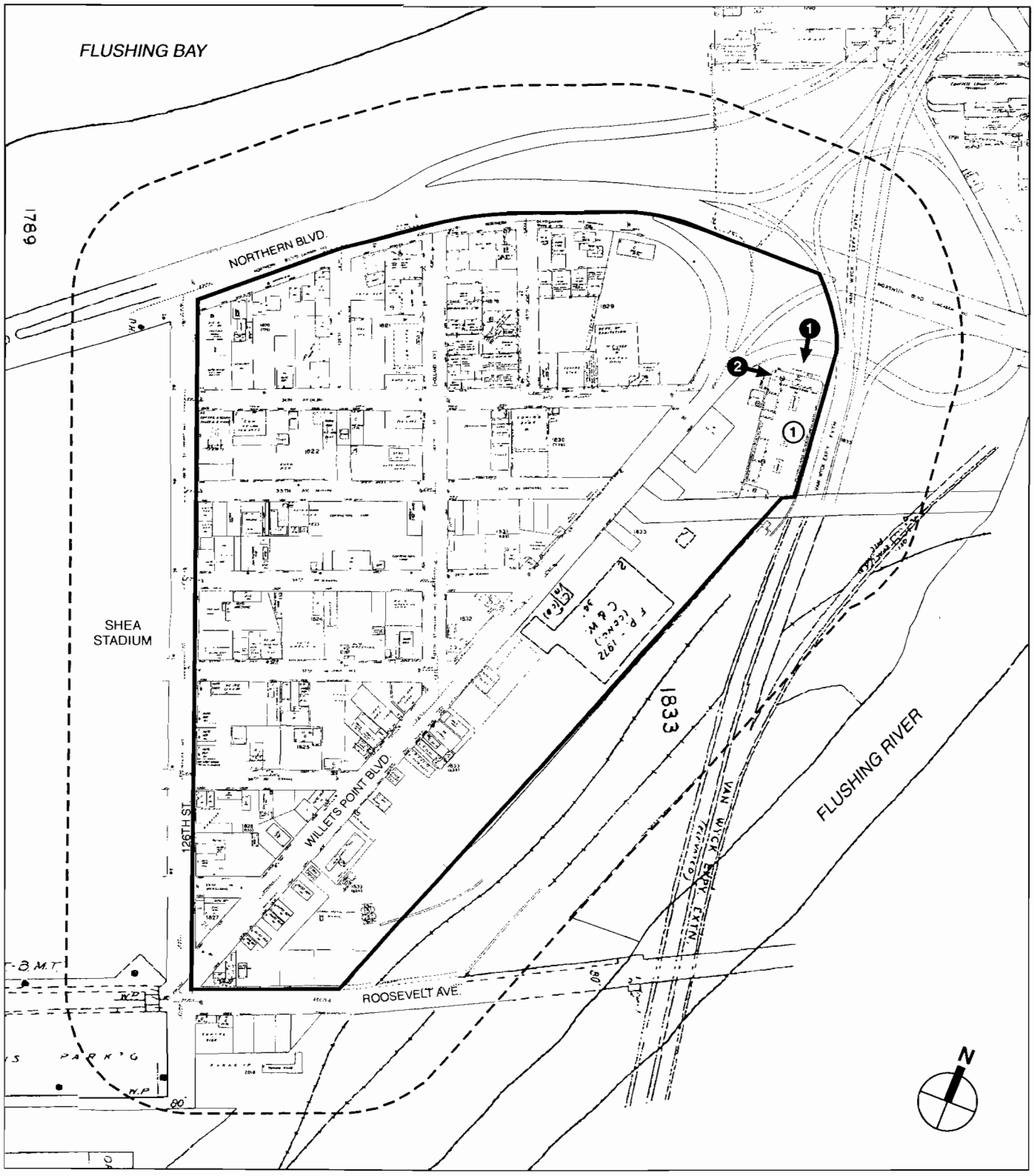
B. HISTORIC BACKGROUND

The Willets Point Development District was originally a part of a swamp located on the banks of the Flushing River. During the mid-19th century, it was primarily used for recreation. However, by the turn of the century, new roads and railroad lines made this once-remote area accessible to cars and trains. Around 1900, the city of Queens leased a large portion of the swamp to a Brooklyn ash removal company. Fishhooks McCarthy, the owner of the company, also acquired the right to dump incineration ashes into the tidal marshland. It is estimated that McCarthy dumped approximately 50 million cubic yards of ash into the swampland between 1906 and 1932. The dumping left the area with a layer of ash 30 feet thick on average, with mountains of ash rising up to 90 feet, an eerie sight that led F. Scott Fitzgerald to declare the area a "valley of ashes" in his novel *The Great Gatsby*. By the early 1930s, residential development had increased in the nearby areas of Corona and Flushing, and with it came increased political opposition to the use of the Willets Point area for dumping. Subsequently, in 1934 the City cancelled its contract with McCarthy and ceased dumping in the area.

Around the same time, Robert Moses developed his vision of a World's Fair in New York City and his intention to locate it on the former dumpsite. Soon the ash hills were leveled, the Grand Central Parkway was constructed, and the World's Fair complex was built. Though the street grid in the project area (including Willets Point Avenue) was laid out, the District never became a part of the overall World's Fair complex.

The enormous construction effort required for the World's Fair, combined with the excellent road and rail access in Willets Point, lead contractors, heavy manufacturers, and equipment rental businesses to first settle in Willets Point. Historic maps from the 1940s and 1950s indicated that during this time, Willets Point started to develop with a mix of auto-related uses located on small lots. Throughout the 1960s and 1970s, the number of auto-repair and junkyard uses in Willets Point greatly increased. An aerial photograph from 1974 indicated that the numerous auto repair shops and related businesses covered the majority of the site, earning it the reputation as the "Iron Triangle."

[1] See Appendix C, "Historic Resources Correspondence."



Willets Point Development District

Area of Potential Effect (400-Foot Perimeter)

Photograph View Direction and Reference Number

Former Empire Millworks Building (S/NR-eligible)

Figure 8-1
Historic Resources

C. EXISTING CONDITIONS

ARCHITECTURAL RESOURCES

DISTRICT

As described above, the 13-block District is mainly developed with small warehouse and industrial buildings.

As stated above, in a letter dated February 2, 2007, LPC determined that there are no architectural resources in the District. However, as per the 2001 *City Environmental Quality Review (CEQR) Technical Manual*, a field visit conducted in May 2007 identified one potential resource: the former **Empire Millwork Corporation Building** (see Figure 8-2). In a letter dated June 9th, 2007, LPC determined that the former Empire Millwork Corporation Building was not eligible for NYCL designation.[1] Subsequently, in a letter dated October 15, 2007, OPRHP determined that the former Empire Millwork Corporation Building is eligible for listing on the S/NR.[2] According to OPRHP's determination, the former Empire Millwork Corporation Building is historically and architecturally significant as an early 20th century commercial and industrial building.

The former Empire Millwork Corporation Building is located at 128-50 Willets Point Boulevard, near the intersection of Willets Point Boulevard and the entrance ramp to Northern Boulevard. The building, built prior to the Van Wyck Expressway and facing Flushing Bay, has a large landscaped lawn in front. It was constructed in 1938 from plans by Sugarman & Berger, Stanford D. Rossin, and Arthur Hamburger. Hamburger, an industrial engineer, was president of Wheeler Engineering Company, which built the building. The building was constructed for the D. Ginsberg and Sons Company, a millwork company which was started in 1921 by Hyman Ginsberg. The company later became the Empire Millwork Corporation and then the Empire National Corporation.

The two-story, Georgian Revival-style building has a symmetrical red brick façade with flanking bays, which terminate with gently curving sections. The front section was originally used as an office space for the company, and the exterior decorations are a reflection of the millwork business. The central bay projects slightly and features a center doorway topped with arched transom windows and a broken pediment. Above the door is a large Palladian window with a circular clock under the central arch. The central bay is topped with a large front gable with a wood denticulated cornice and cornice returns. Small, octagon-shaped windows decorate either side of the central entryway.

The flanking sections are five bays wide. Each bay has arched wood windows with tracery on the first level and 6-over-6 double-hung wood windows on the upper level. A denticulated cornice line runs the length of the bays. Both bays end with curved sections; these sections have large 12-over-12 double-hung windows separated by double-height wood pilasters. The side bays have small, double-hung and octagon-shaped windows. A short parapet runs along the flanking bays and sides.

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[1] See Appendix C, "Historic Resources Correspondence."

[2] See Appendix C, "Historic Resources Correspondence."

The remainder of the building is a two-story warehouse structure which extends back approximately 300 feet. It has large, factory-style, multi-pane glass windows.

There are no other known or potential architectural resources located within the boundaries of the study area.

STUDY AREA

Known Resources

There are no known architectural resources in the 400-foot study area.

Potential Resources

A site visit in May 2007 did not identify any potential architectural resources within 400 feet of the District. Surrounding the District are parking lots for Shea Stadium, and Northern Boulevard, the elevated Van Wyck Expressway, and the Roosevelt Avenue Bridge.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

As discussed above, it is possible that the former Empire Millwork Corporation Building may be listed on the S/NR. There is one development project in the 400-foot study area: the new Citi Field. Located immediately to the west of the District, across 126th Street, Citi Field will be the new home of the New York Mets baseball team. The new stadium and related development is currently under construction and is scheduled to be completed in 2009. This 44,000-seat stadium will replace the existing 56,000-seat Shea Stadium, located immediately to its west. Along 126th Street, the new stadium will provide ground-floor retail space and Mets executive offices within a four-story building.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

ARCHITECTURAL RESOURCES

DISTRICT

It is anticipated that all of the buildings in the District, including the former Empire Millwork Corporation Building, would be demolished as part of the proposed Plan. The overarching goal of the proposed Plan is to transform a largely underutilized site with substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination. While specific development plans have not been formulated, development in the District would be guided by the Special District regulations and the Willets Point Urban Renewal Plan (URP). One of the key aspects of the Special District regulations and the URP is to allow for flexibility of uses and building locations within the District. Retaining the former Empire Millwork Corporation Building would limit this flexibility.

In addition, retaining the former Empire Millwork Corporation Building would be challenging from a site grading and engineering perspective. The District is below the Federal Emergency Management Agency (FEMA) 100-year floodplain level of 14 feet above mean sea level (AMSL)[1], and up to seven feet of fill is required in some locations to grade and raise the entire

[1] Referencing National Geodetic Vertical Datum of 1929 (NGVD29).



Former Empire Millwork Corporation Building, front facade **1**



Former Empire Millwork Corporation Building, view southeast **2**

Figure 8-2
Known Historic Resources

District to an elevation of between 14 and 17 feet AMSL. If the City were to provide new infrastructure—including new roadways, sidewalks, and storm and sanitary sewer lines—at the existing grade, potential future development could be subject to flooding on the lower floors. As such, the City plans to raise the District and require that any new development be raised above the 100-year floodplain level. The roadbeds surrounding the former Empire Millwork Corporation Building are located at a level of 10.6 to 13.0 feet AMSL and thus this particular site requires up to 3.4 feet of fill to conform with the proposed grade of the District.

The roadbeds surrounding the former Empire Millwork Corporation Building are located at a level of 10.6 to 13.0 feet AMSL and thus this particular site requires an increase in elevation of between 1.0 and 3.4 feet to conform with the proposed grade of the District. If this site were not raised, it would be significantly more vulnerable to flooding, both because it is below AMSL, and because the surrounding topography would be raised, directing water runoff into lower areas. Raising the grade in a majority of the District while maintaining the existing grade on the former Empire Millwork Corporation Building site would require special engineering measures to protect the building during site preparation and construction to prevent future flooding on the site, and to visually and functionally integrate the building with the rest of the District despite the differences in grade.

Due to these issues, the proposed Plan contemplates demolition of the former Empire Millwork Corporation Building. Demolition of this historic resource would constitute a significant adverse impact on architectural resources. In a letter dated May 30, 2008, OPRHP stated that the demolition of the former Empire Millwork Corporation Building would constitute an adverse impact, and that all alternatives to demolition have not been explored.[1] Measures to fully or partially mitigate this adverse impact have been developed, as discussed in Chapter 23.

LOTS B AND D

As described in Chapter 2, it is anticipated that if the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, additional development could occur on Citi Field parking lot B (Lot B), located on the northwest corner of Roosevelt Avenue and 126th Street, and on Lot D, a surface parking lot located at the southwest corner of Roosevelt Avenue and 126th Street. Lot B is currently being used as a construction staging area for Citi Field, and Lot D is currently used by commuters, as well as for Mets games and USTA National Tennis Center events. While specific development plans for Lots B and D have not yet been formulated, it is anticipated that Lot B could be developed with a one-story retail structure and a 10-story office building, and Lot D could be developed with a five-level parking garage.

There are no architectural resources located on Lots B or D. Therefore, any development at these sites would not impact architectural resources. Lot B was determined not sensitive for archaeological resources during the environmental review process for the Citi Field project. In a letter dated September 2, 2008, LPC determined that Lot D is not sensitive for archaeological resources. Therefore, no impacts to archaeological resources are anticipated with any development on Lots B or D.

[1] See Appendix C, "Historic Resources Correspondence."

NO CONVENTION CENTER SCENARIO

Under this scenario, all of the existing buildings in the District would be demolished, and impacts would be the same as described above under "District."

STUDY AREA

As there are no architectural resources in the study area, there would be no impacts on architectural resources in the surrounding area with the proposed Plan. ✷

A. INTRODUCTION

This chapter considers the potential of the Willets Point Development Plan to impact the urban design characteristics and visual resources of the Willets Point Development District and the surrounding study area.

The analysis presented below follows the guidance of the *CEQR Technical Manual*. As defined in the manual, urban design components and visual resources determine the "look" of a neighborhood—its physical appearance, including the street pattern, the size and shape of buildings, their arrangement on blocks, streetscape features, natural resources, and noteworthy views that may give an area a distinctive character. The following analysis addresses each of these characteristics for existing conditions, the future without the proposed Plan, and the probable impacts of the proposed Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter considers to the extent possible the cumulative impact of the Willets Point Development Plan and the anticipated development on Lots B and D.

PRINCIPAL CONCLUSIONS

As described below, the proposed Plan would not have significant adverse impacts on the urban design and visual resources of the District and the surrounding study area.

URBAN DESIGN

The proposed Plan would greatly improve the appearance of the District, currently an underdeveloped site with a collection of low-scale buildings primarily related to automotive repair and larger, industrial buildings. The proposed Plan would result in new residential buildings of various heights, a large entertainment and retail corridor, and other potential uses, including a convention center, hotel, and office buildings. It would also create new public open spaces. The proposed Plan would add new uses and vitality to the site and dramatically improve the overall appearance of the District. Further, it would transform the underutilized site into a new retail and entertainment destination that would greatly increase the use of the site and improve the overall appearance of the area.

The proposed Plan would convert the existing underdeveloped and environmentally degraded Willets Point Development District into a vibrant, mixed-use urban environment. The buildings that would result from the proposed Plan would be cohesive in design and varied in use to create a new destination and entertainment location. The proposed Plan would also integrate the District into the surrounding area by creating a new pedestrian-scaled street network with wide connector streets as well as smaller, retail and residential streets. In addition, the proposed Plan would add new publicly accessible open spaces to the District.

The proposed Plan would improve the urban design of the District and the surrounding area. The new development resulting from the proposed Plan would be a mixed-use community including retail, office, residential, community facility, and open spaces. These new uses would increase the vitality of the District; increase pedestrian traffic to the District and the surrounding area; and improve the appearance of the District by providing new streets and streetscape elements, such as street trees and lighting.

A new street pattern would be established in the District, including two main connector streets, a primary retail street, two secondary retail streets, residential streets, eastern perimeter street, and service streets. New block forms would be created, including two superblocks along 126th Street and smaller residential blocks. The new buildings would be set back at a consistent distance and built to a similar height to create new, continuous streetwalls.

Overall, the proposed Plan would transform the District into a mixed-use destination area by providing retail, entertainment, and restaurant areas, and by creating a pedestrian-friendly environment that would complement the proposed residential area. The proposed Plan would significantly alter the urban design of the District and would ultimately have a beneficial impact on the overall appearance and feel of the District.

VISUAL RESOURCES

The proposed Plan would not adversely impact any visual resources in the surrounding area, including Flushing Bay, the Flushing Bay Promenade, Flushing Meadows-Corona Park, and the 1964 World's Fair structures. While the proposed Plan would create structures that are taller than what currently exists on the site, views to these resources would not be blocked by the new development, nor would the new structures be highly visible from these resources.

B. METHODOLOGY

In accordance with the *CEQR Technical Manual*, this analysis considers the effects of the proposed Plan on the following elements that collectively form an area's urban design:

- Block form and street pattern—This urban design feature refers to the shape and arrangement of blocks and surroundings streets, such as a grid pattern with regularly sized, rectangular blocks. These features set street views, define the flow of activity through an area, and create the basic format in which building arrangements can be organized.
- Building arrangement—This term refers to the way that buildings are placed on zoning lots and blocks. The buildings can have small or large footprints, be attached or detached and separated by open uses, and varied in their site plans. This urban design feature helps convey a sense of the overall form and design of a block or a larger area.
- Building bulk, use, and type—Buildings are usually described by these characteristics. A building's bulk is created from an amalgam of characteristics that include its height, length, and width; lot coverage and density; and shape and use of setbacks and other massing elements. The general use of a building (e.g., residential, manufacturing, commercial, office) gives an impression of its appearance and helps to understand its visual and urban design character. Building type refers to a distinctive class of buildings and suggests distinguishing features of a particular building (e.g., industrial loft, church, gas station, walk-up tenement).
- Streetscape elements—Streetscape elements are the distinctive physical features that make up a streetscape, such as streetwalls, building entrances, parking lots, fences, street trees,

street furniture, curb cuts, and parking ribbons. These features help define the immediate visual experience of pedestrians.

- Street hierarchy—Streets may be classified as expressways, arterials, boulevards, collector/distributor streets, or local streets, and they may be defined by their width, type of access, and the presence or absence of at-grade pedestrian crossings. Street hierarchy helps convey a sense of the overall form and activity level of a neighborhood.
- Topography and natural features—Topographic and natural features help define the overall visual character of an area and may include varied ground elevation, rock outcroppings and steep slopes, vegetation, and aquatic features.

This analysis also considers the effects of the proposed Plan on the area's visual resources, which the *CEQR Technical Manual* defines as unique or important public view corridors, vistas, or natural or built features. Visual resources can include waterfront views, public parks, landmark structures or districts, or natural features, such as a river or geologic formations.

As recommended by the *CEQR Technical Manual*, this technical analysis evaluates impacts in two areas—the District and the surrounding study area (see Figure 9-1). The District includes the majority of the Willets Point peninsula east of 126th Street. The study area is defined as an area extending approximately ¼ mile from the District and which includes part of Flushing Meadows-Corona Park, the Shea Stadium and future Citi Field sites, and the industrial and commercial areas along Flushing Bay and the Flushing River.

The proposed Plan would be guided by the Special Willets Point District regulations. The Special District would regulate future development in the District, including building heights and setbacks, streetwalls, streetscape elements, and the location of certain building uses. A specific development plan has not yet been determined; however; illustrative diagrams are provided in this analysis.

C. EXISTING CONDITIONS

WILLETS POINT DEVELOPMENT DISTRICT

The District is located in northern Queens, adjacent to Shea Stadium, Flushing Meadows-Corona Park, and the intersection of several major roadways, including the Van Wyck Expressway to the east, Roosevelt Avenue to the south, and Northern Boulevard to the north (see Figure 9-1).

URBAN DESIGN

The topography of the District is relatively flat. There are no natural features in the District. Mature sycamore trees line 126th Street; they are the only vegetation in the District.

The District is approximately 61.4 acres in size, comprising 14 blocks, the majority of which are irregular in shape. It is industrial in character, and has an active and industrial feel. The buildings in the District are a combination of small, low-scale structures and larger, boxier buildings.

The District is partially developed in a street grid with 34th through 39th Avenues running east-west, and with 127th Street bisecting the avenues. Short streets—126th Place, 127th Street, and 127th Place—extend between Northern Boulevard and 34th Avenue. Willets Point Boulevard is the main thoroughfare through the District (see View 1 of Figure 9-2). Starting at 126th Street, it runs on a northeast diagonal through the District and extends to the entrance of the Van Wyck Expressway. 126th Street forms the western boundary of the District, running parallel to 127th

Street and extending between Northern Boulevard and Roosevelt Avenue (see View 2 of Figure 9-2). Roosevelt Avenue forms part of the southern boundary of the District. Northern Boulevard, which curves slightly, forms the northern boundary.

The streets in the District are in various states of disrepair. Most are partially paved and riddled with large, deep potholes, which collect stormwater. The only streets with designated or marked traffic lanes are 126th Street and Willets Point Boulevard.

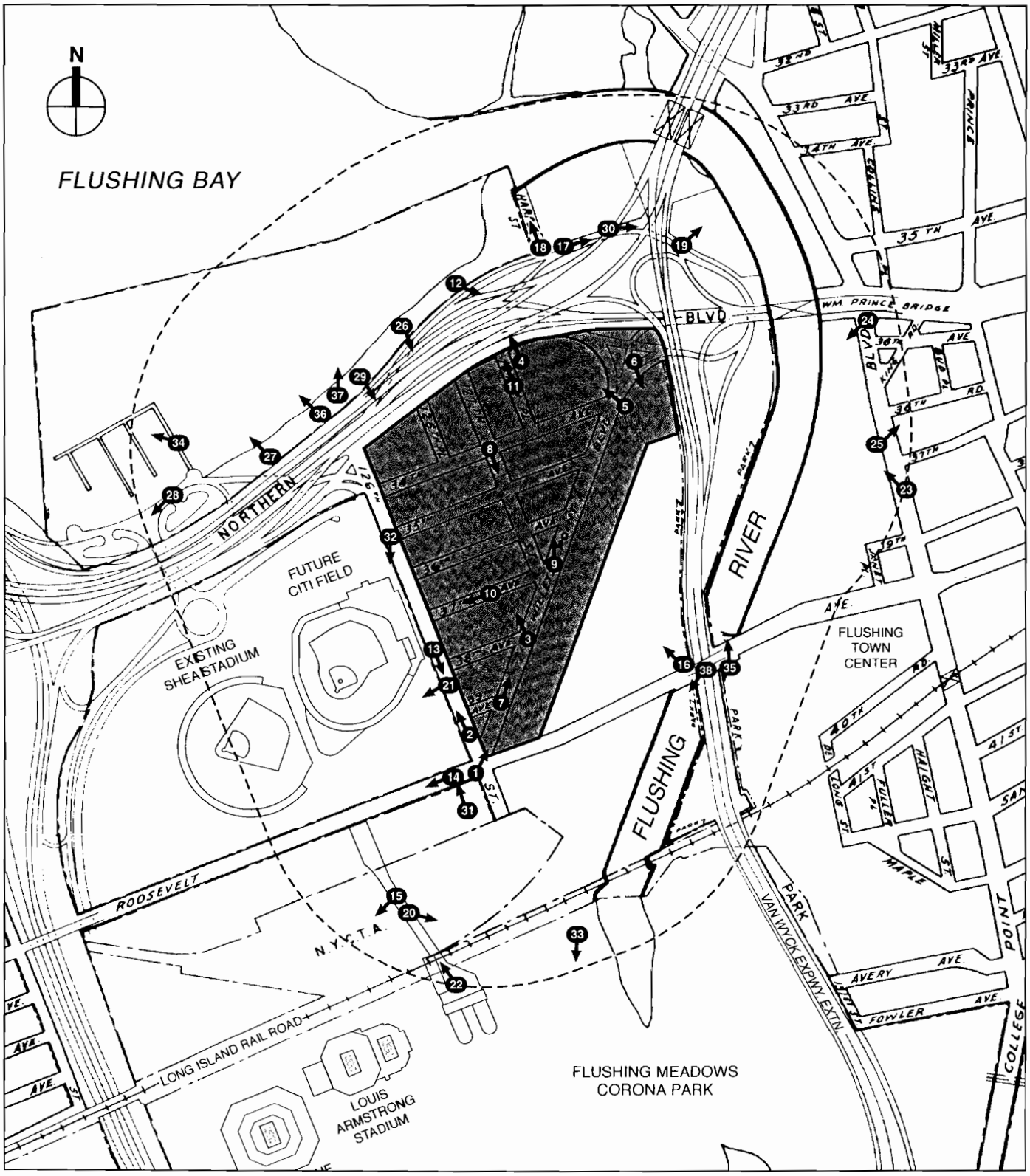
Due to the diagonal trajectory of Willets Point Boulevard and the curve of Northern Boulevard, the majority of the blocks within the District are irregular in shape. The blocks on 34th Avenue curve to conform to the shape of Northern Boulevard. Triangular and trapezoidal blocks are created by Willets Point Boulevard's diagonal path. There are no streets south of Willets Point Boulevard in the District. The three blocks located between 34th Avenue, 127th Street, 37th Avenue, and 126th Street are the only rectangular-shaped blocks in the district.

There are two major building types and forms in the District: low-scale buildings located close together, and larger, boxier structures. The majority of the buildings are automotive repair shops, wholesale auto parts stores, or other auto-related use (see View 3 of Figure 9-3). These buildings are mostly small, temporary metal structures, metal Quonset huts, or brick buildings with small footprints (see View 4 of Figure 9-3). Exterior building materials include corrugated metal, concrete block, and brick. The majority of the buildings have large, projecting advertising signs. Most of the buildings in the District are attached or located close together.

In contrast, in the northeast section of the District there are a number of freestanding buildings that are larger and boxier in form. These include the Tully Construction site, which contains a three-story, boxy red brick building (see View 5 of Figure 9-4). The site is surrounded by a metal chain-link fence topped with barbed wire. Large trucks and other manufacturing equipment are stored on the site. Also located in the northeastern section of the District is the House of Spices distribution site, which contains a plain, two-story, boxy concrete building, surrounded by a large paved area and smaller, one-story buildings . Another notable building in the District is the Fodera Foods Building (further described in Chapter 8, "Historic Resources). This two-story building is located near the intersection of Willets Point Boulevard and the Van Wyck Expressway. It has a red brick front section, which faces onto Willets Point Boulevard, and a large, double-height, multi-paned glass section in the rear (see View 6 of Figure 9-4).

The streetscape of the District is industrial (see View 7 of Figure 9-5). Most of the streets are flanked by paved sidewalks, which are in poor condition (see View 8 of Figure 9-5). The sidewalks have wide curb cuts and are only slightly elevated; in some parts, the sidewalks are almost flush with the streets. The sidewalks are also used for car parking, auto parts storage, and waste storage. There are few lane markings, sidewalk crossings, or stop signs. In some areas of the District there are no sidewalks and the streets are unpaved, adding to the underdeveloped and degraded look of the area.

Streetscape elements are limited to cobra-head lights and 30-foot utility poles with wires strung between them; the streets lack traditional streetscape elements such as trees, fire hydrants, and other street furniture. In a number of locations, the streetscape is broken up by vacant lots surrounded by chain-link fencing or sheets of corrugated metal (see View 9 of Figure 9-6). The vacant lots are used for parking and storage of used cars and other auto parts.



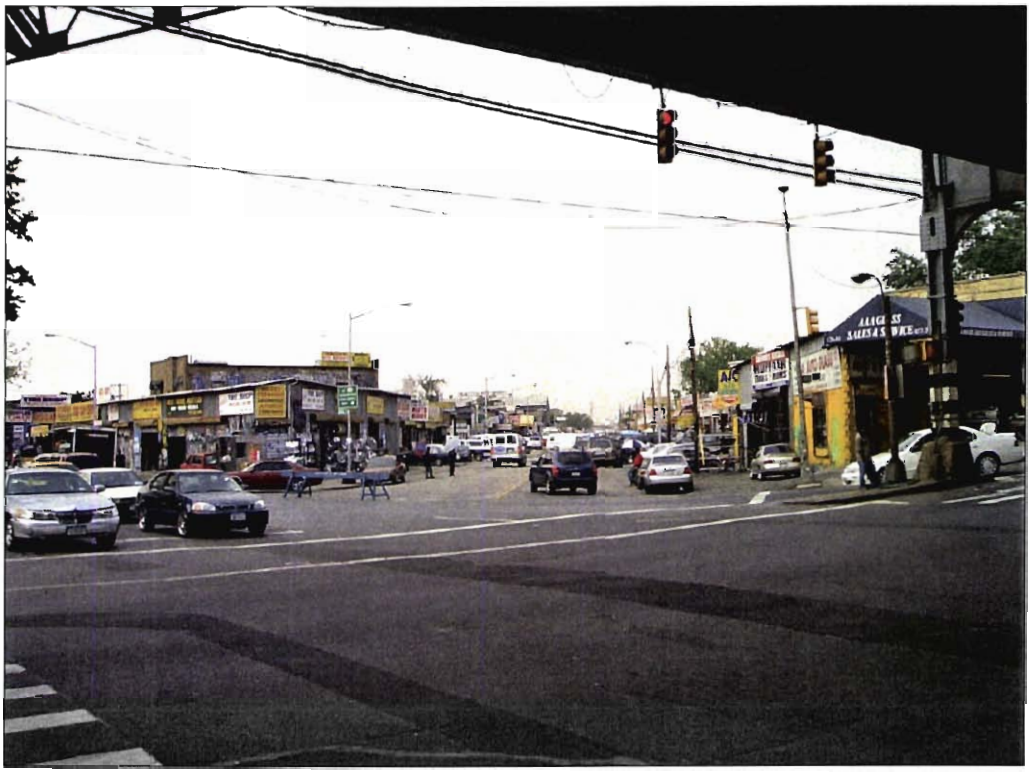
Willets Point Development District

Study Area Boundary (1/4-Mile Perimeter)

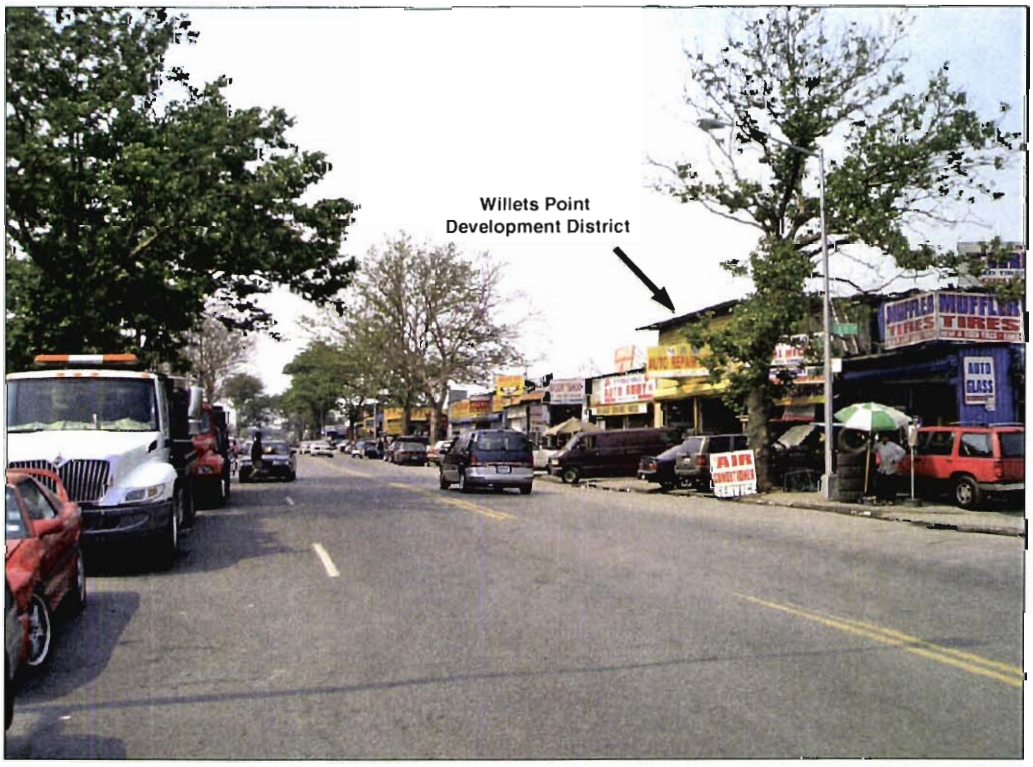
Photograph View Direction and Reference Number

Figure 9-1

Urban Design and Visual Resources



Willets Point Boulevard, view northeast from Roosevelt Avenue **1**

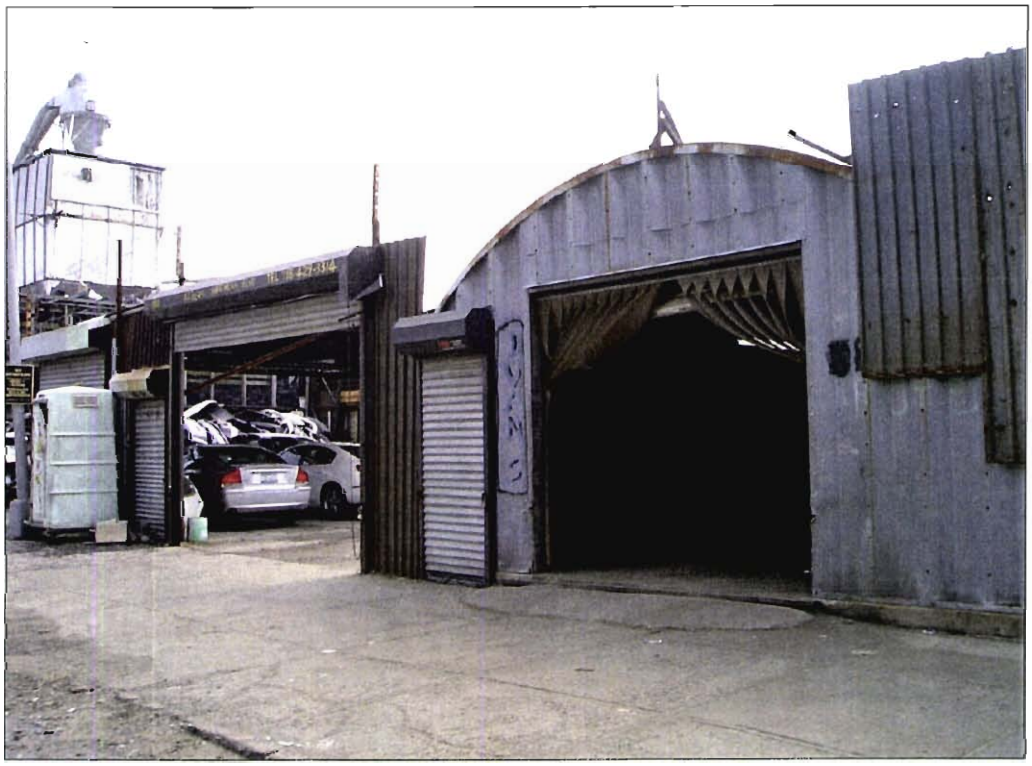


126th Street, view north **2**

Figure 9-2
Willets Point Development District Views



Willets Point Boulevard **3**



West side of 127th Place, between Northern Boulevard and 34th Avenue **4**

Figure 9-3
Willets Point Development District Views

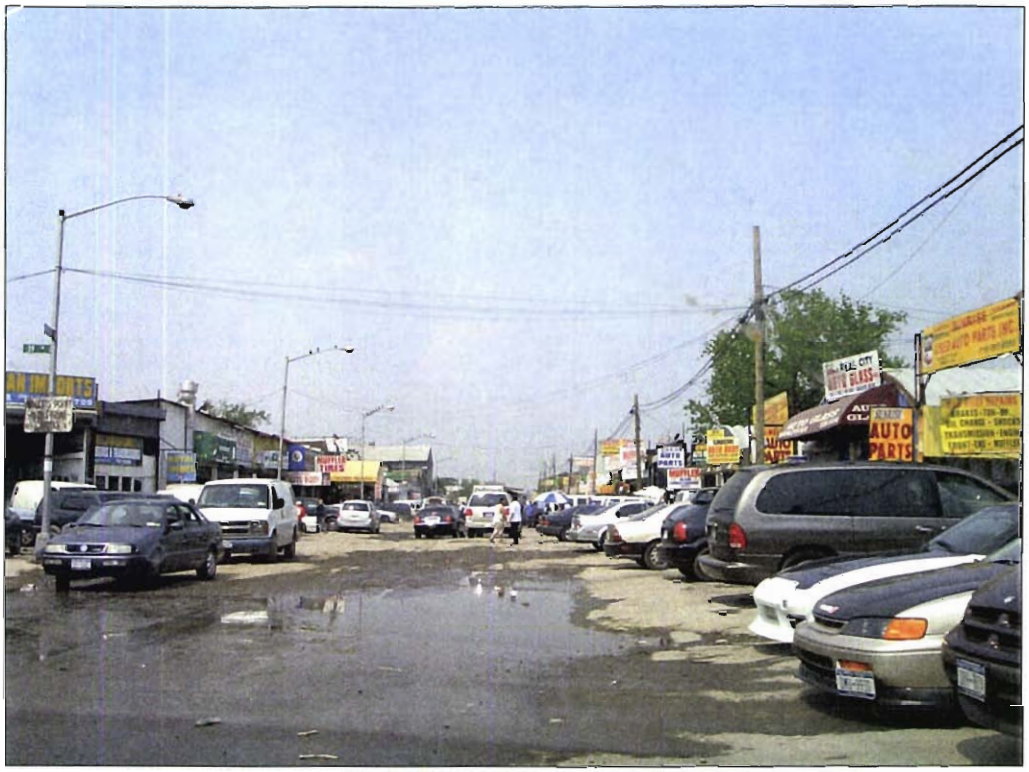


Tully Construction site **5**



Fodera Food Building **6**

Figure 9-4
Willets Point Development District Views

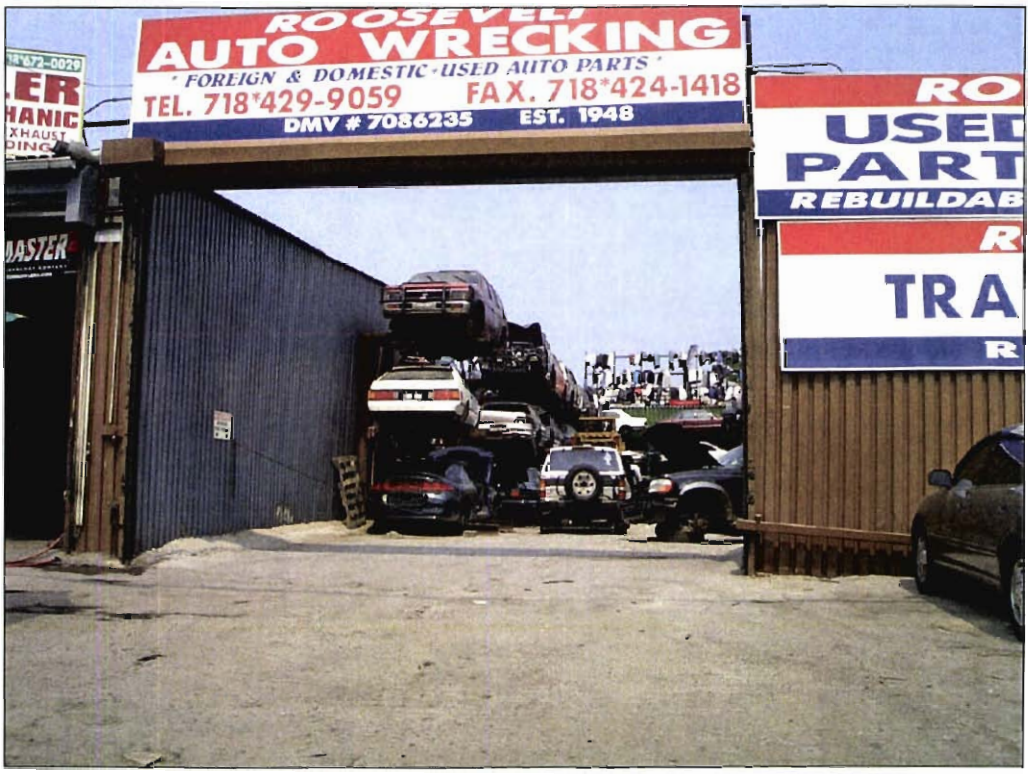


Willets Point Boulevard, view northeast **7**

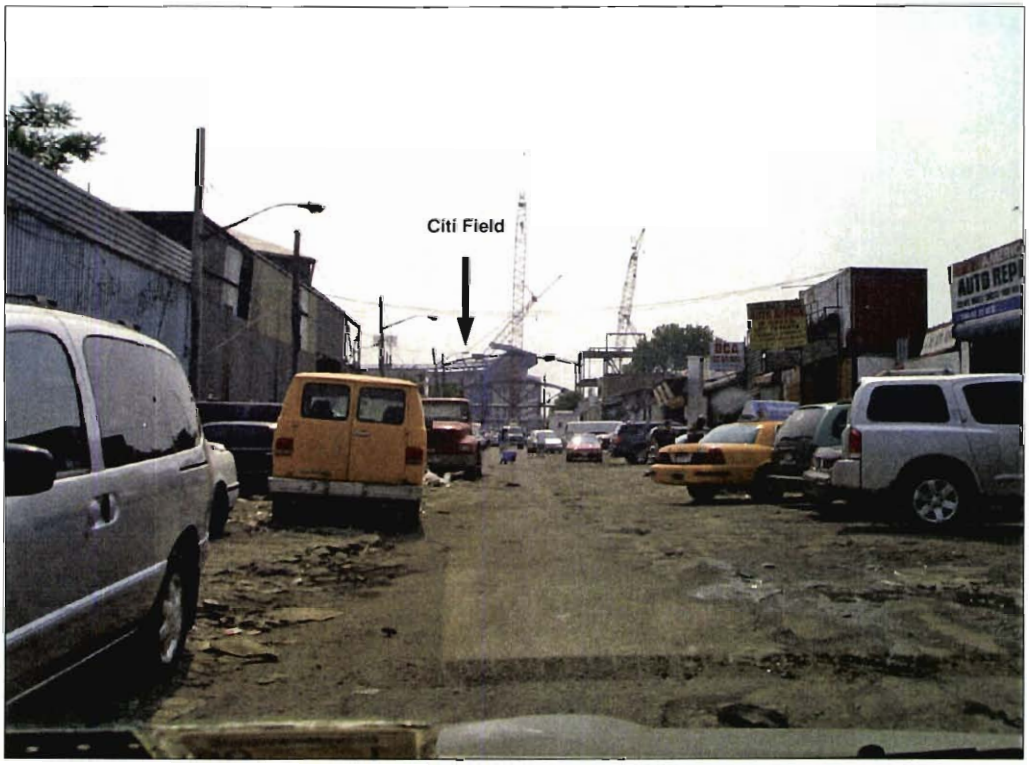


View south along 127th Street from 34th Avenue **8**

Figure 9-5
Willets Point Development District Views



Vacant lot used for car storage **9**



View west along 37th Avenue from District **10**

Figure 9-6
Willets Point Development District Views

VISUAL RESOURCES

There are no visual resources in the District, nor are any visible from the sidewalks and streets. Views to the west are blocked by Shea Stadium and Citi Field, currently under construction (see View 10 of Figure 9-6). Natural features surrounding the District, including those in Flushing Meadows-Corona Park, Flushing Bay, and the Flushing River, are not visually accessible primarily due to the elevated transportation structures to the north, south, and east of the site (see View 11 of Figure 9-7).

STUDY AREA

The study area is roughly bounded by Flushing Bay to the north, College Point Boulevard to the east, Flushing Meadows-Corona Park to the south, and the Shea Stadium site to the west. The study area is dominated by three distinct uses and areas: transportation elements, recreational and open spaces, and industrial and commercial areas. Directly to the north and east of the study area are Northern Boulevard, the Grand Central Parkway connector, and the Van Wyck Expressway; these major thoroughfares are the defining features of this portion of the study area. Recreational and open space areas are located to the west (Shea Stadium), to the south (Flushing Meadows-Corona Park), and to the north (the Flushing Bay Promenade). Large industrial and commercial areas are located to the east, across the Flushing River, and to the south. The urban design characteristics of these three areas are described below.

URBAN DESIGN

Street Pattern and Hierarchy

Major Transportation Elements

The study area is dominated by major transportation elements, including the Van Wyck Expressway, the Whitestone Expressway, and the elevated connector to the Grand Central Parkway (see Views 12 and 13 of Figure 9-8). These structures are primarily located to the north and east of the District and carry several lanes of traffic in each direction.

The Van Wyck Expressway is a major north-south artery that carries traffic from Kennedy Airport to the Whitestone Expressway and farther north to the Whitestone Bridge. The section of the Van Wyck near the District is elevated and carries two lanes of traffic in each direction. The Van Wyck is approximately 40 feet high and is supported by large T-shaped concrete piers. The Whitestone Expressway carries traffic from the Van Wyck Expressway to the Whitestone Bridge. It is slightly elevated, supported by T-shaped concrete piers, and has two lanes of traffic in each direction. Also north of the District is an elevated connector between the Van Wyck Expressway and the Grand Central Parkway. This elevated connector carries four lanes of traffic east-west, over Northern Boulevard, and is also supported by tall T-shaped concrete piers.

Northern Boulevard, north of the District, is a major east-west artery that carries traffic at grade from Long Island City through northern Queens to Long Island. Near the District, Northern Boulevard has three lanes of traffic running in each direction, as well as numerous exit and entrance ramps. Near the northeast corner of the District, Northern Boulevard connects to the Van Wyck Expressway and the Whitestone Expressway, which merge via a connecting ramp and run along the eastern edge of the District.

Roosevelt Avenue runs east-west through the southern section of the study area and carries traffic east-west through Queens. It has two lanes of traffic running in each direction, and the

elevated No. 7 subway line runs above it. Within the study area, Roosevelt Avenue also carries traffic over the Flushing River on the Roosevelt Avenue Bridge, a single-truss bridge supported by large square piers and surrounded by a high metal fence. The elevated No. 7 subway line runs above the bridge on a steel viaduct structure and spans the entire width of Roosevelt Avenue, casting the street in shadow (see View 14 of Figure 9-9). The subway platforms are constructed in concrete and bordered by corrugated metal walls with overhangs that partially shade the platforms.

Other Streets

Smaller roadways in the study area include the access roads for Shea Stadium, which are located north of the stadium and are narrow, paved, one-way streets. The small paved streets in Flushing Meadows-Corona Park are narrow, winding, and carry one lane of traffic in each direction. A traffic circle directly north of Shea Stadium brings traffic from the Northern Boulevard service road to the parking lots surrounding the stadium. The traffic circle has two lanes of traffic, both of which travel counterclockwise.

College Point Boulevard, which runs north-south and carries two lanes of traffic in each direction, is the major street east of the Flushing River. The side streets east of College Point Boulevard are laid out in a grid pattern and have one lane of traffic traveling in each direction. Located just to the east of the study area are smaller, one-way streets that run perpendicular to College Point Boulevard, with the exception of a service road for the Whitestone Expressway, which runs at an angle to College Point Boulevard.

Block Shapes

The majority of the study area comprises large, irregularly shaped parcels. Flushing Meadows-Corona Park to the north, south, and west of the District is located on a large parcel; Roosevelt Avenue and Northern Boulevard bisect the park and create the large parcel on which Shea Stadium is located. Also to the south of the District, between Roosevelt Avenue and Flushing Meadows-Corona Park, is a large parcel with the Long Island Rail Road (LIRR) stop and the MTA Corona Yards (see View 15 of Figure 9-9).

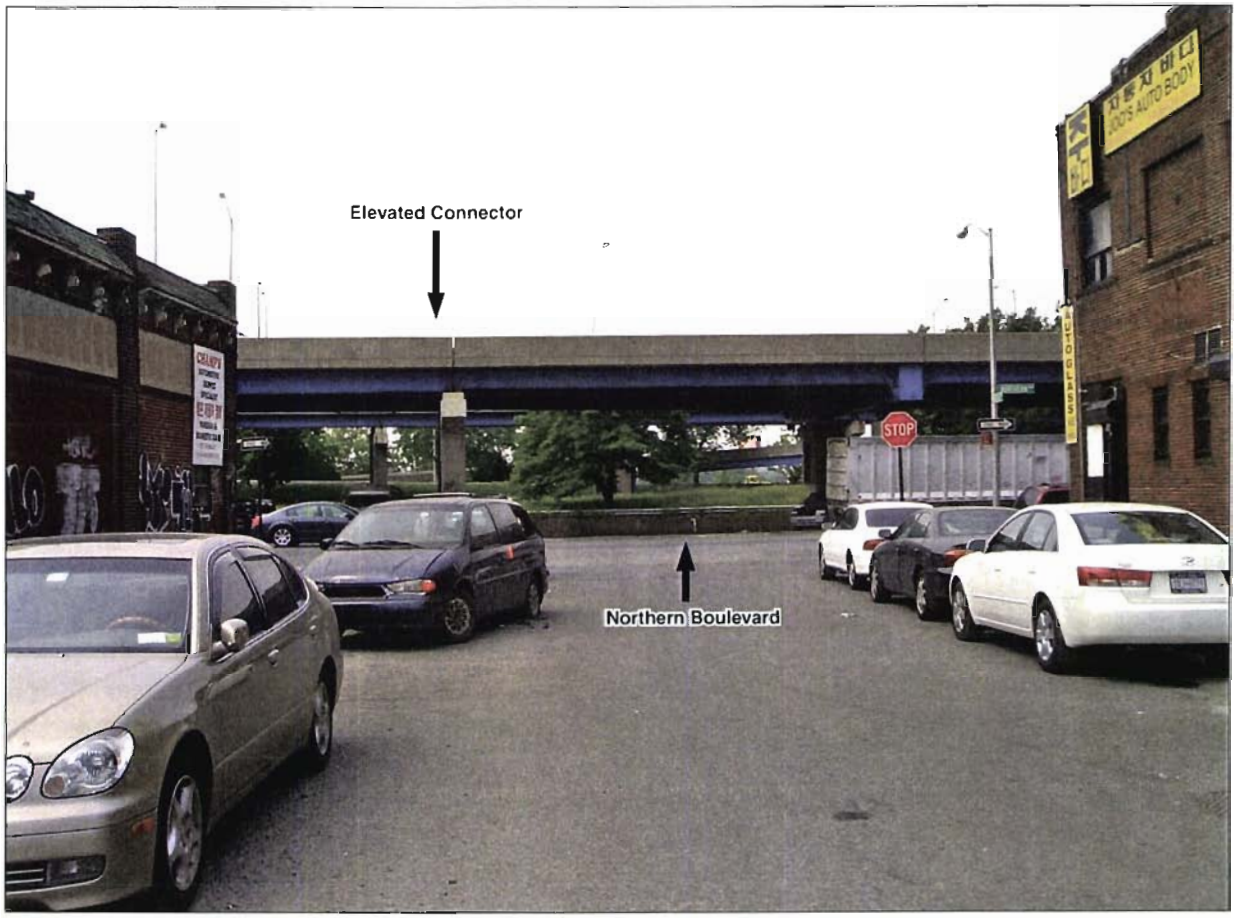
The portion of the study area between College Point Boulevard and the Flushing River is also characterized by large, irregularly shaped parcels.

Building Uses, Bulk, and Type

In contrast to most of the buildings in the District, the majority of the buildings in the study area are large industrial and commercial buildings, which are primarily located on large lots.

Located immediately to the south of the district, on a large lot between Willets Point Boulevard and the Flushing River, is a large undeveloped property owned by MTA. The majority of this site is leased to Tully Environmental, Inc., which operates a construction and debris recycling operation. The site contains shipping containers, heavy equipment, and piles of aggregate materials (see View 16 of Figure 9-9).

North of the District, near the Northern Boulevard and Van Wyck Expressway interchange, is a New York City Department of Transportation (NYCDOT) maintenance and repair facility (see View 17 of Figure 9-10 and View 18 of Figure 9-11). This site contains seven freestanding buildings, one and two stories in height, constructed of brick and steel with minimal exterior details. The main building on the site faces onto Northern Boulevard; it is one story in height, long and narrow in form, and clad in red brick. The other buildings on the site are located closer

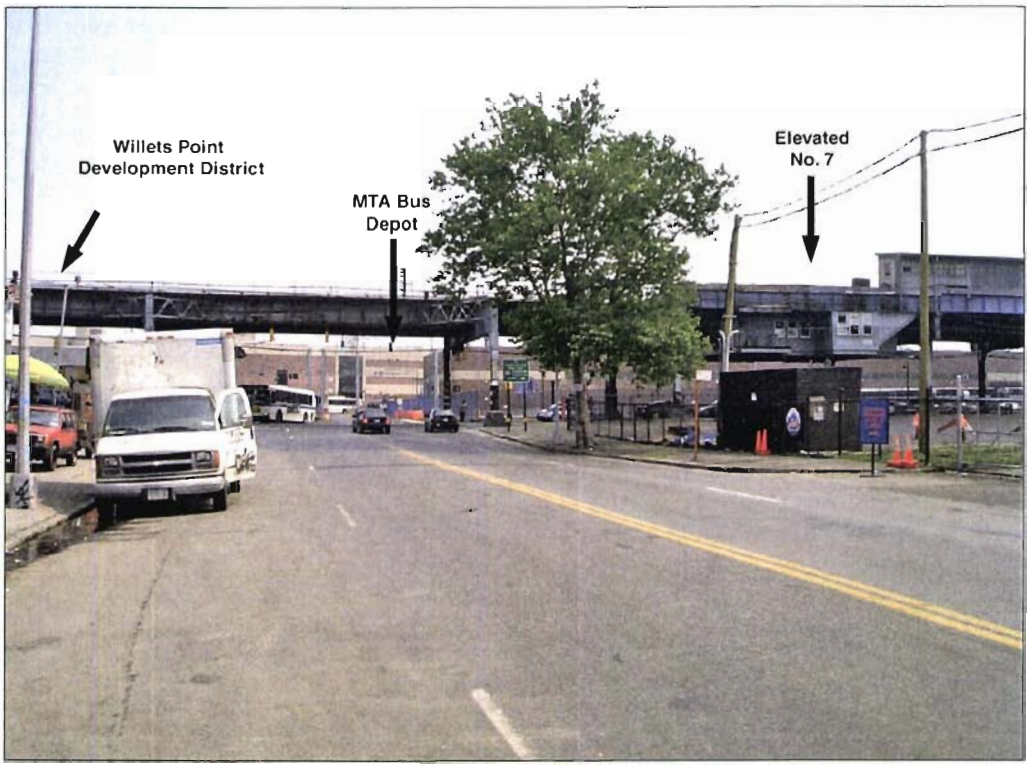


View north along 127th Place of Northern Boulevard and Grand Central Parkway connector **11**

Figure 9-7
Willets Point Development District Views



Elevated transportation structures surrounding District **12**

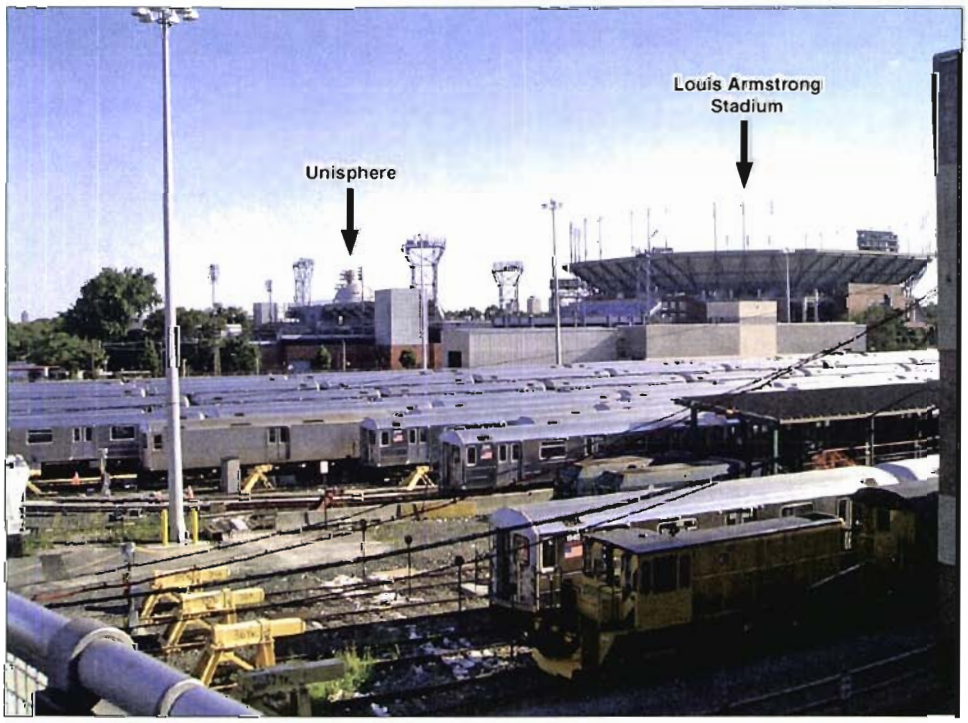


Roosevelt Avenue with elevated No. 7 train, view south from 126th Street **13**

Figure 9-8
Study Area Views

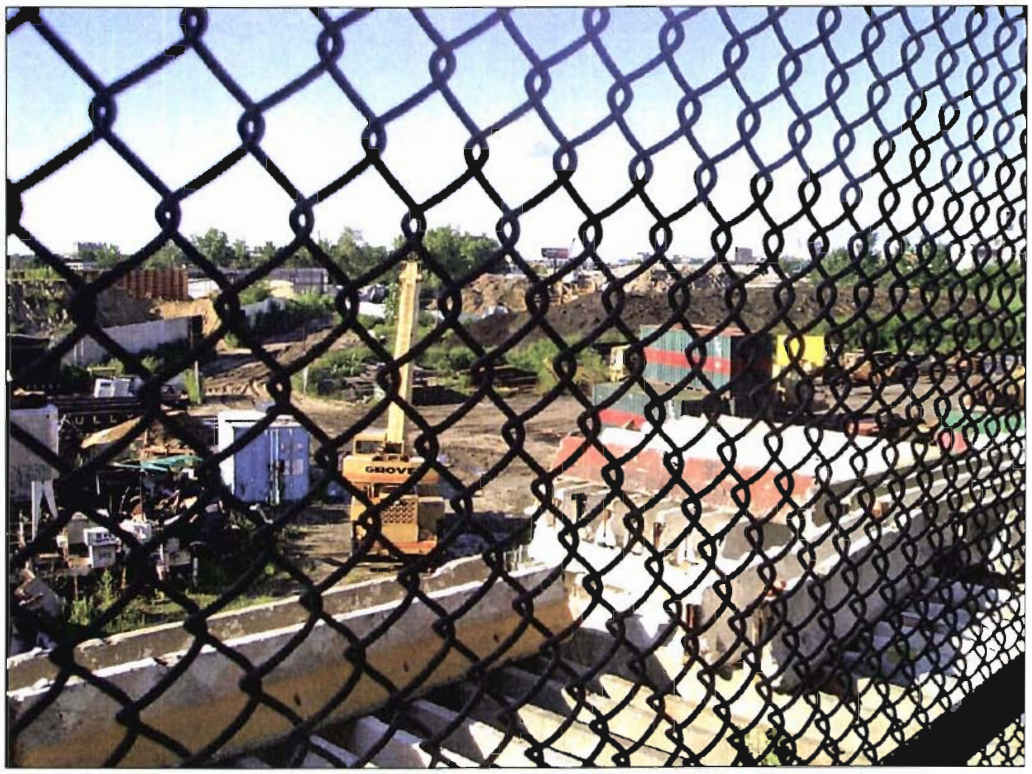


Roosevelt Avenue, view west from 126th Street **14**



MTA Corona Yards **15**

Figure 9-9
Study Area Views



MTA parcel (used by Tully Construction) **16**



New York City Department of Transportation building **17**

Figure 9-10
Study Area Views



New York City Department of Transportation site **18**



Asphalt plant near Northern Boulevard and VanWyck Expressway **19**

Figure 9-11
Study Area Views

to the waterfront and are one or two stories and also clad in red brick. A small security booth is set back from Northern Boulevard at the entrance to the site. Most of the site is surrounded by a metal chain-link fence. The site also has a large paved area used for parking and vehicle storage.

Northeast of the District, between the Van Wyck Expressway and Northern Boulevard, is a large asphalt plant (see View 19 of Figure 9-11). This industrial site includes a one- and two-story metal and concrete building, a boxy one-story metal storage building, and a large industrial structure with metal silos and connecting ramps. The site is paved, with piles of asphalt and heavy industrial equipment located across it.

To the south and west of the District are the Corona Yards, Flushing Meadows-Corona Park, and the Shea Stadium site. The buildings located in the Corona Yards are low-scale, boxy buildings. The New York City Transit (NYCT) Casey Stengel Bus Depot is the largest building in this area (see View 20 of Figure 9-11) and comprises two buildings located on a large lot south of Roosevelt Avenue and west of 126th Street. These long, narrow buildings are two and three stories in height, with large footprints, and are clad in alternating bands of light and dark concrete. There is also a long, narrow building used for storage and repairs. It is four stories in height and is topped with a peaked roof and skylights.

Within the study area, Flushing Meadows-Corona Park contains a number of buildings, most prominent of which is Shea Stadium. This large, circular, open air stadium has approximately six-story walls on all sides except on the east (see View 21 of Figure 9-12). The eastern section of the stadium is open and topped with a large scoreboard. On the exterior of the stadium are exposed concrete ramps and tall panels with reliefs of baseball players.

Also located in Flushing Meadows-Corona Park is the Passarelle Building and Ramp (see View 22 of Figure 9-12). The ramp structure begins at the Willets Point-Shea Stadium No. 7 subway station and continues south into the park, terminating at the Passarelle Building. The ramp is an elevated boardwalk-style structure with low metal railings and reproduction gaslights. The long, slightly curved ramp crosses over the MTA parking lots and the LIRR tracks and into the park. The ramp also provides access to the LIRR Shea Stadium station, though this station is only open on Mets game days, and to the USTA Tennis Center. Shade structures and seating areas are located along the ramp. The Passarelle Building comprises two, approximately two-story rounded structures with public restrooms and other amenities.

Other buildings in Flushing Meadows-Corona Park include the Ground Crews Building, a small structure in the northeast corner of the park that is used as offices and storage for park employees. The building is one story in height, is constructed of concrete, and has small window openings. Located on World's Fair Marina/Pier 1 is a small gas station structure and a small concession stand.

Located to the east of the District, across the Flushing River from the District, are a number of large, industrial sites located on large lots between the Flushing River and College Point Boulevard. The most prominent building on College Point Boulevard is a U-Haul storage facility (see View 23 of Figure 9-13). Located near 36th Road, this T-shaped concrete building is five stories in height and topped with a two-story, square tower. Capped by a cupola, the tower has a clock on each face. The only functional openings on the buildings are located on the ground floor and are large enough to accommodate trucks. The large windows on the upper stories of the building have been sealed over.

North of this site, near 36th Avenue, is another large asphalt plant. This paved industrial site is developed with a one-story, irregularly shaped concrete building and a smaller steel building.

The site is dominated by tall steel silos connected by large conveyor belts. The paved areas are used for parking and vehicle storage.

Near Northern Boulevard and College Point Boulevard is a large lumberyard and processing site (see View 24 of Figure 9-13). Buildings on the site include three large, boxy, one- and two-story concrete buildings with minimal openings and exterior details. Large pallets of wood are stacked on the site and surrounding sidewalks.

The east side of College Point Boulevard is lined with one-story industrial and commercial buildings (see View 25 of Figure 9-14). They are adjacent to one another and have an assortment of advertising and display signs.

Building Arrangements

The buildings in the industrial and commercial areas are, for the most part, freestanding structures. Along the east side of College Point Boulevard, the buildings are built to the lot line and form a fairly consistent streetwall. Along the west side of College Point Boulevard are larger industrial and commercial buildings that are set back a distance from the street, though they are still oriented toward College Point Boulevard. The buildings in the Corona Yards face Roosevelt Avenue, though they are set back some distance from Roosevelt Avenue by large paved parking surfaces used for cars and buses.

The main buildings on the two industrial sites to the north of the District are located on large blocks and oriented toward Northern Boulevard. The smaller buildings located on these sites are placed perpendicular to the main buildings.

Streetscape

To the north, east, and south of the District, the streetscape is dominated by elevated transportation structures. To the north are Northern Boulevard and the elevated connector to the Grand Central Parkway. This elevated connector is approximately 40 feet in height and is supported by heavy concrete piers. Other streetscape features include tall highway signs, tall metal fencing, cobra-head lighting fixtures, and low guardrails. The area under the connector is used for car parking (see View 26 of Figure 9-15). The elevated Van Wyck Expressway runs through the east side of the study area. Similar to the elevated Grand Central Parkway connector, it is supported by heavy concrete piers, and has large highway signs and tall cobra-head light fixtures.

South of the District, the streetscape of Roosevelt Avenue is mostly defined by large paved parking lots with buildings set back a distance from the sidewalk. The parking surfaces are surrounded by chain-link fencing. On the southeast corner of Roosevelt Avenue and 126th Street is a one-story, graffiti-covered concrete structure with no openings. Other streetscape elements include cobra-head light fixtures, garbage cans, and street signs.

South of Roosevelt Avenue are the MTA Corona Yards and the LIRR stop. LIRR tracks extend east-west through the yards in a shallow rail cut. The Corona Yards also has subway tracks placed parallel to each other and used for subway car storage.

North of the District and the elevated transportation structures are the Flushing Bay Promenade and World's Fair Marina/Pier 1 (see View 27 of Figure 9-15). The promenade is a wide landscaped walkway that extends almost the entire length of the bay. It is covered in hexagonal paving stones and lined with benches; tall trees, and reproduction lampposts. Pier 1, a wooden plank pier, extends into the bay. Small recreational boats and larger vessels such as ferries dock



Casey Stengel Bus Depot **20**

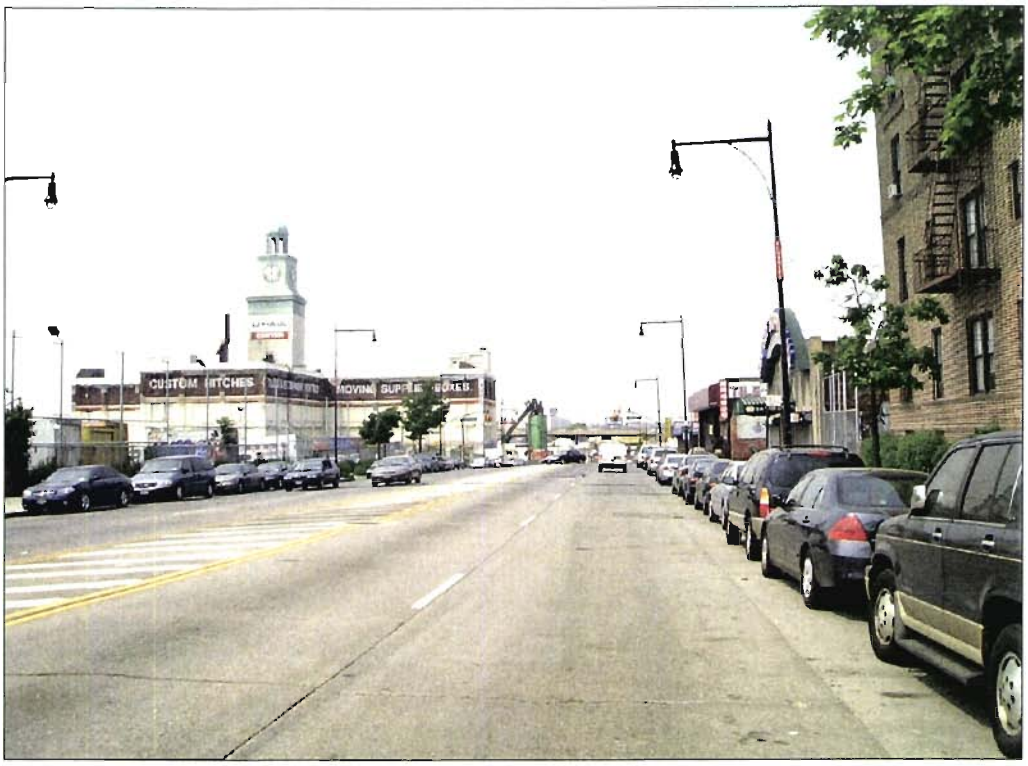


Shea Stadium **21**

Figure 9-12
Study Area Views



Passarelle Ramp **22**

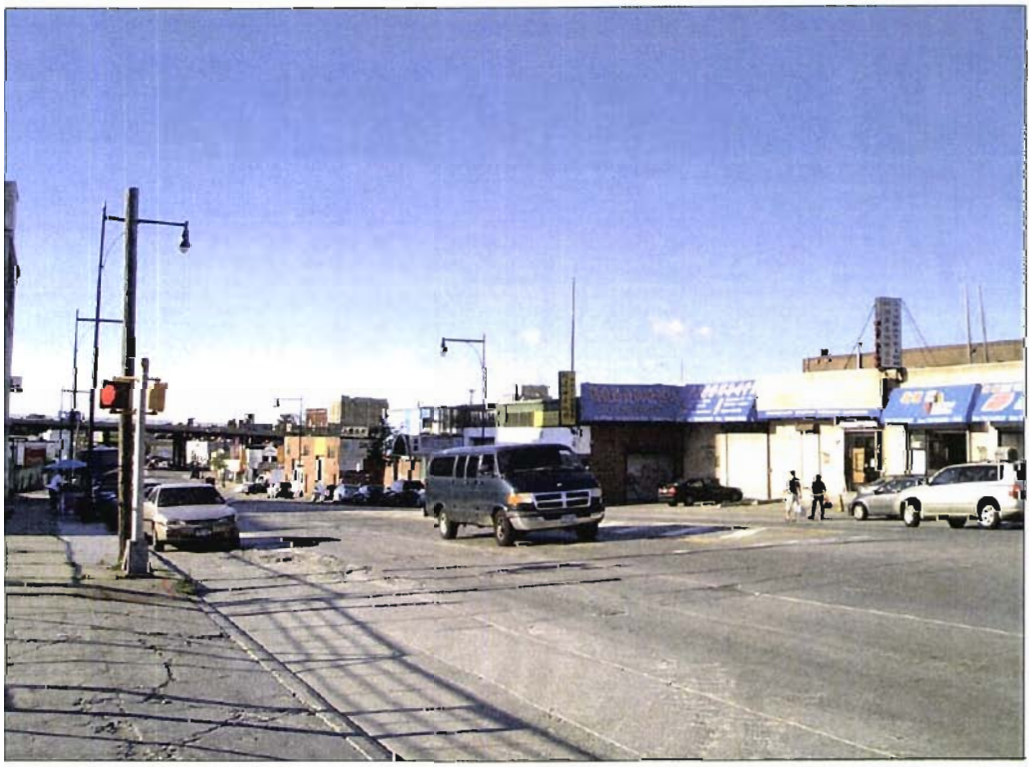


U-Haul Building, view north along College Point Boulevard **23**

Figure 9-13
Study Area Views

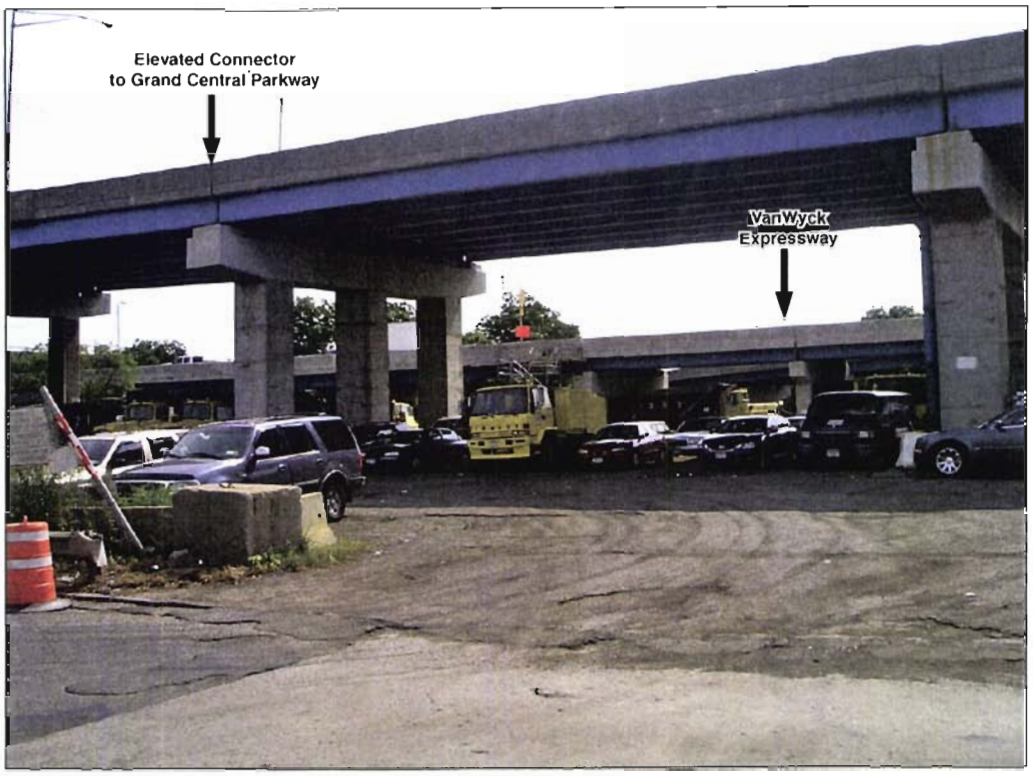


Lumber processing site, view south along College Point Boulevard **24**



East side of College Point Boulevard, view north **25**

Figure 9-14
Study Area Views



Parking areas underneath elevated structures **26**



Flushing Bay Promenade and World's Fair Marina, Pier 1 **27**

Figure 9-15
Study Area Views

at the pier. Along the Flushing Bay Promenade, near the Shea Stadium traffic circle, are the Candela Structures, two open-air modern sculptures (see View 28 of Figure 9-16), which were originally used as bus shelters for the 1964 World's Fair. Located between the promenade and the elevated transportation structures are paved parking surfaces that extend from Pier 1 to the NYCDOT site (see View 29 of Figure 9-16). The paved parking areas have small trees in planters and tall cobra-head light fixtures.

The streetscape of Northern Boulevard near the NYCDOT site and the asphalt plant is industrial and undeveloped (see View 30 of Figure 9-17). The asphalt plant is surrounded by a high concrete brick wall and concrete jersey barriers. There are no paved sidewalks, and trash and other debris is scattered around. The elevated connector casts the area in shadow, and there is no pedestrian activity.

West of the District, the streetscape consists mainly of the broad expansive paved surfaces surrounding Shea Stadium (see View 31 of Figure 9-17), set off with high, metal chain-link fencing. A large portion of the paved parking surface, located near 126th Street, is currently under construction for the new Citi Field. In addition to the stadium, office and retail spaces are under construction along the west side of 126th Street (see View 32 of Figure 9-18). The new retail and office spaces are two stories in height, have large display windows, and are clad in red brick.

The streets located in Flushing Meadows-Corona Park are winding and landscaped with trees and decorative plantings. In some areas there are narrow landscaped medians with tall trees, while other sections have a metal fence (see View 33 of Figure 9-18).

College Point Boulevard and the surrounding streets are urban and industrial in character; the sidewalks are wide, with numerous curb cuts. The east side streetscape consists of large industrial buildings, built to the street line and interspersed with large paved parking lots. Along the west side of College Point Boulevard, breaks in the streetscape occur with recessed building entrances and buildings with loading docks set back from the sidewalk line.

Topography and Natural Features

The topography of the study area is relatively flat. Near College Point Boulevard and Roosevelt Avenue, the topography slopes downward toward the Flushing River. There are rolling hills in Flushing Meadows-Corona Park.

The most prominent natural feature in the study area is Flushing Bay, a small, scenic inlet with a landscaped promenade and a small marina (see View 34 of Figure 9-19) with wooden docks for small recreational boats. Larger boats, such as ferries, dock and discharge passengers at the World's Fair Marina/Pier 1, which juts out into the bay. Pier 1 is surrounded by a metal chain-link fence and gate topped with barbed wire.

The Flushing River separates the District from the Downtown Flushing neighborhood. The river is a narrow waterway with industrial buildings and vacant lots on both sides; it is not accessible to pedestrians (see View 35 of Figure 9-19).

VISUAL RESOURCES

There are a number of visual resources in or visible from the study area, including Flushing Bay and its promenade, Flushing Meadows-Corona Park, and the structures associated with the 1964 World's Fair.

Flushing Bay is a scenic body of water. As described above, there are benches along the promenade that face the water. Views from the promenade are long across Flushing Bay (see View 36 of Figure 9-20). To the north, these views mostly contain the commercial and industrial buildings of the College Point Industrial Park (see View 37 of Figure 9-20). LaGuardia Airport and the Whitestone Bridge are visible in the distance. Views to the south from the promenade include Shea Stadium through the elevated Grand Central Parkway connector obscures views to the stadium.

Flushing Meadows-Corona Park is a large, scenic park with grassy areas, mature trees, water features, and recreational areas, including a pitch and putt golf course. The park features provide visual relief from the surrounding industrial areas. Visual resources within the park and visible from the study area are the 1964 World's Fair structures, including the Unisphere (a large globe structure) and the multi-level observatory towers of the New York State Pavilion (see View 38 of Figure 9-21).

Views from the Pasarelle Ramp are long and include the District and most of the study area; however, the primary views from the ramp are south toward Flushing Meadows-Corona Park. Visual resources that can be seen from the ramp include the general landscaping of Flushing Meadows Corona Park and the 1964 World's Fair structures.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

DISTRICT

In the future without the proposed Plan, it is anticipated that the District will remain in its current condition, and no major changes to the building form and uses or street plan are contemplated that would substantially alter the appearance of the District.

STUDY AREA

As described above in Section C: "Existing Conditions," the new Citi Field is currently under construction on a large lot west of the District. The new 44,000-seat stadium will be similar in size and configuration to Shea Stadium; however, it will be located closer to 126th Street than the existing Shea Stadium. Shea Stadium will be demolished when Citi Field is completed. As part of the Citi Field project, a two-story retail and office building will be constructed on the west side of 126th Street. As described in Section C: "Existing Conditions," this building is already under construction.

The Sky View Parc project, located on a large lot bounded by the Flushing River, Roosevelt Avenue, and College Point Boulevard, is currently under construction. This large project will be a mixed-use development including commercial and residential uses and is expected to be completed by 2009. Commercial, community facility space and parking uses will be housed in a six-story base; the base will be topped with residential towers. The tallest buildings on the site will be approximately 16 stories in height. The Sky View Parc project is expected to include a waterfront promenade.

North of the Sky View Parc project, along the Flushing River, the River Park Place project is planned. This mixed-use development will contain residential, office, retail, community facility use and possibly a hotel, and will include a waterfront promenade.



Candela structures **28**



View south toward the District from parking areas between Northern Boulevard and the Flushing Bay Promenade **29**

Figure 9-16
Study Area Views



Northern Boulevard, northeast of District **30**



Citi Field Stadium under construction, view north from Roosevelt Avenue **31**

Figure 9-17
Study Area Views



Citi Field Stadium development along 126th Street **32**

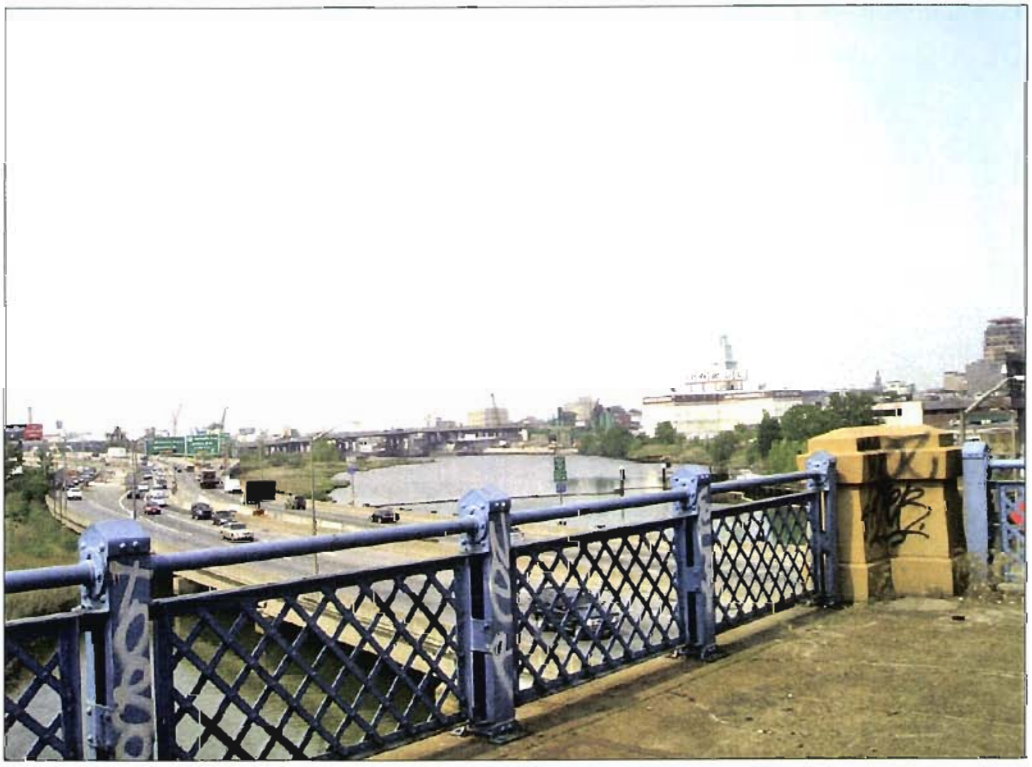


Flushing Meadows - Corona Park **33**

Figure 9-18
Study Area Views



Pier 1 **34**



Flushing River, view north from Roosevelt Avenue Bridge **35**

Figure 9-19
Study Area Views

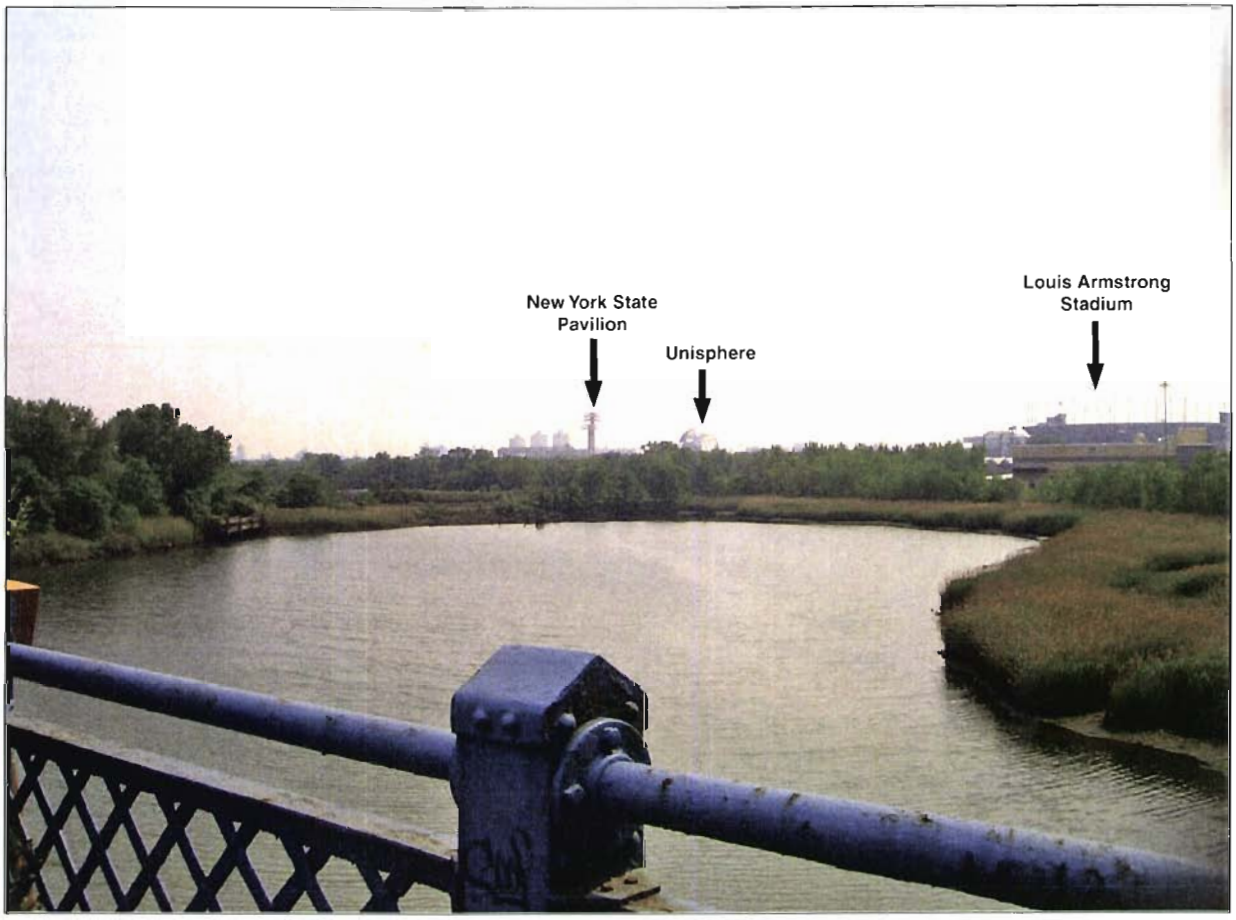


Flushing Bay, view north **36**



Flushing Bay, view northeast to College Point **37**

Figure 9-20
Study Area Views



Flushing Meadows - Corona Park, view south from Roosevelt Avenue Bridge **38**

Figure 9-21
Development District Views

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

DISTRICT

The proposed Plan would dramatically alter the urban design and general appearance of the District by replacing the predominantly low-scale, auto-related uses with a new mixed-use development. The proposed development would primarily be residential and retail uses; however, there would be also be open spaces, office space, a hotel, community facility space, and possibly a convention center (see Figure 9-22). The proposed Plan would create a new street network through the District as well as new block forms. The proposed Plan would also result in new building uses, heights, arrangements, and forms.

Specific development plans have not been formulated, and future development would be determined based on the Willets Point Urban Renewal Plan (URP) and the Special District regulations. The URP would define the District boundaries as well as require maximum development envelopes. As described in Chapter 2, the URP would prescribe a maximum permitted floor area of 8.94 million gross square feet in the District, but would allow flexibility in the combination of uses to be developed in the District. The Special District regulations would guide such urban design elements as the placement of uses within the District, building heights and setbacks, street hierarchies, and basic site planning and design provisions. The regulations would guide development for four basic components of the proposed Plan: streets and streetscapes, a regional entertainment and commercial center, a convention center, and a residential neighborhood. The regulations would also include requirements for open spaces and other measures aimed at creating a sustainable environment.

STREET GUIDELINES

Under the proposed Plan, some or all of the existing streets in the District could be demapped and replaced with a new street network. The Special District regulations would require four or five intersections at specified locations along 126th Street, and would establish six types of streets in the district: connector streets, a primary retail street, retail streets, residential streets, an eastern perimeter street, and service streets (see Figure 9-23).

The two main connector streets would be the main access streets into the District and the primary streets through the District. One of the main connector streets would run east-west in the northern section of the District, connecting with 34th Avenue west of 126th Street, and the other would extend northeast into the District from Citi Field's southern edge. The illustrative street network and illustrative site plan maintain the current alignment of Willets Point Boulevard as the latter connector street in order to allow continued operation and maintenance of the existing 72-inch water main that runs beneath it. (A mapped easement would ensure adequate access to the water main in the future.) The southernmost portion of Willets Point Boulevard would be demapped, and would connect to 126th Street via a landscaped pedestrian path. The two connector streets would also connect with the new access ramps to the Van Wyck Expressway. The two main connector streets would be at least 75 feet wide and no more than 86 feet wide, and be flanked by two 15-foot-wide sidewalks on either side. In addition, two nine-foot-wide lanes would be located adjacent to the sidewalks which could be used for either parking lanes or as a landscaped amenity, which may include seating and walkways. The two main connector streets would have at least two (and no more than three) travel lanes, which would be a total of between 22 feet and 33 feet in width. A bicycle lane, at least five feet wide, would also be provided on each connector street.

The primary retail street would run parallel to 126th Street and would be located at least 220 feet and at most 320 feet east of 126th Street. The primary retail street would connect to the two connector streets and two secondary retail streets. The right-of-way would be at least 70 feet and at most 80 feet in width, allowing adequate space for a 10-foot landscaped median that could be utilized for stormwater management. The right-of-way would include two travel lanes totaling 22 feet, and paved 15-foot sidewalks on either side of the street. The sidewalks would be separated from the roadway by a nine-foot-wide area used for a pedestrian amenity zone, landscaping, or parking, and may include seating and walkways.

At least two, and at most three, retail streets would be perpendicular to 126th Street and to the primary retail street, connecting the two, and would be located in proximity to the new Citi Field. The 68-foot right-of-way would include two travel lanes totaling 22 feet, and 13-foot-wide sidewalks on either side of the street. Between the sidewalk and the roadway would be a 10-foot-wide area which could be used as a pedestrian amenity area that may include seating or walkways.

The residential streets in the District would have a right-of-way of between 62 feet and 64 feet and would be flanked by 13-foot-wide sidewalks on either side. The residential streets would have two travel lanes 20 to 22 feet in width, and two eight-foot lanes, which may be used for either parking or as a landscaped pedestrian amenity, possibly with seating and walkways.

The eastern perimeter street would be located within 20 feet of the eastern boundary of the District and would extend between Roosevelt Avenue and one of the connector streets. The eastern perimeter street right-of-way would be at least 62 feet wide and no more than 75 feet wide, with a 13-foot-wide sidewalk on the western edge and a sidewalk at least five feet wide on the eastern edge. This street would have at least two, but no more than three, travel lanes, which would in total be between 20 and 33 feet wide. Additionally, an eight-foot-wide area would be located between the sidewalks and the travel lanes. This area would be used for parking or as a landscaped pedestrian amenity, possibly with seating and walkways.

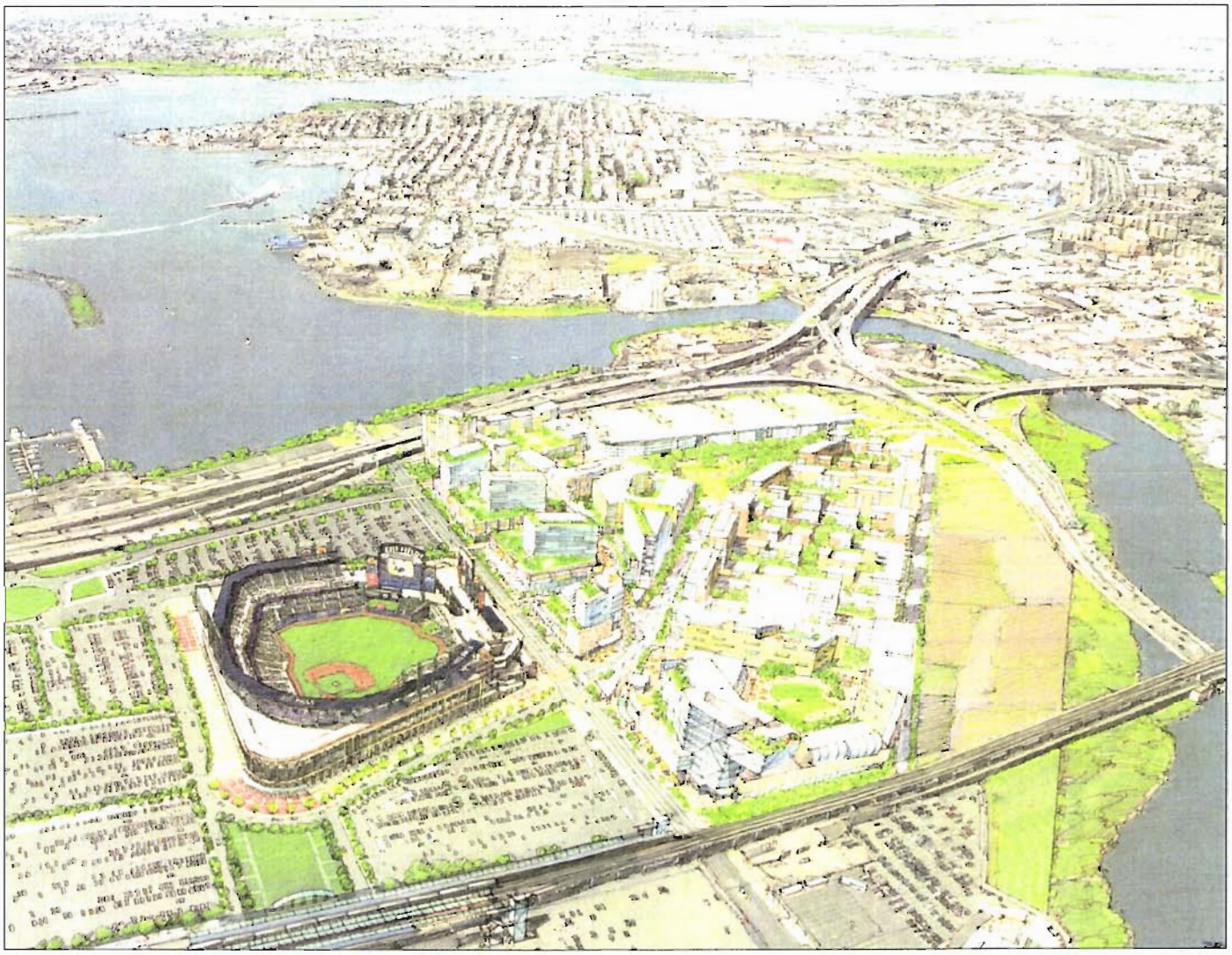
The service streets may be located as one of the streets bounding each anchor block. The service street right-of-way would be between 62 feet and 64 feet wide, with two 13-foot-wide sidewalks. This street would have two travel lanes, which would be between 20 and 22 feet wide in total. Additionally, two eight-foot-wide strips, which could be used for parking or as a landscaped pedestrian amenity, would be located between the sidewalks and the travel lanes.

ENTERTAINMENT AND COMMERCIAL CENTER

The Special District regulations would allow for the development of 126th Street as a commercial corridor with continuous large ground-floor retail spaces. These retail spaces would be required to have large display windows to create transparency on the street level. 126th Street would also have a wide sidewalk (at least 15 feet) and a pedestrian amenity zone of 20 to 35 feet in width (see Figure 9-24). The pedestrian amenity zone would provide a grade change that could lead to an outdoor café or other amenity area across from the new Citi Field, and would require a minimum of five feet of circulation space in front of the streetwall. Stairways and ramps would connect the pedestrian amenity zone to the sidewalk at the existing grade of 126th Street. The buildings along 126th Street would have a base height of between 60 feet and 85 feet (lowered to between 20 and 30 feet across from Citi Field) and a setback of 10 feet.

The entertainment and commercial center would be a pedestrian-oriented area with a movie theater, restaurants, large and small retail spaces, and outdoor cafés. The Special District

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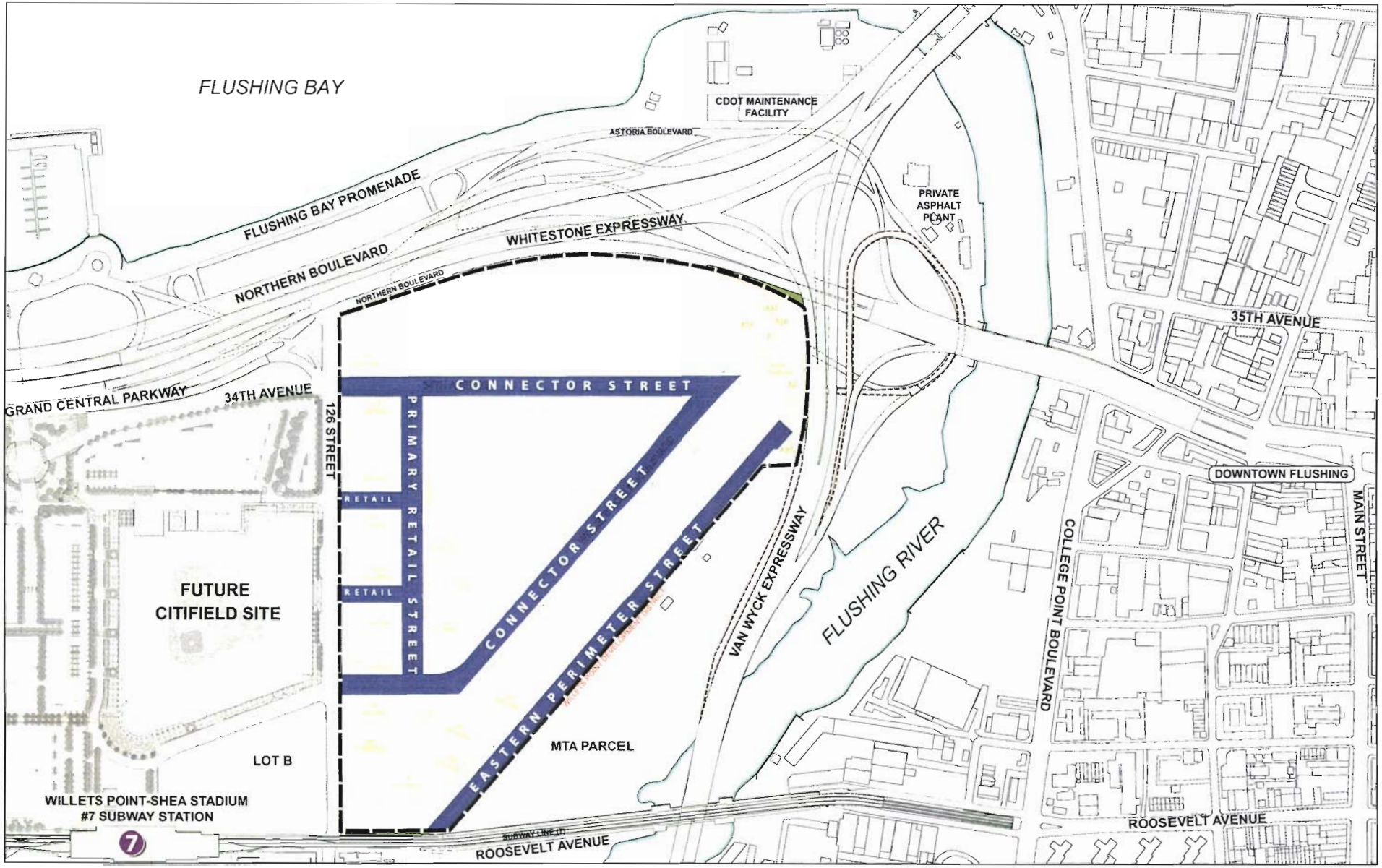
Illustrative rendering of the District

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Figure 9-22

Illustrative Rendering - View Northeast

9.10.08



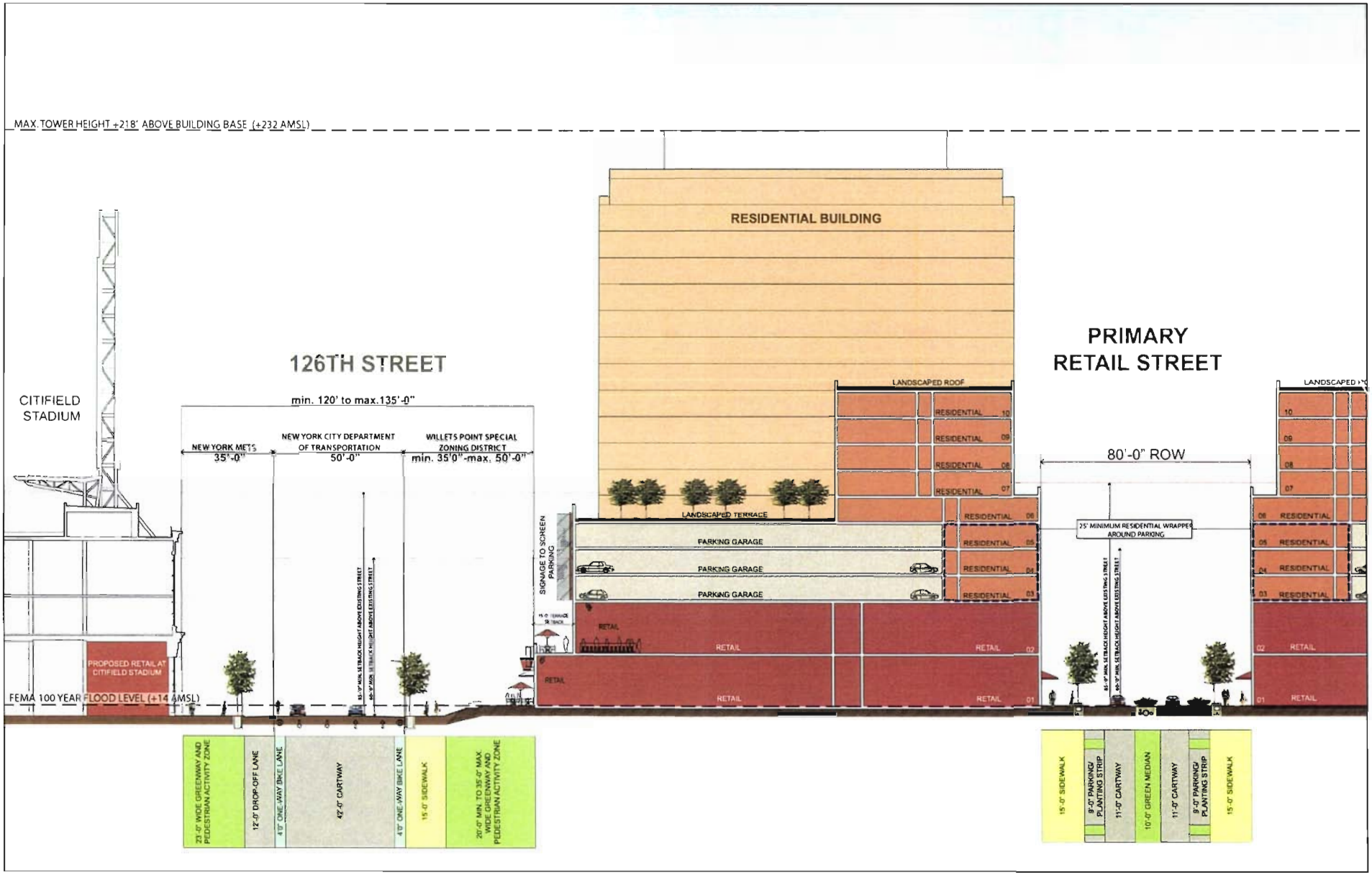
Willets Point Development District

FOR ILLUSTRATIVE PURPOSES

This figure has been updated since the DGEIS

Figure 9-23

Proposed Street Network



FOR ILLUSTRATIVE PURPOSES

This figure has been updated since the DGEIS

Figure 9-24

Entertainment and Commercial Center - Elevation

regulations would develop 126th Street as the main commercial corridor with entertainment, restaurant and commercial uses, and the smaller retail spaces on the primary retail street and the retail streets (see Figure 9-24). The entire area would extend 600 feet east from 126th Street and from Northern Boulevard to Roosevelt Avenue. The larger retail spaces would be located along 126th Street, while the smaller retail spaces would be located on the retail streets. In order to have continuous retail spaces on the street level, the regulations would prohibit certain ground-floor uses, including offices, auto repair shops, non-commercial clubs, and parking garages. Curb cuts would also be prohibited, as would loading areas on 126th Street and the primary retail streets.

The entertainment and commercial center would be anchored by two superblocks, one located at the corner of 126th Street and Northern Boulevard, the other at the corner of 126th Street and Roosevelt Avenue. The superblock at the corner of 126th Street and Northern Boulevard would have a maximum length of 675 feet, while the superblock at the corner of 126th Street and Roosevelt Avenue would have a maximum length of 575 feet. These superblocks would be exempt from the maximum store frontage requirements. The blocks located between the superblocks would have a maximum length of 450 feet.

To further encourage pedestrian activity, the regulations would require that if a movie theater or an office building over 120 feet in height were built, they would be located within 600 feet of the intersection of 126th Street and Roosevelt Avenue. It is anticipated that an office building could be located on the northeast corner of Roosevelt Avenue and 126th Street.

In order to create continuous streetwalls, the regulations would require base heights within the entertainment and commercial center to be a minimum of 60 feet with a required setback after 85 feet. After the setback, buildings within the entertainment and commercial center would rise from between 120 feet to 218 feet, depending on the location within the District (see Figures 9-25 and 9-26).[1]

CONVENTION CENTER

The Special District regulations would also allow for the construction of a convention center of up to 400,000 square feet in size. The convention center would be located in the northern section of the District within 650 feet of Northern Boulevard and least 200 feet east of 126th Street (see Figure 9-25). The convention center would have a minimum base height of 40 feet; after 85 feet, a 10-foot setback would be required. The main entrance of the convention center would be located on a connector street.

In order to maintain the pedestrian-friendly nature of the proposed Plan, the regulations would require that the front of the building be oriented along one of the connector streets with a 15-foot-wide sidewalk, a landscaped public access area between 10 and 22 feet wide, and a 12-foot-wide drop-off lane. The front of the convention center would be further required to have ground-floor glazed windows to prevent a solid, dark streetwall. All loading would be located at the rear or side façades (at least 100 feet from a connector street) of the convention center.

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[1] Due to the District's proximity to LaGuardia airport, building heights on the site would be set by height limits related to aerial runway approach "surfaces" which would limit building heights to approximately 100 feet at the northern edge of the District, 150 feet on the southern edge of the District, and 218 feet on the west side of the District.

RESIDENTIAL NEIGHBORHOOD

The Special District regulations would also create a new, sustainable, pedestrian-friendly residential neighborhood. While this area would be predominantly residential, community facility, office, and retail uses would also be permitted, creating a lively streetscape. The regulations would set building dimensions at a maximum of 210 feet by 450 feet and would require one building entrance for each ground floor unit on a residential street (except on Northern Boulevard.) Buildings within the residential neighborhood, except those along Northern Boulevard, would not be set back more than eight feet from the streetline and would have a minimum base height of 40 feet and a required setback at 85 feet. Residential buildings along Northern Boulevard would be located between eight and 15 feet of the streetline, with a base height of 60 feet and a required setback after 85 feet. After 85 feet, the buildings would be required to have a setback of 10 feet on a wide street and 15 feet on a narrow street. After the setback, the residential buildings could rise to a total height of 120 feet, and up to 218 feet in some areas. Any residential building above 120 feet would be considered a tower and would follow additional guidelines in terms of bulk, orientation, and massing. Under the Special District regulations, the residential buildings would also be required to have interior courtyards with a minimum width of 60 feet (see Figures 9-26). In order to maintain the pedestrian nature of the area, all off-street parking would be fully enclosed, either below grade or within the residential buildings (see Figure 9-27), except along parts of Northern Boulevard and the eastern perimeter street where parking would be required to be screened within a structure.

OPEN SPACE AND PUBLIC ACCESS AREAS

The Special District regulations would also mandate the development of a minimum of eight acres of publicly accessible open space. The open spaces would contain a combination of both active and passive uses. At least one open space area would be located in the interior of the District—at least 200 feet from the boundaries of the District—and would be a minimum of two acres in size, with frontage on at least one connector street.

In addition to this central public open space, wide public access areas would surround the District and would be located along 126th Street, the south side of Northern Boulevard, the north side of Roosevelt Avenue, and the east side of the eastern perimeter street. These public access areas would include wide sidewalks, pedestrian amenity zones, or open areas with landscaping and plantings.

Bicycle lanes would be required on connector streets within the redeveloped District, improving non-vehicular connectivity between Willets Point and surrounding areas. The City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and the New York City Economic Development Corporation (NYCEDC) is currently seeking funding and approvals to implement these improvements. (See Chapter 6, "Open Space," for an illustration of the proposed improvements.)

OTHER SPECIAL DISTRICT REQUIREMENTS

Parking and Curb Cut Regulations

The regulations would also require that all off-street parking uses be located either underground or inside buildings and screened so as not to be visible from adjacent sidewalks or open spaces.

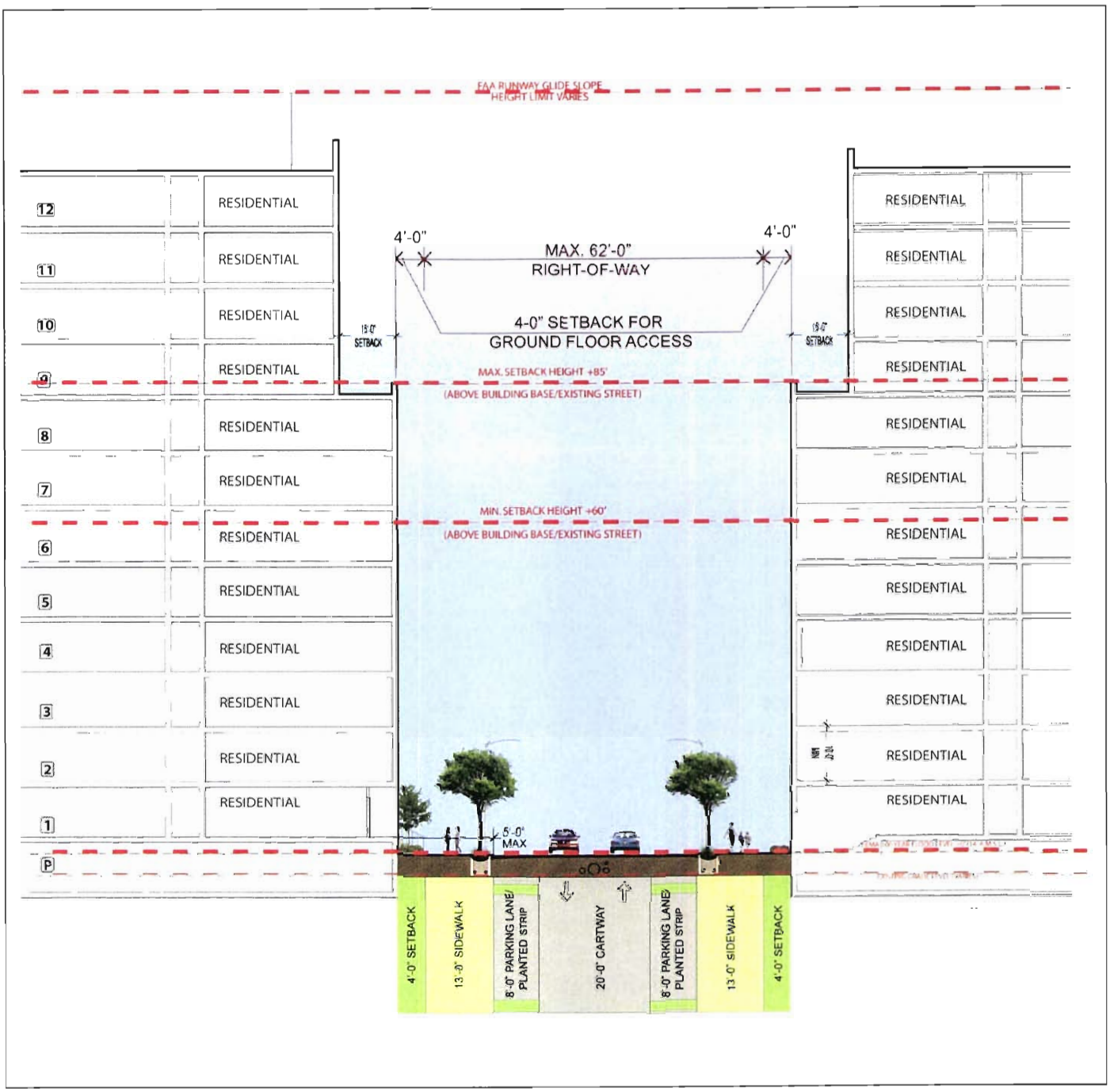


Retail
Office
Housing
Rooftop Courtyard
Hotel
Publicly Accessible Open Space
Convention Center
Primary School, Community Facility Use
Parking

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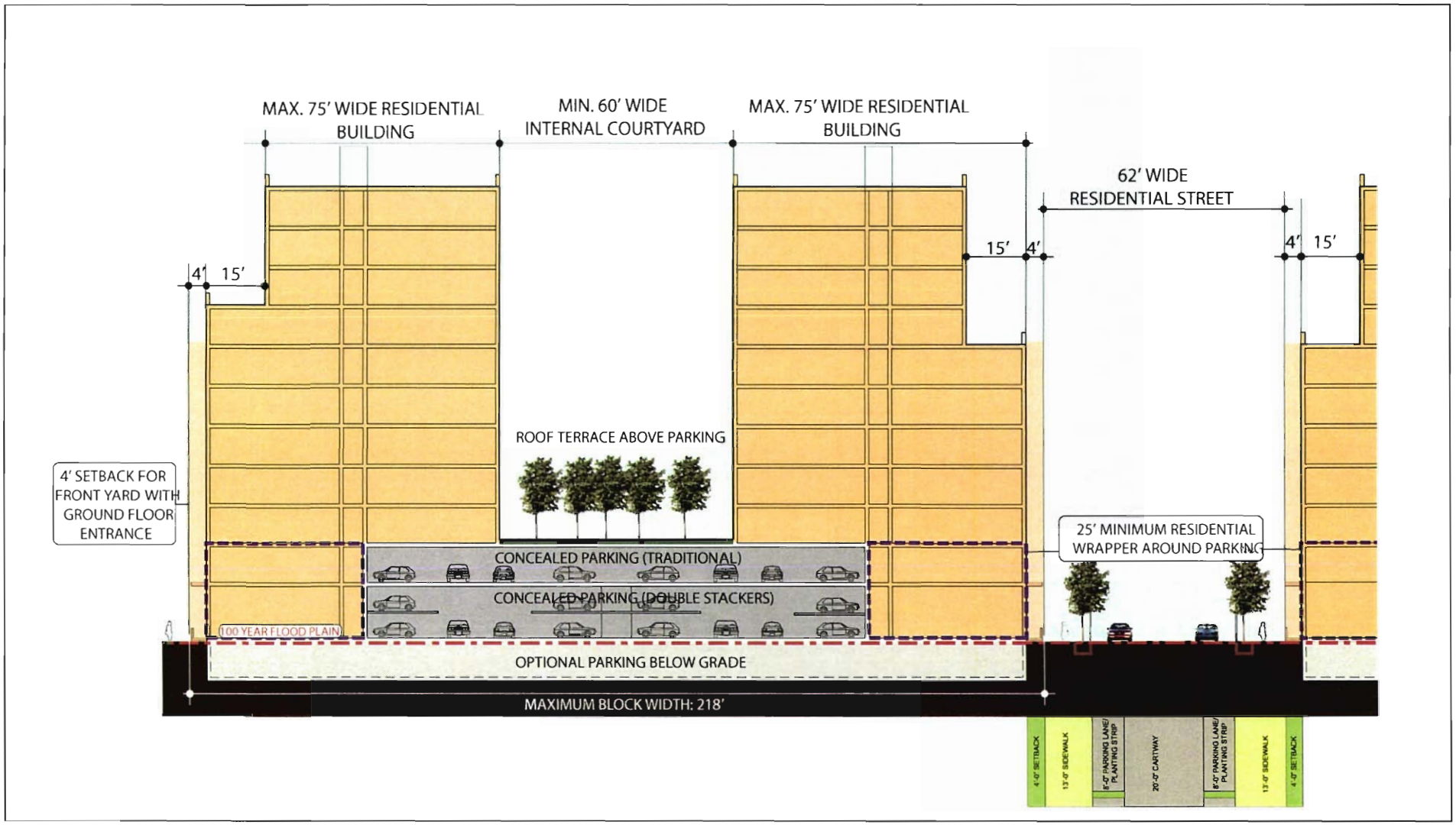
Figure 9-25
Illustrative Site Plan

8.21.08



FOR ILLUSTRATIVE PURPOSES

Figure 9-26
Residential Street Plan



FOR ILLUSTRATIVE PURPOSES

This figure has been updated since the DGEIS

Figure 9-27

Residential Community Elevation

Exceptions—areas where parking may be partially visible behind required screening treatments—include parts of Northern Boulevard and the eastern perimeter street and service streets, and upper level parking along 126th Street. Curb cuts would be prohibited on 126th Street, the primary retail street, the connector streets, and across from any public open space of two acres in size or greater. Curb cuts would also be prohibited for parking facilities or loading berths within 50 feet of any street intersection, except for the convention center or a hotel over 50,000 sf.

Signage

Signs in the entertainment and commercial area, including along Roosevelt Avenue, Northern Boulevard, and within 600 feet east of 126th Street, could be up to 500 sf and could rise to a height of 85 feet.[1] In the residential area (over 600 feet east of 126th Street), signs would be limited to 150 sf and a height of 25 feet.

Other Uses

A cogeneration facility, water reclamation facility, and electrical substation would also be permitted in the District; however, if proposed, these uses would be subject to subsequent review and approval. The cogeneration facility and water reclamation facility would require approval by the Board of Standards and Appeals (BSA), and the substation would require approval by the City Planning Commission (CPC). The Special District text provides that reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including the concealment of such uses with building enclosures, landscaping, buffer zones, or other methods. Additionally, the siting and architectural design and landscaping of a water reclamation facility would be required to minimize the interruption of retail frontage and blend harmoniously with the surrounding area.

Overall, the requirements set forth in the Special District regulations would create an attractive, pedestrian-friendly environment by creating new sidewalks, streetscape elements such as trees and other amenities, and interest on the street level with new retail spaces. While the proposed Plan would significantly alter the urban design of the District, the Plan would ultimately have a beneficial impact on the overall appearance and feel of the District. The new development that would result from the proposed Plan would enliven the area by creating new, usable streets. Along 126th Street and adjacent streets, retail uses would line the ground-floor spaces and would generate new pedestrian activity at the site. The residential development would increase the use of the site and create a vibrant new community. The open spaces and landscaped sidewalks would create an attractive new development and, combined with the retail corridors, would create a pedestrian-friendly environment. Finally, the proposed development would complement the new Citi Field by increasing retail and entertainment spaces in the area.

SUSTAINABLE DESIGN

As described in Chapter 1, "Project Description," the Willets Point Development Plan has been accepted as a pilot Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) project by the United States Green Building Council. The illustrative

[1] Along 126th Street, signs could be unlimited in size provided they are no higher than 85 feet and project between 4 and 6 feet, and provided ground floor transparency and parking screening requirements are met.

site plan (as shown in Figure 9-25) have been designed to achieve LEED-ND certification, and the City would require any future development in the District to achieve LEED-ND certification.

Other sustainable measures required by the regulations would include bicycle storage and rooftop landscaping for at least 50 percent of all parking structures.

LOTS B AND D

As described in Chapter 2, it is anticipated that if the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, additional development could occur on Citi Field parking lot B (Lot B), located on the northwest corner of Roosevelt Avenue and 126th Street, and on Lot D, a surface parking lot located at the southwest corner of Roosevelt Avenue and 126th Street. Lot B is currently being used as a construction staging area for Citi Field, and Lot D is currently used by commuters, as well as for Mets games and USTA National Tennis Center events. While specific development plans for Lots B and D have not yet been formulated, it is anticipated that Lot B could be developed with a one-story retail structure and a 10-story office building, and Lot D could be developed with a five-level parking garage.

Lot B is currently a paved parking surface, surrounded by a metal chain link fence. In the future with the proposed Plan, it is anticipated that Lot B would be occupied by a retail and office development that would complement Citi Field and the proposed Willets Point Development Plan. Development on Lot B would convert a surface parking lot into a new, actively used location and would increase pedestrian activity to the area. In addition, the retail space would further the transformation of 126th Street into a pedestrian-friendly, retail-oriented destination. The office space would be in keeping with the office currently under construction as part of the Citi Field project and the office space that would be located in the District. The development of a five-level parking structure on Lot D would consolidate the parking uses associated with Lots B and D in a new garage south of Roosevelt Avenue.

NO CONVENTION CENTER SCENARIO

The additional residential and retail development that would be introduced by the No Convention Center Scenario would be located in the northeastern portion of the District, and the Special District regulations pertaining to the residential zone would also apply. There would be no changes to the provisions in the zoning Special District text with respect to streets and streetscapes, building bulk and arrangements, and block shape and size. Therefore, while it would result in additional residential and retail uses, in comparison with the proposed Plan, the effects of the No Convention Center Scenario on urban design would be largely the same.

STUDY AREA

URBAN DESIGN

Street Pattern and Hierarchy

While the proposed Plan would create streets and a new ramp structure, it would not have an adverse impact on these elements.

Major Transportation Elements

As described above, there are a number of elevated transportation elements, including connector ramps, in the study area. The proposed Plan would result in a new connector to the Van Wyck Expressway. While plans for the connector are still not finalized, it is anticipated that the connector would be located near the northeast corner of the District and would be designed in a manner similar to the existing connectors in the study area. It is further anticipated that new streets would be constructed that would connect the District to Northern Boulevard and 126th Street.

Other Streets

The proposed Plan would extend some of the other streets in the study area into the District, including 34th Avenue and the access roadways along the northern and southern edges of Citi Field. These new streets would be similar in width to those that exist in the study area and would travel on a similar trajectory as the existing streets. The newly created streets would link the District to the surrounding area and create new connector streets in the study area.

Block Shapes

While the proposed Plan would create new block shapes in the District, and different block shapes and sizes than those found in the study area, it would not create parcels that are larger than what already exists in the study area. The proposed Plan would not alter the block shapes found in the study area. Instead, the Plan would create new, smaller pedestrian-oriented blocks within the District. Therefore, the proposed Plan would not have an adverse impact on the block shapes found in the study area.

Building Uses, Bulk, and Type

The proposed Plan would introduce new building uses, bulk, and types to the District, which would complement other proposed development in the surrounding area. The mixed-use retail and residential uses would be similar to the proposed Sky View Parc development, while the new retail corridor along 126th Street and anticipated development on Lot B would further complement the new retail spaces currently under construction as part of the Citi Field project.

It is expected that the residential and commercial buildings in the District would be constructed to a consistent streetwall and would be in keeping with the general arrangement and bulk of the new Citi Field buildings along 126th Street, which are currently under construction. Therefore, the proposed buildings would be in keeping with the general height and bulk of the newly created structures in the study area.

While the proposed Plan would introduce new uses and buildings to the study area, this would not be an adverse impact, as the new building uses would increase pedestrian activity to the District and the surrounding area.

The parking garage that could potentially be constructed on Lot D would be in keeping with the parking uses generally found in the area. The parking garage, which is anticipated to be five levels based on the site footprint, would not be taller or bulkier than the proposed development and would generally be in keeping with the existing nearby buildings, including the low-scale boxy building located south of Lot D in the Corona Yards.

Building Arrangements

The proposed Plan would introduce new buildings and building arrangements to the study area; however, these buildings would create new, continuous streetwalls. Further, the retail buildings along 126th Street and the retail and office development anticipated on Lot B would create a new streetwall and pedestrian area that would complement the Citi Field buildings currently under construction to the west of the District. Therefore, the proposed Plan would be in keeping with the general arrangements of buildings found in the immediately surrounding area, and there would be no adverse impacts on these urban design features.

Streetscape

The proposed Plan would enhance the vitality of streets in the study area by introducing new commercial and residential uses that would increase pedestrian activity to the District and surrounding area. The proposed Plan would also improve the appearance of the surrounding area's streetscape by adding street lighting and general landscaping. The illuminated signs along 126th Street would further improve the appearance of the street and, combined with the new Citi Field, would create a new destination retail and entertainment corridor.

Overall, the proposed Plan and anticipated development on Lot B would have a positive effect on the streetscape of the study area. It would develop a large, underdeveloped parcel of land and surface parking lots and would add new streetscape elements, such as landscaping and street lighting, to the District.

Topography and Natural Features

The proposed development would be constructed on already developed sites and would not involve the removal of or alterations to any of the surrounding natural resources. Therefore, it would not affect the natural features in the surrounding area, including Flushing Bay, the Flushing River, and Flushing Meadows-Corona Park.

VISUAL RESOURCES

The proposed Plan and anticipated development on Lots B or D would not affect views to or from Flushing Bay, the Flushing Bay Promenade, or views to the 1964 World's Fair structures in Flushing Meadows-Corona Park. New development in the District and on Lots B and D would be visible in views south from the promenade, however, this is not the primary view from this location, and the buildings would be partially obscured by the elevated transportation structures and by the new Citi Field. The proposed development would not interfere with views across Flushing Bay from the promenade. Therefore, there would be no adverse impacts on Flushing Bay or the Flushing Bay Promenade with the proposed Plan.

Structures resulting from the proposed Plan and anticipated development on Lots B and D would be visible from sections of Flushing Meadows-Corona Park; however, the MTA Corona Yards and Casey Stengel Bus Depot would block most views. The new structures located within the District and on Lots B and D would not detract from the visual appreciation of the park or the landscaping, trees, and open lawns that make the park a visual resource. The new buildings, including the parking garage on Lot D, would be visible in views from the Pasarelle Ramp structure. However, these views are only available to pedestrians using the ramp and looking north; as described above in "Existing Conditions," the primary views from the ramp are south toward Flushing Meadows-Corona Park, and would not be obstructed by the structures that would result from the proposed Plan. Additionally, these new structures would not be very tall

and would also not block the long views north from the Passarelle ramp. Therefore, the new development would not detract from the visual appreciation of the park, the World's Fair structures, and the surrounding area. ✷

A. INTRODUCTION

Neighborhood character is an amalgam of the many components that give an area its distinctive personality. These components can include land use; street layout; scale, type, and style of development; historic features; patterns and volumes of traffic; noise levels; and other physical or social characteristics that help define a community. However, not all of these elements affect neighborhood character in all cases; a neighborhood usually draws its distinctive character from a few defining elements.

In terms of neighborhood character—both in the Willets Point Development District and in the adjacent neighborhoods—this chapter discusses existing conditions, the future without the proposed Plan in 2017, and the probable impacts of the proposed Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter also considers to the extent possible the cumulative impact of the Willets Point Development Plan and the anticipated development on Lots B and D, as well as a scenario that evaluates the proposed Plan without a convention center component.

PRINCIPAL CONCLUSIONS

WILLETS POINT DEVELOPMENT DISTRICT

The proposed Plan would dramatically change neighborhood character in the District, replacing predominantly low-density auto-related, manufacturing, warehousing and distribution, and waste transfer and recycling uses with a new mixed-use neighborhood. While specific development plans have not been formulated, the Special Willets Point District regulations would create a dynamic, sustainable community by integrating regional attractions, residential (with approximately 20 percent affordable housing), retail, and other uses within a network of pedestrian-scaled streetscapes. The proposed Special Willets Point District would set forth the location of uses, building heights and setbacks, street layout and hierarchies, streetscape design, and basic site planning and design provisions.

Overall, the pedestrian-oriented environment and active mix of residential, retail/entertainment, office, open space, hotel and conference center, and community facility uses would be an improvement over conditions in the future without the proposed Plan. Development within the District would be scaled to enhance pedestrian activity, with prescribed streetwall heights and locations, mandatory pedestrian amenities, and other design elements to enhance building façades. The Special District regulations would also mandate the provision of adequate sidewalks, street trees and landscaping, and the development of a minimum of eight acres of publicly accessible open space, including a centrally located park. Together, these features would create a lively, pedestrian-oriented streetscape throughout the District. The proposed Plan would also include environmental remediation, grading and elevating the District above the

floodplain, the installation of new sanitary and storm sewer lines, and the creation of a new connection to the Van Wyck Expressway.

The proposed changes, while significant, would result in an improvement in neighborhood character and would not have a significant adverse impact.

ADJACENT AREAS

The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses would be consistent with the uses and character in the surrounding area, particularly those within the dense commercial center of Downtown Flushing.

The site planning and urban design of the District would serve to integrate the District with surrounding entertainment and recreational uses. In the future with the proposed Plan, 126th Street would connect the entertainment and commercial center and the adjacent Citi Field with pedestrian-oriented design elements, and would include dedicated bicycle lanes providing connections to points to the north and south.

The adjacent Metropolitan Transportation Authority (MTA) property, which would be unaffected by the proposed Plan and would remain zoned for heavy industrial uses, would not be compatible with all of the uses proposed in the District, such as residential and community facility uses. However, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront. In terms of neighborhood character, this juxtaposition would result in a contrast of types—with the mixed-use, primarily residential proposed development on one side of the street, and the industrial uses of the MTA property on the other.

As described in Chapter 17, "Traffic and Parking," traffic generated by the proposed Plan would be in addition to high baseline volumes and poor levels of service at many of the analysis intersections and along key sections of the highway network, largely due to other developments planned in the area and substantial additional background traffic growth. As a result, the proposed Plan is expected to have significant traffic impacts at numerous signalized and unsignalized intersections, as well as at certain highway and ramp locations. However, since these areas are, and would continue to be, heavily traveled, the incremental increases resulting from the proposed Plan—while defined as traffic impacts—would not be such that the proposed Plan would result in significant adverse impacts on neighborhood character.

The traffic generated by the proposed Plan would be expected to produce significant increases in noise levels only at the World's Fair Marina Park north of the District during one analysis period. Despite these significant increases, the projected noise levels at the park are not expected to be higher than typical for parks in New York City. This noise increase would not have a significant adverse neighborhood character impact on the park, which exists next to highway roads and functions primarily as an active boating marina.

Overall, the proposed Plan would not have a significant adverse neighborhood character impact on surrounding areas.

LOTS B AND D

The potential development of Lot B with new office and retail uses would complement the new Citi Field and the mix of new uses proposed as part of the Willets Point Development Plan. The additional commercial uses on Lot B would help attract and retain visitors to the area, adding to the synergy created between Citi Field and the proposed Plan. The anticipated development on Lot B would bring new active uses and enhance the streetscape along Roosevelt Avenue and 126th Street, contributing to the pedestrian-oriented entertainment and commercial center and regional destination that would be created under the proposed Plan. The potential development of a five-level parking garage on Lot D, south of Roosevelt Avenue, would consolidate parking capacity on Lots B and D, as well as provide additional parking to serve the new commercial uses. Overall, the redevelopment of Lots B and D and the proposed Plan would not have a significant adverse impact on neighborhood character.

NO CONVENTION CENTER SCENARIO

As with the proposed Plan, the No Convention Center Scenario would change the development potential of the District in a manner consistent with the proposed Urban Renewal Plan (URP) and the Special Willets Point District. The effects of the No Convention Center Scenario on neighborhood character would be largely the same as with the proposed Plan. Both development scenarios would dramatically change the face of the District by replacing predominantly low-density industrial uses with a new higher-density mixed-use neighborhood. Residential and retail uses would be the core activities, supported by office, hotel, community facilities, and open space uses. The additional residential and retail development that would be introduced by the No Convention Center Scenario would be located in the northern portion of the District, and the Special District regulations pertaining to the residential zone would also apply. Therefore, while it would result in additional residential and retail uses and no convention center, in comparison with the proposed Plan, the effects of the No Convention Center Scenario on neighborhood character would be similar. Overall, like the proposed Plan, the No Convention Center Scenario would not result in significant adverse impacts on neighborhood character.

B. METHODOLOGY

STUDY AREAS

The analysis of neighborhood character is addressed in two geographical areas: the District and the adjacent neighborhoods. The neighborhood character study area is generally defined as the area ½ mile from the boundaries of the District and includes neighborhoods adjacent to the District. A larger secondary study area was not considered necessary for the neighborhood character analysis due to natural and man-made barriers (described below), and because this area is too distant from the District to contribute to the existing neighborhood character and would not experience effects to neighborhood character as a result of the proposed Plan (Chapter 3, "Land Use, Zoning, and Public Policy," concludes that the proposed Plan would have no significant adverse impact on land use patterns in this wider area, as it is too far from neighborhoods in this area to exert much influence on them).

NEIGHBORHOOD CHARACTER COMPONENTS

According to the 2001 *City Environmental Quality Review (CEQR) Technical Manual*, an assessment of neighborhood character is generally needed when an action would exceed

preliminary thresholds in any one of the following areas of technical analysis: land use, urban design and visual resources, cultural resources, socioeconomic conditions, traffic and pedestrians, or noise. The proposed Plan, which would result in major changes in the District, would affect many of the components of neighborhood character, including:

- *Land Use.* Development resulting from a proposed action would have the potential to change neighborhood character when it introduces a new, incompatible land use, conflicts with land use policy or other public plans for the area, changes land use character, or causes significant land use impacts.
- *Urban Design and Visual Resources.* In developed areas, urban design changes have the potential to affect neighborhood character by introducing substantially different building bulk, form, size, scale, or arrangement. Urban design changes may also affect block forms, street patterns, or street hierarchies as well as streetscape elements such as streetwalls, and landscaping. Visual resource changes have the potential to affect neighborhood character by directly changing visual features, such as unique and important public view corridors and vistas, or public visual access to such features.
- *Historic Resources.* According to the *CEQR Technical Manual*, when an action would result in substantial direct changes to a historic resource or substantial changes to public views of a resource, or when a historic resources analysis identifies a significant impact in this category, there is a potential to affect neighborhood character.
- *Socioeconomic Conditions.* Changes in socioeconomic conditions have the potential to affect neighborhood character when they result in substantial direct or indirect displacement or addition of population, employment, or businesses, or cause substantial differences in population or employment density.
- *Traffic and Pedestrians.* Changes in traffic and pedestrian conditions can affect neighborhood character in a number of ways. For traffic to have an effect on neighborhood character, it must be a contributing element to the character of the neighborhood (either by its absence or its presence), and it must change substantially as a result of the action. According to the *CEQR Technical Manual,* such substantial traffic changes can include: substantial changes in level of service (LOS); change in traffic patterns; change in roadway classifications; change in vehicle mixes; substantial increases in traffic volumes on residential streets; or significant traffic impacts, as identified in that technical analysis. When a proposed action would result in substantially different pedestrian activity and circulation, it has the potential to affect neighborhood character.
- *Noise.* According to the *CEQR Technical Manual*, for an action to affect neighborhood character in regard to noise, it would need to result in a significant adverse noise impact and a change in acceptability category, as defined by the New York City Department of Environmental Protection (DEP) external noise exposure standards.

This chapter's impact analysis focuses primarily on changes in the technical areas discussed above, since changes in these technical areas are most likely to affect neighborhood character. The *CEQR Technical Manual* states that several moderate changes, none of which rises to the level of a significant impact, could combine to create a significant impact on neighborhood character. Therefore, where appropriate, the effects of changes are also looked at cumulatively to determine whether, taken together, they would result in a significant adverse impact on neighborhood character.

C. EXISTING CONDITIONS

WILLETS POINT DEVELOPMENT DISTRICT

The Willets Point Development District is an active industrial neighborhood in a busy urban setting. Largely defined by its concentration of auto-related uses, the area is a jumbled assortment of structures, signage, cars, open storage, and materials handling. Little relief—in the form of open space, cohesive urban design, attractive streetscape elements, or even basic infrastructure—is provided to alleviate the neighborhood's prevailing sense of disorder. As described below, the area also lacks connectivity to other nearby neighborhoods and is generally perceived as a stand-alone enclave.

The approximately 61-acre District is well-defined by its location. It covers most of the Willets Point peninsula, which is itself defined by the Flushing River and Flushing Bay. In addition, the neighborhood is surrounded by a network of above-grade roadways, connectors and viaducts (including the Van Wyck Expressway, Northern Boulevard, and the elevated No. 7 subway line) that form a relatively hard-edged boundary. On its western edge, the District is bounded along 126th Street by Shea Stadium and the development site for its replacement, Citi Field. Together, these natural and man-made barriers function as a visual and physical barrier that effectively isolates the neighborhood from surrounding areas. The District is relatively flat, with no notable natural features, landscaping, or vegetation. The buildings in the District are a combination of small, low-scale structures and larger, boxier buildings.

As described in Chapter 3, the District is an active industrial neighborhood primarily made up of auto-related businesses. These services consist of auto-body repair, auto glass, car washes and auto detailing, used and new auto part sales, tire sales, and vehicle towing. For the most part, these auto-related businesses occupy one-story garage buildings and Quonset-type structures, many of which contain multiple auto-related businesses. There are also a number of car junkyards in the District, which support auto salvage businesses.

The District also contains several larger industrial uses, including warehousing and distribution, construction-related services and materials, and waste transfer and recycling. There are also undeveloped lots used for storage of construction materials or auto parts. Various local commercial uses also dot the area, including delis, check-cashing establishments, a health club, and a clothing and supply store. There is one residential unit in the District, located on Willets Point Boulevard.

The District is partially developed in a street grid, although most of the blocks are irregularly shaped. At the District's edges are a number of busy roadways (both at grade and above grade) that include portions of the Van Wyck Expressway, Northern Boulevard, and Roosevelt Avenue. Within the District itself, Willets Point Boulevard and 127th Street are the main thoroughfares. The streets and sidewalks in the District are in poor condition, with large potholes, broken pavement, missing signage, and a general state of disrepair. The sidewalks are also used for car parking, auto parts storage, and waste storage. There are few lane markings, sidewalk crossings, or stop signs. Throughout the District, stormwater drainage is a serious problem, and streets in the area often flood during storm events. In some areas of the District there are no sidewalks and the streets are unpaved, adding to the underdeveloped and degraded look of the area.

The majority of structures in the District are generally small masonry or metal buildings, temporary metal sheds and Quonset huts, or brick buildings with small footprints. Exterior

building materials include corrugated metal, concrete block, and brick. The majority of the buildings have large, projecting advertising signs. Most of the buildings in the District are attached or located close together. However, there are also a number of freestanding buildings that are larger and boxier in form. These include the Tully Construction site, the House of Spices distribution site, and the Fodera Foods site, among others.

As described in Chapter 8, "Historic Resources," the Fodera Foods building is the only historic resource in the District. This two-story building is located near the intersection of Willets Point Boulevard and the Van Wyck Expressway. It has a red brick front section, which faces onto Willets Point Boulevard, and a large, double-height, multi-paned glass section in the rear. The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) has determined this structure (the former Empire Millwork Corporation Building) to be eligible for listing on the State and National Registers of Historic Places (S/NR). However, for a number of reasons, the building does not meaningfully contribute to neighborhood character. Tucked into the northeast corner of the District, the building's primary façade is not visible from most of the District or from most parts of the study area due to the elevated Van Wyck Expressway—the primary views of the building's façade are when driving past it. The building is not particularly tall and therefore is not highly visible from either the District or the study area, and it is not a defining feature of a view corridor or a visual terminating point.

As described in Chapter 9, "Urban Design and Visual Resources," there are no visual resources in the District, nor are any visible from the sidewalks and streets. Views to the west are blocked by Shea Stadium and the new Citi Field, currently under construction. Natural features surrounding the District, including those in Flushing Meadows-Corona Park, Flushing Bay, and the Flushing River, are not visually accessible, primarily due to the elevated transportation structures to the north, south, and east of the site.

Noise conditions in the area are typical of an urban neighborhood adjacent to elevated subway operations and well-trafficked roads. As described in greater detail in Chapter 20, "Noise," most of the noise affecting the District is from vehicular traffic along area roadways and from the elevated No. 7 subway line that runs above Roosevelt Avenue. Airplane flights from nearby LaGuardia Airport also contribute to background noise levels. Overall noise levels are generally relatively high, and reflect the level of activity in the area.

As described in Chapter 4, "Socioeconomic Conditions," approximately 227 establishments or 87 percent of all businesses located in the District are in auto-related sectors. Auto-related businesses in the District include auto repair and service and maintenance businesses, salvage yards selling recycled automotive parts, retail establishments selling new and used parts and tires, and towing companies. Together, auto-related businesses include approximately 1,057 jobs, or 62 percent of the district total. Other industries with a notable presence in the District include specialty food product wholesalers, construction companies, and waste transfer businesses. Together, these industries employ approximately 654 people, or 38 percent of the District total. The largest employers in the District are Tully Construction, a general contractor that works on large infrastructure projects; House of Spices, a regional distributor of South Asian food products; and Evergreen Recycling of Corona, a solid waste collection business. Each employs approximately 100 on-site workers.

ADJACENT AREAS

Nearby areas include other parts of the Willets Point peninsula that lie outside the Willets Point Development District, a portion of Flushing Meadows-Corona Park, and downtown Flushing.

Uses nearest to the District include a mix of industrial activities. Directly east of the District is a large undeveloped MTA property located along the Flushing River waterfront, a majority of which is leased to Tully Environmental, Inc., which operates a construction and debris recycling operation on the site. To the north of the District, across Northern Boulevard, is a New York City Department of Transportation (NYCDOT) Maintenance and Repair facility, and between Northern Boulevard and the Van Wyck Expressway is an asphalt plant. To the south of the District across Roosevelt Avenue are the New York City Transit (NYCT) Corona Yards and NYCT Casey Stengel Bus Depot. Taken together, the uses surrounding the District have an industrial character typical of transit infrastructure, manufacturing zones, and working waterfront uses. While they are the geographically closest sites to the District and contain uses compatible with those found in the District, aside from the MTA property these sites are all buffered from the District by intervening raised roadways and the elevated superstructure of the No. 7 subway line.

Primarily to the south and west of the District is Flushing Meadows-Corona Park, a major recreational and cultural destination that covers approximately 1,255 acres. Immediately west of the District across 126th Street, the park includes the construction site for Citi Field, a new stadium for the New York Mets. Immediately west of the Citi Field construction site is Shea Stadium, the current 56,000-seat home of the Mets. On game days and during special events, the area becomes a hub of activity with the presence of fans, vendors, and vehicles. But much of the time, particularly when baseball is not in season, the stadium is inactive and quiet.

Another part of the park near the project site is the Flushing Bay Promenade, which winds along Flushing Bay for approximately 1.4 miles from LaGuardia Airport to the Willets Point peninsula. The promenade provides access to the World's Fair Marina and a restaurant located north of Shea Stadium, as well as many sitting areas located throughout the promenade. There are more than 1,000 parking spaces spread throughout the promenade, which are also available for parking for Mets games. Additional parts of Flushing Meadows-Corona Park are more distant from the District and include the USTA National Tennis Center and other recreational spaces and activities.

In contrast to the underutilization that characterizes much of the District, east of the District and across the Flushing River is the vibrant urban core of Downtown Flushing. Flushing is a thriving business and residential area, as well as a center for ethnic goods and culture. Downtown Flushing is also a regional transportation and commercial hub for Queens. Downtown Flushing and the greater Flushing area contain a substantial Asian population, with large Chinese and Korean communities, and there are many specialty food and retail stores, restaurants, and other services. Most of the commercial and cultural activity is centered along Northern Boulevard, Roosevelt Avenue, and Main Street. The predominantly industrial areas in Flushing extend in a band along College Point Boulevard and along the Flushing River up to College Point.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

WILLETS POINT DEVELOPMENT DISTRICT

In the future without the proposed Plan, while some redevelopment or improvements may occur within the District, substantial change is not expected by 2017 due to the low-density industrial zoning regulations, contamination concerns, and other unappealing conditions. Without the proposed Plan, it is expected that the District would continue to support the same types of uses

now found in the area and to remain relatively isolated from surrounding neighborhoods. As a result, the character of the neighborhood is expected to remain largely unchanged. Traffic within and around the District would increase as a result of other development in the future without the proposed Plan, resulting in more congested conditions. Noise levels within and around the District would likely remain unchanged.

ADJACENT AREAS

In the future without the proposed Plan, the existing uses on the remainder of the Willets Point peninsula, including the undeveloped MTA property to the east of the District, are expected to remain unchanged.

As described in Chapter 2, development of new residential and commercial uses is expected to continue between now and 2017 in the areas outside of the proposed Plan. A number of privately and publicly sponsored development projects that are now proposed or in construction would be completed.

Immediately west of the District, the new home of the New York Mets, Citi Field, is currently under construction and is scheduled to be completed in 2009. This 44,000-seat stadium will replace the existing 56,000-seat Shea Stadium, located immediately to its west. Along 126th Street, the stadium will provide ground-floor retail space and Mets executive offices within a four-story, 100,000-sf building. The retail uses are likely to primarily include team apparel and other Mets-related items, as well as food service for stadium visitors. The existing traffic circle north of the stadium that connects Meridian Road with Boat Basin Road and provides access to the northern parking area will be converted to a standard four-legged, signalized intersection. The reconfiguration of the existing traffic circle is intended to provide improved access to the new main gateway into the stadium parking area. In addition, a bus parking area will be located north of Meridian Road, in a lot that is currently being used for stadium visitor parking.

The Downtown Flushing area has been changing in character in recent years as more high-density residential and large-scale mixed-use developments are either under construction or planned throughout the area. Sky View Parc is a mixed-use development under construction on a large site located south of Roosevelt Avenue that extends between the Flushing River and College Point Boulevard. It will ultimately include 750 residential units, 760,000 sf of retail, a 51,800-sf restaurant, and 3,000 parking spaces. It will also include a 40-foot-wide waterfront esplanade along the Flushing River. North of Sky View Parc, along the Flushing River, the River Park Place project is planned. This mixed-use development will contain 475 residential units, 251,000 sf of office, as well as retail, community facility use and possibly a hotel, and will include a waterfront esplanade. In recent years, there has been increased interest in the further development of mixed-use projects along the Flushing River waterfront, and it is expected that the trend of new mixed-use development along the waterfront could continue over the long-term by 2017 without the proposed Plan.

In the heart of Downtown Flushing, a mixed-use development called Queens Crossing was recently completed. It contains 144,000 sf of office space, 110,000 sf of retail space, 29,600 sf of community facility space, and 400 parking spaces. Immediately east of this site, Flushing Commons, a new mixed-use project proposed for development on Municipal Lot No. 1, is expected to contain approximately 508 residential units, 219 hotel rooms, 436,000 sf of retail space, 85,000 sf of community facility space, and 1,603 parking spaces. The former Caldor building at Roosevelt Avenue and Main Street may also be redeveloped with new retail uses. Several other new office buildings and residential developments are under construction in the

vicinity of Prince Street. In addition, in an effort to relieve traffic congestion in Downtown Flushing, Main and Union Streets will each be converted from two-way to one-way streets, running north and south, respectively.

Future traffic conditions are expected to be significantly worse than existing conditions due to these and other background developments planned in the area and additional background traffic growth. Noise levels are not expected to noticeably increase.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

The proposed Plan would significantly change the neighborhood character of the Willets Point neighborhood from an uninviting and underutilized industrial area to a center of mixed-use 24-hour activity. This heightened level of activity would not be out of character with the revitalizing effect of the new Citi Field, the existing community of Flushing, the projects planned for the area, and the character of other nearby neighborhoods.

All future development will be governed by the Willets Point URP and the zoning regulations for the Special Willets Point District. The proposed Plan would also change the underlying zoning of the District from the existing M3-1 and R3-2 districts to a C4-4 district and demap some or all of the streets within the District.

WILLETS POINT DEVELOPMENT DISTRICT

The proposed Plan would change the development potential of the District in a manner consistent with the framework set forth by the URP and the Special Willets Point District. As a result, a range of new development could occur within the District. While specific development plans have not been formulated, the Special District regulations would create a dynamic community by integrating regional attractions—such as the convention center and destination retail—and residential, community facility, and other uses within a network of pedestrian-scaled streetscapes throughout the District. The Special District regulations would determine elements that would apply to each area, such as the placement of uses within the District, building heights and setbacks, street hierarchies, streetscape design, and basic site planning and design provisions.

As described in detail in Chapter 1, "Project Description," and Chapter 2, the maximum development envelope that would be permitted under the URP includes up to 8.94 million gross square feet (gsf) of new buildings, which would include residential, retail, office space, a hotel and convention center, as well as community facilities and open space. Residential development is expected to include approximately 20 percent affordable housing. In addition, the Plan would include construction of a new connection between the Van Wyck Expressway and the District to facilitate the movement of traffic into and out of the District and minimize traffic on nearby local roadways.

The proposed Plan would include environmental remediation, the installation of new sanitary and storm sewer lines, and the grading and elevation of the entire District above the 100-year floodplain, and would result in the displacement of all existing uses in the District.

Overall, the proposed Plan would dramatically change neighborhood character in the District, replacing predominantly low-density auto-related, manufacturing, warehousing and distribution, and waste transfer and recycling uses with a new mixed-use neighborhood. As part of the Plan, residential and retail uses would be the core activities, and office, hotel and convention center

uses would complement those uses to create a regional economic center. Community facilities and open space would support the residential and commercial uses and improve the quality of life for area residents and visitors. As described in Chapter 3 and Chapter 9, the proposed Plan is not expected to have significant adverse environmental impacts on land use or urban design.

The Special District would include a pedestrian-oriented regional entertainment and commercial center along 126th Street and would combine retail, residential, office, and parking uses in mixed-use structures. Major retail uses would be concentrated in the center of this zone, in proximity to the new Citi Field, while a mix of smaller shops and apparel stores would be located along the primary and secondary retail streets within the zone.

East of the 126th Street corridor, the Special District would provide more flexibility in the placement of various uses and of architectural design, within established parameters, to ensure the compatibility of adjacent uses and the adequate provision of light and air within the District. The convention center would be located in the northeastern portion of the district, with frontage oriented along one of the two connector streets. Accessory uses—including a hotel and accessory parking—would be located in proximity to the convention center.

The Special District would encourage the development of a primarily residential community in the eastern part of the District, with residential and ground floor local retail, as well as community facility, office, and parking uses. The residential community would also include an approximately two-acre centrally located park, with frontage on a connector street, programmed primarily for active recreational use. The Special District regulations include design parameters such as setbacks, maximum block dimensions, and building entrances on each blockfront to encourage a pedestrian-friendly neighborhood environment.

The Special District regulations allow the development of a wastewater reclamation facility, a cogeneration facility, and an electrical utility substation within the District, provided they would primarily serve the District. These uses, if pursued, would be subject to separate environmental and public review processes. For the water reclamation facility and cogeneration facility, the Special District text requires that reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including emissions limits, as well as the concealment of such uses with building enclosures, landscaping, buffer zones, or other methods. Additionally, the siting and architectural design and landscaping of a water reclamation facility would be required to minimize the interruption of retail frontage and blend harmoniously with the surrounding area. Furthermore, it would be required to meet high performance standards and would not result in any noxious odors or noise. Therefore, if developed, each of these potential facilities would be compatible with the surrounding uses in the District.

The Special District regulations would create a walkable, urban streetscape environment by requiring that off-street parking facilities be fully enclosed and wrapped by active uses (with some exceptions, including along parts of Northern Boulevard and the upper level parking along 126th Street). The Special District regulations would mandate the provision of adequate sidewalks, street trees and landscaped areas, and the development of a minimum of eight acres of publicly accessible open space, including a centrally located park. Together, these features would create a lively, pedestrian-oriented streetscape throughout the District.

As described in greater detail in Chapter 1, the District is subject to height restrictions established by the Federal Aviation Administration (FAA) and the Port Authority of New York and New Jersey (PANY/NJ), and buildings constructed under the proposed Plan would range in

maximum height from approximately 60 feet to 218 feet above ground level. Development within the District would be scaled to enhance pedestrian activity, with prescribed streetwall heights and locations, pedestrian amenities, and other design elements to enhance building façades.

The site planning and urban design of the District would serve to integrate the District with surrounding entertainment and recreational uses. In the future with the proposed Plan, 126th Street would connect the entertainment and commercial center and adjacent Citi Field with pedestrian-oriented design elements. The Special District would regulate the general layout of the principal private streets by mandating four or five specific intersections along 126th Street and establishing design parameters for six different street types.

As described in Chapter 8, the former Empire Millwork Corporation Building (S/NR-eligible) would be demolished as part of the proposed Plan. Demolition of this building would constitute a significant adverse impact on historic resources. Retaining the building would be challenging from a site grading and engineering perspective and would limit the flexibility of uses and building locations within the District, which is one of the key aspects of the Special District regulations and the URP. Nonetheless, the New York City Economic Development Corporation (NYCEDC) would encourage future developers to retain part or all of the building as part of their formal request for proposals process. Measures to partially mitigate this impact would be developed in consultation with OPRHP and could include recording the building through photographic documentation and an accompanying narrative.

As described above in "Existing Conditions," the building does not meaningfully contribute to neighborhood character for a number of reasons. It is a low building tucked into the northeast corner of the District, and its primary façade is not visible from most of the District or from most parts of the study area due to the elevated Van Wyck Expressway. Therefore, demolition of the Former Empire Millwork Corporation Building would not have a significant adverse impact on neighborhood character.

As described in Chapter 4, the proposed Plan would not result in significant adverse impacts as measured by the five socioeconomic areas of concern prescribed in the *CEQR Technical Manual*. These areas include direct displacement of a residential population; direct displacement of existing businesses and institutions; indirect displacement of a residential population; indirect displacement of businesses and institutions; and adverse effects on specific industries. The businesses and institutions that would be displaced were determined not to be of substantial economic value to the region or City as defined under CEQR. The District's businesses are not unique; similar services and products are provided throughout Queens, the City, and the region. In addition, the vast majority of these businesses and institutions would be able to relocate to other properties within Queens or the City. Although rental costs would likely increase—as a result of the significantly lower rents currently paid in the District compared with other manufacturing areas, and a competitive industrial real estate market citywide—most of these businesses would remain viable elsewhere.

Overall, the proposed Plan would create a dynamic new mixed-use neighborhood with pedestrian-scaled streetscapes, provide new attractions and amenities, and integrate the District with surrounding entertainment and recreational uses.

LOTS B AND D

As described in Chapter 2, if the proposed Plan is approved and the District is redeveloped into a new mixed-use community and regional destination, it is likely that this could generate increased demand for additional development on Citi Field parking lot B, which is located across 126th Street from the District, directly south of the stadium. While specific development plans for Lot B have not yet been proposed, it is anticipated that the existing parking lot may be replaced with new office and retail uses. The Lot B development could include a one-story retail structure containing 184,500 sf and a 10-story office building containing 280,000 sf. In addition, a new five-level parking garage containing approximately 1,543 spaces may be developed on Lot D, south of Roosevelt Avenue. This garage would replace the parking uses on Lots B and D, as well as provide additional parking to serve the new commercial uses on Lot B.

The potential development of Lots B and D with new office, retail, and parking uses would complement the new Citi Field and the mix of new uses proposed as part of the Willets Point Development Plan. The additional commercial uses on Lot B would help attract and retain visitors to the area, adding to the synergy created between Citi Field and the proposed Plan. The anticipated development on Lot B would bring new active uses and enhance the streetscape along Roosevelt Avenue and 126th Street, contributing to the pedestrian-oriented entertainment and commercial center and regional destination that would be created under the proposed Plan. The development of a five-level parking structure on Lot D would consolidate the parking uses associated with Lots B and D. Overall, the redevelopment of Lots B and D and the proposed Plan would not have a significant adverse impact on neighborhood character.

NO CONVENTION CENTER SCENARIO

Since the URP would allow flexibility in the combination of uses to be developed in the District, the GEIS analyzes a development scenario in which the convention center is replaced with additional residential and retail development (the No Convention Center Scenario). As with the proposed Plan, the No Convention Center Scenario would change the development potential of the District in a manner consistent with the proposed URP and the Special Willets Point District.

The additional residential and retail development in the No Convention Center Scenario would be located in the eastern portion of the District, and the regulations pertaining to the residential community zone within the Special District would apply. There would be no changes to the provisions in the Special District text with respect to streets and streetscapes, the entertainment and lifestyle center, the residential community, open space, parking and loading, and signage.

Both development scenarios would dramatically change land uses in the District, replacing predominantly low-density industrial uses with a new higher-density mixed-use neighborhood. Residential and retail uses would be the core activities, supported by office, hotel, community facilities, and open space uses. Without the convention center, the entertainment and commercial center would be the primary regional attraction within the District. As with the proposed Plan, the No Convention Center Scenario would not result in any significant adverse impacts with respect to land use compatibility or density. The effects of the No Convention Center Scenario on technical areas such as traffic, noise and socioeconomic conditions would not be noticeably different in terms of their effect on neighborhood character, and conditions would largely be the same as those with the proposed Plan.

Overall, the No Convention Center Scenario would not result in any significant adverse impacts on neighborhood character.

ADJACENT AREAS

The probable impact of the proposed Plan on neighborhood character in the surrounding areas is expected to be largely beneficial. Issues associated with the proposed Plan as they relate to neighborhood character focus on the compatibility of the new land uses and densities with those nearby.

The proposed regional attractions and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed residential, office, retail, hotel and convention center, community facility, open space, and parking uses would be consistent with the uses and character in the surrounding area, particularly those within the dense commercial center of Downtown Flushing.

The site planning and urban design of the District would serve to integrate the District with surrounding entertainment and recreational uses. In the future with the proposed Plan, 126th Street would connect the entertainment and commercial center and the adjacent Citi Field with pedestrian-oriented design elements, and would include dedicated bicycle lanes providing connections to points to the north and south. In addition, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing and Corona. The Special District regulations would require new bicycle lanes on the connector streets in the District. The new bicycles lanes in the District would connect to this area-wide bicycle and greenway network, improving connectivity between Willets Point and surrounding areas.

The adjacent MTA property, which would be unaffected by the proposed Plan and would remain zoned for heavy industrial uses, would not be compatible with all of the uses proposed in the District, such as residential and community facility uses. However, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront. In terms of neighborhood character, this juxtaposition would result in a contrast of types—with the mixed-use, primarily residential proposed development on one side of the street, and the industrial uses of the MTA property on the other.

As described in Chapter 4, the proposed Plan would not result in significant adverse impacts due to indirect residential displacement. Although it would introduce a substantial number of new residential units to the area, the potential for development in the District to substantially affect housing values and socioeconomic characteristics in the surrounding study area is limited by a number of factors, including the geographic separation of the District from surrounding communities and the well-established nature of those surrounding communities, the provision of affordable housing as part of the proposed Plan, and the likelihood that introducing new housing could serve to relieve, rather than increase, residential market pressures in the area. As also described in Chapter 4, the proposed Plan would not result in significant adverse impacts due to indirect business displacement from increased commercial rents or from competition.

As described in Chapter 17, traffic generated by the proposed Plan would be in addition to high baseline volumes and poor levels of service at many of the analysis intersections and along key sections of the highway network, largely due to other developments planned in the area and substantial additional background traffic growth. As a result, the proposed Plan is expected to have significant traffic impacts at numerous signalized and unsignalized intersections, as well as at certain highway and ramp locations. However, since these areas are and would continue to be

heavily traveled, the incremental increases resulting from the proposed Plan—while defined as traffic impacts—would not be such that the proposed Plan would result in significant adverse impacts on neighborhood character.

The traffic generated by the proposed Plan would be expected to produce significant increases in noise levels only at the World's Fair Marina Park north of the District during one analysis period. Despite these significant increases, the projected noise levels at the park are not expected to be higher than typical for parks in New York City. This noise increase would not have a significant adverse neighborhood character impact on the park, which exists next to highway roads and functions primarily as an active boating marina.

Overall, the proposed Plan would not have a significant adverse neighborhood character impact on surrounding areas. ✷

A. INTRODUCTION

This chapter assesses the potential for impacts to natural resources from implementation of the proposed Plan and the No Convention Center Scenario in the Willets Point Development District (the District). In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter also considers potential impacts from the anticipated development on Lots B and D. The District is approximately 61.4 acres in size, and contains a mixture of automotive repair and auto body shops, junkyards, wholesalers, manufacturing, construction companies, and other auto-related retail establishments. The site is largely developed, with few natural areas.

The purpose of this chapter is to:

- Identify and describe the City, State, and federal regulatory programs that may apply to the proposed Plan with respect to natural resources;
- Describe existing natural resources (e.g., plants, wildlife, and threatened or endangered species) on the Plan site; and
- Assess the probable impacts of the proposed Plan on natural resources on the Plan site, and in adjacent areas.

Both the proposed Plan and the No Convention Center Scenario would result in the construction of up to 8.94 million gross square feet (gsf) of new buildings, which would include a mix of residential, retail, hotel, convention center, entertainment, commercial office, cultural, community facility, open space, and parking uses.

PRINCIPAL CONCLUSIONS

The chapter concludes that neither the proposed Plan nor the No Convention Center Scenario would result in significant adverse impacts on terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern. Development under either scenario would offer benefits to natural resources, including improved habitat for birds and other wildlife within the new District open spaces. In addition, the proposed Plan and No Convention Center Scenario are likely to include sustainable design elements such as green roofs, onsite storage and treatment facilities, graywater recycling, and bioswales, which would be developed as part of the Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) certification effort. These sustainable design features would provide additional benefits to natural resources in and around the District.

METHODOLOGY

Existing conditions within the District were summarized from information identified in literature sources. Sources included the following documents (reports and maps):

- United States Geological Survey (USGS)—Topographic quadrangle map for Central Park Quad;
- New York State Department of Environmental Conservation (DEC)—Breeding Bird Atlas, Bird Conservation Areas, Critical Environmental Areas;
- Aerial photographs;
- United States Fish and Wildlife Service (USFWS [NY office]), National Marine Fisheries Service (NMFS), and New York Natural Heritage Program (NYNHP)—Information on rare, threatened, or endangered species within the vicinity of the District. A study area of a ½-mile radius around the Plan site was assessed and included an evaluation of both terrestrial and aquatic resources.

The future conditions without the proposed Plan were assessed by considering existing natural resources within the District and assessing potential effects on these resources from projects proposed within the ½-mile study area of the District that are expected to occur independent of the proposed Plan by 2017, the proposed Plan's Build year.

Potential impacts on natural resources from the proposed Plan were assessed by considering the existing and expected future natural resources within and in the vicinity of the District and the potential changes in terrestrial and aquatic habitats that would occur as a result of the proposed Plan.

B. REGULATORY CONTEXT

The following section briefly describes the federal and state laws and associated regulations and regulatory programs that may apply to the proposed Plan with respect to terrestrial and aquatic resources that are found within the study area. The regulations apply to the protection of wildlife and species of special concern, and stormwater management.

FEDERAL

CLEAN WATER ACT (33 USC §§ 1251 TO 1387)

The objective of the Clean Water Act (CWA), also known as the Federal Water Pollution Control Act, is to restore and maintain the chemical, physical, and biological integrity of U.S. waters. It regulates point sources of water pollution, such as discharges of municipal sewage and industrial wastewater or the discharge of dredged or fill material into waters of the United States. It also regulates non-point source pollution, such as runoff from streets and construction sites that enters waterbodies from other than the end of a pipe.

Section 404 of the Act requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE), for the permanent or temporary discharge of dredged or fill material into waters of the United States. Waters of the United States is defined in 33 Code of Federal Regulations (CFR) 328.3 and includes wetlands, mudflats, and sandflats that meet specified requirements in addition to streams and rivers that meet the specified requirements. Activities authorized under Section 404 must comply with Section 401 of the Act.

Under Section 401 of the Act, any applicant for a federal permit or license for an activity that may result in a discharge to waters must provide to the federal agency issuing a permit a certificate, either from the state where the discharge would occur or from an interstate water pollution control agency, that the discharge would comply with Sections 301, 302, 303, 306,

307, and 316 (b) of the CWA. Applicants for discharges to waters in New York must obtain a Water Quality Certification from DEC.

COASTAL ZONE MANAGEMENT ACT OF 1972 (16 USC §§ 1451 TO 1465)

The Coastal Zone Management Act of 1972 established a voluntary participation program to encourage coastal states to develop programs to manage development within the state's designated coastal areas to reduce conflicts between coastal development and protection of resources within the coastal area. Federal permits issued in New York must be accompanied by a Coastal Zone Consistency Determination that evaluates consistency with New York's federally approved coastal zone management program.

EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)

Executive Order 11988 states that "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities."

ENDANGERED SPECIES ACT OF 1973 (PL 93-205; 16 USC 1531 ET SEQ.)

The Endangered Species Act of 1973 recognized that endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. The Act prohibits the importation, exportation, taking, possession, and other activities involving illegally taken species covered under the Act, and interstate or foreign commercial activities. The Act also provides for the protection of critical habitats on which endangered or threatened species depend for survival. The USFWS (non-marine plants and animals) and National Marine Fisheries Service ([NMFS] marine plants and animals) are responsible for administering the Act. Section 7(a) of the Act requires federal agencies to consult with the Secretary of the Interior (through USFWS and/or NMFS) before project implementation to ensure that the proposed action will not jeopardize a species, or destroy or adversely modify the designated critical habitat of the species. Threatened, endangered, and special concern species with the potential to occur in the study area are discussed in Sections C and E, "Existing Conditions" and "Probable Impacts of the Proposed Plan."

NEW YORK STATE

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES), ARTICLE 17 TITLE 8, NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW (ECL), IMPLEMENTING REGULATIONS 6NYCRR PARTS 750 THROUGH 757

Title 8 of Article 17, ECL, Water Pollution Control, authorized the creation of the SPDES to regulate discharges to the State's waters. Activities requiring a SPDES permit include discharges from pipe (point source) that discharges wastewater into the State's surface water or groundwater, including the intake and discharge of water for cooling purposes; constructing or operating a disposal system (sewage treatment plant); discharge of stormwater; and construction activities that disturb one or more acres.

PROTECTION OF WATERS, ARTICLE 15, TITLE 5, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PART 608

DEC is responsible for administering Protection of Waters regulations to prevent undesirable activities on surface waters (rivers, streams, lakes, and ponds). The Protection of Waters Permit Program regulates five different categories of activities: disturbance of the stream bed or banks of a protected stream or other watercourse; construction, reconstruction, or repair of dams and other impoundment structures; construction, reconstruction, or expansion of docking and mooring facilities; excavation or placement of fill in waters and their adjacent and contiguous wetlands; and Water Quality Certification for placing fill or other activities that result in a discharge to waters of the United States in accordance with Section 401 of the CWA.

FRESHWATER WETLANDS, ARTICLE 24, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PARTS 663, 664, AND 665

Freshwater wetlands regulations apply to lands and submerged lands, commonly called marshes, swamps, sloughs, bogs, and flats, which support aquatic or semi-aquatic vegetation. Freshwater wetlands are ecological areas necessary for flood control, surface and groundwater protection, wildlife habitat, open space, and water resources. DEC is responsible for administering the freshwater wetlands regulatory program (6 NYCRR Part 663, 664, and 665) and mapping the locations of the State's regulated wetlands. Freshwater wetlands are classified according to their respective functions, values, and benefits. For protection under the Freshwater Wetlands Act, a wetland must be 12.4 acres or larger. Smaller wetlands may be protected when the Commissioner determines a wetland has unusual local importance in providing one or more of the functions described in Article 24 of the ECL. A permit is required for almost any activity that alters wetlands or adjacent areas (extending 100 from the wetland boundary).

TIDAL WETLANDS, ARTICLE 25, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PART 661

Tidal wetlands regulations apply anywhere tidal inundation occurs on a daily, monthly, or intermittent basis. They are found along much of the saltwater shore, bays, inlets, canals, and estuaries of Long Island, New York City, and Westchester County. DEC is responsible for administering the tidal wetlands regulatory program (6 NYCRRR Part 661) and mapping the locations of New York State's regulated tidal wetlands. The tidal wetlands are identified by category based on the types of vegetation and the presence of tide. Each category has restrictions on activities allowed in and adjacent to (up to 300 feet inland from wetland boundary, or up to 150 feet inland within the City) wetlands falling under that category. A permit is required for almost any activity that will alter wetlands or the adjacent areas. Wetlands within the study area are described below in "Existing Conditions."

WATERFRONT REVITALIZATION OF COASTAL AREAS AND INLAND WATERWAYS ACT (SECTIONS 910-921, EXECUTIVE LAW, IMPLEMENTING REGULATIONS 6 NYCRR PART 600 ET SEQ.)

Under the Waterfront Revitalization of Coastal Areas and Inland Waterways Act, the New York State Department of State (NYSDOS) is responsible for administering the Coastal Management Program (CMP). The Act also authorizes the State to encourage local governments to adopt Waterfront Revitalization Programs (WRP) that incorporate the state's policies. New York City has a WRP administered by the New York City Department of City Planning (DCP).

The New York CMP has specific policies with respect to fish and wildlife. Policy 7 specifies that Significant Coastal Fish and Wildlife Habitats be protected, preserved and—where practical—restored, so as to maintain their viability as habitats. DEC is responsible for evaluating the significance of coastal habitats and evaluating their relative habitat values. NYSDOS designates and maps the Significant Coastal Fish and Wildlife Habitat areas. Neither land/water uses nor development activities may be undertaken that destroy the designated habitat through direct or indirect means. These uses or activities may not significantly impair the viability of the habitat by reducing vital resources beyond the tolerance range of important species of fish or wildlife that rely on the habitat, such as physical parameters (circulation, flushing rates, turbidity, or depth); biological parameters (community structure or predator/prey relationships); and chemical parameters (dissolved oxygen, carbon dioxide, nutrients, salinity and pollutants). Chapter 13, "Waterfront Revitalization Program," describes the project's consistency with each of the Program's coastal policies.

FLOODPLAIN MANAGEMENT CRITERIA FOR STATE PROJECTS (6 NYCRR 502)

Under 6 NYCRR 502, all New York State agencies are to ensure that the use of State lands and the siting, construction, administration, and disposition of State-owned and State-financed projects involving any change to improved or unimproved real estate are conducted in ways that will minimize flood hazards and losses. Projects are to consider alternative sites on which the project could be located outside the 100-year floodplain. Projects to be located within the floodplain are to be designed and constructed consistent with the need to minimize flood damage within the 100-year floodplain and include adequate drainage to reduce exposure to flood hazards. All public utilities and facilities associated with the project are to be located and constructed to minimize or eliminate flood damage. The regulations specify that for residential structures and substantial improvements of existing residential structures, the lowest floor (including the basement) should be elevated to not less than one foot above the base flood level. For nonresidential structures, the lowest floor should be elevated or floodproofed to not less than one foot above the base flood level so that below this elevation the structure, together with associated utility and sanitary facilities, is watertight, with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. No project may be undertaken unless the cumulative effect of the proposed project and existing developments would not cause material flood damage to the existing developments. In cities with a designated floodway, no portion of the project may be placed within the adopted regulatory floodway to result in any increases in flood levels.

ENDANGERED AND THREATENED SPECIES OF FISH AND WILDLIFE; SPECIES OF SPECIAL CONCERN, ECL, SECTIONS 11-0535[1]-[2], 11-0536[2], [4], IMPLEMENTING REGULATIONS 6 NYCRR PART 182

The Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern regulations prohibit the take, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife, or any hide or other part of these species as listed in Section 182.6.

C. EXISTING CONDITIONS

The approximately 61.4 acre District is a developed industrial area containing approximately 250 businesses—a mixture of automotive repair and related businesses, junkyards, wholesalers, manufacturing, and construction companies. The entire District is relatively level with less than 15 feet of elevation variation. Lot B north of Roosevelt Avenue is currently being used as a construction staging area for Citi Field, while Lot D is currently used as a commuter parking lot, as well as for Mets games and USTA National Tennis Center events. The nearest waterbodies to the District and Lots B and D are the Flushing River to the east and Flushing Bay to the north.

TERRESTRIAL RESOURCES

VEGETATION

The District contains areas of rubble, unpaved roads, successional plant communities characteristic of those that develop on urban vacant lots. At present, there are little to no plants of significance on the site. There are few trees within the District, and these are generally limited to Northern Boulevard. The vegetation species found on the site are generally fast-growing and tolerant of harsh urban environments. There are no grassy areas in the District. Lots B and D contain some trees along Roosevelt Avenue.

WILDLIFE

Wildlife likely to utilize the District and Lots B and D include those species generally tolerant of urban conditions. Table 11-1 lists birds identified as breeding within the New York State Breeding Bird Atlas Block 5951C (2000 and 2005), which contains the District, and that have the potential to breed in successional vacant lot habitats within New York City. Other wildlife tolerant of urban conditions with the potential to occur in the District or Lots B and D include rats, mice, and squirrels.

GEOLOGY AND SOILS

The Willets Point peninsula is situated near the westernmost end of Long Island. Soils on the site consist primarily of fill material. The regional stratigraphy of Long Island, including the aquifers and confining layers, was formed from glacial tills and outwash sands of the Pleistocene Epoch. These layers lie unconformably over older deposits of the Cretaceous Period. The Cretaceous deposits lie over an impermeable bedrock surface dipping to the southeast. The bedrock consists of crystalline metamorphic rock of the lower Paleozoic Era. Local aquifers that supply or have the potential to supply groundwater for consumption or industrial uses consist primarily of the late Cretaceous and Pleistocene sands and gravels (HDR/LMS, 2005).

GROUNDWATER

A Phase II environmental site investigation carried out in 2005 indicated that the depth to groundwater in the District varied. Testing revealed that groundwater at the southern edge of the site is approximately five feet below grade. On the northern end of the site, groundwater was encountered at greater depths [typically between eight and nine feet below ground surface (bgs)]. Tidal influences are generally local and only affect areas very close to shorelines. Environmental contamination observed here was found to be typical for the current automotive and industrial uses of the area and most likely impacted only the shallow groundwater (HDR/LMS, 2005).

Table 11-1
Birds with the Potential to Breed Within the District

Common Name	Scientific Name
Confirmed Breeders	
Canada Goose	*Branta canadensis*
Wood Duck	*Aix sponsa*
Mallard	*Anas platyrhynchos*
Rick-necked Pheasant	*Phasianus colchicus*
Killdeer	*Charadrius vociferous*
Rock Pigeon	*Columba livia*
Mourning Dove	*Zenaida macroura*
Chimney Swift	*Chaetura pelagica*
Downy Woodpecker	*Picoides pubescens*
Northern Flicker	*Colaptes auratus*
Warbling Vireo	*Vireo gilvus*
Blue Jay	*Cyanocitta cristata*
Tree Swallow	*Tachycineta bicolor*
Barn Swallow	*Hirundo rustica*
American Robin	*Turdus migratorius*
Gray Catbird	*Dumetella carolinensis*
Northern Mockingbird	*Mimus polyglottos*
European Starling	*Sturnus vulgaris*
Cedar Waxwing	*Bombycilla cedrorum*
Song Sparrow	*Melospiza melodia*
Brown-headed Cowbird	*Molothrus ater*
Baltimore Oriole	*Icterus galbula*
House Sparrow	*Passer domesticus*

Sources: NYSDEC. New York State Breeding Bird Atlas [Internet]. 2006 [cited 2007 Jun 06]. Available from: http://www.dec.ny.gov/animals/7312.html

The District is within an area designated as a sole source aquifer, the Brooklyn-Queens Aquifer System, located in Queens and King (Brooklyn) counties. The East River forms part of the western boundary for this aquifer system. Historically, the Jamaica Water Supply Company supplied water from 69 wells located in or near the water supply franchise area to the southern portion of Queens County. In 1996, the City purchased the Queens portion of the Jamaica Water Supply Company and took responsibility for the delivery of drinking water to those communities previously served by the groundwater wells. The wells draw drinking water primarily from the Upper Glacial, Post Jameco, and Magothy aquifers. In 2007, only one well located in eastern Queens was in service; this well has since been under repair and is currently not in service. Groundwater is not used as a source of drinking water in the portion of Queens where the District is located.

FLOODPLAINS AND WETLANDS

The District was once a salt marsh area that was a part of the large salt meadow known as Flushing Meadow. Today, the site contains predominantly fill, and is mostly developed. Figure

11-1 presents the 100-year (area with a 1 percent chance of flooding each year) and 500-year (area with a 0.2 percent chance of flooding each year) floodplain boundaries in relation to the District. As shown, the 100-year floodplain covers a majority of the District, all of Lots B and D, and nearly the entire ½-mile study area surrounding the District; flooding is common during heavy rain storms. The 500-year floodplain covers the northern portion of the District.

There are no freshwater or tidal wetlands mapped by the DEC (Figure 11-2) or USFWS National Wetland Inventory (Figure 11-3) within the District or Lots B or D. High and intertidal marshes, as identified by DEC, exist east of the District, on the Flushing River. Two USFWS wetlands (E2EM1P and PUBZ) also exist east and south of the site, respectively, on the Flushing River. Specifically, the District and Lots B and D are more than 180 and 800 feet away respectively from the E2EM1P wetland area and more than 165 feet away from PUBZ wetland area.

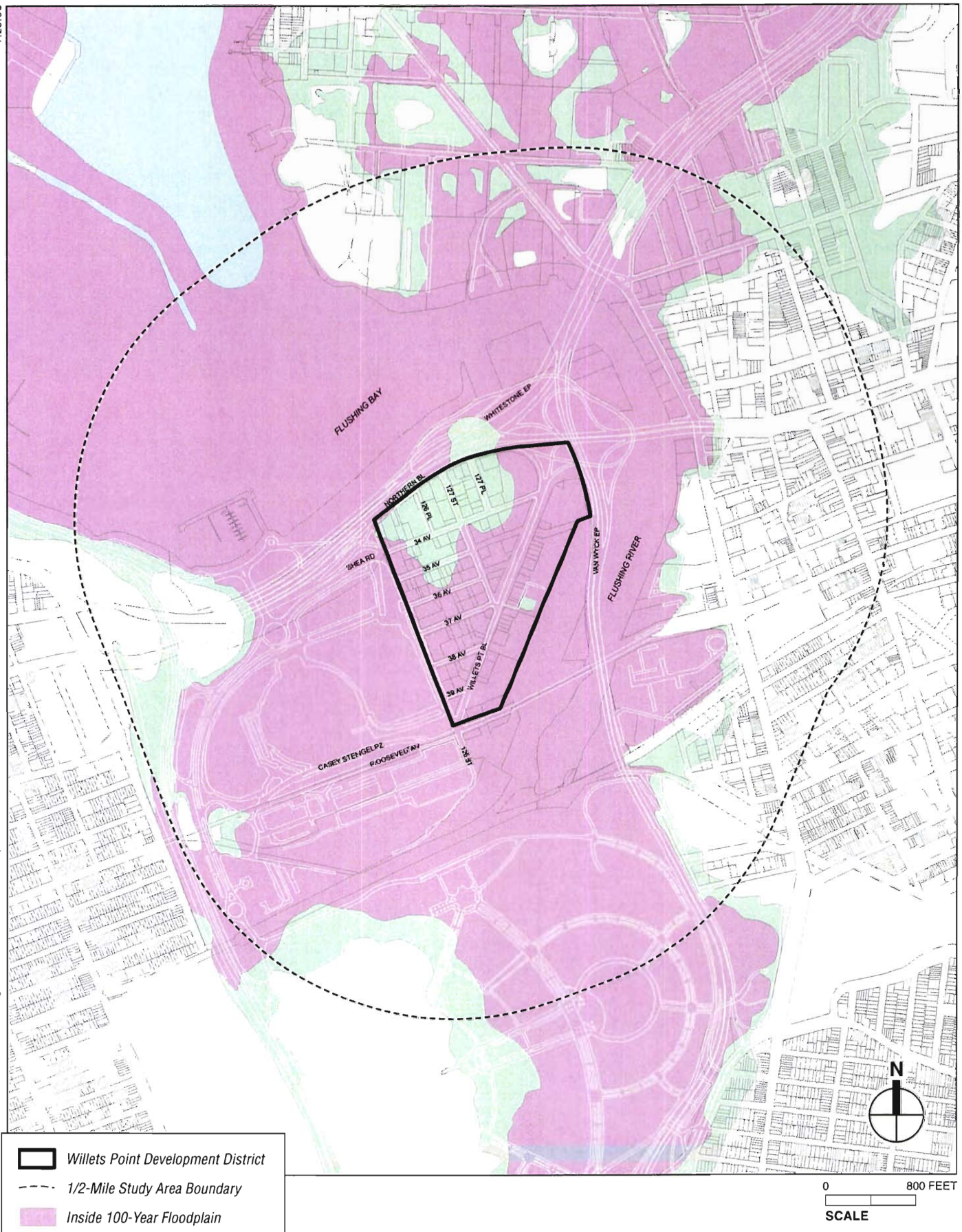
AQUATIC RESOURCES

The District is located along the western shore of Flushing Bay and the Flushing River. Flushing Bay is a tidal embayment on the south shore of the upper East River. The Flushing River and the smaller Mill Creek are the primary freshwater inputs to the bay. Much of the original bay was filled for the development of LaGuardia Airport. With the exception of a 150-foot-wide artificial navigational channel maintained at a depth of 14.5 feet (4.4 m), water depths within the bay are generally shallower than the adjacent East River, ranging from a few feet near shore to over 15 feet near the bay's confluence with the East River. Flushing Bay's circulation and salinity structure near the East River are largely determined by conditions in the East River and Long Island Sound. The East River is a tidal strait that connects New York Harbor with the western end of Long Island Sound. It is approximately 16 miles long (26 kilometers [km]) and generally ranges from 600 to 4,000 feet wide (183 to 1219 meters [m]). Water depth in the federal navigation channel is maintained to 40 feet (12 meters below mean low water [MLW]) from the Battery to the former Brooklyn Navy Yard, and 35 feet (about 11 meters) at MLW from that point to the Throgs Neck Bridge. In reality, the channel is much deeper in places than the maintained depth, reaching up to 100 feet deep (about 30 meters) in areas just north of Hell Gate.

Maximum current velocities in the East River range between approximately 5 and 6 knots (8.4 to 10 feet per second); although in backwaters such as Flushing Bay the tidal currents are considerably slower. The East River and Flushing Bay shorelines are almost entirely bulkheaded or riprapped. During the early flood cycle of the East River, Hudson River water flows in via the Battery, and during the entire flood cycle, Hudson River water enters through the Harlem River. The mean tidal range is considerable, approximately 1.3 meters (4.3 feet) at the Battery, 1.5 meters (5.1 feet) at Hell Gate south of the District, and increasing to 2.2 meters (7.2 feet) at Willets Point (located east of the Throgs Neck Bridge), the entrance to the Long Island Sound. The phase of the tide at Willets Point lags the Battery by about 3 hours. This phase difference, and the difference in resulting water elevations between the Battery and Willets Point, is chiefly responsible for the rapid tidal currents in the East River (Cosper and Cerami 1996).

WATER QUALITY

Flushing Bay is a shallow, highly impacted water body that has been greatly altered by human activities over the past century. A minimal amount of rainwater from Willets Point is captured by on-site cisterns and an underground stormwater system. The existing stormwater runoff generated onsite is approximately 350 cubic feet per second (cfs) for a five-year storm return



Source: Digital Flood Insurance Rate Map Database, FEMA 2007

Figure 11-1
100 and 500 Year Floodplain

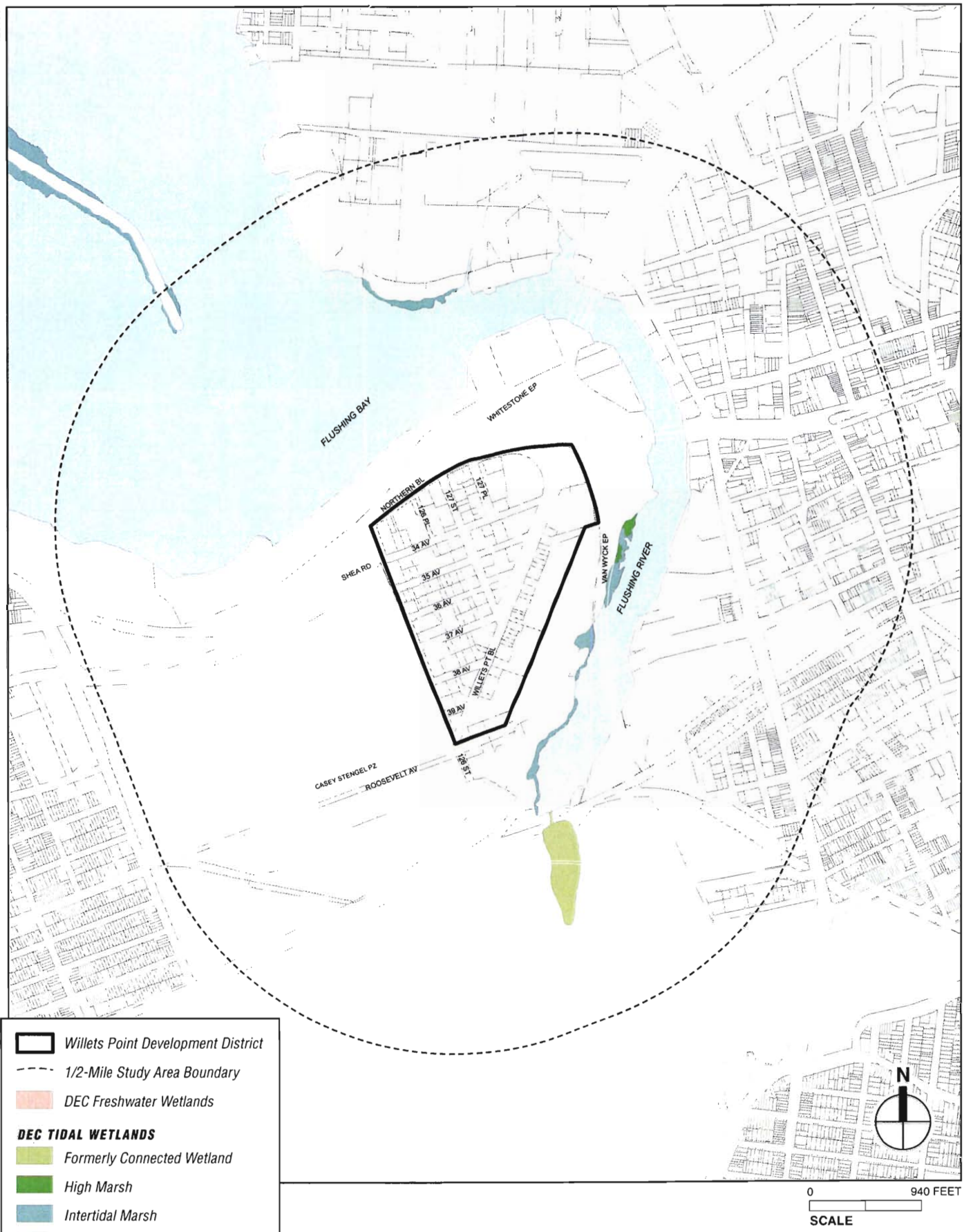


Figure 11-2
DEC Wetlands

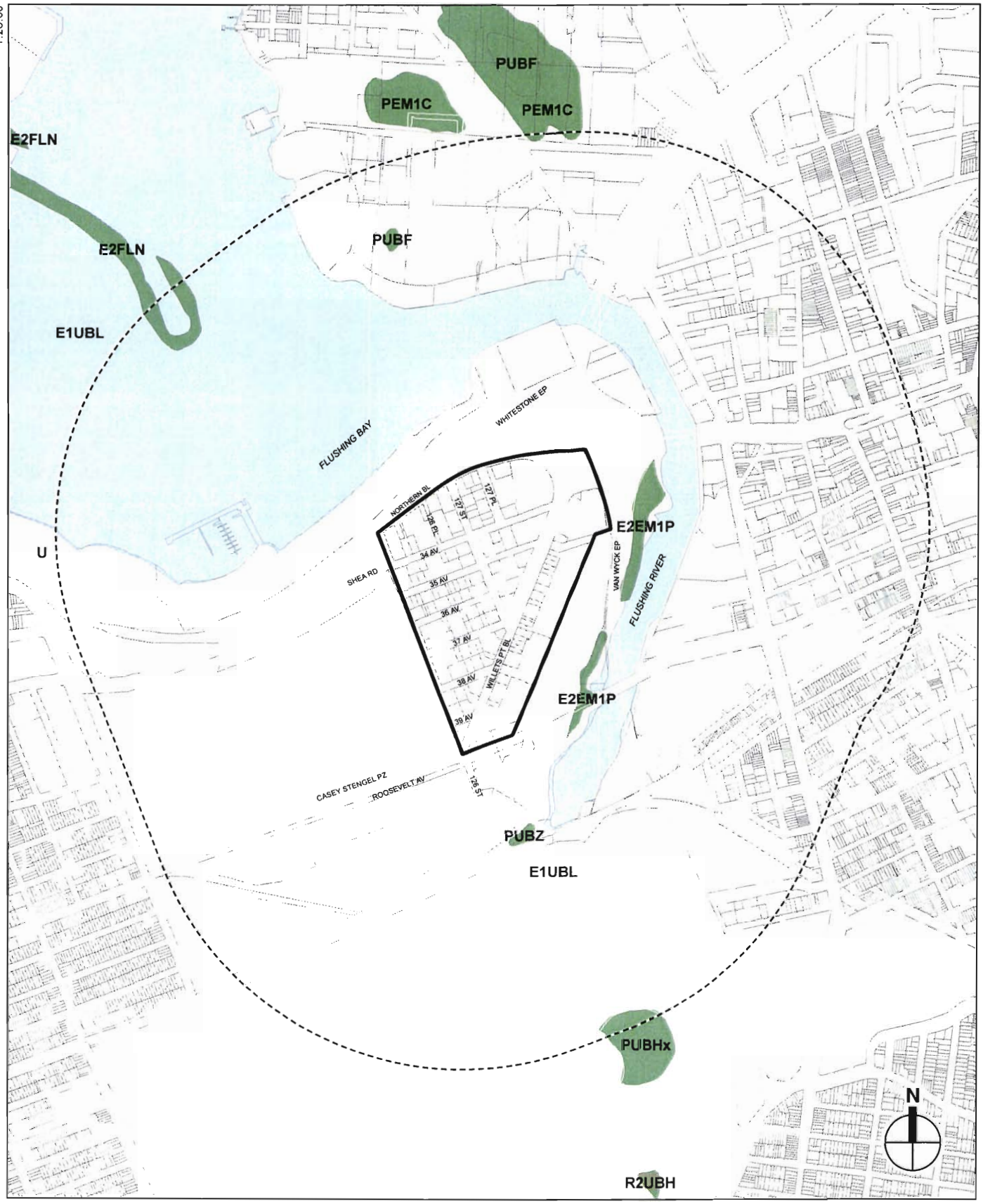


Figure 11-3

National Wetlands Inventory

frequency (see Chapter 14, "Infrastructure"). Stormwater runoff generated in the District and Lots B and D is currently discharged without any detention into Flushing Bay via two 60-inch outfalls on 126th Street and 127th Street. The maximum capacity for each outfall is 74 cfs, for a total of 148 cfs. The current runoff from the District is more than the allowable flow per the drainage plan to these two outfalls. Therefore, the current stormwater conveyance system is not sized to accommodate the uncontrolled runoff being generated, resulting in street flooding during storm events. Given its proximity to Flushing Bay, Willets Point is in a critical location to impact the bay with an influx of pollutants and toxins.

Title 6 of the NYCRR Part 703 includes surface water standards for each Use Class of New York surface waters. The Flushing Bay and River area is Use Classification I. The best usages for Class I waters are as secondary contact recreation and fishing. Water quality should be suitable for fish propagation and survival. Water quality standards for fecal and total coliform, dissolved oxygen (DO), and pH for Use Class I waters are as follows. (There are no New York State standards for chlorophyll *a* or water clarity.)

- Fecal coliform—Monthly geometric mean less than or equal to 2,000 colonies/100mL from 5 or more samples.
- Total coliform—The monthly geometric mean from a minimum of 5 examinations shall not exceed 10,000 colonies/100 milliliters (mL).
- DO—Never less than 4 milligrams per liter (mg/L).
- pH—The normal range shall not be extended by more than 0.1 of a pH unit.

The City of New York has monitored New York Harbor water quality for over 90 years through the Harbor Survey. The New York City Department of Environmental Protection (DEP) evaluates surface water quality of four designated regions: Inner Harbor Area, Upper East River-Western Long Island Sound, Lower New York Bay-Raritan Bay, and Jamaica Bay (DEP 2004). The District is in the Upper East River-Western Long Island Sound, which includes the Flushing Bay and River area.

The results of recent Harbor Surveys (DEP 2004) show that the water quality of New York Harbor has improved significantly since the 1970s as a result of measures undertaken by the City. These improvements were primarily due to regional decreases in municipal and industrial discharges that occurred through the construction and upgrading of WPCPs (DEP 1998 and 2003). While water quality continued to improve until the early 1990s, since that time improvements have been relatively small (DEP 2004).

The presence of coliform bacteria in surface waters indicates potential health impacts from human or animal waste, and elevated levels of coliform can result in the closing of bathing beaches and shellfish beds. According to the 1999 through 2004 New York Harbor Water Quality Regional Summaries (DEP 2004), the waters of the upper East River, which includes Flushing Bay, meet the fecal coliform standard for Use Class I waters. Overall, fecal coliform concentrations in this area have declined, significantly improving water quality from the early 1970s, when levels were well above 2,000 colonies/100 mL (DEP 2001). In 2004, mean fecal coliform concentrations in the upper East River were below 100 colonies/100mL (DEP 2004).

DO in the water column is necessary for respiration by all aerobic forms of life, including fish and such invertebrates as crabs, clams, and worms. The bacterial breakdown of high organic loads from various sources can deplete DO to low levels and persistently low DO can degrade habitat and cause a variety of sublethal or, in extreme cases, lethal effects. Consequently, DO is

one of the most universal indicators of overall water quality in aquatic systems. Mean DO concentrations in the upper East River Area have increased over the past 30 years from an average that was below 3 mg/L in 1970 to above 5 mg/L in 2000 - 2003, a value fully supportive of ecological productivity (DEP 2003). In 2004, average summer DO concentrations for the upper East River at all Harbor Survey Stations, with the exception of the Flushing Bay Survey Station (E6), were above the 4 mg/L standard for Use Class I waters (DEP 2004). All pH levels in the New York Harbor Area are in attainment. At Harbor Survey Station E6 in Flushing Bay, surface dissolved oxygen concentrations in 2004 ranged from 2.57 mg/L in August to over 14 mg/L in March.

High levels of nutrients can lead to excessive plant growth (a sign of eutrophication) and depletion of dissolved oxygen. Concentrations of the plant pigment chlorophyll-*a* in water can be used to estimate productivity and the abundance of phytoplankton. Chlorophyll-*a* concentrations greater than 20 micrograms per liter (µg/L) are often considered suggestive of eutrophic conditions. DEP is implementing a program to reduce nitrogen loadings from wastewater treatment plants to the East River. Upgrades implemented at four upper East River treatment plants have decreased nitrogen discharges from these plants by over 30,000 pounds per day since 1993. In 2004, the average concentration of chlorophyll-*a* in the upper East River region was well below 10 µg/L (DEP 2004).

Secchi transparency is a measure of the clarity of surface waters. In many temperate estuaries, transparency greater than 5 feet (1.5 meters) can be indicative of clear water. Decreased clarity can be caused by high suspended solid concentrations or blooms of plankton. Secchi transparencies less than 3 feet (0.9 meters) are generally indicative of poor water quality conditions. Average Secchi readings in the upper East River area have remained relatively consistent since measurement of this parameter began in 1986, ranging between about 3.5 and 6 feet (1 to 1.7 meters). Average Secchi transparency near the project area in 2004 was approximately 5 feet ([1.5 meters] DEP 2004).

New York City is served primarily by a combined sewer system, which drains some 200,000 acres and serves a population of about eight million New Yorkers. Approximately 460 outfalls throughout the City are permitted to discharge during wet-weather through combined sewer overflows (CSOs) to the receiving waters of the New York Harbor, resulting in localized water-quality problems such as periodic high levels of coliform bacteria, floatables, depressed dissolved oxygen, and, in some cases, sediment mounds and unpleasant odors. As a result of the deteriorating water quality, DEP entered into an Administrative Consent Order with DEC in 1992 to govern DEP's obligations for its CSO program. It required DEP to implement CSO abatement projects in nine facility planning areas for those areas where dissolved oxygen and coliform standards were being exceeded (including Flushing Bay) and those areas for which floatables control was necessary. The 1992 Order was modified in 1996 to add catchbasin cleaning, construction, and repair programs.

In 2004, DEP and DEC negotiated a new Consent Order that supersedes the 1992 Order and its 1996 Modifications with the intent to bring all DEP CSO-related matters into compliance with the provisions of the federal CWA and ECL, and to adopt a more comprehensive watershed-based planning approach. The new Order contains requirements to evaluate and implement CSO abatement strategies on an enforceable timetable for 18 waterbodies and, ultimately, for City-wide CSO long-tern control plan (LTCP) in accordance with U.S. Environmental Protection Agency (EPA) CSO Control Policy. DEP and DEC also entered into a separate Memorandum of

Understanding (MOU) to facilitate water quality standards reviews in accordance with the CSO Control Policy.

Within Flushing Bay, dissolved oxygen and coliform levels have been in non-compliance with water quality standards through the bay and the river, due primarily to urban runoff. Although dissolved oxygen and coliform conditions in the bay and river have improved, levels continue to be significantly below standards. Flushing Bay and River were delisted in 2006 from the State's List of Impaired/Total Maximum Daily Load Waters. As part of the City's long-term CSO planning effort, a Comprehensive Watershed Plan was developed for Flushing Bay in June 2007. The purpose of this plan is to take the first step toward development of an LTCP for this waterbody. This plan assesses the ability of the existing CSO Facility Plan for Flushing Bay and Flushing River to provide compliance with the existing water quality standards. Where these facilities will not result in full attainment of the existing standards, additional alternatives are evaluated.

DEC is also leading a collaborative effort to reduce levels of toxic chemicals in New York Harbor. This work is being performed under the Contamination Assessment and Reduction Project (CARP). DEC developed a comprehensive, multi-media contaminant identification and trackdown program simultaneously with New Jersey and the CARP Work Group (a group of government, academic, and consultant experts). The states together with the work group are undertaking a variety of projects including studies of the water in the Harbor and tracking down contaminant sources in the surface water, groundwater, and wastewater of the Harbor. The overall goal of the initiative is to reduce the flow of contaminants to the Port of New York and New Jersey (PANYNJ). The principal chemicals of concern include dioxins/furans, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals (mercury, cadmium, and lead), and pesticides (dieldrin and chlordane [Adams et al 1998]).

SEDIMENT QUALITY

Upper New York Bay has a complex distribution of sediments in the area because of variable currents and a high degree of sediment input due to natural and human actions. USACE ([USACE] 1999) reports that sediments in Upper New York Bay vary from coarse sands and gravels in high-energy areas to fine-grained silts and clays in low-energy areas. The upper East River primarily has a hard, rock bottom consisting of gravel, cobble, rocks, and boulders covered with a shallow layer of sediment. The shallow sediment cover is caused by strong tidal currents in the river. Backwaters such as Flushing Bay tend to be sediment traps; fine silts tend to accumulate in areas where tidal current velocities are reduced.

Typical of any urban watershed, New York Harbor Estuary sediments, including the upper East River, are contaminated due to a history of industrial uses in the area. Contaminants found throughout the New York Harbor Estuary included pesticides such as chlordane and DDT, metals such as mercury and copper, and various polycyclic aromatic hydrocarbons. Adams et al. (1998) found the mean sediment contaminant concentration for 50 of 59 chemicals measured to be statistically higher in the Harbor Estuary than other coastal areas on the East Coast. Within the New York Harbor Estuary, Adams et al. (1998) ranked Newark Bay as the most degraded area on the basis of sediment chemistry, toxicity, and benthic community, followed by the Upper Harbor, Jamaica Bay, Lower Harbor, Western Long Island Sound and the New York Bight Apex. Biological effects, identified based upon the benthic invertebrate community, were found to be associated with the chemical contamination. While the sediments of the New York Harbor Estuary are contaminated, the levels of most sediment contaminants (e.g., dioxin, DDT, and

mercury) have decreased on average by an order of magnitude over the past 30 years (Steinberg et al. 2002). Between 1993 and 1998 the percentage of sediment sampling locations with benthic macroinvertebrate communities considered impacted, or of degraded quality, decreased throughout the New York/New Jersey Harbor Estuary. Within the Upper Harbor, the percentage of benthic communities considered impacted decreased significantly from 75 percent in 1993 to 48 percent in 1998 (Steinberg et al. 2004).

In June and October 1995, a benthic habitat mapping study was conducted in various New York area waters, including Flushing Bay (Iocco et al 2000). The study used benthic imagery to assess benthic habitat quality with respect to the presence of fauna and also assessed sediment characteristics such as grain size, subsurface features, and redox potential discontinuity (the depth to which sediments are oxidized). For most of Flushing Bay, the benthic habitat was classified as soft silt (June 1995) or as silt with infauna (October 1995). Some sampled locations indicated the presence of "stressed silt", or silt with methane gas voids. In the June 1995 sampling, deeper collections near the confluence with the East River were characterized as azoic (silty bottoms without epifauna, infauna, or bacterial mats). The sediments in Flushing Bay were indicative of recently accumulated material that has limited potential to support a diverse benthic faunal community.

AQUATIC BIOTA

New York City is located at the convergence of several major river systems, all of which connect to the New York Bight portion of the Atlantic Ocean. This convergence has resulted in a mixture of habitats that support a variety of marine life. The following paragraphs describe fish and benthic life within the vicinity of the District.

A field program was undertaken in 2003 as part of the proposed North Shore marine transfer station by the New York City Department of Sanitation (DSNY) in College Point on the eastern shore of Flushing Bay. The field program was designed to characterize the marine biological resources in the area and included monthly sampling for finfish egg and larvae, and quarterly sampling for adult finfish, as well as benthic invertebrates. The DSNY program sampled a total of 126 adult finfish representing eight species. The most abundant species were Atlantic silverside (*Menidia menidia*) and Atlantic herring (*Clupea harengus*). Two adult species with essential fish habitat (EFH) listing were collected as well: Atlantic herring and winter flounder (*Pleuronectes americanus*). The most abundant finfish eggs collected were cunner (*Tautogolabrus adspersus*) and Atlantic menhaden (*Brevoortia Tyrannus*). The most abundant finfish larvaie were herring spp (*Clupea spp.*), Atlantic menhaden, anchovy spp. (*Anchoa spp*), winter flounder, and goby spp. (*Gobiosoma spp*). (DSNY, 2005). The most abundant macroinvertebrate species collected were sevenspine bay shrimp (*Crangon septemspinosa*) and grass shrimp (*Palaemonetes vulgaris*).

As part of the states of New York and New Jersey's long-term dredged material management plan for the New York/New Jersey Harbor, mapping of the harbor's benthic habitats was undertaken to examine the benthic environment, and to ascertain the overall condition of its communities and sediments. This 1995 study examined Jamaica, Upper, Newark, Bowery, and Flushing bays (Iocco *et al*, 2000). The study found that the benthic habitats in Newark, Bowery, and Flushing Bays consisted predominantly of silty-bottom communities; however one station near the shore in the lower basin was found to be comprised of rock and shell hash. Subsurface methane pockets were observed which indicated organic contamination in areas of Bowery and Flushing Bays and some of the peripheral basins of Jamaica Bay. Notable temporal shifts, seen

in all the bays from June to October, included increases in infaunal polychaete (marine worm) density, general deepening of depths at which sediments are oxidized, and changes in species dominance within communities. Communities in each bay were found to be dominated by opportunistic or pollution-tolerant species, and few noticeable differences in overall habitat quality were observed.

Within Flushing Bay, benthic habitats were sampled in June and October 1995 in three major areas: 1) the northwestern region, west of the main channel, 2) the northeastern region, east of the main channel, and 3) the lower basin (near Willets Point) (Iocco et al, 2000). Soft sediment habitats were predominantly observed. Oyster beds occupied the northwestern corner of the sampling area west of the channel, consisting of silty habitats with faunal communities. The presence of epifauna and infauna increased in this region of Flushing Bay in October. Stations on the eastern side of the channel mainly were composed of soft sediments and few gas voids (areas of high organic content) in June, and these habitats shifted to shallow sediment communities with infaunal worms and some gas voids in October. Gas voids, or areas of high organic content, were observed at seven and 21 percent of stations in June and October, respectively, and were most concentrated in the lower basin, near Willets Point. In June, the lower basin contained soft sediments and bacteria habitats. These habitats predominantly shifted to gas void habitats. June grab data taken at one station on the eastern side of the main channel, showed highest abundances of *Oligochaeta* (>1,500 individuals/m2) and *M. lateralis* (>1,250 individuals/m2). Grab data from October, taken from nine stations distributed in each region, showed highest average abundances of *Streblospio. benedicti* (>1,700 individuals/m2), *Leitoscoloplos robustus* (>590 22 individuals/m2), *Mulinea lateralis* (>400 individuals/m2) and *Asabellides oculata* (>360 individuals/m2).This grab data indicated the highest abundances of the bays of pollution-tolerant species, suggesting that the habitat quality is poor in this bay (Iocco *et al*, 2000).

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

There are no Significant Coastal Fish and Wildlife Habitats as defined by NYSDOS. Requests for information on rare, threatened, or endangered species within the ½-mile study area around the District were submitted to USFWS, NYNHP, and NMFS. NYNHP, a joint venture of DEC and The Nature Conservancy (TNC) since 1985, maintains an ongoing, systematic, scientific inventory on rare plants and animals native to New York State. DEC maintains the NYNHP files. The NYNHP database is updated continuously to incorporate new records and changes in the status of rare plants or animals. In addition to this state program, the USFWS maintains information for federally-listed threatened or endangered freshwater and terrestrial plants and animals. Responses from these agencies indicated that there are no threatened or endangered species in the project area.

The project area on the East River is within a portion of the Hudson River Estuary EFH that is situated in the National Oceanic and Atmospheric Administration (NOAA)/NMFS 10' x 10' square with coordinates (North) 40°50.0' N, (East) 73°50.0' W, (South) 40°40.0' N, (West) 74°00.0' W. This area includes Atlantic Ocean waters within the Hudson River estuary affecting the following: Manhattan Island, New York City, College Point, Long Island City, Brooklyn, Port Morris (NY), Unionport (NY), Flushing Bay, Astoria, LaGuardia Airport, Badland Island, Rikers Island, Roosevelt Island, Wards Island, and Hell Gate, along with the East River, the Harlem River, and the Bronx River. The area of Flushing Bay containing the District has been identified as EFH for 18 species of fish. Table 11-2 lists the species and life stages of fish identified as having EFH.

Table 11-2
Essential Fish Habitat Designated Species for the Upper New York Bay

Species	Eggs	Larvae	Juveniles	Adults
Pollack (*Pollachius virens*)			X	X
Red hake (*Urophycis chuss*)		X	X	X
Winter flounder (*Pseudopleuronectes americanus*)	X	X	X	X
Windowpane (*Scopthalmus aquosus*)	X	X	X	X
Atlantic herring (*Clupea harengus*)		X	X	X
Bluefish (*Pomatomus saltatrix*)			X	X
Atlantic butterfish (*Peprilus triacanthus*)		X	X	X
Atlantic mackerel (*Scomber scombrus*)			X	X
Summer flounder (*Paralicthys dentatus*)		X	X	X
Scup (*Stenotomus chrysops*)	X	X	X	
Black sea bass (*Centropristus striata*)			X	X
King mackerel (*Scomberomorus cavalla*)	X	X	X	X
Spanish mackerel (*Scomberomorus maculatus*)	X	X	X	X
Cobia (*Rachycentron canadum*)	X	X	X	X
Sand tiger shark (*Odontaspis taurus*)		X		
Sandbar shark (*Charcharinus plumbeus*)		X		X
Clearnose skate (*Raja eglanteria*)			X	X
Little skate (*Leucoraja erinacea*)			X	X
Winter skate (*Leucoraja ocellata*)			X	X

Source: National Marine Fisheries Service. "Summary of Essential Fish Habitat (EFH) Designation" posted on the internet at http://www.nero.noaa.gov/hcd/STATES4/conn_li_ny/40407350.html

D. THE FUTURE WITHOUT THE PROPOSED PLAN

TERRESTRIAL RESOURCES

In the future without the proposed Plan, conditions in the District are anticipated to remain the same as those described under existing conditions. Proposed development in adjacent areas, including development of Citi Field will occur in an existing urban environment. That project does not include any new open space, and thus would not change the existing amount of vegetation, or natural habitat for terrestrial wildlife within the immediate area surrounding the District. Within the broader ½-mile study area, none of the projects expected to be completed by 2017 include an open space element.

FLOODPLAINS AND WETLANDS

Nearly all lands within the ½-mile study area of the District are within the 100-year floodplain. Development adjacent to the District, excluding the Flushing Meadows-Corona Park, predominantly contains impervious surface area. Because the construction of Citi Field is taking place in an existing developed area, the development is not expected to exacerbate flooding conditions in the floodplain, or increase flooding in surrounding areas. In addition, no losses to floodplain and wetlands would be expected. Other development expected to take place in the ½-mile study area in the future without the proposed Plan would occur east of the Flushing River in developed areas.

AQUATIC RESOURCES

In the future without the proposed Plan, the District is expected to remain the same and existing industrial activities would continue. Two projects have the potential to affect aquatic resources: the adjacent Citi Field development and the proposed DSNY North Shore marine transfer station. The Citi Field development would not be expected to result in significant adverse impacts on water quality or aquatic resources, since it is located more than 1,000 feet away from the shoreline of Flushing Bay. DSNY's North Shore marine transfer station (MTS) is an existing development located on the eastern shore of Flushing Bay, approximately 2,500 feet away from the District. The MTS is one of several MTSs proposed for expansion and use under DSNY's long-term waste export plan. The facility will be upgraded to transport waste by barge, and includes a dredging program. The project is planned to be in operation in 2011 (DSNY, 2005). Separate environmental reviews and permitting have been conducted for each of the projects, and those reviews concluded that the projects would not result in significant adverse impacts on water quality or aquatic resources.

There are several proposed and ongoing projects aimed at improving water quality and aquatic resources in New York that have the potential to result in water quality and aquatic habitat improvements in Flushing Bay and the Flushing River. These projects are independent of the proposed Plan. Improvements that would result from these projects, described below, would occur without the proposed Plan and are expected to continue through the proposed construction in 2009 to full operation of the project in 2017.

New York/New Jersey HEP Projects

Several of the future water quality improvement efforts in the Lower Hudson River Estuary will be coordinated by the New York/New Jersey Harbor Estuary Program (HEP). The Final Comprehensive Conservation and Management Plan ([CCMP] NY/NJ HEP 1996) for the HEP included a number of goals to improve water quality and aquatic resources in the area. The CCMP outlines objectives for the management of toxic contamination, dredged material, pathogenic contamination, floatable debris, nutrients and organic enrichment, and rainfall-induced discharges. The HEP Habitat Workgroup has developed watershed-based priorities for identifying acquisition, protection, and restoration sites for the preservation and enhancement of tidal wetlands that will provide improved habitat for fish and macroinvertebrates as well as the birds, mammals, and reptiles that depend on these habitats. No NY/NJ HEP Acquisition and Restoration Sites have been identified within the project area.

The CARP, sponsored by PANYNJ, is a component of HEP focused on understanding the fate and transport of contaminants discharged to the estuary, and using this information to develop measures that may be necessary to reduce sediment contamination. The principal chemicals of concern include dioxins/furans, PCBs, PAHs, metals (mercury, cadmium, and lead), and pesticides (dieldrin and chlordane). Continued research and monitoring programs are anticipated to play a role in the development of future management strategies for Harbor sediments (NY/NJ HEP undated, USACE 1999).

DEP Projects

EPA's National CSO Strategy of 1989 requires states to eliminate dry weather overflows of sewers, meet Federal and State water quality standards for wastewater discharges, and minimize impacts on water quality, plant and animal life, and human health. CSOs are the largest single source of pollutants and pathogens to the New York Harbor. DEP has taken several steps in recent

years to mitigate discharges from CSOs, which, in combination with improvements that have been made to WPCPs, and the on-going Comprehensive City-Wide Floatables Abatement Plan, are expected to result in future improvement in coliform, dissolved oxygen, and floatables levels in the New York Harbor area. The Multi-Year Intended Use Plan of the New York City Municipal Water Financing Authority has identified several CSO improvement and abatement projects, which will be completed by 2010. As required by EPA's CSO Control Policy, DEP initiated the development of the Long Term Control Plan (LTCP) Project in 2004. The LTCP Project will integrate CSO Facility Planning Projects and the Comprehensive City-Wide Floatables Abatement Plan, incorporate ongoing Use and Standards Attainment Program (USA) Project work, and will develop Waterbody/Watershed Facility Plan Reports and the LTCP for each waterbody area, including Flushing Bay. The LTCP Project monitors and assures compliance with applicable Administrative Consent Orders between DEC and New York City for the CSO Abatement Program. To date, several initiatives have been undertaken as part of the 2004 Order to improve the quality of Flushing Bay including approval of the Flushing Bay Watershed Plan (previously described in Section C), as well as several infrastructure improvements. DEP also plans to increase identification and control of pollutants of concern, including mercury, PCBs, and solvents.

Other Projects

Other proposed projects located outside the District, but within the drainage area serviced by the Bowery Bay Water Pollution Control Plant (WPCP), have the potential to affect aquatic resources of Flushing Bay in the vicinity of the District without the proposed Plan. Such projects would include those that would result in development of new uses and uses with greater densities. These projects have the potential to result in greater water volume needs and sewage discharges to the combined sewer system than current uses, and have the potential to result in increased sewage discharge to Flushing Bay from CSOs, which may affect water quality in the Bay and River.

The Bowery Bay Water Pollution Control Plant (WPCP) is a conventional secondary wastewater treatment plant that has been in service since 1939. Its receiving waterbody is the upper East River. The existing plant has treatment facilities designed and permitted to treat an annual average dry weather flow of 150 million gallons per day (mgd), which would produce approximately 40 dry tons per day (dtd) of dewatered sludge. The plant has hydraulic capacity to convey and to provide primary treatment for 300-mgd of wet weather flow. The dewatered sludge is hauled off-site and further processed in accordance with DEP's Sludge Management Program. The average daily flow rate at the plant for the period between January 2007 and December 2007 was 105 mgd. DEP's projected dry weather wastewater flow to the Bowery Bay WPCP in 2017 is 122 mgd. With the additional treatment of waste from projects proposed outside of the District, including the proposed Citi Field, the WPCP would still be within its permitted capacity. Thus, no adverse environmental impacts on the water quality of Flushing Bay or River, or the upper East River are expected. Chapter 14 provides additional detail on this WPCP.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

PROPOSED PLAN

As described in Chapter 1, "Project Description," the Willets Point Development Plan has been accepted as a pilot LEED-ND project by the United States Green Building Council (USGBC). Based on preliminary designs, it is likely that development under the Plan could achieve LEED-

ND Gold certification. As part of this effort, the lead agency and New York City Economic Development Corporation (NYCEDC) are exploring the potential for the integration of several sustainable site planning features that would benefit natural resources in and within the vicinity of the District. These include green roofs, on-site storage and treatment facilities, graywater recycling, and bioswales to address stormwater management. The following sections discuss the potential for natural resource impacts to occur as a result of the proposed Plan.

TERRESTRIAL RESOURCES

Construction of the proposed Plan would result in the loss of small areas of successional plant communities currently found in the District. Lot B is currently being used as a construction staging area for Citi Field, while Lot D is currently used as a commuter parking lot, as well as for Mets games and USTA National Tennis Center events. Neither Lot B nor Lot D contain plants of significance. The proposed Plan entails construction of a minimum of eight acres of open space—a substantial increase over the amount of existing natural area in the District and on Lots B and D. Although construction of the proposed Plan has the potential to displace existing birds and wildlife to nearby areas such as the Flushing Meadow-Corona Park, the proposed open space would provide a minimum of eight acres of new habitat to wildlife species tolerant of urban conditions, including the birds and wildlife that currently inhabit the site. The wildlife species expected to occur in the District are common to urban areas, and the potential loss of some individuals would not result in a significant adverse impact to the bird and wildlife community of the New York City region.

During operation of the proposed Plan, landscaping added to the park areas would enhance the wildlife habitat currently found within the District. This enhanced habitat also would have the potential to provide improved resting or stop-over habitat for migratory songbirds during the spring and autumn migrations. Additionally and as described above, other open space areas that may be developed within the District as part of the LEED-ND efforts, such as green roofs and bioswales, would provide additional habitat for wildlife. No significant adverse impacts on terrestrial or wildlife resources are anticipated as a result of construction and operation activities.

FLOODPLAINS AND WETLANDS

As shown in Figure 11-1, the 100-year floodplain covers a majority of the District, all of Lots B and D, and nearly the entire ½-mile study area surrounding the District. The 500-year floodplain covers the northern quarter of the District. Development of the proposed residential, retail, office space, hotel, convention center, and open space would occur on the 100- and 500-year floodplain. The District and Lots B and D are currently developed, with no open space areas. Because the project would introduce a minimum of eight acres of open space, the amount of developed surface would be reduced.

The proposed Plan would comply with the New York City Building Code (Title 27, Subchapter 4, Article 10) and Federal Emergency Management Agency (FEMA) requirements regarding the lowest floor elevation, which would be at or above the base flood elevation (BFE)[1]. It is anticipated that approximately one to seven feet of fill would be used to raise the site to 14 feet (NAVD 1929) to be above FEMA 100-year flood level and graded to ensure that the lowest floors of the residential towers are above the BFE. The City has established an interagency

[1] 10 feet above the borough datum

group to work with FEMA to revise the Flood Insurance Rate Maps for the City. The City is working with FEMA to reflect current shoreline and elevations, and technological changes that allow for more accurate map-making. It is anticipated that the map revisions will be completed in 2010. Subsequent development within the District will reflect any changes to the floodplain elevations.

The proposed Plan would include a new separate stormwater system that would be connected to the existing outfalls. Implementation of this new system, in addition to onsite stormwater detention, would provide for adequate stormwater management. Construction of the proposed Plan within the floodplain would not adversely affect the floodplain's ability to contain flood waters and would not exacerbate flooding conditions within the site or its immediate vicinity. The proposed stormwater management system would eliminate street flooding and uncontrolled runoff, and would reduce the current surface flows to nearby wetlands. The floodplain within and adjacent to the District is affected by tidal flooding originating from either Long Island Sound or New York Harbor (FEMA 2001), and therefore, the site does not act as a recharge area and would not be affected by construction of the proposed Plan.

The District and Lots B and D are more than 180 and 800 feet away respectively from a DEC-mapped tidal wetland and more than 165 feet away from a USFWS NWI-mapped wetland. Therefore, adverse impacts on DEC or USFWS mapped wetlands are not expected.

AQUATIC RESOURCES

The proposed Plan includes approximately 8.94 million gsf of new development, including a minimum of eight acres of open space. Construction of the new buildings would result in the removal or capping of contaminated soils and historic fill. As discussed in Chapter 12, "Hazardous Materials," implementation of the measures during construction activities would minimize the potential for significant adverse impacts to groundwater quality, adjacent wetland areas, and benthic and fish resources. Adverse impacts on groundwater flow patterns and aquatic resources are not expected.

Construction activities within the District and on Lots B and D have the potential to temporarily affect the water quality of Flushing Bay and the Flushing River where stormwater is discharged. Stormwater generated during construction as well as operation would be discharged to Flushing Bay via connection to the two existing 60-inch outfalls at 126th and 127th Streets. No additional outfalls would be constructed. The proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual. Best management measures implemented during construction and project operation would include erosion and sediment control measures as part of a stormwater pollution prevention plan (SWPPP) and would minimize potential impacts on Flushing Bay associated with stormwater runoff. The SWPPP would comply with the Flushing Bay Comprehensive Watershed Plan (described above in Section C, "Existing Conditions") and would take into account that Flushing Bay is an existing impaired waterbody. Therefore, significant adverse impacts on surface water quality would not be expected during construction or operation of the proposed Plan.

As detailed in Chapter 14, the flow of stormwater runoff generated by the proposed development during operation would largely remain unchanged at 350 cfs. Because the overall stormwater runoff volumes would exceed the capacity of the two existing outfalls (148 cfs), and because the current conveyance system is also undersized, stormwater management features would be implemented to control stormwater flow in order to remain within the capacity of the two

outfalls; modifications to the existing outfalls would not be required. Possible stormwater management features could include an extensive network of storm sewers and detention basins. In addition, the primary retail street would have an option to include a 10-foot landscaped median that could be utilized for stormwater management. Prior to redevelopment of the site and in coordination with DEP, an amended drainage plan would be prepared to comprehensively address all the surface runoff and separate handling of the sanitary dry flow that would be generated as a result of the proposed Plan, and drainage features to be included in the development of the District.

In addition, the developer would be required to prepare and implement a site stormwater management plan, to be reviewed and approved by DEP prior to commencement of construction. This plan would specify Best Management Practices and sustainable design features to be incorporated into the project. These features could include rooftop storage and filters, underground storage, inline pipe storage, decorative wet ponds, detention dry ponds, proprietary pre-treatment structures, bio-swales, green roofs, gray water irrigation, and other measures. These measures would further improve the overall stormwater management and water quality during project construction and operation.

The Willets Point area is currently without connections to the New York City sanitary sewer system, relying solely on septic tanks for sanitary waste collection. As described in Chapter 14, the proposed Plan would include the development of new sanitary sewer infrastructure that would connect to the City's sewer system, and ultimately to the Bowery Bay WPCP. The Plan would result in a discharge of 2.8 mgd to the Bowery Bay WPCP, and would not cause it to exceed its capacity or SPDES permit limit of 150 mgd. Modeling simulations (see Chapter 14) determined that the additional sanitary flow from the proposed Plan (2.8 mgd) would not affect the number of annual CSO events; the total annual volume of CSO discharge would increase by less than one percent (0.76 percent). The largest increase in CSO discharge would occur at Outfall BB-008, located just north of the project area on Flushing Bay (see Figure 14-2). In addition, the Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. If proposed by a future developer, a water reclamation facility would require a special permit by the Board of Standards and Appeals (BSA), and would be subject to separate environmental and public review processes. The water reclamation facility would treat the District's sanitary wastewater to applicable water quality and effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would likely require a SPDES permit, and would result in a slight increase in the amount of detention to be provided in the District. If a water reclamation facility were constructed, it would obviate the need for a new pump station.

The proposed Plan would be consistent with the City's goal to reduce CSO events by requiring construction and maintenance of a separate storm and sanitary sewer system. Given that the District currently lacks sanitary sewer infrastructure, and stormwater from the existing industrial uses flows uncontrolled into Flushing Bay, conditions in the future with the proposed Plan would be an improvement over current conditions. Overall, implementation of the new system is expected to result in improved water quality in Flushing Bay by eliminating site flooding, improving the quality of the soil substrate of the site, and providing direct drainage to storm sewers; incorporating sustainable design features, where feasible, to reduce the discharge volume and increase the quality of storm water discharges; and preventing stormwater generated within the District from entering the combined sewer system, which would increase the

frequency and volume of CSO discharges. All discharges would be required to meet applicable water quality standards of receiving waters. The projected discharges would not be expected to result in an adverse impact on Flushing Bay, and it would continue to meet Class I standards. The life stages of estuarine-dependent and anadromous fish species, bivalves and other macroinvertebrates found within Flushing Bay are fairly tolerant of varying environmental conditions and have developed behavioral and physiological mechanisms for dealing with these variations. Therefore, temporary, localized changes in water quality that may occur as a result of the minimal additional CSO discharge would not be expected to result in significant adverse impacts to aquatic biota. Significant adverse impacts on surface water quality would not be expected during operation of the proposed Plan.

NO CONVENTION CENTER SCENARIO

The effect of the No Convention Center Scenario on terrestrial, floodplain and wetland, and aquatic resources would be similar to those described above under Proposed Plan. The No Convention Center Scenario would not result in significant adverse impacts on natural resources.

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A. INTRODUCTION

This chapter assesses the potential for the presence of hazardous materials in the Willets Point Development District and on adjacent properties identified as Lot B and Lot D. It examines the potential for both human and environmental exposure to hazardous materials in the current condition, the future without the proposed Plan, the future with the proposed Plan (during and following construction), and outlines specific measures that would be employed to protect public health, worker safety, and the environment. "Hazardous materials" are generally defined as any substances that pose a threat to human health or the environment. The term is often used interchangeably with "contaminated material," but should not be confused with the term "hazardous waste," which is a regulatory term.[1] Assessment methodologies are based upon available guidance, including:

- American Society for Testing and Materials (ASTM), Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-05);
- 2001 *City Environmental Quality Review (CEQR) Technical Manual*, Chapter J. Hazardous Materials, and Hazardous Materials Appendices;
- Draft DER-10 Technical Guidance for Site Investigation and Remediation, New York State Department of Environmental Conservation (DEC), December 2002;
- Final Brownfield Cleanup Program (BCP) Guide, DEC, December 2006;
- General Remedial Program Requirements, 6 NYCRR Subpart 375-1, effective December 14, 2006;
- New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006); and
- DER-13/Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York, DEC Program Policy, October 18, 2006.

Pursuant to CEQR, certain types of industrial, manufacturing, and commercial facilities and their activities (listed in "Hazardous Materials Appendix 1" of the *CEQR Technical Manual*) require assessment for hazardous materials. These facility categories include: automobile wrecking establishments; automobile service stations; dumps; filling stations; garbage incineration, storage or reduction; gasoline service stations; junkyards; office equipment or machinery repair shops; oil storage; petroleum or petroleum products storage and handling; pumping stations; sewage; and welding shops.

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[1] "Hazardous waste" is defined in both the U.S. Environmental Protection Agency (EPA) regulations (40 CFR Part 261) and New York State regulations (6 NYCRR Part 371) and refers to a subset of solid wastes that are either specific wastes listed in the regulations (listed wastes) or solid wastes possessing the characteristic of ignitability, reactivity, corrosivity or toxicity (characteristic wastes).

As described in Chapter 1, "Project Description," the Willets Point peninsula and surrounding area were used for the disposal of incinerator ash and garbage from around 1900 through the mid 1930s. During this time, approximately 50 million cubic yards of material filled the area with varying thickness of ash and waste. This entire fill area, much of which now comprises Flushing Meadows-Corona Park, was the site of the 1939 New York World's Fair. The street grid in the District, including Willets Point Boulevard, was put in place around the time of the 1964-1965 World's Fair.

Following its period of use as a disposal site, the District was occupied by a dense cluster of industrial, automotive, manufacturing, and commercial businesses. As a result of this history, evidence of contaminants on the site included volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), heavy metals, pesticides, herbicides and rodenticides, as well as asbestos and lead-based paint (LBP), based on the age of many of the buildings. Soil and groundwater have been impacted in varying degrees throughout the District, possibly resulting in vapor intrusion issues within the buildings. Recent subsurface sampling has been limited to the streets/sidewalks, as other areas are private property. Although this sampling did not identify evidence of petroleum contamination in soil samples (the sampling results were consistent with those usually found in fill materials in New York City), groundwater sampling did indicate evidence of petroleum contamination, consistent with suspected releases from private properties within the District.

Development within the District under the proposed Plan would involve the complete demolition of the existing structures, roadways, and specific existing above- and below-ground utilities. New construction would require excavation, disturbance, redistribution, and potential removal of existing fill material. To reduce or eliminate areas of contamination, removal of material for off-site treatment or disposal may also be necessary.

The presence of hazardous materials threatens human health only when exposure to those materials can occur. Human exposure is most likely to occur through inhalation of VOCs, SVOCs, or particulate-laden air released during demolition, excavation, and construction activities; direct contact with contaminated material during and after construction; and ingestion of contaminated material (fill/soil or groundwater) during and after construction. Construction of the proposed Plan would include remedial strategies (such as removal and/or capping of contaminated soils) and engineering/institutional controls (such as performing work under appropriate health and safety procedures and installing vapor barriers under new buildings) to reduce or eliminate these exposure pathways.

PRINCIPAL CONCLUSIONS

As described below, a Phase I Environmental Site Assessment (ESA) performed over the entire District identified the potential for contamination due to current and past usage. Sampling undertaken as part of a Phase II ESA confirmed that contamination is present. Although sampling did not identify petroleum contamination in soil samples (the samples were only from streets and sidewalks, and soil sampling results were consistent with those usually found in fill materials in New York City), groundwater sampling did indicate evidence of petroleum contamination, consistent with releases from private properties within the District. Given the presence of this groundwater contamination and the historic uses within the District, other potential contamination is expected to be widespread on private properties. In addition, with respect to the proposed Lot B redevelopment, based on environmental investigations performed in 2006 in preparation for the development of Citi Field, contaminant levels were typical of

urban fill materials, though methane levels were significantly elevated with levels in soil gas above the 5 percent lower explosive limit (LEL) in half the locations sampled[1]. The methane is believed to be attributed to the historic swamp that was buried during the landfilling period. By implementing remediation measures and engineering/institutional controls, it is expected that no potential exposure or significant adverse impacts related to hazardous materials would occur during or after construction of the proposed Plan or the No Convention Center Scenario. E-designations would be placed on all privately-owned lots within the District. The E-designations would require that, prior to the New York City Department of Buildings (DOB) issuing permits associated with redevelopment, the property owner conduct Phase I and Phase II ESAs, and remediation where appropriate, to the satisfaction of the New York City Department of Environmental Protection (DEP) pursuant to Section 11-15 of the Zoning Resolution—Environmental Requirements). The E-designations would also require mandatory construction-related health and safety plans (HASPs), which would be subject to review and approval by DEP. As properties are acquired by the City, it is anticipated that a Restrictive Declaration would be placed on them, which would supersede the E-designation, but require implementation of the same measures.

B. METHODOLOGY

POTENTIAL AREAS AND CONTAMINANTS OF CONCERN

Soil and groundwater can become contaminated as a result of past or current activities on a project site or in adjacent areas. Many commercial and industrial activities use, store, or generate materials that can be spilled, dumped, or buried nearby, causing contamination. Other activities common in mixed-use neighborhoods—such as gas stations and auto repair shops—can also result in contamination due to improper management of raw product and/or waste materials, or inadvertent spills. Furthermore, since the District does not have a sanitary sewer system, there is a potential that inappropriate industrial discharge to septic tanks could have occurred. Common categories of contaminants are listed below:

- Volatile organic compounds (VOCs): These include aromatic compounds—such as benzene, toluene, ethylbenzene, xylene (BTEX), and methyl tertiary butyl ether (MTBE), which are found in petroleum products (especially gasoline)—and chlorinated compounds, such as tetrachloroethene (also known as perchloroethylene or "perc") and tricholoroethene, which are common ingredients in solvents, degreasers, and cleansers that are often used in automotive repair. VOCs represent the greatest potential for exposure since, unlike most other contaminants, they can also generate vapors that can migrate from the subsurface into buildings if proper controls are not present.
- Semivolatile organic compounds (SVOCs): The most common SVOCs in urban areas are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal- or petroleum-derived products, such as coal ash and fuel oil. PAHs are commonly found in New York City urban fill material, which likely underlies much of the District. In addition, petroleum-related SVOCs—associated with automotive fluids (including fuels) and former or current above-ground storage tanks (ASTs) and/or underground storage tanks (USTs)—could be present.

[1] Five percent methane (and 95 percent air) is the lowest proportion that can support combustion or explosion and is known as the lower explosive limit (LEL).

- Polychlorinated biphenyls (PCBs): Commonly used as a dielectric fluid in transformers, some underground, high-voltage electric pipelines, and hydraulically operated machinery, PCBs are of special concern at maintenance locations where leakage into soil may have occurred. PCBs and/or PCB-containing materials were once widely used in manufacturing and industrial applications (e.g., hydraulic lifts, transformers, light ballasts, and plastics manufacturing). PCBs tend to travel only short distances in soil, except under unusual circumstances (e.g., large spills of PCB-containing oils over many years), and are not generally found in significant concentrations in groundwater.
- Pesticides, herbicides, and rodenticides: These are commonly used to control rodents and/or insects and vegetation in vacant structures or in vegetated lots.
- Metals (including lead, arsenic, cadmium, chromium, and mercury): Metals are often used in smelters, foundries, and metal works, and are found as components in paint, ink, petroleum products, and coal ash. Metals are also associated with the handling of building materials (e.g., mercury thermostats and pressure-treated wood), lead acid automotive batteries, and other areas associated with scrap metal recycling. Metals tend not to migrate far in soil; therefore, they would be of greatest concern at or near the site where they were handled. Metals at levels above natural background levels are frequently present in fill material throughout the New York metropolitan area.
- Fuel oil, waste oil, and gasoline from storage tanks: Numerous businesses within the District currently have, or once had, both known and undocumented ASTs and/or USTs for fuels, including heating oil, waste oil, motor oil, and gasoline. Some of these tanks may have been removed; others, although no longer in use, may remain buried in place. Some of the tanks are known to have leaked, and others have possibly leaked despite no record of a spill. Some of the spills have been cleaned up in accordance with state regulations but others have not, either because they have not yet been discovered or because cleanup, which can take several years, is ongoing.
- Fill materials of unknown or historic origin: In the past, waste materials, including coal and incinerator ash, demolition debris, and industrial wastes, were commonly used as fill in urban areas. Even fill material consisting primarily of soil may exhibit elevated levels of PAHs, metals, PCBs, and other contaminants. Such materials are potentially present throughout the District.
- Methane: Methane is formed from the decomposition of organic materials—both natural organic deposits (e.g., peat) and/or municipal wastes. Methane represents a concern since it can migrate through the subsurface into buildings, causing an explosion hazard.
- Asbestos: Because of the age of many of the buildings in the District, asbestos-containing materials (ACMs) are likely to be present. Asbestos is a common component of building materials, including insulation, fireproofing, tile flooring, plaster, sheetrock, tile ceiling, mastic, and roofing materials, and was widely used before 1980. In addition to materials within structures, subsurface utility lines may be coated with asbestos or encased in an ACM known as "transite."
- Lead-based paint (LBP): Because of the age of many of the buildings in the District, LBP is likely to be present. The use of LBP in non-residential New York City buildings and outdoors was severely restricted by the Consumer Products Safety Commission in 1977. LBP that is released as dust (or as fumes, if heated) is potentially harmful, especially to children.

Excavation, earthmoving, dewatering, and other construction activities can expose subsurface contaminants and provide a pathway of exposure. If such contaminants are not properly managed they can introduce potential risk to construction workers and others nearby. Demolition of existing structures that have ACMs, LBP, or PCB-containing equipment also has the potential to release contaminants if these materials are not properly managed.

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)—DISTRICT

As a first step in the hazardous materials assessment process, District-wide Phase I ESA was prepared in accordance with ASTM Standard Practice E1527-00 by Metcalf & Eddy, Inc., February 2005. This Phase I ESA assessed the potential for contaminated materials in buildings or the subsurface from past or present uses. The scope of the Phase I ESA included: a reconnaissance of the entire Willets Point Development District from public rights-of-way (but with no access to private property); interviews with available site owners, tenants, or staff, whenever possible; a review of historic maps; federal and state regulatory records; and available topographic and geologic/hydrogeologic data for the District and the surrounding area.

The Phase I ESA was conducted for each of the tax block and lots included in the District. Each lot, regardless of site access, was studied to determine whether current or historical hazardous materials conditions may have affected the lot. Factors that were considered when making these determinations included the probability and probable severity of the potential hazardous materials conditions, as well as physical, geological, or hydrogeological (groundwater) conditions that may have affected the migration of hazardous materials. Information was then applied to assess an area's potential for impacts and contamination.

More recently (August 2008), three individual Phase I Site Assessments were completed on parcels within the District where access was granted by property owners. The land use of these parcels varied and might therefore be considered exemplary of the types of general areas of concern present throughout the District. Each site was found to exhibit potential concerns over waste discharge and other issues related to individual site conditions. Given the historic landfill, surficial conditions, and history of discharge of waste into shallow fill, it is reasonable to assume that these similar concerns will exist across the individual sites.

PHASE I ENVIRONMENTAL SITE ASSESSMENTS (ESA)—PRIVATE LOTS

Three individual Phase I Site Assessments, in accordance with ASTM E 1527-05, were completed within the District, in August of 2008, by HDR (Henningson, Durham & Richardson, Architecture and Engineering, P.C. in association with HDR Engineering, Inc.). The lots investigated included 126-17 38th Avenue, 127-17, 25, and 27 36th Avenue, and 126-12 Northern Boulevard. Due to the varied land uses on the parcels evaluated, they may be considered representative of the types of recognized environmental conditions that will be identified throughout the District.

PHASE II ENVIRONMENTAL SITE ASSESSMENT (ESA)—DISTRICT

Based on the findings of the Phase I ESA and noting the identified contaminants of concern, further study in the form of intrusive, subsurface investigation—the Phase II ESA—was conducted by HDR|LMS (Henningson, Durham & Richardson, Architecture and Engineering, P.C. in association with HDR Engineering, Inc.). The scope of work included collection and laboratory analysis of 22 soil samples and seven groundwater samples from over 45 soil boring locations, 42 of which were within the District, where the results of the Phase I ESA indicated

potential concern. (The approximate locations of subsurface sampling are shown in Figure 12-1.) All site activity was conducted from public-rights-of-way, along street and sidewalk areas; permission was not obtained for access to the privately owned sites. LBP, ACMs, and PCB ballasts were not observed or sampled for chemical analysis.

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)—LOT D

AKRF conducted a site-specific Phase I ESA of Lot D in August 2008. The Phase I ESA was conducted using methodology similar to that for the entire District, as mentioned above; however, on-site access was available for Lot D.

PHASE II ENVIRONMENTAL SITE ASSESSMENT (ESA) – LOT B

Information presented for Lot B is based on a preliminary subsurface investigation conducted by Mueser Rutledge Consulting Engineers in July 1998 and on subsequent environmental investigations relating to the development of Citi Field. In 2006, two soil borings (retrofitted with groundwater monitoring wells) and 12 soil gas (methane) sampling locations were completed within the Lot B site boundary. This work was conducted in accordance with a December 2001 Phase II Environmental Site Investigation Work Plan submitted to DEP.

C. EXISTING CONDITIONS

TOPOGRAPHY, GEOLOGY, AND GROUNDWATER

The Willets Point Development District, Lot B and Lot D are located in the Willets Point area of Flushing, Queens County, New York, near the westernmost end of Long Island. The regional stratigraphy of Long Island, including the aquifers and confining layers, was formed from glacial tills and outwash sands of the Pleistocene Epoch. There is approximately 1,000 feet of sand, silt, gravel, and clay above the bedrock in this area. The entire District is relatively level, with several feet of topographic change. All of the area is filled in; therefore, the original land surface cannot be determined. However, since the Willets Point peninsula and surrounding area was once a swamp and marshland, it can be assumed to be 5 to 15 feet higher after the filling and original development. Groundwater across the District and adjacent properties is shallow and is found generally at approximately five feet below grade. Based on typical groundwater flow, it would be expected that groundwater in the District flows outward into the Flushing River and Flushing Bay.

DISTRICT HISTORY AND CURRENT CONDITIONS

Former and existing uses on the various project blocks are detailed in Chapter 3, "Land Use, Zoning, and Public Policy." Historic uses are also discussed in Chapter 8, "Historic Resources."

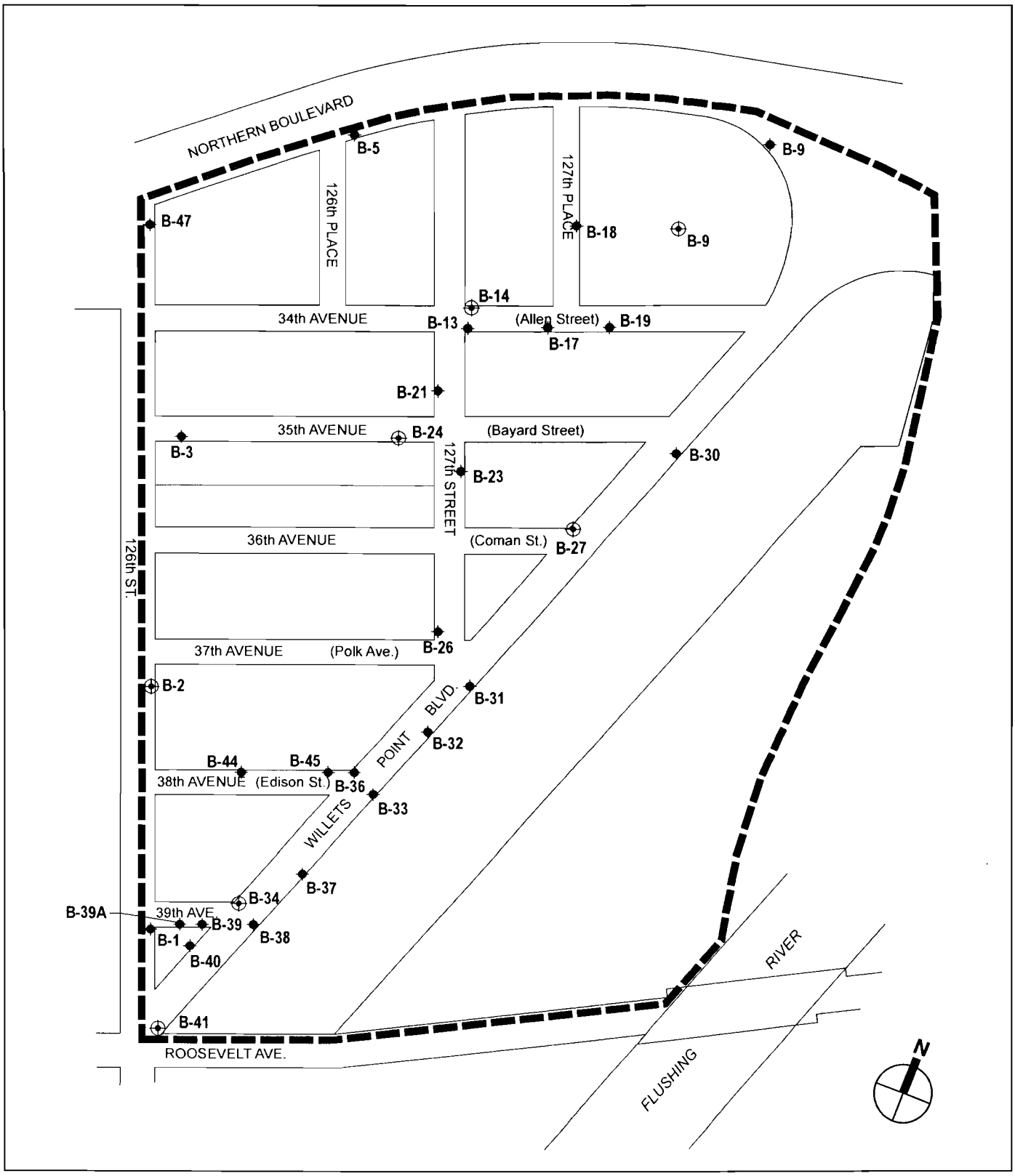
DISTRICT HISTORY

As described above in "A. Introduction," the District—originally a tidal marsh—was used for the disposal of incinerator ash and garbage from around 1900 through the mid 1930s. The site was filled by the time of the 1939 World's Fair, and streets were developed by the time of the 1964-1965 World's Fair.

The origins of subsurface hazardous materials that are expected to be present in the Willets Point peninsula can be broken down into two general, successive categories:

- Placement of historic fill, beginning in the mid- to late-1800s, and continuing through the early-20th century; and

1.04.08



Study Area Boundary

Soil Boring and Groundwater Well Sampling Location

Soil Boring Sampling Location

Figure 12-1

WILLETS POINT DEVELOPMENT PLAN

Soil Boring and Groundwater Well Sampling Locations

- Releases of petroleum products and chemicals from existing and historic commercial and industrial facilities.

Before the 1850s, the District was a tidally-influenced wetland and existed within the tidal zone very close to sea level. Toward the end of the 19th century, a large portion of the area had already been filled with a combination of coal ash and garbage, and "made land" had been created. Historic fill found along waterfronts typically consists of both dredged material and non-indigenous fill from a variety of sources, including solid waste, such as incinerator ash, and construction and demolition debris. Fill material may be found throughout the majority of the District from near-surface to several feet below the surface and extending to varying depths below the surface. The general fill layer is approximately 10 to 12 feet thick. Fill material represents a recognized environmental condition as defined by ASTM Standard Practice E1527-05, as it is frequently contaminated with SVOCs and heavy metals, and has been found in some areas to also contain polychlorinated biphenyls (PCBs).

Groundwater was encountered at relatively shallow depths of between 4 to 9 feet below grade, generally within the historic ash landfill material. Although groundwater flow in this type of material varies and may be tidally influenced in some areas, the overall flow is expected to be toward Flushing Bay and Flushing River to the north and east of the District.

PHASE I ENVIRONMENTAL SITE ASSESSMENTS (ESA)—DISTRICT

As reported in the February 2005 Phase I ESA, a total of 14 active storage tanks (either USTs or ASTs) were registered at eight property addresses; however, it is possible that other unregistered tanks are also present. In addition, 32 petroleum spills reported to the State still had an open status (i.e., had not been cleaned up). In addition, other spills may have occurred and not been reported to the State. An updated database search and a DEC Region 2 Spills Division Freedom of Information Act request were conducted in December 2007.

As indicated in the December 2007 database search, the total number of registered active storage tanks had increased to 84 ASTs on 47 properties and 10 USTs on six properties. Conversely, the total number of open petroleum spills had decreased to three. The properties with active petroleum spill numbers on file with DEC are:

- Crown Container Transfer Station, located on Block 1822, Lots 17 (partial lot) and 23;
- Eighteen Auto Parts, Inc., located on Block 1833, Lot 192 (partial lot); and
- Flushing Auto Salvage, located on Block 1822, Lot 17.

As a result of the DEC Region 2 Spills Division Freedom of Information Act request, limited information was provided pertaining to site investigation and remediation activities on the 67 closed and three open spill files in the District. The following is a summary of remedial activities described in the documents provided in response to the request:

- Three applications of in-situ bioremediation techniques were applied to the site address of 126-02 Northern Boulevard (Block 1820, Lot 1) in relation to a gasoline plume detected in the former location of a UST. Follow-up groundwater sampling indicated elevated levels of volatile organic compounds (VOCs) remain on the site. DEC closed the spill file on July 21, 2000. There was no documentation provided indicating that the elevated levels of VOCs in the groundwater had been addressed.
- Soil removal has been mentioned as taking place on the Crown Container Transfer Station property (Block 1822, Lots 17 and 23) in relation to one of the four spill files registered to the company. DEC has requested that remedial action documentation be submitted for agency review; however, nothing has been transmitted since the regulatory request.

- Ten 55-gallon drums were noted as being filled with excavated petroleum-contaminated soils. The remedial excavation was conducted in response to several storage drums noted as leaking hydraulic oil into the surface and subsurface soils on tax Block 1825, Lot 46. Following the remedial excavation, DEC closed the spill file on November 17, 2003.
- Petroleum-impacted soils were discovered to exist up to eight feet below the ground surface on Block 1829, Lot 40. The impacted soils were determined to originate from the improper closure of 14 USTs. Following the on- and off-site investigation, a total of 42 in-situ bioremediation injection wells were installed, and two applications were made to the site before DEC closed the spill file on February 18, 2005.
- Three spill numbers were associated with Best Buy Auto and A to Z Auto Parts (affecting Block 1830, Lots 1, 9 and 10). Following the site investigative activities, two areas were identified for remedial excavation. Approximately 50 tons of petroleum-impacted soil was excavated and disposed of off-site. DEC closed the spill files between 2005 and 2006.
- Block 1833, Lot 120 had a total of eight DEC spill files registered to the site, mostly associated with the former operations of Queens Scrap Metal, Sunrise Auto Parts, and F&F Auto Salvage. Five of the spills were consolidated into a 2001 spill file, for which approximately 6,400 tons of petroleum-impacted soil was excavated and disposed of off-site. Several groundwater monitoring wells were additionally installed on the site and underwent quarterly monitoring until the spill files were closed between 2005 and 2006. Additional remedial excavation of 450 tons of on-site soil was conducted. The adjacent Metropolitan Transportation Authority (MTA)-owned parcel (Block 1833, Lot 1) independently conducted site investigative and remedial activities, leading to the excavation and off-site disposal of approximately 30 tons of petroleum-impacted soil.
- Similarly, Block 1833, Lots 155 and 158 underwent remedial excavation due to the former Queens Scrap Yard operations. Six truckloads of petroleum-impacted soils were removed from the site and disposed of off-site as per the DEC-approved remedial work plan. DEC closed the spill file on February 8, 2005.
- Turbo Auto Sales (Block 1833, Lot 180) underwent site investigation and remediation between 2004 and 2007 in relation to petroleum-impacted soils and the observation of up to 12-inches of free product on top of the groundwater. Several localized areas underwent remedial excavation of the petroleum-impacted soils for off-site disposal, and additional groundwater monitoring wells were installed for quarterly monitoring events. DEC closed the spill file on September 27, 2007.

Table 12-1 lists the types of industries and facilities present in the District, as well as associated contaminants and contaminated material typically associated with such uses.

PHASE I ENVIRONMENTAL SITE ASSESSMENTS (ESA)—PRIVATE LOTS

Several Recognized Environmental Conditions (RECs) were identified during the Phase I ESA of 126-17 38th Avenue, Block 1825 - Lot 58. The following is a summary of the RECs identified:

- The primary site use over the past 50 years has been a metal wholesaling, recycling and distribution facility. During the site reconnaissance, metal construction debris and other recyclable metal was observed in addition to car radiators and batteries. Contamination typical for this land use includes automotive wastes (e.g., waste oil, radiator fluid), PCB contaminated wastes and oils, solvents, heavy metals and battery acid. There is no municipal sewer system servicing the area. Therefore, any sanitary wastewater discharge would be directed to an on-site sanitary disposal system (configuration and location

unknown). This system would represent a direct pathway for contaminants to reach the subsurface.

Table 12-1
Potential Media Impacts and Potential Contaminants by Industry Type

District Area Industry Type	Potential Media Impacted by Industry Type[1]	Potential Contaminants by Industry Type[2]
Automotive Body	Surface Soil, Soil Vapor, Groundwater	Petroleum-Derived VOCs, Chlorinated VOCs, Metals
Automotive Interior	No Media Impacts Anticipated [3]	No Media Impacts Anticipated [3]
Automotive Parts	Surface Soil	Petroleum-Derived VOCs, Metals, Ethylene Glycol
Automotive Repair	Surface Soil, Subsurface Soil, Groundwater, Soil Vapor	Petroleum-Derived VOCs, Chlorinated VOCs, SVOCs, Ethylene Glycol
Automotive Sales	No Media Impacts Anticipated	No Media Impacts Anticipated
Automotive Wrecking	Surface Soil, Subsurface Soil, Groundwater, Soil Vapor	Petroleum-Derived VOCs, Ethylene Glycol, Metals, Leachable Metals
Automotive Salvage	Surface Soil, Subsurface Soil, Groundwater, Soil Vapor	Petroleum-Derived VOCs, Ethylene Glycol, Metals, Leachable Metals
Automotive Junkyard	Surface Soil, Subsurface Soil, Groundwater, Soil Vapor	Petroleum-Derived VOCs, Ethylene Glycol, Metals
Automotive Wash	Surface Soil	General Surficial Housekeeping (petroleum: oil and grease)
Gasoline Station	Surface Soil, Subsurface Soil, Groundwater, Soil Vapor	Petroleum-Derived VOCs, SVOCs, MTBE
Misc. Retail	No Media Impacts Anticipated (but dependent upon specific use)	Dependent upon specific materials used
Heavy Equipment Storage/Sales	Surface Soil	SVOCs
Metal Fabrication	Surface Soil	Metals
Misc. Industrial	No Media Impacts Anticipated (dependent upon specific use)	No Media Impacts Anticipated (dependent upon specific use)
Misc. Material Storage	Surface Soil	VOCs, SVOCs, Metals
Private Waste Transfer Station	Surface Soil	General Surficial Housekeeping (such as runoff, waste)
Recycling/Processing Station	Surface Soil	SVOCs, Metals
Restaurant	Surface Soil	General Surficial Housekeeping (such as animal fat, vegetable oil)

Notes:
1 "Potential Media Impacted by Industry Type" includes surface soil, subsurface soil, groundwater and soil vapor.
2 "Potential Contaminants by Industry Type" includes petroleum-derived VOCs, chlorinated VOCs, SVOCs, metals, ethylene glycol, MTBE, pesticides, herbicides, PCBs and general surficial housekeeping issues.
3 "No Media Impacts Anticipated" indicates high concentrations of contaminants are not anticipated. Trace concentrations and/or low threshold accidences may occur. In instances where specialized site usage exists, the potential media impacted by industry type and type of contamination cannot be estimated for the site.
VOCs - Volatile organic compounds
SVOCs - Semivolatile organic compounds
PCBs - Poly-chlorinated biphenyls
MTBE - Methyl tert butyl ether

- This site is listed as a RCRA Small Quantity Hazardous Waste Generator in previous environmental database searches. However, the current environmental database search does not list the site as a RCRA Generator of any kind.
- A concrete loading dock on the eastern portion of the lot is lower than the ground surface and, upon observation, contained a considerable amount of standing water. Although it reportedly does not have a drain and occasionally the water is removed via pump, a drain may exist in a clogged condition and would represent a pathway for contaminated water to discharge to the subsurface.

- Historic records indicate that the Willets Point area is built on a former dump site where ash and garbage were disposed. Ash typically contains heavy metals and polycyclic aromatic hydrocarbons. Therefore, it is possible that the historic fill underlying the site is contaminated with these constituents.
- The project site is down gradient from a large number of spills within close proximity. The initial historic NYSDEC spill file review showed thirty-three up gradient spills within one-tenth of a mile. These included a junkyard located 0.09 miles up gradient where spilled automotive wastes, including waste oil, gasoline, transmission fluid and antifreeze, were continuously spilled, causing approximately 20,000 gallons of pooled product mixed with water on the property, 126-80 Willets Point Boulevard. Trenches around the perimeter of the property have discharged wastes onto adjacent properties, 126-44 Willets Point Boulevard, and 126-34 Willets Point Boulevard. At 126-44 Willets Point Boulevard, 40,000 gallons of pooled water and product were reported. Although the contamination was first observed in surface water puddles, it is likely that groundwater has been impacted, and contaminated groundwater may have migrated beneath the subject site.

Several Recognized Environmental Conditions (RECs) were identified during the Phase I ESA of 126-27, 126-25, and 126-17 36th Avenue, Block 1823 – Lots 47, 52, and 55. The following is a summary of the RECs identified:

- Historic uses include a contractor's storage yard, automotive salvage, sales, and repair. The automotive uses involve storage, handling, and use of various chemicals including solvents, heavy metals, lubricating oils, waste oil, degreasers, and fuel. There is no municipal sewer system servicing the area. Therefore, any wastewater discharge would be to an on-site sanitary disposal system (configuration and location unknown). This would represent a direct pathway for contaminants to reach the subsurface.
- Historic records indicate that the Willets Point area is built on a former dump site where ash and garbage were disposed. Ash typically contains heavy metals and polycyclic aromatic hydrocarbons. Therefore, it is possible that the historic fill underlying the site is contaminated with these constituents.
- A former tenant, Lede Auto Salvage, had four registered waste oil drums. Waste oil drums and a 275-gallon waste oil AST were observed during the site reconnaissance. The transfer, handling, and storage of waste oil can result in surface and subsurface contamination. However, the current condition of the asphalt pavement is sound and no storm drains, bay drains, or other pathways to the subsurface were identified relative to the waste oil handling or storage areas.

Several Recognized Environmental Conditions (RECs) were identified during the Phase I ESA of 126-12 Northern Boulevard, Block 1820 – Lot 6. The following is a summary of the RECs Identified:

- Historic uses, which include a cabinet maker/woodworking shop (circa 1960), a machine shop (1981 to 1995), and the current use as a sign making and awning manufacturing shop, involve the use of various chemicals including solvents, metals, lubricants, cutting oils, degreasers, and paints. There is no municipal sewer system servicing the area. Therefore, any wastewater discharge would be to an on-site sanitary disposal system (configuration and location unknown). This configuration would represent a direct pathway for contaminants to reach the subsurface.

- The discharge point of a stormwater grate/catch basin at the courtyard is unknown. The potential exists for contaminants to have been discharged in this area.
- Historic records indicate that the Willets Point area is a former dump site where ash and garbage were disposed. Ash typically contains heavy metals and polycyclic aromatic hydrocarbons. Therefore, it is possible that the historic fill underlying the site is contaminated with these constituents.
- Spill reports indicate the western adjoining property was a former gasoline filling station in the 1930s and that contaminated soil was encountered during soil sampling in 1999. The 1931 Sanborn Fire Insurance Map shows this parcel as developed with a garage (text is mostly illegible) that had three gasoline USTs: one on Northern Boulevard approximately 50 feet west of the Site and two adjacent to 126th Street. A previous Modified Phase I report also identifies this property as a possible former filling station and reports soil borings and wells installed, with the groundwater samples indicating petroleum contamination. The close proximity of this site to the subject property classifies it as an REC.

PHASE II ENVIRONMENTAL SITE ASSESSMENT (ESA)—DISTRICT

Due to the lack of access to private properties, the extent of contamination on private properties could not be accurately assessed. The soil sampling from streets and sidewalks did not identify petroleum contamination (the results were consistent with those usually found in fill materials in New York City), but groundwater sampling did indicate evidence of petroleum contamination, consistent with releases from private properties within the District. Given the presence of this groundwater contamination and the findings of the Phase I ESA, petroleum and potentially other contamination is expected to be widespread on private properties within the District. The following section describes the Phase II findings in more detail.

Soil analysis results were initially compared with the DEC Technical and Administrative Guidance Memorandum No. 4046 (TAGM 4046). However, following the issuance of the final DEC Part 375 regulations in December 2006, comparisons were made with the Restricted Residential Soil Cleanup Objectives (SCOs) in Table 375-6.8(b). These SCOs are based on a prescribed end use that incorporates institutional or engineering controls to manage exposure to any contamination remaining following performance of the clean-up or remediation measures. While several compounds were detected, no exceedances of the Part 375 SCOs were found for VOCs, pesticides, herbicides, or PCBs. However, exceedances of the Part 375 SCOs did occur in five of the 22 soil samples for SVOCs (including benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene), though no SCO exceedance was greater than threefold, and in four of the 22 soil samples for metals (including arsenic, barium, cadmium, copper, lead, and nickel), though no SCO exceedance was greater than fivefold. Although tests were not performed to indicate if material is a characteristic hazardous waste (as per federal or state regulations), contaminants were not found at levels that would be expected to exceed the regulatory thresholds. In general, soil conditions were consistent with those typically found in fill samples in New York City and did not show petroleum impacts.

Groundwater analysis results were compared with the DEC Groundwater Class GA Drinking Water Standards (though groundwater in this part of Queens is not and cannot legally be used as a source of drinking water). All but one of the groundwater samples showed evidence of likely petroleum contamination. Four of the seven samples contained VOC concentrations exceeding the Groundwater Class GA Standards for varying combinations of benzene, isopropylbenzene, methyl tert butyl ether (MTBE), naphthalene, n-butylbenzene, and n-propylbenzene. (These

compounds are typical of gasoline and are not typically associated with historic fill.) Exceedances of GA standards varied from less than twofold to up to 14 times the standard. Two of the seven samples contained SVOC concentrations exceeding the Groundwater Class GA Standards for varying combinations of total SVOCs, 2-methylnapthalene, naphthalene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene. (These compounds can be associated with historic fill materials, but at the levels found are also potentially indicative of petroleum contamination.) Exceedances of GA standards were up to twelvefold for all parameters except for four of the individual SVOCs in one sample where the detected levels (5 to 7 micrograms per liter [µg/l]) were much higher than the standard 0.02 µg/l, though this level of exceedance is far from unusual in petroleum-impacted groundwater.

Given that no samples were collected from private properties, the findings of the Phase I ESA and the Phase II sampling suggest that petroleum contamination (and potentially other contamination—e.g., from use of solvents) is expected on private properties within the District.

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)—LOT D

Lot D is a paved parking lot with a small fenced area for trash collection. As of August 2008, the locked, fenced area for trash observed at the north-central portion of the site included storage of tires, apparently empty 35-gallon drums, and a dumpster. Evidence of a potential underground storage tank was observed on-site; apparent fill and vent pipes were observed along the concrete retaining wall adjacent to an unlabeled manhole on the southern side of Lot D. The Phase I ESA found no historic or current petroleum storage tanks registered on the site. The site was not listed on any of the federal, state or local regulatory databases reviewed as part of the Phase I ESA.

No soil or groundwater samples were collected from Lot D as part of this study. The Phase I ESA recommended performing a Phase II ESA prior to soil disturbance to assess potential contamination on Lot D.

PHASE II ENVIRONMENTAL SITE ASSESSMENT (ESA)—LOT B

Based on a preliminary subsurface investigation done by Mueser Rutledge Consulting Engineers in July 1998, subsurface materials in the vicinity of Shea Stadium/Citi Field consist of layers (placed between 1910 and 1916) of coarse-to-fine sand and gravel, silt, mica, cinders, wood, roots, glass, brick, metal, and asphalt overlying the Flushing Meadow marshlands.

In 2006, during the investigations relating to Shea Stadium redevelopment, two soil borings (retrofitted with groundwater monitoring wells) and 12 soil gas (methane) sampling locations were completed within the Lot B site boundary. This work was conducted in accordance with a December 2001 Phase II Environmental Site Investigation Work Plan submitted to DEP.

Soil Sampling Results

In the soil borings, fill materials (including asphalt and cinders) were found throughout the 10-foot depth. In terms of laboratory analysis of soil samples, the only VOC detected at concentrations above the DEC recommended soil cleanup objective (RSCO) was acetone (but since acetone was also detected in one of the quality assurance blanks, it was likely a laboratory artifact). SVOCs were found above RSCOs, but the compounds detected—primarily PAHs—are present in asphalt and ash, and are often found at such levels in urban fill materials. Similarly, consistent with the presence of fill material, levels of calcium, chromium, copper, iron, magnesium, mercury, and zinc were detected exceeding the upper background range in the Eastern United States as outlined in DEC TAGM 4046.

Groundwater Sampling Results

The water table was approximately three feet below the ground surface in the two monitoring wells. The groundwater sampling identified methylene chloride (a VOC) in both groundwater samples as exceeding the New York State Ambient Water Quality Guidance Values (AWQV). However, since methylene chloride was also detected in the quality assurance blank, it suggests that it is a laboratory artifact. No SVOCs were detected in either groundwater sample. The following metals were detected at total concentrations exceeding AWQVs: aluminum, cobalt, iron, lead, magnesium, manganese, and sodium. Following filtration, the following dissolved metals were still present at levels exceeding the AWQV: iron, magnesium, manganese, and sodium. Due to the nature of the fill underlying the site and the presences of a shallow water table, elevated levels of metals were expected to be present in the groundwater samples.

Soil Gas Sampling Results

Methane levels were significantly elevated, with levels in soil gas above 5 percent in half of the locations sampled. Five percent methane (and 95 percent air) is the lowest proportion that can support combustion or explosion and is known as the lower explosive limit (LEL). This is believed to be attributable to the swamp deposits and material buried during the landfilling period.

D. FUTURE WITHOUT THE PROPOSED PLAN

Without the proposed Plan, the District is not anticipated to experience substantial change. In the event that projects independent of the proposed Plan were to occur on any lot that has the potential for hazardous material contamination, such development could result in the exposure of construction workers and nearby residents to hazardous materials. No change is currently proposed to occur on Lot B or Lot D in the future without the proposed Plan.

In the future without the proposed Plan, and with change of land use through redevelopment, the District is expected to have continued DEC involvement related to enforcement actions and property transfers.

A summary of remedial activities reported during the DEC Region 2 Spills Division Freedom of Information Act submitted in December 2007 is presented in Section C, "Existing Conditions."

The extent of remediation on these affected properties would likely be less than with the proposed Plan, as soil removal underneath roadways and adjacent properties that might have been affected by the spills is not usually required as part of site cleanups. The remediation of contamination at other sites would likely take place only if such sites were to be redeveloped, though little or no redevelopment is anticipated without the proposed Plan.

Overall, in the future without the proposed Plan, there would be some clean-up of hazardous materials within the District, but to a lesser extent than with the proposed Plan. It is also possible that without the proposed Plan some construction could occur in the District, potentially without the safeguards—such as HASPs or vapor barriers—that would be in place with the proposed Plan.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

PROPOSED PLAN

Construction of the proposed Plan would involve both demolition of all existing structures (some of which are believed to contain LBP, ACMs, and PCB-containing electrical components) and a variety of earthmoving/excavating activities that would encounter subsurface contamination (e.g., petroleum, solvents, etc.). All privately-owned lots in the District would have E-designations placed on them. The E-designations would require that, prior to DOB issuing permits associated with redevelopment, the property owner conduct Phase I and Phase II ESAs, and remediation where appropriate, to the satisfaction of DEP (pursuant to Section 11-15 of the Zoning Resolution—Environmental Requirements). The E-designations also require mandatory construction-related HASPs, which would be subject to review and approval by DEP. As properties are acquired by the City, it is anticipated that a Restrictive Declaration would be placed on them, which would supersede the E-designation, but require implementation of the same measures. Any potential approval of development on Lot B or Lot D would, consistent with standard City practices, be conditioned upon DEP review and approval or any necessary remedial plan.

The presence of hazardous materials threatens human health only when exposure to those materials occurs; even then, a health risk requires both an exposure pathway to the contaminants and sufficient exposure to produce adverse health effects. To prevent such exposure and exposure pathways, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. These measures would be conducted in compliance with all applicable laws and regulations and would conform to appropriate engineering practices. Also, given that some subsurface contamination would likely remain after completion of construction (e.g., in deeper soils and groundwater), new buildings would require engineering controls, which could include vapor barriers and passive or active venting systems. Institutional controls to prevent future exposure during intrusive work and subsurface utility repairs would be necessary. Measures would include:

- Procedures for pre-demolition removal of asbestos and appropriate management of LBP and PCB-containing equipment.
- Additional subsurface investigation, both to District sites and areas not yet investigated, to better characterize soils to be removed for excavation.
- Development of a construction health and safety plan (CHASP) and Site Management Plan (SMP) for site remediation, excavation, and redevelopment that would include detailed procedures for managing both known contamination issues (e.g., tank removal, and soil and groundwater remediation of existing petroleum spills, excavation, and removal of existing septic tanks or fields, floor drains, and historic fill) and any unexpectedly encountered contamination issues. The CHASP would also include procedures for avoiding the generation of dust that could affect the surrounding community, as well as the monitoring necessary to ensure that no such impacts occur.
- Requirements for vapor barriers and sub-slab venting systems in new buildings, where remaining subsurface contamination could otherwise lead to unacceptable exposure inside buildings, would be consistent with all applicable laws and regulations.

- Institutional controls, through E-designations and/or subsequent Restrictive Declarations, to require implementation of the above measures and any necessary post-construction measures, e.g., implementation of health and safety procedures during subsurface utility repair.

Methods for guaranteeing the continued effectiveness of these controls could include annual or semi-annual certification and reporting requirements.

Potential health and safety and investigative/remedial measures for the anticipated development of Lot B and Lot D are discussed separately, following the discussion of on-site remediation within the District.

SITE REMEDIATION

Existing Structures

Asbestos-Containing Materials (ACM) Management Plan

Proper handling, removal and disposal of ACM is governed by federal requirements (U.S. Occupational Safety and Health Administration [OSHA] 29 CFR 1926.1101, Department of Transportation 49 CFR 171-173, and EPA 40 CFR 61), New York State requirements (Labor Law Article 30 - Asbestos or Products Containing Asbestos Licensing and 12 NYCRR Part 56 Asbestos Regulations) and New York City requirements (Rules of the City of New York Title 15—Handling and Disposal of Asbestos). Appropriate engineering controls (e.g., wetting and other dust control measures) to minimize asbestos exposure are required to be implemented prior to and throughout demolition/renovation.

Lead-Based Paint (LBP) Management Plan

If lead-coated surfaces are present, and depending upon the type and method for removing and demolishing existing structures, an exposure assessment may be needed to determine whether lead exposure would occur during the demolition. If the exposure assessment were to indicate the potential to generate airborne dust or fumes with lead levels exceeding health-based standards, a higher personal protection equipment standard would be employed to counteract the exposure. In all cases, appropriate methods to control dust and air monitoring, as required by the appropriate OSHA regulations, would be implemented during demolition activities.

PCB-Containing Equipment

Suspected PCB-containing equipment (e.g., transformers, electrical feeder cables, hydraulic equipment, and fluorescent light ballasts) may need to be surveyed and evaluated prior to building demolition or utility relocation. PCB-containing equipment that would be disturbed by the work would be removed and disposed of in accordance with applicable federal (40 CFR Part 761), state (6 NYCRR Parts 360 – 376), and local regulations. Unless suspected PCB-containing equipment is labeled to be "non-PCB," it must be tested or assumed to be PCB-containing and disposed of at properly licensed facilities.

Subsurface Disturbance

Based on the findings of the Phase I and Phase II ESAs, the entire District has a high potential for the presence of subsurface hazardous materials to be present. Detailed procedures would be incorporated into the proposed Plan's construction documents and made binding on any future developers through E-designations and/or subsequent Restrictive Declarations, to govern testing and development of and adherence to appropriate procedures for petroleum tank removal,

excavation, movement, stockpiling, and other activities that would entail subsurface disturbance. The types of commitments that would be included in the specifications (both to meet all applicable legal requirements and to minimize potential impacts) for the various types of materials (e.g., petroleum-contaminated soils, historic fill, or native materials) are described below. Preventive measures would be undertaken to protect the safety of the public, community residents, and construction workers, as well as the larger environment. All work would be performed in accordance with applicable City, state, and federal requirements. Applicable permits for the excavation, handling, removal, and disposal of this fill material would also be required. It should be noted that all required procedures are frequently and readily implemented as part of construction at many sites in New York City.

Sites Not Yet Investigated

As access becomes available, site-specific Phase I ESAs would be conducted to supplement the initial site-wide Phase I ESA, which did not include any inspections of private property. This information would be used to determine the scope of Phase II ESA subsurface sampling, to assist in preparation of remedial plans and health and safety procedures. A summary report would be prepared following the completion of each Phase II ESA sampling event. The report would document field activities, present field and laboratory data, and present conclusions and recommendations drawn from the results of the investigation. The report would compare the analytical results with appropriate City, state, and federal standards and guidelines. Further investigation and/or remediation would occur as necessary, prior to and/or during construction. The protocols for further investigation and/or remediation would be presented in site specific sampling and/or Remediation Plans, as necessary, which would include HASPs. Typical measures, which are performed at many sites throughout the City and are readily implemented, include removal of petroleum storage tanks and associated contaminated liquids and soil. Other techniques are often used in addition to or instead of removal of contaminated soil, such as soil vapor extraction or oxidation, which are sufficient to eliminate the potential for exposure once the site is capped with buildings, paving and/or imported soil. Sub-slab systems typically consisting of vapor barriers and/or depressurization systems are also frequently required at sites where residual subsurface contamination will or may be present following remediation that could result in soil vapor intrusion.

Construction Health and Safety Plan

Prior to site excavation, a CHASP would be prepared to address both the known contamination issues (based on the Phase I and Phase II studies) and contingency items (e.g., the discovery of unexpected petroleum storage tanks, petroleum-contaminated soil, free liquids, or solvent-contamination). The CHASP would describe in detail the health and safety procedures that are recommended or proposed to minimize exposure of workers and the public to hazardous materials. Regardless of the procedures for reducing exposure, the CHASP will indicate what levels would require specific actions or termination of work. The hazards throughout the District would be evaluated by determining the subsurface contaminants of concern, their chemical and physical characteristics, and health hazards in relation to the various actions and construction efforts that would take place in this area.

Appropriate personnel would be designated to ensure that all requirements of the CHASP were implemented, including a Health and Safety Officer (HSO) and an on-site Site Safety Officer (SSO). The HSO would oversee the SSO and be responsible for coordinating and reporting all health and safety activities. The HSO would have completed a 40-hour training course, supervisory training and updated annual refresher courses that meet OSHA requirements

codified in 29 CFR Part 1910, Occupational Safety and Health Standards. The SSO would be a competent person responsible for the implementation of the CHASP, who would have completed either the 24-hour training course for an Occasional Hazardous Waste Site Worker or the 40-hour training course for the Hazardous Waste Operations Worker that meets OSHA requirements codified in 29 CFR Part 1910. The SSO would have stop-work authorization, which he/she would execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the SSO is to be absent from the site, he/she would designate a suitably qualified replacement who is familiar with the CHASP.

The CHASP would require that on-site personnel are qualified and have received the required training. All those who enter the work area while intrusive activities are being performed must receive instruction regarding the potential hazards to health and safety. All construction personnel upon entering the site must first attend a training meeting to:

- Make workers aware of the potential hazards they may encounter;
- Provide the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- Make workers aware of the purpose and limitations of safety equipment; and
- Ensure that they can safely avoid or escape from emergencies.

Each member of the construction crew would be instructed in these objectives before he/she begins working on the site. The HSO, SSO, or other suitably trained individuals would be responsible for conducting the training program. Others who enter the site must be accompanied by a suitably trained construction worker.

The CHASP would include contingency response plans. All excavation would be monitored for the presence of buried tanks, drums, or soil that shows evidence of potential contamination, such as discoloration, staining, or odors. If any of these were detected, specific procedures would be outlined for the situation, and appropriate personnel would be notified, including the HSO. All contingency response actions would be carried out in accordance with special contingency health and safety procedures.

An emergency response plan would also be included in the event that monitoring data indicate a potential major hazard, and protocols for reporting spills or other concerns to relevant governmental agencies would be defined.

To prevent the potential off-site transport of dust, dust control measures would be implemented during all earth-disturbing operations. Water would be available on-site for sprinkling/wetting to suppress dust in dry weather or as necessary. Water would be used to suppress dust on haul roads and to wet equipment and excavation faces if that was found to be an issue. Stockpiled excavated material would be securely covered with tarps or plastic sheeting to prevent dust or run-off. Given the size of the proposed Plan, a Storm Water Pollution Prevention Plan (SWPPP) would be required to address the control of erosion and stormwater runoff from the Plan. Importation and export of large volumes of fill to and from the District would also require a New York City Department of Sanitation (DSNY) Fill Management Operations Permit (FMO).

In accordance with New York City requirements, air monitoring would also be performed during all abatement of friable ACMs. Air monitoring for asbestos is performed by an independent third-party monitor not associated with the abatement contractor. All monitoring must be performed by New York State-licensed asbestos project air sampling technicians. Air monitoring is generally performed before, during, and after abatement activities. Pre-abatement monitoring

establishes baseline background levels. Monitoring during abatement is intended to detect any airborne asbestos which escapes from the containment systems used to enclose the abatement area. If asbestos concentrations exceeding action levels are detected, work is stopped while barriers are inspected and restored, and any surfaces impacted by fugitive asbestos are cleaned. Post-abatement monitoring is performed to confirm that no airborne asbestos is present prior to the start of demolition work.

Community air monitoring for lead is not currently required during building demolition. During demolition (unlike lead abatement work), LBP is generally not stripped from surfaces. Structures are disassembled or broken apart with most of the paint still intact. Normal dust control measures (e.g., spraying the building with water) would be used during demolition. The lead content of any resulting dust would therefore be expected to be low, and normal dust control measures would be sufficient to prevent off-site impacts. Work-zone air monitoring for lead may be performed during certain demolition activities with a high potential for releasing airborne lead-containing particulates in the immediate work zone, such as manual demolition of walls with lead paint, or cutting of steel with lead-containing coatings. This monitoring would be intended to ensure that workers performing these activities are properly protected against lead exposure.

Site Management Plan (SMP) and Waste Management

An SMP would be created with the objective to set guidelines for the management of soil and fill materials during the site redevelopment process and any future activities which would breach the surficial cap (engineering control or cover system) at the site after construction of the facility has been completed. This SMP would address environmental concerns related to management of fill importation. The SMP would also address procedures for stockpiling, testing, loading, transporting (including truck routes), and properly disposing of all excavated material. In some situations, it is possible that some material would be characterized "in-situ," i.e., sufficient sampling would be performed to classify the material (e.g., as petroleum-contaminated wastes, historic fill containing construction/demolition debris, or uncontaminated native soils) before it is excavated. Other work could involve stockpiling and sampling material.

The SMP would also set requirements for: quality, testing, and documentation of importation of material; the future maintenance of the site capping system; and, in the event of upgrades, repairs or modifications that penetrate into contaminated material remaining at the site.

Based on testing performed to date, no soils meeting the regulatory definition of hazardous waste were identified; however, should hazardous wastes be identified in the future, they would require special handling, storage, transportation, and disposal. Depending on the nature of the material, regulations require the use of special containers or stockpiling practices and additional requirements for transportation. Facilities that receive hazardous wastes must have the required permits, and generally require that specific representative waste sampling (laboratory analysis) be conducted prior to accepting material for disposal.

Petroleum Storage Tanks

All known and other tanks discovered either above ground or below ground would be removed in order to complete the proposed Plan. The removal is regulated by DEC (6 NYCRR Section 613.9), which requires that tanks no longer in use be closed in place or removed according to specific requirements. Contaminated soils surrounding the tanks, separate phase product on the water table, or contaminants dissolved in the groundwater are also subject to DEC regulations (6 NYCRR Section 611.6). Article 12 of the New York Navigation Law provides notification and management requirements for spills.

The properties listed below have (as of December 2007) active petroleum spill numbers on file with DEC:

- Crown Container Transfer Station, located on Block 1822, Lots 17 (partial lot) and 23
- Eighteen Auto Parts, Inc., located on Block 1833, Lot 192 (partial lot)
- Flushing Auto Salvage, located on Block 1822, Lot 17

Remediation and subsequent closure of these spills would be completed (with all work performed under appropriate HASPs, including air monitoring), all USTs would be removed, and all documentation would be provided to properly "close" these spills with DEC.

Groundwater and Vapor Control

As discussed above in Section C, "Existing Conditions," groundwater sampling indicated a range of contaminants, including petroleum-related VOCs and chlorinated VOCs. Although groundwater is not used as a source of drinking water in this portion of Queens, the potential concern associated with this contamination is that VOCs could migrate in the groundwater to the adjacent Flushing River surface water, as well as volatilizing and migrating through the fill material up through the subsurface into the proposed buildings. The proposed buildings would incorporate elements that provide safeguards against such migration. Safeguards would be consistent with all applicable laws and regulations. In addition, initial remediation would remove local VOC hot spot contamination that could migrate to nearby surface water bodies. These safeguards could include passive and active vapor systems beneath buildings and other means for vapor removal and control.

In addition to the safeguards incorporated into the proposed buildings' design, it is anticipated that levels of petroleum-related VOCs would decline over time as the on-site sources of groundwater contamination (e.g., petroleum storage tanks and much of the contaminated soil/fill) would be removed.

LOT D AND LOT B

Prior to development of Lot D, a Phase II ESA would be performed to assess potential contamination beneath Lot D and assist in preparation of remedial plans and health and safety procedures. A summary report would be prepared following the completion of the Phase II ESA. The report would document field activities, present field and laboratory data, and present conclusions and recommendations drawn from the results of the investigation. The report would compare the analytical results with appropriate City, State, and Federal standards and guidelines.

Future development at Lot D and Lot B would need to be performed under a Remedial Action Plan (RAP)/CHASP to address: handling and disposal of all materials requiring off-site disposal, including historic fill materials and any unexpectedly encountered contaminated materials. The RAP/CHASP would also include provisions for air monitoring (for volatile organics, methane, and particulates) during construction and the installation of appropriate systems to prevent the migration of vapors into any newly constructed buildings. The RAP would be reviewed and approved at a minimum by DEP and, if required by applicable laws and regulations, by DEC.

The CHASP would include contingency response plans for Lot D and Lot B. All excavation would be monitored for the presence of buried tanks, drums, or soil that shows evidence of potential contamination, such as discoloration, staining, or odors. If any of these were detected, specific procedures would be outlined for the situation, and appropriate personnel would be

notified, including the Health and Safety Officer (HSO). All contingency response actions would be carried out in accordance with special contingency health and safety procedures.

An emergency response plan would also be included in the event that monitoring data indicate a potential major hazard, and protocols for reporting spills or other concerns to relevant governmental agencies would be defined.

To prevent the potential off-site transport of dust, dust control measures would be implemented during all earth-disturbing operations. Water would be available on-site for sprinkling/wetting to suppress dust in dry weather or as necessary. Water would be used to suppress dust on haul roads and to wet equipment and excavation faces if that was found to be an issue. Stockpiled excavated material would be securely covered with tarps or plastic sheeting to prevent dust or run-off. Given the size of Lot D and Lot B sites, a SWPPP would be required to address the control of erosion and stormwater runoff from construction. Import and export of large volumes of fill to and from these sites would also require a DSNY FMO Permit.

NO CONVENTION CENTER SCENARIO

Health and safety and investigative/remedial measures prescribed under the No Convention Center Scenario would be the same as described above.

CONCLUSIONS

Contamination in the subsurface within the District has been identified through Phase II ESAs. This contamination is likely to be related primarily to the automotive-related businesses located throughout the District. Additionally, asbestos-, LBP-, and PCB-containing equipment are likely to be present inside buildings throughout the District. However, with the implementation of a variety of measures, as described above in "Site Remediation," no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction or operation of the proposed Plan or the No Convention Center Scenario. To ensure these measures would be implemented, they would be made binding on all site developers through E-designations placed on each lot and/or subsequent Restrictive Declarations. Contamination in the subsurface within Lot B has been identified (both typical historical urban fill materials and elevated methane levels). Although some hazardous materials would likely still remain in the subsurface following construction of the proposed Plan and following development of Lot D and Lot B, with the building vapor control measures outlined above for the District, Lot D and Lot B, there would be no exposure pathways and thus no further potential for significant adverse impacts. Following completion of remediation and implementation of engineering and institutional controls as needed, the District, Lot D and Lot B would be safe for all uses anticipated by the Plan. ✷

Chapter 13: Waterfront Revitalization Program

A. INTRODUCTION

OVERVIEW

The federal Coastal Zone Management (CZM) Act of 1972 was established to support and protect the distinctive character of the waterfront, and to assist coastal states in establishing policies for managing their coastal zone areas. In 1982, New York adopted a state Coastal Management Program, designed to balance economic development and preservation in the coastal zone by promoting waterfront revitalization and water-dependent uses while protecting fish and wildlife, open space and scenic areas, public access to the shoreline and farmland, and minimizing adverse changes to ecological systems and erosion and flood hazards. The State program is consistent with the federal CZM Act and contains 44 coastal policies. It also provides for local implementation when a municipality adopts a local waterfront revitalization program that is consistent with the federal CZM Act.

In accordance with the State program, New York City adopted a local waterfront revitalization program, the *New York City Waterfront Revitalization Program* (WRP), in 1982. The WRP, as amended, incorporates the State's 44 coastal policies, and contains an additional 10 policies. The program is administered by the New York City Department of City Planning (DCP). It establishes the City's policies for development and use of the waterfront and provides a framework for evaluating activities proposed in the Coastal Zone.

The coastal zone management program consistency review process is described in federal regulations at 15 Code of Federal Regulations (CFR) 930: Federal Consistency with Approved Coastal Management Programs, as amended, as well as in the WRP. Consistency review is required for any project that:

- Is in, or is expected to affect the resources or land or water uses of, the New York coastal zone; and
- Requires a state- or federal-listed permit, is federally, state, or locally funded, or is a direct activity of a federal, state, or local agency.

The District is located within the coastal zone designated by New York City (Figure 13-1). The City's policy is to review a project's consistency with the WRP policies, if a project is located within a coastal zone area. This chapter reviews the New York City Coastal Zone policies and assesses the consistency of the proposed Plan with these policies. The New York City WRP Consistency Assessment form is provided in Appendix D. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter considers the cumulative impact of the proposed Plan and the anticipated development on Lots B and D.

PRINCIPAL CONCLUSIONS

As described in greater detail below, this analysis concludes that the proposed Plan would be consistent with the City's 10 WRP policies and standards. Implementation of either the proposed Plan or the No Convention Center Scenario would result in the construction of a maximum of 8.94 million gross square feet (gsf) of residential, commercial, community, and convention center buildings and a minimum of eight acres of publicly accessible open space. This chapter concludes that both the proposed Plan and the No Convention Center Scenario would be consistent with citywide goals for fostering residential and commercial development, creating public access in the coastal zone, and protecting sensitive natural and historic resources.

B. CONSISTENCY OF THE PROPOSED PLAN WITH THE WATERFRONT REVITALIZATION PROGRAM POLICIES

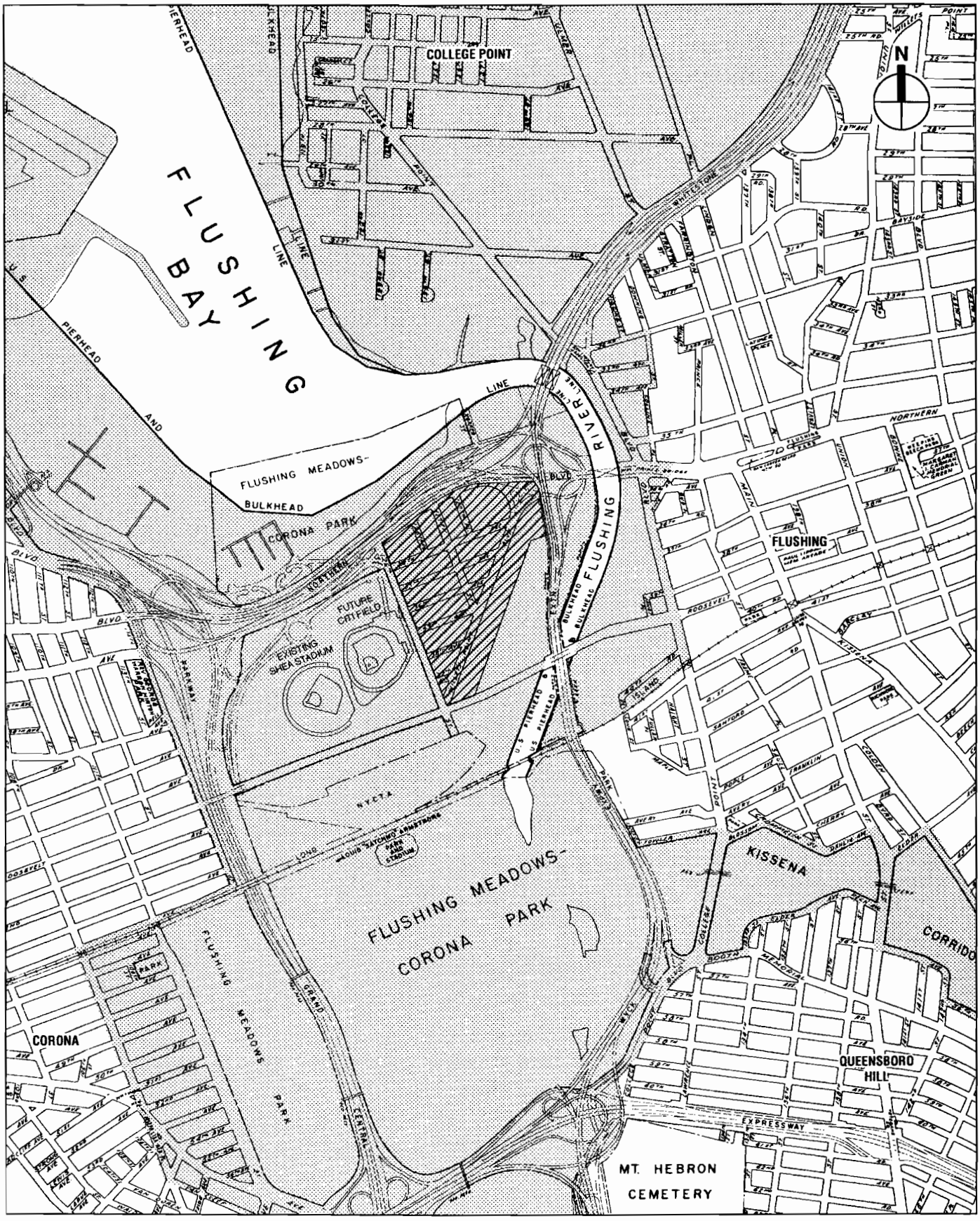
New York City's WRP includes 10 policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among those objectives. Each policy is presented below, followed by a discussion of the policy's applicability to both the proposed Plan and the No Convention Scenario, and the consistency of the proposed Plan and No Convention Center Scenario to each policy.

Policy 1: Support and facilitate commercial and residential development in areas well-suited to such development.

Policy 1.1: Encourage commercial and residential redevelopment in appropriate coastal zone areas.

The District and Lots B and D are located on the Willets Point peninsula in northern Queens. The District currently contains approximately 260 businesses consisting of mainly auto repair, auto body shops, junkyards, wholesalers, construction companies, and other auto-related retail establishments. Lot B is currently being used as a construction staging area for Citi Field, and Lot D is currently a parking area currently used by commuters, as well as for Mets games and USTA National Tennis Center events. As detailed in Chapter 4, "Socioeconomic Conditions," the businesses and institutions that would be displaced due to implementation of either the proposed Plan or the No Convention Scenario were determined not to be of substantial economic value to the region or City as defined under City Environmental Quality Review (CEQR). The District's businesses are not unique; similar services and products are provided throughout Queens, the City, and the region. Further, these uses are not waterfront-dependent, nor do they require locations in close proximity to the waterfront. The vast majority of these businesses and institutions would have the potential to relocate to other properties within Queens or the City.

Both the proposed Plan and the No Convention Scenario are intended to stimulate the redevelopment of this area in a way that would improve environmental conditions in Willets Point, provide new affordable and market-rate housing, promote economic growth and job creation, create a regional destination, and improve the overall quality of life for residents of neighboring areas. Residential and retail uses would be the core activities in the District, and office, hotel, and possibly convention center uses would build upon these uses to create a regional economic center. Community facilities and open space would support the residential and commercial uses and provide amenities for area residents and visitors.



Willets Point Development District

Coastal Zone

Figure 13-1

Coastal Zone Boundary

The encouragement of these types of uses in this location would be appropriate, as discussed in Chapter 3, "Land Use, Zoning, and Public Policy," as they are prevalent in the vicinity, particularly within the dense commercial center of Downtown Flushing. As a result, both the proposed Plan and the No Convention Center Scenario would promote development that is consistent with the policy stated above.

Policy 1.2: Encourage non-industrial development that enlivens the waterfront and attracts the public.

Both the proposed Plan and the No Convention Center Scenario recommend a change to the underlying zoning from the existing M3-1 and R3-2 to a C4-4 district with a zoning Special District. Either scenario would create a mix of uses, including residential, retail, hotel, entertainment, office, community facility, open space uses, and possibly a convention center. These uses would result in substantially greater numbers of people coming to the area, would attract the public, and would enliven this area of land near the waterfront. In addition, as described in Chapter 1, "Project Description," the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. Bicycle lanes would be required on connector streets within the redeveloped District, which would connect to this area-wide bicycle and greenway network, improving connectivity between Willets Point and surrounding areas, including the waterfront. Therefore, the proposed Plan would encourage non-industrial development that would enliven areas near the waterfront and attract the public. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 1.3: Encourage redevelopment in the coastal area where public facilities and infrastructure are adequate or will be developed.

Public facilities, including police stations, fire houses, public schools, libraries, and health care facilities, in the District are adequate to handle the demands of development as a result of the proposed Plan. As detailed in Chapter 5, "Community Facilities," a significant adverse impact to public day care facilities could occur in 2017 as a result of either the proposed Plan or the No Convention Center Scenario. To mitigate the potential impact on day care facilities, NYCEDC would require, as part of the developer's agreement, that a future developer consult with New York City Administration for Children's Services to determine the appropriate way to meet demand for day care services generated by development in the District.

The District is well-served by roadways, including Northern Boulevard, the Van Wyck Expressway, and Roosevelt Avenue, and mass transit including the No. 7 subway line, the Long Island Rail Road (LIRR), and the Q48 and Q66 bus routes. The proposed Plan would include a new connection between the Van Wyck Expressway and the District to facilitate the movement of traffic into and out of the District and minimize traffic on nearby local roadways. Furthermore, as described in Chapter 23, "Mitigation," traffic and transit impacts expected to result from the proposed Plan would be mitigated to the maximum extent possible.

As described in Chapter 14, "Infrastructure," the District is not currently connected to the City's sanitary sewer system. Under the proposed Plan, the District would be connected to the City's sanitary sewer system, replacing the current reliance on septic tanks. In order to meet the needs of the future user populations, a new sanitary pump station and force main

would be constructed to convey sanitary flow from the District to the existing 96-inch-diameter City sewer at 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). In addition, the Special District text allows for the development of a water reclamation facility, which would treat the District's sanitary wastewater to applicable water quality and effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would result in a slight increase in the amount of detention to be provided in the District. If proposed by a future developer, a water reclamation facility would require a special permit by the Board of Standards and Appeals (BSA) and likely a SPDES permit from DEC, and would be subject to separate environmental and public review processes. If a water reclamation facility were constructed, it would obviate the need for a new pump station. With these measures, the infrastructure needs of future user populations within the District would be adequately met. Therefore, development under the proposed Plan would be in an area where essential public services and facilities are available and adequate, and if not, would be provided. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 2: Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.

Policy 2.1: Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.

The District and Lots B and D are not located within a Significant Maritime and Industrial Area. Therefore, this policy does not apply.

Policy 2.2: Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas.

The District and Lots B and D are located inland from Flushing Bay and the Flushing River, and are separated from the shoreline by major roadways and other uses. Therefore, the District and Lots B and D are not an appropriate location for working waterfront uses, and this policy does not apply.

Policy 2.3: Provide infrastructure improvements necessary to support working waterfront uses.

As indicated above, the District and Lots B and D are not located on the waterfront and are not appropriate for working waterfront uses. Therefore, this policy does not apply.

Policy 3: Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation centers.

Policy 3.1: Support and encourage recreational and commercial boating in New York City's maritime centers.

As stated above, the District and Lots B and D are located inland from Flushing Bay and the Flushing River, and are separated from the shoreline by major roadways and other uses. Implementation of the proposed Plan would not prohibit recreational and commercial boating from occurring in Flushing Bay and the Flushing River. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 3.2: Minimize conflicts between recreational, commercial, and ocean-going freight vessels.

The development resulting from either the proposed Plan or the No Convention Center Scenario would not involve the siting of recreational boating facilities, or mooring or docking facilities. Therefore, this policy does not apply.

Policy 3.3: Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.

Implementation of either the proposed Plan or the No Convention Center Scenario would not result in commercial or recreational boating activities. Therefore, this policy does not apply.

Policy 4: Protect and restore the quality and function of ecological systems within the New York City coastal area.

Policy 4.1: Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas, Recognized Ecological Complexes and Significant Coastal Fish and Wildlife Habitats.

The District and Lots B and D are not located in a Special Waterfront Natural Area, Recognized Ecological Complex, or Significant Coastal Fish and Habitat area. Therefore, this policy does not apply.

Policy 4.2: Protect and restore tidal and freshwater wetlands.

Willets Point peninsula is bordered by the Flushing River to the east and Flushing Bay to the north. As described in Chapter 11, "Natural Resources," the Flushing River (salt marsh) was designated by the New York/New Jersey Harbor Estuary Program (HEP) Habitat Workgroup as a highest priority site in 2005. This ecological habitat is within the Flushing Bay watershed. There are no freshwater wetlands located within or in the vicinity of the District or Lots B and D.

Implementation of either the proposed Plan or the No Convention Center Scenario would not involve draining of, placement of fill in, or excavation of wetlands, and the District's distance from nearby tidal wetlands (more than 165 feet) would limit the potential for site redevelopment to negatively impact wetland areas. Because the District and Lots B and D are located more than 150 feet from the wetlands, it would not be subject to New York State Department of Environmental Conservation (DEC) regulations (Article 25, and Title 25 of Article 71 of the Environmental Conservation Law). Nonetheless, all proposed Plan construction activities would be coordinated with relevant City and State agencies to ensure that the wetlands areas are not disturbed. As described in Chapter 11, the proposed Plan would not result in significant adverse impacts on tidal wetlands in the vicinity or their supporting aquatic wildlife, and new open spaces created within the District would increase refuge and nesting resources for birds, insects, amphibians, and other species. Both the proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 4.3: Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.

The District and Lots B and D are currently developed, with no natural areas, and are not located within a Special Waterfront Natural Area, Recognized Ecological Complex, or

Significant Coastal Fish and Habitat area. The area within the District contains predominantly automotive uses. Lot B is currently being used as a construction staging area for Citi Field, and Lot D is a parking lot used by commuters and for Mets games and USTA National Tennis Center events. Requests for information on federal and state-listed threatened and endangered species, species of special concern, as well as habitats of special concern within and around the District were submitted to the DEC Natural Heritage Program (NHP), the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. Responses from these agencies indicate that there are no threatened or endangered species in the District or on Lots B and D.

The proposed Plan would create a minimum of eight acres of new open space, which would increase refuge and nesting resources for birds, insects, amphibians, and other species. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 4.4: Maintain and protect living aquatic resources.

Although it is a coastal zone area, the District is located inland from Flushing Bay and the Flushing River and is separated from the shoreline by several major roadways and other uses. The development resulting from either the proposed Plan or No Convention Center Scenario would not involve the harvesting of fish, spawning habitat, aquaculture, or fish stocking; nor would it affect aquatic habitat. As stated previously, development of a water reclamation facility is permissible by special permit under the Special District zoning regulations. The water reclamation facility would treat the District's sanitary wastewater to applicable DEP water quality and effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would likely require a SPDES permit, and would undergo separate environmental and public review processes. Adverse impacts to water quality and fish and benthic resources are not anticipated; therefore, the proposed Plan and No Convention Scenario are consistent with this policy.

Policy 5: Protect and improve water quality in the New York City coastal area.

Policy 5.1: Manage direct or indirect discharges to waterbodies.

The proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual. With implementation of the proposed site remediation (detailed in Chapter 12, "Hazardous Materials") and development of the proposed Plan's stormwater management facilities, construction and operation of either the proposed Plan or the No Convention Scenario would reduce the potential for contaminants to enter Flushing Bay. The proposed remediation measures are not expected to affect the efficiency and functionality of the existing outfalls. Best management measures implemented during and after construction would include erosion and sediment control measures and treatment of stormwater as part of a stormwater pollution prevention plan (SWPPP) and would minimize potential impacts on Flushing Bay associated with stormwater runoff. The proposed Plan is not expected to have a significant adverse construction impact on the water quality of Flushing Bay or the Flushing River.

The proposed Plan would be consistent with the City's goal to reduce CSO events by requiring construction and maintenance of a separate storm and sanitary sewer system. Sewer infrastructure modeling simulations (see Chapter 14) determined that the additional sanitary flow from the proposed Plan (2.8 mgd) would not affect the number of annual CSO

events; the total annual volume of CSO discharge would increase by less than 1 percent (0.76 percent), or 44 million gallons. In addition, as described in Chapter 14, "Infrastructure," water conservation measures would be employed to minimize sanitary sewage flow to the existing combined sewer system.

Stormwater generated within the District during operation would be diverted and discharged through a separate stormwater collection system, to Flushing Bay via two existing outfalls on 126th and 127th Streets. As described in Chapter 14, the current stormwater conveyance system is insufficiently sized to accommodate the runoff being generated in the District. To eliminate these stormwater management issues, the proposed Plan would require the construction of a new stormwater conveyance system, including piping, sustainable design features, and an adequately sized detention tank, or other equivalent means, to accommodate the 3.79 acre-feet of stormwater that is beyond the discharge capacity during a 5-year storm event. With the implementation of adequate stormwater management features, stormwater flow could be controlled so as to remain within the capacity of the two existing outfalls without the need to modify the existing outfalls. In addition, the developer would be required to prepare and implement a site stormwater management plan, to be reviewed and approved by the New York City Department of Environmental Protection (NYCDEP) prior to commencement of construction. This plan would specify Best Management Practices and sustainable design features to be incorporated in the project. If it is determined that the stormwater management features selected for a specific development plan do not adequately supplement the stormwater flow capacity of the existing outfalls, a new outfall will be proposed to augment the existing system.

Given that the District currently lacks sewer infrastructure, and stormwater from the existing industrial uses flows heavily into Flushing Bay, discharges from the proposed system in the future with the proposed Plan to Flushing Bay would be an improvement over current conditions. Overall, implementation of the new system is expected to result in improved stormwater quality and, consequently, improved water quality in Flushing Bay by eliminating site flooding, improving the quality of the soil substrate of the site, and providing direct drainage to storm sewers; incorporating sustainable design features, where feasible, to reduce the discharge volume and increase the quality of stormwater discharges; and preventing stormwater generated within the District from entering the combined sewer system, which would increase the frequency and volume of CSO discharges. All discharges would be required to meet applicable water quality standards of receiving waters. The projected discharges would not be expected to result in an adverse impact on Flushing Bay or the upper East River; nor would it fail to continue to meet Class I standards. As noted in Chapter 11, the life stages of estuarine-dependent and anadromous fish species, bivalves, and other macroinvertebrates found within Flushing Bay are fairly tolerant of varying environmental conditions and have developed behavioral and physiological mechanisms for dealing with these variations. Therefore, temporary, localized changes in water quality that may occur as a result of the minimal additional CSO discharge would not be expected to result in significant adverse impacts on aquatic biota. Significant adverse impacts on surface water quality would not be expected during operation of the proposed Plan.

The proposed Plan and No Convention Center Scenario are consistent with this policy.

Policy 5.2: Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.

The District and Lots B and D are largely impervious and thus, during storms, the area experiences continual flooding. Stormwater generated within the District is not controlled or treated prior to entering Flushing Bay.

As described above, stormwater generated within the District during construction and operation of the proposed Plan would be diverted and discharged to Flushing Bay via connection to the two existing outfalls at 126th and 127th Streets. No additional outfalls would be constructed. The proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual.

Best management measures implemented during and after construction would include erosion and sediment control measures and treatment of stormwater as part of a SWPPP, and would minimize potential impacts on Flushing Bay associated with stormwater runoff. The SWPPP would comply with the Flushing Bay Comprehensive Watershed Plan, and would take into account that Flushing Bay is an existing impaired waterbody.

In addition, the water reclamation facility, if proposed by the future developer, would treat the District's sanitary wastewater to applicable DEP water quality and effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would likely require a SPDES permit, and would result in a slight increase in the amount of detention to be provided in the District. The facility would require a special permit by the BSA and would be subject to separate environmental and public review processes.

Because the site would be remediated prior to development, and because the project would include stormwater management facilities and stormwater would be pre-treated prior to discharge, adverse impacts on surface water quality would not be expected in the future with the proposed Plan or the No Convention Center Scenario. Sustainability design regulations for the proposed Plan/No Convention Center Scenario are currently under development by the New York City Economic Development Corporation (NYCEDC), and may include rooftop storage and filters, underground storage, inline pipe storage, decorative wet ponds, detention dry ponds, proprietary pre-treatment structures, bio-swales, green roofs, gray water irrigation, wetland restoration, urban agriculture, and porous pavement. These measures would be included in the stormwater management plan that the future developer would have to develop in consultation with NYCDEP, would further improve the overall stormwater management, energy, and water quality during project construction and operation. The proposed Plan and No Convention Center Scenario are consistent with this policy.

Policy 5.3: Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.

Implementation of either the proposed Plan or the No Convention Center Scenario would not entail excavation in navigable waters or in or near marshes, estuaries, tidal marshes, or wetlands, nor would excavation fill be placed in navigable waters or in or near marshes, estuaries, tidal marshes, or wetlands. Therefore, this policy does not apply.

Policy 5.4: Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.

Flushing Bay is a shallow, highly impacted water body that has been greatly altered by human activities over the past century. The Flushing Bay and the Flushing River area has been classified as Use Classification I, in accordance with Title 6 of the NYCRR Part 703, which identifies best usages as secondary contact recreation and fishing.

Currently, the District and Lots B and D are covered primarily with impervious surface, with no open space areas. Phase I and II Environmental Site Assessments (ESAs) identified the potential for contamination in the District based on current and past uses. Further groundwater sampling indicated evidence of petroleum contamination, consistent with releases from private properties within the District. Given the presence of this groundwater contamination and the findings of the Phase I ESA, petroleum and potentially other contamination are expected to be widespread on private properties within the District.

Given the historical industrial use on the site and the site's previous contamination, the proposed Plan would entail removal or capping of contaminated soils and historic fill. Following the completion of remediation and implementation of institutional controls as detailed in Chapter 12, the District would be safe for all uses permitted under the proposed zoning, and the overall quality of the District's groundwater would be improved.

As stated above under Policy 5.2, the proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual, and implementation of a SWPPP would minimize potential impacts on Flushing Bay associated with stormwater runoff. Therefore, significant adverse impacts on surface water quality would not be expected during construction of the proposed Plan.

Overall, implementation of either the proposed Plan or the No Convention Center Scenario would improve the quality of groundwater and adjacent Flushing River and Flushing Bay. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 6: Minimize loss of life, structures and natural resources caused by flooding and erosion.

Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the condition and use of the property to be protected and the surrounding area.

The District and Lots B and D are not located on the waterfront, and thus would not alter any features of the shoreline or any existing structural or non-structural flood or erosion control measures. The District is located in the Federal Emergency Management Agency (FEMA) 100- and 500-floodplains; however, both the proposed Plan and the No Convention Center Scenario propose an increase in open space as compared with existing conditions. Therefore, both the proposed Plan and the No Convention Center Scenario offer a reduced potential for surface flooding than the existing built environment because of the District's increased ability to absorb water.

The existing structures on the site are currently below the FEMA 100-year floodplain. The proposed development would comply with the New York City Building Code (Title 27, Subchapter 4, Article 10) and FEMA requirements regarding the lowest floor elevation, which

would be at or above the base flood elevation (BFE)[1]. It is anticipated that approximately one to seven feet of fill would be used to raise the site to 14 feet (NAVD 1929) above FEMA 100-year flood level. The site would be graded to ensure that the lowest floors of the residential towers are above the BFE. The City has established an interagency group to work with FEMA to revise the Flood Insurance Rate Maps for the City. The City is working with FEMA to reflect current shoreline and elevations, and technological changes that allow for more accurate map-making. It is anticipated that the map revisions will be completed in 2010. Subsequent development within the District will reflect any changes to the floodplain elevations. In addition, sustainable design features and stormwater management practices, including stormwater detention, would improve the overall stormwater management.

As described in Chapter 14, "Infrastructure," the City is currently engaged in several initiatives related to better assessing potential local impacts of global climate change and developing citywide strategies to adapt projected effects of climate change. If appropriate and warranted by information available prior to construction, the City would have the authority to require an increase in the proposed grade of the District at that time, but other measures could be used if more appropriate.

As detailed local projections of global climate change become available and are adopted into the City's infrastructure design criteria, such criteria will be incorporated into the development program. In addition, the City's agreement with the developer would require the preparation of an engineering study prior to commencement of construction that would assess the feasibility of implementing adaptation strategies for climate change impacts into the design of the development program in light of the most current climate change projections. Based on that engineering study, the City will require the developer to implement the adaption strategies that it determines are practicable.

The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 6.2: Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.

As part of the project, the site would be graded and elevated above the floodplain as part of the proposed Plan. As discussed in Chapter 1, "Project Description," one of the greatest barriers to redevelopment in the District is that much of the land area within the District is below the FEMA 100-year floodplain level of 14 feet Above Mean Sea Level (AMSL); up to seven feet of fill is required to grade and raise the District out of the floodplain. If the City were to provide new infrastructure such as roadways, sidewalks, and storm and sanitary sewer lines at the existing grade, potential future development would require costly engineering for flood control on lower floors. There is no use of public funding to grade and elevate the site. However raising the site out of the floodplain, and the potential climate adaptation measures described above, would not only mitigate against future flooding and erosion problems, but would also benefit public health and safety and protect the City's significant investment in new infrastructure. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

[1] 10 feet above the borough datum

Policy 6.3: Protect and preserve non-renewable sources of sand for beach nourishment.

The District and Lots B and D do not contain any public or private beaches and does not have a non-renewable source of sand. Therefore, this policy does not apply.

Policy 7: Minimize environmental degradation from solid waste and hazardous substances.

Policy 7.1: Manage solid waste material, hazardous wastes, toxic pollutants, and substances hazardous to the environment to protect public health, control pollution and prevent degradation of coastal ecosystems.

None of the uses envisioned under the proposed Plan or the No Convention Center Scenario would involve the use or discharge of hazardous or toxic pollutants. All toxic or hazardous substances uncovered during construction would be managed in accordance with the applicable State and federal standards to prevent impacts on surrounding areas. Solid waste generated by the proposed development would be disposed of according to applicable laws and regulations. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 7.2: Prevent and remediate discharge of petroleum products.

The District has a history of industrial uses. As described in Chapter 12, prior to development, any on-site soils that have been impacted due to petroleum products would be removed or capped to prevent any potential discharges. Both the proposed Plan and the No Convention Center Scenario would not result in the discharge of petroleum products, involve the siting of a petroleum-related facility, or include the processing, storage, or handling of petroleum products. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 7.3: Transport solid waste and hazardous substances and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.

Solid waste resulting from either the proposed Plan or the No Convention Center Scenario would be hauled by DSNY or a private contractor according to applicable laws and regulations. Hazardous materials uncovered during construction would either be removed or capped, minimizing the potential for adverse impacts to coastal resources. Development would also not entail the siting of solid or hazardous waste facilities. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 8: Provide public access to and along New York City's coastal waters.

Policy 8.1: Preserve, protect and maintain existing physical, visual, and recreational access to the waterfront.

Although the District and Lots B and D are located in the coastal zone, the sites are separated from the waterfront by the existing road network and industrial, utility, and open space uses. As described in Chapter 9, "Urban Design and Visual Resources," the District and Lots B and D currently contain few points of physical, recreational, or visual access to the waterfront. The anticipated development in the District and Lots B and D would not affect views to or from visual resources such as Flushing Bay or the Flushing Bay Promenade. As described above, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations. Bicycle lanes would be required on connector streets within the redeveloped District, which would connect to this area-wide bicycle and greenway network, improving connectivity

between Willets Point and surrounding areas, including the waterfront. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 8.2: Incorporate public access into new public and private development where compatible with proposed land use and coastal location.

The proposed Plan would create a minimum of eight acres of publicly accessible open space within the District. Although the District is not located on the waterfront, the Flushing Bay Promenade, which is located along Flushing Bay within walking distance of the District, would provide access to the waterfront area. Access to Flushing Bay Promenade from the District would be available via the existing roadway network, and through the pedestrian and bicycle network that the City is currently pursuing. Bicycle lanes required on connector streets within the redeveloped District would connect to this area-wide bicycle and greenway network. The proposed Plan is consistent with this policy.

Policy 8.3: Provide visual access to coastal lands, waters, and open space where physically practical.

As stated above, several elevated roads currently separate the District and Lots B and D from the waterfront area, including Northern Boulevard and the Whitestone Expressway to the north, the Van Wyck Expressway to the east, and Roosevelt Avenue, with the elevated No. 7 subway line to the south. These roads currently act as a physical barrier between the District and Lots B and D and the waterfront. As described in Chapter 9, the anticipated development in the District and Lots B and D would not affect views to or from Flushing Bay, the Flushing Bay Promenade, or views to the 1964 World's Fair structures in Flushing Meadows-Corona Park. The proposed development would not interfere with views across Flushing Bay from the promenade. Therefore, both the proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 8.4: Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.

As stated above, the District and Lots B and D are not located on the waterfront. However, both the proposed Plan and the No Convention Center Scenario would include a minimum of eight acres of publicly accessible open space that could provide physical and visual links to the waterfront. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 8.5: Preserve the public interest in and use of lands and waters held in public trust by the state and city.

The District does not contain any lands or waters held in public trust by the State and City. Lots B and D, which are located on property owned by the City, are currently under the jurisdiction of the New York City Industrial Development Agency (NYCIDA) and under lease to the Queens Ballpark Co. Any future development on Lots B and D would be undertaken by Queens Ballpark Co. or an affiliate and would require an amendment to the current lease agreement and discretionary approval by the New York City Department of Parks and Recreation (DPR), which administers the NYCIDA lease. These actions would require a separate environmental review process subject to CEQR, and would include a consistency review with the City's WRP. Therefore, this policy does not apply.

Policy 9: Protect scenic resources that contribute to the visual quality of the New York City coastal area.

Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.

The District and Lots B and D are not located within an area that is part of New York City's historic and working waterfront. Furthermore, as described in Chapter 9, there are few visual corridors leading from the District and Lots B and D to the waterfront. However, development and streetscapes constructed under the proposed Plan or the No Convention Center Scenario would be designed in accordance with the Special District regulations, and would complement existing scenic elements, natural features, and landforms within and surrounding the District and Lots B and D. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 9.2: Protect scenic values associated with natural resources.

The District and Lots B and D are currently built out with existing uses; natural resources on the sites are minimal, and there are few visual corridors leading from the District and Lots B and D to the waterfront (see Chapter 9). Development that would result from the proposed Plan would not reduce existing views or the scenic value of Flushing Bay or the Flushing River; instead, new views would be provided through the creation of on-site open space. The proposed Plan and the No Convention Center Scenario are consistent with this policy.

Policy 10: Protect, preserve, and enhance resources significant to the historical, archaeological, and cultural legacy of the New York City coastal area.

Policy 10.1: Retain and preserve designated historic resources and enhance resources significant to the coastal culture of New York City.

Although located in a coastal zone area, the District and Lots B and D are not located on a waterfront, and thus there are no resources related to the historical use and development of the waterfront, including shipwrecks, lighthouses, or other maritime navigation structures.

As described in Chapter 8, "Historic Resources," the New York City Landmarks Preservation Commission (LPC) has determined that the District is not sensitive for archaeological resources. LPC has also determined that the District does not contain any architectural resources. However, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) has determined one building—the former Empire Millwork Corporation Building, located within the boundaries of the Development District—to be eligible for listing on the State and National Registers of Historic Places (S/NRs). A site visit in May 2007 did not identify any potential architectural resources within 400 feet of the District.

Both the proposed Plan and the No Convention Center Scenario contemplate the removal of all buildings in the District, including the former Empire Millwork Corporation Building. Demolition of this historic resource would constitute a significant adverse impact on architectural resources, and measures to partially mitigate this adverse impact are discussed in Chapter 23. Both the proposed Plan and No Convention Center Scenario are consistent with this policy.

Policy 10.2: Protect and preserve archaeological resources and artifacts.

As described in Chapter 8, the District is not sensitive for archaeological resources. The proposed Plan and the No Convention Center Scenario are consistent with this policy. ✷

A. INTRODUCTION

This chapter evaluates the potential increased demand the proposed Willets Point Development Plan would place on New York City's water supply, sanitary sewage treatment, and stormwater drainage, and describes the additional infrastructure and infrastructure improvements needed to meet the projected demand in the Willets Point Development District (District). The analyses address the water supply, wastewater, and stormwater infrastructure for existing conditions, as well as the future conditions without and with the proposed Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter considers the cumulative impact of the proposed Willets Point Development Plan and the anticipated development on Lots B and D. An assessment of potential future infrastructure demand is provided for both the proposed Plan and the No Convention Center Scenario, as described in Chapter 2.

The effect of the proposed Plan on other infrastructure components, such as those associated with solid waste management, energy, and transportation, are addressed in Chapter 15, "Solid Waste and Sanitation," Chapter 16, "Energy," and Chapter 18, "Transit and Pedestrians," of this Draft Generic Environmental Impact Statement (DGEIS).

PRINCIPAL CONCLUSIONS

WATER SUPPLY

The proposed Plan and anticipated development on Lots B and D would cumulatively require approximately 4.36 million gallons per day (mgd) of water supply. This additional demand would not result in a significant adverse impact on the City's water supply system. This projected flow would be supplied by the existing 72-inch water main serving the District.

Under the proposed Plan, the existing 72-inch prestressed reinforced concrete pipe (PRCP) water main within Willets Point Boulevard would remain in place. In order to provide acceptable access to the existing main, the developer would provide a permanent easement mapped on the City map. The width and designation of this easement shall be determined in consultation with New York City Department of Environmental Protection (DEP) and in accordance with DEP requirements.

SANITARY SEWAGE

Under the proposed Plan, the District would be connected to the City's sanitary sewer system, replacing the current reliance on septic tanks. Sanitary wastewater from the District would be conveyed to a new sanitary pump station, which would most likely be constructed within the District. Sanitary wastewater from Lots B and D would be connected to the pumped discharge utilized by Citi Field subject to the verification of its adequacy. The new District pump station

would be designed and constructed to DEP standards. A new force main would be constructed to convey sanitary flow from the District to the existing 96-inch-diameter City sewer at 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). This new force main route would cross beneath 126th Street and the Grand Central Parkway.

The proposed Plan and the anticipated development on Lots B and D would result in an increase of sanitary flow to the Bowery Bay WPCP of approximately 2.8 mgd. The projected available capacity at the Bowery Bay WPCP in 2017 is 28 mgd. The Bowery Bay WPCP has adequate capacity to meet the increased demand associated with the proposed Plan.

In addition, the Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. If proposed, a water reclamation facility would require a special permit by the Board of Standards and Appeals (BSA) and would be subject to separate environmental and public review process. The water reclamation facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. If a water reclamation facility were constructed, it would obviate the need for a new pump station.

STORMWATER

Prior to redevelopment of the site, an amended drainage plan would be prepared by the developer to comprehensively address all the surface runoff and separate handling of the sanitary dry flow that would be generated as a result of the proposed Plan, and drainage features to be included in the development of the District. This drainage plan would accommodate the City's current drainage plan for the area (Plan No. 295[5]), and easements associated with highway drainage, and would be subject to prior review and approval by DEP.

The proposed Plan would maintain separate stormwater and sanitary sewer systems, in accordance with the City's goals to reduce combined sewer overflow (CSO) events. Since the existing area is largely impervious (the District and Lots B and D are currently largely built with impervious structures including buildings, paved surfaces, and roads, which create surface runoff), its conversion to a high density mixed-use district would not significantly change the overall runoff conditions within the area. The overall stormwater runoff volume in the future with the proposed Plan for the District and Lots B and D would therefore remain largely unchanged from the current runoff volume of 366 cfs. Approximately 327 cfs would be generated from the District with an additional 39 cfs from Lots B and D. Stormwater generated within the District is currently directed without any detention to the two existing outfalls on 126th Street and 127th Street. The current runoff from the District is more than the allowable flow per drainage plan to these two outfalls. The current stormwater conveyance system is not sized to accommodate the uncontrolled runoff being generated, resulting in street flooding during storm events. To eliminate these stormwater management issues, the proposed Plan would require the construction of a new stormwater conveyance system, including piping, sustainable design features, and an adequately sized detention tank, or other equivalent means, to accommodate the 5.13 acre-feet of stormwater to meet the allowable flow to the outfall. Approximately 4.20 acre-feet of the total required detention would be required for the District, with an additional 0.93 acre-feet for Lots B and D. The runoff coefficient for Lots B and D assumes a permeability equivalent to pavement. In addition to an amended drainage plan, the developer would be required to prepare a site stormwater management plan, to be reviewed and approved by DEP, that would specify Best Management Practices and sustainable design

features that the project would include. If a future developer proposes to develop a water reclamation facility pursuant to a BSA special permit, as described above, such a facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District, and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would require a SPDES permit to operate, and would result in a slight increase in the amount of detention to be provided in the District.

With the implementation of adequate stormwater management features, stormwater flow could be controlled to remain within the capacity of the two existing outfalls without the need to modify these outfalls. If it is determined that the capacity of the two existing outfalls, as supplemented by stormwater management features selected for the detailed development is not adequate, a new outfall would be proposed to augment the existing system. Construction of a new outfall would require permits from NYSDEC and the US Army Corps of Engineers.

The proposed Plan would require coverage under the current State Pollutant Discharge Elimination System (SPDES) general permit program for stormwater discharges from construction activities, as well as post construction (Build) conditions. Prior to the initiation of construction activities, a Stormwater Pollution Prevention Plan (SWPPP) would be developed pursuant to the requirements of the general permit and would be enforced throughout the sequence of construction activities and after construction is complete. Since Flushing Bay is a regulated water body, stormwater would have to be pre-treated prior to discharge to ensure that applicable discharge criteria would be met after construction is completed. Such pre-treatment measures would be subject to DEP review and approval. These actions would ensure that pollution prevention measures are in place during and after construction activity and enable adequate control of potential sources of pollution relating to stormwater management.

B. METHODOLOGY

This chapter includes the following:

- Discussions of the existing water supply network serving the proposed District area;
- Assessment of the existing water demand in the District using water demand rates from the *City Environmental Quality Review (CEQR) Technical Manual,* the New York State Department of Environmental Conservation (DEC)'s *Design Standards for Wastewater Treatment Works* (1998), and DEP's *Draft Rules and Regulations Governing the Construction of Private Sewers and Drains;*
- Description of the existing sanitary sewage management in the District and the Bowery Bay WPCP service area;
- Data on the existing flows to the Bowery Bay WPCP for the latest 12-month period, and information about the nearest existing pump station;
- Estimates on the existing sanitary and stormwater infrastructure capacity in the District area;
- Description of the future water supply demands resulting from additional planned developments within the ¾-mile study area boundary, as discussed in Chapter 2, but without the proposed Plan and anticipated development on Lots B and D;
- DEP's predicted wastewater demands for the Bowery Bay WPCP service area;
- Description of the future sanitary and stormwater system without the proposed Plan and Lots B and D;

- Estimate of the increase in water demand associated with the proposed Plan and Lots B and D to assess the impacts on the City's water supply and conveyance system;
- Estimate of the amount of sanitary sewage that would be generated by the proposed Plan and Lots B and D, and assessment of the resulting effects on the existing local wastewater management system and operations at the Bowery Bay WPCP;
- Identification of the additional wastewater infrastructure that would be required to transport and treat the sanitary sewage generated by the proposed Plan and Lots B and D;
- Assessment of the potential demand the proposed Plan and Lots B and D would place on the sanitary and stormwater collection system, and description of the sanitary and stormwater management strategies for the proposed Plan;
- Results of the modeled analysis of combined sanitary and stormwater runoff flows in the Bowery Bay WPCP service area and examination of the flows generated by the proposed Plan and Lots B and D to determine any potential impacts on CSO events; and
- Evaluation of the effect of the No Convention Center Scenario on water supply, wastewater, and stormwater systems.

SUSTAINABLE DESIGN FEATURES RELATED TO INFRASTRUCTURE

The proposed Plan would adopt a separate and sustainable stormwater drainage plan to be reviewed and approved by DEP. Additional sustainable features would be encouraged by the City and included as design guidelines for the development of the site. The sustainable design features under consideration would decrease the demand on infrastructure.

C. EXISTING CONDITIONS

WATER SUPPLY

New York City's primary surface water supply, which provides approximately 1.2 billion gallons of water per day, is serviced via a network of reservoirs, aqueducts, and tunnels extending as far as 125 miles north of the City. This network comprises three systems: the Catskill system, the Delaware system, and the Croton system, which are all operated by DEP. The systems are supplied with water from watershed areas in the Catskill Mountains and Upper Delaware River drainage basins. Water is conveyed from these systems to the local distribution grid via aqueduct tunnels that primarily operate via gravity flow; only 4 percent of the City's water must be pumped to its final destination.

The water from the Delaware and Catskill systems is distributed to the City through three tunnels: City Tunnel No. 1, which goes through the Bronx and Manhattan to Brooklyn; City Tunnel No. 2, which currently supplies the District (and goes through the Bronx, Queens, and Brooklyn (and from there through the Richmond Tunnel to Staten Island); and City Tunnel No. 3 (Stage 1), which goes through the Bronx, Manhattan, and terminates in Queens. Tunnel 3 is being constructed in three stages and, when completed, will enhance and improve the City's water delivery system, and allow for the inspection and repair of City Tunnels No. 1 and 2 for the first time since they were put into service, in 1917 and 1936, respectively. According to the New York City 2006 Drinking Water Supply and Quality Report, construction of City Tunnel No. 3 is expected to be completed in 2025. The 13-mile Stage 1 section went into service in August 1998. It runs from Hillview Reservoir in Yonkers, through the Bronx, down Manhattan across Central Park, and into Astoria, Queens. Stage 2 consists of a 5.5-mile section in Brooklyn

that connects to a 5-mile leg in Queens. These sections were completed in May 2001 and could be activated as early as 2009. This section would serve as a backup water supply for the District and the surrounding area, e.g., for instances in which Tunnel No. 2 requires maintenance.

Within the City, a grid of underground mains distributes water to consumers. Large mains, up to 96 inches in diameter, feed smaller mains, including 20-, 12- and 8-inch mains, which distribute water to individual locations. These mains also provide water to fire hydrants along many of the City's streets. Water pressure throughout the City water supply system is controlled by pressure regulators.

The proposed Willets Point Development District is within the boundary of the federally designated Brooklyn-Queens sole source aquifer. This designation was made pursuant to Section 1424 (e) of the Safe Drinking Water Act (SDWA), in recognition of the importance of the aquifer's vulnerability to contamination. The area's reliance on septic disposal inherently conflicts with SDWA goals. The aquifer is currently not used as a potable water source.

The District and adjoining streets currently have a complete, interconnected grid of water distribution mains that are served by a 72-inch water main, constructed of PRCP, located on Willets Point Boulevard. This gravity distribution system is fed by City Water Tunnel No. 2. The existing demands within the District are generally limited to the current on-site uses and the episodic supply needs of Shea Stadium, which range from 1 to 2 mgd. In addition to these demands, the existing 72-inch main also supplies water to a substantial portion of northeast Queens. This supply main currently operates under its capacity to provide water to the area. The pressures in these lines are adequate to meet the service demand.

As described in Chapter 3, existing uses in the area include automotive repair shops and other industrial-type uses. Based on water generation rates that are typical for these uses, the existing water consumption demand (i.e., potable water use) in the District is estimated to be approximately 422,242 gpd (see Table 14-1).

Table 14-1
Existing Water Consumption and Sewage Generation Rate

Current Use	Area	Domestic Rate		Air Conditioning Rate		Total
	Square Feet (sf)	gpd/sf	gpd	gpd/sf	gpd	gpd
Retail [a]	39,230	0.17	6,669	0.17	6,669	13,338
Commercial/Office [b]	59,389	0.10	5,939	0.10	5,939	11,878
Commercial/Other [c]	135,178	0.17	22,980	0.17	22,980	45,961
Industrial/Manufacturing [d]	558,011	0.46	256,203	0.17	94,862	351,065
TOTAL	791,808	N/A	291,792	N/A	130,450	422,242

Notes:
[a] Assumes water usage and sewage generation rates for Retail/Public Use.
[b] Assumes 0.10 gpd/sf and 25 gpd/person, which equates to 1 person per 250 sf.
[c] Use group includes one residence, a deli and private club in addition to auto related facilities and miscellaneous businesses. Assumes water usage and sewage generation rates for Retail/Public Use.
[d] Use group includes storage, recycling, non-retail auto uses, transportation, construction, distribution and manufacturing. Assumes 20,000 gpd/acre (10,000 gpd/acre multiplied by zoning district factor of 2.00 for M3-1).

Sources:
New York City Department of Finance Real Property Assessment Database (RPAD) 2005 and business information provided by the New York City Economic Development Corporation for the floor area by use group.
3L-2 Table in the *CEQR Technical Manual* for Water Consumption and Sewage Generation Rates.
Table 3 in the DEC Design Standards for Wastewater Treatment Works (1998) for Water Consumption and Sewage Generation Rates.
DEP's Draft Rules and Regulations Governing the Construction of Private Sewers and Drains.

SANITARY SEWAGE

New York City's sewer system includes an extensive grid of sewers beneath the streets that convey wastewater to 14 WPCPs. Together, these plants, which are operated by DEP, treat approximately 1.7 billion gallons of sewage per day. Most of the sewer systems within New York City are combined sewer systems, which carry both sanitary sewage from buildings and stormwater collected in catch basins and storm drains. However, some areas of the City, primarily in Queens and Staten Island, have separate systems for sanitary sewage and stormwater. In addition, small areas of Staten Island, Brooklyn, and Queens, including the Willets Point Development District, use septic systems to dispose of sanitary sewage.

The Willets Point Development District is located within the service area of the Bowery Bay WPCP, which is located on the East River in Astoria, Queens. Currently, the Willets Point area is not connected to the New York City sanitary sewer system and relies entirely on septic systems as the means of sewage treatment. The nearest connection to the City sewer infrastructure from the District is at the existing below-grade 37th Avenue Pump Station, located approximately 4,000 feet northwest of the District. This pump station has the capacity to pump up to 5 mgd into the 20-inch force main, which discharges into a 36-inch gravity combined sewer. Based on information obtained from DEP and as-built drawings, the pump station includes two 10-inch dry pit submersible pumps, each rated for 3,450 gallons per minute (gpm) with a peak rating of 4,600 gpm. However, some reports suggest the existing pump station peak rated capacity is 3,450 gpm. Nevertheless, the existing pump station has no extra capacity.

The sewer system downstream of the 37th Avenue Pump Station consists of combined sewers, regulators, and interceptors. The 36-inch combined sewer feeds into a 96-inch combined sewer under 108th Street, which carries the sewage through a series of regulators to the Bowery Bay WPCP (see Figure 14-1 for the Bowery Bay WPCP drainage schematic and sewer map.)

BOWERY BAY WPCP SERVICE AREA

The Bowery Bay WPCP treats sanitary wastewater to secondary treatment standards prior to discharge to the East River. The existing sewer system within the Bowery Bay WPCP service area is a combined sewer system that collects both sanitary sewage and stormwater runoff. Discharges from this plant are regulated by DEC through a SPDES permit. At the plant, water is treated through a variety of physical and biological processes that remove solid contaminants so that the water discharged into the City's waterways does not adversely affect water quality. During dry weather, combined sewers function as sanitary sewers, conveying all flows to the WPCP for treatment. During wet weather, however, stormwater entering the combined sewer/regulator system can exceed the capacity of the regulator and the treatment plant and trigger a CSO event into the City's waterways. The purpose of a regulator is to divert sanitary flow from the existing combined sewers to the intercepting sewer during normal flow periods (dry weather), and limit the flow to the intercepting sewer to twice the dry weather flow during storm periods (wet weather). During a significant storm event, CSOs within the Bowery Bay WPCP service area discharge to the East River and Flushing Bay. Currently, the CSO outfalls that may potentially be affected by the development within the District and on Lots B and D discharge 5,711.68 million gallons per year to area waterways (see Table 14-5). Generally, the impact of CSO events on local water quality is short-term at most locations, due principally to the mixing caused by tidal currents of the receiving waters and the fact that sanitary flows are diluted by runoff.

The combined sewer/regulator system within the Bowery Bay WPCP service area is designed to deliver twice the mean dry weather, or sanitary, flow to the Bowery Bay WPCP for treatment.

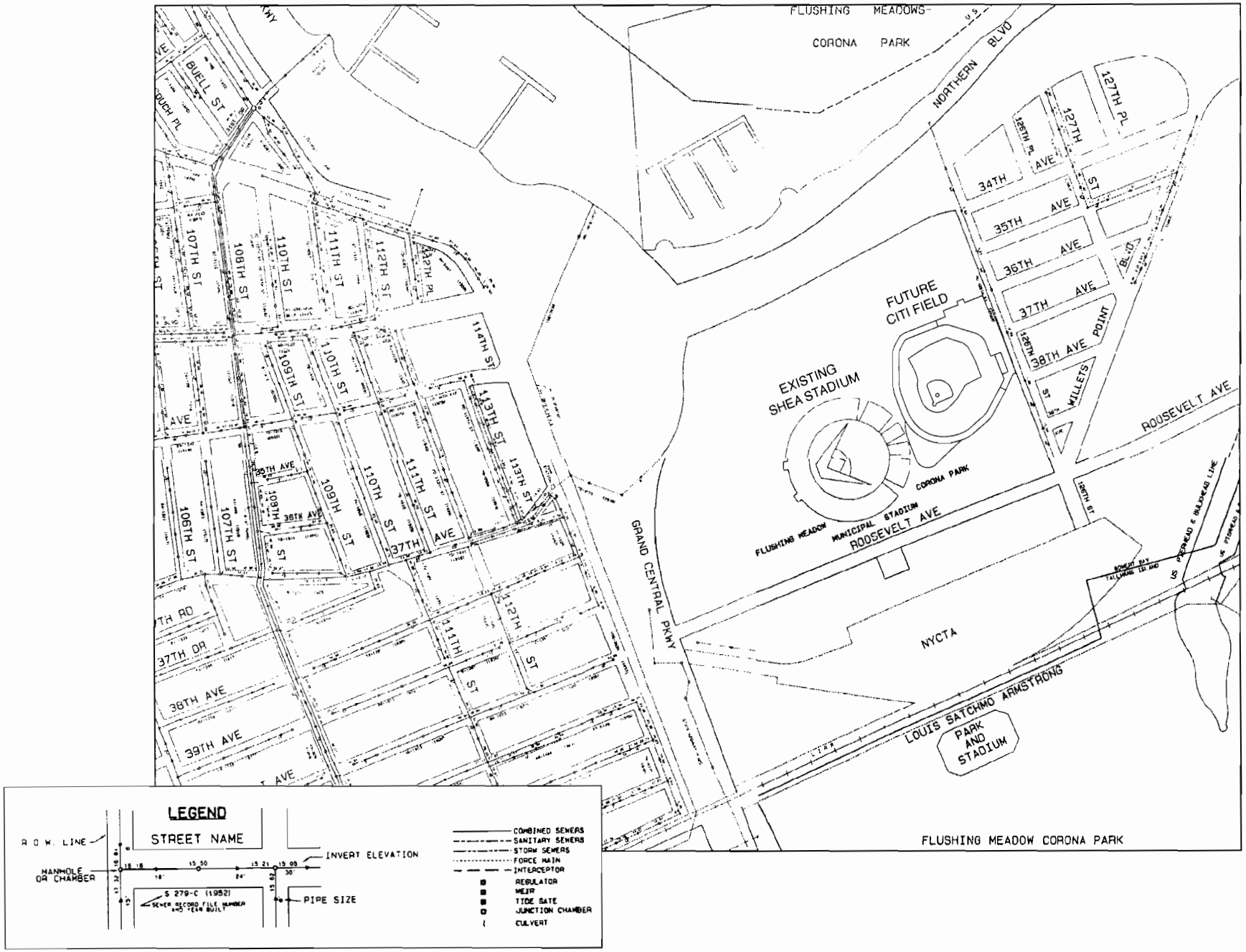


Figure 14-1

Bowery Bay Existing Sewer System

While the total hydraulic capacity of the Bowery Bay WPCP is 300 mgd, it can only provide treatment to secondary levels for 150 mgd. Flow records for the plant are maintained by DEP and are reported to DEC. Table 14-2 presents the current flow data for the Bowery Bay WPCP as reported by DEP. As shown in the table, the average daily flow rate at the plant for the period between January 2007 and December 2007 was 105 mgd. This value is significantly less than the 150 mgd permitted design capacity of the plant.

Table 14-2
2007 Monthly Average Daily Flows at Bowery Bay WPCP

Month	Flow (mgd)
January	88
February	85
March	104
April	119
May	106
June	114
July	117
August	115
September	101
October	105
November	97
December	104
12-Month Average	**105**
SPDES Permitted Capacity	**150**
Source: DEP	

As described above, the District currently has no connections to the New York City sanitary sewer system and relies on septic systems as the only means of sewage treatment. Individual property owners are responsible for maintaining these systems.

STORMWATER

Stormwater runoff is flowing surface water generated by rainfall. Runoff volume and rate of discharge vary depending upon the type of land cover and slope. The existing stormwater runoff was calculated for the District based upon these parameters using the Rational Method.[1] The Willets Point Development District comprises 14 blocks (Blocks 1820 through 1833) and segments of public streets, and is generally bounded to the east by the Van Wyck Expressway and an undeveloped lot owned by the Metropolitan Transportation Authority (MTA), to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. The area is currently developed at a moderate density for industrial uses and comprises mostly developed land, and thus is impervious in its present condition.

The estimated existing stormwater runoff generated within the limits of the proposed District and Lot B, based on DEP's Actual Stormwater Flow Criteria (Revised September 2006), is approximately 366 cubic feet per second (cfs) for a 5-year storm return frequency. Approximately 327 cfs would be generated from the District with an additional 39 cfs from Lots B and D. Stormwater runoff generated in the District and Lots B and D is currently discharged

[1] The rational method is a method used by DEP to determine storm flow. Using this method, the peak rate of runoff is dependent upon rainfall intensity, infiltration, topography, type of land cover, geographic location, and the drainage basin area.

into Flushing Bay via two 60-inch outfalls on 126th Street and 127th Street without any detention, resulting in surcharge and flooding conditions. The maximum capacity for each outfall is 74 cfs. Since the runoff generated is greater than the allowable flow quantity tributary to the two outfalls (148 cfs), the current stormwater discharge infrastructure is inadequate. In addition, there is only minimal stormwater conveyance infrastructure, and a portion of the District is below a sufficient grade to allow for gravity conveyance of stormwater towards the outfalls. Since the area lacks an adequate drainage system, much of the runoff flows as overland flow and ponds, causing area streets to flood during storm events. Furthermore, runoff from the many facilities in the area is neither controlled nor treated prior to entering storm drains that convey this stormwater to the outfalls.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

WATER SUPPLY

In the future without the proposed Plan, no significant change in future water demand is expected within the District. The water usage within the District is expected to remain at its current level, and within the capacity of the City's water supply system. The water demand generated by the projects expected to be developed in the future without the proposed Plan would not overburden the City's water supply system, nor would it be large enough to significantly impact the City's water supply system.

In addition, in the future without the proposed Plan, Stages 1 and 2 of the City Tunnel No. 3 could be activated as early as 2009 to serve as a backup water supply for the District.

SANITARY SEWAGE

In the future without the implementation of the proposed Plan, there would be no significant change in demands within the District on infrastructure systems. The Bowery Bay WPCP Phase II upgrade, which entails replacement of several WPCP components, will be completed by 2009; these improvements will not result in a change in the 150 mgd capacity of the facility. It is not assumed that there would be an extension of City sewers into the area; therefore; the District would continue to rely on septic systems for sanitary waste disposal.

As previously noted, the new Citi Field Stadium, to the immediate west of the proposed District, is expected to be completed in 2009. However, it is not expected that the demand on local infrastructure would change appreciably with the completion of the stadium, since the size and infrastructure demands of the replacement stadium would be comparable with the existing Shea Stadium. In addition, the new Citi Field Stadium would retain the existing configuration of water supply and sewer infrastructure passing beneath the Grand Central Parkway.

Preliminary calculations by DEP indicate that the Bowery Bay WPCP would receive an average of 122 mgd sewage flow in the year 2017, 17 mgd greater than the 2007 monthly average daily flow. This 17 mgd sewage generation increase has been predicted by DEP based upon the increase in development anticipated for the entire Bowery Bay WPCP service area. Based upon these 2017 projections, the Bowery Bay WPCP would have an available capacity of approximately 28 mgd in the future without the proposed Plan.

CSO discharge volumes are primarily influenced by the amount of storm water entering the combined sewer system. Substantial increases in CSO discharges at Bowery Bay outfalls are not

anticipated by the No-Action year, since the area is urbanized and projected new development in the area would not result in large increases to impervious surface draining to the combined sewers.

STORMWATER

In the future without the proposed Plan, there would be no significant change in demands within the Willets Point Development District on stormwater management infrastructure. Stormwater runoff generated in the area would continue to be managed by an undersized separate stormwater collection system and discharged into Flushing Bay via the two 60-inch outfalls located on 126th Street and 127th Street. Since there would be no change to runoff generated or existing stormwater management infrastructure, there would be no change to the drainage plan.

It is assumed that no other improvements to the stormwater infrastructure would be made and the area would continue to rely on the existing ineffective stormwater conveyance infrastructure. Therefore, in the future without the proposed Plan, runoff in the area would continue to be neither controlled nor treated prior to entering storm drains, and streets in the area would continue to flood during storm events.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

WATER SUPPLY

With the proposed Plan the existing local water supply distribution network would be replaced with appropriately sized infrastructure within the streetbeds, as the new streets are developed. It is also expected that the area would continue to be served by City Water Tunnel No. 2, which feeds the existing 72-inch transmission main, described above in section "C. Existing Conditions." In addition, Stages 1 and 2 of the City Tunnel No. 3 could be activated as early as 2009 and serve as a backup water supply for the District.

Under the proposed Plan, the existing 72-inch PRCP water main within Willets Point Boulevard would remain in place. In order to provide acceptable access to the existing main, the developer would provide a permanent easement mapped on the City Map. The width and designation of this easement would be determined by DEP in accordance with DEP requirements.

Preliminary calculations indicate that the proposed Plan and Lots B and D would cumulatively require 4.36 mgd water supply (see Table 14-3), which is nearly twice the increase in demand anticipated in the study area in the future without the proposed Plan. However, this is still within the capacity of the existing 72-inch transmission main. This incremental increase in demand represents approximately 0.36 percent of the City's total current average daily water demand of 1.2 billion gpd, and would not overburden the City's water supply system, nor be large enough to significantly impact the City's water supply system. In addition to this calculated demand, a minimal amount of additional water demand would be required for landscaping. This demand would be seasonal, and it is expected that some portion of it could be met through recycled water that would be collected in stormwater runoff tanks, as identified in Section B, "Methodology." A summary of the future projected demand calculations for the proposed Plan is presented in Table 14-3.

Chapter 3L, Section 211 of the *CEQR Technical Manual* indicates that actions that would have exceptionally large demand for water, such as large developments (e.g., those that use more than 1 mgd) may require an additional assessment of the effect of such action on water pressure and supply. As noted above, the existing infrastructure is adequate to supply water to the site. The proposed Plan would replace and improve the distribution system that conveys water within the

District. These improvements would completely upgrade the local water supply network and the distribution system's ability to handle the additional demand without creating an impact on local water pressure. Since the existing distribution system within the District is above the minimum acceptable pressure of 20 psi for uninterrupted service, and the developed infrastructure would be designed to a similar standard, it is concluded that the proposed Plan would not have an adverse effect on water pressure.

Table 14-3

Projected Water Usage with the Proposed Plan and Lots B and D

Proposed Use	Flow Rate		Sq. Ft. Redevelopment Area			Water Consumption (gpd)		
	Type	gpd/sf	Willets Point	Lots B and D	Total	Willets Point	Lots B and D	Total
Residential	Domestic	0.401	5,500,000	0	5,500,000	2,200,000	0	2,200,000
	Air Conditioning	0.17				935,000	0	935,000
Retail	Domestic	0.17	1,700,000	184,500	1,884,500	289,000	31,365	320,365
	Air Conditioning	0.17				289,000	31,365	320,365
Commercial/ Office	Domestic	0.10	500,000	280,000	780,000	50,000	28,000	78,000
	Air Conditioning	0.10				50,000	28,000	78,000
Hotel	Domestic	0.1875	560,000	0	560,000	105,000	0	105,000
	Air Conditioning	0.17				95,200	0	95,200
Convention Center	Domestic	0.17	400,000	0	400,000	68,000	0	68,000
	Air Conditioning	0.17				68,000	0	68,000
School	Domestic	0.205	130,000	0	130,000	25,500	0	25,500
	Air Conditioning	0.10				13,000	0	13,000
Community Facility	Domestic	0.17	150,000	0	150,000	25,500	0	25,500
	Air Conditioning	0.17				25,500	0	25,500
Proposed Plan and Lots B and D (sq. ft.)			**8,940,000**	**464,500**	**9,404,500**			
Water Consumption Subtotals (gpd)			**Domestic**			**2,763,000**	**59,365**	**2,822,365**
			Air Conditioning			**1,475,700**	**59,365**	**1,535,065**
Total Water Consumption (gpd)						**4,357,430**		

The following assumptions were made:
Residential: Assumes 400 gpd per unit[a] and 1000 sf per unit, which equates to 0.40 gpd/sf. Assumes 112 gpd/person.
Retail: Assumes 0.17 gpd/sf[a].
Commercial/Office: Assumes 0.10 gpd/sf[a] and 25 gpd/person[b], which equates to 1 person per 250 sf.
Hotel: Assumes 150 gpd per room[b] and 800 sf per room, which equates to 0.1875 gpd/sf.
School: Assumes 30 gpd/seat[b] and approximately 850 seats,(153 sq ft per seat for 130,000 sq ft total area) which equates to 0.20 gpd/sq. ft. (Assumes no boarding)
Community Facility: Assumes water usage and sewage generation rates for Retail/Public Use.
No water usage is anticipated for the development of Lot D.
Source:
a: 3L-2 Table in the CEQR Technical Manual for Water Consumption and Sewage Generation Rates
b: Table 3 in the NYSDEC Design Standards for Wastewater Treatment Works (1998) for Water Consumption and Sewage Generation Rates

SANITARY SEWAGE

As discussed above, the entire Willets Point Development District currently has no connections to the New York City sanitary sewer system, and individual septic fields are used throughout the area. The proposed Plan would include the development of sanitary sewer infrastructure that would provide a new sanitary collection service to the area and eliminate the existing septic systems. The elimination of septic disposal in Willets Point is consistent with SDWA provisions for the protection of designated sole source aquifers. Sanitary wastewater from the District and Lots B and D would be conveyed to a new sanitary (dry flow) pump station, which would most likely be constructed within the District. The pump station would be designed and constructed to DEP and DEC standards. A new force main would transmit sanitary flow from the District to the existing 96-inch-diameter City sewer in 108th Street (which flows to the Bowery Bay WPCP). This new force main route would cross beneath 126th Street and the Grand Central Parkway. Sanitary wastewater from Lots B and D would be connected to the pumped discharge utilized by Citi Field subject to the verification of its adequacy.

According to the *CEQR Technical Manual*, for assessment purposes, estimates of an area's daily sanitary sewage generation are assumed to be equivalent to the domestic water usage rates. Wastewater generated from air conditioning use is minimal because of the recirculation and evaporation processes of water cooling systems, and is therefore not included in the overall wastewater volumes.

The projected sanitary sewage generation rates were evaluated based on the proposed Plan and the anticipated development on Lots B and D. Wastewater flow rates were estimated using DEC 1988 Design Standards for wastewater flow rate design and the *CEQR Technical Manual*. Table 14-4 presents the anticipated sewage generation under the proposed Plan and Lots B and D. Based on that analysis, the sanitary wastewater rate with the proposed Plan and the anticipated development on Lots B and D would be approximately 2.8 mgd or less than 2 percent of the Bowery Bay WPCP total treatment capacity. As described above in Section D, "The Future Without the Proposed Plan," the projected available capacity at the Bowery Bay WPCP in 2017 is 28 mgd. The sanitary wastewater rate with the proposed Plan and the anticipated development on Lots B and D is approximately 10.1 percent of the Bowery Bay WPCP available capacity projected for the 2017 Build year. Thus, the additional wastewater flow expected from the proposed Plan and Lots B and D would not cause the Bowery Bay WPCP to exceed its capacity or SPDES permit limits of 150 mgd. Therefore, sanitary wastewater generated by the proposed Plan and Lots B and D would not compromise the ability of the Bowery Bay WPCP to properly treat wastewater, and the proposed Plan and Lots B and D would not significantly impact the City's Bowery Bay WPCP in the 2017 analysis year.

Table 14-4
Estimated Wastewater Generation
for the Proposed Plan and Lots B and D

Proposed Use	Domestic Sewage Generation Rate (gpd/sf)	Sq. Ft. Redevelopment Area			Sewage Generation (gpd)		
		Willets Point	Lots B and D	Total	Willets Point	Lots B and D	Total
Residential	0.40	5,500,000	0	5,500,000	2,200,000	0	2,200,000
Retail	0.17	1,700,000	184,500	1,884,500	289,000	31,365	320,365
Commercial / Office	0.10	500,000	280,000	780,000	50,000	28,000	78,000
Hotel	0.1875	560,000	0	560,000	105,000	0	105,000
Convention Center	0.17	400,000	0	400,000	68,000	0	68,000
School	0.20	130,000	0	130,000	25,500	0	25,500
Community Facility	0.17	150,000	0	150,000	25,500	0	25,500
Subtotals		**8,940,000**	**464,500**	**9,404,500**	**2,763,000**	**59,365**	**2,822,365**
Total Sewage Generation (gpd)					**2,822,365**		

The following assumptions were made:
Residential: Assumes 400 gpd per unit[a] and 1000 sf per unit, which equates to 0.40 gpd/sf. Assumes 112 gpd/person.
Retail: Assumes 0.17 gpd/sf[a].
Commercial/Office: Assumes 0.10 gpd/sf[a] and 25 gpd/person[b], which equates to 1 person per 250 sf.
Hotel: Assumes 150 gpd per room[b] and 800 sf per room, which equates to 0.1875 gpd/sf.
School: Assumes 30 gpd/seat[b] and approximately 850 seats,(153 sq ft per seat for 130,000 sq ft total area) which equates to 0.20 gpd/sq. ft. (Assumes no boarding)
Community Facility: Assumes water usage and sewage generation rates for Retail/Public Use.
No sanitary sewage generation is anticipated for the development of Lot D.
Source:
a: 3L-2 Table in the CEQR Technical Manual for Water Consumption and Sewage Generation Rates
b: Table 3 in the NYSDEC Design Standards for Wastewater Treatment Works (1998) for Water Consumption and Sewage Generation Rates

Since the sanitary sewage generated by the proposed Plan would bypass the existing 37th Street Pump Station and be conveyed to the Bowery Bay WPCP via a new force main connection directly to the adequately sized combined sewer in 108th Street, an evaluation of the effect of the proposed Plan on the sewer system within the vicinity of the existing 37th Avenue Pump Station is unnecessary. Since the sanitary sewage generated by Lots B and D would not bypass the existing 37th Avenue Pump Station, NYCDEP would require an evaluation of the sewer system in the vicinity of the 37th Avenue Pump Station prior to issuing connection permits for that development.

Since the development within the District would provide separate adequately sized storm sewers, stormwater runoff would not contribute to flow being directed to the Bowery Bay WPCP. The only discharges to the Bowery Bay collection system from the proposed Plan development would be from the sanitary sewers. Since the increase in sanitary flow could impact CSO discharges, the effect of an increase in sanitary flow to the combined sewer/regulator system within the Bowery Bay WPCP service area was investigated using the current Bowery Bay CSO model. The Bowery Bay collection system was modeled using Wallingford Software's InfoWorks model.

The purpose of the modeling analysis was to quantify potential changes in CSO conditions with the proposed Plan and Lots B and D. The CSO model simulation focused on the effect of additional sanitary discharge flows to the combined sewer/regulator system, since the sewer/regulator capacity would determine any changes in CSO volumes resulting from the proposed Plan and Lots B and D development to Flushing Bay. Modeling simulations were performed for the projected sanitary wastewater rate of 2.8 mgd from the development Plan and Lots B and D. Meteorological and tidal data for 2006 were used for this simulation. Modeling simulations were performed evaluating projected additional sanitary discharge from the proposed Plan and Lots B and D compared with the future volumes in the Bowery Bay system without the proposed Plan to estimate whether the additional sanitary flow associated with the proposed Plan would, when combined with the baseline wet-weather flows, increase the CSO volumes.

Based upon model simulation results of conditions with the proposed Plan and Lots B and D, the total annual volume of CSO discharge would increase by less than one percent (0.76 percent) in the system. The largest increase in discharge would occur at Outfall BB-008 (see Figure 14-2). The distribution of the increase in CSO discharges by outfall is summarized in Table 14-5.

The model predicts that with a projected annual sanitary wastewater rate of 2.8 mgd to the Bowery Bay collection system from the development and Lots B and D, the total annual CSO volume being discharged to the East River and Flushing Bay would be approximately 44 million gallons. The predicted annual increase in flow to the Bowery Bay WPCP would be 882 million gallons. The results of these simulations show that there would be no significant increase in CSO volumes. In addition, model simulations indicate that there would be no increase in the frequency of CSO events as a result of the proposed Plan, since CSOs primarily relate to stormwater inputs, which greatly exceed sanitary flow rates during storm events.

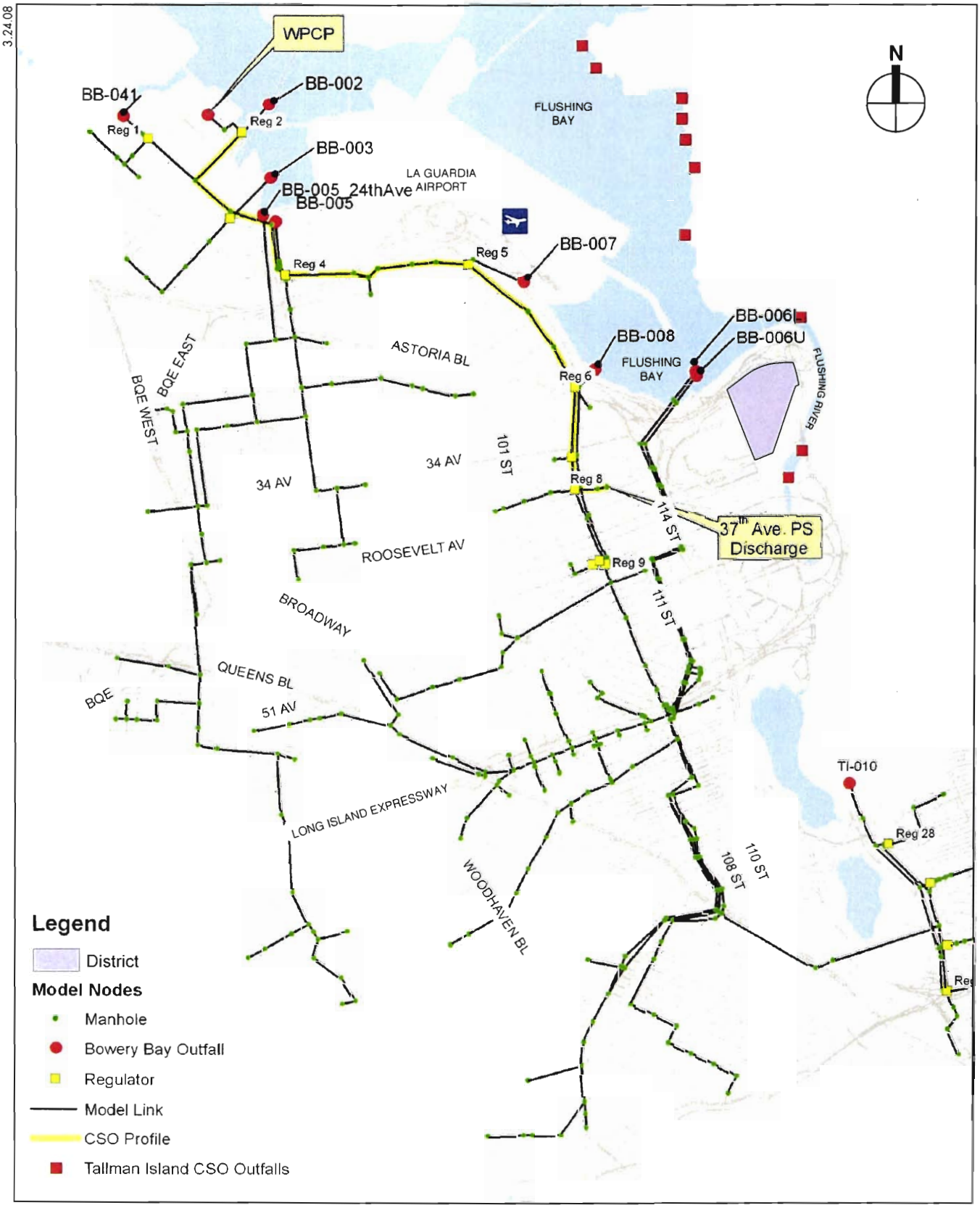


Figure 14-2

Bowery Bay CSO Collection System

Table 14-5
CSO Discharges – Existing and Proposed Conditions

Outfall	Existing (MG)	Proposed (MG)	Increase (MG)	% Increase (MG)
BB-002	575.26	583.52	8.26	1.44%
BB-003	75.95	76.02	0.07	0.09%
BB-005	1,231.5	1,245.64	14.14	1.15%
BB-005 (24th Ave)	870.78	872.54	1.76	0.20%
BB-006L	414.78	414.80	0.02	0.00%
BB-006U	1,412.02	1,414.28	2.26	0.16%
BB-007	11.94	12.02	0.08	0.67%
BB-008	535.37	552.06	16.69	3.12%
BB-041	130.47	130.87	0.4	0.31%
TI-010	453.61	453.61	0	0.00%
Total CSO	**5,711.68**	**5,755.36**	**43.68**	**0.76%**
WPCP	26,143.09	26,981.21	838.12	3.21%
Grand Total	**31,854.77**	**32,736.57**	**881.8**	**2.77%**

Notes:
Total CSO – Total CSO volume to Flushing Bay
WPCP – Total combined sewage flow to BB WPCP
Grand Total – Total volume of both CSO volumes to Flushing Bay and combined sewage to BB WPCP
Source: Model simulation results of Existing Bowery Bay CSO collection system using Wallingford Software's InfoWorks. Assumes 2006 rainfall and tide.

As indicated above, the flow increases associated with the proposed Plan and Lots B and D are within the capacity of the Bowery Bay WPCP. The proposed Plan would include a new sanitary pump station and force main to transmit sanitary wastewater from the District to the Bowery Bay WPCP. This pump station and force main would exclusively carry sanitary flows and would not significantly affect CSO volumes or frequency. The Plan would also provide new sanitary collection sewers in the District and a separate stormwater collection and discharge system (see discussion below). Under the proposed Plan, provided these system improvements are incorporated into the amended drainage plan for the area, significant impacts on the sanitary sewer system would not occur.

The proposed Plan would establish separate storm and sanitary waste water disposal systems in the District. Overall, this is expected to result in improved water quality in Flushing Bay by:

- eliminating the reliance on septic disposal;
- improving the stormwater quality by eliminating site flooding, improving the quality of the soil substrate of the site, and providing direct drainage to storm sewers;
- incorporating sustainable design features, where feasible, to reduce the discharge volume and increase the quality of storm water discharges; and
- preventing stormwater generated within the District from entering the combined sewer system, which would increase the frequency and volume of CSO discharges.

The sanitary system would discharge to the combined sewer in 108th Street. The increased volume of sanitary flow to this combined sewer system would result in an increase, by volume, in CSO discharge to Flushing Bay of less than 1 percent. No increase in the frequency of CSO events is predicted to occur. The effect of this small increase in the annual CSO volume on Flushing Bay would be mitigated by the beneficial effects of the storm and sanitary wastewater disposal systems, as indicated above. In addition, water conservation measures would be

employed to minimize sanitary sewage flow to the existing combined sewer system. Water conservation measures, which could be included as design guidelines for the development of the District, include, but are not limited to:

- Low water usage water closets;
- Low water usage urinals;
- Low water usage showers;
- Low water usage lavatories;
- Pressure-assist/'Vacuum-assist' toilets;
- Composting toilets;
- Waterless urinals (in high use areas);
- Automatic shut-off controls on sinks, toilets, and urinals;
- Rainwater use for irrigation, toilet/urinal flushing, etc.; and
- Graywater use for water closets and urinal flushing.

In addition, the Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. This facility would support the City's goal to incorporate the latest innovative building and planning technologies in the District. If proposed by a future developer, a water reclamation facility would require a special permit by the Board of Standards and Appeals (BSA) and likely a State Pollutant Discharge Elimination System (SPDES) permit from NYSDEC, and would be subject to separate environmental and public review process. The water reclamation facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. It is anticipated that a water reclamation facility would be a centralized structure. The water reclamation facility would result in a modest increase in the amount of detention to be provided in the District. If constructed, the facility would obviate the need for a new pump station.

STORMWATER

Even though the proposed Plan would transform an industrial area into a high density mixed-use district, the overall volume of stormwater runoff within the area would remain unchanged, since the District and Lots B and D are largely built with impervious structures, including buildings, paved surfaces and roads that create surface runoff. The overall stormwater runoff volumes in the future with the proposed Plan would remain largely unchanged from the current estimated runoff volume of 366 cfs in the District and Lots B and D. Approximately 327 cfs would be generated from the District with an additional 39 cfs from Lots B and D. Stormwater generated within the District and Lots B and D is currently directed without any detention to the two existing outfalls at 126th Street and 127th Street. The current runoff from the site is more than the allowable flow per drainage plan to these two outfalls. Furthermore, the current stormwater conveyance system is undersized, and a portion of the District is below a sufficient grade to allow for gravity conveyance of stormwater towards the outfalls, resulting in uncontrolled and untreated runoff and street flooding.

The proposed Plan would include a requirement to raise the overall grade between one to seven feet to meet the Federal Emergency Management Agency (FEMA) 100-year floodplain

elevation. The final change in grade would be calculated to achieve the 14 feet NGVD29 after 25 years of settlement. The greater increases in grade (five to seven feet) would be limited to the south and southeastern portions of the District. This elevation increase would allow for a completely new stormwater system to be designed and connected to the existing outfalls.

Prior to development of the site, an amended drainage plan would be prepared by the developer to comprehensively address all the surface runoff that would be generated as a result of the proposed Plan, and drainage features to be included in the development of the District. This drainage plan would accommodate the City's current drainage plan for the area (Plan No. 2955), and easements associated with highway drainage. Since a separate stormwater collection system is proposed, the amended drainage plan would be consistent with City policies for reducing stormwater inputs to combined sewers as a means of preserving treatment capacity at the treatment plants. As such, stormwater collected in the District would be managed so as not to increase the occurrence of CSOs (see the discussion above). The development would need to implement adequate detention to accommodate the runoff currently exceeding the design capacity of the outfalls. The amendment to the drainage plan would be reviewed and approved by DEP.

If a future developer proposes to develop a water reclamation facility pursuant to a BSA special, permit, as described above, such a facility would treat the District's sanitary wastewater to DEP's effluent standards, return a portion of the treated water for reuse in the District, and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would likely require a SPDES permit to operate, and would result in a modest increase in the amount of detention to be provided in the District.

In addition, the developer would be required to prepare and implement a site stormwater management plan, to be reviewed and approved by DEP prior to commencement of construction. This plan would specify Best Management Practices and sustainable design features to be incorporated in the project. Such features could include:

- Increased quantity, density, and diversity of trees;
- Sustainable irrigation and landscaping practices;
- Graywater recycling for individual building sites;
- Integration of vegetated swales;
- Green roofs;
- Blue roofs;
- Rooftop storage and filters;
- Underground storage;
- Inline pipe storage;
- Decorative wet ponds;
- Detention dry ponds;
- Proprietary pre-treatment structures (e.g., Stormceptor, Vortechnics);
- Bioengineered and structural practices to reduce and control runoff;
- Stormwater recycling facilities (reuse for toilet flushing, custodial work, landscape irrigation, and other uses to reduce demand for potable water);
- Optimized right-of-way drainage;

- Vegetated filters and buffer strips;
- Water quality inlets including oil and grit separators, media filters, and high-volume treatment proprietary devices;
- Surface, perimeter, and/or underground sand filters;
- Infiltration trenches, with under-drain and overflow to a control structure connection to a storm sewer;
- Bioretention-shallow swales, with under-drain and overflow to a control structure connection to a storm sewer; and
- Other low-impact, effective measures.

With the implementation of adequate stormwater management features, if stormwater flow could be controlled to meet allowable flow to the two existing outfalls. A new outfall would not be required.

If, notwithstanding the stormwater management features selected for a detailed development plan, runoff would exceed the allowable flow to the existing outfalls, a new outfall would be proposed to augment the discharge capacity of the existing system.

The proposed Plan would require coverage under the current SPDES general permit program for stormwater discharges from construction activities, as well as post construction (Build) conditions. Prior to the initiation of construction activities, a Stormwater Pollution Prevention Plan (SWPPP) would be developed pursuant to the requirements of the general permit and would be enforced throughout the sequence of construction activities and following the completion of construction. Since Flushing Bay is a regulated water body, stormwater would have to be pre-treated prior to discharge. Such pre-treatment measures would be subject to DEP review and approval. The implementation of the SWPPP would ensure that applicable discharge criteria would be met after construction is completed. These actions would ensure that pollution prevention measures are in place during and after construction activity and enable adequate control of potential sources of pollution relating to stormwater management. Provided these improvements along with an appropriate detention system are incorporated in the proposed Plan, no significant adverse impacts (e.g., street flooding) would occur, and conditions would greatly improve. Elements of that system would be such that outflow would meet both flow and quality criteria of the existing outfalls.

GLOBAL CLIMATE CHANGE ADAPTATION

Given the District's location within the 100-year floodplain, the potential effects of global climate change on the proposed Plan have been considered. Although a large range of sea level rise is possible depending on the precise emissions and response scenarios used for global modeling, there is sufficient information to suggest an increment of approximately 1.6 feet by the end of the century based on warming and some ice cap, sea ice, and glacial melting. Note that the project elevation of 14 feet is well above that stillwater level, so an increase of 1.6 feet would not impact the project area under normal conditions.

The main components that inform infrastructure planning are storm surge and the frequency of severe storms. These components are much more uncertain at this time. Although catastrophic acceleration of ice cap melting is a possibility still being investigated by the scientific community, it is not considered sufficiently likely to be used for planning purposes, and the

Intergovernmental Panel on Climate Change (IPCC)[1] did not include that component in its quantitative projections.[2]

The current 100-year floodplain is currently the only regulatory standard relating to elevation of new development. Under the proposed Plan, the District would be raised above the floodplain, reducing the District's vulnerability to storm surges as compared to existing conditions. The City has established an interagency group to work with the Federal Emergency Management Agency (FEMA) to revise the Flood Insurance Rate Maps for the City. These maps establish flood elevations, which are the triggers for the City building code's flood protection requirements. The City is working with FEMA to reflect current shoreline and elevations, and technological changes that allow for more accurate map-making. It is anticipated that the map revisions will be completed in 2010. Subsequent development within the District will reflect any changes to the floodplain elevations.

The City is also engaged in several initiatives related to better assessing potential local climate change impacts and developing City-wide strategies to adapt to projected effects of climate change:

1. The City recently launched the Climate Change Adaptation Task Force, which is working to secure the city's critical infrastructure against rising seas, higher temperatures and fluctuating water supplies projected to result from climate change. The Task Force is composed of over 35 city and state agencies, public authorities and companies that operate, regulate, or maintain critical infrastructure in New York City.

   The task force will be assisted by the New York City Panel on Climate Change (NPCC), which is modeled on the IPCC and includes leading climatologists, sea-level rise specialists, adaptation experts, and engineers, as well as representatives from the insurance and legal sectors. The NPCC will provide the city and task force members with information about climate risks (including climate change projections), adaptation, and risk assessment. The NPCC is expected to issue preliminary climate change projections in late 2008/early 2009.

2. The City is convening a task force to amend the building code to incorporate climate change adaptation measures on a City-wide basis. This task force will evaluate the need for new structural requirements.

3. DEP is in the process of evaluating adaptive strategies for City infrastructure. DEP has issued a preliminary report on future climate change predictions relating to sea levels in the New York City area. At this time, much of the data generated by scientific studies is not yet sufficiently detailed for site-specific infrastructure planning.[1] DEP will be undertaking a

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[1] The IPCC is the internationally recognized organization tasked with providing decision-makers and others interested in climate change with an objective source of information about climate change. Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation. IPCC reports are neutral with respect to policy, are of high scientific and technical standards, and aim to reflect a range of views, expertise and wide geographical coverage.

[2] IPCC. "Climate Change 2007 - The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the IPCC", chapter 10. www.ipcc.ch. 2007.

long-term planning and conceptual engineering effort, beginning in May 2009. The goal of this effort is to ensure that future design criteria and infrastructure sizing meet future population demands and minimize the risks posed by climate change to the drainage and wastewater management systems in the City.

The development would include a number of features, in addition to the requirements of the building code and current DEP drainage standards, designed to absorb or retain stormwater and reduce the potential for flooding. These features would form part of a site stormwater management plan that would be reviewed by DEP in light of its developing understanding of the effects of climate change on infrastructure. Furthermore, the developer would be required to submit to the City, prior to the placement of fill, an assessment of the appropriate grade for the District in light of all available information concerning potential sea level and other changes due to climate change. If appropriate and if warranted by data available at that time, the City would have the authority to require an increase in the proposed grade of the District at that time, but other measures could be used if more appropriate.

As detailed local climate change projections become available and are adopted into the City's infrastructure design criteria, such criteria will be incorporated into the development program. In addition, the City's agreement with the developer would require the preparation of an engineering study prior to commencement of construction that would assess the feasibility of implementing adaptation strategies for climate change impacts into the design of the development program in light of the most current climate change projections. Based on that engineering study, the City would require the developer to implement the adaption strategies that it determines are practicable.

F. THE NO CONVENTION CENTER SCENARIO

WATER SUPPLY

In the No Convention Center Scenario, the additional residential and retail use would increase the water supply demand by 0.08 mgd above the demand required by the proposed Plan and would require a total water supply increase of 4.44 mgd for the Plan and the anticipated development on Lots B and D. This demand level is 2.25 times the anticipated demand from the District (and Lots B and D) without the proposed Plan; however, it is within the available capacity limits of the existing 72-inch transmission main and can be provided without upgrade. This incremental demand increase—approximately 0.37 percent of the City's total current average daily water demand of 1.2 billion gpd —would not overburden the City's water supply system, nor would it be large enough to significantly impact it. A minimal water demand above these calculated values would be required on a seasonal basis for landscaping; however, it is anticipated that some portion of the landscaping demand may be met through recycled water that would be collected in stormwater runoff tanks. A summary of the future projected demand calculations for the No Convention Center Scenario is presented in Table 14-6.

Table 14-6

Projected Water Usage for No Convention Center Scenario

Proposed Use	Flow Rate		Sq. Ft. Redevelopment Area			Water Consumption (gpd)		
	Type	gpd/sf	Willets Point	Lots B and D	Total	Willets Point	Lots B and D	Total
Residential	Domestic	0.40	5,500,000	0	5,500,000	2,340,000	0	234,0000
	Air Conditioning	0.17				994,500	0	994,500
Retail	Domestic	0.17	1,700,000	184,500	1,884,500	297,500	31,365	328,865
	Air Conditioning	0.17				297,500	31,365	328,865
Commercial/ Office	Domestic	0.10	500,000	280,000	780,000	50,000	28,000	78,000
	Air Conditioning	0.10				50,000	28,000	78,000
Hotel	Domestic	0.1875	560,000	0	560,000	105,000	0	105000
	Air Conditioning	0.17				95,200	0	95,200
Convention Center	Domestic	0.17	400,000	0	400,000	0	0	0
	Air Conditioning	0.17				0	0	0
School	Domestic	0.20	130,000	0	130,000	25,500	0	25,500
	Air Conditioning	0.10				13,000	0	13000
Community Facility	Domestic	0.17	150,000	0	150,000	25,500	0	25,500
	Air Conditioning	0.17				25,500	0	25,500
Proposed Plan and Lots B and D (sq. ft.)			**8,910,000**	**464,500**	**9,374,500**			
Water Consumption Subtotals (gpd)			**Domestic**			**2,843,500**	**59,365**	**2,902,865**
			Air Conditioning			**1,475,700**	**59,365**	**1,535,065**
Total Water Consumption (gpd)						**4,437,930**		

The following assumptions were made:
Residential: Assumes 400 gpd per unit[a] and 1000 sf per unit, which equates to 0.40 gpd/sf. Assumes 112 gpd/person.
Retail: Assumes 0.17 gpd/sf[a].
Commercial/Office: Assumes 0.10 gpd/sf[a] and 25 gpd/person[b], which equates to 1 person per 250 sf.
Hotel: Assumes 150 gpd per room[b] and 800 sf per room, which equates to 0.1875 gpd/sf.
School: Assumes 30 gpd/seat[b] and approximately 850 seats,(153 sq ft per seat for 130,000 sq ft total area) which equates to 0.20 gpd/sq. ft. (Assumes no boarding)
Community Facility: Assumes water usage and sewage generation rates for Retail/Public Use.
No water usage is anticipated for the development of Lot D.
Source:
a: 3L-2 Table in the CEQR Technical Manual for Water Consumption and Sewage Generation Rates
b: Table 3 in the NYSDEC Design Standards for Wastewater Treatment Works (1998) for Water Consumption and Sewage Generation Rates

SANITARY SEWAGE

In the No Convention Center Scenario with the anticipated development on Lots B and D, the sanitary wastewater rate would be approximately 2.9 mgd or less than 2 percent of the Bowery Bay WPCP total capacity, 0.1 mgd greater than with the proposed Plan and Lots B and D. The projected sanitary sewage generation rates are summarized in Table 14-7. As described above in Section D, "The Future Without the Proposed Plan," the projected available capacity at the Bowery Bay WPCP in 2017 is 28 mgd. The sanitary wastewater generated by the No Convention Center Scenario is 2.9 gpd, or 10.4 percent of the Bowery Bay WPCP capacity that is projected as being available at Bowery Bay in the 2017 Build year. Therefore, there would be no significant impact on the Bowery Bay WPCP.

Since the increase in sanitary flow could impact CSO discharges, the effect of an increase in sanitary flow to the combined sewer on 108th Street was investigated using the current Bowery Bay WPCP CSO model. The Bowery Bay collection system was modeled using Wallingford Software's InfoWorks model. The purpose of the modeling analysis was to quantify potential changes in CSO conditions with the proposed Plan. Modeling simulations were performed for the projected annual sanitary wastewater rate of 2.9 mgd, using 2006 rainfall and tide data. Based upon model simulation results of conditions with the proposed Plan, the total CSO discharge

would increase by less than 1 percent (0.79 percent) in the system. The largest increase in discharge would occur at Outfall BB-008 (see Figure 14-2).

Table 14-7
Conceptual Wastewater Flow Rate Generation Based on the No Convention Center Scenario

Proposed Use	Domestic Sewage Generation Rate (gpd/sf)	Sq. Ft. Redevelopment Area			Sewage Generation (gpd)		
		Willets Point	Lots B and D	Total	Willets Point	Lots B and D	Total
Residential	0.40	5,850,000	0	5,850,000	2,340,000	0	2340000
Retail	0.17	1,750,000	184,500	1,934,500	297,500	31,365	328865
Commercial/ Office	0.10	500,000	280,000	780,000	50,000	28,000	78000
Hotel	0.1875	560,000	0	560,000	105,000	0	105000
Convention Center	0.17	0	0	0	0	0	0
School	6	130,000	0	130,000	25,500	0	25500
Community Facility	0.17	150,000	0	150,000	25,500	0	25500
Subtotals		**8,910,000**	**464,500**	**9,374,500**	**2,843,500**	**59,36**	**2,902,865**
Total Sewage Generation (gpd)					**2,902,865**		

The following assumptions were made:
Residential: Assumes 400 gpd per unit[a] and 1000 sf per unit, which equates to 0.40 gpd/sf. Assumes 112 gpd/person.
Retail: Assumes 0.17 gpd/sf[a].
Commercial/Office: Assumes 0.10 gpd/sf[a] and 25 gpd/person[b], which equates to 1 person per 250 sf.
Hotel: Assumes 150 gpd per room[b] and 800 sf per room, which equates to 0.1875 gpd/sf.
School: Assumes 30 gpd/seat[b] and approximately 850 seats,(153 sq ft per seat for 130,000 sq ft total area) which equates to 0.20 gpd/sq. ft. (Assumes no boarding)
Community Facility: Assumes water usage and sewage generation rates for Retail/Public Use.
No sanitary sewage generation is anticipated for the development of Lot D.
Source:
a: 3L-2 Table in the CEQR Technical Manual for Water Consumption and Sewage Generation Rates
b: Table 3 in the NYSDEC Design Standards for Wastewater Treatment Works (1998) for Water Consumption and Sewage Generation Rates

The effect of average flow was investigated by simulating average dry weather flow for existing conditions. The results of these simulations (Table 14-8) showed that there would be no significant increase in sanitary sewage overflows.

As shown in Table 14-8, the flow increases associated with the No Convention Center scenario are within the capacity of the Bowery Bay WPCP; however, the existing 37th Avenue Pump Station has no extra capacity to accommodate these increases. Therefore, a new sanitary (dry flow) pump station and force main would be required in the District to transmit sanitary wastewater from the District to the Bowery Bay WPCP. Sanitary wastewater from Lots B and D would be connected to the pumped discharge utilized by Citi Field subject to the verification of its adequacy. The incorporation of these features into the drainage plan for the District would prevent significant adverse impacts.

Table 14-8
2006 CSO Discharges - Existing Conditions and Proposed Conditions for the No Convention Center Scenario

Outfall	Existing (MG)	Proposed (MG)	Increase (MG)	% Increase (MG)
BB-002	575.26	583.79	8.53	1.48%
BB-003	75.95	76.02	0.07	0.09%
BB-005	1,231.5	1,246.12	14.62	1.19%
BB-005 (24th Ave)	870.78	872.58	1.8	0.21%
BB-006L	414.78	414.80	0.02	0.00%
BB-006U	1,412.02	1,414.35	2.33	0.17%
BB-007	11.94	12.02	0.08	0.67%
BB-008	535.37	552.64	17.27	3.23%
BB-041	130.47	130.88	0.41	0.31%
TI-010	453.61	453.61	0	0.00%
Total CSO	**5,711.68**	**5,756.81**	**45.13**	**0.79%**
WPCP	26,143.09	27,008.38	865.29	3.31%
Grand Total	**31,854.77**	**32,765.19**	**910.42**	**2.86%**

STORMWATER

In the No Convention Center Scenario, stormwater runoff generation rates would be essentially equivalent to the proposed Plan. Stormwater drainage from the District would be conveyed to Flushing Bay through detention system and storm drains, with the ultimate discharge point at the 126th Street and 127th Street outfalls, and, if deemed necessary for a detailed development plan, a proposed outfall.

As with the proposed Plan, detention would be required to manage stormwater runoff being discharged to these existing two outfalls and to a new outfall, if needed. Provided these improvements are incorporated into the detailed design, no significant impacts would occur. ✶

A. INTRODUCTION

The Willets Point Development Plan would generate new demands on solid waste management and sanitation services provided in the Willets Point Development District. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D on these services, and considers the net cumulative incremental impact between the continuation of the existing on-site uses in the future without the proposed Plan, and the proposed Plan and the anticipated development on Lots B and D in the 2017 analysis year. The cumulative impact is also assessed for the No Convention Center Scenario, as discussed in Chapter 2.

PRINCIPAL CONCLUSIONS

While the proposed Plan and the anticipated development on Lots B and D would create new demands, the municipal systems serving the Willets Point Development District have adequate capacity to meet the projected increases in demand from the proposed Plan. No significant adverse impacts on solid waste and sanitation services would result from the proposed Plan and the anticipated development on Lots B and D. The New York City Department of Sanitation (DSNY), which collects solid waste and recyclables, is currently scheduled to provide municipal solid waste and sanitation services to the Willets Point Development District. Private carters provide these services to non-residential users. The proposed Plan and the anticipated development on Lots B and D would cumulatively increase the volumes of solid waste and recyclables, but would not affect the delivery of these services, nor place a significant burden on the City's solid waste management services (public or private). The proposed Plan would displace two waste transfer businesses from the District, but this displacement would not have a significant adverse impact on the waste and sanitation services in Queens or in New York City. The No Convention Center Scenario would result in a marginally higher demand on solid waste and sanitation services, but this would also not result in a significant cumulative adverse impact.

B. METHODOLOGY

As discussed below, this chapter:

- Describes the existing solid waste management services in the Willets Point Development District, using solid waste generation rates for typical land uses and activities provided in the *City Environmental Quality Review (CEQR) Technical Manual;*
- Assesses the effect of the potential displacement of the existing waste transfer business displacement in the District;
- Determines future solid waste demands with the proposed Plan and the anticipated development on Lots B and D for 2017 with and without the proposed convention center; and

- Assesses the effects of this incremental demand on municipal and private sanitation services.

C. EXISTING CONDITIONS

DESCRIPTION OF SOLID WASTE AND SANITATION SERVICES

In New York City, DSNY is the agency responsible for the collection and disposal of solid waste and recyclable materials generated by residences, public schools, some nonprofit institutions, tax-exempt properties, and City agencies. DSNY also collects waste from street litter baskets, and handles street-sweeping operations and lot-cleaning activities. Commercial operations handle solid waste from other uses, e.g., commercial retail, office, and industrial operations.

Fresh Kills Landfill, which was New York City's last operating landfill, was officially closed in March 2001. DSNY continues to collect residential and institutional solid waste and recyclables (the municipal waste stream), which are now transported out of the City. Currently, most of the City's municipal solid waste is collected and delivered to transfer stations for sorting and transfer to larger "hopper" trucks, and then transported out of the City. Private carters also consolidate solid waste from commercial and industrial operations and haul it to waste transfer facilities both inside and outside New York City, from where it is transported to out-of-City disposal facilities. It is estimated that DSNY collects over 12,000 tons of residential and institutional refuse and recyclables (solid waste) per day.[1] It is also estimated that the non-residential (commercial/industrial) waste stream is about 13,000 tons per day (tpd). The total solid waste generated in the City therefore averages approximately 25,000 tpd.

The City's solid waste management services are undertaken in accordance with a 20-year Solid Waste Management Plan (SWMP). DSNY developed a new comprehensive SWMP that was approved by the New York State Department of Environmental Conservation (DEC) on October 27, 2006. The new SWMP addresses and recognizes the interdependency of the systems for managing recycling, residential waste, and commercial waste, and introduces a shift from the current mode of truck-based export to export by barge and/or rail. The new SWMP includes a Long-Term Export Program for residential waste, which will be implemented through: (1) the redevelopment of four new converted marine transfer stations (MTS); (2) the award of up to five contracts with private transfer stations for barge or rail export of DSNY-managed waste for disposal; and (3) an intergovernmental agreement to dispose of a portion of Manhattan's DSNY-managed waste at a Port Authority waste-to-energy facility in New Jersey. Solid waste will be consolidated, containerized, and barged or railed out of the City from the converted MTSs or the five existing private transfer stations. The barges currently used at MTS facilities will be replaced or retrofitted with new sealed containers or "intermodal containers" capable of being transported on barge or rail. The four converted MTS facilities will be designed to each process up to 4,290 tpd and accommodate 30 collection vehicles per hour. In the interim, all municipal solid waste will be trucked out of the City.[2] In September 2007, DEC permitted the construction and operation of the converted North Shore MTS, in the College Point Section of Queens, to the east of the proposed Plan. The facility is expected to be operational in 2011.

Local Law 19 of 1989 requires that DSNY and private carters collect recyclable materials and deliver them to material recovery facilities. New York City residents are required to separate

[1] DSNY Web site: http://www.nyc.gov/html/dsny/html/about/about.shtml (July 24, 2007).

[2] DSNY, Comprehensive Solid Waste Management Plan, September 2006.

aluminum foil, glass, plastic and metal containers, newspapers and other paper wastes from household waste for separate collection. Under the SWMP, commercial and industrial establishments are subject to recycling requirements. Businesses must source-separate certain types of paper wastes, cardboard, metal items, and construction wastes. Food and beverage establishments must recycle metal, glass, plastic containers, and aluminum foil, in addition to meeting the commercial recycling requirements. The Willets Point Development District is within DSNY's Queens Community Service District 7 for public solid waste collection services. Commercial and industrial operations are handled by private carters.

SOLID WASTE GENERATION

The Willets Point Development District currently has a number of active uses that generate solid waste. Waste generated by the single existing occupied dwelling unit in the Willets Point Development District is assumed to be negligible.

Table 3M-1 of the *CEQR Technical Manual* provides rates for two categories of industrial uses. The average of the two rates, estimated at 183 pounds per week per employee, is utilized as representative of construction, manufacturing, and auto uses, not including auto wholesale and auto retail. The solid waste generation rates for wholesale and retail uses, including auto wholesale and auto retail, were based on the generation rates provided in Table 3M-1 of the *CEQR Technical Manual*, as was the waste generation rate for accommodation and food uses. The waste generated by waste management and remediation businesses was assumed to be the waste generated by employees and approximated with the office use solid waste generation rate of 13 pounds per week per employee, as specified in the *CEQR Technical Manual*. The waste generation rate for the health club (arts, entertainment, and recreation use group) was based on the waste generation rate for general retail uses provided in Table 3M-1.

Based on these assumptions, the Willets Point Development District uses generate a total of approximately 207,449 pounds of solid waste per week (about 15 tpd). These private business uses are served by commercial solid waste and recycling management companies. Table 15-1 summarizes the current solid waste generation conditions in the Willets Point Development District.

Table 15-1
Existing Solid Waste Generation in the Willets Point Development District

Existing Use	Number of Businesses	Number of Employees	Solid Waste Rate lbs/wk/employee	Total lbs/week
Auto Businesses (not including wholesale and retail)	168	576	183[1]	105,408
Construction	8	153	183[1]	27,999
Manufacturing	5	79	183[1]	14,457
Wholesale Trade (including auto wholesale)	10	268	66	17,688
Retail Trade (including auto retail)	54	423	79	33,417
Administrative & Support, Waste Management and Remediation[2]	6	180	13	2,340
Health Club (Arts, Entertainment and Recreation)	1	11	79[3]	869
Accommodation and Food	7	21	251	5,271
Other Services	1	0	N/A	0
Total				**207,449**

Notes:
[1]*Assumed to be the average of two industrial use generation rates in the CEQR Technical Manual.*
[2]*Assumed that the only waste generated by the waste management businesses was that of employees, approximated with the office use generation rate from the CEQR Technical Manual.*
[3]*Based on the general retail use waste generation rate from the CEQR Technical Manual.*

D. FUTURE WITHOUT THE PROPOSED PLAN

In 2017, in the future without the proposed Plan, it is conservatively assumed that the uses currently in the Willets Point Development District would remain, although it is possible that some properties currently vacant would be reused and that some limited development would occur. However, it is anticipated that most growth and development would occur in neighboring communities, such as College Point. There would also be some changes in the City's waste management services. Changes anticipated to occur by 2017 without the proposed Plan are described below.

SOLID WASTE AND SANITATION

In the future without the proposed Plan, no major changes with respect to solid waste generation in the Willets Point Development District are expected to occur by 2017. Under the City's new SWMP, the existing North Shore MTS, which serves the District, will be demolished, and a new MTS will be constructed on the same site in College Point that will receive and allow for containerization of solid waste. Containerized solid waste will then be exported from the new MTS by barge. As part of these improvements, the new North Shore MTS will have the capacity to handle up to 3,672 tpd of solid waste under normal conditions and 4,290 tpd of solid waste under upset conditions. The average daily throughput is expected to be 2,200 tons of DSNY waste and 1,000 tons of commercial waste.[1]

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

PROPOSED PLAN

The proposed Plan would result in the displacement of two waste transfer businesses (Tully Environmental and Crown Container) currently operating in the District. Tully Environmental has the capacity to process 900 tpd of putrescible municipal (DSNY) waste. Crown Container is authorized to process 375 tpd of mostly construction and demolition debris. There are four other facilities in Queens and 24 other facilities in the City that process construction and demolition waste. The permitted capacity of Crown Container is small, approximately 3 percent of the City construction and demolition capacity[2], and the waste generated at that facility could be absorbed at other facilities. Tully Environmental currently processes putrescible municipal waste under a contract with the City. The North Shore MTS, when completed, will have the capacity to process the waste currently handled by Tully. If Tully were displaced from the District before the North Shore MTS became operational, DSNY waste currently processed by Tully would temporarily be transported to facilities in New Jersey in DSNY trucks. Therefore, the displacement of the two waste transfer businesses would not significantly impact the waste transfer industry within Queens or New York City.

The proposed Plan and the anticipated development on Lots B and D would place additional demands on the solid waste and sanitation services in the area. To determine future solid waste volumes, the solid waste generation rates from the *CEQR Technical Manual* were applied to the

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[1] North Shore Marine Transfer Station Waste Containerization Facility Part 360 Permit Application, January 2007.

[2] http://www.nylpi.org/pub/Distribution___Capacities_of_Solid_Waste_Trasfer_Stations.pdf (November 2007).

proposed Plan and the anticipated development on Lots B and D. Table 15-2 presents the cumulative solid waste volumes expected under the proposed Plan using these assumptions. As shown in the table, it is estimated that the proposed Plan and the anticipated development on Lots B and D would generate approximately 690,249 pounds of solid waste per week (49 tpd) in 2017. This daily demand would result in a 34 tpd increase in 2017 over the existing District demand and is the equivalent of 0.14 percent of the total amount of solid waste currently handled each day in New York City. This is not a significant increase in the City's solid waste stream.

While most of the existing solid waste generated in the Willets Point Development District is from non-residential uses and is therefore collected by private carting companies, in 2017 an estimated 256,015 pounds (128 tons) per week of solid waste generated by the proposed Plan would be from residential, school, and community uses. This residential and public solid waste would be collected by DSNY. According to the *CEQR Technical Manual* guidelines, the typical DSNY collection truck has a capacity of 12.5 tons. Therefore, the proposed Plan would be expected to generate solid waste for DSNY collection that would require up to four added truckloads per day in 2017, assuming a three-day work week for solid waste collection services. This is not a significant impact on solid waste services for DSNY.

Table 15-2
Solid Waste Generation for the Proposed Development Plan and Lots B and D in 2017

Future Use	Size	Individuals	Solid Waste Rates (lbs per week)	Total (lbs per week)
Residential[1]	5,500,000 gross square feet (gsf) (5,500 units)	14,795 residents	17 per resident	251,515
Retail	1,884,500 gsf	4,711 employees	79 per employee	372,169
Office	780,000 gsf	3,120 employees	13 per employee	40,560
Convention Center	400,000 gsf	160 employees	13 per employee[2]	2,080
Hotel	560,000 gsf (700 rooms)	259 employees	75 per employee	19,425
Community/ Cultural Use	150,000 gsf	150 employees	13 per employee[3]	1,950
Primary School	130,000 gsf (850 seats)	850 pupils	3 per pupil	2,550
Total				**690,249**

Notes:
[1]*Based on the average household size of 2.69 for Community District 7 in the year 2000.*
[2]*Based on solid waste generation rate used in the Atlantic Yards Arena and Redevelopment Project EIS.*
[3]*Based on the solid waste generation rate used in the Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS.*

The non-residential solid waste (retail, office, convention center, and hotel uses) would be collected by private contractors. The total amount of this waste would be 434,234 pounds (217 tons) per week in 2017. Given that the typical collection truck averages a 12.5-ton capacity, the proposed Plan and Lots B and D would require up to three private contractor truckloads per day, assuming a six-day work week. This is not a significant increase in demand and would be met by private-sector response to the increase in service needs.

In addition, as described in Chapter 1, "Project Description," a future developer may develop a water reclamation facility pursuant to a special permit from the Board of Standards and Appeals

(BSA), which would be subject to separate environmental and public review processes. The product of wastewater treatment is sludge, which is compressed and removed once every one to three days. This service would be provided by private contractors.

NO CONVENTION CENTER SCENARIO

Under the No Convention Center Scenario, 350,000 square feet (sf) of additional residential use and 50,000 sf of ground floor retail use would replace the proposed convention center use, as discussed in Chapter 2. The volume of solid waste generated by development under this scenario would be approximately 3 percent higher than described above under "Proposed Plan," as presented in Table 15-3.

This small increase, as compared with the proposed Plan, would not result in a significant adverse impact on municipal or private sanitation services and would not require additional waste collection truck trips.

Table 15-3
Solid Waste Generation for the No Convention Center Scenario and Lots B and D in 2017

Future Use	Size	Individuals	Solid Waste Rates (lbs per week)	Total (lbs per week)
Residential[1]	5,850,000 gross square feet (gsf) (5,850 units)	15,737 residents	17 per resident	267,529
Retail	1,934,500 gsf	4,836 employees	79 per employee	382,044
Office	780,000 gsf	3,120 employees	13 per employee	40,560
Hotel	560,000 gsf (700 rooms)	259 employees	75 per employee	19,425
Community/ Cultural Use	150,000 gsf	150 employees	13 per employee[2]	1,950
Primary School	130,000 gsf (900 seats)	900 pupils	3 per pupil	2,700
Total				**714,208**

Notes:
[1]*Based on the average household size of 2.69 for Community District 7 in the year 2000.*
[2]*Based on the solid waste generation rate used in the Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS.*

With or without the convention center, the proposed Plan and anticipated development on Lots B and D would not result in significant adverse impacts on residential or commercial solid waste collection and disposal services, nor would the proposed Plan conflict with or require any amendments to the City's solid waste management objectives as stated in the SWMP. ✷

A. INTRODUCTION

The Willets Point Development Plan would generate new demands on energy services provided in the Willets Point Development District. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D, and considers the net incremental impact between the continuation of the existing on-site uses in the future without the proposed Plan, and the proposed Plan and the anticipated development on Lots B and D in the 2017 analysis year. The cumulative impact is also assessed for the No Convention Center Scenario, as discussed in Chapter 2.

PRINCIPAL CONCLUSIONS

The proposed Plan and the anticipated development on Lots B and D would increase demands on electricity and gas. However, relative to the capacity of these systems and the current levels of service within New York City, these increases in demand would be insignificant. Improvements would be made to the local electric and gas distribution grids that would ensure proper service to the Willets Point Development District. Therefore, the cumulative demands of the proposed Plan and the anticipated development on Lots B and D would not result in a significant adverse impact on the supplies of electricity and gas in the region or the City as a whole, and with the future improvements to the distribution network, no impact would occur locally with respect to electrical or gas utilities. The No Convention Center Scenario would result in marginally greater energy demand, due to a greater portion of residential uses, but would also not result in a significant adverse impact.

B. METHODOLOGY

As discussed below, this chapter:

- Presents data on the existing energy distribution system and estimated energy usage for existing conditions;
- Determines future energy demands with the proposed Plan and anticipated development on Lots B and D for 2017, using energy consumption rates for typical land uses provided in the *City Environmental Quality Review (CEQR) Technical Manual* and other available literature sources;
- Assesses the effects of this incremental energy demand on the local distribution system and regional energy supplies; and
- Describes sustainable features that may be incorporated into the project design for the purposes of minimizing project demands on energy infrastructure and services.

C. EXISTING CONDITIONS

ENERGY PROVIDERS

Electricity within New York City is generated by Consolidated Edison (Con Edison), as well as a number of independent power companies, including KeySpan Energy[1].

Electrical energy in New York City is supplied from a variety of sources that originate both within and outside the City. These include non-renewable sources, such as oil, natural gas, and coal fuel; and renewable sources, such as hydroelectricity and, to a much lesser extent, biomass fuels, solar, and wind power. New York City's electrical demands are met by a combination of sources, including electricity generated within New York City, at locations across the Northeast, and from places as far away as Canada. For the more distant sources, once electrical energy is generated as high voltage electrical power, a transmission grid conveys this power to New York City for distribution. An interconnected high voltage power grid extending across New York State and the Northeast allows for power to be imported from other regions as demand requires. A total of an estimated 50 billion kilowatt hours (kwh) or 170.75 trillion British Thermal Units (BTUs) of electricity are consumed in the City annually.

According to the New York Independent System Operator (NYISO) *2007 Load & Capacity Data* report, the peak electrical demand for New York City in summer 2006 was 11,350 megawatts (mw).[2] Typically, electricity generated within the City is sufficient to satisfy demand. However, during the summer peak demand period, this electricity is often supplemented by the Northeast transmission grid. As a result, there is an ongoing service and distribution improvement program for infrastructure, which upgrades localized areas that are continually high demand zones. Electricity required for these zones is supplied by other zones in New York City, or from sources elsewhere within the larger grid, if necessary.

Con Edison distributes power throughout the City. Transmission substations receive electricity from the regional high voltage transmission system and reduce the voltage to a level that can be delivered to area substations. Area substations further reduce the voltage to a level that can be delivered to the distribution system, or street "grid." Within the grid, voltage is further reduced for delivery to customers. Each area substation serves one or more distinct geographic areas, called networks, which are isolated from the rest of the local distribution system. The purpose of the networks is that if one substation goes out of service, the problem can be isolated to that network and not spread to other parts of the City. Substations are designed to have sufficient capacity for the network to grow.

Power plants in the five boroughs generate electricity for New York City. According to NYISO's Revised Locational Installed Capacity Requirements Study for the 2006-2007 period, New York City has an existing installed generating capacity of 10,364 mw.[3]

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[1] Although KeySpan was acquired by National Grid, it continues to operate under the KeySpan name.

[2] New York Independent System Operator 2007 Load & Capacity Data, www.nyiso.com/public/webdocs/services/planning/planning_data_reference_documents/2007_GoldBook_PUBLIC.pdf, Historic Summer Non-Coincident Peak Demand by Zone (July 25,2007)

[3] NYISO Revised Locational Installed Capacity Requirements Study Covering the New York Control Area for the 2006-2007 Capability Year, March 28, 2006 (July 25, 2007)

KeySpan Energy provides natural gas service to more than 1.1 million customers and operates more than 4,000 miles of gas mains in New York City. The company also owns and operates electrical generating plants on Long Island and within New York City, with a total generating capacity of more than 6,600 mw.[1]

ENERGY INITIATIVES

In 2001, New York State began taking measures to address the increasing capacity needs of the metropolitan New York City region. NYISO implemented the Emergency Demand Response and the Day-Ahead Demand Bidding programs to reduce utility electrical power demand during peak load periods. New York State Governor's Executive Order No. 111 (EO 111) was introduced in June 2001, directing state agencies, state authorities, and other affected entities to address energy efficiency, renewable energy, green building practices, and alternate fuel vehicles. EO 111 identified the New York State Energy Research and Development Authority (NYSERDA) as the organization responsible for coordinating and assisting agencies and other affected entities with their responsibilities. NYSERDA and the utilities have implemented programs to encourage businesses to reduce energy usage and increase energy efficiency. In addition to the energy conservation techniques, in accordance with the EO 111, the New York State Power Authorities (NYPA) constructed 11 new 44-mw, natural gas-fired, simple-cycle turbine-generating units, 10 of which are located within New York City, for emergency power generation.

The independent, nonprofit New York State Reliability Council (NYSRC) has determined that a minimum of 80 percent of the City's peak load must be provided by generating sources within the City to maintain compliance with the criteria established by the regional and national reliability councils. Presently, there is sufficient capacity within the City to meet this 80 percent local energy generation requirement. However, if energy demand increases over time, additional in-City generation would be needed to satisfy this requirement.[2]

EXISTING WILLETS POINT DEVELOPMENT DISTRICT DEMAND

In estimating the existing annual energy consumption in the Willets Point Development District, the rates provided in Table 3N-1 of the *CEQR Technical Manual* were utilized. One measure of energy is the BTU. One BTU is the quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit. This unit of measurement is often used to compare consumption of energy from different sources, taking into account how efficiently those sources are converted to energy. Use of BTUs allows for a common unit of measurement for different energy sources (e.g., horsepower, kwh, etc.) and consumption rates (e.g., tons per day, cubic feet per minute, etc.). One kilowatt (kw) is the equivalent of 3,413 BTUs per hour. Based on the rates of the *CEQR Technical Manual*, current annual energy use in the Willets Point Development District is estimated to be approximately 47,417 million BTUs, as shown in Table 16-1.

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[1] KeySpan Energy Web site: http://www.keyspanenergy.com/corpinfo/about/facts_all.jsp (July 25, 2007)

[2] NYISO Comprehensive Reliability Planning Process (CRPP) 2008 Reliability Needs Assessment (December 10, 2007).

Table 16-1
Existing Energy Consumption in the Willets Point Development District

Existing Use	Square Feet (sf)	BTUs/sf/year	Million BTUs/year
Office	59,389	77,900	4,626
Industrial[1]	337,949	44,100	14,904
Retail	39,230	55,800	2,189
Garage	220,062	27,400	6,030
Other[2]	135,178	145,500	19,668
Total			**47,417**

Notes:
[1] Industrial use includes storage, recycling uses, non-retail auto uses, transportation, construction, distribution and manufacturing
[2] The use group labeled as other includes miscellaneous auto uses, a residence, a deli and a private club.
Sources: 3N-1 Table in the *CEQR Technical Manual* for energy demand rates.
New York City Department of Finance Real Property Assessment Database (RPAD) 2005 and business information provided by the New York City Economic Development Corporation for the floor area by use group.

D. FUTURE WITHOUT THE PROPOSED PLAN

In 2017, in the future without the proposed Plan, it is conservatively assumed that the uses currently in the Willets Point Development District would remain, although it is possible that some properties that are currently vacant would be reused and that some limited development could occur. However, the growth and development would occur mostly in the neighboring communities, such as College Point. In the future without the proposed Plan in 2017, the existing energy demands at the Willets Point Development District are not assumed to change. The peak demand in 2017 for New York City is projected to be 13,360 mw[1]. It is expected that measures will be taken to provide adequate electrical capacity to the New York City metropolitan area through this analysis year. It is also assumed that Con Edison would continue with its electrical distribution improvement programs in the Queens area. In the future, the existing trend toward sustainability, as evidenced by the incorporation of green design by both the public and private sector, would lead to greater energy efficiency in the City. The effects of green design initiatives on energy demand in the District were conservatively not accounted for in the assessment of the District with or without the proposed Plan.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

To provide the needed energy service to the District, upgrades to electrical and gas transmission lines, and additional facilities serving the District would be needed. Within the Willets Point Development District and adjoining streets, gas mains, service lines, and metering would need to be reconstructed as part of the proposed Plan. Improvements to the local distribution grid may also be required, such as an electrical substation and primary feeder cables. The Special District text would allow for the provision of a new cogeneration facility and/or substation, provided they would primarily serve the District. If proposed, these uses would be subject to separate

[1] NYISO Comprehensive Reliability Planning Process (CRPP) 2008 Reliability Needs Assessment Report, December 10, 2007.

environmental and public review processes.[1] A discussion of the cumulative energy demand for the proposed Plan and Lots B and D with and without the convention center is presented below.

As described in Chapter 1, "Project Description," the Willets Point Development Plan has been accepted as a pilot Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) project by the United States Green Building Council (USGBC). The illustrative site plan has been designed to achieve LEED-ND certification, and the City would require any future development in the District to achieve LEED-ND certification.

As part of this effort, the lead agency and NYCEDC are exploring the potential for the integration of several sustainable site planning features that would lead to energy savings. These include solar-oriented blocks and building massings that would decrease energy consumption through daylighting, solar heating, and natural ventilation; and sustainable energy infrastructure and management practices (e.g., direct energy generation, supply and demand site management, sustainable energy technologies, and building space requirements), which would decrease the District's overall energy consumption and carbon footprint. In addition, the proposed school would be built according to the New York City Green Schools Guide, published by the New York City School Construction Authority in March 2007, which guides the sustainable design, construction, and operation of new schools, modernization projects, and school renovations in New York City.

Although the planning for the proposed Plan considered sustainability and also compatibility with the PlaNYC[2] initiatives, sustainable features that would lead to energy savings were conservatively not accounted for in the calculation of energy demand.

PROPOSED PLAN

The proposed Plan and the anticipated development on Lots B and D would result in added energy demand, as shown in Table 16-2. The total energy consumption estimate for the probable impacts of the proposed Plan was based on the cumulative development scenario floor area for each use group and the *CEQR Technical Manual* Table 3N-1 energy consumption rates. No energy efficiency or green design measures that would be implemented in the District were accounted for in this conservative estimate. The annual energy demand for the District and Lots B and D in the future with the proposed Plan would be approximately 1.2×10^6 million BTUs. The average power load increase associated with this conservative estimate of future energy consumption is about 38 mw. This would constitute less than 0.3 percent of the total peak energy demand for New York City in 2017, and is not considered to be significant.

NO CONVENTION CENTER SCENARIO

Under the No Convention Center Scenario, 350,000 square feet (sf) of additional residential use and 50,000 sf of ground floor retail use would replace the proposed convention center use, as discussed in Chapter 2. The No Convention Center Scenario cumulative annual energy demand with Lots B and D and average power load would be approximately 1 percent higher than the corresponding demand and load under the proposed Plan with Lots B and D. Slightly more

[1] The cogeneration facility would require approval by the Board of Standards and Appeals (BSA) as well as air quality permits from DEP and DEC, and the substation would require authorization by the City Planning Commission (CPC).

[2] http://www.nyc.gov/html/planyc2030/html/home/home.shtml

energy would be required for the No Convention Center Scenario because instead of a convention center, additional residential uses would be built, and residential uses generally require more energy per unit of floor area, as reflected in the energy consumption rates tabulated in Table 3N-1 of the *CEQR Technical Manual.*

Table 16-2
Energy Consumption for the Proposed Development Plan and Lots B and D in 2017

Future Use	Size gsf	BTUs/sf/year	Million BTUs/year
Residential	5,500,000	145,500	800,250
Retail	1,884,500	55,800	105,155
Office	780,000	77,900	60,762
Convention Center[1]	400,000	81,300	32,520
Hotel	560,000	145,500	81,480
Community/Cultural Use[2]	150,000	65,300	9,795
Primary School	130,000	76,400	9,932
Parking	8,243 spaces[3]	27,400	76,792
Total			**1,176,686**

Notes:
[1] The energy demand for the proposed convention center was based on the projected energy demand increase for the expansion of the Jacob Javits convention center, reported in the No. 7 Subway Extension—Hudson Yards Rezoning and Development Program FGEIS and scaled to adjust for the size of the proposed convention center.
[2] The CEQR Technical Manual energy demand for public assembly was used.
[3] Conservatively assuming that proposed parking facilities would average 340 sf per parking spot.
Sources: Table 3N-1 of the *CEQR Technical Manual.*

The improvements in local connections that are necessary to provide these services to the proposed Plan under either scenario would not adversely impact the local system. Therefore, the proposed Plan and the anticipated development on Lots B and D would not have any significant adverse impacts on energy systems. In addition, as described above, the proposed Plan may include a number of energy conservation measures, which would decrease overall energy demand in the District. ✷

A. INTRODUCTION

The Willets Point Development District is located adjacent to Shea Stadium and is generally bounded by 126th Street to the west, Roosevelt Avenue to the south, the Van Wyck Expressway and an undeveloped parcel owned by the Metropolitan Transportation Authority (MTA) to the east, and Northern Boulevard to the north. Willets Point is also within close proximity to primary highways including the Whitestone Expressway to the north and east, the Grand Central Parkway to the west, and the Long Island Expressway (LIE) to the south. This network of highway mainlines and ramp interchanges carries significant traffic volumes and frequently experiences congestion during peak travel periods. Sections of the local street network adjacent to the District, such as Roosevelt Avenue and Northern Boulevard, experience moderate to heavy traffic volumes during peak travel periods, while other sections, such as 126th Street, have substantial amounts of unused capacity during typical weekday and weekend conditions.

The District lies between the neighborhoods of Corona/North Corona to the west and Downtown Flushing, across the Flushing River, to the east, a key commercial center and intermodal transportation hub. Both Northern Boulevard and Roosevelt Avenue provide connections between the District, Downtown Flushing, and Corona. In addition, the close proximity of the District to Shea Stadium results in significant changes to traffic characteristics and operations on roadways adjacent to the District before and after Mets home games. With parking lot entrances located along Roosevelt Avenue, 126th Street, and Stadium Road, access and egress to Shea Stadium during pre- and post-game periods significantly affects traffic conditions on both the highway and local street networks near Willets Point.

The proposed Willets Point Development Plan, with its mix of residential, retail, office, community facility, and institutional uses, would replace the existing lower-density uses currently within the Willets Point Development District and, thus, generate significantly more traffic on the adjacent local street and highway network. In addition, the demapping and subsequent re-construction of streets within the District would create new access and egress points along Northern Boulevard and 126th Street and alter traffic circulation patterns on the adjacent street network. Improvements to connections between the Van Wyck Expressway and the District, which would be built as part of the proposed Plan, would further modify travel patterns in the study area.

This chapter addresses the potential traffic and parking impacts of the proposed Plan and Lot B, as well as the No Convention Center Scenario. The approach routes to the study area traverse intersections along Northern Boulevard, Astoria Boulevard, Roosevelt Avenue, Sanford Avenue, Main Street, College Point Boulevard, 126th Street, and 34th Avenue, as well as exits from the Grand Central Parkway and the Van Wyck/Whitestone Expressway, both north and west of the Willets Point development district. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of traffic

generated by both the Willets Point Development Plan and the anticipated development on Lots B and D.

B. PRINCIPAL CONCLUSIONS

The Willets Point Development Plan is expected to be a significant traffic generator on both the highways surrounding the District—including the Grand Central Parkway, the Van Wyck Expressway, and the Whitestone Expressway—and the local street network. The Build volume increments generated by the proposed Plan and Lot B would be 3,685 vehicles per hour (vph) in the AM peak hour, 5,434 vph in the midday peak hour, and 6,752 vph in the PM peak hour on a typical weekday without a Mets home game. The volume increment generated by the proposed Plan and Lot B during a typical Saturday midday peak hour without a Mets home game would be 7,099 vph—the highest increment of all the analyzed peak hours. For peak hours with a Mets home game, the proposed Plan and Lot B are is expected to generate 5,199 vph in the weekday PM (evening) pre-game peak hour, 5,544 vph in the Saturday midday pre-game peak hour, and 5,128 vph in the Saturday PM (afternoon) post-game peak hour.

The future baseline (future No Build) volumes, to which the traffic generated by the proposed Plan and Lot B would be added, and the future levels of service are expected to be significantly worse than existing conditions due directly to the approximately 90 background developments planned within the study area and a background traffic growth of about 11.5 percent, between the year data were collected, 2006, and the future year of 2017. Therefore, traffic generated by the proposed Plan and Lot B would be in addition to high baseline volumes and poor levels of service at many of the analysis intersections and along key sections of the highway network, resulting in numerous significant impacts.

As a result, the proposed Plan is expected to have significant traffic impacts at 22 of the 29 intersections analyzed, both signalized and unsignalized, for the future Build condition in the weekday AM peak hour, 18 of 29 in the weekday midday peak hour, 24 of 29 in the weekday PM peak hour, and 22 of 29 in the non-game-Saturday midday peak hour. During the PM pre-game weekday peak hour, 25 of 29 intersections analyzed would have significant traffic impacts, and during the Saturday pre-game and post-game peak hours 24 of 29 intersections analyzed would have significant impacts.

Although the proposed Plan would include new access ramps to and from the Van Wyck Expressway at the northeastern corner of the District, it is projected that some sections of the highway mainlines and critical ramp junctions would be significantly impacted as well. Furthermore, the new access ramps are expected to reduce the use by project-generated traffic of certain local streets to access the District. However, project generated traffic would also cause significant traffic increases and level of service degradations on the Van Wyck Expressway mainline in both directions in the vicinity of the District.

The proposed Plan would provide sufficient new off-street and on-street parking as part of the development to service its demand. The redevelopment of the Willets Point Development District would include the demapping and realignment of the local street network within the boundaries of the District, which is expected to increase the available on-street parking supply. Moreover, the proposed Plan's expected parking needs would be provided within the District. Consequently, it is not expected that traffic generated by the proposed Plan would have to seek parking opportunities outside of the District.

As compared with the proposed Plan, the No Convention Center Scenario would have approximately 6 percent more residential development and approximately 3 percent more retail development, and would result in an overall reduction equal to approximately 7 to 14 percent of the total number of generated trips during each of the peak hours. The greatest trip reductions would be in the weekday PM peak hour, the weekday evening pre-game peak hour, and the Saturday afternoon post-game peak hour. Since the assignment of convention center trips assumes predominant use of the highway routes to and from the District, it is expected that the No Convention Center Scenario would show some improvement in highway levels of service, but would not necessarily mean a reduction in the number of significant impacts on the highways. There would also be levels of service improvements at highway ramp approaches to the intersections on 126th Street at 34th Avenue and at Northern Boulevard due to the reduction in convention center traffic to and from the highway network.

C. METHODOLOGY

The traffic and parking analyses cover a large study area encompassing 24 existing signalized intersections and five existing unsignalized intersections, plus two new intersections for access and egress that would be created along the District's boundaries. Key segments of the Grand Central Parkway, Van Wyck Expressway, and Whitestone Expressway, including interchange ramps, have also been studied (see Figure 17-1).

The analyses begin with an assessment of existing traffic and parking conditions in the study area, and proceed to an analysis of conditions in the future without the proposed Plan—i.e., the future No Build condition. The Existing and No Build conditions are analyzed under typical weekday and Saturday peak hour roadway conditions and under roadway conditions typically experienced immediately before and after Mets games on a weekday and Saturday. Four non-game-day peak hours are analyzed, including the 7:45-8:45 AM weekday morning, 1:00-2:00 PM weekday midday, 5:15-6:15 PM weekday evening, and 1:00-2:00 PM Saturday midday peak hours. Also, three game-day peak hours are analyzed, including the 6:00-7:00 PM pre-game weekday evening, 12:00-1:00 PM pre-game Saturday midday, and 3:45-4:45 PM post-game Saturday PM peak hours. Post-game conditions are not analyzed for a weekday evening game, since project-generated traffic expected during that peak hour would not be significant. These analyses are presented for the 2017 future Build year. All of the analyses of local intersection conditions are based on *2000 Highway Capacity Manual (HCM)* procedures, in accordance with 2001 *City Environmental Quality Review (CEQR) Technical Manual* guidelines. A detailed traffic simulation analysis was also performed using the CORSIM model for the sections of the highway network being analyzed.

The next step in the analyses considers the amount of vehicular traffic expected to be generated by the proposed Plan and Lot B in the Build year, and an assessment of future traffic and parking conditions with the proposed Plan in place in 2017 (Build condition). Like the No Build condition, the Build condition analyzes roadway conditions with and without Mets games, on weekdays, and the weekend (Saturday). The Build year analyses identify the location and extent of significant impacts potentially generated by the proposed Plan and Lot B. Traffic improvements that would be needed to mitigate these impacts are identified and evaluated in Chapter 23, "Mitigation." The parking analysis addresses the ability of the proposed Plan to accommodate the parking demands in the Build year. In addition to the analyses presented in this chapter, data on traffic volumes and detailed traffic impact analyses are presented in Appendix E.

D. EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

The overall study area generally consists of a grid network of local streets within Downtown Flushing interspersed between Northern Boulevard and Sanford Avenue, as well as a series of intersections along Roosevelt Avenue and Northern Boulevard between 108th and 126th Streets, and along 126th Street between Northern Boulevard and Roosevelt Avenue in Willets Point. There are also additional analysis locations farther away from the immediate study area. The presence of the Grand Central Parkway and the Van Wyck/Whitestone Expressways (both designated as I-678), and the network of ramps and interchanges have a major influence on traffic conditions in the area, since the highways attract a substantial volume of through and destination traffic. Key access points between the local street network and the limited access highways are located along Northern Boulevard, Astoria Boulevard, College Point Boulevard, West Park Loop/Stadium Road, World's Fair Marina, and 114th Street.

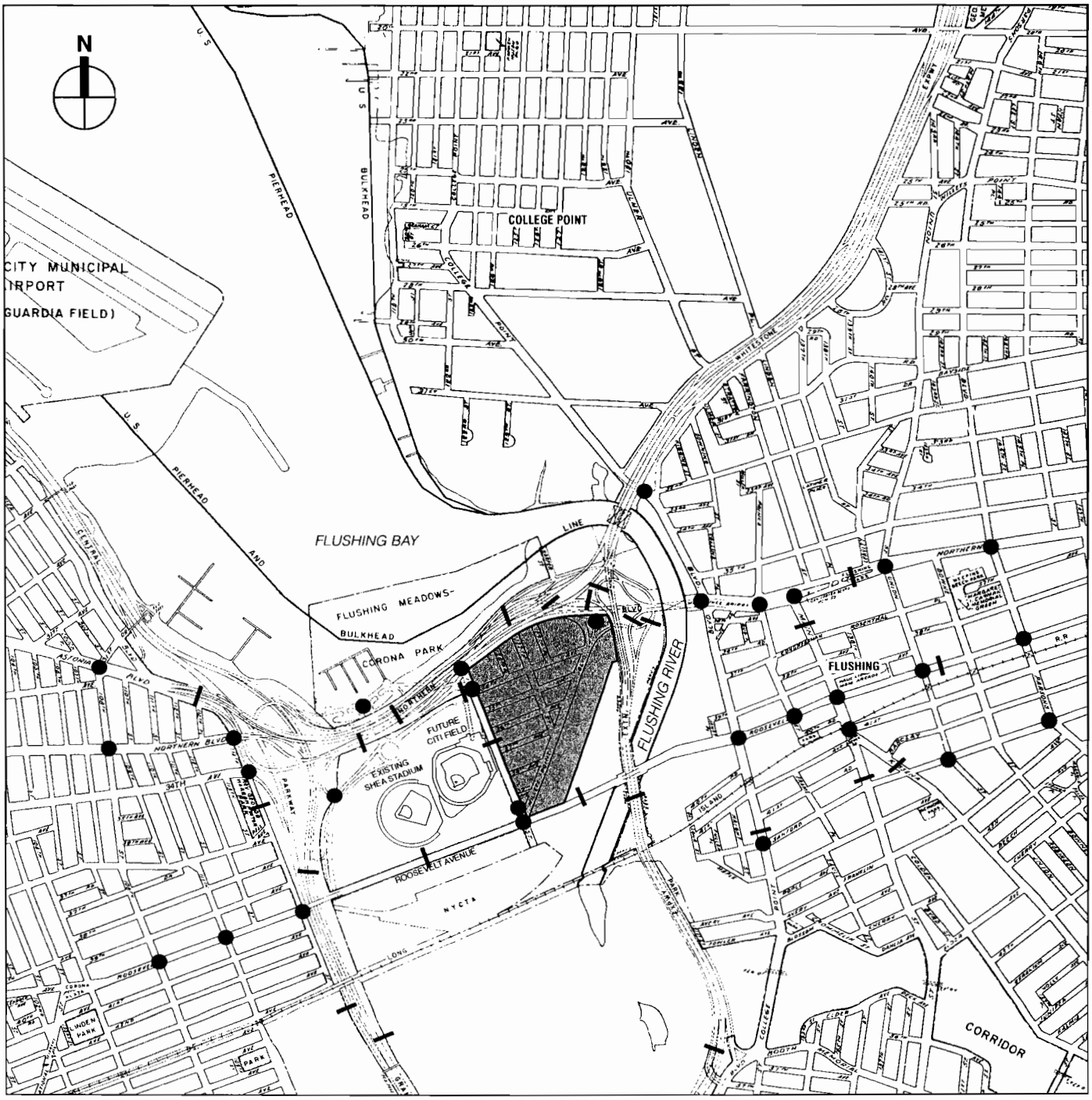
The Van Wyck Expressway is elevated, passing partially over the Flushing River, with three lanes in each direction, and provides a north-south connection from the LIE to where the Van Wyck Expressway becomes the Whitestone Expressway (north of Exit 13), with ramps to/from College Point Boulevard and Northern Boulevard. In particular, the ramps connecting the Van Wyck Expressway with Northern Boulevard provide access, though not completely direct access, to the local street network adjacent to the Willets Point Development District.

The Van Wyck Expressway northbound Exit 13W is a single-lane ramp that carries traffic along the eastern and northern boundary of the site, where it joins with an off-ramp from the Whitestone Expressway (southbound Exit 13W) and terminates at the signalized intersection of westbound Northern Boulevard and 126th Street. Since the ramp terminates on westbound Northern Boulevard at 126th Street, where left turns are not permitted, traffic from the northbound Van Wyck Expressway (and southbound Whitestone Expressway) does not currently have direct access to the District.

The Grand Central Parkway is an at-grade highway with four lanes typically in each direction; the westbound direction gains an additional lane north of the World's Fair Marina on-ramp. The Grand Central Parkway has a major interchange with the LIE and provides access to Northern Boulevard, Astoria Boulevard, and West Park Loop/Stadium Road. In the eastbound direction, Exit 9E, a two-lane exit ramp, provides access to eastbound Northern Boulevard as well as a route toward the southbound Van Wyck Expressway and northbound Whitestone Expressway. The ramp toward eastbound Northern Boulevard also provides access to 126th Street, touching down at the signalized intersection of 126th Street and 34th Avenue/Stadium Road. South of the Exit 9E off-ramp, there is a single-lane on-ramp to the eastbound Grand Central Parkway from Astoria Boulevard/34th Avenue/114th Street.

In the westbound direction, the Grand Central Parkway mainline splits into a pair of two-lane sections immediately upstream of Exit 9P (to Flushing Meadows-Corona Park). The eastern pair provides access to eastbound Northern Boulevard, West Park Loop/Stadium Road, and a route to the Van Wyck/Whitestone Expressway via Exit 9E. The western pair provides access to westbound Northern Boulevard at 114th Street via Exit 9W. North of these exits, the Grand Central Parkway lanes recombine into one mainline section toward LaGuardia Airport.

The local street network throughout the study area is primarily oriented in an east-west direction, with Northern Boulevard and Roosevelt Avenue extending from Corona on the west side to



Willets Point Development District

Study Area Intersection Analyzed

Automatic Traffic Recorder Location

Figure 17-1
Traffic Study Area
Existing and No Build Conditions

Downtown Flushing east of the District. Most of the study area locations are where north-south streets intersect Northern Boulevard and Roosevelt Avenue. Due to the breadth of the study area, roadway characteristics along these roadways can vary, including their width, number of lanes, presence of parking, and adjacent land uses. In addition to Northern Boulevard and Roosevelt Avenue, the other primary east-west streets consist of Kissena Boulevard, Sanford Avenue, 34th Avenue, Astoria Boulevard, and West Park Loop/Stadium Road, as described below.

- Northern Boulevard is a primary east-west arterial across the study area, carrying significant traffic volumes to and from the Grand Central Parkway and Van Wyck Expressway, as well as through traffic toward western Queens and Manhattan. Its geometric and traffic characteristics vary throughout the study area. Through Downtown Flushing (between Prince Street and Parsons Boulevard) and Corona (between 108th Street and 114th Street), Northern Boulevard is a multilane roadway with curbside parking and is predominantly undivided except for a section between Prince Street and Union Street, where the roadway's east and west travel directions are separated by a wide landscaped median. Immediately west of Prince Street, the mainline section of Northern Boulevard transitions into a viaduct over the Flushing River, flanked by service roads to and from College Point Boulevard. The section of Northern Boulevard between 114th Street and Prince Street is generally a highway-type roadway with ramps to/from the Grand Central Parkway and Van Wyck Expressway; there is limited curbside parking and only one intermediate traffic signal, at the intersection with 126th Street.
- Roosevelt Avenue extends east-west through the entire study area from Corona to Flushing, carrying moderate traffic volumes. Between 108th and 114th Streets, Roosevelt Avenue has one moving lane in each direction with curbside parking, but east of 114th Street it changes to two moving lanes per direction and with no parking up to College Point Boulevard. For most of this segment, the roadway is straddled by the elevated No. 7 subway line until the train moves underground after passing the Flushing River. Through Downtown Flushing, Roosevelt Avenue has generally one moving lane per direction with a mix of parking, MTA bus stops and layover zones, and other curbside activities.
- Sanford Avenue study locations are situated within Downtown Flushing, where the roadway operates one-way westbound from Kissena Boulevard to College Point Boulevard and two-way from Kissena Boulevard to Parsons Boulevard. The one-way segment typically operates with two moving lanes, while the two-way section has one to two lanes in each direction.
- 34th Avenue is discontinuous between 114th Street and 126th Street, and its intersection with 114th Street serves as a primary access point to the eastbound Grand Central Parkway. West of 114th Street, the roadway is two-lane and bi-directional, and where it continues east of 126th Street through the District, its condition is in general disrepair, with very low traffic volumes.
- Astoria Boulevard, like Northern Boulevard, is a major east-west arterial that carries significant traffic volumes between the study area—particularly the highway network—and northwestern Queens and the Triboro Bridge. In the eastbound direction, the roadway terminates at its ramps toward the Grand Central Parkway and the Van Wyck/Whitestone Expressway. Through North Corona on the west side of the study area, Astoria Boulevard is divided by a raised median, with multiple lanes in each direction and curbside parking.
- West Park Loop/Stadium Road is a limited access roadway along the west and north boundaries of Shea Stadium parking lots Shea A and Shea C. Due to its direct ramps to and from the westbound Grand Central Parkway at Exit 9E, the roadway experiences the

heaviest volumes before and after Mets games; otherwise, it does not have much traffic. West of the traffic circle at Boat Basin Road, West Park Loop/Stadium Road has two lanes in each direction, divided by a landscaped median; the roadway is undivided east of the traffic circle up to 126th Street.

The primary north-south cross-streets, which consist of College Point Boulevard, Main Street, Parsons Boulevard, and 108th Street, provide access to Northern Boulevard and Roosevelt Avenue from neighborhoods north and south of Downtown Flushing and Corona as well as the LIE. The remaining north-south streets, which carry less traffic and/or provide less regional access for though traffic, include Prince Street, Union Street, 111th Street, 114th Street, and 126th Street.

- College Point Boulevard is a bi-directional, multi-lane roadway between the LIE, south of the study area, to College Point, north of Downtown Flushing. The roadway serves as the link between the westbound LIE and the Van Wyck Expressway, since there are no direct interchange ramps between them. Due to highway access and adjacent land uses, College Point Boulevard carries both significant auto volumes and moderate to high truck traffic.
- Main Street extends through the core of Downtown Flushing, terminating at Northern Boulevard from the LIE and neighborhoods to the south, and serves as a primary MTA bus transit corridor. Although the roadway generally has two moving lanes in each direction and traffic volumes are moderate, the mix of bus traffic and the frequency of stops, parking and other curbside activities, and pedestrian crossings impact capacity.
- Kissena Boulevard is a northwest-southeast oriented street that approaches Downtown Flushing from areas to the south, terminates at Main Street within the downtown core near the Long Island Rail Road (LIRR) trestle, and serves as another primary MTA bus transit corridor to and from the south. Kissena Boulevard generally has one to two lanes in each direction with moderate volumes, but it also suffers from the same capacity hindrances as Main Street in the immediate Downtown Flushing area.
- Union Street connects to Northern Boulevard and Roosevelt and Sanford Avenues, and carries moderate traffic volumes through Downtown Flushing. Union Street also serves as a primary access and egress route for Municipal Lot No. 1. Its cross-section width varies with one or two moving lanes in each direction, and curbside parking is typical north of Roosevelt Avenue.
- Parsons Boulevard extends parallel to Main and Union Streets through Downtown Flushing and is primarily a residential street through the study area, with low to moderate volumes. It also connects to Northern Boulevard and Roosevelt and Sanford Avenues, and has one moving lane in each direction with curbside parking.
- 108th Street has one moving lane in each direction through the study area, with curbside parking. It extends through Roosevelt Avenue and Northern and Astoria Boulevards, providing access to residential blocks in the neighborhood of Corona, and carries low to moderate traffic volumes.
- Prince Street is a minor two-way, two-lane street within Downtown Flushing carrying low traffic volumes. It connects to Roosevelt Avenue and Northern Boulevard, as well as some cross-streets though the downtown.
- 111th Street is one-way northbound through the neighborhood of Corona, providing access to Northern Boulevard from Roosevelt Avenue. Across a number of residential blocks, it has

one moving lane with curbside parking in each direction and carries low to moderate traffic volumes.

- 114th Street is typically two-way, except for the block between Northern Boulevard and 34th Avenue, where it is one-way southbound only. The roadway provides access to the ramp to the eastbound Grand Central Parkway at 34th Avenue; it carries high volumes of traffic southbound from Northern Boulevard to the on-ramp. Between 34th and Roosevelt Avenues, 114th Street is two-way, with one lane typical in each direction, and carries lower volumes.
- 126th Street forms the boundary between Shea Stadium and the Willets Point Development District. This two-way roadway generally has two moving lanes in each direction and carries low volumes, although the high number of parking maneuvers due to land uses along the east side of the street affects capacity. During the hours before and after Mets games, traffic volumes and queuing along 126th Street are significantly higher.

The traffic study area developed for this Draft Generic Environmental Impact Statement (DGEIS) includes the following 29 intersections, which are shown in Figure 17-2 (all intersections are signalized unless otherwise noted):

- 108th Street at Astoria Boulevard
- 108th Street at Northern Boulevard
- 114th Street at Northern Boulevard
- 126th Street at Northern Boulevard
- Prince Street at Northern Boulevard
- Main Street at Northern Boulevard
- Union Street at Northern Boulevard
- Parsons Boulevard at Northern Boulevard
- 114th Street at 34th Avenue
- 126th Street at 34th Avenue
- 108th Street at Roosevelt Avenue
- 111th Street at Roosevelt Avenue
- 114th Street at Roosevelt Avenue
- 126th Street at Roosevelt Avenue
- College Point Boulevard at Roosevelt Avenue
- Prince Street at Roosevelt Avenue
- Main Street at Roosevelt Avenue
- Union Street at Roosevelt Avenue
- Parsons Boulevard at Roosevelt Avenue
- Main Street at Kissena Boulevard
- College Point Boulevard at Sanford Avenue
- Union Street at Sanford Avenue
- Parsons Boulevard at Sanford Avenue
- College Point Boulevard at 32nd Avenue/Whitestone Expressway service road

- Willets Point Boulevard at 126th Street (unsignalized)
- Boat Basin Road at World's Fair Marina (unsignalized)
- Willets Point Boulevard at Northern Boulevard (unsignalized)
- College Point Boulevard at Northern Boulevard (unsignalized)
- The Grand Central Parkway ramp at West Park Loop/Stadium Road (unsignalized).

Two additional intersections created by the design of the Willets Point development project along 126th Street are analyzed under Build condition.

Sections of the highway network are also analyzed, including:

- Grand Central Parkway mainline in both directions between the LIE and Roosevelt Avenue
- Van Wyck Expressway mainline in both directions between the LIE and Roosevelt Avenue
- Whitestone Expressway mainline in both directions between Northern Boulevard and Linden Place
- Ramp from World's Fair Marina/Boat Basin Road to the Grand Central Parkway
- Ramps from the northbound Van Wyck Expressway to eastbound and westbound Northern Boulevard
- Ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway
- Ramp from westbound Northern Boulevard to the southbound Van Wyck Expressway
- Ramp from eastbound Astoria Boulevard and eastbound Northern Boulevard to the northbound Whitestone Expressway
- Ramps from the southbound Whitestone Expressway to the eastbound and westbound Grand Central Parkway
- Ramp from westbound Northern Boulevard and southbound Whitestone Expressway to westbound Astoria Boulevard
- Ramp from eastbound Astoria Boulevard and the Grand Central Parkway to the northbound Whitestone Expressway and eastbound Northern Boulevard
- Ramp from the eastbound Grand Central Parkway toward Stadium Road and the northbound Whitestone Expressway
- Ramp from the southbound Whitestone Expressway to westbound Northern Boulevard

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

For continuous traffic data collection, 24-hour Automatic Traffic Recorders (ATRs) were installed along selected local streets, ramps, and expressway mainlines during the periods of August 19 to August 25, 2006; and September 8 to September 22, 2006. Concurrent manual turning movement counts (TMCs) were conducted for a typical weekday with no Mets home game, a Saturday with no Mets home game, weekday pre-game conditions, and weekend pre- and post-game conditions. The weekend Mets game began at 1:10 PM (on August 20, 2006), and the weeknight game began at 7:10 PM (on September 20, 2006). Due to the start date of the count program in mid-August, late in the regular baseball season, no home games were scheduled for the remainder of the 2006 season on a Saturday midday beginning at 1:10 PM, except for Saturday, September 9, 2006—which, however, coincided with the USTA National

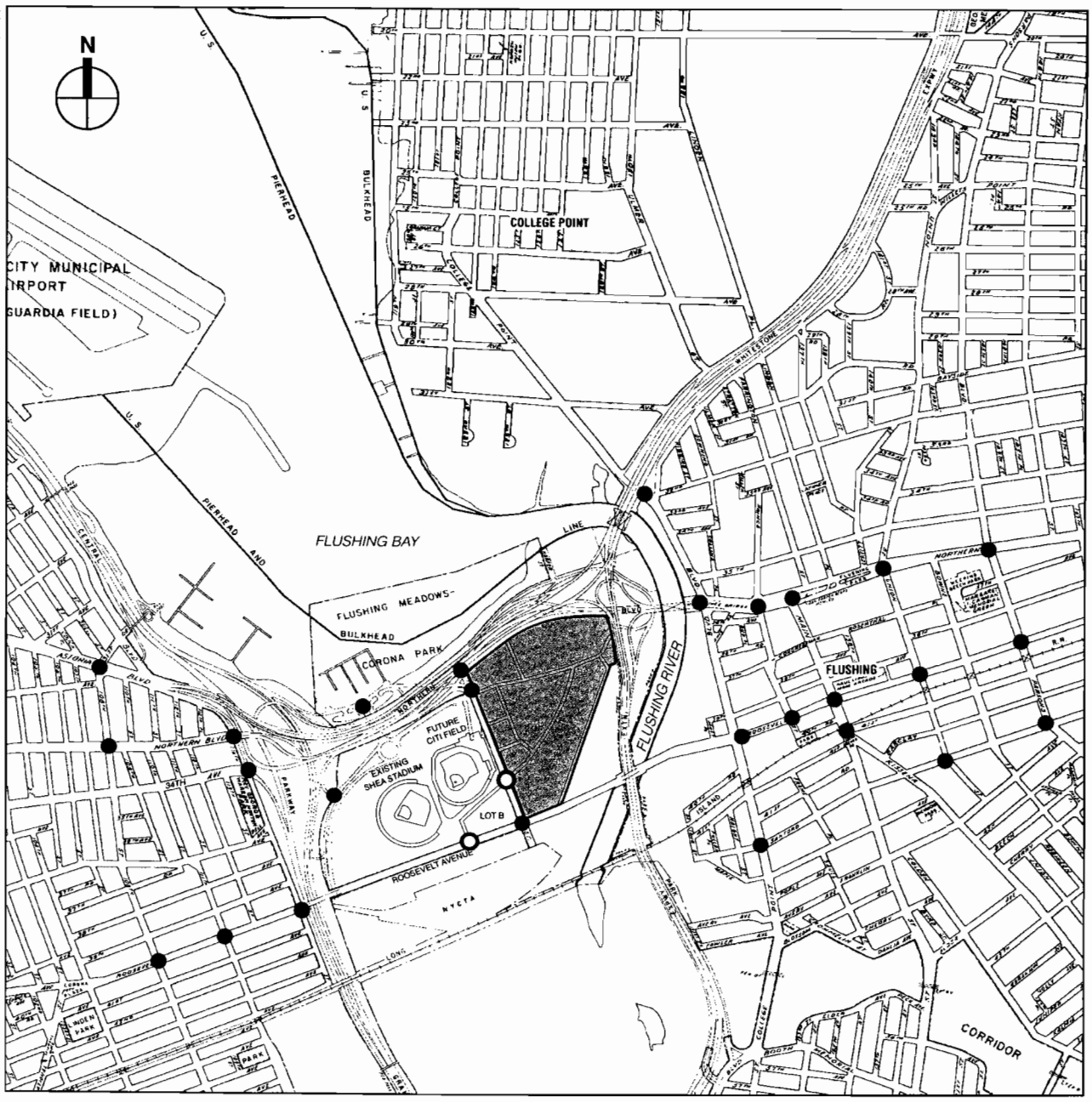


Figure 17-2
Traffic Study Area, Build Conditions

Tennis Center event (the U.S. Open). Therefore, turning movement counts were conducted for the game on Sunday, August 20, 2006 to capture game arrival and departure traffic volumes. Based on Sunday midday game-day data collected and the background ATR data of typical Saturday traffic volumes, Saturday pre-game and post-game peak hour volumes were estimated. For verification of the weekend game-day peak hour volumes, an upcoming Mets home game on a Saturday beginning at 1:10 PM is expected to be counted in late April or early May, 2008, with those findings reported in the Final Generic Environmental Impact Statement (FGEIS). The volumes were used, along with observations of actual traffic conditions, to determine the seven peak hours. Table 17-1 summarizes the analysis time periods.

Table 17-1
Traffic Study Peak Hours

Day	Without Mets Game		With Mets Game	
	Time	Peak Hour	Time	Peak Hour
Weekday	7:45–8:45 AM	Non-game AM	Not analyzed	
	1:00–2:00 PM	Non-game midday	Not analyzed	
	5:15–6:15 PM	Non-game PM	6:00–7:00 PM	Pre-game PM arrival peak
Saturday	1:00–2:00 PM	Non-game midday	12:00–1:00 PM	Pre-game midday arrival peak
	Not analyzed		3:45–4:45 PM	Post-game PM departure peak

Without a Mets home game at Shea Stadium:

- Weekday AM peak hour (7:45 AM – 8:45 AM)
- Weekday midday peak hour (1:00 PM – 2:00 PM)
- Weekday PM peak hour (5:15 PM – 6:15 PM)
- Saturday midday peak hour (1:00 PM – 2:00 PM).

With a Mets home game at Shea Stadium:

- Weekday PM peak hour pre-game arrivals (6:00 PM – 7:00 PM)
- Weekend midday peak hour pre-game arrivals (12:00 PM – 1:00 PM)
- Weekend late afternoon peak hour post-game departures (3:45 PM – 4:45 PM).

Analyses of traffic conditions in urban areas are based on critical conditions at intersections and are defined in terms of levels of service (LOS). According to the *2000 Highway Capacity Manual* (HCM) that was used for these analyses as per the *CEQR Technical Manual* guidelines, LOS at signalized intersections are defined in terms of a vehicle's total average control delay at an intersection, as follows:

- LOS A describes operations with very low delays, i.e., 10 seconds or less per vehicle. This occurs when signal progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- LOS B describes operations with delays in the range of greater than 10 seconds to less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.
- LOS C describes operations with delays in the range of greater than 20 seconds to less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

- LOS D describes operations with delays in the range of greater than 35 seconds to less than or equal to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Delays in this range greater than 45 seconds are considered marginally unacceptable; delays of 45 seconds or less are considered marginally acceptable.
- LOS E describes operations with delays in the range of greater than 55 seconds to less than or equal to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios.
- LOS F describes operations with delays in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

LOS A, B, and C are considered acceptable; LOS D is generally considered marginally acceptable up to mid-LOS D (45 seconds of delay for signalized intersections), and is considered unacceptable above mid-LOS D. LOS E and F are considered unacceptable.

For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line: LOS A describes operations with very low delay, i.e., 10 seconds or less per vehicle; LOS B describes operations with delays in the range of greater than 10 seconds to less than or equal to 15 seconds; LOS C has delays in the range of greater than 15 seconds to less than or equal to 25 seconds; LOS D, greater than 25 seconds to less than or equal to 35 seconds per vehicle; and LOS E, greater than 35 seconds to less than or equal to 50 seconds per vehicle, which is considered to be the limit of acceptable delay. LOS F describes operation with delays in excess of 50 seconds per vehicle, which is considered unacceptable to most drivers. This condition exists when there are insufficient gaps of suitable size to allow side street traffic to cross safely through a major vehicular traffic stream.

Tables 17-2 and 17-3 provide an overview of the levels of service of the overall intersections and the individual lane groups (i.e., set[s] of lanes established at an intersection approach for discrete capacity and level of service analysis), respectively, that characterize the traffic study area during the peak hours. A summary description is also provided below:

- During the non-game weekday AM peak hour, one of the 24 signalized intersections analyzed operates at overall unacceptable LOS E, and eight other intersections operate at overall LOS D. "Overall" LOS E or F means that serious congestion exists—either one specific traffic lane group has severe delays, or two or more of the specific traffic lane groups at the intersection are at LOS E or F with very significant delays (the overall intersection LOS is a weighted average of all of the individual traffic lane groups). Twenty-two specific traffic lane groups out of approximately 120 total traffic lane groups analyzed are at LOS E or F conditions. Figure 17-3 illustrates overall levels of service.
- In the non-game weekday midday peak hour, none of the signalized intersections operate at overall unacceptable LOS E or F; five signalized intersections operate at overall LOS D. Twelve lane groups operate at LOS E or F. Figure 17-4 illustrates overall levels of service.

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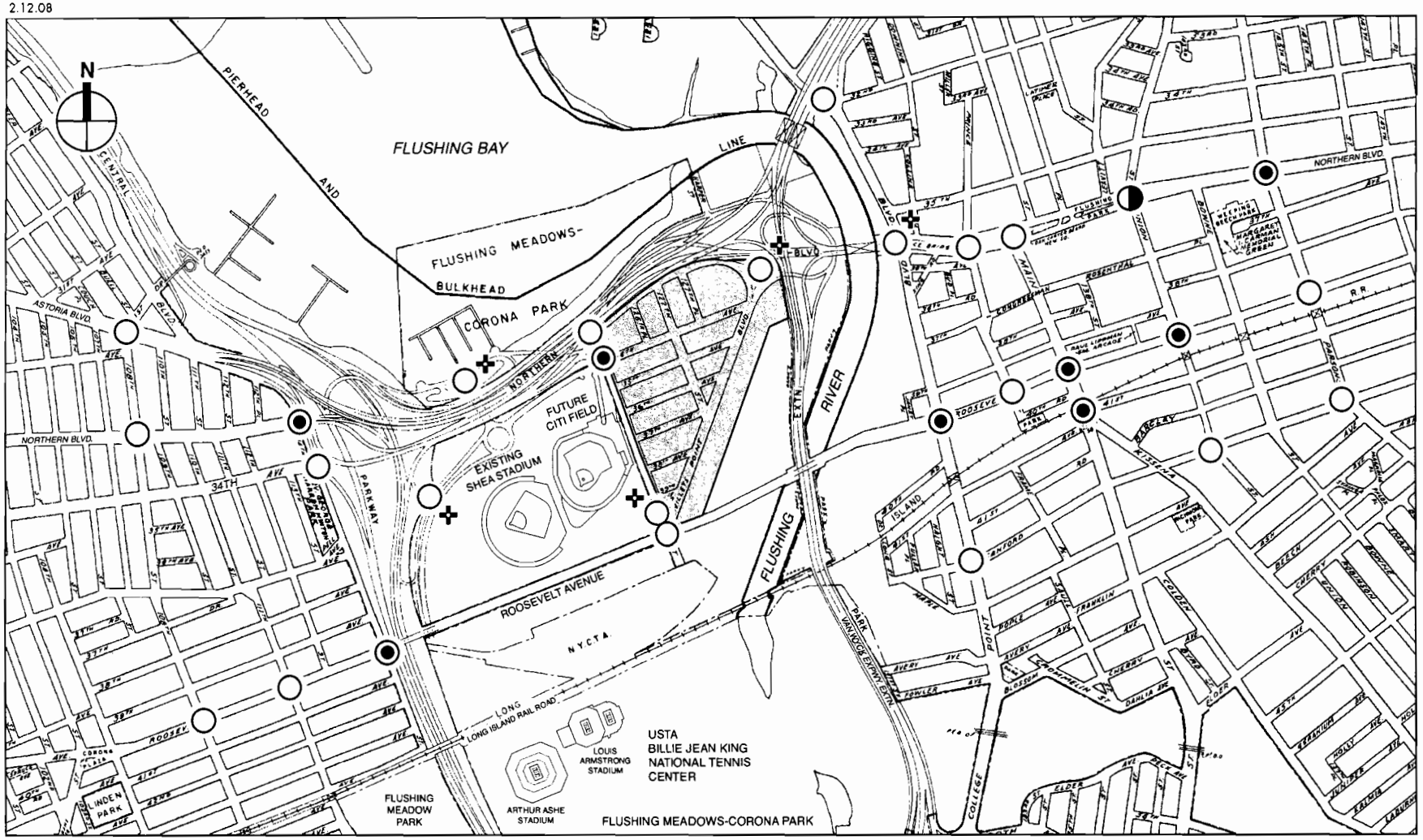
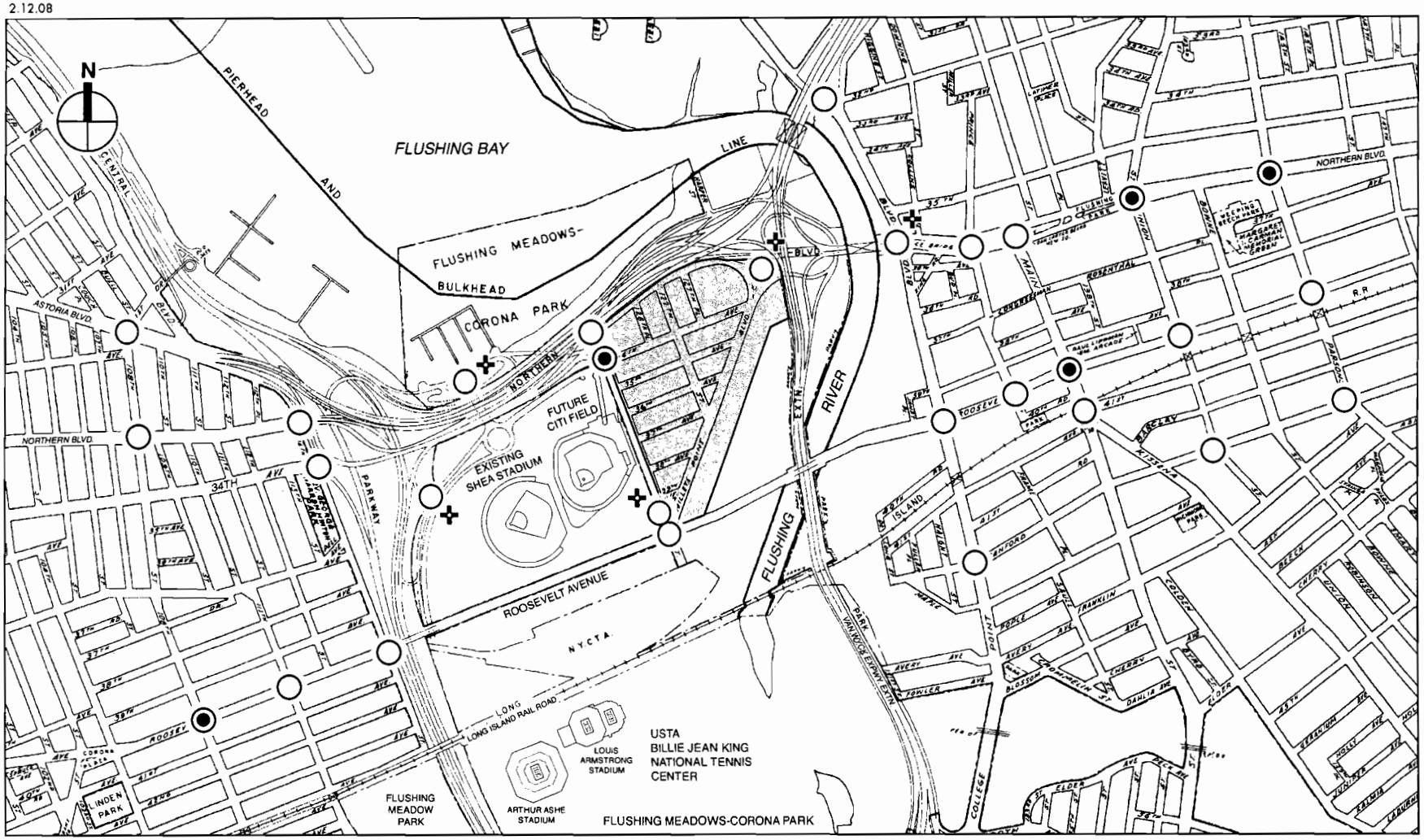


Figure 17-3
Existing Traffic Levels of Service
Weekday Non-Game AM Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

Figure 17-4

Existing Traffic Levels of Service
Weekday Non-Game Midday Peak Hour

Table 17-2
Existing Overall Intersection Level of Service Summary

Signalized Intersections (24 Total)	Non-Game Day				Game Day		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Overall Intersection LOS A/B/C	15	19	16	12	10	10	12
Overall Intersection LOS D	8	5	6	10	9	14	9
Overall Intersection LOS E	1	0	2	2	5	0	0
Overall Intersection LOS F	0	0	0	0	0	0	3

Note: During the non game and weekday pre-game peak hours, all 5 unsignalized intersections operate at overall LOS A/B or C; during the weekend pre-game peak hour, the Grand Central Parkway ramp at West Park Loop/Stadium Road operates at overall LOS E; during the weekend post-game peak period, Boat Basin Road at World's Fair Marina operates at overall LOS F.

Table 17-3
Existing Traffic Lane Group Level of Service Summary

Signalized Lane Groups (Approx. 120 Total)	Non-Game Day				Game Day		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Number of Lane Groups at LOS A/B/C	59	82	63	58	56	63	70
Number of Lane Groups at LOS D	38	25	31	34	29	32	20
Number of Lane Groups at LOS E	15	10	21	20	26	20	14
Number of Lane Groups at LOS F	7	2	4	9	11	7	18

Note: During the non game and weekday pre-game peak hours, all unsignalized lane groups operate at LOS A, B, C or D; during the weekend pre-game peak hour, eastbound left turns from Grand Central Parkway ramp onto West Park Loop/Stadium Road operate at LOS F; during the weekend post-game peak period, northbound left turns from Boat Basin Road onto World's Fair Marina operate at LOS F, and the westbound approach of the Northern Boulevard Service Road at College Point Boulevard operates at LOS E.

- The non-game weekday PM peak hour has two intersections that operate at overall unacceptable LOS E, and six others that operate at overall LOS D. Twenty-five lane groups have overall unacceptable LOS E or F conditions. Figure 17-5 illustrates overall levels of service.
- In the non-game Saturday midday peak hour, two of the signalized intersections operate at overall unacceptable LOS E, and 10 others operate at overall LOS D. Twenty-nine lane groups operate at LOS E or F. Figure 17-6 illustrates overall levels of service.
- In the pre-game weekday PM arrival peak hour, five of the signalized intersections operate at overall unacceptable LOS E, and nine others operate at overall LOS D. Thirty-seven lane groups operate at LOS E or F. Figure 17-7 illustrates overall levels of service.
- In the pre-game Saturday midday arrival peak hour, none of the signalized intersections operate at overall unacceptable LOS E or F; 14 signalized intersections operate at overall LOS D. Twenty-seven lane groups operate at LOS E or F. Figure 17-8 illustrates overall levels of service.

- In the post-game Saturday weekend PM departure peak hour, three of the signalized intersections operate at overall unacceptable LOS E, and nine others operate at overall LOS D. Thirty-two lane groups operate at LOS E or F. Figure 17-9 illustrates overall levels of service.
- Generally, the five unsignalized intersections operate at overall acceptable levels of service during the four non-game peak hours and the weekday PM pre-game condition. However, during the weekend pre-game arrival peak, one intersection, the Grand Central Parkway ramp at West Park Loop/Stadium Road, operates at overall unacceptable LOS E, with one lane group at LOS F. During the weekend post-game departure peak, one intersection, Boat Basin Road at World's Fair Marina, operates at overall unacceptable LOS F, also with one lane group at LOS F.

A more detailed presentation of traffic volumes and levels of service by corridor are provided below. (Details of the levels of service analyses for each traffic lane group at each of the intersections analyzed appear in Tables 17-39 through 17-44 at the end of this chapter. Detailed traffic volume maps appear in Appendix E.)

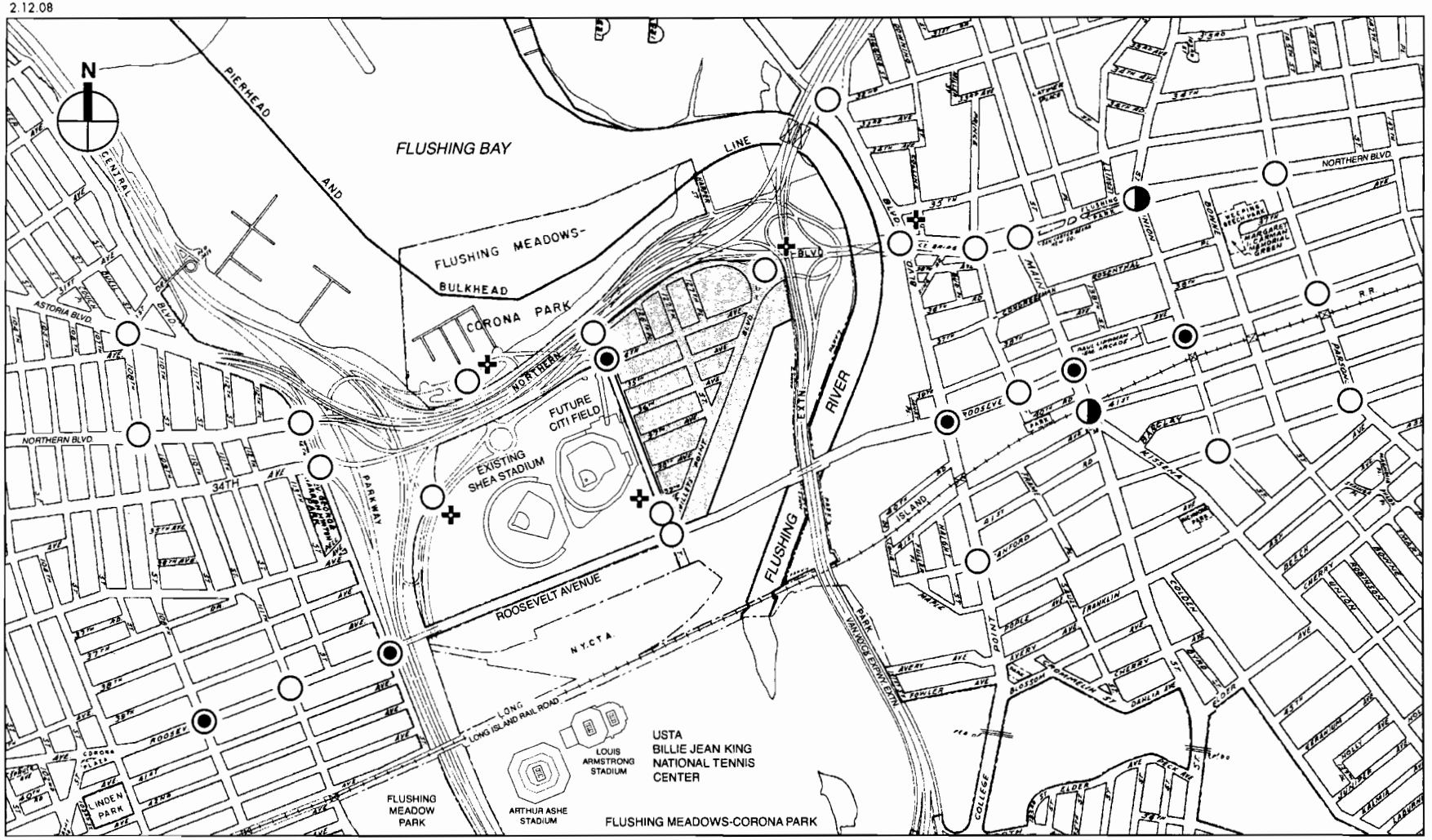
NORTHERN BOULEVARD

Through Downtown Flushing, Northern Boulevard is traveled by approximately 900–1,425 vehicles per hour (vph) in the eastbound direction and 1,700–2,475 vph in the westbound direction during the weekday AM peak hour on non-game days. Since westbound is the prevailing travel direction in the weekday AM peak hour, westbound volumes generally build through Downtown Flushing toward the ramps to the Van Wyck Expressway and the Grand Central Parkway. Adjacent to the Willets Point Development District and Shea Stadium, Northern Boulevard carries approximately 300–1,025 vph and 1,275–2,525 vph in the eastbound and westbound directions, respectively. At the intersection with 126th Street, 1,070 vph enter westbound Northern Boulevard from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway, and 615 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,025 and 2,100 vph, respectively.

During the weekday midday peak hour on non-game days, there are approximately 1,000–1,450 vph in the eastbound direction and 1,100–1,675 vph in the westbound direction on Northern Boulevard through Downtown Flushing. Northern Boulevard carries approximately 300–1,100 vph and 650–1,900 vph in the eastbound and westbound directions, respectively, adjacent to the Willets Point Development District and Shea Stadium. At the intersection with 126th Street, approximately 990 vph enter westbound Northern Boulevard from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway, and about 650 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 875 and 1,225 vph, respectively.

During the weekday PM peak hour on a non-game day, Northern Boulevard is traveled by approximately 1,425–2,125 vph in the eastbound direction and 1,075–1,575 vph in the westbound direction through Downtown Flushing. Adjacent to the Willets Point Development District and Shea Stadium, Northern Boulevard carries approximately 550–1,500 vph and 600–1,825 vph in the eastbound and westbound directions, respectively. At the intersection with 126th Street, 980 vph enter westbound Northern Boulevard from the ramp connection from the

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

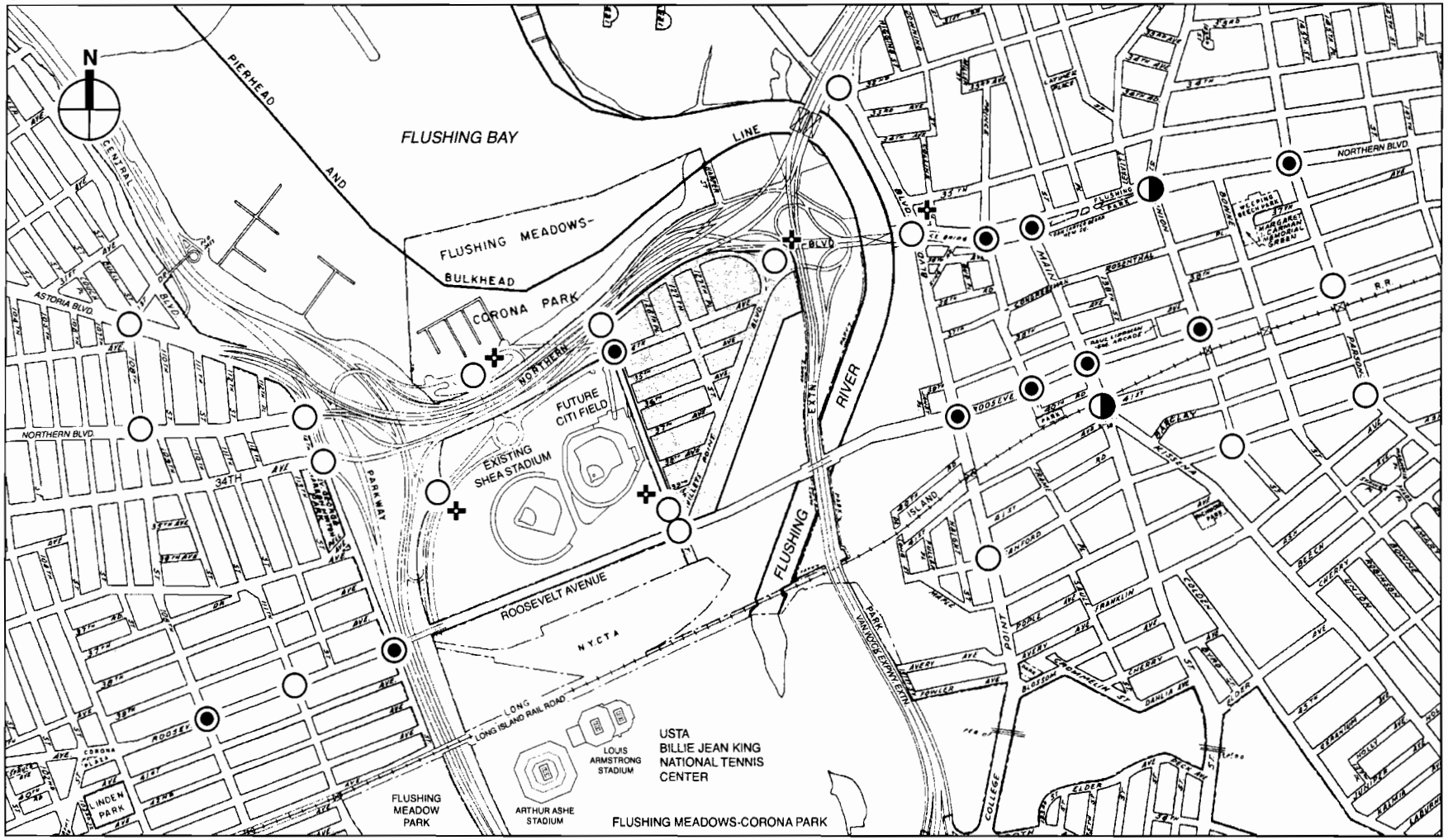
LOS F

NOTE: *Overall intersection LOS is shown*

Figure 17-5

Existing Traffic Levels of Service
Weekday Non-Game PM Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

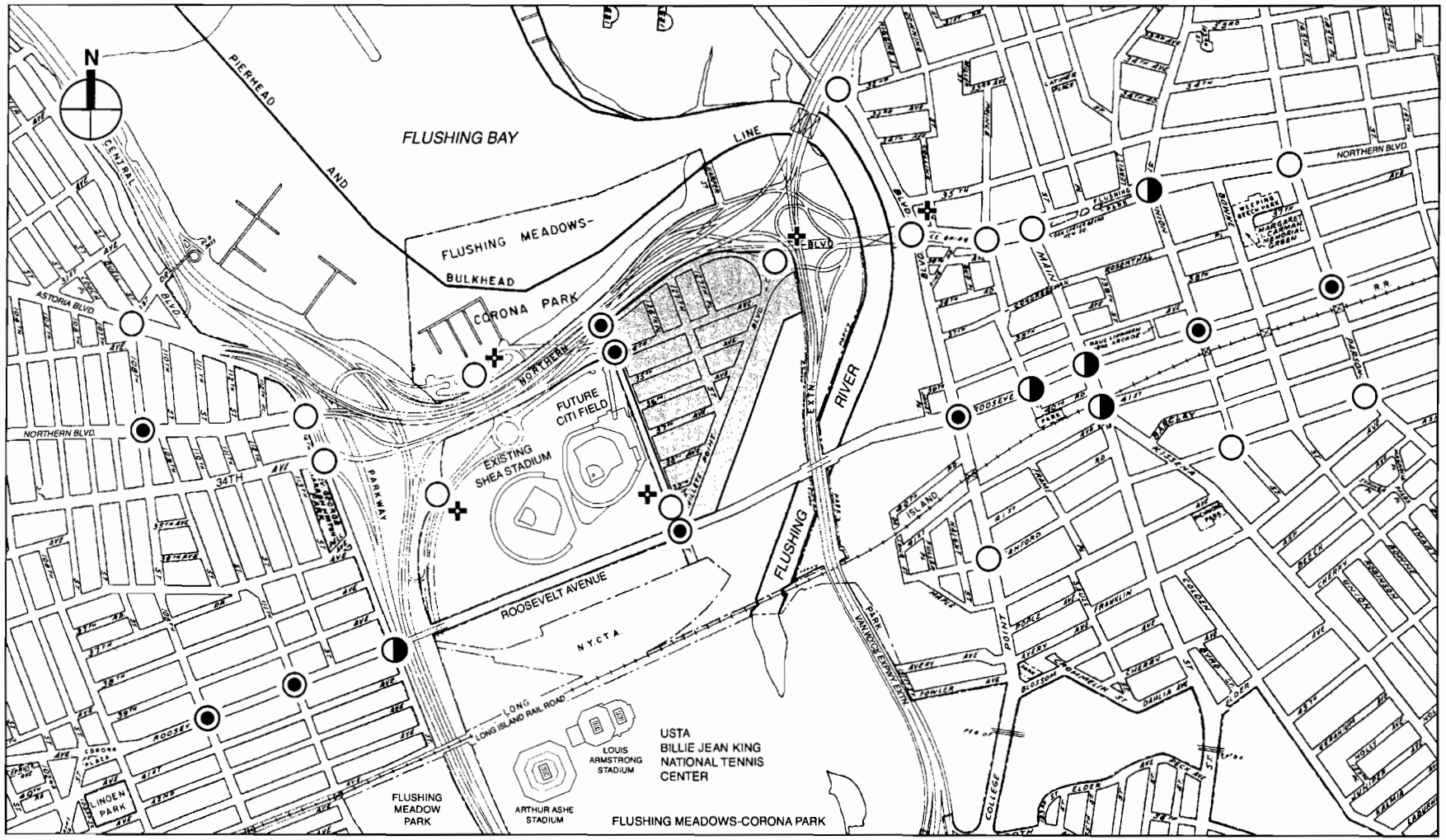
LOS F

NOTE: *Overall intersection LOS is shown*

Figure 17-6

Existing Traffic Levels of Service
Saturday Non-Game Midday Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

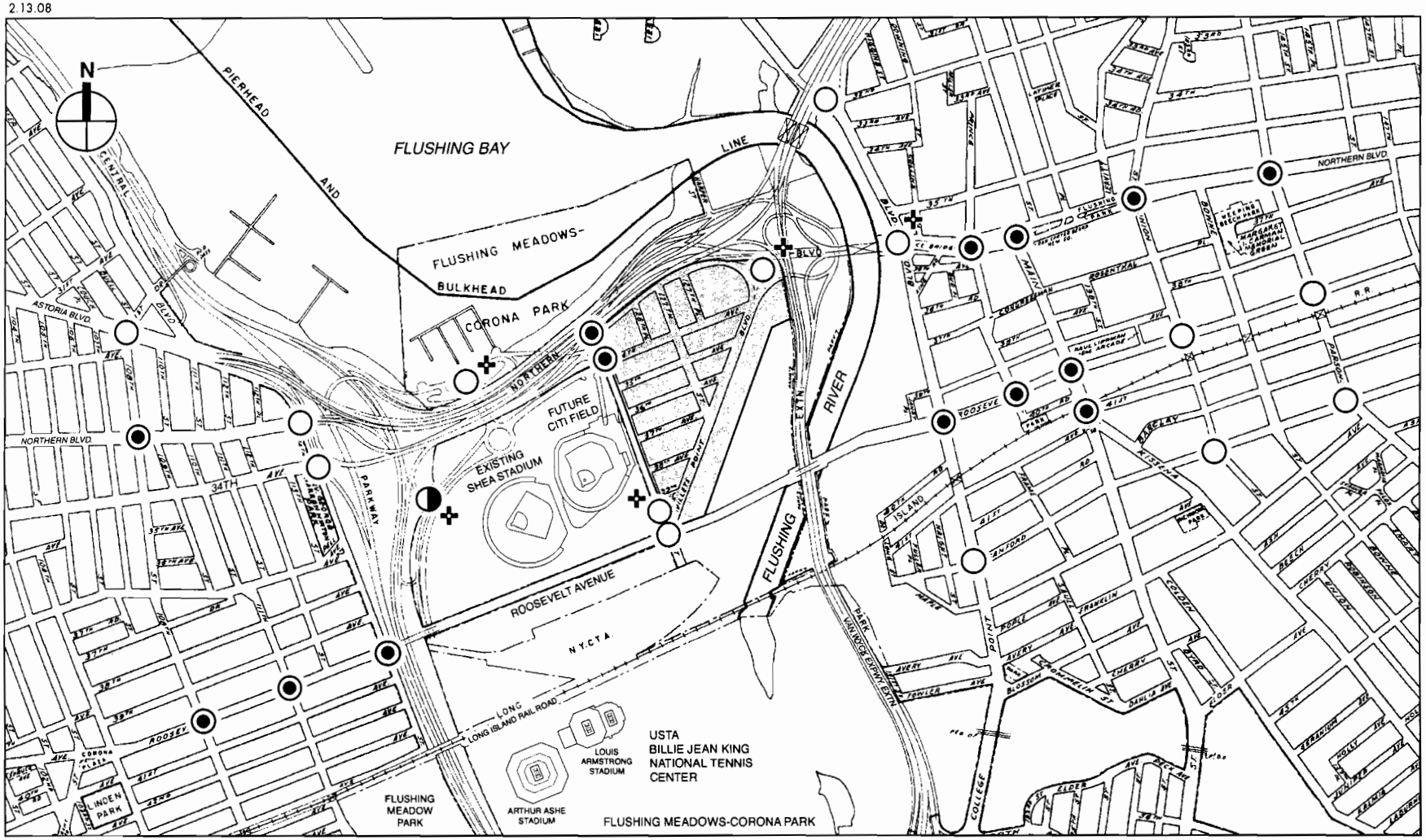
0 1000 2000 FEET

SCALE

Figure 17-7

Existing Traffic Levels of Service
Weeknight Pre-Game Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

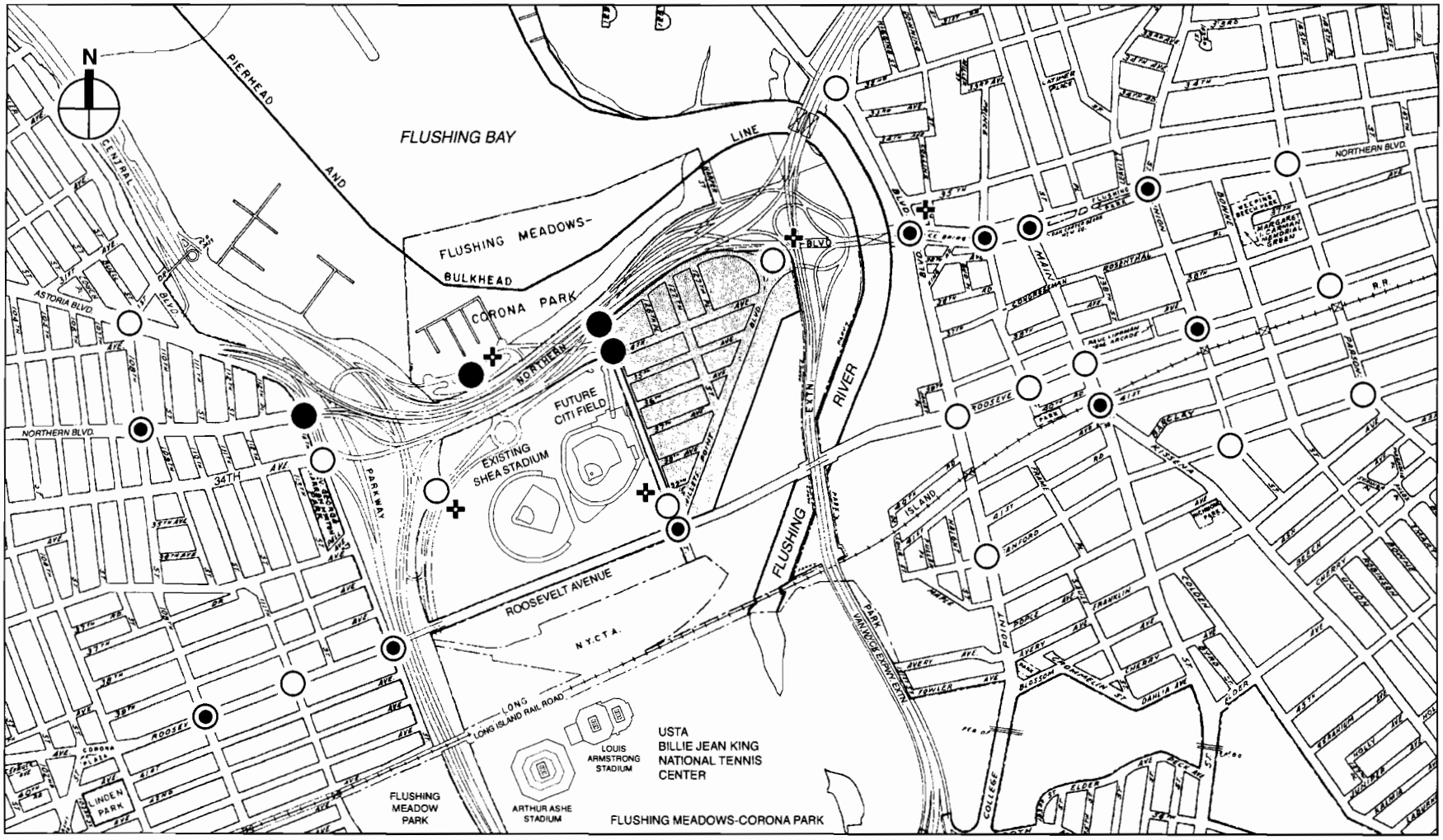
LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

Figure 17-8
Existing Traffic Levels of Service
Saturday Pre-Game Peak Hour

2.13.08



Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

SCALE

Figure 17-9

Existing Traffic Levels of Service
Saturday Post-Game Peak Hour

southbound Whitestone Expressway and northbound Van Wyck Expressway, and approximately 810 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,750 and 1,625 vph, respectively.

During the Saturday midday peak hour on a non-game day, there are approximately 975–1,750 vph in the eastbound direction and 1,325–1,945 vph in the westbound direction on Northern Boulevard through Downtown Flushing. Northern Boulevard carries approximately 325–1,225 vph and 550–1,800 vph in the eastbound and westbound directions, respectively, adjacent to the Willets Point Development District and Shea Stadium. At the intersection with 126th Street, 940 vph enter westbound Northern Boulevard from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway, and approximately 705 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,150 and 1,650 vph, respectively.

During the weekday PM pre-game arrival peak hour, eastbound volumes on Northern Boulevard are approximately 1,375–2,125 vph through Downtown Flushing, generally similar to those on non-game days. Westbound volumes are approximately 1,175–1,700 vph, higher than on non-game days, which is expected due to increased traffic toward Shea Stadium. Adjacent to the Willets Point Development District and Shea Stadium in the vicinity of 126th Street, Northern Boulevard eastbound volumes are approximately 550–1,500 vph; westbound volumes are approximately 675–2,850 vph. At the intersection with 126th Street, approximately 1,780 vph enter westbound Northern Boulevard from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway, and about 825 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. The New York City Police Department (NYPD) channelizes and operates the one-lane ramp as free-flow through the traffic signal at 126th Street so that it is able to process the heavy pre-game volume. Much of this entering traffic immediately exits Northern Boulevard onto the slip ramp to World's Fair Marina to access stadium parking lots. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,850 and 1,650 vph, respectively.

During the weekend midday pre-game arrival peak hour, there are approximately 1,050–1,725 vph in the eastbound direction and 1,325–1,850 vph in the westbound direction on Northern Boulevard through Downtown Flushing. Northern Boulevard carries approximately 350–1,525 vph and 425–2,350 vph in the eastbound and westbound directions, respectively, adjacent to the Willets Point Development District and Shea Stadium. At the intersection with 126th Street, approximately 1,580 vph enter westbound Northern Boulevard from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway, and approximately 1,030 vph enter eastbound Northern Boulevard from the Grand Central Parkway/Astoria Boulevard ramp. Again, NYPD operates the ramp similarly to the weekday PM pre-game condition, since a large portion of the entering traffic immediately exits to World's Fair Marina. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,200 and 1,725 vph, respectively.

During the weekend PM post-game departure peak hour, there are approximately 1,200–1,925 vph in the eastbound direction and 1,050–1,775 vph westbound direction on Northern Boulevard through Downtown Flushing. Northern Boulevard carries approximately 375–1,675 vph and 625–2,375 vph in the eastbound and westbound directions, respectively, adjacent to the Willets

Point Development District and Shea Stadium. The significant volume source to westbound Northern Boulevard during this time period is 126th Street, carrying about 1,150 vph of departure traffic from Shea Lots B and C, while the ramp from the Grand Central Parkway/Astoria Boulevard adds approximately 980 vph onto eastbound Northern Boulevard. Northern Boulevard eastbound and westbound volumes in the vicinity of 108th and 114th Streets are approximately 1,225 and 1,650 vph, respectively.

Traffic movements with high volumes and/or critical levels of service on Northern Boulevard during one or more analysis time period(s) include: the westbound through movement at 108th Street; the eastbound through and right turn and westbound through/left turn at 114th Street; the westbound through at 126th Street from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway; the eastbound mainline left and through movements and eastbound service road through/right at Prince Street; the eastbound through and right turn movements and the westbound left turn at Main Street; all eastbound and westbound movements at Union Street; and the westbound through/right turn movement at Parsons Boulevard. These movements can often experience significant delays, including unacceptable LOS E or F, due to heavy volumes and over-saturated conditions. The Northern Boulevard westbound left turn onto Prince Street, though a low volume, typically experiences LOS E or F conditions due to the small portion of effective green time it receives out of the long signal cycle. Importantly, the overall intersection levels of service for Northern Boulevard intersections, which are based on a weighted average of the delays for all of the traffic movements at each intersection, are greatly dependent on the delays of the high-volume eastbound and westbound through movements, even though the delays of Northern Boulevard turn movements and cross-street movements are generally worse.

For non-game day conditions, overall levels of service at intersections along Northern Boulevard between 108th Street and Prince Street are generally acceptable LOS B or C. The intersection of Northern Boulevard at 114th Street operates at overall marginally acceptable LOS D during the weekday AM peak hour. Overall, Northern Boulevard at its intersections with Main Street and Prince Street generally operates at acceptable LOS C, except for the Saturday midday peak hour, when it operates at marginally unacceptable LOS D (delays above mid-D). Northern Boulevard at Union Street is a critical intersection along the corridor, typically at capacity and consistently operating at overall LOS D or unacceptable LOS E. Northern Boulevard at Parsons Boulevard operates at overall LOS C or marginally acceptable LOS D (delays below mid-D).

For game-day conditions, the intersection of Northern Boulevard and 114th Street is critical during the weekend PM post-game peak hour, when eastbound right turns and westbound left turns (onto southbound 114th Street toward the Grand Central Parkway westbound on-ramp) are prohibited by NYPD for approximately 15 minutes, to limit the volume of traffic entering the eastbound Grand Central Parkway from the ramp at 34th Avenue. Those movements, as well as the westbound through movement and the overall intersection, are at unacceptable LOS F during that peak hour. At the intersection of Northern Boulevard and 126th Street, NYPD free-flow operation of the westbound through movement from the ramp connection from the southbound Whitestone Expressway and northbound Van Wyck Expressway during pre-game periods generally helps process traffic from the ramp even though it is still at or over capacity and at unacceptable LOS F. Due to NYPD demand management, the intersection operates at overall LOS D during the pre-game peak hours; however, during the weekend post-game departure peak hour, heavy demand on all approaches, especially 126th Street, cause unacceptable overall LOS F operation. The remaining Northern Boulevard intersections operate at overall LOS C or marginally acceptable LOS D (delays below mid-D) during the three game-day peak hours,

except for Northern Boulevard at Union Street, which operates at unacceptable overall LOS E during the weekday PM pre-game period and marginally unacceptable LOS D (delays above mid-D) during the weekend pre- and post-game conditions, and Northern Boulevard at Parsons Boulevard, which operates at marginally unacceptable LOS D in the weekend pre-game peak hour.

ROOSEVELT AVENUE

Through Downtown Flushing, Roosevelt Avenue is traveled by approximately 150–600 vph in the eastbound direction and 175–475 vph in the westbound direction during the non-game day peak hours. The highest eastbound volumes through the downtown area occur approaching Prince Street, while the highest westbound volumes are at the intersections with Union Street and Prince Street. Adjacent to the Willets Point Development District and Shea Stadium, in the vicinity of 126th Street to 114th Street, eastbound volumes on Roosevelt Avenue are approximately 500–850 vph, while the westbound flow is approximately 450–700 vph for non-game day conditions. Between 108th and 114th Streets, volumes are approximately 300–400 vph eastbound and 350–600 vph westbound.

Similar to the non-game conditions, during the game-day peak hours, there are approximately 150–575 vph and 175–400 vph traveling eastbound and westbound, respectively, on Roosevelt Avenue through Downtown Flushing. Adjacent to the Willets Point Development District and Shea Stadium, in the vicinity of 126th Street to 114th Street, eastbound volumes on Roosevelt Avenue are approximately 650–900 vph, while westbound volumes are approximately 700–1,000 vph for the pre-game conditions. Weekend post-game volumes along the same section of Roosevelt Avenue are approximately 450–625 vph eastbound and 375–825 vph westbound. Also during the weekend PM post-game departure peak hour, there are up to 875 vph on eastbound Roosevelt Avenue approaching College Point Boulevard, much of this as departing game traffic. Between 108th and 114th Streets, volumes are approximately 450–600 vph eastbound and 400–575 vph westbound during pre-game peak hours, and approximately 375–425 vph eastbound and 475–625 vph westbound during the post-game peak hour.

For non-game conditions, overall intersection levels of service along Roosevelt Avenue are generally acceptable LOS C or marginally acceptable LOS D (delays below mid-D). During the Saturday midday peak hour, Roosevelt Avenue at 108th Street and at Prince Street operates at marginally unacceptable LOS D (delays above mid-D). The intersection of Roosevelt Avenue and 114th Street operates at marginally unacceptable LOS D during the weekday PM peak hour. The intersection at Main Street operates at an overall marginally unacceptable LOS D during the weekday PM and Saturday midday peak hours. Traffic conditions on Roosevelt Avenue through Main Street tend to be the most problematic along the corridor due to the heavy bus and pedestrian activity at the intersection, which is the nexus of Downtown Flushing's inter-modal transportation hub. The eastbound and westbound Roosevelt Avenue approaches operate at marginally acceptable LOS D or unacceptable LOS E during all analysis periods.

Overall levels of service during the weekday PM pre-game peak hour conditions along Roosevelt Avenue include marginally unacceptable LOS D at 108th Street and College Point Boulevard, and unacceptable LOS E at 114th Street, Prince Street and Main Street. Overall levels of service during the weekend midday pre-game peak hour are generally acceptable LOS C and marginally acceptable LOS D with the exception of Roosevelt Avenue at Main Street which operates at marginally unacceptable LOS D. In order to manage increased traffic demand to Shea Stadium during the pre-game arrival peak hours, NYPD manages the intersection of

Roosevelt Avenue and 126th Street by adjusting the effective green times, with preference to the eastbound left-turn movement toward the parking north of Shea Stadium and the southbound right-turn movement toward Casey Stengel Plaza/Shea A Lot.

During the weekend post-game peak hour, NYPD continues to manage the Roosevelt Avenue/126th Street intersection, especially to process the eastbound through and southbound left turn movements carrying traffic out of the South Lot and Lot D (south side of Roosevelt Avenue) and the south portion of Lot B (on the corner of Roosevelt Avenue and 126th Street), respectively. NYPD also closes the Roosevelt Avenue eastbound through movement at 114th Street for approximately 15 minutes at the beginning of the departure peak hour to better control volumes toward the 126th Street intersection. Overall, the post-game demand management along Roosevelt Avenue adjacent to the District and Shea Stadium is effective, with intersections operating at acceptable LOS C or marginally acceptable LOS D; however, the intersections of Roosevelt Avenue at 108th and 114th Streets both are at marginally unacceptable LOS D. Concurrently, the Roosevelt Avenue intersections through Downtown Flushing generally operate at overall acceptable LOS C and marginally acceptable LOS D.

KISSENA BOULEVARD

Kissena Boulevard is traveled by approximately 350–500 vph northbound toward Main Street and 250–350 vph southbound during the non-game analysis peak hours. Volumes during the game conditions are similar, with approximately 450–475 vph northbound and 275–350 vph southbound. Kissena Boulevard also carries significant bus traffic along seven bus routes to and from Main Street, with up to approximately 60 buses per hour per direction.

The intersection of Kissena Boulevard and Main Street operates at marginally unacceptable LOS D (delays above mid-D) or unacceptable LOS E during the weekday AM and PM and Saturday midday non-game peak hours and the pre-game peak hours. Similar to other intersections along Main Street, the terminus of Kissena Boulevard at Main Street experiences recurring congestion and delays due to bus activity, significant pedestrian crossing volumes and conflicts with turning vehicles, spillback from Roosevelt Avenue and 40th Road one block to the north, and geometric constraints, including the downstream narrowing of Main Street under the LIRR trestle. The Kissena Boulevard approach at Main Street typically operates at unacceptable LOS E or F during all analysis periods, both for non-game and game conditions, except for the weekday midday peak hour, when it operates at acceptable LOS C.

SANFORD AVENUE

Analysis locations along Sanford Avenue are located within Downtown Flushing, where traffic volumes are approximately 150–300 vph in the eastbound direction and 225–600 vph in the westbound direction during the non-game day peak hours. During the game-day peak hours, there are approximately 200–375 vph and 325–550 vph traveling eastbound and westbound, respectively, on Sanford Avenue through Downtown Flushing. During all of the analysis peak hours, the three intersections analyzed along Sanford Avenue operate at overall acceptable LOS B or C.

34TH AVENUE

As stated previously, 34th Avenue is discontinuous within the study area between 114th and 126th Streets. East of 126th Street, through the Willets Point Development District, 34th Avenue is traveled by only approximately 50–150 vph in each direction during non-game conditions.

During game-day conditions, traffic to and from 34th Avenue is limited due to NYPD control and turn prohibitions at the intersection with 126th Street and, as a result, volumes are approximately 5–75 vph in each direction. West of 114th Street, 34th Avenue serves as an access route to the Grand Central Parkway westbound on-ramp, where it carries approximately 300–450 vph eastbound and 50–175 vph westbound during non-game peak hours. Weekday PM and weekend midday pre-game peak hour volumes are approximately 400–450 vph eastbound and 100–115 vph westbound. However, the post-game closure by NYPD (for approximately 15 to 20 minutes) of the 34th Avenue eastbound approach, including the through movement onto the Grand Central Parkway, as well as 114th Street southbound from Northern Boulevard, reduces the traffic flows along 34th Avenue. Volumes are approximately 300 vph eastbound and 75 vph westbound at that time.

Non-game levels of service for both 34th Avenue analysis locations are overall acceptable LOS B or C and marginally acceptable LOS D. However, during the Saturday midday non-game peak hour, the intersection at 126th Street operates at marginally unacceptable LOS D. During pre-game conditions, NYPD manages the intersection of 34th Avenue at 126th Street and Stadium Road, including the at-grade ramp from Northern Boulevard and the elevated access ramp from the Grand Central Parkway/Astoria Boulevard. NYPD management includes: (1) deactivation of the traffic signal; (2) traffic cone/barrier channelization of the northbound and southbound approaches; (3) free-flow operation of the ramps and eastbound (West Park Loop/Stadium Road) right turns; and (4) prohibition of all left turns and the eastbound/westbound through movements. The intersection operates at marginally acceptable LOS D for both weekday PM and weekend midday pre-game peak hours. Concurrently, the intersection of 34th Avenue and 114th Street operates at overall acceptable LOS B or C.

During the weekend post-game peak hour, NYPD traffic management includes: (1) the reversal of a 126th Street southbound lane in order to operate three northbound moving lanes on 126th Street from the Shea B Lot north exit; (2) closure of the ramps to the 126th Street/34th Avenue intersection from the Grand Central Parkway/Astoria Boulevard and Northern Boulevard; (3) closure of the westbound left turn movement and the eastbound approach for the first 45 minutes of the peak hour; and (4) manual signal modification to extend the effective green time of northbound 126th Street. The intersection operates at overall unacceptable LOS F, primarily due to the heavy surge of traffic out of the parking lot onto northbound 126th Street as well as the extended delays experienced on the cross-streets. Concurrently, the intersection of 34th Avenue and 114th Street also operates under NYPD control for the first 15 to 20 minutes of the peak hour, including closure of the southbound and eastbound approaches in order to promote uninterrupted flow of the northbound (yield-controlled) right-turn movement onto the Grand Central Parkway westbound ramp. The intersection operates at overall LOS C during the weekend PM post-game peak hour, since delays are generally low until the southbound and eastbound approaches are re-opened.

ASTORIA BOULEVARD

Similar to Northern Boulevard, the prevailing weekday AM traffic on Astoria Boulevard is in the westbound direction, and reversed in the weekday PM. Through the neighborhood of North Corona on the west side of the study area on a typical non-game day, eastbound Astoria Boulevard carries approximately 980 vph during the AM peak hour, which increases to approximately 1,860 vph during the PM peak hour. Conversely, the westbound direction carries approximately 2,350 vph during the AM peak hour, which decreases to approximately 1,050 vph during the PM peak hour. The weekday midday and Saturday midday traffic volumes range from

800–850 vph eastbound and 700–750 westbound. Weeknight pre-game peak hour volumes on Astoria Boulevard are approximately 2,200 vph eastbound and 1,060 vph westbound. Weekend pre- and post-game peak hours volumes range from approximately 875–925 vph eastbound and 700–925 vph westbound. The analyzed intersection at 108th Street operates at overall LOS B or C during all the analysis periods.

WEST PARK LOOP/STADIUM ROAD

West Park Loop/Stadium Road carries low to moderate volumes during non-game conditions, with approximately 50–350 vph during weekday peak hours and 75–200 vph during the Saturday midday peak hour. The roadway experiences a substantial increase in traffic during game conditions due to access from the Grand Central Parkway westbound ramps. Game traffic uses West Park Loop/Stadium road to access Shea Lots A, B, and C; the Whitestone lots (Stadium View lots) adjacent to Boat Basin Road; and the Grand Central Parkway grass berm lot (the "Pork Chop"). Weekday pre-game arrival volumes are approximately 125–675 vph, while weekend pre-game volumes are approximately 275–650 vph. A large portion of post-game traffic travels westbound along West Park Loop/Stadium Road—from the north exits of the main Shea Stadium lots and the other parking lots north of Shea Stadium—toward the Grand Central Parkway on-ramp. Westbound volumes are as high as 1,175 vph approaching the on-ramp toward the westbound Grand Central Parkway ramp toward eastbound Northern Boulevard and the northbound Whitestone Expressway during the weekend post-game departure peak hour, while eastbound volumes are much lower, approximately 125–200 vph. Importantly, due to NYPD control on 126th Street during the post-game condition. The West Park Loop/Stadium Road eastbound approach at the 126th Street is closed for approximately 45 minutes.

The analyzed unsignalized intersection at West Park Loop/Stadium Road and the Grand Central Parkway westbound on- and off-ramps operates at overall acceptable LOS A during all the non-game peak hours. During pre-game conditions, NYPD typically deploys an officer to process the eastbound approach from the Grand Central Parkway, by occasionally stopping the major through movements on West Park Loop/Stadium Road. During the weekday PM pre-game peak hour, the intersection operates at overall acceptable LOS B; however, increased through traffic during the weekend midday pre-game peak hour results in unacceptable LOS E conditions for the intersection, since the eastbound left turn movement operates at LOS F at that time. Furthermore, if the eastbound queues along West Park Loop/Stadium Road spill back to this intersection from the parking lot entrances near the downstream traffic circle, NYPD prohibits eastbound left turns and only allows right turns until the queues clear into the lots. During the weekend PM post-game peak hour, the intersection operates at overall acceptable LOS B, since the heaviest traffic movement is the major right turn onto the Grand Central Parkway on-ramp.

COLLEGE POINT BOULEVARD

Along the western boundary of Downtown Flushing between Sanford Avenue and Roosevelt Avenue, College Point Boulevard carries approximately 800–1,175 vph northbound and 750–1,000 vph southbound, during the non-game peak hours. Through Northern Boulevard, College Point Boulevard is traveled by approximately 600–850 vph in both the northbound and southbound directions, during the non-game peak hours. During weeknight and weekend pre-game conditions, College Point Boulevard between Sanford Avenue and Roosevelt Avenue is traveled by approximately 1,150–1,350 vph northbound and 900–1,100 vph southbound. Along the same section of College Point Boulevard during the weekend post-game peak hour, there are approximately 925–975 vph and 1,025–1,100 vph northbound and southbound, respectively.

Through Northern Boulevard, College Point Boulevard is traveled by approximately 750–900 vph northbound and 575–775 vph southbound, during the game-day peak hours.

Overall levels of service along College Point Boulevard are generally acceptable, ranging from LOS B to marginally acceptable LOS D (delays below mid-D), except for the intersection of College Point Boulevard and Roosevelt Avenue which operates at marginally unacceptable LOS D during the weekday pre-game peak hour. Specifically during pre-game conditions, the College Point Boulevard northbound left turn at Roosevelt Avenue is congested and operates at unacceptable LOS E or F, due to increased traffic toward Shea Stadium. The College Point Boulevard northbound left turn also operates at unacceptable LOS F during the weekday morning non-game peak hour. The intersection of College Point Boulevard and 32nd Avenue at the Whitestone Expressway service road operates at overall acceptable LOS B or C during all analysis periods.

MAIN STREET

Main Street carries approximately 475–775 vph northbound and 575–750 vph southbound, during the non-game peak hours. During game conditions, Main Street is traveled by approximately 600–750 vph northbound and 625–775 vph southbound. Between Kissena Boulevard and Northern Boulevard, Main Street also supports up to 14 bus lines, with volumes as high as approximately 80 buses per hour northbound and 70 buses per hour southbound.

The volume of buses and turn conflicts between vehicles and pedestrians, in concert with general traffic volumes, cause slow travel speeds and moderate to high delays at many intersections along Main Street, particularly during weekday PM and Saturday midday peak hours, both for non-game and pre-game conditions. Furthermore, because northbound Main Street terminates at Northern Boulevard, there are heavy volumes for both the left turn and right turn movements, which generally operate at LOS D or unacceptable LOS E during non-game and game conditions. Other critical movements along Main Street that operate at LOS E include: the northbound left turn movement onto 41st Avenue during the weekday PM and Saturday midday for non-game and pre-game conditions; the southbound left turn movement onto Kissena Boulevard during the weekday PM non-game and pre-game and the Saturday midday non-game peak hours; and the Main Street southbound approach at Roosevelt Avenue during the non-game Saturday midday peak hour.

UNION STREET

Northbound volumes on Union Street are lower between Sanford Avenue and Roosevelt Avenue (approximately 125–425 vph) than between Roosevelt Avenue and Northern Boulevard (approximately 475–625 vph) due mainly to right turn and left turn traffic from eastbound and westbound Roosevelt Avenue, respectively. In the southbound direction, Union Street is traveled by approximately 375–675 vph, with the highest volumes typically between Northern Boulevard and Roosevelt Avenue. During game conditions, Union Street northbound volumes are similar to non-game conditions, ranging between approximately 125–625 vph, while southbound volumes range between 500–615 vph. Union Street also carries bus traffic for a number of transit routes, with up to approximately 40 buses per hour northbound and 55 buses per hour southbound.

The Union Street approaches at Northern Boulevard experience recurring conditions with unacceptable LOS D, E or F. Union Street southbound operates at LOS E during all of the analysis periods, except for the weekend PM post-game peak hour. The northbound approach

has at least one movement operating at LOS E or F during all of the analysis peak hours, except for the weekday midday peak hour.

PARSONS BOULEVARD

Through eastern Downtown Flushing, Parsons Boulevard is traveled by approximately 250–400 vph northbound and 275–425 vph southbound, during the non-game peak hours. Game-day peak hour volume ranges are similar, with approximately 275–450 vph northbound and 250–475 vph southbound. Parsons Boulevard typically has acceptable levels of service at the intersections analyzed, except for its northbound and southbound approaches at Northern Boulevard, where it consistently operates at unacceptable LOS E or F.

108TH STREET

108th Street carries approximately 175–300 vph in the northbound direction and 200–425 vph in the southbound direction during the non-game peak hours. During game conditions, 108th Street is traveled by approximately 250–300 vph northbound and 250–450 vph southbound. Southbound 108th Street at Roosevelt Avenue typically operates at unacceptable LOS E or F during all analysis peak hours, as does northbound 108th Street, except during the non game weekday AM and PM peak hours when it operates at marginally unacceptable LOS D. The northbound 108th Street approach at Northern Boulevard generally operates at LOS E and F during all analysis peak hours. The southbound 108th Street approach operates better at Northern Boulevard, but also experiences unacceptable LOS E and F conditions during the weekday PM non-game peak hour and the game-day peak hours with the exception of the weekend pre-game which operates at marginally unacceptable LOS D.

PRINCE STREET

During the non-game peak hours, Prince Street volumes are approximately 200–325 vph northbound and 175–350 vph southbound with the majority of southbound traffic at Northern Boulevard turning onto the westbound Northern Boulevard viaduct, similar to non-game conditions. During game conditions, Prince Street is traveled by approximately 225–300 vph northbound and 200–300 vph southbound. Northbound Prince Street at Northern Boulevard consistently operates at unacceptable LOS E or F during all analysis peak hours, while the southbound approach operates at marginally acceptable LOS D on Saturdays and marginally unacceptable LOS D on weekdays, except for the non-game weekday AM peak hour, when it also operates at LOS E. Prince Street at Roosevelt Avenue operates at LOS E during the non-game Saturday midday and the weekday PM pre-game and weekend midday pre-game peak hours.

111TH STREET

During all analysis peak hours, 111th Street northbound approaching Roosevelt Avenue is traveled by approximately 175–315 vph, experiencing its highest volume during the weekday PM pre-game arrival peak hour. Northbound 111th Street, which is the only approach to Roosevelt Avenue, since the street is one-way, operates at marginally unacceptable LOS D during the non-game conditions and at unacceptable LOS E during game peak hours.

114TH STREET

Northbound volumes on 114th Street are approximately 175–350 vph during the non-game analysis peak hours. There is heavy northbound right turn traffic at Roosevelt Avenue, and all northbound traffic approaching 34th Avenue turns onto the Grand Central Parkway on-ramp since the roadway becomes one-way southbound between that intersection and the intersection at Northern Boulevard. Northbound 114th Street volumes entering the Grand Central Parkway range between 200–325 vph for non-game conditions. In the southbound direction, volumes along 114th Street vary greatly due to the Grand Central Parkway on-ramp. During the non-game peak hours, southbound traffic approaching 34th Avenue is approximately 500–700 vph, but downstream, approaching Roosevelt Avenue, volumes are 150–250 vph.

Pre-game volumes on 114th Street northbound are approximately 300–325 vph, and southbound volumes approaching 34th Avenue range between 650–815 vph. Approaching Roosevelt Avenue, volumes are approximately 200–300 vph, which are higher than non-game conditions due to increased left turns toward Shea Stadium. During the weekend PM post-game peak hour, 114th Street southbound is closed from Northern Boulevard to 34th Avenue, in order process the northbound yield-controlled right turn volume (approximately 510 vph) onto the Grand Central Parkway. Southbound traffic from Northern Boulevard is about 425 vph once the roadway is open, and about 200 vph downstream approaching Roosevelt Avenue.

Northbound 114th Street at Roosevelt Avenue operates at unacceptable LOS E or F during all analysis periods, except for the weekday midday peak hour, when it is at marginally unacceptable LOS D. The southbound 114th Street left turn movement at Roosevelt Avenue is at marginally unacceptable LOS D or unacceptable LOS F during non-game conditions, and consistently experiences LOS E or F conditions during game analysis periods.

PARKING

OFF-STREET PARKING

An inventory of public parking lots within the area generally bounded by College Point Boulevard, West Park Loop/Stadium Road, and the Grand Central Parkway north of Flushing Meadows-Corona Park and south of Flushing Bay, shown in Tables 17-4 and 17-5, was conducted along with hourly parking facility occupancy surveys during the periods of 7:00 AM–10:00 AM, 11:00 AM–2:00 PM, and 4:00 PM–7:00 PM on a typical weekday (September 13, 2006), and 11:00 AM-2:00 PM on Saturday without a Mets home game (July 21, 2007). For periods with a Mets home game, parking surveys were conducted from 4:30 PM–7:30 PM (on September 19, 2006) for the weekday PM pre-game arrival period and from 11:00 AM–2:00 PM and 3:30 PM–6:30 PM (on July 15, 2007) for the weekend pre- and post-game periods (see Tables 17-6 and 17-7). This study area constitutes a region within approximately ¼ mile from the boundary of the Willets Point development district. However, none of the parking lots surveyed directly abut the Willets Point Development District, and some, such as the Marina West lot and especially Municipal Lot No. 4, are at significant walking distances from the District.

Table 17-4
Hourly Parking Occupancy by Percentage of Spaces Occupied per Facility
Off-Street Parking Survey – Weekday Non-Game Day

Parking Facility	Capacity	7-8 AM	8-9 AM	9-10 AM	11AM -12PM	12-1 PM	1-2 PM	4-5 PM	5-6 PM	6-7 PM
South Lot and Lot D	1,556	25%	33%	40%	43%	38%	43%	37%	31%	20%
Marina East	590	0%	0%	1%	0%	0%	0%	1%	1%	1%
Marina West	263	2%	3%	5%	7%	6%	6%	5%	3%	4%
Boat Basin East	75	12%	19%	27%	33%	33%	33%	31%	39%	64%
Boat Basin West	75	0%	0%	0%	0%	0%	0%	0%	0%	1%
Stadium View	471	0%	0%	0%	0%	0%	0%	0%	0%	0%
Northern Blvd. Median[1]	501	7%	7%	8%	9%	9%	9%	8%	6%	5%
Municipal Lot No. 4	53	30%	36%	92%	96%	98%	98%	94%	85%	32%
TOTAL	**3,584**	**13%**	**17%**	**21%**	**23%**	**21%**	**23%**	**20%**	**17%**	**12%**

Note: [1] Capacity includes the median between eastbound and westbound Northern Boulevard, both east and west of 126th Street.

Table 17-5
Hourly Parking Occupancy by Percentage of Spaces Occupied per Facility
Off-Street Parking Survey – Saturday Non-Game Day

Parking Facility	Capacity	11AM-12PM	12-1PM	1-2 PM
South Lot and Lot D	1,556	8%	8%	7%
Marina East	590	0%	0%	1%
Marina West	263	4%	3%	3%
Boat Basin East	75	105%	80%	57%
Boat Basin West	75	39%	36%	32%
Stadium View	471	0%	0%	0%
Northern Blvd. Median[1]	501	11%	11%	8%
Municipal Lot No. 4	53	100%	100%	100%
TOTAL	**3,584**	**10%**	**9%**	**8%**

Note: [1] Capacity includes the median between eastbound and westbound Northern Boulevard, both east and west of 126th Street.

Table 17-6
Hourly Parking Occupancy by Percentage of Spaces Occupied per Facility
Off-Street Parking Survey – Weekday Game Day

Parking Facility	Capacity	Weeknight Pre-game		
		4:30-5:30 PM	5:30-6:30 PM	6:30-7:30 PM
South Lot and Lot D	1,556	40%	35%	45%
Marina East	590	1%	1%	3%
Marina West	263	12%	16%	17%
Boat Basin East	75	111%	109%	109%
Boat Basin West	75	0%	0%	0%
Stadium View	471	2%	8%	27%
Northern Blvd. Median[1]	501	13%	24%	46%
Municipal Lot No. 4	53	81%	68%	36%
TOTAL	**3,584**	**24%**	**24%**	**34%**

Note: [1] Capacity includes the median between eastbound and westbound Northern Boulevard, both east and west of 126th Street.

Table 17-7
Hourly Parking Occupancy by Percentage of Spaces Occupied per Facility
Off-Street Parking Survey – Weekend Game Day

Parking Facility	Capacity	Weekend Pre-game			Weekend Post-game		
		11AM-12PM	12-1 PM	1-2 PM	3:30-4:30 PM	4:30-5:30 PM	5:30-6:30 PM
South Lot and Lot D	1,556	15%	96%	102%	71%	8%	1%
Marina East	590	7%	56%	104%	82%	11%	1%
Marina West	263	7%	30%	60%	78%	11%	13%
Boat Basin East	75	71%	80%	113%	105%	57%	99%
Boat Basin West	75	32%	69%	100%	83%	4%	1%
Stadium View	471	10%	68%	98%	80%	7%	1%
Northern Blvd. Median[1]	501	22%	65%	73%	65%	9%	1%
Municipal Lot No. 4	53	91%	92%	91%	75%	57%	45%
TOTAL	**3,584**	**16%**	**75%**	**95%**	**75%**	**10%**	**5%**

Note: [1] Capacity includes the median between eastbound and westbound Northern Boulevard, both east and west of 126th Street.

Overall, there is a mix of controlled and uncontrolled public parking lots as well as undesignated parking areas, including space on roadway shoulders and medians, which are typically used only during periods of high parking demand, such as during a Mets game (see Figure 17-10). The controlled lots include: the Shea Lots A-C, which serve game and official stadium parking only on both game and non-game days; South Lot and Lot D[1], which serves as a pay park-and-ride lot for commuters on typical weekdays and weekends, and is a pay lot for Shea Stadium during game periods; Marina East and Marina West, which are also pay lots for Shea Stadium during game periods but are free and uncontrolled on typical weekdays and weekends; and Stadium View (Whitestone Lot) that flanks Boat Basin Road under the elevated expressway, which is also a pay lot for Shea Stadium during game periods, but is free on non-game weekdays and weekends. Occupancy surveys of Shea Lots A-C were not conducted since they serve only official Shea Stadium and NYPD vehicles on typical weekdays and weekends, and official and attendee parking during game periods. Furthermore, a substantial portion, approximately 1,200 spaces (at the time of the September 2006 data collection) of Shea Lot B has been closed due to construction of the new Citi Field; the number of lost spaces due to the construction had increased to approximately 1,900 spaces as of July 2007.

The remaining group of lots and other off-street parking areas include: the Marina Boat Basin East and West lots; the Northern Boulevard dirt/pavement median both east and west of 126th Street, which has significant parking volumes during Mets game periods only; the Grand Central Parkway grass berm lot, which is also used only during game periods; and Municipal Lot No. 4, which is under the Northern Boulevard viaduct in Downtown Flushing. Except for the Grand Central Parkway grass berm lot (the "Pork Chop"), these parking lots are not part of Shea Stadium's pay parking facilities and, not including Municipal Lot No. 4, are only partially used during typical weekday and weekend when there is no Mets home game. Municipal Lot No. 4 is consistently utilized on both game and non game-days.

Non-Game-Day Parking

As shown in Table 17-4, there are eight surveyed parking facilities open to public use on non-game days, containing approximately 3,584 spaces. During non-game days, parking lots Shea A,

[1] South Lot and Lot D currently operate as a single surface parking lot, with common entrance/exit locations.

B, C, and the "Pork Chop" are used only for official Shea Stadium parking or are not occupied. A maximum occupancy level of about 23 percent is reached during the hours of 11:00 AM to 12:00 PM, and again between 1:00 PM to 2:00 PM, on a typical day without a Mets home game. During the AM peak hour, the primary commuter (pay) lot near the Willets Point Development District, South Lot and Lot D, has approximately 1,045 available, unoccupied spaces out of the 1,556 spaces located there, which decreases to about 889 spaces during the midday peak hour. As park-and-ride commuters return to the lot and leave with their vehicles during the PM peak hour, the number of available, unoccupied spaces increases to 1,076 spaces.

Also during the midday peak hour, parking on the dirt/pavement median of Northern Boulevard east of 126th Street—more specifically, in the vicinity of 127th Street and 127th Place—peaks at about 9 percent, an occupancy of approximately 45 vehicles. However, the median, which extends almost the entire length of the northern boundary of the Willets Point Development District, is not a designated, striped parking area.

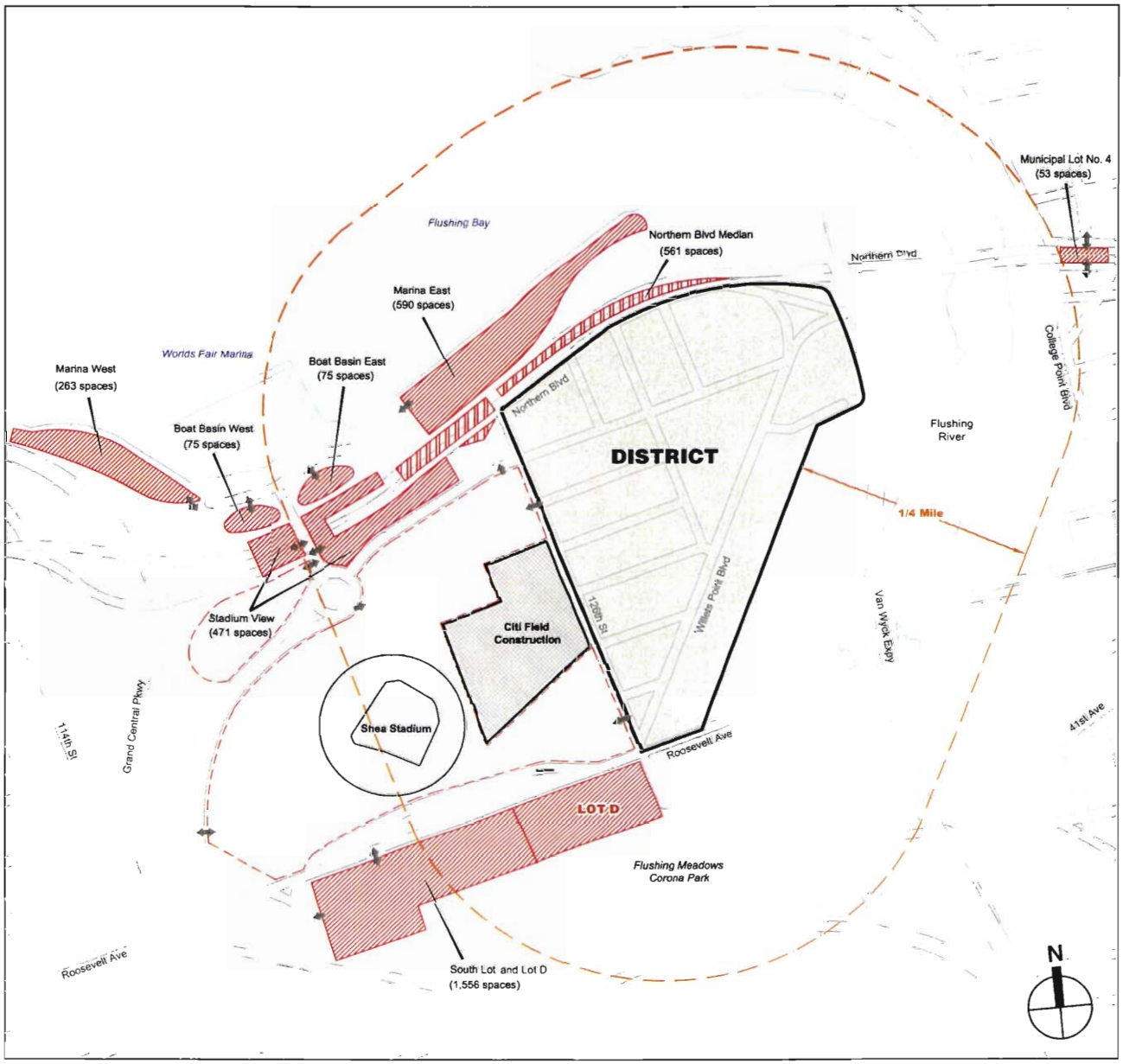
Municipal Lot No. 4 under the Northern Boulevard viaduct in Downtown Flushing, which is the farthest parking facility from the Willets Point Development District, is almost at capacity during the 1:00-2:00 PM midday peak hour and remains at or above 85 percent full through the 5:00-6:00 PM hour. Furthermore, Municipal Lot No. 4 is typically at over 90 percent of capacity between 9:00 and 10:00 AM in the morning. Examining the other more distant lots during days without a Mets home game, the two Boat Basin lots and Marina West service the club and marina visitors; however, the larger nearby lots, such as Marina East and Stadium View, which are generally utilized only during game days, are at or near zero percent occupancy.

As shown in Table 17-5, the occupancy level ranges between 8 and 10 percent between the hours of 11:00 AM and 2:00 PM on a typical Saturday without a Mets game. Therefore, during the Saturday midday peak hour, 1:00-2:00 PM, there are approximately 3,300 unoccupied spaces available within the off-street lots. Municipal Lot No. 4 is at capacity by the 11:00 AM to 12:00 PM hour, and remains full through the Saturday midday peak hour; however, South Lot and Lot D, which is not a pay lot on typical Saturdays without a Mets game, is nearly empty, with only about 109 out of 1,556 spaces occupied.

Game Day Parking

On game days, parking lots Shea A, B, C and the "Pork Chop" are used for Shea Stadium game attendance parking only. During the weekday PM hours preceding a 7:10 PM-start Mets home game, parking occupancy in the surveyed lots is approximately 34 percent. As shown in Table 17-6, from 4:30 to 7:30 PM, South Lot and Lot D experiences a transition from commuter park-and-ride occupants to Mets game attendees, which is apparent by the decrease from 40 percent to 35 percent by 6:30 PM, and the subsequent increase to 45 percent by the start of the game. Other lots, such as Stadium View, Marina East and Marina West, which are controlled for game traffic on game days only, increase in occupancy approaching the start of the game, but never reach more than about 14 percent of their combined capacity. Moreover, the available free parking on the Northern Boulevard median, which is frequently used for parking by Mets attendees, reaches approximately 46 percent of capacity, or about 230 vehicles. It should be noted that, likely due to attendance, parking fluctuations and/or availability in the main Shea Lots, Marina East was nearly unutilized during the surveyed weekday Mets game.

Table 17-7 shows off-street parking inventories preceding and following a weekend Mets game with a 1:10 PM start. South Lot and Lot D, the Marina East and Marina West lots, Stadium View, and the Northern Boulevard median area fill rapidly throughout the 12:00-1:00 PM pre-



Willets Point Development District

Construction Site

Parking Facility

Parking Median

Shea Controlled Parking

1/4 Mile Perimeter

Directional Entrance/Exit

0 200 400 1000 Feet

SCALE

This figure has been updated since the DGEIS

Figure 17-10

Parking Facilities

game peak hour, and by the 1:00-2:00 PM hour, the five lots are near or over capacity. The demand for parking in the periphery lots, both designated and undesignated, is likely due to higher attendance for a weekend game as well as the increasing loss of parking in the main Shea Lot B. Beginning in the 3:30-4:30 PM post-game hour, the lots start to empty, and overall occupancy drops from 75 percent to 10 percent. By the 5:30-6:30 PM hour, most lots are nearly vacant, except for Marina West and Boat Basin East, still servicing Marina traffic, and Municipal Lot No. 4.

ON-STREET PARKING

On-street parking inventories, which cover the area within a ¼-mile radius of the Willets Point Development District as well as some areas within the Willets Point development district, include a mix of regulated spaces and unregulated spaces, while much of the block lengths within the study area are not adequately built and maintained for any type of on-street parking. Since much of the existing roadway network within Willets Point is in general disrepair, there are few blocks with defined sidewalks, curbs, and designated on-street parking space, and much of the block lengths act as garage entrances and extensions of the abutting land uses. The small number of regulated spaces within or adjacent to the site are generally located along the south curb of eastbound Northern Boulevard (between 126th Street and Willets Point Boulevard) and along 126th Street. The remaining block space that can facilitate on-street parking is not regulated, such as along partial sections of 126th Place, 127th Street, 127th Place, and Willets Point Boulevard, near Northern Boulevard, and along one block of 34th Avenue.

Overall, within the area surveyed, there are approximately 230–270 legal spaces available on-street (depending on time of day and prevailing regulations), including the unregulated blocks discussed above. This total also includes parking spaces along College Point Boulevard between Roosevelt Avenue and 32nd Avenue, although much of this length of College Point Boulevard is slightly beyond the ¼-mile radius from the Willets Point Development District. Within the surveyed area, there are no legal spaces along Roosevelt Avenue, West Park Loop/Stadium Road, and 126th Street, with a mix of No Standing Anytime and No Parking Anytime, though there is frequent illegal parking along both sides of 126th Street.

As shown in Table 17-8, the number of parked vehicles counted for the AM, midday, and PM periods on a typical weekday (September 13, 2006) exceeds the capacity of spaces (except for the 6:00-7:00 PM hour), primarily due to the number of illegally parked vehicles along 126th Street between Roosevelt Avenue and Northern Boulevard. Some of the surveyed blocks along College Point Boulevard north of Northern Boulevard are also parked over capacity, with a number of trucks and other delivery vehicles double parked near the warehouses and industrial land uses there. Within the Willets Point Development District, many of the limited, unregulated blocks that have curb space for parking are typically filled to or beyond capacity by double-parked vehicles and vehicles blocking driveway/garage entrances. The number of parked vehicles remains below capacity for the hours surveyed during a typical Saturday midday without a Mets home game (July 21, 2007).

Table 17-8
Existing Hourly On-Street Parking

		Without Mets Game						With Mets Game					
		Weekday			Weekend			Weekday			Weekend		
Time	Corridor	Legal Capacity	Legal Occupancy	Illegal Occupancy	Legal Capacity	Legal Occupancy	Illegal Occupancy	Legal Capacity	Legal Occupancy	Illegal Occupancy	Legal Capacity	Legal Occupancy	Illegal Occupancy
7:00–8:00 AM	126th Street	0	0	32									
	Northern Boulevard	11	10	0									
	College Point Boulevard	113	113	3									
	Other	106	106	3									
8:00–9:00 AM	126th Street	0	0	35									
	Northern Boulevard	11	11	2									
	College Point Boulevard	113	113	16									
	Other	106	106	7									
9:00–10:00 AM	126th Street	0	0	37									
	Northern Boulevard	11	11	1									
	College Point Boulevard	151	129	0									
	Other	106	106	11									
11:00 AM–12:00 PM	126th Street	0	0	35	0	0	72				0	0	17
	Northern Boulevard	11	11	0	11	7	0				11	11	0
	College Point Boulevard	151	151	9	151	145	0				151	109	0
	Other	106	105	0	106	19	0				106	23	0
12:00–1:00 PM	126th Street	0	0	37	0	0	62				0	0	21
	Northern Boulevard	11	9	0	11	8	0				11	9	0
	College Point Boulevard	151	151	13	151	149	0				151	109	0
	Other	106	106	3	106	19	0				106	37	0
1:00–2:00 PM	126th Street	0	0	37	0	0	67				0	0	27
	Northern Boulevard	11	11	0	11	8	0				11	11	0
	College Point Boulevard	151	151	18	151	149	0				151	121	0
	Other	106	105	0	106	16	0				106	55	0
3:30–4:30 PM	126th Street										0	0	17
	Northern Boulevard										11	11	8
	College Point Boulevard										151	96	0
	Other										106	54	0
4:00–5:00 PM	126th Street	0	0	31									
	Northern Boulevard	0	0	4									
	College Point Boulevard	151	151	5									
	Other	106	98	0									
4:30–5:30 PM	126th Street							0	0	51	0	0	6
	Northern Boulevard							0	0	17	11	4	0
	College Point Boulevard							151	146	0	151	76	0
	Other							106	93	0	106	18	0
5:00–6:00 PM	126th Street	0	0	39									
	Northern Boulevard	0	0	2									
	College Point Boulevard	151	130	0									
	Other	106	93	0									
5:30–6:30 PM	126th Street							0	0	32	0	0	2
	Northern Boulevard							0	0	17	11	0	0
	College Point Boulevard							151	117	0	151	79	0
	Other							106	81	0	106	6	0
6:00–7:00 PM	126th Street	0	0	19									
	Northern Boulevard	0	0	0									
	College Point Boulevard	151	86	0									
	Other	106	65	0									
6:30–7:30 PM	126th Street							0	0	13			
	Northern Boulevard							0	0	6			
	College Point Boulevard							151	81	0			
	Other							106	61	0			

Notes: For weekdays and Saturday, the number of designated legal parking spaces increases from approximately 230 to 268 at 9:00 AM due to a 7:00–9:00 AM parking restriction along a section of College Point Boulevard For weekdays only, the number of designated legal parking spaces decreases from approximately 268 to 257 at 4:00 PM due to a 4:00–7:00 PM parking restriction along a section of Northern Boulevard (Number of spaces are within approximately ¼ mile of the Willets Point Development District.)

Also, as shown in Table 17-8, the number of vehicles parked on-street preceding a weeknight Mets Game (September 29, 2006), and before and after a weekend Mets game (July 15, 2007), are generally below capacity, except for the 4:30-5:30 PM hour on a weekday. Overall, game fans opt to park in pay and free lots rather than along the limited curb space on-street where available. With additional parking demand, typically for a weekend game, a small number of game fans park on-street along the south side of Northern Boulevard adjacent to the District and the blocks of 127th Street and 127th Place just south of Northern Boulevard. The illegal parking along the west side of 126th Street that is generally present during times without a Mets game is reduced during the pre- and post-game hours, likely due to the increased southbound traffic to the Shea Stadium lots and increased NYPD activity.

DUAL EVENT CONDITION

The "dual event" is an overlap of a Mets game at Shea Stadium and a U.S. Open tennis match (or matches) at the USTA National Tennis Center. The USTA National Tennis Center, located south of Shea Stadium and the Willets Point Development District, across Roosevelt Avenue, annually hosts the U.S. Open tennis tournament during a two-week span beginning at the end of August and ending in early September. Mets home games can potentially overlap with U.S. Open tennis matches on weekday evenings or during weekend middays (one such overlap is commonly known as "Super Saturday," corresponding to the U.S. Open women's singles final match and the men's two singles semifinal matches). This "Super Saturday" event overlap occurs approximately once every two years, so a quantitative analysis of this condition was not considered in this study. Previous attendance records of a U.S. Open tennis tournament approached 30,000 to 40,000 visitors per match; while the Mets home games typically draw about 20,000 visitors (for low attendance games) to about 45,000 visitors (for high attendance games). The 85th percentile attendance for Shea Stadium was determined at 40,450 visitors in the Shea Stadium Redevelopment Study Final Environmental Impact Statement (FEIS).

When these events occur simultaneously, the traffic volumes in the study area vicinity are higher than typically experienced. More rigorous traffic demand management measures are taken, such as additional NYPD presence at critical intersections around Shea Stadium and Flushing Meadows-Corona Park, and the use of portable variable message signs to implement the separation of baseball and tennis traffic, which facilitates better circulation of traffic to appropriate parking facilities. In general, the traffic demand management strategies keep Mets game traffic along routes north of Roosevelt Avenue and tennis tournament traffic along roads within the park, south of the Tennis Center. According to the Shea Stadium Redevelopment Study FEIS, the dual event conditions with the new Citi Field (discussed below in Section E: "The Future Without the Proposed Plan") would remain similar to existing conditions.

Since the dual event conditions are an infrequent occurrence, and since those conditions include special traffic control strategies in the vicinity of the Willets Point Development District, a quantitative traffic analysis was not done. The control strategies currently employed under the dual event condition are expected to continue under future conditions.

The Shea Stadium Redevelopment Study FEIS indicates that South Lot and Lot D are used by tennis patrons during a USTA event when there is no Mets home game. However, during a dual event, parking usage by tennis patrons shifts farther south in the park toward the LIE, since Mets game attendees use the lots around Shea Stadium, including South Lot and Lot D. Similar parking conditions are expected to remain when Citi Field is completed.

E. THE FUTURE WITHOUT THE PROPOSED PLAN

Future conditions without the Willets Point Development Plan (the No Build conditions) are established in order to provide the baseline against which the impacts of the proposed Plan can be compared and to account for changes in traffic conditions between existing conditions and the future analysis year. Future year conditions were analyzed for 2017. Future No Build traffic volumes were developed by applying a background traffic growth rate of one percent per year as stated in the *CEQR Technical Manual*, and by adding trips expected to be generated by anticipated development projects that are expected to be operational by 2017.

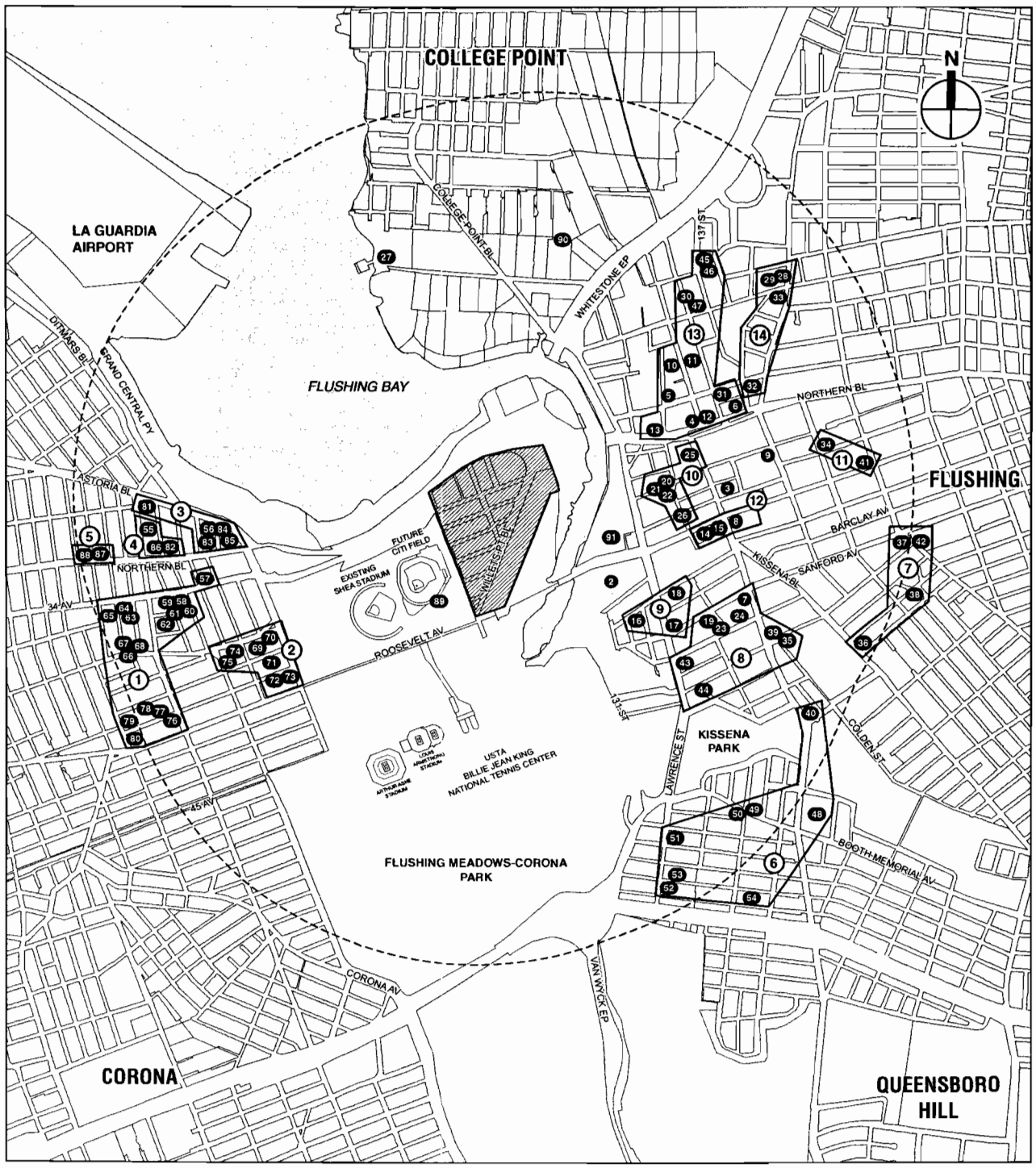
NO BUILD BACKGROUND PROJECTS

Trip generation and specific traffic assignments for anticipated development projects were taken directly from their respective Environmental Impact Statements (EIS) or EAS where such information was available. For projects where such information was not readily available, trip generation analyses were conducted to determine the volume of generated vehicle trips and these trips were assigned through study area intersections.

The 2017 No Build condition would include a large number of development projects—approximately 90—within an area approximately up to and including one mile of the Willets Point Development District. (See Table 17-9 for a complete list of No Build Projects in the one-mile study area and corresponding Figure 17-11). In order to assign the trips generated for these developments, clusters of developments were created based on their relative locations (to each other) and general land use composition. Many of the expected developments, generally those that consist of only residential units, are relatively small, ranging between one and 50 units. Fourteen clusters were created, grouping nearby projects that would have similar assignment routes based on their location. The clusters and corresponding No Build project numbers are presented in Table 17-10.

Traffic assignments for the following projects were taken directly from their respective EIS, EAS, or latest available information from on-going studies: Sky View Parc; Queens Crossing; RKO Keith Plaza; Flushing Commons; River Park Place; North Shore Marine Transfer Station; and Citi Field, which includes a small traffic increment only for game-day peak hours (based on its 2001 FEIS). For the College Point Boulevard Police Academy, most trips are expected to be generated during hours outside of the analysis peak hours for the proposed Plan. The minimal number of trips anticipated during some of the analysis peak hours for the proposed Plan would have little effect on the study area intersections and was assumed to be accounted for as part of the background growth. A summary of all No Build project-generated vehicle trips is presented in Table 17-11 for non-game-day peak hours and in Table 17-12 for game-day peak hours.

As shown in Table 17-11, the expected magnitude of background development generated volumes added to the study area network for the non-game peak hours would be substantial, ranging from approximately 1,700 to 3,810 trips, with the lowest increment expected during the weekday AM peak hour and highest during the Saturday midday peak hour. As shown in Table 17-12, the expected magnitude of background development generated volumes added to the study area network for the game peak hours would also be substantial, ranging from approximately 2,720 to 3,845 trips.



Willets Point Development District

Traffic and Parking Study Area Boundary (1-Mile Perimeter)

❶ No Build Project Location (See Table 17-9)

① Cluster

0 2000 FEET

SCALE

This figure has been updated since the DGEIS

Figure 17-11

Transportation Analysis No Build Project Locations

Table 17-9
No-Build Projects in the Traffic Study Area

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year
1	Downtown Flushing One-Way Pair	Transportation project - Main Street to become one-way northbound; Union Street to become one-way southbound	primary/ secondary	2010
2	Sky View Parc - College Point Blvd and 40th Road	750 residential units, 760,000 sf retail, 51,800 sf restaurant, 3,000 parking spaces (the residential component may be developed in phases)	primary	2008 (UC)
3	Queens Crossing - Main Street and 39th Avenue	144,400 sf office, 110,000 sf retail, 29,600 sf community facility, 400 parking spaces	primary	2007 (UC)
4	RKO Keith Theater - Main Street and Northern Boulevard	200 residential units, 10,000 sf retail, 12,500 sf community facility, 229 parking spaces	primary	TBD
5	New Millennium - 134-03 35th Avenue	84 residential units, 33,600 sf community facility, 3,600 sf retail, 222 parking spaces	primary	2008
6	New Millennium Northern Boulevard - 137-61 Northern Boulevard	91 residential units, 60 hotel rooms, 35,722 sf community facility, 17,167 sf retail, 223 parking spaces	secondary	2008
7	Victoria Tower - 41-60 Main Street	178 residential units	secondary	2007-8 (UC)
8	Caldor Site - 136-20 Roosevelt Avenue	155,000 sf retail	secondary	TBD
9	Flushing Commons (Municipal Parking Lot 1) - 138th Street, 37th Avenue, 39th Avenue, and Union Street	500 residential units; 200,000 sf of retail; 100,000 sf of office; 100,000 sf of community facility space; 1,600 parking spaces, including 760 accessory spaces; and either 250 hotel rooms or an additional 120,000 sf of office	secondary	2011
10	33-34 Farrington Street	20,469 sf storage facility	primary	2007 (UC)
11	33-35 Farrington Street	9,887 sf hotel	primary	2007 (UC)
12	137-07 Northern Boulevard	38 residential units	primary	2007 (UC)
13	134-39 Northern Boulevard	12,212 sf expansion to existing office building	primary	2007 (UC)
14	135-11 40th Road	14 residential units, 55,170 sf office	primary	2007 (UC)
15	40-22 Main Street	17,015 sf retail	primary	2007 (UC)
16	41-18 Haight Street	6 residential units	primary	
17	41-55 College Point Boulevard	50 residential units	primary	2007 (UC)
18	132-27 to 132-61 41st Road	43 residential units	primary	2007 (UC)
19	5-10 Summit Court	18 residential units	secondary	2007 (UC)
20	133-53 37th Avenue	47 residential units	primary	2007 (UC)
21	133-51 37th Avenue	9,050 sf office	primary	2007 (UC)
22	133-40 37th Avenue	12,742 sf office	primary	2007 (UC)
23	132-73 Maple Avenue	8 residential units	secondary	2007 (UC)
24	134-43 Maple Avenue	23 residential units	secondary	2007 (UC)
25	36-36 Main Street	26,936 sf office	primary	2007 (UC)
26	133-47 39th Avenue	12,270 sf office, 11,420 sf retail, 9,755 sf medical office	primary	2008
27	North Shore Marine Transfer Station - 31st Avenue & 122nd Street	Converted facility will receive and containerize DSNY-managed waste from Queens Community Districts 7 through 14	secondary	2011
28	31-38, 31-22 Union Street	30 residential units	secondary	2007 (UC)
29	140-24 31st Drive	20 residential units	secondary	2007 (UC)
30	31-33 Linden Place	8 residential units	primary	2007 (UC)
31	136-16 35th Avenue	28 residential units	secondary	2007 (UC)
32	138-06 35th Avenue	9 residential units	secondary	2007 (UC)
33	32-18 Union Street	8 residential units	secondary	2007 (UC)
34	143-21 38th Avenue	25 residential units	secondary	2007 (UC)
35	P.S. 244 - 137-20 Franklin Avenue	441-seat primary school	secondary	2007 (UC)
36	140-22 Beech Avenue	42 residential units	secondary	2007 (UC)
37	143-51 Franklin Avenue	1 residential unit	secondary	2007 (UC)
38	143-22 Beech Avenue	2 residential units	secondary	2007 (UC)
39	42-33 Main Street	66 residential units	secondary	2007-8
40	43-57 Main Street	2,085 sf office, retail	secondary	2007 (UC)
41	38-34 Parsons Boulevard	40 residential units	secondary	2007 (UC)
42	42-11 Parsons Boulevard	20 residential units	secondary	2007 (UC)
43	132-25 Pople Avenue	14 residential units	secondary	2007 (UC)
44	133-20 Avery Avenue	26 residential units	secondary	2007 (UC)
45	137-04 31st Road	3 residential units	secondary	2007 (UC)
46	31-27 137th Street	9 residential units	secondary	2007 (UC)
47	31-38 137th Street	16 residential units	secondary	2007 (UC)
48	New York Hospital Queens	Major modernization program – New hospital addition with 80 beds	secondary	2007 (UC)
49	56-71 136th Street	2 residential units	secondary	2007 (UC)
50	135-02 Booth Memorial Avenue	3 residential units	secondary	2007 (UC)
51	57-35 Lawrence Street	5 residential units	secondary	2007 (UC)
52	132-14 59th Avenue	2 residential units	secondary	2007 (UC)

Table 17-9 (cont'd)
No-Build Projects in the Traffic Study Area

Map No.[1]	Project Name/Address	Project Name/Address	Study Area	Build Year
53	132-35 59th Avenue	2 residential units	secondary	2007 (UC)
54	136-20 59th Avenue	3 residential units	secondary	2007 (UC)
55	32-37 108th Street	2 residential units	secondary	2007 (UC)
56	32-10 112th Street	4 residential units	secondary	2007 (UC)
57	111-17 34th Avenue	2 residential units	secondary	2007 (UC)
58	109-18 34th Avenue	6 residential units	secondary	2007 (UC)
59	109-12 34th Avenue	3 residential units	secondary	2007 (UC)
60	34-30 110th Street	5 residential units	secondary	2007 (UC)
61	35-01 109th Street	3 residential units	secondary	2007 (UC)
62	108-18 35th Avenue	3 residential units	secondary	2007 (UC)
63	34-12 107th Street	3 residential units	secondary	2007 (UC)
64	106-08 34th Avenue	6 residential units	secondary	2007 (UC)
65	34-16 106th Street	3 residential units	secondary	2007 (UC)
66	106-07 37th Avenue	5 residential units	secondary	2007 (UC)
67	34-64 107th Street	3 residential units	secondary	2007 (UC)
68	34-59 106th Street	4 residential units	secondary	2007 (UC)
69	112-31 38th Avenue	18 residential units	secondary	2007 (UC)
70	112-37 38th Avenue	8 residential units	secondary	2007 (UC)
71	112-26 38th Avenue	18 residential units	secondary	2007 (UC)
72	112-34 39th Avenue	8 residential units	secondary	2007 (UC)
73	112-32 39th Avenue	8 residential units	secondary	2007 (UC)
74	111-03 38th Avenue	3 residential units	secondary	2007 (UC)
75	111-13 38th Avenue	8 residential units	secondary	2007 (UC)
76	39-06 108th Street	22 residential units	secondary	2007 (UC)
77	104-63 39th Avenue	4 residential units	secondary	2007 (UC)
78	104-52 38th Avenue	4 residential units	secondary	2007 (UC)
79	104-20 38th Avenue	8 residential units	secondary	2007 (UC)
80	104-24 39th Avenue	8 residential units	secondary	2007 (UC)
81	108-04, 14, 16 Astoria Blvd [2]	84 residential units, 69,930 sf community facility	secondary	2013
82	110-09 Northern Boulevard [2]	31 residential units, 15,500 sf of commercial use	secondary	2013
83	111-10, 12, 16 Astoria Blvd; 32-20 112th Street; 32-19 111th Street [2]	78 residential units, 65,242 sf community facility, 51 parking spaces	secondary	2013
84	112-12, 18, 24 Astoria Blvd [2]	38 residential units, 32,068 sf community facility	secondary	2013
85	Block bounded by Astoria Blvd, Northern Blvd, and 112th Place [2]	147 residential units, 73,329 sf of commercial use	secondary	2013
86	108-09 Northern Boulevard	18 residential units, 8,970 sf commercial	secondary	2007 (UC)
87	106-15 Northern Boulevard	11 residential units, 5,502 sf commercial	secondary	2007 (UC)
88	32-56 106th Street	14 residential units, 7,144 commercial	secondary	2007 (UC)
89	Shea Stadium Redevelopment	New 44,100-seat stadium (to replace existing 56,000-seat stadium) and redistribution of 8,800 existing parking spaces	primary	2009
90	College Point Police Academy - 129-05 31st Avenue	450,000-square-foot physical training area, 250 beds for visiting law enforcement agencies, 250 classrooms, firing range and fields for emergency-vehicle and other training exercises	secondary	2012
91	River Park Place - 39-08 Janet Place	475 residential units, 10,200 sf retail, 1,500 sf community facility, 251,000 sf office, and either 175 hotel rooms or an additional 96,500 sf of office	primary	2011

Notes:
UC = Under Construction when data used for analysis purposes was compiled.
[1] See Figure 2-1.
[2] Projects anticipated as a result of the North Corona Rezoning (CEQR No. 03DCP058Q).
Sources: AKRF, Inc., New York City Department of City Planning, New York City Department of Buildings.

Table 17-10
No Build Project Clusters

Cluster ID No.	No Build Projects (Refer to Figure 17-11)
1	57,58,59,60,61,62,63,64,65,66,67,68,69,77,78,79,80
2	69, 70,71,72,73,74,75
3	56,81,83,84,85
4	55,82,86
5	87,88
6	40,48,49, 50,51,52,53,54
7	36,37,38,42
8	7,19,23,24,35,39,43,44
9	16, 17,18
10	20,21,22,25,26
11	34,41
12	8,14,15
13	5,6,10,11,12,13,30,31,45,46,47
14	28,29,32,33

Table 17-11
Vehicle Trips from Background Development Projects – Non-Game Day

Project Name / Project Cluster	AM Peak		Midday Peak		PM Peak		Sat. Midday	
	In	Out	In	Out	In	Out	In	Out
Sky View Parc	156	172	525	448	449	446	651	602
Queens Crossing	81	13	84	101	74	132	125	115
RKO Keith	8	23	18	19	31	20	33	31
Flushing Commons	226	134	407	380	322	451	484	452
River Park Place	177	48	59	78	52	215	48	41
Cluster 1	1	9	1	1	7	1	6	2
Cluster 2	0	11	2	2	10	2	10	8
Cluster 3	62	68	131	135	106	94	178	146
Cluster 4	6	11	36	36	22	19	48	39
Cluster 5	3	6	17	17	12	11	25	20
Cluster 6	51	10	12	8	22	51	12	8
Cluster 7	1	6	2	2	6	3	3	3
Cluster 8	21	38	11	11	32	17	16	16
Cluster 9	2	10	3	3	10	4	4	4
Cluster 10	36	9	24	28	12	47	19	13
Cluster 11	1	7	2	2	6	3	3	3
Cluster 12	77	34	187	158	153	202	288	268
Cluster 13	37	50	56	53	55	48	34	31
Cluster 14	1	7	2	2	7	2	2	2
North Shore Marine Transfer Station	47	42	11	12	6	6	9	10
TOTAL TRIPS ASSIGNED TO NO BUILD	**994**	**708**	**1,590**	**1,496**	**1,394**	**1,774**	**1,998**	**1,814**

Table 17-12
Vehicle Trips from Background Development Projects – Game Day

Project Name / Project Cluster	Weekday Pre-game		Weekend Pre-game		Weekend Post-game	
	In	Out	In	Out	In	Out
Sky View Parc	381	379	618	572	585	541
Queens Crossing	63	112	119	109	113	104
RKO Keith	26	17	31	30	30	28
Flushing Commons	274	383	460	429	436	407
River Park Place	35	34	46	40	45	38
Cluster 1	4	1	4	4	4	4
Cluster 2	10	2	10	10	10	10
Cluster 3	87	68	169	147	170	148
Cluster 4	18	15	48	40	48	40
Cluster 5	9	8	24	20	24	20
Cluster 6	19	50	12	8	12	8
Cluster 7	5	3	3	3	3	3
Cluster 8	28	14	16	16	17	17
Cluster 9	8	4	4	4	4	4
Cluster 10	10	40	18	13	18	12
Cluster 11	5	2	3	3	3	3
Cluster 12	131	172	274	255	259	241
Cluster 13	47	42	33	30	32	29
Cluster 14	7	2	2	2	2	2
North Shore Marine Transfer Station	6	5	10	12	15	16
Citi Field	195	0	195	0	0	195
TOTAL TRIPS ASSIGNED TO NO BUILD	**1,368**	**1,353**	**2,099**	**1,747**	**1,830**	**1,870**

In addition to the No Build projects, improvements resulting from NYCDOT's Safe Streets for Seniors initiative have been included in the No Build analysis. These improvements are focused in downtown Flushing at designated senior crossing locations and include signal timing changes to accommodate senior crossing walk times and geometric modifications such as lane restriping.

Also included in the 2017 No Build condition is the proposed one-way pairing of Main Street and Union Street in Downtown Flushing. The proposed one-way pair plan, which is anticipated for implementation in 2010, would include: Main Street one-way northbound and Union Street one-way southbound between Sanford Avenue and Northern Boulevard; a southbound contra-flow bus lane along Main Street between Northern Boulevard and Sanford Avenue and a northbound contra-flow bus lane along Union Street between Roosevelt Avenue and Northern Boulevard; a northbound with-flow bus lane on Main Street between 40th Road and Northern Boulevard; two general travel lanes on Main Street, and two to three general travel lanes (depending on block) on Union Street; Sanford Avenue two-way between Kissena Boulevard and Main Street (it is one-way westbound under existing conditions); minor sidewalk widening along Main Street; and geometric modifications and/or signal timing changes at intersections along Main Street and Union Street. For those intersections designated as senior crossing locations and included under the one-way pair with contraflow bus lanes study, minimum senior crossing walk times are incorporated into the timing plans. A loss of on-street parking along sections of Main Street, Union Street, Northern Boulevard, and Sanford Avenue is also expected due to geometric changes and traffic operations under the one-way pair plan. Also, the unsignalized intersection of Northern Boulevard and College Point Boulevard would be signalized.

The proposed one-way pair plan includes traffic circulation changes at the following Willets Point Development Plan traffic study locations in Downtown Flushing:

- College Point Boulevard at Northern Boulevard

- Prince Street at Northern Boulevard
- Main Street at Northern Boulevard
- Union Street at Northern Boulevard
- College Point Boulevard at Roosevelt Avenue
- Prince Street at Roosevelt Avenue
- Main Street at Roosevelt Avenue
- Union Street at Roosevelt Avenue
- Main Street at Kissena Boulevard
- College Point Boulevard at Sanford Avenue
- Union Street at Sanford Avenue

However, the one-way pair plan would not add additional traffic volumes to the network. Also, any southbound volumes on Main Street and northbound volumes on Union Street under the 2017 No Build condition would be transit buses using the contra-flow bus lanes.

The one-way pair with bus contraflow lanes on Main and Union Streets has been assumed throughout the DGEIS traffic studies and has been carried through the FGEIS as well, reflecting the outcome of the initial Downtown Flushing Traffic Simulation Study completed in 2006 and reviewed with NYCEDC, NYCDOT, and MTA New York City Transit (MTA/NYCT). However, NYCDOT has recently indicated a preference for a one-way traffic plan which converts Main and Union Streets to one-way traffic flow (and again with Main Street operating northbound and Union Street operating southbound) but without the addition of bus contraflow lanes on each street. Buses would operate in the same direction as general traffic. This alternative, which is discussed qualitatively below, will be the subject of a comprehensive follow-up simulation study where the findings of this simulation study will be reviewed by involved City Agencies.

General vehicular traffic patterns and volumes would be virtually identical under both one-way plans but under the alternative without contraflow there could be additional street capacity available to general traffic as well as sidewalks that are wider than envisioned under the one-way plan with the bus contraflow lanes. As such, it is likely that the one-way pair with bus contraflow lanes assumption carried through the DGEIS and this FGEIS presents a conservative assessment of general vehicular traffic conditions, potential impacts, and potential mitigation measures.

The alternative without contraflow would require a rerouting of all or nearly all bus routes serving the downtown Flushing area. For example, bus routes that currently operate in both directions along Main Street—and which would continue to operate in both directions along Main Street under the one-way plan with the bus contraflow lanes—would now have their southbound trips diverted to Union Street under the plan without contraflow. Due to the changes in bus routings, at some locations there would be new left turn or right turn movements made by buses, and the need to redesign the routes will also be addressed within the follow-up simulation study.

The simulation study for the alternative without contraflow is currently being conducted. While NYCDOT believes that the simulation study will show that the alternative without contraflow is the preferable option, the detailed analysis and the findings of the study will not be available until after this FGEIS is completed. The findings of this study will be reviewed by NYCDOT

and MTA/NYCT before the optimal overall plan is selected for implementation. At this time, the assumptions made for the FGEIS represent a reasonable source of information because it relies on a completed analysis representing a conservative prediction of future conditions. The final configuration will be selected once the simulation study and agency reviews are completed. The assumption of the one-way plan with the bus contraflow lanes employed in the DGEIS and this FGEIS does not mean that the affected City agencies have committed to its implementation.

Based on access and egress changes expected once Citi Field replaces Shea Stadium, a game-day-only change in the circulation of some stadium traffic in the vicinity of West Park Loop/Stadium Road, 126th Street, and Boat Basin Road is included in the No Build condition. Under the 2017 No Build condition, the primary entrance/exit for the main Citi Field lot would be located at the intersection (traffic circle) of Stadium Road and Boat Basin Road, instead of at the intersection of Stadium Road, 34th Avenue, and 126th Street, as is the case for Shea Stadium under existing conditions. For arriving game traffic during the weekday PM and weekend midday peak hours, ramp traffic from eastbound Astoria Boulevard and the Grand Central Parkway that currently enters the main Shea Stadium lot through the entrance at the intersection of 126th Street and 34th Avenue would shift to the proposed Citi Field entrance on Stadium Road at Boat Basin Road. For departing game traffic during the weekend PM peak hour, traffic that currently exits on 126th Street near its intersection with 34th Avenue and routes toward westbound Northern Boulevard, westbound Astoria Boulevard, and the westbound Grand Central Parkway would use the proposed primary exit on Stadium Road and travel north on Boat Basin Road to the unsignalized intersection with World's Fair Marina to access their departure routes.

NO BUILD TRAFFIC CONDITIONS

Traffic volume increases on the study area's roadway network due to the cumulative effect of background projects are quantified and discussed below. The peak hour volumes reported below include the Table 17-11 and Table 17-12 traffic volumes assigned to the study area's networks, but do not include the general 1 percent per year growth rate that has been separately applied to existing traffic volumes, which would add about 11.5 percent more traffic to all streets. However, the 1 percent per year increase, as well as the diversions previously discussed, are included in the 2017 No Build totals. Because of background growth and No Build developments, very substantial increases in traffic volumes can be expected under the 2017 No Build condition, independent from those that the Willets Point Development Plan would add (discussed below in Section F: "Probable Impacts of the Proposed Plan").

The more substantial traffic increases between existing and No Build conditions would occur along the primary streets in the study area network, including Northern Boulevard, Roosevelt Avenue, Astoria Boulevard, and College Point Boulevard. Projected volume increases on northbound Main Street and southbound Union Street in Downtown Flushing are mostly due to the one-way pair plan; however, those volume increases correspond to equally substantial volume decreases in the opposite directions on those two streets. Furthermore, it should be noted that while eastbound Northern Boulevard volumes between Main Street and Union Street would also increase due to circulation changes under the one-way pair plan, volumes on westbound Northern Boulevard between those two streets would decrease.

During game-day conditions, the development of Citi Field would cause some stadium traffic circulation changes as compared with existing conditions with Shea Stadium. As previously discussed, the circulation change would be due to relocation of one of the main lot's entrances

from the intersection of 126th Street at Stadium Road/34th Avenue to the intersection (traffic circle) of Boat Basin Road at Stadium Road. The traffic shift would primarily affect post-game traffic circulation, with an increase in traffic traveling northbound on Boat Basin Road and a corresponding decrease in traffic traveling northbound on 126th Street. Weekend post-game volumes on northbound 126th Street in the vicinity of Stadium Road/34th Avenue and Northern Boulevard are expected to decrease by about 850 vph, with a corresponding increase on northbound Boat Basin Road.

Northern Boulevard volumes through Downtown Flushing between Parsons Boulevard and Union Street can be expected to increase by about 170 to 450 vph during the seven peak hours. Due primarily to the traffic circulation changes for the one-way pair plan, westbound Northern Boulevard volumes between Main Street and Union Street would decrease by about 130 to 240 vph, while eastbound Northern Boulevard volumes along the same section would increase by about 720 to 1,170 vph during the seven peak hours. The westbound volume decrease would be due to the shift of northbound traffic from the Union Street intersection to the Main Street intersection, which feeds westbound Northern Boulevard; the eastbound volume increase would be due in part to a shift of eastbound right turning traffic from the Main Street intersection to the Union Street intersection. At Prince Street and farther west, adjacent to the Willets Point Development District and Citi Field, Northern Boulevard volumes can be expected to increase by approximately 95 to 510 vph per direction during the all of the peak hours. Northern Boulevard volumes in the vicinity of 108th and 114th Street can be expected to increase by about 185 to 530 vph per direction during the seven peak hours.

Roosevelt Avenue volumes can be expected to increase by about 5 to 280 vph per direction in the weekday AM peak hour, by about 75 to 400 vph per direction in the weekday midday and PM and weekday pre-game peak hours, by about 160 to 510 vph per direction in the Saturday midday non-game peak hour, and by about 130 to 515 vph per direction in the two weekend game-day peak hours through Downtown Flushing between Parsons Boulevard and College Point Boulevard, due in part to diversions for the one-way pair plan. Adjacent to the Willets Point Development District and Citi Field, Roosevelt Avenue volumes can be expected to increase by approximately 160 to 385 vph per direction during the seven peak hours. Roosevelt Avenue volumes in the vicinity of 108th, 111th, and 114th Street can be expected to increase by about 100 to 310 vph per direction during all of the peak hours.

Kissena Boulevard volumes near the intersection with Main Street can be expected to increase by approximately 450 to 555 vph per direction during all of the peak hours. A significant portion of the increase would be due to diversions for the one-way pairing of Main Street and Union Street.

Sanford Avenue volumes through Downtown Flushing between Parsons Boulevard and College Point Boulevard can be expected to increase by about 20 to 115 vph per direction during the seven peak hours.

On the west side of the study area, in the vicinity of 114th Street, and also within the Willets Point Development District, volumes on 34th Avenue can be expected to increase by about 5 to 55 vph during all of the peak hours.

Astoria Boulevard volumes in the vicinity of 108th and 114th Streets can be expected to increase by about 135 to 300 vph per direction during the seven peak hours.

Volumes along West Park Loop/Stadium Road can be expected to increase by up to about 75 vph during the non-game peak hours, by up to about 85 vph during the pre-game peak hours, and

by up to about 200 vph during post-game peak hour. During the pre-game peak hours, there would be a small decrease in southbound traffic on West Park Loop/Stadium Road of up to approximately 35 vph due to a diversion to the new Citi Field main lot entrance at the intersection (traffic circle) with Boat Basin Road.

College Point Boulevard volumes between Sanford Avenue and Roosevelt Avenue can be expected to increase by about 115 to 585 vph per direction during all of the peak hours.

Northbound Main Street volumes from Kissena Boulevard to Northern Boulevard can be expected to increase by approximately 535 to 1,005 vph during the seven peak hours, primarily because of the diversions for the one-way pairing with Union Street. Southbound Main Street volumes would reduce to bus-only traffic, decreasing by about 390 to 650 vph during all of the peak hours.

Southbound Union Street volumes can be expected to increase by approximately 470 to 1,110 vph during the seven peak hours, primarily because of the diversion for the one-way pairing with Main Street. Northbound Union Street volumes between Roosevelt Avenue and Northern Boulevard would reduce to bus-only traffic, decreasing by about 495 to 600 vph during the seven peak hours. There would not be any northbound traffic on Union Street between Sanford Avenue and Roosevelt Avenue.

Parsons Boulevard volumes between Northern Boulevard and Sanford Avenue can be expected to increase by about 35 to 60 vph per direction during the seven peak hours.

Volumes along 108th Street in the vicinity of Astoria Boulevard and Northern Boulevard and at Roosevelt Avenue can be expected to increase by about 10 to 70 vph per direction during the seven peak hours.

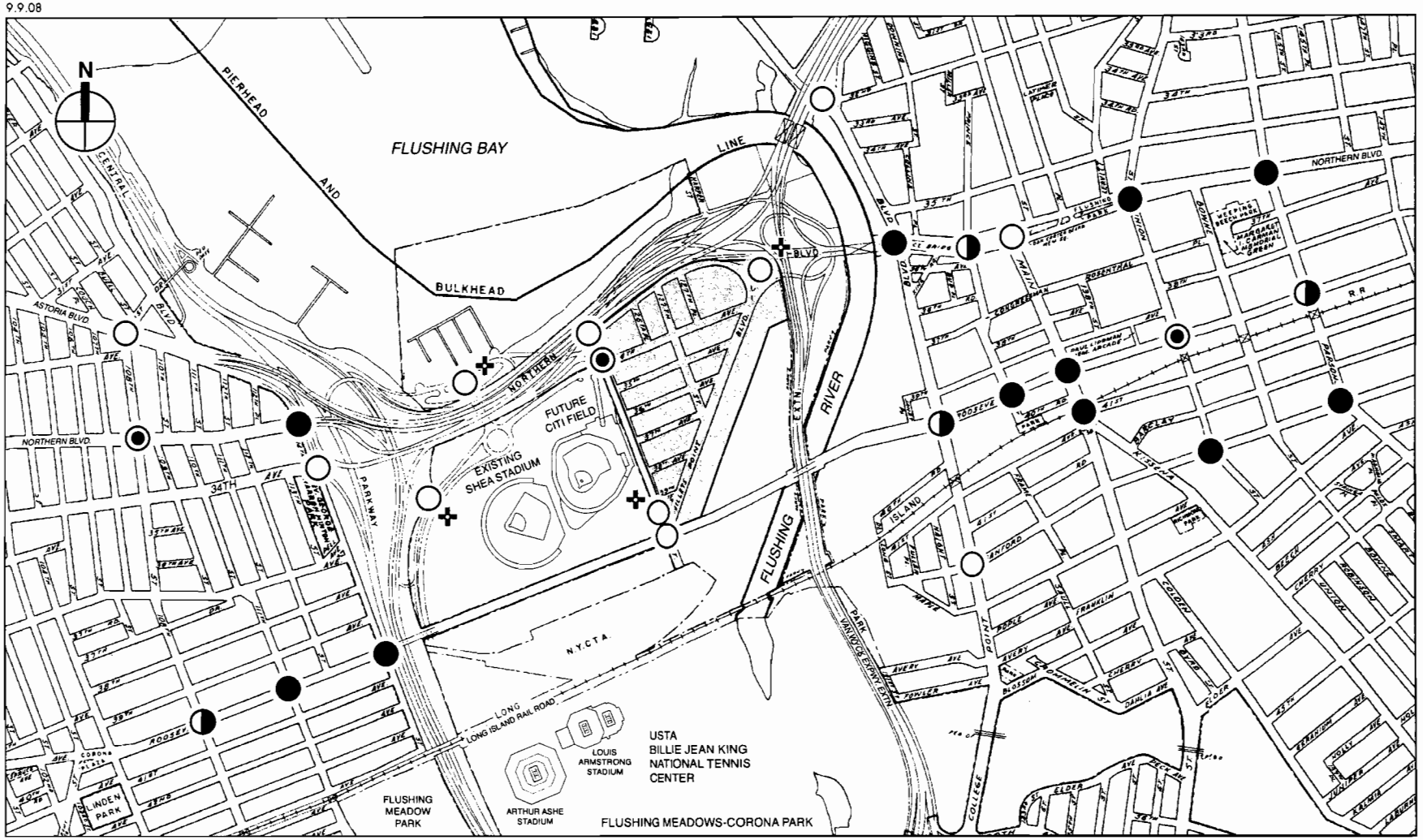
Prince Street volumes at Northern Boulevard and Roosevelt Avenue can be expected to increase by approximately 35 to 150 vph per direction during the seven peak hours. A portion of the increase would be due to diversions for the one-way pairing of Main Street and Union Street.

Volumes along 111th Street in the vicinity of Roosevelt Avenue can be expected to increase by about 20 to 35 vph per direction during the all of the peak hours.

Volumes along 114th Street in the vicinity of Northern Boulevard and Roosevelt Avenue can be expected to increase by approximately 20 to 135 vph per direction during the seven peak hours.

Based on these projected traffic volume changes, 2017 No Build traffic levels of service were determined for the 29 No Build analysis locations within the study area. Tables 17-13 and 17-14 show comparisons of overall intersection and individual movement levels of service, respectively, for existing and 2017 No Build conditions for non-game-day peak hours, and Tables 17-15 and 17-16 show the comparisons for the game-day peak hours. Figures 17-12 through 17-18 present an illustrative overview of overall intersection traffic levels of service throughout the study area. It is clear, in comparing overall intersection levels of service and individual traffic movement levels of service, that considerably more locations would operate at LOS E or F under the 2017 No Build condition than in existing conditions due to the substantial additional volumes generated by the approximately 90 expected background developments superimposed on top of a background growth rate of 11.5 percent.

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This figure has been updated since the DGEIS

Figure 17-12

No Build Traffic Levels of Service
Weekday Non-Game AM Peak Hour

Table 17-13
Overall Intersection Level of Service Summary Comparison
Existing vs. 2017 No Build Conditions – Non-Game Day

Signalized Intersections	Existing Conditions				2017 No Build Conditions			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
	24 Signalized Intersections				25 Signalized Intersections [1]			
Overall Intersection LOS A/B/C	15	19	16	12	7	8	6	6
Overall Intersection LOS D	8	5	6	10	3	5	2	0
Overall Intersection LOS E	1	0	2	2	4	5	7	3
Overall Intersection LOS F	0	0	0	0	11	7	10	16

Notes: [1] Under 2017 No Build conditions, the intersection of Northern Boulevard and College Point Boulevard would be signalized. During the non game peak hours, all 4 unsignalized intersections would operate at overall LOS A/B or C.

Table 17-14
Traffic Lane Group Level of Service Summary Comparison
Existing vs. 2017 No Build Conditions – Non-Game Day

Signalized Movements	Existing Conditions				2017 No Build Conditions			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
	24 Signalized Intersections				25 Signalized Intersections [1]			
No. of Lane Groups at LOS A/B/C	59	82	63	58	53	60	33	42
No. of Lane Groups at LOS D	38	25	31	34	25	27	41	26
No. of Lane Groups at LOS E	15	10	21	20	15	8	10	8
No. of Lane Groups at LOS F	7	2	4	9	34	31	42	52

Notes:
[1] Under 2017 No Build conditions, the intersection of Northern Boulevard and College Point Boulevard would be signalized. During the non game peak hours, all unsignalized lane groups would operate at overall LOS A/B or C.

Table 17-15
Overall Intersection Level of Service Summary Comparison
Existing vs. 2017 No Build Conditions – Game Day

Signalized Intersections	Existing Conditions			2017 No Build Conditions		
	Weekday Pre-game	Saturday Pre-game	Saturday Post-game	Weekday Pre-game	Saturday Pre-game	Saturday Post-game
	24 Signalized Intersections			25 Signalized Intersections [1]		
Overall Intersection LOS A/B/C	10	10	12	3	5	2
Overall Intersection LOS D	9	14	9	3	1	4
Overall Intersection LOS E	5	0	0	3	3	5
Overall Intersection LOS F	0	0	3	16	16	14

Notes:
[1] Under 2017 No Build conditions, the intersection of Northern Boulevard and College Point Boulevard would be signalized. During the weekday pre-game peak hour, all 4 unsignalized intersections would operate at overall LOS A/B or C; during the weekend pre-game peak period, the Grand Central Parkway ramp at West Park Loop/Stadium Road would operate at overall LOS F; during the weekend post-game peak period, Boat Basin Road at World's Fair Marina would operate at overall LOS F.

Table 17-16
Traffic Lane Group Level of Service Summary Comparison
Existing vs. 2017 No Build Conditions – Game Day

Signalized Lane Groups	Existing Conditions			2017 No Build Conditions		
	Weekday Pre-game	Saturday Pre-game	Saturday Post-game	Weekday Pre-game	Saturday Pre-game	Saturday Post-game
	24 Signalized Intersections [1]			25 Signalized Intersections [1]		
No. of Lane Groups at LOS A/B/C	56	63	70	32	44	43
No. of Lane Groups at LOS D	29	32	20	23	26	24
No. of Lane Groups at LOS E	26	20	14	19	6	10
No. of Lane Groups at LOS F	11	7	18	54	52	52

Notes:
[1] Under 2017 No Build conditions, the intersection of Northern Boulevard and College Point Boulevard would be signalized. In the 2017 No Build condition, northbound left turns from Boat Basin Road onto World Fair Marina would operate at LOS F during all game peak hours; eastbound left turns from the Grand Central Parkway ramp onto West Park Loop/Stadium Road would operate at LOS F during the weekend pre-game peak hour. All other lane groups would operate at LOS A, B, C or D.

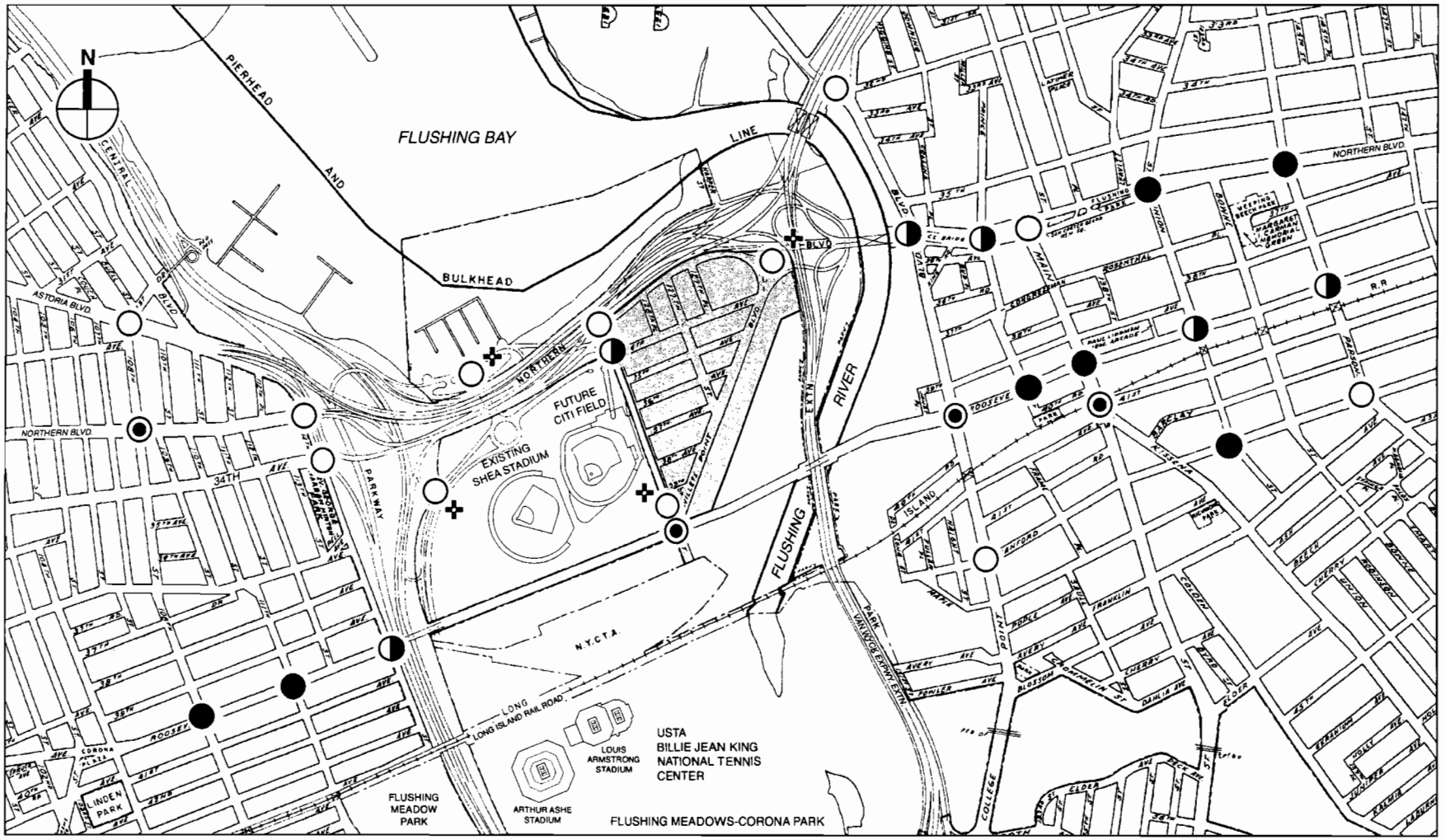
The summary overview of the 2017 No Build condition without a Mets game indicates that:

- In the weekday AM peak hour, of the 25 signalized intersections analyzed, the number of locations that are projected to operate at overall LOS E or F would increase from one under existing conditions to 15 under the 2017 No Build condition. The number of traffic lane groups projected to operate at LOS E or F would increase from 22 to 49. A review of Figure 17-12 indicates that most of the projected LOS E or F intersections would be located in Downtown Flushing and along Roosevelt Avenue from 108th Street to 114th Street.
- In the weekday midday peak hour, the number of signalized intersections that would operate at overall LOS E or F would increase from zero to 12, while the number of traffic lane groups at LOS E or F would increase from 12 to 39. Figure 17-13 shows overall levels of service.
- In the weekday PM peak hour, the number of locations that are projected to operate at overall LOS E or F would increase from two under existing conditions to 17 under 2017 No Build conditions. The number of lane groups projected to operate at LOS E or F would increase from 25 to 52. A review of Figure 17-14 indicates that, similar to weekday AM, most of the projected LOS E or F intersections would be located in Downtown Flushing and along Roosevelt Avenue from 108th Street to 114th Street.
- In the Saturday midday peak hour, the number of signalized intersections that would operate at overall LOS E or F would increase from two to 19, while the number of lane groups at LOS E or F would increase from 29 to 60. Figure 17-15 shows overall levels of service.

The summary overview of the 2017 No Build condition with a Mets game indicates that:

- In the weekday PM pre-game peak hour, of the 25 signalized intersections analyzed, the number of locations that are projected to operate at LOS E or F would increase from five under existing conditions to 19 under the 2017 No Build condition. The number of traffic lane groups projected to operate at LOS E or F would increase from 37 to 73. Figure 17-16 shows overall levels of service.
- In the Saturday midday pre-game peak hour, the number of locations that are projected to operate at LOS E or F would increase from zero under existing conditions to 19 under the 2017 No Build condition. The number of lane groups projected to operate at LOS E or F would increase from 27 to 58. The unsignalized intersection of the westbound Grand Central

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

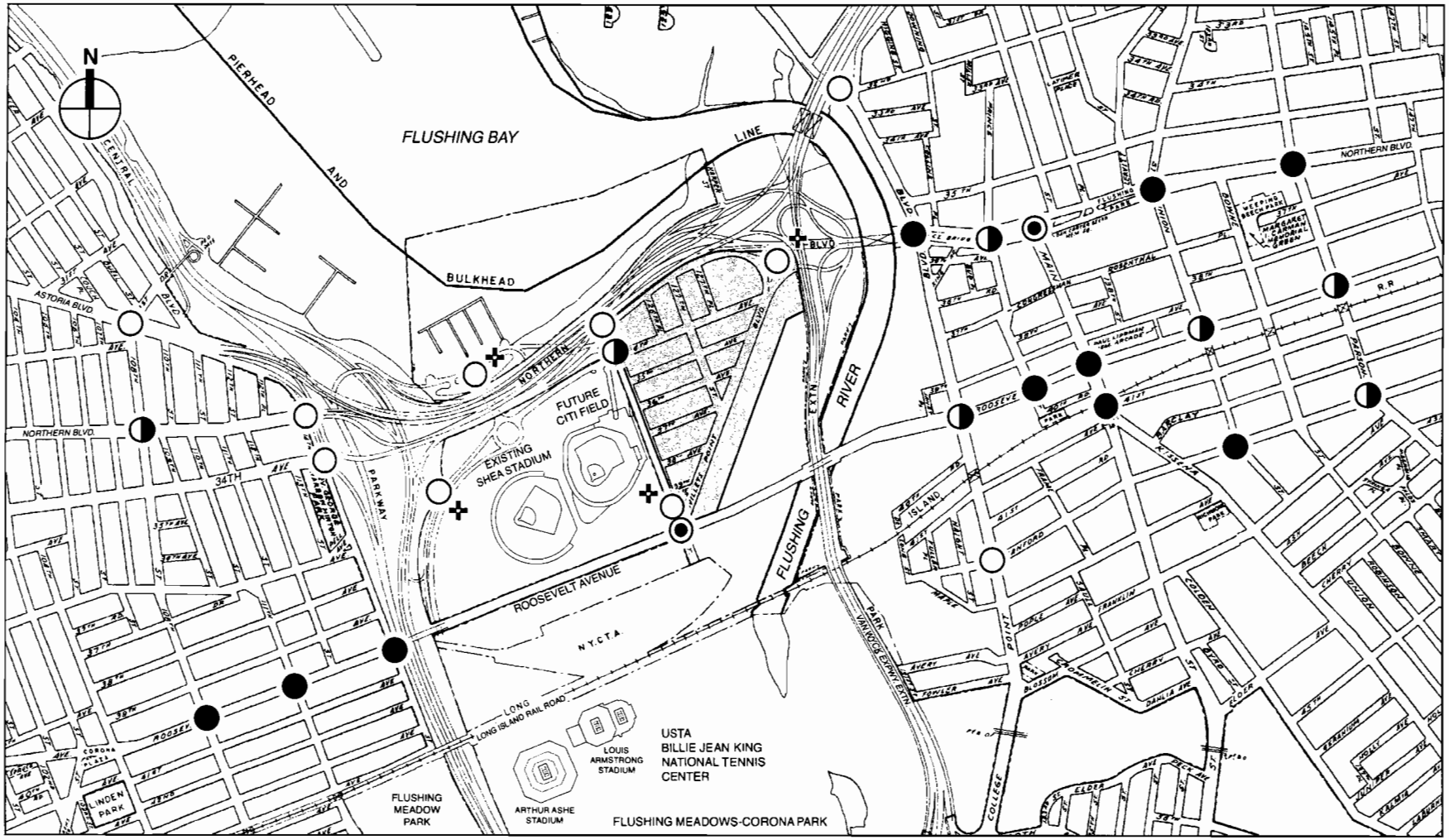
NOTE: *Overall intersection LOS is shown*

This figure has been updated since the DGEIS

Figure 17-13

No Build Traffic Levels of Service
Weekday Non-Game Midday Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

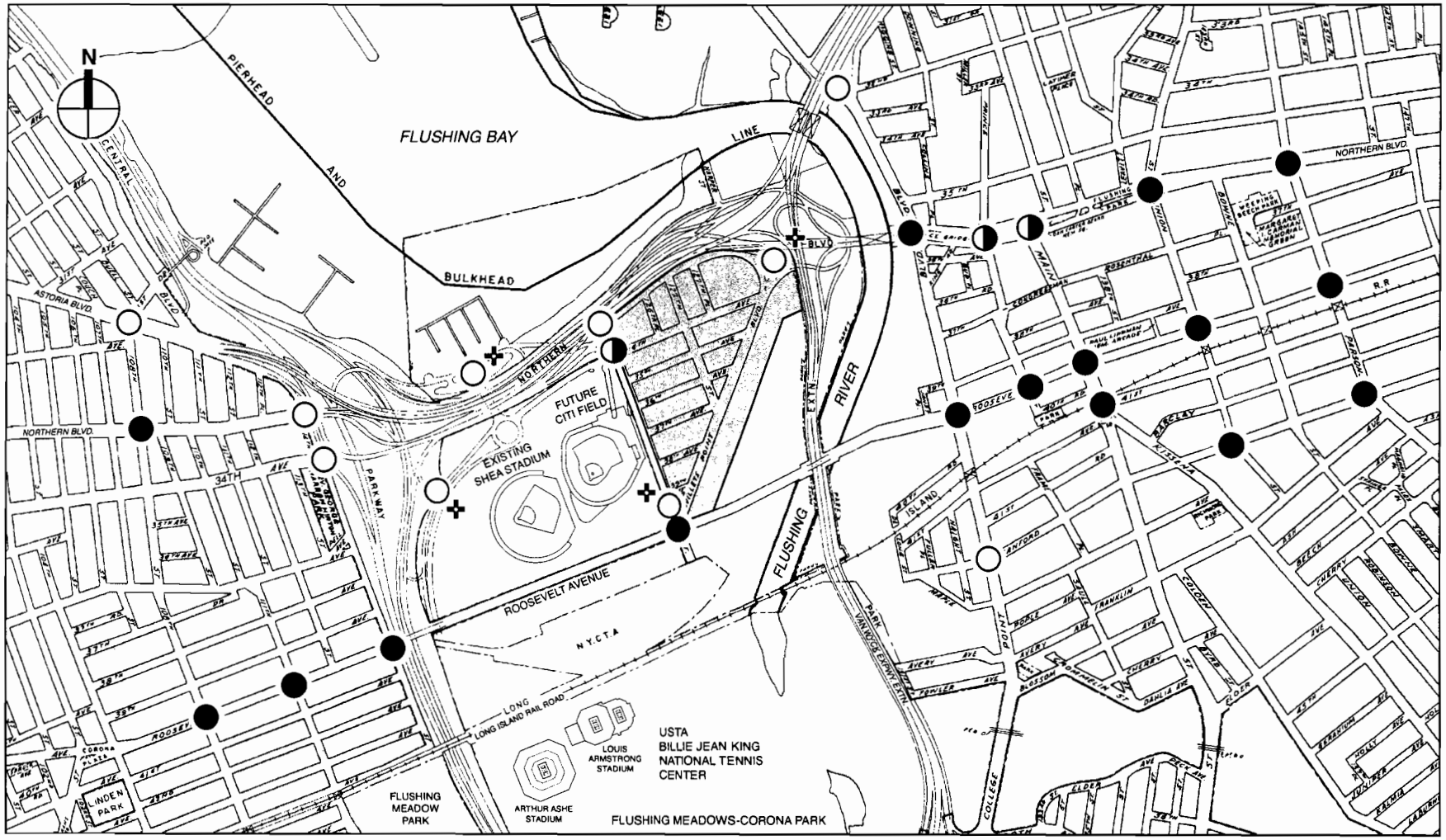
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Figure 17-14

No Build Traffic Levels of Service
Weekday Non-Game PM Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

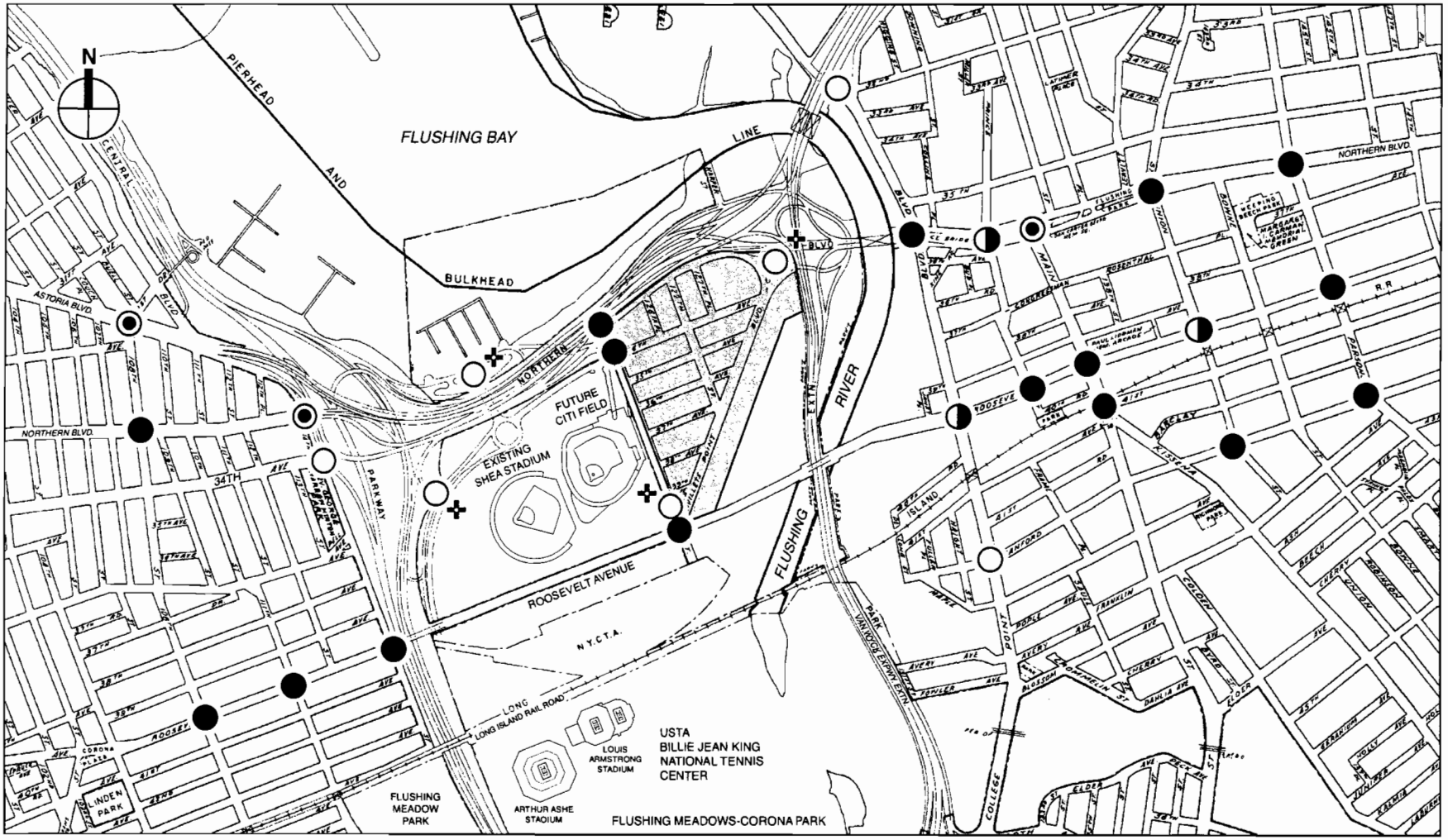
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Figure 17-15

No Build Traffic Levels of Service Saturday Non-Game Midday Peak Hour



Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

This figure has been updated since the DGEIS

Figure 17-16

No Build Traffic Levels of Service Weekday Pre-Game Peak Hour

Parkway ramp at West Park Loop/Stadium Road would operate at LOS F. Figure 17-17 shows overall levels of service.

- In the Saturday PM post-game peak hour, the number of locations that are projected to operate at LOS E or F would increase from three under existing conditions to 19 under the 2017 No Build conditions. The number of lane groups projected to operate at LOS E or F would increase from 32 to 62. The unsignalized intersection of Boat Basin Road at World's Fair Marina would operate at LOS F. Figure 17-18 shows overall levels of service.

PARKING

Based on a background traffic growth rate of one percent per year, demand for off-street parking facilities and on-street parking in the area can generally be expected to increase by the same rate. The maximum occupancy level for parking facilities on non-game days would increase by about one to two percent of total capacity in 2017 from the existing occupancy level range of 12 to 23 percent on a typical weekday without a Mets game. On a typical Saturday without a Mets game, the maximum occupancy level for parking facilities would increase by about one percent of capacity in 2017 from the existing occupancy level range of 8 to 10 percent.

On a typical weeknight with a Mets game, the maximum occupancy between 6:30-7:30 PM would peak at about 38 percent in 2017, compared to approximately 34 percent in 2006. On a typical weekend game day, the maximum occupancy (peaking at 1-2 PM) would increase from 95 percent in 2006 to 100 percent in 2017 (with some of the unmet demand perhaps shifting to other nearby, available off-street parking facilities). This off-street demand projection for a weekend game day is a conservative assumption since it includes increases in Mets fan parking, which are not really subject to annual increases. Regarding game-day parking, it should be noted that with the redevelopment of Shea Stadium into Citi Field, the official stadium parking lots (immediately surrounding the ballpark) would provide approximately the same capacity, according to the 2001 Shea Stadium Redevelopment Project FEIS.

Because the existing weekday non game maximum on-street parking occupancy exceeds the legal capacity during the AM, midday, and PM periods, the on-street parking utilization is assumed to continue to peak above 100 percent after assigning a one percent per year growth rate to the existing parking occupancy. The existing Saturday midday non game on-street parking, which is nearly fully utilized under existing conditions, can be expected to operate at approximately 100 percent utilization. Since the existing weekday pre-game maximum parking occupancy exceeds the legal capacity, the on-street parking utilization is assumed to continue to peak above 100 percent. For weekend game day, the maximum on-street occupancy would increase from 80 percent in 2006 to 89 percent in 2017.

DUAL EVENT CONDITION

According to the Shea Stadium Redevelopment Study FEIS, the proposed access/egress routings for Citi Field would not negatively affect USTA event traffic management, circulation, and operations. Therefore, any expected changes in the Dual Event Condition for the 2017 future without the proposed Plan would be limited to worsened delays and increased queuing on the local streets and highway network due to increased traffic volumes as a result of background traffic growth and the additional developments surrounding the USTA National Tennis Center and Citi Field. This traffic growth would not necessarily require modification of tennis event access and egress routings and traffic management strategies, but would likely increase the severity of additional delays during the Dual Event Condition.

F. PROBABLE IMPACTS OF THE PROPOSED PLAN

Upon completion of the proposed Plan, there would be several likely changes to the roadway network within the Willets Point Development District. The existing Willets Point Boulevard and 34th Avenue within the boundaries of the District would be demapped, in whole or in part, and two connector streets would be built, one beginning at the intersection of 126th Street and 34th Avenue, continuing 34th Avenue into the District, and the other at the intersection of 126th Street and the continuation of Citi Field's southern edge, continuing that line into the District. Both streets would join with each other and connect to the new Van Wyck Expressway access ramps (described below). Two new east-west retail streets would continue into the District from the intersection of 126th Street and the Citi Field entrance center line, and from the intersection of 126th Street and the continuation of Citi Field's northern edge. A third retail street, running north-south, would intersect those retail streets and both connector streets. A new street would follow the border between the District and the abutting MTA lot, and intersect Roosevelt Avenue east of 126th Street. Service streets may be located as one of the streets bounding the two blocks located at the intersection of 126th Street and Northern Boulevard, and the intersection of 126th Street and Roosevelt Avenue.

A new access ramp from the northbound Van Wyck Expressway would be constructed off of the existing Exit 13 ramp and would connect to the new street network within the District at the northeast corner. A new ramp to the southbound Van Wyck Expressway would connect the northeast corner of the District to the expressway mainline immediately south of the interchange with the Whitestone Expressway. The new ramps would provide inbound trip access to the District from the northbound Van Wyck Expressway and outbound trip access from the District to the southbound Van Wyck Expressway and the eastbound and westbound Grand Central Parkway via the existing ramp, which leads westbound toward the elevated southbound Whitestone Expressway along the northern edge of the District.

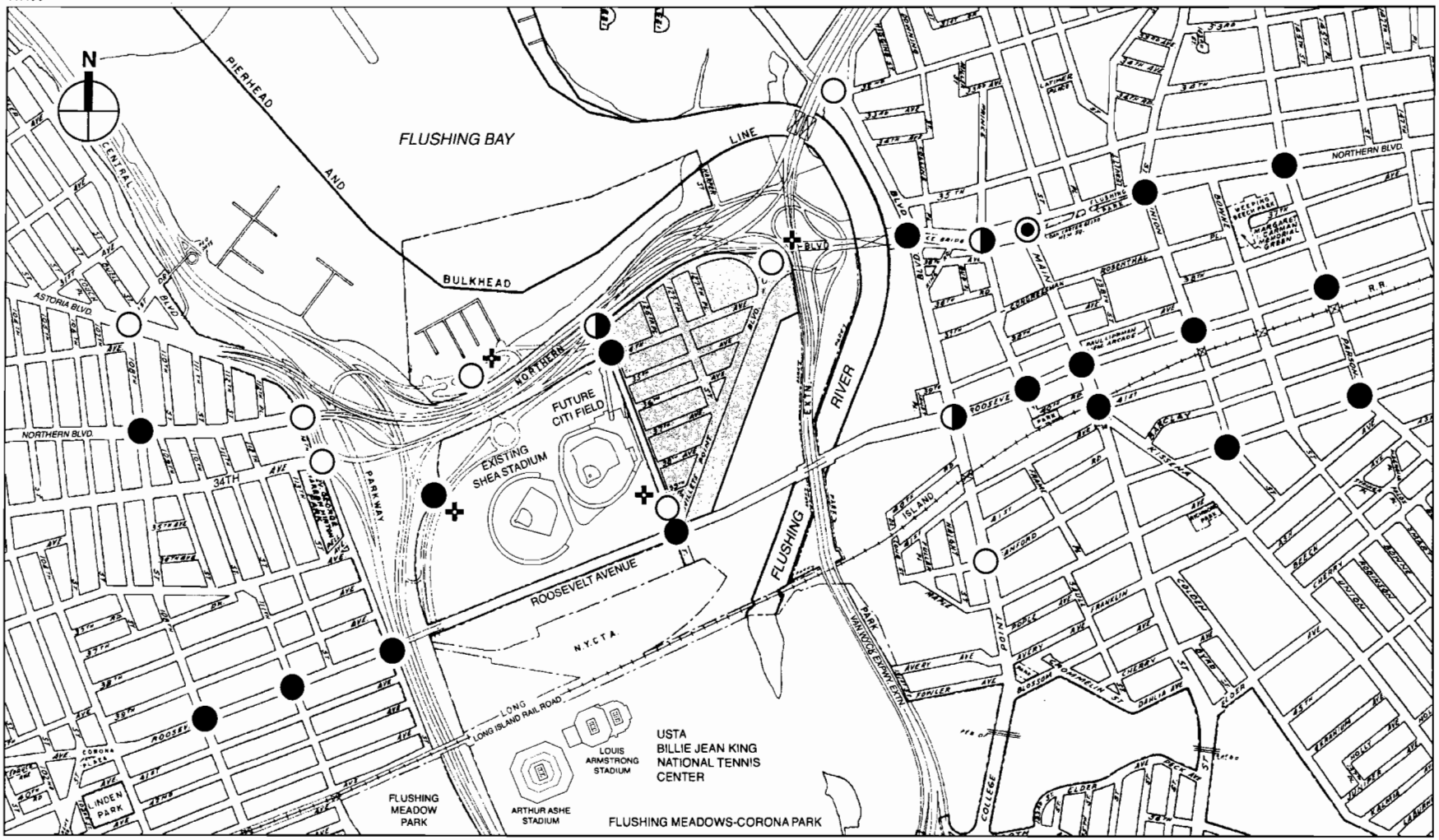
Under the proposed Plan, a street following Citi Field's southern edge would form the northern and western edges of the Lot B development and would extend from the 126th Street (at the intersection with the new southern connector street) to Roosevelt Avenue, west of 126th Street. Roosevelt Avenue and 126th Street would form the southern and eastern edges of the Lot B development. Lot D, a surface parking lot south of Roosevelt Avenue and east of the South Lot, is anticipated to be developed with a five-level parking garage. Lot D would connect with 126th Street south of Roosevelt Avenue and with the adjacent South Lot.

This section includes a determination of the volume of vehicle trips generated under the 2017 Build condition, their distribution within the study area roadway network, the analysis of future traffic levels of service, and the identification of significant impacts as per CEQR Technical Manual guidelines. Mitigation measures are discussed in Chapter 23.

TRIP GENERATION AND MODAL SPLIT

Table 17-17 identifies the development program analyzed for the proposed Plan, including the anticipated development on Lots B and D. Travel demand estimates were prepared for each of the nine land use types. Trip generation estimates were developed in consultation with the New York City Department of Transportation (NYCDOT) and rely on other representative developments with similar land uses, area types, etc., for appropriate trip generation rates. The sources used in determining travel demand factors—shown in Table 17-18 and Table 17-19—are described in further detail below.

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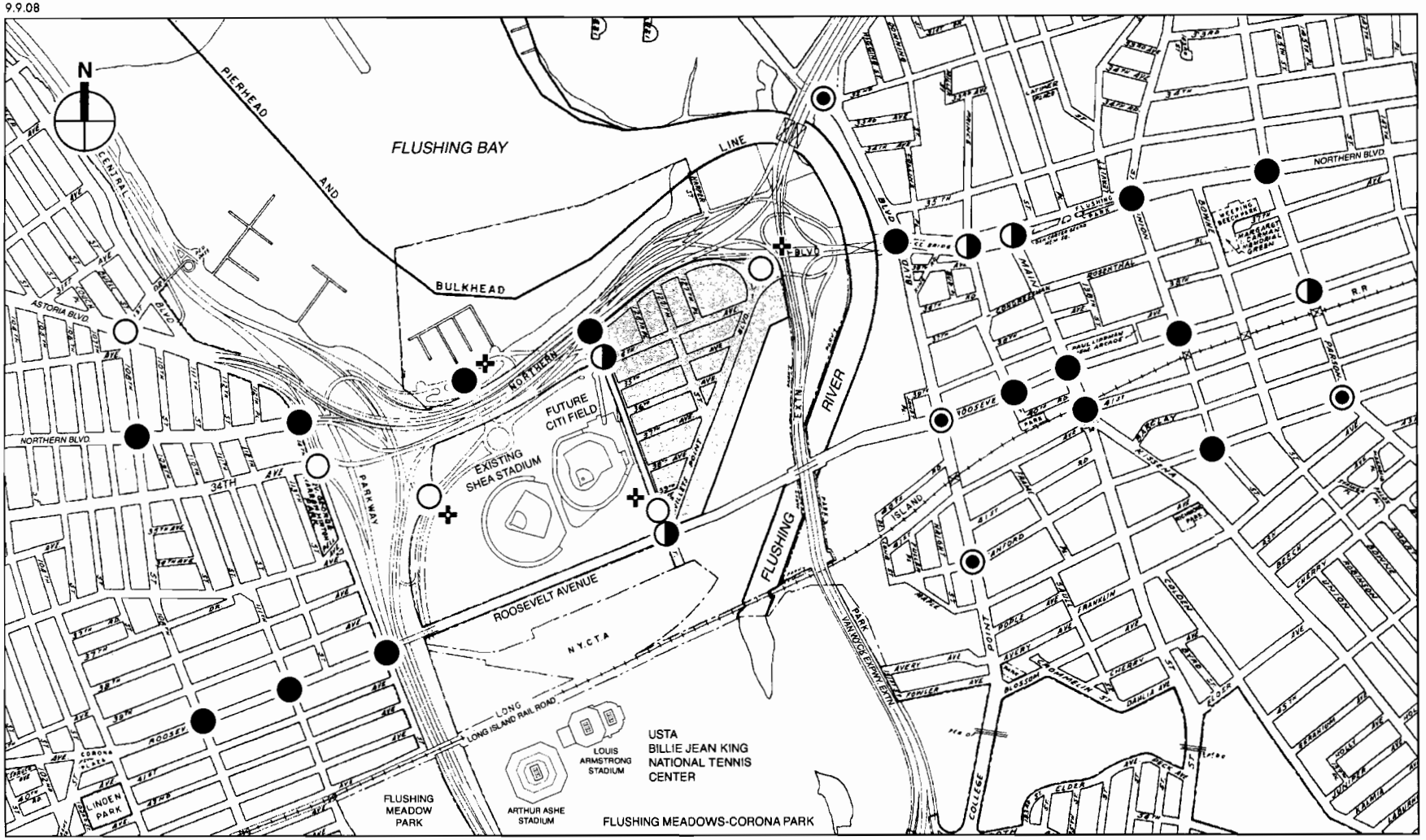


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Figure 17-17

No Build Traffic Levels of Service
Saturday Pre-Game Peak Hour

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Willets Point Development District

Unsignalized Intersection

LOS A, B, or C

LOS D

LOS E

LOS F

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

SCALE

This figure has been updated since the DGEIS

Figure 17-18

No Build Traffic Levels of Service
Saturday Post-Game Peak Hour

Table 17-17
Cumulative Development Program for Analysis

Use	Maximum Development Program
Residential	5,500 DU
Office	500,000 SF
Destination Retail [1]	1,550,000 SF
Local Retail	150,000 SF
Hotel	700 Rooms
Convention/expo Facility	400,000 SF
Community Facility	150,000 SF
School	900 Seats
Lot B Office	280,000 SF
Lot B Destination Retail	184,500 SF

Notes:
[1] The destination retail component includes a 54,000 square foot movie theater complex with approximately 2,700 seats
SF = square feet
DU = dwelling unit

RESIDENTIAL

For the residential component, the weekday trip generation rate used was taken from *Urban Space for Pedestrians (1975)*; the Saturday trip generation rate was developed using rates from *Trip Generation, 7th Edition* (ITE, 2003) to adjust the weekday rate in *Urban Space for Pedestrians*. The weekday delivery trip rate is from *Motor Trucks in the Metropolis* (Wilbur Smith Associates, 1969) while the Saturday delivery trip generation rate is from the Atlantic Yards Arena and Redevelopment Project FEIS (2006).

Census 2000 (U.S Department of Commerce Bureau of the Census, 2000) journey-to-work data were used to develop the modal split for the weekday AM, midday, PM, and evening peak periods based on data for the following census tracts in Queens County: 381, 383, 399, 401, 403, 431, 851, 853, 855, 857, 865, 867, 871, and 875. Census Tract 383, which encompasses the District, is a very large tract with few residential units; therefore, the study area was expanded to include tracts in Corona and Flushing. These tracts have access and transit characteristics similar to the project site. The Saturday modal split was adjusted from the Census journey-to-work data to reflect anticipated higher auto and walk shares.

Auto occupancy rates from the journey-to-work data were used for all analysis time periods. The vehicle occupancy for auto trips was applied to taxi trips.

For the weekday analysis periods, the temporal distribution is from the No. 7 Subway Extension —Hudson Yards Rezoning and Development Program (Hudson Yards Rezoning) FGEIS (2004) and the directional distribution is from Atlantic Yards Arena and Redevelopment Project FEIS (2006). For the Saturday non-game midday peak, the temporal and directional distributions are from *Trip Generation, 7th Edition* (ITE, 2003). The Saturday pre-game and post-game temporal and directional distributions are from the Atlantic Yards Arena and Redevelopment Project FEIS (2006).

Table 17-18
Weekday Trip Generation Factors

Rates	Residential				Office				Destination Retail				Local Retail				Convention/Expo Facility			
Person Trips																				
Daily Trip Rate	8.075 / DU [1]				18.0 / 1,000 SF [4]				78.2 / 1,000 SF [7,8]				205.0 / 1,000 SF [9]				46.2 / 1,000 SF [9]			
Link Trip Credit									15% [17]				15% [17]							
Modal Split	2				2				7				7,17				11,17, 21			
	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Auto	32.0%	32.0%	32.0%	32.0%	51.0%	25.5%	51.0%	51.0%	59.0%	59.0%	59.0%	59.0%	15.0%	15.0%	15.0%	15.0%	68.0%	68.0%	68.0%	68. 0%
Taxi	1.0%	1.0%	1.0%	1.0%	1.0%	0.5%	1.0%	1.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.0%	8.0%	8.0%
Subway	46.0%	46.0%	46.0%	46.0%	16.0%	8.0%	16.0%	16.0%	15.0%	15.0%	15.0%	15.0%	5.0%	5.0%	5.0%	5.0%	12.0%	12.0%	12.0%	12. 0%
Bus	9.0%	9.0%	9.0%	9.0%	14.0%	7.0%	14.0%	14.0%	18.0%	18.0%	18.0%	18.0%	10.0%	10.0%	10.0%	10.0%	2.0%	2.0%	2.0%	2.0%
Walk Only	12.0%	12.0%	12.0%	12.0%	18.0%	59.0%	18.0%	18.0%	5.0%	5.0%	5.0%	5.0%	70.0%	70.0%	70.0%	70.0%	10.0%	10.0%	10.0%	10. 0%
Veh. Occ.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Auto	1.32 [2]	1.32 [2]	1.32 [2]	1.32 [2]	1.14 [2]	1.14 [2]	1.14 [2]	1.14 [2]	2.05 [7]	2.05 [7]	2.05 [7]	2.05 [7]	2.00 [5]	2.00 [5]	2.00 [5]	2.00 [5]	2.30 [9]	2.30 [9]	2.30 [9]	2.30 [9]
Taxi	1.32 [2]	1.32 [2]	1.32 [2]	1.32 [2]	1.14 [2]	1.14 [2]	1.14 [2]	1.14 [2]	2.05 [7]	2.05 [7]	2.05 [7]	2.05 [7]	2.00 [5]	2.00 [5]	2.00 [5]	2.00 [5]	1.80 [9]	1.80 [9]	1.80 [9]	1.80 [9]
Temporal Dist.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
	9.1% [3]	4.7% [3]	10.7% [3]	8.3% [3]	11.8% [4]	5.0% [4]	13.7% [4]	0.9% [4]	2.4% [8]	8.7% [8]	8.9% [8]	7.7% [8]	3.1% [9]	19% [9]	9.6% [9]	7.6% [1]	5.5% [3]	7.1% [3]	12.7% [3]	11.7% [3]
Percent In	20.0% [5]	51.0% [5]	65.0% [5]	70.0% [5]	96.2% [3]	48.0% [3]	5.0% [3]	20.0% [3]	61.0% [8]	55.0% [8]	47.0% [8]	55.0% [8]	50.0% [9]	50.0% [9]	50.0% [9]	50.0% [1]	100.0% [3]	73.0% [3]	3.0% [3]	0.0% [3]
Percent Out	80.0%	49.0%	35.0%	30.0%	4.0%	52.0%	95.0%	80.0%	39.0%	45.0%	53.0%	45.0%	50.0%	50.0%	50.0%	50.0%	0.0%	27.0%	97.0%	100.0%
Delivery Trips																				
Daily Trip Rate	0.06 / DU [6]				0.32 / 1,000 SF [20]				0.70 / 1,000 SF [7]				0.70 / 1,000 SF [9]				0.70 / 1,000 SF [9]			
Temporal Dist.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Percent In/Out	12.0% [19]	9.0% [19]	2.0% [19]	2.0% [19]	10.0% [14]	11.0% [14]	2.0% [14]	2.0% [17]	7.7% [3]	11.0% [3]	1.0% [3]	1.0% [3]	7.7% [9]	11.0% [9]	1.0% [9]	1.0% [17]	7.9% [9]	14.7% [9]	1.1% [9]	1.1% [9]
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Rates	Movie Theater				Hotel				Community Facility				PS/IS - Students				PS/IS - Faculty			
Person Trips																				
Daily Trip Rate	3.26 / Seat [5]				5.82 / Room [5]				34.0 / 1,000 SF [23]				1.8 / Seat [15]				2.0 / Staff [15]			
Link Trip Credit																				
Modal Split	22				7				2				15,17				15			
	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Auto	56.0%	56.0%	56.0%	56.0%	70.0%	70.0%	70.0%	70.0%	16.0%	16.0%	16.0%	16.0%	15.0%	15.0%	15.0%	15.0%	50.0%	50.0%	50.0%	50. 0%
Taxi	7.0%	7.0%	7.0%	7.0%	15.0%	15.0%	15.0%	15.0%	0.5%	0.5%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subway	18.0%	18.0%	18.0%	18.0%	5.0%	5.0%	5.0%	5.0%	23.0%	23.0%	23.0%	23.0%	15.0%	15.0%	15.0%	15.0%	50.0%	50.0%	50.0%	50. 0%
Bus	8.0%	8.0%	8.0%	8.0%	5.0%	5.0%	5.0%	5.0%	4.5%	4.5%	4.5%	4.5%	10.0%	10.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%
Walk Only	11.0%	11.0%	11.0%	11.0%	5.0%	5.0%	5.0%	5.0%	56.0%	56.0%	56.0%	56.0%	60.0%	60.0%	60.0%	60.0%	0.0%	0.0%	0.0%	0.0%
Veh. Occ.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Auto	2.52 [22]	2.52 [22]	2.52 [22]	2.52 [22]	1.60 [5]	1.60 [5]	1.60 [5]	1.60 [5]	1.50 [14]	1.50 [14]	1.50 [14]	1.50 [14]	1.30 [15]	1.30 [15]	1.30 [15]	1.30 [15]	1.20 [15]	1.20 [15]	1.20 [15]	1.20 [15]
Taxi	2.30 [22]	2.30 [22]	2.30 [22]	2.30 [22]	.4 0 [5]	1.40 [5]	1.40 [5]	1.40 [5]	1.50 [14]	1.50 [14]	1.50 [14]	1.50 [14]	1.30 [15]	1.30 [15]	1.30 [15]	1.30 [15]	1.20 [15]	1.20 [15]	1.20 [15]	1.20 [15]
Temporal Dist.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
	1.0% [5]	3.0% [5]	8.0% [5]	13.0% [5]	6.6% [5]	8.3% [5]	7.7% [5]	6.6% [5]	7.2% [14]	7.1% [14]	8.3% [14]	6.4% [17]	45.0% [15]	0.0% [15]	0.0% [17]	0.0% [17]	45.0% [15]	0.0% [17]	5.0% [17]	0.0% [17]
Percent In	95.0% [5]	82.0% [5]	54.0% [5]	53.0% [5]	41.0% [5]	68.0% [5]	59.0% [5]	60.0% [5]	94.0% [14]	45.0% [14]	42.0% [14]	50.0% [17]	100.0% [15]	0.0% [15]	0.0% [15]	0.0% [17]	100.0% [15]	0.0% [17]	0.0% [15]	0.0% [17]
Percent Out	5.0%	38.0%	46.0%	47.0%	59.0%	32.0%	41.0%	40.0%	6.0%	55.0%	58.0%	50.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Delivery Trips																				
Daily Trip Rate	0.02 / Seat [5]				0.24 / Room [13]				0.38 / 1,000 SF [14]				0.04 / Seat [15,17]				N/A			
Temporal Dist.	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE	AM	MD	PM	EVE
Percent In/Out	12.0% [5]	11.0% [5]	1.0% [5]	1.0% [5]	12.0% [5]	9.0% [5]	0.0% [5]	0.0% [5]	6.0% [14]	11.0% [14]	1.0% [14]	0.0% [17]	9.7% [9]	7.8% [9]	5.1% [9]	0.0% [17]	0.0% [17]	0.0% [17]	0.0% [17]	0.0% [17]
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Notes: * Truck trips rates for the school component were estimated using the rates for the community facility use. The factor was converted from 1,000 SF to Seat by assuming 6 students per 1,000 SF

Sources:

(1) Pushkarev & Zupan, *Urban Space for Pedestrians* (1975)
(2) U.S. Department of Commerce, Bureau of the Census, Census 2000.
(3) *No. 7 Subway Extension-Hudson Yards Rezoning and Development Program Draft Generic Environmental Impact Statement* (2004)
(4) New York City Mayor's Office of Environmental Coordination, *City Environmental Quality Review Technical Manual* (2001)
(5) *Atlantic Yards Redevelopment Project Final Environmental Impact Statement* (2006)
(6) Wilbur Smith Associates, *Motor Trucks in the Metropolis* (1969)
(7) *Gateway Center at Bronx Terminal Market Final Environmental Impact Statement* (2005)
(8) Institute for Transportation Engineers, *Trip Generation Manual, 7th Edition* (2003)
(9) *Coliseum Redevelopment Project Final Supplemental Environmental Impact Statement* (1997)
(10) *Javits Convention Center Expansion and Renovation Draft Generic Environmental Impact Statement* (2006)
(11) *Shea Stadium Redevelopment Final Environmental Impact Statement* (2001)
(12) *Atlantic Center Plaza Final Environmental Impact Statement* (1999)
(13) *42 Street Development Project: General Project Plan Amendment Final Supplemental Environmental Impact Statement* (1994)
(14) *Downtown Brooklyn Development Final Environmental Impact Statement* (2004)
(15) *PS 260Q School Facility* (2005)
(16) *World Trade Center Memorial and Redevelopment Plan Final Generic Environmental Impact Statement* (2004)
(17) AKRF assumption
(18) *Gateway Estates FEIS* (1996)
(19) *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts*, FHWA, February 1981
(20) PHA June 10, 2004 survey at existing Midtown and Lower Manhattan office buildings
(21) *Pier 94, Unconvention Center, Inc. EAS* (2003)
(22) *Loews Elmhurst Multiplex FEIS* (2000)
(23) *Arverne Urban Renewal Area FEIS* (2003)

Table 17-19
Saturday Trip Generation Factors

Rates	Residential			Office			Destination Retail			Local Retail		
Person Trips												
Daily Trip Rate	9.575 / DU [1,8]			0.9 / 1,000 SF [3]			92.5 / 1,000 SF [7,8]			205.0 / 1,000 SF [9,17]		
Link Trip Credit							15% [17]			15% [17]		
Modal Split	[2,17]			[2]			[7]			[7,17]		
	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Auto	40.0%	40.0%	40.0%	51.0%	51.0%	51.0%	59.0%	59.0%	59.0%	15.0%	15.0%	15.0%
Taxi	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%
Subway	26.0%	26.0%	26.0%	16.0%	16.0%	16.0%	13.0%	13.0%	13.0%	5.0%	5.0%	5.0%
Bus	3.0%	3.0%	3.0%	14.0%	14.0%	14.0%	18.0%	18.0%	18.0%	10.0%	10.0%	10.0%
Walk Only	30.0%	30.0%	30.0%	18.0%	18.0%	18.0%	5.0%	5.0%	5.0%	70.0%	70.0%	70.0%
Vehicle Occupancy	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Auto	1.32 [2]	1.32 [2]	1.32 [2]	1.14 [2]	1.14 [2]	1.14 [2]	2.49 [7]	2.49 [7]	2.49 [7]	2.00 [5]	2.00 [5]	2.00 [5]
Taxi	1.32 [2]	1.32 [2]	1.32 [2]	1.14 [2]	1.14 [2]	1.14 [2]	2.49 [7]	2.49 [7]	2.49 [7]	2.00 [5]	2.00 [5]	2.00 [5]
Temporal Distribution	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
	8.0% [8]	7.0% [5]	7.2% [5]	15.0% [5]	15.0% [5]	15.0% [5]	11.5% [21]	8.0% [7]	6.0% [7]	9.5% [9]	9.5% [5]	9.5% [5]
Percent In	57.0% [8]	50.0% [5]	50.0% [5]	60.0% [5]	15.0% [5]	60.0% [5]	51.0% [21]	53.6% [7]	47.5% [7]	55.0% [9]	55% [5]	45% [5]
Percent Out	43.0%	50.0%	50.0%	40.0%	85.0%	40.0%	49.0%	46.4%	52.5%	45.0%	45.0%	55.0%
Delivery Trips												
Daily Trip Rate	0.02 / DU [5]			0.02 / 1,000 SF [5]			0.04 / 1,000 SF [5]			0.04 / 1,000 SF [5]		
Temporal Distribution	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Percent In/Out	9.0% [20]	9.0% [20]	0.0% [17]	11.0% [5]	11.0% [5]	3.0% [5]	11.0% [5]	11.0% [5]	2.0% [5]	11.0% [9]	11.0% [5]	2.0% [5]
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Rates	Convention/Expo Facility			Movie Theater			Hotel			Community Facility		
Person Trips												
Daily Trip Rate	46.2 / 1,000 SF [9]			6.25 / Seat [23]			8.61 / Room [5]			34 / 1,000 SF [24]		
Link Trip Credit												
Modal Split	[11,17,22]			[23]			[7]			[2]		
	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Auto	70.0%	70.0%	70.0%	56.0%	56.0%	56.0%	70.0%	70.0%	70.0%	16.0%	16.0%	16.0%
Taxi	6.0%	6.0%	6.0%	7.0%	7.0%	7.0%	15.0%	15.0%	15.0%	0.5%	0.5%	0.5%
Subway	12.0%	12.0%	12.0%	18.0%	18.0%	18.0%	5.0%	5.0%	5.0%	23.0%	23.0%	23.0%
Bus	2.0%	2.0%	2.0%	8.0%	8.0%	8.0%	5.0%	5.0%	5.0%	4.5%	4.5%	4.5%
Walk Only	10.0%	10.0%	10.0%	11.0%	11.0%	11.0%	5.0%	5.0%	5.0%	56.0%	56.0%	56.0%
Vehicle Occupancy	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Auto	2.60 [9]	2.60 [9]	2.60 [9]	2.52 [23]	2.52 [23]	2.52 [23]	1.60 [5]	1.60 [5]	1.60 [5]	1.50 [14]	1.50 [14]	1.50 [14]
Taxi	1.70 [9]	1.70 [9]	1.70 [9]	2.30 [23]	2.30 [23]	2.30 [23]	1.40 [5]	1.40 [5]	1.40 [5]	1.50 [14]	1.50 [14]	1.50 [14]
Temporal Distribution	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
	14.4% [3]	12.0% [3]	13.8% [3]	5.0% [5]	5.0% [5]	8.0% [5]	7.50% [5]	7.50% [5]	7.50% [5]	14.1% [8]	14.1% [8]	14.1% [8,17]
Percent In	50.0% [3]	64.0% [3]	41.0% [3]	62.0% [5]	62.0% [5]	38.0% [5]	56.0% [5]	56.0% [5]	56.0% [5]	49.0% [8]	49.0% [8]	48.0% [8,17]
Percent Out	50.0%	36.0%	59.0%	38.0%	38.0%	62.0%	44.0%	44.0%	44.0%	51.0%	51.0%	52.0%
Delivery Trips												
Daily Trip Rate	0.04 / 1,000 SF [9]			0.00 / Seat [5]			0.08 / Room [5,13]			0.0 / 1,000 SF [17]		
Temporal Distribution	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game	Non-Game	Pre-Game	Post-Game
Percent In/Out	14.7% [9]	14.7% [9]	1.1% [17]	0.0% [5]	0.0% [5]	0.0% [5]	9.0% [5]	9.0% [5]	0.0% [5]	0.0% [17]	0.0% [17]	0.0% [17]
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

Notes:
* Trip rates for the community facility component were developed based on a comparison of weekday rates with rates presented in the Institute for Transportation Engineers, Trip Generation 7th Edition (2003).
** The project's school component would not generate trips on a Saturday.

Sources:
(1) Pushkarev & Zupan, *Urban Space for Pedestrians* (1975)
(2) U.S. Department of Commerce, Bureau of the Census, Census 2000.
(3) *No. 7 Subway Extension-Hudson Yards Rezoning and Development Program Draft Generic Environmental Impact Statement* (2004)
(4) New York City Mayor's Office of Environmental Coordination, *City Environmental Quality Review Technical Manual* (2001)
(5) *Atlantic Yards Redevelopment Project Final Environmental Impact Statement* (2006)
(6) Wilbur Smith Associates, *Motor Trucks in the Metropolis* (1969)
(7) *Gateway Center at Bronx Terminal Market Final Environmental Impact Statement* (2005)
(8) Institute for Transportation Engineers, *Trip Generation Manual, 7th Edition* (2003)
(9) *Coliseum Redevelopment Project Final Supplemental Environmental Impact Statement* (1997)
(10) *Javits Convention Center Expansion and Renovation Draft Generic Environmental Impact Statement* (2006)
(11) *Shea Stadium Redevelopment Final Environmental Impact Statement* (2001)
(12) *Atlantic Center Plaza Final Environmental Impact Statement* (1999)
(13) *42 Street Development Project: General Project Plan Amendment Final Supplemental Environmental Impact Statement* (1994)
(14) *Downtown Brooklyn Development Final Environmental Impact Statement* (2004)
(15) *Mott Haven School Facility Draft Environmental Impact Statement* (2006)
(16) *World Trade Center Memorial and Redevelopment Plan Final Generic Environmental Impact Statement* (2004)
(17) AKRF assumption
(18) *Gateway Estates FEIS* (1996)
(19) Saturday modal split adjusted to reflect anticipated higher auto and walk shares.
(20) *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts*, FHWA, February 1981
(21) *Pier 94, Unconvention Center, Inc. EAS* (2003)
(22) *Loews Elmhurst Multiplex FEIS* (2000)
(23) *Arverne Urban Renewal Area FEIS* (2003)

The weekday and Saturday non-game and pre-game delivery trip temporal distributions are from *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts*, Federal Highway Administration (FHWA), February 1981. The Saturday post-game temporal distribution was developed using professional judgment.

OFFICE

The trip generation analysis for the office component used daily trip generation rates reported in the *CEQR Technical Manual* (2001) and the Hudson Yards Rezoning FGEIS for the weekday and Saturday trip generation, respectively. The weekday delivery trip generation rate is based on surveys conducted at office buildings in Midtown and Lower Manhattan. The Saturday delivery trip generation rate used was taken from the Atlantic Yards Arena and Redevelopment Project FEIS (2006).

Census 2000 reverse journey-to-work data were used to develop the modal split and vehicle occupancies for the AM, PM, weekday pre-game, and Saturday peak periods, using the Census tracts listed previously for the residential use. For the weekday midday peak period, it was assumed that a large percentage of office workers would walk to lunch within and near the project site. To estimate the midday modal split, the AM modal split for automobiles, taxis, subway, and bus were reduced by half and the balance was applied to the walk-only component. As with the residential use, the vehicle occupancy for taxi trips was assumed to be the same as for auto trips; both are from Census reverse journey-to-work data.

The weekday temporal and directional distributions are from the *CEQR Technical Manual* and the Hudson Yards Rezoning FGEIS, respectively. Saturday temporal and directional distribution rates are from the Atlantic Yards Arena and Redevelopment Project FEIS.

For temporal distribution for delivery vehicles: Downtown Brooklyn Development, the FEIS (2004), professional judgment, and the Atlantic Yards Arena and Redevelopment Project FEIS were used for various analysis periods.

DESTINATION RETAIL

The basis of the weekday and Saturday trip generation rates for the proposed Plan's destination retail component was the Gateway Center at Bronx Terminal Market FEIS (2005). That study used rates based on surveys at the Queens Place shopping mall and analyses for projects in Harlem and Brooklyn. The Gateway Center at Bronx Terminal Market FEIS presented peak hour trip rates, temporal distribution, and directional distribution for the weekday midday, weekday PM, and Saturday midday peak hours. A weekday and Saturday daily trip rate was projected by comparing the rates from the Gateway Center at Bronx Terminal Market FEIS to rates presented in the Institute for Transportation Engineers, *Trip Generation, 7th Edition* (2003). Because it is expected that some of the retail trips will be made by the proposed Plan's residents and workers en route to or from their homes or offices in the District, a 15 percent linked trip credit was applied to the destination retail trip generation estimates. The 15 percent credit is consistent with guidance presented in the *CEQR Technical Manual.*

Due to its proximity, activities at the stadium would influence retail patronage and local traffic conditions at and near the District. Therefore, the Saturday traffic analysis considered non-game and game-day scenarios. On a game day, the peak period of the background network traffic would not correspond with the peak period for retail traffic. Therefore, trip generation rates were adjusted to reflect retail activity during the overall peak period. In addition, the temporal

distribution of traffic throughout the day was adjusted to reflect the fact that retail patrons are less likely to travel to the District immediately before or after a Mets game. For game days, the number of retail trips was reduced for the pre-game and post-game peak periods under the assumption that these trips would occur during other times of the day. This same methodology was used in the traffic analysis presented in the Gateway Center at Bronx Terminal Market FEIS since that retail center is proximate to Yankee Stadium.

The weekday delivery trip generation rate was taken from the Gateway Center at Bronx Terminal Market FEIS and the Saturday delivery trip generation rate was taken from Atlantic Yards Arena and Redevelopment Project FEIS.

The rates presented in the Gateway Center at Bronx Terminal Market FEIS were also used for the modal split and vehicle occupancies for the destination retail component. The ITE trip generation manual was used to estimate the temporal and directional distribution for the weekday peak periods. The Jamaica Plan: FEIS (2007) provided temporal and directional distribution for the Saturday non-game peak period. The Gateway Center at Bronx Terminal Market FEIS was the source of temporal and directional distribution for the Saturday pre-game and post-game analysis periods.

The weekday AM, midday, and PM temporal distribution for delivery vehicles was taken from the Hudson Yards Rezoning FGEIS, while the weekday pre-game temporal distribution was developed using professional judgment. The Atlantic Yards Arena and Redevelopment Project FEIS was the source for Saturday temporal distribution for delivery vehicles.

LOCAL RETAIL

The weekday and Saturday daily trip generation and delivery vehicle trip generation rates for the proposed Plan's local neighborhood retail component were taken from the Coliseum Redevelopment Project Final Supplemental Environmental Impact Statement ([SEIS] 1997). A 15 percent linked trip credit was applied to the local retail trip generation estimates.

The modal split was derived from the Gateway Estates (Brooklyn) FEIS (1996). The walk mode share was reduced from 80 percent to 70 percent; this 10 percent of trips was reassigned with half (5 percent) assigned to local bus and half (5 percent) assigned to subway. The local retail use was not assumed to generate taxi trips.

Vehicle occupancy rates were taken from the Atlantic Yards Arena and Redevelopment Project FEIS. The Coliseum FSEIS provided temporal distribution and directional distribution for the weekday AM, midday, and PM peak periods as well as for the Saturday non-game peak period. The weekday evening temporal and directional distribution is from *Urban Space for Pedestrians*. The Saturday pre-game and post-game temporal and directional distributions are from the Atlantic Yards Arena and Redevelopment Project FEIS. It was assumed that activities at Shea Stadium would not affect the Saturday temporal distribution for the local retail component.

The Coliseum FSEIS provided the weekday AM, midday, and PM and Saturday non-game temporal distributions for delivery vehicles. The weekday pre-game temporal distribution for delivery vehicles was based on professional judgment. The Saturday pre-game and post-game delivery vehicle temporal distribution was taken from the Atlantic Yards Arena and Redevelopment Project FEIS.

MOVIE THEATER

Person trips and vehicle trips for the proposed Plan's movie theater component were estimated using rates presented in the Loews Elmhurst Multiplex FEIS (2000). This source also provided the modal split and auto and taxi occupancy rates.

Weekday and Saturday delivery trip generation rates and the temporal and directional distribution rates for both visitor/employee trips and deliveries were taken from the Atlantic Yards Redevelopment Project FEIS (2006), with the sole exception being the evening temporal distribution rate for delivery trips, which was based on professional judgment.

CONVENTION CENTER

The trip rates for the convention center component were developed from several sources. The daily trip generation rate, the weekday and Saturday delivery trip generation rate, and the weekday and Saturday auto and taxi occupancy rates were taken from the Coliseum Redevelopment Project Final SEIS (1997).

The modal split was developed using rates from the Pier 94, Unconvention Center, Inc. EAS (2003) and the Shea Stadium Redevelopment EIS (2001). The temporal and directional distribution rates for all analysis time periods were taken from the Hudson Yards Rezoning FGEIS. For the weekday AM, midday, and PM time periods as well as the Saturday non-game and pre-game time periods, the delivery truck temporal distribution was taken from the Coliseum Redevelopment Project Final SEIS (1997). The temporal distribution for the weekday pre-game and the Saturday post-game time periods was developed using professional judgment.

HOTEL

The weekday and Saturday daily trip generation rates, temporal and directional distribution, and vehicle occupancy rates for the hotel use were taken from the Atlantic Yards Arena and Redevelopment Project FEIS. Rates from the Gateway Center at Bronx Terminal Market FEIS were used to estimate the modal split. The 42nd Street Redevelopment Project General Project Plan Amendment FSEIS was the source of delivery trip generation data.

COMMUNITY FACILITY

For the proposed Plan's community facility component, the weekday and Saturday trip generation rates were based on rates for a community recreation center presented in the Arverne Urban Renewal Area FEIS (2003). The weekday delivery trip generation rate, the weekday AM, midday, and PM temporal and directional distributions for employee/visitor trips as well as delivery trips, and the auto and taxi occupancy rates were based on rates for a community facility presented in the Downtown Brooklyn Development FEIS (2004). The Saturday delivery trip generation rate was developed based on professional judgment.

The Downtown Brooklyn Development FEIS did not present a temporal or directional distribution for the weekday pre-game peak period. Therefore, the weekday PM temporal distribution presented in the Downtown Brooklyn Development FEIS was adjusted using the proportional relationship between weekday PM and evening temporal distribution for the residential use to derive the evening temporal distribution for the community facility. The directional distribution for the weekday evening peak period was developed using professional judgment. The Downtown Brooklyn Development FEIS also did not present rates for the

Saturday peak periods; therefore, Saturday rates were developed based on a comparison of weekday and weekend rates presented in ITE's *Trip Generation, 7th Edition.*

The modal split for the community facility use was developed based on journey-to-work data from the Census. However, the journey-to-work data were adjusted to reflect a larger percentage of walk trips and a lesser percentage of trips by other modes. This assumption was predicated on the assumption that a majority of the community facility trips would be made by the proposed Plan's residents. Delivery trip temporal distribution rates for the weekday evening and Saturday peak periods were developed using professional judgment.

SCHOOL

The trip generation analysis for the school component was based on rates developed by the New York City School Construction Authority for their analyses of proposed school projects in New York City. The proposed Plan's school component would generate trips only during the AM and PM peak commuter hours. Because students and staff typically depart before the PM peak commuter hour, the temporal distribution reflects reduced student and staff trips in the PM commuter peak hour. Students and staff were assumed to typically remain on campus and, therefore, would not generate trips during the midday peak hour. Also, the school would not generate trips during the weekday pre-game peak period or on weekends.

Rates presented in the environmental studies for the P.S. 260Q School Facility Environmental Assessment Form and Supplemental Studies (2005) were used for the weekday trip generation rate, temporal distribution, modal split, and vehicle occupancy rates for the student trips.

The delivery trip generation rate was adjusted from the delivery trip generation rate for the community facility. The temporal distribution for delivery trips was taken from *Motor Trucks in the Metropolis.*

Rates from the *P.S. 260Q School Facility* study also provided for the trip generation rate, modal split, temporal and directional distribution, and vehicle occupancy for staff trips. As with the student trips, it was assumed that there would be negligible trip generation during the weekday pre-game and Saturday peak periods.

TRAVEL DEMAND ANALYSIS RESULTS

The volume of person trips and vehicle trips expected to be generated by the proposed Plan would be substantial. Table 17-20 presents the person trips generated by the Plan. The Plan would generate an estimated 11,728, 19,331, 21,413, and 25,020 person trips during the weekday AM, midday, PM, and Saturday midday (non-game days) peak hours, respectively. On game days, the Plan would generate an estimated 17,411 person trips during the weekday PM pre-game peak hour and 19,931 and 18,524 person trips in the Saturday pre-game and post-game hours, respectively.

Table 17-21 presents the vehicle trip estimates for the proposed Plan. The Plan would generate a total of 3,302, 4,905, 6,090, and 6,625 vehicle (auto, taxi, and delivery) trips during the weekday AM, midday, PM, and Saturday midday (non-game days) peak hours, respectively. On game days, the Plan would generate an estimated 4,879 vehicle trips during the weekday PM pre-game peak hour and 5,205 and 4,866 vehicle trips in the Saturday pre-game and post-game hours, respectively. The Plan's taxi trips were adjusted based on the assumption that half of the arriving taxis would depart with a fare, which is consistent with most trip generation analysis performed for projects in New York City.

Table 17-20
Proposed Plan Person Trips by Mode

Use	Auto		Taxi		Subway		Bus		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY AM PEAK HOUR													
Residential	259	1,035	8	32	372	1,487	73	291	96	388	808	3,233	4,041
Office	520	21	10	0	163	7	143	6	184	8	1,020	42	1,062
Destination Retail	859	549	44	28	218	140	262	168	73	46	1,456	931	2,387
Local Retail	61	61	0	0	20	20	41	41	283	283	405	405	810
Movie Theater	47	2	6	0	15	1	7	0	9	1	84	4	88
Hotel	77	111	17	24	6	8	6	8	4	8	110	159	269
Convention/Expo	691	0	81	0	122	0	20	0	102	0	1,016	0	1,016
Community Facility	55	4	2	0	79	5	16	1	193	12	345	22	367
School	156	122	0	0	156	122	81	81	485	485	878	810	1,688
Total	**2,725**	**1,905**	**168**	**84**	**1,151**	**1,790**	**649**	**596**	**1,429**	**1,231**	**6,122**	**5,606**	**11,728**
WEEKDAY MIDDAY PEAK HOUR													
Residential	341	327	11	10	490	471	96	92	127	123	1,065	1,023	2,088
Office	165	179	3	4	52	56	45	49	383	414	648	702	1,350
Destination Retail	2,807	2,297	143	117	714	584	856	701	238	194	4,758	3,893	8,651
Local Retail	372	372	0	0	124	124	248	248	1,739	1,739	2,483	2,483	4,966
Movie Theater	92	56	11	7	30	18	13	8	18	11	164	100	264
Hotel	161	76	35	16	12	5	12	5	10	6	230	108	338
Convention/Expo	651	241	77	28	115	42	19	7	96	36	958	354	1,312
Community Facility	26	32	1	1	37	46	7	9	92	111	163	199	362
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**4,615**	**3,580**	**281**	**183**	**1,574**	**1,346**	**1,296**	**1,119**	**2,703**	**2,634**	**10,469**	**8,862**	**19,331**
WEEKDAY PM PEAK HOUR													
Residential	988	532	31	17	1,421	765	278	150	371	199	3,089	1,663	4,752
Office	32	597	1	12	10	187	9	164	10	211	62	1,171	1,233
Destination Retail	2,454	2,768	125	141	624	704	749	844	208	234	4,160	4,691	8,851
Local Retail	188	188	0	0	63	63	126	126	878	878	1,255	1,255	2,510
Movie Theater	213	181	27	23	68	58	30	26	42	36	380	324	704
Hotel	130	90	28	19	9	6	9	6	9	8	185	129	314
Convention/Expo	48	1,548	6	182	8	273	1	46	7	228	70	2,277	2,347
Community Facility	28	39	1	1	41	57	8	11	100	138	178	246	424
School	20	24	0	0	20	24	14	14	81	81	135	143	278
Total	**4,101**	**5,967**	**219**	**395**	**2,264**	**2,137**	**1,224**	**1,387**	**1,706**	**2,013**	**9,514**	**11,899**	**21,413**
WEEKDAY PRE-GAME PEAK HOUR													
Residential	826	354	26	11	1,187	509	232	100	309	132	2,580	1,106	3,686
Office	8	33	0	1	3	10	2	9	3	12	16	65	81
Destination Retail	2,288	2,288	116	116	582	582	698	698	194	194	3,878	3,878	7,756
Local Retail	149	149	0	0	50	50	99	99	695	695	993	993	1,986
Movie Theater	339	301	42	38	109	97	48	43	68	59	606	538	1,144
Hotel	113	76	24	16	8	5	8	5	8	6	161	108	269
Convention/Expo	15	1,456	2	171	3	257	0	43	2	214	22	2,141	2,163
Community Facility	26	26	1	1	37	37	7	7	92	92	163	163	326
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**3,764**	**4,683**	**211**	**354**	**1,979**	**1,547**	**1,094**	**1,004**	**1,371**	**1,404**	**8,419**	**8,992**	**17,411**
SATURDAY MIDDAY NON-GAME PEAK HOUR													
Residential	960	725	24	18	624	471	72	54	721	544	2,401	1,812	4,213
Office	37	24	1	0	12	8	10	7	12	9	72	48	120
Destination Retail	4,070	3,911	345	331	897	862	1,242	1,193	345	331	6,899	6,628	13,527
Local Retail	205	168	0	0	68	56	137	112	956	781	1,366	1,117	2,483
Movie Theater	293	180	37	22	94	58	42	26	57	35	523	321	844
Hotel	177	139	38	30	13	10	13	10	12	10	253	199	452
Convention/Expo	932	932	80	80	160	160	27	27	132	132	1,331	1,331	2,662
Community Facility	56	59	2	2	81	84	16	17	197	205	352	367	719
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**6,730**	**6,138**	**527**	**483**	**1,949**	**1,709**	**1,559**	**1,446**	**2,432**	**2,047**	**13,197**	**11,823**	**25,020**

Table 17-20 (cont'd)
Proposed Plan Person Trips by Mode

Use	Auto		Taxi		Subway		Bus		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
SATURDAY PRE-GAME PEAK HOUR													
Residential	737	737	18	18	479	479	55	55	554	554	1,843	1,843	3,686
Office	9	52	0	1	3	16	3	14	3	19	18	102	120
Destination Retail	2,976	2,576	252	218	656	568	908	786	252	218	5,044	4,366	9,410
Local Retail	205	168	0	0	68	56	137	112	956	781	1,366	1,117	2,483
Movie Theater	293	180	37	22	94	58	42	26	57	35	523	321	844
Hotel	177	139	38	30	13	10	13	10	12	10	253	199	452
Convention/Expo	993	559	85	48	170	96	28	16	143	79	1,419	798	2,217
Community Facility	56	59	2	2	81	84	16	17	197	205	352	367	719
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**5,446**	**4,470**	**432**	**339**	**1,564**	**1,367**	**1,202**	**1,036**	**2,174**	**1,901**	**10,818**	**9,113**	**19,931**
SATURDAY POST-GAME PEAK HOUR													
Residential	758	758	19	19	493	493	57	57	569	569	1,896	1,896	3,792
Office	37	24	1	0	12	8	10	7	12	9	72	48	120
Destination Retail	1,978	2,186	168	185	436	482	603	667	167	185	3,352	3,705	7,057
Local Retail	168	205	0	0	56	68	112	137	781	956	1,117	1,366	2,483
Movie Theater	287	469	36	59	92	151	41	67	57	91	513	837	1,350
Hotel	177	139	38	30	13	10	13	10	12	10	253	199	452
Convention/Expo	732	1,054	63	90	126	181	21	30	104	150	1,046	1,505	2,551
Community Facility	55	60	2	2	79	86	16	17	193	209	345	374	719
School	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**4,192**	**4,895**	**327**	**385**	**1,307**	**1,479**	**873**	**992**	**1,895**	**2,179**	**8,594**	**9,930**	**18,524**

Table 17-21
Proposed Plan Vehicle Trips by Type

Use	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY AM PEAK HOUR									
Residential	196	784			20	20	216	804	1,020
Office	456	18			8	8	464	26	490
Destination Retail	419	268			40	40	459	308	767
Local Retail	31	31			4	4	35	35	70
Movie Theater	19	1			3	3	22	4	26
Hotel	48	69			10	10	58	79	137
Convention/Expo	300	0			11	11	311	11	322
Community Facility	37	3			2	2	39	5	44
School	122	94			2	2	124	96	220
Total	**1,628**	**1,268**	**103**	**103**	**100**	**100**	**1,831**	**1,471**	**3,302**
WEEKDAY MIDDAY PEAK HOUR									
Residential	258	248			15	15	273	263	536
Office	145	157			9	9	154	166	320
Destination Retail	1,369	1,120			58	58	1,427	1,178	2,605
Local Retail	186	186			6	6	192	192	384
Movie Theater	37	22			3	3	40	25	65
Hotel	101	48			8	8	109	56	165
Convention/Expo	283	105			21	21	304	126	430
Community Facility	17	21			3	3	20	24	44
School	0	0			1	1	1	1	2
Total	**2,396**	**1,907**	**177**	**177**	**124**	**124**	**2,697**	**2,208**	**4,905**

Table 17-21 (cont'd)
Proposed Plan Vehicle Trips by Type

Use	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY PM PEAK HOUR									
Residential	748	403			3	3	751	406	1,157
Office	28	524			2	2	30	526	556
Destination Retail	1,197	1,350			5	5	1,202	1,355	2,557
Local Retail	94	94			1	1	95	95	190
Movie Theater	85	72			0	0	85	72	157
Hotel	81	56			0	0	81	56	137
Convention/Expo	21	673			2	2	23	675	698
Community Facility	19	26			0	0	19	26	45
School	15	18			1	1	16	19	35
Total	**2,288**	**3,216**	**279**	**279**	**14**	**14**	**2,581**	**3,509**	**6,090**
WEEKDAY PRE-GAME PEAK HOUR									
Residential	626	268			3	3	629	271	900
Office	7	29			2	2	9	31	40
Destination Retail	1,116	1,116			5	5	1,121	1,121	2,242
Local Retail	75	75			1	1	76	76	152
Movie Theater	135	119			0	0	135	119	254
Hotel	71	48			0	0	71	48	119
Convention/Expo	7	633			2	2	9	635	644
Community Facility	17	17			0	0	17	17	34
School	0	0			0	0	0	0	0
Total	**2,054**	**2,305**	**247**	**247**	**13**	**13**	**2,314**	**2,565**	**4,879**
SATURDAY MIDDAY NON-GAME PEAK HOUR									
Residential	727	549			5	5	732	554	1,286
Office	32	21			1	1	33	22	55
Destination Retail	1,635	1,571			3	3	1,638	1,574	3,212
Local Retail	103	84			0	0	103	84	187
Movie Theater	116	71			0	0	116	71	187
Hotel	111	87			3	3	114	90	204
Convention/Expo	358	358			1	1	359	359	718
Community Facility	37	39			0	0	37	39	76
School	0	0			0	0	0	0	0
Total	**3,119**	**2,780**	**350**	**350**	**13**	**13**	**3,482**	**3,143**	**6,625**
SATURDAY PRE-GAME PEAK HOUR									
Residential	558	558			5	5	563	563	1,126
Office	8	46			1	1	9	47	56
Destination Retail	1,195	1,035			3	3	1,198	1,038	2,236
Local Retail	103	84			0	0	103	84	187
Movie Theater	116	71			0	0	116	71	187
Hotel	111	87			3	3	114	90	204
Convention/Expo	382	215			1	1	383	216	599
Community Facility	37	39			0	0	37	39	76
School	0	0			0	0	0	0	0
Total	**2,510**	**2,135**	**267**	**267**	**13**	**13**	**2,790**	**2,415**	**5,205**
SATURDAY POST-GAME PEAK HOUR									
Residential	574	574			1	1	575	575	1,150
Office	32	21			0	0	32	21	53
Destination Retail	794	878			1	1	795	879	1,674
Local Retail	84	103			0	0	84	103	187
Movie Theater	114	186			0	0	114	186	300
Hotel	111	87			0	0	111	87	198
Convention/Expo	282	405			0	0	282	405	687
Community Facility	37	40			0	0	37	40	77
School	0	0			0	0	0	0	0
Total	**2,028**	**2,294**	**270**	**270**	**2**	**2**	**2,300**	**2,566**	**4,866**

Note: This table presents inbound and outbound taxi trips for the District rather than by a particular land use. Taxi trips are not assigned to a particular land use because taxi trips are assumed to be shared among all the land uses in the District. Taxi trips are balanced to account for some arriving empty and leaving full, some arriving full and leaving empty, and some arriving and leaving full.

Table 17-22 and Table 17-23 present the person trips and vehicle trips, respectively, expected to be generated by the anticipated development on Lot B. The anticipated development on Lot B would generate an estimated 890, 1,823, 1,782, and 1,735 person trips during the weekday AM, midday, PM, and Saturday midday (non-game days) peak hours, respectively. On game days, the development would generate an estimated 1,001 person trips during the weekday PM pre-game peak hour and 1,227 and 937 person trips in the Saturday pre-game and post-game hours, respectively. For vehicle trips, the anticipated development on Lot B would generate a total of 383, 529, 662, and 474 vehicle (auto, taxi, and delivery) trips during the weekday AM, midday, PM, and Saturday midday (non-game days) peak hours, respectively. On game days, the development would generate an estimated 320 vehicle trips during the weekday PM pre-game peak hour and 339 and 262 vehicle trips in the Saturday pre-game and post-game hours, respectively.

TRIP DISTRIBUTION AND ASSIGNMENT TO THE ROADWAY NETWORK

The Willets Point Development District lies within a major highway system in north-central Queens, between the Grand Central Parkway, the LIE, the Van Wyck Expressway, and the Whitestone Expressway. As part of the proposed Plan, a new access ramp from the northbound Van Wyck Expressway, at the existing Exit 13 ramp, would be constructed and would connect to the new street network within the District at the northeast corner of the site. A new ramp to the southbound Van Wyck Expressway would also be built and connect the northeast corner of the site to the expressway mainline immediately south of the interchange with the Whitestone Expressway. The two new ramps would provide inbound trip access to the site from the northbound Van Wyck Expressway and outbound trip access from the site to the southbound Van Wyck Expressway and the eastbound and westbound Grand Central Parkway, via the existing ramp which leads westbound toward the elevated southbound Whitestone Expressway along the northern edge of the district.

The volume of vehicular traffic generated by the proposed Plan and Lot B was assigned to the highway and roadway networks using regional and local origin/destination patterns attributed to different land use types. The route assignments for vehicular trips generated by the proposed Plan assume those ramp access improvements and street network changes within the Willets Point Development District. Trips generated by the proposed land uses within the District were assigned to its primary access points. Lot B-generated trips were assigned to Lot D.

OFFICE TRIPS

For office auto trips, 16 percent were assigned to the eastbound Grand Central Parkway, 2 percent were assigned to eastbound Astoria Boulevard, 5 percent were assigned to eastbound Northern Boulevard, 2 percent were assigned to eastbound Roosevelt Avenue, 4 percent were assigned to the eastbound LIE, 20 percent were assigned to the westbound Grand Central Parkway (from south of the LIE; 16 percent were assigned to the westbound LIE, 17 percent were assigned to the southbound Whitestone Expressway, 14 percent were assigned to the northbound Van Wyck Expressway (from south of the LIE); 2 percent were assigned to westbound Northern Boulevard, and a combined 2 percent were assigned to westbound Roosevelt Avenue, westbound Sanford Avenue, and College Point Boulevard. Office taxi trips were assigned with approximately 65 to 70 percent on the highways and the remaining 30 to 35 percent on local streets through the study area, following similar routes as auto trips.

Table 17-22
Lot B Person Trips by Mode

Use	Auto		Taxi		Subway		Bus		Walk Only		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY AM PEAK HOUR													
Office	291	12	6	0	91	4	80	3	103	5	571	24	595
Destination Retail	106	68	5	3	27	17	32	21	10	6	180	115	295
Total	**397**	**80**	**11**	**3**	**118**	**21**	**112**	**24**	**113**	**11**	**751**	**139**	**890**
WEEKDAY MIDDAY PEAK HOUR													
Office	93	100	2	2	29	31	25	28	214	232	363	393	756
Destination Retail	346	283	18	14	88	72	106	86	29	25	587	480	1,067
Total	**439**	**383**	**20**	**16**	**117**	**103**	**131**	**114**	**243**	**257**	**950**	**873**	**1,823**
WEEKDAY PM PEAK HOUR													
Office	18	335	0	7	6	105	5	92	6	117	35	656	691
Destination Retail	303	341	15	17	77	87	92	104	26	29	513	578	1,091
Total	**321**	**676**	**15**	**24**	**83**	**192**	**97**	**196**	**32**	**146**	**548**	**1,234**	**1,782**
WEEKDAY PRE-GAME PEAK HOUR													
Office	5	18	0	0	1	6	1	5	2	7	9	36	45
Destination Retail	282	282	14	14	72	72	86	86	24	24	478	478	956
Total	**287**	**300**	**14**	**14**	**73**	**78**	**87**	**91**	**26**	**31**	**487**	**514**	**1,001**
SATURDAY MIDDAY NON-GAME PEAK HOUR													
Office	20	14	0	0	6	4	6	4	8	5	40	27	67
Destination Retail	502	482	43	41	111	106	153	147	42	41	851	817	1,668
Total	**522**	**496**	**43**	**41**	**117**	**110**	**159**	**151**	**50**	**46**	**891**	**844**	**1,735**
SATURDAY PRE-GAME PEAK HOUR													
Office	5	29	0	1	2	9	1	8	2	10	10	57	67
Destination Retail	367	317	31	27	81	70	112	97	31	27	622	538	1,160
Total	**372**	**346**	**31**	**28**	**83**	**79**	**113**	**105**	**33**	**37**	**632**	**595**	**1,227**
SATURDAY POST-GAME PEAK HOUR													
Office	20	14	0	0	6	4	6	4	8	5	40	27	67
Destination Retail	244	270	21	23	54	59	74	82	20	23	413	457	870
Total	**264**	**284**	**21**	**23**	**60**	**63**	**80**	**86**	**28**	**28**	**453**	**484**	**937**

Table 17-23
Lot B Vehicle Trips by Type

Use	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY AM PEAK HOUR									
Office	255	11			4	4	259	15	274
Destination Retail	52	33			5	5	57	38	95
Total	**307**	**44**	**7**	**7**	**9**	**9**	**323**	**60**	**383**
WEEKDAY MIDDAY PEAK HOUR									
Office	82	88			5	5	87	93	180
Destination Retail	169	138			7	7	176	145	321
Total	**251**	**226**	**14**	**14**	**12**	**12**	**277**	**252**	**529**
WEEKDAY PM PEAK HOUR									
Office	16	294			1	1	17	295	312
Destination Retail	148	166			1	1	149	167	316
Total	**164**	**460**	**17**	**17**	**2**	**2**	**183**	**479**	**662**
WEEKDAY PRE-GAME PEAK HOUR									
Office	4	16			1	1	5	17	22
Destination Retail	138	138			1	1	139	139	278
Total	**142**	**154**	**10**	**10**	**2**	**2**	**154**	**166**	**320**
SATURDAY MIDDAY NON-GAME PEAK HOUR									
Office	18	12			0	0	18	12	30
Destination Retail	202	194			0	0	202	194	396
Total	**220**	**206**	**24**	**24**	**0**	**0**	**244**	**230**	**474**
SATURDAY PRE-GAME PEAK HOUR									
Office	4	25			0	0	4	25	29
Destination Retail	147	127			0	0	147	127	274
Total	**151**	**152**	**18**	**18**	**0**	**0**	**169**	**170**	**339**
SATURDAY POST-GAME PEAK HOUR									
Office	18	12			0	0	18	12	30
Destination Retail	98	108			0	0	98	108	206
Total	**116**	**120**	**13**	**13**	**0**	**0**	**129**	**133**	**262**

Note: This table presents inbound and outbound taxi trips for the District rather than by a particular land use. Taxi trips are not assigned to a particular land use because taxi trips are assumed to be shared among all the land uses in the District. Taxi trips are balanced to account for some arriving empty and leaving full, some arriving full and leaving empty, and some arriving and leaving full.

RETAIL TRIPS

Separate trip distribution patterns were estimated for destination retail trips, local retail trips, and the movie theatre trips. Overall, considering all retail uses, for retail trips traveling to the District from points west of the study area (Manhattan, the Bronx/Westchester, and western/west-central Queens, and surrounding neighborhoods), it was estimated that about 8 to 16 percent would use the eastbound Grand Central Parkway, about 5 to 8 percent would use eastbound Astoria Boulevard, 6 to 12 percent would use eastbound Northern Boulevard, about 3 to 8 percent would use Roosevelt Avenue, and about 6 to 12 percent would use the eastbound LIE. For retail trips traveling to the District from points east of the study area (eastern/southeastern Queens, Long Island, and surrounding neighborhoods), it was estimated that about 5 to 6 percent would use the westbound Grand Central Parkway, 5 to 10 percent would use westbound Northern Boulevard, about 1 to 5 percent would use westbound Roosevelt Avenue, 1 to 3 percent would use westbound Sanford Avenue, and 10 to 16 percent would use the westbound LIE. For retail trips traveling to the District from points north of the study area (northeastern Queens, the Bronx, and surrounding neighborhoods), it was estimated that about 8 to 12 percent would use the southbound Whitestone Expressway, up to 1 percent would use southbound College Point Boulevard, and up to 3 percent would use Parsons Boulevard. For retail trips traveling to the District from points south of the study area (southern Queens, Brooklyn, and surrounding neighborhoods), it was estimated that about 5 to 14 percent would use the northbound Van Wyck Expressway, up to 2 percent would use northbound College Point Boulevard, up to 4 percent would use Kissena Boulevard/Main Street, up to 3 percent would use northbound Parsons Boulevard, and up to 1 percent would use 108th Street. Overall, destination retail and movie theater taxi trips were assigned with approximately 55 to 60 percent on the highways and the remaining 40 to 45 percent on local streets through the study area, following similar routes as auto trips.

CONVENTION CENTER TRIPS

It is expected that a convention center at Willets Point would have regional attractiveness, with trips predominantly on the highway network to the study area. For the convention center, approximately 12 to 18 percent of the trips would be on each of the major highways to the study area, including the eastbound and westbound Grand Central Parkway, the eastbound and westbound LIE, the northbound Van Wyck Expressway, and the southbound Whitestone Expressway. Use of the local streets, including Northern Boulevard, Roosevelt Avenue, and College Point Boulevard, would range from 1 to 6 percent. Convention center taxi trips were assigned with approximately 90 percent on the highways and the remaining 10 percent on local streets through the study area, following similar routes as auto trips.

HOTEL TRIPS

Regional distributions for hotel trips are expected to be generally similar to those of the convention center, but with a somewhat higher use of the local street network through the study area. It is expected that hotel trip distributions on the highway network would be about 10 to 18 percent on each highway to the District, and local street use would range from 1 to 8 percent each on Astoria Boulevard, Northern Boulevard, Roosevelt Avenue, Sanford Avenue, and College Point Boulevard. Hotel taxi trips were assigned with approximately 75 percent on the highways and the remaining 25 percent on local streets through the study area, following similar routes as auto trips.

SCHOOL TRIPS

Student drop-off trips were assigned to the District from local streets and arterials serving surrounding neighborhoods. School "in" trips for the weekday AM peak hour were assigned as follows: about 10 to 18 percent each on eastbound Astoria Boulevard, eastbound and westbound Northern Boulevard, and eastbound Roosevelt Avenue; and about 2 to 8 percent each on westbound Roosevelt Avenue, westbound Sanford Avenue, Parsons Boulevard in both directions, southbound Union Street, Kissena Boulevard/Main Street, College Point Boulevard in both directions, and 34th Avenue. The small number of faculty trips to the school were assumed to follow similar routes as the weekday AM "in" distributions.

It was assumed that many of the drop-off trips would proceed to places to work; therefore, school "out" trips for the weekday AM peak hour were partly assigned according to morning commuter patterns (weekday AM peak hour residential "out" trip assignments). Weekday PM pick-up "in" trips would arrive along the reverse of the weekday AM "out" trips, and the pick-up "out" trips would route back to the origins of the weekday AM drop-off "in" trips.

COMMUNITY FACILITY

The community center is expected to serve surrounding neighborhoods, and therefore trips were assigned to the District from local streets and arterials similar to the weekday AM "in"/weekday PM "out" school trips. The very small number of expected community center taxi trips were assigned to Northern Boulevard.

DELIVERIES

Trucks were assigned along NYCDOT designated truck routes, including the Van Wyck and the Whitestone Expressways, the LIE, Northern Boulevard, Astoria Boulevard, Roosevelt Avenue, and College Point Boulevard. (Trucks are not allowed on the Grand Central Parkway.) Overall on the highways, approximately 10 to 15 percent of all truck trips were assigned to the Van Wyck Expressway (south of the LIE), approximately 10 to 15 percent were assigned to the Whitestone Expressway, and approximately 20 to 25 percent were assigned to each the eastbound and westbound LIE (these trucks would access the project area along the Van Wyck Expressway). For local streets, about 10 to 15 percent were assigned to Astoria Boulevard, about 2 to 10 percent were assigned to each eastbound and westbound Northern Boulevard, and about 1 to 5 percent were assigned to Roosevelt Avenue and College Point Boulevard.

GENERATED TRAFFIC VOLUMES

The above trip generation-modal split-trip distribution process produced specific roadway-by-roadway and intersection-by-intersection traffic volume projections within the study area, an overview of which is provided below. Specific block-by-block generated volume projections are provided in detail in the technical appendices.

In 2017, the proposed Plan and Lot B traffic volume increments would make up approximately 6 percent of the overall traffic volumes in the AM peak hour, 8 percent in the midday peak hour, 8 percent in the PM peak hour, and 9 percent in the Saturday midday peak hour, without a Mets game, when comparing these volume increments to overall 2017 Build traffic volumes entering and exiting the traffic study area's local street network. For peak hours with a Mets game, the proposed Plan and Lot B traffic increments would make up about 7 percent and 8 percent of the

overall traffic volumes during the weekday PM and Saturday midday pre-game peak hours, and about 7 percent during the Saturday PM post-game peak hour.

Northern Boulevard volumes can be expected to increase by about 90 to 230 vph per direction during the seven peak hours through Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the Willets Point Development District and Citi Field, Northern Boulevard volumes can be expected to increase by approximately 110 to 475 vph per direction during all of the peak hours, with the increase in traffic along this section of the roadway primarily due to traffic from the ramp from the southbound Whitestone Expressway onto westbound Northern Boulevard. Northern Boulevard volumes in the vicinity of 108th and 114th Street can be expected to increase by about 130 to 270 vph per direction during the seven peak hours.

Roosevelt Avenue volumes can be expected to increase by about 25 to 85 vph per direction during the non game and game peak hours through Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the Willets Point Development District and the Lot B and Lot D developments, Roosevelt Avenue volumes can be expected to increase by approximately 40 to 630 vph per direction during the peak hours without a Mets game – with the highest increment due to combined outbound office and retail trips during the weekday PM peak hour, and by about 100 to 360 vph per direction during the peak hours with a Mets game. The Roosevelt Avenue volumes would be generally higher under conditions with a Mets game, except for westbound Roosevelt Avenue during the weekday PM peak hour, due to a portion of inbound traffic on the southbound Whitestone Expressway that can be expected to exit toward College Pont Boulevard to Roosevelt Avenue, instead of exiting closer to the District, at westbound Northern Boulevard, which is typically very congested during game peak hours. Furthermore, during game-day peak hours, inbound traffic from westbound Northern Boulevard can be expected to use College Point Boulevard instead of proceeding past the District to the ramp to Boat Basin Road and back along Stadium Road – also very congested during game peak hours. Roosevelt Avenue volumes in the vicinity of 108th, 111th, and 114th Streets can be expected to increase by about 60 to 475 vph per direction during the seven peak hours.

Sanford Avenue volumes through Downtown Flushing between Parsons Boulevard and College Point Boulevard can be expected to increase by about 15 to 65 vph per direction during all of the peak hours.

Astoria Boulevard volumes in the vicinity of 108th and 114th Streets can be expected to increase by about 60 to 165 vph per direction during the seven peak hours.

Volumes on 34th Avenue from the Willets Point Development District at the intersection with 126th Street are expected to increase by about 290 to 625 vph per direction during the seven peak hours. Furthermore, volumes along West Park Loop/Stadium Road at the intersection with 126th Street can be expected to increase by approximately 420 to 605 vph per direction during the peak hours without a Mets game, and by 145 to 180 vph per direction during the peak hours with a Mets game.

Volumes along 126th Street in the vicinity of 34th Avenue can be expected to increase by approximately 120 to 840 vph per direction during the seven peak hours. In the vicinity of the intersections with Roosevelt Avenue and the new Willets Point Boulevard, 126th Street volumes can be expected to increase by about 90 to 595 vph per direction during all of the peak hours.

College Point Boulevard volumes can be expected to increase by about 5 to 180 vph per direction during the peak hours without a Mets game, and by approximately 25 to 360 vph per direction during the peak hours with a Mets game. The increased increment under the game-day conditions would be due to the exiting traffic from the southbound Whitestone Expressway and westbound Northern Boulevard, as previously discussed for the Roosevelt Avenue game-day increments.

Volumes along 114th Street in the vicinity of Roosevelt Avenue can be expected to increase by approximately 5 to 345 vph during the seven peak hours. Projected volume increments on the other north-south streets, including 108th Street, Main Street, Union Street, and Parsons Boulevard can be expected to range from about 5 to 35 vph during all of the peak hours.

GAME DAY CIRCULATION CHANGES

It is expected that the new ramp connecting the northbound and southbound Van Wyck Expressway to the Willets Point Development District as part of the proposed Plan would also be used as an alternate route for stadium traffic to Citi Field on game days. Citi Field traffic using the ramp would route through the District, either along the new 34th Avenue or Willets Point Boulevard connector streets to 126th Street to enter the stadium lots.

Furthermore, it is expected that the traffic using the new ramp would comprise a portion of the stadium trips generated to the east and south of Citi Field, approaching along the westbound LIE, the northbound Van Wyck Expressway (from south of the LIE), northbound College Point Boulevard, and some traffic on the westbound Grand Central Parkway. Based on the Shea Stadium Redevelopment Study FEIS, approach distributions from the east and south along those routes total approximately 50 percent of the total game trips. For future conditions with the proposed Plan, an estimated 20 to 25 percent of that inbound traffic is expected to use the new ramp, which would equal approximately 300 to 450 trips in the weekday PM and weekend midday pre-game peak hours. This traffic is expected to proceed west along 34th Avenue to Stadium Road to access the Citi Field main lot entrance at Boat Basin Road. The rest of the stadium-bound traffic is expected to use the new Willets Point Boulevard to 126th Street and enter the Citi Field lots from Roosevelt Avenue and the internal roadway around the proposed Lot B development.

For the post-game peak hour, it is expected that approximately 150 to 200 trips would route through the District to access the new ramp to the southbound Van Wyck Expressway. The volume of such trips is expected to be about one half of the game traffic entering the southbound Van Wyck Expressway along the ramp from the northbound Whitestone Expressway immediately north of the District.

Furthermore, it is expected that during game-day peak hours, some trips generated by the proposed Plan along certain routes would make path modifications to avoid game-related traffic issues. Specifically, a portion (about 50 percent) of the trips along the southbound Whitestone Expressway, which on typical non-game days would exit onto westbound Northern Boulevard at 126th and circle back to the District along World's Fair Marina/Boat Basin Road and Stadium Road, would instead exit toward College Point Boulevard and travel south to Roosevelt Avenue and west to the District (some outbound trips would follow the reverse path). The other path modification would be for trips traveling westbound along Northern Boulevard, which on typical non-game days are expected to use two routes to the District. On game days, it is expected that they would predominantly use the route that includes the Northern Boulevard service road to College Point Boulevard, to Roosevelt Avenue and west to the District.

TRAFFIC LEVELS OF SERVICE AND IMPACTS

The assessment of potential significant traffic impacts of the Proposed Actions is based on significant impact criteria defined in the *CEQR Technical Manual*. No Build LOS A, B, or C conditions that deteriorate to unacceptable LOS D, E, or F in the future Build conditions are considered a significant traffic impact. For future No Build LOS A, B, or C conditions that deteriorate to unacceptable LOS D, mitigation to mid-LOS D (45.0 seconds of delay for

signalized intersections and 30.0 seconds of delay for unsignalized intersections) needs to be considered to fully mitigate the impact.

For a No Build LOS D, an increase of delay by 5 or more seconds in the Build condition is considered a significant impact if the Build delay exceeds 45.0 seconds. For a No Build LOS E, the threshold is a 4-second increase in Build delay; for a No Build LOS F, a 3-second increase in delay in the Build condition is significant. However, if a No Build LOS F condition already has delays in excess of 120 seconds, an increase in delay of more than 1 second is considered significant, unless the proposed Plan would generate fewer than 5 vehicles through that intersection in the peak hour (signalized intersections) or fewer than 5 passenger-car-equivalents (PCEs) in the peak hour along the critical approach (unsignalized intersections). In addition, for unsignalized intersections, for the minor street to generate a significant impact, 90 PCEs must be identified in the Build condition in any peak hour.

The remainder of this section provides an overview of significant traffic impacts that would be generated under the Build conditions, primarily through the use of figures indicating overall levels of service intersection-by-intersection and significantly impacted locations. Detailed volume-to-capacity (v/c) ratios, average vehicle delay, and levels of service movement-by-movement at each intersection under the 2017 Build condition, along with generated-traffic volume increment maps and total Build volume maps, are provided within the technical traffic appendices.

Using the previously discussed volume increases, the levels of service for the 2017 Build condition were determined for 27 of the 29 intersections (both signalized and unsignalized) analyzed under the No Build condition, and for two new signalized intersections (126th Street and New Willets Point Boulevard, and Citi Field/Lot B and Roosevelt Avenue) that would be constructed as part of the proposed Plan. Two unsignalized intersections, Willets Point Boulevard at 126th Street and Willets Point Boulevard at Northern Boulevard, analyzed under the No Build condition, would be eliminated due to street demapping in the proposed Plan. Future traffic levels of service under the Build condition are shown in Figures 17-19 through 17-25 and in Tables 17-24 through 17-27.

Table 17-24
Overall Intersection Level of Service Summary Comparison
2017 No Build vs. 2017 Build Conditions – Non-Game Day

Signalized Intersections	2017 No Build Condition				2017 Build Condition			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
	25 Signalized Intersections				27 Signalized Intersections [1]			
Overall Intersection LOS A/B/C	7	8	6	6	6	7	3	4
Overall Intersection LOS D	3	5	2	0	4	4	3	2
Overall Intersection LOS E	4	5	7	3	3	5	3	3
Overall Intersection LOS F	11	7	10	16	14	11	18	18
No. of Locations with Significant Impacts	--	--	--	--	21	17	23	21

Notes:
1. The 2017 Build analysis includes the new signalized intersections of 126th Street and New Willets Point Boulevard, and Citi Field/Lot B and Roosevelt Avenue.

During the non game peak hours in the 2017 Build condition, the Grand Central Parkway ramp at West Park Loop/Stadium Road would operate at LOS A or B, and Boat Basin Road at World Fair Marina would operate at LOS E or F. One of the two unsignalized intersections would be significantly impacted in all non-game-day peak hours.

Table 17-25
Traffic Lane Group Level of Service Summary Comparison
2017 No Build vs. 2017 Build Conditions – Non-Game Day

Signalized Movements	2017 No Build Condition				2017 Build Condition			
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday
	25 Signalized Intersections [1]				27 Signalized Intersections [1]			
No. of Lane Groups at LOS A/B/C	53	60	33	42	54	58	30	37
No. of Lane Groups at LOS D	25	27	41	26	23	24	29	22
No. of Lane Groups at LOS E	15	8	10	8	16	10	19	9
No. of Lane Groups at LOS F	34	31	42	52	44	46	59	70

Notes:
1. The 2017 Build analysis includes the new signalized intersections of 126th Street and New Willets Point Boulevard, and Citi Field/Lot B and Roosevelt Avenue.

During the non game peak hours in the 2017 Build conditions, all unsignalized lane groups would operate at LOS A or B, except for the northbound left turn from Boat Basin Road onto World Fair Marina which would operate at LOS F.

Table 17-26
Overall Intersection Level of Service Summary Comparison
2017 No Build vs. 2017 Build Conditions – Game Day

Signalized Intersections	2017 No Build Condition			2017 Build Condition		
	Weekday Pre-game	Weekend Pre-game	Weekend Post-game	Weekday Pre-game	Saturday Pre-game	Saturday Post-game
	25 Signalized Intersections			27 Signalized Intersections [1]		
Overall Intersection LOS A/B/C	3	5	2	2	3	3
Overall Intersection LOS D	3	1	4	2	2	1
Overall Intersection LOS E	3	3	5	4	3	2
Overall Intersection LOS F	16	16	14	19	19	21
No. of Locations with Significant Impacts	--	--	--	24	23	23

Notes:
1. The 2017 Build analysis includes the new signalized intersections of 126th Street and New Willets Point Boulevard, and Citi Field/Lot B and Roosevelt Avenue.

In the 2017 Build condition, during the pre-game peak hours, both unsignalized intersections would operate at overall LOS C or D; during the weekend post-game peak period, the Grand Central Parkway ramp at West Park Loop/Stadium Road would operate at LOS B, and Boat Basin Road at World's Fair Marina would operate at overall LOS F. One of the two unsignalized intersections would be significantly impacted in all game-day peak hours.

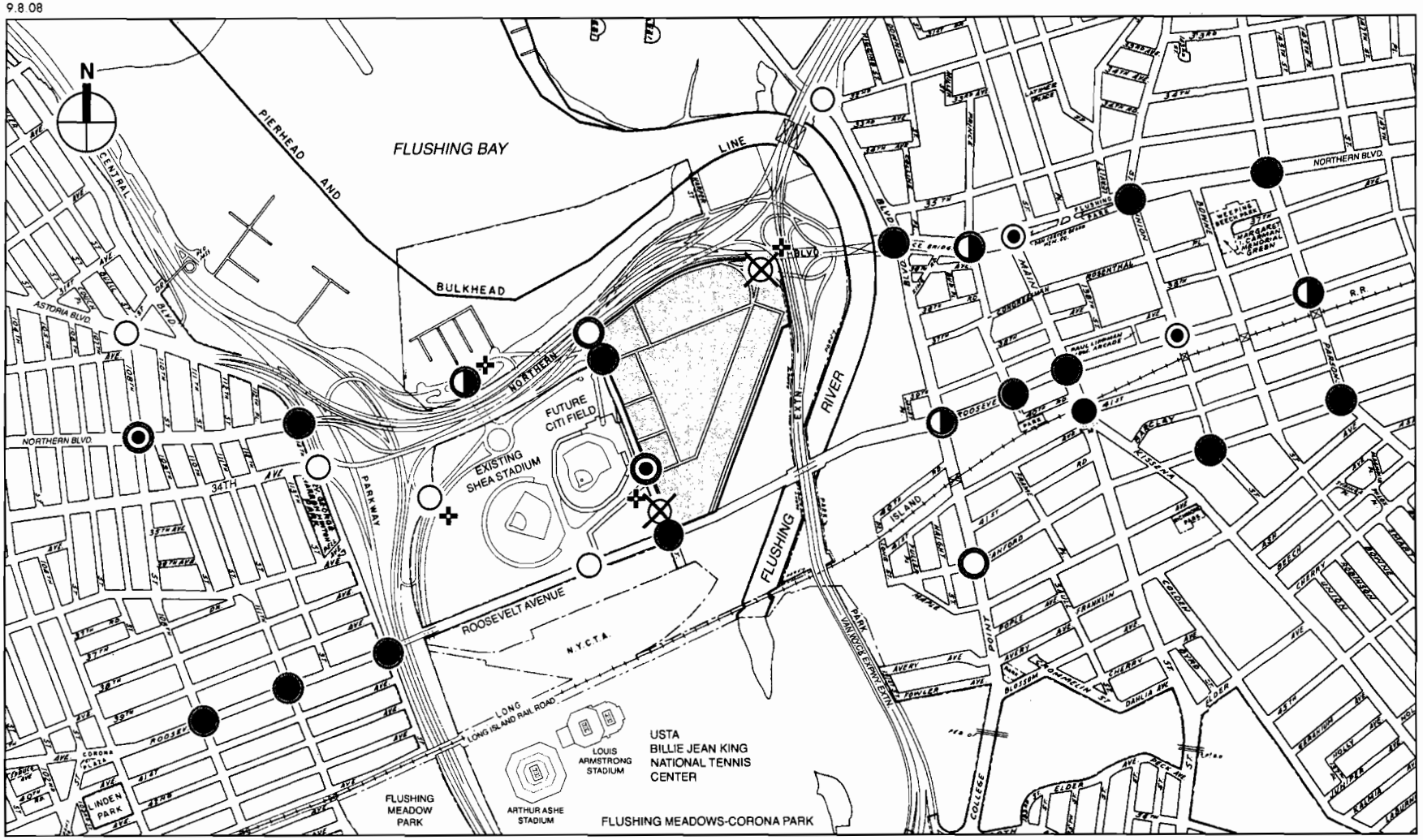
Table 17-27
Traffic Lane Group Level of Service Summary Comparison
2017 No Build vs. 2017 Build Conditions – Game Day

Signalized Movements	2017 No Build Condition			2017 Build Condition		
	Weekday Pre-game	Weekend Pre-game	Weekend Post-game	Weekday Pre-game	Saturday Pre-game	Saturday Post-game
	25 Signalized Intersections			27 Signalized Intersections [1]		
No. of Lane Groups at LOS A/B/C	32	44	43	30	38	42
No. of Lane Groups at LOS D	23	26	24	22	23	22
No. of Lane Groups at LOS E	19	6	10	15	9	6
No. of Lane Groups at LOS F	54	52	52	71	68	67

Notes:
1. The 2017 Build analysis includes the new signalized intersections of 126th Street and New Willets Point Boulevard, and Citi Field/Lot B and Roosevelt Avenue.

In the 2017 Build condition, the northbound left turn from Boat Basin Road onto World Fair Marina would operate at LOS F during all game peak hours; the eastbound left turn from the Grand Central Parkway ramp onto West Park Loop/Stadium Road would operate at LOS E during the weekend pre-game peak hour. All other lane groups would operate at LOS D or better.

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

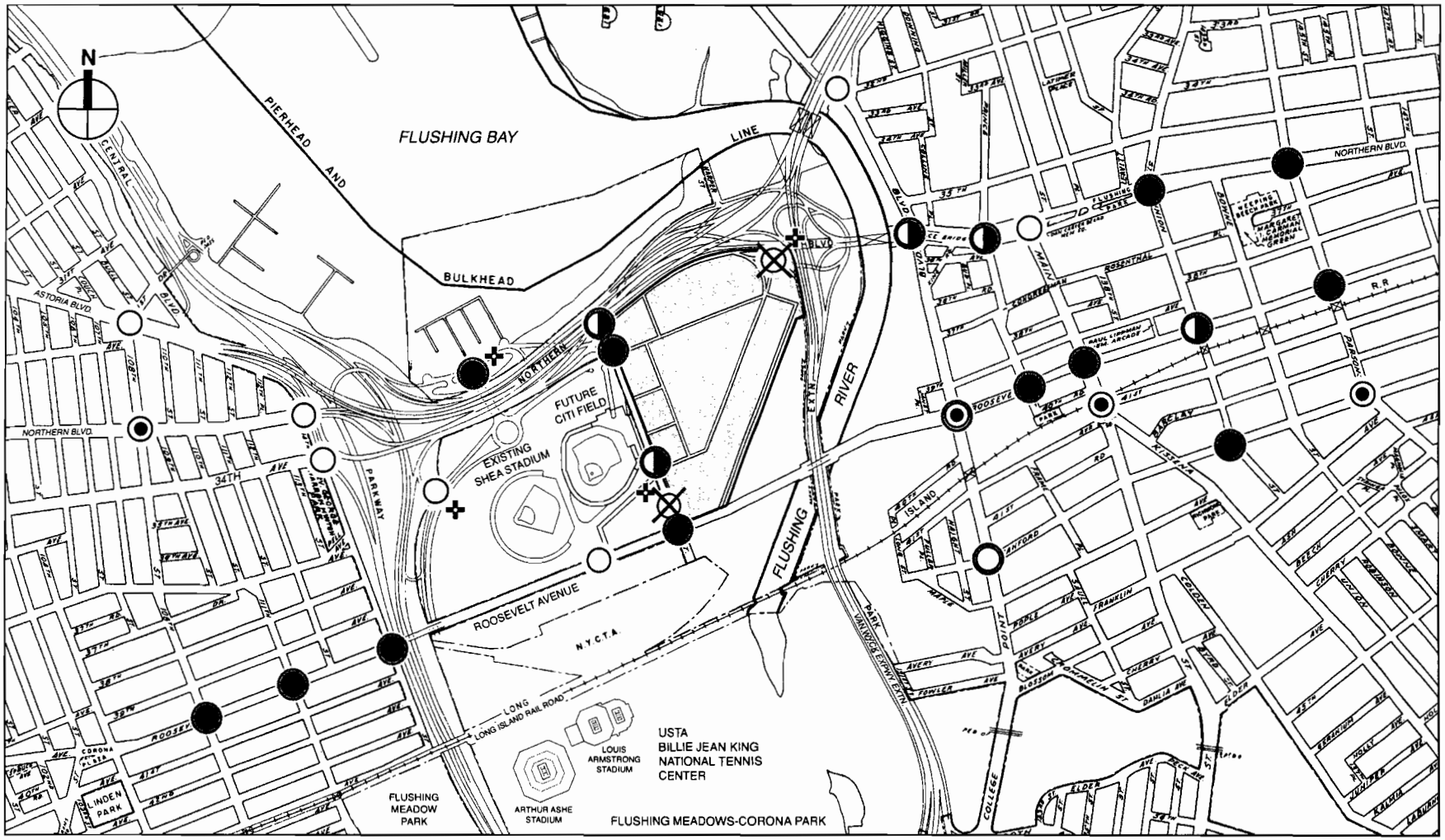
NOTE: *Overall intersection LOS is shown*

This figure has been updated since the DGEIS

Figure 17-19

Build Traffic Levels of Service
Weekday Non-Game AM Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

SCALE

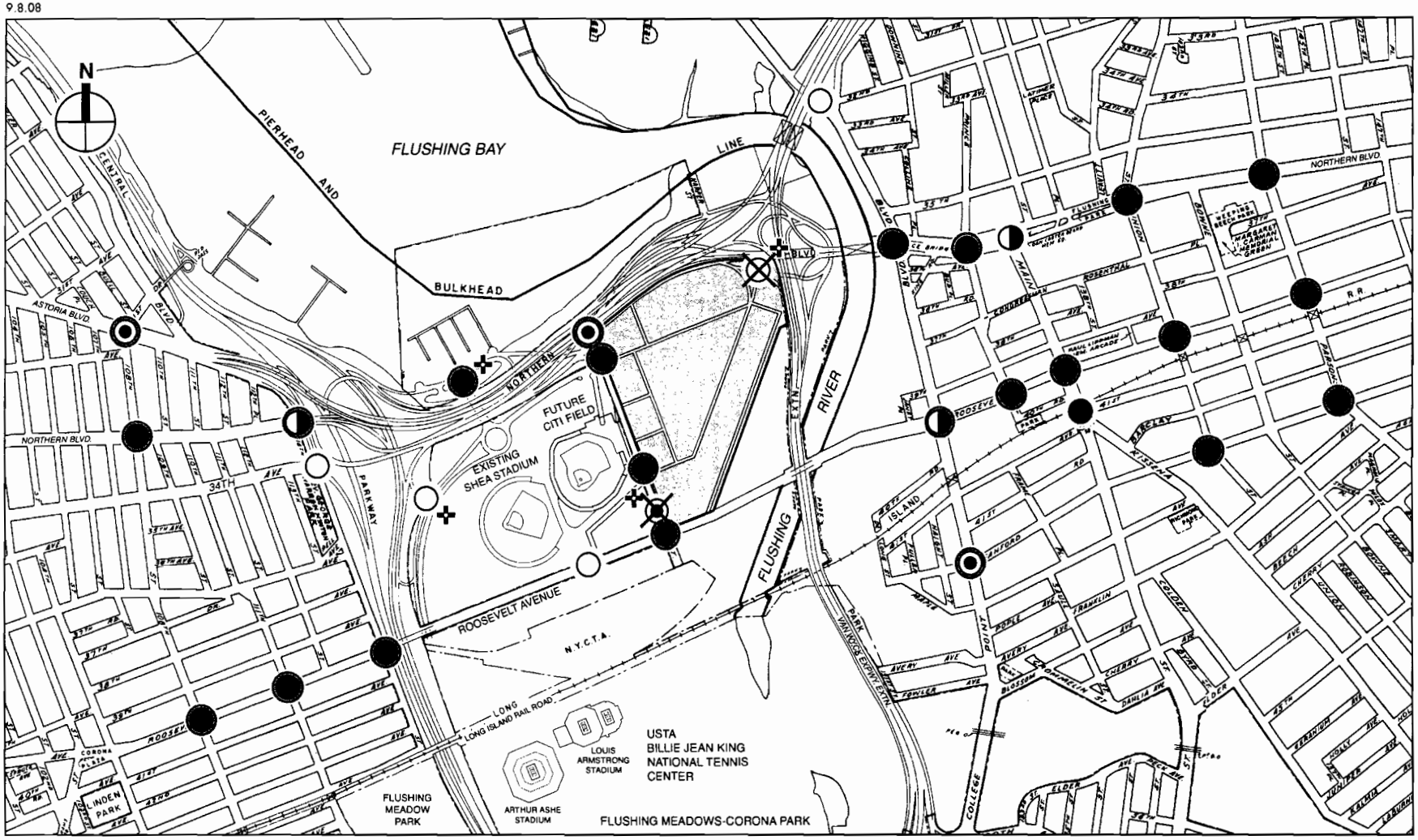
This figure has been updated since the DGEIS

Figure 17-20

Build Traffic Levels of Service

Weekday Non-Game Midday Peak Hour

9.8.08

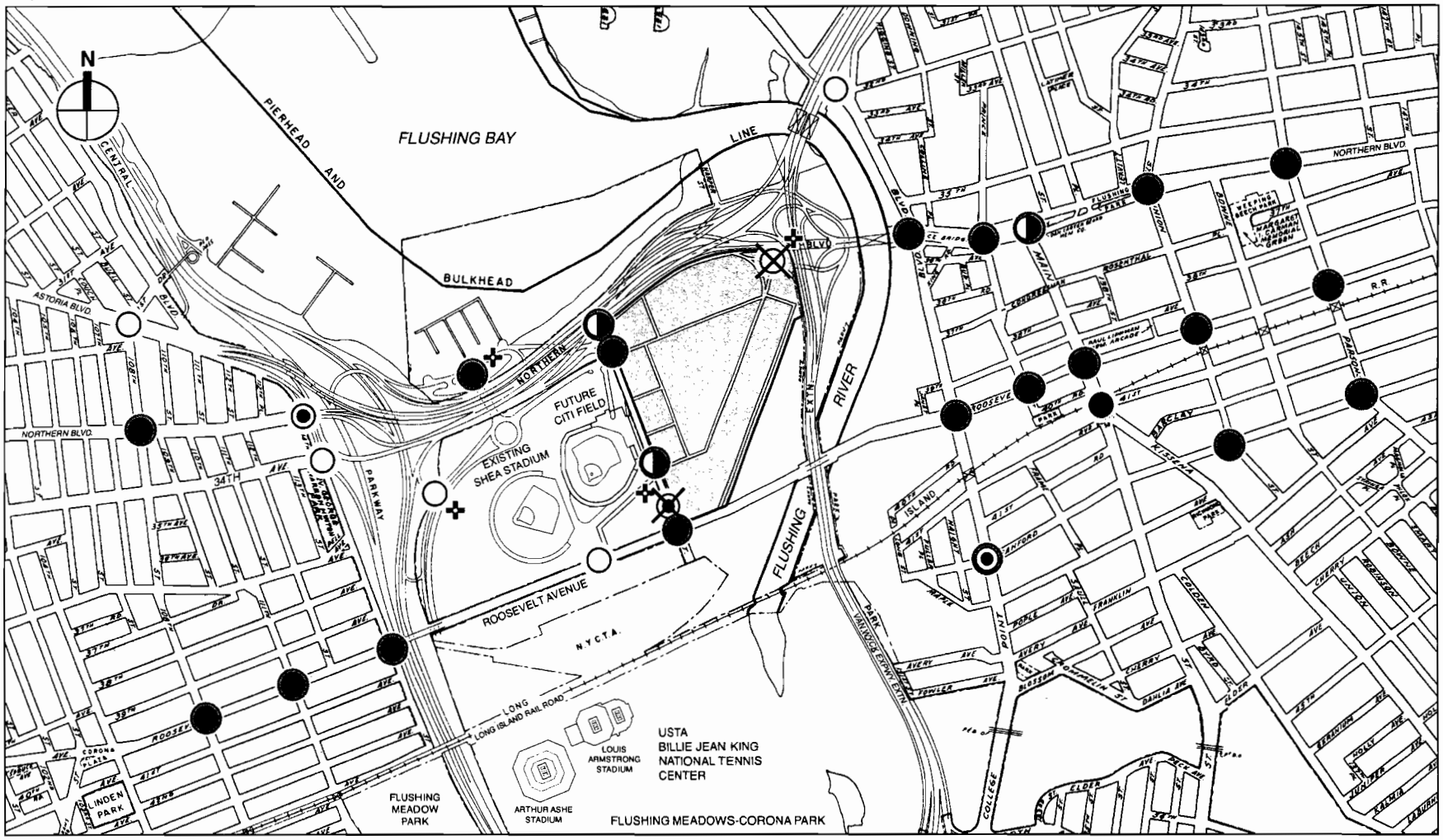


This figure has been updated since the DGEIS

Figure 17-21

Build Traffic Levels of Service
Weekday Non-Game PM Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

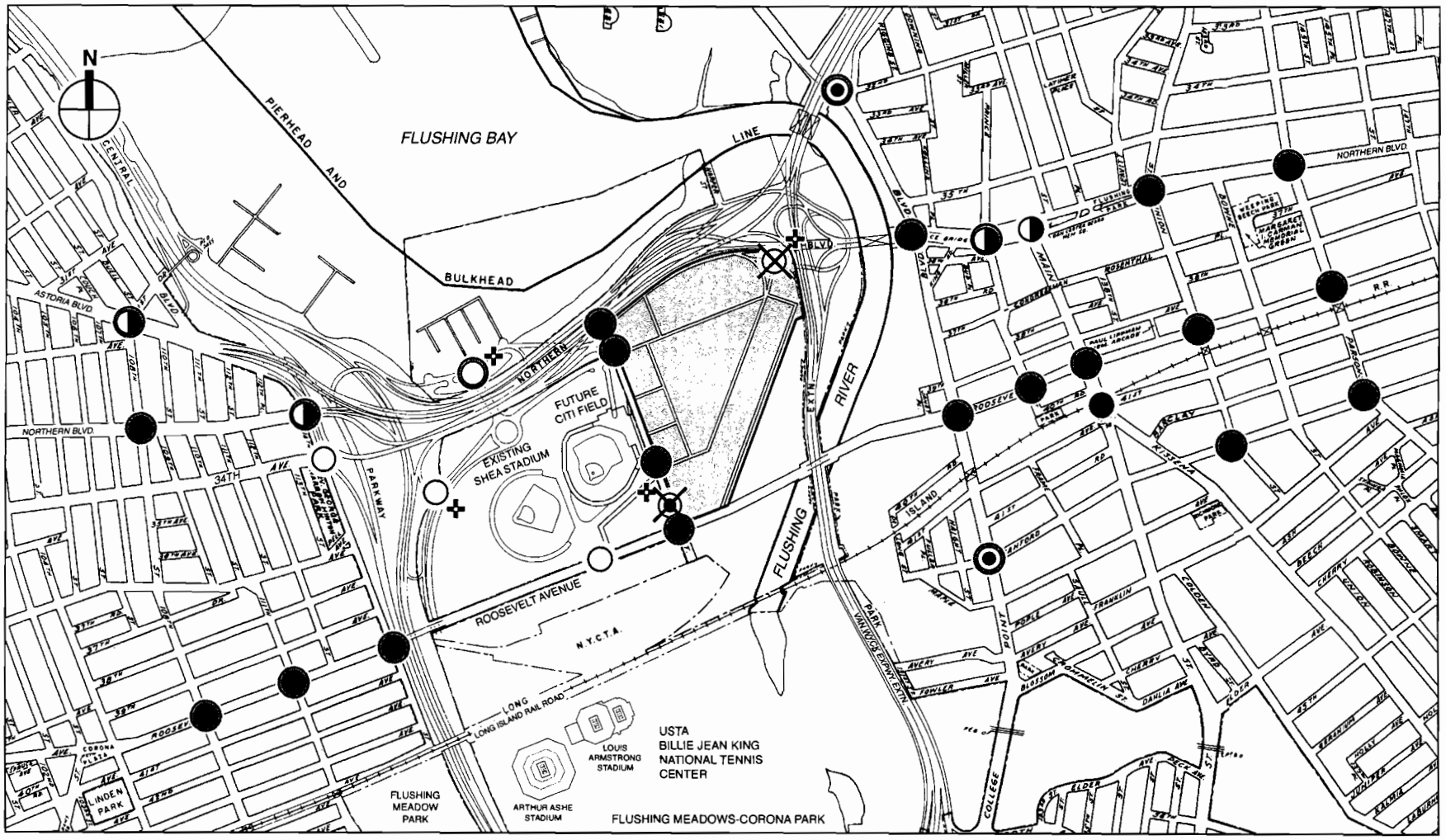
SCALE

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Figure 17-22

Build Traffic Levels of Service
Saturday Non-Game Midday Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

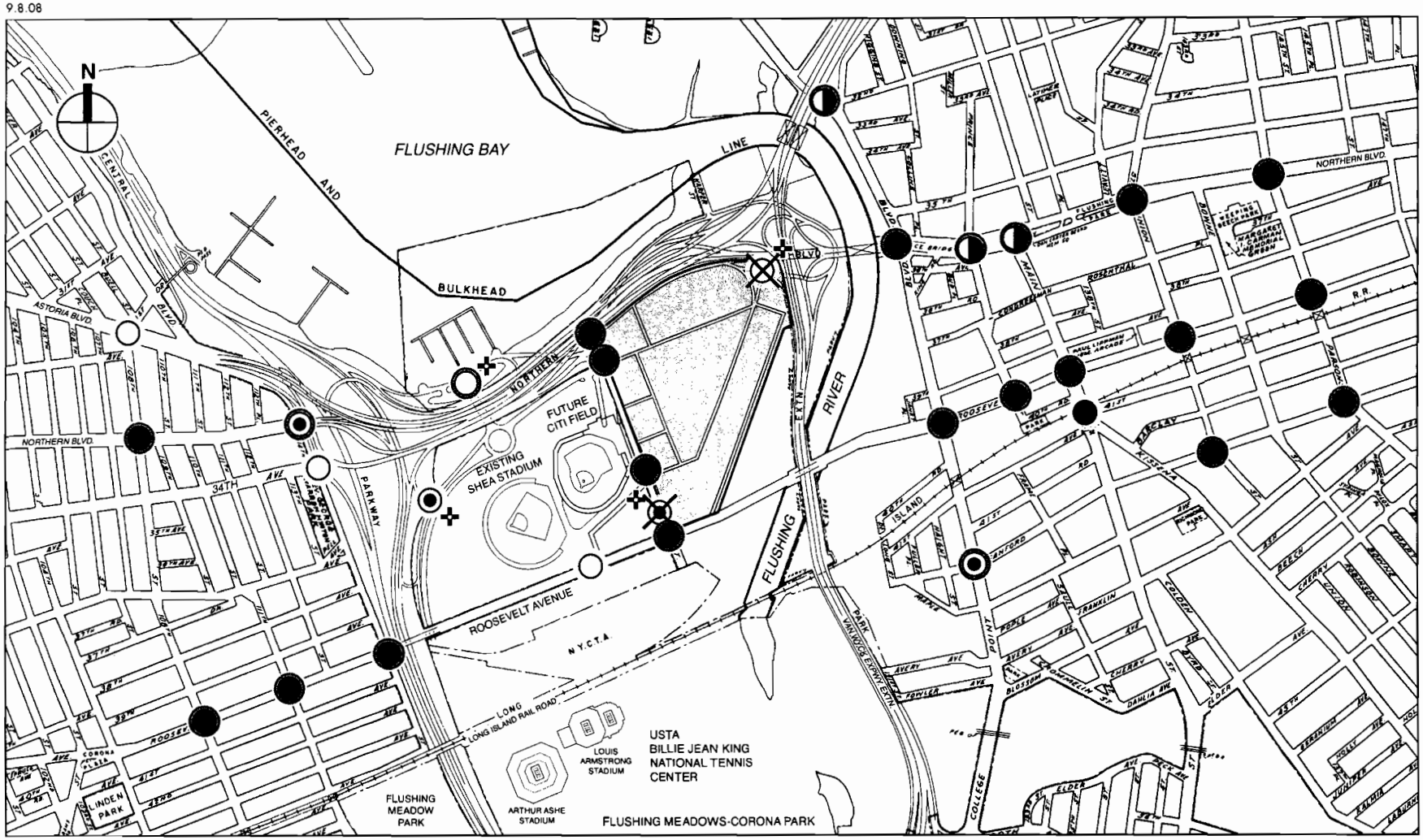
SCALE

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Figure 17-23

Build Traffic Levels of Service
Weekday Pre-Game Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

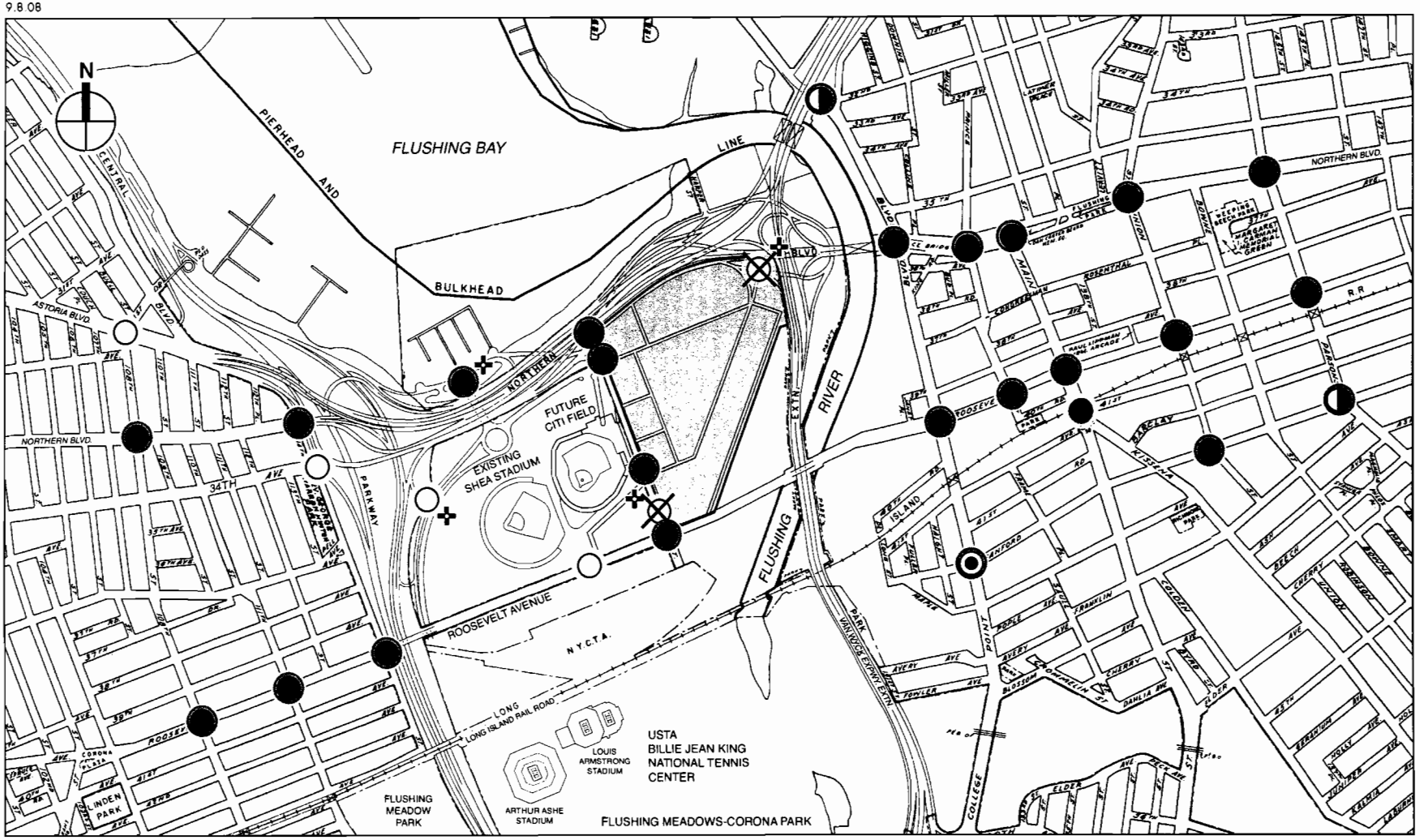
NOTE: *Overall intersection LOS is shown*

This figure has been updated since the DGEIS

Figure 17-24

Build Traffic Levels of Service
Saturday Pre-Game Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

Significant Impacts

LOS A, B, or C

LOS D

LOS E

LOS F

Removed under Build Condition

NOTE: *Overall intersection LOS is shown*

0 1000 2000 FEET

SCALE

This figure has been updated since the DGEIS

Figure 17-25

Build Traffic Levels of Service
Saturday Post-Game Peak Hour

At many traffic study area intersections, the addition of the proposed Plan and Lot B's projected traffic to the already poor future baseline (No Build) conditions—with many movements operating at unacceptable levels of service—would cause these sensitive locations to be significantly impacted. As a result, the proposed Plan would have significant traffic impacts at 21 of the 27 signalized intersections analyzed in the weekday AM peak hour, 17 of 27 in the weekday midday peak hour, 23 of 27 in the weekday PM peak hour, and 21 of 27 in the non-game Saturday midday peak hour. During the PM pre-game weekday peak hour, 24 of 27 signalized intersections analyzed would have significant traffic impacts, and during the Saturday pre-game and post-game peak hours 23 of 27 signalized intersections analyzed would have significant impacts. Of the two unsignalized intersections analyzed, one (World's Fair Marina at Boat Basin Road) would be significantly impacted in each of the seven peak hours.

The summary overview of the 2017 Build condition without a Mets game indicates that:

- In the weekday AM peak hour, 17 of the 27 analyzed signalized intersections are projected to operate at overall LOS E or F, which is two more than under the No Build condition. Twenty-one signalized intersections would be significantly impacted. The number of traffic lane groups that are expected to operate at LOS E or F would increase from 49 to 60. Figure 17-19 shows the overall levels of service.
- In the weekday midday peak hour, the number of signalized intersections that would operate at overall LOS E or F would increase from 12 under the No Build condition to 16 under the Build condition, and there would be significant impacts at 17 of the 27 signalized intersections. The number of individual lane groups that would operate at LOS E or F would increase from 39 to 56. Figure 17-20 shows the overall levels of service.
- In the weekday PM peak hour, the number of intersections that are projected to operate at overall LOS E or F would increase from 17 to 21 under the Build condition, with 23 signalized intersections significantly impacted. The number of individual lane groups that would operate at LOS E or F would increase from 52 to 78. Figure 17-21 shows the overall levels of service.
- In the Saturday midday peak hour, the number of signalized intersections projected to operate at LOS E or F would increase from 19 under the No Build condition to 21 under the Build condition. Twenty-one signalized intersections would be significantly impacted. The number of lane groups at LOS E or F would increase from 60 to 79. Figure 17-22 shows the overall levels of service.
- One of the two unsignalized intersections, World's Fair Marina at Boat Basin Road, would consistently have a traffic lane group operate at LOS F during the weekday AM, midday, PM, and Saturday midday non-game peak hours, and as a result, would be significantly impacted in all non-game-day peak hours. The other unsignalized intersection, Stadium Road at the Grand Central Parkway, would operate at acceptable levels of service.

The summary overview of the 2017 Build condition with a Mets game indicates that:

- In the weekday PM pre-game peak hour, 23 out of 27 signalized intersections would operate at LOS E or F under the Build condition, which is an increase from 19 signalized intersections at LOS E or F under the No Build condition. There would be significant impacts at 24 of the 27 signalized intersections. The number of lane groups that would operate at LOS E or F would increase from 73 to 86. Figure 17-23 shows the overall levels of service.

- During the Saturday midday pre-game peak hour, the number of intersections that are expected to operate at LOS E or F would increase from 19 to 22 under the Build condition, with 23 signalized intersections significantly impacted. The number of lane groups at LOS E or F would increase from 58 to 77. Figure 17-24 shows the overall intersection levels of service.
- In the Saturday PM post-game peak hour, the number of locations that would operate at LOS E or F would increase from 19 to 23 under the Build condition. Twenty-three signalized intersections would be significantly impacted. The number of lane groups that would operate at LOS E or F would increase from 62 to 73. Figure 17-25 shows the overall levels of service for this peak hour.
- One of the two unsignalized intersections, World's Fair Marina at Boat Basin Road, would consistently have a lane group operate at LOS F during the weekday PM and Saturday midday pre-game peak hours and the Saturday PM post-game peak hour, and as a result, would be significantly impacted in all game-day peak hours. The other unsignalized intersection, Stadium Road at the Grand Central Parkway, would operate at acceptable levels of service.

Table 17-28 shows the locations and time periods where significant impacts would occur in the 2017 Build condition. Mitigation measures for significantly impacted locations are discussed in Chapter 23.

PARKING

The proposed Plan would provide approximately 6,700 off-street accessory parking spaces to satisfy the projected parking demand due to the proposed Plan. The existing roadway network within the District would also be reconfigured under the proposed Plan, and any associated existing on-street parking spaces removed or replaced with new on-street spaces as part of the new street network. The projected parking demand is anticipated to be satisfied entirely within the District and is not expected to affect other nearby Citi Field, commuter, municipal, and other public on-street or off-street parking areas.

New parking areas would consist primarily of off-street parking facilities contained within the Willets Point Development District and limited on-street parking opportunities. As detailed street configurations and curbside parking regulations have not yet been defined within the District, it is expected that some level of on-street parking would be available. The proposed regulations would be designed to satisfy the needs of adjacent land uses; metered parking would likely be installed adjacent to retail uses or other commercial buildings, alternate side regulations would likely be installed near residential uses, and curbside parking restrictions would likely be imposed near the convention center, hotel, community facilities, or along primary delivery routes.

Table 17-28
2017 Build Condition Significant Impact Summary

Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Astoria Boulevard at 108th Street			x		x		
Northern Boulevard at 108th Street	x		x	x	x	x	x
Northern Boulevard at 114th Street	x		x		x	x	x
Northern Boulevard at 126th Street	x	x	x	x	x	x	x
Northern Boulevard at Prince Street	x	x	x	x	x	x	x
Northern Boulevard at Main Street	x		x	x	x	x	x
Northern Boulevard at Union Street	x	x	x	x	x	x	x
Northern Boulevard at Parsons Boulevard	x	x	x	x	x	x	x
34th Avenue at 114th Street							
34th Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 108th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 111th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 114th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at College Point Boulevard	x	x	x	x	x	x	x
Roosevelt Avenue at Prince Street	x	x	x	x	x	x	x
Roosevelt Avenue at Main Street	x	x	x	x	x	x	x
Roosevelt Avenue at Union Street			x	x	x	x	x
Roosevelt Avenue at Parsons Boulevard	x	x	x	x	x	x	x
Kissena Boulevard at Main Street							
Sanford Avenue at College Point Boulevard	x		x	x	x	x	x
Sanford Avenue at Union Street	x	x	x	x	x	x	x
Sanford Avenue at Parsons Boulevard	x	x	x	x	x	x	x
32nd Avenue at College Point Boulevard					x	x	x
World's Fair Marina at Boat Basin Road	x	x	x	x	x	x	x
Northern Boulevard at College Point Boulevard	x	x	x	x	x	x	x
Stadium Road at Grand Central Parkway							
New Willets Point Boulevard at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at New Citi Field Internal Street							

Notes: x means the intersection would be significantly impacted.

Parking demand for the proposed residential component would be satisfied through on-street and off-street parking opportunities. It is assumed that approximately 10 percent of residents would use available on-street parking opportunities, which would reduce the need for off-street parking demand by about 200 spaces. Given the anticipated residential demand of 2,700 spaces, approximately 2,500 off-street residential parking spaces would need to be provided. Residential parking demand is typically lowest during the daytime hours when office, community uses, and primary school parking demands are at a maximum. Therefore, shared parking strategies would be implemented and where possible, office, community, and primary school parking demands would use parking spaces vacated by residents during the daytime hours. This would maximize usage of vacant residential parking spaces during daytime hours and minimize the need for additional dedicated parking spaces for office, community, and primary school uses.

It is expected that the remaining land uses, retail, hotel, and the convention center, could also share common parking areas. However, because peaking patterns among these uses are similar to each other, there would be minimal savings in the number of required parking spaces. Hence, the projected weekday and Saturday parking demands for these uses are based on the sum of the

individual peak demands, or approximately 3,700 spaces and 4,200 spaces, respectively. The parking supply within in the District would be provided to accommodate the highest demand, 4,200 spaces, which would be expected to occur on a Saturday. Since parking areas designated for the retail, hotel, and convention center would likely be underutilized during the weekday, shared parking strategies could again be implemented and these parking facilities also used to accommodate office, community, and primary school parking demands.

Table 17-29 and Table 17-30 show the Willets Point Development District's projected parking accumulation by hour on a weekday and Saturday, respectively. Since it is assumed that the proposed parking would not be utilized by Citi Field traffic on game days, the accumulations of proposed parking would be the same for non-game days and game days.

The Citi Field Lot B development project would displace 660 existing parking spaces for game-day stadium traffic. These spaces would be replaced within a new parking structure on Lot D, located on the south side of Roosevelt Avenue to the east of the South Lot. Within the footprint of the new structure, a total of 1,543 spaces would be constructed, 573 of which would replace the existing Lot D surface spaces lost to the new structure. The remaining 970 spaces would accommodate Mets game day traffic and the Lot B development. On a typical weekday, the Lot B demand, primarily from the office use, is expected to peak at 662 spaces. This demand would diminish to approximately by 200 by 6 PM, leaving 770 spaces available for Mets patrons on a typical weekday 7 PM game. On a typical Saturday, the office parking demand would be negligible, while the retail demand would peak at approximately 310 parking spaces, leaving the remaining 660 spaces available for Mets game-day parking. Table 17-31 shows the projected parking accumulation by hour for the proposed Lot B development on a weekday and on a Saturday.

The new parking structure on Lot D would have designated internal areas for parking currently accommodated on Lot D, parking associated with the new Lot B development, and Mets game day patrons. Access to the parking garage would be provided via a connection to the South Lot immediately west of Lot D, and a new driveway entrance on the west side of 126th Street. Motorists currently accommodated on Lot D would enter/exit via the South Lot connection to the garage, while Mets game day and Lot B development vehicles would enter/exit the garage from the driveway on 126th Street.

DUAL EVENT CONDITION

Since the proposed Plan would add significant traffic volumes to the surrounding highway network and key local roadways, such as Northern Boulevard and Roosevelt Avenue, the Dual Event Condition would experience worsened delays and additional queuing compared with the No Build condition. The proposed Plan would not affect the access and egress routings for the USTA National Tennis Center; however, the circulation of Citi Field traffic predominantly to the parking areas only north of the LIRR during the tennis event—since the areas south of the LIRR provide parking for tennis attendees during the Dual Event Condition—would cause additional traffic congestion when combined with the traffic generated by the proposed Plan and Lot B, especially along Northern Boulevard, Roosevelt Avenue, 126th Street, Stadium Road, and the highway ramps to the key intersections along those roadways. More rigorous management of traffic operations at locations where control is already maintained during the Dual Event Condition would likely be necessary with the proposed Plan. Again, this condition would represent an infrequent special case with the overlap of two concurrent events in combination with the expected traffic activity of the proposed Plan.

Table 17-29
Proposed Plan Weekday Parking Accumulation

Time Begin	Residential			Office			Destination Retail			Local Retail			Convention/Expo			
	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	
Mid.	91	92	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
1 AM	38	37	2,751	0	0	0	0	0	0	0	0	0	0	0	0	
2 AM	22	21	2,752	0	0	0	0	0	0	0	0	0	0	0	0	
3 AM	16	16	2,752	0	0	0	0	0	0	0	0	0	0	0	0	
4 AM	16	16	2,752	0	0	0	0	0	0	0	0	0	0	0	0	
5 AM	16	16	2,752	0	0	0	0	0	0	0	0	0	0	0	0	
6 AM	31	34	2,749	0	0	0	0	0	0	0	0	0	27	0	27	
7 AM	42	378	2,413	52	0	52	86	86	0	13	1	12	191	0	218	
8 AM	196	784	1,825	456	18	490	419	268	151	31	31	12	300	0	518	
9 AM	142	568	1,399	359	15	834	426	175	402	12	8	16	696	14	1,200	
10 AM	135	403	1,131	89	54	869	565	265	702	12	8	20	418	74	1,544	
11 AM	189	285	1,035	35	91	813	837	622	917	29	30	19	350	87	1,807	
Noon	258	248	1,045	145	157	801	1,369	1,120	1,166	186	186	19	283	105	1,985	
1 PM	248	247	1,046	164	84	881	2,210	2,167	1,209	147	147	19	264	310	1,939	
2 PM	226	226	1,046	99	46	934	1,413	1,562	1,060	78	79	18	44	147	1,836	
3 PM	296	285	1,057	34	36	932	1,319	1,170	1,209	78	79	17	68	309	1,595	
4 PM	465	310	1,212	52	393	591	1,201	1,317	1,093	79	79	17	61	349	1,307	
5 PM	748	403	1,557	28	524	95	1,197	1,350	940	94	94	17	21	673	655	
6 PM	658	354	1,861	18	91	22	1,259	1,460	739	89	88	18	7	633	29	
7 PM	626	268	2,219	7	29	0	1,116	1,116	739	75	75	18	0	29	0	
8 PM	271	116	2,374	0	0	0	640	762	617	44	54	8	0	0	0	
9 PM	218	94	2,498	0	0	0	246	863	0	14	22	0	0	0	0	
10 PM	249	106	2,641	0	0	0	0	0	0	0	0	0	0	0	0	
11 PM	184	74	2,751	0	0	0	0	0	0	0	0	0	0	0	0	
Total	5,381	5,381		1,538	1,538		14,303	14,303		981	981		2,730	2,730		
Time Begin	**Movie Theater**			**Hotel**			**Community Facility**			**School – Students**			**School – Staff**			**Total**
	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	
Mid.	0	10	10	8	1	234	0	0	0	0	0	0	0	0	0	**2,994**
1 AM	0	10	0	8	1	241	0	0	0	0	0	0	0	0	0	**2,992**
2 AM	0	0	0	0	0	241	0	0	0	0	0	0	0	0	0	**2,993**
3 AM	0	0	0	0	0	241	0	0	0	0	0	0	0	0	0	**2,993**
4 AM	0	0	0	0	0	241	0	0	0	0	0	0	0	0	0	**2,993**
5 AM	0	0	0	0	0	241	0	0	0	0	0	0	0	0	0	**2,993**
6 AM	0	0	0	0	0	241	0	0	0	0	0	0	0	0	0	**3,017**
7 AM	10	0	10	9	12	238	21	1	20	5	5	0	3	0	3	**2,966**
8 AM	19	1	28	48	69	217	37	3	54	94	94	0	28	0	31	**3,326**
9 AM	22	4	46	48	69	196	27	11	70	5	5	0	0	0	31	**4,194**
10 AM	39	10	75	66	58	204	23	15	78	0	0	0	0	0	31	**4,654**
11 AM	37	16	96	69	57	216	17	20	75	0	0	0	0	0	31	**5,009**
Noon	37	22	111	101	48	269	17	21	71	0	0	0	0	0	31	**5,498**
1 PM	47	32	126	38	70	237	13	19	65	0	0	0	0	0	31	**5,553**
2 PM	68	50	144	29	61	205	11	16	60	0	0	0	0	0	31	**5,334**
3 PM	77	61	160	40	86	159	18	25	53	78	78	0	0	25	6	**5,188**
4 PM	97	80	177	56	104	111	21	28	46	10	10	0	0	3	3	**4,557**
5 PM	85	72	190	81	56	136	19	26	39	15	15	0	0	3	0	**3,629**
6 PM	127	109	208	89	89	136	23	31	31	0	0	0	0	0	0	**3,044**
7 PM	135	119	224	71	48	159	17	17	31	0	0	0	0	0	0	**3,390**
8 PM	121	174	171	53	36	176	5	21	15	0	0	0	0	0	0	**3,361**
9 PM	40	98	113	37	16	197	2	17	0	0	0	0	0	0	0	**2,808**
10 PM	16	63	66	27	9	215	0	0	0	0	0	0	0	0	0	**2,922**
11 PM	6	53	19	14	2	227	0	0	0	0	0	0	0	0	0	**2,997**
Total	983	984		892	892		271	271		207	207		31	31		

Note: Acc. = Accumulation
Source: Based on travel demand estimates

Table 17-30
Proposed Plan Saturday Parking Accumulation

Time Begin	Residential			Office			Destination Retail			Local Retail			Convention/Expo			
	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	
Mid.	40	40	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
1 AM	40	40	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
2 AM	0	0	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
3 AM	0	0	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
4 AM	0	0	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
5 AM	80	80	2,750	0	0	0	0	0	0	0	0	0	0	0	0	
6 AM	40	120	2,670	0	0	0	11	0	11	0	0	0	0	0	0	
7 AM	128	382	2,416	3	1	2	139	0	150	0	0	0	0	0	0	
8 AM	160	478	2,098	6	3	5	265	14	401	9	1	8	0	0	0	
9 AM	199	599	1,698	8	6	7	251	28	624	18	2	24	129	0	129	
10 AM	239	718	1,219	16	10	13	446	112	958	79	19	84	468	29	568	
11 AM	259	778	700	26	18	21	1,756	753	1,961	93	94	83	522	174	916	
Noon	279	838	141	32	21	32	1,195	1,035	2,121	103	84	102	348	348	916	
1 PM	727	549	319	32	21	43	1,635	1,571	2,185	103	84	121	358	358	916	
2 PM	678	470	527	24	29	38	1,450	1,338	2,297	103	84	140	348	348	916	
3 PM	679	453	753	15	29	24	1,450	1,338	2,409	103	84	159	174	522	568	
4 PM	670	447	976	8	18	14	795	878	2,326	84	103	140	124	373	319	
5 PM	670	447	1,199	4	10	8	1,255	1,254	2,327	79	78	141	12	237	94	
6 PM	726	391	1,534	2	7	3	1,129	1,380	2,076	71	86	126	2	96	0	
7 PM	782	335	1,981	1	4	0	878	1,631	1,323	66	82	110	0	0	0	
8 PM	670	287	2,364	0	0	0	781	1,449	655	51	87	74	0	0	0	
9 PM	591	207	2,748	0	0	0	502	1,157	0	24	92	6	0	0	0	
10 PM	241	238	2,751	0	0	0	0	0	0	0	6	0	0	0	0	
11 PM	80	80	2,751	0	0	0	0	0	0	0	0	0	0	0	0	
Total	7,978	7,977		177	177		13,938	13,938		986	986		2,485	2,485		

Time Begin	Movie Theater			Hotel			Community Facility			School – Students			School – Staff			Total
	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	In	Out	Acc.	
Mid.	0	19	19	11	2	234	0	0	0	0	0	0	0	0	0	**3,003**
1 AM	0	19	0	12	1	245	0	0	0	0	0	0	0	0	0	**2,995**
2 AM	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	**2,995**
3 AM	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	**2,995**
4 AM	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	**2,995**
5 AM	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	**2,995**
6 AM	0	0	0	0	0	245	0	0	0	0	0	0	0	0	0	**2,926**
7 AM	19	0	19	22	31	236	0	0	0	0	0	0	0	0	0	**2,823**
8 AM	36	1	54	71	103	204	0	0	0	0	0	0	0	0	0	**2,770**
9 AM	64	11	107	71	103	172	22	5	17	0	0	0	0	0	0	**2,778**
10 AM	75	19	163	96	89	179	22	5	34	0	0	0	0	0	0	**3,218**
11 AM	73	39	197	96	89	186	13	14	33	0	0	0	0	0	0	**4,097**
Noon	116	71	242	103	95	194	37	39	31	0	0	0	0	0	0	**3,779**
1 PM	116	71	287	111	87	218	37	39	29	0	0	0	0	0	0	**4,118**
2 PM	123	101	309	40	92	166	37	38	28	0	0	0	0	0	0	**4,421**
3 PM	144	118	335	55	130	91	37	38	27	0	0	0	0	0	0	**4,366**
4 PM	103	84	354	99	99	91	36	40	23	0	0	0	0	0	0	**4,243**
5 PM	162	137	379	102	101	92	12	14	21	0	0	0	0	0	0	**4,261**
6 PM	242	207	414	132	132	92	9	17	13	0	0	0	0	0	0	**4,258**
7 PM	253	233	434	105	69	128	8	18	3	0	0	0	0	0	0	**3,979**
8 PM	230	331	333	79	53	154	0	3	0	0	0	0	0	0	0	**3,580**
9 PM	76	186	223	55	24	185	0	0	0	0	0	0	0	0	0	**3,162**
10 PM	30	120	133	40	13	212	0	0	0	0	0	0	0	0	0	**3,096**
11 PM	11	106	38	21	8	225	0	0	0	0	0	0	0	0	0	**3,014**
Total	1,873	1,873		1,321	1,321		270	270		0	0		0	0		

Note: Acc. = Accumulation
Source: Based on travel demand estimates

Table 17-31
Lot B Weekday and Saturday Parking Accumulation

Time Begin	Weekday							Saturday						
	Office			Destination Retail			Total	Office			Destination Retail			Total
	In	Out	Acc.	In	Out	Acc.		In	Out	Acc.	In	Out	Acc.	
Mid.	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
1 AM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
2 AM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
3 AM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
4 AM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
5 AM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
6 AM	0	0	0	0	0	0	**0**	0	0	0	11	0	11	**11**
7 AM	29	0	29	11	10	1	**30**	2	0	2	17	0	28	**30**
8 AM	255	11	273	52	33	20	**293**	3	2	3	33	1	60	**63**
9 AM	202	8	467	53	21	52	**519**	5	3	5	31	3	88	**93**
10 AM	50	36	481	70	32	90	**571**	9	6	8	55	14	129	**137**
11 AM	20	54	447	103	77	116	**563**	15	10	13	217	93	253	**266**
Noon	82	88	441	169	138	147	**588**	18	12	19	148	127	274	**293**
1 PM	92	50	483	273	267	153	**636**	18	12	25	202	194	282	**307**
2 PM	55	27	511	174	193	134	**645**	14	16	23	179	165	296	**319**
3 PM	19	21	509	163	144	153	**662**	9	16	16	179	165	310	**326**
4 PM	29	207	331	148	163	138	**469**	5	10	11	98	109	299	**310**
5 PM	16	294	53	148	166	120	**173**	2	6	7	155	155	299	**306**
6 PM	10	51	12	155	180	95	**107**	1	4	4	139	171	267	**271**
7 PM	4	16	0	138	138	95	**95**	0	4	0	108	202	173	**173**
8 PM	0	0	0	78	95	78	**78**	0	0	0	96	179	90	**90**
9 PM	0	0	0	30	108	0	**0**	0	0	0	62	152	0	**0**
10 PM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
11 PM	0	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**
Total	863	863		1,765	1,765			101	101		1,730	1,730		

Note: Acc. = Accumulation
Source: Based on travel demand estimates.

NO CONVENTION CENTER SCENARIO

The No Convention Center Scenario, which is addressed qualitatively in this document, would be an altered development program in which the 400,000-square-foot convention center is replaced with 350,000 square feet (sf) of residential use (about 350 more dwelling units) and 50,000 sf of ground floor retail use. Generally, this scenario would have approximately 6 percent more residential development and approximately 3 percent more retail development than the cumulative development program analyzed. The No Convention Center Scenario would result in an overall reduction equal to approximately 7 to 14 percent of the total number of generated trips during each of the peak hours. In terms of numbers of trips, the reduction would be about 270 to 730 vph in each peak hour. The greatest trip reductions would be in the weekday PM peak hour, the weekday evening pre-game peak hour, and the Saturday afternoon post-game peak hour.

Since the assignment of convention center trips assumes predominant use of the highway routes to and from the Willets Point Development District, it is expected that the No Convention Center Scenario would show some improvement in highway levels of service, especially on the Van Wyck Expressway and the new access ramps to the District. However, the lessened severity of such impacts could result in more successful mitigation options. There would also be levels of service improvements at highway ramp approaches to the intersections on 126th Street at 34th Avenue and at Northern Boulevard due to the reduction in convention center traffic to and from the highway network.

G. HIGHWAY NETWORK ANALYSIS

INTRODUCTION AND METHODOLOGY

Because of the proximity of the Willets Point Development District to the regional highway network through north-central Queens, analyses were performed to assess the potential for significant adverse impacts on the Grand Central Parkway, the Van Wyck/Whitestone Expressway (both designated as I-678), and the ramps connecting the highways to the local street network. The highway analyses include the following locations:

- Grand Central Parkway mainline in both directions between the LIE and Roosevelt Avenue
- Van Wyck Expressway mainline in both directions between the LIE and Roosevelt Avenue
- Whitestone Expressway mainline in both directions between Northern Boulevard and Linden Place
- Ramp from World's Fair Marina/Boat Basin Road to the Grand Central Parkway
- Ramps from the northbound Van Wyck Expressway to eastbound and westbound Northern Boulevard
- Ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway
- Ramp from westbound Northern Boulevard to the southbound Van Wyck Expressway
- Ramp from eastbound Astoria Boulevard and eastbound Northern Boulevard to the northbound Whitestone Expressway
- Ramps from the southbound Whitestone Expressway to the eastbound and westbound Grand Central Parkway
- Ramp from westbound Northern Boulevard and southbound Whitestone Expressway to westbound Astoria Boulevard
- Ramp from eastbound Astoria Boulevard and the Grand Central Parkway to the northbound Whitestone Expressway and eastbound Northern Boulevard
- Ramp from the eastbound Grand Central Parkway toward Stadium Road and the northbound Whitestone Expressway
- Ramp from the southbound Whitestone Expressway to westbound Northern Boulevard

The ramps from eastbound Northern Boulevard and the Grand Central Parkway to 126th Street as well as the combined ramp section from the northbound Van Wyck Expressway and southbound Whitestone Expressway to westbound Northern Boulevard at 126th Street are signalized approaches and, as such, are included in the intersection analyses instead of the highway analyses.

It is beyond the scope of the *2000 HCM* to analyze a highway section that is operating at low speeds or over-saturated conditions. Therefore, a simulation of the highway network using the CORSIM model was used instead (as has been done on numerous recent EISs in New York City), because it better replicates existing and projected future conditions in the study area. The ability to account for traffic conditions that influence the immediate study area is critical when modeling traffic conditions on typical weekdays and, even more importantly, before and after Mets home games at Shea Stadium.

The CORSIM model reports the density and an average speed for the highway section being analyzed, but does not readily report the levels of service. Levels of service are necessary to assess potential impacts of the proposed development on the highway as per *CEQR Technical Manual* guidelines. The 2000 HCM defines levels of service thresholds for merge and diverge areas using density in passenger cars per mile per lane (pc/mi/ln), and these thresholds have been applied to the results of the CORSIM model. The levels of service thresholds for each density range are as follows:

- LOS A describes operations with very low densities (i.e., less than or equal to 10 pc/mi/ln) and high free flow speeds.
- LOS B describes operations with fairly low densities (i.e., greater than 10 to 20 pc/mi/ln) and moderate to high free flow speeds.
- LOS C describes operations with moderate densities (i.e., greater than 20 to 28 pc/mi/ln) and moderate free flow speeds.
- LOS D describes operations with moderate to high densities (i.e., greater than 28 to 35 pc/mi/ln) and moderate to low free flow speeds. A mid-LOS D density of 31.5 pc/mi/ln is considered the high range of acceptable density. Densities greater than 31.5 pc/mi/ln are unacceptable but are commonplace on highways in New York City.
- LOS E describes operations with high densities (i.e., greater than 35 pc/mi/ln) and low free flow speeds. 45 pc/mi/ln is considered the maximum density for sustained flows at capacity on a typical freeway. Queuing can begin at densities higher than this.
- LOS F describes operations with very high densities and very low free flow speeds. Queuing is common within LOS F, which leads to failure conditions and congestion.

According to the *CEQR Technical Manual*, for highway or ramp sections being analyzed—including mainline capacity sections, weaving areas, and ramp junctions—a significant adverse impact occurs when conditions deteriorate by more than half an LOS between No Build and Build conditions when No Build LOS is in the D, E, or F range. The following significant impact criteria are used in the Build analyses to assess potential impacts of the proposed development on the highway network:

- For No Build LOS D to Build LOS D: Since the starting value of LOS E is 28 pc/mi/ln and the highest value of LOS E is 35 pc/mi/ln, one half of the difference between these two is 3.5 pc/mi/ln. Hence, an increase in the projected density of 4 pc/mi/ln or more as a result of traffic volume added between the No Build and Build conditions is considered a significant impact.
- For No Build LOS D to Build LOS E: Since the value of mid-LOS D is 31.5 pc/mi/ln and the starting value of LOS E is 35 pc/mi/ln, one half of the difference between these two is 1.75 pc/mi/ln. Therefore, an increase in the projected density of 2 pc/mi/ln or more between No Build and Build is considered a significant impact.
- For No Build LOS E to Build LOS F: The same criteria as No Build LOS D to Build LOS E applies.

EXISTING CONDITIONS

GRAND CENTRAL PARKWAY VOLUMES

Traffic volumes on the eastbound Grand Central Parkway mainline approaching the diverge to the Whitestone Expressway and eastbound Northern Boulevard (designated as eastbound Exit 9E), range from 5,100–7,200 vph during typical non-game weekday AM, midday, PM and Saturday midday peak hours, and from 5,800–7,200 vph during game conditions. The ramp from the eastbound Grand Central Parkway to the Whitestone Expressway and eastbound Northern Boulevard, which is a major split toward the Willets Point Development District from the eastbound mainline, carries approximately 2,050–3,250 vph during the non-game analysis periods and 2,100–3,300 vph during game periods. South of the diverge, the Grand Central Parkway receives approximately 350–850 vph from the ramp from the Whitestone Expressway and westbound Northern Boulevard during the non-game periods and 350–550 vph during the game periods. The next merge onto the eastbound mainline (from the 34th Avenue/114th Street intersection and from Astoria Boulevard) adds approximately 1,200–1,850 vph during the various analysis peak hours. Farther south along the eastbound Grand Central Parkway, between the Roosevelt Avenue overpass and the LIE, traffic volumes range from 4,850–6,400 vph during the non-game analysis time periods, and from 5,250–6,250 vph for game conditions.

Traffic volumes on the Grand Central Parkway westbound mainline just north of the ramps from the LIE range from 4,350–6,000 vph during typical non-game weekday AM, midday, PM and Saturday midday peak hours, and from 5,550–5,750 vph during game conditions. Farther north, the westbound mainline divides: traffic destined for the ramp to the Whitestone Expressway and eastbound Northern Boulevard (designated as westbound Exit 9E) as well as a portion of traffic that continues on the mainline through the study area take the east side of the highway; and traffic destined for the ramp to westbound Northern Boulevard (designated as westbound Exit 9W) as well as the remaining traffic that continues on the mainline through the study area take the west side of the highway. The east half of the mainline carries approximately 1,750–2,400 vph and 2,500–2,700 vph during the non-game and game peak hours, respectively. The west half of the mainline carries approximately 2,600–3,600 vph and 3,000–3,050 vph during the non-game and game peak hours, respectively. The ramp to the Whitestone Expressway and eastbound Northern Boulevard (Exit 9E), which provides access to the vicinity of Shea Stadium and the Willets Point Development District from the westbound mainline, carries approximately 250–400 vph during the non-game analysis periods and 450–1,100 vph during game periods. The ramp to westbound Northern Boulevard (Exit 9W) carries approximately 750–1,250 vph during the non-game analysis periods and 1,000–1,050 vph during game periods. Farther north just prior to the point where the two segments of the westbound mainline rejoin, traffic entering the east half of the mainline from the combined ramp from the Whitestone Expressway and westbound Northern Boulevard as well as the World's Fair Marina/Boat Basin Road ranges from 1,550–2,300 vph and 1,450–2,450 vph during the non-game and game peak hours, respectively.

THE VAN WYCK / WHITESTONE EXPRESSWAY VOLUMES

The Van Wyck Expressway (I-678) northbound mainline, north of the LIE and the on-ramp from College Point Boulevard, is traveled by approximately 3,050–4,400 vph during typical non-game weekday AM, midday, PM and Saturday midday peak hours, and from 3,150–3,750 vph during game conditions. The northbound diverge toward Northern Boulevard (Exit 13) carries approximately 950–1,400 vph and 850–1,200 vph during the non-game and game analysis periods, respectively. Of the total volumes during all of the analysis peak hours, approximately

550–700 vph take Exit 13E toward Downtown Flushing, while 250–750 vph take Exit 13W toward westbound Northern Boulevard, the Grand Central Parkway and access to Shea Stadium. North of the Willets Point Development District, the continuation of I-678 northbound, the Whitestone Expressway, is traveled by approximately 4,150–6,800 vph and 4,250–6,350 vph during non-game and game analysis periods, respectively.

North of the Willets Point Development District, the Whitestone Expressway southbound mainline splits, with one section of the highway continuing south as the Van Wyck Expressway and the other turning west toward the Grand Central Parkway. Upstream of this split, the Whitestone Expressway is traveled by approximately 3,900–6,450 vph and 4,000–5,800 vph during non-game and game analysis periods, respectively. In the vicinity of Northern Boulevard, the southbound mainline (now the Van Wyck Expressway) receives traffic from two ramps: the merge from westbound Northern Boulevard, which adds approximately 500–700 vph during the seven analysis peak hours; and the merge with the ramp from the northbound Whitestone Expressway (with the combined traffic entering from the Grand Central Parkway, eastbound Northern Boulevard, and Astoria Boulevard), which totals approximately 450–850 vph during all of the peak hours. The Van Wyck Expressway southbound mainline, north of the exit to College Point Boulevard (Exit 12A), carries approximately 3,050–4,500 vph during typical non-game weekday AM, midday, PM and Saturday midday peak hours, and from 3,350–4,300 vph during game conditions.

EXISTING LEVELS OF SERVICE

Table 17-32 presents existing speeds, densities, and levels of service for 19 segments of the mainlines or ramps of the highway network analyzed for typical non-game-day peak hours. Average travel speeds on the highway mainlines are generally between 40 and 55 miles per hour (mph) during the AM peak hour, except for the southbound Whitestone Expressway, which has an average travel speed of approximately 29 mph. Average travel speeds on the highway mainlines during the weekday midday, PM, and Saturday midday peak hours generally range from 35 to 50 mph.

For the highway mainline sections, unacceptable LOS E or F conditions generally occur along the westbound Grand Central Parkway and southbound Whitestone Expressway during the AM peak hour, and along the eastbound Grand Central Parkway, southbound Van Wyck Expressway, and the northbound Whitestone Expressway during the PM peak hour. The other mainline sections generally operate at LOS B, C, and D during the weekday AM and PM peak hours. During the weekday midday and Saturday midday peak hours, all of the analyzed highway mainlines generally operate at acceptable LOS B and C and marginally unacceptable LOS D. Because of significant westbound volumes in the AM peak hour, the combined ramp to Astoria Boulevard from westbound Northern Boulevard and the southbound Whitestone Expressway operates at unacceptable LOS E. The other ramps are generally at acceptable levels of service during the non-game day peak hours; the ramp from the northbound Van Wyck Expressway to westbound Northern Boulevard operates at marginally acceptable LOS D during the AM peak hour, as does the ramp from the northbound Van Wyck Expressway to eastbound Northern Boulevard and the ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway during the PM peak hour.

Table 17-32
Existing Highway Levels of Service Summary – Non-Game Day

Mainlines	Weekday AM				Weekday midday				Weekday PM				Saturday midday			
	Observed speed	Speed (mph)	Density (pc/mi/ln)	LOS	Observed speed	Speed (mph)	Density (pc/mi/ln)	LOS	Observed speed	Speed (mph)	Density (pc/mi/ln)	LOS	Observed speed	Speed (mph)	Density (pc/mi/ln)	LOS
Grand Central Parkway EB Mainline (Between Roosevelt Ave & Long Island Expwy)	50.0	49.1	26.3	C	50.0	49.2	23.6	C	42.5	41.4	36.6	E	46.1	45.9	30.5	D
Grand Central Parkway WB Mainline (East Side) (Between Roosevelt Ave & Long Island Expwy)	51.2	51.4	19.3	B	50.0	49.4	14.3	B	49.1	50.0	19.4	B	50.6	48.8	18.9	B
Grand Central Parkway WB Mainline (West Side) (Between Roosevelt Ave & Long Island Expwy)	n/a	41.4	39.2	E	n/a	45.9	26.7	C	n/a	49.7	26.3	C	n/a	44.9	33.9	D
Van Wyck Expressway NB Mainline (Between Roosevelt Ave & Long Island Expwy)	39.0	40.1	33.9	D	36.2	36.5	26.1	C	40.5	39.9	29.6	D	40.6	41.0	26.4	C
Van Wyck Expressway SB Mainline (Between Roosevelt Ave & Long Island Expwy)	41.1	40.6	27.9	C	39.2	39.3	24.8	C	42.6	40.7	36.6	E	46.6	46.5	25.9	C
Whitestone Expressway NB Mainline (Between Northern Boulevard & Linden Place)	46.6	47.5	23.8	C	46.2	46.4	18.1	B	35.9	36.4	37.1	E	44.2	44.0	22.9	C
Whitestone Expressway SB Mainline (Between Northern Boulevard & Linden Place)	29.3	29.1	45.2	F	36.0	36.9	21.7	C	39.6	40.0	27.2	C	37.5	38.4	25.2	C
Ramps																
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	n/a	36.3	15.2	B	n/a	36.4	12.8	B	n/a	36.9	12.7	B	n/a	36.6	13.2	B
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	n/a	24.2	25.8	C	n/a	23.8	27.3	C	n/a	23.9	30.2	D	n/a	23.7	27.9	C
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	22.1	22.4	31.2	D	22.7	23.6	18.3	B	25.2	26.0	15.8	B	n/a	25.5	10.7	B
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	n/a	34.0	16.8	B	n/a	34.0	16.5	B	n/a	32.0	30.2	D	n/a	34.0	14.3	B
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	n/a	28.9	21.5	C	n/a	29.2	20.7	C	n/a	29.0	20.6	C	n/a	28.9	25.1	C
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	n/a	41.0	10.3	B	n/a	41.1	8.5	A	n/a	39.9	18.6	B	n/a	42.2	9.7	A
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	n/a	44.0	23.0	C	n/a	44.0	18.5	B	n/a	44.3	16.4	B	n/a	44.3	17.8	B
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	41.2	41.4	10.3	B	38.3	39.7	5.2	A	39.5	39.9	8.2	A	n/a	38.9	6.1	A
Ramp from Northern Boulevard WB & Whitestone Expressway SB to Astoria Boulevard WB	25.1	26.6	36.2	E	n/a	29.4	10.8	B	39.6	39.9	10.2	B	n/a	23.3	12.9	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	38.8	37.1	19.0	B	n/a	39.8	16.0	B	n/a	39.2	26.2	C	n/a	41.9	16.4	B
Ramp from Grand Central Parkway WB toward Stadium Road & Whitestone Expressway NB	47.5	47.0	6.4	A	45	44.0	5.9	A	n/a	46.6	6.2	A	46.6	45.4	7.2	A
Ramp from Whitestone Expressway SB to Northern Boulevard WB	n/a	25.6	26.6	C	n/a	28.1	25.5	C	n/a	28.6	24.7	C	n/a	28.3	25.8	C

Note: n/a-signifies not available

Table 17-33 presents existing speeds, densities, and levels of service for the 19 sections or ramps of the highway network during the game-day peak hours, respectively. Pre-game traffic to Shea Stadium on the highways primarily uses the southbound Whitestone Expressway, taking the exit to westbound Northern Boulevard; the eastbound Grand Central Parkway, taking the exit to 126th Street; and the westbound Grand Central Parkway, taking the exit to Stadium Road and the exit to 126th Street. These exit ramps frequently spill back onto the highway mainlines during the pre-game peak hours, causing additional slowdown for through (non-exiting) traffic. Departing traffic during the post-game peak hour accesses the northbound Whitestone Expressway and the westbound Grand Central Parkway from the entrance ramps from Stadium Road; exiting game traffic also accesses the westbound Grand Central Parkway via the entrance ramp from World's Fair Marina/Boat Basin Road. Exiting game traffic to the eastbound Grand Central Parkway uses the entrance ramp from 114th Street and the entrance ramp farther south, from the park roads (United Nations Avenue and Avenue of Science).

Table 17-33
Existing Highway Levels of Service Summary – Game Day

Mainlines	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday			
	[illegible]				[illegible]				[illegible]				[illegible]			
Grand Central Parkway EB Mainline (between Roosevelt Ave & Long Island Expwy)	50.0	49.1	26.3	C	50.0	49.2	23.6	C	42.5	41.4	36.6	E	46.1	45.9	30.5	D
Grand Central Parkway WB Mainline (east side) (between Roosevelt Ave & Long Island Expwy)	51.2	51.4	19.3	B	50.0	49.4	14.3	B	49.1	50.0	19.4	B	50.6	48.8	18.9	B
Grand Central Parkway WB Mainline (west side) (between Roosevelt Ave & Long Island Expwy)	n/a	41.4	39.2	E	n/a	45.9	26.7	C	n/a	49.7	26.3	C	n/a	44.9	33.9	D
Van Wyck Expressway NB Mainline (between Roosevelt Ave & Long Island Expwy)	39.0	40.1	33.9	D	36.2	36.5	26.1	C	40.5	39.9	29.6	D	40.6	41.0	26.4	C
Van Wyck Expressway SB Mainline (between Roosevelt Ave & Long Island Expwy)	41.1	40.6	27.9	C	39.2	39.3	24.8	C	42.6	40.7	36.6	E	46.6	46.5	25.9	C
Whitestone Expressway NB Mainline (between Northern Boulevard and Linden Place)	46.6	47.5	23.8	C	46.2	46.4	18.1	B	35.9	36.4	37.1	E	44.2	44.0	22.9	C
Whitestone Expressway SB Mainline (between Northern Boulevard and Linden Place)	29.3	29.1	45.2	F	36.0	36.9	21.7	C	39.6	40.0	27.2	C	37.5	38.4	25.2	C
Ramps																
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	n/a	36.3	15.2	B	n/a	36.4	12.8	B	n/a	36.9	12.7	B	n/a	36.6	13.2	B
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	n/a	24.2	25.8	C	n/a	23.8	27.3	C	n/a	23.9	30.2	D	n/a	23.7	27.9	C
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	22.1	22.4	31.2	D	22.7	23.6	18.3	B	25.2	26.0	15.8	B	n/a	25.5	10.7	B
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	n/a	34.0	16.8	B	n/a	34.0	16.5	B	n/a	32.0	30.2	D	n/a	34.0	14.3	B
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	n/a	28.9	21.5	C	n/a	29.2	20.7	C	n/a	29.0	20.6	C	n/a	28.9	25.1	C
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	n/a	41.0	10.3	B	n/a	41.1	8.5	A	n/a	39.9	18.6	B	n/a	42.2	9.7	A
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	n/a	44.0	23.0	C	n/a	44.0	18.5	B	n/a	44.3	16.4	B	n/a	44.3	17.8	B
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	41.2	41.4	10.3	B	38.3	39.7	5.2	A	39.5	39.9	8.2	A	n/a	38.9	6.1	A
Ramp from Northern Boulevard WB and Whitestone Expressway SB to Astoria Boulevard WB	25.1	26.6	36.2	E	n/a	29.4	10.8	B	39.6	39.9	10.2	B	n/a	23.3	12.9	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	38.8	37.1	19.0	B	n/a	39.8	16.0	B	n/a	39.2	26.2	C	n/a	41.9	16.4	B
Ramp from Grand Central Parkway WB toward Stadium Road and Whitestone Expressway NB	47.5	47.0	6.4	A	45	44.0	5.9	A	n/a	46.6	6.2	A	46.6	45.4	7.2	A
Ramp from Whitestone Expressway SB to Northern Boulevard WB	n/a	25.6	26.6	C	n/a	28.1	25.5	C	n/a	28.6	24.7	C	n/a	28.3	25.8	C

Note: n/a signifies not available.

Weekday PM and Saturday midday pre-game average travel speeds on the highway mainlines generally range between 30 and 55 mph; the southbound Whitestone Expressway travel speeds are approximately 21 mph and 32 mph for those two peak hours, respectively, due to spillback from the exit ramp to westbound Northern Boulevard. That ramp operates with a travel speed of about 8 mph during the pre-game peak hours.

Pre-game highway traffic toward Shea Stadium and its surrounding lots causes unacceptable LOS E or F conditions on the southbound Whitestone Expressway mainline during the weekday pre-game peak hour and on the westbound Grand Central Parkway. The other highway mainlines generally operate at LOS C and D during the pre-game peak hours, except for the northbound Whitestone Expressway, which is acceptable LOS B during the Saturday midday pre-game peak hour. The ramp from the southbound Whitestone Expressway to westbound Northern Boulevard and the combined ramp from the Grand Central Parkway and Astoria Boulevard toward eastbound Northern Boulevard and northbound Whitestone Expressway also experience LOS E/F conditions during the weekday and Saturday pre-game periods. During the Saturday midday pre-game, the westbound Grand Central Parkway ramp to West Park

Loop/Stadium Road operates at LOS F due to spillback from the roadway leading to the traffic circle and nearby parking lot entrances. The other ramps operate at acceptable levels of service during the pre-game peak hours.

The Saturday post-game highway conditions are the most congested of all the time periods due to the surge of game traffic from the parking lots onto the adjacent streets and onto the connected ramps and highway mainlines. As a result, post-game peak hour average travel speeds generally range between 25 and 45 mph, but the northbound Whitestone Expressway average travel speed is only around 8 mph. Both directions of the Grand Central Parkway as well as the northbound Whitestone Expressway experience unacceptable LOS E or F conditions. Both directions on the Van Wyck Expressway and the southbound Whitestone Expressway operate at LOS C and D. Also experiencing LOS E or F conditions are the ramp from the World's Fair Marina/Boat Basin Road to the westbound Grand Central Parkway, the ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway, the combined ramp from the Grand Central Parkway and Astoria Boulevard toward eastbound Northern Boulevard and the northbound Whitestone Expressway, the ramp from the westbound Grand Central Parkway to West Park Loop/Stadium Road (not due to the volume of exiting traffic but due to the amount of traffic entering downstream), and the ramp from the southbound Whitestone Expressway to westbound Northern Boulevard, due to NYPD control of the traffic signal at 126th Street. The other ramps operate at acceptable levels of service during the post-game peak hour.

FUTURE WITHOUT THE PROPOSED PLAN

Traffic volumes on the analyzed sections of the highway network are expected to increase by a background growth rate of 1 percent per year between 2006 and 2017, plus traffic expected to be generated by other projected No Build development projects as described for the intersection analyses in Section E, "The Future Without the Proposed Plan." In the No Build condition, traffic volumes along the Grand Central Parkway eastbound mainline would increase by about 610 to 820 vph. In the westbound direction along the Grand Central Parkway, volumes would increase by approximately 200 to 360 vph on the east side split and by 350 to 450 vph on the west side split. Traffic volumes along the northbound mainline of the Van Wyck Expressway would increase by 380 to 520 vph, and by 375 to 540 vph along the southbound mainline. Traffic volumes along the Whitestone Expressway would increase by 495 to 790 vph in the northbound direction and by 460 to 1,340 in the southbound direction.

Table 17-34 presents the projected No Build levels of service, speeds, and densities for the 19 sections of the highway network analyzed during the non-game day peak hours. During the weekday AM peak hour, the eastbound Grand Central Parkway and northbound Van Wyck Expressway mainlines would deteriorate from acceptable LOS C and marginally unacceptable LOS D, respectively, to unacceptable LOS E. The west side of the westbound Grand Central Parkway mainline split would deteriorate from unacceptable LOS E and marginally unacceptable LOS D during the weekday AM and Saturday midday peak hours, respectively, to unacceptable LOS F and LOS E, respectively. The west side split of the westbound Grand Central Parkway would also experience a corresponding drop in average speed from approximately 41 mph to 17 mph and 45 mph to 44 mph during the weekday AM and Saturday midday peak hours, respectively. During the weekday AM, midday, and Saturday midday peak hours, the southbound Van Wyck Expressway mainline would deteriorate from acceptable LOS C to marginally unacceptable LOS D, as would the northbound Van Wyck Expressway mainline during the weekday midday and Saturday midday peak hours. During the weekday PM and

Saturday midday peak hours, the southbound Whitestone Expressway mainline would deteriorate from acceptable LOS C to marginally unacceptable LOS D. The following ramp sections would deteriorate to a marginally unacceptable LOS D under the No Build condition: the ramp from the southbound Whitestone Expressway to westbound Northern Boulevard during the weekday PM and Saturday midday peak hours, the ramp from the northbound Van Wyck Expressway to eastbound Northern Boulevard during the weekday AM, weekday midday, and Saturday midday peak hours, and the ramp from Astoria Boulevard eastbound to Whitestone Expressway northbound during the weekday PM peak hour.

Table 17-34

No Build Highway Levels of Service Summary – Non-Game Day

Mainlines	Weekday AM			Weekday Midday			Weekday PM			Saturday Midday		
	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
Grand Central Parkway EB Mainline (between Roosevelt Ave & Long Island Expwy)	39.5	36.9	E	48.9	26.8	C	40.1	43.0	E	45.6	33.3	D
Grand Central Parkway WB Mainline (east side) (between Roosevelt Ave & Long Island Expwy)	50.9	22.7	C	49.4	16.3	B	49.8	21.8	C	48.5	21.0	C
Grand Central Parkway WB Mainline (west side) (between Roosevelt Ave & Long Island Expwy)	16.5	103.3	F	45.6	30.2	D	49.4	29.7	D	44.0	39.6	E
Van Wyck Expressway NB Mainline (between Roosevelt Ave & Long Island Expwy)	39.1	38.9	E	36.3	29.4	D	39.5	33.4	D	40.7	29.8	D
Van Wyck Expressway SB Mainline (between Roosevelt Ave & Long Island Expwy)	40.2	32.4	D	38.7	29.3	D	40.5	39.8	E	46.1	29.4	D
Whitestone Expressway NB Mainline (between Northern Boulevard and Linden Place)	47.1	26.6	C	46.2	20.5	C	36.1	41.4	E	44.0	26.0	C
Whitestone Expressway SB Mainline (between Northern Boulevard and Linden Place)	28.4	51.6	F	36.5	24.5	C	39.2	30.9	D	38.2	28.4	D
Ramps												
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	36.5	18.5	B	36.4	14.7	B	36.7	14.5	B	36.5	15.5	B
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	24.0	30.0	D	23.7	28.6	D	23.7	32.1	D	23.7	31.7	D
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	22.5	34.8	D	23.5	20.0	B	25.8	18.1	B	25.5	11.6	B
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	33.6	17.7	B	34.0	19.7	B	32.3	30.6	D	34.0	15.9	B
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	28.9	24.6	C	29.0	24.5	C	28.9	24.0	C	28.8	30.2	D
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	40.8	11.6	B	41.1	9.1	A	39.4	20.7	C	41.9	10.8	B
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	43.6	28.3	D	43.6	20.9	C	43.6	19.0	B	44.6	21.0	C
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	41.2	12.4	B	39.4	6.1	A	39.4	9.1	A	38.1	6.6	A
Ramp from Northern Boulevard WB and Whitestone Expressway SB to Astoria Boulevard WB	26.6	35.8	E	29.5	11.4	B	39.6	11.4	B	23.3	14.4	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	37.1	21.4	C	39.2	18.5	B	38.9	28.9	D	41.6	19.7	B
Ramp from Grand Central Parkway WB toward Stadium Road and Whitestone Expressway NB	46.2	7.3	A	44.0	6.5	A	46.2	7.4	A	45.1	8.0	A
Ramp from Whitestone Expressway SB to Northern Boulevard WB	27.1	26.4	C	28.3	25.4	C	27.4	32.3	D	28.3	29.2	D

The No Build levels of service, speeds, and densities for the analyzed sections during the game-day peak hours are shown in Table 17-35. Under No Build conditions, increased vehicular volumes would result in higher densities and lower speeds on several ramps and highway sections leading to Citi Field. The southbound Whitestone Expressway would continue to operate at unacceptable LOS F during the weekday pre-game peak hour, similar to the existing conditions, but with a higher traffic density and a drop in average travel speed from about 21 mph to 14 mph. During the Saturday pre-game peak hour, the southbound Whitestone Expressway mainline would deteriorate from marginally unacceptable LOS D to unacceptable LOS F, with a drop in average travel speed from approximately 32 mph to 11 mph. The eastbound Grand Central Parkway would deteriorate from marginally unacceptable LOS D to unacceptable LOS E during the weekday pre-game peak hours, and from unacceptable LOS E to LOS F during the Saturday post-game peak hour, with a drop in average speed from about 36 mph to 16 mph. During the weekday pre-game peak hour the southbound Van Wyck Expressway would deteriorate from marginally unacceptable LOS D to unacceptable LOS E with a drop in average speed from about 46 mph to 45 mph. The westbound Grand Central Parkway (east side) would deteriorate from unacceptable LOS E to unacceptable LOS F during the Saturday pre-game peak hour with a drop in average speed from about 30 mph to 29 mph. The majority of ramp locations would continue to operate similar to existing conditions, except for the ramp from the westbound Grand Central Parkway toward Stadium Road and northbound Whitestone Expressway, which would deteriorate from acceptable LOS B to unacceptable LOS F, with a drop in average travel speed from about 41 mph to 11 mph, during the weekday pre-game peak hour.

During the Saturday post-game peak hour, both directions of the Grand Central Parkway and the northbound Whitestone Expressway would continue to operate at unacceptable LOS E or F, with corresponding slowing of average travel speeds, while the northbound Van Wyck Expressway would deteriorate from marginally unacceptable LOS D to unacceptable LOS F, with a drop in average travel speed from approximately 30 mph to 7 mph. This would be due to spillback from the northbound Whitestone Expressway over the Flushing River. The four ramps that experience unacceptable LOS F conditions during the Saturday post-game peak hour under existing conditions would continue to operate as such under the No Build condition, with one of them, the ramp from eastbound Astoria Boulevard and the Grand Central Parkway to the northbound Whitestone Expressway and eastbound Northern Boulevard, experiencing a drop in average speed from about 21 mph to 7 mph. In addition, the ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway would deteriorate from LOS E under existing conditions to LOS F under the No Build condition during the Saturday post-game peak period, and its average travel speed would remain similar at about 24 mph.

PROBABLE IMPACTS OF THE PROPOSED PLAN

The proposed Plan would generate a significant number of trips during all analyzed peak hours on both directions of the Van Wyck Expressway and the Whitestone Expressway. The eastbound Grand Central Parkway mainline and the east side of the westbound Grand Central Parkway mainline split would also experience a higher volume during the peak hours.

Table 17-35

No Build Highway Levels of Service Summary – Game Day

Mainlines	Weekday Pregame			Saturday Pregame			Saturday Postgame		
	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
Grand Central Parkway EB Mainline (between Roosevelt Ave & Long Island Expwy)	42.2	39.1	E	48.8	29.0	D	16.2	92.0	F
Grand Central Parkway WB Mainline (east side) (between Roosevelt Ave & Long Island Expwy)	48.2	26.1	C	29.2	46.0	F	27.1	44.6	E
Grand Central Parkway WB Mainline (west side) (between Roosevelt Ave & Long Island Expwy)	41.6	42.9	E	41.7	41.2	E	26.8	60.3	F
Van Wyck Expressway NB Mainline (between Roosevelt Ave & Long Island Expwy)	38.5	33.6	D	36.7	30.6	D	7.1	128.0	F
Van Wyck Expressway SB Mainline (between Roosevelt Ave & Long Island Expwy)	45.2	36.6	E	46.0	30.4	D	44.6	34.1	D
Whitestone Expressway NB Mainline (between Northern Boulevard and Linden Place)	43.3	34.3	D	53.0	18.8	B	7.5	145.8	F
Whitestone Expressway SB Mainline (between Northern Boulevard and Linden Place)	14.1	96.6	F	11.2	96.7	F	35.0	26.2	C
Ramps									
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	36.7	12.3	B	36.7	11.5	B	24.8	54.6	F
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	23.7	33.8	D	23.9	29.1	D	23.3	20.6	C
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	23.6	22.8	C	33.0	11.6	B	32.4	6.6	A
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	32.6	27.4	C	33.3	19.1	B	23.6	48.4	F
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	28.9	23.0	C	29.0	20.1	C	28.8	25.1	C
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	38.3	23.9	C	41.7	11.5	B	28.1	28.7	D
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	43.6	16.3	B	45.7	15.4	B	45.7	16.9	B
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	34.8	10.1	B	25.9	8.2	A	21.0	17.1	B
Ramp from Northern Boulevard WB and Whitestone Expressway SB to Astoria Boulevard WB	30.4	22.1	C	23.7	12.5	B	22.9	18.3	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	13.1	101.1	F	11.1	91.3	F	6.6	144.4	F
Ramp from Grand Central Parkway WB toward Stadium Road and Whitestone Expressway NB	11.1	60.2	F	8.0	101.1	F	7.6	102.3	F
Ramp from Whitestone Expressway SB to Northern Boulevard WB	7.8	159.7	F	6.8	168.7	F	1.6	220.9	F

The Build volumes on the eastbound mainline of the Grand Central Parkway would increase by approximately 300 to 600 vehicles during the peak hour, a roughly 4 to 8 percent increase compared with No Build; the east side of the westbound Grand Central Parkway split would increase by 310 to 500 vph, also approximately a 4 to 8 percent increase. The Whitestone Expressway would experience volume increases of approximately 140 to 480 vph and 130 to 390 vph in the northbound and southbound directions, respectively, roughly a 2 to 7 percent increase per direction compared with the No Build volumes. The Van Wyck Expressway volumes would increase by about 710 to 1,360 vph in the northbound direction and by 570 to 1,370 vph in the southbound direction, approximately a 12 to 25 percent increase per direction compared with the No Build volumes. The substantial increases on the Van Wyck Expressway in both directions would be due to traffic entering from and exiting to the new access ramps

connecting the highway to the Willets Point Development District. Furthermore, as described for the game-day circulation changes in Section F, "Probable Impacts of the Proposed Plan," it is expected that a portion of Citi Field traffic on the highway network would use the new access ramps to and from the Van Wyck Expressway under the proposed Plan.

Table 17-36 shows the Build levels of service, speeds and densities for the highway sections and ramps analyzed during the non-game-day peak hours. Because of the substantial increase in volume on the Van Wyck Expressway, the mainline would experience high densities and low speeds and operate at LOS E or F in both directions during all of the non-game day peak hours. While average No Build travel speeds on the northbound Van Wyck Expressway mainline would range between 30 and 40 mph during the non-game-day peak hours, the average Build travel speeds would deteriorate to a range of 10 to 25 mph. The congestion on the Van Wyck Expressway would in turn worsen levels of service on the ramps that provide access to and from the mainline. The entrance ramp providing access to the southbound Van Wyck Expressway mainline from the northbound Whitestone Expressway would be slow-moving during the PM and Saturday midday peak hours; similarly, the entrance ramp from westbound Northern Boulevard to the southbound Van Wyck Expressway would also be slow-moving during the midday, PM, and Saturday midday peak hours. The congestion is attributed to entering traffic joining merging traffic from the new access ramp onto to the elevated one lane ramp leading to the southbound mainline. The average travel speeds on those two ramps would drop significantly, from a range of 30 to 35 mph to about 3 mph for the ramp from the northbound Whitestone Expressway, and from a range of 25 to 30 mph to about 1 to 3 mph for the ramp from westbound Northern Boulevard.

The ramp from the northbound Van Wyck Expressway to westbound Northern Boulevard would deteriorate from marginally unacceptable LOS D to unacceptable LOS E during the non-game weekday AM peak hour, and the ramp from the northbound Van Wyck Expressway mainline to eastbound Northern Boulevard would deteriorate from marginally unacceptable LOS D to unacceptable LOS E during the weekday midday, PM, and Saturday midday peak hours. During all four non-game peak hours, the ramp from the southbound Whitestone Expressway to westbound Northern Boulevard, which would operate at acceptable LOS C and marginally acceptable LOS D under the No Build condition, would consistently operate at unacceptable LOS F.

Similarly, the ramp from eastbound Astoria Boulevard and Grand Central Parkway to northbound Whitestone Expressway and eastbound Northern Boulevard would deteriorate from an acceptable LOS B and marginally acceptable LOS D range to unacceptable LOS F during all four non-game peak hours.

For the non-game peak hours, the eastbound Grand Central Parkway mainline would be significantly impacted during the weekday AM peak hour, due to an increase in density of 18.6 pc/mi/ln, which is above the deterioration threshold of 2 pc/mi/ln that defines a significant adverse traffic impact. Also during the weekday AM peak hour, the southbound Whitestone Expressway mainline would be significantly impacted (with density increases of 8.4 pc/mi/ln), and the west side of the westbound Grand Central Parkway mainline would be significantly impacted during the AM and Saturday midday peak hours (with a density increase of 8.5 and 20 pc/mi/ln, respectively). Both the northbound and southbound Van Wyck Expressway mainlines would be significantly impacted in all four non-game peak hours, with density increases ranging from approximately 33 to 75 pc/mi/ln in the northbound direction (due to the proposed Plan's generated traffic to the new exit ramp), and about 5 to 15 pc/mi/ln in the southbound direction.

Table 17-36

Build Highway Levels of Service Summary – Non-Game Day

Mainlines	Weekday AM			Weekday Midday			Weekday PM			Saturday Midday		
	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
Grand Central Parkway EB Mainline (between Roosevelt Ave & Long Island Expwy)	25.2	55.5	F	48.8	28.0	D	36.2	44.6	F	45.7	33.0	D
Grand Central Parkway WB Mainline (east side) (between Roosevelt Ave & Long Island Expwy)	50.5	24.9	C	48.3	18.8	B	49.7	25.0	C	47.6	24.8	C
Grand Central Parkway WB Mainline (west side) (between Roosevelt Ave & Long Island Expwy)	14.8	111.8	F	45.5	31.5	D	48.8	30.1	D	34.5	53.7	F
Van Wyck Expressway NB Mainline (between Roosevelt Ave & Long Island Expwy)	24.6	69.9	F	11.6	105.3	F	16.7	85.4	F	13.3	100.8	F
Van Wyck Expressway SB Mainline (between Roosevelt Ave & Long Island Expwy)	39.4	37.8	E	37.3	36.6	E	31.0	55.7	F	45.0	35.0	E
Whitestone Expressway NB Mainline (between Northern Boulevard and Linden Place)	46.9	28.1	D	46.4	22.6	C	36.5	38.6	E	44.0	27.4	C
Whitestone Expressway SB Mainline (between Northern Boulevard and Linden Place)	25.2	60.0	F	36.4	26.5	C	39.0	32.6	D	37.6	30.9	D
Ramps												
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	36.3	19.6	B	36.6	17.4	B	36.5	17.6	B	36.4	18.3	B
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	23.9	31.5	D	23.7	36.7	E	23.6	38.2	E	23.7	37.9	E
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	22.3	38.0	E	23.4	23.9	C	25.3	30.7	D	24.6	24.4	C
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	34.0	20.4	C	31.4	22.5	C	2.8	218.7	F	3.7	174.1	F
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	28.9	24.1	C	2.8	169.9	F	1.4	248.9	F	1.5	237.7	F
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	40.8	11.6	B	41.1	9.1	A	36.1	23.1	C	42.1	10.7	B
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	43.3	29.6	D	43.6	21.8	C	43.6	20.4	C	44.3	23	C
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	41.1	12.9	B	39.0	8.2	A	39.4	12.8	B	38.1	9.4	A
Ramp from Northern Boulevard WB and Whitestone Expressway SB to Astoria Boulevard WB	26.6	35.9	E	29.4	11.8	B	39.9	11.4	B	23.3	16.0	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	13.7	73.8	F	13.0	83.9	F	7.0	144.3	F	13.3	88.5	F
Ramp from Grand Central Parkway WB toward Stadium Road and Whitestone Expressway NB	46.2	11.3	B	43.3	13	B	45.1	14.7	B	44.7	15.2	B
Ramp from Whitestone Expressway SB to Northern Boulevard WB	5.7	163.9	F	6.5	162.9	F	11.1	99.5	F	7.7	148.5	F

The levels of service, speeds and densities during the game-day peak hours are shown in Table 17-37. On several highway and ramp sections, the high Build demand volume would exceed the capacity, especially during the game-day peak hours, and the highway network would be unable to process the projected volumes within the duration of the peak hour. Both directions of the Van Wyck Expressway mainline would experience similar traffic congestion during the game-day peak hours as in the non-game day peak hours; both directions would consistently operate at unacceptable LOS F. On the Grand Central Parkway, the eastbound mainline and the west side of the westbound split would operate at unacceptable LOS F during the Saturday post-game peak hour. The westbound Grand Central Parkway mainline and on the east side of the mainline

Table 17-37

Build Highway Level of Service Summary – Game Day

Mainlines	Weekday Pregame			Saturday Pregame			Saturday Postgame		
	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS	Speed (mph)	Density (pc/mi/ln)	LOS
Grand Central Parkway EB Mainline (between Roosevelt Ave & Long Island Expwy)	40.2	44.5	E	48.7	28.4	D	13.1	111.5	F
Grand Central Parkway WB Mainline (east side) (between Roosevelt Ave & Long Island Expwy)	6.3	155.4	F	8.1	138.7	F	18.1	73.6	F
Grand Central Parkway WB Mainline (west side) (between Roosevelt Ave & Long Island Expwy)	41.6	44.5	E	39.0	43.8	E	18.2	82.3	F
Van Wyck Expressway NB Mainline (between Roosevelt Ave & Long Island Expwy)	16.4	86.4	F	11.8	106.9	F	13.5	97.1	F
Van Wyck Expressway SB Mainline (between Roosevelt Ave & Long Island Expwy)	29.3	60.8	F	17.1	92.1	F	15.1	95.5	F
Whitestone Expressway NB Mainline (between Northern Boulevard and Linden Place)	43.7	33.8	D	53.3	20.4	C	7.6	141.7	F
Whitestone Expressway SB Mainline (between Northern Boulevard and Linden Place)	12.4	114.8	F	9.5	123.4	F	29.4	31.3	D
Ramps									
Ramp from World's Fair Marina / Boat Basin Road to Grand Central Parkway WB	35.3	13.0	B	36.5	12.2	B	16.2	85.0	F
Ramp from Van Wyck Expressway NB to Northern Boulevard EB	23.6	38.4	E	23.6	38.9	E	23.6	37.3	E
Ramp from Van Wyck Expressway NB to Northern Boulevard WB	23.0	35.0	D	32.0	18.5	B	31.1	22.1	C
Ramp from Whitestone Expressway NB to Van Wyck Expressway SB	3.6	204.1	F	13.0	49.5	F	2.6	212.9	F
Ramp from Northern Boulevard WB to Van Wyck Expressway SB	1.4	255.0	F	5.3	98.9	F	1.5	249.1	F
Ramp from Astoria Boulevard EB & Northern Boulevard EB to Whitestone Expressway NB	36.4	25.9	C	41.7	11.2	B	37.9	15.6	B
Ramp from Whitestone Expressway SB to Grand Central Parkway WB	43.3	18.6	B	45.0	16.4	B	34.1	29.4	D
Ramp from Whitestone Expressway SB to Grand Central Parkway EB	34.5	10.9	B	25.8	11.9	B	20.4	23.6	C
Ramp from Northern Boulevard WB and Whitestone Expressway SB to Astoria Boulevard WB	30.4	19.3	B	23.6	12.8	B	22.9	19.4	B
Ramp from Astoria Blvd EB & Grand Central Pkwy to Whitestone Expwy NB / Northern Blvd EB	6.3	171.4	F	6.3	158.0	F	4.3	191.1	F
Ramp from Grand Central Parkway WB toward Stadium Road and Whitestone Expressway NB	2.0	228.0	F	2.0	222.2	F	1.5	220.7	F
Ramp from Whitestone Expressway SB to Northern Boulevard WB	8.7	150.6	F	7.8	158.8	F	1.2	236.6	F

split would operate at LOS F during all game day peak hours. The southbound Whitestone Expressway mainline would operate at unacceptable LOS F during the weekday and Saturday pre-game peak hours.

The ramp from the northbound Whitestone Expressway to the southbound Van Wyck Expressway and the ramp from westbound Northern Boulevard to the southbound Van Wyck Expressway would operate at un acceptable LOS F, and the northbound Van Wyck Expressway ramp to eastbound Northern Boulevard would operate at unacceptable LOS E conditions during all game day peak hours. The ramp from World's Fair Marina and Boat Basin Road to the westbound Grand Central Parkway would operate at unacceptable LOS F during the Saturday post-game peak hour only.

The volume of traffic on the ramp from eastbound Astoria Boulevard and the Grand Central Parkway to the northbound Whitestone Expressway and eastbound Northern Boulevard, the ramp from the westbound Grand Central Parkway toward Stadium Road, and the ramp from the

southbound Whitestone Expressway to westbound Northern Boulevard would cause substantially high densities, with LOS F conditions and average travel speeds between about 1 and 10 mph, during the three game-day peak hours.

For the game peak hours, the eastbound Grand Central Parkway mainline would be significantly impacted during the Saturday post-game peak hour, due to a density increase of 19.5 pc/mi/ln. The east side of the westbound Grand Central Parkway mainline would be significantly impacted in all three game day peak hours, with density increases ranging from approximately 30 to 130 pc/mi/ln (due to the addition of the proposed Plan and Lot B's traffic onto the queues of Citi Field traffic), and the west side of that mainline would be significantly impacted during the Saturday post-game peak hour (with a density increase of 22 pc/mi/ln). The southbound Whitestone Expressway mainline would also be significantly impacted during weekday and Saturday pre-game peak hours, with density increases ranging from about 18 to 26 pc/mi/ln. The northbound Van Wyck Expressway would experience significant impacts during the weeknight and Saturday pre-game peak hours (with density increases ranging from approximately 53 to 76 pc/mi/ln), while the southbound direction would be significantly impacted during all three game day peak hours (with density increases of 24.2 pc/mi/ln and 61.7 pc/mi/ln in the weeknight and Saturday pre-game peak hours, respectively, and 61.4 pc/mi/ln in the post-game peak hour).

H. TRAFFIC AND SAFETY

Accident data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between July 1, 2004 and June 30, 2007. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related accidents at each location. According to the *CEQR Technical Manual*, a high pedestrian accident location is one where there were five or more pedestrian-related accidents in any year of the most recent three-year period for which data are available.

During this period, a total of 417 reportable accidents, two fatalities, 426 injuries, and 92 pedestrian-related accidents occurred at the study area intersections. A rolling total of accident data identifies three study area intersections as high pedestrian accident locations in the 2004 to 2007 period. These intersections are: Main Street at Roosevelt Avenue; Union Street at Northern Boulevard; and Parsons Boulevard at Northern Boulevard. Table 17-38 depicts total accident characteristics by intersection during the study period, as well as, a breakdown of pedestrian and bicycle accidents by year and location.

All three high vehicular-pedestrian accident intersections are located within the secondary traffic study area where project-generated vehicle trips would all be through trips and there would not be any project-generated pedestrian trips. A review of the accident histories at these locations indicates that the majority of the pedestrian-related accidents were caused by pedestrian inattentiveness and driver failure to yield the right of way. Since these accidents occurred primarily during vehicles making left and right turning movements, the through vehicle trips generated by the proposed Plan and Lot B at these locations would not result in additional conflicts with normal pedestrian flow or further adversely affect pedestrian safety conditions at the respective intersections. Nonetheless, a field reconnaissance of conditions at these intersections was conducted to identify specific geometric and operational issues and determine whether measures could be recommended to improve pedestrian safety.

Table 17-38
Accident Data

Intersection		Study Period			Accidents by Year							
					Pedestrian				Bicycle			
North-South Roadway	East-West Roadway	Reportable Accidents	Total Fatalities	Total Injuries	2004	2005	2006	2007	2004	2005	2006	2007
108th Street	Astoria Blvd.	12	1	13	0	0	0	0	0	0	0	0
108th Street	Northern Blvd.	14	0	16	1	0	1	0	0	0	0	0
108th Street	Roosevelt Ave.	12	0	14	0	0	2	0	0	1	0	0
111th Street	Roosevelt Ave.	15	0	12	0	3	2	0	0	0	0	0
114th Street	Northern Blvd.	6	0	9	0	1	0	0	0	0	0	0
114th Street	34th Avenue	1	0	2	0	0	0	0	0	0	0	0
114th Street	Roosevelt Ave.	1	0	2	0	0	0	0	0	0	0	0
126th Street	Northern Blvd.	52	0	67	0	0	0	0	0	0	0	0
126th Street	34th Avenue	6	0	9	0	0	0	0	0	1	0	0
126th Street	Roosevelt Ave.	1	0	1	0	0	0	0	0	0	0	0
Willets Point Blvd.	Northern Blvd.	2	0	1	0	0	0	0	0	0	0	0
College Point Blvd.	32nd Avenue	10	0	9	0	0	0	0	0	0	0	0
College Point Blvd.	Northern Blvd.	1	0	1	0	0	0	0	0	0	0	0
College Point Blvd.	Roosevelt Ave.	25	0	26	0	0	0	0	0	0	0	0
College Point Blvd.	Sanford Ave.	4	0	3	0	0	0	0	0	0	0	0
Prince Street	Northern Blvd.	34	1	33	0	0	1	0	0	1	0	0
Prince Street	Roosevelt Ave.	9	0	6	1	1	1	1	0	0	0	0
Main Street	Northern Blvd.	30	0	15	2	0	3	0	0	0	0	0
Main Street	**Roosevelt Ave.**	23	0	19	1	**6***	**5***	2	0	0	0	0
Main Street	41st Ave.	13	0	8	2	0	2	1	0	0	0	0
Union Street	**Northern Blvd.**	70	0	73	**6***	**8***	**12***	2	0	0	0	2
Union Street	Roosevelt Ave.	17	0	17	2	2	1	2	1	0	0	0
Union Street	Sanford Ave.	8	0	9	0	0	2	2	0	0	0	0
Parsons Blvd.	**Northern Blvd.**	38	0	46	1	3	**5***	1	0	0	0	0
Parsons Blvd.	Roosevelt Ave.	5	0	4	0	1	1	0	0	0	0	0
Parsons Blvd.	Sanford Ave.	8	0	11	0	2	0	0	0	0	0	0

Note: * High vehicular-pedestrian accident location.
Source: NYSDOT July 1, 2004 to June 30, 2007 accident data.

The field inspection indicates that there are no high-visibility crosswalks or warning signs for motorists at Northern and Parsons Boulevards. Safety here could be enhanced by the installation of high visibility crosswalks, and signs warning motorists of pedestrian crossing locations. In addition, due to lagging eastbound and westbound protected left-turn signals, pedestrians tend to begin their crossing as soon as the main signal for Northern Boulevard turns red. The installation of "Wait for Walk Signal" signs would help to alert pedestrians of the intersection's signal operation.

The Northern Boulevard and Union Street intersection already has high visibility crosswalks across its northern and western legs and standard pedestrian warning signs on all approaches. At this location where 62 percent of the pedestrian-related accidents involved turning vehicles, safety could be improved by replacing or amending the standard pedestrian signs with "Turning Vehicles/Yield to Pedestrians" signs at all approaches, and by installing high visibility crosswalks on the eastern and southern legs of the intersection. Extending the raised median on Northern Boulevard into the crosswalk on the western leg of the intersection would provide pedestrians a more protected refuge while waiting for another "walk" phase to complete their crossing.

At Roosevelt Avenue and Main Street, where the No. 7 Flushing subway line and numerous bus routes terminate, pedestrian volumes are substantial on all crosswalks. No turns are permitted at this intersection from 7 AM to 7 PM except for buses, all approaches have high visibility crosswalks, and all have signs warning motorists of pedestrians crossing. Most of the pedestrian

accidents involved vehicles proceeding straight through the intersection, and field inspection indicates that corner reservoirs are crowded during peak hours; many pedestrians stand off the corners waiting for a walk signal. Safety at this location could be improved by the installation of bulb-outs at all corners to provide additional waiting and circulation space for pedestrians. A raised speed table across the entire intersection, including crosswalks, with a distinctive pavement surface would also serve to slow passing motorists.

It should be noted that under the one-way pair plan in Downtown Flushing, which is expected to be implemented independent of the proposed Plan, Main Street would be converted to a northbound-only street between Sanford Avenue and Northern Boulevard, with a potential contra-flow bus lane. The elimination of two-way auto and truck traffic on Main Street would reduce conflicting movements and simplify pedestrian crossings at intersections along Main Street, including its intersection at Roosevelt Avenue. Numerous other geometric and signal control improvements along Main Street would also be incorporated as part this planning alternative. At the same time, Union Street between Sanford Avenue and Northern Boulevard would be converted to one-way southbound operation with a potential contra-flow bus lane between Roosevelt Avenue and Northern Boulevard. The related geometric and signal control improvements along Union Street would similarly reduce some of the existing intersection pedestrian conflicts. While the safety improvement recommendations described above are relevant to the existing roadway conditions, many elements of the one-way pair plan either would have incorporated some of these improvement elements or could be combined with them to further improve overall pedestrian safety at the high vehicular-pedestrian accident locations. ✷

TABLE 17-39
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

INTERSECTION & APPROACH		Weekday AM (7:45-8:45 AM) Mvt.	V/C	Control Delay	LOS	Weekday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS	Weekday PM (5:15-6:15 PM) Mvt.	V/C	Control Delay	LOS	Saturday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
ASTORIA BOULEVARD																	
108th Street at Astoria Boulevard																	
108th Street	NB	DefL	0.59	50.8	D	DefL	0.42	33.6	C	DefL	0.74	63.0	E	DefL	0.53	36.0	D
		T	0.21	41.1	D	T	0.13	28.6	C	T	0.19	41.0	D	T	0.30	30.6	C
	SB	LTR	0.24	41.7	D	LTR	0.16	28.9	C	LTR	0.48	46.0	D	LTR	0.20	29.4	C
Astoria Boulevard	EB	LTR	0.49	19.9	B	LTR	0.40	14.4	B	LTR	0.85	21.9	C	LTR	0.36	14.0	B
	WB	L	0.62	11.9	B	L	0.42	8.3	A	L	0.67	37.8	D	L	0.45	8.4	A
		TR	0.85	14.8	B	TR	0.27	6.3	A	TR	0.32	6.5	A	TR	0.23	6.0	A
Overall Intersection		-	**0.80**	**17.9**	**B**	-	**0.48**	**12.8**	**B**	-	**0.82**	**21.4**	**C**	-	**0.49**	**13.8**	**B**
NORTHERN BOULEVARD																	
108th Street at Northern Boulevard (RT. 25A)																	
108th Street	NB	LTR	1.03	76.0	E	LTR	1.05	84.0	F	LTR	1.05	75.5	E	LTR	1.05	77.2	E
	SB	LTR	0.83	40.6	D	LTR	0.70	31.3	C	LTR	1.05	66.4	E	LTR	0.88	38.6	D
Northern Boulevard (Rt. 25A)	EB	L	0.17	19.5	B	L	0.08	12.3	B	L	0.18	25.8	C	L	0.06	27.0	C
		TR	0.46	14.0	B	TR	0.44	13.8	B	TR	0.81	13.1	B	TR	0.78	20.6	C
	WB	L	0.42	14.6	B	L	0.31	11.7	B	L	0.52	35.6	D	L	0.41	23.9	C
		TR	0.89	15.6	B	T	0.64	17.1	B	TR	0.97	34.4	C	T	0.96	31.8	C
		-	-	-	-	R	0.13	11.0	B	-	-	-	-	R	0.23	11.9	B
Overall Intersection		-	**0.81**	**21.1**	**C**	-	**0.65**	**22.9**	**C**	-	**0.93**	**30.1**	**C**	-	**0.86**	**32.0**	**C**
114th Street at Northern Boulevard (RT. 25A)																	
114th Street	SB	LTR	0.47	49.7	D	LTR	0.46	49.9	D	LTR	0.63	38.1	D	LTR	0.54	51.4	D
Northern Boulevard (Rt. 25A)	EB	T	0.68	30.5	C	T	0.44	15.0	B	T	0.82	23.4	C	T	0.48	15.7	B
		R	0.71	34.3	C	R	0.44	15.7	B	R	0.65	20.3	C	R	0.57	18.1	B
	WB	-	-	-	-	-	-	-	-	DefL	0.67	27.6	C	DefL	0.79	20.8	C
		LT	1.04	40.0	D	LT	0.90	16.8	B	T	0.90	16.0	B	T	0.86	13.4	B
Overall Intersection		-	**0.95**	**37.9**	**D**	-	**0.82**	**17.6**	**B**	-	**1.20+**	**20.5**	**C**	-	**1.18**	**16.8**	**B**
126th Street at Northern Boulevard (RT. 25A)																	
126th Street	NB	L	0.36	42.7	D	L	0.60	46.9	D	L	0.44	43.8	D	L	0.55	45.5	D
		R	0.37	43.6	D	R	0.43	44.5	D	R	0.33	42.7	D	R	0.41	43.9	D
Northern Boulevard	EB	T	0.16	6.3	A	T	0.17	6.3	A	T	0.33	7.4	A	T	0.18	6.3	A
	WB	T	0.77	14.4	B	T	0.36	7.8	A	T	0.32	7.3	A	T	0.29	7.1	A
Grand Central Parkway Ramp	EB	T	0.34	7.5	A	T	0.36	7.7	A	T	0.39	8.0	A	T	0.34	7.5	A
Van Wyck & Whitestone Expressway Ramp	WB	T	0.79	16.6	B	T	0.76	15.5	B	T	0.75	15.3	B	T	0.73	14.4	B
Overall Intersection		-	**0.70**	**15.3**	**B**	-	**0.72**	**15.5**	**B**	-	**0.68**	**13.5**	**B**	-	**0.69**	**15.2**	**B**
Prince Street at Northern Boulevard (RT. 25A)																	
Prince Street	NB	LTR	0.92	82.3	F	LTR	0.89	71.7	E	LTR	0.82	62.3	E	LTR	1.01	95.8	F
	SB	LTR	0.89	67.1	E	LTR	0.68	48.0	D	LTR	0.63	45.5	D	LTR	0.61	44.9	D
Northern Boulevard	EB	L	0.98	56.8	E	L	0.94	64.1	E	L	0.91	57.5	E	L	0.65	39.5	D
		T	0.47	7.2	A	T	0.49	15.8	B	T	0.82	23.7	C	T	0.98	56.0	E
	WB	L	0.40	63.6	E	L	0.72	79.2	E	L	0.75	81.8	F	L	0.88	89.6	F
		T	0.98	13.9	B	T	0.74	24.2	C	T	0.81	34.1	C	T	0.84	26.6	C
Northern Boulevard Service Rd.	EB	TR	0.41	13.5	B	TR	0.55	19.3	B	TR	0.47	17.2	B	TR	0.85	52.5	D
	WB	TR	0.53	18.5	B	TR	0.51	25.0	C	TR	0.54	29.5	C	TR	0.66	28.5	C
Overall Intersection		-	**0.94**	**22.9**	**C**	-	**0.85**	**30.5**	**C**	-	**0.86**	**33.6**	**C**	-	**0.88**	**45.6**	**D**
Main Street at Northern Boulevard (RT. 25A)																	
Main Street	NB	L	0.92	78.2	E	L	0.78	53.5	D	L	0.94	79.1	E	L	0.90	63.6	E
		R	0.87	61.1	E	R	0.75	37.9	D	R	0.94	76.5	E	R	0.77	38.9	D
Northern Boulevard	EB	T	0.60	20.0	B	T	0.71	29.1	C	T	0.98	18.5	B	TR	1.03	60.0	E
		R	0.77	27.8	C	R	0.83	39.0	D	R	0.93	21.1	C	R	1.03	78.8	E
	WB	L	0.62	37.0	D	L	0.87	57.6	E	L	0.91	66.1	E	L	0.88	58.6	E
		T	0.87	4.6	A	T	0.65	11.7	B	T	0.85	19.2	B	T	0.87	24.6	C
Overall Intersection		-	**0.89**	**20.3**	**C**	-	**0.78**	**28.2**	**C**	-	**0.98**	**26.8**	**C**	-	**0.89**	**47.1**	**D**
Union Street at Northern Boulevard (RT. 25A)																	
Union Street	NB	DefL	0.93	78.4	E	DefL	0.78	53.3	D	DefL	0.92	74.3	E	DefL	1.00	90.5	F
		TR	0.97	73.6	E	TR	0.78	45.2	D	TR	0.96	68.7	E	TR	1.00	79.3	E
	SB	LTR	1.00	76.3	E	LTR	0.95	65.7	E	LTR	0.97	70.2	E	LTR	0.96	68.8	E
Northern Boulevard	EB	L	0.99	64.9	E	L	0.70	30.4	C	L	0.76	33.6	C	L	0.71	36.0	D
		TR	0.97	47.2	D	TR	0.90	41.2	D	TR	1.05	82.9	F	TR	1.05	71.4	E
	WB	L	0.72	31.4	C	L	0.65	26.7	C	L	0.87	55.1	E	L	0.80	45.4	D
		T	1.05	80.2	F	TR	0.81	36.6	D	TR	0.84	37.9	D	TR	0.96	46.2	D
		R	0.41	27.8	C	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	**1.05**	**66.7**	**E**	-	**0.96**	**44.0**	**D**	-	**1.03**	**64.6**	**E**	-	**1.05**	**63.0**	**E**
Parsons Boulevard at Northern Boulevard (RT. 25A)																	
Parsons Boulevard	NB	LTR	1.01	90.6	F	LTR	0.95	76.9	E	LTR	0.93	72.3	E	LTR	1.05	102.1	F
	SB	LTR	1.01	90.5	F	LTR	1.00	90.2	F	LTR	1.03	96.6	F	LTR	0.97	82.4	F
Northern Boulevard	EB	L	0.49	43.0	D	L	0.37	30.9	C	L	0.38	23.5	C	L	0.46	35.7	D
		TR	0.80	26.2	C	TR	0.80	19.6	B	TR	0.73	17.1	B	TR	0.90	24.0	C
	WB	L	0.50	29.8	C	L	0.24	18.4	B	L	0.39	26.4	C	L	0.39	27.7	C
		TR	0.94	25.5	C	TR	0.93	33.5	C	TR	0.84	21.1	C	TR	1.00	37.0	D
Overall Intersection		-	**1.05**	**39.5**	**D**	-	**0.85**	**39.8**	**D**	-	**0.89**	**33.1**	**C**	-	**0.92**	**44.0**	**D**
34TH AVENUE																	
114th Street at 34th Avenue																	
114th Street	SB	L	0.42	16.3	B	L	0.48	18.9	B	L	0.62	18.5	B	L	0.63	21.8	C
		T	0.26	14.6	B	T	0.23	16.0	B	T	0.28	13.7	B	T	0.31	16.9	B
34th Avenue	EB	TR	0.55	22.0	C	TR	0.45	18.5	B	TR	0.78	29.9	C	TR	0.59	20.7	C
Overall Intersection		-	**0.48**	**18.5**	**B**	-	**0.46**	**18.3**	**B**	-	**0.69**	**22.5**	**C**	-	**0.61**	**20.5**	**C**

TABLE 17-39
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

		Weekday AM (7:45-8:45 AM)				Weekday Midday (1:00-2:00 PM)				Weekday PM (5:15-6:15 PM)				Saturday Midday (1:00-2:00 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
126th Street/GCP Ramp at 34th Avenue																	
126th Street	NB	LTR	0.28	21.3	C	LTR	0.46	23.9	C	LTR	0.71	31.3	C	LTR	0.75	33.1	C
Northern Boulevard Ramp	SB	LTR	0.23	20.8	C	LTR	0.38	24.1	C	LTR	0.45	25.2	C	LTR	0.51	26.8	C
GCP Ramp	SB	LTR	0.52	48.6	D	LTR	0.63	52.8	D	LTR	0.71	56.6	E	LTR	0.68	54.9	D
34th Avenue	EB	LTR	0.59	49.7	D	LTR	0.60	50.2	D	LTR	0.27	42.0	D	LTR	0.52	47.3	D
Stadium Road	WB	LTR	0.62	58.9	E	LTR	0.81	76.5	E	LTR	0.80	69.3	E	LTR	0.86	77.0	E
	Overall Intersection	-	**0.41**	**37.9**	**D**	-	**0.59**	**40.8**	**D**	-	**0.73**	**42.9**	**D**	-	**0.76**	**45.8**	**D**
ROOSEVELT AVENUE																	
108th Street at Roosevelt Avenue																	
108th Street	NB	LTR	0.70	47.4	D	LTR	0.91	65.5	E	LTR	0.82	53.6	D	LTR	0.99	81.9	F
	SB	LTR	0.83	56.5	E	LTR	0.94	70.2	E	LTR	0.98	78.9	E	LTR	0.99	78.1	E
Roosevelt Avenue	EB	LTR	0.67	14.9	B	LTR	0.72	16.1	B	LTR	0.88	26.5	C	LTR	0.88	27.0	C
	WB	LTR	0.94	31.3	C	LTR	0.62	13.6	B	LTR	0.72	17.0	B	LTR	0.85	22.8	C
	Overall Intersection	-	**0.91**	**34.5**	**C**	-	**0.78**	**36.9**	**D**	-	**0.91**	**41.9**	**D**	-	**0.91**	**49.1**	**D**
111th Street at Roosevelt Avenue																	
111th Street	NB	LTR	0.75	49.6	D	LTR	0.68	47.6	D	LTR	0.74	49.2	D	LTR	0.75	49.4	D
Roosevelt Avenue	EB	LTR	0.83	22.8	C	LTR	0.80	20.9	C	LTR	0.80	20.5	C	LTR	0.82	22.1	C
	WB	LTR	0.94	30.4	C	LTR	0.84	22.7	C	LTR	0.85	22.0	C	LTR	0.88	24.5	C
	Overall Intersection	-	**0.89**	**32.2**	**C**	-	**0.79**	**27.3**	**C**	-	**0.82**	**27.6**	**C**	-	**0.85**	**29.4**	**C**
114th Street at Roosevelt Avenue																	
114th Street	NB	LTR	0.96	73.0	E	LTR	0.70	49.1	D	LTR	1.03	77.6	E	LTR	0.99	81.5	F
	SB	DefL	0.87	83.4	F	DefL	0.65	51.8	D	DefL	0.67	52.0	D	DefL	0.98	95.5	F
		TR	0.74	58.2	E	TR	0.26	37.4	D	TR	0.42	40.3	D	TR	0.80	62.7	E
Roosevelt Avenue	EB	LTR	0.77	18.9	B	LTR	0.63	13.9	B	LTR	0.69	15.3	B	LTR	0.78	19.4	B
	WB	DefL	0.84	28.4	C	-	-	-	-	-	-	-	-	-	-	-	-
		TR	0.97	40.8	D	LTR	0.86	23.0	C	LTR	1.00	50.9	D	LTR	0.89	24.5	C
	Overall Intersection	-	**0.97**	**43.1**	**D**	-	**0.81**	**27.4**	**C**	-	**1.01**	**48.2**	**D**	-	**0.92**	**41.7**	**D**
126th Street at Roosevelt Avenue																	
126th Street	NB	LTR	0.31	39.1	D	LTR	0.78	60.7	E	LTR	0.34	40.1	D	LTR	0.29	39.0	D
	SB	-	-	-	-	DefL	0.74	54.6	D	DefL	0.79	54.4	D	DefL	0.68	48.5	D
		LTR	0.64	43.7	D	TR	0.67	47.0	D	TR	0.67	46.8	D	TR	0.66	46.4	D
Roosevelt Avenue	EB	LTR	0.53	11.5	B	LTR	0.52	11.5	B	LTR	0.66	13.9	B	LTR	0.69	15.1	B
	WB	LTR	0.60	12.2	B	LTR	0.51	11.1	B	LTR	0.57	12.0	B	LTR	0.65	13.9	B
	Overall Intersection	-	**0.61**	**19.0**	**B**	-	**0.59**	**26.3**	**C**	-	**0.69**	**23.7**	**C**	-	**0.69**	**23.8**	**C**
College Point Boulevard at Roosevelt Avenue																	
College Point Boulevard	NB	L	1.04	88.4	F	L	0.76	29.6	C	L	0.91	52.4	D	L	0.68	41.0	D
		TR	0.73	30.9	C	TR	0.75	26.1	C	TR	0.76	31.9	C	TR	0.95	36.3	D
	SB	T	0.72	47.9	D	T	0.80	39.9	D	T	0.91	49.1	D	T	1.00	62.7	E
		R	0.34	38.5	D	R	0.26	28.2	C	R	0.24	36.4	D	R	0.35	29.4	C
Roosevelt Avenue	EB	LTR	0.44	26.2	C	LTR	0.49	20.9	C	LTR	0.61	29.3	C	LTR	0.49	20.0	B
	WB	LTR	0.29	36.5	D	LTR	0.25	28.3	C	LTR	0.24	38.5	D	LTR	0.39	28.1	C
	Overall Intersection	-	**0.72**	**42.9**	**D**	-	**0.67**	**28.6**	**C**	-	**0.83**	**38.0**	**D**	-	**0.70**	**38.5**	**D**
Prince Street at Roosevelt Avenue																	
Prince Street	SB	LTR	0.60	35.6	D	LTR	0.75	38.4	D	LTR	0.74	41.2	D	LTR	0.95	61.7	E
Roosevelt Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-	DefL	0.99	56.5	E
		LTR	0.50	17.6	B	LTR	0.72	15.8	B	LTR	0.87	32.5	C	TR	0.99	49.9	D
	WB	LTR	0.88	35.5	D	LTR	0.69	16.5	B	LTR	0.84	33.4	C	LTR	0.95	41.4	D
	Overall Intersection	-	**0.77**	**29.0**	**C**	-	**0.73**	**21.0**	**C**	-	**0.82**	**34.8**	**C**	-	**0.98**	**51.2**	**D**
Main Street at Roosevelt Avenue																	
Main Street	NB	LTR	0.80	26.7	C	LTR	0.98	45.8	D	LTR	0.95	39.6	D	LTR	0.98	44.6	D
	SB	LTR	0.72	30.0	C	LTR	0.56	22.1	C	LTR	0.87	39.9	D	LTR	0.99	55.4	E
Roosevelt Avenue	EB	LTR	0.76	35.8	D	LTR	0.89	39.2	D	LTR	0.97	63.5	E	LTR	1.00	59.0	E
	WB	LTR	0.99	61.9	E	LTR	0.84	35.8	D	LTR	0.98	67.3	E	LTR	1.00	61.5	E
	Overall Intersection	-	**0.90**	**37.4**	**D**	-	**0.93**	**36.7**	**D**	-	**0.96**	**48.4**	**D**	-	**1.00**	**53.2**	**D**
Union Street at Roosevelt Avenue																	
Union Street	NB	TR	0.85	42.8	D	TR	0.52	19.8	B	TR	0.59	34.0	C	TR	0.58	20.7	C
	SB	LT	0.77	42.0	D	LT	0.76	27.3	C	LT	0.97	54.1	D	LT	0.97	48.0	D
		R	0.66	42.4	D	R	0.62	28.9	C	R	0.64	34.0	C	R	0.83	45.2	D
Roosevelt Avenue	EB	LTR	0.95	49.0	D	LTR	0.98	54.2	D	LTR	0.76	27.2	C	LTR	0.96	51.9	D
	WB	LTR	0.93	42.1	D	LTR	0.82	33.1	C	LTR	0.95	50.3	D	LTR	0.92	43.0	D
	Overall Intersection	-	**0.91**	**43.7**	**D**	-	**0.87**	**32.7**	**C**	-	**0.96**	**42.1**	**D**	-	**0.97**	**41.3**	**D**
Parsons Boulevard at Roosevelt Avenue																	
Parsons Boulevard	NB	LTR	0.84	40.3	D	LTR	0.59	21.8	C	LTR	0.77	34.3	C	LTR	0.77	28.0	C
	SB	LTR	0.76	33.1	C	LTR	0.65	23.1	C	LTR	0.77	33.3	C	LTR	0.77	27.3	C
Roosevelt Avenue	EB	LTR	0.50	23.1	C	LTR	0.51	20.4	C	LTR	0.45	24.0	C	LTR	0.53	20.9	C
	WB	LTR	0.80	35.9	D	LTR	0.56	21.4	C	LTR	0.56	26.2	C	LTR	0.47	28.8	C
	Overall Intersection	-	**0.82**	**34.4**	**C**	-	**0.61**	**21.8**	**C**	-	**0.66**	**30.3**	**C**	-	**0.65**	**26.6**	**C**

TABLE 17-39
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

		Weekday AM (7:45-8:45 AM)				Weekday Midday (1:00-2:00 PM)				Weekday PM (5:15-6:15 PM)				Saturday Midday (1:00-2:00 PM)			
				Control				Control				Control				Control	
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS
KISSENA BOULEVARD																	
Main Street at Kissena Boulevard																	
Main Street	NB	L	0.87	47.3	D	L	0.68	28.0	C	L	0.98	71.8	E	L	1.00	75.6	E
		TR	0.86	35.8	D	TR	0.64	20.1	C	TR	0.90	40.1	D	TR	0.96	41.4	D
	SB	L	0.75	40.4	D	L	0.50	22.9	C	L	0.95	60.5	E	L	0.95	57.0	E
		TR	0.85	35.5	D	TR	0.85	30.7	C	TR	0.93	44.2	D	TR	0.98	49.1	D
Kissena Boulevard	WB	TR	1.00	81.2	F	TR	0.72	34.3	C	TR	1.02	83.2	F	TR	1.05	84.8	F
Overall Intersection		-	**0.92**	**49.0**	**D**	-	**0.76**	**27.6**	**C**	-	**0.98**	**58.2**	**E**	-	**0.98**	**58.5**	**E**
SANFORD AVENUE																	
College Point Boulevard at Sanford Avenue																	
College Point Boulevard	NB	L	0.23	10.0	A	L	0.25	10.8	B	L	0.36	13.3	B	L	0.41	14.0	B
		T	0.45	10.8	B	T	0.41	10.5	B	T	0.39	10.2	B	T	0.50	11.3	B
	SB	TR	0.52	11.8	B	TR	0.63	13.4	B	TR	0.64	13.4	B	TR	0.62	13.0	B
Sanford Avenue	WB	LTR	0.86	42.5	D	LTR	0.69	33.8	C	LTR	0.74	35.8	D	LTR	0.83	40.5	D
Overall Intersection		-	**0.63**	**20.0**	**B**	-	**0.65**	**16.7**	**B**	-	**0.67**	**17.3**	**B**	-	**0.69**	**18.7**	**B**
Union Street at Sanford Avenue																	
Union Street	NB	LTR	0.65	24.7	C	LTR	0.36	17.3	B	LTR	0.69	29.4	C	LTR	0.41	18.6	B
	SB	LTR	0.48	17.9	B	LTR	0.58	19.6	B	LTR	0.93	39.8	D	LTR	0.93	38.3	D
Sanford Avenue	EB	LTR	0.36	12.3	B	LTR	0.42	13.0	B	LTR	0.43	10.8	B	LTR	0.54	12.9	B
	WB	LTR	0.70	19.1	B	LTR	0.52	14.3	B	LTR	0.62	13.8	B	LTR	0.72	16.7	B
Overall Intersection		-	**0.68**	**18.9**	**B**	-	**0.54**	**16.5**	**B**	-	**0.74**	**26.5**	**C**	-	**0.80**	**25.3**	**C**
Parsons Boulevard at Sanford Avenue																	
Parsons Boulevard	NB	LTR	0.96	41.1	D	LTR	0.72	19.5	B	LTR	0.80	23.4	C	LTR	1.00	50.1	D
	SB	LTR	0.69	17.4	B	LTR	0.52	14.4	B	LTR	0.83	24.0	C	LTR	0.88	27.5	C
Sanford Avenue	EB	LTR	0.88	28.0	C	LTR	0.50	14.4	B	LTR	0.71	19.3	B	LTR	0.51	14.4	B
	WB	LTR	0.97	38.3	D	LTR	0.60	16.3	B	LTR	0.65	17.2	B	LTR	0.89	29.7	C
Overall Intersection		-	**0.96**	**31.7**	**C**	-	**0.66**	**16.3**	**B**	-	**0.77**	**21.3**	**C**	-	**0.94**	**32.0**	**C**
WHITESTONE EXPRESSWAY / 32ND AVENUE																	
College Point Boulevard at 32nd Avenue																	
College Point Boulevard	NB	T	0.74	23.5	C	T	0.74	24.3	C	T	0.70	22.5	C	T	0.62	20.5	C
		TR	0.69	24.1	C	TR	0.62	21.9	C	TR	0.62	21.5	C	TR	0.75	24.9	C
	SB	L	0.37	22.3	C	L	0.61	32.3	C	L	0.53	26.5	C	L	0.46	23.0	C
		T	0.51	9.9	A	T	0.48	9.7	A	T	0.48	9.6	A	T	0.40	8.9	A
32nd Avenue	WB	LTR	0.70	28.5	C	LTR	0.71	28.7	C	LTR	0.55	22.3	C	LTR	0.61	24.1	C
Overall Intersection		-	**0.70**	**19.1**	**B**	-	**0.77**	**20.9**	**C**	-	**0.69**	**18.2**	**B**	-	**0.66**	**18.4**	**B**
UNSIGNALIZED INTERSECTIONS																	
Willets Point Boulevard at 126th Street																	
126th Street	SB	LT	-	8.0	A	LT	-	8.2	A	LT	-	8.1	A	LT	-	8.2	A
Willets Point Boulevard	WB	LR	-	12.5	B	LR	-	13.2	B	LR	-	14.2	B	LR	-	14.0	B
Overall Intersection		-	-	**11.1**	**B**	-	-	**11.7**	**B**	-	-	**13.2**	**B**	-	-	**12.8**	**B**
Boat Basin Road at Worlds Fair Marina																	
Boat Basin Road	NB	L	-	19.1	C	L	-	16.9	C	L	-	12.2	B	L	-	13.4	B
		R	-	8.6	A	R	-	8.4	A	R	-	8.7	A	R	-	8.5	A
Worlds Fair Marina	WB	LT	-	8.3	A	LT	-	8.3	A	LT	-	8.0	A	LT	-	7.7	A
Overall Intersection		-	-	**8.9**	**A**	-	-	**9.1**	**A**	-	-	**8.4**	**A**	-	-	**8.5**	**A**
Willets Point Boulevard at Northern Boulevard																	
Willets Point Boulevard	NB	T	-	10.2	B	T	-	10.3	B	T	-	9.6	A	T	-	9.7	A
Overall Intersection		-	-	**10.2**	**B**	-	-	**10.3**	**B**	-	-	**9.6**	**A**	-	-	**9.7**	**A**
College Point Boulevard at Northern Boulevard Service Road																	
College Point Boulevard	SB	LT	-	11.4	B	LT	-	10.5	B	LT	-	11.2	B	LT	-	10.8	B
Northern Blvd Service Rd	WB	LR	-	14.7	B	LR	-	13.7	B	LR	-	14.9	B	LR	-	14.9	B
Overall Intersection		-	-	**13.3**	**B**	-	-	**12.9**	**B**	-	-	**13.7**	**B**	-	-	**14.0**	**B**
Grand Central Parkway Ramp at West Park Loop/Stadium Road																	
Grand Central Parkway Ramp	EB	L	-	10.4	B	L	-	9.7	A	L	-	9.7	A	L	-	9.8	A
		R	-	9.0	A	R	-	8.7	A	R	-	8.8	A	R	-	8.8	A
Overall Intersection		-	-	**9.9**	**A**	-	-	**9.4**	**A**	-	-	**9.1**	**A**	-	-	**9.3**	**A**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual – TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual – TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

TABLE 17-40
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *GAME DAY*

INTERSECTION & APPROACH		Weekday Pre Game (6:00-7:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Pre Game (12:00-1:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Post Game (3:45-4:45 PM) Control Mvt.	V/C	Delay	LOS
SIGNALIZED INTERSECTIONS													
ASTORIA BOULEVARD													
108th Street at Astoria Boulevard													
108th Street	NB	DefL	0.70	59.2	E	DefL	0.59	38.0	D	DefL	0.51	35.5	D
		T	0.62	50.3	D	T	0.23	29.8	C	T	0.18	29.1	C
	SB	LTR	0.43	44.9	D	LTR	0.22	29.7	C	LTR	0.21	29.5	C
Astoria Boulevard	EB	LTR	0.93	25.9	C	LTR	0.36	14.0	B	LTR	0.42	14.6	B
	WB	L	0.99	78.1	E	L	0.41	8.0	A	L	0.61	11.5	B
		TR	0.32	6.5	A	TR	0.21	2.3	A	TR	0.31	2.6	A
	Overall Intersection	-	**0.98**	**27.9**	**C**	-	**0.50**	**12.9**	**B**	-	**0.52**	**11.9**	**B**
NORTHERN BOULEVARD													
108th Street at Northern Boulevard (RT. 25A)													
108th Street	NB	LTR	1.05	101.8	F	LTR	1.05	76.5	E	LTR	1.05	82.7	F
	SB	LTR	1.05	98.4	F	LTR	0.93	45.7	D	LTR	1.05	81.4	F
Northern Boulevard (Rt. 25A)	EB	L	0.20	26.1	C	L	0.02	29.2	C	L	0.05	26.7	C
		TR	0.88	14.9	B	TR	0.79	20.7	C	T	0.71	18.4	B
		-	-	-	-	-	-	-	-	R	0.10	10.8	B
	WB	L	0.71	49.6	D	L	0.46	26.5	C	L	0.40	22.9	C
		TR	0.96	33.0	C	T	1.02	45.4	D	T	0.97	32.9	C
		-	-	-	-	R	0.18	11.5	B	R	0.17	11.4	B
	Overall Intersection	-	**1.01**	**36.2**	**D**	-	**0.90**	**38.7**	**D**	-	**0.86**	**35.4**	**D**
114th Street at Northern Boulevard (RT. 25A) [9]													
114th Street	SB	LTR	0.64	54.1	D	LTR	0.68	37.1	D	LTR	0.99	90.8	F
Northern Boulevard (Rt. 25A)	EB	T	0.96	25.1	C	T	0.54	16.5	B	T	0.96	53.1	D
		R	0.72	22.4	C	R	0.47	16.3	B	R	0.66	90.2	F
	WB	DefL	0.88	47.8	D	DefL	0.77	21.4	C	DefL	1.01	120.0+	F*
		T	0.93	18.5	B	T	0.87	13.6	B	T	1.01	120.0+	F*
	Overall Intersection	-	**1.20+**	**24.8**	**C**	-	**1.20+**	**16.4**	**B**	-	**1.20+**	**113.8**	**F**
126th Street at Northern Boulevard (RT. 25A) [10]													
126th Street	NB	L	0.94	75.5	E	L	0.67	49.9	D	L	1.00	99.4	F
		R	0.45	45.4	D	R	0.59	49.2	D	R	0.50	20.5	C
Northern Boulevard	EB	T	0.35	10.5	B	T	0.19	9.2	A	T	0.41	28.6	C
	WB	T	0.81	22.0	C	T	0.49	12.0	B	T	0.95	80.7	F
Grand Central Parkway Ramp	EB	T	0.49	11.9	B	T	0.75	17.0	B	T	1.03	102.4	F
Van Wyck & Whitestone Expressway Ramp	WB	T	1.04	99.0	F	T	1.00	94.8	F	T	1.02	120.0+	F*
	Overall Intersection	-	**1.03**	**54.2**	**D**	-	**0.95**	**48.7**	**D**	-	**1.01**	**92.0**	**F**
Prince Street at Northern Boulevard (RT. 25A)													
Prince Street	NB	LTR	0.88	69.0	E	LTR	0.95	82.7	F	LTR	1.00	91.9	F
	SB	LTR	0.65	46.5	D	LTR	0.53	42.9	D	LTR	0.45	41.1	D
Northern Boulevard	EB	L	0.75	43.7	D	L	0.75	43.8	D	L	1.05	95.9	F
		T	0.80	22.8	C	T	0.95	48.7	D	T	0.81	23.8	C
	WB	L	0.72	77.6	E	L	0.74	80.6	F	L	0.64	71.5	E
		T	0.84	34.9	C	T	0.79	25.1	C	T	0.79	25.3	C
Northern Boulevard Service Rd.	EB	TR	0.56	20.2	C	TR	0.91	59.9	E	TR	0.64	22.0	C
	WB	TR	0.48	28.3	C	TR	0.67	28.9	C	TR	0.58	22.5	C
	Overall Intersection	-	**0.86**	**33.2**	**C**	-	**0.86**	**42.3**	**D**	-	**1.15**	**36.2**	**D**
Main Street at Northern Boulevard (RT. 25A)													
Main Street	NB	L	0.94	78.5	E	L	0.82	55.5	E	L	0.85	57.1	E
		R	0.96	79.1	E	R	0.72	35.7	D	R	0.62	30.3	C
Northern Boulevard	EB	T	0.97	35.4	B	TR	1.01	55.9	E	T	0.92	39.8	D
		R	0.93	22.0	C	R	0.96	63.0	E	R	1.05	80.2	F
	WB	L	1.05	80.4	F	L	0.89	57.7	E	L	0.87	55.4	E
		T	0.91	22.9	C	T	0.91	27.2	C	T	0.88	25.6	C
	Overall Intersection	-	**0.96**	**33.5**	**C**	-	**0.87**	**44.7**	**D**	-	**0.93**	**40.7**	**D**
Union Street at Northern Boulevard (RT. 25A)													
Union Street	NB	DefL	0.82	59.5	E	DefL	0.86	61.7	E	DefL	0.88	65.2	E
		TR	0.92	59.3	E	TR	0.87	52.7	D	TR	0.82	46.6	D
	SB	LTR	0.99	74.9	E	LTR	0.91	59.3	E	LTR	0.82	50.9	D
Northern Boulevard	EB	L	0.78	43.8	D	L	0.60	28.5	C	L	0.69	31.9	C
		TR	1.05	68.0	E	TR	1.02	61.1	E	TR	1.04	64.5	E
	WB	L	0.84	50.3	D	L	0.84	50.9	D	L	0.73	39.8	D
		TR	0.91	41.9	D	TR	0.92	41.6	D	TR	0.83	37.5	D
	Overall Intersection	-	**0.90**	**58.9**	**E**	-	**0.96**	**52.7**	**D**	-	**0.96**	**51.5**	**D**
Parsons Boulevard at Northern Boulevard (RT. 25A)													
Parsons Boulevard	NB	LTR	0.99	86.6	F	LTR	0.99	85.5	F	LTR	0.94	73.6	E
	SB	LTR	0.97	79.3	E	LTR	0.88	65.6	E	LTR	0.94	76.2	E
Northern Boulevard	EB	L	0.32	24.0	C	L	0.54	40.7	D	L	0.31	20.5	C
		TR	0.75	17.6	B	TR	0.91	24.4	C	TR	0.91	24.6	C
	WB	L	0.43	30.1	C	L	0.31	24.3	C	L	0.31	24.7	C
		TR	0.88	22.7	C	TR	1.05	52.3	D	TR	0.79	19.1	B
	Overall Intersection	-	**0.89**	**33.1**	**C**	-	**0.94**	**46.5**	**D**	-	**0.82**	**33.9**	**C**
34TH AVENUE													
114th Street at 34th Avenue [16]													
114th Street	SB	L	0.63	18.6	B	L	0.59	20.8	C	L	0.62	21.5	C
		T	0.32	14.2	B	T	0.34	17.3	B	T	0.21	15.8	B
34th Avenue	EB	TR	0.69	26.4	C	TR	0.57	20.4	C	TR	0.65	22.0	C
	Overall Intersection	-	**0.65**	**20.8**	**C**	-	**0.58**	**20.0**	**B**	-	**0.63**	**21.0**	**C**

TABLE 17-40
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *GAME DAY*

INTERSECTION & APPROACH		Weekday Pre Game (6:00-7:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Pre Game (12:00-1:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Post Game (3:45-4:45 PM) Control Mvt.	V/C	Delay	LOS
126th Street/GCP Ramp at 34th Avenue [M]													
126th Street	NB	LTR	0.49	23.5	C	TR	0.36	21.8	C	LTR	1.05	120.0+	F*
Northern Boulevard Ramp	SB	LTR	0.33	12.1	B	TR	0.21	11.1	B	LTR	0.33	21.5	C
GCP Ramp	SB	LTR	1.01	66.8	E	LTR	1.02	67.5	E	LTR	0.23	40.5	D
34th Avenue	EB	-	-	-	-	-	-	-	-	DefL	0.75	75.5	E
		R	0.50	5.8	A	R	0.64	4.5	A	TR	0.19	47.0	D
Stadium Road	WB	R	0.35	42.5	D	R	0.58	48.6	D	LTR	1.05	120.0+	F*
	Overall Intersection	-	**0.70**	**40.2**	**D**	-	**0.73**	**40.6**	**D**	-	**0.88**	**120.0+**	**F***
ROOSEVELT AVENUE													
108th Street at Roosevelt Avenue													
108th Street	NB	LTR	0.95	67.2	E	LTR	0.94	70.0	E	LTR	1.01	85.7	F
	SB	LTR	1.02	85.4	F	LTR	0.99	84.1	F	LTR	1.01	86.6	F
Roosevelt Avenue	EB	LTR	0.93	30.4	C	LTR	0.86	23.6	C	LTR	0.79	19.3	B
	WB	LTR	0.80	19.8	B	LTR	0.87	24.3	C	LTR	0.92	29.8	C
	Overall Intersection	-	**0.95**	**47.4**	**D**	-	**0.90**	**43.6**	**D**	-	**0.95**	**50.3**	**D**
111th Street at Roosevelt Avenue													
111th Street	NB	LTR	0.96	61.5	E	LTR	0.97	77.6	E	LTR	0.88	60.6	E
Roosevelt Avenue	EB	LTR	0.91	27.2	C	LTR	0.82	20.5	C	LTR	0.59	12.6	B
	WB	LTR	0.92	29.0	C	LTR	0.94	31.3	C	LTR	0.94	31.5	C
	Overall Intersection	-	**0.93**	**35.8**	**D**	-	**0.95**	**37.0**	**D**	-	**0.93**	**32.1**	**C**
114th Street at Roosevelt Avenue [M]													
114th Street	NB	LTR	1.05	96.6	F	LTR	1.01	84.9	F	LTR	1.03	98.2	F
	SB	DefL	1.00	94.5	F	DefL	0.93	81.4	F	DefL	0.93	79.2	E
		TR	0.74	57.4	E	TR	0.54	46.1	D	TR	0.90	73.6	E
Roosevelt Avenue	EB	LTR	1.00	44.1	D	LTR	0.94	31.3	C	LTR	1.00	43.3	D
	WB	DefL	0.82	27.7	C	-	-	-	-	-	-	-	-
		TR	0.98	41.5	D	LTR	0.86	22.1	C	LTR	0.99	38.5	D
	Overall Intersection	-	**1.01**	**55.0**	**E**	-	**0.96**	**42.1**	**D**	-	**1.00**	**54.9**	**D**
126th Street at Roosevelt Avenue [M]													
126th Street	NB	LTR	0.21	35.3	D	LTR	0.20	35.1	D	LTR	0.15	34.6	C
	SB	LT	0.88	60.5	E	LT	0.59	41.1	D	DefL	1.01	68.2	E
		R	1.00	78.5	E	R	1.00	79.5	E	TR	0.50	27.4	C
Roosevelt Avenue	EB	DefL	1.03	70.7	E	DefL	1.02	65.6	E	-	-	-	-
		TR	0.80	17.3	B	TR	0.61	11.5	B	LTR	0.82	27.0	C
	WB	LTR	0.68	12.5	B	LTR	0.67	15.3	B	LTR	0.38	17.0	B
	Overall Intersection	-	**1.02**	**35.3**	**D**	-	**1.01**	**33.7**	**C**	-	**0.90**	**36.2**	**D**
College Point Boulevard at Roosevelt Avenue [M]													
College Point Boulevard	NB	L	1.04	120.0+	F*	L	1.04	78.7	E	L	0.57	34.7	C
		TR	0.74	31.3	C	TR	0.96	40.6	D	TR	0.80	27.4	C
	SB	T	0.93	62.4	E	T	0.84	41.1	D	T	0.76	37.3	D
		R	0.70	48.6	D	R	0.60	34.9	C	R	0.27	28.2	C
Roosevelt Avenue	EB	LTR	0.67	30.5	C	LTR	0.44	19.3	B	LTR	0.75	28.8	C
	WB	LTR	0.31	37.2	D	LTR	0.46	31.7	C	LTR	0.32	28.2	C
	Overall Intersection	-	**0.84**	**52.2**	**D**	-	**0.71**	**40.3**	**D**	-	**0.77**	**30.4**	**C**
Prince Street at Roosevelt Avenue													
Prince Street	SB	LTR	0.91	60.5	E	LTR	0.99	71.5	E	LTR	0.90	54.4	D
Roosevelt Avenue	EB	DefL	1.00	73.0	E	DefL	0.91	41.2	D	-	-	-	-
		TR	0.99	60.3	E	TR	0.94	39.3	D	LTR	0.74	16.6	B
	WB	LTR	0.95	50.3	D	LTR	0.90	32.4	C	LTR	0.85	26.8	C
	Overall Intersection	-	**0.96**	**59.8**	**E**	-	**0.96**	**44.9**	**D**	-	**0.87**	**28.2**	**C**
Main Street at Roosevelt Avenue													
Main Street	NB	LTR	0.97	43.3	D	LTR	0.93	35.6	D	LTR	0.88	31.3	C
	SB	LTR	0.94	48.7	D	LTR	0.98	54.2	D	LTR	0.71	25.6	C
Roosevelt Avenue	EB	LTR	1.03	79.4	E	LTR	0.89	39.8	D	LTR	0.89	39.2	D
	WB	LTR	1.05	84.1	F	LTR	1.00	57.2	E	LTR	0.85	35.4	D
	Overall Intersection	-	**1.01**	**58.7**	**E**	-	**0.99**	**45.4**	**D**	-	**0.89**	**31.8**	**C**
Union Street at Roosevelt Avenue													
Union Street	NB	TR	0.60	34.2	C	TR	0.61	21.3	C	TR	0.52	19.6	B
	SB	LT	0.93	54.2	D	LT	0.86	32.5	C	LT	0.84	31.5	C
		R	0.50	34.2	C	R	0.86	52.2	D	R	0.77	40.5	D
Roosevelt Avenue	EB	LTR	0.79	28.9	C	LTR	0.87	38.1	D	LTR	1.00	57.5	E
	WB	LTR	0.86	35.1	D	LTR	0.92	42.5	D	LTR	0.83	33.0	C
	Overall Intersection	-	**0.89**	**39.0**	**D**	-	**0.89**	**34.6**	**C**	-	**0.92**	**36.2**	**D**
Parsons Boulevard at Roosevelt Avenue													
Parsons Boulevard	NB	LTR	0.95	54.1	D	LTR	0.83	32.0	C	LTR	0.57	21.4	C
	SB	LTR	0.92	45.6	D	LTR	0.72	25.3	C	LTR	0.63	22.6	C
Roosevelt Avenue	EB	LTR	0.59	27.3	C	LTR	0.58	21.9	C	LTR	0.52	20.5	C
	WB	LTR	0.63	28.7	C	LTR	0.81	32.3	C	LTR	0.43	18.8	B
	Overall Intersection	-	**0.79**	**41.3**	**D**	-	**0.82**	**28.2**	**C**	-	**0.58**	**21.1**	**C**

TABLE 17-40
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2006 EXISTING TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
				Control				Control				Control	
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS
KISSENA BOULEVARD													
Main Street at Kissena Boulevard													
Main Street	NB	L	0.94	59.4	E	L	0.99	69.7	E	L	0.78	37.3	D
		TR	0.97	53.0	D	TR	0.84	27.4	C	TR	0.67	20.0	C
	SB	L	0.95	67.9	E	L	0.70	31.2	C	L	0.67	28.5	C
		TR	0.95	49.0	D	TR	0.92	36.8	D	TR	0.88	32.0	C
Kissena Boulevard	WB	TR	1.02	81.8	F	TR	1.03	75.1	E	TR	1.00	66.5	E
	Overall Intersection	-	**0.97**	**62.1**	**E**	-	**1.02**	**46.5**	**D**	-	**0.94**	**37.8**	**D**
SANFORD AVENUE													
College Point Boulevard at Sanford Avenue													
College Point Boulevard	NB	L	0.23	10.8	B	L	0.33	12.3	B	L	0.29	12.2	B
		T	0.51	11.5	B	T	0.57	12.2	B	T	0.41	10.4	B
	SB	TR	0.68	14.2	B	TR	0.64	13.4	B	TR	0.71	14.8	B
Sanford Avenue	WB	LTR	0.87	44.0	D	LTR	0.87	43.9	D	LTR	0.77	36.8	D
	Overall Intersection	-	**0.74**	**19.9**	**B**	-	**0.71**	**19.5**	**B**	-	**0.73**	**18.1**	**B**
Union Street at Sanford Avenue													
Union Street	NB	LTR	0.74	34.0	C	LTR	0.37	17.7	B	LTR	0.34	17.1	B
	SB	LTR	0.91	35.8	D	LTR	0.85	30.7	C	LTR	0.77	25.7	C
Sanford Avenue	EB	LTR	0.49	11.6	B	LTR	0.55	13.3	B	LTR	0.43	11.0	B
	WB	LTR	0.63	14.1	B	LTR	0.79	19.7	B	LTR	0.66	14.7	B
	Overall Intersection	-	0.74	**25.5**	**C**	-	0.81	**22.4**	**C**	-	**0.70**	**18.7**	**B**
Parsons Boulevard at Sanford Avenue													
Parsons Boulevard	NB	LTR	0.98	43.1	D	LTR	0.95	37.0	D	LTR	0.74	20.1	C
	SB	LTR	0.92	30.8	C	LTR	0.83	23.0	C	LTR	0.82	23.0	C
Sanford Avenue	EB	LTR	0.91	32.5	C	LTR	0.59	14.1	B	LTR	0.61	14.3	B
	WB	LTR	0.81	22.8	C	LTR	0.93	31.5	C	LTR	0.71	16.7	B
	Overall Intersection	-	**0.94**	**32.7**	**C**	-	**0.94**	**27.8**	**C**	-	**0.76**	**19.0**	**B**
WHITESTONE EXPRESSWAY / 32ND AVENUE													
College Point Boulevard at 32nd Avenue													
College Point Boulevard	NB	T	0.66	21.5	C	T	0.39	17.1	B	T	0.38	17.0	B
		TR	0.66	22.5	C	TR	0.84	29.8	C	TR	0.95	40.7	D
	SB	L	0.59	27.9	C	L	0.41	17.6	B	L	0.41	17.6	B
		T	0.46	9.4	A	T	0.43	9.2	A	T	0.35	8.5	A
32nd Avenue	WB	LTR	0.61	24.4	C	LTR	0.59	23.6	C	LTR	0.52	21.5	C
	Overall Intersection	-	**0.72**	**18.8**	**B**	-	**0.57**	**17.9**	**B**	-	**0.58**	**21.6**	**C**

Game Day Notes for Signalized Intersections

[i] 114th Street at Northern Boulevard: During post game peak hours, NYPD closes the WB left, SB thru, and EB right movements onto southbound 114th Street for approximately 15 minutes.

[ii] 126th Street at Northern Boulevard: During pre game peak hours, NYPD operates the WB lane from the Whitestone Expwy/Van Wyck Expwy ramps as free flow (its approach lane to 126th Street is channelized with cones), and the adjacent lane from Northern Boulevard is closed (traffic from Northern

[iii] 114th Street at 34th Avenue: During post game peak hours, NYPD does not allow southbound traffic along 114th Street from Northern Boulevard or the 34th Avenue eastbound through movement, for approximately 15 minutes. During this time, the only traffic entering the eastbound Grand Cen

[iv] 126th Street/GCP Ramp at 34th Avenue: During pre game peak hours, NYPD disables the signal and operates the SB ramps and EB approach as free flow with movement prohibitions. During post game peak hours, NYPD operates three NB lanes with turn prohibitions from the SB, EB, and WB approaches, an

[v] 114th Street at Roosevelt Avenue: During the weekend post game peak hour, NYPD closes the EB through movement for approximately 15 minutes.

[vi] 126th Street at Roosevelt Avenue: During pre and post game peak hours, NYPD manually adjusts the signal timing based on demand and lengthens/shortens effective green times of the EB left and SB movements.

[vii] College Point Blvd. at Roosevelt Ave. During the weeknight pre-game peak hour, NYPD may place a TEA at the intersection to help process NB lefts.

UNSIGNALIZED INTERSECTIONS

Willets Point Boulevard at 126th Street													
126th Street	SB	LT	-	9.0	A	LT	-	8.8	A	LT	-	7.9	A
Willets Point Boulevard	WB	LR	-	15.4	C	LR	-	17.2	C	LR	-	27.1	D
	Overall Intersection	-	-	**14.2**	**B**	-	-	**13.4**	**B**	-	-	**23.4**	**C**
Boat Basin Road at Worlds Fair Marina													
Boat Basin Road	NB	L	-	31.7	D	L	-	31.7	D	L	-	105.6	F
		R	-	8.5	A	R	-	8.5	A	R	-	8.9	A
Worlds Fair Marina	WB	LT	-	9.2	A	LT	-	10.2	B	LT	-	7.9	A
	Overall Intersection	-	-	**10.4**	**B**	-	-	**11.4**	**B**	-	-	**61.2**	**F**
Willets Point Boulevard at Northern Boulevard													
Willets Point Boulevard	NB	T	-	9.4	A	T	-	10.0	A	T	-	10.3	B
	Overall Intersection	-	-	**9.4**	**A**	-	-	**10.0**	**A**	-	-	**10.3**	**B**
College Point Boulevard at Northern Boulevard Service Road													
College Point Boulevard	SB	LT	-	14.1	B	LT	-	10.6	B	LT	-	12.4	B
Northern Blvd Service Rd	WB	LR	-	20.1	C	LR	-	27.2	D	LR	-	39.6	E
	Overall Intersection	-	-	**17.9**	**C**	-	-	**23.3**	**C**	-	-	**31.2**	**D**
Grand Central Parkway Ramp at West Park Loop/Stadium Road													
Grand Central Parkway Ramp	EB	L	-	18.2	C	L	-	64.4	F	L	-	13.4	B
		R	-	10.0	B	R	-	18.0	C	R	-	10.7	B
	Overall Intersection	-	-	**15.0**	**B**	-	-	**42.0**	**E**	-	-	**11.9**	**B**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual – TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual – TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

TABLE 17-41
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

INTERSECTION & APPROACH		Weekday AM (7:45-8:45 AM) Mvt.	V/C	Control Delay	LOS	Weekday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS	Weekday PM (5:15-6:15 PM) Mvt.	V/C	Control Delay	LOS	Saturday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
ASTORIA BOULEVARD																	
108th Street at Astoria Boulevard																	
108th Street	NB	DefL	0.71	57.4	E	DefL	0.48	33.1	D	DefL	0.93	91.8	F	DefL	0.60	38.3	D
		T	0.25	41.7	D	T	0.18	29.2	C	T	0.25	41.8	D	T	0.37	31.7	C
	SB	LTR	0.28	42.3	D	LTR	0.23	29.7	C	LTR	0.57	48.6	D	LTR	0.28	30.4	C
Astoria Boulevard	EB	LTR	0.57	21.1	C	LTR	0.47	15.2	B	LTR	0.98	31.9	C	LTR	0.43	14.7	B
	WB	L	0.74	20.8	C	L	0.53	10.4	B	L	0.76	44.3	D	L	0.58	10.9	B
		TR	0.96	23.2	C	TR	0.33	6.6	A	TR	0.38	6.9	A	TR	0.28	6.3	A
	Overall Intersection	-	**0.91**	**24.2**	**C**	-	**0.54**	**13.7**	**B**	-	**0.96**	**28.8**	**C**	-	**0.55**	**14.7**	**B**
NORTHERN BOULEVARD																	
108th Street at Northern Boulevard (RT. 25A)																	
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.99	66.2	E	LTR	0.88	45.4	D	LTR	1.20+	120.0+	F*	LTR	1.17	119.5	F
Northern Boulevard (Rt. 25A)	EB	L	0.19	26.9	C	L	0.12	18.5	B	L	0.22	42.2	D	L	0.08	44.3	D
		TR	0.54	15.2	B	TR	0.55	15.3	B	TR	0.96	19.9	B	TR	0.98	36.2	D
	WB	L	0.58	25.7	C	L	0.50	21.8	C	L	0.69	50.0	D	L	0.72	49.8	D
		TR	1.03	35.6	D	T	0.83	22.2	C	TR	1.20+	120.0+	F*	T	1.20+	120.0+	F*
		-	-	-	-	R	0.16	11.2	B	-	-	-	-	R	0.27	12.4	B
	Overall Intersection	-	**0.97**	**40.3**	**D**	-	**0.95**	**35.7**	**D**	-	**1.15**	**78.5**	**E**	-	**1.15**	**92.0**	**F**
114th Street at Northern Boulevard (RT. 25A)																	
114th Street	SB	LTR	0.68	56.5	E	LTR	0.91	79.9	E	LTR	1.03	87.2	F	LTR	1.01	98.3	F
Northern Boulevard (Rt. 25A)	EB	T	0.82	35.2	D	T	0.56	16.9	B	T	0.97	35.7	D	T	0.62	17.9	B
		R	0.84	41.7	D	R	0.56	18.0	B	R	0.78	24.8	C	R	0.71	22.0	C
	WB	DefL	0.52	17.0	B	LT	0.93	18.1	B	DefL	0.89	60.7	E	DefL	0.89	35.7	D
		T	1.20+	120.0+	F*					T	0.96	20.8	C	T	0.93	17.4	B
	Overall Intersection	-	**1.20+**	**104.9**	**F**	-	**0.92**	**21.5**	**C**	-	**1.20+**	**31.4**	**C**	-	**1.20+**	**34.2**	**C**
126th Street at Northern Boulevard (RT. 25A)																	
126th Street	NB	L	0.44	43.9	D	L	0.78	52.6	D	L	0.60	46.7	D	L	0.72	49.8	D
		R	0.41	44.4	D	R	0.48	45.6	D	R	0.37	43.3	D	R	0.47	44.8	D
Northern Boulevard	EB	T	0.21	6.6	A	T	0.24	6.8	A	T	0.41	8.2	A	T	0.26	6.9	A
	WB	T	0.89	20.6	C	T	0.49	9.1	A	T	0.45	8.6	A	T	0.42	8.3	A
Grand Central Parkway Ramp	EB	T	0.39	8.0	A	T	0.43	8.4	A	T	0.46	8.7	A	T	0.40	8.0	A
Van Wyck & Whitestone Expressway Ramp	WB	T	0.88	22.4	C	T	0.85	20.2	C	T	0.84	19.8	B	T	0.82	18.3	B
	Overall Intersection	-	**0.79**	**19.4**	**B**	-	**0.83**	**17.8**	**B**	-	**0.79**	**15.5**	**B**	-	**0.80**	**16.9**	**B**
Prince Street at Northern Boulevard (RT. 25A)																	
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.99	86.4	F	LTR	0.75	51.5	D	LTR	0.70	48.0	D	LTR	0.68	47.2	D
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	0.97	94.5	F
		T	0.55	8.0	A	T	0.61	17.8	B	T	0.97	37.6	D	T	0.83	24.5	C
	WB	L	1.17	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	1.10	59.3	E	T	0.92	30.8	C	T	1.02	55.6	E	T	1.05	58.7	E
Northern Boulevard Service Rd.	EB	TR	0.46	14.6	B	TR	0.70	24.5	C	TR	0.60	20.4	C	TR	0.74	27.0	C
	WB	TR	0.61	20.4	C	TR	0.58	26.6	C	TR	0.61	31.3	C	TR	0.74	31.4	C
	Overall Intersection	-	**1.20+**	**72.7**	**E**	-	**1.13**	**68.0**	**E**	-	**1.16**	**72.4**	**E**	-	**1.11**	**75.2**	**E**
Main Street at Northern Boulevard (RT. 25A)																	
Main Street	NB	L	0.77	46.5	D	L	0.87	53.9	D	L	1.04	86.0	F	L	1.18	120.0+	F*
		R	0.68	29.7	C	R	0.81	35.2	D	R	0.87	44.0	D	R	0.88	40.0	D
Northern Boulevard	EB	TR	0.84	32.1	C	TR	0.88	33.7	C	TR	1.02	51.0	C	TR	1.02	55.2	E
	WB	L	0.10	34.0	C	L	0.05	44.8	D	L	0.10	58.8	E	L	0.03	44.3	C
		T	1.04	28.5	C	T	0.69	12.1	B	T	0.99	39.5	D	T	0.90	26.5	C
	Overall Intersection	-	**0.95**	**31.9**	**C**	-	**0.84**	**29.8**	**C**	-	**1.01**	**42.8**	**D**	-	**0.99**	**57.9**	**E**
Union Street at Northern Boulevard (RT. 25A)																	
Union Street	NB	LTR	0.12	31.1	C	LTR	0.08	30.5	C	LTR	0.16	32.3	C	LTR	0.17	32.5	C
	SB	LTR	1.17	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	0.68	25.2	C	T	0.67	29.2	C	T	0.88	36.1	D	T	0.80	32.5	C
		R	1.20+	120.0+	F*	R	1.17	108.6	F	R	1.18	112.5	F	R	1.20+	120.0+	F*
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		TR	1.14	113.8	F	TR	0.73	30.8	C	TR	0.81	32.5	C	TR	0.86	34.8	C
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**118.3**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Northern Boulevard (RT. 25A)																	
Parsons Boulevard	NB	L	1.03	120.0+	F*	L	0.77	64.5	E	L	0.78	69.8	E	L	0.95	100.0	F
		TR	0.72	47.0	D	TR	0.58	40.9	D	TR	0.67	44.4	D	TR	0.75	49.9	D
	SB	LTR	1.04	96.7	F	LTR	1.11	120.0+	F*	LTR	1.07	105.2	F	LTR	1.19	120.0+	F*
Northern Boulevard	EB	L	0.48	47.8	D	L	0.45	48.9	D	L	0.50	47.8	D	L	0.53	50.5	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.13	93.5	F	TR	1.20+	120.0+	F*
	WB	L	0.67	49.4	D	L	0.34	38.0	D	L	0.43	43.1	D	L	0.48	48.6	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	Overall Intersection	-	**1.07**	**120.0+**	**F***	-	**1.10**	**120.0+**	**F***	-	**1.03**	**120.0+**	**F***	-	**1.19**	**120.0+**	**F***
34TH AVENUE																	
114th Street at 34th Avenue																	
114th Street	SB	L	0.50	17.4	B	L	0.60	21.1	C	L	0.73	21.2	C	L	0.78	26.2	C
		T	0.30	15.0	B	T	0.26	16.3	B	T	0.31	14.0	B	T	0.35	17.4	B
34th Avenue	EB	TR	0.62	23.3	C	TR	0.50	19.3	B	TR	0.88	35.5	D	TR	0.66	22.2	C
	Overall Intersection	-	**0.55**	**19.5**	**B**	-	**0.55**	**19.7**	**B**	-	**0.80**	**26.0**	**C**	-	**0.72**	**23.2**	**C**

TABLE 17-41
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

		Weekday AM (7:45-8:45 AM)				Weekday Midday (1:00-2:00 PM)				Weekday PM (5:15-6:15 PM)				Saturday Midday (1:00-2:00 PM)			
				Control				Control				Control				Control	
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS
126th Street/GCP Ramp at 34th Avenue																	
126th Street	NB	LTR	0.33	21.9	C	LTR	0.56	25.8	C	LTR	0.92	46.8	D	LTR	0.94	50.1	D
Northern Boulevard Ramp	SB	LTR	0.30	21.8	C	LTR	0.57	29.0	C	LTR	0.60	29.1	C	LTR	0.70	33.8	C
GCP Ramp	SB	LTR	0.67	54.6	D	LTR	0.88	73.2	E	LTR	0.92	80.0	E	LTR	0.94	83.7	F
34th Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-	Defl.	0.61	62.9	E
		LTR	0.67	53.1	D	LTR	0.68	53.7	D	LTR	0.31	42.7	D	TR	0.65	55.5	E
Stadium Road	WB	LTR	0.70	65.3	E	LTR	0.98	111.0	F	LTR	0.90	83.1	F	LTR	0.95	94.7	F
	Overall Intersection	-	**0.50**	**40.7**	**D**	-	**0.74**	**58.1**	**D**	-	**0.92**	**55.8**	**E**	-	**0.94**	**62.0**	**E**
ROOSEVELT AVENUE																	
108th Street at Roosevelt Avenue																	
108th Street	NB	LTR	0.80	52.8	D	LTR	1.06	102.0	F	LTR	0.96	70.6	E	LTR	1.20	120.0+	F*
	SB	LTR	1.01	85.3	F	LTR	1.16	120.0+	F*	LTR	1.16	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	0.94	32.6	C	LTR	1.20	118.8	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.15	96.0	F	LTR	0.90	27.2	C	LTR	1.11	81.2	F	LTR	1.18	110.8	F
	Overall Intersection	-	**1.11**	**68.4**	**E**	-	**1.19**	**93.9**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
111th Street at Roosevelt Avenue																	
111th Street	NB	LTR	0.84	55.5	E	LTR	0.77	52.1	D	LTR	0.83	54.4	D	LTR	0.83	54.7	D
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.16	101.6	F	LTR	1.20	118.4	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.11**	**101.7**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.15**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
114th Street at Roosevelt Avenue																	
114th Street	NB	LTR	1.07	103.3	F	LTR	0.78	54.5	D	LTR	1.15	118.4	F	LTR	1.11	117.1	F
	SB	Defl.	0.97	103.6	F	Defl.	0.73	57.0	E	Defl.	0.76	57.7	E	Defl.	1.09	120.0+	F*
		TR	0.83	67.8	E	TR	0.28	37.9	D	TR	0.47	41.4	D	TR	0.90	77.1	E
Roosevelt Avenue	EB	LTR	1.09	74.8	E	LTR	1.06	61.8	E	LTR	1.06	61.4	E	LTR	1.20+	120.0+	F*
	WB	Defl.	0.94	42.0	D	-	-	-	-	-	-	-	-	-	-	-	-
		TR	1.15	99.9	F	LTR	1.17	103.6	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.13**	**83.7**	**F**	-	**1.06**	**78.9**	**E**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
126th Street at Roosevelt Avenue																	
126th Street	NB	LTR	0.34	39.9	D	LTR	0.87	71.1	E	LTR	0.39	41.5	D	LTR	0.35	40.6	D
	SB	Defl.	0.81	58.8	E	Defl.	1.20+	120.0+	F*	Defl.	1.14	120.0+	F*	Defl.	1.14	120.0+	F*
		TR	0.77	52.4	D	TR	0.75	50.8	D	TR	0.75	50.6	D	TR	0.74	49.8	D
Roosevelt Avenue	EB	LTR	0.75	16.5	B	LTR	0.89	24.7	C	LTR	1.02	48.6	D	LTR	1.20	117.7	F
	WB	LTR	0.73	14.9	B	LTR	0.77	17.0	B	LTR	0.87	21.6	C	LTR	0.99	41.7	D
	Overall Intersection	-	**0.77**	**24.0**	**C**	-	**1.01**	**51.3**	**D**	-	**1.05**	**49.4**	**D**	-	**1.19**	**83.3**	**F**
College Point Boulevard at Roosevelt Avenue																	
College Point Boulevard	NB	L	1.20	120.0+	F*	L	0.86	39.1	D	L	0.86	46.4	D	L	0.66	40.3	D
		TR	0.86	37.1	D	TR	0.94	37.6	D	TR	0.93	42.6	D	TR	1.17	108.0	F
	SB	T	0.85	54.4	D	T	0.99	61.2	E	T	1.17	120.0+	F*	T	1.20+	120.0+	F*
		R	0.54	43.2	D	R	0.43	31.1	C	R	0.34	38.2	D	R	0.50	32.6	C
Roosevelt Avenue	EB	LTR	0.63	30.9	C	LTR	0.76	27.0	C	LTR	0.86	39.2	D	LTR	0.80	27.3	C
	WB	LTR	0.53	44.8	D	LTR	0.58	36.3	D	LTR	0.62	82.4	F	LTR	0.77	54.7	D
	Overall Intersection	-	**0.69**	**55.3**	**E**	-	**0.90**	**39.2**	**D**	-	**0.96**	**69.1**	**E**	-	**0.97**	**81.0**	**F**
Prince Street at Roosevelt Avenue																	
Prince Street	SB	LTR	0.79	45.4	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	Defl.	0.69	29.3	C	Defl.	1.10	93.2	F	Defl.	1.09	103.2	F	Defl.	1.20+	120.0+	F*
		TR	0.50	18.0	B	TR	0.78	19.0	B	TR	0.92	40.0	D	TR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.09**	**96.8**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Main Street at Roosevelt Avenue																	
Main Street	NB	LT	1.17	109.8	F	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
		R	1.00	76.4	E	R	0.49	22.6	C	R	0.61	23.8	C	R	0.68	26.7	C
	SB	LTR	0.23	20.5	C	LTR	0.07	16.3	B	LTR	0.15	19.4	B	LTR	0.13	17.1	B
Roosevelt Avenue	EB	LTR	1.02	73.9	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Union Street at Roosevelt Avenue																	
Union Street	NB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB	LT	0.72	23.2	C	LT	1.01	49.1	D	LT	1.06	59.4	E	LT	1.18	109.3	F
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LT	0.73	25.9	C	LT	0.80	24.8	C	LT	0.96	48.2	D	LT	0.95	45.3	D
		R	0.64	24.1	C	R	0.68	21.5	C	R	0.90	43.9	D	R	1.15	108.5	F
	WB	LTR	0.78	26.7	C	LTR	0.65	21.9	C	LTR	1.17	119.2	F	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**0.99**	**40.4**	**D**	-	**1.20+**	**65.4**	**E**	-	**1.20+**	**79.4**	**E**	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Roosevelt Avenue																	
Parsons Boulevard	NB	LTR	1.02	72.1	E	LTR	0.73	26.2	C	LTR	0.94	52.7	D	LTR	0.93	42.9	D
	SB	LTR	0.87	40.5	D	LTR	0.73	26.0	C	LTR	0.88	41.9	D	LTR	0.87	34.2	C
Roosevelt Avenue	EB	LTR	0.73	32.4	C	LTR	1.09	84.0	F	LTR	1.15	113.9	F	LTR	1.20+	120.0+	F*
	WB	LTR	1.04	76.3	E	LTR	1.10	86.8	F	LTR	0.96	53.3	D	LTR	1.02	74.7	E
	Overall Intersection	-	**1.03**	**57.0**	**E**	-	**0.92**	**61.2**	**E**	-	**1.05**	**69.2**	**E**	-	**1.15**	**96.8**	**F**

TABLE 17-41
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

		Weekday AM (7:45-8:45 AM)				Weekday Midday (1:00-2:00 PM)				Weekday PM (5:15-6:15 PM)				Saturday Midday (1:00-2:00 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
KISSENA BOULEVARD																	
Main Street at Kissena Boulevard																	
Main Street	NB	L	0.47	20.6	C	L	0.41	19.0	B	L	0.46	20.3	C	L	0.45	19.5	B
		TR	1.03	66.2	E	TR	0.94	40.1	D	TR	1.14	104.5	F	TR	1.20+	120.0+	F*
	SB	L	0.37	28.6	C	L	0.12	15.2	B	L	0.25	25.7	C	L	0.18	16.4	B
		TR	0.13	15.6	B	TR	0.10	15.0	B	TR	0.11	15.4	B	TR	0.09	14.8	B
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.00	55.0	D	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	Overall Intersection	-	**1.18**	**120.0+**	**F***	-	**0.97**	**44.7**	**D**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
SANFORD AVENUE																	
College Point Boulevard at Sanford Avenue																	
College Point Boulevard	NB	L	0.44	15.4	B	L	0.66	37.1	D	L	0.90	73.8	E	L	1.17	120.0+	F*
		T	0.59	12.4	B	T	0.59	12.5	B	T	0.54	11.9	B	T	0.68	13.9	B
	SB	TR	0.77	16.6	B	TR	0.99	33.8	C	TR	1.02	42.1	D	TR	0.97	30.5	C
Sanford Avenue	WB	LTR	0.97	57.5	E	LTR	0.77	37.6	D	LTR	0.84	41.7	D	LTR	0.93	51.7	D
	Overall Intersection	-	**0.84**	**24.9**	**C**	-	**0.92**	**27.3**	**C**	-	**1.07**	**33.3**	**C**	-	**1.18**	**31.4**	**C**
Union Street at Sanford Avenue																	
Union Street	NB	LR	1.20+	120.0+	F*	LR	0.71	37.9	D	LR	0.84	48.5	D	LR	0.84	55.1	E
	SB	LT	0.56	28.8	C	LT	0.64	29.0	C	LT	0.92	50.2	D	LT	0.91	50.3	D
		R	0.84	38.6	D	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Sanford Avenue	EB	TR	0.62	34.2	C	TR	0.75	42.5	D	TR	0.84	47.0	D	TR	0.75	38.9	D
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**105.4**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Sanford Avenue																	
Parsons Boulevard	NB	LTR	1.20+	120.0+	F*	LTR	1.00	59.0	E	LTR	1.14	104.8	F	LTR	1.20+	120.0+	F*
	SB	LTR	0.79	28.4	C	LTR	0.61	22.3	C	LTR	0.97	48.1	D	LTR	1.01	58.9	E
Sanford Avenue	EB	LTR	1.13	97.3	F	LTR	0.68	25.1	C	LTR	0.95	47.4	D	LTR	0.68	24.8	C
	WB	LTR	1.17	109.6	F	LTR	0.74	27.4	C	LTR	0.82	31.0	C	LTR	1.09	85.5	F
	Overall Intersection	-	**1.20+**	**110.3**	**F**	-	**0.87**	**34.9**	**C**	-	**1.04**	**58.4**	**E**	-	**1.20+**	**116.5**	**F**
WHITESTONE EXPRESSWAY / 32ND AVENUE																	
College Point Boulevard at 32nd Avenue																	
College Point Boulevard	NB	T	0.74	22.7	C	T	0.74	23.3	C	T	0.70	21.7	C	T	0.62	20.0	B
		TR	0.83	30.5	C	TR	0.82	29.6	C	TR	0.86	31.8	C	TR	0.99	49.1	D
	SB	L	0.49	24.2	C	L	0.78	34.0	C	L	0.71	29.4	C	L	0.59	25.0	C
		T	0.62	11.2	B	T	0.61	11.2	B	T	0.60	10.8	B	T	0.53	10.0	B
32nd Avenue	WB	LTR	0.83	38.3	D	LTR	0.82	37.2	D	LTR	0.63	25.4	C	LTR	0.70	28.4	C
	Overall Intersection	-	**0.79**	**21.7**	**C**	-	**0.92**	**23.3**	**C**	-	**0.93**	**20.8**	**C**	-	**0.80**	**24.5**	**C**
UNSIGNALIZED INTERSECTIONS																	
Willets Point Boulevard at 126th Street																	
126th Street	SB	LT	-	8.2	A	LT	-	8.5	A	LT	-	8.4	A	LT	-	8.6	A
Willets Point Boulevard	WB	LR	-	14.3	B	LR	-	16.6	C	LR	-	19.4	C	LR	-	19.3	C
	Overall Intersection	-	-	**12.5**	**B**	-	-	**14.1**	**B**	-	-	**17.4**	**C**	-	-	**17.1**	**C**
Boat Basin Road at Worlds Fair Marina																	
Boat Basin Road	NB	L	-	22.1	C	L	-	18.9	C	L	-	12.8	B	L	-	14.3	B
		R	-	8.6	A	R	-	8.4	A	R	-	8.7	A	R	-	8.5	A
Worlds Fair Marina	WB	LT	-	8.5	A	LT	-	8.5	A	LT	-	8.0	A	LT	-	7.8	A
	Overall Intersection	-	-	**9.2**	**A**	-	-	**9.5**	**A**	-	-	**8.5**	**A**	-	-	**8.7**	**A**
Willets Point Boulevard at Northern Boulevard																	
Willets Point Boulevard	NB	T	-	10.2	B	T	-	10.4	B	T	-	9.7	A	T	-	9.8	A
	Overall Intersection	-	-	**10.2**	**B**	-	-	**10.4**	**B**	-	-	**9.7**	**A**	-	-	**9.8**	**A**
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)																	
College Point Boulevard	NB	TR	0.83	22.5	C	TR	0.82	22.6	C	TR	0.87	25.0	C	TR	1.00	42.9	D
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Northern Blvd Service Rd	WB	L	0.35	13.7	B	L	0.31	13.1	B	L	0.28	12.6	B	L	0.39	14.0	B
		R	0.36	14.1	B	R	0.46	15.8	B	R	0.43	15.0	B	R	0.37	14.0	B
	Overall Intersection	-	**0.97**	**120.0+**	**F***	-	**0.86**	**69.5**	**E**	-	**1.01**	**120.0+**	**F***	-	**0.90**	**101.5**	**F**
Grand Central Parkway Ramp at West Park Loop/Stadium Road																	
Grand Central Parkway Ramp	EB	L	-	10.7	B	L	-	9.8	A	L	-	9.8	A	L	-	9.9	A
		R	-	9.1	A	R	-	8.7	A	R	-	8.9	A	R	-	8.9	A
	Overall Intersection	-	-	**10.1**	**B**	-	-	**9.4**	**A**	-	-	**9.2**	**A**	-	-	**9.4**	**A**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements

TABLE 17-42
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

INTERSECTION & APPROACH		Weekday Pre Game (6:00-7:00 PM) Mvt.	V/C	Control Delay	LOS	Saturday Pre Game (12:00-1:00 PM) Mvt.	V/C	Control Delay	LOS	Saturday Post Game (3:45-4:45 PM) Mvt.	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS													
ASTORIA BOULEVARD													
108th Street at Astoria Boulevard													
108th Street	NB	DefL	0.87	79.1	E	DefL	0.68	41.6	D	DefL	0.60	38.3	D
		T	0.71	54.6	D	T	0.30	30.8	C	T	0.23	29.8	C
	SB	LTR	0.51	46.8	D	LTR	0.29	30.6	C	LTR	0.29	30.5	C
Astoria Boulevard	EB	LTR	1.06	55.2	E	LTR	0.48	15.2	B	LTR	0.50	15.4	B
	WB	L	1.11	115.5	F	L	0.57	11.4	B	L	0.77	19.3	B
		TR	0.37	6.8	A	TR	0.25	2.5	A	TR	0.37	2.8	A
Overall Intersection		-	**1.20+**	**48.7**	**D**	-	**0.60**	**14.2**	**B**	-	**0.60**	**13.3**	**B**
NORTHERN BOULEVARD													
108th Street at Northern Boulevard (RT. 25A)													
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Northern Boulevard (Rt. 25A)	EB	L	0.24	41.1	D	L	0.02	43.5	D	L	0.05	43.9	D
		TR	1.03	34.8	C	TR	0.99	37.5	D	T	0.88	24.5	C
		-	-	-	-	-	-	-	-	R	0.12	11.0	B
	WB	L	0.87	64.7	E	L	0.78	54.2	D	L	0.68	46.8	D
		TR	1.19	112.7	F	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*
		-	-	-	-	R	0.22	11.8	B	R	0.21	11.8	B
Overall Intersection		-	**1.15**	**82.7**	**F**	-	**1.20+**	**108.3**	**F**	-	**1.15**	**93.5**	**F**
114th Street at Northern Boulevard (RT. 25A)													
114th Street	SB	LTR	0.87	69.3	E	LTR	1.11	106.3	F	LTR	1.20+	120.0+	F*
Northern Boulevard (Rt. 25A)	EB	T	1.12	77.4	E	T	0.68	19.2	B	T	1.18	120.0+	F*
		R	0.84	28.3	C	R	0.60	18.8	B	R	0.94	120.0+	F*
	WB	DefL	0.99	74.2	E	DefL	0.87	34.9	C	DefL	1.14	120.0+	F*
		T	0.94	18.5	B	T	0.97	22.7	C	T	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**46.1**	**D**	-	**1.20+**	**27.5**	**C**	-	**1.20+**	**120.0+**	**F***
126th Street at Northern Boulevard (RT. 25A)													
126th Street	NB	L	1.14	120.0+	F*	L	0.87	63.3	E	L	0.22	17.2	B
		R	0.51	46.1	D	R	0.68	54.0	D	R	0.58	22.4	C
Northern Boulevard	EB	T	0.43	11.2	B	T	0.28	9.8	A	T	0.58	31.3	C
	WB	T	1.09	77.8	E	T	0.76	19.1	B	T	1.20+	120.0+	F*
Grand Central Parkway Ramp	EB	T	0.56	13.0	B	T	0.87	22.8	C	T	1.20	120.0+	F*
Van Wyck & Whitestone Expressway Ramp	WB	T	1.20	120.0+	F*	T	1.16	120.0+	F*	T	1.16	120.0+	F*
Overall Intersection		-	**1.19**	**96.2**	**F**	-	**1.11**	**74.9**	**E**	-	**0.89**	**120.0+**	**F***
Prince Street at Northern Boulevard (RT. 25A)													
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.73	49.5	D	LTR	0.58	44.3	D	LTR	0.50	42.2	D
Northern Boulevard	EB	L	1.01	96.3	F	L	1.11	120.0+	F*	L	1.20+	120.0+	F*
		T	0.94	32.1	C	T	0.80	23.0	C	T	0.99	42.1	D
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	1.03	58.7	E	T	1.00	40.8	D	T	0.99	40.3	D
Northern Boulevard Service Rd.	EB	TR	0.67	24.5	C	TR	0.79	30.2	C	TR	0.82	31.9	C
	WB	TR	0.55	29.7	C	TR	0.76	32.1	C	TR	0.66	24.3	C
Overall Intersection		-	**1.09**	**60.6**	**E**	-	**1.10**	**59.4**	**E**	-	**1.18**	**75.6**	**E**
Main Street at Northern Boulevard (RT. 25A)													
Main Street	NB	L	1.18	120.0+	F*	L	1.03	80.9	F	L	1.07	95.9	F
		R	0.89	45.4	D	R	0.79	33.5	C	R	0.72	29.9	C
Northern Boulevard	EB	TR	0.98	22.7	C	TR	1.02	55.5	E	TR	1.10	87.0	F
	WB	L	0.14	59.6	E	L	0.05	43.9	D	L	0.02	43.3	D
		T	1.06	60.6	E	T	0.95	30.9	C	T	0.91	27.1	C
Overall Intersection		-	**1.10**	**53.1**	**D**	-	**0.97**	**48.7**	**D**	-	**0.96**	**63.7**	**E**
Union Street at Northern Boulevard (RT. 25A)													
Union Street	NB	LTR	0.27	35.0	C	LTR	0.16	32.4	C	LTR	0.17	32.6	C
	SB	LTR	1.20+	120.0+	F*	LTR	1.15	120.0+	F*	LTR	1.06	91.6	F
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	0.87	34.2	C	T	0.81	32.9	C	T	0.86	34.3	C
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		TR	0.88	35.3	D	TR	0.83	33.4	C	TR	0.75	31.3	C
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**119.7**	**F**
Parsons Boulevard at Northern Boulevard (RT. 25A)													
Parsons Boulevard	NB	L	0.94	99.0	F	L	1.04	120.0+	F*	L	0.87	80.2	F
		TR	0.67	44.4	D	TR	0.66	44.6	D	TR	0.67	45.1	D
	SB	LTR	1.00	86.8	F	LTR	1.08	116.0	F	LTR	1.14	120.0+	F*
Northern Boulevard	EB	L	0.40	44.3	D	L	0.60	52.2	D	L	0.45	46.2	D
		TR	1.14	96.6	F	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	WB	L	0.94	44.2	D	L	0.39	46.0	D	L	0.38	45.9	D
		TR	0.67	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.01**	**120.0+**	**F***	-	**1.20**	**120.0+**	**F***	-	**1.05**	**120.0+**	**F***
34TH AVENUE													
114th Street at 34th Avenue													
114th Street	SB	L	0.73	21.2	C	L	0.73	24.3	C	L	0.80	27.2	C
		T	0.36	14.6	B	T	0.39	17.8	B	T	0.23	16.0	B
34th Avenue	EB	TR	0.77	29.1	C	TR	0.64	21.9	C	TR	0.73	24.2	C
Overall Intersection		-	**0.75**	**23.0**	**C**	-	**0.68**	**22.1**	**C**	-	**0.77**	**24.6**	**C**

TABLE 17-42
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
				Control				Control				Control	
INTERSECTION & APPROACH		Mvt	V/C	Delay	LOS	Mvt	V/C	Delay	LOS	Mvt	V/C	Delay	LOS
126th Street/GCP Ramp at 34th Avenue													
126th Street	NB	LTR	0.59	25.1	C	LTR	0.45	23.0	C	LTR	0.70	64.6	E
Northern Boulevard Ramp	SB	LTR	0.44	13.3	B	LTR	0.31	11.9	B	LTR	0.58	25.4	C
GCP Ramp	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.87	66.8	E
34th Avenue	EB	-	-	-	-	-	-	-	-	DefL	0.83	92.5	F
		LTR	0.00	38.4	D	LTR	0.00	36.8	D	TR	0.22	47.4	D
Stadium Road	WB	LTR	0.37	41.3	D	LTR	0.55	45.2	D	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.03**	**120.0+**	**F***	-	**1.03**	**120.0+**	**F***	-	**0.81**	**68.8**	**E**
ROOSEVELT AVENUE													
108th Street at Roosevelt Avenue													
108th Street	NB	LTR	1.08	104.6	F	LTR	1.14	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	1.18	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.10	80.0	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
111th Street at Roosevelt Avenue													
111th Street	NB	LTR	1.07	90.5	F	LTR	1.08	107.7	F	LTR	0.99	79.9	E
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.02	49.2	D
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.17**	**93.9**	**F**
114th Street at Roosevelt Avenue													
114th Street	NB	LTR	1.17	120.0+	F*	LTR	1.13	120.0+	F*	LTR	1.15	120.0+	F*
	SB	DefL	1.12	120.0+	F*	DefL	1.04	107.9	F	DefL	1.03	104.3	F
		TR	0.84	67.2	E	TR	0.60	48.9	D	TR	1.01	99.0	F
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	DefL	0.91	39.6	D	-	-	-	-	-	-	-	-
		TR	1.20+	120.0+	F*	LTR	1.17	105.9	F	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
126th Street at Roosevelt Avenue													
126th Street	NB	LTR	0.30	36.6	D	LTR	0.29	36.5	D	LTR	0.42	53.5	D
	SB	LT	1.20+	120.0+	F*	LT	1.09	114.9	F	DefL	1.20+	120.0+	F*
		R	1.12	116.1	F	R	1.12	117.2	F	TR	0.30	50.9	D
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	-	-	-	-
		TR	1.06	62.8	E	TR	0.98	39.5	D	LTR	1.08	56.1	E
	WB	LTR	0.93	24.3	C	LTR	0.97	34.0	C	LTR	0.43	3.2	A
	Overall Intersection	-	**1.20+**	**98.1**	**F**	-	**1.20+**	**98.4**	**F**	-	**1.13**	**60.2**	**E**
College Point Boulevard at Roosevelt Avenue													
College Point Boulevard	NB	L	1.13	120.0+	F*	L	1.20	120.0+	F*	L	0.57	35.3	D
		TR	0.89	38.9	D	TR	1.18	114.4	F	TR	1.00	48.4	D
	SB	T	1.06	116.2	F	T	1.02	75.0	E	T	0.91	47.1	D
		R	0.77	52.9	D	R	0.75	41.3	D	R	0.36	29.5	C
Roosevelt Avenue	EB	LTR	0.91	43.2	D	LTR	0.73	24.9	C	LTR	1.07	74.8	E
	WB	LTR	0.72	61.6	E	LTR	0.93	74.4	E	LTR	0.75	37.9	D
	Overall Intersection	-	**0.99**	**71.7**	**E**	-	**1.20+**	**79.8**	**E**	-	**1.04**	**54.1**	**D**
Prince Street at Roosevelt Avenue													
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	DefL	1.09	92.5	F
		TR	1.15	113.2	F	TR	0.94	35.1	D	TR	1.01	50.8	D
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Main Street at Roosevelt Avenue													
Main Street	NB	LT	1.19	117.3	F	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
		R	0.60	24.4	C	R	0.58	23.8	C	R	0.68	26.9	C
	SB	LTR	0.20	20.4	C	LTR	0.24	19.1	B	LTR	0.11	16.7	B
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Union Street at Roosevelt Avenue													
Union Street	NB	-	-	-	-	-	-	-	-	-	-	-	-
	SB	LT	0.99	42.0	D	LT	1.03	53.3	D	LT	1.00	43.5	D
		R	1.05	77.0	E	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LT	0.92	41.4	D	LT	0.89	36.1	D	LT	1.03	64.1	E
		R	0.93	48.7	D	R	0.87	37.6	D	R	1.08	83.1	F
	WB	LTR	1.20+	120.0+	F*	LTR	0.99	52.1	D	LTR	1.07	77.5	E
	Overall Intersection	-	**1.13**	**62.2**	**E**	-	**1.20+**	**113.6**	**F**	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Roosevelt Avenue													
Parsons Boulevard	NB	LTR	1.08	89.2	F	LTR	0.94	44.5	D	LTR	0.68	24.5	C
	SB	LTR	1.04	71.0	E	LTR	0.82	30.0	C	LTR	0.72	25.3	C
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.16	109.2	F
	WB	LTR	1.11	100.6	F	LTR	1.20+	120.0+	F*	LTR	0.90	37.8	D
	Overall Intersection	-	**1.19**	**110.9**	**F**	-	**1.20+**	**120.0+**	**F***	-	**0.94**	**56.0**	**E**

TABLE 17-42
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 NO BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
KISSENA BOULEVARD													
Main Street at Kissena Boulevard													
Main Street	NB	L	0.51	21.4	C	L	0.50	20.2	C	L	0.38	18.4	B
		TR	0.92	40.8	D	TR	1.20+	120.0+	F*	TR	0.99	48.2	D
	SB	L	0.37	29.3	C	L	0.17	16.2	B	L	0.14	15.6	B
		TR	0.07	14.8	B	TR	0.07	14.7	B	TR	0.06	14.5	B
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.17**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.13**	**103.2**	**F**
SANFORD AVENUE													
College Point Boulevard at Sanford Avenue													
College Point Boulevard	NB	L	0.55	27.7	C	L	0.95	85.8	F	L	0.61	32.5	C
		T	0.69	14.1	B	T	0.77	15.8	B	T	0.58	12.2	B
	SB	TR	1.01	38.2	D	TR	0.98	32.6	C	TR	1.08	62.7	E
Sanford Avenue	WB	LTR	0.98	61.7	E	LTR	0.98	60.3	E	LTR	0.87	43.4	D
Overall Intersection		-	**1.00**	**33.8**	**C**	-	**1.00**	**32.0**	**C**	-	**1.01**	**42.7**	**D**
Union Street at Sanford Avenue													
Union Street	NB	LR	1.20+	120.0+	F*	LR	0.89	60.3	E	LR	0.96	72.5	E
	SB	LT	1.01	70.8	E	LT	0.75	35.2	D	LT	0.71	32.9	C
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Sanford Avenue	EB	TR	0.79	42.0	D	TR	0.78	41.0	D	TR	0.65	34.5	C
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Sanford Avenue													
Parsons Boulevard	NB	LTR	1.15	106.0	F	LTR	1.20+	120.0+	F*	LTR	1.09	89.2	F
	SB	LTR	1.10	86.7	F	LTR	0.95	44.9	D	LTR	0.95	44.3	D
Sanford Avenue	EB	LTR	1.16	112.5	F	LTR	0.79	26.5	C	LTR	0.80	27.2	C
	WB	LTR	1.03	64.7	E	LTR	1.13	93.9	F	LTR	0.88	32.5	C
Overall Intersection		-	**1.16**	**93.0**	**F**	-	**1.20+**	**109.9**	**F**	-	**0.98**	**48.8**	**D**
WHITESTONE EXPRESSWAY / 32ND AVENUE													
College Point Boulevard at 32nd Avenue													
College Point Boulevard	NB	T	0.66	20.9	C	T	0.48	18.0	B	T	0.48	17.9	B
		TR	0.83	29.7	C	TR	1.10	82.2	F	TR	1.18	112.1	F
	SB	L	0.75	31.7	C	L	0.51	20.9	C	L	0.50	20.9	C
		T	0.56	10.4	B	T	0.57	10.5	B	T	0.47	9.5	A
32nd Avenue	WB	LTR	0.70	28.6	C	LTR	0.68	27.7	C	LTR	0.60	24.0	C
Overall Intersection		-	**0.86**	**21.1**	**C**	-	**0.83**	**31.9**	**C**	-	**0.83**	**42.6**	**D**
UNSIGNALIZED INTERSECTIONS													
Willets Point Boulevard at 126th Street													
126th Street	SB	LT	-	9.4	A	LT	-	9.3	A	LT	-	8.1	A
Willets Point Boulevard	WB	LR	-	18.4	C	LR	-	24.7	C	LR	-	14.3	B
Overall Intersection		-	-	**16.8**	**C**	-	-	**17.9**	**C**	-	-	**13.2**	**B**
Boat Basin Road at Worlds Fair Marina													
Boat Basin Road	NB	L	-	65.3	F	L	-	73.6	F	L	-	120.0+	F*
		R	-	8.5	A	R	-	8.5	A	R	-	29.4	D
Worlds Fair Marina	WB	LT	-	10.2	B	LT	-	12.0	B	LT	-	7.9	A
Overall Intersection		-	-	**13.0**	**B**	-	-	**15.3**	**C**	-	-	**120.0+**	**F***
Willets Point Boulevard at Northern Boulevard													
Willets Point Boulevard	NB	T	-	9.5	A	T	-	10.1	B	T	-	10.4	B
Overall Intersection		-	-	**9.5**	**A**	-	-	**10.1**	**B**	-	-	**10.4**	**B**
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)													
College Point Boulevard	NB	TR	1.13	85.2	F	TR	0.86	23.9	C	TR	1.04	55.7	E
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Northern Blvd Service Rd	WB	L	0.24	12.3	B	L	0.38	13.9	B	L	0.33	13.2	B
		R	0.31	13.4	B	R	0.41	14.9	B	R	0.37	14.1	B
Overall Intersection		-	**1.13**	**120.0+**	**F***	-	**0.95**	**115.1**	**F**	-	**0.90**	**106.5**	**F**
Grand Central Parkway Ramp at West Park Loop/Stadium Road													
Grand Central Parkway Ramp	EB	L	-	25.8	D	L	-	120.0+	F*	L	-	14.5	B
		R	-	10.1	B	R	-	18.9	C	R	-	11.1	B
Overall Intersection		-	-	**20.0**	**C**	-	-	**75.0**	**F**	-	-	**12.6**	**B**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements

TABLE 17-43
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

INTERSECTION & APPROACH		Weekday AM (7:45-8:45 AM) Mvt	V/C	Control Delay	LOS	Weekday Midday (1:00-2:00 PM) Mvt	V/C	Control Delay	LOS	Weekday PM (5:15-6:15 PM) Mvt	V/C	Control Delay	LOS	Saturday Midday (1:00-2:00 PM) Mvt	V/C	Control Delay	LOS
SIGNALIZED INTERSECTIONS																	
ASTORIA BOULEVARD																	
108th Street at Astoria Boulevard																	
108th Street	NB	Defl.	0.71	57.4	E	Defl.	0.48	35.1	D	Defl.	0.93	91.8	F	Defl.	0.60	38.3	D
		T	0.25	41.7	D	T	0.18	29.2	C	T	0.25	41.8	D	T	0.37	31.7	C
	SB	LTR	0.28	42.3	D	LTR	0.23	29.7	C	LTR	0.57	48.6	D	LTR	0.28	30.4	C
Astoria Boulevard	EB	LTR	0.61	21.8	C	LTR	0.54	16.0	B	LTR	1.04	48.8	D	LTR	0.50	15.5	B
	WB	L	0.77	26.2	C	L	0.59	12.2	B	L	0.76	44.7	D	L	0.65	13.5	B
		TR	0.99	27.7	C	TR	0.38	7.0	A	TR	0.43	7.3	A	TR	0.34	6.7	A
Overall Intersection		-	**0.93**	**27.4**	C	-	**0.58**	**14.0**	**B**	-	**1.00**	**38.1**	**D**	-	**0.59**	**14.9**	**B**
NORTHERN BOULEVARD																	
108th Street at Northern Boulevard (RT. 25A)																	
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.99	66.2	E	LTR	0.88	45.4	D	LTR	1.20+	120.0+	F*	LTR	1.17	119.5	F
Northern Boulevard (Rt. 25A)	EB	L	0.19	30.6	C	L	0.13	24.1	C	L	0.22	46.0	D	L	0.08	44.3	D
		TR	0.61	16.2	B	TR	0.64	16.8	B	TR	1.05	45.0	D	TR	1.17	105.1	F
	WB	L	0.64	33.1	C	L	0.58	32.3	C	L	0.69	51.7	D	L	0.76	58.4	E
		TR	1.09	58.6	E	T	0.94	29.2	C	TR	1.20+	120.0+	F*	T	1.20+	120.0+	F*
		-	-	-	-	R	0.16	11.2	B	-	-	-	-	R	0.27	12.4	B
Overall Intersection		-	**1.03**	**52.3**	D	-	**0.98**	**37.8**	D	-	**1.20+**	**116.9**	**F**	-	**1.20+**	**120.0+**	**F***
114th Street at Northern Boulevard (RT. 25A)																	
114th Street	SB	LTR	0.72	58.3	E	LTR	0.92	81.4	F	LTR	1.04	88.2	F	LTR	1.02	99.3	F
Northern Boulevard (Rt. 25A)	EB	T	0.94	44.6	D	T	0.69	19.5	B	T	1.09	74.1	E	T	0.78	21.9	C
		R	0.86	43.9	D	R	0.58	18.5	B	R	0.79	25.5	C	R	0.73	22.7	C
	WB	Defl.	0.56	24.8	C	Defl.	0.59	13.2	B	Defl.	0.89	64.8	E	Defl.	0.89	38.7	D
		T	1.20+	120.0+	F*	T	0.83	11.9	B	T	1.07	53.1	D	T	1.03	38.9	D
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**18.7**	**B**	-	**1.20+**	**59.2**	**E**	-	**1.20+**	**35.8**	**D**
126th Street at Northern Boulevard (RT. 25A)																	
126th Street	NB	L	0.84	56.4	E	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		R	0.53	47.5	D	R	0.88	67.8	E	R	0.95	78.4	E	R	0.99	87.7	F
Northern Boulevard	EB	T	0.24	6.8	A	T	0.26	6.9	A	T	0.45	8.6	A	T	0.30	7.1	A
	WB	T	0.92	22.9	C	T	0.52	9.5	A	T	0.48	8.9	A	T	0.46	8.7	A
Grand Central Parkway Ramp	EB	T	0.44	8.5	A	T	0.48	9.0	A	T	0.53	9.5	A	T	0.49	9.0	A
Van Wyck & Whitestone Expressway Ramp	WB	T	1.08	66.6	E	T	1.12	81.1	F	T	1.06	59.7	E	T	1.11	80.1	F
Overall Intersection		-	**1.03**	**34.8**	C	-	**1.17**	**65.2**	**E**	-	**1.10**	**48.0**	**D**	-	**1.19**	**72.7**	**E**
Prince Street at Northern Boulevard (RT. 25A)																	
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.99	86.4	F	LTR	0.75	51.5	D	LTR	0.70	48.0	D	LTR	0.68	47.2	D
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.02	107.8	F
		T	0.59	8.4	A	T	0.67	19.2	B	T	1.07	65.8	E	T	0.93	31.5	C
	WB	L	1.17	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	1.12	68.1	E	T	0.95	33.6	C	T	1.05	67.1	E	T	1.10	76.0	E
Northern Boulevard Service Rd.	EB	TR	0.46	14.6	B	TR	0.70	24.5	C	TR	0.60	20.4	C	TR	0.74	27.0	C
	WB	TR	0.83	27.9	C	TR	0.78	33.1	C	TR	0.83	39.6	D	TR	1.01	60.7	E
Overall Intersection		-	**1.20+**	**78.5**	**E**	-	**1.15**	**68.2**	**E**	-	**1.18**	**85.9**	**F**	-	**1.13**	**83.4**	**F**
Main Street at Northern Boulevard (RT. 25A)																	
Main Street	NB	L	0.77	46.5	D	L	0.87	53.9	D	L	1.04	86.0	F	L	1.18	120.0+	F*
		R	0.68	29.7	C	R	0.81	35.2	D	R	0.87	44.0	D	R	0.88	40.0	D
Northern Boulevard	EB	TR	0.88	33.8	C	TR	0.95	38.7	D	TR	1.10	63.2	E	TR	1.12	93.3	F
	WB	L	0.10	34.0	C	L	0.05	44.8	D	L	0.10	58.8	E	L	0.03	44.3	D
		T	1.10	55.3	E	T	0.77	13.5	B	T	1.11	81.4	F	T	1.03	48.0	D
Overall Intersection		-	**0.99**	**44.6**	**D**	-	**0.88**	**31.7**	C	-	**1.09**	**68.7**	**E**	-	**1.08**	**78.4**	**E**
Union Street at Northern Boulevard (RT. 25A)																	
Union Street	NB	LTR	0.22	33.7	C	LTR	0.16	32.3	C	LTR	0.16	32.3	C	LTR	0.17	32.5	C
	SB	LTR	1.18	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	0.74	26.5	C	T	0.75	31.3	C	T	0.99	56.2	E	T	0.92	38.2	D
		R	1.20+	120.0+	F*	R	1.17	108.6	F	R	1.18	112.5	F	R	1.20+	120.0+	F*
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		TR	1.20+	120.0+	F*	TR	0.84	33.9	C	TR	0.91	37.1	D	TR	0.99	48.3	D
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Northern Boulevard (RT. 25A)																	
Parsons Boulevard	NB	L	1.06	120.0+	F*	L	0.79	67.1	E	L	0.80	73.4	E	L	0.97	107.0	F
		TR	0.72	47.0	D	TR	0.58	40.9	D	TR	0.67	44.4	D	TR	0.75	49.9	D
	SB	LTR	1.07	106.3	F	LTR	1.14	120.0+	F*	LTR	1.09	113.9	F	LTR	1.20+	120.0+	F*
Northern Boulevard	EB	L	0.50	48.3	D	L	0.48	49.5	D	L	0.54	49.3	D	L	0.57	51.4	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	WB	L	0.66	51.8	D	L	0.34	43.7	D	L	0.43	45.6	D	L	0.48	49.3	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.12**	**120.0+**	**F***	-	**1.20**	**120.0+**	**F***	-	**1.11**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
34TH AVENUE																	
114th Street at 34th Avenue																	
114th Street	SB	L	0.50	17.4	B	L	0.60	21.1	C	L	0.73	21.2	C	L	0.78	26.2	C
		T	0.31	15.2	B	T	0.29	16.7	B	T	0.33	14.3	B	T	0.37	17.7	B
34th Avenue	EB	TR	0.63	23.7	C	TR	0.50	19.3	B	TR	0.88	35.9	D	TR	0.66	22.3	C
Overall Intersection		-	**0.56**	**19.7**	**B**	-	**0.55**	**19.7**	**B**	-	**0.80**	**26.1**	C	-	**0.72**	**23.2**	C

TABLE 17-43
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

INTERSECTION & APPROACH		Weekday AM (7:45-8:45 AM) Mvt	V/C	Control Delay	LOS	Weekday Midday (1:00-2:00 PM) Mvt	V/C	Control Delay	LOS	Weekday PM (5:15-6:15 PM) Mvt	V/C	Control Delay	LOS	Saturday Midday (1:00-2:00 PM) Mvt	V/C	Control Delay	LOS
126th Street/GCP Ramp at 34th Avenue																	
126th Street	NB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LTR	0.44	23.6	C	LTR	1.00	55.1	E	LTR	1.14	104.2	F	LTR	1.00	55.6	E
Northern Boulevard Ramp	SB	LTR	0.42	23.9	C	LTR	1.00	71.7	E	LTR	0.92	51.7	D	LTR	1.20+	120.0+	F*
GCP Ramp	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
34th Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Stadium Road	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
ROOSEVELT AVENUE																	
108th Street at Roosevelt Avenue																	
108th Street	NB	LTR	0.82	54.2	D	LTR	1.12	120.0+	F*	LTR	0.98	75.6	E	LTR	1.20+	120.0+	F*
	SB	LTR	1.01	85.3	F	LTR	1.16	120.0+	F*	LTR	1.16	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	1.05	61.0	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.11	80.7	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.19**	**95.0**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
111th Street at Roosevelt Avenue																	
111th Street	NB	LTR	0.84	55.5	E	LTR	0.77	52.1	D	LTR	0.83	54.4	D	LTR	0.83	54.7	D
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
114th Street at Roosevelt Avenue																	
114th Street	NB	LTR	1.07	103.3	F	LTR	0.78	54.5	D	LTR	1.15	118.4	F	LTR	1.11	117.1	F
	SB	DefL	1.16	120.0+	F*	DefL	0.81	64.4	E	DefL	0.81	62.4	E	DefL	1.18	120.0+	F*
		TR	0.83	67.8	E	TR	0.28	37.9	D	TR	0.47	41.4	D	TR	0.90	77.1	E
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	DefL	0.94	42.0	D	-	-	-	-	-	-	-	-	-	-	-	-
		TR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
126th Street at Roosevelt Avenue																	
126th Street	NB	DefL	0.22	37.4	D	DefL	0.83	65.9	E	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*
		TR	0.29	39.1	D	TR	1.09	120.0+	F*	TR	1.04	104.3	F	TR	0.52	44.6	D
	SB	-	-	-	-	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*
		LTR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.05	88.0	F	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*
		TR	0.80	18.7	B	TR	0.93	30.8	C	TR	0.97	36.8	D	TR	1.14	94.5	F
	WB	LTR	0.94	27.9	C	LTR	1.13	86.4	F	LTR	1.14	89.2	F	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
College Point Boulevard at Roosevelt Avenue																	
College Point Boulevard	NB	L	1.20+	120.0+	F*	L	1.17	119.8	F	L	1.17	120.0+	F*	L	1.05	89.7	F
		TR	0.86	37.1	D	TR	0.94	37.6	D	TR	0.93	42.6	D	TR	1.17	108.0	F
	SB	T	0.85	54.4	D	T	0.99	61.2	E	T	1.17	120.0+	F*	T	1.20+	120.0+	F*
		R	0.99	86.8	F	R	1.05	88.5	F	R	0.92	70.1	E	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	0.68	32.0	C	LTR	0.87	33.0	C	LTR	1.00	59.3	E	LTR	0.93	40.5	D
	WB	LTR	0.56	44.6	D	LTR	0.63	36.5	D	LTR	0.66	80.1	F	LTR	0.83	55.2	E
	Overall Intersection	-	**0.95**	**70.3**	**E**	-	**1.04**	**51.3**	**D**	-	**1.10**	**79.6**	**E**	-	**1.04**	**90.2**	**F**
Prince Street at Roosevelt Avenue																	
Prince Street	SB	LTR	0.79	45.4	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	DefL	0.72	31.5	C	DefL	1.18	120.0+	F*	DefL	1.16	120.0+	F*	DefL	1.20+	120.0+	F*
		TR	0.54	19.0	B	TR	0.88	26.1	C	TR	1.09	83.3	F	TR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.12**	**107.4**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Main Street at Roosevelt Avenue																	
Main Street	NB	LT	1.17	109.8	F	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
		R	1.00	76.4	E	R	0.49	22.6	C	R	0.61	23.8	C	R	0.68	26.7	C
	SB	LTR	0.23	20.5	C	LTR	0.07	16.3	B	LTR	0.15	19.4	B	LTR	0.13	17.1	B
Roosevelt Avenue	EB	LTR	1.10	99.5	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Union Street at Roosevelt Avenue																	
Union Street	NB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB	LT	0.72	23.2	C	LT	1.01	49.1	D	LT	1.06	59.4	E	LT	1.18	109.3	F
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LT	0.79	28.7	C	LT	0.91	33.4	C	LT	1.13	98.5	F	LT	1.11	89.2	F
		R	0.64	24.1	C	R	0.68	21.5	C	R	0.90	43.9	D	R	1.15	108.5	F
	WB	LTR	0.85	30.7	C	LTR	0.72	24.1	C	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.02**	**41.3**	**D**	-	**1.20+**	**65.6**	**E**	-	**1.20+**	**105.1**	**F**	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Roosevelt Avenue																	
Parsons Boulevard	NB	LTR	1.02	73.4	E	LTR	0.75	27.4	C	LTR	0.96	56.1	E	LTR	0.94	44.9	D
	SB	LTR	0.87	40.6	D	LTR	0.74	26.1	C	LTR	0.88	42.1	D	LTR	0.87	34.2	C
Roosevelt Avenue	EB	LTR	0.80	36.6	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.12	100.8	F	LTR	1.20	120.0+	F*	LTR	1.06	82.5	F	LTR	1.14	115.9	F
	Overall Intersection	-	**1.07**	**65.7**	**E**	-	**1.00**	**93.2**	**F**	-	**1.16**	**108.6**	**F**	-	**1.28+**	**120.0+**	**F***

TABLE 17-43
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

INTERSECTION & APPROACH		Weekday AM (7:45-8:45 AM) Mvt.	V/C	Control Delay	LOS	Weekday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS	Weekday PM (5:15-6:15 PM) Mvt.	V/C	Control Delay	LOS	Saturday Midday (1:00-2:00 PM) Mvt.	V/C	Control Delay	LOS
KISSENA BOULEVARD																	
Main Street at Kissena Boulevard																	
Main Street	NB	L	0.48	20.6	C	L	0.42	19.1	B	L	0.47	20.4	C	L	0.46	19.5	B
		TR	1.03	66.2	E	TR	0.94	40.1	D	TR	1.14	104.5	F	TR	1.20+	120.0+	F*
	SB	L	0.37	28.6	C	L	0.12	15.2	B	L	0.25	25.7	C	L	0.18	16.4	B
		TR	0.13	15.6	B	TR	0.10	15.0	B	TR	0.11	15.4	B	TR	0.09	14.8	B
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.00	55.0	E	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.18**	**120.0+**	**F***	-	**0.97**	**44.7**	**D**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
SANFORD AVENUE																	
College Point Boulevard at Sanford Avenue																	
College Point Boulevard	NB	L	0.47	16.4	B	L	0.66	37.1	D	L	0.90	73.8	E	L	1.17	120.0+	F*
		T	0.60	12.7	B	T	0.61	12.8	B	T	0.56	12.1	B	T	0.70	14.3	B
	SB	TR	0.80	17.3	B	TR	1.02	43.7	D	TR	1.07	56.9	E	TR	1.02	41.2	D
Sanford Avenue	WB	LTR	1.02	70.6	E	LTR	0.85	42.5	D	LTR	0.93	52.7	D	LTR	1.03	74.3	E
Overall Intersection		-	**0.87**	**28.6**	**C**	-	**0.97**	**33.0**	**C**	-	**1.10**	**42.8**	**D**	-	**1.20+**	**40.6**	**D**
Union Street at Sanford Avenue																	
Union Street	NB	LR	1.20+	120.0+	F*	LR	0.71	37.9	D	LR	0.84	48.5	D	LR	0.84	55.1	E
	SB	LT	0.56	28.8	C	LT	0.64	29.0	C	LT	0.92	50.2	D	LT	0.91	50.3	D
		R	0.84	38.6	D	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Sanford Avenue	EB	TR	0.62	34.2	C	TR	0.75	42.5	D	TR	0.84	47.0	D	TR	0.75	38.9	D
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**113.4**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Sanford Avenue																	
Parsons Boulevard	NB	LTR	1.20+	120.0+	F*	LTR	1.02	65.3	E	LTR	1.16	112.9	F	LTR	1.20+	120.0+	F*
	SB	LTR	0.86	33.0	C	LTR	0.69	25.0	C	LTR	1.19	120.0+	F*	LTR	1.20+	120.0+	F*
Sanford Avenue	EB	LTR	1.14	101.6	F	LTR	0.68	25.1	C	LTR	0.95	47.4	D	LTR	0.68	24.8	C
	WB	LTR	1.20	120.0+	F*	LTR	0.79	29.4	C	LTR	0.86	34.3	C	LTR	1.16	110.2	F
Overall Intersection		-	**1.20+**	**119.4**	**F**	-	**0.90**	**37.5**	**D**	-	**1.07**	**82.9**	**F**	-	**1.20+**	**120.0+**	**F***
WHITESTONE EXPRESSWAY / 32ND AVENUE																	
College Point Boulevard at 32nd Avenue																	
College Point Boulevard	NB	T	0.74	22.5	C	T	0.74	23.1	C	T	0.70	21.5	C	T	0.62	19.9	B
		TR	0.83	30.5	C	TR	0.82	29.6	C	TR	0.86	31.8	C	TR	0.99	49.1	D
	SB	L	0.49	24.2	C	L	0.78	34.0	C	L	0.71	29.4	C	L	0.59	25.0	C
		T	0.63	11.4	B	T	0.63	11.4	B	T	0.62	11.1	B	T	0.55	10.2	B
32nd Avenue	WB	LTR	0.83	38.3	D	LTR	0.82	37.2	D	LTR	0.63	25.4	C	LTR	0.70	28.4	C
Overall Intersection		-	**0.86**	**21.7**	**C**	-	**0.92**	**23.2**	**C**	-	**0.85**	**20.7**	**C**	-	**0.88**	**24.3**	**C**
UNSIGNALIZED INTERSECTIONS																	
Willets Point Boulevard at 126th Street																	
126th Street	SB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Willets Point Boulevard	WB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boat Basin Road at Worlds Fair Marina																	
Boat Basin Road	NB	L	-	120.0+	F*	L	-	120.0+	F*	L	-	120.0+	F*	L	-	120.0+	F*
		R	-	8.6	A	R	-	8.4	A	R	-	8.7	A	R	-	8.5	A
Worlds Fair Marina	WB	LT	-	10.4	B	LT	-	11.4	B	LT	-	10.3	B	LT	-	10.7	B
Overall Intersection		-	-	**41.2**	**E**	-	-	**120.0+**	**F***	-	-	**120.0+**	**F***	-	-	**120.0+**	**F***
Willets Point Boulevard at Northern Boulevard																	
Willets Point Boulevard	NB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)																	
College Point Boulevard	NB	TR	0.83	22.8	C	TR	0.84	23.3	C	TR	0.88	25.9	C	TR	1.01	45.5	D
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Northern Blvd Service Rd	WB	L	0.65	19.6	B	L	0.56	17.4	B	L	0.49	15.6	B	L	0.71	21.2	C
		R	0.41	14.8	B	R	0.48	16.2	B	R	0.45	15.4	B	R	0.40	14.4	B
Overall Intersection		-	**1.12**	**120.0+**	**F***	-	**0.93**	**73.2**	**E**	-	**1.07**	**120.0+**	**F***	-	**1.09**	**106.1**	**F**
Grand Central Parkway Ramp at West Park Loop/Stadium Road																	
Grand Central Parkway Ramp	EB	L	-	11.6	B	L	-	10.5	B	L	-	10.3	B	L	-	10.7	B
		R	-	9.1	A	R	-	8.7	A	R	-	8.9	A	R	-	8.9	A
Overall Intersection		-	-	**11.2**	**B**	-	-	**10.3**	**B**	-	-	9.9	A	-	-	**10.3**	**B**

TABLE 17-43
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *NON GAME DAY*

		Weekday AM (7:45-8:45 AM)				Weekday Midday (1:00-2:00 PM)				Weekday PM (5:15-6:15 PM)				Saturday Midday (1:00-2:00 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
NEW (BUILD) SIGNALIZED INTERSECTION																	
126th Street at New Willets Point Boulevard																	
126th Street	NB	LTR	0.88	59.7	E	LTR	1.13	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.11	110.1	F
	SB	DefL	0.96	53.2	D	DefL	0.97	61.3	E	DefL	0.93	67.3	E	DefL	1.00	70.9	E
		TR	0.57	11.9	B	TR	0.60	12.7	B	TR	0.80	29.9	C	TR	0.74	18.8	B
New Willets Point Boulevard	EB	LTR	0.04	35.9	D	LTR	0.06	36.1	D	LTR	0.02	23.7	C	LTR	0.04	32.8	C
	WB	LT	1.04	120.0+	F*	LT	0.96	101.0	F	LT	0.72	44.8	D	LT	0.96	93.4	F
		R	0.13	8.0	A	R	0.44	12.2	B	R	0.52	14.9	B	R	0.36	12.7	B
	Overall Intersection	-	**0.94**	**46.4**	**D**	-	**1.07**	**61.3**	**E**	-	**1.20+**	**83.1**	**F**	-	**1.17**	**60.9**	**E**
Citi Field/Lot B Internal Street at Roosevelt Avenue																	
Citi Field/Lot B Internal Street	SB	LR	0.02	34.0	C	LR	0.03	34.2	C	LR	0.02	28.3	C	LR	0.04	34.3	C
Roosevelt Avenue	EB	LT	0.51	11.1	B	LT	0.54	11.5	B	LT	0.70	18.8	B	LT	0.60	12.6	B
	WB	TR	0.63	13.0	B	TR	0.63	13.0	B	TR	0.95	34.5	C	TR	0.70	14.6	B
	Overall Intersection	-	**0.46**	**12.2**	**B**	-	**0.47**	**12.4**	**B**	-	**0.63**	**28.1**	**C**	-	**0.52**	**13.8**	**B**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

TABLE 17-44
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

INTERSECTION & APPROACH		Weekday Pre Game (6:00-7:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Pre Game (12:00-1:00 PM) Control Mvt.	V/C	Delay	LOS	Saturday Post Game (3:45-4:45 PM) Control Mvt.	V/C	Delay	LOS
SIGNALIZED INTERSECTIONS													
ASTORIA BOULEVARD													
108th Street at Astoria Boulevard													
108th Street	NB	Defl.	0.87	79.1	E	Defl.	0.68	41.6	D	Defl.	0.60	38.3	D
		T	0.71	54.6	D	T	0.30	30.8	C	T	0.23	29.8	C
	SB	LTR	0.51	46.8	D	LTR	0.29	30.6	C	LTR	0.29	30.5	C
Astoria Boulevard	EB	LTR	1.11	75.4	E	LTR	0.53	15.9	B	LTR	0.54	16.0	B
	WB	L	1.11	115.8	F	L	0.62	13.4	B	L	0.82	26.1	C
		TR	0.42	7.1	A	TR	0.30	2.6	A	TR	0.42	3.0	A
Overall Intersection		-	**1.20+**	**59.8**	**E**	-	**8.63**	**14.2**	**B**	-	**0.65**	**13.8**	**B**
NORTHERN BOULEVARD													
108th Street at Northern Boulevard (RT. 25A)													
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Northern Boulevard (Rt. 25A)	EB	L	0.24	45.0	D	L	0.02	43.5	D	L	0.05	43.9	D
		TR	1.12	71.8	E	TR	1.14	91.5	F	T	1.00	40.5	D
		-	-	-	-	-	-	-	-	R	0.12	11.0	B
	WB	L	0.87	66.5	E	L	0.82	62.1	E	L	0.75	56.1	E
		TR	1.20+	120.0+	F*	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*
		-	-	-	-	R	0.22	11.8	B	R	0.21	11.8	B
Overall Intersection		-	**1.20+**	**116.5**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
114th Street at Northern Boulevard (RT. 25A)													
114th Street	SB	LTR	0.88	70.5	E	LTR	1.12	113.0	F	LTR	1.20+	120.0+	F*
Northern Boulevard (Rt. 25A)	EB	T	1.20+	120.0+	F*	T	0.81	23.0	C	T	1.20+	120.0+	F*
		R	0.85	28.9	C	R	0.61	19.1	B	R	0.96	120.0+	F*
	WB	Defl.	0.99	76.2	E	Defl.	0.87	37.6	D	Defl.	1.14	120.0+	F*
		T	1.02	34.1	C	T	1.06	47.1	D	T	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**73.5**	**E**	-	**1.20+**	**41.1**	**D**	-	**1.20+**	**120.0+**	**F***
126th Street at Northern Boulevard (RT. 25A)													
126th Street	NB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	0.48	20.4	C
		R	1.08	120.0+	F*	R	1.20+	120.0+	F*	R	0.85	37.3	D
Northern Boulevard	EB	T	0.48	11.7	B	T	0.32	10.2	B	T	0.67	33.4	C
	WB	T	1.09	77.8	E	T	0.76	19.1	B	T	1.20+	120.0+	F*
Grand Central Parkway Ramp	EB	T	0.71	15.9	B	T	1.08	68.7	E	T	1.20+	120.0+	F*
Van Wyck & Whitestone Expressway Ramp	WB	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.12**	**120.0+**	**F***
Prince Street at Northern Boulevard (RT. 25A)													
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	0.73	49.5	D	LTR	0.58	44.3	D	LTR	0.50	42.2	D
Northern Boulevard	EB	L	1.03	100.8	F	L	1.16	120.0+	F*	L	1.20+	120.0+	F*
		T	1.01	46.4	D	T	0.87	26.8	C	T	1.08	70.9	E
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	1.03	58.7	E	T	1.00	40.8	D	T	0.99	40.3	D
Northern Boulevard Service Rd.	EB	TR	0.67	24.5	C	TR	0.79	30.2	C	TR	0.82	31.9	C
	WB	TR	0.84	40.6	D	TR	1.08	84.1	F	TR	0.96	44.4	D
Overall Intersection		-	**1.11**	**65.4**	**E**	-	**1.11**	**65.3**	**E**	-	**1.19**	**86.4**	**F**
Main Street at Northern Boulevard (RT. 25A)													
Main Street	NB	L	1.18	120.0+	F*	L	1.03	80.9	F	L	1.07	95.9	F
		R	0.89	45.4	D	R	0.79	33.5	C	R	0.72	29.9	C
Northern Boulevard	EB	TR	1.05	41.1	D	TR	1.10	84.8	F	TR	1.20	120.0+	F*
	WB	L	0.14	59.6	E	L	0.05	43.9	D	L	0.02	43.3	D
		T	1.17	107.4	F	T	1.06	61.2	E	T	1.01	42.6	D
Overall Intersection		-	**1.18**	**73.4**	**E**	-	**1.05**	**69.8**	**E**	-	**1.03**	**85.4**	**F**
Union Street at Northern Boulevard (RT. 25A)													
Union Street	NB	LTR	0.27	35.0	C	LTR	0.16	32.4	C	LTR	0.17	32.6	C
	SB	LTR	1.20+	120.0+	F*	LTR	1.15	120.0+	F*	LTR	1.06	92.0	F
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		T	0.95	40.4	D	T	0.91	37.0	D	T	0.96	41.4	D
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*
		TR	0.97	44.3	D	TR	0.94	39.4	D	TR	0.84	34.1	C
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**110.3**	**F**
Parsons Boulevard at Northern Boulevard (RT. 25A)													
Parsons Boulevard	NB	L	0.97	106.0	F	L	1.06	120.0+	F*	L	0.88	83.5	F
		TR	0.67	44.4	D	TR	0.66	44.6	D	TR	0.67	45.1	D
	SB	LTR	1.03	94.5	F	LTR	1.13	120.0+	F*	LTR	1.18	120.0+	F*
Northern Boulevard	EB	L	0.44	46.8	D	L	0.63	53.2	D	L	0.51	47.5	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	WB	L	0.47	46.1	D	L	0.38	47.5	D	L	0.38	47.5	D
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.09**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.14**	**120.0+**	**F***
34TH AVENUE													
114th Street at 34th Avenue													
114th Street	SB	L	0.73	21.2	C	L	0.73	24.3	C	L	0.80	27.2	C
		T	0.37	14.7	B	T	0.40	18.0	B	T	0.25	16.1	B
34th Avenue	EB	TR	0.77	29.2	C	TR	0.64	21.9	C	TR	0.73	24.2	C
Overall Intersection		-	**0.75**	**23.0**	**C**	-	**0.68**	**22.1**	**C**	-	**0.77**	**24.6**	**C**

TABLE 17-44
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt	V/C	Control Delay	LOS
126th Street/GCP Ramp at 34th Avenue													
126th Street	NB	LTR	0.73	28.4	C	LTR	0.63	25.9	C	LTR	0.67	54.3	D
Northern Boulevard Ramp	SB	LTR	0.59	15.7	B	LTR	0.45	13.4	B	LTR	0.45	23.1	C
GCP Ramp	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
34th Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-
		LTR	0.34	41.6	D	LTR	0.35	40.2	D	LTR	1.20+	120.0+	F*
Stadium Road	WB	LTR	1.16	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.10**	**120.0+**	**F***
ROOSEVELT AVENUE													
108th Street at Roosevelt Avenue													
108th Street	NB	LTR	1.11	114.6	F	LTR	1.18	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	LTR	1.18	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
111th Street at Roosevelt Avenue													
111th Street	NB	LTR	1.07	90.5	F	LTR	1.08	107.7	F	LTR	0.99	79.9	E
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.16	100.6	F
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
114th Street at Roosevelt Avenue													
114th Street	NB	LTR	1.17	120.0+	F*	LTR	1.13	120.0+	F*	LTR	1.15	120.0+	F*
	SB	DefL	1.16	120.0+	F*	DefL	1.10	120.0+	F*	DefL	1.12	120.0+	F*
		TR	0.84	67.2	E	TR	0.60	48.9	D	TR	1.01	99.0	F
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	DefL	0.91	39.6	D	-	-	-	-	-	-	-	-
		TR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
126th Street at Roosevelt Avenue													
126th Street	NB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	-	-	-	-
		TR	0.48	38.9	D	TR	0.43	38.1	D	LTR	1.20+	120.0+	F*
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	-	-	-	-
		TR	1.17	105.2	F	TR	1.10	76.2	E	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.80	7.9	A
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
College Point Boulevard at Roosevelt Avenue													
College Point Boulevard	NB	L	1.16	120.0+	F*	L	1.20+	120.0+	F*	L	0.82	46.1	D
		TR	0.89	38.9	D	TR	1.18	114.4	F	TR	1.00	48.4	D
	SB	T	1.06	116.2	F	T	1.02	75.0	E	T	0.91	47.1	D
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LTR	1.12	101.4	F	LTR	0.93	38.6	D	LTR	1.20+	120.0+	F*
	WB	LTR	0.77	61.4	E	LTR	0.98	80.4	F	LTR	0.79	61.4	E
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**112.6**	**F**
Prince Street at Roosevelt Avenue													
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	DefL	1.14	109.7	F
		TR	1.20+	120.0+	F*	TR	1.06	65.5	E	TR	1.17	104.9	F
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Main Street at Roosevelt Avenue													
Main Street	NB	LT	1.19	117.3	F	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
		R	0.60	24.4	C	R	0.58	23.8	C	R	0.68	26.9	C
	SB	LTR	0.20	20.4	C	LTR	0.24	19.1	B	LTR	0.11	16.7	B
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Union Street at Roosevelt Avenue													
Union Street	NB	-	-	-	-	-	-	-	-	-	-	-	-
	SB	LT	0.99	42.0	D	LT	1.03	53.3	D	LT	1.00	43.5	D
		R	1.05	77.0	E	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Roosevelt Avenue	EB	LT	1.04	68.8	E	LT	1.01	57.5	E	LT	1.17	114.3	F
		R	0.93	48.7	D	R	0.87	37.6	D	R	1.08	83.1	F
	WB	LTR	1.20+	120.0+	F*	LTR	1.15	105.5	F	LTR	1.20+	120.0+	F*
	Overall Intersection	-	**1.20+**	**82.4**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Roosevelt Avenue													
Parsons Boulevard	NB	LTR	1.08	90.7	F	LTR	0.95	45.5	D	LTR	0.69	25.0	C
	SB	LTR	1.04	71.0	E	LTR	0.82	30.0	C	LTR	0.72	25.3	C
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.98	49.7	D
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.03**	**89.4**	**F**

TABLE 17-44
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
KISSENA BOULEVARD													
Main Street at Kissena Boulevard													
Main Street	NB	L	0.52	21.5	C	L	0.50	20.3	C	L	0.39	18.5	B
		TR	0.92	40.8	D	TR	1.20+	120.0+	F*	TR	0.99	48.2	D
	SB	L	0.37	29.3	C	L	0.17	16.2	B	L	0.14	15.6	B
		TR	0.07	14.8	B	TR	0.07	14.7	B	TR	0.06	14.5	B
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
Overall Intersection		-	**1.17**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.13**	**103.1**	**F**
SANFORD AVENUE													
College Point Boulevard at Sanford Avenue													
College Point Boulevard	NB	L	0.55	27.7	C	L	0.95	85.8	F	L	0.61	32.5	C
		T	0.67	13.7	B	T	0.76	15.6	B	T	0.59	12.5	B
	SB	TR	1.04	48.5	D	TR	1.02	40.8	D	TR	1.12	78.1	E
Sanford Avenue	WB	LTR	1.06	82.4	F	LTR	1.07	86.7	F	LTR	0.93	51.3	D
Overall Intersection		-	**1.05**	**43.0**	**D**	-	**1.12**	**40.8**	**D**	-	**1.06**	**51.8**	**D**
Union Street at Sanford Avenue													
Union Street	NB	LR	1.20+	120.0+	F*	LR	0.89	60.3	E	LR	0.96	72.5	E
	SB	LT	1.01	70.8	E	LT	0.75	35.2	D	LT	0.71	32.9	C
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*
Sanford Avenue	EB	TR	0.79	42.0	D	TR	0.78	41.0	D	TR	0.65	34.5	C
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Parsons Boulevard at Sanford Avenue													
Parsons Boulevard	NB	LTR	1.15	107.4	F	LTR	1.20+	120.0+	F*	LTR	1.11	95.8	F
	SB	LTR	1.20+	120.0+	F*	LTR	1.11	91.7	F	LTR	1.14	101.8	F
Sanford Avenue	EB	LTR	1.17	116.5	F	LTR	0.79	26.7	C	LTR	0.81	27.5	C
	WB	LTR	1.08	81.1	F	LTR	1.18	114.9	F	LTR	0.91	36.7	D
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.02**	**68.7**	**E**
WHITESTONE EXPRESSWAY / 32ND AVENUE													
College Point Boulevard at 32nd Avenue													
College Point Boulevard	NB	T	0.66	20.8	C	T	0.51	18.3	B	T	0.50	18.2	B
		TR	1.15	102.6	F	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*
	SB	L	0.75	31.7	C	L	0.52	21.5	C	L	0.51	21.5	C
		T	0.67	11.8	B	T	0.69	12.2	B	T	0.56	10.4	B
32nd Avenue	WB	LTR	0.70	28.6	C	LTR	0.68	27.7	C	LTR	0.60	24.0	C
Overall Intersection		-	**0.93**	**36.3**	**D**	-	**1.02**	**66.5**	**E**	-	**1.00**	**77.0**	**E**
UNSIGNALIZED INTERSECTIONS													
Willets Point Boulevard at 126th Street													
126th Street	SB	-	-	-	-	-	-	-	-	-	-	-	-
Willets Point Boulevard	WB	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	-	-	-	-	-	-	-	-	-	-	-
Boat Basin Road at Worlds Fair Marina													
Boat Basin Road	NB	L	-	114.3	F	L	-	120.0+	F*	L	-	120.0+	F*
		R	-	8.5	A	R	-	8.5	A	R	-	29.4	D
Worlds Fair Marina	WB	LT	-	11.0	B	LT	-	13.6	B	LT	-	8.4	A
Overall Intersection		-	-	**15.8**	**C**	-	-	**20.3**	**C**	-	-	**120.0+**	**F***
Willets Point Boulevard at Northern Boulevard													
Willets Point Boulevard	NB	-	-	-	-	-	-	-	-	-	-	-	-
Overall Intersection		-	-	-	-	-	-	-	-	-	-	-	-
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)													
College Point Boulevard	NB	TR	1.20+	120.0+	F*	TR	0.97	37.7	D	TR	1.17	103.8	F
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
Northern Blvd Service Rd	WB	L	0.50	16.0	B	L	0.81	26.3	C	L	0.61	18.1	B
		R	0.33	13.7	B	R	0.45	15.5	B	R	0.40	14.5	B
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.13**	**120.0+**	**F***
Grand Central Parkway Ramp at West Park Loop/Stadium Road													
Grand Central Parkway Ramp	EB	L	-	18.7	C	L	-	42.6	E	L	-	14.9	B
		R	-	10.1	B	R	-	18.9	C	R	-	11.1	B
Overall Intersection		-	-	**15.1**	**C**	-	-	**30.2**	**D**	-	-	**12.9**	**B**

TABLE 17-44
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
2017 BUILD TRAFFIC LEVELS OF SERVICE - *GAME DAY*

		Weekday Pre Game (6:00-7:00 PM)				Saturday Pre Game (12:00-1:00 PM)				Saturday Post Game (3:45-4:45 PM)			
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
NEW (BUILD) SIGNALIZED INTERSECTION													
126th Street at New Willets Point Boulevard													
126th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*
	SB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*	DefL	1.17	120.0+	F*
		TR	1.20+	120.0+	F*	TR	1.02	59.6	E	TR	0.28	9.6	A
New Willets Point Boulevard	EB	LTR	0.02	22.4	C	LTR	0.02	26.3	C	LTR	0.02	32.5	C
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*
		R	0.21	10.7	B	R	0.18	11.3	B	R	0.24	16.9	B
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***
Citi Field/Lot B Internal Street at Roosevelt Avenue													
Citi Field/Lot B Internal Street	SB	LR	0.02	34.0	C	LR	0.03	34.1	C	LR	0.02	34.0	C
Roosevelt Avenue	EB	LT	0.73	15.5	B	LT	0.68	14.1	B	LT	0.79	17.4	B
	WB	TR	0.90	23.1	C	TR	0.93	27.0	C	TR	0.41	9.8	A
	Overall Intersection	-	**0.66**	**19.8**	**B**	-	**0.69**	**21.8**	**C**	-	**0.58**	**14.8**	**B**

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

A. INTRODUCTION

This chapter addresses the potential impacts on transit and pedestrians from the proposed Willets Point Development Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D.

Possible impacts resulting from the proposed Plan and Lots B and D on transit and pedestrian facilities in the vicinity of the Willets Point Development District were evaluated. This chapter includes a description of the existing and future operating conditions of these facilities and identification of potential significant adverse impacts that would require mitigation.

PRINCIPAL CONCLUSIONS

Significant adverse transit impacts were identified for the street-level stairway on the north side of Roosevelt Avenue at the Willets Point-Shea Stadium subway station, and for the Q48 and Q66 bus routes. Significant pedestrian impacts were identified for the east crosswalk at the intersection of Northern Boulevard and 126th Street, for the north, east, and west crosswalks at the intersection of Roosevelt Avenue and 126th Street, and for the north crosswalk at the newly signalized intersection of Roosevelt Avenue and the Lot B driveway.

Potential measures to mitigate these projected significant adverse impacts are described in Chapter 23, "Mitigation."

B. METHODOLOGY

As described in Chapter 17, "Traffic and Parking," a travel demand projection was developed to identify the transportation elements likely to be affected by the proposed Plan. Because the number of peak hour transit and pedestrian trips generated by the proposed Plan would exceed the 200 trip per hour threshold specified in the 2001 *City Environmental Quality Review (CEQR) Technical Manual*, quantified transit and pedestrian analyses are required.

TRANSIT AND PEDESTRIAN STUDY AREAS

Mass transit options serving the District include the New York City Transit (NYCT) No. 7 subway line, which operates above Roosevelt Avenue with a stop at the Willets Point-Shea Stadium subway station; the Q19, Q48, and Q66 bus routes, which travel along the northern and southern boundaries of the District; and the Metropolitan Transportation Authority (MTA) Long Island Rail Road (LIRR) at the Shea Stadium LIRR station (game-day service only), which is accessible just south of the District (see Figure 18-1). The transit analyses include a quantified assessment of control areas and circulation elements at the No. 7 Willets Point-Shea Stadium subway station, a ridership and peak period train loading analysis for the No. 7 subway line, and a line-haul analysis for the Q19, Q48, and Q66 bus routes, which includes assessments of

conditions at peak load points and at nearby bus stops. Because LIRR service is currently available only on game days at Shea Stadium and at the USTA National Tennis Center during the US Open, no quantified impact analysis was conducted for this transportation mode. Nonetheless, the City is consulting with MTA on extending regular LIRR service to this station when the actual demand shows that such service improvement is warranted. The evaluation of pedestrian flow includes an analysis of the sidewalks, corner reservoirs, and crosswalks adjacent to the District, along 126th Street, Northern Boulevard, and Roosevelt Avenue (see Figure 18-2).

SUBWAY SERVICE

No. 7 Subway Line

The No. 7 train operates primarily along Roosevelt Avenue between Flushing, Queens, and midtown Manhattan. Local service is available 24 hours a day, and express service is available during the weekday AM peak period for travel to Manhattan and during the weekday PM peak period for travel to Flushing. Unscheduled express service is also supplemented during game days at Shea Stadium and during the US Open. From 6:30 AM to 12:00 noon, the No. 7 train operates express service every 2 to 4 minutes and local service every 4 to 6 minutes to Manhattan. Flushing-bound, it operates local every 3 to 5 minutes from 7:20 to 9:40 AM, every 2 to 4 minutes until 10:20 AM, and every 5 minutes until 12:00 noon. In the afternoon, the No. 7 train operates local service to Manhattan every 2 to 5 minutes until 8:15 PM. Flushing-bound, it operates express service every 4 to 5 minutes and local service every 10 minutes from 12:00 noon to 4:20 PM. Between 4:20 and 8:15 PM, the Flushing-bound No. 7 train operates express service every 3 to 5 minutes and local service every 5 to 8 minutes. When games occur on weekday evenings, there is express service to Manhattan for an hour after the end of the game. On Saturdays, there is local service every 4 to 6 minutes in both directions. On Sundays, the No. 7 train operates every 8 minutes during the morning and every 6 minutes during the afternoon in both directions.

BUS SERVICE

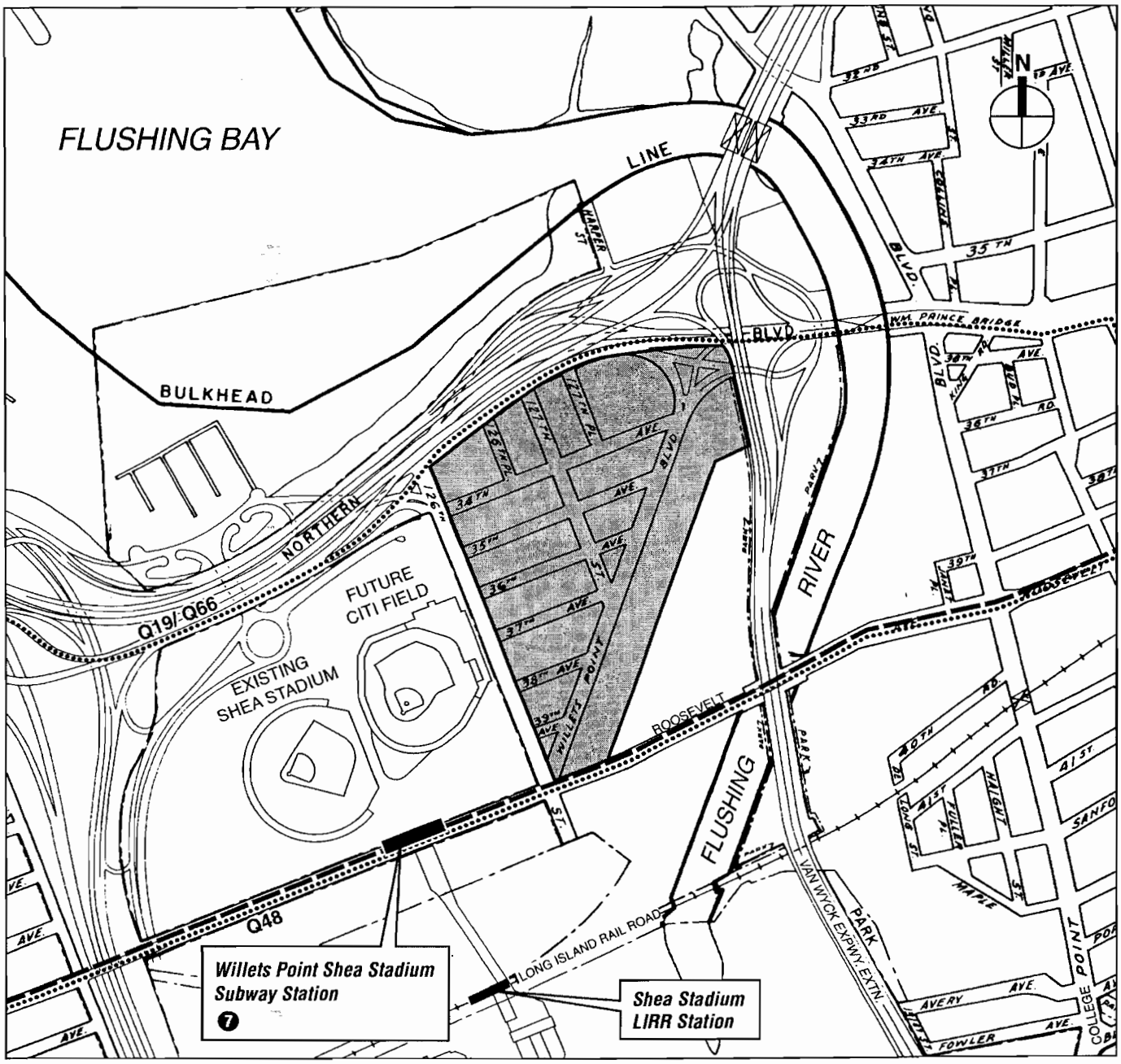
There are three study area bus routes, Q48 operated by NYCT, and Q19 and Q66 operated by the MTA Bus Company. The Q48 operates between Flushing and LaGuardia Airport and stops within the study area along Roosevelt Avenue in both directions just west of 126th Street. The Q19 operates between Flushing and Astoria and the Q66 operates between Flushing and Queensboro Plaza in Long Island City. Within the study area, both the Q19 and Q66 routes make stops only eastbound along Northern Boulevard just east of 126th Street. Table 18-1 provides a summary of the weekday and Saturday service headways of these bus routes.

Table 18-1
Local Bus Routes Serving the Study Area

Bus Route	Start Point	End Point	Routing	Frequency of Bus Service (Headway in Minutes)				
				AM	Midday	PM	Pre-game Saturday	Post-game Saturday
Q19	Flushing	Astoria	via Northern Boulevard/ Astoria Boulevard	20	20	20	30	30
Q48 Local	Flushing	LaGuardia Airport	via Roosevelt Avenue/ Ditmars Boulevard	13	20	14	20	20
Q66 Local	Flushing	Long Island City	via Northern Boulevard	12	12	17	12	10
Q66 Local	Flushing	Woodside	via Northern Boulevard	6	11	8	12	10

Source: New York City Transit, *Queens Bus Map* (2005); conversation with MTA Bus Company.

9.8.08



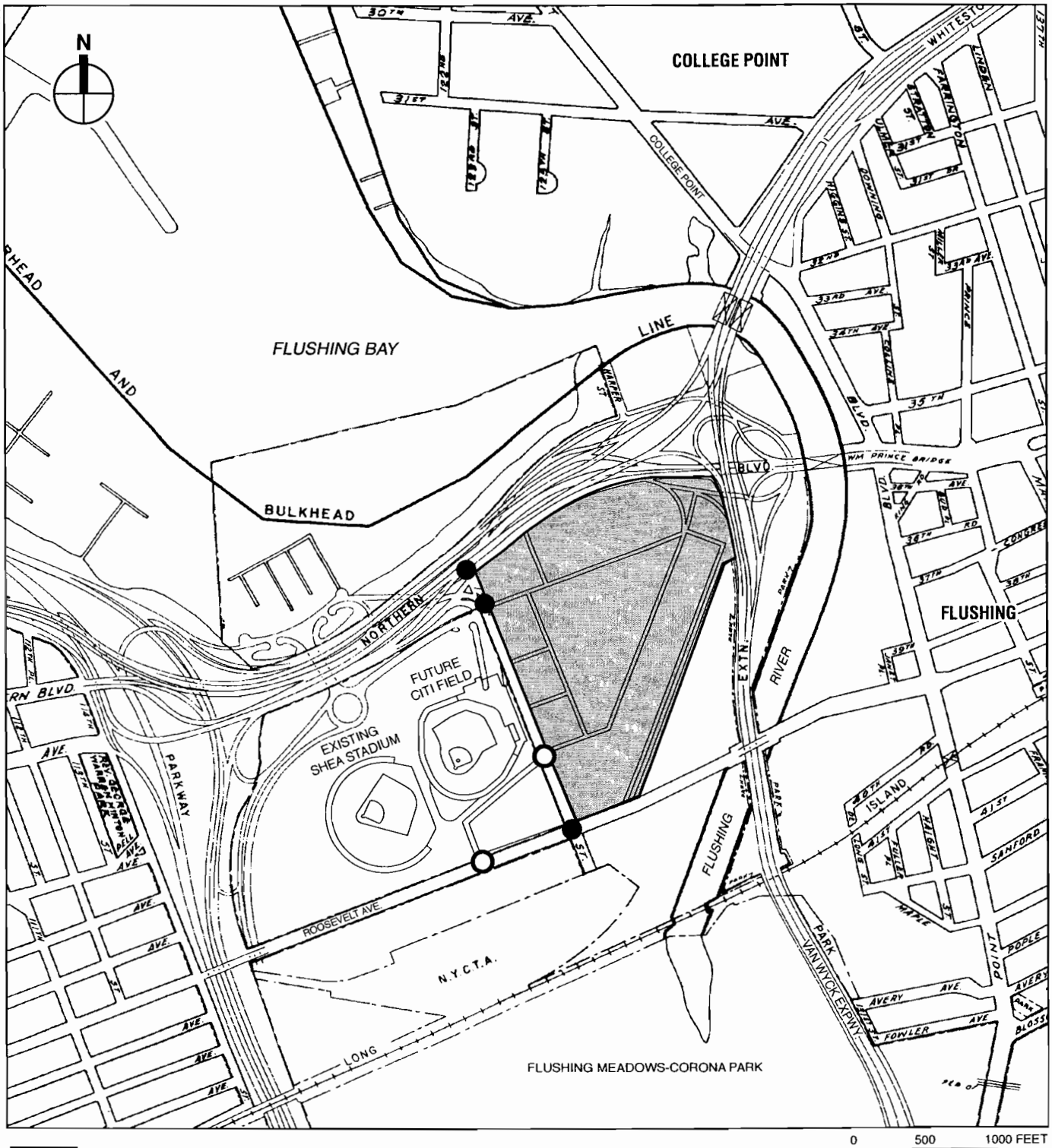
Willets Point Development District

Subway Line

Bus Route

This figure has been updated since the DGEIS

Figure 18-1
Subway and Bus Routes



Willets Point Development District

Study Area Intersection Analyzed

Intersection Added as Part of Proposed Plan

This figure has been updated since the DGEIS

Figure 18-2

Pedestrian Study Area

LIRR SERVICE

The Port Washington Branch of the LIRR operates regular weekday local and express service, and weekend local only service between Port Washington and Penn Station. On game days at Shea Stadium and during the US Open, it makes stops at the Shea Stadium LIRR station to accommodate event patrons.

PEDESTRIAN ELEMENTS

Numerous sidewalks, corner reservoirs, and crosswalks surrounding the District were identified for analysis. These pedestrian elements, representing locations where most of the project-generated trips would be anticipated, are situated primarily along 126th Street between Roosevelt Avenue and Northern Boulevard. Where appropriate, new pedestrian elements contemplated as part of the proposed Plan were assumed in the analysis of the probable impacts of the proposed Plan.

OPERATIONAL ANALYSIS METHODOLOGY

SUBWAY STATION ELEMENTS

Subway station operations were assessed according to methods and evaluation criteria presented in the *CEQR Technical Manual*. The methodology for assessing subway stairway, ramp, and control area (turnstiles, service gates, etc.) operations compares the user volume with the element's design capacity, resulting in a volume-to-capacity (v/c) ratio.

For stairways, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction between upward and downward patrons, and the average area required for circulation. For ramps, similar considerations are made. For control area elements, capacity is measured by the number and width of an element and the NYCT optimum capacity per element. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals.

The estimated v/c ratio is compared with New York City Transit (NYCT) criteria to determine a level-of-service (LOS) for the operation of an element. This v/c ratio is also commonly referred to as V/SVCD, where SVCD is the service volume at LOS C/D. Table 18-2 shows the LOS and corresponding v/c ratios for subway station elements.

Table 18-2
Level of Service Criteria for Subway Station Elements

LOS	V/C Ratio	
	Stairways/Ramps	Turnstiles/Gates
A	0.00 to 0.45	0.00 to 0.20
B	0.45 to 0.70	0.20 to 0.40
C	0.70 to 1.00	0.40 to 0.60
D	1.00 to 1.33	0.60 to 0.80
E	1.33 to 1.67	0.80 to 1.00
F	1.67 or Greater	Greater than 1.00

Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (December 2001).

For stairways and ramps, at LOS A and B, there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C, movement is fluid although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking speed. At LOS D, walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E and F, walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

The determination of significant impacts for station elements varies based on their type and use. For stairways and ramps, impacts are considered significant based on the minimum amount of additional capacity, which would mitigate the location to its LOS under the future without the proposed action or LOS C/D operating conditions. For a stairway location with LOS D for the future with the proposed action, a widening of six inches or more needed to restore LOS to the same level as the future with the proposed action or LOS C/D conditions is considered significant; for a future with the proposed action LOS E condition, a widening of three inches or more is considered significant; and for a future with the proposed action LOS F condition, a widening of one inch or more is considered significant. For ramps, a similar sliding scale is used to determine significant impacts. For a location with LOS D for the future with the proposed action, a widening of 12 inches or more needed to restore LOS to the same level as the future without the proposed action or LOS C/D conditions is considered significant; for a future with the proposed action LOS E condition, a widening of six inches or more is considered significant; and for a future with the proposed action LOS F condition, a widening of three inches or more is considered significant. For control areas, impacts are considered significant if the NYCT optimum capacity is exceeded and the increase in v/c ratio between the future with and without the proposed action conditions exceeds 0.01.

SUBWAY AND BUS LINE HAUL CAPACITIES

Per the *CEQR Technical Manual*, line-haul capacities are evaluated when a proposed action is anticipated to generate a perceptible number of passengers on particular subway and bus routes. For subways, if, on average, a subway car for a particular route is expected to incur five or more riders from a proposed action, a review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route's practical capacity would be exceeded. NYCT operates three different types of subway cars with different seating and practical capacities. The practical capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions. Projected increases from a future condition without the proposed action within practical capacity to a future condition with the proposed action that exceeds practical capacity may be considered a significant impact. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated.

Bus line-haul capacities are evaluated when a proposed action is anticipated to generate a perceptible increase in the number of passengers on a particular bus route. Typically, when numerous bus routes are available within the transit study area, projected trips would be dispersed and would not overburden one or more nearby bus routes. However, if a substantial number of new bus trips is anticipated for an already heavily-used bus route, its peak load point and its bus stops closest to the project site are evaluated to identify the potential for the buses to

exceed their practical capacities. NYCT and the MTA Bus Company operate two types of buses: standard and articulated. During peak hours, standard buses operate with up to 54 passengers per bus, while articulated buses operate with up to 93 passengers per bus. According to NYCT guidelines, an increase in bus load levels greater than the maximum capacity at any load point is defined as a significant adverse impact. While subject to operational and fiscal constraints, bus impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

PEDESTRIAN OPERATIONS

Sidewalks, corner reservoirs, and crosswalks are the pedestrian facilities commonly analyzed for potential impacts from a proposed action. The adequacy of sidewalks and crosswalks in relation to the demand imposed on them is assessed using methodologies presented in the 2000 *Highway Capacity Manual (HCM)*. Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per foot per minute (PFM) of effective walkway width is the basis for the LOS analysis. However, due to the tendency of pedestrians to move in congregated groups, a platoon factor (+4 PFM) is applied in the calculation of pedestrian flow to more accurately estimate the dynamics of walking. This procedure generally results in a LOS one level poorer than the average flow.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The HCM methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians. The total "time-space" available for these activities, which is expressed in square feet per minute, is the net area of the corner (in square feet) multiplied by the cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner (expressed as pedestrians per minute). The ratio of net time-space divided by pedestrian circulation time provides the LOS measurement of square feet per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Crosswalk conditions are expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time as determined by nearby traffic signals. This measure is expressed in square feet per minute. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the average crossing time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk.

Table 18-3 shows the LOS standards for sidewalks, corner reservoirs, and crosswalks. The description of these LOS is similar to those described above for subway station elements. The *CEQR Technical Manual* specifies that a mid-LOS D condition or better is considered reasonable for sidewalks, corners, and crosswalks outside of the Manhattan Central Business District (CBD). For corners and crosswalks, a mid-LOS D condition requires a minimum of 20 SFP, while for sidewalks, a mid-LOS D condition requires a maximum of 13 PFM.

Table 18-3
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks	Corner Reservoirs and Crosswalks
A	5 PFM or less	60 SFP or More
B	5 to 7 PFM	40 to 60 SFP
C	7 to 10 PFM	24 to 40 SFP
D	10 to 15 PFM	15 to 24 SFP
E	15 to 23 PFM	8 to 15 SFP
F	More than 23 PFM	Less than 8 SFP

Notes: PFM = pedestrians per foot per minute; SFP = square feet per pedestrian
Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

Project-related sidewalk impacts are considered significant and require the examination of mitigation measures if there is an increase of 2 PFM more than a no action condition with pedestrian flow rates greater than 13 PFM (mid-LOS D). For corners and crosswalks, a decrease of 1 SFP under the action condition when the no action condition has an average occupancy of less than 20 SFP (mid-LOS D) is considered significant. In addition, a service deterioration from LOS A, B, or C to mid-LOS D or worse for sidewalks, corners, or crosswalks would be considered a significant adverse impact. However, if there is less than a 200-person increase at a location within the peak hour, any impact is not considered significant since such increases typically would not be perceptible.

C. EXISTING CONDITIONS

Existing pedestrian levels are based on field surveys conducted on August 20, September 13, September 17, and September 18, 2006. Existing conditions for the analysis of subway station elements are based upon field surveys conducted on August 20, September 13, and September 18, 2006, and September 12 and September 15, 2007. Bus ridership data for the Q19, Q48, and Q66 bus routes were obtained from NYCT and the MTA Bus Company, as well as field surveys conducted on September 13 and September 18, 2006. Subway ridership data were obtained from NYCT.

To determine peak conditions for subway stairwells and pedestrian facilities, weekday counts were conducted during the 7:00 to 9:30 AM, 11:00 AM to 1:00 PM, and 4:00 to 7:00 PM time periods. The evening counts were conducted on both a game day and a non-game day. Saturday pre-game and post-game counts were conducted during the 11:00 AM to 2:00 PM and 3:30 to 6:00 PM time periods, respectively. All counts were conducted at 15-minute intervals, and the highest 15-minute volumes were selected for analysis from each of these peak periods.

To determine peak conditions for bus line-haul, weekday counts were conducted during the 7:00 to 10:00 AM and 4:00 to 7:00 PM time periods. The evening counts were conducted on both a game day and a non-game day. Saturday game day counts were conducted from 11:00 AM to 6:00 PM. The highest hourly volumes for each route were selected for analysis.

SUBWAY STATION OPERATIONS

Since the Willets Point-Shea Stadium subway station has multiple entrances, the quantified analysis was limited to the elements that would most likely be used by riders traveling to and

from the District and Lot B. Based on the travel demand estimates detailed in Chapter 17, it was determined that quantified analyses would be required for the street-level and mezzanine stairways and mezzanine ramps serving trips generated by the proposed Plan, as well as, control areas within the subway station.

Street-level stairways on the north and south sides of Roosevelt Avenue connect to the main control area across from the station agent's booth on the mezzanine level. Because all project-generated trips would be expected to use the street-level and street-mezzanine stairways on the north side of Roosevelt Avenue, those on the south side of Roosevelt Avenue were not analyzed. On the mezzanine level, the main control area, containing five turnstiles and one emergency exit gate, provides separation between the free and fare zones of the station. Within the fare zone, two ramps and two stairways provide access to the Manhattan-bound and Flushing-bound platforms, respectively.

On a typical day, access to and egress from the Willets Point-Shea Stadium subway station occur at the main control area. However, during several hours on game days, the main control area is disabled and the entire mezzanine level becomes a free zone to provide access to and from the LIRR station ramp to the south and the Stadium rotunda (the connection from the subway station to Shea Stadium) to the north. When this operation is in place, access to the No. 7 train is made through individual control areas, with six to seven turnstiles each, connecting to the four platform ramps and stairways. Hence, game-day station analysis considers the condition at these four locations instead of the main station control area.

In September 2006 and September 2007, surveys were conducted to determine 15-minute pedestrian volumes at the street level stairway, mezzanine stairways and ramps, and control areas within the station. Volumes collected in 2006 were adjusted to 2007 using a 1.0-percent growth rate. Typically, subway station elements would be evaluated for only the AM and PM commuter peak hours. However, to address worst-case game-day conditions at the Willets Point-Shea Stadium subway station, the weekday pre-game, and Saturday pre-game and post-game conditions were also included for analysis.

As shown in Table 18-4, the analyzed stairways and ramps currently operate at LOS A during both non-game peak hours. During the weekday pre-game peak period, the street-level and street-mezzanine stairways on the north side of Roosevelt Avenue operate at LOS C and LOS B, respectively, while all the other stairways and ramps operate at LOS A or LOS B. During the Saturday pre-game peak period, all stairways and ramps operate at LOS A or LOS B. During the Saturday post-game peak period, the northwest ramp to the Manhattan-bound platform operates at LOS C, while all the remaining stairways and ramps operate at LOS A.

As shown in Table 18-5, the main control area currently operates at LOS A during the weekday AM and PM peak periods. During the weekday and Saturday pre-game peak periods, the Manhattan-bound platform's two control areas operate at LOS A and the Flushing-bound platform's control areas operate at LOS B. During the post-game peak period, both Flushing-bound control areas operate at LOS A. At the Manhattan-bound platform, the northwest control area operates at LOS F while the northeast control area operates at LOS C.

Table 18-4

2007 Existing Conditions: Subway Station Vertical Circulation Analysis

Willets Point–Shea Stadium No. 7 Train Station Vertical Circulation Elements	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	14	65	0.80	720	0.11	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	14	65	0.80	1290	0.06	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	7	9	0.90	2160	0.01	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	19	9	0.80	1800	0.02	A
Manhattan-bound East Ramp	19.50	17.50	27	71	0.80	3938	0.02	A
Manhattan-bound West Ramp	17.50	15.50	64	91	0.90	3488	0.04	A
Weekday PM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	51	26	0.90	810	0.10	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	51	26	0.90	1451	0.05	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	19	12	0.90	2160	0.01	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	176	11	0.80	1800	0.10	A
Manhattan-bound East Ramp	19.50	17.50	12	103	080	3938	0.02	A
Manhattan-bound West Ramp	17.50	15.50	9	122	0.80	3488	0.03	A
Weekday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	600	51	543	0.80	720	0.83	C
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	51	543	0.80	1290	0.46	B
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	9	1117	0.80	1920	0.59	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	13	1130	0.80	1800	0.64	B
Manhattan-bound East Ramp	19.50	17.50	44	132	0.80	3938	0.04	A
Manhattan-bound West Ramp	17.50	15.50	118	180	0.90	3488	0.08	A
Saturday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	25	414	0.80	720	0.61	B
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	25	414	0.80	1290	0.34	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	8	915	0.80	1920	0.48	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	11	988	0.80	1800	0.56	B
Manhattan-bound East Ramp	19.50	17.50	39	26	0.90	3938	0.01	A
Manhattan-bound West Ramp	17.50	15.50	17	114	0.80	3488	0.03	A
Saturday Post-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	281	14	0.80	720	0.41	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	281	14	0.80	1290	0.23	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	106	131	0.90	2160	0.11	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	279	40	0.80	1800	0.18	A
Manhattan-bound East Ramp	19.50	17.50	1646	10	0.80	3938	0.34	A
Manhattan-bound West Ramp	17.50	15.50	4109	15	0.80	3488	0.95	C

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual.*

Table 18-5
2007 Existing Conditions: Subway Station Control Area Analysis

Willets Point–Shea Stadium No. 7 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game						
Main Control Area Turnstiles (R532)	5	86	125	2400	0.09	A
Weekday PM Non-Game						
Main Control Area Turnstiles (R532)	5	129	99	2400	0.10	A
Weekday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	118	180	3360	0.10	A
Manhattan-bound East Ramp Turnstiles	7	44	132	2880	0.05	A
Flushing-bound West Stair Turnstiles	6	13	1130	2880	0.40	B
Flushing-bound East Stair Turnstiles	6	9	1117	2880	0.39	B
Saturday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	17	114	3360	0.05	A
Manhattan-bound East Ramp Turnstiles	7	39	26	2880	0.02	A
Flushing-bound West Stair Turnstiles	6	11	988	2880	0.35	B
Flushing-bound East Stair Turnstiles	6	8	915	2880	0.32	B
Saturday Post-Game						
Manhattan-bound West Ramp Turnstiles	6	4109	15	3360	1.43	F
Manhattan-bound East Ramp Turnstiles	7	1646	10	2880	0.49	C
Flushing-bound West Stair Turnstiles	6	279	40	2880	0.11	A
Flushing-bound East Stair Turnstiles	6	106	131	2880	0.08	A

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual.*

SUBWAY LINE HAUL LEVELS

A subway line-haul analysis typically considers the weekday commuter period leave load levels at the analysis routes' peak load points. Although some of the projected subway trips originating or terminating in the District are expected to transfer to the E/F/R/V lines, with most transferring at the Jackson Heights-Roosevelt Avenue subway station, it was determined that a quantified subway line-haul analysis for the E/F/R/V lines is not required, as discussed in Section E, "Probable Impacts of the Proposed Plan."

Because peak travel to and from the District is expected to be westbound in the morning and eastbound in the afternoon, a leave load analysis was conducted for the Manhattan-bound express trains at the Woodside-61st Street subway station and for the Manhattan-bound local trains at the 40th Street station for the AM peak period and for the Flushing-bound trains at the Queensboro Plaza subway station for the PM peak period.

The No. 7 subway line operates 11-car trains. The guideline capacity of these cars is 110 passengers each. However, crush loads could reach as many as 165 passengers per car. The 2006 leave load peak hour passenger volumes and the number of peak period trains were obtained from NYCT. A 0.5-percent growth factor was applied to the 2006 leave load counts to generate the existing 2007 leave load volumes. As described in more details in Section E, "Probable Impacts of the Proposed Plan," the 0.5-percent background growth factor was used to account for regional subway travel between Queens and Manhattan. As shown in Table 18-6, the No. 7 train currently operates below guideline capacity during the weekday AM and PM commuter peak periods.

Table 18-6
2007 Existing Condition: Peak Hour Subway Line Haul

No. 7 Train Direction of Travel	Station	Trains /Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
AM Peak Period						
Manhattan-bound Express	Woodside–61st Street	13	15,029	15,730	0.95	701
Manhattan-bound Local	40th Street	13	12,806	15,730	0.81	2,924
PM Peak Period						
Flushing-bound Express + Local	Queensboro Plaza	26	21,828	31,460	0.69	9,632

Sources: New York City Transit

BUS LINE HAUL LEVELS

To assess the potential impacts on the study area bus routes, the most recent ridership data were acquired from NYCT, the MTA Bus Company, and field surveys of bus stops serving the District. The two-way average daily boarding count for the Q48 route was obtained from the "2006 Subway and Bus Ridership Report," published by NYCT. Year 2003 maximum load point volumes for the Q48 bus were also obtained. During both the AM and the PM peak periods, the maximum load point for both the eastbound and westbound directions alternates between Roosevelt Avenue/108th Street and Roosevelt Avenue/Main Street, which are on either side of the District. To determine passenger volumes at the bus stops along Roosevelt Avenue just west of 126th Street, a survey was conducted in September 2006 to capture arrival loads and boarding/alighting volumes.

Maximum load point data are unavailable for the Q19 and Q66 bus routes. Therefore, the numbers of peak period riders were estimated by applying the hourly ridership distribution from the Q48 bus route to the 2006 bi-directional daily boardings for the Q19 and Q66 bus routes, obtained from the MTA Bus Company. Both the 2003 and 2006 passenger volumes were projected to 2007 levels by applying a 1.0-percent annual growth rate and averaged among the scheduled numbers of buses along each route during peak periods. As shown in Table 18-7, the Q19 and Q48 bus routes presently operate within guideline capacities (54 passengers per bus) at their respective maximum load points, as does the Q66 during the PM peak period. During the AM peak period, the Q66 exceeds its guideline capacity.

Table 18-7
2007 Existing Conditions: Bus Line Haul at NYCT Maximum Load Points

Route	Peak Period	Buses Per Hour	Eastbound		Buses Per Hour	Westbound	
			Max Load Point	AP		Max Load Point	AP
Q19	AM	3	unknown	18	--	Not analyzed	--
	PM	3	unknown	9	--	Not analyzed	--
Q48	AM	6	Roosevelt at 108th/Main	43	5	Roosevelt at 108th/Main	14
	PM	4	Roosevelt at 108th/Main	33	5	Roosevelt at 108th/Main	40
Q66 (to Woodside and LIC)	AM	15	unknown	(73)	--	Not analyzed	--
	PM	11	unknown	51	--	Not analyzed	--

Note: AP = average passengers per bus; **(#)** = exceeds NYCT guideline capacity
Source: Q48 ridership data provided by NYCT; Q19 and Q66 ridership data provided by the MTA Bus Company

Existing load levels for the Q48 route at the bus stops nearest to the District were also examined, as shown in Table 18-8. Because existing passenger volumes per bus at these bus stops are

similar to the passenger volumes per bus at the maximum load points during peak hours, the incremental bus passenger volumes generated by the proposed Plan are likely to shift the route's maximum load points to these bus stops. Hence, while existing passenger volumes are presented for the NYCT maximum and District load points, the future conditions analyses would consider changes only at the bus stops serving the District.

Table 18-8
2007 Existing Conditions: Bus Line Haul at District Load Points

Route	Peak Period	Buses Per Hour	Eastbound		Buses Per Hour	Westbound	
			Load Point	AP		Load Point	AP
Q48	AM	6	Roosevelt at 126th	46	5	Roosevelt at 126th	7
	PM	4	Roosevelt at 126th	19	4	Roosevelt at 126th	40

Note: AP = average passengers per bus; (#) = exceeds NYCT guideline capacity
Source: AKRF survey, September 2006

STREET-LEVEL PEDESTRIAN OPERATIONS

The study area sidewalks, corner reservoirs, and crosswalks were assessed for the weekday AM, midday, PM, and pre-game peak periods, as well as, the Saturday midday non-game, pre-game, and post-game peak periods. Existing peak 15-minute pedestrian volumes were developed from the 2006 survey data and prorated to 2007 levels by applying a 1.0-percent background growth.

As shown in Tables 18-9 through 18-13, all analyzed pedestrian elements currently operate at acceptable levels (13 PFM for sidewalks; 20 SFP for corners and crosswalks) during the analysis peak periods.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

Transit and pedestrian conditions in the future without the proposed Plan were assessed to establish baseline 2017 conditions or the "No Build" condition against which to evaluate the potential project impacts. The No Build analyses incorporate background growth, new trips associated with nearby developments, and changes in the transportation environment that would affect transit service and pedestrian movements in the study area.

TRANSIT AND PEDESTRIAN VOLUME PROJECTIONS

Estimates of peak hour transit and pedestrian volumes in the No Build condition were developed by applying the CEQR-recommended 1.0-percent annual background growth rate (except for the subway line-haul analysis, which uses a 0.5 percent annual background growth rate based on typical annual growth of regional subway travel between Queens and Manhattan) onto existing transit and pedestrian volumes 10 years into the future and by adding the estimated transit and pedestrian volumes generated by projects within and near the study area that would be completed independent of the proposed Plan.

Table 18-9

2007 Existing Conditions: Weekday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	6	0.0	A	4.0	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	32	0.2	A	4.2	A
Northern Blvd between 126th Street and 126th Place	East	7.5	8	0.1	A	4.1	A
34th Ave between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	10.0	1	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	South	5.0	5	0.1	A	4.1	A
	North	14.0	13	0.1	A	4.1	A
	South	5.0	2	0.0	A	4.0	A
	North	14.5	65	0.3	A	4.3	A
	South	13.5	3	0.0	A	4.0	A
Weekday MD Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	13	0.1	A	4.1	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	10	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	East	7.5	8	0.1	A	4.1	A
34th Ave between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	10.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	South	5.0	4	0.1	A	4.1	A
	North	14.0	13	0.1	A	4.1	A
	South	5.0	4	0.1	A	4.1	A
	North	14.5	18	0.1	A	4.1	A
	South	13.5	2	0.0	A	4.0	A
Weekday PM Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	41	0.3	A	4.3	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	51	0.3	A	4.3	A
Northern Blvd between 126th St and 126th Pl	East	7.5	36	0.3	A	4.3	A
34th Ave between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	10.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	South	5.0	5	0.1	A	4.1	A
	North	14.0	5	0.0	A	4.0	A
	South	5.0	4	0.1	A	4.1	A
	North	14.5	29	0.1	A	4.1	A
	South	13.5	26	0.1	A	4.1	A
Weekday Pre-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	98	0.7	A	4.7	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	10	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	East	7.5	12	0.1	A	4.1	A
34th Ave between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	10.0	1	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	South	5.0	11	0.1	A	4.1	A
	North	14.0	27	0.1	A	4.1	A
	South	5.0	20	0.3	A	4.3	A
	North	14.5	6	0.0	A	4.0	A
	South	13.5	60	0.3	A	4.3	A

Note: PFM = pedestrians per foot per minute.

Table 18-10
2007 Existing Conditions: Saturday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Saturday MD Non-game							
126th St between Northern Blvd and 34th Ave	East	9.0	3	0.0	A	4.0	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	5	0.0	A	4.0	A
	East	7.5	4	0.0	A	4.0	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	2	0.0	A	4.0	A
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	4	0.0	A	4.0	A
	South	5.0	13	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	5	0.0	A	4.0	A
	South	13.5	20	0.1	A	4.1	A
Saturday Pre- Game							
126th St between Northern Blvd and 34th Ave	East	9.0	118	0.9	A	4.9	A
126th St between 34th Ave and Roosevelt Ave	West	11.0	7	0.0	A	4.0	A
	East	7.5	7	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	3	0.0	A	4.0	A
	South	5.0	17	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	17	0.1	A	4.1	A
	South	5.0	3	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	47	0.2	A	4.2	A
	South	13.5	35	0.2	A	4.2	A
Saturday Post- Game							
126th St between Northern Blvd and 34th Ave	East	9.0	43	0.3	A	4.3	A
126th St between 34th Ave and Roosevelt Ave	West	9.0	79	0.5	A	4.5	A
	East	11.0	9	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.5	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	7.0	2	0.0	A	4.0	A
	South	10.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	5.0	42	0.2	A	4.2	A
	South	14.0	11	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	5.0	26	0.1	A	4.1	A
	South	14.5	584	2.9	A	6.9	B

Note: PFM = pedestrians per foot per minute.

Table 18-11
2007 Existing Conditions: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday								Saturday					
		AM		MD		PM		Pre-Game		MD Non-Game		Pre-Game		Post-Game	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Roosevelt Avenue and 126th Street	Northeast	419.8	A	1089.4	A	1638.0	A	367.7	A	1023.3	A	603.5	A	240.4	A
	Northwest	2109.9	A	6038.1	A	2416.1	A	1760.8	A	5282.9	A	2561.4	A	1030.3	A

Note: SFP = square feet per pedestrian.

Table 18-12
2007 Existing Conditions: Weekday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Cross-walk Width (feet)	With Conflicting Vehicles							
				Weekday AM		Weekday MD		Weekday PM		Weekday Pre-Game	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	4320.9	A	1401.8	A	621.3	A	112.3	A
	South	57.0	20.0	7825.0	A	19557.0	A	19557.0	A	540.5	A
34th Ave and 126th St	North	87.0	10.5	4103.9	A	2001.4	A	2030.8	A	83.9	A
	East	28.5	14.5	11683.9	A	5813.9	A	726.0	A	372.5	A
	South	69.0	20.5	8068.7	A	4101.8	A	4362.3	A	92.1	A
	West	47.0	12.5	22440.7	A	11230.6	A	11176.3	A	126.0	A
Roosevelt Ave and 126th St	North	52.5	17.0	860.5	A	4083.9	A	9582.6	A	716.7	A
	East	41.0	11.5	6020.7	A	1884.0	A	2651.0	A	2826.0	A
	South	42.5	15.5	13661.5	A	6734.8	A	13700.7	A	2473.9	A
	West	43.0	16.0	4134.2	A	3940.4	A	295.7	A	1009.9	A

Note: SFP = square feet per pedestrian.

Table 18-13
2007 Existing Conditions: Saturday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles					
				Saturday MD Non-Game		Saturday Pre-Game		Saturday Post-Game	
				SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	2062.1	A	36.2	C	22.8	D
	South	57.0	20.0	19557.0	A	312.7	A	464.7	A
34th Ave and 126th St	North	87.0	10.5	1885.8	A	26.2	C	56.7	B
	East	28.5	14.5	11531.0	A	1080.8	A	201.8	A
	South	69.0	20.5	4161.9	A	263.2	A	87.4	A
	West	47.0	12.5	11092.7	A	105.3	A	82.1	A
Roosevelt Ave and 126th St	North	52.5	17.0	3155.5	A	1370.6	A	537.9	A
	East	41.0	11.5	2808.9	A	3030.9	A	433.6	A
	South	42.5	15.5	5493.1	A	13695.1	A	2285.1	A
	West	43.0	16.0	3923.2	A	763.1	A	351.3	A

Note: SFP = square feet per pedestrian.

As discussed in Chapter 2, numerous projects located near the District are expected to be completed by 2017 independent of the proposed Plan. The transit and pedestrian analysis considers projects expected to be developed in the future without the proposed Plan, as shown in Figure 17-11. However, because the District is geographically separated from these No Build projects by the adjacent highway network, new trips associated with these projects would have limited effects on most of the study area transit and pedestrian elements. Therefore, as detailed further below, these trips are accounted for differently in each of the specific analyses.

CHANGES IN THE PEDESTRIAN ENVIRONMENT

Across 126th Street from the District, the future Citi Field would replace Shea Stadium as the new home for the New York Mets in 2009. Although there is likely to be very little difference in the trip-making of game-day patrons as a result of the new stadium, several transportation-related modifications surrounding it are anticipated. Specifically, those changes to the eastern boundary of the stadium proper or the west side of 126th Street would affect the future No Build pedestrian operations. Although the detailed design effort of Citi Field is still on-going, some changes in the pedestrian environment were assumed for analysis based on schematic diagrams and narratives available to date. These changes include:

- Formalizing the west leg of 34th Avenue, thereby creating an approximately 50-foot wide street extending west from 126th Street;
- Formalizing the west curb-line of 126th Street as part of the Citi Field project; and,
- Incorporating reconfigured pedestrian circulation areas that front the new Citi Field on the west side of 126th Street between Roosevelt Avenue and Northern Boulevard.

SUBWAY STATION OPERATIONS

The same station elements previously analyzed for existing conditions were analyzed under the No Build condition. Pedestrian volumes were adjusted to 2017 levels using a 1.0-percent annual background growth rate. Because all No Build projects—with the exception of Citi Field, which would not generate additional transit trips compared with those associated with Shea Stadium—are not in the immediate vicinity of the District, they are not expected to generate trips within the District or using the Willets Point-Shea Stadium subway station. The Citi Field project includes the demolition and reconstruction of the existing rotunda. The new rotunda would connect to a new pedestrian plaza on the Citi Field site. Because this new and improved connection would provide greater capacity for future patron arrivals and departures, as per discussion with NYCT, those Mets patrons who currently use the street-level S2 stairway during the weekday and Saturday pre-game and post-game analysis periods were reassigned to the new rotunda connection. Table 18-14 details the operating conditions for stairways and ramps while Table 18-15 details operating conditions at control areas within the station in the future No Build condition.

As shown in Table 18-14, the analyzed stairways and ramps would continue to operate at LOS A during both non-game peak hours. During the weekday and Saturday pre-game peak periods, all stairways and ramps would operate at LOS C or better. During the Saturday post-game peak period, the northwest ramp to the Manhattan-bound platform would operate at LOS D while the remaining stairways and ramps would operate at LOS A.

As shown in Table 18-15, the main control area would operate at LOS A during the weekday AM and PM peak periods. During the weekday and Saturday pre-game peak periods, the Manhattan-bound platform's two control areas would operate at LOS A while the Flushing-bound platform's control areas would operate at LOS C during the weekday pre-game peak period and LOS B during the Saturday pre-game peak period. During the post-game peak period, both Flushing-bound control areas would operate at LOS A. For the Manhattan-bound platform, the northwest control area would operate at LOS F and the northeast control area would operate at LOS C.

SUBWAY LINE HAUL LEVELS

A 0.5-percent annual growth rate was applied to the existing line-haul volumes to determine the 2017 background line-haul volumes. Although background growth for the other transit and pedestrian analyses account for the CEQR-recommended 1.0-percent per year growth rate, the reduced growth rate used for the subway line-haul analysis reflects the more regional nature of overall subway ridership levels and the typical growth experienced at the East River portal between Queens and Manhattan. Furthermore, trips associated with major new developments along the No. 7 subway line were superimposed onto the 2017 background line-haul volumes to generate No Build peak period volumes for the subway line-haul analysis.

Table 18-14

2017 No Build Condition: Subway Station Vertical Circulation Analysis

Willets Point–Shea Stadium No. 7 Train Station Vertical Circulation Elements	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	15	72	0.80	720	0.12	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	15	72	0.80	1290	0.07	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	8	10	0.90	2160	0.01	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	21	10	0.80	1800	0.02	A
Manhattan-bound East Ramp	19.50	17.50	30	78	0.80	3938	0.02	A
Manhattan-bound West Ramp	17.50	15.50	71	101	0.90	3488	0.04	A
Weekday PM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	56	29	0.90	810	0.10	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	56	29	0.90	1451	0.06	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	21	13	0.90	2160	0.02	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	194	12	0.80	1800	0.11	A
Manhattan-bound East Ramp	19.50	17.50	13	114	080	3938	0.03	A
Manhattan-bound West Ramp	17.50	15.50	10	135	0.80	3488	0.03	A
Weekday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	56	29	0.80	720	0.12	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	56	29	0.80	1290	0.07	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	10	1234	0.80	1920	0.65	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	14	1248	0.80	1800	0.70	C
Manhattan-bound East Ramp	19.50	17.50	49	146	0.80	3938	0.04	A
Manhattan-bound West Ramp	17.50	15.50	130	199	0.90	3488	0.08	A
Saturday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	28	23	0.80	720	0.07	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	28	23	0.80	1290	0.04	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	9	1011	0.80	1920	0.53	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	12	1091	0.80	1800	0.61	B
Manhattan-bound East Ramp	19.50	17.50	43	29	0.90	3938	0.02	A
Manhattan-bound West Ramp	17.50	15.50	19	126	0.80	3488	0.03	A
Saturday Post-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	15	15	0.80	720	0.04	A
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	15	15	0.80	1290	0.02	A
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	117	145	0.90	2160	0.12	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	308	44	0.80	1800	0.20	A
Manhattan-bound East Ramp	19.50	17.50	1818	11	0.80	3938	0.37	A
Manhattan-bound West Ramp	17.50	15.50	4539	17	0.80	3488	1.05	D

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

Table 18-15
2017 No Build Condition: Subway Station Control Area Analysis

Willets Point–Shea Stadium No. 7 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game						
Main Control Area Turnstiles (R532)	5	95	138	2400	0.10	A
Weekday PM Non-Game						
Main Control Area Turnstiles (R532)	5	142	109	2400	0.10	A
Weekday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	130	199	3360	0.11	A
Manhattan-bound East Ramp Turnstiles	7	49	146	2880	0.06	A
Flushing-bound West Stair Turnstiles	6	14	1248	2880	0.44	C
Flushing-bound East Stair Turnstiles	6	10	1234	2880	0.43	C
Saturday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	19	126	3360	0.05	A
Manhattan-bound East Ramp Turnstiles	7	43	29	2880	0.02	A
Flushing-bound West Stair Turnstiles	6	12	1091	2880	0.38	B
Flushing-bound East Stair Turnstiles	6	9	1011	2880	0.35	B
Saturday Post-Game						
Manhattan-bound West Ramp Turnstiles	6	4539	17	3360	1.58	F
Manhattan-bound East Ramp Turnstiles	7	1818	11	2880	0.54	C
Flushing-bound West Stair Turnstiles	6	308	44	2880	0.12	A
Flushing-bound East Stair Turnstiles	6	117	145	2880	0.09	A

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual.*

Subway trips generated by No Build projects in Corona and Flushing were distributed directionally in a similar manner as subway trips generated by the proposed Plan, as detailed in Section E, "Probable Impacts of the Proposed Plan," due to the proximity of these neighborhoods to the District. Because the Flushing-Main Street subway station is the No. 7 subway line's eastern terminus, all trips generated by No Build projects in that area were assigned to the Manhattan-bound direction in the AM peak period and the Flushing-bound direction in the PM peak period. These trips include several large and small projects planned for the Flushing area. Although a small number of trips from the No Build projects in Corona could travel in the off-peak direction, to/from Flushing, it was conservatively assumed that all of these trips would also travel in the peak direction during both the AM and PM peak periods.

In anticipation of major development projects in Long Island City, including the proposed Hunter's Point South development, which is expected to have the same build year as the proposed Plan, projected subway trips from these projects were also added to the No. 7 subway line for the No Build line-haul analysis. Subway trips from other projects in the area were similarly distributed to these and other nearby subway lines. In addition, NYCT plans to add two trains to the peak direction for both the AM and PM peak periods.

Compared with the 2007 existing conditions, the 2017 No Build subway line-haul volumes are expected to increase by approximately 8 percent in the Manhattan-bound direction during the AM peak hour and 9 percent in the Flushing-bound direction during the PM peak hour. As shown in Table 18-16, assuming that planned service improvements are implemented, the No. 7 train would continue to operate within guideline capacity during both the AM and PM peak periods under the No Build condition.

Table 18-16
2017 No Build Condition: Peak Hour Subway Line Haul

No. 7 Train Direction of Travel	Station	Trains /Hour	Volume	Leave Load Guideline Capacity	Leave Load V/C Ratio	Available Capacity
AM Peak Period						
Manhattan-bound Express	Woodside–61st Street	14	16,205	16,940	0.96	735
Manhattan-bound Local	40th Street	14	13,795	16,940	0.81	3,145
PM Peak Period						
Flushing-bound Express + Local	Queensboro Plaza	28	23,732	33,880	0.70	10,148

Sources: New York City Transit

BUS LINE HAUL LEVELS

The 2017 No Build condition analysis of bus line-haul levels incorporates a 1.0-percent annual growth rate on the three study area bus routes. Since there is an abundance of bus routes serving the many development projects planned for the Flushing area, the incorporation of only the background growth is expected to be adequate in accounting for potential increases in ridership on the three study area bus routes absent the proposed Plan. The No Build analysis results are presented in Table 18-17. Under the No Build condition, the eastbound Q66 would operate above guideline capacity during the AM and PM peak periods.

Table 18-17
2017 No Build Condition: Bus Line Haul at NYCT Maximum and District Load Points

Route	Peak Period	Buses Per Hour	Eastbound Load Point	Eastbound AP	Buses Per Hour	Westbound Load Point	Westbound AP
Q19	AM	3	unknown	20	--	Not analyzed	--
	PM	3	unknown	10	--	Not analyzed	--
Q48	AM	6	Roosevelt at 126th	52	5	Roosevelt at 126th	8
	PM	4	Roosevelt at 126th	21	4	Roosevelt at 126th	45
Q66 (to Woodside and LIC)	AM	15	unknown	(81)	--	Not analyzed	--
	PM	11	unknown	(56)	--	Not analyzed	--

Note: AP = average passengers per bus; **(#)** = exceeds NYCT guideline capacity
Source: Q48 ridership data provided by NYCT; Q19 and Q66 ridership data provided by the MTA Bus Company

STREET-LEVEL PEDESTRIAN OPERATIONS

Since new trips associated with the No Build projects are not expected to traverse the study area analysis locations, the 2017 No Build pedestrian volumes incorporate only a 1.0-percent annual background growth. As described above, certain changes to the pedestrian environment are anticipated to result from the completion of Citi Field in 2009. These changes are reflected in the analysis for conditions at the 126th Street and 34th Avenue intersection and along the west side of 126th Street. As shown in Tables 18-18 through 18-22, all analyzed pedestrian elements would continue to operate at acceptable levels (13 PFM for sidewalks; 20 SFP for corners and crosswalks) during all analysis time periods under the No Build condition, except for the east crosswalk of Northern Boulevard and 126th Street, where it would operate at LOS D (19.5 SFP) during the Saturday post-game peak period.

Table 18-18

2017 No Build Condition: Weekday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	7	0.0	A	4.0	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	35	0.2	A	4.2	A
	East	7.5	9	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	1	0.0	A	4.0	A
	South	5.0	6	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	14	0.1	A	4.1	A
	South	5.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	72	0.3	A	4.3	A
	South	13.5	3	0.0	A	4.0	A
Weekday MD Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	14	0.1	A	4.1	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	11	0.1	A	4.1	A
	East	7.5	9	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	2	0.0	A	4.0	A
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	14	0.1	A	4.1	A
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	20	0.1	A	4.1	A
	South	13.5	2	0.0	A	4.0	A
Weekday PM Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	45	0.3	A	4.3	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	56	0.4	A	4.4	A
	East	7.5	40	0.4	A	4.4	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	2	0.0	A	4.0	A
	South	5.0	6	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	6	0.0	A	4.0	A
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	32	0.1	A	4.1	A
	South	13.5	29	0.1	A	4.1	A
Weekday Pre-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	108	0.8	A	4.8	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	11	0.1	A	4.1	A
	East	7.5	13	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	1	0.0	A	4.0	A
	South	5.0	12	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	30	0.1	A	4.1	A
	South	5.0	22	0.3	A	4.3	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	7	0.0	A	4.0	A
	South	13.5	66	0.3	A	4.3	A

Note: PFM = pedestrians per foot per minute.

Table 18-19

2017 No Build Condition: Saturday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Saturday MD Non-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	3	0.0	A	4.0	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	6	0.0	A	4.0	A
	East	7.5	4	0.0	A	4.0	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	2	0.0	A	4.0	A
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	4	0.0	A	4.0	A
	South	5.0	14	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	6	0.0	A	4.0	A
	South	13.5	22	0.1	A	4.1	A
Saturday Pre-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	130	1.0	A	5.0	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	8	0.1	A	4.1	A
	East	7.5	8	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	3	0.0	A	4.0	A
	South	5.0	19	0.3	A	4.3	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	19	0.1	A	4.1	A
	South	5.0	3	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	52	0.2	A	4.2	A
	South	13.5	39	0.2	A	4.2	A
Saturday Post-Game							
126th St between Northern Blvd and 34th Ave	East	9.0	47	0.4	A	4.4	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	87	0.6	A	4.6	A
	East	7.5	10	0.1	A	4.1	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	2	0.0	A	4.0	A
	South	5.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	46	0.2	A	4.2	A
	South	5.0	12	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	14.5	29	0.1	A	4.1	A
	South	13.5	645	3.2	A	7.2	C

Note: PFM = pedestrians per foot per minute.

Table 18-20

2017 No Build Condition: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday								Saturday					
		AM		MD		PM		Pre-Game		MD Non-Game		Pre-Game		Post-Game	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Roosevelt Avenue and 126th Street	Northeast	379.9	A	985.6	A	1482.4	A	332.4	A	926.0	A	545.9	A	217.1	A
	Northwest	1909.45	A	5465.7	A	2187.1	A	1593.9	A	4782.1	A	2318.6	A	931.4	A

Note: SFP = square feet per pedestrian.

Table 18-21

2017 No Build Condition: Weekday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Cross-walk Width (feet)	With Conflicting Vehicles							
				Weekday AM		Weekday MD		Weekday PM		Weekday Pre-Game	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	3863.7	A	1248.9	A	556.2	A	100.3	A
	South	57.0	20.0	7083.9	A	17704.1	A	17704.1	A	488.3	A
34th Ave and 126th St	North	62.0	10.5	4112.9	A	1987.3	A	2030.4	A	84.8	A
	East	28.5	14.5	10531.3	A	5240.3	A	654.2	A	336.7	A
	South	50.0	20.5	7271.2	A	3726.6	A	4069.0	A	135.8	A
	West	50.0	12.5	20460.0	A	10238.2	A	10184.1	A	83.1	A
Roosevelt Ave and 126th St	North	50.0	17.0	756.3	A	3548.9	A	8305.8	A	616.1	A
	East	41.0	11.5	5047.9	A	1416.8	A	2024.8	A	2245.0	A
	South	42.5	15.5	12346.6	A	6076.0	A	12382.1	A	2234.0	A
	West	43.0	16.0	3638.8	A	3442.3	A	258.8	A	841.5	A

Note: SFP = square feet per pedestrian.

Table 18-22

2017 No Build Condition: Saturday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles					
				Saturday MD Non-Game		Saturday Pre-Game		Saturday Post-Game	
				SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	1832.7	A	32.3	C	19.5	D
	South	57.0	20.0	17704.1	A	282.1	A	420.6	A
34th Ave and 126th St	North	62.0	10.5	1832.5	A	26.3	C	55.3	B
	East	28.5	14.5	10387.2	A	976.6	A	181.4	A
	South	50.0	20.5	3803.3	A	375.0	A	83.8	A
	West	50.0	12.5	10104.9	A	70.8	A	74.8	A
Roosevelt Ave and 126th St	North	50.0	17.0	2729.7	A	1177.5	A	467.2	A
	East	41.0	11.5	2051.8	A	2291.4	A	602.8	A
	South	42.5	15.5	4966.2	A	12377.0	A	2065.0	A
	West	43.0	16.0	3426.7	A	637.6	A	381.5	A

Note: SFP = square feet per pedestrian.

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

The future with the proposed Plan (the Build condition) would result in increased transit and pedestrian volumes within the study area. Since the completion of the Draft Generic Environmental Impact Statement (DGEIS), assumptions related to the development of the Lot B parking lot at the northwest corner of Roosevelt Avenue and 126th Street have changed. For the Final GEIS (FGEIS), the parking garage previously assumed in the DGEIS to be built within the Lot B development would instead be constructed on the south side of Roosevelt Avenue within the existing Lot D. Additional spaces would be provided within this garage to replace the spaces lost from the surface parking currently available on Lot D. Because of its new location, all motorists who park at this garage and are destined for Citi Field or the Lot B development would, with this modification, have to cross Roosevelt Avenue. Therefore, for the FGEIS, the pedestrian assignments for Lot B trips were revised to reflect the new garage location.

This section describes the projected travel patterns of the site-related trips and assesses their potential impacts on nearby transit and pedestrian facilities. Where significant adverse impacts are identified, measures to mitigate the impacts are described in Chapter 23.

TRIP DISTRIBUTION AND ASSIGNMENT

Transit and pedestrian volumes for the Build condition were estimated by overlaying peak 15-minute volumes derived from the trip generation estimates presented in Chapter 17 onto the No Build analysis networks. These volumes were then assigned to the transit and pedestrian analysis locations based on the following assumptions.

- Automobile and taxi person trips are likely to have a negligible effect on the pedestrian network, since both would be dispersed throughout the District east of 126th Street, and the associated pedestrian trips, which would mostly occur in the District itself, would traverse a limited number of the pedestrian elements included for analysis.
- Subway trips were assigned to the Willets Point-Shea Stadium subway station. The assignments to specific stairways were based on logical patterns of travel to/from the subway station and the District.
- Based on existing ridership patterns, bus trips were assigned to the study area bus routes as follows: 5 percent to the Q19, 5 percent to the Q66, and 90 percent to the Q48 bus routes. Assignments on these bus routes were made with logical origins and destinations.
- Walk-only trips, primarily within the District, were evenly distributed to the surrounding street network.

CHANGES IN THE PEDESTRIAN ENVIRONMENT

The Build condition pedestrian analysis reflects crosswalk lengths, sidewalk widths, and corner dimensions outlined in the District's current transportation network design. Specific geometric changes affecting the analysis elements include:

- Providing a new connection for Willets Point Boulevard from its existing location intersecting Roosevelt Avenue and 126th Street to a new location farther north within the District, resulting in a new intersection along 126th Street and the reconstruction of the Roosevelt Avenue and 126th Street intersection's northeast corner;
- Modifying 126th Street to serve as the main entryway to the District, resulting in an altered street width[1] and enlarged pedestrian circulation areas on sidewalks on the east side of the street;
- Constructing new streets within the District, resulting in different crossing distances and sidewalk widths from the No Build condition;
- Reconstructing both sidewalks along the north side of Roosevelt Avenue to achieve wider pedestrian circulation areas fronting new development parcels and to incorporate a planned bicycle path;
- Reconstructing the south sidewalk of Roosevelt Avenue west of 126th Street to incorporate a planned bicycle path; and
- Creating a new intersection along Roosevelt Avenue west of 126th Street. This intersection, Roosevelt Avenue and the driveway next to the new Lot B development, would have three crosswalks; two 20-foot-wide crosswalks across Roosevelt Avenue and a 24-foot-wide

[1] The modified width of 126th Street was assumed to be in place under the No Build condition after the completion of Citi Field and its associated changes to the pedestrian environment.

crosswalk across the new driveway along the north side of Roosevelt Avenue were assumed for analysis. Currently, absent a controlled crossing at this location, New York City Police Department (NYPD) traffic control officers manage vehicle flow along Roosevelt Avenue during the Saturday post-game peak period to facilitate the crossing of departing Mets patrons. Assuming that NYPD would continue this practice under the Build condition, the width of the entire intersection, rather than merely the striped crosswalks, would be available for pedestrian flow across Roosevelt Avenue.

New bicycle lanes would be required on the connector streets as part of the proposed Plan. In addition, the City is currently pursuing additional bikeway and greenway connections between the Flushing Bay Promenade to the north and Flushing Meadows-Corona Park, as well as other areas surrounding the District.

SUBWAY STATION OPERATIONS

The same station elements previously analyzed for the existing and No Build conditions were analyzed under the Build condition. Project-generated subway trips were added to the 2017 No Build volumes to generate the 2017 Build volumes for the analysis of station operations. It was assumed that all incremental subway trips would access the Willets Point-Shea Stadium subway station via the street-level and street-mezzanine stairways on the north side of Roosevelt Avenue. Once inside the station, these trips were distributed to the Manhattan-bound and Flushing-bound platforms using the directional split developed for the subway line-haul analysis, as detailed in the next sub-section. Passenger movements between the mezzanine and platform levels were distributed based on existing flow patterns during the various analysis time periods.

As shown in Table 18-23, operating conditions at the street-level stairway (S2) connecting to the north side of Roosevelt Avenue would experience a decline in level of service for all analysis time periods, from LOS A, B, or C under the No Build condition to LOS D, E, or F under the Build condition. As described in Section B, "Methodology," station stairway impacts are considered significant when the minimum amount of additional capacity required to mitigate a stairway location to its No Build condition or LOS C/D is greater than the minimum widening recommended by the *CEQR Technical Manual*. Since this stairway would require up to several feet of widening, the projected deterioration in service levels constitutes a significant adverse subway station impact.

During the Saturday post-game peak period, the Manhattan-bound platform's already near-capacity northwest ramp would become more congested due to the addition of project-generated subway trips. If passenger flows were to resemble existing conditions, the projected passenger volumes at this ramp would exceed its capacity. However, because the northeast ramp would still have an abundance of capacity, some passengers are expected to use the less congested platform access. Applying this passenger redistribution to the projected incremental trips would yield acceptable service levels at both ramps at all analysis time periods. The other remaining mezzanine-platform stairways and ramps would continue to operate at acceptable LOS C or better for all analysis time periods.

As shown in Table 18-24, the main control area would operate at LOS C during the weekday AM and PM peak periods under the Build condition. During the weekday pre-game peak period, operations at the Manhattan-bound platform's northeast control area would decline from LOS C to LOS D. During the Saturday post-game peak period, the northwest control area to the

Manhattan-bound platform would continue to operate at LOS F, while the northeast control area would continue to operate at LOS C.

Table 18-23
2017 Build Condition: Subway Station Vertical Circulation Analysis

Willets Point–Shea Stadium No. 7 Train Station Vertical Circulation Elements	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		LOS
			Up	Down		SVCD Capacity	V/SVCD Ratio	
Weekday AM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	518	425	0.90	810	1.16	D+
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	518	425	0.90	1451	0.65	B
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	15	19	0.90	2160	0.02	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	39	19	0.80	1800	0.03	A
Manhattan-bound East Ramp	19.50	17.50	172	225	0.90	3938	0.09	A
Manhattan-bound West Ramp	17.50	15.50	407	289	0.90	3488	0.18	A
Weekday PM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	703	681	0.90	810	1.71	F+
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	703	681	0.90	1451	0.95	C
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	24	30	0.90	2160	0.03	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	223	28	0.80	1800	0.14	A
Manhattan-bound East Ramp	19.50	17.50	364	398	0.90	3938	0.17	A
Manhattan-bound West Ramp	17.50	15.50	273	471	0.80	3488	0.19	A
Weekday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	507	599	0.90	810	1.37	E+
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	507	599	0.90	1451	0.76	C
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	19	1248	0.80	1920	0.66	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	27	1262	0.80	1800	0.72	C
Manhattan-bound East Ramp	19.50	17.50	165	375	0.80	3938	0.11	A
Manhattan-bound West Ramp	17.50	15.50	443	511	0.90	3488	0.25	A
Saturday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	430	481	0.90	810	1.12	D+
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	430	481	0.90	1451	0.63	B
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	17	1022	0.80	1920	0.54	B
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	24	1103	0.80	1800	0.63	B
Manhattan-bound East Ramp	19.50	17.50	309	110	0.90	3938	0.09	A
Manhattan-bound West Ramp	17.50	15.50	135	480	0.80	3488	0.14	A
Saturday Post-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	8.00	6.00	443	395	0.90	810	1.03	D+
Roosevelt Avenue (North) M4A/4B Stairs	12.75	10.75	443	395	0.90	1451	0.58	B
Mezzanine to Platform								
Flushing-bound East P2/3/4/5 Stairs	20.00	16.00	123	159	0.90	2160	0.13	A
Flushing-bound West P10/11/12/13 Stairs	19.00	15.00	324	48	0.80	1800	0.21	A
Manhattan-bound East Ramp	19.50	17.50	2744	155	0.80	3938	0.59	B
Manhattan-bound West Ramp	17.50	15.50	4020	233	0.80	3488	0.98	C

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*. + = Significant adverse impact.

Table 18-24
2017 Build Condition: Subway Station Control Area Analysis

Willets Point–Shea Stadium No. 7 Train Station Control Area Elements	Quantity	15-Minute Pedestrian Volumes		15-Minute		
		In	Out	SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game						
Main Control Area Turnstiles (R532)	5	574	393	2400	0.40	C
Weekday PM Non-Game						
Main Control Area Turnstiles (R532)	5	781	609	2400	0.58	C
Weekday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	139	213	3360	0.12	A
Manhattan-bound East Ramp Turnstiles	7	62	160	2880	0.07	A
Flushing-bound West Stair Turnstiles	6	130	1477	2880	0.56	C
Flushing-bound East Stair Turnstiles	6	323	1546	2880	0.65	D
Saturday Pre-Game						
Manhattan-bound West Ramp Turnstiles	6	27	137	3360	0.06	A
Manhattan-bound East Ramp Turnstiles	7	55	41	2880	0.03	A
Flushing-bound West Stair Turnstiles	6	278	1172	2880	0.50	C
Flushing-bound East Stair Turnstiles	6	125	1365	2880	0.52	C
Saturday Post-Game						
Manhattan-bound West Ramp Turnstiles	6	4545	31	3360	1.59	F
Manhattan-bound East Ramp Turnstiles	7	1834	15	2880	0.55	C
Flushing-bound West Stair Turnstiles	6	424	188	2880	0.21	B
Flushing-bound East Stair Turnstiles	6	408	361	2880	0.27	B

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

For control areas, impacts are considered significant if the NYCT optimum capacity is exceeded and the increase in v/c ratio between the future with and without the proposed action conditions exceeds 0.01. During the Saturday post-game peak period, control area volumes at the Manhattan-bound platform's northwest ramp would exceed capacity under both the No build and Build conditions. The associated increase in v/c ratio, from 1.43 to 1.59, exceeds the impact threshold under *CEQR Technical Manual* guidelines. However, because this condition exists today and would exist in the future for very short durations (single 15-minute post-game surge) and for a limited number of Saturdays a year, the projected deterioration in service levels would not be considered a significant adverse subway station impact.

SUBWAY LINE HAUL LEVELS

Trips associated with the proposed Plan were superimposed onto the No Build line-haul volumes to generate the Build peak period volumes for the subway line-haul analysis. The Part 3 Worker Flow Tables from the 2000 U.S. Census Transportation Planning Package were examined for the 36 census tracts in the vicinity of the Shea Stadium-Willets Point and Flushing-Main Street stations to establish ratios and trip distribution patterns of current subway trips originating in the area near the District. These data, as summarized in Table 18-25, were used to develop trip distribution patterns for subway trips generated by the proposed Plan.

Table 18-25
Distribution of District Subway Trips

No. 7 Train Load	Percent of Total Trips
Out Bound Trips (from District)	
Arriving at Roosevelt Avenue/Jackson Heights	95%
Leaving Roosevelt Avenue/Jackson Heights	67%
Entering Manhattan from Queens	47%
In Bound Trips (to District)	
Entering Queens from Manhattan	47%
Arriving at Roosevelt Avenue/Jackson Heights	67%
Leaving Roosevelt Avenue/Jackson Heights	95%
Sources: U.S. Census 2000, Journey to Work Data	

Although there are various uses planned for the District, subway trip-making patterns during the commuter peak hours are likely to be similar for all uses. Hence, the above trip distribution was used for assigning all AM and PM peak hour project-generated subway trips to different segments of the No. 7 subway line.

Based on the census data, it was also estimated that approximately 25 percent of the project-generated subway trips would transfer to the Manhattan-bound E/F/R/V trains at the Roosevelt Avenue-Jackson Heights subway station during the AM peak period. Similarly, during the PM peak period, 25 percent of the project-generated subway trips would transfer from the Queens-bound E/F/R/V trains to the No. 7 train at this station. Applying this ratio to the highest hourly (PM peak hour) projected subway trip generation of 2,347 trips would yield 587 transfer trips for the E/F/R/V lines. During the PM peak hour, the E/V line runs 14 Queens-bound trains (132 cars), the F train runs 15 Queens-bound trains (126 cars), and the R line runs 10 Queens-bound trains (80). Assuming that the 587 transfer trips are evenly distributed across the combined 338 cars available during the PM peak hour, there would be fewer than 2 additional passengers per subway car. As this number is less than the five riders per car threshold outlined in the *CEQR Technical Manual,* a quantified subway line-haul analysis for the E/F/R/V lines is not required.

With regard to the No. 7 subway line, the projected peak hour subway trip increments at the peak load points were superimposed onto the No Build line-haul volumes. As shown in Table 18-26, with the overlay of these project-generated trips, the No. 7 subway line would continue to operate within guideline capacity during both the AM and PM peak periods under the Build condition.

Table 18-26
2017 Build Condition: Peak Hour Subway Line Haul

No. 7 Train Direction of Travel	Station	Trains /Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
AM Peak Period						
Manhattan-bound Express	Woodside–61st Street	14	16,871	16,940	1.00	69
Manhattan-bound Local	40th Street	14	14,341	16,940	0.85	2,599
PM Peak Period						
Flushing-bound Express + Local	Queensboro Plaza	28	25,305	33,880	0.75	8,575
Sources: New York City Transit						

BUS LINE HAUL LEVELS

Peak hour bus ridership levels were estimated by adding the incremental trips associated with the proposed Plan to bus stop locations along Roosevelt Avenue at 126th Street for the Q48 route and to maximum load points along the Q19 and Q66 routes.

As described in Section B, "Methodology," impacts to bus line-haul levels would be considered significant if a proposed action would result in operating conditions above guideline capacities. As shown in Table 18-27, the Q19 route would continue to operate within guideline capacity during the AM peak period. During the PM peak period, the route would operate at capacity. However, incremental trips generated by the proposed Plan would cause the eastbound and westbound Q48 routes to operate far above guideline capacity during both the AM and PM peak periods. The eastbound Q66 route would continue to operate above guideline capacity during both the AM and PM peak periods. All these projected increases in bus ridership beyond guideline capacities constitute significant adverse bus line-haul impacts.

Table 18-27

2017 Build Condition: Bus Line Haul at NYCT Maximum and District Load Points

Route	Peak Period	Buses Per Hour	Eastbound		Buses Per Hour	Westbound	
			Load Point	AP		Load Point	AP
Q19	AM	3	unknown	40	--	Not analyzed	--
	PM	3	unknown	54	--	Not analyzed	--
Q48	AM	6	Roosevelt at 126th	**(177)**	5	Roosevelt at 126th	**(133)**
	PM	4	Roosevelt at 126th	**(417)**	4	Roosevelt at 126th	**(374)**
Q66 (to Woodside and LIC)	AM	15	unknown	**(85)**	--	Not analyzed	--
	PM	11	unknown	**(68)**	--	Not analyzed	--

Note: AP = average passengers per bus; **(#)** = exceeds NYCT guideline capacity
Source: Q48 ridership data provided by NYCT; Q19 and Q66 ridership data provided by the MTA Bus Company

STREET-LEVEL PEDESTRIAN OPERATIONS

The study area sidewalks, corner reservoirs, and crosswalks were assessed for the weekday AM, midday, PM, and pre-game peak periods, as well as, the Saturday midday non-game, pre-game, and post-game peak periods by superimposing project-generated trips onto the No Build pedestrian analysis networks. As shown in Tables 18-28 through 18-30, all sidewalks and corner reservoirs would operate at acceptable levels (13 PFM for sidewalks; 20 SFP for corners) during the analysis peak periods under Build condition. However, as shown in Tables 18-31 and 18-32, several study area crosswalks would operate beyond mid-LOS D (less than 20 SFP). These significant adverse pedestrian impacts are expected to occur at the following locations:

NORTHERN BOULEVARD AND 126TH STREET

- The east crosswalk would deteriorate to LOS D (19.9 SFP) during the Saturday pre-game peak period and to LOS E (13.0 SFP) during the Saturday post-game peak period.

ROOSEVELT AVENUE AND 126TH STREET

- The north crosswalk would deteriorate to LOS D (16.2 SFP) during the weekday midday peak period, LOS E (11.9 SFP) during the weekday PM peak period, LOS E (13.1 SFP) during the weekday pre-game peak period, LOS E (12.5 SFP) during the Saturday non-game peak period, LOS E (14.8 SFP) during the Saturday pre-game peak period, and LOS D (18.1 SFP) during the Saturday post-game peak period.

- The east crosswalk would deteriorate to LOS D (19.1 SFP) during the weekday midday peak period, LOS D (16.5 SFP) during the weekday PM peak period, LOS D (17.8 SFP) during the weekday pre-game peak period, LOS E (13.9 SFP) during the Saturday non-game peak period, and LOS D (17.8 SFP) during the Saturday pre-game peak period.
- The west crosswalk would deteriorate to LOS E (13.3 SFP) during the weekday midday, LOS F (6.6 SFP) during the weekday PM peak period, LOS F (6.0 SFP) during the weekday pre-game peak period, LOS E (9.5 SFP) during the Saturday non-game peak period, LOS F (6.0 SFP) during the Saturday pre-game peak period, and LOS E (10.3 SFP) during the Saturday post game peak.

Table 18-28
2017 Build Condition: Weekday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Weekday AM Non-Game							
126th St between Northern Blvd and 34th Ave	East	10.0	42	0.3	A	4.3	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	189	1.3	A	5.3	B
	East	10.0	37	0.2	A	4.2	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	19	0.1	A	4.1	A
	South	10.0	8	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	268	1.3	A	5.3	B
	South	5.0	2	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1148	5.1	B	9.1	C
	South	15.0	222	1.0	A	5.0	A
Weekday MD Non-Game							
126th St between Northern Blvd and 34th Ave	East	10.0	82	0.5	A	4.5	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	334	2.2	A	6.2	B
	East	10.0	115	0.8	A	4.8	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	37	0.2	A	4.2	A
	South	10.0	20	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	397	1.9	A	5.9	B
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1320	45.9	B	49.9	C
	South	15.0	425	1.9	A	5.9	B
Weekday PM Non-Game							
126th St between Northern Blvd and 34th Ave	East	10.0	119	0.8	A	4.8	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	336	2.2	A	6.2	B
	East	10.0	113	0.8	A	4.8	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	37	0.2	A	4.2	A
	South	10.0	14	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	441	2.1	A	6.1	B
	South	5.0	4	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1787	7.9	C	11.9	D
	South	15.0	496	2.2	A	6.2	B
Weekday Pre-Game							
126th St between Northern Blvd and 34th Ave	East	10.0	166	1.1	A	5.1	B
126th St between 34th Ave and Roosevelt Ave	West	10.0	245	1.6	A	5.6	B
	East	10.0	72	0.5	A	4.5	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	34	0.2	A	4.2	A
	South	10.0	18	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	369	1.8	A	5.8	B
	South	5.0	22	0.3	A	4.3	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1483	6.6	B	10.6	D
	South	15.0	433	1.9	A	5.9	B

Note: PFM = pedestrians per foot per minute.

Table 18-29
2017 Build Condition: Saturday Pedestrian LOS Analysis for Sidewalks

Location	Sidewalk	Effective Width (feet)	15-Minute Two-Way Volume	Average		Platoon	
				PFM	LOS	PFM	LOS
Saturday MD Non-game							
126th St between Northern Blvd and 34th Ave	East	10.0	92	0.6	A	4.6	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	263	1.8	A	5.8	B
	East	10.0	82	0.5	A	4.5	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	45	0.3	A	4.3	A
	South	10.0	12	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	418	2.0	A	6.0	B
	South	5.0	14	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1608	7.1	C	11.1	D
	South	15.0	571	2.5	A	6.5	B
Saturday Pre-game							
126th St between Northern Blvd and 34th Ave	East	10.0	196	1.3	A	5.3	B
126th St between 34th Ave and Roosevelt Ave	West	10.0	222	1.5	A	5.5	B
	East	10.0	75	0.5	A	4.5	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	36	0.2	A	4.2	A
	South	10.0	27	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	344	1.6	A	5.6	B
	South	5.0	3	0.0	A	4.0	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1346	6.0	B	10.0	C
	South	15.0	445	2.0	A	6.0	B
Saturday Post-game							
126th St between Northern Blvd and 34th Ave	East	10.0	104	0.7	A	4.7	A
126th St between 34th Ave and Roosevelt Ave	West	10.0	325	2.2	A	6.2	B
	East	10.0	71	0.5	A	4.5	A
Northern Blvd between 126th St and 126th Pl	South	7.0	0	0.0	A	4.0	A
34th Ave between 126th St and 126th Pl	North	10.0	29	0.2	A	4.2	A
	South	10.0	10	0.1	A	4.1	A
Roosevelt Ave between 126th St and the Van Wyck Expressway	North	14.0	341	1.6	A	5.6	B
	South	5.0	12	0.2	A	4.2	A
Roosevelt Ave between 126th St and the Grand Central Parkway	North	15.0	1320	5.9	B	9.9	C
	South	15.0	984	4.4	A	8.4	C

Note: PFM = pedestrians per foot per minute.

Table 18-30
2017 Build Condition: Pedestrian LOS Analysis for Corners

Location	Corner	Weekday								Saturday					
		AM		MD		PM		Pre-Game		MD Non-Game		Pre-Game		Post-Game	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Roosevelt Avenue and 126th Street	Northeast	47.0	B	35.3	C	26.9	C	34.4	C	28.1	C	37.6	C	39.9	C
	Northwest	58.0	B	40.0	B	30.1	C	36.5	C	32.1	C	41.1	B	33.9	C

Note: SFP = square feet per pedestrian.

Table 18-31
2017 Build Condition: Weekday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Cross-walk Width (feet)	With Conflicting Vehicles							
				Weekday AM		Weekday MD		Weekday PM		Weekday Pre-Game	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	117.8	A	53.6	B	46.4	B	38.0	C
	South	57.0	20.0	5996.2	A	17704.1	A	9289.5	A	482.2	A
34th Ave and 126th St	North	62.0	10.5	3350.4	A	1685.3	A	1632.0	A	72.4	A
	East	43.0	14.5	1182.9	A	536.0	A	293.6	A	245.4	A
	South	50.0	20.5	4091.4	A	2238.6	A	3083.0	A	125.3	A
	West	50.0	12.5	20164.4	A	9665.5	A	9272.9	A	84.8	A
126th St and New Willets Point Blvd	North	50.0	15.0	517.5	A	172.1	A	267.0	A	341.9	A
	South	50.0	15.0	76.3	A	59.8	B	91.1	A	113.8	A
Roosevelt Ave and 126th St	North	50.0	17.0	21.6	D	16.2	D+	11.9	E+	13.1	E+
	East	41.0	11.5	47.8	B	19.1	D+	16.5	D+	17.8	D+
	South	42.5	15.5	254.0	A	125.7	A	120.8	A	141.5	A
	West	43.0	16.0	35.0	C	13.3	E+	6.6	F+	6.0	F+
Roosevelt Avenue and Lot B Driveway	North	30.0	24.0	28.9	C	23.9	D	14.1	E+	22.6	D
	East	43.0	20.0	364.3	A	213.1	A	228.6	A	27.9	C
	West	43.0	20.0	370.5	A	212.5	A	222.9	A	35.3	C

Note: SFP = square feet per pedestrian; + = significant adverse impact.

Table 18-32
2017 Build Condition: Saturday Pedestrian LOS Analysis for Crosswalks

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	With Conflicting Vehicles					
				Saturday MD Non-Game		Saturday Pre-Game		Saturday Post-Game	
				SFP	LOS	SFP	LOS	SFP	LOS
Northern Blvd and 126th St	East	118.5	14.5	40.6	B	19.9	D+	13.0	E+
	South	57.0	20.0	6295.5	A	273.8	A	403.0	A
34th Ave and 126th St	North	62.0	10.5	1355.4	A	21.0	D	43.5	B
	East	43.0	14.5	431.0	A	443.6	A	162.1	A
	South	50.0	20.5	2433.5	A	344.1	A	76.5	A
	West	50.0	12.5	9471.0	A	76.6	A	74.8	A
126th St and New Willets Point Blvd	North	50.0	15.0	1086.1	A	581.2	A	170.5	A
	South	50.0	15.0	78.4	A	86.5	A	62.8	A
Roosevelt Ave and 126th St	North	50.0	17.0	12.5	E+	14.8	E+	18.1	D+
	East	41.0	11.5	13.9	E+	17.8	D+	20.1	D
	South	42.5	15.5	100.8	A	139.8	A	155.1	A
	West	43.0	16.0	9.5	E+	6.0	F+	10.3	E+
Roosevelt Avenue and Lot B Driveway	North	30.0	24.0	18.2	D+	24.5	C	28.7	C
	East	43.0	20.0*	160.5	A	32.5	C	42.5	B
	West	43.0	20.0*	159.6	A	40.0	C	33.4	C

Note:
SFP = square feet per pedestrian; + = significant adverse impact.
* During the Saturday post game analysis period, traffic control officers would manage pedestrian flow at the intersection, effectively making the entire approximately 70-foot-wide intersection box available to pedestrians crossing Roosevelt Avenue.

ROOSEVELT AVENUE AND THE LOT B DRIVEWAY

Pedestrian operations would be below acceptable levels during two analysis time periods.

- The north crosswalk would operate at LOS E (14.1 SFP) during the weekday PM peak period and at LOS D (18.2 SFP) during the Saturday non-game peak period.

THE NO CONVENTION CENTER SCENARIO

As discussed in Chapter 17, the No Convention Center Scenario would result in an overall reduction in projected trips. The total person-trip increments generated by the No Convention

Center Scenario, ranging from approximately 11,000 to 22,800 peak hour person trips, would be 88 to 96 percent during analysis peak hours of those generated by the proposed Plan. For transit only (subway and bus) trips, the No Convention Center Scenario would also yield lower trip generation (95 to 100 percent) during analysis peak hours, except for the weekday AM peak hour, during which higher commuter trips generated by the additional residential development replacing lower morning activities from the convention center would result in a one-percent higher transit trip generation. Total peak hour subway and bus trips generated by this development scenario would be approximately 2,500 to 4,300 and 1,200 to 3,000, respectively. These differences in peak hour project-generated trips distributed among the many subway, bus, and pedestrian elements analyzed for peak hour and peak 15-minute conditions above are not expected to yield materially different analysis results. Therefore, the impact findings for transit and pedestrian conditions discussed above for the proposed Plan would also apply to the No Convention Center Scenario. ✱

Chapter 19: Air Quality

A. INTRODUCTION

This chapter discusses the potential for air quality impacts associated with the Willets Point Development Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D in the 2017 analysis year is compared with the continuation of the existing on-site uses in the future without the proposed Plan. The cumulative impact is also assessed for the No Convention Center Scenario, as discussed in Chapter 2.

Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at a development site, such as emissions from on-site fuel combustion for heat and hot water systems, or emissions from parking garage ventilation systems. Indirect impacts are those associated with the emissions from nearby existing stationary sources (impacts on the proposed project) or emissions from on-road vehicle trips generated by the project or other changes to future traffic conditions due to the project.

The potential for indirect mobile source impacts from the Willets Point Development Plan and the anticipated development on Lots B and D was analyzed. The proposed Plan and anticipated development on Lots B and D would also include a number of parking facilities. The exact locations and plans for the proposed parking facilities are not available at this time. Therefore, an analysis was conducted to evaluate potential future pollutant concentrations in the vicinity of ventilation outlets for a prototypical reasonable worst-case parking garage. The predicted increments from the garage ventilation were also added, where appropriate, to the predicted concentrations from the mobile source analysis, to assess the cumulative impact of both sources.

A stationary source analysis was also conducted to evaluate the potential future pollutant concentrations resulting from oil- and/or gas-burning heat and hot water systems for the proposed Plan and anticipated development on Lot B. In addition, potential effects of stationary source emissions from existing nearby industrial facilities on the proposed uses were assessed.

PRINCIPAL CONCLUSIONS

As discussed below, the maximum predicted pollutant concentrations and cumulative concentration increments from mobile sources with the proposed Plan and the anticipated development on Lots B and D would be in compliance with the applicable guidance thresholds and ambient air quality standards. The parking facilities associated with the proposed Plan and the anticipated development on Lots B and D would also not result in any significant adverse air quality impacts. Similarly, emissions associated with the parking facilities on Citi Field parking Lot C, closest to the proposed District, and with the traffic along the elevated portion of Northern Boulevard adjacent to proposed uses, would result in concentrations in the proposed District that would be in compliance with applicable standards and thresholds. Thus, the proposed Plan would not result in significant adverse impacts from mobile source emissions.

Based on stationary source analyses, there would be no potential for significant adverse air quality impacts from the heat and hot water systems of the proposed Plan and the anticipated development on Lot B, provided that restrictions described in the text are imposed on the placement of heating, ventilation, and air conditioning (HVAC) stacks of some uses. Nearby existing sources from manufacturing or processing facilities were analyzed for their potential impacts on the development that would be introduced under the proposed Plan. The results of the industrial source analysis demonstrated that there would be no significant adverse air quality impacts from existing industrial uses within 1,000 feet of the District.

B. POLLUTANTS FOR ANALYSIS

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of carbon monoxide (CO) are predominantly influenced by mobile source emissions. Particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (NO and NO_2, collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and sources utilizing non-road diesel such as diesel trains, marine engines, and non-road vehicles (e.g., construction engines). On-road diesel vehicles currently contribute very little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs.

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. Since CO is a reactive gas which does not persist in the atmosphere, CO concentrations can vary greatly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be predicted on a local, or microscale, basis.

The proposed Plan would result in changes in traffic patterns and an increase in traffic volume in the District and nearby areas. Therefore, a mobile source analysis was conducted at critical intersections to evaluate future CO concentrations with and without the proposed Plan and the anticipated development on Lot B. An analysis was also conducted to evaluate future CO concentrations with the operation of the prototypical proposed parking facility in the District and the anticipated development of a parking garage on Lot D.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any project to regional

emissions of these pollutants would include any added stationary or mobile source emissions; the change in regional mobile source emissions of these pollutants would be related to the total vehicle miles traveled added or subtracted on various roadway types throughout the New York metropolitan area, which is designated as a moderate non-attainment area for ozone by the U.S. Environmental Protection Agency (EPA). The proposed Plan would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted. An analysis of Plan-related emissions of these pollutants from mobile sources was therefore not warranted.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it is mostly of concern further downwind from large stationary point sources, and is not a local concern from mobile sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) Potential impacts on local NO_2 concentrations from the fuel combustion for the proposed heat and hot water boiler systems associated with the Plan and the anticipated development on Lot B were evaluated.

LEAD

Airborne lead emissions are principally associated with industrial sources and motor vehicles that use gasoline containing lead additives. Most U.S. vehicles produced since 1975, and all produced after 1980, are designed to use unleaded fuel. As these newer vehicles have replaced the older ones, motor vehicle related lead emissions have decreased. As a result, ambient concentrations of lead have declined significantly. Nationally, the average measured atmospheric lead level in 1985 was only about one quarter the level in 1975.

In 1985, EPA announced new rules that drastically reduced the amount of lead permitted in leaded gasoline. The maximum allowable lead level in leaded gasoline was reduced from the previous limit of 1.1 to 0.5 grams per gallon effective July 1, 1985, and to 0.1 grams per gallon effective January 1, 1986. Monitoring results indicate that this action has been effective in significantly reducing atmospheric lead concentrations. Effective January 1, 1996, the Clean Air Act (CAA) banned the sale of the small amount of leaded fuel that was still available in some parts of the country for use in on-road vehicles, concluding the 25-year effort to phase out lead in gasoline. Even at locations in the New York City area where traffic volumes are very high, atmospheric lead concentrations are currently far below the 3-month average national standard of 1.5 micrograms per cubic meter ($\mu g/m^3$).

No significant sources of lead are associated with the proposed Plan and, therefore, an analysis was not warranted.

RESPIRABLE PARTICULATE MATTER—PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOCs; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions and from forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the

combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, all types of construction, agricultural activities, as well as wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption of other pollutants, often toxic and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers, or $PM_{2.5}$, and particles with an aerodynamic diameter of less than or equal to 10 micrometers, or PM_{10}, which includes the smaller $PM_{2.5}$. $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from an exhaust pipe or stack) or from precursor gases reacting in the atmosphere to form secondary PM.

Diesel-powered vehicles, especially heavy duty trucks and buses, are a significant source of respirable PM, most of which is $PM_{2.5}$; PM concentrations may, consequently, be locally elevated near roadways with high volumes of heavy diesel powered vehicles. An analysis was conducted to assess the worst case $PM_{2.5}$ and PM_{10} impacts due to the increased traffic associated with the proposed Plan and the anticipated development on Lot B and D.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels: oil and coal. Monitored SO_2 concentrations in New York City are below the national standards. Due to the federal restrictions on the sulfur content in diesel fuel for on-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore, an analysis of SO_2 from mobile sources was not warranted.

As part of the proposed Plan, No. 2 fuel could be burned in the heat and hot water systems. Therefore, potential future levels of SO_2 from boilers associated with the Plan were examined. It was conservatively assumed that No. 4 oil would be burned in the heat and hot water systems for the anticipated development on Lot B and potential future levels of SO_2 from those anticipated uses were also examined.

AIR TOXICS

In addition to the criteria pollutants discussed above, air toxics are of concern. Air toxics are emitted by a wide range of man-made and naturally occurring sources. Emissions of air toxics from industries are regulated by EPA. Federal ambient air quality standards do not exist for non criteria air toxics; however, the New York State Department of Environmental Conservation (DEC) has issued standards for certain non-criteria compounds, including beryllium, gaseous fluorides, and hydrogen sulfide. DEC has also developed guideline concentrations for numerous air toxic compounds. The DEC guidance document DAR-1 (September 2007) contains a compilation of annual and short term (1-hour) guideline concentrations for these compounds. The DEC guidance thresholds represent ambient levels that are considered safe for public exposure. The potential impact from nearby industrial sources on air toxic concentrations within the proposed District was examined.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

The CAA establishes the primary and secondary National Ambient Air Quality Standards (NAAQS) for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are required to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary and secondary standards are the same for NO_2, ozone, lead, and PM, and there is no secondary standard for CO. The NAAQS are presented in Table 19-1. The NAAQS for CO, NO_2, and SO_2 have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended particulate matter (TSP), settleable particles, non-methane hydrocarbons (NMHC), and ozone, which correspond to federal standards that have since been revoked or replaced, and for beryllium, fluoride, and hydrogen sulfide (H_2S).

EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ and retaining the level of the annual standard at 15 $\mu g/m^3$. The PM_{10} 24-hour average standard was retained and the annual average PM_{10} standard was revoked. EPA has also revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective since May 2008.

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA.

In 2002, EPA designated New York City as in attainment for CO. The CAA requires that a maintenance plan ensure continued compliance with the CO NAAQS for former non-attainment areas. New York City is also committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period.

Manhattan has been designated as a moderate NAA for PM_{10}. On December 17, 2004, EPA took final action designating the five New York City counties, Nassau, Suffolk, Rockland, Westchester, and Orange counties as a $PM_{2.5}$ non-attainment area under the CAA due to exceedance of the annual average standard. New York State is required to develop a SIP by early 2008, which will be designed to meet the annual average standard by 2010. As described above, EPA has revised the 24-hour average $PM_{2.5}$ standard. Attainment designations for the revised 24-hour $PM_{2.5}$ standard would be effective by April 2010, and State and local governments in areas that are designated as non-attainment are required to develop SIPs by April 2013 which would be designed to attain the revised 24-hour $PM_{2.5}$ standards by April 2015, although this may be extended in some cases up to April 2020 (these milestones may occur at earlier dates).

Table 19-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	$\mu g/m^3$	ppm	$\mu g/m^3$
Carbon Monoxide (CO)				
8-Hour Average [1]	9	10,000	None	
1-Hour Average [1]	35	40,000		
Lead				
3-Month Average	NA	1.5	NA	1.5
Nitrogen Dioxide (NO_2)				
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average [2]	0.075	160	0.075	160
Respirable Particulate Matter (PM_{10})				
Average of 3 Annual Means — revoked, effective December 18, 2006	NA	50	NA	50
24-Hour Average [1]	NA	150	NA	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Average of 3 Annual Means	NA	15	NA	15
24-Hour Average [3,4]	NA	35	NA	35
Sulfur Dioxide (SO_2)				
Annual Arithmetic Mean	0.03	80	NA	NA
Maximum 24-Hour Average [1]	0.14	365	NA	NA
Maximum 3-Hour Average [1]	NA	NA	0.50	1,300

Notes: ppm – parts per million
$\mu g/m^3$ – micrograms per cubic meter
NA – not applicable
All annual periods refer to calendar year.
PM concentrations (including lead) are in $\mu g/m^3$ since ppm is a measure for gas concentrations. Concentrations of all gaseous pollutants are defined in ppm and approximately equivalent concentrations in $\mu g/m^3$ are presented.
(1) Not to be exceeded more than once a year.
(2) 3-year average of the annual fourth highest daily maximum 8-hr average concentration.
(3) Not to be exceeded by the annual 98th percentile when averaged over 3 years. EPA has reduced these standards down from 0.08 ppm, effective 60 days after publishing in the Federal Register.
(4) EPA has reduced these standards down from 65 $\mu g/m^3$, effective December 18, 2006.
Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.

Nassau, Rockland, Suffolk, Westchester, Lower Orange County Metropolitan Area (LOCMA), and the five New York City counties had been designated as a severe non-attainment area for ozone 1-hour standard. In November 1998, New York State submitted its *Phase II Alternative Attainment Demonstration for Ozone*, which was finalized and approved by EPA effective March 6, 2002, addressing attainment of the 1-hour ozone NAAQS by 2007. These SIP revisions included additional emission reductions that EPA requested to demonstrate attainment of the standard, and an update of the SIP estimates using the latest versions of the mobile source emissions model, MOBILE6.2, and the nonroad emissions model, NONROAD—which have been updated to reflect current knowledge of engine emissions and the latest mobile and nonroad engine emissions regulations.

On April 15, 2004, EPA designated these same counties as moderate non-attainment for the 8-hour ozone standard which became effective as of June 15, 2004 (LOCMA was moved to the Poughkeepsie moderate non-attainment area for 8-hour ozone). EPA revoked the 1-hour standard on June 15, 2005; however, the specific control measures for the 1-hour standard included in the SIP are required to stay in place until the 8-hour standard is attained. The discretionary emissions reductions in the SIP would also remain but could be revised or dropped based on modeling. On February 8, 2008, the State submitted final revisions to a new SIP for ozone to EPA.

In March 2008 EPA strengthened the 8-hour ozone standards. EPA expects designations to take effect no later than March 2010 unless there is insufficient information to make these designation decisions. In that case, EPA will issue designations no later than March 2011. SIPs would be due three years after the final designations are made.

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and the *City Environmental Quality Review (CEQR) Technical Manual* state that the significance of a likely consequence (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[1] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see Table 19-1) would be deemed to have a potential significant adverse impact. In addition, in order to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in non-attainment areas, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

DE MINIMIS CRITERIA REGARDING CO IMPACTS

New York City has developed *de minimis* criteria to assess the significance of the incremental increase in CO concentrations that would result from proposed projects or actions, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in New York City are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Build 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Build) concentrations and the 8-hour standard, when No Build concentrations are below 8.0 ppm.

INTERIM GUIDANCE CRITERIA REGARDING $PM_{2.5}$ IMPACTS

DEC has published a policy to provide interim direction for evaluating $PM_{2.5}$ impacts. This policy would apply only to facilities applying for permits or major permit modifications under SEQRA that emit 15 tons of PM_{10} or more annually. The policy states that such a project will be deemed to have a potentially significant adverse impact if the project's maximum impacts are

[1] *CEQR Technical Manual*, section 222, 2001; and State Environmental Quality Review Act § 617.7

predicted to increase $PM_{2.5}$ concentrations by more than 0.3 $\mu g/m^3$ averaged annually or more than 5 $\mu g/m^3$ on a 24-hour basis. Projects that exceed either the annual or 24-hour threshold will be required to prepare an Environmental Impact Statement (EIS) to assess the severity of the impacts, to evaluate alternatives, and to employ reasonable and necessary mitigation measures to minimize the $PM_{2.5}$ impacts of the source to the maximum extent practicable.

In addition, the New York City Department of Environmental Protection (DEP) is currently recommending interim guidance criteria for evaluating the potential $PM_{2.5}$ impacts for projects subject to CEQR. The updated interim guidance criteria currently employed by DEP for determination of potential significant adverse $PM_{2.5}$ impacts under CEQR are as follows:

- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 5 $\mu g/m^3$ at a discrete receptor location would be considered a significant adverse impact on air quality under operational conditions (i.e., a permanent condition predicted to exist for many years regardless of the frequency of occurrence);
- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5 $\mu g/m^3$ would be considered a significant adverse impact on air quality based on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations;
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 $\mu g/m^3$ from stationary sources at a discrete or ground-level receptor location.

Actions under CEQR that increase $PM_{2.5}$ concentrations by more than the DEP or DEC interim guidance criteria thresholds presented above would be considered to have potential significant adverse impacts. DEP recommends that actions subject to CEQR that exceed the interim guidance thresholds prepare an EIS and examine potential measures to reduce or eliminate such potential significant adverse impacts.

The proposed Plan's annual emissions of PM_{10} are estimated to be well below the 15-ton-per-year threshold under DEC's $PM_{2.5}$ policy guidance. The above DEP and DEC interim guidance criteria were used to evaluate the significance of predicted incremental impacts of the proposed Plan on $PM_{2.5}$ concentrations and to determine the need to minimize PM emissions.

D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

INTRODUCTION

This section presents the methodologies, data, and assumptions used to conduct the air quality analyses for the proposed Plan and anticipated development on Lots B and D. The following analyses were conducted:

- Mobile Source Analysis
  - Assessment of the change in CO and PM concentrations as a result of changes in traffic volumes and geometry due to the proposed Plan and anticipated development on Lots B and D; and
  - Assessment of the potential impacts on the potential elevated receptors (such as operable windows on buildings) that could be constructed as a result of the proposed Plan adjacent to the elevated portions of Northern Boulevard.
- Parking Facilities
  - Assessment of the potential impacts associated with the proposed parking uses in the District.
  - Assessment of the potential impacts associated with the adjacent Citi Field parking lot, which is currently under construction.
  - Assessment of the potential impacts of the parking uses associated with the anticipated development on Lot B (to be located in the parking facility on Lot D).
- Stationary Source Analysis
  - Assessment of the potential impacts from the fossil fuel-fired heating and ventilation sources introduced within the District and the anticipated development on Lot B;
  - Assessment of the potential impacts from nearby industrial sources on the development that would be introduced under the proposed Plan.

MOBILE SOURCES

The prediction of vehicle-generated CO and PM emissions and their dispersion in an urban environment incorporates meteorological phenomena, traffic conditions, and physical configurations. Air pollutant dispersion models mathematically simulate how traffic, meteorology, and geometry combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to describe an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and it is necessary to predict the reasonable worst-case condition, most of these dispersion models predict conservatively high concentrations of pollutants.

The mobile source analyses for the proposed Plan employ models approved by EPA that have been widely used for evaluating air quality impacts of projects in New York City, other parts of New York State, and throughout the country. The modeling approach includes a series of conservative assumptions relating to meteorology, traffic, and background concentration levels resulting in a conservatively high estimate of expected pollutant concentrations that could result from the proposed Plan. The assumptions used in the PM analysis were based on the latest $PM_{2.5}$ interim guidance developed by DEP.

DISPERSION MODELS FOR MICROSCALE ANALYSES

Maximum CO concentrations adjacent to streets surrounding or near the District, resulting from vehicle emissions, were predicted using the CAL3QHC model Version 2.0.[1] The CAL3QHC model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections. CAL3QHC predicts emissions and dispersion of pollutants from idling and moving vehicles. The queuing algorithm includes site-specific traffic parameters, such as signal timing and delay calculations (from the 2000 *Highway Capacity Manual* traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre-timed or actuated signal) characteristics to accurately predict the number of idling vehicles. The CAL3QHC model has been updated with an extended module, CAL3QHCR, which allows for the incorporation of hourly meteorological data into the modeling, instead of worst-case assumptions regarding meteorological parameters. This refined version of the model is employed if maximum predicted future CO concentrations are greater than the applicable ambient air quality standards or when exceedances of *de minimis* thresholds are predicted using the first-level CAL3QHC modeling. It is also used to calculate PM mobile source impacts, since it is more appropriate for calculating 24-hour and annual average PM concentrations.

METEOROLOGY

In general, the transport and concentration of pollutants from vehicular sources are influenced by three principal meteorological factors: wind direction, wind speed, and atmospheric stability. Wind direction influences the accumulation of pollutants at a particular prediction location (receptor), and atmospheric stability accounts for the effects of vertical mixing in the atmosphere.

Tier I Analyses—CAL3QHC

CO calculations were performed using the CAL3QHC model. In applying the CAL3QHC model, the wind angle was varied to determine the wind direction resulting in the maximum concentrations at each receptor.

Following the EPA guidelines[2], CO computations were performed using a wind speed of 1 meter per second and the neutral stability class D. The 8-hour average CO concentrations were estimated by multiplying the predicted 1-hour average CO concentrations by a factor of 0.70 to account for persistence of meteorological conditions and fluctuations in traffic volumes. A surface roughness of 3.21 meters was chosen. At each receptor location, concentrations were calculated for all wind directions, and the highest predicted concentration was reported, regardless of frequency of occurrence. These assumptions ensured that worst-case meteorology was used to estimate impacts.

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[1] *User's Guide to CAL3QHC, A Modeling Methodology for Predicted Pollutant Concentrations Near Roadway Intersections,* Office of Air Quality, Planning Standards, EPA, Research Triangle Park, North Carolina, Publication EPA-454/R-92-006.

[2] *Guidelines for Modeling Carbon Monoxide from Roadway Intersections*, EPA Office of Air Quality Planning and Standards, Publication EPA-454/R-92-005.

Tier II Analyses—CAL3QHCR

A Tier II analysis using the CAL3QHCR model, which includes the modeling of hour-by-hour concentrations based on hourly traffic data and five years of monitored hourly meteorological data, was performed to predict maximum 24-hour and annual average PM levels. The data consist of surface data collected at LaGuardia Airport and upper air data collected at Brookhaven, New York, for the period 2002-2006. All hours were modeled, and the highest resulting concentration for each averaging period was presented.

ANALYSIS YEAR

The microscale analyses were performed for existing conditions and conditions in 2017, the proposed Plan Build year. The analysis of the future year 2017 conditions was performed both without and with the proposed Plan.

VEHICLE EMISSIONS DATA

Engine Emissions

Vehicular CO and PM emission factors were computed using the EPA mobile source emissions model, MOBILE6.2[1]. This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway types, number of starts per day, engine soak time, and various other factors that influence emissions, such as changes in fuel and tailpipe emission standards, and inspection maintenance programs. The inputs and use of MOBILE6.2 incorporates the most current guidance available from DEC and DEP.

Appropriate credits were used to accurately reflect the New York State inspection and maintenance program, which requires inspections of automobiles and light trucks to determine if pollutant emissions from the vehicles' exhaust systems are below emission standards. Vehicles failing the emissions test must undergo maintenance and pass a repeat test to be registered in New York State.

Vehicle classification data were based on field studies conducted for the project. The general categories of vehicle types for specific roadways were further categorized into subcategories based on their relative fleet-wide breakdown.[2]

An ambient temperature of 43°F was used. The use of this temperature is recommended in the *CEQR Technical Manual* for the Borough of Queens and is consistent with current DEP guidance.

Road Dust

The contribution of re-entrained road dust to PM_{10} concentrations, as presented in the PM_{10} SIP, is considered to be significant; therefore, the PM_{10} emission estimates include both exhaust and re-entrained road dust. Fugitive road dust was not included in the $PM_{2.5}$ microscale analyses

[1] EPA, User's Guide to MOBILE6.1 and MOBILE6.2: Mobile Source Emission Factor Model, EPA420-R-03-010, August 2003.

[2] The MOBILE6.2 emissions model utilizes 28 vehicle categories by size and fuel. Traffic counts and predictions are based on broader size categories and then broken down according to the fleet-wide distribution of subcategories and fuel types (diesel, gasoline, or alternative).

based on the current EPA protocol for determining fugitive dust emissions from paved roads.[1] Fugitive $PM_{2.5}$ emission rates for local roadways with average daily traffic (ADT) volumes of 500 or more were determined to be negligible (utilizing the EPA AP-42 method). Therefore, since all roadways at the selected sites were predicted to have ADT higher than 500, fugitive road dust was not included in the $PM_{2.5}$ microscale analyses.

TRAFFIC DATA

Traffic data for the air quality analysis were derived from existing traffic counts, projected future growth in traffic, and other information developed as part of the traffic analysis for the proposed Plan and the anticipated development on Lots B and D (see Chapter 17, "Traffic and Parking"). Traffic data for the future without and with the proposed Plan were employed in the respective air quality modeling scenarios. The data for the future with the proposed Plan accounted for traffic associated with the anticipated development on Lots B and D. Three peak periods were analyzed to assess the impact of morning, evening, and Saturday traffic as well as traffic generated by the proposed Plan that would coincide with game events at Citi Field. The weekday morning (7:45 AM-8:45 AM), afternoon pre-game (6:00 PM-7:00 PM) and Saturday pre-game (12:00 PM-1:00 PM) peak periods were analyzed. These time periods were selected for the mobile source analysis because they produce the maximum anticipated project-generated and total future traffic and, therefore, have the greatest potential for significant air quality impacts.

Since the PM analysis requires hourly traffic data over an entire 24-hour period, it was necessary to estimate this information for the non-peak traffic periods. The projected weekday and Saturday peak traffic volumes in the future without the proposed Plan were used as a baseline. Traffic volumes for other hours without the proposed Plan were determined by adjusting the peak period volumes by the 24-hour distributions based on the Automatic Traffic Recorder (ATR) data. Traffic generated by the proposed Plan and the anticipated development on Lots B and D were similarly determined over the 24-hour period, using the predicted hourly parking accumulation data, obtained from the traffic analysis.

BACKGROUND CONCENTRATIONS

Background concentrations are those pollutant levels not directly accounted for through the modeling analysis (which directly accounts for vehicle-generated emissions on the streets within 1,000 feet and line-of-sight of the receptor location). Background concentrations must be added to modeling results to obtain total pollutant concentrations at a study site.

The 8-hour average CO background concentration used in this analysis was 2.0 ppm. This background concentration represents the maximum of the second highest 8-hour average concentrations recorded at the Queens College monitoring station in 2005, 2006, and 2007. The 1-hour average CO background concentration used in the analysis was 3.1 ppm and was also based on the maximum second highest values collected over the same 2005-2007 period at Queens College.

The 24-hour average PM_{10} background concentration of 46 $\mu g/m^3$ was based on the maximum of the annual second-highest 24-hour average concentrations recorded at the I.S. 52 monitoring station, in the Bronx, in 2002, 2003, and 2004. I.S. 52 is the closest monitoring station to the proposed District that has available recorded data over a recent 3-year period. While there is one

[1] EPA, Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, November 2006.

monitoring station in Queens (P.S. 219) that is closer to the District, PM_{10} concentrations at that station were reported only for 2006 and 2007 and are therefore not sufficient to develop the background value, which is typically based on data collected over a consecutive 3-year period.

MOBILE SOURCE ANALYSIS SITES

Four intersection locations were selected for the microscale CO analysis (see Table 19-2 and Figure 19-1). These intersections were selected after considering all intersection locations analyzed for the traffic study (see Chapter 17) because they are among the locations in the primary and secondary study areas where the greatest number of vehicles generated by the proposed Plan and, therefore, the maximum changes in the concentrations and greatest potential for air quality impacts are expected. Existing traffic volumes, existing and future predicted levels of service, and proximity of the intersections to pedestrian uses were also considered in the selection of intersections for the air quality analysis. As discussed in Chapter 1, "Project Description," the proposed Plan includes a new connection between the Van Wyck Expressway and the Willets Point Development District. CO concentrations at receptors closest to access ramps would be similar to the concentrations predicted in the analysis of the elevated Northern Boulevard, which is described in the following section.

Table 19-2
Mobile Source Analysis Intersection Locations

Analysis Site	Location
1	126th Street and Roosevelt Avenue
2	126th Street and 34th Avenue
3	College Point Boulevard and Roosevelt Avenue
4	108th Street and Northern Boulevard

For the PM_{10} and $PM_{2.5}$ analyses the intersection of 126th Street with Roosevelt Avenue was selected, since of the four sites analyzed for potential CO impacts, that intersection would result in the greatest number of trucks and, therefore, the greatest potential for maximum changes in particulate matter concentrations.

ANALYSIS OF THE ELEVATED NORTHERN BOULEVARD

Under the proposed Plan, the part of the District adjacent to the elevated portion of Northern Boulevard would be developed with uses that could include hotel and residential. Due to its proximity to elevated sensitive receptors, the potential impact of the traffic on the elevated road on the proposed future uses was analyzed, as recommended in the *CEQR Technical Manual*. Receptors were placed at various locations and elevations to simulate potential future elevated uses and to assess potential impacts from projected future CO levels. The analysis was performed to determine maximum CO concentrations.

RECEPTOR LOCATIONS

Multiple receptors (i.e., precise locations at which concentrations are predicted) were modeled at each of the selected sites. Receptors were placed along the approach and departure links at spaced intervals. Local model receptors were placed at sidewalk or roadside locations near intersections with continuous public access. Receptors in the annual $PM_{2.5}$ neighborhood scale

models were placed at a distance of 15 meters from the nearest moving lane, based on the DEP procedure for neighborhood scale corridor $PM_{2.5}$ modeling.

PARKING FACILITIES

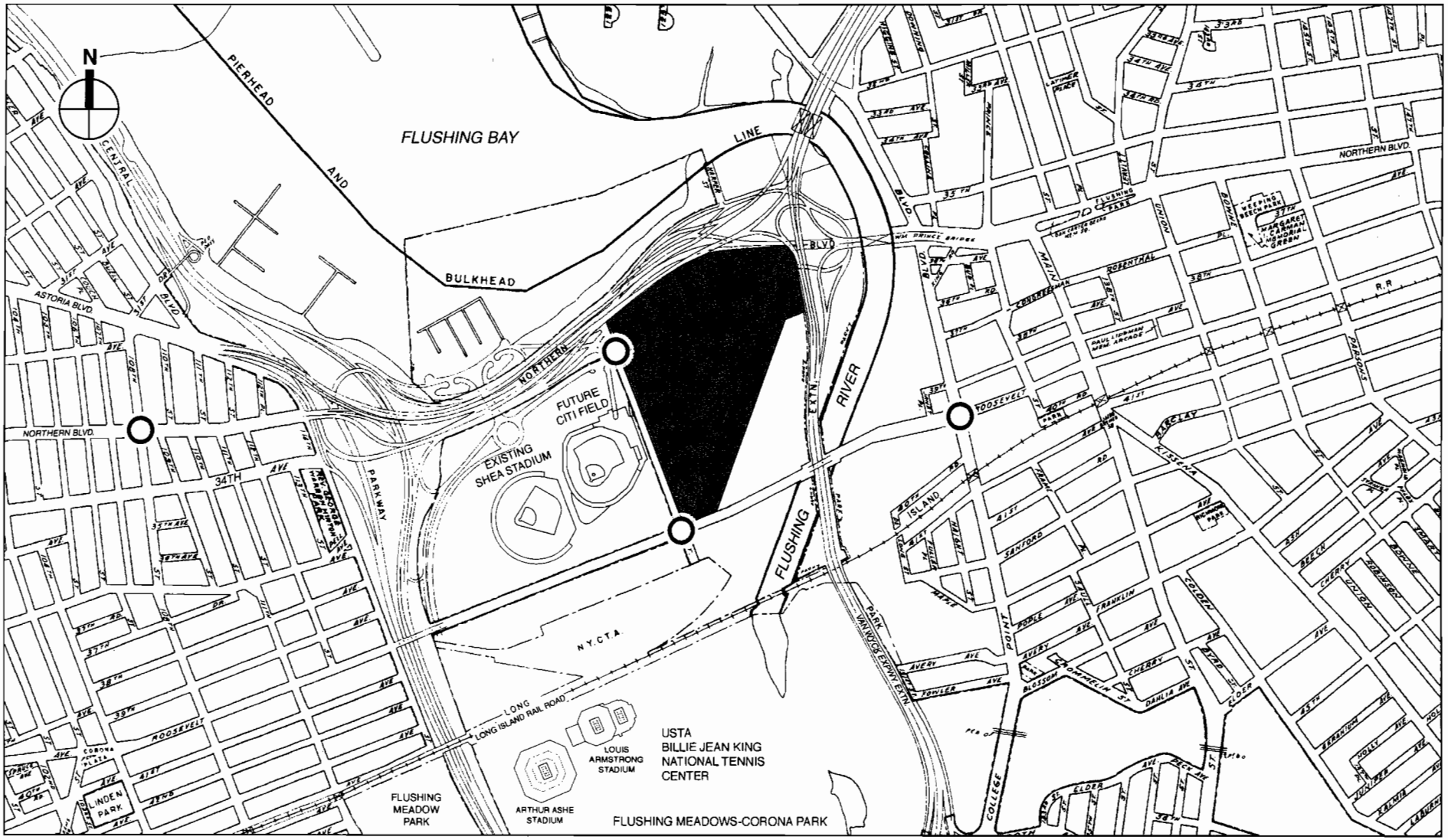
PROPOSED PLAN

The proposed Plan would include parking facilities to provide for new parking demand. Emissions from vehicles using the parking areas could potentially affect ambient levels of CO in the future with the proposed Plan. The garage associated with the proposed convention center was analyzed since the convention center would generate the greatest potential parking demand in the District and would therefore likely result in the highest concentrations of pollutants at nearby receptors. The analysis was undertaken using the methodology set forth in the *CEQR Technical Manual*, applying modeling techniques to the vent structures and calculating pollutant levels at various distances from the vents.

Emissions from vehicles entering, parking, and exiting the garages were estimated using the EPA MOBILE6.2 mobile source emission model and an ambient temperature of 43°F, as referenced in the *CEQR Technical Manual.* For all arriving and departing vehicles, an average speed of 5 miles per hour was conservatively assumed for travel within the parking garage. In addition, all departing vehicles were assumed to idle for one minute before proceeding to the exit. The concentration of CO within the garage was calculated assuming a minimum ventilation rate, based on New York City Building Code requirements, of one cubic foot per minute of fresh air per gross square foot of garage area. To determine compliance with the NAAQS and the *de minimis* criteria, CO concentrations were determined for the maximum 8-hour average period.

To determine pollutant levels in the vicinity of the vents, the exhaust from the parking garage was analyzed as a "virtual point source" using the methodology in EPA's *Workbook of Atmospheric Dispersion Estimates, AP-26.* This methodology estimates CO concentrations at various distances from the vents by assuming that the concentration in the garage is equal to the concentration leaving the exhaust, and determining the appropriate initial horizontal and vertical dispersion coefficients at the vent faces. Background and on-street CO concentrations were then added to the modeling results to obtain the total ambient levels at each receptor location. The on-street CO concentration was determined using the methodology in Air Quality Appendix 1 of the *CEQR Technical Manual,* utilizing traffic volumes at the intersection of 34th Avenue and 126th Street (mobile source analysis Site 2). This site was chosen because of the two analyzed sites bordering the proposed District, CO concentrations at Site 2 were predicted to be greater during all time periods, as discussed below.

Since there are no specific garage designs for the proposed Plan, reasonable worst-case assumptions for air quality modeling were made regarding the design of the garage's mechanical ventilation systems. The exhaust from the parking garage was assumed to be vented through a single outlet vent with a height of 10 feet. The vent was assumed to exhaust directly onto the street, and a "near" receptor was placed along the sidewalks at a pedestrian height of six feet and at a distance of five feet from the vent. A "far" receptor was placed directly across the street from the assumed vent location, at a distance of 40 feet. This is a conservative distance, since the minimum street right of way mandated by the zoning Special District regulations would be 60 feet. A persistence factor of 0.7 was used to convert the calculated 1-hour average maximum concentrations to 8-hour averages, accounting for meteorological variability over the average 8-hour period.



Willets Point Development District

Intersection Location

Figure 19-1

Mobile Source Analysis Intersection Locations

ANTICIPATED DEVELOPMENT ON LOT B PARKING

To assess the effect of the parking facility that would be introduced under the anticipated development on Lot B, a conceptual reasonable-worst case analysis was performed, assuming that the demand for parking associated with the anticipated commercial uses on Lot B would be met by a single multi-level mechanically ventilated garage, which would be located on Lot D, on the south side of Roosevelt Avenue immediately east of the South Lot. The analysis of the garage on Lot D followed the same methodology described above for the conceptual convention center garage. The on-street traffic contribution to CO concentrations was determined using traffic data for the intersection of Roosevelt Avenue and 126th Street (mobile source analysis Site 1). This site was chosen because of its proximity to the parking facility that would be constructed on Lot D.

CITI FIELD PARKING

The existing Citi Field parking Lot C and the access point to that parking lot are directly across 126th Street from the proposed District. The parking lot has capacity for 1,125 vehicles[1]. The potential effect of emissions from vehicles using the parking lot on CO concentrations at proposed structures within the proposed District closest to the parking lot was analyzed using the methodology set forth in the *CEQR Technical Manual*.

Potential impacts from the existing parking lot on CO concentrations were assessed for the time periods when overall lot usage would be the greatest, considering the hours when the greatest number of vehicles would exit the facility. Departing vehicles were assumed to be operating in a "cold-start" mode, emitting higher levels of CO than arriving vehicles.

To estimate maximum potential impacts on the development that would be introduced under the proposed Plan, a receptor was placed at the building façade that would be at the nearest allowable distance to the existing parking Lot C access point, directly across 126th Street. A persistence factor of 0.70, supplied by DEP, was used to convert the calculated 1-hour average maximum concentrations to 8-hour averages, accounting for meteorological variability over the average 8-hour period.

Emissions from vehicles entering, parking, and exiting the parking lots were estimated using the EPA MOBILE6.2 mobile source emission model and an ambient temperature of 43°F, as referenced in the *CEQR Technical Manual*. All arriving and departing vehicles were conservatively assumed to travel at an average speed of five miles per hour within the parking facility. In addition, all departing vehicles were assumed to idle for one minute before exiting. To determine compliance with the NAAQS, CO concentrations were determined for the maximum 1- and 8-hour average periods.

STATIONARY SOURCES

HVAC SYSTEMS

Screening Analysis

There are presently no designs for individual buildings that would be developed under the proposed Plan and exact building locations are not known. However, the cumulative

[1] Shea Stadium Redevelopment Final Environmental Impact Statement.

development scenario for analysis, presented in Chapter 2, includes an estimate of the total expected development size in the District and on Lot B for various uses that would require HVAC systems—residential, retail, office, community facility, convention center, hotel, and school.

Future uses would be developed based on the zoning Special District regulations. The regulations would guide such urban design elements as the placement of uses within the District, building heights and setbacks, street hierarchies, and basic site planning and design provisions. The zoning Special District regulations would guide development for four basic components of the proposed Plan: streets and streetscapes, a regional entertainment and commercial center, a convention center, and a residential neighborhood, as described in more detail in Chapter 9, "Urban Design and Visual Resources."

In addition, the height of the structures developed under the proposed Plan would be limited by Federal Aviation Administration (FAA) restrictions imposed due to the proximity of the District to LaGuardia airport. Therefore, the available information from the cumulative development scenario for analysis, the Special District regulations, and the FAA restrictions was integrated to assess the potential air quality impacts from HVAC systems associated with the following uses on other proposed uses within the District:

- convention center
- tower building (height greater than 120 feet)
- midrise building on an anchor block (height between 80 feet and 120 feet)
- midrise building on a block other than an anchor block (height between 80 feet and 120 feet)

Since there are no specific designs available to conduct a detailed assessment of potential HVAC impacts from the proposed Plan, a screening analysis was performed based on the methodology described in the *CEQR Technical Manual.* The screening procedures utilize information regarding the type of fuel to be burned, the maximum development size, type of development, the stack height, and the distance from the stack to the nearest building of similar or greater size, to evaluate whether a significant adverse impact is likely. The screening procedure provides a conservative assessment of potential future impacts from emissions due to HVAC sources, both within the District, and beyond.

In addition to the analysis of the proposed Plan, the potential impact of HVAC systems at the anticipated development on Lot B on the proposed District was evaluated. The potential for the closest anticipated large use in the District to impact the anticipated development on Lot B was also examined.

Refined Analysis

Since the HVAC screening analysis for the anticipated development on Lot B determined the potential for significant air quality impacts, a refined air quality analysis was performed using the EPA/AMS AERMOD dispersion model. The AERMOD model was designed as a replacement to the EPA Industrial Source Complex (ISC3) model and is approved for use by EPA. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of

terrain interactions. The meteorological data set consisted of the five recent years of concurrent meteorological data: surface data collected at LaGuardia Airport (2002-2006) and upper air data collected at Brookhaven, Suffolk County, New York.

INDUSTRIAL SOURCE ANALYSIS

Potential air quality effects from existing industrial operations near the District on the development that would be introduced under the proposed Plan were analyzed. Industrial air pollutant emission sources within 400 feet and larger emissions sources within 1,000 feet of the District boundaries were considered for inclusion in the air quality impact analysis, as recommended in the *CEQR Technical Manual*. No industrial emission sources were found within 400 feet of the District. The industrial sources currently existing within the District would not continue to operate under the proposed Plan and were therefore excluded from the analysis. A request was made to the DEP's Bureau of Environmental Compliance (BEC), and a DEC permit search was performed to obtain information about manufacturing or industrial emissions for larger sources, such as asphalt plants, within 1,000 feet of the District. In addition, a search of federal and State-permitted facilities within the study area was conducted using the EPA's Envirofacts database[1] and the DEC DAR-1 air toxics software program. Five businesses, some possessing multiple air permits, were identified within 1,000 feet of the District.

After compiling the emission and stack parameter information for facilities with manufacturing or process operations within 1,000 feet of the District, the EPA SCREEN3 model was used to estimate maximum potential impacts from each source identified. SCREEN3 is a single source Gaussian plume model that uses pre-set meteorological data to give the worst case 1-hour average concentrations.

Table 3Q-3 in the *CEQR Technical Manual*, which is typically used for industrial source analyses, was not used because the distances of the sources considered in the analysis were beyond 400 feet from the District.

Distances analyzed for each source were the minimum distances between the boundary of the District and the source site. Predicted worst-case impacts on the development that would be introduced under the proposed Plan were compared with the short-term guideline concentrations (SGCs) and annual guideline concentrations (AGCs) recommended in the DEC's *DAR-1 AGC/SGC Tables.*[2] These guideline concentrations present the airborne concentrations, which are applied as a screening threshold to determine whether future occupants of the District would be significantly impacted by nearby sources of air pollution.

To assess the effects of multiple sources emitting the same pollutants, cumulative source impacts were determined. Concentrations of the same pollutant from industrial sources that were within 1,000 feet of the District were combined and compared with the guideline concentrations discussed above.

[1] http://oaspub.epa.gov/enviro/ef_home2.air

[2] New York State Ambient Air Quality Report for 2007, DEC Division of Air Resources, Bureau of Stationary Sources, 2008.

E. EXISTING CONDITIONS

Ambient concentrations of SO_2, NO_2, CO, ozone, lead, PM_{10}, and $PM_{2.5}$ measured at monitoring stations closest to the District are shown in Table 19-3. These values represent the maximum concentrations recorded during 2007 at the specified representative monitoring stations. There were no monitored violations of NAAQS at these monitoring sites at the time the concentrations were recorded.

Table 19-3
Maximum Criteria Pollutant Concentrations Recorded at Representative Monitoring Stations in 2007

Pollutant	Monitoring Station	Units	Averaging Period	Concentration	NAAQS
CO	Queens College 2, Queens	ppm	8-hour	2.8	9
			1-hour	3.4	35
SO_2	Queens College 2, Queens	$\mu g/m^3$	Annual	13	80
			24-hour	55	365
			3-hour	92	1,300
PM_{10} [1]	P.S. 219, Queens	$\mu g/m^3$	24-hour	53	150
$PM_{2.5}$ [2]	P.S. 219, Queens	$\mu g/m^3$	Annual	11	15
			24-hour	30	35
NO_2	Queens College 2, Queens	$\mu g/m^3$	Annual	43	100
Lead	J.H.S. 126, Brooklyn	$\mu g/m^3$	3-month	0.02	1.5
Ozone [3]	Queens College 2, Queens	ppm	8-hour	0.075	0.075
			1-hour	0.11	0.12

Notes: The concentrations shown correspond to the most recent levels reported and are not directly used as background concentrations, which are based on DEC reports for 3-5 years.
[1] The annual PM_{10} standard was revoked by EPA. Note that PM_{10} values at P.S. 219 were not reported for periods prior to 2006.
[2] EPA has reduced these standards down from 65 $\mu g/m^3$, effective December 18, 2006.
[3] The 1-hour ozone NAAQS has been replaced with the 8-hour standard; however, the maximum monitored concentration is provided for informational purposes. EPA has reduced the 8-hour standard down from 0.08 ppm, effective May 2008.
Source: DEC, New York State Ambient Air Quality Data Report for 2007.

MODELED CO CONCENTRATIONS FOR EXISTING TRAFFIC CONDITIONS

As noted previously, receptors were placed at multiple sidewalk locations next to the intersections selected for the analysis. The receptor with the highest predicted CO concentrations was used to represent these intersection sites for the existing conditions. CO concentrations were calculated for each receptor location, at each intersection, for each peak period analyzed.

Table 19-4 shows the maximum modeled existing (2006) CO 8-hour average concentrations at the receptor sites for the peak period when those concentrations are greatest. (No 1-hour values are shown since predicted values are much lower than the 1-hour standard of 35 ppm.) At all receptor sites, the maximum predicted 8-hour average concentrations are well below the national standard of 9 ppm.

Table 19-4
Modeled Existing 8-Hour Average CO Concentrations (2006)

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)
1	126th Street and Roosevelt Avenue	PM pre-game	3.5
2	126th Street and 34th Avenue	AM/PM pre-game	3.8
3	College Point Boulevard and Roosevelt Avenue	PM pre-game	5.1
4	108th Street and Northern Boulevard	AM/PM pre-game/MD pre-game	4.5
Note:	8-hour standard (NAAQS) is 9 ppm.		

F. FUTURE WITHOUT THE PROPOSED PLAN

MOBILE SOURCES

CO

CO concentrations without the proposed Plan were determined for the 2017 Build year using the methodology previously described. Table 19-5 shows future maximum predicted 8-hour average CO concentrations at the analyzed intersections in 2017 without the proposed Plan during the peak period when those concentrations were predicted to be greatest. The values shown are the highest predicted concentrations for the receptor locations for any of the time periods analyzed.

As shown in Table 19-5, 2017 CO concentrations without the proposed Plan are predicted to be well below the 8-hour CO standard of 9 ppm.

Table 19-5
Future Modeled 8-Hour Average CO Concentrations Without the Proposed Plan (2017)

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)
1	126th Street and Roosevelt Avenue	MD pre-game	3.4
2	126th Street and 34th Avenue	PM pre-game	3.7
3	College Point Boulevard and Roosevelt Avenue	PM pre-game/ MD pre-game	4.0
4	108th Street and Northern Boulevard	PM pre-game	3.9
Note:	8-hour standard (NAAQS) is 9 ppm.		

PM

PM concentrations without the proposed Plan were determined for the 2017 Build year using the methodology previously described. Table 19-6 presents the future maximum predicted 24-hour and annual average PM_{10} concentrations at the analyzed intersections in 2017 without the proposed Plan. The values shown are the highest predicted concentrations for the receptor locations.

Table 19-6
Future Modeled
24-Hour PM_{10} Concentrations Without the Proposed Plan (2017)

Receptor Site	Location	Concentration (µg/m^3)
1	126th Street and Roosevelt Avenue	51.59
Note: NAAQS—24-hour average 150 µg/m3. The annual average standard was revoked in 2006.		

STATIONARY SOURCES

In the future without the proposed Plan by 2017, the Willets Point area would likely remain in its present condition. HVAC emissions in the future without the proposed Plan would likely be similar to existing conditions. The sources of industrial emissions would remain in Willets Point and the industrial uses within 1,000 feet of the proposed District would also likely remain.

G. PROBABLE IMPACTS OF THE PROPOSED PLAN

PROPOSED PLAN

The proposed Plan in 2017 would result in increased mobile source emissions in the immediate vicinity of the District, emissions from proposed parking facility exhausts, as well as emissions from fuel combustion in HVAC equipment required to heat and cool the uses that would be introduced by the proposed Plan and the anticipated development on Lots B and D. The proposed Plan would also potentially result in the placement of new receptors within 200 feet of the elevated portions of Northern Boulevard and near the access point to the Citi Field parking Lot C and their associated mobile source emissions. The following sections describe the results of the studies performed to analyze the potential air quality impacts from these sources for the 2017 Build year. In addition, existing industrial facilities were assessed for their potential for adverse air quality impacts on the development that would be introduced under the proposed Plan.

MOBILE SOURCES ANALYSIS

Traffic Intersections

CO

CO concentrations with the proposed Plan were determined for the 2017 Build year at traffic intersections using the methodology previously described. Table 19-7 shows the future maximum predicted 8-hour average CO concentration with the proposed Plan at the four intersections studied. (No 1-hour values are shown, since no exceedances of the NAAQS would occur and the *de minimis* criteria are only applicable to 8-hour concentrations; therefore, the 8-hour values are the most critical for impact assessment.) The values shown represent the highest predicted concentrations for any of the receptors analyzed for the peak periods for which the greatest concentrations and/or concentration increments were predicted. The results indicate that the proposed Plan would not result in any violations of the 8-hour CO standard. In addition, the incremental increases in 8-hour average CO concentrations are very small, and consequently would not result in a violation of the CEQR *de minimis* CO criteria. (The *de minimis* criteria are described above in Section C: "Air Quality Regulations, Standards, and Benchmarks.")

Table 19-7
Future Modeled 8-Hour Average CO Concentrations With and Without the Proposed Plan

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)			
			Without the Plan	With the Plan	Increment	*De Minimis*
1	126th Street and Roosevelt Avenue	PM pre-game	3.3	4.4	1.1	2.8
2	126th Street and 34th Avenue	MD pre-game	3.3	4.5	1.2	2.9
3	College Point Boulevard and Roosevelt Avenue	PM pre-game /MD pre-game	4.0	4.5	0.5	2.5
4	108th Street and Northern Boulevard	AM	3.5	3.8	0.3	2.7
Notes: 8-hour standard (NAAQS) is 9 ppm.						

PM

PM concentrations with the proposed Plan were determined for the 2017 Build year using the methodology previously described. Table 19-8 shows the future maximum predicted 24-hour average PM_{10} concentrations without and with the proposed Plan.

Table 19-8
Future Modeled 24-Hour Average PM_{10} Concentrations (2017)

Receptor Site	Location	24-Hour Concentration ($\mu g/m^3$)[1]	
		Without the Plan	With the Plan
1	126th Street and Roosevelt Avenue	51.59	56.40
Note: [1] NAAQS—24-hour average 150 $\mu g/m^3$.			

The values shown are the highest predicted concentrations for any of the receptors analyzed. The results indicate that the proposed Plan would not result in any violations of the PM_{10} standard at any of the receptor locations analyzed.

Future maximum predicted 24-hour and annual average $PM_{2.5}$ concentrations were determined so that they could be compared with the DEP interim guidance criteria for $PM_{2.5}$. Consistent with current DEP guidance, $PM_{2.5}$ concentrations are presented as an incremental change in concentrations with and without the Plan. The maximum predicted localized 24-hour average and neighborhood-scale annual average $PM_{2.5}$ concentration increments are presented in Tables 19-9 and 19-10, respectively. The results show that the annual and daily (24-hour) $PM_{2.5}$ increments are predicted to be well below the updated DEP interim guidance criteria and, therefore, the proposed Plan would not result in significant $PM_{2.5}$ impacts at the analyzed receptor locations.

Table 19-9
Future (2017) Modeled
24-Hour Average $PM_{2.5}$ Concentration Increments in $\mu g/m^3$

Receptor Site	Location	Increment
1	126th Street and Roosevelt Avenue	0.27

Notes:
EPA has lowered the NAAQS to 35 $\mu g/m^3$, effective December 18, 2006.
$PM_{2.5}$ interim guidance criteria—24-hour average, > 2 $\mu g/m^3$ (5 $\mu g/m^3$ not-to-exceed value), based on the magnitude, frequency duration, location, and size of the area of the predicted concentrations.

Table 19-10
Future (2017) Neighborhood Scale $PM_{2.5}$ Concentration Increments in $\mu g/m^3$

Receptor Site	Location	Increment
1	126th Street and Roosevelt Avenue	0.04

Notes:
NAAQS—annual average 15 $\mu g/m^3$.
PM2.5 interim guidance criteria—annual average (neighborhood scale) 0.1 $\mu g/m^3$.

PROPOSED USES NEAR ELEVATED PORTIONS OF NORTHERN BOULEVARD

As described in Section D, "Methodology for Predicting Pollutant Concentrations," an analysis was also undertaken to determine maximum CO concentrations on sensitive uses that would be introduced under the proposed Plan adjacent to the elevated Northern Boulevard. The maximum predicted 1-hour and 8-hour average CO concentrations are presented in Table 19-11. The results show that future CO concentrations at the proposed sites situated near elevated roadways are well below the 1-hour and 8-hour CO standards for the 2017 Build condition.

Table 19-11
Future (2017) Maximum Predicted 1-Hour and 8-Hour Carbon Monoxide Concentrations on Proposed Uses Near Northern Boulevard (ppm)

Location	Time Period	1-Hour	8-Hour
Proposed Uses near the Elevated Portion of Northern Boulevard	AM	4.2	2.6
	PM pre-game	4.2	2.6
	MD pre-game	4.5	2.8

Notes: NAAQS: 1-hour: 35 ppm. 8-hour: 9 ppm.

PARKING FACILITIES

Proposed Plan

Using the methodology set forth in the *CEQR Technical Manual*, the maximum predicted future CO concentrations from a conceptual garage at the proposed convention center, including ambient background levels and contributions from on-street traffic at sensitive receptors closest to the exhaust would be 8.8 ppm for the 1-hour period, and 4.3 ppm for the 8-hour period. The maximum CO concentrations for the 1-hour and 8-hour averaging period for the convention center parking garage without the background and on-street contributions would be 5.7 ppm and 2.2 ppm, respectively. These maximum predicted CO levels would be in compliance with the

applicable CO federal ambient air quality standards and the CO *de minimis* criteria. The baseline concentration used to compute the *de minimis* value was assumed to be the background CO concentration. The *de minimus* value obtained was 3.5 ppm. Since the proposed convention center garage under the worst-case assumptions would not result in significant air quality impacts, it is concluded that other garages that would be constructed under the proposed Plan, with a smaller capacity and fewer peak hour trips, would also not result in significant air quality impacts.

Anticipated Development on Lot B Parking

The maximum predicted future CO concentrations from a conceptual garage analyzed for the anticipated garage located on Lot D, including ambient background levels and contributions from on-street traffic at sensitive receptors closest to the exhaust, would be 10.6 ppm for the 1-hour period and 6.0 ppm for the 8-hour period. The maximum CO concentrations for the 1-hour and 8-hour averaging period for this garage, analyzed without the background and on-street contributions, would be 7.0 ppm and 3.5 ppm, respectively. These maximum predicted CO levels would be in compliance with the applicable CO federal ambient air quality standards and the CO *de minimis* criteria.

Citi Field Parking

A screening analysis was performed to assess potential impacts from the existing Citi Field parking Lot C, directly across 126th Street from the District. Based on the methodology previously discussed, the maximum overall predicted future CO concentrations, including ambient background levels and potential contributions from nearby on-street traffic, at proposed new structures along 126th Street, would be 4.4 ppm and 2.9 ppm for the 1- and 8-hour periods, respectively. These maximum predicted CO levels are in compliance with the applicable CO standards.

STATIONARY SOURCES

HVAC Systems

Screening Analysis

As described previously, the HVAC analysis for the proposed Plan was performed using the *CEQR Technical Manual* screening procedure, the available information regarding the proposed Plan, the zoning Special District regulations, and the FAA height restrictions. It was determined for the purpose of this analysis that the entire District would be restricted to using No. 2 oil or natural gas as fuel for HVAC systems, and that No. 4 oil or No. 6 oil would be prohibited. To account for a range of possible development sizes and locations very conservative assumptions were made regarding the gross square foot area and stack heights analyzed. Based on the results of the conservative HVAC screening analysis, E-designations would be placed on all privately-owned lots within the District. As properties are acquired by the City, it is anticipated that a Restrictive Declaration would supersede the E-designation, but require implementation of the same measures regarding fuel use and the placement of HVAC exhaust stacks. The text of the E-designations would be as follows:

- Any new development in the District must ensure that the heating, ventilating and air conditioning systems utilize No. 2 fuel oil or natural gas, to avoid any potential significant air quality impacts.

- Any new development involving a convention center must ensure that the HVAC exhaust stack is located at least 140 feet from operable windows, balconies, or air intakes of buildings of similar or greater height when using No. 2 oil, or at least 110 feet when using natural gas.
- Any new development of a midrise building (having a height between 80 feet and 120 feet) on an anchor block must ensure that the HVAC exhaust stack is located at least 150 feet from operable windows, balconies, or air intakes of buildings of similar or greater height when using No. 2 oil, or at least 120 feet when using natural gas.
- Any new development of a midrise building (having a height between 80 feet and 120 feet) on a block other than an anchor block must ensure that the HVAC exhaust stack is located at least 120 feet from operable windows, balconies, or air intakes of buildings of similar or greater height when using No. 2 oil, or at least 100 feet when using natural gas.
- Any new development of a tower building (having a height greater than 120 feet) must ensure that the HVAC exhaust stack is located at least 125 feet from operable windows, balconies, or air intakes of buildings of similar or greater height when using No. 2 oil, or at least 100 feet when using natural gas.
- Any new development must ensure that it would not include any operable windows, balconies, or air intakes at a greater height than any existing or approved HVAC exhaust stacks within 150 feet of such new development.

With these restrictions in place, no significant adverse air quality impacts are predicted from any of the analyzed developments.

To analyze the potential for air quality impacts from the Plan on the anticipated development on Lot B, the gross floor area for the entire maximum amount of office use permitted under the Urban Renewal Plan was conservatively considered to be a single tall building along 126th Street, directly across from Lot B. Based on the distance provided by the minimum proposed right-of-way for 126th Street, there would be no potential air quality impact from large uses in the District on the anticipated development on Lot B.

Although the minimum stack to receptor distances recommended are seemingly large, the minimum distance requirements could be met with reasonable ease considering that:

- The zoning Special District regulations prescribe street widths that range from 62 to 80 feet.
- Building tower dimensions would be limited and a minimum tower-to-tower distance of 60 feet would be required by the zoning Special District regulations, effectively providing additional separation of potentially large and tall buildings that would have the potential to impact each other's air quality.

The above stated circumstances would serve to limit the potential for air quality impact of neighboring uses on one another.

Moreover, when the actual building designs and the overall layout of the District are developed for the proposed Plan, the restrictions on stack placement could be relaxed upon further analysis for any particular building for which the current analysis assumptions are shown to be overly conservative.

Therefore, provided that restrictions are imposed on the placement of stacks within the District, as described above, there would be no potential for air quality impacts from the proposed Plan's HVAC system emissions.

Refined Analysis

Based on the initial screening analysis results, a refined analysis was performed to estimate potential air quality impacts on the proposed Plan from the development anticipated on Lot B. The gross floor area for the entire development anticipated on Lot B was conservatively treated as a part of a single tall building in the analysis of the potential impact of the Lot B HVAC systems on the proposed uses in the District. The use of No. 4 oil was conservatively assumed for Lot B uses, since the District-wide restriction to No. 2 oil would not apply to Lot B. It was determined that the distance provided by the width of 126th Street, which separates Lot B from the District, and the setbacks for the development along 126th Street, prescribed in the zoning Special District regulations, would be sufficient to avoid significant adverse air quality impacts from HVAC systems.

Industrial Source Analysis

Permit information was obtained from DEP for five businesses within 1,000 feet of the District. Some of the facilities had more than one emission permit. A large number of facilities (mostly auto-related) were also identified within the District. However, permits from those facilities were not analyzed because the entire District would be redeveloped, requiring the existing on-site businesses to relocate before the proposed uses become occupied. The emission rates and stack parameters from the analyzed permits and the distances of the sources to the District were used in the screening analysis. Table 19-12 shows the air pollutants emitted by the five businesses, the calculated concentrations in the District, and the short-term (1-hour) and annual guideline concentrations for these pollutants.

As shown in Table 19-12, the maximum predicted short-term and annual concentrations of pollutants emitted by industrial sources within 1,000 feet of the District are within the acceptable range based on DEC guidance. Therefore no significant adverse air quality impacts from industrial sources on the development that would be introduced under the proposed Plan are anticipated.

Table 19-12
Contaminant Concentrations Resulting From Businesses With BEC Permits

Potential Contaminants	Estimated Short-term Impact (ug/m^3)	SGC[a] (ug/m^3)	Estimated Long-term Impact (ug/m^3)	AGC[a] (ug/m^3)
Carbon Monoxide	20.3	14,000	1.6	N/A
Particulates	5.4	380	0.4	45
Carbon Dioxide	16,837	5,400,000	1,347	21,000
Nitrogen Dioxide	215.9	N/A	17.3	100
Sulfur Dioxide	21.6	910	1.7	80

Notes:
[a] DEC DAR-1 (Air Guide-1) AGC/SGC Tables, September 2007.
AGC-Annual Guideline Concentrations
SGC-Short-term Guideline Concentrations

Other Potential Sources

The Special District regulations allow the development of a wastewater reclamation facility, a cogeneration facility and an electrical utility substation within the District, provided they would primarily serve the District. The wastewater reclamation facility and substation would likely have minimal air emissions and therefore would likely not result in any additional air quality impacts. The cogeneration facility may result in additional emissions; however, emissions of some pollutants may be lower due to stringent regulatory requirements for gas turbines and reciprocating engines used to generate power, and the availability of advanced air pollution control systems which are effective in minimizing and reducing emissions. If proposed, these uses would be subject to a separate environmental and public review process. The water reclamation facility would require approval by the Board of Standards and Appeals (BSA). The cogeneration facility would require approval by the BSA, as well as air permit approvals from DEP and DEC. The substation would require authorization by the City Planning Commission (CPC). The Special District text requires that reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including emissions limits.

NO CONVENTION CENTER SCENARIO

The No Convention Center Scenario would generate fewer total vehicle trips than the proposed Plan in all peak periods. Therefore, the results of the analysis of the proposed Plan mobile source emissions are a conservative estimate of potential mobile source impacts under the No Convention Center Scenario. Since no significant adverse impacts from mobile sources were predicted for the proposed Plan with the convention center, it is concluded that there would be no significant adverse impacts from the No Convention Center Scenario. The predicted concentrations at elevated receptors adjacent to Northern Boulevard under the No Convention Center Scenario would be the same as the concentrations presented for the proposed Plan. Therefore, there would be no significant adverse impacts from the elevated road on proposed uses under the No Convention Center Scenario.

Under the No Convention Center Scenario, maximum concentrations of CO and other pollutants from parking facilities would be anticipated to be lower than the proposed Plan, since other garages would be smaller in capacity than the analyzed prototypical garage at the convention center. Therefore, the analysis presented for the proposed Plan, which predicted compliance with the CO *de minimis* and with NAAQS, is a conservative estimate that accounts for any smaller garages associated with the No Convention Center Scenario. The No Convention Center Scenario would not affect the results of the analysis of the existing Citi Field parking Lot C and the anticipated development of a parking garage on Lot D. Therefore, no significant adverse impacts would result.

Under the No Convention Center Scenario, the proposed convention center use would be replaced by additional residential and retail uses. It is assumed that the zoning Special District regulations that apply to residential and retail uses under the proposed Plan, would also apply to those same uses should they be developed in place of the convention center. Provided that the restrictions on HVAC placement are implemented for each use type that requires restrictions under the No Convention Center Scenario, there would be no potential for air quality impacts from HVAC uses.

The industrial sources analyzed for the proposed Plan would not be any different under the No Convention Center Scenario. Since the distance from the District boundary to the industrial

source property line was considered in the analysis, and no consideration was given to the types of uses proposed within the District, the development of residential and retail uses instead of the convention center would not alter the conclusions of the industrial source analysis. Therefore, there would be no potential for significant impacts from industrial sources within 1,000 feet of the District with the No Convention Center Scenario. ✷

Chapter 20: Noise

A. INTRODUCTION

This chapter examines the potential effects of the proposed Willets Point Development Plan on noise levels in the Willets Point Development District and the surrounding area. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D.

Noise pollution in an urban area comes from many sources. Some sources are activities essential to the health, safety, and welfare of a city's inhabitants, such as noise from emergency vehicle sirens, garbage collection operations, and construction and maintenance equipment. Other sources, such as traffic, stem from the movement of people and goods, activities that are essential to the viability of a city as a place to live and do business. Although these and other noise-producing activities are necessary to a city, the noise they produce is undesirable. Urban noise detracts from the quality of the living environment, and there is increasing evidence that excessive noise represents a threat to public health.

The proposed Willets Point Development Plan would change traffic patterns and volumes in the general vicinity of the Willets Point Development District. Since traffic is a main source of ambient noise, this could lead to changes in the ambient noise levels. An analysis was designed and conducted to identify and quantify any such impacts.

The noise analysis for the proposed Plan consists of three parts:

- A screening analysis to determine locations where traffic generated by the proposed Plan would have the potential to cause significant noise impacts;
- A detailed analysis at any location where traffic generated by the proposed Plan would have the potential to result in significant adverse noise impacts, to determine the magnitude of the increase in noise level; and
- An analysis to determine the level of building attenuation necessary to ensure that interior noise levels throughout the Willets Point Development District satisfy applicable interior noise criteria.

PRINCIPAL CONCLUSIONS

The analysis concludes that the traffic generated by the proposed Plan and Lots B and D would be expected to result in a significant increase in noise levels only at the World's Fair Marina Park north of the District and only during the Saturday midday time period; and under City Environmental Quality Review (CEQR) impact criteria, these increases would constitute a significant adverse impact. Despite these significant increases, the projected noise levels at the park are not expected to be higher than typical for parks in New York City. In addition, to meet CEQR interior noise level requirements, the analysis prescribes between 30 and 37 dB of

building attenuation for buildings within the District, which would be ensured through E-designations and/or subsequent Restrictive Declarations on the District.

NOISE FUNDAMENTALS

Quantitative information on the effects of airborne noise on people is well documented. If sufficiently loud, noise may adversely affect people in several ways. For example, noise may interfere with human activities, such as sleep, speech communication, and tasks requiring concentration or coordination. It may also cause annoyance, hearing damage, and other physiological problems. Although it is possible to study these effects on people on an average or statistical basis, it should be noted that all the stated effects of noise on people vary greatly with the individual. Several noise scales and rating methods are used to quantify the effects of noise on people. These scales and methods consider such factors as loudness, duration, time of occurrence, and changes in noise level with time.

"A"-WEIGHTED SOUND LEVEL (dBA)

Noise is typically measured in units called decibels (dB), which are 10 times the logarithm of the ratio of the sound pressure squared to a standard reference pressure squared. Because loudness is important in the assessment of the effects of noise on people, the dependence of loudness on frequency must be taken into account in the noise scale used in environmental assessments. Frequency is the rate at which sound pressures fluctuate in a cycle over a given quantity of time, and is measured in Hertz (Hz), where 1 Hz equals 1 cycle per second. Frequency defines sound in terms of pitch components. In the measurement system, one of the simplified scales that accounts for the dependence of perceived loudness on frequency is the use of a weighting network—known as A-weighting—that simulates response of the human ear. For most noise assessments the A-weighted sound pressure level in units of dBA is used in view of its widespread recognition and its close correlation with perception. In this analysis, all measured noise levels are reported in dBA or A-weighted decibels. Common noise levels in dBA are shown in Table 20-1.

COMMUNITY RESPONSE TO CHANGES IN NOISE LEVELS

The average ability of an individual to perceive changes in noise levels is well documented (see Table 20-2). Generally, changes in noise levels less than 3 dBA are barely perceptible to most listeners, whereas 10 dBA changes are normally perceived as doublings (or halvings) of noise levels. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

It is also possible to characterize the effects of noise on people by studying the aggregate response of people in communities. The rating method used for this purpose is based on a statistical analysis of the fluctuations in noise levels in a community, and integrates the fluctuating sound energy over a known period of time, most typically during 1 hour or 24 hours. Various government and research institutions have proposed criteria that attempt to relate changes in noise levels to community response. One commonly applied criterion for estimating this response is incorporated into the community response scale proposed by the International Standards Organization (ISO) of the United Nations (see Table 20-3). This scale relates changes in noise level to the degree of community response and permits direct estimation of the probable response of a community to a predicted change in noise level.

Table 20-1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	
Busy city street, loud shout	80
Busy traffic intersection	
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas or residential areas close to industry	
Background noise in an office	50
Suburban areas with medium density transportation	
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note: A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.
Source: Cowan, James P. Handbook of Environmental Acoustics. Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

Table 20-2
Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2-3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound

Source: Bolt Beranek and Neuman, Inc., *Fundamentals and Abatement of Highway Traffic Noise*, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.

Table 20-3
Community Response to Increases in Noise Levels

Change (dBA)	Category	Description
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Widespread complaints
15	Strong	Threats of community action
20	Very strong	Vigorous community action

Source: International Standards Organization, Noise Assessment with Respect to Community Responses, ISO/TC 43 (New York: United Nations, November 1969).

NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way of describing fluctuating sound is to describe the fluctuating noise heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are sometimes used to indicate noise levels that are exceeded 1, 10, 50, 90 and x percent of the time, respectively. Discrete event peak levels are given as L_1 levels. L_{eq} is used in the prediction of future noise levels, by adding the contributions from new sources of noise (e.g., increases in traffic volumes) to the existing levels and in relating annoyance to increases in noise levels.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}. The relationship between L_{eq} and exceedance levels has been used in this analysis to characterize the noise sources and to determine the nature and extent of their impact at all receptor locations.

For the purposes of this analysis, the maximum 1-hour equivalent sound level ($L_{eq(1)}$) has been selected as the noise descriptor to be used in the noise impact evaluation. $L_{eq(1)}$ is the noise descriptor used in the *CEQR Technical Manual* for noise impact evaluation, and is used to provide an indication of highest expected sound levels. $L_{10(1)}$ is the noise descriptor used in the *CEQR Technical Manual* for building attenuation. Hourly statistical noise levels (particularly L_{10} and L_{eq} levels) are used to characterize the relevant noise sources and their relative importance at each receptor location.

B. METHODOLOGY

GENERAL METHODOLOGY

At all of the receptor sites in the vicinity of the District, the dominant operational noise sources are vehicular traffic on adjacent and nearby streets and roadways, and train traffic from the elevated No. 7 subway line, which runs along Roosevelt Avenue. The Federal Highway Administration [FHWA] *Traffic Noise Model* (TNM) version 2.5) was used to calculate noise from traffic on adjacent and nearby streets and roadways; and the Federal Transit Administration (FTA) model contained in FTA May 2006 guidance manual, *Transit Noise and Vibration Impact Assessment*, was used to calculate train noise from the elevated No. 7 subway line. The noise analysis examined four weekday conditions: AM, midday (MD), PM, and pre-game (before a baseball game at Shea Stadium) time periods, and three weekend conditions: midday (MD), pre-game (before a baseball game at Shea Stadium), and post-game (after a baseball game at Shea Stadium). The selected time periods are when the proposed Plan would have maximum traffic generation and/or the maximum potential for significant adverse noise impacts based on the traffic studies presented in Chapter 17, "Traffic and Parking."

The TNM model and the FTA guidance manual procedures used for analysis are described below.

TNM MODEL

Noise from street and roadway traffic was calculated using the TNM model, which calculates the noise contribution of each roadway segment to each noise receptor. The noise from each vehicle type is determined as a function of the reference energy-mean emission level, corrected for vehicle volume, speed, roadway grade, roadway segment length, and source-receptor distance. Further considerations included in modeling the propagation path include identifying the shielding provided by rows of buildings, analyzing the effects of different ground types, identifying source and receptor elevations, and analyzing the effects of any intervening noise barriers.

FTA GUIDANCE MANUAL

Noise from trains on the elevated No. 7 subway line was calculated using the procedures detailed in FTA guidance manual *Transit Noise and Vibration Impact Assessment*, which provides methodologies for determining noise levels produced by transit operations. In general for rail noise, the noise level at a receptor location is a function of source noise level, the number of locomotives and cars per train, the train speed, average hourly volume of train traffic, track type (continuously welded or jointed) and profile (at-grade or elevated), source/receptor distance, shielding, and special operational characteristics (e.g., curve squeal).

ANALYSIS PROCEDURE

In general, the following procedure was used in performing the noise analysis:

- Noise analysis sites were chosen at noise-sensitive locations where maximum project-generated traffic would occur, and at locations in and adjacent to the District where building attenuation analysis would be required;
- Existing noise levels were determined at each analysis (receptor) site, for each analysis time period, by performing field measurements;
- The traffic component of the existing noise levels was calculated based on existing traffic values (see Chapter 17) on adjacent and nearby streets, using the TNM model;
- The rail component of the existing noise level from trains on the No. 7 subway line was calculated based upon train schedules using FTA guidance manual procedures;
- The logarithmic sum of the calculated traffic and rail components of the existing noise level was subtracted arithmetically from the measured existing noise level, and the remainder was assumed to be a correction factor (to account for noise from parking lots, street noise, noise from manufacturing operations, model inaccuracies, etc.); and
- Noise levels for existing, No Build, and Build conditions for the analysis time periods were determined as the sum of the calculated noise components from traffic (based upon traffic values developed in Chapter 17), rail (based upon existing train schedules), and other sources or the calculated correction factor.

APPLICABLE NOISE CODES AND IMPACT CRITERIA

NEW YORK CITY NOISE CODE

The New York City Noise Control Code was amended in December 2005. The amended noise code contains: prohibitions regarding unreasonable noise; requirements for noise due to construction activities (including noise limits applicable to specific pieces of construction equipment, noise limits on total construction noise, limits on hours of construction [weekdays between 7:00 AM and 6:00 PM], and requirements for adopting and implementing noise mitigation plans for each construction site prior to the start of construction); and noise standards, including plainly audible criteria, for specific noise sources (e.g., refuse collection vehicles, air compressors, circulation devices, exhausts, paving breakers, commercial music, personal audio devices, sound reproduction devices, animals, motor vehicles including motorcycles and trucks, sound signal devices, burglar alarms, emergency signal devices, lawn care devices, snow blowers, etc.). In addition, the amended code specifies that no sound source operating in connection with any commercial or business enterprise may exceed the decibel levels in the designated octave bands shown in Table 20-4 at the specified receiving properties.

Table 20-4
New York City Noise Codes

Octave Band Frequency (Hz)	Maximum Sound Pressure Levels (dB) as Measured Within a Receiving Property as Specified Below	
	Residential receiving property for mixed-use building and residential buildings (as measured within any room of the residential portion of the building with windows open, if possible)	*Commercial receiving property (as measured within any room containing offices within the building with windows open, if possible)*
31.5	70	74
63	61	64
125	53	56
250	46	50
500	40	45
1000	36	41
2000	34	39
4000	33	38
8000	32	37

Source: Section 24-232 of the Administrative Code of the City of New York, as amended December 2005.

NEW YORK CEQR NOISE STANDARDS

The New York City Department of Environmental Protection (DEP) has set external noise exposure standards. These standards are shown in Table 20-5. Noise exposure is classified into four categories: "acceptable," "marginally acceptable," "marginally unacceptable," and "clearly unacceptable." The standards shown are based on maintaining an interior noise level for the worst-case hour L_{10} less than or equal to 45 dBA. Attenuation requirements are shown in Table 20-6.

In addition, the *CEQR Technical Manual* uses the following criteria to determine whether proposed and future actions would result in a significant adverse noise impact. The impact assessments compare the projected Build condition $L_{eq(1)}$ noise levels to those calculated for the

No Build condition, for receptors potentially affected by the proposed and future actions. If the No Build levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period, the threshold for a significant impact would be an increase of at least 5 dBA $L_{eq(1)}$. For the 5 dBA threshold to be valid, the resultant Build condition noise level would have to be equal to or less than 65 dBA. If the No Build noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the CEQR standards as being between 10 PM and 7 AM), the incremental significant impact threshold would be 3 dBA $L_{eq(1)}$. (If the No Build noise level is 61 dBA $L_{eq(1)}$, the maximum incremental increase would be 4 dBA, since an increase higher than this would result in a noise level higher than the 65 dBA $L_{eq(1)}$ threshold.)

Table 20-5
Noise Exposure Guidelines
For Use in City Environmental Impact Review[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------		---------- 60 < Ldn ≤ 65 dBA ----------		(I) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn		---------- Ldn ≤ 75 dBA ----------
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA		55 < L_{10} ≤ 65 dBA		65 < L_{10} ≤ 80 dBA		L_{10} > 80 dBA	
3. Residence, residential hotel or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		65 < L_{10} ≤ 70 dBA		70 < L_{10} ≤ 80 dBA		L_{10} > 80 dBA	
4.	10 PM to 7 AM	$L_{10} \leq 55$ dBA		55 < L_{10} ≤ 70 dBA		70 < L_{10} ≤ 80 dBA		L_{10} > 80 dBA	
5. School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
6. Commercial or office		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

1. Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.
2. Tracts of land where serenity and quiet are extraordinarily important and serve an important public need and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and old-age homes.
3. One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.
4. External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Source: New York City Department of Environmental Protection (adopted policy 1983).

Table 20-6
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: New York City Department of Environmental Protection

C. EXISTING CONDITIONS

STUDY AREA

The study area for this analysis is bounded to the east by Main Street, to the south by Roosevelt Avenue, to the west by 111th Street, and to the north by Flushing Bay. This area includes the District and nearby receptors that would experience increases in traffic on adjacent roadways as a result of the proposed Plan.

SELECTION OF NOISE RECEPTOR LOCATIONS

Based upon a screening analysis, eight noise receptor locations were chosen within and around the District (see Figure 20-1). Site 1 is located on Roosevelt Avenue between 114th Street and 111th Street. Site 2 is located on Roosevelt Avenue between College Point Boulevard and Prince Street. Site 3 is located in World's Fair Marina Park. Site 4 is located on Northern Boulevard between 127th Street and 127th Place. Site 5 is located on 126th Street between 36th Avenue and 37th Avenue. Site 6 is located on Willets Point Boulevard between 34th Avenue and Northern Boulevard. Site 7 is located on 126th Street between 39th Avenue and Roosevelt Avenue. Site 8 is located on Roosevelt Avenue between 114th Street and 126th Street.

Sites 1-3 were analyzed for impact assessment. These sites are representative of other locations in the immediate area, and are generally the locations where maximum impacts would be expected. These sites were used to assess the potential impacts due to traffic noise generated by the proposed and future actions. Noise generated by aircraft fly-overs was eliminated from measurements at these locations in order to show the lowest baseline condition, which allows for the most conservative impact analysis. Sites 4-8 were analyzed to determine the appropriate level of building attenuation for future development. Noise generated by aircraft fly-overs was included in measurements at these locations in order to show the highest existing L_{10} value, which allows for the most conservative building attenuation analysis.

NOISE MONITORING

At receptor sites 1-5, existing noise levels were determined for each of the seven noise analysis time periods by field measurements. At sites 6-8, existing noise levels were determined for each of the three weekdays, without-baseball-game noise analysis time periods. Noise monitoring was performed at all eight sites between May 23 and December 18, 2007. Twenty-minute spot measurements were taken during the three weekday without-baseball-game periods, one Saturday without-baseball-game period, one weekday with-baseball-game period and two Saturday with-baseball-game periods that reflect peak hours of trip generation: AM weekday

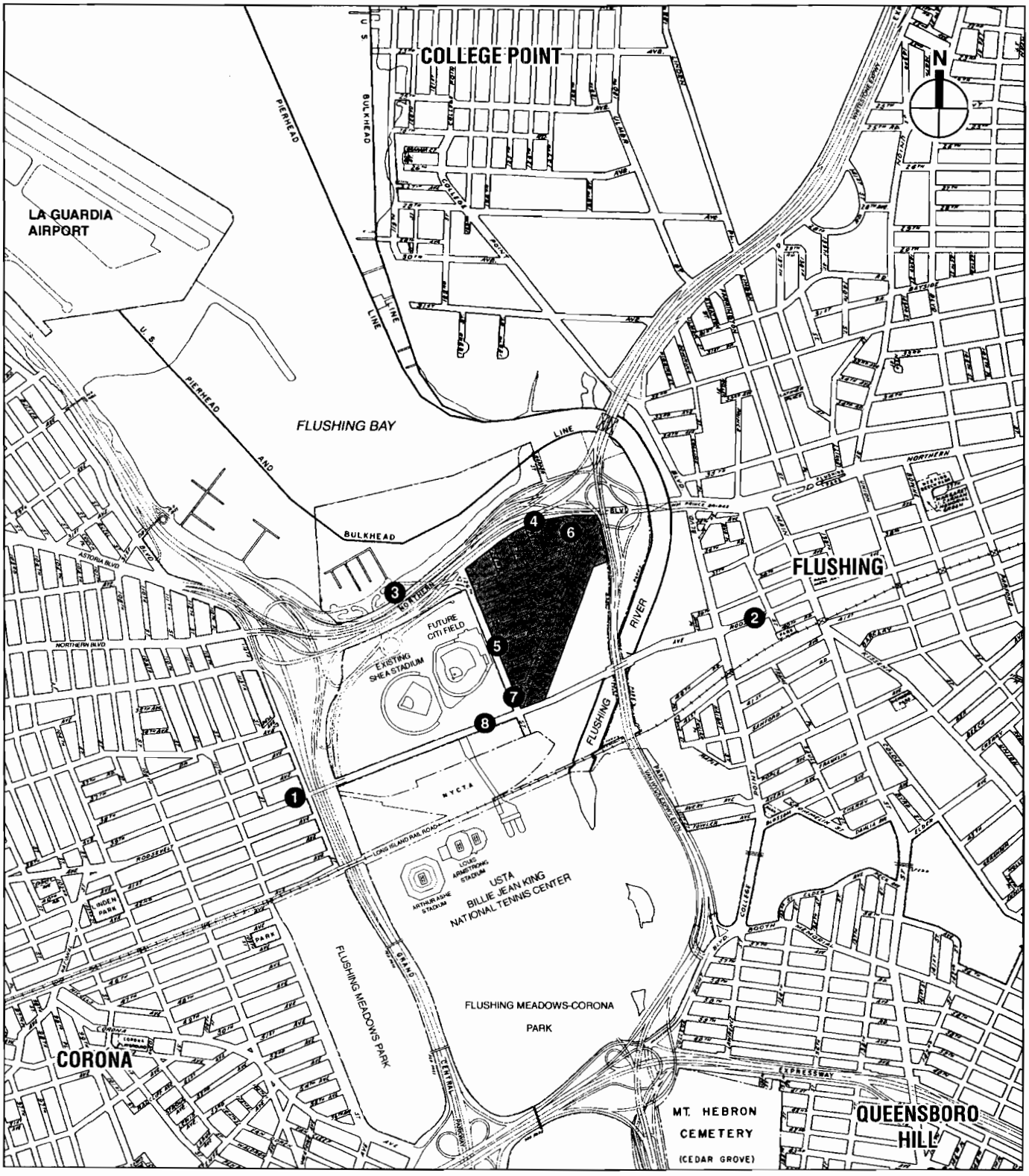


Figure 20-1
Noise Receptors

(7:45–8:45 AM), midday (MD) weekday (1:00–2:00 PM), PM weekday (5:15–6:15 PM), midday (MD) Saturday (1:00–2:00 PM), PM weekday pre-game (6:00–7:00 PM), midday (MD) Saturday pre-game (12:00–1:00 PM), and PM Saturday post-game (3:45–4:45 PM).

EQUIPMENT USED DURING NOISE MONITORING

The instrumentation used for the noise measurements was a Brüel & Kjær Type 4189 ½-inch microphone connected to a Brüel & Kjær Model 2260 Type 1 (according to ANSI Standard S1.4-1983) sound level meter. This assembly was mounted at a height of 5 feet above the ground surface on a tripod and at least 6 feet away from any large sound-reflecting surface to avoid major interference with sound propagation. The meter was calibrated before and after readings with a Brüel & Kjær Type 4231 sound-level calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. A windscreen was used during all sound measurements except for calibration. All measurement procedures conformed to the requirements of ANSI Standard S1.13-1971 (R1976).

EXISTING NOISE LEVELS AT NOISE RECEPTOR LOCATIONS

MEASURED NOISE LEVELS

Noise monitoring results for the eight receptor locations are summarized in Tables 20-7 and 20-8. The elevated No. 7 subway line was the dominant noise source at Sites 1, 7, and 8. Traffic was the dominant noise source at Sites 2-6. Noise levels are generally relatively high, and reflect the level of activity in the area.

In terms of CEQR noise criteria, noise levels at Sites 3, 5, and 6 are in the "marginally unacceptable" category, and noise levels at Sites 1, 2, 4, 7, and 8 are in the "clearly unacceptable" category.

D. THE FUTURE WITHOUT THE PROPOSED PLAN

Using the methodology described above, future noise levels without the proposed Plan (i.e., No Build conditions) were calculated for receptors 1-3 for all seven analysis periods in the year 2017. Table 20-9 shows the calculated noise levels.

Comparing future 2017 No Build conditions with existing conditions, the maximum increase in $L_{eq(1)}$ noise levels would be less than 3 dB. Increases of this magnitude would be barely perceptible and insignificant under CEQR criteria. At some locations during certain time periods, decreases in noise levels are projected, due to decreased speeds on adjacent roadways as a result of increased traffic.

In terms of CEQR noise criteria, noise levels at Site 3 would remain in the "marginally unacceptable" category, and Sites 1 and 2 would remain in the "clearly unacceptable" category.

Table 20-7

2007 Existing Noise Levels During Non-game Time Periods (in dBA)

Site	Measurement Location	Day	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Roosevelt Avenue between 114th Street and 111th Street	Weekday	AM	82.9	95.0	86.2	71.9	62.6
		Weekday	MD	81.4	94.6	83.4	70.5	64.6
		Weekday	PM	85.5	96.6	90.5	71.5	65.1
		Saturday	MD	82.8	95.0	85.7	68.4	61.1
2	Roosevelt Avenue between College Point Boulevard and Prince Street	Weekday	AM	67.3	76.3	69.9	65.3	60.6
		Weekday	MD	66.6	75.3	69.6	63.7	60.8
		Weekday	PM	66.8	75.3	69.8	64.4	61.0
		Saturday	MD	64.3	74.5	66.0	62.2	58.7
3	World's Fair Marina Park	Weekday	AM	69.3	73.7	70.8	68.9	67.0
		Weekday	MD	70.5	76.5	72.2	69.6	68.1
		Weekday	PM	71.9	76.7	73.3	71.5	69.7
		Saturday	MD	68.4	74.0	69.5	67.8	66.2
4	Northern Boulevard between 127th Street and 127th Place	Weekday	AM	79.3	90.0	81.7	75.4	73.1
		Weekday	MD	77.7	88.1	80.1	74.2	70.2
		Weekday	PM	76.9	85.7	78.9	74.0	70.6
		Saturday	MD	66.3	73.9	68.8	64.7	62.1
5	126th Street between 36th Avenue and 37th Avenue	Weekday	AM	72.9	81.7	76.6	69.7	65.2
		Weekday	MD	75.1	88.1	76.5	68.6	63.8
		Weekday	PM	72.9	82.5	76.6	66.7	62.4
		Saturday	MD	77.4	83.1	79.7	76.0	73.3
6	Willets Point Boulevard between 34th Avenue and Northern Boulevard	Weekday	AM	70.5	82.0	72.1	66.6	64.7
		Weekday	MD	68.4	79.4	70.7	62.9	59.6
		Weekday	PM	69.4	78.3	73.4	65.4	63.5
7	126th Street between 39th Avenue and Roosevelt Avenue	Weekday	AM	78.4	90.7	79.3	70.2	65.4
		Weekday	MD	75.8	85.8	80.7	69.7	64.8
		Weekday	PM	72.6	82.8	75.7	67.3	60.7
8	Roosevelt Avenue between 114th Street and 126th Street	Weekday	AM	84.8	97.3	85.7	75.7	68.1
		Weekday	MD	82.3	94.7	81.6	71.9	66.3
		Weekday	PM	76.5	87.5	81.7	68.7	62.2

Note: Field measurements were performed by AKRF, Inc. between May 23, 2007 and December 18, 2007.

Table 20-8

2007 Existing Noise Levels During Game Time Periods (in dBA)

Site	Measurement Location	Day	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Roosevelt Avenue between 114th Street and 111th Street	Weekday	pre-game	85.8	95.6	90.4	77.9	71.3
		Saturday	pre-game	83.9	96.3	88.0	69.1	63.6
		Saturday	post-game	83.3	96.2	86.1	69.7	64.9
2	Roosevelt Avenue between College Point Boulevard and Prince Street	Weekday	pre-game	77.4	84.5	80.5	74.9	70.9
		Saturday	pre-game	67.0	76.7	69.8	64.2	60.6
		Saturday	post-game	64.9	72.0	67.4	63.1	59.4
3	World's Fair Marina Park	Weekday	pre-game	71.1	82.3	72.9	67.1	65.3
		Saturday	pre-game	68.6	78.7	69.9	66.6	64.9
		Saturday	post-game	68.6	73.0	70.4	68.3	66.5
4	Northern Boulevard between 127th Street and 127th Place	Weekday	pre-game	77.4	83.9	79.8	76.2	72.9
		Saturday	pre-game	75.8	82.6	78.0	74.8	72.2
		Saturday	post-game	76.0	84.4	77.7	74.6	71.6
5	126th Street between 36th Avenue and 37th Avenue	Weekday	pre-game	69.7	80.1	73.1	65.4	62.8
		Saturday	pre-game	67.2	76.6	69.7	64.7	62.5
		Saturday	post-game	74.8	87.8	76.3	65.6	62.3

Note: Field measurements were performed by AKRF, Inc. between May 23, 2007 and December 18, 2007.

Table 20-9
2017 No Build Noise Levels (in dBA)

Site	Day	Time	Existing $L_{eq(1)}$	2017 No Build $L_{eq(1)}$	Change
1	Weekday	AM	82.9	83.0	0.1
	Weekday	MD	81.4	81.4	0.0
	Weekday	PM	85.5	85.5	0.0
	Saturday	MD	82.8	82.7	-0.1
	Weekday	pre-game	85.8	85.8	0.0
	Saturday	pre-game	83.9	83.9	0.0
	Saturday	post-game	83.3	83.3	0.0
2	Weekday	AM	67.3	67.9	0.6
	Weekday	MD	66.6	68.5	1.9
	Weekday	PM	66.8	67.9	1.1
	Saturday	MD	64.3	66.3	2.0
	Weekday	pre-game	77.4	75.5	-1.9
	Saturday	pre-game	67.0	68.3	1.3
	Saturday	post-game	64.9	63.8	-1.1
3	Weekday	AM	69.3	69.8	0.5
	Weekday	MD	70.5	70.9	0.4
	Weekday	PM	71.9	72.4	0.5
	Saturday	MD	68.4	68.7	0.3
	Weekday	pre-game	71.1	71.9	0.8
	Saturday	pre-game	68.6	69.4	0.8
	Saturday	post-game	68.6	67.8	-0.8

E. PROBABLE IMPACTS OF THE PROPOSED PLAN

Using the methodology described above, future noise levels with the proposed Plan and the potential future development on Lots B and D (i.e., Build conditions) were calculated for the four analysis periods in the year 2017. Table 20-10 shows the calculated noise levels.

Comparing future 2017 Build conditions with 2017 No Build conditions, the maximum increase in $L_{eq(1)}$ noise level would be less than 2 dB, with the exception of Site 3 in the Saturday midday (MD) period. Increases of this magnitude would be barely perceptible, and based upon CEQR impact criteria would not be significant. At some locations during certain time periods, projected decreases in noise levels are projected due to decreased speeds on adjacent roadways as a result of increased traffic.

However, the increase of 3.5 dB at Site 3 during the Saturday midday (MD) time period would be perceptible, and under CEQR impact criteria would be considered to be a significant adverse impact. Site 3 represents the World's Fair Marina Park, located along Flushing Bay to the north of the District. As a result of the proposed Plan and the potential future development on Lots B and D, a substantial amount of additional traffic would pass by this park when accessing the westbound Grand Central Parkway. There would be no feasible or practicable measures to mitigate this impact. Noise barriers or berms are impractical because of space constraints. As a result, this would be an unmitigatable significant adverse impact.

Table 20-10
2017 Build Noise Levels (in dBA)

Site	Day	Time	2017 No Build $L_{eq(1)}$	2017 Build $L_{eq(1)}$	Change
1	Weekday	AM	83.0	82.9	-0.1
	Weekday	MD	81.4	81.4	0.0
	Weekday	PM	85.5	85.6	0.1
	Saturday	MD	82.7	82.8	0.1
	Weekday	pre-game	85.8	85.8	0.0
	Saturday	pre-game	83.9	83.9	0.0
	Saturday	post-game	83.3	83.4	0.1
2	Weekday	AM	67.9	68.1	0.2
	Weekday	MD	68.5	68.5	0.0
	Weekday	PM	67.9	66.9	-1.0
	Saturday	MD	66.3	67.2	0.9
	Weekday	pre-game	75.5	75.0	-0.5
	Saturday	pre-game	68.3	65.2	-3.1
	Saturday	post-game	63.8	63.0	-0.8
3	Weekday	AM	69.8	71.1	1.3
	Weekday	MD	70.9	72.8	1.9
	Weekday	PM	72.4	73.9	1.5
	Saturday	MD	68.7	72.2	3.5
	Weekday	pre-game	71.9	72.2	0.3
	Saturday	pre-game	69.4	69.6	0.2
	Saturday	post-game	67.8	68.3	0.5

While this noise level increase does exceed the CEQR threshold for a significant impact, the resultant L_{eq} of 72.2 dBA is not an uncommon level for a park in New York City. Noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways.

The noise levels and the impacts shown exclude noise from aircraft operations at LaGuardia Airport, which is adjacent to the District. Excluding aircraft noise results in lower baseline levels and therefore a more conservative analysis, as the project-generated noise causes a larger increase on a lower baseline level. If the noise from aircraft operations were included in the baseline noise levels, it is unlikely that the impact identified at the World's Fair Marina Park would occur.

In terms of CEQR noise criteria, noise levels at Site 3 would remain in the "marginally unacceptable" category, and Sites 1 and 2 would remain in the "clearly unacceptable" category.

MECHANICAL EQUIPMENT

No detailed designs of the buildings' mechanical systems (e.g., heating, ventilation, and air conditioning systems) are available at this time. However, based on the levels of building attenuation specified and Building Code regulations for isolation of mechanical noise from

residences, the mechanical equipment would be designed so as not to result in a significant impact on nearby residences.

ATTENUATION REQUIREMENTS

As shown in Table 20-6, the *CEQR Technical Manual* has set noise attenuation requirements for buildings, based on exterior noise levels. Recommended noise attenuation values for buildings, which are based on exterior $L_{10(1)}$ noise levels, are designed to maintain interior noise levels of 45 dBA or lower for residential use and 50 dBA or lower for commercial use.

Table 20-11 shows the highest calculated $L_{10(1)}$ noise levels at the receptor locations in the study area and the building attenuation that would be required to achieve acceptable interior noise levels at each location.

Table 20-11
Minimum Building Attenuation to Comply With CEQR Requirements

Site	Location	Maximum $L_{10(1)}$ (dBA)	Required Building Attenuation (dBA)*
4	Northern Boulevard between 127th Street and 127th Place	81.7	37***
5	126th Street between 36th Avenue and 37th Avenue	79.7	37**
6	Willets Point Boulevard between 34th Avenue and Northern Boulevard	74.6****	30
7	126th Street between 39th Avenue and Roosevelt Avenue	80.7	37***

Notes: *Because exact building locations and uses are not known at this time, attenuation figures conservatively assume future development to be residential at each Site. The required attenuation would be 5 dBA less for a commercial use.

**Due to future noise from Citi Field, noise levels at Site 5 could increase slightly over the maximum measured 79.7 dBA. Therefore, required building attenuation at this site is conservatively assumed to be 37 dBA rather than 35 dBA.

***Based on discussions with NYCDEP and HPD, 37 dBA rather than 40 dBA was determined to be the required build attenuation. This level of attenuation would ensure interior $L_{10(1)}$ values that meet CEQR interior noise level criteria of 45 dBA.

****This figure includes noise generated by the proposed additional Van Wyck Expressway on and off ramps.

To achieve 25 dBA of building attenuation, double-glazed windows with good sealing properties as well as an alternate means of ventilation, such as well-sealed window air conditioning, would be necessary; to achieve 30 dBA of building attenuation, double-glazed windows with good sealing properties as well as alternate means of ventilation, such as well-sealed through-the-wall air conditioning, would be necessary; and, to achieve 35 dBA of building attenuation, double-glazed windows with good sealing properties as well as alternate ventilation, such as central air conditioning, would be necessary; and to achieve 37 dBA of building attenuation or more, special design features which go beyond the normal double-glazed window and central air condition would be necessary, which may include using specially designed windows (e.g., small-size windows, windows with air gaps, windows with thicker glazing, etc.), and additional building insulation.

Designs for buildings on existing streets would be required to provide at least the level of building attenuation specified in Table 20-11 for the nearest receptor. Buildings on other streets that are part of the proposed Plan 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 20-6. It is expected that E-designations would be placed on the all privately-owned blocks and lots to ensure that these building attenuation requirements are met. These E-designations are shown in

Table G-1 in Appendix G. As properties are acquired by the City, it is anticipated that Restrictive Declarations would be placed on them, which would supersede the E-designation, but require implementation of the same measures.

LOTS B AND D

As described in Chapter 2, Lot B could potentially be developed in the future with the proposed Plan with a commercial use that would be subject to CEQR interior noise criteria. Based on measured noise levels at noise measurement locations 7 and 8 (see Table 20-7), it is expected that 35 dBA of building attenuation would be needed at Lot B to meet CEQR interior noise criteria. However, any future development at Lot B would be subject to a separate approval and environmental review process, and any required building attenuation would be developed at that time. Lot D could potentially be developed with a parking garage, which would not require noise attenuation measures.

NO CONVENTION CENTER SCENARIO

In this scenario, the convention center would be replaced with additional residential and retail uses. The noise attenuation requirements for the No Convention Center Scenario would be the same as with the proposed Plan. As described in Chapter 17, the No Convention Center Scenario would likely generate less traffic than the proposed Plan, and therefore, is not expected to generate any additional noise impacts. ✷

A. INTRODUCTION

This chapter summarizes a conceptual construction scenario for the proposed Willets Point Development Plan and considers the potential for adverse impacts during construction. The construction phasing and schedule for the proposed Plan is described, followed by the types of activities likely to occur during construction. An assessment of potential impacts of construction activity and the methods that may be employed to avoid or minimize the potential for significant adverse impacts are then presented. Because the proposed convention center would require more workers and materials to construct than residential buildings, this chapter analyzes the development scenario of the proposed Plan with the convention center.

B. PRINCIPAL CONCLUSIONS

The construction of the proposed Plan would take place from 2009 to 2017. Because the Willets Point Development District is isolated from the surrounding neighborhoods, no significant adverse impacts related to land use, neighborhood character, or community facilities are expected.

The construction would entail the demolition of the former Empire Millwork Corporation Building. Demolition of this historic resource would constitute a significant adverse impact on architectural resources. Measures to fully or partially mitigate this adverse impact would be explored, as discussed in Chapter 23, "Mitigation."

The preparation and enforcement of a Health and Safety Plan (HASP) is expected to prevent any significant adverse impacts from hazardous materials.

Traffic from construction would be substantially less than traffic generated by the full operation of the proposed Plan at most intersections, with the exception of the intersection of College Point Boulevard at Roosevelt Avenue, 126th Street at Roosevelt Avenue, and 126th Street at 24th Avenue. These intersections would experience slightly higher traffic volumes due to limited availability of direct highway access to the District, as the new access ramps to/from the Van Wyck Expressway would not yet be constructed. Impacts at the study locations could be mitigated with the early implementation of measures discussed in Chapter 23. However, unmitigatable impacts would occur at some of the same locations identified as having unmitigatable impacts during operation of the proposed Plan.

Air pollutant emissions from construction equipment and trucks would be reduced to the extent practicable by the enforcement of Local Law 77 of 2005, which requires all City-sponsored construction to reduce construction-related emissions of diesel particulate matter (DPM) by using the best available technology (BAT) to control emissions, and which applies to this project, and other additional measures listed below. The District is large, and much of it is well-removed from publicly accessible locations where people would be expected to be present for extended durations. Although the majority of the construction would not affect the public,

residents and workers in some of the buildings completed early in the Plan would be located adjacent to construction sites during construction of the later buildings. The measures below address both the emissions levels, and the location of sources relative to such receptor locations, so as to ensure that significant impacts on air quality during construction would not occur.

For noise impact determination purposes, significant adverse impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *City Environmental Quality Review (CEQR) Technical Manual* for two consecutive years or more. While increases exceeding the CEQR impact criteria for a shorter period of time may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The District is large, and much of it is well-removed from any sensitive receptor. In addition, little night work is expected, and any exceedances of the CEQR criteria at sensitive locations would occur during the day. Therefore, no long-term significant adverse noise impacts are expected from construction activities.

C. DESCRIPTION OF CONSTRUCTION SCHEDULE AND ACTIVITIES

Construction of the proposed Plan would occur over a number of years, starting in mid-2009, with a complete build-out in 2017. A conceptual schedule of construction activities and general construction practices—including those associated with deliveries and access, hours of work, sidewalk and lane closures, staging and laydown, and construction parking—is described below. The final schedule and order of building construction could vary depending on the actual program proposed by the developer.

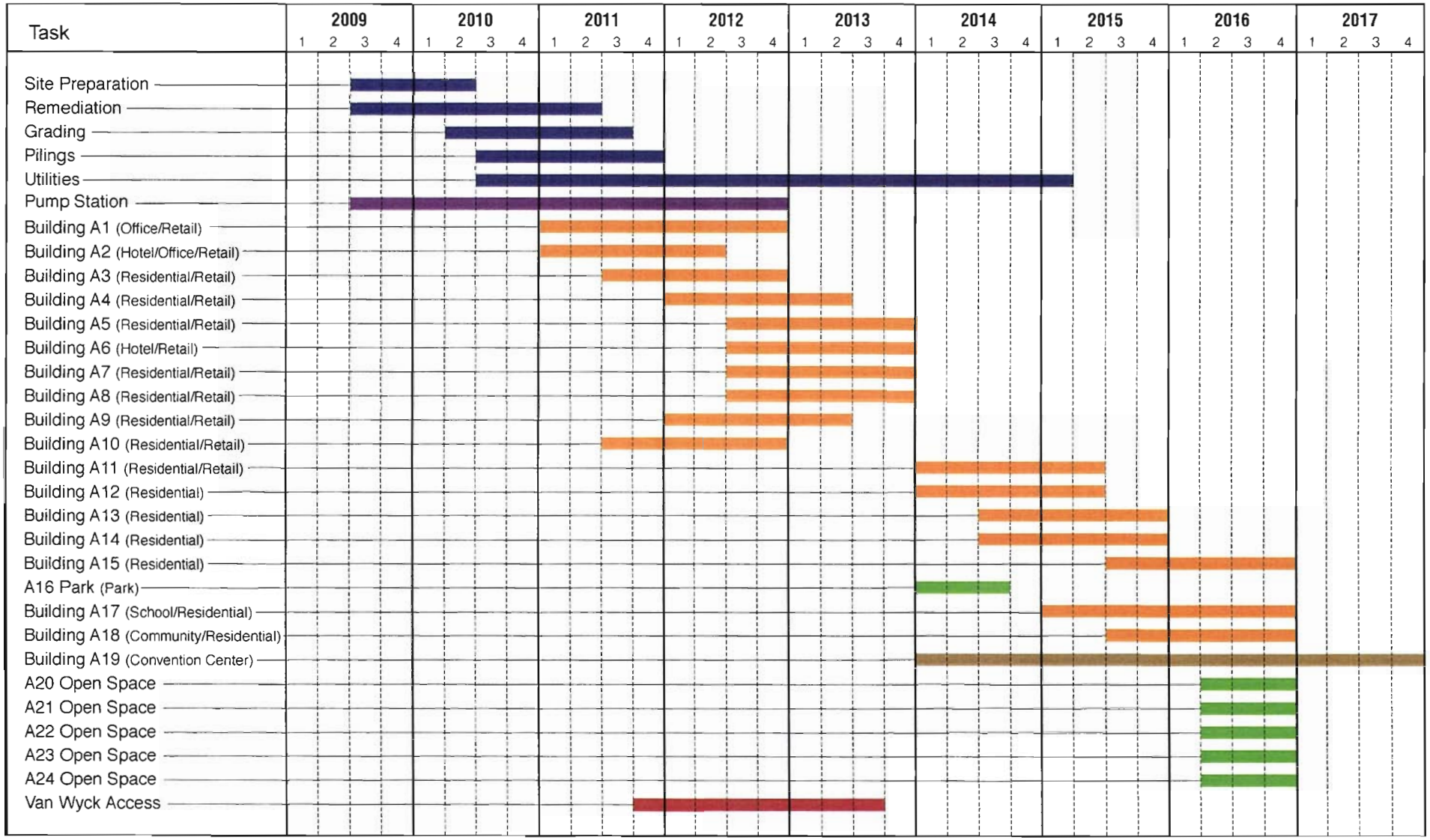
CONCEPTUAL CONSTRUCTION PHASING AND SCHEDULE

Figure 21-1 and Table 21-1 present a conceptual schedule of construction for the District. Figure 21-2 represents visually the conceptual construction sequence. Site preparation is expected to start in mid-2009, and the first two years would be focused on preparing the site for construction of buildings.

The first remediation and site preparation tasks would be identification of hazardous materials and asbestos abatement, followed by demolition of the existing buildings and remediation of contaminated soils and groundwater. As the remediation progresses, the site would be graded and the ground level raised by up to seven feet so that the roads and first floor of buildings would be above the 100-year floodplain. After the grading, piles would be driven to support the buildings and utilities. Layers of the underlying soils consist of uncontrolled fill that could settle at different rates in different locations under the new loads imposed by the buildings. The piles would prevent damage to the buildings, roads, and utilities caused by differential settling. As part of the site preparation, utility lines would be installed. A sanitary sewer system would replace the existing septic fields and cesspools. A new sewage pumping station would be constructed to handle the additional flows generated by the proposed Plan, and a new force main would be installed.

Construction on Buildings A-1 and A-2 would begin in 2011. Building A-1 would be completed in approximately two years. Building A-2 is expected to take about 18 months to construct. Construction on Buildings A-3 and A-10 would begin in the middle of 2011, and would take about 18 months to complete. At the beginning of 2012, construction on Buildings A-4 and A-9 would begin, and end in mid-2013. Buildings A-5 through A-8 would begin in mid-2012, and would be completed by the end of 2013. The new access road and ramps to the Van Wyck Expressway would be completed over approximately two years, starting in the fourth quarter of 2011 and ending in the third quarter of 2013. The agreement with the developer would stipulate that following approval of the Van Wyck Expressway ramps but prior to completion of ramp construction, buildings within the District would

9.9.08



Remediation and Site Preparation
Pump Station
Buildings
Convention Center
Open Space
VanWyck Access

This figure has been updated since the DGEIS

Figure 21-1
Conceptual Construction Schedule

9.10.08



Retail
Office
Housing
Residential Rooftop Courtyard
Hotel
Publicly Accessible Open Space
Convention Center
Primary School, Community/Facility Use
Parking

This figure has been updated since the DGEIS

Figure 21-2
Conceptual Construction Sequence

not be occupied until completion of the Van Wyck Expressway improvements, unless it is demonstrated that earlier occupancy of the buildings would not result in significant adverse impacts that have not already been described in this Final Generic Environmental Impact Statement (FGEIS).

Table 21-1
Conceptual Construction Schedule

Task	Start Date	Finish Date	Months
Site Preparation	3Q 09	2Q 10	12
Remediation	3Q 09	2Q 11	24
Grading	2Q 10	3Q 11	18
Pilings	3Q 10	4Q 11	15
Utilities	3Q 10	1Q 15	57
Pump Station	3Q 09	4Q 12	42
Building A1 (Office/Retail)	1Q 11	4Q 12	24
Building A2 (Hotel/Office/Retail)	1Q 11	2Q 12	18
Building A3 (Residential/Retail)	3Q 11	4Q 12	18
Building A4 (Residential/Retail)	1Q 12	2Q 13	18
Building A5 (Residential/Retail)	3Q 12	4Q 13	18
Building A6 (Hotel/Retail)	3Q 12	4Q 13	18
Building A7 (Residential/Retail)	3Q 12	4Q 13	18
Building A8 (Residential/Retail)	3Q 12	4Q 13	18
Building A9 (Residential/Retail)	1Q 12	2Q 13	18
Building A10 (Residential/Retail)	3Q 11	4Q 12	18
Building A11 (Residential/Retail)	1Q 14	2Q 15	18
Building A12 (Residential)	1Q 14	2Q 15	18
Building A13 (Residential)	3Q 14	4Q 15	18
Building A14 (Residential)	3Q 14	4Q 15	18
Building A15 (Residential)	3Q 15	4Q 16	18
A16 (Park)	1Q 14	3Q 14	9
Building A17 (School/Residential)	1Q 15	4Q 16	24
Building A18 (Community/Residential)	3Q 15	4Q 16	18
Building A19 (Convention Center)	1Q 14	4Q 17	48
A20 Open Space	2Q 16	4Q 16	9
A21 Open Space	2Q 16	4Q 16	9
A22 Open Space	2Q 16	4Q 16	9
A23 Open Space	2Q 16	4Q 16	9
A24 Open Space	2Q 16	4Q 16	9
Van Wyck Access	4Q 11	3Q 13	24

Notes:
Start date is the first day of the quarter.
Finish date is last day of the quarter.

Construction of Buildings A-11, A-12, and Open Space A-16 would begin in 2014. The Open Space is expected to be completed by the end of the third quarter of 2014. Buildings A-11 and A-12 would take about 18 months to complete. Construction of the Convention Center (Building A-19) would start during the first quarter of 2014 and would take about four years to complete. The opening of the Convention Center is expected by the end of 2017. By the middle of 2014,

construction of Buildings A-13 and A-14 would begin. These buildings would also take about 18 months to complete. Construction of Building A-17 (School) would begin at the start of 2015, and would be completed by the end of 2016. In mid-2015, construction would begin on Buildings A-15 and A-18 (Community Center), and would be completed by the end of 2016. Construction of Open Spaces A-20 through A-24 would begin in the second quarter of 2016 and would be completed at the end of 2016.

CONSTRUCTION ACTIVITIES

REMEDIATION AND SITE PREPARATION

Site Cleanup

Site cleanup would begin in mid-2009 and last for approximately one year. The purpose of this activity is to remove all loose materials, inventory potentially hazardous materials, and complete the detailed planning for demolition of the buildings and remediation of any contamination. The tasks associated with this activity would include:

- Installation of a site perimeter security fence;
- Removal of residual materials, loose debris, furniture, and garbage;
- Inventory and removal of small containers, drums, and loose items requiring special disposal, such as paints, pesticides, chemicals, strippers, thinners, oils, petroleum containers, car batteries, mercury containers, etc.;
- Inventory and restaging of all 55-gallon drums and large containers of liquid and solid waste in centralized drum storage area for consolidation, testing, classification and disposal;
- Inventory and sampling of all structures for asbestos remediation;
- Inventory, sampling, and removal of all light ballast equipment for disposal;
- Pumping out, cleaning, removing, and disposing of all above-ground tanks; and
- Pumping out, cleaning, excavating, removing, and sampling of soils around all known underground storage tanks.

About 200 workers are expected to be on-site during the cleanup. The equipment would include fork lifts, small trucks, barrel handlers, and various small tools. About 25 trucks per day are expected to enter and leave the site.

Demolition and Remediation

This stage of construction activities would start in mid-2009. It would continue for approximately 2 years and be completed mid-2011. The activities associated with this stage would include:

- Asbestos remediation of all building in the District;
- Demolition of buildings above ground, segregating materials for disposal/recycling;
- Breakup and removal of concrete floor slabs for recycling/disposal;
- Removal of the upper layer of soil where contamination has been identified;
- Stockpiling, sampling and classification of the soil for disposal,
- Excavation of areas of dry wells, floor drains, discharge points, and newly identified underground storage tanks, and sampling and remediation of these soils; and

- Treatment of groundwater (depending on the type and extent of groundwater contamination, this task could last throughout the construction period and into operation of the proposed Plan).

Prior to demolition, a New York City-certified asbestos investigator would inspect the buildings for asbestos-containing materials (ACMs). If ACMs are found, these materials must be removed by a New York State Department of Labor (DOL)-licensed asbestos abatement contractor prior to building demolition. Asbestos abatement is strictly regulated by the New York City Department of Environmental Protection (DEP), DOL, the U.S. Environmental Protection Agency (EPA), and the U.S. Occupational Safety and Health Administration (OSHA) to protect the health and safety of construction workers and nearby residents and workers. Depending on the extent and type of ACMs, these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations. These regulations specify abatement methods, including wet removal of ACMs that minimize asbestos fibers from becoming airborne. The areas of the buildings with ACMs would be isolated from surrounding area with a containment system and a decontamination system. The types of these systems would depend on the type and quantity of ACMs, and may include hard barriers, isolation barriers, critical barriers, and caution tape. Specially trained and certified workers, wearing personal protective equipment, would remove the ACMs and place them in bags or containers lined with plastic sheeting for disposal at an asbestos-permitted landfill. Depending on the extent and type of ACMs, an independent third-party air-monitoring firm would collect air samples before, during, and after the asbestos abatement. These samples would be analyzed in a laboratory to ensure that regulated fiber levels are not exceeded. After the abatement is completed and the work areas have passed a visual inspection and monitoring, if applicable, the general demolition work can begin. Depending on the amount of ACMs to be removed and project phasing, 10 to 20 workers can be on site, and about one or two truckloads of material can be removed per day. Demolition of buildings with the potential to disturb lead-based paint would be carried out in accordance with the applicable OSHA regulations.

Underground storage tanks would be removed and disposed of in accordance with federal, State and New York City regulations. If contaminated soil is excavated during the tank removal, it would be remediated according to the requirements of the New York State Department of Environmental Conservation (DEC) Spill Response and Remediation (Spills) program, and samples would be collected to ensure that all soil exceeding applicable guidance values is removed.

All disturbance of existing soils would be conducted in accordance with a Remedial Action Plan (RAP) approved by DEP and, if applicable, DEC, and would include a HASP. The HASP would detail measures to reduce the potential for exposure (e.g., dust control) and measures to identify and manage known contamination and unexpectedly encountered contamination. The HASP would include an air monitoring protocol and outline mitigation procedures to prevent unsafe exposure to contaminant vapors and particulates. In the event that soil containing petroleum or other compounds above state-approved cleanup levels is discovered during excavation activities, such soil would be segregated and disposed of in accordance with all applicable federal, State and local regulations and guidelines.

It is anticipated that soil containing VOCs exceeding the Restricted Residential Soil Cleanup Objectives (SCO) concentrations in Table 375-6.8b of 6 NYCRR Part 375 regulations would be removed from the site subsurface during tank removal and spill remediation activities in areas that are disturbed or excavated. However, if VOC-related contamination is present in

groundwater and/or at depths that are impracticable to excavate, residual contamination could remain in the subsurface.

Any shallow soil with semivolatile organic compounds (SVOCs) and/or metals concentrations exceeding SCO concentrations would be capped by building foundations, asphalt/concrete paving, or clean fill for open space or landscaped areas. This construction activity would be required even if SVOCs or metals were not present.

The next step in general demolition is to remove any economically salvageable materials, and then large equipment is used to deconstruct the buildings. Typical demolition requires solid temporary walls around the building to prevent accidental dispersal of building materials into areas accessible to the general public. After the buildings are deconstructed, bulldozers and front-end loaders would be used to load materials into dump trucks. The demolition debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. Depending on the size of the building demolished, about 10 to 20 workers are expected to be at each building, and typically two to four truckloads of debris would be removed per day from each building.

Grading, Structure Piling

Grading and structure piling would begin in 2010 and continue for about 1½ years. The activities associated with this stage would include:

- Grading;
- Structure piling;
- Forming and pouring of grade beams;
- Grading of roadways and side slopes of roads;
- Additional filling as necessary;
- Installing piles in roadways where utilities would be located;
- Installing pile caps in roadway where necessary; and
- Redistributing excavated fill material to other areas.

The grading and filling would involve the use of bulldozers, graders, and compactors. Any contaminated soil that is removed would be disposed in accordance with all applicable regulations. The new fill would be compacted to minimize settlement in the upper layer of soil. The fill material that was used for purposes of the geotechnical evaluation included a low density material that is available and is designed to minimize settlement. In addition, the compressible layer beneath the District has already been put under pressure and settlement has occurred, which minimizes further settlement of that layer. However, because some layers of the underlying soils are composed of uncontrolled fill, the new fill and the loads imposed by the new structures could cause the underlying soil to compact. This compacting could be uneven, with certain locations settling more than other locations. To address this differential settling, piles would be used to support buildings, utility lines, and other structures that could be damaged. The piles would likely be installed by impact pile drivers. After the piles are driven, grade beams and saddles would be built. This work would involve building forms and pouring concrete. At any given time, 50 to 100 workers could be involved in the grading, filling, and pile driving.

INSTALLATION OF UTILITIES AND BUILDING FOUNDATION WITHIN THE DISTRICT

Utility work would start in mid 2010 and continue for approximately 5 years. Utility connections would be extended into each building lot as it is developed. The activities associated with this stage would include:

- Installation of passive and/or active venting systems beneath building foundations;
- Installation of vapor barriers under building footprints;
- Placement of fill on barriers and installation of all under-slab piping and utilities (for buildings under which stormwater retention basins or holding areas would be installed, utilities would be placed on top of the barrier layer);
- Pouring of floor slabs to seal all vapor systems;
- Roadway trenching along specific roads;
- Installation of utility connections to all buildings and piping placement on piles where required; and
- Connection of stormwater retention and holding areas to main roadway systems.

The passive venting system, if needed, would likely consist of a series of perforated pipes to capture any vapors arising from the underlying soils and to transport the vapors away from the buildings and enclosed spaces. A layer of plastic or fabric would be laid above the perforated pipes to prevent any vapors from entering the buildings that are not captured from rising. An active venting system has a blower connected to the perforated pipes. The blower lowers the air pressure under the building and actively draws the air and soil gas out for discharge into the atmosphere. Much of this work would be done by hand with small equipment to handle the perforated pipes and rolls of fabric.

Because the proposed Plan includes the construction of new streets, it is expected that the water lines, sewer lines, power lines, and telecommunications ducts would all be installed at the same time. The level of energy service consumed by the proposed development within the District would require new electrical transmission and distribution lines as well as telecommunication (telephone, cable, and fiber optic) lines at the same time the streets are constructed. The water and sewer lines would likely be placed directly onto the pile caps. For the electric and telecommunication lines, ducts would be laid on the pile caps, and then the lines would be installed in the openings in the ducts. After all the various utility lines are placed on the pile caps and the necessary ancillary items, such as manholes for access and fire hydrants, are installed, the trenches would be backfilled with soil and compacted.

Typically, about 100 feet of utility lines can be installed per day. Trenches in the streets would not be left open during non-working times, but would either be filled and patched, or covered with steel plates. This work typically involves the use of backhoes to excavate the trenches and place the backfill, and cranes to lift the utility lines into place. Flatbed delivery trucks are used to transport the lines and pipes to the site. Dump trucks would bring the bedding material and clean fill, if needed, to the work site. Asphalt trucks and rollers would be used to patch the streets.

Construction of the roadways would start after the infrastructure and utilities have been placed in the streetbed. The roads are graded, and then typically three to four layers of material are laid down to form the roadway. First a sub-base is placed and compacted, followed by the base layer, a binder layer, and finally the top layer of asphalt. On streets where traffic is expected to be light, the base layer may be omitted. At the same time, the curbs and sidewalks would be

installed. Foundations for lights and traffic control devices would also be installed. The final work would be striping the streets and crosswalks.

Construction of the roads would involve graders, bulldozers, and compactors for the first three layers. Paving machines and rollers would be required to compact the asphalt. The materials would be brought to the site by trucks and immediately placed by the graders and bulldozers. The roller/compactor would be used after each layer has been placed. The asphalt would be brought by trucks and placed into the paving machine for spreading and compacting.

Construction of the sidewalks and installation of the curbs and roadside appurtenances would be more labor intensive than the road construction. Forms are placed by hand to shape the curbs, sidewalks and foundations for the street appurtenances. After reinforcing mesh is laid, concrete is poured from concrete trucks. The installation of the utilities would require about 10 to 20 workers and about five truck deliveries per day at each site where utility work is occurring. The construction of the roads would require about 50 to 75 workers and about 10 to 20 truck deliveries per day.

CONSTRUCTION OF THE BUILDINGS

Building construction would begin after all site cleanup and remediation is completed. Typical construction stages for residential and commercial buildings do not vary greatly, and each residential/retail building would be completed in approximately 18 months. The larger commercial buildings and school would take about 24 months to complete. The Convention Center, because of its specialized system, would take about 48 months to complete. Building construction would generally involve three phases: core and shell construction, exteriors, and interior finishing. The building structure and the interior finishing stages would overlap one another, as the upper parts of the structure would be under construction while finishing of the lower floors would be completed.

Core and Shell

In general, core and shell construction of a building would last approximately nine months and would include construction of the building's framework (installation of beams and columns), and floor decks. These activities would require the use of the tower crane, compressors, personnel and material hoists, concrete pumps, on-site reinforcing bar bending jigs, welding equipment, and a variety of hand-held tools, in addition to the delivery trucks that would bring construction materials to the site. Each day, about 100 to 150 workers and about 40 to 50 truck deliveries would be required for the construction of each building.

Exteriors

The exterior would likely be either concrete or steel and glass. In either case, the exterior is typically assembled off-site and trucked to the site. Either concrete planks or steel and glass sheets would be lifted by large cranes from the bed of the tractor trailers and secured into place on the face of the building. This type of construction would require about 50 workers per day and about five truck deliveries per day per building.

Interior Fit-out and Finishing

This stage would include the construction of interior partitions, installation of lighting fixtures, interior finishing (flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators. Mechanical and other interior work would overlap for four to six months with the tower building core and shell construction. This activity would employ the

greatest number of construction workers—up to 200 to 300 per building during the active periods, and up to 400 workers per building during periods of maximum activity. In addition, anywhere from 25 to 75 truck deliveries would be expected per day at each building. Equipment used during interior construction would include exterior hoists, pneumatic equipment, delivery trucks, and a variety of small hand-held tools. However, this stage of construction is the quietest and does not generate fugitive dust.

OPEN SPACE AREAS AND OTHER SURFACES

During construction of the publicly accessible open spaces, top soil may be imported for installation of the grassy areas and landscaping. Concrete sidewalks would be poured, and street furniture, such as benches and tables, would be installed. Dump trucks would bring the soil to the site for spreading by hand. Trees with about a 3- to 4-inch caliper (diameter) and shrubs would be planted. For the active recreation areas, the ground surfaces would be installed, followed by the appropriate amenities (e.g., basketball hoops, volleyball nets, etc). The majority of this work would be done by hand. The construction of each park would take six to nine months. About 50 to 75 workers per day and about 10 to 20 truck deliveries per day would be expected at each site.

ACCESS ROAD AND VAN WYCK EXPRESSWAY RAMPS

A new access ramp from the northbound Van Wyck Expressway would be constructed off the existing Exit 13 ramp and would connect to the new street network within the District at the northeast corner. A new ramp to the southbound Van Wyck Expressway would connect the northeast corner of the District to the expressway mainline immediately south of the interchange with the Whitestone Expressway. The ramps would start at grade and rise on columns to the height of the elevated expressway.

To build the ramps, foundations would be excavated and built for the columns, which could be steel or concrete. Lines of columns would be installed and connected with steel girders. The roadway would be built on the girders. Typically, excavators would be used and the foundations formed by concrete. Cranes would be used to place the columns and girders. Cranes would also be used to place the plates on which the roadway is built. At any given time, up to 50 workers could be engaged in building the ramps and access roads. The number of truck deliveries varies with each activity and would range from 10 to 40 trucks per day for each work site.

SANITARY SEWER SYSTEM

The proposed Plan would include the development of a sanitary sewer system that would provide a new sanitary collection service to the area and eliminate the existing septic systems. Nearby areas, such as Shea Stadium, direct their sanitary sewage to the 37th Avenue Pump Station. However, sewage from the District would not be able to use this pump station because it does not have sufficient capacity. Therefore, a new pump station would be constructed either off- or on-site. New sanitary collection lines within the District would be connected to the City sewer system that conveys sanitary sewage to the Bowery Bay Water Pollution Control Plant (WPCP) for treatment.

Sewer construction work primarily is a "cut-and-cover" technique. A trench would be excavated in the street, and short piles may need to be driven through the bottom of the trench. Concrete cradles would be installed to hold the sewer pipe. The sewer pipe would be installed in short lengths and connected. The trench would then be backfilled and the pavement replaced. While

the new sewers are being constructed, temporary flumes may have to be installed to handle the existing sewer flows. DEP regularly performs this task at sites throughout the City. About 20 to 40 workers would be needed to install the sewer line and to control traffic for any portions that are installed in public streets. Typical equipment includes backhoes, cranes, and front-end loaders. Trucks bring the sewer pipes to the construction, and depending on the suitability of the soil for re-use, trucks may be needed to cart off existing soils and bring suitable soil to the construction site.

Several routes are under consideration for the force main from the new pump station to the connections into the New York City sewer system. Four of the routes would involve constructing the new pump station in the District, and one route through the north boundary of Shea Stadium's parking lot would involve constructing the new pump station in the vicinity of the existing 37th Avenue Pump Station. The southern-most route would be south of and parallel to Roosevelt Avenue and then under 41st Avenue to the combined sewer at 108th Street. Two of the routes would cross through the parking lot for Shea Stadium and then run under either 39th or 37th Avenue to the combined sewer at 108th Street. A fourth route would extend to a new pump station located next to the existing 37th Avenue Pump Station and then to the combined sewer at 108th Street. The fifth possible route would be to the north and parallel to Northern Boulevard and connect into the New York City sewer system at 31st Drive.

For four of the options, the new pump station would be built within the District. One of the options would have the new pump station next to the existing 37th Avenue Pump Station. A water reclamation facility would obviate the need for a new pump station. The construction of a water reclamation facility would employ approximately the same number of workers and trucks. Depending on the construction activity under way at the time, anywhere from 20 to 50 workers could be employed during construction of the pump station. Excavators would be used to open the ground. Concrete would be used for the wet wells and the floor slabs. The pumps and control equipment would be brought on site by trucks and installed using cranes. After the expansion is built, it would be tested and then put into operation.

GENERAL CONSTRUCTION PRACTICES

Certain practices would be observed throughout the project. Each construction manager would designate a contact person for community relations throughout the construction period. This person would serve as the contact for the community to voice concerns about construction activities, and would be available to meet with the community to resolve concerns or problems.

The following describes typical construction practices in New York City. In certain instances, project practices may vary from those described below.

DELIVERIES AND ACCESS

Access to the construction sites would be controlled. The work areas would be fenced off, and limited access points for workers and trucks would be provided. Typically, worker vehicles would not be allowed into the construction area. Security guards and flaggers would be posted, and all persons and trucks would have to pass through security points. Workers or trucks without a need to be on the site would not be allowed entry. After work hours, the gates would be closed and locked. Unauthorized access would be prevented after work hours and during the weekend.

Material deliveries to the site would be controlled and scheduled. Unscheduled or haphazard deliveries would be minimized.

HOURS OF WORK

Construction activities for the buildings would take place in accordance with New York City laws and regulations, which allow construction activities to take place between 7:00 AM and 6:00 PM. Construction work would begin at 7:00 AM on weekdays, with most workers arriving between 6:00 AM and 7:00 AM. Typically, work would end at 3:30 PM, but could be extended until 6:00 PM for such tasks as finishing a concrete pour for a pad, or completing the bolting of a steel frame erected that day. Extended workday activities would not include all construction workers on site, but only those involved in the specific task. Extended workdays would occur during foundation and superstructure tasks, and limited extended workdays could occur during other tasks over the course of construction.

At limited times over the course of constructing a building, weekend work would be required. Weekend work requires a permit from the New York City Department of Buildings (DOB) and, in certain instances, approval of a noise mitigation plan from DEP under the City's Noise Code. The New York City Noise Control Code (Local Law 113 of 2005), effective July 1, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7:00 AM and 6:00 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6:00 PM and 7:00 AM and on weekends) may be permitted only to accommodate: (i) emergency conditions; (ii) public safety; (iii) construction projects by or on behalf of City agencies; (iv) construction activities with minimal noise impacts; and (v) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7:00 AM, and ending with site cleanup at 5:00 PM.

A few tasks may have to be completed without interruption, and the work can extend past 6:00 PM. In certain situations, concrete must be poured continuously to form one structure without joints. This type of concrete pour is usually associated with foundations and structural slabs at grade, which would require a minimum of 12 hours or more to complete.

SIDEWALK AND LANE CLOSURES

No lane closures outside of the District are expected.

NUMBER OF CONSTRUCTION WORKERS AND MATERIAL DELIVERIES

Table 21-2 presents the peak number of construction workers and delivery trucks expected for each quarter during the construction of the project. The number of workers and truck deliveries would peak during 2012, with a peak number of 2,625 workers per day and 608 deliveries per day in the fourth quarter. These numbers represent the highest number of workers and deliveries sustained over a several week period and may not reflect the single highest day.

STAGING AND LAYDOWN AREAS

During the early stages of construction, the laydown and staging areas could be on the unconstructed parcels, and not on the streets or already constructed parcels. Because of the density of the finished buildings, laydown areas would likely be on the curb lane of the local

streets within the District. It is not expected that through streets would be used for material laydown. Materials that are needed during the day, such as reinforcing bars and prefabricated pieces, are usually delivered early in the day and are stored until needed. In certain cases, several days' worth of construction materials would be stored.

Table 21-2
Number of Construction Workers and Delivery Trucks (per day)

Year	2009				2010				2011				2012			
Quarter			3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers			300	400	350	375	375	375	475	675	750	1,200	1,600	2,150	1,900	2,625
Trucks			60	60	60	70	55	55	95	175	170	295	328	463	378	608
Year	**2013**				**2014**				**2015**				**2016**			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Workers	1,675	2,575	1,550	1,300	275	575	900	1,475	1,375	1,750	1,100	1,200	1,200	1,850	1,550	1,425
Trucks	313	503	238	210	85	175	215	185	225	280	198	248	228	298	220	200
Year	**2017**				**Project**											
Quarter	1st	2nd	3rd	4th	Peak		Average									
Workers	350	350	350	350	2,775		1,036									
Trucks	50	50	50	50	608		195									

Note: The number of construction workers and delivery trucks represent the highest number over a one to two week period and may not reflect the absolute peak day.

CONSTRUCTION WORKER PARKING

The construction activities would generate a maximum daily parking demand of 1,598 spaces in the fourth quarter of 2012. Parking would be managed within the District, and if necessary, supplemented by the existing parking areas adjacent to the District, which are available during non-game days.

D. EXISTING CONDITIONS

As described in Chapter 1, "Project Description," the Willets Point peninsula and surrounding area were used for the disposal of incinerator ash and garbage from around 1900 through the mid 1930s. During this time, approximately 50 million cubic yards of material filled the area with varying thickness of ash and waste. Following its period of use as a disposal site, the District was occupied by a dense cluster of industrial, automotive, manufacturing, and commercial businesses. As a result of this history, known or expected contaminants on the site include VOCs, SVOCs, polychlorinated biphenyls (PCBs), heavy metals, pesticides, herbicides and rodenticides, as well as asbestos and lead-based paint, based on the age of many of the buildings. Soil and groundwater have been impacted in varying degrees throughout the District. Recent subsurface sampling has been limited to the streets/sidewalks, as other areas are private property. Although this sampling did not identify evidence of substantial petroleum contamination in soil samples (the sampling results were consistent with those usually found in fill materials in New York City), groundwater sampling did indicate evidence of petroleum contamination, consistent with suspected releases from private properties within the District.

Auto-related services are the most prevalent use in the District, occupying approximately 80 percent of all lots in the District. These services consist of auto-body repair, auto glass, car washes and auto detailing, used and new auto part sales, tire sales, and vehicle towing. For the most part, these auto-related businesses occupy one-story garage buildings and Quonset-type structures, many of which contain multiple auto-related businesses. There are also a number of

car junkyards in the District, which support auto salvage businesses. The District also contains several industrial uses, including warehousing and distribution, construction-related services and materials, and waste transfer and recycling, generally occupying larger lots. In addition to the auto-related and industrial uses, several commercial uses in the District cater to the existing businesses and employees in the area. The District is mostly isolated from the surrounding neighborhoods by several natural and man-made barriers.

E. THE FUTURE WITHOUT THE PROPOSED PLAN

The uses described above are expected to continue in the future without the proposed Plan. The existing contamination of the soil and groundwater is also expected to continue.

F. PROBABLE IMPACTS OF THE PROPOSED PLAN

The following analysis describes the overall temporary effects of construction on the relevant areas of concern: land use, socioeconomic conditions, community facilities and services, historic resources, hazardous materials, traffic and transportation, air quality, and noise.

LAND USE

Because the District is isolated from the surrounding uses by the Flushing River, the Whitestone Expressway, the Van Wyck Expressway, and Northern Boulevard, construction is expected to have no effects on the surrounding areas.

SOCIOECONOMIC CONDITIONS

Construction would create major direct benefits resulting from expenditures on labor, materials, and services, as well as substantial indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity (see Chapter 4, "Socioeconomic Conditions," for more details). Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes. There would be no significant adverse impacts on socioeconomic conditions due to construction.

COMMUNITY FACILITIES AND SERVICES

No community facilities are located within the District. Therefore, construction of the Plan would not have a significant adverse impact on community facilities. For the majority of the construction period, fewer construction workers are expected to be on-site than the current number of workers within the District. The police and fire departments, as well as hospitals, have sufficient resources for existing conditions and would have sufficient resources for the construction activities. Therefore, no significant adverse impacts on community services are expected from construction of the proposed Plan.

HISTORIC RESOURCES

In a letter dated February 2, 2007, the New York City Landmarks Preservation Commission (LPC) determined that the District is not sensitive for archaeological resources. In a letter dated November 19, 2007, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) confirmed that the District is not sensitive for archaeological resources.

It is anticipated that all existing buildings in the District would be demolished as part of the proposed Plan. As discussed in Chapter 8, "Historic Resources," demolition of the former Empire Millwork Corporation Building as part of the proposed Plan would constitute a significant adverse impact on historic resources. Measures to fully or partially mitigate this adverse impact would be explored, as discussed in Chapter 23.

NATURAL RESOURCES

Construction of the proposed Plan would impact terrestrial resources from activities such as grading, land clearing, temporary access roads for construction vehicles, piling of debris near or within vacant areas, and noise. As streets and buildings are constructed, small areas of successional plant communities currently found in the District and the existing wildlife communities within their footprints would be lost. The wildlife species found in the District are common to urban areas, and the potential displacement of some individuals would not result in a significant adverse impact on the plant and wildlife community of the New York City region.

The District is more than 180 feet away from the nearest DEC-mapped tidal wetland and more than 165 feet away from the nearest U.S. Fish and Wildlife Services (USFWS) NWI-mapped wetland. Therefore, adverse impacts on DEC or USFWS mapped wetlands are not expected.

Construction of the new buildings would result in the removal or capping of contaminated soils and historic fill. As discussed in Chapter 12, "Hazardous Materials," implementation of the measures during construction activities would minimize the potential for significant adverse impacts to groundwater quality.

Construction activities within the District have the potential to temporarily affect the water quality of Flushing Bay when stormwater is discharged. Stormwater generated during construction as well as operation of the proposed Plan would be discharged to Flushing Bay via connection to the two existing 60-inch outfalls at 126th and 127th Streets. No additional outfalls are expected to be constructed. The proposed Plan would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual. Best management measures implemented during construction would include erosion and sediment control measures as part of a stormwater pollution prevention plan (SWPPP) and would minimize potential impacts on Flushing Bay associated with stormwater runoff. The SWPPP would comply with the Flushing Bay Comprehensive Watershed Plan, as described in Chapter 11, "Natural Resources," and would take into account that Flushing Bay is an existing impaired waterbody.

HAZARDOUS MATERIALS

Construction of the proposed Plan would involve both demolition of all existing structures (some of which are believed to contain lead based paint, ACMs, and PCB-containing electrical components) and a variety of earthmoving/excavating activities that would encounter subsurface contamination (e.g., petroleum, solvents, etc.). E-designations would be placed on all privately-owned lots within the District. The E-designation would require that, prior to DOB issuing permits associated with redevelopment, the property owner conduct Phase I and Phase II Environmental Site Assessments (ESAs), and remediation where appropriate, to the satisfaction of DEP. As properties are acquired by the City, it is anticipated that a Restrictive Declaration would be placed on them, which would supersede the E-designation, but require implementation of the same measures. All remedial plans would be required to be submitted at a minimum to DEP for review and approval.

The presence of hazardous materials threatens human health only when exposure to those materials occurs; even then, a health risk requires both an exposure pathway to the contaminants and sufficient exposure to produce adverse health effects. To prevent such exposure and exposure pathways, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. These measures would be conducted in compliance with all applicable laws and regulations and would conform to appropriate engineering practices. Institutional controls, through an E-designation and subsequent Restrictive Declaration, to prevent future exposure during intrusive work and subsurface utility repairs would also be necessary. Measures would include:

- Procedures for pre-demolition removal of asbestos and appropriate management of lead based paint and PCB-containing equipment.
- Additional subsurface investigation, both to District sites and areas not yet investigated, to better characterize soils.
- Development of a HASP and Site Management Plan (SMP) for site remediation, excavation, and redevelopment that would include detailed procedures for managing both known contamination issues (e.g., tank removal, and soil and groundwater remediation of existing petroleum spills, excavation, and removal of existing septic tanks or fields, floor drains, and historic fill) and any unexpectedly encountered contamination issues. The HASP would also include procedures for avoiding the generation of dust that could affect the surrounding community, as well as the monitoring necessary to ensure that no such impacts occur.
- Requirements for vapor barriers and sub-slab venting systems in new buildings, where remaining subsurface contamination could otherwise lead to unacceptable exposure inside buildings, would be consistent with all applicable laws and regulations.
- Institutional controls, through an E-designation and subsequent Restrictive Declaration, to require implementation of the above measures and any necessary post-construction measures, e.g., implementation of health and safety procedures during subsurface utility repair.

With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction of the proposed Plan or the No Convention Center Scenario.

TRAFFIC AND PARKING

The construction of the proposed Plan, from 2009 to 2017, would generate construction worker and truck traffic. Because of the lengthy duration of these activities, an evaluation of construction sequencing and worker/truck projections was undertaken to assess the potential transportation-related impacts. As demonstrated below, the projected construction activities would yield considerably less traffic than projected for the proposed Plan. However, given the high traffic volume in the existing and No Build conditions, significant adverse traffic impacts could still occur at some of the study area locations during construction. Where impacts during construction may occur, measures recommended to mitigate impacts associated with the proposed Plan could be implemented early to aid in alleviating congested traffic conditions. However, where unmitigatable operational impacts are identified, e.g., at Roosevelt Avenue and College Point Boulevard, there is also the potential for such impacts to occur during

construction. Furthermore, it is expected that parking and staging needs could be managed primarily within the District.

CONSTRUCTION TRAFFIC PROJECTIONS

Average daily construction worker and truck activities by quarter were projected for the full nine years of construction. These projections were further refined to account for worker modal splits and vehicle occupancy, and arrival and departure distribution.

Daily Workforce and Truck Deliveries

For a reasonable worst-case analysis of potential transportation-related impacts during construction, the daily workforce and truck trip projections in the peak quarter were used as the basis for estimating peak hour construction trips. Based on a schedule of commencing construction in the beginning of 2009, the combined construction worker and truck traffic peak would occur in the fourth quarter of 2012. The daily average numbers of construction workers and truck deliveries during this construction peak quarter were estimated at 2,625 workers and 608 truck deliveries per day. These estimates of construction activities are further discussed below.

Construction Worker Modal Splits

According to the U.S. Census reverse journey-to-work (RJTW) data, commuting to work via auto for construction and excavation occupations in the District and its surrounding areas, including part of Corona, East Elmhurst, and Flushing, is approximately 60 percent, with an average auto occupancy rate of 1.15. However, as discussed with the New York City Department of Transportation (NYCDOT), for a more conservative analysis, a higher auto share of 70 percent was assumed to project the numbers of vehicle trips generated by future construction workers in the District.

Peak Hour Construction Worker Vehicle and Truck Trips

Site activities would mostly take place during the typical construction shift of 7:00 AM to 3:00 PM. However, some construction tasks, such as foundation and superstructure work, would extend to 5:00 PM, requiring a portion of the construction workforce to remain for this extended shift. A nominal number of truck deliveries may also be expected during these later hours.

While construction truck trips would be made throughout the day (with more trips made during the early morning), and most trucks would remain in the area for short durations, construction worker travel would typically take place during the hours before and after the work shift. For analysis purposes, each worker vehicle was assumed to arrive in the morning and depart in the afternoon or early evening, whereas each truck delivery was assumed to result in two truck trips during the same hour. Furthermore, in accordance with the *CEQR Technical Manual*, each truck was assumed to have a PCE of 2. Hence, a truck delivery to the District would result in an equivalent of four vehicle trips (two entering and two exiting) during the same analysis hour.

The estimated daily vehicle trips were distributed throughout the workday based on projected work shift allocations and conventional arrival/departure patterns of construction workers and trucks. For construction workers, the majority (80 percent) of the arrival and departure trips would take place during the hour before and after each shift (6:00-7:00 AM for arrival and 3:00-4:00 PM for departure on a normal day shift, or 5:00-6:00 PM for days with extended shifts). For construction trucks, deliveries would occur throughout the day when the construction site is active. However, to avoid traffic congestion, construction truck deliveries would often peak

during the hour before the regular day shift (25 percent of regular shift and 20 percent of extended shift), overlapping with construction worker arrival traffic. Based on these assumptions, the peak hour construction traffic was estimated for the entire construction period. The peak construction hourly trip projections for the fourth quarter of 2012 are summarized in Table 21-3. Construction activities would result in maximum combined auto and truck traffic of 1,557, 747, and 558 vehicle trips during the 6:00-7:00 AM, 3:00-4:00 PM, and 5:00-6:00 PM peak hours, respectively, during the fourth quarter of 2012, as shown in Table 21-4. Detailed projections of construction-related traffic are summarized in Appendix H, Construction Traffic.

Table 21-3
Peak Construction Trip Projections—Fourth Quarter of 2012

Hour	Construction Workers Trips				Construction Truck Trips		Total Vehicle-Trips		
	Worker-Trips		Auto-Trips						
	In	Out	In	Out	In	Out	In	Out	Total
6 AM - 7 AM	2,100	0	1,279	0	139	139	1,418	139	1,557
7 AM - 8 AM	525	0	319	0	61	61	380	61	441
8 AM - 9 AM	0	0	0	0	61	61	61	61	122
9 AM - 10 AM	0	0	0	0	61	61	61	61	122
10 AM - 11 AM	0	0	0	0	61	61	61	61	122
11- AM -12 PM	0	0	0	0	61	61	61	61	122
12 PM - 1 PM	0	0	0	0	61	61	61	61	122
1 PM - 2 PM	0	0	0	0	47	47	47	47	94
2 PM - 3 PM	0	148	0	90	30	30	30	120	150
3 PM - 4 PM	0	1,184	0	721	13	13	13	734	747
4 PM - 5 PM	0	263	0	159	13	13	13	172	185
5 PM - 6 PM	0	916	0	558	0	0	0	558	558
6 PM-7 PM	0	114	0	70	0	0	0	70	70
Day Total	**2,625**	**2,625**	**1,598**	**1,598**	**608**	**608**	**2,206**	**2,206**	**4,412**

Notes: Hourly construction worker and truck trips were derived from projected estimates of 2,625 workers and 608 trucks making two daily trips each (arrival and departure) in the fourth quarter of 2012. Numbers of construction worker vehicles were calculated using a 70-percent auto split with an auto-occupancy of 1.15.

Table 21-4
Comparison of Vehicle Trips—Construction and Operational

Construction (Fourth Quarter of 2012)				Operational (2017 Combined Proposed Plan and Lot B)			
Weekday Peak Period	**In**	**Out**	**Total**	**Weekday Peak Period**	**In**	**Out**	**Total**
AM Arrival Peak Hour 6 AM – 7 AM	1,418	139	1,557	AM Peak Hour 8 AM – 9 AM	2,154	1,531	3,685
PM Regular Departure Peak Hour 3 PM – 4 PM	13	734	747	Midday Peak Hour 1 PM – 2 PM	2,974	2,460	5,434
PM Extended Departure Peak Hour 5 PM – 6 PM	0	558	558	PM Peak Hour 5 PM – 6 PM	2,764	3,988	6,752

TRAFFIC

Vehicles generated by construction activities were assigned to the street network, and eight critical intersections for analysis were identified. These intersections were analyzed from 6:00-7:00 AM and 3:00-4:00 PM, which corresponds to the hours of maximum vehicular traffic generated by construction activities during the fourth quarter of 2012. The key study

intersections were selected based on their close proximity to the District and are expected to experience higher construction traffic volumes as compared with outlying intersections. The key study intersections include:

- 126th Street and Northern Boulevard;
- 126th Street at 34th Avenue;
- 114th Street at Roosevelt Avenue;
- 126th Street at Roosevelt Avenue;
- College Point Boulevard at Roosevelt Avenue;
- College Point Boulevard at the Northern Boulevard service road;
- Boat Basin Road at World's Fair Marina Park; and
- 126th Street at 38th Avenue.

Construction Peak Traffic Volumes and Conditions – Existing

The 6:00-7:00 AM peak hour was selected as the AM peak hour of construction, as the number of projected construction trips are significantly higher (1,557 vehicles) as compared with the number of construction trips generated (approximately 120 to 145 vehicles) during the proposed Plan weekday non-game AM peak hour of 7:45-8:45 AM. The ATR volume comparison showed that 6:00-7:00 AM construction peak traffic volumes are 40 percent less than the typical 7:45-8:45 AM peak hour. Hence, the 6:00-7:00 AM volumes were calculated by decreasing the 7:45-8:45 AM volumes by 40 percent. The 3:00-4:00 PM peak hour was selected as the PM peak hour of analysis, as construction trips during this hour are higher as compared with the proposed Plan weekday non-game PM peak hour of 5:15-6:15 PM. Due to the negligible difference between the 3:00-4:00 PM and 5:15-6:15 PM street peak hour volumes, the 5:15-6:15 PM weekday non-game peak hour volumes were used for the PM construction peak hour analysis.

During the AM and PM construction peak hours, all key intersections currently operate at overall intersection levels of service mid-LOS D (45 seconds of delay) or better, with the exception of 114th Street at Roosevelt Avenue, which operates at overall unacceptable LOS D (greater than 45 seconds of delay) during the PM peak hour.

Construction Peak Traffic Volumes and Conditions – Future without Construction in 2012

The existing AM and PM volumes were increased to year 2012 using a background growth rate of 1 percent per year, or a 7.7 percent growth in overall traffic volumes. In addition, No Build conditions for the construction analysis account for traffic generated by approximately 85 No Build development sites, the one-way pairing of Main and Union Streets with contraflow bus lane improvements in downtown Flushing, and signal timing and/or geometric changes at select intersections as a result of NYCDOT's Safe Streets for Seniors initiative.

Including background traffic growth and traffic expected to be generated by the No Build developments, No Build volumes along Northern Boulevard in Downtown Flushing and North Corona would range from about 760 vehicles per hour (vph) and 2,705 vph per direction, while volumes along Northern Boulevard adjacent to the District would be approximately 790 vph to 1,835 vph per direction. Roosevelt Avenue volumes in Downtown Flushing and North Corona would be about 210 vph to 715 vph per direction and, nearer to the District, between 114th Street and College Point Boulevard, Roosevelt Avenue volumes would range between 495 vph and 850 vph per direction. College Point Boulevard volumes approaching Roosevelt Avenue would be about 820 vph to 1,075 vph in the northbound direction and 475 vph to 875 vph in the

southbound direction. Volumes along 126th Street adjacent to the District would be approximately 180 vph to 505 vph.

Overall intersection levels of service would be at mid-LOS D for all intersections during the weekday AM peak construction hour and for four of the eight intersections during the weekday non-game PM peak construction hour. The intersections of 126th Street at 34th Avenue, Roosevelt Avenue at 114th Street and at College Point Boulevard, and Northern Boulevard at College Point Boulevard would operate at overall LOS E or F conditions during the weekday non-game PM peak construction hour.

Construction Peak Traffic Volumes and Conditions – Future with Construction in 2012

During the 6-7 AM peak hour, construction activities would generate 1,279 construction worker auto trips and 139 delivery (enter and exit) truck trips. During the PM peak hour, construction activities would generate 721 construction worker auto trips and 13 delivery truck trips. Auto trips were assigned along roadways leading to on-site parking facilities, and trucks were assigned to designated NYCDOT truck routes.

In 2012 with this construction phase, Northern Boulevard volumes can be expected to increase by about 5 to 35 vph per direction in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the Willets Point Development District and Citi Field, Northern Boulevard volumes can be expected to increase by approximately 455 vph during the AM construction peak hour and 5 to 10 vph during the PM construction peak hour. Northern Boulevard volumes in the vicinity of 108th and 114th Streets can be expected to increase by about 80 vph per direction during the two peak hours. Roosevelt Avenue volumes can be expected to increase by about 5 to 15 vph per direction during the construction peak hours in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the District, Roosevelt Avenue volumes can be expected to increase by approximately 5 to 315 vph per direction during the peak hours. Roosevelt Avenue volumes in the vicinity of 108th, 111th, and 114th Streets can be expected to increase by about 5 to 30 vph per direction during the peak hours analyzed. Volumes along 126th Street in the vicinity of 34th Avenue can be expected to increase by approximately 5 to 235 vph per direction during the peak hours. College Point Boulevard volumes near Roosevelt Avenue would increase by approximately 5 to 230 vph per direction during the two peak analysis hours.

The maximum vehicle trips generated by construction activities, in general, is substantially less than the vehicles trips generated by the proposed Plan (approximately 60 to 90 percent lower for the peak construction hours). It should be noted that although five out of the eight intersections would experience lower traffic volume increments during the construction peak hours, for specific movements at the intersections of Roosevelt Avenue at College Point Boulevard (northbound College Point Boulevard left turn movement), 126th Street at Roosevelt Avenue (westbound Roosevelt Avenue right turn movement), and 126th Street at 34th Avenue (westbound through movement), construction worker and truck volumes would be slightly higher than those identified in the Proposed Plan at these intersections. Slightly higher volumes at these intersections are the result of the No Build roadway network and limited direct highway connectivity to the District, as the new Van Wyck ramps would not yet be operational in 2012.

An evaluation of the eight key intersections shows that, despite volume increases to select movements, traffic operating conditions would be similar to that identified for the Proposed Plan. There would be significant adverse impacts at four intersections in the AM peak construction hour, including 126th Street at 34th Avenue, 126th Street at Roosevelt Avenue,

College Point Boulevard at Roosevelt Avenue, and Boat Basin Road at World's Fair Marina, and significant adverse impacts would occur at all eight analysis intersections during the weekday PM peak construction hour. Where significant adverse impacts would occur during construction, measures recommended to mitigate impacts associated with the proposed Plan could be implemented early to aid in mitigating congested traffic conditions. For those intersections where unmitigatable significant adverse impacts would occur during construction (such as 126th Street at Roosevelt Avenue and College Point Boulevard at Roosevelt Avenue during the AM construction peak; 114th Street at Northern Boulevard, 126th Street at Northern Boulevard, 114th Street at Roosevelt Avenue, 126th Street at Roosevelt Avenue, and College Point Boulevard at Roosevelt Avenue during the PM construction peak), these intersections would continue to be unmitigatable, similar to the operation of the proposed Plan.

DELIVERIES

Construction trucks would be required to use NYCDOT-designated truck routes, including the Van Wyck Expressway, the Long Island Expressway (LIE), Northern Boulevard, Roosevelt Avenue, and College Point Boulevard. At the construction site, flaggers would manage the access and movements of trucks. Limited site deliveries may occur along the perimeters of the construction sites within delineated closed-off areas for concrete pour or steel delivery.

CURB LANE CLOSURES AND STAGING

Curb lanes and sidewalks within the District might be temporarily closed due to construction activities. Sidewalk protection or temporary sidewalks would be provided to maintain pedestrian access. Staging areas would be required from the start of foundation work until cranes and hoists are completely removed at the completion of the core and shell stage. Because the majority of construction activities would be accommodated on-site, construction trucks would be staged primarily within the District. Maintenance and protection of traffic plans would be developed for all anticipated curb lane and sidewalk closures.

PARKING

The construction activities would generate a maximum daily parking demand of 1,598 spaces in the fourth quarter of 2012. Parking would be managed within the District, and if necessary, supplemented by the existing parking areas adjacent to the District, which are available during non-game days at the future Citi Field.

TRANSIT AND PEDESTRIANS

As described below, construction activities are not expected to result in significant adverse transit and pedestrian impacts.

TRANSIT

With approximately 70 percent of the construction workers predicted to commute via auto, the remaining 30 percent would travel to and from the construction sites via transit. Based on the peak fourth quarter 2012 projections discussed above and summarized in Table 21-3, there would be approximately 630, 355, and 275 construction-related transit trips during the 6:00-7:00 AM, 3:00-4:00 PM, and 5:00-6:00 PM hours, respectively. The transit trip demand during the morning and afternoon construction shoulder peak hours would range from 34 to 158 trips. Distributed among the No. 7 subway line, and Q19, Q48, and Q66 bus routes near the

construction sites, only nominal increases in transit demand would be experienced 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 not be a potential for significant adverse transit impacts attributable to the projected construction worker transit trips.

PEDESTRIANS

For the same reasons discussed above, with respect to transit operations, a detailed pedestrian analysis to address the projected demand from the travel of construction workers to and from the District is also not warranted. Considering that these pedestrian trips would primarily occur outside of peak hours and be distributed among numerous sidewalks and crosswalks in the area, there would not be a potential for 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 NYCDOT requirements.

AIR QUALITY

During construction of the proposed Plan, 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.

In general, most construction engines are diesel-powered, and produce relatively high levels of nitrogen oxides (NO_X—nitrogen oxide, NO, and nitrogen dioxide, NO_2, combined) and particulate matter (PM). Construction activities also emit fugitive dust. Although diesel engines emit much lower levels of carbon monoxide (CO) than gasoline engines, the stationary nature of construction emissions and the large quantity of engines could lead to elevated CO concentrations, and impacts on traffic could increase mobile source-related emissions of CO as well. Therefore, the pollutants of concern for the construction period are NO_2, CO, particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), and particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$). Ultra-low-sulfur diesel (ULSD) is now readily available and can be used in almost any diesel engine; its use is mandated under Local Law 77 of 2003 for all projects sponsored by a New York City agency. All New York City-sponsored construction is required to meet the requirements of Local 77. Because the project sponsor is a New York City agency, the requirements of Local Law 77 would be enforced. Therefore, it is expected that all large construction equipment would use ULSD. Because of the use of ULSD, sulfur oxides (SO_x) emitted from those construction activities would be negligible and would not result in any significant sulfur dioxide (SO_2) impacts.

Construction activity in general, and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine PM. Overall, the proposed Plan is expected to significantly reduce potential DPM emissions by its compliance with the requirements of New York City Local Law 77 of 2003.

Local Law 77 requires that any diesel-powered nonroad construction vehicle with an engine power output of 50 horsepower or more that is owned by, operated by or on behalf of, or leased by a city agency be powered by ULSD and utilize the best available technology (BAT) for reducing the emission of pollutants; BAT is to be determined and published by the

commissioner (DEP), and updated every six months or more frequently. In 2006, DEP published a BAT determination which defined BAT as diesel particle filters (DPF), where technologically feasible, and other technologies, which are less efficient at removing DPM, only where DPFs are not technologically feasible. Local Law 77 and the BAT determination require that all contracts include the BAT specifications process and documenting procedures.

To ensure that the construction would result in the lowest practicable DPM emissions, the following additional measures would be implemented:

- *Diesel Equipment Reduction*—The construction of the development sites would minimize the use of diesel engines and use electric engines operating on grid power instead, to the extent practicable. Construction contracts would specify the use of electric engines where practicable and ensure the distribution of power connections throughout the area as needed. Equipment that would use grid power instead of diesel engines would include, but may not be limited to, material hoists, water pumps, and compressors. This would also eliminate the continuous use of large generators, and reduce the use of small generators that would normally be needed for construction equipment. Forklifts would be either electric powered or natural gas to the extent practicable.
- *Best Available Tailpipe Emissions Reduction Technologies*—The construction contracts would specify that all nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) would utilize the best available tailpipe technology for reducing DPM emissions, and include the BAT determination (the latest available from DEP). DPFs have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Although not currently explicitly specified in the BAT determination, controls may include active DPFs,[1] if necessary.
- *Use of Tier 2 or Newer Equipment*—In addition to the tailpipe controls commitments, the construction specifications would mandate the use of Tier 2[2] or later construction equipment for nonroad diesel engines with a power output rating of 50 hp or greater. The use of "newer" engines, such as Tier 2, is expected to reduce the likelihood of DPF plugging due to soot loading (i.e., clogging of DPF filters by accumulating particulate matter). The more recent the "Tier," the cleaner the engine for criteria pollutants, including PM. Therefore, restricting site access to equipment with lower tailpipe PM emission values would enhance the emissions reduction program and implementation of DPF systems as well

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[1] There are two types of DPFs currently in use: passive and active. Most DPFs currently in use are the "passive" type, which means that the heat from the exhaust is used to regenerate (burn off) the PM to eliminate the buildup of PM in the filter. Some engines do not maintain temperatures high enough for passive regeneration. In such cases, "active" DPFs can be used (i.e., DPFs that are heated either by an electrical connection from the engine, by plugging in during periods of inactivity, or by removal of the filter for external regeneration).

[2] The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. The Tier 1 through 3 standards regulate the EPA criteria pollutants, including particulate matter (PM), hydrocarbons (HC), oxides of nitrogen (NO_x) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

as reduce maintenance frequency due to soot loading (i.e., less downtime for construction equipment to replace clogged DPF filters).

- *Source Location*—In order to reduce the resulting concentration increments at sensitive receptors, large emissions sources and activities, such as concrete trucks and pumps, would be located away from residential buildings, schools, playgrounds, and parks, to the extent practicable. To the extent practicable, large emission sources would not be located within 50 feet of such locations.
- *Dust Control*—Comprehensive fugitive dust control plans would be required as part of contract specifications. For example, stabilized truck exit areas would be established for washing off the wheels of all trucks that exit the large construction sites. Truck routes within the sites would be either watered as needed or, in cases where such routes would remain in the same place for an extended duration, the routes would be stabilized, covered with gravel, or temporarily paved to avoid the resuspension of dust. All trucks hauling loose material would be equipped with tight fitting tailgates and covered prior to leaving the sites. In addition to regular cleaning by New York City, area roads would be cleaned as frequently as needed. Chutes would be used for material drops during demolition. An on-site vehicular speed limit of 5 mph would be imposed. Water sprays would be used for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a biodegradable suppressing agent, or covered. In addition, all necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed.
- *Illuminated Traffic Control Signals and Signs*—All illuminated traffic control signals and signs would be solar powered or connected to the electrical power grid.

All of the above measures would be implemented by detailed specifications to be included in the construction contracts, in addition to the requirements of Local Law 77. Additional measures would be taken to reduce pollutant emissions during construction of the proposed Plan in accordance with all applicable laws, regulations, and building codes, and included explicitly in the contract specifications. These include the restriction of on-site vehicle idle time to three minutes for all vehicles that are not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).

Under both State Environmental Quality Review Act (SEQRA) and CEQR regulations, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. Guidelines for assessing potential impacts from NO_X, CO, and $PM_{2.5}$ are discussed in Chapter 19, "Air Quality." The District is large, and much of it is well removed from publicly accessible locations where people would be expected to be present for extended durations. Although the majority of the construction would not affect the public, residents and workers in some of the buildings completed early in the Plan would be located adjacent to construction sites during construction of the later buildings.

Due to the extensive emissions control program outlined above, the emissions levels during construction would be very low when compared with typical construction activity. For example, the Columbia University project proposed a similar state-of-the-art emissions reduction program

for construction of the proposed campus in Manhattan[1] and detailed dispersion analyses from that projected construction concluded that there would be no significant adverse impacts on air quality during construction. Similarly, the detailed impact assessment for the Atlantic Yards Arena, a large construction project proposed in Brooklyn,[2] which would also include a similar robust emissions reduction program, concluded that there would be no significant adverse impacts on air quality during construction. In both cases, sensitive receptors immediately adjacent to the construction sites were analyzed.

As mentioned above, an important factor in pollutant dispersion, which determines the concentration increment at any given location due to emissions from a source such as a construction site, is the distance between that location and the specific sources emitting pollutants, such as an engine tailpipe. At times when the wind is blowing such that a location is downwind from a source, the pollutants will be carried downwind and mix with ambient air along the way, causing concentration increments to generally decrease with the distance from the source. Since the wind direction and other factors affecting dispersion change constantly, and since most sources on construction sites move around the site, this effect is most pronounced in short-term concentration averages (i.e., 24-hours or less) and in close proximity to sources that are relatively stationary on that time scale. For example, a large generator may be stationary on all time scales; a crawler crane may be located at a single location on a given day, but move throughout the site for the duration of a particular construction task. Therefore, in order to ensure that sensitive locations, such as residential windows, adjacent to the construction site are not adversely affected, special attention is given to sources near those areas. The focus would be on reducing engine emissions in those areas by locating emissions sources away from them as much as is practicable, as well as by minimizing the time such engines would operate there when necessary.

Based on the information presented above, construction activities associated with the proposed project would not cause new exceedance of the NAAQS for any pollutant, and would not significantly increase concentrations of $PM_{2.5}$ at any location adjacent to the project site or along the access routes leading to the project site. Therefore, construction activities for the proposed project would not result in any significant adverse air quality impacts.

NOISE

Impacts on community noise levels during construction of the proposed Plan can result from noise from construction equipment operation, and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations.

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[1] *FEIS for the Proposed Manhattanville In West Harlem Rezoning And Academic Mixed-Use Development*, CPC–NYCDCP, November 16, 2007.

[2] *Atlantic Yards Arena and Redevelopment Project FEIS*, ESDC, November 15, 2006.

A wide variety of measures can be used to minimize construction noise and reduce potential noise impacts. A noise mitigation plan is required as part of the New York City Noise Control Code, and would include:

- source controls;
- path controls; and
- receptor controls.

In terms of source controls (i.e., reducing noise levels at the source or during most sensitive time periods), the following measures for construction would be implemented:

- The contractors would utilize equipment that meets the sound level standards for equipment (specified in Subchapter 5 of the New York City Noise Control Code) from the start of construction activities and use a wide range of equipment, including construction trucks, which produce lower noise levels than typical construction equipment.
- Where feasible, the contractors could be required to use construction procedures and equipment (such as generators, concrete trucks, delivery trucks, and trailers) quieter than that required by the New York City Noise Control Code.
- As early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification).
- All contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

In terms of path controls (e.g., placement of equipment, implementation of barriers between equipment and sensitive receptors), the following measures for construction would be implemented to the extent feasible:

- Noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, would be located away from and shielded from sensitive receptor locations, such as parks, residences, and institutions.
- Noise barriers would be utilized in consultation with DEP to provide shielding if noise complaints are received. Truck deliveries would take place behind these barriers.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. The impact criteria are explained in detail in Chapter 20, "Noise." While increases exceeding the CEQR impact criteria for one year or less may be noisy and intrusive, they are not considered to be significant adverse noise impacts because of their short duration. The District is large, and much of it is well removed from any sensitive receptor. The nearest residence is over 2,500 feet away from the project site, which would result in more than 30 dBA of attenuation. Furthermore, the site is surrounded by highways and busy roads (Van Wyck Expressway, Northern Boulevard, etc.) and the elevated No. 7 subway line, which makes the existing ambient noise levels relatively high. As a result, the additional construction noise is unlikely to raise noise levels in the area significantly. In addition, little night work is expected, and any exceedences of the CEQR criteria at sensitive locations would occur during day. Therefore, no long-term, significant adverse noise impacts are expected from construction activities.

RODENT CONTROL

Construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractor would carry out a maintenance program. Coordination would be maintained with appropriate public agencies. Only EPA- and DEC-registered rodenticides would be permitted, and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife. Therefore, construction of the proposed Plan would not result in any significant adverse impacts on rodent control. ✷

A. INTRODUCTION

This chapter reviews the potential health effects, including those related to air quality, noise, and hazardous materials, during the construction and operation of the proposed Willets Point Redevelopment Plan. In accordance with the approach outlined in Chapter 2, "Procedural and Analytical Framework," this chapter analyzes the cumulative impact of both the Willets Point Development Plan and the anticipated development on Lots B and D. This chapter also provides an overview of health effects related to asthma, including a general discussion of particulate matter (PM) emissions, and a discussion of causes and triggers of asthma, its prevalence in New York City, and the area most likely affected by the proposed Plan.

The analysis finds no significant adverse public health impacts related to air, noise, or hazardous materials would result during construction or operation of the proposed Plan or anticipated development on Lots B and D.

B. PRINCIPAL CONCLUSIONS

The proposed Plan and anticipated development on Lots B and D would not result in any significant adverse public health impacts related to air quality, noise, or hazardous materials.

An emissions reduction program would be implemented during construction of the proposed Plan. With this program in place, the proposed Plan would not be expected to result in significant adverse impacts on air quality or public health during construction. During project operation, $PM_{2.5}$ concentration increments from mobile sources associated with the proposed Plan and Lots B and D would be well below the DEP interim guidance criterion of $0.1 \mu g/m^3$ for neighborhood scale impacts, and localized incremental impacts from mobile sources would also be less than the applicable 24-hour interim guidance criterion of $2 \mu g/m^3$. In addition, restrictions imposed on the placement of stacks and fuel type within the District would ensure that there would be no potential for significant adverse air quality impacts from heating, ventilation, and air conditioning (HVAC) system emissions.

A noise reduction program would be implemented during project construction to minimize construction noise and reduce the potential for noise impacts. At times, noise levels due to construction could be noisy and intrusive. However they would not be of a magnitude and duration that would result in significant adverse health impacts. Traffic generated by the proposed Plan and anticipated development on Lots B and D would be expected to produce significant increases in noise levels only at the World's Fair Marina Park north of the District, and only during the Saturday midday time period. Based upon the magnitude and location of this noise level, a significant adverse impact on public health is not expected.

To prevent exposure to hazardous materials, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. If necessary to prevent future exposure to hazardous materials,

new buildings would incorporate engineering controls, which could include vapor barriers and passive or active venting systems, and institutional controls, such as a restriction on a change of uses. With the implementation of these measures, no significant adverse impacts related to hazardous materials or public health would be expected to occur as a result of construction of the proposed Plan.

C. METHODOLOGY

For determining whether a public health assessment is appropriate, the 2001 *CEQR Technical Manual* lists the following as public health concerns for which a public health assessment may be warranted:

- Increased vehicular traffic or emissions from stationary sources resulting in significant adverse air quality impacts;
- Increased exposure to heavy metals (e.g., lead) and other contaminants in soil/dust, resulting in significant adverse impacts;
- The presence of contamination from historic spills or releases of substances that might have affected or might affect groundwater to be used as a source of drinking water;
- Solid waste management practices that could attract vermin and result in an increase in pest populations (e.g., rats, mice, cockroaches, and mosquitoes);
- Potentially significant adverse impacts on sensitive receptors from noise or odors;
- Vapor infiltration from contaminants within a building or underlying soil (e.g., contamination originating from gasoline stations or dry cleaners) that may result in significant adverse hazardous materials or air quality impacts;
- Actions for which the potential impact(s) result in an exceedance of accepted federal, state, or local standards; or
- Other actions that might not exceed the preceding thresholds but might, nonetheless, result in significant public health concerns.

Based on this guidance, this chapter assesses the potential health concerns during the construction and operation of the proposed Plan, including assessments of air quality, noise, hazardous materials, and rodent control.

The public health assessment first identifies the pollutants of concern relating to air quality, then outlines the applicable standards and thresholds to which potential emissions from construction and operational activities associated with the proposed Plan will be compared. A description of the sources of air and noise pollutants during construction and operation are then presented, followed by a discussion of the characteristics of asthma and its causes and triggers. Also presented is an overview of the prevalence of asthma in New York City, and current asthma hospitalization data for neighborhoods representing the potentially affected population surrounding the Willets Point Development District.

A summary of the air quality and noise impact assessments during the construction and operational periods of the proposed Plan is then presented, and the potential for public health impacts due to the proposed Plan is determined. Summaries of potential impacts from hazardous materials and rodent control during construction are also presented.

D. SUMMARY OF AIR AND NOISE POLLUTION SOURCES FROM THE PROPOSED PLAN

CONSTRUCTION

AIR QUALITY

Construction activities have the potential to impact public health as a consequence of emissions from on-site construction engines, and emissions from on-road construction related vehicles and their impact on traffic conditions. Historically, most construction engines have been are diesel-powered and have produced relatively uncontrolled emissions of PM. Construction activities also emit fugitive dust. Impacts on traffic could also increase mobile source-related emissions.

Measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes. These include dust suppression measures and the restriction of on-road vehicle idle time to three minutes for all vehicles that are not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).

In recognition of the potential construction-related air quality and public health effects of emissions from diesel engines, an emissions reduction program would also be implemented during construction for the proposed Plan, as detailed in Chapter 21, "Construction Impacts." These include dust control measures (watering and dust covers), truck idling restrictions, Ultra Low Sulfur Diesel (ULSD), electric engines in lieu of diesel engines, and best available tailpipe reduction technologies. In addition, large emission sources during construction would be located away from sensitive uses, such as residential buildings and playgrounds.

NOISE

Community noise levels during construction of the proposed Plan could be affected by noise and vibration from construction equipment operation and from construction vehicles and delivery vehicles traveling to and from a building site. Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations. The most significant construction noise sources related to the proposed Plan are expected to be impact equipment, such as jackhammers, impact wrenches, and paving breakers, as well as the movements of trucks and cranes.

PROJECT OPERATIONS

AIR QUALITY

The primary source of mobile source pollutant emissions during project operations would be from project-generated vehicles using nearby intersections in the study area. The proposed Plan and anticipated future development on Lots B and D would increase traffic in the vicinity of the District and along feeder streets to and from the District, potentially increasing pollutant emissions.

Potential stationary source emissions associated with operation of the proposed Plan would primarily be from on-site fuel combustion for heat and hot water systems.

NOISE

The primary source of noise during project operations would be attributable to increased traffic in the District generated by the proposed Plan and anticipated future development on Lots B and D.

E. POLLUTANTS OF CONCERN

As mentioned above, the primary source of air quality pollutant emissions from the proposed Plan would be from diesel engines during construction, and emissions from project-generated vehicles and fuel-burning heating systems during project operations. Increases in airborne PM emitted by such sources may cause potential impacts on public health. Also, given the potential effects of PM emissions on asthma, PM has been identified as the primary pollutant of concern as it relates to potential public health impacts from the proposed Plan. The potential air quality impacts of $PM_{2.5}$ and other pollutants of concern from the proposed Plan are analyzed in Chapter 19, "Air Quality."

PARTICULATE MATTER

PM is a broad class of air pollutants that exist as liquid droplets or solids, with a wide range of sizes and chemical composition. Generally, airborne concentrations of PM are expressed as the total mass of all material (often smaller than a specified aerodynamic diameter) per volume of air (in micrograms per cubic meter, $\mu g/m^3$). Thus, PM_{10} refers to suspended particles with diameters less than 10 μm, and $PM_{2.5}$ to suspended particles with diameters less than 2.5 μm.

PM is emitted by a variety of natural and man-made sources. Natural sources include the condensed and reacted forms of natural organic vapors; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, and bacteria; debris from live and decaying plant and animal life; particles eroded from beaches, desert, soil and rock; and particles from volcanic and geothermal eruptions, and forest fires.

Major man-made sources of PM include the combustion of fossil fuels, such as vehicular exhaust, power generation and home heating, chemical and manufacturing processes; all types of construction; agricultural activities; and wood-burning fireplaces. Since the chemical and physical properties of PM vary widely, the assessment of the public health effects of airborne pollutants in ambient air is extremely complicated.

$PM_{2.5}$

As mentioned above, PM is a byproduct of fossil fuel combustion. It is also derived from mechanical breakdown of coarse PM such as pollen fragments. $PM_{2.5}$ does not refer to a single pollutant, but to an array of fine inhalable materials. For example, there are thousands of forms of natural ambient $PM_{2.5}$ and perhaps as many forms of man-made $PM_{2.5}$, which include the products of fossil fuel combustion (such as diesel fuel), chemical/industrial processing, and burning of vegetation. Some PM is emitted directly to the atmosphere (i.e., primary PM), while other types of PM are formed in the atmosphere through various chemical reactions and physical transformations (i.e., secondary PM). The formation of secondary $PM_{2.5}$ is one determinant of ambient air quality and is extremely difficult to model.

The major constituents of $PM_{2.5}$ are typically sulfates, nitrates, organic carbon, elemental carbon (soot), ammonium, and metallic elements (not including sulfur). Secondary sulfates and nitrates

are formed from their precursor gaseous pollutants, SO_2, and NO_x, at some distance from the source due to the time needed for the chemical conversion within the atmosphere. Elemental carbon and metallic elements are components of primary PM, while organic carbon can be either emitted directly from a source or formed as a secondary pollutant in the atmosphere. Due to the influence of these "secondary" pollutants from distant or regional sources, regional ambient levels of $PM_{2.5}$ are typically more evenly distributed than their related class of pollutants PM_{10}, which is more highly influenced by local sources.[1,2]

Data from the Botanical Gardens in the Bronx and Queens College in Queens indicate that the greatest contributors to ambient $PM_{2.5}$ concentrations in New York City are sulfates and organic carbon (approximately two-thirds of the total $PM_{2.5}$ mass). Studies confirming the contribution of long-range transport to ambient $PM_{2.5}$ levels compared the data from New York City monitors with monitors from a remote site within the State, downwind from other states. These data show that high levels of sulfate and other pollutants come into New York State from areas to the west and south of New York. The data also indicate that urban sites are more likely to experience increased nitrate and carbon levels than rural sites.[3]

F. AIR QUALITY AND NOISE REGULATIONS AND STANDARDS

AIR QUALITY

THE NATIONAL AMBIENT AIR QUALITY STANDARD FOR $PM_{2.5}$

Section 108 of the Clean Air Act (CAA) directs the U.S. Environmental Protection Agency (EPA) to identify criteria pollutants that may reasonably be anticipated to endanger public health and welfare. Section 109 of the CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS) and periodically revise them for such criteria pollutants. Primary NAAQS are mandated to protect public health with an adequate margin of safety. In setting the NAAQS, EPA must account for uncertainties associated with inconclusive scientific and technical information, and potential hazards not yet identified. The standard must also be adequate to protect the health of any sensitive group of the population. Secondary NAAQS are defined as standards that are necessary to prevent adverse impacts on public welfare, such as impacts on crops, soil, water, vegetation, wildlife, weather, visibility, and climate.

Beginning in 1994, EPA conducted a five-year review of the NAAQS for PM, which included an in-depth examination of epidemiologic and toxicological studies. The studies are summarized in EPA's Criteria Document for Particulates, Chapters 10–13 (1996); EPA's Staff Papers on Particulates, in particular Chapter V[4]; and EPA's proposed NAAQS for particulates, found in the

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[1] Ito K., Christensen W.F., Eatough D.J., Henry R.C., Kim E., Laden F., Lall R., Larson T.V., Neas L., Hopke P.K., Thurston G.D.. PM source apportionment and health effects: 2. An investigation of intermethod variability in associations between source-apportioned fine particle mass and daily mortality in Washington, DC. J Expo Sci Environ Epidemiol. 2006 Jul;16(4):300-10. Epub 2005 Nov 23.

[2] Lena T.S., Ochieng V., Carter M., Holguin-Veras J., Kinney P.L.. Elemental carbon and $PM_{2.5}$ levels in an urban community heavily impacted by truck traffic. Environ Health Perspect. 2002 Oct;110(10):1009-15

[3] New York State Department of Environmental Conservation (DEC), Report to the Examiners on Consolidated Edison's East River Article X Project, Case No. 99-F-1314, February 2002.

[4] Many of the studies are found on EPA's Web site at http://www.epa.gov/ttn/oarpg/t1sp.html.

December 13, 1996, Federal Register on page 65638. Based on this extensive analysis, in June 1997, EPA revised the NAAQS for PM and proposed a new standard for $PM_{2.5}$ consisting of both a long-term (annual) limit of 15 $\mu g/m^3$ and a short-term (24-hour) limit of 65 $\mu g/m^3$.[1]

In establishing the NAAQS for $PM_{2.5}$ in 1997, EPA conservatively assumed that moderate levels of airborne PM of any chemical, physical, or biological form might harm health. In setting the value of the annual average NAAQS for $PM_{2.5}$, EPA found that an annual average $PM_{2.5}$ concentration of 15$\mu g/m^3$ is below the range of data most strongly associated with both short- and long-term exposure effects. The EPA Administrator concluded that an annual NAAQS of 15$\mu g/m^3$ "would provide an adequate margin of safety against the effects observed in the epidemiological studies."[2]

EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$, and retaining the level of the annual $PM_{2.5}$ standard at 15 $\mu g/m^3$.

NOISE

As discussed in Chapter 20, "Noise," and Chapter 21, "Construction," noise levels associated with the construction and operation of the proposed Plan would be subject to the noise source provisions of the New York City Noise Control Code and attenuation guidelines of CEQR. Construction equipment is regulated by the Noise Control Act of 1972 and the New York City Noise Control Code.

G. DETERMINING THE SIGNIFICANCE OF PUBLIC HEALTH IMPACTS

The New York State Environmental Quality Review Act (SEQRA) regulations and the *CEQR Technical Manual* state that the significance of a likely consequence (i.e., whether it is material, substantial, large, or important) should be assessed in connection with:

1) Its setting (e.g., urban or rural);
2) Its probability of occurrence;
3) Its duration;
4) Its irreversibility;
5) Its geographic scope;
6) Its magnitude; and
7) The number of people affected.

The potential public health impacts of $PM_{2.5}$ emissions and noise levels due to the proposed Plan are based on the results of the air quality and noise impact assessments in Chapters 19, 20, and 21. The following section presents the applicable standards and thresholds with which the results of the air quality and noise modeling are compared in determining the potential significance of public health impacts in consideration of the factors set forth above.

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[1] 62 Federal Register 38652 (July 18, 1997).

[2] 62 Federal Register 28652, 38676 (July 18, 1997).

AIR QUALITY

To maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in non-attainment areas, threshold levels have been defined for certain pollutants. New York County has been designated a non-attainment area for $PM_{2.5}$. To determine the potential significance of impacts from $PM_{2.5}$ emissions for individual projects, the New York State Department of Environmental Conservation (DEC) and the New York City Department of Environmental Protection (DEP) have provided interim guidance criteria, or threshold levels. Actions predicted to increase the concentrations of $PM_{2.5}$ above threshold levels in non-attainment areas require a detailed analysis to determine the potential for significant impacts. For actions with predicted exceedances of the thresholds levels, the significance of impacts is further determined in consideration of the various factors listed in the previous section.

INTERIM GUIDANCE CRITERIA (THRESHOLD LEVELS) REGARDING $PM_{2.5}$ IMPACTS

As mentioned above, DEP is currently recommending as an interim guidance for $PM_{2.5}$ threshold values that are used for comparison when determining potential significance of air quality impacts. A neighborhood analysis is warranted, given that $PM_{2.5}$ is a regional pollutant, with monitored annual background concentrations that are near or above the applicable annual average standard in the New York City metropolitan area. In the neighborhood analysis, an area of 1 km^2, centered at the maximum predicted ground-level concentration, is considered. According to the interim guidance, actions should not exceed an average annual $PM_{2.5}$ concentration increment of 0.1 $\mu g/m^3$ within the 1 km^2 area considered. To put this value in perspective: 0.1 $\mu g/m^3$ constitutes less than 1 percent of the annual NAAQS for $PM_{2.5}$. A concentration increment that is lower than the incremental neighborhood guidance concentration would not be registered by the ambient air monitors.

In addition, DEP is currently recommending interim guidance criteria for evaluating the potential $PM_{2.5}$ impacts for projects subject to CEQR. The updated interim guidance criteria currently employed by DEP for determination of potential significant adverse $PM_{2.5}$ impacts under CEQR are as follows:

- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 5 $\mu g/m^3$ at a discrete receptor location would be considered a significant adverse impact on air quality under operational conditions (i.e., a permanent condition predicted to exist for many years regardless of the frequency of occurrence);
- 24-hour average $PM_{2.5}$ concentration increments which are predicted to be greater than 2 $\mu g/m^3$ but no greater than 5 $\mu g/m^3$ would be considered a significant adverse impact on air quality based on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations;
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.1 $\mu g/m^3$ at ground-level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or

- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 $\mu g/m^3$ at a discrete or ground level receptor location.

DEC has also published a policy to provide interim direction for evaluating $PM_{2.5}$ impacts. This policy would apply only to facilities applying for permits or major permit modification under SEQRA that emit 15 tons of PM_{10} or more annually. The policy states that such a project will be deemed to have a potentially significant adverse impact if the project's maximum impacts are predicted to increase $PM_{2.5}$ concentrations by more than 0.3 $\mu g/m^3$ averaged annually or more than 5 $\mu g/m^3$ on a 24-hour basis. (These thresholds have also been referenced by DEP in its interim guidance policy.) The proposed Plan's annual emissions of PM_{10} are estimated to be well below the 15-ton-per-year threshold under DEC's $PM_{2.5}$ guidance. The DEP community-based annual threshold of 0.1 $\mu g/m^3$ is considered more relevant and appropriate when determining potential public health impacts than the above-mentioned DEC thresholds, since it represents maximum ground-level concentrations averaged over a wider "neighborhood-scale" area.

As presented in Chapter 19, both the DEC and DEP interim guidance criteria have been used to evaluate the potential significance of predicted air quality impacts of the proposed Plan on $PM_{2.5}$ concentrations, and to determine the need to minimize PM emissions from the proposed Plan. Therefore, the public health analysis considers both the DEC and DEP thresholds in the determination of the public health impacts from the proposed Plan.

Actions under CEQR that would increase $PM_{2.5}$ concentrations by more than the DEP or DEC interim guidance criteria above will be considered to have potential significant adverse impacts. DEP recommends that its actions subject to CEQR that fail the interim guidance criteria prepare an EIS and examine potential measures to reduce or eliminate such potential significant adverse impacts.

NOISE

As described in Chapter 20, in terms of CEQR, a significant noise impact occurs when there is an increase in the one hour equivalent noise level ($L_{eq(1)}$) of between 3 and 5 dBA, depending upon the noise level without the proposed action. In terms of public health, significance is not determined based upon the incremental change in noise level, but is based principally upon the magnitude of the noise level and time frame of exposure.

H. HEALTH EFFECTS RELATED TO ASTHMA

Urban populations, such as those in New York City, generally have a higher prevalence of asthma, and higher rates of hospitalization for asthma than non-urban populations.[1] Exposure to particulate matter—specifically, emissions of fine particulate matter with an aerodynamic diameter less than 2.5 micrometers in diameter ($PM_{2.5}$)— could either aggravate pre-existing asthma, or induce asthma in an individual with no prior history of the disease. The following discussion includes a review of the characteristics of asthma and a review of asthma causes and triggers.

BACKGROUND

Asthma is a chronic disorder characterized by tightening of the airways of the lungs, airway irritability, and inflammation of the bronchial tubes. Asthma is an episodic disease, with acute

[1] Aligne C.A., Auinger P., Byrd R.S. 2000. Risk factors for pediatric asthma: contributions of poverty, race, and urban residence. Am J Resp Crit Care Med 162:873-877.

episodes interspersed with symptom-free periods. Asthma episodes may be triggered by specific substances, environmental conditions, and stress, as discussed below.

Asthma can generally be categorized as having either an allergic or a non-allergic basis.[1,2,3] About 75 percent of people suffering from asthma have allergic asthma.[4] For people with allergic asthma, exposure to allergens (substances that induce allergies) may be most important for eliciting asthma symptoms; in contrast, people with non-allergic asthma experience symptoms when confronted with exercise, breathing cold air, or respiratory infections.[5] Exercise, cold air, and respiratory infections also may exacerbate asthma in people with allergic asthma.

CAUSES AND TRIGGERS

The causes of asthma and its increase over the last two decades are not certain, and the triggers for its exacerbation are only partially understood. Scientists and clinicians have researched the causes and risk factors for the disease. Factors that have been investigated include indoor air pollution, outdoor air pollution, behaviors, food and food additives, medical practices, and illness in infancy. Current hypotheses tend to focus on three areas: (1) increases in individual sensitivity (possibly due to reduced respiratory infection); (2) increases in exposures to allergens and other environmental triggers; and (3) increases in airway inflammation of sensitized individuals. No single factor is likely to explain increased rates of asthma, however, and various factors will dominate in specific areas, homes, and individuals.

Some researchers have suggested that outdoor air pollution is not likely to contribute significantly to asthma because air pollution has decreased on the whole while asthma rates have increased. Yet, on a local scale, air pollution may be important, and on a larger scale, it is possible that specific pollutants, such as ozone or diesel exhaust, enhance the effects of other factors, such as allergens, even if the pollutants themselves are not triggers of asthma. In addition, weather conditions, and cold air in particular, can elicit asthmatic symptoms independent of air pollution.

ASTHMA AND TRAFFIC AND CONSTRUCTION EQUIPMENT SOURCES OF AIR POLLUTION

Most of the particles emitted by diesel engines are small enough to be counted as $PM_{2.5}$. Their small size makes them highly respirable and able to reach deep within the lung.

Certain experimental studies have evaluated the respiratory and systemic effect of diesel particles on laboratory animals.[6] These studies revealed that chronic and/or prolonged

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[1] Scadding, J.G. 1985. "Chapter 1: Definition and clinical categorization." In *Bronchial Asthma: Mechanisms and Therapeutics,* Second Edition (Eds: Weiss, E.B, M.S. Segal, and M. Stein), Little, Brown, and Company, Boston, MA, pp. 3-13.

[2] McFadden, Jr., E.R. 2005. Asthma. In *Harrison's Principles of Internal Medicine*, 16th ed. McGraw-Hill, New York, NY, pp. 1508-1516.

[3] Sears, M.R. 1997. "Epidemiology of childhood asthma." *Lancet* 350:1015-1020.

[4] Centers for Disease Control (CDC). 2002. "Surveillance for Asthma - United States, 1980-1999." *Morbidity and Mortality Weekly Report* 51(SS01): 1-13. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5101a1.htm (accessed July 2006).

[5] McFadden, 2005.

[6] EPA (2002, 2003a) IRIS record for diesel engine exhaust, available at www.epa.gov/iris/subst/0642.htm.

continuous exposures of the animals to large concentrations cause inflammation, fibrosis, and functional changes in the respiratory system, and that very large concentrations cause premature death. The lowest observed adverse effect levels, as well as no observed adverse effect levels, occurred at concentrations that were considerably in excess of ambient concentrations. Specifically, the levels at which these effects were not observed ranged from 100 to 500 µg of diesel particulates per cubic meter, concentrations that are above allowable average daily values.

Epidemiologically, a few studies have addressed childhood asthma in relation to distance from roads and, hence, from vehicle exhaust. For example, young children in Birmingham, England, admitted to hospitals with a diagnosis of asthma were more likely to live close to busy roads than children admitted for other reasons. The apparent risk of admission for asthma was increased by almost two-fold for children who live close to busy roads. Undercutting the significance of these findings was the lack of information about their socioeconomic status, family history of asthma, and the indoor environment. Other epidemiological studies have demonstrated an increase in daily mortality, hospitalizations, and emergency department utilization attributable to air quality diminution from increased levels of sulfur dioxide, ozone, and PM.[1,2,3]

In a study conducted in the Netherlands, researchers found that living near busy streets was associated, in children but not adults, with a one-and-a-half-fold increase in wheezing symptoms in the past, with a 4.8-fold higher use of asthma medications among children after controlling for various socioeconomic and indoor environmental exposures.[4] Other studies have not found an association between asthma symptoms or hospitalizations and residence near heavy traffic.[5]

Most studies found associations between some indicator of traffic (distance to roads, traffic volumes, or truck traffic volumes) near a residence or school and some indicator of respiratory disease (allergic rhinitis, wheezing, or cough), while a few found no evidence of an association.[6] Experiments in which non-asthmatic adults were exposed for an hour to diesel engine exhaust containing particles and gases found increased airways resistance[7] and some cellular indicators of inflammatory response;[8] however, these subjects did not experience asthma. Diesel particulates and ozone have been shown to increase the synthesis of the allergic antibody IgE in animals and humans, which would increase sensitization to common allergens. By interacting together and with other environmental factors, particulates and gaseous air pollutants can have an effect on allergic individuals.[9]

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[1] Kunzli, et al., Public health impact of outdoor and traffic-related air pollution: a European assessment, Lancet 2000 2:356 (9232); 795-801

[2] Schwela, D. Air Pollution and Health in Urban Areas. Rev Environ Health. 2000 Jan-Jun; 15(1-2): 13-42

[3] Edwards et al., (1994). Hospital Admissions for Asthma in Preschool Children; Relationshiop to Major Roads in Birmingham, United Kingdom. Arch. Environ. Health 49 (4); 223-227

[4] Oosterlee, A. et al., (1996). Chronic Respiratory Symptoms in Children and Adults Living Along Streets with High Traffic Density. Occup. Environ. Med. 53:241-247.

[5] Wilkinson, P. et al., (1999). Case-control Study of Hospital Admission with Asthma in Children Aged 5-14 Years: Relations with Road Traffic in North West London. Thorax. 54(12); 1070-1074.

[6] Brunekreef et al 1997, English et al (1999), Livingstone et al (1996).

[7] Rudell et al, Occup. Environ. Med. 53, 6480652, 1996.

[8] Slavi et al, Am. J. Respir. Crit. Care. Med. 159: 702-709, 1999.

[9] Fujieda et al Am J. Respir Cell Mol Biol, 19, 507-12, 1998; Nel et al.

PREVALENCE, MORBIDITY, AND MORTALITY

In the United States, approximately 6.8 million children (9 percent of children under age 18) have asthma.[1] In 2005, asthma prevalence in New York State was estimated at approximately 9.9 percent.[2]

Asthma morbidity and mortality rates have been rising throughout the U.S. over the last few decades,[3] with New York City experiencing a disproportionate increase in the early 1990s[4]. However, hospitalization rates in New York City have been gradually declining since the peak rates in the mid-1990s.

The borough of Queens as a whole has experienced a 37.5 percent decrease in child hospitalization rates between 1997 and 2005.[5] A comparison of asthma hospitalization rates in 1997 and 2005 among children aged 0 to 14 years is presented in Table 22-1 for zip codes surrounding the District, and for Queens and New York City as a whole.

Table 22-1

1997 and 2005 Hospitalization Rates per 1,000 Persons (Aged 0 to 14 Years)*

Location	1997	2005
Western Queens** (includes zip codes 11368, 11369, 11370, 11372, 11373, 11377, and 11378)	6.8	3.2
Flushing** (includes zip codes 11354, 11355, 11356, 11357, 11358, 11359, and 11360)	3.3	2.8
Borough of Queens	6.4	4.0
New York City	9.5	5.4

Notes:

* New York City Department of Health and Mental hygiene. *Updated Asthma Hospitalization Data by NYC Neighborhood* from Web site http://www.nyc.gov/html/doh/html/asthma/asthma.shtml. Site accessed December, 2007.

** The District is included in this neighborhood as defined by New York City Department of Health and Mental Hygiene

I. PROBABLE IMPACTS OF THE PROPOSED PLAN

The following section summarizes the potential public health impacts related to air quality, noise, and hazardous materials during the construction and operation of the proposed Plan.

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[1] Bloom B, Cohen RA. Summary Health Statistics for U.S. Children: National Health Interview Survey, 2006. National Center for Health Statistics. Vital Health Stat 10(234). 2007.

[2] American Lung Association, November 2007. "Trends in Asthma Morbidity and Mortality."

[3] CDC, 2002.

[4] Garg, R., Karpati, A., Leighton, J., Perrin, M., Shah, M., 2003. *Asthma Facts, Second Edition.* New York City Department of Health and Mental Hygiene.

[5] Under the direction of the New York City Department of Health and Mental Hygiene (DOHMH), an aggressive Asthma Initiative was begun in 1997, with goals of reducing illness and death from childhood asthma. Since its inception, major childhood asthma initiatives have been implemented in several low income neighborhoods with high hospitalization rates. Between 1997 and 2005, many of these neighborhoods have experienced substantial decreases in hospitalization rates, which may be an indication of success from extensive efforts by medical providers and community organizations participating in such initiatives.

AIR QUALITY

As presented in Chapter 21, an emissions reduction program during construction would be implemented to the extent feasible to ensure that construction activities would result in minimal diesel particulate matter emissions. With these measures in place, the construction of the proposed Plan would not be expected to result in significant adverse impacts on air quality or public health.

The potential for impacts on air quality during the operation of the proposed Plan and anticipated development on Lots B and D was examined in detail and is described in Chapter 19. DEP and DEC draft interim guidance criteria were used to evaluate the significance of predicted impacts of the proposed Plan on $PM_{2.5}$ concentrations.

The air quality analysis found that $PM_{2.5}$ concentration increments from mobile sources associated with the proposed Plan and Lots B and D would be well below the DEP interim guidance criterion of $0.1\mu g/m^3$ for neighborhood scale impacts. Localized incremental impacts from mobile sources would also be less than the applicable 24-hour interim guidance criterion of $2\mu g/m^3$. Therefore, no significant impacts from mobile sources associated with the proposed Plan are expected.

The air quality analysis also determined that with restrictions imposed on the placement of stacks and fuel type within the District (see Chapter 19), there would be no potential for significant adverse air quality impacts from heating, ventilation, and air conditioning (HVAC) system emissions.

Therefore, no significant air quality or public health impacts are expected from the construction and operation of the proposed Plan and anticipated development on Lots B and D.

NOISE

As noted in the noise analysis section of Chapter 21, the proposed Plan could result in increased noise levels from the operation of construction equipment, and construction and delivery vehicles. A wide variety of measures would be implemented to minimize construction noise and reduce the potential for noise impacts. While, at times, noise levels due to construction could be noisy and intrusive, they would not be of a magnitude and duration that would result in significant adverse health impacts. Consequently, they would not constitute a significant public health impact.

As discussed in Chapter 20, the traffic generated by the proposed Plan and anticipated development on Lots B and D would be expected to produce significant increases in noise levels only at the World's Fair Marina Park north of the District, and only during the Saturday midday time period. While this noise level increase would exceed the CEQR threshold for a significant impact, the projected noise levels at the park are not expected to be higher than typical for parks in New York City. Based upon the magnitude and location of this noise level, a significant adverse impact on public health is not expected.

Therefore, no significant adverse health impacts from noise are expected from construction and operation of the proposed Plan and anticipated development on Lots B and D.

HAZARDOUS MATERIALS

Construction of the proposed Plan would involve both demolition of all existing structures (some of which are believed to contain lead-based paint, asbestos-containing materials, and may

contain polychlorinated biphenyl (PCB)-containing electrical components); and a variety of earthmoving/excavating activities that would encounter subsurface contamination (e.g., petroleum, solvents, etc.). As described in Chapter 12, "Hazardous Materials," all privately-owned lots in the District would have E-designations and/or subsequent Restrictive Declarations placed on them. All remedial plans would be required to be submitted to DEP for review and approval. As is standard City practice, it is anticipated that any potential use of Lots B and D would be subject to DEP oversight with respect to hazardous materials.

The presence of hazardous materials threatens human health only when exposure to those materials occurs; even then, a health risk requires both an exposure pathway to the contaminants and sufficient exposure to produce adverse health effects. To prevent such exposure and exposure pathways, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities (see Chapter 12, "Hazardous Materials"). These measures would be conducted in compliance with all applicable laws and regulations and would conform to appropriate engineering practices. Given that some subsurface contamination would likely remain after completion of construction (e.g., in deeper soils and groundwater), if necessary to prevent future exposure to hazardous materials, new buildings would incorporate engineering controls, which could include vapor barriers and passive or active venting systems. Institutional controls, such as a restriction on a change of uses, to prevent future exposure during intrusive work and subsurface utility repairs may also be necessary.

With the implementation of these measures, no significant adverse impacts related to hazardous materials or public health would be expected to occur as a result of construction of the proposed Plan.

J. CONCLUSION

This analysis finds that the proposed Plan and anticipated development on Lots B and D would not result in any significant adverse public health impacts related to air quality, noise, or hazardous materials. ✷

A. INTRODUCTION

The preceding chapters of this Final Generic Environmental Impact Statement (FGEIS) discuss the potential for significant adverse environmental impacts to result from the proposed Willets Point Development Plan and anticipated development on Lot B. Such potential impacts were identified in the areas of historic resources, traffic, subway stations, bus line haul, pedestrian facilities, and noise. Measures have been examined to minimize or eliminate these anticipated impacts. These mitigation measures are discussed below.

B. HISTORIC RESOURCES

As discussed in Chapter 8, "Historic Resources," there are substantial challenges inherent in retaining the historic building located in the District—the Former Empire Millwork Corporation Building—and the proposed Plan contemplates demolition of this building. Nonetheless, the New York City Economic Development Corporation (NYCEDC) would encourage future developers to retain part or all of the building as part of their formal request for proposals (RFP) process.

Demolition of the Former Empire Millwork Corporation Building would constitute a significant adverse impact on historic resources. Measures to mitigate this impact would be developed in consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP). The mitigation measures could include recording the building through a Historic American Buildings Survey (HABS)-level photographic documentation and accompanying narrative.

C. TRAFFIC AND PARKING

As discussed in Chapter 17, "Traffic and Parking," the proposed Plan and anticipated development on Lot B would result in significant adverse traffic impacts at a number of locations within the study area. The sections below identify the mitigation needed at each location, while Figures 23-1 through 23-7 present graphic overviews of the ability of the standard traffic engineering and operational improvements identified to mitigate significant traffic impacts. Table 23-1 presents a summary of significant adverse traffic impacts and their ability to be mitigated, and Table 23-2 summarizes the unmitigated traffic study area locations by time period. Details of the intersection capacity results and relevant traffic mitigation measures are provided in Tables 23-3 and 23-4 and in Tables 23-8 through 23-14 at the end of this chapter.

Table 23-1
Traffic Impact Mitigation Summary—Year 2017

Study Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Weekday PM Pre-game	Saturday Midday Pre-game	Saturday PM Post-game
No Significant Impact	7	11	5	7	4	5	5
Fully Mitigated Impact	7	8	7	6	9	7	8
Partially Mitigated Impact	3	2	3	3	2	4	3
Unmitigated Impact	12	8	14	13	14	13	13

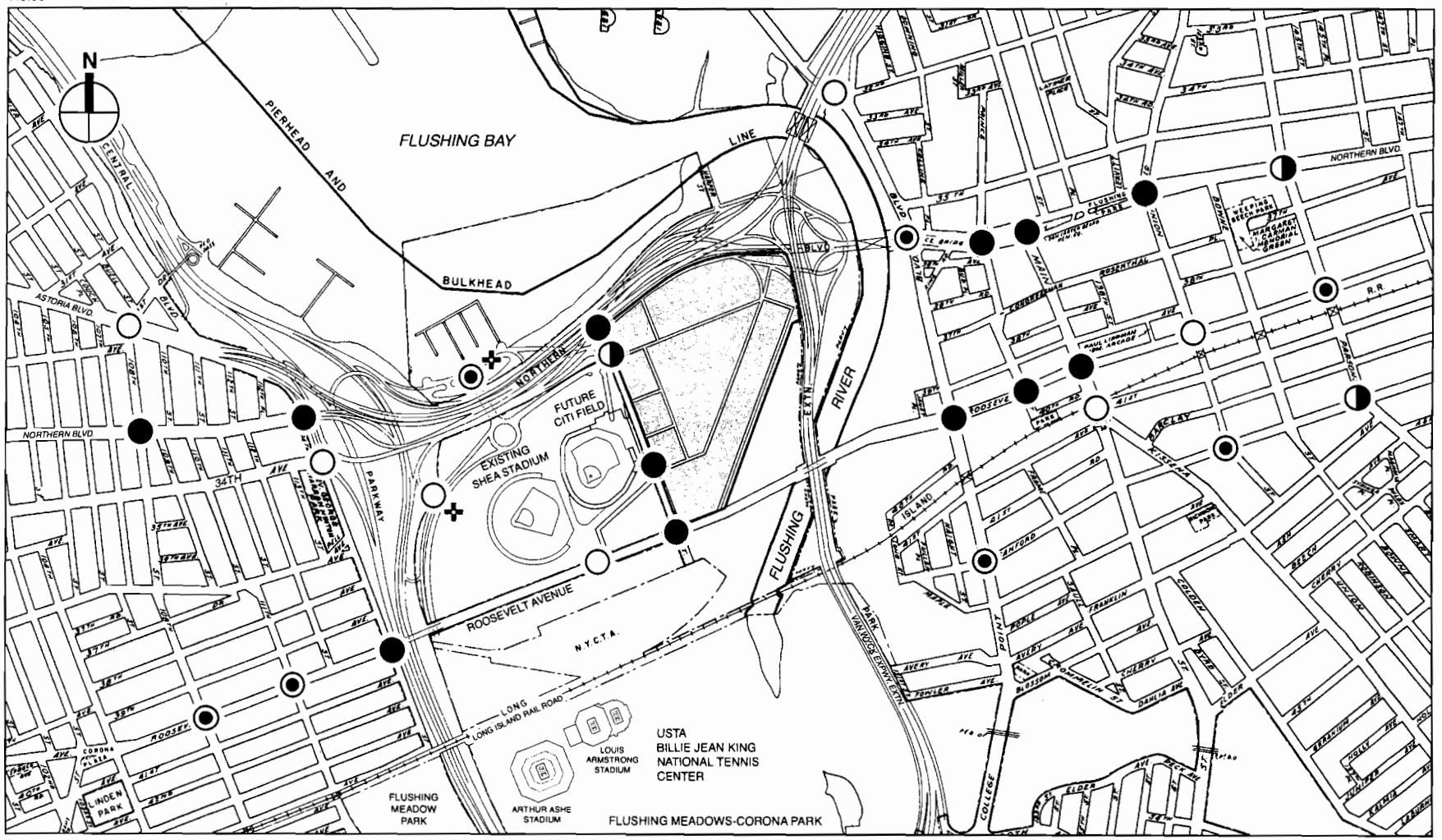
Table 23-2
Summary of Unmitigated Intersections

Intersections	Without a Mets Game				With a Mets Game		
	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Pre-game Weekday PM	Pre-game Saturday Midday	Post-game Saturday PM
Astoria Boulevard at 108th Street							
Northern Boulevard at 108th Street	x		x	x	x	x	x
Northern Boulevard at 114th Street	x		x		x	x	x
Northern Boulevard at 126th Street	x	x	x	x	x	x	x
Northern Boulevard at Prince Street	x		x	x	x	x	x
Northern Boulevard at Main Street	x		x	x	x	x	
Northern Boulevard at Union Street	x		x	x	x		x
Northern Boulevard at Parsons Boulevard							
34th Avenue at 114th Street							
34th Avenue at 126th Street		x	x	x			x
Roosevelt Avenue at 108th Street							
Roosevelt Avenue at 111th Street							
Roosevelt Avenue at 114th Street	x	x	x	x	x	x	x
Roosevelt Avenue at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at College Point Boulevard	x	x	x	x	x	x	x
Roosevelt Avenue at Prince Street	x	x	x	x	x	x	x
Roosevelt Avenue at Main Street	x	x	x	x	x	x	x
Roosevelt Avenue at Union Street			x	x	x	x	x
Roosevelt Avenue at Parsons Boulevard							
Kissena Boulevard at Main Street							
Sanford Avenue at College Point Boulevard							
Sanford Avenue at Union Street							
Sanford Avenue at Parsons Boulevard					x		
32nd Avenue at College Point Boulevard							
World's Fair Marina at Boat Basin Road							
Northern Boulevard at College Point Boulevard						x	
Stadium Road at Grand Central Parkway							
New Willets Point Boulevard at 126th Street	x	x	x	x	x	x	x
Roosevelt Avenue at New Citi Field Internal Street							

Notes: x means the intersection would be unmitigated in the corresponding peak hour.

The overall finding of the traffic mitigation analysis is that the majority of locations analyzed under the proposed Plan would be significantly impacted, and that the need for a broad range of mitigation measures would be substantial. Approximately one-half, or less, depending on the peak hour, of the significantly impacted locations could be fully or partially mitigated with

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

Unmitigated Impact

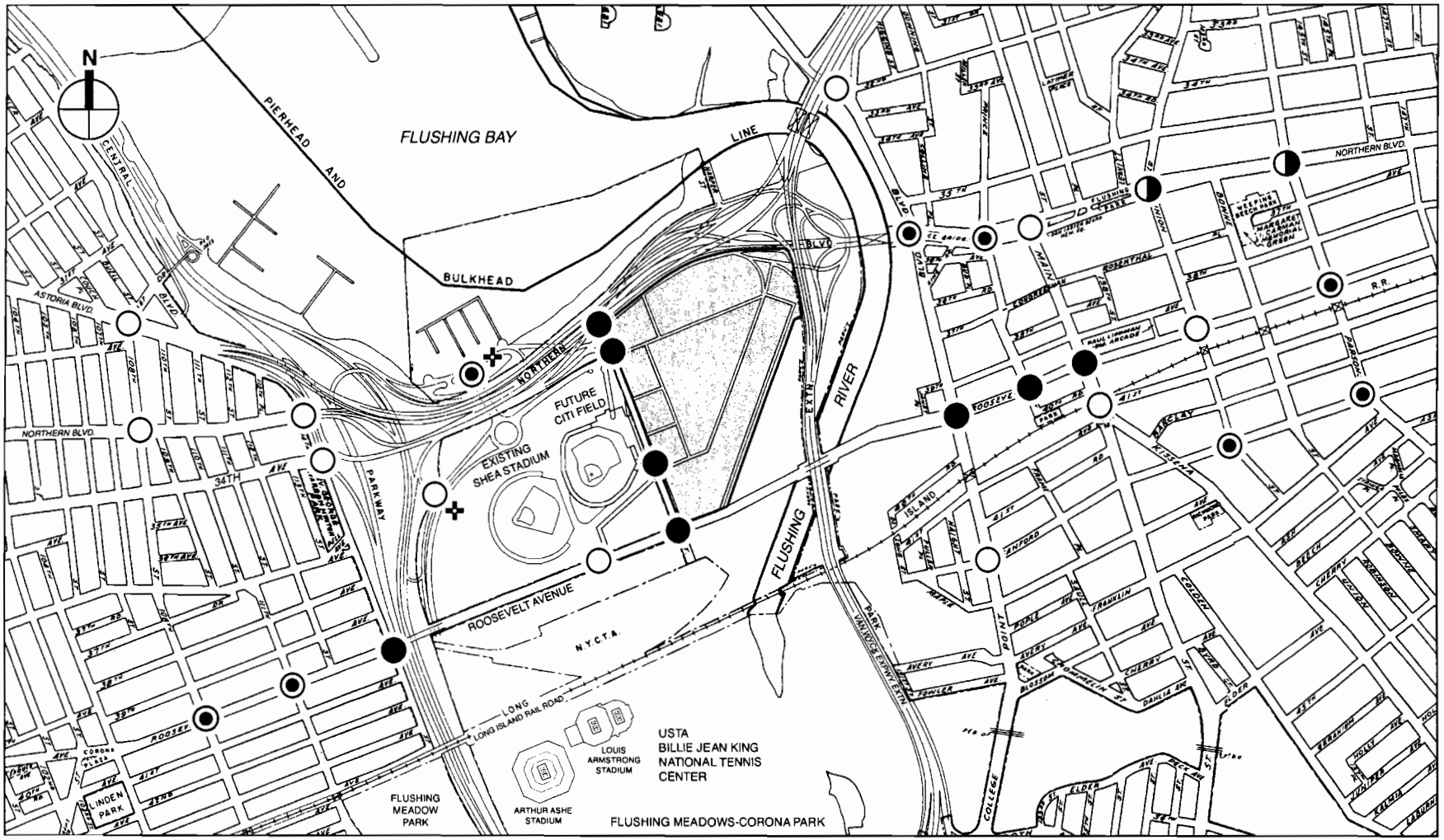
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Figure 23-1

Traffic Mitigation Overview

Weekday Non-Game AM Peak Hour

9.8.08

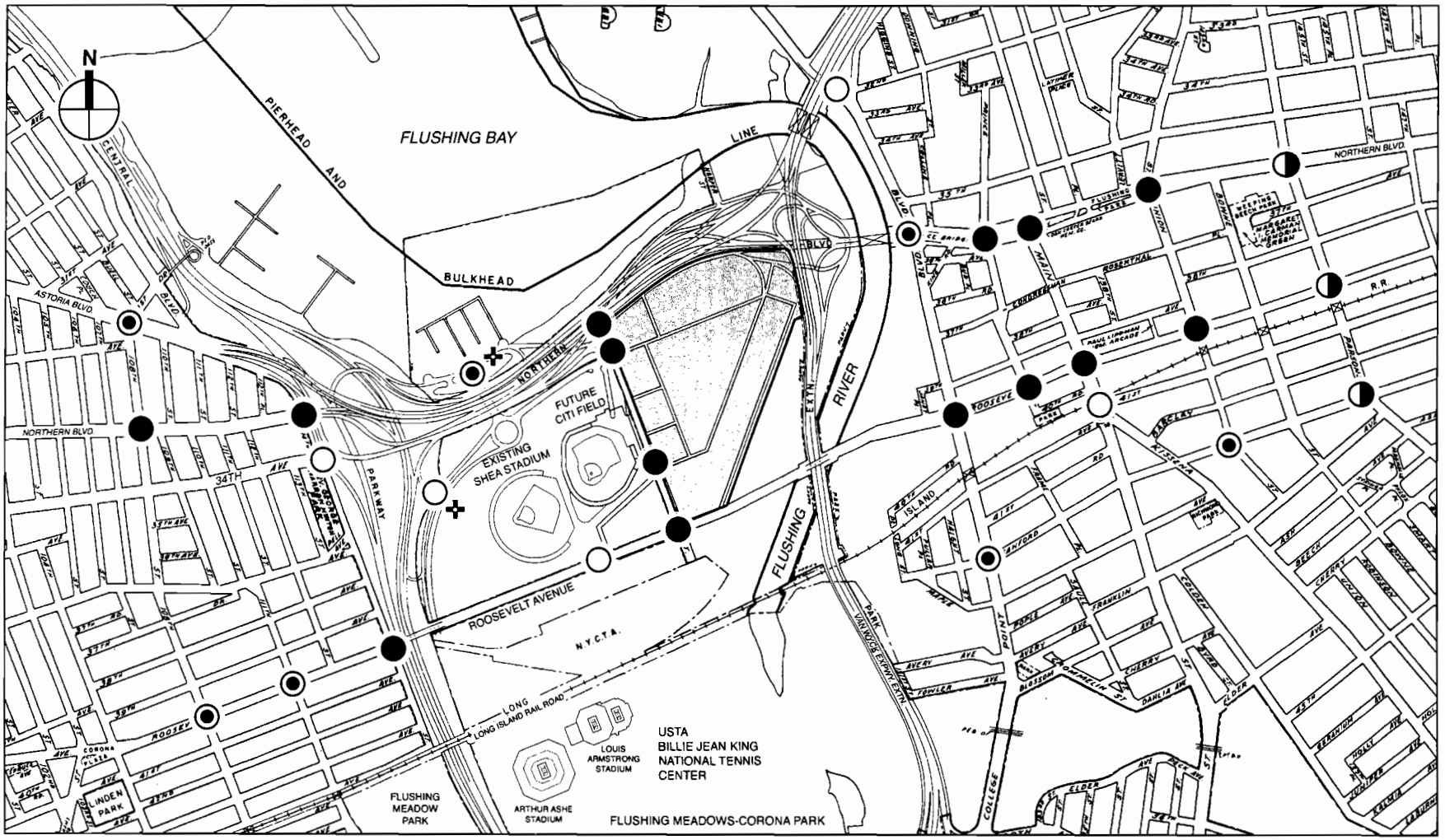


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Figure 23-2

Traffic Mitigation Overview
Weekday Non-Game Midday Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

Unmitigated Impact

0 1000 2000 FEET

SCALE

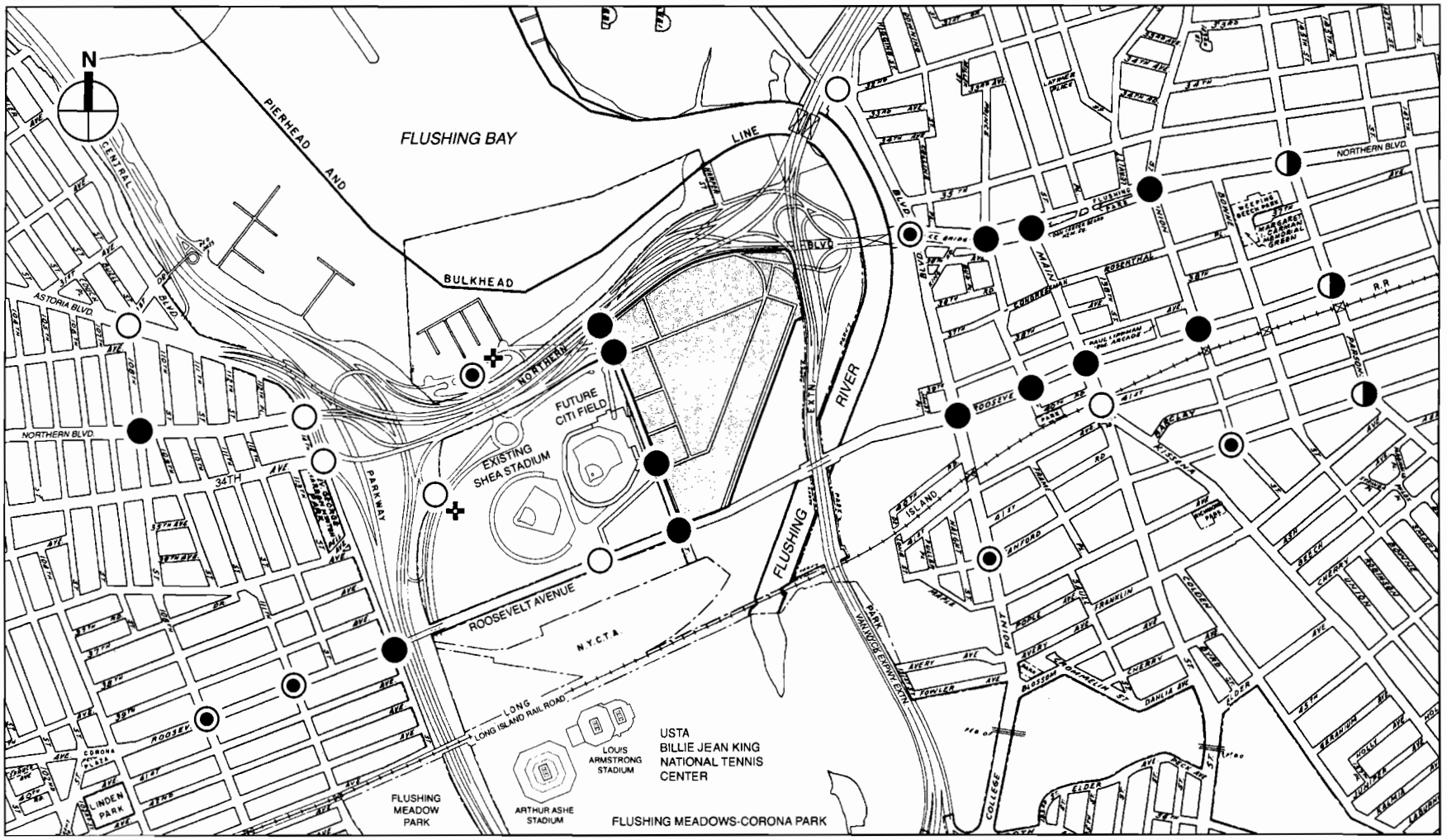
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Figure 23-3

Traffic Mitigation Overview

Weekday Non-Game PM Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

Unmitigated Impact

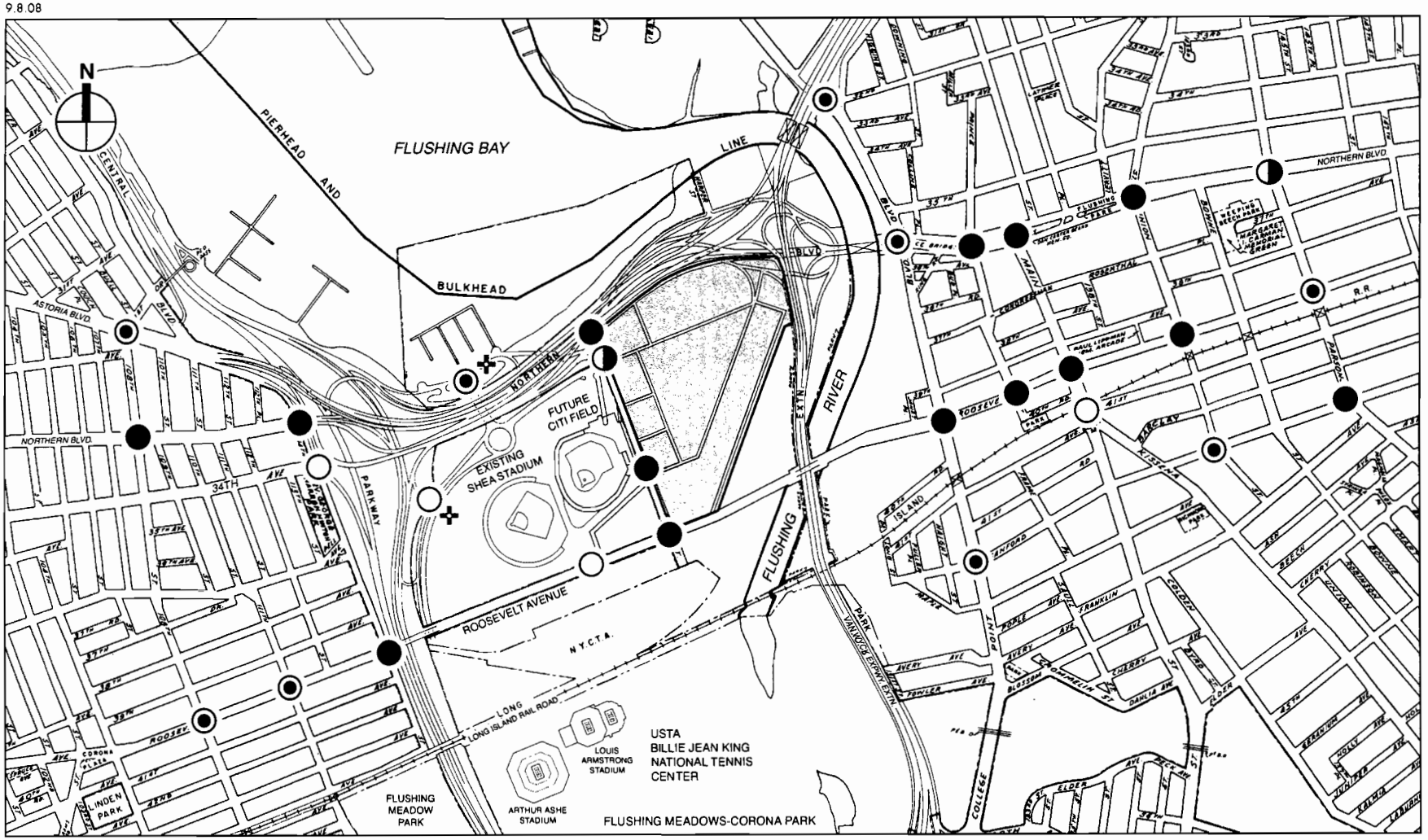
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Figure 23-4

Traffic Mitigation Overview

Saturday Non-Game Midday Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

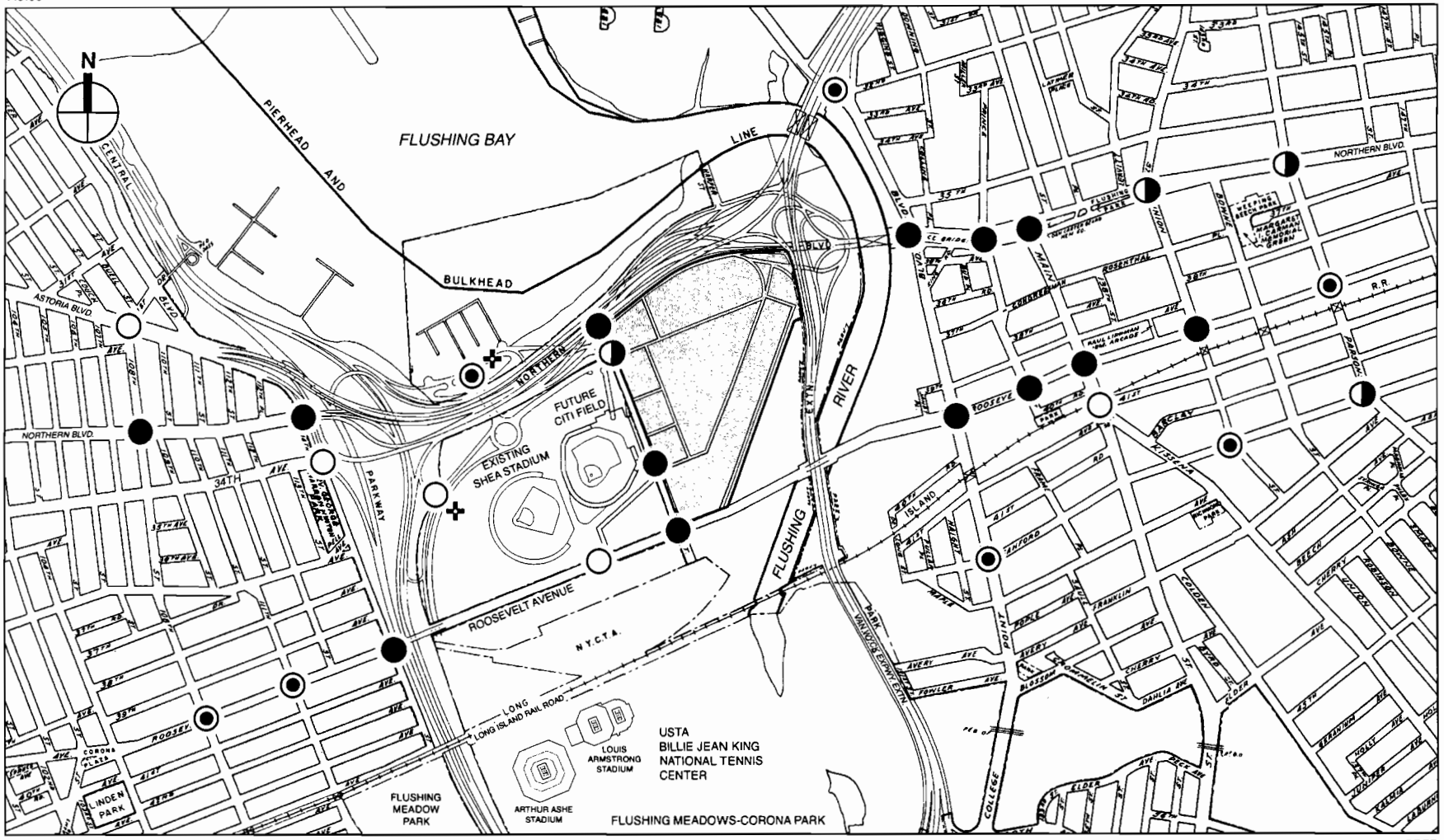
Unmitigated Impact

This figure has been updated since the DGEIS

Figure 23-5

Traffic Mitigation Overview
Weekday Pre-Game Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

Unmitigated Impact

0 1000 2000 FEET

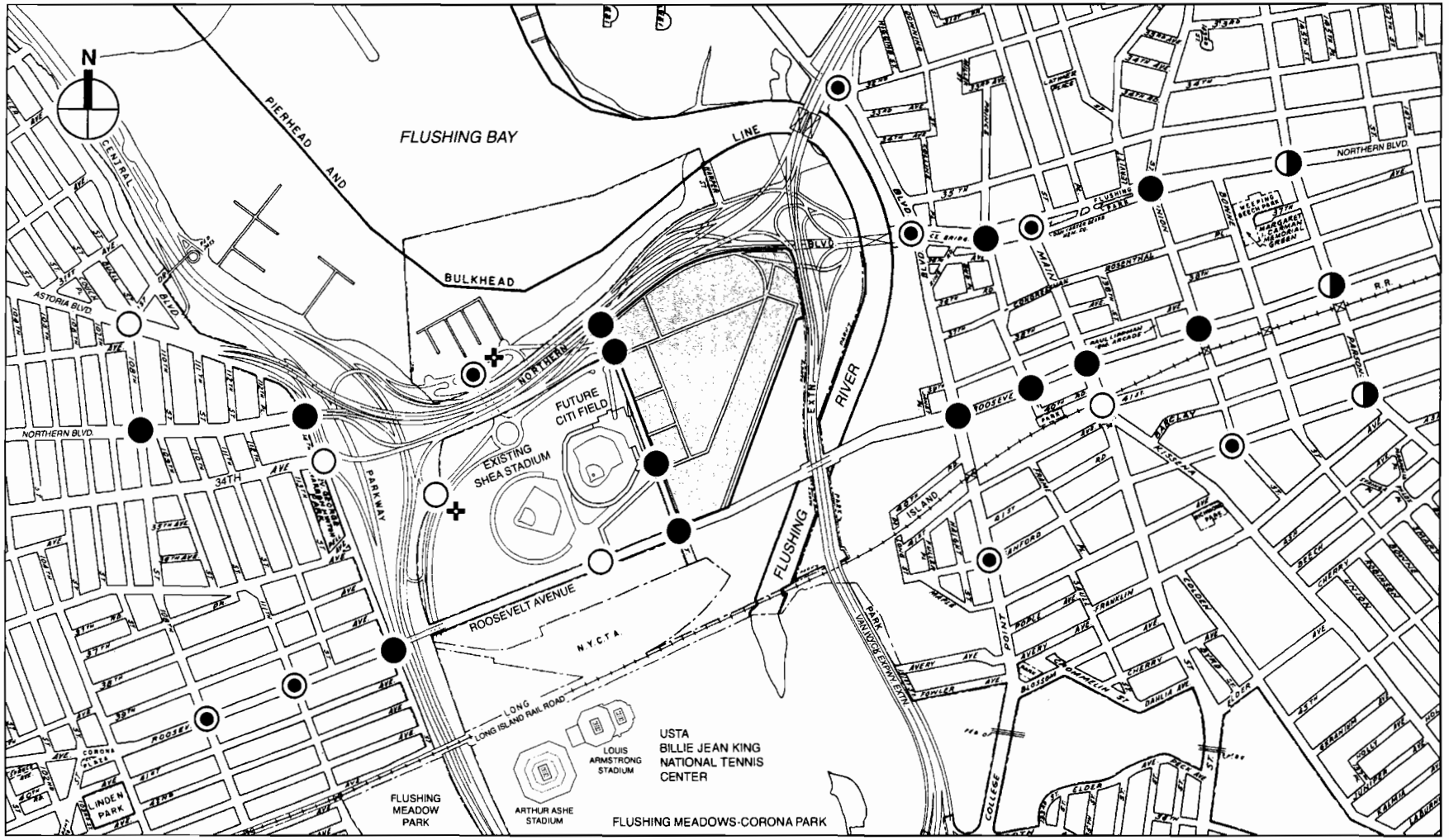
SCALE

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Figure 23-6

Traffic Mitigation Overview
Saturday Pre-Game Peak Hour

9.8.08



Willets Point Development District

Unsignalized Intersection

No Significant Impact

Mitigated Impact

Partially Mitigated Impact

Unmitigated Impact

This figure has been updated since the DGEIS

Figure 23-7

Traffic Mitigation Overview
Saturday Post-Game Peak Hour

traffic signal operation changes, such as signal phasing and/or timing changes, or the signalization of an unsignalized intersection, and limited parking prohibitions, while an additional location could be fully mitigated with a turn prohibition. Using signal timing modification measures, installation of new traffic signal equipment, limited parking prohibitions, and a minor turn prohibition, significant impacts occurring in one or more of the analysis peak hours could be fully or partially mitigated at the following traffic study area locations:

- Astoria Boulevard at 108th Street;
- Northern Boulevard at Prince Street;
- Northern Boulevard at Main Street;
- Northern Boulevard at Union Street;
- Northern Boulevard at Parsons Boulevard;
- 34th Avenue at 126th Street;
- Roosevelt Avenue at 108th Street;
- Roosevelt Avenue at 111th Street;
- Roosevelt Avenue at Parsons Boulevard;
- Sanford Avenue at College Point Boulevard;
- Sanford Avenue at Union Street;
- Sanford Avenue at Parsons Boulevard;
- College Point Boulevard at 32nd Avenue;
- Northern Boulevard service road at College Point Boulevard; and
- Boat Basin Road at World's Fair Marina.

The following intersections could only be partially mitigated or not mitigated at all; during the following time periods:

- In the weekday non-game AM peak hour, there would be three partially mitigated intersections—Northern Boulevard at Parsons Boulevard, 34th Avenue at 126th Street, and Sanford Avenue at Parsons Boulevard—and 12 unmitigatable intersections, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; Roosevelt Avenue at 114th, 126th, Prince, and Main Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the non-game weekday midday peak hour, the Northern Boulevard intersections at Union Street and at Parsons Boulevard would be partially mitigated, and 8 intersections could not be mitigated, including: Northern Boulevard at 126th Street; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, and Main Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the non-game weekday PM peak hour, the Parsons Boulevard intersections at Northern Boulevard, Roosevelt Avenue, and Sanford Avenue would be partially mitigated, and 14 intersections would not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.

- In the non-game Saturday midday peak hour, there would be three partially mitigated intersections—Parsons Boulevard at Northern Boulevard, Roosevelt Avenue, and Sanford Avenue—and 13 unmitigatable intersections, including: Northern Boulevard at 108th, 126th, Main, Prince, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the weeknight pre-game peak hour, Northern Boulevard at Parsons Boulevard and 34th Avenue at 126th Street could only be partially mitigated, and 14 intersections could not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; Sanford Avenue at Parsons Boulevard; and 126th Street at the new Willets Point Boulevard.
- In the Saturday pre-game peak hour, Northern Boulevard at Union Street and at Parsons Boulevard, Sanford Avenue at Parsons Boulevard, and 34th Avenue at 126th Street would be partially mitigated, while 13 intersections could not be mitigated at all, including: Northern Boulevard at 108th, 114th, 126th, Prince, and Main Streets; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; College Point Boulevard at the Northern Boulevard service road; and 126th Street at the new Willets Point Boulevard.
- In the Saturday post-game peak hour, there would be three partially mitigated intersections—Northern Boulevard at Parsons Boulevard, Roosevelt Avenue at Parsons Boulevard, and Sanford Avenue at Parsons Boulevard—and 13 intersections could not be mitigated, including: Northern Boulevard at 108th, 114th, 126th, Prince, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; and 126th Street at the new Willets Point Boulevard.

A summary of the traffic mitigation findings for each analysis location, including the proposed mitigation measures, where applicable, is provided below.

ASTORIA BOULEVARD

The analyzed intersection at 108th Street would be significantly impacted during the weekday PM non-game and weeknight pre-game peak hours. The impacts on the eastbound Astoria Boulevard approach could be fully mitigated by prohibiting the eastbound left turns onto 108th Street at all times. The prohibited left turns could instead use the eastbound exclusive left-turn lane at the intersection immediately upstream, Astoria Boulevard at 31st Street. The prohibited left turn volume would range between 5 vehicles per hour (vph) and 20 vph during the seven peak hours.

NORTHERN BOULEVARD

Six of the seven intersections analyzed along Northern Boulevard would be significantly impacted on non-game days during each of the AM and PM peak hours, and five would be significantly impacted during the Saturday midday peak hour. For the game day peak hours, six of the Northern Boulevard intersections would be significantly impacted in the weeknight pre-game peak hour, and five would be significantly impacted in the Saturday pre- and post-game peak hours.

NORTHERN BOULEVARD AT 108TH STREET

Six of the seven peak hours would be significantly impacted—weekday midday being the exception—and none could be mitigated. With significant impacts typical on the Northern Boulevard approaches, signal timing modifications at this intersection would not be possible without creating new significant impacts on the congested cross street, and geometric modifications to improve capacity would not be feasible.

NORTHERN BOULEVARD AT 114TH STREET

Mitigation would not be necessary during the weekday midday and Saturday midday peak hours on non-game days, and the significant adverse impacts during the other peak hours would be unmitigatable. Similar to Northern Boulevard at 108th Street, mitigation options—including signal timing modifications and geometric capacity improvements—would not be feasible.

NORTHERN BOULEVARD AT 126TH STREET

None of the significant impacts expected during all seven analysis peak hours could be mitigated. Because this intersection is the convergence point of Northern Boulevard, 126th Street, and two highway exit ramps, it would carry significant project-generated traffic volumes, in addition to substantial No Build traffic. The geometric characteristics of the intersection and the fact that significant impacts would occur on all approaches eliminate the possibility of full or partial mitigation.

NORTHERN BOULEVARD AT PRINCE STREET

None of the significant impacts expected during six analysis peak hours could be mitigated. With impacts occurring on the Northern Boulevard approaches, the geometric complexity and signal timing characteristics of this intersection, and the cross-street congestion provide limited opportunity for mitigation, with the exception of the non-game weekday midday peak hour, which could be fully mitigated with a signal timing change.

NORTHERN BOULEVARD AT MAIN STREET

Mitigation would not be required during the weekday non-game midday peak hour, and signal timing modifications could fully mitigate the significant impacts during the Saturday post-game peak hour. The significant impacts during the other five peak hours could not be mitigated.

NORTHERN BOULEVARD AT UNION STREET

Signal timing modifications could partially mitigate the significant impacts during the non-game midday and Saturday pre-game peak hours. Significant impacts during the other five peak hours could not be mitigated.

NORTHERN BOULEVARD AT PARSONS BOULEVARD

Prohibiting parking between 7:00 AM and 7:00 PM (except Sunday) along the west side of southbound Parsons Boulevard (currently metered) to provide a daylighted right-turn lane and signal timing adjustments could partially mitigate significant impacts in all seven time periods.

34TH AVENUE

One of the two study locations along 34th Avenue, the intersection at 126th Street (and the Grand Central Parkway and eastbound Northern Boulevard ramps), would be significantly impacted during all seven peak hours, since the intersection would be a key gateway to the District. The other intersection, 34th Avenue at 114th Street, would not be significantly impacted during any peak hour.

34TH AVENUE AT 126TH STREET

Significant impacts are expected during four analysis peak hours and could be mitigated. As a key entrance point to the District, this intersection would carry significant volumes of project-generated traffic. Its geometric complexity, with approaches from two exit ramps in addition to the 126th Street northbound and 34th Avenue eastbound and westbound approaches, limits the capacity improvement options. However, installation of a computerized signal controller would improve conditions at this intersection during the non-game AM, weekday pre-game, and Saturday pre-game peak hours.

ROOSEVELT AVENUE

Six intersections would be significantly impacted during the seven analysis peak hours, except for the intersection of Roosevelt Avenue at Union Street during the AM and midday peak hours. In each time period, six unmitigatable intersections would consistently be Roosevelt Avenue at College Point Boulevard, Roosevelt Avenue at Prince Street, Roosevelt Avenue at Main Street, Roosevelt Avenue at Union Street (except during the weekday AM and midday, when it would not be significantly impacted), Roosevelt Avenue at 114th Street, and Roosevelt Avenue at 126th Street. Although the number of project-generated trips expected along Roosevelt Avenue through these six intersections would not be particularly large, very limited mitigation options for the corridor in Downtown Flushing would be possible. This is due in part to narrow space for travel lanes and critical curbside activities, including bus stops, bus layover, and truck loading/unloading.

ROOSEVELT AVENUE AT 108TH STREET

Significant impacts would occur in all seven peak hours and could be fully mitigated by providing "No Standing Anytime" parking regulations within 100 feet of the intersection on the north side and south side of the westbound and eastbound Roosevelt Avenue approaches, respectively, to allow for two moving lanes at each approach; shifting the Q48 bus stop on the far side of the eastbound approach 25 feet farther downstream (to the east) to allow a transition back to one moving lane in the eastbound direction; providing "No Standing Anytime" regulations between the intersection and the relocated bus stop, and along the length of the bus stop; and prohibiting parking for 50 feet on the far side of the westbound approach to allow a transition back to one moving lane in the westbound direction. In addition, all of the impacted peak hours, except for weekday AM, would also require signal timing modifications to achieve full mitigation.

ROOSEVELT AVENUE AT 111TH STREET

Similar to the intersection at 108th Street, significant impacts would occur in all seven peak hours and could be fully mitigated by providing "No Standing Anytime" parking regulations within 100 feet of the intersection on the north side and south side of the westbound and

eastbound approaches, respectively, to allow for a transition to two moving lanes at each approach; shifting the Q48 bus stop on the far side of the westbound approach and the eastbound approach 25 feet farther downstream to allow a transition back to one moving lane in the each direction; and providing "No Standing Anytime" regulations between the intersection and each relocated bus stop, and along the length of each bus stop.

ROOSEVELT AVENUE AT 114TH STREET

None of the significant impacts expected during all seven analysis peak hours could be mitigated. The combination of significant additional project-generated traffic volumes and limited capacity improvement options—due primarily to geometric constraints—at this intersection eliminates the ability for full or partial mitigation.

ROOSEVELT AVENUE AT 126TH STREET

None of the significant impacts expected during all seven analysis peak hours could be mitigated. Similar to Roosevelt Avenue at 114th Street, mitigation options at this intersection, which would experience substantial traffic and pedestrian volumes at the southern end of the District, are also limited by geometric constraints. Further, significant impacts on all approaches to this intersection would make signal timing modifications ineffective.

ROOSEVELT AVENUE AT COLLEGE POINT BOULEVARD

None of the significant impacts expected during all seven analysis peak hours could be mitigated.

ROOSEVELT AVENUE AT PRINCE STREET

None of the significant impacts expected during all seven analysis peak hours could be mitigated.

ROOSEVELT AVENUE AT MAIN STREET

None of the significant impacts expected during all seven analysis peak hours could be mitigated.

ROOSEVELT AVENUE AT UNION STREET

Five out of the seven peak hours would be significantly impacted—weekday AM and midday being the exception—and none could be mitigated.

ROOSEVELT AVENUE AT PARSONS BOULEVARD:

By prohibiting parking between 7:00 AM and 7:00 PM (except Sunday) along the north side and south side of westbound and eastbound Roosevelt Avenue, respectively, significant impacts in four peak hours would be fully mitigated and in the remaining three peak hours would be partially mitigated.

SANFORD AVENUE

Two of the three intersections analyzed along Sanford Avenue would be significantly impacted during the weekday midday peak hour, while all three intersections would be significantly impacted during the other six peak hours.

SANFORD AVENUE AT COLLEGE POINT BOULEVARD

Significant impacts expected in six out of seven peak hours—weekday midday non-game being the exception—could be fully mitigated by providing "No Standing" parking regulations between 7:00 AM and 7:00 PM (except Sunday) on the north side of the westbound Sanford Avenue approach for a distance of 50 feet from the intersection; and by prohibiting parking from 10:00 AM to 7:00 PM (except Sunday) along the west side of the southbound College Point Boulevard approach to provide a daylighted right-turn lane, and signal timing modifications. Additionally, installation of a computerized controller would be needed to accommodate different timing plans for different peak hours.

SANFORD AVENUE AT UNION STREET

By prohibiting parking between 7:00 AM and 7:00 PM (except Sunday) along the north side of westbound Roosevelt Avenue, significant impacts in all seven peak hours could be fully mitigated.

SANFORD AVENUE AT PARSONS BOULEVARD

Significant impacts are expected in all seven peak hours. The weeknight pre-game peak hour could not be mitigated, but the other impacted peak hours could be fully or partially mitigated with the following parking prohibitions: from 7:00 AM to 7:00 PM (except Sunday) along the east side of northbound Parsons Boulevard; and from 10:00 AM to 3:00 PM (except Sunday) along the north side of westbound Sanford Avenue to provide a daylighted right-turn lane.

OTHER STUDY AREA LOCATIONS

KISSENA BOULEVARD AT MAIN STREET

No significant impacts are expected during any of the analysis peak hours.

32ND AVENUE AT COLLEGE POINT BOULEVARD

The three significantly impacted game day peak hours could be fully mitigated by upgrading the signal controller type (from mechanical to computerized) and modifying the signal timing, including increasing the signal cycle length from 60 seconds to 90 seconds. Since the installation of a new signal controller would be a permanent change to the intersection, the signal timing modifications were applied to the non-game peak hours as well, even though they would not be significantly impacted.

WORLD'S FAIR MARINA AT BOAT BASIN ROAD

Significant impacts at this currently unsignalized intersection could be fully mitigated with the installation of a traffic signal, operating with a 90-second cycle, to provide sufficient gaps for northbound Boat Basin Road left-turn traffic toward the entrance ramp to the westbound Grand Central Parkway. During game day conditions, NYPD should optimize traffic signal operations.

NORTHERN BOULEVARD SERVICE ROAD AT COLLEGE POINT BOULEVARD

Modifying signal timings would fully mitigate the significant impacts in six of the seven peak hours; the Saturday pre-game peak hour would be unmitigated.

STADIUM ROAD AT THE GRAND CENTRAL PARKWAY RAMP

No significant impacts are expected during any of the analysis peak hours.

126TH STREET AT THE NEW WILLETS POINT BOULEVARD

Because this intersection would be newly built as part of the proposed Plan, any marginally unacceptable or unacceptable delays would be considered significant adverse traffic impacts. As a result, in the non-game peak hours, the intersection would be unmitigatable despite it operating at overall marginally acceptable LOS D and the impacted lane groups operating at either marginally unacceptable LOS D or unacceptable LOS E. Impacts expected in the three game-day peak hours would also be unmitigatable.

CITI FIELD INTERNAL STREET AT ROOSEVELT AVENUE

No significant impacts are expected at this proposed signalized intersection during any of the analysis peak hours.

IMPLEMENTATION

Each of the traffic capacity improvements described above require the approval of the New York City Department of Transportation (NYCDOT). Overall, these traffic improvements—including signal phasing and timing changes, traffic signal installations, and parking prohibitions—fall within the range of typical measures employed by NYCDOT in improving traffic conditions in New York City. New York City Transit (NYCT) would need to agree to the proposed movement of the Q48 bus stops on Roosevelt Avenue near 108th and 111th Streets.

With the implementation of the traffic mitigation measures described above, new parking prohibitions would result in the removal of approximately 40 to 50 parking or "standing" spaces during various times of the day and days of the week, including approximately 17 parking meters. Roosevelt Avenue would lose about 20 to 25 spaces (including about 14 meters) in the vicinity of 108th and 111th Streets, and Parsons Boulevard; Sanford Avenue would lose about 10 to 15 spaces near College Point and Parsons Boulevards and Union Street; Parsons Boulevard would lose approximately 5 spaces (including three meters) near Northern Boulevard and Sanford Avenue; and College Point Boulevard would lose approximately three spaces in the vicinity of Sanford Avenue. No designated truck loading/unloading or commercial vehicle zones or bus layover space would be affected by the parking modifications proposed for mitigation.

Of the traffic mitigation measures discussed above, one new traffic signal is proposed at a currently unsignalized intersection, Boat Basin Road at World's Fair Marina. Also, it is expected that the intersections of College Point Boulevard at 32nd Avenue and 126th Street at 34th Avenue would require traffic signal equipment upgrades from the current mechanical systems to computerized in order to accommodate variable signal phase green times among the seven analysis time periods. This signal improvement would be similar to NYCDOT's planned upgrade program for various signalized intersections throughout the City.

The analyzed proposed Plan includes a cumulative development plan, which represents the maximum envelope of development envisioned for the District. As a result, the mitigation identified in this chapter is what would be needed to address significant impacts due to the maximum development scenario established in the cumulative development plan. Were the eventual development plan scaled back from the maximum envelope and the number of projected vehicle trips were lessened, it is possible that the extent of the mitigation presented in this chapter would be beyond what would ultimately be required.

In order to verify the need and effectiveness of the proposed mitigation measures identified in the FGEIS, the lead agency would develop and conduct a detailed traffic monitoring plan at full buildout of the proposed Plan. The lead agency would inform NYCDOT of the progress of the Plan's development and submit for NYCDOT's review and approval a scope of work that would include all locations where significant traffic impacts have been identified in the FGEIS and any locations analyzed in the FGEIS where NYCDOT believes improvement measures may be warranted. Data collection conducted for the monitoring plan would include 24-hour Automatic Traffic Recorder (ATR) machine counts, manual turning movement counts, vehicle classification counts, pedestrian counts, intersection geometry and field information, signal timing and signal progression and any relevant information necessary for conducting the traffic monitoring plan. In the areas where parking prohibitions would be needed to mitigate significant impacts, such as Downtown Flushing and Corona, curbside utilization surveys would be conducted to determine the number of vehicles that would be displaced and where the displaced vehicles would be accommodated. Additionally, the traffic monitoring program would include an origin-destination survey performed for the destination retail component of the project. The traffic monitoring program would also include intersection capacity, level of service analyses and signal progression analyses to determine whether actual future Build conditions have, in fact, resulted in significant traffic impacts and verify the need for mitigation measures identified in the FGEIS or similar measures identified through the traffic monitoring plan.

The lead agency would submit to NYCDOT design drawings for any mitigation measures as per American Association of State Highway and Transportation Officials (AASHTO) and NYCDOT specifications. NYCDOT would participate in the review process relating to all future modifications to geometric alignment, striping and signage during the preliminary and final design phases. In addition, the lead agency or future developer would be responsible for any cost associated with the monitoring effort. The City or future developer would be responsible for the cost of the design and construction of any or all improvement measures identified in the FGEIS or through the traffic monitoring plan as warranted due to project-generated traffic.

D. TRANSIT AND PEDESTRIANS

OVERVIEW

As discussed in Chapter 18, "Transit and Pedestrians," the proposed Plan would result in significant adverse impacts on subway station operations, bus line-haul, and street level pedestrian facilities. Potential measures to mitigate these impacts are described below.

SUBWAY STATION OPERATIONS

The projected decline in service levels at the street-level stairway on the north side of Roosevelt Avenue at the Willets Point-Shea Stadium subway station from LOS C or better under the No Build condition to LOS D, E, or F under the Build condition would constitute significant adverse

subway station impacts. Because the worst service levels were identified for the weekday non-game PM peak period, the amount of stairway widening required would equal the amount needed to mitigate conditions during this analysis time period to LOS C/D or better. As shown in Table 23-3, the effective width necessary to achieve LOS C/D or better for the street-level stairway is 10.25 feet. For street-level stairway S2, this width represents a 4.25-foot widening from its existing effective width of 6 feet (actual tread width of 8 feet). To achieve the 10.25-foot effective stairway width, this stairway would need to be widened to an actual width of 12.25 feet.

Table 23-3

2017 Mitigated Build Condition: Subway Station Vertical Circulation Analysis

Willets Point–Shea Stadium No. 7 Train Station Vertical Circulation Elements	Width (feet)	Effective Width (feet)	15-Minute Pedestrian Volumes		Friction Factor	15-Minute		
			Up	Down		SVCD Capacity	V/SVCD Ratio	LOS
Weekday AM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	12.25	10.25	518	425	0.90	1384	0.68	B
Weekday PM Non-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	12.25	10.25	703	681	0.90	1384	1.00	D
Weekday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	12.25	10.25	507	599	0.90	1384	0.80	C
Saturday Pre-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	12.25	10.25	430	481	0.90	1384	0.66	B
Saturday Post-Game								
Street to Mezzanine								
Roosevelt Avenue (North) S2 Stairs	12.25	10.25	443	395	0.90	1384	0.61	B

Note: Capacities were calculated based on rates presented in the New York City Transit, *Station Planning and Design Guidelines* (January 2001), in accordance with the *CEQR Technical Manual*.

The implementation of this mitigation measure would be coordinated with MTA/NYCT to allow enough time for design and specification approvals by MTA/NYCT and for the construction in order to address the increased demand that would result from development of the proposed Plan by 2017.

BUS LINE HAUL LEVELS

The proposed Plan would result in significant adverse impacts on the eastbound and westbound Q48 routes during the AM and PM peak periods and on the eastbound Q66 during the AM and PM peak periods. More specifically, the Q48 route would experience the following increases in passengers per bus between No Build and Build conditions:

- eastbound line-haul increasing from 52 to 177 average passengers per bus in the AM peak period;
- westbound line-haul increasing from 8 to 133 average passengers per bus in the AM peak period;
- westbound line-haul increasing from 45 to 374 average passengers per bus in the PM peak period.

To mitigate these significant adverse impacts, 14 additional or 20 total eastbound buses and eight additional or 13 total westbound buses would be required during the AM peak period.

During the PM peak period, 27 additional or 31 total eastbound buses and 24 additional or 28 total westbound buses would be required.

The Q66 route would experience the following increases in passengers per bus between the No Build and Build conditions:

- eastbound line-haul increasing from 81 to 85 average passengers per bus in the AM peak period; and,
- eastbound line-haul increasing from 56 to 68 average passengers per bus in the PM peak period.

To mitigate these significant adverse impacts and return loading on these buses to NYCT guideline levels, nine additional or 24 total eastbound buses would be required during the AM peak period and three additional or 14 total eastbound buses would be required during the PM peak period. Table 23-4 provides a comparison of the existing service and the numbers of buses required to fully mitigate the identified significant adverse line haul impacts along the Q48 and Q66 bus routes.

Table 23-4
2017 Mitigated Build Condition: Bus Line Haul Levels

Route	Peak Period	Eastbound Buses per Hour		Westbound Buses per Hour	
		Existing	With Mitigation	Existing	With Mitigation
Q48	AM	6	20	5	13
	PM	4	31	4	28
Q66	AM	15	24	—	—
	PM	11	14	—	—
Notes:	Both Q48 and Q66 operate standard buses with a guideline capacity of 54 passengers per bus.				

The above mitigation measures consider potential service improvements to only the bus routes currently serving the immediate vicinity of the District. While MTA and NYCT routinely monitor changes in bus ridership and would make the necessary service adjustments where warranted, the projected service demand is significant in magnitude. These service adjustments are subject to the agencies' fiscal and operational constraints and, if implemented, are expected to take place over time.

Recognizing that these improvements may not be operationally viable or adequate in accommodating the projected future demand from developments planned for the District, discussions were initiated with NYCT to explore opportunities to extend existing bus routes from adjacent neighborhoods (e.g., downtown Flushing) and/or creating new bus routes. Potential bus service improvements discussed include: 1) increasing service frequency on the Q19 and providing westbound stop/loop service to Willets Point; 2) extending some or all bus routes that currently terminate in downtown Flushing to Willets Point, including the Q12, Q13, Q14, Q15, Q16, Q17, Q26, Q27, and Q28; and 3) possibly extending the limited QBx1 along Roosevelt Avenue and rerouting the X51 through Willets Point. To accommodate these potential service improvements, new bus stops and layover areas would be needed in and around the District. The City will collaborate with MTA and NYCT during and after this environmental review process to establish development guidelines and provisions to ensure that adequate bus service improvements would be implemented.

STREET LEVEL PEDESTRIAN OPERATIONS

Significant adverse pedestrian impacts were identified for the east crosswalk at the intersection of Northern Boulevard and 126th Street, for the north, east, and west crosswalks at the intersection of Roosevelt Avenue and 126th Street, and for the new crosswalk at the signalized intersection of Roosevelt Avenue and the Lot B driveway. Measures that could be implemented to mitigate these impacts are discussed below:

NORTHERN BOULEVARD AND 126TH STREET

- The east crosswalk would deteriorate to LOS D (19.9 SFP) during the Saturday pre-game peak period and LOS E (13.0 SFP) during the Saturday post-game peak period. Restriping this crosswalk from 14.5 feet to 22.0 feet would be required to return operations to acceptable conditions (20 SFP) during the peak period with the worst operating conditions, the Saturday post-game peak period. Widening this crosswalk to 24.5 feet would return operations to No Build levels. Because this widening could be constrained by the physical median along Northern Boulevard, achieving such widening may not be feasible. However, conditions at this crosswalk were identified only for the Saturday pre-game and post-game peak periods. At these times, game-day traffic management measures—such as the stationing of traffic control officers at this location to facilitate traffic and pedestrian flows, which currently occurs on game days but was not accounted for in the pedestrian analysis—would be in place. These measures make it unlikely that the physical widening of the existing crosswalk would be needed.

ROOSEVELT AVENUE AND 126TH STREET

- The north crosswalk would deteriorate to LOS D (16.2 SFP) during the weekday midday peak period, LOS E (11.9 SFP) during the weekday PM peak period, LOS E (13.1 SFP) during the weekday pre-game peak period, LOS E (12.5 SFP) during the Saturday non-game peak period, LOS E (14.8 SFP) during the Saturday pre-game peak period, and LOS D (18.1 SFP) during the Saturday post-game peak period. Restriping this crosswalk from 17.0 feet to 26.0 feet would mitigate these significant adverse impacts. The feasibility of this widening would be limited by the width of the adjoining sidewalks on the north side of Roosevelt Avenue. If such widening could not be achieved, the projected significant adverse impacts during certain time periods would remain unmitigated or partially mitigated.
- The east crosswalk would deteriorate to LOS D (19.1 SFP) during the weekday midday peak period, LOS D (16.5 SFP) during the weekday PM peak period, LOS D (17.8 SFP) during the weekday pre-game peak period, LOS E (13.9 SFP) during the Saturday non-game peak period, and LOS D (17.8 SFP) during the Saturday pre-game peak period. Restriping this crosswalk from 11.5 feet to 16.0 feet would mitigate these significant adverse impacts. The feasibility of this widening would be limited by the width of the adjoining sidewalks on the east side of 126th Street. If such widening could not be achieved, the projected significant adverse impacts during certain time periods would remain unmitigated or partially mitigated.
- The west crosswalk would deteriorate to LOS E (13.3 SFP) during the weekday midday, LOS F (6.6 SFP) during the weekday PM peak period, LOS F (6.0 SFP) during the weekday pre-game peak period, LOS E (9.5 SFP) during the Saturday non-game peak period, LOS F (6.0 SFP) during the Saturday pre-game peak period, and LOS E (10.3 SFP) during the Saturday post game peak. Restriping this crosswalk from 16.0 feet to 48.5 feet would mitigate these significant adverse impacts. Because the required widening would exceed the

width of the adjoining sidewalks on 126th Street, only partial mitigation could be implemented, and the projected significant adverse impacts would remain unmitigated or partially mitigated.

ROOSEVELT AVENUE AND LOT B DRIVEWAY

- Based on the assumed 24-foot crosswalk width, the new crosswalk would operate at LOS E (14.1 SFP) during the weekday PM peak period and at LOS D (18.2 SFP) during the Saturday non-game peak period. The crosswalk would need to be 32.0 feet wide to ensure acceptable operations during all analysis peak periods. The feasibility of constructing a crosswalk of this width would be limited by the width of the adjoining sidewalks along the north side of Roosevelt Avenue. If such a width could not be achieved, the projected significant adverse impacts during certain time periods would remain unmitigated.

34TH AVENUE AND 126TH STREET

- No significant adverse pedestrian impacts were identified at this intersection. An evaluation of the proposed signal timing changes as part of the traffic mitigation strategies shows that they would not adversely affect crosswalk operations during any of the analysis peak periods.

E. AIR QUALITY

Chapter 19, "Air Quality," shows the maximum of the predicted 8-hour carbon monoxide (CO) concentrations for the proposed Plan and the anticipated development on Lot B, and concludes that it would not result in any significant adverse air quality impacts. Therefore, no air quality mitigation is required. This section considers the effects on air quality of the proposed Plan and the anticipated development on Lot B with implementation of the traffic mitigation measures discussed above.

Table 23-5 illustrates the effect of the proposed traffic mitigation measures (see the discussion above) on maximum predicted CO concentrations with the proposed Plan and the anticipated development on Lot B. The table shows that concentrations with the proposed traffic mitigation measures would be below the National Ambient Air Quality Standards (NAAQS), and would not result in any significant adverse air quality impacts.

Table 23-5
Future Maximum Predicted 8-Hour Average Carbon Monoxide With Proposed Traffic Mitigation

Receptor Site	Location	Time Period	8-Hour Concentration (ppm)
2	126th Street and 34th Avenue	PM pre-game /MD pre-game	4.5
Note: 8-hour standard is 9 ppm.			

F. NOISE

Future noise levels with the proposed Plan and the anticipated development on Lot B with the proposed traffic mitigation measures were calculated for receptor site 3 using the methodology

described in Chapter 20, "Noise," for the 2017 analysis year. Receptor 3 was analyzed as it is nearby the proposed additional signal at the intersection of Boat Basin Road and World's Fair Marina, which is the only mitigation measure that has the potential to substantially affect noise levels. No Build values presented in Chapter 20 were used to assess impacts. Build values for 2017 with the proposed traffic mitigation measures in place are shown in Table 23-6. Values that exceed *CEQR Technical Manual*'s impact criteria are shown in bold.

Table 23-6
2017 Build Noise Levels With Traffic Mitigation Measures (dBA)

Site	Location	Day	Time Period	No Build $L_{eq(1)}$	Build $L_{eq(1)}$	Build Mitigation $L_{eq(1)}$	Mitigation—No Build Increase
3	World's Fair Marina Park	Weekday	AM	69.8	71.1	71.3	1.5
		Weekday	MD	70.9	72.8	72.8	1.9
		Weekday	PM	72.2	73.9	74.2	2.0
		Saturday	MD	68.7	72.2	72.4	**3.7**
		Weekday	pre-game	71.9	72.2	72.2	0.3
		Saturday	pre-game	69.4	69.6	69.6	0.2
		Saturday	post-game	67.8	68.3	69.0	1.2

In 2017, when the proposed Plan would be completed, Leq(1) noise levels due to project-generated traffic with the proposed traffic mitigation plan would exceed the *CEQR Technical Manual's* impact criteria and result in significant adverse noise impacts during the non-game Saturday midday (MD) time period at noise receptor location 3. There would be no feasible or practicable measures to mitigate this impact. Noise barriers or berms are impractical at this location due to space constraints. As a result, this would be an unmitigatable significant adverse impact.

While this noise level increase does exceed the CEQR threshold for a significant impact, the resultant L_{eq} of 72.4 dBA is not an uncommon level for a park in New York City. Noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways.

The noise levels and the impacts predicted exclude noise from aircraft operations at LaGuardia Airport, which is adjacent to the District. Excluding aircraft noise results in lower baseline levels and therefore a more conservative analysis, as the project-generated noise causes a larger increase on a lower baseline level. If the noise from aircraft operations were included in the baseline noise levels, it is unlikely that the impact identified at the World's Fair Marina Park would occur.

The impact would occur at the same location and time as would occur without the traffic mitigation measures. While the addition of a traffic signal at this location does increase noise levels, and increase the magnitude of the impact during the Saturday midday (MD) time period, the changes in noise levels are less than a decibel, and would have no perceptible effect.

G. CONSTRUCTION

As discussed in Chapter 21, "Construction Impacts," significant adverse traffic impacts could occur at some of the study area intersections through which construction-related traffic would travel, albeit expected at notably lower magnitudes than the operational impacts identified in Chapter 17. Where impacts during construction may occur, measures recommended to mitigate

impacts associated with the proposed Plan could be implemented early to aide in alleviating congested traffic conditions. However, where unmitigatable operational impacts are identified, there is also the potential for such impacts to occur during construction. A more detailed analysis will be presented in the FGEIS to identify the specific anticipated significant adverse traffic impacts during construction and the likely measures necessary to mitigate these impacts. ✳

Table 23-7

Summary of Non-Game Day Traffic Mitigation Measures

INTERSECTION	MITIGATION MEASURES			
	NON-GAMEDAY WEEKDAY AM PEAK HOUR	NON-GAMEDAY WEEKDAY MIDDAY PEAK HOUR	NON-GAMEDAY WEEKDAY PM PEAK HOUR	NON-GAMEDAY SATURDAY MIDDAY PEAK HOUR
108th Street at Astoria Boulevard	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street. **[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street. **[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street. **[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**
108th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	Mitigation not required.	**Unmitigatable Impact.**	**Unmitigatable Impact.**
114th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	Mitigation not required.	**Unmitigatable Impact.**	Mitigation not required.
126th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Prince Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	Modify signal timing: shift 1 s green time from EB/WB phase to EB/WB-left only lead phase. [EB/WB green time shifts from 54 s to 53 s; EB/WB-left only lead green time shifts from 7 s to 8 s; EB-only lead green time remains 10 s; NB/SB green time remains 29 s.]	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Main Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	Mitigation not required.	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Union Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Partially Mitigated.** Modify signal timing: shift 2 s green time from EB/WB phase to EB-left/EB-right/WB-left lead phase. [EB/WB green time shifts from 50 s to 48 s; EB-left/EB-right/WB-left green time shifts from 18 s to 20 s; NB/SB green time remains 36 s.]	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Parsons Boulevard at Northern Boulevard (RT. 25A)	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours. Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) remains 7 s.]	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours. Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) remains 7 s.]
114th Street at 34th Avenue	Mitigation not required.	Mitigation not required.	Mitigation not required.	Mitigation not required.
126th Street/GCP Ramp at 34th Avenue	**Partially Mitigated.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: shift 9 s green time from NB/SB to EB/WB. [NB/SB phase green time is 45 s; SB-only phase green time is 25 s; EB/WB phase green time is 35 s; each phase has a 3 s amber and 2 s all red.] Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.	**Unmitigatable Impact.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 55 s; SB-only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red. Existing signal timing was rounded to whole numbers to account for the new computer controller. Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.	**Unmitigatable Impact.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 55 s; SB-only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red. Existing signal timing was rounded to whole numbers to account for the new computer controller. Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.	**Unmitigatable Impact.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 55 s; SB-only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red. Existing signal timing was rounded to whole numbers to account for the new computer controller. Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.
108th Street at Roosevelt Avenue	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 ft. further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 2 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 78 s; NB/SB green time shifts from 30 s to 32 s.]	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 2 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 78 s; NB/SB green time shifts from 30 s to 32 s.]

Table 23-7

Summary of Non-Game Day Traffic Mitigation Measures

INTERSECTION	MITIGATION MEASURES			
	NON-GAMEDAY WEEKDAY AM PEAK HOUR	NON-GAMEDAY WEEKDAY MIDDAY PEAK HOUR	NON-GAMEDAY WEEKDAY PM PEAK HOUR	NON-GAMEDAY SATURDAY MIDDAY PEAK HOUR
111th Street at Roosevelt Avenue	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.
114th Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
126th Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
College Point Boulevard at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Prince Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Main Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Union Street at Roosevelt Avenue	Mitigation not required.	Mitigation not required.	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Parsons Boulevard at Roosevelt Avenue	Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	**Partially Mitigated.** Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	**Partially Mitigated.** Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
Main Street at Kissena Boulevard	Mitigation not required.	Mitigation not required.	Mitigation not required.	Mitigation not required.
College Point Boulevard at Sanford Avenue	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 53 s; EB/WB phase green time is 27 s; each phase has a 3 s amber and 2 s all red. **[Measures reflect improvements needed for the non-game AM, MD, PM, Saturday MD peak periods and the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
Parsons Boulevard at Sanford Avenue	**Partially Mitigated.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn lane. [Measure reflects improvements needed for the non-game Saturday midday peak period and the weekend pre-game peak period; otherwise this mitigation is not needed.]	**Partially Mitigated.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	**Partially Mitigated.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn lane.

Table 23-7

Summary of Non-Game Day Traffic Mitigation Measures

INTERSECTION	MITIGATION MEASURES			
	NON-GAMEDAY WEEKDAY AM PEAK HOUR	NON-GAMEDAY WEEKDAY MIDDAY PEAK HOUR	NON-GAMEDAY WEEKDAY PM PEAK HOUR	NON-GAMEDAY SATURDAY MIDDAY PEAK HOUR
College Point Boulevard at 32nd Avenue	Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 31 s, NB/SB green time is 29 s, and SB-only lag green time is 15 s; each phase has 3 s amber and 2 s all red. **[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**	Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 31 s, NB/SB green time is 29 s, and SB-only lag green time is 15 s; each phase has 3 s amber and 2 s all red. **[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**	Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red. **[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**	Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red. **[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**
Willets Point Boulevard at 126th Street	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**
Boat Basin Road at Worlds Fair Marina	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB-only lag green time is 43 s; NB green time is 22 s; all phases have 3 s of amber and 2 s of all red time.]	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB-only lag green time is 43 s; NB green time is 22 s; all phases have 3 s of amber and 2 s of all red time.]	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB-only lag green time is 41 s; NB green time is 24 s; all phases have 3 s of amber and 2 s of all red time.]	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB-only lag green time is 43 s; NB/SB green time is 22 s; all phases have 3 s of amber and 2 s of all red time.]
Willets Point Boulevard at Northern Boulevard	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**
College Point Boulevard at Northern Boulevard Service Road	Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]	Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]	Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]	Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]
Grand Central Parkway Ramp at West Park Loop/Stadium Road	Mitigation not required.	Mitigation not required.	Mitigation not required.	Mitigation not required.
126th Street at New Willets Point Boulevard	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Citi Field/Lot B Internal Street at Roosevelt Avenue	Mitigation not required.	Mitigation not required.	Mitigation not required.	Mitigation not required.

Table 23-8
Summary of Game Day Traffic Mitigation Measures

INTERSECTION	MITIGATION MEASURES		
	WEEKDAY PRE-GAME PEAK HOUR	SATURDAY PRE-GAME PEAK HOUR	SATURDAY POST-GAME PEAK HOUR
108th Street at Astoria Boulevard	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street. **[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**	Prohibit eastbound Astoria Boulevard left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street. **[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**
108th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
114th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
126th Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Prince Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Main Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Unmitigatable Impact.**	Modify signal timing: shift 4 s green time from WB-left/NB-right only lead phase to EB/WB phase. [WB-left/NB-right lead green time shifts from 17 s to 13 s; EB/WB green time shifts from 47 s to 51 s; NB green time remains 34 s; Lead Pedestrian Interval (LPI) remains 7 s.]
Union Street at Northern Boulevard (RT. 25A)	**Unmitigatable Impact.**	**Partially Mitigated.** Modify signal timing: shift 1 s from EB/WB phase to EB-left/EB-right/WB-left lead phase. [EB/WB green time shifts from 50 s to 49 s; EB-left/EB-right/WB-left green time shifts from 18 s to 19 s; NB/SB green time remains 36 s.]	**Unmitigatable Impact.**
Parsons Boulevard at Northern Boulevard (RT. 25A)	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours. Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) remains 7 s.]	**Partially Mitigated.** Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours. Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) remains 7 s.]
114th Street at 34th Avenue	Mitigation not required	Mitigation not required.	Mitigation not required.
126th Street/GCP Ramp at 34th Avenue	**Partially Mitigated.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. NYPD should optimize traffic signal operations during the gameday peak period conditions	**Partially Mitigated.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. NYPD should optimize traffic signal operations during the gameday peak period conditions	**Unmitigatable Impact.** Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. NYPD should optimize traffic signal operations during the gameday peak period conditions.
108th Street at Roosevelt Avenue	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and the bus stop and along the length of the bus stop. Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction. Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]
111th Street at Roosevelt Avenue	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.	Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach. Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations between the intersection and each bus stop and along the length of each bus stop.

Table 23-8

Summary of Game Day Traffic Mitigation Measures

INTERSECTION	MITIGATION MEASURES		
	WEEKDAY PRE-GAME PEAK HOUR	SATURDAY PRE-GAME PEAK HOUR	SATURDAY POST-GAME PEAK HOUR
114th Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
126th Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
College Point Boulevard at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Prince Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Main Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Union Street at Roosevelt Avenue	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Parsons Boulevard at Roosevelt Avenue	Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	**Partially Mitigated.** Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
Main Street at Kissena Boulevard	Mitigation not required.	Mitigation not required.	Mitigation not required.
College Point Boulevard at Sanford Avenue	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane. Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: NB/SB phase green time is 53 s; EB/WB phase green time is 27 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
Parsons Boulevard at Sanford Avenue	**Unmitigatable Impact.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.	**Partially Mitigated.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction. Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn	**Partially Mitigated.** Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
College Point Boulevard at 32nd Avenue	Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red.	Replace the existing mechanical signal with a computerized signal to accommodate different timing plans for each peak period. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red.	Replace the existing mechanical signal with a computerized signal to accommodate different timing plans for each peak period. Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red.
Willets Point Boulevard at 126th Street	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**
Boat Basin Road at Worlds Fair Marina	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. NYPD should optimize traffic signal operations during the weekday pre-game peak period.	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. NYPD should optimize traffic signal operations during the weekday pre-game peak period.	Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. NYPD should optimize traffic signal operations during the weekday pre-game peak period.
Willets Point Boulevard at Northern Boulevard	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**	Mitigation not required. **[Intersection would be demapped as part of the proposed Plan.]**
College Point Boulevard at Northern Boulevard Service Road	Modify signal timing: shift 5 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 20 s; NB/SB green time shifts from 25 s to 30 s.]	**Unmitigatable Impact.**	Modify signal timing: shift 5 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 20 s; NB/SB green time shifts from 25 s to 30 s.]
Grand Central Parkway Ramp at West Park Loop/Stadium Road	Mitigation not required.	Mitigation not required.	Mitigation not required.
126th Street at New Willets Point Boulevard	**Unmitigatable Impact.**	**Unmitigatable Impact.**	**Unmitigatable Impact.**
Citi Field/Lot B Internal Street at Roosevelt Avenue	Mitigation not required.	Mitigation not required.	Mitigation not required.

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mitigation Measure
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	DefL	0.71	57.4	E	DefL	0.71	57.4	E	DefL	0.71	57.4	E	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.
		T	0.25	41.7	D	T	0.25	41.7	D	T	0.25	41.7	D	
	SB	LTR	0.28	42.3	D	LTR	0.28	42.3	D	LTR	0.28	42.3	D	
Astoria Boulevard	EB	LTR	0.57	21.1	C	LTR	0.61	21.8	C	TR	0.51	20.0	B	**[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**
	WB	L	0.74	20.8	C	L	0.77	26.2	C	L	0.76	25.2	C	
		TR	0.96	23.2	C	TR	0.99	27.7	C	TR	0.99	27.7	C	
Overall Intersection		-	**0.91**	**24.2**	**C**	-	**0.93**	**27.4**	**C**	-	**0.93**	**26.8**	**C**	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
		-	-	-	-	-	-	-	-					
	SB	LTR	0.99	66.2	E	LTR	0.99	66.2	E					
		-	-	-	-	-	-	-	-					
Northern Boulevard (Rt. 25A)	EB	L	0.19	26.9	C	L	0.19	30.6	C					
		TR	0.54	15.2	B	TR	0.61	16.2	B					
	WB	L	0.58	25.7	C	L	0.64	33.1	C					
		TR	1.03	35.6	D	TR	1.09	58.6	E					
		-	-	-	-	-	-	-	-					
Overall Intersection		-	**0.97**	**40.3**	**D**	-	**1.03**	**52.3**	**D**					
114th Street at Northern Boulevard (RT. 25A)														
114th Street	SB	LTR	0.68	56.5	E	LTR	0.72	58.3	E					- Unmitigatable Impact.
Northern Boulevard (Rt. 25A)	EB	T	0.82	35.2	D	T	0.94	44.6	D					
		R	0.84	41.7	D	R	0.86	43.9	D					
	WB	DefL	0.52	17.0	B	DefL	0.56	24.8	C					
		T	1.20+	120.0+	F*	T	1.20+	120.0+	F*					
Overall Intersection		-	**1.20+**	**104.9**	**F**	-	**1.20+**	**120.0+**	**F***					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	0.44	43.9	D	L	0.84	56.4	E					- Unmitigatable Impact.
		R	0.41	44.4	D	R	0.53	47.5	D					
Northern Boulevard	EB	T	0.21	6.6	A	T	0.24	6.8	A					
	WB	T	0.89	20.6	C	T	0.92	22.9	C					
Grand Central Parkway Ramp	EB	T	0.39	8.0	A	T	0.44	8.5	A					
Van Wyck & Whitestone Expressway Ramp	WB	T	0.88	22.4	C	T	1.08	66.6	E					
Overall Intersection		-	**0.79**	**19.4**	**B**	-	**1.03**	**34.8**	**C**					

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)													
Prince Street NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
SB	LTR	0.99	86.4	F	LTR	0.99	86.4	F					
Northern Boulevard EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
	T	0.55	8.0	A	T	0.59	8.4	A					
WB	L	1.17	120.0+	F*	L	1.17	120.0+	F*					
	T	1.10	59.3	E	T	1.12	68.1	E					
Northern Boulevard Service Rd EB	TR	0.46	14.6	B	TR	0.46	14.6	B					
WB	TR	0.61	20.4	C	TR	0.83	27.9	C					
Overall Intersection	-	**1.20+**	**72.7**	**E**	-	**1.20+**	**78.5**	**E**					
Main Street at Northern Boulevard (RT. 25A)													
Main Street NB	L	0.77	46.5	D	L	0.77	46.5	D					- Unmitigatable Impact.
	R	0.68	29.7	C	R	0.68	29.7	C					
Northern Boulevard EB	TR	0.84	32.1	C	TR	0.88	33.8	C					
WB	L	0.10	34.0	C	L	0.10	34.0	C					
	T	1.04	28.5	C	T	1.10	55.3	E					
Overall Intersection	-	**0.95**	**31.9**	**C**	-	**0.99**	**44.6**	**D**					
Union Street at Northern Boulevard (RT. 25A)													
Union Street NB	LTR	0.12	31.1	C	LTR	0.22	33.2	C					- Unmitigatable Impact.
SB	LTR	1.17	120.0+	F*	LTR	1.18	120.0+	F*					
Northern Boulevard EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
	T	0.68	25.2	C	T	0.74	26.5	C					
	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
	TR	1.14	113.8	F	TR	1.20+	120.0+	F*					
Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Parsons Boulevard at Northern Boulevard (RT. 25A)													**Partially Mitigated.**
Parsons Boulevard NB	L	1.03	120.0+	F*	L	1.06	120.0+	F*	L	0.78	64.9	E	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach
	TR	0.72	47.0	D	TR	0.72	47.0	D	TR	0.72	47.0	D	from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and
SB	LTR	1.04	96.7	F	LTR	1.07	106.3	F	LT	0.66	44.4	D	provide a shylighted right-turn lane for all peak hours.
	-	-	-	-	-	-	-	-	R	0.55	42.0	D	
Northern Boulevard EB	L	0.48	47.8	D	L	0.50	48.3	D	L	0.50	48.3	D	
	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F	
WB	L	0.67	49.4	D	L	0.66	51.8	D	L	0.66	51.8	D	
	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F	
Overall Intersection	-	**1.07**	**120.0+**	**F***	-	**1.12**	**120.0+**	**F***	-	**1.02**	**120.0+**	**F***	
114th Street at 34th Avenue													
114th Street SB	L	0.50	17.4	B	L	0.50	17.4	B					- Mitigation not required
	T	0.30	15.0	B	T	0.31	15.2	B					
34th Avenue EB	TR	0.62	23.3	C	TR	0.63	23.7	C					
Overall Intersection	-	**0.55**	**19.5**	**B**	-	**0.56**	**19.7**	**B**					

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mitigation Measure
126th Street/GCP Ramp at 34th Avenue														**Partially Mitigated.**
126th Street	NB	LTR	0.33	21.9	C	LTR	0.44	23.6	C	LTR	0.53	30.9	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.30	21.8	C	LTR	0.42	23.9	C	LTR	0.51	31.4	C	
GCP Ramp	SB	LTR	0.67	54.6	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Modify signal timing: NB/SB phase green time is 45 s; SB-only phase green time is 25 s; EB/WB phase green time is 35 s; each phase has a 3 s amber and 2 s all red.
		-	-	-	-	-	-	-	-	-				
34th Avenue	EB	-	-	-	-	-	-	-	-	-				- Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections
		LTR	0.67	53.1	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-				
Stadium Road	WB	-	-	-	-	-	-	-	-	-				
		LTR	0.70	65.3	E	LTR	1.20+	120.0+	F*	LTR	0.91	63.8	E	
		-	-	-	-	-	-	-	-	-				
	Overall Intersection	-	**0.58**	**40.7**	**D**	-	**1.20+**	**120.0+**	**F***	-	**1.17**	**120.0+**	**F***	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	0.80	52.8	D	LTR	0.82	54.2	D	LTR	0.81	53.4	D	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	SB	LTR	1.01	85.3	F	LTR	1.01	85.3	F	LTR	0.99	81.5	F	
Roosevelt Avenue	EB	LTR	0.94	32.6	C	LTR	1.05	61.0	E	LTR	0.63	12.9	B	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	WB	LTR	1.15	96.0	F	LTR	1.20+	120.0+	F*	LTR	0.73	15.3	B	
														- Move the Q48 bus stop on the far side of the eastbound approach 25 ft further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and th
	Overall Intersection	-	**1.11**	**68.4**	**E**	-	**1.19**	**95.0**	**F**	-	**0.80**	**31.0**	**C**	
														- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving line in the westbound direction
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	0.84	55.5	E	LTR	0.84	55.5	E	LTR	0.84	55.5	E	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.81	18.8	B	
	WB	LTR	1.16	101.6	F	LTR	1.20+	120.0+	F*	LTR	0.83	18.6	B	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	Overall Intersection	-	**1.11**	**101.7**	**F**	-	**1.20+**	**120.0+**	**F***	-	**0.83**	**25.0**	**C**	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving line in the each direction, and provide "No Standing Anytime" regulations betwee
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.07	103.3	F	LTR	1.07	103.3	F					- Unmitigatable Impact.
	SB	DefL	0.97	103.6	F	DefL	1.16	120.0+	F*					
		TR	0.83	67.8	E	TR	0.83	67.8	E					
Roosevelt Avenue	EB	LTR	1.09	74.8	E	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	WB	DefL	0.94	42.0	D	DefL	0.94	42.0	D					
		TR	1.15	99.9	F	TR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	**1.13**	**83.7**	**F**	-	**1.20+**	**120.0+**	**F***					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.34	39.9	D	DefL	0.22	37.4	D					- Unmitigatable Impact.
		-	-	-	-	TR	0.29	39.1	D					
	SB	DefL	0.81	58.8	E	-	-	-	-					
		TR	0.77	52.4	D	LTR	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	0.75	16.5	B	DefL	1.20+	120.0+	F*					
		-	-	-	-	TR	0.80	18.7	B					
	WB	LTR	0.73	14.9	B	LTR	0.94	27.9	C					
	Overall Intersection	-	**0.77**	**24.0**	**C**	-	**1.20+**	**120.0+**	**F***					

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	1.20	120.0+	F*	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		TR	0.86	37.1	D	TR	0.86	37.1	D					
	SB	T	0.85	54.4	D	T	0.85	54.4	D					
		R	0.54	43.2	D	R	0.99	86.8	F					
Roosevelt Avenue	EB	LTR	0.63	30.9	C	LTR	0.68	32.0	C					
	WB	LTR	0.53	44.8	D	LTR	0.56	44.6	D					
	Overall Intersection	-	**0.69**	**55.3**	**E**	-	**0.95**	**70.3**	**E**					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	0.79	45.4	D	LTR	0.79	45.4	D					- Unmitigatable Impact.
Roosevelt Avenue	EB	Defl.	0.69	29.3	C	Defl.	0.72	31.5	C					
		TR	0.50	18.0	B	TR	0.54	19.6	B					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.09**	**96.8**	**F**	-	**1.12**	**107.4**	**F**					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.17	109.8	F	LT	1.17	109.8	F					- Unmitigatable Impact.
		R	1.00	76.4	E	R	1.00	76.4	E					
	SB	LTR	0.23	20.5	C	LTR	0.23	20.5	C					
Roosevelt Avenue	EB	LTR	1.02	73.9	E	LTR	1.10	99.5	F					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-	-	-					- Mitigation not required
	SB	LT	0.72	23.2	C	LT	0.72	23.2	C					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	0.73	25.9	C	LT	0.79	28.7	C					
		R	0.64	24.1	C	R	0.64	24.1	C					
	WB	LTR	0.78	26.7	C	LTR	0.85	30.7	C					
	Overall Intersection	-	**0.99**	**40.4**	**D**	-	**1.02**	**41.3**	**D**					
Parsons Boulevard at Roosevelt Avenue														
Parsons Boulevard	NB	LTR	1.02	72.1	E	LTR	1.02	73.4	E	LTR	1.02	73.4	E	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from
	SB	LTR	0.87	40.5	D	LTR	0.87	40.6	D	LTR	0.87	40.6	D	7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
Roosevelt Avenue	EB	LTR	0.73	32.4	C	LTR	0.80	36.6	D	LTR	0.72	31.7	C	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from
	WB	LTR	1.04	76.3	E	LTR	1.12	100.8	F	LTR	1.00	63.1	E	7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	Overall Intersection	-	**1.03**	**57.0**	**E**	-	**1.07**	**65.7**	**E**	-	**1.01**	**53.1**	**D**	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.47	20.6	C	L	0.48	20.6	C					- Mitigation not required.
		TR	1.03	66.2	E	TR	1.03	66.2	E					
	SB	L	0.37	28.6	C	L	0.37	28.6	C					
		TR	0.13	15.6	B	TR	0.13	15.6	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.18**	**120.0+**	**F***	-	**1.18**	**120.0+**	**F***					

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

			No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.44	15.4	B	L	0.47	16.4	B	L	0.49	18.0	B	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
		T	0.59	12.4	B	T	0.60	12.7	B	T	0.61	13.4	B	
	SB	TR	0.77	16.6	B	TR	0.80	17.3	B	TR	0.80	18.6	B	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Sanford Avenue	WB	LTR	0.97	57.5	E	LTR	1.02	70.6	E	LTR	0.94	49.9	D	- Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
	Overall Intersection	-	**0.84**	**24.9**	**C**	-	**0.87**	**28.6**	**C**	-	**0.86**	**24.4**	**C**	
Union Street at Sanford Avenue														
Union Street	NB	LR	1.20+	120.0+	F*	LR	1.20+	120.0+	F*	LR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LT	0.56	28.8	C	LT	0.56	28.8	C	LT	0.56	28.8	C	
		R	0.84	38.6	D	R	0.84	38.6	D	R	0.84	38.6	D	
Sanford Avenue	EB	TR	0.62	34.2	C	TR	0.62	34.2	C	TR	0.62	34.2	C	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.17	120.0+	F*	
	Overall Intersection	-	**1.20+**	**105.4**	**F**	-	**1.20+**	**113.4**	**F**	-	**1.24**	**88.0**	**F**	
Parsons Boulevard at Sanford Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	126.0+	F*	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	SB	LTR	0.79	28.4	C	LTR	0.86	33.0	C	LTR	0.86	33.0	C	
Sanford Avenue	EB	LTR	1.13	97.3	F	LTR	1.14	101.6	F	LTR	1.14	101.6	F	
	WB	LTR	1.17	109.6	F	LTR	1.20	120.0+	F*	LTR	1.20	120.0+	F*	
	Overall Intersection	-	**1.20+**	**110.3**	**F**	-	**1.20+**	**119.4**	**F**	-	**1.20+**	**113.0**	**F**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	L	0.74	22.7	C	T	0.74	22.5	C	T	0.71	20.2	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
		TR	0.83	30.5	C	TR	0.83	30.5	C	TR	0.80	36.9	D	
	SB	L	0.49	24.2	C	L	0.49	24.2	C	L	0.49	33.4	C	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing. WB green time is 31 s, NB/SB green time is 29 s, and SB-only lag green time is 15 s; each phase has 3 s amber and 2 s all red.
		T	0.62	11.2	B	T	0.63	11.4	B	T	0.62	15.4	B	
32nd Avenue	WB	LTR	0.83	38.3	D	LTR	0.83	38.3	D	LTR	0.80	43.6	D	**[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**
	Overall Intersection	-	**0.79**	**21.7**	**C**	-	**0.86**	**21.7**	**C**	-	**0.79**	**27.6**	**C**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT	-	8.2	A									- Mitigation not required.
Willets Point Boulevard	WB	LR	-	14.3	B									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection	-	-	**12.5**	**B**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	22.1	C	L	-	120.0+	F*	L	0.18	27.8	C	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases (EB/WB green time is 10 s; WB-only lag green time is 43 s; NB green time is 22 s; all phases have 3 s of amber and 2 s of all red time.)
		R	-	8.6	A	R	-	8.6	A	R	0.09	26.8	C	
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.07	36.3	D	
	WB	LT	-	8.5	A	LT	-	10.4	B	DefL	0.86	24.0	C	
		-	-	-	-	-	-	-	-	T	0.08	6.2	A	
	Overall Intersection	-	-	**9.2**	**A**	-	-	**41.2**	**E**	-	**0.68**	**23.2**	**C**	

TABLE 23-9
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY AM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	10.2	B									- Mitigation not required
														[Intersection would be demapped as part of the proposed Plan.]
Overall Intersection		-	-	**10.2**	**B**									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	0.83	22.5	C	TR	0.83	22.8	C	TR	0.80	20.5	C	- Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
Northern Blvd Service Rd	WB	L	0.35	13.7	B	L	0.65	19.6	B	L	0.67	21.3	C	
		R	0.36	14.1	B	R	0.41	14.8	B	R	0.43	15.8	B	
Overall Intersection		-	**0.97**	**120.0+**	**F***	-	**1.12**	**120.0+**	**F***	-	**1.12**	**120.0+**	**F***	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	10.7	B	L	-	11.6	B					- Mitigation not required.
		R	-	9.1	A	R	-	9.1	A					
Overall Intersection		-	-	**10.1**	**B**	-	-	**11.2**	**B**					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	0.88	59.7	E					- Unmitigatable impact.
	SB					DefL	0.96	53.2	D					
						TR	0.57	11.9	B					
New Willets Point Boulevard	EB					LTR	0.04	35.9	D					
	WB					LT	1.04	120.0+	F*					
						R	0.13	8.0	A					
Overall Intersection						-	**0.94**	**46.4**	**D**					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.02	34.0	C					- Mitigation not required.
Roosevelt Avenue	EB					LT	0.51	11.1	B					
	WB					TR	0.63	13.0	B					
Overall Intersection						-	**0.46**	**12.2**	**B**					

(1) Control delay is measured in seconds per vehicle.

(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.

(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual - TRB.

(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	Defl.	0.48	35.1	D	Defl.	0.48	35.1	D	Defl.	0.48	35.1	D	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street
		T	0.18	29.2	C	T	0.18	29.2	C	T	0.18	29.2	C	
	SB	LTR	0.23	29.7	C	LTR	0.23	29.7	C	LTR	0.23	29.7	C	
Astoria Boulevard	EB	LTR	0.47	15.2	B	LTR	0.54	16.0	B	TR	0.48	15.2	B	**[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**
	WB	L	0.53	10.4	B	L	0.59	12.2	B	L	0.58	11.9	B	
		TR	0.33	6.6	A	TR	0.38	7.0	A	TR	0.38	7.0	A	
	Overall Intersection	-	**0.54**	**13.7**	**B**	-	**0.58**	**14.0**	**B**	-	**0.55**	**13.6**	**B**	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Mitigation not required
	SB	LTR	0.88	45.4	D	LTR	0.88	45.4	D					
Northern Boulevard (Rt. 25A)	EB	L	0.12	18.5	B	L	0.13	24.1	C					
		TR	0.55	15.3	B	TR	0.64	16.8	B					
	WB	L	0.50	21.8	C	L	0.58	32.3	C					
		T	0.83	22.2	C	T	0.91	29.2	C					
		R	0.16	11.2	B	R	0.16	11.2	B					
	Overall Intersection	-	**0.95**	**35.7**	**D**	-	**0.98**	**37.8**	**D**					
114th Street at Northern Boulevard (RT. 25A)														
114th Street	SB	LTR	0.91	70.9	E	LTR	0.92	81.4	F					- Mitigation not required.
Northern Boulevard (Rt. 25A)	EB	T	0.56	16.9	B	T	0.69	19.5	B					
		R	0.56	18.0	B	R	0.58	18.5	B					
	WB	LT	0.93	18.1	B	Defl.	0.59	13.2	B					
						T	0.83	11.9	B					
	Overall Intersection	-	**0.92**	**21.5**	**C**	-	**1.20+**	**18.7**	**B**					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	0.78	52.6	D	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.48	45.6	D	R	0.88	67.8	E					
Northern Boulevard	EB	T	0.24	6.8	A	T	0.26	6.9	A					
	WB	T	0.39	9.1	A	T	0.52	9.5	A					
Grand Central Parkway Ramp	EB	T	0.43	8.4	A	T	0.48	9.0	A					
Van Wyck & Whitestone Expressway Ramp	WB	T	0.85	20.2	C	T	1.12	81.1	F					
	Overall Intersection	-	**0.83**	**17.8**	**B**	-	**1.17**	**65.2**	**E**					

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20	120.0+	F*	LTR	1.20+	120.0	F*	LTR	1.20+	120.0+	F*	- Modify signal timing: shift 1 s green time from EB/WB phase to EB/WB-left only lead phase. [EB/WB green time shifts from 53 s to 53 s; EB/WB-left only lead green time shifts from 7 s to 8 s; EB-only lead green time remains 10 s; NB/SB green time remains 2
	SB	LTR	0.75	51.5	D	LTR	0.75	51.5	D	LTR	0.75	51.5	D	
Northern Boulevard	EB	L	1.20	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	
		T	0.61	17.8	B	T	0.67	19.2	B	T	0.68	20.0	B	
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0	F*	
		T	0.92	30.8	C	T	0.95	33.6	C	T	0.97	36.8	D	
Northern Boulevard Service Rd	EB	TR	0.70	24.5	C	TR	0.70	24.5	C	TR	0.71	25.7	C	
		-	-	-	-	-	-	-	-	-	-	-	-	
	WB	TR	0.58	26.6	C	TR	0.78	33.1	C	TR	0.80	34.5	C	
		-	-	-	-	-	-	-	-	-	-	-	-	
	Overall Intersection	-	1.13	68.0	E	-	1.15	68.2	E	-	1.15	65.3	E	
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	0.87	51.9	D	L	0.87	51.9	D					- Mitigation not required
		R	0.81	35.2	D	R	0.81	35.2	D					
Northern Boulevard	EB	TR	0.88	33.7	C	TR	0.95	38.7	D					
	WB	L	0.05	44.8	D	L	0.05	44.8	D					
		T	0.69	12.1	B	T	0.77	13.5	B					
	Overall Intersection	-	0.84	29.8	C	-	0.88	31.7	C					
Union Street at Northern Boulevard (RT. 25A)														**Partially Mitigated.**
Union Street	NB	LTR	0.08	30.5	C	LTR	0.16	32.3	C	LTR	0.16	32.3	C	- Modify signal timing: shift 2 s green time from EB/WB phase to EB-left/EB-right/WB-left lead phase. [EB/WB green time shifts from 50 s to 48 s; EB-left/EB-right/WB-left green time shifts from 18 s to 20 s; NB/SB green time remains 36 s]
	SB	LTR	1.20	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
Northern Boulevard	EB	L	1.20	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	
		T	0.67	29.2	C	T	0.75	31.3	C	T	0.78	33.3	C	
		R	1.17	108.6	F	R	1.17	108.6	F	R	1.17	109.3	F	
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	
		TR	0.73	30.8	C	TR	0.84	33.9	C	TR	0.87	36.6	D	
	Overall Intersection	-	1.20+	118.3	F	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
Parsons Boulevard at Northern Boulevard (RT. 25A)														**Partially Mitigated.**
Parsons Boulevard	NB	L	0.73	64.5	E	L	0.79	67.1	E	L	0.66	51.0	D	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours
		TR	0.58	40.9	D	TR	0.58	40.9	D	TR	0.56	39.6	D	
	SB	LTR	1.11	120.0+	F*	LTR	1.14	120.0+	F*	LT	0.61	41.7	D	
		-	-	-	-	-	-	-	-	R	0.47	38.5	D	- Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) rem
Northern Boulevard	EB	L	0.45	48.9	D	L	0.48	49.5	D	L	0.51	51.0	D	
		TR	1.20	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	WB	L	0.34	38.0	D	L	0.34	43.2	D	L	0.36	44.9	D	
		TR	1.20	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	Overall Intersection	-	1.10	120.0+	F*	-	1.20	120.0+	F*	-	1.05	120.0+	F*	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.60	21.1	C	L	0.60	21.1	C					- Mitigation not required
		T	0.26	16.3	B	T	0.29	16.7	B					
34th Avenue	EB	TR	0.50	19.3	B	TR	0.50	19.3	B					
	Overall Intersection	-	0.55	19.7	B	-	0.55	19.7	B					

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
126th Street/GCP Ramp at 34th Avenue														
126th Street	NB	LTR	0.56	25.8	C	LTR	1.00	55.1	E	LTR	0.98	50.5	D	- Unmitigatable Impact.
		-	-	-	-	-	-	-	-	-	-	-	-	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
Northern Boulevard Ramp	SB	LTR	0.57	29.0	C	LTR	1.00	71.7	E	LTR	0.98	65.6	E	- Modify signal timing: NB/SB phase green time is 55 s; SB-only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red.
GCP Ramp	SB	LTR	0.88	73.2	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	- Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.
34th Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	0.68	53.7	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
Stadium Road	WB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	0.98	111.0	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
	Overall Intersection	-	0.74	50.1	D	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	1.06	102.0	F	LTR	1.12	120.0+	F*	LTR	1.04	91.6	F	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	SB	LTR	1.16	120.0+	F*	LTR	1.16	120.0+	F*	LTR	1.07	101.1	F	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20	118.8	F	LTR	1.20+	120.0+	F*	LTR	0.85	20.5	C	- Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	WB	LTR	0.90	27.2	C	LTR	1.11	80.7	F	LTR	0.66	14.5	B	- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction.
	Overall Intersection	-	1.19	93.9	F	-	1.20+	120.0+	F*	-	0.91	43.0	D	- Modify signal timing: shift 2 s green time from EB/WB phase to NB/SB phase (EB/WB green time shifts from 80 s to 78 s; NB/SB green time shifts from 30 s to 32 s.)
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	0.77	52.1	D	LTR	0.77	52.1	D	LTR	0.74	50.4	D	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.96	32.1	C	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	WB	LTR	1.20	118.4	F	LTR	1.20+	120.0+	F*	LTR	0.81	18.7	B	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
	Overall Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	0.90	29.3	C	
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	0.78	54.5	D	LTR	0.78	54.5	D					- Unmitigatable Impact.
	SB	Defl.	0.73	57.0	E	Defl.	0.81	64.4	E					
		TR	0.28	37.9	D	TR	0.28	37.9	D					
Roosevelt Avenue	EB	LTR	1.06	61.8	E	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	WB	-	-	-	-	-	-	-	-					
		LTR	1.17	103.6	F	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	1.06	78.9	E	-	1.20+	120.0+	F*					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.87	71.1	E	Defl.	0.83	65.9	E					- Unmitigatable Impact.
		-	-	-	-	TR	1.09	120.0+	F*					
	SB	Defl.	1.20+	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	0.75	50.8	D	TR	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	0.89	24.7	C	Defl.	1.05	88.0	F					
		-	-	-	-	TR	0.93	30.8	C					
	WB	LTR	0.77	17.0	B	LTR	1.13	86.4	F					
	Overall Intersection	-	1.01	51.3	D	-	1.20+	120.0+	F*					

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	0.86	39.1	D	L	1.17	119.8	F					- Unmitigatable Impact.
		TR	0.94	37.6	D	TR	0.94	37.6	D					
	SB	T	0.99	61.2	E	T	0.99	61.2	E					
		R	0.43	31.1	C	R	1.05	88.5	F					
Roosevelt Avenue	EB	LTR	0.76	27.0	C	LTR	0.87	33.0	C					
	WB	LTR	0.58	36.3	D	LTR	0.63	36.5	D					
	Overall Intersection	-	**0.90**	**39.2**	**D**	-	**1.04**	**51.3**	**D**					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0	F*	LTR	1.20+	120.0	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	DefL	1.16	93.2	F	DefL	1.18	120.0+	F*					
		TR	0.78	19.0	B	TR	0.88	26.1	C					
	WB	LTR	1.20	120.0	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.20	120.0+	F*	LT	1.20+	120.0	F*					- Unmitigatable Impact.
		R	0.19	22.6	C	R	0.19	22.6	C					
	SB	LTR	0.07	16.3	B	LTR	0.07	16.3	B					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-	-	-					- Mitigation not required.
	SB	LT	1.01	49.1	D	LT	1.01	49.1	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	0.86	24.8	C	LT	0.91	33.4	C					
		R	0.68	21.5	C	R	0.68	21.5	C					
	WB	LTR	0.65	21.9	C	LTR	0.72	24.1	C					
	Overall Intersection	-	**1.20+**	**65.4**	**E**	-	**1.20+**	**65.6**	**E**					
Parsons Boulevard at Roosevelt Avenue														
Parsons Boulevard	NB	LTR	0.71	26.2	C	LTR	0.75	27.4	C	LTR	0.75	27.4	C	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from
	SB	LTR	0.73	26.0	C	LTR	0.71	26.1	C	LTR	0.71	26.1	C	7A - 7P (Except Sunday) for a distance of 90 ft. from the intersection to reduce parking friction.
Roosevelt Avenue	EB	LTR	1.09	83.0	F	LTR	1.20+	120.0+	F*	LTR	1.08	80.5	F	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from
	WB	LTR	1.10	86.8	F	LTR	1.20	120.0+	F*	LTR	1.05	68.1	E	7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	Overall Intersection	-	**0.92**	**61.2**	**E**	-	**1.00**	**93.2**	**F**	-	**0.92**	**56.0**	**E**	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.41	19.0	B	L	0.42	19.1	B					- Mitigation not required.
		TR	0.94	40.1	D	TR	0.94	40.1	D					
	SB	L	0.12	15.2	B	L	0.12	15.2	B					
		TR	0.10	15.0	B	TR	0.10	15.0	B					
Kissena Boulevard	NB	TR	1.00	55.0	D	TR	1.00	55.0	E					
	Overall Intersection	-	**0.97**	**44.7**	**D**	-	**0.97**	**44.7**	**D**					

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

INTERSECTION & APPROACH		No Build Mvt.	No Build V/C	No Build Control Delay	No Build LOS	Build Mvt.	Build V/C	Build Control Delay	Build LOS	Build with Mitigation Mvt.	Build with Mitigation V/C	Build with Mitigation Control Delay	Build with Mitigation LOS	Mitigation Measure
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.66	37.1	D	L	0.66	37.1	D	L	0.65	35.1	D	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction.
		T	0.59	12.5	B	T	0.61	12.8	B	T	0.61	12.9	B	
	SB	TR	0.09	33.8	C	TR	1.02	43.7	D	T	0.92	23.7	C	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft from the intersection to provide a daylighted right turn lane
		-	-	-	-	-	-	-	-	R	0.14	7.7	A	
Sanford Avenue	WB	LTR	0.77	37.6	D	LTR	0.85	42.5	D	LTR	0.79	37.7	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
	Overall Intersection	-	**0.92**	**27.3**	**C**	-	**0.97**	**33.8**	**C**	-	**0.88**	**22.3**	**C**	- Modify signal timing: NB/SB phase green time is 53 s; EB/WB phase green time is 27 s; each phase has a 3 s amber and 2 s all red.
														[Measures reflect improvements needed for the non-game AM, MD, PM, Saturday MD peak periods and the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]
Union Street at Sanford Avenue														
Union Street	NB	LR	0.71	37.9	D	LR	0.71	37.9	D	LR	0.71	37.9	D	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction
	SB	LT	0.64	29.0	C	LT	0.64	29.0	C	LT	0.64	29.0	C	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.75	42.5	D	TR	0.75	42.5	D	TR	0.75	42.5	D	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.12	112.8	F	
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**112.4**	**F**	
Parsons Boulevard at Sanford Avenue														
Parsons Boulevard	NB	LTR	1.00	59.0	F	LTR	1.02	65.3	E	LTR	0.89	38.3	D	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	SB	LTR	0.61	22.3	C	LTR	0.69	25.0	C	LTR	0.69	25.0	C	
Sanford Avenue	EB	LTR	0.68	25.1	C	LTR	0.68	25.1	C	LTR	0.68	25.0	C	- Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn lane. [Measure reflects improvements needed for the non-game Saturday midday peak period and the weekend pre-game peak period; otherwise this mitigation measure is not needed.]
	WB	LTR	0.74	27.4	C	LTR	0.79	29.4	C	LT	0.61	22.4	C	
		-	-	-	-	-	-	-	-	R	0.16	15.7	B	
	Overall Intersection	-	**0.87**	**34.9**	**C**	-	**0.90**	**37.5**	**D**	-	**0.78**	**27.8**	**C**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.74	23.1	C	T	0.74	23.1	C	T	0.72	20.7	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
		TR	0.82	29.6	C	TR	0.82	29.6	C	TR	0.78	36.2	D	
	SB	L	0.78	34.0	C	L	0.78	34.0	C	L	0.77	43.9	D	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 31 s, NB/SB green time is 29 s, and SB-only lag green time is 15 s; each phase has 3 s amber and 2 s all red.
		T	0.61	11.2	B	T	0.63	11.4	B	T	0.61	15.3	B	
32nd Avenue	WB	LTR	0.82	37.2	D	LTR	0.82	37.2	D	LTR	0.79	42.8	D	
														[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]
	Overall Intersection	-	**0.92**	**23.3**	**C**	-	**0.92**	**23.2**	**C**	-	**0.89**	**29.5**	**C**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT	-	8.5	A									- Mitigation not required
Willets Point Boulevard	WB	LR	-	16.6	C									**[Intersection would be demapped as *part of the proposed* Plan.]**
	Overall Intersection	-	-	**14.1**	**B**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	18.9	C	L	-	120.0+	F*	L	0.71	39.8	D	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases: EB/WB green time is 10 s; WB-only lag green time is 43 s; NB green time is 22 s; all phases have 3 s of amber and 2 s of all red time]
		R	-	8.4	A	R	-	8.4	A	R	0.02	25.9	C	
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.07	36.3	D	
	WB	LT	-	8.5	A	LT	-	11.4	B	Defl.	0.99	44.0	D	
		-	-	-	-	-	-	-	-	T	0.11	6.3	A	
	Overall Intersection	-	-	**9.5**	**A**	-	-	**120.0+**	**F***	-	**0.91**	**39.3**	**D**	

TABLE 23-10
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	10.4	B									- Mitigation not required [Intersection would be demapped as part of the proposed Plan.]
Overall Intersection		-	-	**10.4**	**B**									
College Point Boulevard at Northern Boulevard/Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	0.82	22.6	C	TR	0.84	23.3	C	TR	0.80	20.9	C	- Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]
	SB	LT	1.20	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20	120.0	F*	
Northern Blvd Service Rd	WB	L	0.31	13.1	B	L	0.56	17.4	B	L	0.59	18.7	B	
		R	0.46	15.8	B	R	0.48	16.2	B	R	0.50	17.3	B	
Overall Intersection		-	**0.86**	**69.5**	**E**	-	**0.93**	**73.2**	**E**	-	**0.92**	**60.7**	**E**	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	9.8	A	L	-	10.5	B					- Mitigation not required.
		R	-	8.7	A	R	-	8.7	A					
Overall Intersection		-	-	**9.4**	**A**	-	-	**10.3**	**B**					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.13	120.0+	F*					- Unmitigatable Impact.
	SB					Defl.	0.97	61.3	E					
						TR	0.60	12.7	B					
New Willets Point Boulevard	EB					LTR	0.86	36.1	D					
	WB					LT	0.96	101.0	F					
						R	0.44	12.2	B					
Overall Intersection						-	**1.07**	**61.3**	**E**					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.03	34.2	C					- Mitigation not required
Roosevelt Avenue	EB					LT	0.54	11.5	B					
	WB					TR	0.63	13.0	B					
Overall Intersection						-	**0.47**	**12.4**	**B**					

(1) Control delay is measured in seconds per vehicle

(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual – TRB

(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual – TRB

(4) Overall intersection V/C ratio is the critical lane group(s) V/C ratio, not the weighted average of all the movements

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

INTERSECTION & APPROACH		No Build Mvt.	No Build V/C	No Build Control Delay	No Build LOS	Build Mvt.	Build V/C	Build Control Delay	Build LOS	Build with Mitigation Mvt.	Build with Mitigation V/C	Build with Mitigation Control Delay	Build with Mitigation LOS	Mitigation Measure
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	DefL	0.93	91.8	F	DefL	0.93	91.8	F	DefL	0.93	91.8	F	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.
		T	0.25	41.8	D	T	0.25	41.8	D	T	0.25	41.8	D	
	SB	LTR	0.57	48.6	D	LTR	0.57	48.6	D	LTR	0.57	48.6	D	
Astoria Boulevard	EB	LTR	0.98	31.9	C	LTR	1.04	48.8	D	TR	0.92	25.0	C	
	WB	L	0.76	44.3	D	L	0.76	44.7	D	L	0.76	44.6	D	
		TR	0.38	6.9	A	TR	0.43	7.3	A	TR	0.43	7.3	A	
Overall Intersection		-	**0.96**	**28.8**	C	-	**1.00**	**38.1**	D	-	**0.93**	**24.3**	C	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard (Rt. 25A)	EB	L	0.22	42.2	D	L	0.22	46.0	D					
		TR	0.96	19.9	B	TR	1.05	45.0	D					
	WB	L	0.69	50.0	D	L	0.69	51.7	D					
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
Overall Intersection		-	**1.15**	**78.5**	E	-	**1.20+**	**116.9**	F					
114th Street at Northern Boulevard (RT. 25A)														
114th Street	SB	LTR	1.03	87.2	F	LTR	1.04	88.2	F					- Unmitigatable Impact.
Northern Boulevard (Rt. 25A)	EB	L	0.97	35.7	D	T	1.09	74.1	E					
		R	0.78	24.8	C	R	0.79	25.5	C					
	WB	DefL	0.89	60.7	E	DefL	0.89	64.8	E					
		T	0.96	20.8	C	T	1.07	53.1	D					
Overall Intersection			**1.20+**	**31.4**	C	-	**1.20+**	**59.2**	E					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	0.60	46.7	D	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.37	43.3	D	R	0.95	78.4	E					
Northern Boulevard	EB	T	0.41	8.2	A	T	0.45	8.6	A					
	WB	T	0.45	8.6	A	T	0.48	8.9	A					
Grand Central Parkway Ramp	EB	T	0.46	8.7	A	T	0.53	9.5	A					
Van Wyck & Whitestone Expressway Ramp	WB	T	0.84	19.8	B	T	1.06	59.7	E					
Overall Intersection		-	**0.79**	**15.5**	B	-	**1.10**	**48.0**	D					

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	0.70	48.0	D	LTR	0.70	48.0	D					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.97	37.6	D	T	1.07	65.8	E					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	1.02	55.6	E	T	1.05	67.1	E					
Northern Boulevard Service Rd.	EB	TR	0.60	20.4	C	TR	0.60	20.4	C					
		-	-	-	-	-	-	-	-					
	WB	TR	0.61	31.3	C	TR	0.83	39.6	D					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	1.16	72.4	E	-	1.18	85.9	F					
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	1.04	86.0	F	L	1.04	86.0	F					- Unmitigatable Impact.
		R	0.87	44.0	D	R	0.87	44.0	D					
Northern Boulevard	EB	TR	1.02	51.0	C	TR	1.10	63.2	E					
	WB	L	0.10	58.8	E	L	0.10	58.8	E					
		T	0.99	39.5	D	T	1.11	81.4	F					
	Overall Intersection		1.01	42.8	D	-	1.09	68.7	E					
Union Street at Northern Boulevard (RT. 25A)														
Union Street	NB	LTR	0.16	32.3	C	LTR	0.16	32.3	C					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.88	36.1	D	T	0.99	56.2	E					
		R	1.18	112.5	F	R	1.18	112.5	F					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		TR	0.81	32.5	C	TR	0.91	37.1	D					
	Overall Intersection		1.20+	120.0+	F*	-	1.20+	120.0+	F*					
Parsons Boulevard at Northern Boulevard (RT. 25A)														Partially Mitigated.
Parsons Boulevard	NB	L	0.78	69.8	E	L	0.80	73.4	E	L	0.71	59.2	E	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours
		TR	0.67	44.4	D	TR	0.67	44.4	D	TR	0.67	44.4	D	
	SB	LTR	1.07	105.2	F	LTR	1.09	113.9	F	LT	0.66	43.4	D	
		-	-	-	-	-	-	-	-	R	0.46	39.0	D	
Northern Boulevard	EB	L	0.50	47.8	D	L	0.54	49.3	D	L	0.54	49.3	D	
		TR	1.13	93.5	F	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F	
	WB	L	0.43	43.1	D	L	0.43	45.6	D	L	0.43	45.6	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F	
	Overall Intersection	-	1.03	120.0+	F*	-	1.11	120.0+	F*	-	0.99	120.0+	F*	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.73	21.2	C	L	0.73	21.2	C					- Mitigation not required.
		T	0.31	14.0	B	T	0.33	14.3	B					
34th Avenue	EB	TR	0.88	35.5	D	TR	0.88	35.9	D					
	Overall Intersection		0.80	26.0	C	-	0.80	26.1	C					

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mitigation Measure
126th Street/GCP Ramp at 34th Avenue														
126th Street	NB	LTR	0.92	46.8	D	LTR	1.14	104.2	F	LTR	1.12	95.6	F	- Unmitigatable Impact.
		-	-	-	-	-	-	-	-	-	-	-	-	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.60	29.1	C	LTR	0.92	51.7	D	LTR	0.90	48.6	D	- Modify signal timing: NB/SB phase green time is 55 s; SB only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red.
GCP Ramp	SB	LTR	0.92	80.0	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to from adjacent intersections
		-	-	-	-	-	-	-	-	-	-	-	-	
34th Avenue	EB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	0.31	42.7	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
Stadium Road	WB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	0.90	83.1	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
	Overall Intersection	-	**0.92**	**55.8**	**E**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	0.96	70.6	E	LTR	0.98	75.6	E	LTR	0.95	67.2	E	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	SB	LTR	1.16	120.0+	F*	LTR	1.16	120.0+	F*	LTR	1.11	116.8	F	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.95	30.5	C	- Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	WB	LTR	1.11	81.2	F	LTR	1.20+	120.0+	F*	LTR	0.83	20.1	C	- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction.
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**0.99**	**48.7**	**D**	- Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	0.83	54.4	D	LTR	0.83	54.4	D	LTR	0.83	54.4	D	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.89	23.2	C	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.95	29.3	C	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
	Overal. Intersection	-	**1.15**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**0.92**	**31.1**	**C**	
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.15	118.4	F	LTR	1.15	118.4	F					- Unmitigatable Impact.
	SB	Defl.	0.76	57.7	E	Defl.	0.81	62.4	E					
		TR	0.47	41.4	D	TR	0.47	41.4	D					
Roosevelt Avenue	EB	LTR	1.06	61.4	E	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	WB	-	-	-	-	-	-	-	-					
		LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overal. Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.39	41.5	D	Defl.	1.20+	120.0+	F*					- Unmitigatable Impact.
		-	-	-	-	TR	1.04	104.3	F					
	SB	Defl.	1.14	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	0.75	50.6	D	TR	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	1.02	48.6	D	Defl.	1.20+	120.0+	F*					
		-	-	-	-	TR	0.97	36.8	D					
	WB	LTR	0.87	21.6	C	LTR	1.14	89.2	F					
	Overall Intersection	-	**1.05**	**49.4**	**D**	-	**1.20+**	**120.0+**	**F***					

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	0.86	46.4	D	L	1.17	120.0+	F*					- Unmitigatable Impact.
		TR	0.93	42.6	D	TR	0.93	42.6	D					
	SB	T	1.17	120.0+	F*	T	1.17	120.0+	F*					
		R	0.34	38.2	D	R	0.92	70.1	E					
Roosevelt Avenue	EB	LTR	0.86	39.2	D	LTR	1.00	59.3	E					
	WB	LTR	0.62	82.4	F	LTR	0.66	80.1	F					
	Overall Intersection	-	**0.96**	**69.1**	E	-	**1.10**	**79.6**	E					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	DefL	1.09	103.2	F	DefL	1.16	120.0+	F*					
		TR	0.92	40.6	D	TR	1.09	83.3	F					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection		**1.20+**	**120.0+**	F*	-	**1.20+**	**120.0+**	F*					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.61	23.8	C	R	0.61	23.8	C					
	SB	LTR	0.15	19.4	B	LTR	0.15	19.4	B					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	F*	-	**1.20+**	**120.0+**	F*					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-		-					- Unmitigatable Impact.
	SB	LT	1.06	59.4	F	LT	1.06	59.4	F					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	0.96	48.2	D	LT	1.13	98.5	F					
		R	0.90	43.9	D	R	0.90	43.9	D					
	WB	LTR	1.17	119.2	F	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**79.4**	E	-	**1.20+**	**105.1**	F					
Parsons Boulevard at Roosevelt Avenue														Partially Mitigated.
Parsons Boulevard	NB	LTR	0.94	52.7	D	LTR	0.96	56.1	E	LTR	0.96	56.1	E	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction
	SB	LTR	0.88	41.9	D	LTR	0.88	42.1	D	LTR	0.88	42.1	D	
Roosevelt Avenue	EB	LTR	1.15	113.9	F	LTR	1.20+	120.0+	F*	LTR	1.19	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	WB	LTR	0.96	53.3	D	LTR	1.06	82.5	F	LTR	0.93	47.5	D	
	Overall Intersection	-	**1.05**	**69.2**	E	-	**1.16**	**108.6**	F	-	**1.07**	**75.0**	E	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.46	20.3	C	L	0.47	20.4	C					- Mitigation not required.
		TR	1.14	104.5	F	TR	1.14	104.5	F					
	SB	L	0.25	25.7	C	L	0.25	25.7	C					
		TR	0.11	15.4	B	TR	0.11	15.4	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	F*	-	**1.20+**	**120.0+**	F*					

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.90	73.8	E	L	0.90	73.8	E	L	0.90	74.4	E	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sundays) for a distance of 50 ft from the intersection to reduce parking friction
		T	0.54	11.9	B	T	0.56	12.1	B	T	0.57	12.8	B	
	SB	TR	1.02	42.1	D	TR	1.07	56.9	E	T	1.01	39.4	D	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft from the intersection to provide a daylighted right turn lane
		-	-	-	-	-	-	-	-	R	0.07	7.7	A	
Sanford Avenue	WB	LTR	0.84	41.7	D	LTR	0.93	52.7	D	LTR	0.84	40.0	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
	Overall Intersection	-	**1.07**	**33.3**	**C**	-	**1.10**	**42.8**	**D**	-	**1.06**	**31.7**	**C**	- Modify signal timing: NB/SB phase green time is 52 s, EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue														
Union Street	NB	LR	0.84	48.5	D	LR	0.84	48.5	D	LR	0.84	48.5	D	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction
	SB	LT	0.92	50.2	D	LT	0.92	50.2	D	LT	0.92	50.2	D	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.84	47.0	D	TR	0.84	47.0	D	TR	0.84	47.0	D	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	
Parsons Boulevard at Sanford Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	1.14	104.8	F	LTR	1.16	112.9	F	LTR	1.01	64.8	E	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft, from the intersection to reduce parking friction.
	SB	LTR	0.97	48.1	D	LTR	1.19	120.0+	F*	LTR	1.19	120.0+	F*	
Sanford Avenue	EB	LTR	0.95	47.4	D	LTR	0.95	47.4	D	LTR	0.95	120.0+	F*	
	WB	LTR	0.82	34.0	C	LTR	0.86	34.3	C	LTR	0.86	34.3	C	
	Overall Intersection		**1.04**	**58.4**	**E**	-	**1.07**	**82.0**	**F**	-	**1.07**	**70.4**	**E**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.70	21.7	C	T	0.70	21.5	C	T	0.54	22.0	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
		TR	0.86	31.8	C	TR	0.86	31.8	C	TR	0.66	25.7	C	
	SB	L	0.71	29.4	C	L	0.71	29.4	C	L	0.71	41.6	D	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s; NB/SB green time is 36 s; and SB only lag green time is 11 s; each phase has 3 s amber and 2 s all red.
		T	0.60	10.8	B	T	0.62	11.1	B	T	0.57	12.8	B	
32nd Avenue	WB	LTR	0.63	25.4	C	LTR	0.63	25.4	C	LTR	0.69	38.3	D	**[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**
	Overall Intersection	-	**0.93**	**20.8**	**C**	-	**0.85**	**20.7**	**C**	-	**0.84**	**23.3**	**C**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT	-	8.4	A									- Mitigation not required.
Willets Point Boulevard	WB	LR		19.4	C									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection	-	-	**17.4**	**C**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	12.8	B	L	-	120.0+	F*	L	0.81	43.4	D	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB-only lag green time is 41 s; NB green time is 24 s; all phases have 3 s of amber and 2 s of all red time.]
		R		8.7	A	R	-	8.7	A	R	0.11	25.5	C	
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.07	36.2	D	
	WB	LT	-	8.0	A	LT		10.3	B	Defl.	0.89	28.9	C	
		-	-	-	-	-	-	-	-	T	0.08	6.9	A	
	Overall Intersection	-		**8.5**	**A**	-	-	**120.0+**	**F***	-	**0.87**	**32.2**	**C**	

TABLE 23-11
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PM (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	9.7	A									- Mitigation not required. [Intersection would be demapped as part of the proposed Plan.]
Overall Intersection		-		**9.7**	A									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	0.87	25.0	C	TR	0.88	25.9	C	TR	0.85	22.7	C	- Modify signal timing: shift 1 s green time from WB phase to NB/SB phase [WB green time shifts from 25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
Northern Blvd Service Rd	WB	L	0.28	12.6	B	L	0.49	15.6	B	L	0.51	16.7	B	
		R	0.43	15.0	B	R	0.45	15.4	B	R	0.47	16.4	B	
Overall Intersection		-	1.01	**120.0+**	F*	-	1.07	**120.0+**	F*	-	1.06	**120.0+**	F*	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L		9.8	A	L	-	10.3	B					- Mitigation not required.
		R	-	8.9	A	R	-	8.9	A					
Overall Intersection		-	-	**9.2**	A	-	-	**9.9**	A					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB					DefL	0.93	67.3	E					
						TR	0.80	29.9	C					
New Willets Point Boulevard	EB					LTR	0.02	23.7	C					
	WB					LT	0.72	44.8	D					
						R	0.52	14.9	B					
Overal Intersection						-	**1.20+**	**83.1**	F					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.02	28.3	C					- Mitigation not required.
Roosevelt Avenue	EB					LT	0.70	18.8	B					
	WB					TR	0.95	34.5	C					
Overal Intersection						-	**0.63**	**28.1**	C					

(1): Control delay is measured in seconds per vehicle.
(2): Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- HCM.
(3): Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- HCM.
(4): Overall intersection V/C ratio is the critical lane groups' v/C ratio, not the weighted average of all the movements.

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SIGNALIZED INTERSECTIONS													
ASTORIA BOULEVARD													
108th Street at Astoria Boulevard													
108th Street NB	Def.	0.60	38.3	D	Def.	0.60	38.3	D	Def.	0.60	38.3	D	• Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.
	T	0.32	31.7	C	T	0.37	31.7	C	T	0.37	31.7	C	
SB	LTR	0.28	30.4	C	LTR	0.28	30.4	C	LTR	0.28	30.4	C	
Astoria Boulevard EB	LTR	0.43	14.7	B	LTR	0.50	15.5	B	TR	0.44	14.7	B	[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]
WB	L	0.58	10.9	B	L	0.63	13.5	B	L	0.63	12.9	B	
	TR	0.28	6.3	A	TR	0.34	6.7	A	TR	0.34	6.7	A	
Overall Intersection	-	**0.55**	**14.7**	**B**	-	**0.59**	**14.0**	**B**	-	**0.56**	**14.5**	**B**	
NORTHERN BOULEVARD													
108th Street at Northern Boulevard (RT. 25A)													
108th Street NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					• Unmitigatable Impact.
SB	LTR	1.17	119.5	F	LTR	1.17	119.5	F					
Northern Boulevard (Rt. 25A) EB	L	0.08	44.3	D	L	0.08	44.3	D					
	TR	0.98	36.2	D	TR	1.17	105.1	F					
WB	L	0.72	49.8	D	L	0.76	58.4	E					
	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*					
	R	0.27	12.4	B	R	0.27	12.4	B					
Overall Intersection		**1.15**	**92.0**	**F**	-	**1.20+**	**120.0+**	**F***					
114th Street at Northern Boulevard (RT. 25A)													
114th Street SB	LTR	1.01	98.3	F	LTR	1.02	99.3	F					• Mitigation not required
Northern Boulevard (Rt. 25A) EB	T	0.62	17.9	B	T	0.78	21.9	C					
	R	0.71	22.0	C	R	0.73	22.7	C					
WB	Def.	0.89	35.7	D	Def.	0.89	38.7	D					
	T	0.93	17.4	B	T	1.03	38.9	D					
Overall Intersection	-	**1.20+**	**24.2**	**C**	-	**1.20+**	**35.8**	**D**					
126th Street at Northern Boulevard (RT. 25A)													
126th Street NB	L	0.72	49.8	D	L	1.20+	120.0+	F*					• Unmitigatable Impact.
	R	0.47	44.8	D	R	0.99	87.7	F					
Northern Boulevard EB	T	0.26	6.9	A	T	0.30	7.1	A					
WB	T	0.42	8.3	A	T	0.46	8.7	A					
Grand Central Parkway Ramp EB	T	0.40	8.0	A	T	0.49	9.0	A					
Van Wyck & Whitestone Expressway Ramp WB	T	0.82	18.3	B	T	1.11	80.1	F					
Overall Intersection	-	**0.80**	**16.9**	**B**	-	**1.19**	**72.7**	**E**					

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	0.68	47.2	D	LTR	0.68	47.2	D					
Northern Boulevard	EB	L	0.97	94.5	F	L	1.02	107.8	F					
		T	0.83	24.5	C	T	0.93	31.5	C					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	1.05	58.7	E	T	1.10	76.0	E					
Northern Boulevard Service Rd	EB	TR	0.74	27.0	C	TR	0.74	27.0	C					
		-	-	-	-	-	-	-	-					
	WB	TR	0.74	31.4	C	TR	1.01	60.7	E					
		-	-	-	-	-	-	-	-					
	Overal Intersection	-	1.11	75.2	E	-	1.13	83.4	F					
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	1.18	120.0+	F*	L	1.18	120.0+	F*					- Unmitigatable Impact.
		R	0.88	40.0	D	R	0.88	40.0	D					
Northern Boulevard	EB	TR	1.02	55.2	E	TR	1.12	93.3	F					
	WB	L	0.03	44.3	C	L	0.03	44.3	D					
		T	0.90	26.5	C	T	1.03	48.0	D					
	Overal Intersection	-	0.99	57.9	E	-	1.08	78.4	F					
Union Street at Northern Boulevard (RT. 25A)														
Union Street	NB	LTR	0.17	32.5	C	LTR	0.17	32.5	C					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.80	32.5	C	T	0.92	38.2	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		TR	0.86	34.8	C	TR	0.99	48.3	D					
	Overal Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*					
Parsons Boulevard at Northern Boulevard (RT. 25A)														Partially Mitigated.
Parsons Boulevard	NB	L	0.95	100.0	F	L	0.97	107.0	F	L	0.89	84.0	F	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours
		TR	0.75	49.9	D	TR	0.75	49.9	D	TR	0.73	47.6	D	
	SB	LTR	1.19	120.0+	F*	LTR	1.20+	120.0+	F*	LT	0.68	45.3	D	
		-	-	-	-	-	-	-	-	R	0.51	42.0	D	- Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) rem
Northern Boulevard	EB	L	0.53	50.5	D	L	0.57	51.4	D	L	0.60	53.3	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	WB	L	0.48	48.6	D	L	0.48	49.3	D	L	0.50	50.8	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	Overal Intersection		1.19	120.0+	F*	-	1.20+	120.0+	F*	-	1.20	120.0+	F*	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.78	26.2	C	L	0.78	26.2	C					- Mitigation not required
		T	0.35	17.4	B	T	0.37	17.7	B					
34th Avenue	EB	TR	0.66	22.2	C	TR	0.66	22.3	C					
	Overal Intersection	-	0.72	23.2	C	-	0.72	23.2	C					

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
126th Street/GCP Ramp at 34th Avenue														
126th Street	NB	LTR	0.94	50.1	D	LTR	1.00	55.6	E	LTR	0.99	50.7	D	• Unmitigatable Impact.
		-	-	-	-	-	-	-	-	-	-	-	-	• Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.70	33.8	C	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	• Modify signal timing: NB/SB phase green time is 55 s; SB-only phase green time is 25 s; EB/WB phase green time is 25 s; each phase has a 3 s amber and 2 s all red.
GCP Ramp	SB	LTR	0.94	83.7	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	• Note: This intersection is isolated and is not located along a coordinated signal corridor. Therefore, the recommended green time shift would not impact travel progression to/from adjacent intersections.
34th Avenue	EB	Defl.	0.61	62.9	E	-	-	-	-	-	-	-	-	
		TR	0.65	55.5	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
Stadium Road	WB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	0.93	94.7	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
	Overall Intersection	-	0.94	62.0	E	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	1.20	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.18	120.0+	F*	• Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.12	115.6	F	
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.01	45.9	D	• Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	WB	LTR	1.18	110.8	F	LTR	1.20+	120.0+	F*	LTR	0.75	16.6	B	
														• Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	Overall Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	1.06	65.0	E	
														• Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction
														• Modify signal timing: shift 2 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 78 s; NB/SB green time shifts from 30 s to 32 s.]
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	0.83	54.7	D	LTR	0.83	54.7	D	LTR	0.83	54.7	D	• Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.11	80.8	F	• Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.95	28.9	C	
	Overall Intersection		1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	1.04	53.8	D	• Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.11	117.1	F	LTR	1.11	117.1	F					• Unmitigatable Impact.
	SB	Defl.	1.09	120.0+	F*	Defl.	1.18	120.0+	F*					
		TR	0.90	77.1	E	TR	0.90	77.1	E					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	WB	-	-	-	-	-	-	-	-					
		LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.35	40.6	D	Defl.	1.20+	120.0+	F*					• Unmitigatable Impact.
		-	-	-	-	TR	0.52	44.6	D					
	SB	Defl.	1.14	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	0.74	49.8	D	TR	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	1.20	117.7	F	Defl.	1.20+	120.0+	F*					
		-	-	-	-	TR	1.14	94.5	F					
	WB	LTR	0.99	41.7	D	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	1.19	83.3	F	-	1.20+	120.0+	F*					

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	0.66	40.3	D	L	1.05	89.7	F					- Unmitigatable Impact.
		TR	1.17	108.0	F	TR	1.17	108.0	F					
	SB	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*					
		R	0.50	32.6	C	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	0.80	27.3	C	LTR	0.93	40.5	D					
	WB	LTR	0.77	54.7	D	LTR	0.83	55.2	E					
	Overall Intersection	-	**0.97**	**81.0**	**F**	-	**1.04**	**90.2**	**F**					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	Defl.	1.20+	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.68	26.7	C	R	0.68	26.7	C					
	SB	LTR	0.13	17.1	B	LTR	0.13	17.1	B					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection		**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-	-	-					- Unmitigatable Impact.
	SB	LT	1.18	109.3	F	LT	1.18	109.3	F					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	0.95	45.3	D	LT	1.11	89.2	F					
		R	1.15	108.5	F	R	1.15	108.5	F					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Parsons Boulevard at Roosevelt Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	0.93	42.9	D	LTR	0.94	44.9	D	LTR	0.94	44.9	D	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	SB	LTR	0.87	34.2	C	LTR	0.87	34.2	C	LTR	0.87	34.2	C	
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	WB	LTR	1.02	74.7	E	LTR	1.14	115.9	F	LTR	1.00	67.2	E	
	Overall Intersection		**1.15**	**96.8**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.18**	**105.7**	**F**	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.45	19.5	B	L	0.46	19.5	B					- Mitigation not required
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	SB	L	0.18	16.4	B	L	0.18	16.4	B					
		TR	0.09	14.8	B	TR	0.09	14.8	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection		**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	1.17	120.0+	F*	L	1.17	120.0+	F*	L	1.17	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction.
		T	0.68	13.9	B	T	0.70	14.3	B	T	0.72	15.2	B	
	SB	TR	0.97	30.5	C	TR	1.02	41.2	D	T	0.94	25.6	C	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane
		-	-	-	-	-	-	-		R	0.13	8.4	A	
Sanford Avenue	WB	LTR	0.93	51.7	D	LTR	1.03	74.3	E	LTR	0.94	49.5	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
	Overal Intersection	-	1.18	91.4	C	-	1.20+	40.6	D	-	1.24	29.2	C	- Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue														
Union Street	NB	LR	0.84	55.1	E	LR	0.84	55.1	E	LR	0.84	55.1	E	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction.
	SB	LT	0.91	50.3	D	LT	0.91	50.3	D	LT	0.91	50.3	D	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.75	38.9	D	TR	0.75	38.9	D	TR	0.75	38.9	D	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
	Overal Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
Parsons Boulevard at Sanford Avenue														Partially Mitigated.
Parsons Boulevard	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction
	SB	LTR	1.01	58.9	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
Sanford Avenue	EB	LTR	0.68	24.8	C	LTR	0.68	24.8	C	LTR	0.68	24.8	C	- Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn lane
	WB	LTR	1.09	85.5	F	LTR	1.16	110.2	F	LT	0.94	42.2	D	
		-	-	-	-	-	-	-	-	R	0.18	16.1	B	
	Overall Intersection	-	1.20+	116.5	F	-	1.20+	120.0+	F*	-	1.13	107.0	F	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.62	20.0	B	T	0.62	19.9	B	T	0.48	21.0	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
		TR	0.99	49.1	D	TR	0.99	49.1	D	TR	0.77	28.7	C	
	SB	L	0.59	25.0	C	L	0.59	25.0	C	L	0.59	35.2	D	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red.
		T	0.53	10.0	B	T	0.55	10.2	B	T	0.50	12.0	B	
32nd Avenue	WB	LTR	0.70	28.4	C	LTR	0.70	28.4	C	LTR	0.76	42.8	D	**[Measures reflect improvements needed for the weekday pre-game, weekend pre-game, and weekend post-game peak periods; otherwise mitigation is not needed.]**
	Overall Intersection	-	0.80	24.5	C	-	0.88	24.3	C	-	0.81	23.5	C	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT		8.6	A									- Mitigation not required
Willets Point Boulevard	WB	LR	-	19.3	C									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection	-		17.1	C									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	14.3	B	L	-	120.0+	F*	L	0.64	36.7	D	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases. [EB/WB green time is 10 s; WB only lag green time is 43 s, NB/SB green time is 22 s; all phases have 3 s of amber and 2 s of all red time.]
		R		8.5	A	R		8.5	A	R	0.05	26.3	C	
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.13	36.6	D	
	WB	LT	-	7.8	A	LT	-	10.7	B	Defl.	0.87	23.6	C	
		-	-	-	-	-	-	-	-	T	0.09	6.2	A	
	Overall Intersection	-		8.7	A	-	-	120.0+	F*	-	0.81	25.7	C	

TABLE 23-12
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY MIDDAY (NON GAME DAY)*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	9.8	A									- Mitigation not required
														[Intersection would be demapped as part of the proposed Plan.]
	Overal. Intersection	-	-	9.8	A									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	LR	1.01	42.9	D	TR	1.01	45.5	D	TR	0.97	35.7	D	- Modify signal timing: shift 1 s green time from WB phase to NB/SB phase. [WB green time shifts from
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	25 s to 24 s; NB/SB green time shifts from 25 s to 26 s.]
Northern Blvd Service Rd	WB	L	0.39	14.0	B	L	0.71	21.2	C	L	0.74	23.3	C	
		R	0.37	14.0	B	R	0.40	14.4	B	R	0.41	15.4	B	
	Overal. Intersection	-	0.98	101.5	F	-	1.09	106.1	F	-	1.07	88.6	F	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	9.9	A	L	-	10.7	B					- Mitigation not required
		R		8.9	A	R	-	8.9	A					
	Overal. Intersection	-	-	9.4	A	-	-	10.3	B					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.11	110.1	F					- Unmitigatable Impact.
	SB					DefL	1.00	70.9	E					
						TR	0.74	18.8	B					
New Willets Point Boulevard	EB					LTR	0.04	32.8	C					
	WB					LT	0.96	93.4	F					
						R	0.36	12.7	B					
	Overal. Intersection					-	1.17	60.9	E					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.04	34.3	C					- Mitigation not required.
Roosevelt Avenue	EB					LT	0.60	12.6	B					
	WB					TR	0.70	14.6	B					
	Overal. Intersection					-	0.52	13.8	B					

(1): Control delay is measured in seconds per vehicle

(2): Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- HCM

(3): Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- HCM

(4): Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mitigation Measure
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	Defl.	0.87	79.1	E	Defl.	0.87	79.1	E	Defl.	0.87	79.1	E	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.
		T	0.71	54.6	D	T	0.71	54.6	D	T	0.71	54.6	D	
	SB	LTR	0.51	46.8	D	LTR	0.51	46.8	D	LTR	0.51	46.8	D	
Astoria Boulevard	EB	LTR	1.06	55.2	E	LTR	1.11	75.4	E	TR	1.02	39.7	D	
	WB	L	1.11	115.5	F	L	1.11	115.8	F	L	1.11	115.8	F	
		TR	0.37	6.8	A	TR	0.42	7.1	A	TR	0.42	7.1	A	
	Overal. Intersection	-	1.20+	48.7	D	-	1.20+	59.8	E	-	1.20+	38.8	D	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard (Rt. 25A)	EB	L	0.24	41.1	D	L	0.24	45.0	D					
		TR	1.03	34.8	C	TR	1.12	71.8	E					
		-	-	-	-	-	-	-	-					
	WB	L	0.87	64.7	E	L	0.87	66.5	E					
		TR	1.19	112.7	F	TR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overall Intersection		1.15	82.7	F	-	1.20+	116.5	F					
114th Street at Northern Boulevard (RT. 25A)														- Unmitigatable Impact.
114th Street	SB	LTR	0.87	69.3	E	LTR	0.88	70.5	E					
Northern Boulevard (Rt. 25A)	EB	T	1.12	77.4	E	T	1.20+	120.0+	F*					
		R	0.84	28.3	C	R	0.85	28.9	C					
	WB	Defl.	0.99	74.2	E	Defl.	0.99	76.2	E					
		T	0.94	18.5	B	T	1.02	34.1	C					
	Overall Intersection	-	1.20+	46.1	D	-	1.20+	73.5	E					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	1.14	120.0+	F*	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.51	46.1	D	R	1.08	120.0+	F*					
Northern Boulevard	EB	T	0.43	11.2	B	T	0.48	11.7	B					
	WB	T	1.09	77.8	E	T	1.09	77.8	E					
Grand Central Parkway Ramp	EB	T	0.56	13.0	B	T	0.71	15.9	B					
Van Wyck & Whitestone Expressway Ramp	WB	T	1.20	120.0+	F*	T	1.20+	120.0+	F*					
	Overall Intersection	-	1.19	96.2	F	-	1.20+	120.0+	F*					

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	0.73	49.5	D	LTR	0.73	49.5	D					
Northern Boulevard	EB	L	1.01	96.3	F	L	1.03	100.8	F					
		T	0.94	32.1	C	T	1.01	46.4	D					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	1.03	58.7	E	T	1.03	58.7	E					
Northern Boulevard Service Rd	EB	TR	0.67	24.5	C	TR	0.67	24.5	C					
		-	-	-	-	-	-	-	-					
	WB	TR	0.55	29.7	C	TR	0.84	40.6	D					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	1.09	60.6	E	-	1.11	65.4	E					
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	1.18	120.0+	F*	L	1.18	120.0+	F*					- Unmitigatable Impact.
		R	0.89	45.4	D	R	0.89	45.4	D					
Northern Boulevard	EB	TR	0.98	22.7	C	TR	1.05	41.1	D					
	WB	L	0.14	59.6	E	L	0.14	59.6	E					
		T	1.06	60.6	E	T	1.17	107.4	F					
	Overall Intersection		1.10	53.1	D	-	1.18	73.4	E					
Union Street at Northern Boulevard (RT. 25A)														
Union Street	NB	LTR	0.27	35.0	C	LTR	0.27	35.0	C					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.87	34.2	C	T	0.95	40.4	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		TR	0.88	35.3	D	TR	0.97	44.3	D					
	Overall Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*					
Parsons Boulevard at Northern Boulevard (RT. 25A)														Partially Mitigated.
Parsons Boulevard	NB	L	0.94	99.0	F	L	0.97	106.0	F	L	0.90	88.6	F	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.
		TR	0.67	44.4	D	TR	0.67	44.4	D	TR	0.67	44.4	D	
	SB	LTR	1.00	86.8	F	LTR	1.03	94.5	F	LT	0.67	44.1	D	
		-	-	-	-	-	-	-	-	R	0.37	36.3	D	
Northern Boulevard	EB	L	0.40	44.3	D	L	0.44	46.8	D	L	0.44	46.8	D	
		TR	1.14	96.6	F	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	WB	L	0.94	44.2	D	L	0.47	46.1	D	L	0.47	46.1	D	
		TR	0.67	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	Overall Intersection	-	1.01	120.0+	F*	-	1.09	120.0+	F*	-	1.04	120.0+	F*	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.73	21.2	C	L	0.73	21.2	C					- Mitigation not required
		T	0.36	14.6	B	T	0.37	14.7	B					
34th Avenue	EB	TR	0.77	29.1	C	TR	0.77	29.2	C					
	Overall Intersection	-	0.75	23.0	C	-	0.75	23.0	C					

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
126th Street/GCP Ramp at 34th Avenue														**Partially Mitigated.**
126th Street	NB	LTR	0.59	25.1	C	LTR	0.73	28.4	C	LTR	0.79	32.8	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.44	13.3	B	LTR	0.59	15.7	B	LTR	0.63	18.6	B	- NYPD should optimize traffic signal operations during the gameday peak period conditions.
GCP Ramp	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
34th Avenue	EB	LTR	0.00	38.4	D	LTR	0.34	41.6	D	LTR	0.32	40.7	D	
Stadium Road	WB	LTR	0.37	41.3	D	LTR	1.16	120.0+	F*	LTR	1.11	120.0+	F*	
	Overall Intersection	-	1.03	120.0+	F*	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	1.08	104.6	F	LTR	1.11	114.6	F	LTR	1.05	95.8	F	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	SB	LTR	1.18	120.0+	F*	LTR	1.18	120.0+	F*	LTR	1.12	118.5	F	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.91	24.5	C	- Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	WB	LTR	1.10	80.0	F	LTR	1.20+	120.0+	F*	LTR	0.79	17.9	B	
	Overall Intersection	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	0.97	51.8	D	- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction
														- Modify signal timing: shift 1 x green time from EB/WB phase to NB/SB phase [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 31 s to 32 s.]
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	1.07	90.5	F	LTR	1.07	90.5	F	LTR	1.07	90.5	F	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.89	21.8	C	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.97	35.0	C	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
	Overall Intersection		1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	1.00	39.1	D	
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.17	120.0+	F*	LTR	1.17	120.0+	F*					- Unmitigatable Impact.
	SB	Defl.	1.12	120.0+	F*	Defl.	1.16	120.0+	F*					
		TR	0.84	67.2	E	TR	0.84	67.2	E					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	Defl.	0.91	39.6	D	Defl.	0.91	39.6	D					
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection		1.20+	120.0+	F*	-	1.20+	120.0+	F*					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.30	36.6	D	Defl.	1.20+	120.0+	F*					- Unmitigatable Impact.
						TR	0.48	38.9	D					
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					
		R	1.12	116.4	F	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	Defl.	1.20+	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	1.06	62.8	E	TR	1.17	105.2	F					
	WB	LTR	0.93	24.3	C	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	1.20+	98.1	F	-	1.20+	120.0+	F*					

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	1.13	120.0+	F*	L	1.16	120.0+	F*					- Unmitigatable Impact
		TR	0.89	38.9	D	TR	0.89	38.9	D					
	SB	T	1.06	116.2	F	T	1.06	116.2	F					
		R	0.77	52.9	D	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	0.91	43.2	D	LTR	1.12	101.4	F					
	WB	LTR	0.72	61.6	E	LTR	0.77	61.4	E					
	Overall Intersection	-	**0.99**	**71.7**	**E**	-	**1.20+**	**120.0+**	**F***					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*					
		TR	1.15	113.2	F	TR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.19	117.3	F	LT	1.19	117.3	F					- Unmitigatable Impact.
		R	0.60	24.4	C	R	0.60	24.4	C					
	SB	LTR	0.20	20.4	C	LTR	0.20	20.4	C					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-			-	-	-	-					- Unmitigatable Impact.
	SB	LT	0.99	42.0	D	LT	0.99	42.0	D					
		R	1.05	77.0	E	R	1.05	77.0	E					
Roosevelt Avenue	EB	LT	0.92	41.4	D	LT	1.04	68.8	E					
		R	0.93	48.7	D	R	0.93	48.7	D					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.13**	**62.2**	**E**	-	**1.20+**	**82.4**	**F**					
Parsons Boulevard at Roosevelt Avenue														
Parsons Boulevard	NB	LTR	1.08	89.2	F	LTR	1.08	90.7	F	LTR	1.08	90.7	F	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LTR	1.04	71.0	E	LTR	1.04	71.0	E	LTR	1.04	71.0	E	
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	WB	LTR	1.11	100.6	F	LTR	1.20+	120.0+	F*	LTR	1.08	85.9	F	
	Overall Intersection		**1.19**	**110.9**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.19**	**109.6**	**F**	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.51	21.4	C	L	0.52	21.5	C					- Mitigation not required.
		TR	0.92	40.8	D	TR	0.92	40.8	D					
	SB	L	0.37	29.3	C	L	0.37	29.3	C					
		TR	0.07	14.8	B	TR	0.07	14.8	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.17**	**120.0+**	**F***	-	**1.17**	**120.0+**	**F***					

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.55	27.7	C	L	0.55	27.7	C	L	0.55	28.3	C	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
		T	0.69	14.1	B	T	0.67	13.7	B	T	0.68	14.6	B	
	SB	TR	1.01	39.2	D	TR	1.04	48.5	D	T	0.98	32.0	C	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane
		-	-	-	-	-	-	-	-	R	0.09	7.8	A	
Sanford Avenue	WB	LTR	0.98	61.7	E	LTR	1.06	82.4	F	LTR	0.96	53.6	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
	Overall Intersection	-	**1.00**	**33.8**	**C**	-	**1.05**	**43.0**	**D**	-	**0.97**	**29.9**	**C**	- Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue														
Union Street	NB	LR	1.20+	120.0+	F*	LR	1.20+	120.0+	F*	LR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LT	1.01	70.8	E	LT	1.01	70.8	E	LT	1.01	70.8	E	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.79	42.0	D	TR	0.79	42.0	D	TR	0.79	42.0	D	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	
Parsons Boulevard at Sanford Avenue														**Unmitigatable Impact.**
Parsons Boulevard	NB	LTR	1.15	106.0	F	LTR	1.15	107.4	F	LTR	1.09	84.5	F	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LTR	1.10	86.7	F	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
Sanford Avenue	EB	LTR	1.16	112.5	F	LTR	1.17	116.5	F	LTR	1.17	116.5	F	
	WB	LTR	1.03	64.7	E	LTR	1.08	81.1	F	LTR	1.08	81.1	F	
	Overall Intersection	-	**1.16**	**93.0**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**117.4**	**F**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.66	20.9	C	T	0.66	20.8	C	T	0.51	21.6	C	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods
		TR	0.83	29.7	C	TR	1.15	102.6	F	TR	0.89	37.3	D	
	SB	L	0.75	31.7	C	L	0.75	31.7	C	L	0.75	43.0	D	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing WB green time is 28 s, NB/SB green time is 36 s, and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red.
		T	0.56	10.4	B	T	0.67	11.8	B	T	0.62	13.6	B	
32nd Avenue	WB	LTR	0.70	28.6	C	LTR	0.70	28.6	C	LTR	0.76	42.9	D	
	Overall Intersection	-	**0.86**	**21.1**	**C**	-	**0.93**	**36.3**	**D**	-	**0.88**	**26.9**	**C**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT		9.4	A									- Mitigation not required.
Willets Point Boulevard	WB	LR	-	18.4	C									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection	-	-	**16.8**	**C**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L		65.3	F	L	-	114.3	F	L	0.09	25.2	C	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases
		R	-	8.5	A	R	-	8.5	A	R	0.05	24.8	C	- NYPD should optimize traffic signal operations during the weekday pre game peak period.
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.10	36.5	D	
	WB	LT	-	10.2	B	LT	-	11.0	B	Defl.	0.93	32.1	C	
		-	-	-	-	-	-	-	-	T	0.17	7.5	A	
	Overall Intersection	-	-	**13.0**	**B**	-	-	**15.8**	**C**	-	**0.68**	**28.2**	**C**	

TABLE 23-13
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *WEEKDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T		9.5	A									- Mitigation not required [Intersection would be demapped as part of the proposed Plan.]
Overall Intersection		-		**9.5**	A									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	1.13	85.2	F	TR	1.20+	120.0+	F*	TR	1.07	59.8	E	- Modify signal timing: shift 5 s green time from WB phase to NB/SB phase [WB green time shifts from 25 s to 20 s, NB/SB green time shifts from 25 s to 30 s.]
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
Northern Blvd Service Rd	WB	L	0.24	12.3	B	L	0.50	16.0	B	L	0.63	23.1	C	
		R	0.31	13.4	B	R	0.33	13.7	B	R	0.41	18.8	B	
Overall Intersection			1.13	**120.0+**	F*	-	1.20+	**120.0+**	F*	-	1.20+	**120.0+**	F*	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	25.8	D	L	-	18.7	C					- Mitigation not required.
		R	-	10.1	B	R	-	10.1	B					
Overall Intersection		-		**20.0**	C	-	-	15.1	C					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB					DefL	1.20+	120.0+	F*					
						TR	1.20+	120.0+	F*					
New Willets Point Boulevard	EB					LTR	0.02	22.4	C					
	WB					LT	1.20+	120.0+	F*					
						R	0.21	10.7	B					
Overall Intersection						-	**1.20+**	**120.0+**	F*					
Citi Field/Lot 8 Internal Street at Roosevelt Avenue														
Citi Field/Lot 8 Internal Street	SB					LR	0.02	34.0	C					- Mitigation not required.
Roosevelt Avenue	EB					LT	0.73	15.5	B					
	WB					TR	0.90	23.1	C					
Overall Intersection						-	**0.66**	**19.8**	B					

(1) Control delay is measured in seconds per vehicle

(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual – TRB

(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each major approach as listed in the 2000 Highway Capacity Manual – TRB

(4) Overall intersection V/C ratio is the critical lane groups' v/c ratio, not the weighted average of all the movements

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	Defl.	0.68	41.6	D	Defl.	0.68	41.6	D	Defl.	0.68	41.6	D	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street
		T	0.30	30.8	C	T	0.30	30.8	C	T	0.30	30.8	C	
	SB	LTR	0.29	30.6	C	LTR	0.29	30.6	C	LTR	0.29	30.6	C	
Astoria Boulevard	EB	LTR	0.48	15.2	B	LTR	0.53	15.9	B	TR	0.47	15.1	B	[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]
	WB	L	0.57	11.4	B	L	0.62	13.4	B	L	0.61	12.9	B	
		TR	0.25	2.5	A	TR	0.30	2.6	A	TR	0.30	2.6	A	
Overall Intersection		-	**0.60**	**14.2**	**B**	-	**0.63**	**14.2**	**B**	-	**0.60**	**13.8**	**B**	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard (Rt. 25A)	EB	L	0.02	43.5	D	L	0.02	43.5	D					
		TR	0.99	37.5	D	TR	1.14	91.5	F					
		-	-	-	-	-	-	-	-					
	WB	L	0.78	54.2	D	L	0.82	62.1	E					
		T	1.20+	120.0+	F*	T	1.20+	120.0+	F*					
		R	0.22	11.8	B	R	0.22	11.8	B					
Overall Intersection			**1.20+**	**108.3**	**F**	-	**1.20+**	**120.0+**	**F***					
114th Street at Northern Boulevard (RT. 25A)														- Unmitigatable Impact.
114th Street	SB	LTR	1.14	106.3	F	LTR	1.12	113.0	F					
Northern Boulevard (Rt. 25A)	EB	T	0.68	19.2	B	T	0.81	23.0	C					
		R	0.60	18.8	B	R	0.61	19.1	B					
	WB	Defl.	0.87	34.9	C	Defl.	0.87	37.6	D					
		T	0.97	22.7	C	T	1.06	47.1	D					
Overall Intersection			**1.20+**	**27.5**	**C**	-	**1.20+**	**41.1**	**D**					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	0.87	63.3	E	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.68	54.0	D	R	1.20+	120.0+	F*					
Northern Boulevard	EB	T	0.28	9.8	A	T	0.32	10.2	B					
	WB	T	0.76	19.1	B	T	0.76	19.1	B					
Grand Central Parkway Ramp	EB	T	0.87	22.8	C	T	**1.08**	**68.7**	E					
Van Wyck & Whitestone Expressway Ramp	WB	T	1.16	120.0+	F*	T	1.20+	120.0+	F*					
Overall Intersection		-	1.11	**74.9**	**E**	-	1.20+	120.0+	F*					

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	0.58	44.3	D	LTR	0.58	44.3	D					
Northern Boulevard	EB	L	1.11	120.0+	F*	L	1.16	120.0+	F*					
		T	0.80	23.0	C	T	0.87	26.8	C					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	1.00	40.8	D	T	1.00	40.8	D					
Northern Boulevard Service Rd.	EB	TR	0.79	30.2	C	TR	0.79	30.2	C					
		-	-	-	-	-	-	-	-					
	WB	TR	0.76	32.1	C	TR	1.08	84.1	F					
		-	-	-	-	-	-	-	-					
Overal Intersection		-	1.10	59.4	E	-	1.11	65.3	E					
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	1.03	80.9	F	L	1.03	80.9	F					- Unmitigatable Impact.
		R	0.79	33.5	C	R	0.79	33.5	C					
Northern Boulevard	EB	TR	1.02	55.5	E	TR	1.10	84.8	F					
	WB	L	0.05	43.9	D	L	0.05	43.9	D					
		T	0.95	30.9	C	T	1.06	61.2	E					
Overal Intersection			0.97	48.7	D	-	1.05	69.8	E					
Union Street at Northern Boulevard (RT. 25A														**Partially Mitigated.**
Union Street	NB	LTR	0.16	32.4	C	LTR	0.16	32.4	C	LTR	0.16	32.4	C	- Modify signal timing: shift 1 s from EB/WB phase to EB-left/EB-right/WB-left lead phase. [EB/WB green time shifts from 50 s to 49 s; EB-left/EB-right/WB-left green time shifts from 18 s to 19 s; NB/SB green time remains 36 s.]
	SB	LTR	1.15	120.0+	F*	LTR	1.15	120.0+	F*	LTR	1.15	120.0+	F*	
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.18	120.0+	F*	
		T	0.81	32.9	C	T	0.91	37.0	D	T	0.92	38.9	D	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*	
		TR	0.83	33.4	C	TR	0.94	39.4	D	TR	0.95	42.1	D	
Overall Intersection		-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
Parsons Boulevard at Northern Boulevard (RT. 25A)														**Partially Mitigated.**
Parsons Boulevard	NB	L	1.04	120.0+	F*	L	1.06	120.0+	F*	L	0.90	83.3	F	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 2A - 7P (Except Sunday) for a distance of 120 ft from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.
		TR	0.66	44.6	D	TR	0.66	44.6	D	TR	0.64	42.8	D	
	SB	LTR	1.08	116.0	F	LTR	1.13	120.0+	F*	LT	0.60	41.7	D	- Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase. [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) rem
		-	-	-	-	-	-	-	-	R	0.51	41.2	D	
Northern Boulevard	EB	L	0.60	52.2	D	L	0.63	53.2	D	L	0.66	55.4	E	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	WB	L	0.39	46.0	D	L	0.38	47.5	D	L	0.40	48.8	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
Overall Intersection		-	1.20	120.0+	F*	-	1.20+	120.0+	F*	-	1.20+	120.0+	F*	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.73	24.3	C	L	0.73	24.3	C					- Mitigation not required.
		T	0.39	17.8	B	T	0.40	18.0	B					
34th Avenue	EB	TR	0.64	21.9	C	TR	0.64	21.9	C					
Overall Intersection		-	0.68	22.1	C	-	0.68	22.1	C					

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
126th Street/GCP Ramp at 34th Avenue														**Partially Mitigated.**
126th Street	NB	LTR	0.45	23.0	C	LTR	0.63	25.9	C	LTR	0.79	37.2	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.31	11.9	B	LTR	0.45	13.4	B	LTR	0.54	20.5	C	- NYPD should optimize traffic signal operations during the gameday peak period conditions
GCP Ramp	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
34th Avenue	EB	LTR	0.00	36.8	D	LTR	0.35	40.2	D	LTR	0.34	39.3	D	
Stadium Road	WB	LTR	0.55	45.2	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
	Overall Intersection		**1.03**	**120.0+**	**F***	**-**	**1.20+**	**120.0+**	**F***		**1.20+**	**120.0+**	**F***	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	1.14	120.0+	F*	LTR	1.18	120.0+	F*	LTR	1.13	120.0+	F*	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft from the stop bar to allow for two moving lanes at the approach.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.17	120.0+	F*	
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.98	34.6	C	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.93	27.5	C	- Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.03**	**60.9**	**E**	- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction
														- Modify signal timing: shift 1 s green time from EB/WB phase to NB/SB phase. [EB/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	1.08	107.7	F	LTR	1.08	107.7	F	LTR	1.08	107.7	F	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.94	27.1	C	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.75	15.4	B	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**0.98**	**34.8**	**C**	
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.13	120.0+	F*	LTR	1.13	120.0+	F*					- Unmitigatable Impact.
	SB	DefL	1.04	107.9	F	DefL	1.10	120.0+	F*					
		TR	0.60	48.9	D	TR	0.60	48.9	D					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.17	105.9	F	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.29	36.5	D	DefL	1.20+	120.0+	F*					- Unmitigatable Impact.
						TR	0.43	38.1	D					
	SB	LT	1.09	114.9	F	LT	1.20+	120.0+	F*					
		R	1.12	117.2	F	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*					
		TR	0.98	39.5	D	TR	1.10	76.2	E					
	WB	LTR	0.97	34.0	C	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**98.4**	**F**	-	**1.20+**	**120.0+**	**F***					

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	1.20	120.0+	F*	L	1.20+	120.0+	F*					- Unmitigatable Impact.
		TR	1.18	114.4	F	TR	1.18	114.4	F					
	SB	L	1.02	75.0	E	L	1.02	75.0	E					
		R	0.75	41.3	D	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	0.73	24.9	C	LTR	0.93	38.6	D					
	WB	LTR	0.93	74.4	E	LTR	0.98	80.4	F					
	Overall Intersection	-	**1.20+**	**79.8**	**E**	-	**1.20+**	**120.0+**	**F***					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	Defl.	1.20+	120.0+	F*	Defl.	1.20+	120.0+	F*					
		TR	0.94	35.1	D	TR	1.06	65.5	E					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection		**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.58	23.8	C	R	0.58	23.8	C					
	SB	LTR	0.24	19.1	B	LTR	0.24	19.1	B					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection		**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-	-						- Unmitigatable Impact.
	SB	LT	1.03	53.3	D	LT	1.03	53.3	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	0.89	36.1	D	LT	1.01	57.5	E					
		R	0.87	37.6	D	R	0.87	37.6	D					
	WB	LTR	0.99	52.1	D	LTR	1.15	105.5	F					
	Overall Intersection	-	**1.20+**	**113.6**	**F**	-	**1.20+**	**120.0+**	**F***					
Parsons Boulevard at Roosevelt Avenue														
Parsons Boulevard	NB	LTR	0.94	44.5	D	LTR	0.95	45.5	D	LTR	0.95	45.5	D	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction
	SB	LTR	0.82	30.0	C	LTR	0.82	30.0	C	LTR	0.82	30.0	C	
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft from the intersection to reduce parking friction.
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20**	**120.0+**	**F***	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.50	20.2	C	L	0.50	20.3	C					- Mitigation not required.
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	SB	L	0.17	16.2	B	L	0.17	16.2	B					
		TR	0.07	14.7	B	TR	0.07	14.7	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.95	85.8	F	L	0.95	85.8	F	L	0.95	86.4	F	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
		T	0.77	15.8	B	T	0.76	15.6	B	T	0.78	16.7	B	
	SB	TR	0.98	32.6	C	TR	1.02	40.8	D	T	0.91	23.3	C	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane
		-	-	-	-	-	-	-	-	R	0.18	8.4	A	
Sanford Avenue	WB	LTR	0.98	60.3	E	LTR	1.07	86.7	F	LTR	0.97	56.4	E	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
	Overall Intersection	-	**1.00**	**32.0**	**C**	-	**1.12**	**40.8**	**D**	-	**0.96**	**27.8**	**C**	- Modify signal timing: NB/SB phase green time is 52 s; EB/WB phase green time is 28 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue														
Union Street	NB	LR	0.89	60.3	E	LR	0.89	60.3	E	LR	0.89	60.3	E	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LT	0.75	35.2	D	LT	0.75	35.2	D	LT	0.75	35.2	D	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.78	41.0	D	TR	0.78	41.0	D	TR	0.78	41.0	D	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
	Overall Intersection		**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	
Parsons Boulevard at Sanford Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LTR	0.95	44.9	D	LTR	1.11	91.7	F	LTR	1.11	91.7	F	
Sanford Avenue	EB	LTR	0.79	26.5	C	LTR	0.79	26.7	C	LTR	0.80	27.5	C	- Prohibit parking from 10A - 3P (Except Sunday) along the north side of the westbound Sanford Avenue approach 100 ft. from the intersection to provide a daylighted right turn lane
	WB	LTR	1.13	93.9	F	LTR	1.18	114.9	F	LT	0.95	40.3	D	
		-	-	-	-	-	-	-	-	R	0.22	16.5	B	
	Overall Intersection	-	**1.20+**	**109.9**	**F**	-	**1.20+**	**120.0+**	**F***	-	**1.17**	**98.2**	**F**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.48	18.0	B	T	0.51	18.3	B	T	0.40	19.9	B	- Replace the existing mechanical signal with a computerized signal to accommodate different timing plans for each peak period.
		TR	1.10	82.2	F	TR	1.20+	120.0+	F*	TR	1.08	78.9	E	
	SB	L	0.51	20.9	C	L	0.52	21.5	C	L	0.51	30.4	C	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s; NB/SB green time is 36 s; and SB only lag green time is 11 s; each phase has 3 s amber and 2 s all red
		T	0.47	10.3	B	T	0.60	12.2	B	T	0.63	13.9	B	
32nd Avenue	WB	LTR	0.68	27.7	C	LTR	0.68	27.7	C	LTR	0.74	41.6	D	
	Overall Intersection		**0.83**	**31.9**	**C**	-	**1.02**	**66.5**	**E**	-	**0.98**	**36.2**	**D**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT	-	9.3	A									- Mitigation not required.
Willets Point Boulevard	WB	LR		24.7	C									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection			**17.9**	**C**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	73.6	F	L	-	120.0+	F*	L	0.15	29.7	C	- Install a new computer controlled traffic signal, with a 90 second cycle length and three phases
		R	-	8.5	A	R	-	8.5	A	R	0.06	28.7	C	- NYPD should optimize traffic signal operations during the weekend pre-game peak period
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.16	37.1	D	
	WB	LT	-	12.0	B	LT	-	13.6	B	Defl.	0.99	40.9	D	
		-	-	-	-	-	-	-	-	T	0.16	5.5	A	
	Overall Intersection	-	-	**15.3**	**C**	-	-	**20.3**	**C**	-	**0.79**	**35.5**	**D**	

TABLE 23-14
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY PRE-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	10.1	B									- Mitigation not required
														[Intersection would be demapped as part of the proposed Plan.]
Overall intersection		-	-	10.1	B									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	0.86	23.9	C	TR	0.97	37.7	D					- Unmitigatable Impact.
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					
Northern Blvd Service Rd	WB	L	0.38	13.9	B	L	0.81	26.3	C					
		R	0.41	14.9	B	R	0.45	15.5	B					
Overall intersection		-	0.98	115.1	F	-	1.20+	120.0+	F*					
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	120.0+	F*	L	-	42.6	E					- Mitigation not required.
		R	-	18.9	C	R	-	18.9	C					
Overall intersection		-	-	75.0	F	-	-	30.2	D					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB					DefL	1.20+	120.0+	F*					
						TR	1.02	59.6	E					
New Willets Point Boulevard	EB					LTR	0.02	26.3	C					
	WB					LT	1.20+	120.0+	F*					
						R	0.18	11.3	B					
Overall Intersection						-	1.20+	120.0+	F*					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.03	34.1	C					- Mitigation not required
Roosevelt Avenue	EB					LT	0.68	14.1	B					
	WB					TR	0.93	27.0	C					
Overall Intersection						-	0.69	21.8	C					

(1): Control delay is measured in seconds per vehicle

(2): Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB

(3): Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- TRB

(4): Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
INTERSECTION & APPROACH		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	
SIGNALIZED INTERSECTIONS														
ASTORIA BOULEVARD														
108th Street at Astoria Boulevard														
108th Street	NB	DefL	0.60	38.3	D	DefL	0.60	38.3	D	DefL	0.60	38.3	D	- Prohibit eastbound Astoria Boulevard eastbound left-turn movements onto 108th Street at all times. Eastbound left-turn vehicles may use the exclusive left-turn at the Astoria Boulevard and 31st Street intersection located west of 108th Street.
		T	0.23	29.8	C	T	0.23	29.8	C	T	0.23	29.8	C	
	SB	LTR	0.29	30.5	C	LTR	0.29	30.5	C	LTR	0.29	30.5	C	
Astoria Boulevard	EB	LTR	0.50	15.4	B	LTR	0.54	16.0	B	TR	0.47	15.1	B	**[Measure reflects improvements needed for the non-game PM and weekday pre-game peak periods; otherwise mitigation is not needed.]**
	WB	L	0.77	19.3	B	L	0.82	26.1	C	L	0.81	23.7	C	
		TR	0.37	2.8	A	TR	0.42	3.0	A	TR	0.42	3.0	A	
Overall Intersection		-	**0.60**	**13.3**	**B**	-	**0.65**	**13.8**	**B**	-	**0.63**	**13.1**	**B**	
NORTHERN BOULEVARD														
108th Street at Northern Boulevard (RT. 25A)														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- **Unmitigable Impact.**
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
Northern Boulevard (Rt. 25A)	EB	L	0.05	43.9	D	L	0.05	43.9	D					
		T	0.88	24.5	C	T	1.00	40.5	D					
		R	0.12	11.0	B	R	0.12	11.0	B					
	WB	L	0.68	46.8	D	**L**	**0.75**	**56.1**	**E**					
		T	1.20+	120.0+	F*	**T**	**1.20+**	**120.0+**	**F***					
		R	0.21	11.8	B	R	0.21	11.8	B					
Overall Intersection		-	**1.15**	**93.5**	**F**	-	**1.20+**	**120.0+**	**F***					
114th Street at Northern Boulevard (RT. 25A)														- **Unmitigatable Impact.**
114th Street	SB	LTR	1.20+	120.0+	F*	**LTR**	**1.20+**	**120.0+**	**F***					
Northern Boulevard (Rt. 25A)	EB	T	1.18	120.0+	F*	**T**	**1.20+**	**120.0+**	**F***					
		R	0.94	120.0+	F*	**R**	**0.96**	**120.0+**	**F***					
	WB	DefL	1.14	120.0+	F*	DefL	1.14	120.0+	F*					
		T	1.20+	120.0+	F*	**T**	**1.20+**	**120.0+**	**F***					
Overall Intersection		-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
126th Street at Northern Boulevard (RT. 25A)														
126th Street	NB	L	0.22	17.2	B	L	0.48	20.4	C					- **Unmitigatable Impact.**
		R	0.58	22.4	C	R	0.85	37.3	D					
Northern Boulevard	EB	T	0.58	31.3	C	T	0.67	33.4	C					
	WB	T	1.20+	120.0+	F*	T	1.20+	120.0+	F*					
Grand Central Parkway Ramp	EB	T	1.20	120.0+	F*	**T**	**1.20+**	**120.0+**	**F***					
Van Wyck & Whitestone Expressway Ramp	WB	T	1.16	120.0+	F*	**T**	**1.20+**	**120.0+**	**F***					
Overall Intersection		-	**0.89**	**120.0+**	**F***	-	**1.12**	**120.0+**	**F***					

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Prince Street at Northern Boulevard (RT. 25A)														
Prince Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	LTR	0.50	42.2	D	LTR	0.50	42.2	D					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.99	42.1	D	T	1.08	70.9	E					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.99	40.3	D	T	0.99	40.3	D					
Northern Boulevard Service Rd	EB	TR	0.82	31.9	C	TR	0.82	31.9	C					
		-	-	-	-	-	-	-	-					
	WB	TR	0.66	24.3	C	TR	0.96	44.4	D					
		-	-	-	-	-	-	-	-					
Overall Intersection		-	**1.18**	**75.6**	**E**	-	**1.19**	**86.4**	**F**					
Main Street at Northern Boulevard (RT. 25A)														
Main Street	NB	L	1.07	95.9	F	L	1.07	95.9	F	L	1.07	95.9	F	- Modify signal timing: shift 4 s green time from WB-left/NB-right only lead phase to EB/WB phase [WB-left/NB-right lead green time shifts from 17 s to 13 s; EB/WB green time shifts from 47 s to 51 s; NB green time remains 34 s; Lead Pedestrian Interval (LPI) remains 7 s].
		R	0.72	29.9	C	R	0.72	29.9	C	R	0.77	34.9	C	
Northern Boulevard	EB	TR	1.10	87.0	F	TR	1.20	120.0+	F*	TR	1.10	84.2	F	
	WB	L	0.02	43.3	D	L	0.02	43.3	D	L	0.02	44.4	D	
		T	0.91	27.1	C	T	1.01	42.6	D	T	1.01	42.6	D	
Overall Intersection		-	**0.96**	**63.7**	**E**	-	**1.03**	**85.4**	**F**	-	**0.99**	**67.4**	**E**	
Union Street at Northern Boulevard (RT. 25A)														
Union Street	NB	LTR	0.17	32.6	C	LTR	0.17	32.6	C					- Unmitigatable Impact.
	SB	LTR	1.06	93.6	F	LTR	1.06	92.0	F					
Northern Boulevard	EB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		T	0.86	34.3	C	T	0.96	41.4	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
	WB	L	1.20+	120.0+	F*	L	1.20+	120.0+	F*					
		TR	0.75	31.3	C	TR	0.84	34.1	C					
Overall Intersection		-	**1.20+**	**119.7**	**F**	-	**1.20+**	**118.3**	**F**					
Parsons Boulevard at Northern Boulevard (RT. 25A)														**Partially Mitigated.**
Parsons Boulevard	NB	L	0.87	80.2	F	L	0.88	83.5	F	L	0.86	77.5	E	- Provide "No Parking" regulations along the west side of the southbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 120 ft. from the intersection to prohibit parking and provide a daylighted right-turn lane for all peak hours.
		TR	0.67	45.1	D	TR	0.67	45.1	D	TR	0.65	43.5	D	
	SB	LTR	1.14	120.0+	F*	LTR	1.18	120.0+	F*	LT	0.69	45.8	D	
		-	-	-	-	-	-	-	-	R	0.46	39.3	D	- Modify signal timing: shift 1 s green time from EB-left/WB-left lag phase to NB/SB phase [EB/WB green time remains 52 s; EB-left/WB-left lag green time shifts from 10 s to 9 s; NB/SB green time shifts from 36 s to 37 s; Lead Pedestrian Interval (LPI) remains 7 s].
Northern Boulevard	EB	L	0.45	46.2	D	L	0.51	47.5	D	L	0.53	49.0	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
	WB	L	0.38	45.9	D	L	0.38	47.5	D	L	0.40	48.7	D	
		TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*	
Overall Intersection		-	**1.05**	**120.0+**	**F***	-	**1.14**	**120.0+**	**F***	-	**1.05**	**120.0+**	**F***	
34TH AVENUE														
114th Street at 34th Avenue														
114th Street	SB	L	0.80	27.2	C	L	0.80	27.2	C					- Mitigation not required.
		T	0.23	16.0	B	T	0.25	16.1	B					
34th Avenue	EB	TR	0.73	24.2	C	TR	0.73	24.2	C					
Overall Intersection		-	**0.77**	**24.6**	**C**	-	**0.77**	**24.6**	**C**					

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON -*SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
126th Street/GCP Ramp at 34th Avenue														
126th Street	NB	LTR	0.70	64.6	E	LTR	0.67	54.1	D	LTR	0.66	51.1	D	- Unmitigatable Impact.
		-	-	-	-	-	-	-	-	-	-	-	-	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
Northern Boulevard Ramp	SB	LTR	0.58	25.4	C	LTR	0.45	23.1	C	LTR	0.44	22.4	C	- NYPD should optimize traffic signal operations during the gameday peak period conditions.
GCP Ramp	SB	LTR	0.87	66.8	E	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
34th Avenue	EB	DefL	0.83	92.5	F	-	-	-	-	-	-	-	-	
		TR	0.22	47.4	D	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
Stadium Road	WB	-	-	-	-	-	-	-	-	-	-	-	-	
		LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	
		-	-	-	-	-	-	-	-	-	-	-	-	
	Overall Intersection	-	**0.81**	**68.8**	E	-	**1.10**	**120.0+**	F*	-	**1.08**	**120.0+**	F*	
ROOSEVELT AVENUE														
108th Street at Roosevelt Avenue														
108th Street	NB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.19	120.0+	F*	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	1.18	120.0+	F*	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.90	24.3	C	- Move the Q48 bus stop on the far side of the eastbound approach 25 feet further downstream (to the east) to allow a transition back to one moving lane in the eastbound direction, and provide "No Standing Anytime" regulations between the intersection and t
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.93	27.2	C	- Provide "No Standing Anytime" regulations on the far side of the westbound approach for a distance of 50 ft. from the intersection to allow a transition back to one moving lane in the westbound direction.
	Overall Intersection	-	**1.20+**	**120.0+**	F*	-	**1.20+**	**120.0+**	F*	-	**1.00**	**65.5**	E	- Modify signal timing: shift 1 s green time from LH/WB phase to NB/SB phase. [LH/WB green time shifts from 80 s to 79 s; NB/SB green time shifts from 30 s to 31 s.]
111th Street at Roosevelt Avenue														
111th Street	NB	LTR	0.99	79.9	E	LTR	0.99	79.9	E	LTR	0.96	74.0	E	- Provide "No Standing Anytime" regulations along the south side of the eastbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
Roosevelt Avenue	EB	LTR	1.02	49.2	D	LTR	1.16	100.6	F	LTR	0.69	13.9	B	- Provide "No Standing Anytime" regulations along the north side of the westbound Roosevelt Avenue approach for a distance of 100 ft. from the stop bar to allow for two moving lanes at the approach.
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*	LTR	0.74	14.9	B	- Move the Q48 bus stop on the far side of the westbound approach and the far side of the eastbound approach 25 feet further downstream to allow a transition back to one moving lane in the each direction, and provide "No Standing Anytime" regulations betwee
	Overall Intersection	-	**1.17**	**93.9**	F	-	**1.20+**	**120.0+**	F*	-	**0.80**	**23.9**	C	
114th Street at Roosevelt Avenue														
114th Street	NB	LTR	1.15	120.0+	F*	LTR	1.15	120.0+	F*					- Unmitigatable Impact.
	SB	DefL	1.03	104.3	F	DefL	1.12	120.0+	F*					
		TR	1.01	99.0	F	TR	1.01	99.0	F					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	WB	-	-	-	-	-	-	-	-					
		LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
		-	-	-	-	-	-	-	-					
	Overall Intersection	-	**1.20+**	**120.0+**	F*	-	**1.20+**	**120.0+**	F*					
126th Street at Roosevelt Avenue														
126th Street	NB	LTR	0.42	53.5	D	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB	DefL	1.20+	120.0+	F*	DefL	1.20+	120.0+	F*					
		TR	0.30	50.9	D	TR	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	1.08	56.1	E	LTR	1.20+	120.0+	F*					
	WB	LTR	0.43	3.2	A	LTR	0.80	7.9	A					
	Overall Intersection	-	**1.13**	**68.2**	E	-	**1.20+**	**120.0+**	F*					

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
College Point Boulevard at Roosevelt Avenue														
College Point Boulevard	NB	L	0.57	35.3	D	L	0.82	46.1	D					- Unmitigatable Impact
		TR	1.00	48.4	D	TR	1.00	48.4	D					
	SB	T	0.91	47.1	D	T	0.91	47.1	D					
		R	0.36	29.5	C	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LTR	1.07	74.8	E	LTR	1.20+	120.0+	F*					
	WB	LTR	0.75	37.9	D	LTR	0.79	61.4	E					
	Overall Intersection	-	**1.04**	**54.1**	**D**	-	**1.20+**	**112.6**	**F**					
Prince Street at Roosevelt Avenue														
Prince Street	SB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
Roosevelt Avenue	EB	Defl.	1.09	92.5	F	Defl.	1.14	109.7	F					
		TR	1.01	50.8	D	TR	1.17	104.9	F					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Main Street at Roosevelt Avenue														
Main Street	NB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*					- Unmitigatable Impact.
		R	0.68	26.9	C	R	0.68	26.9	C					
	SB	LTR	0.11	16.7	B	LTR	0.11	16.7	B					
Roosevelt Avenue	EB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	WB	LTR	1.20+	120.0+	F*	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Union Street at Roosevelt Avenue														
Union Street	NB	-	-	-	-	-	-	-	-					- Unmitigatable Impact.
	SB	LT	1.00	43.5	D	LT	1.00	43.5	D					
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*					
Roosevelt Avenue	EB	LT	1.03	64.1	E	LT	1.17	114.3	F					
		R	1.08	83.1	F	R	1.08	83.1	F					
	WB	LTR	1.07	77.5	E	LTR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***					
Parsons Boulevard at Roosevelt Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	0.68	24.5	C	LTR	0.69	25.0	C	LTR	0.69	25.0	C	- Provide "No Parking" regulations along the south side of the eastbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
	SB	LTR	0.72	25.3	C	LTR	0.72	25.3	C	LTR	0.72	25.3	C	
Roosevelt Avenue	EB	LTR	1.16	109.2	F	LTR	1.20+	120.0+	F*	LTR	1.18	116.8	F	- Provide "No Parking" regulations along the north side of the westbound Roosevelt Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	WB	LTR	0.90	37.8	D	LTR	0.98	49.7	D	LTR	0.85	31.7	F	
	Overall Intersection	-	**0.94**	**56.0**	**E**	-	**1.03**	**89.4**	**F**	-	**0.95**	**59.1**	**E**	
KISSENA BOULEVARD														
Main Street at Kissena Boulevard														
Main Street	NB	L	0.38	18.4	B	L	0.39	18.5	B					- Mitigation not required.
		TR	0.99	48.2	D	TR	0.99	48.2	D					
	SB	L	0.14	15.6	B	L	0.14	15.6	B					
		TR	0.06	14.5	B	TR	0.06	14.5	B					
Kissena Boulevard	NB	TR	1.20+	120.0+	F*	TR	1.20+	120.0+	F*					
	Overall Intersection	-	**1.13**	**103.2**	**F**	-	**1.13**	**103.1**	**F**					

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
			Control				Control				Control			
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SANFORD AVENUE														
College Point Boulevard at Sanford Avenue														
College Point Boulevard	NB	L	0.61	32.5	C	L	0.61	32.5	C	L	0.61	32.6	C	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction
		T	0.58	12.2	B	T	0.59	12.5	B	T	0.59	12.5	B	
	SB	TR	1.08	62.7	E	TR	1.12	78.1	E	T	1.01	37.3	D	- Prohibit parking from 10A - 7P (Except Sunday) along the west side of the southbound College Point Blvd approach 120 ft. from the intersection to provide a daylighted right turn lane.
		-	-	-	-	-	-	-	-	R	0.15	7.8	A	
Sanford Avenue	WB	LTR	0.87	43.4	D	LTR	0.93	51.3	D	LTR	0.87	43.1	D	- Replace the existing mechanical signal controller with a computerized signal controller to accommodate multiple timing plans during different peak periods.
	Overall Intersection	-	**1.01**	**42.7**	**D**	-	**1.06**	**51.8**	**D**	-	**0.96**	**29.7**	**C**	- Modify signal timing: NB/SB phase green time is 53 s; EB/WB phase green time is 27 s; each phase has a 3 s amber and 2 s all red.
Union Street at Sanford Avenue														
Union Street	NB	LR	0.96	72.5	E	LR	0.96	72.5	F	LR	0.96	72.5	E	- Provide "No Parking" regulations along the north side of the westbound Sanford Avenue approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	SB	LT	0.71	32.9	C	LT	0.71	32.9	C	LT	0.71	32.9	C	
		R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	R	1.20+	120.0+	F*	
Sanford Avenue	EB	TR	0.65	34.5	C	TR	0.65	34.5	C	TR	0.65	34.5	C	
	WB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
	Overall Intersection	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	-	**1.20+**	**120.0+**	**F***	
Parsons Boulevard at Sanford Avenue														**Partially Mitigated.**
Parsons Boulevard	NB	LTR	1.09	89.2	F	LTR	1.11	95.8	F	LTR	0.97	52.5	D	- Provide "No Parking" regulations along the east side of the northbound Parsons Boulevard approach from 7A - 7P (Except Sunday) for a distance of 50 ft. from the intersection to reduce parking friction.
	SB	LTR	0.95	44.3	D	LTR	1.14	101.8	F	LTR	1.14	101.8	F	
Sanford Avenue	EB	LTR	0.80	27.2	C	LTR	0.81	27.5	C	LTR	0.81	27.5	C	
	WB	LTR	0.88	32.5	C	LTR	0.91	36.7	D	LTR	0.91	36.7	D	
	Overall Intersection	-	**0.98**	**48.8**	**D**	-	**1.02**	**68.7**	**E**	-	**1.02**	**58.4**	**E**	
WHITESTONE EXPRESSWAY / 32ND AVENUE														
College Point Boulevard at 32nd Avenue														
College Point Boulevard	NB	T	0.48	17.9	B	T	0.50	18.2	B	T	0.39	19.8	B	- Replace the existing mechanical signal with a computerized signal to accommodate different timing plans for each peak period.
		TR	1.18	112.3	F	TR	1.20+	120.0+	F*	TR	1.10	87.6	F	
	SB	L	0.50	20.9	C	L	0.51	21.5	C	L	0.51	30.3	C	- Modify signal timing: Increase the existing 60 s cycle to a 90 s cycle with the following signal timing: WB green time is 28 s; NB/SB green time is 36 s; and SB-only lag green time is 11 s; each phase has 3 s amber and 2 s all red
		T	0.47	9.5	A	T	0.56	10.4	B	T	0.51	12.1	B	
32nd Avenue	WB	LTR	0.60	24.0	C	LTR	0.60	24.0	C	LTR	0.65	36.4	D	
	Overall Intersection	-	**0.83**	**42.6**	**D**	-	**1.00**	**77.0**	**E**	-	**0.92**	**40.2**	**D**	
UNSIGNALIZED INTERSECTIONS														
Willets Point Boulevard at 126th Street														
126th Street	SB	LT	-	8.1	A									- Mitigation not required.
Willets Point Boulevard	WB	LR	-	14.3	B									**[Intersection would be demapped as part of the proposed Plan.]**
	Overall Intersection	-	-	**13.2**	**B**									
Boat Basin Road at Worlds Fair Marina														
Boat Basin Road	NB	L	-	120.0+	F*	L	-	120.0+	F*	L	0.95	39.9	D	- Install a new computer-controlled traffic signal, with a 90-second cycle length and three phases.
		R	-	29.4	D	R	-	29.4	D	R	0.96	42.6	D	- NYPD should optimize traffic signal operations during the weekend post-game peak period
Worlds Fair Marina	EB	-	-	-	-	-	-	-	-	TR	0.42	40.8	D	
	WB	LT	-	7.9	A	LT	-	8.4	A	LT	0.74	28.3	C	
	Overall Intersection	-	-	**120.0+**	**F***	-	-	**120.0+**	**F***	-	**0.97**	**37.2**	**D**	

TABLE 23-15
WILLETS POINT DEVELOPMENT DISTRICT FGEIS
NO BUILD VS BUILD TRAFFIC LEVELS OF SERVICE COMPARISON - *SATURDAY POST-GAME*

		No Build				Build				Build with Mitigation				Mitigation Measure
				Control				Control				Control		
INTERSECTION & APPROACH		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
Willets Point Boulevard at Northern Boulevard														
Willets Point Boulevard	NB	T	-	10.4	B									- Mitigation not required
														[Intersection would be demapped as part of the proposed Plan.]
Overall Intersection		-	-	**10.4**	**B**									
College Point Boulevard at Northern Boulevard Service Road (SIGNALIZED IN 2007)														
College Point Boulevard	NB	TR	1.04	55.7	E	TR	1.17	103.8	F	TR	0.98	33.3	C	- Modify signal timing: shift 5 s green time from WB phase to NB/SB phase [WB green time shifts from 2 s to 20 s; NB/SB green time shifts from 25 s to 30 s.]
	SB	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	LT	1.20+	120.0+	F*	
Northern Blvd Service Rd	WB	L	0.33	13.2	B	L	0.61	18.1	B	L	0.76	28.4	C	
		R	0.37	14.1	B	R	0.40	14.5	B	R	0.58	20.1	C	
Overall Intersection		-	**0.90**	**106.5**	**F**	-	**1.13**	**120.0+**	**F***	-	**1.16**	**93.3**	**F**	
Grand Central Parkway Ramp at West Park Loop/Stadium Road														
Grand Central Parkway Ramp	EB	L	-	14.5	B	L	-	14.9	B					- Mitigation not required
		R	-	11.1	B	R	-	11.1	B					
Overall Intersection		-	-	**12.6**	**B**	-	-	**12.9**	**B**					
NEW (BUILD) SIGNALIZED INTERSECTION														
126th Street at New Willets Point Boulevard														
126th Street	NB					LTR	1.20+	120.0+	F*					- Unmitigatable Impact.
	SB					Def/L	1.17	120.0+	F*					
						TR	0.28	9.6	A					
New Willets Point Boulevard	EB					LTR	0.02	32.5	C					
	WB					LT	1.20+	120.0+	F*					
						R	0.24	16.9	B					
Overall Intersection						-	**1.20+**	**120.0+**	**F***					
Citi Field/Lot B Internal Street at Roosevelt Avenue														
Citi Field/Lot B Internal Street	SB					LR	0.02	34.0	C					- Mitigation not required.
Roosevelt Avenue	EB					LT	0.79	17.4	B					
	WB					TR	0.43	9.8	A					
Overall Intersection						-	**0.58**	**14.8**	**B**					

(1) Control delay is measured in seconds per vehicle

(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB

(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor approach as listed in the 2000 Highway Capacity Manual -- TRB

(4) Overall intersection V/C ratio is the critical lane groups V/C ratio, not the weighted average of all the movements

A. INTRODUCTION

Consistent with the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR) requirements, this chapter of this Draft Generic Environmental Impact Statement (DGEIS) examines alternatives to the proposed Willets Point Development Plan.

SEQRA and CEQR require the examination of a No Action Alternative, in which a proposed project would not be undertaken. The technical chapters of this DGEIS have described the No Action Alternative (referred to as "the future without the proposed Plan") and have used it as the basis to assess the potential impacts and associated mitigation for the proposed Plan. CEQR also recommends the examination of alternatives that would have no unmitigated significant adverse impacts if unmitigated significant adverse impacts are predicted for a proposed project. In addition to the alternatives required for examination under SEQRA and CEQR, this chapter examines three other alternatives.

The five alternatives examined in this chapter are:

- A No Action Alternative;
- A No Unmitigated Impact Alternative;
- A Flushing Bridge Alternative;
- A Municipal Services Alternative; and
- A Staged Acquisition Alternative.

This analysis first examines the No Action Alternative, which describes the conditions that would exist if the proposed Plan were not implemented. The second alternative is the No Unmitigated Impact Alternative, which examines the level of development that would be necessary to avoid all the potential unmitigated impacts associated with the proposed Plan. Third is the Flushing Bridge Alternative, which assesses the proposed Plan with a new pedestrian bridge connecting the District and Downtown Flushing. The fourth alternative is the Municipal Services Alternative, which evaluates conditions that would be likely to occur if the District was not rezoned but additional municipal services were provided to the District. Finally, the fifth alternative in this analysis is the Staged Acquisition Alternative, in which properties in the District would be acquired and infrastructure developed over time.

This chapter does not specifically address the No Convention Center Scenario, as the effects of this scenario would not be materially different from the effects of the proposed Plan, and any significant adverse impacts would be the same under the proposed Plan and the No Convention Center Scenario.

PRINCIPAL CONCLUSIONS

NO ACTION ALTERNATIVE

The No Action Alternative assumes the continuation of industrial uses within the District without the mixed-use development proposed by the Willets Point Development Plan. However, since this alternative would allow the continued industrial use of the District, it would not allow for development of affordable housing, community facilities, and public open space. It also would not comprehensively remediate contaminated soils and groundwater, nor provide new sanitary and storm sewers; as a result, there would continue to be degraded water quality and potential impacts to aquatic biota through the continued discharge of wastewater, polluted stormwater, and sediments from the District to the Flushing River, Flushing Bay, and groundwater aquifers. Because the No Action Alternative would not develop new retail and entertainment uses, it would not generate the substantial economic and civic benefits resulting from the proposed Plan in the way of new jobs and tax revenues. Moreover, this alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and Corona, improvement of environmental conditions, and integration of new development in the District with surrounding amenities. The former Empire Millwork Corporation Building would remain under private ownership in the No Action Alternative and could be demolished as-of-right; mitigation measures such as photographic documentation would not be required.

NO UNMITIGATED IMPACT ALTERNATIVE

The No Unmitigated Impact Alternative explores modifications to the proposed Plan that would mitigate project impacts to historic resources, traffic, pedestrians, and noise:

- For historic resources, this alternative would avoid the demolition of the former Empire Millwork Corporation Building that would occur with the proposed Plan. Although this could be achieved through adaptive reuse, exterior elements such as windows and façades would still need to be upgraded to comply with building codes and noise attenuation requirements. Furthermore, the building is located below flood elevation, and its site could not be raised if it would remain. Therefore, flood protection measures such as gates or pumps would be required to comply with flood insurance requirements. Overall, this alternative would reduce the footprint of any new development, which would result in greater density in the remainder of the District, fewer housing units, less open space, or some combination of these possibilities. The preservation of this resource would also significantly constrain the design of the proposed Plan in ways that could make future development of the District more difficult and may undermine the benefits of the proposed Plan. As noted above, the former Empire Millwork Corporation Building could be demolished as-of-right under existing conditions, and mitigation measures such as photographic documentation would not be required.
- For traffic, the proposed Plan and anticipated development on Lots B and D would result in significant adverse traffic impacts that cannot be fully alleviated with practical mitigation measures. Because of existing congestion at a number of intersections, even a minimal increase in traffic would result in unmitigated impacts. Based on a sensitivity analysis of intersections within the study area, it was determined that the addition of five cars during the Saturday midday peak period would trigger an impact that cannot be fully mitigated. Thus,

almost any new development in the District, including new industrial development that could be constructed as-of-right, would result in unmitigated traffic impacts, and no reasonable alternative could be developed to avoid such impacts.

- For pedestrian conditions, the proposed Plan and anticipated development on Lots B and D would result in significant adverse pedestrian impacts at four study area crosswalks that may not be fully mitigated because the widening of these crosswalks via restriping is limited by, per New York City Department of Transportation (NYCDOT) standards, the widths of the adjoining sidewalks. In order to make full mitigation possible, the incremental pedestrian volumes would have to be reduced by approximately 30 percent, and the parking associated with the Lot B development would have to be located on the north side of Roosevelt Avenue. This would require a substantial reduction in the development program.
- In terms of noise, to avoid the significant adverse noise impact expected at one location (Receptor 3) during a single analysis period, project-generated traffic increases on roadways adjacent to Receptor 3 would have to decrease. Traffic-generated volumes would need to decrease by approximately 29 percent on Boat Basin Road and 12 percent at World's Fair Marina Park to eliminate the significant impact at Receptor 3. Such reductions would necessitate a substantial reduction in the proposed Plan development program, and no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed Plan's stated goals. The noise level anticipated at World's Fair Marina Park in the future with the proposed Plan frequently occurs at parks or portions of parks that are adjacent to heavily trafficked roadways.

FLUSHING BRIDGE ALTERNATIVE

The Flushing Bridge Alternative would result in the same development within the District as the proposed Plan, and any impacts and associated mitigation identified for the proposed Plan would also be the same for the Flushing Bridge Alternative. The bridge itself would occupy land outside the District, including mapped wetlands along the Flushing River and within a parking lot at the foot of 37th Avenue. The bridge would need to be designed and engineered to minimize any effects on these wetlands, and subsequent investigation would be required to determine the potential for archaeological sensitivity and whether areas of soil disturbance contain hazardous materials. Like the proposed Plan, the Flushing Bridge Alternative would result in substantial public benefits from redevelopment of the District. The Flushing Bridge Alternative would also improve pedestrian access to the District, would increase access to proposed open space, and would help integrate new development in the District with surrounding amenities.

The Flushing Bridge Alternative would require the same discretionary actions as the proposed Plan. In addition, this alternative would require approvals for the construction of the new pedestrian bridge. These would include acquisition of property, an easement, or a lease for right-of-way on state-owned property; approval by the New York State Department of Transportation (NYSDOT) and potentially Federal Highway Administration (FHWA) for construction of new structures above the Van Wyck Expressway ramps; approval by the New York State Department of Environmental Conservation (DEC) and potentially the U.S. Army Corps of Engineers (USACE) for construction above and adjacent to the Flushing River; and approval by the City of New York for acquisition of property, an easement, or a lease of private property within the view corridor of 37th Avenue east of the Flushing River.

MUNICIPAL SERVICES ALTERNATIVE

The Municipal Services Alternative would allow the continuation of industrial uses within the District but would provide for new public infrastructure (streets and utilities) to serve existing and future businesses. Unlike the proposed Plan, this alternative would not result in the creation of a dynamic, sustainable community that integrates regional attractions and residential, retail, and other uses. It would not provide for new affordable housing units, community facilities, or open space within the District. Also unlike the proposed Plan, the Municipal Services Alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and Corona, and integration of new development in the District with surrounding amenities.

Under the Municipal Services Alternative, the zoning of the District would not be changed, a URP would not be adopted, and a Special District would not be created. Similarly, the demapping or mapping of streets or acquisition of rights-of-way associated with the proposed Plan would not occur. As the improvements would largely be limited to public property, and existing private properties would remain developed with buildings at their current grade, this alternative presents more serious complications with respect to the feasibility of effectively upgrading the area's infrastructure than would whole-scale redevelopment of the District as would occur under the proposed Plan.

The existing storm sewer system in the area, which drains to outfalls at 126th Street and 127th Street, is insufficiently sized to accommodate the runoff that is currently being generated. To eliminate this deficiency, a new storm sewer system, including new piping and infrastructure, such as manholes and catch basins, would need to be installed. Based on the elevation of the existing streets and outfalls, and the various distances over which stormwater would be required to travel, there is not sufficient elevation in all areas of the District to make an adequately sized and properly functioning storm sewer system. A substantial portion of the streets in the southern portion of the District would have to be raised to a grade sufficient to allow the system to function hydraulically.

Unlike the proposed Plan, the Municipal Services Alternative would not result in the filling of District to flood elevation. The District streets would not be elevated to the 100-year floodplain elevation—to do so would be infeasible given that the grades of existing developed lots would remain at their current elevation. However, streets in a substantial portion of the District would need to be raised between approximately 1 and 3 feet. Such changes would create differences in elevation between the new streets and the existing lots that abut them, which would create a serious complication with respect to successfully engineering an effective drainage plan. Specifically, each lot would have to install pumps to convey stormwater from that lot into the new stormwater system, which would exist at a higher grade than the lot. Any private parcel requiring a pump and hook up to the stormwater system would be required to meet DEP pretreatment requirements. Pretreatment on certain lots may not be feasible due to lack of adequate space to install and operate the necessary equipment. While the provision of new storm sewer lines and new or expanded outfalls would decrease the frequency and severity of flooding in the District (assuming that pumps are installed on privately owned lots), there would still be potential for flooding during storm conditions, since much of the District, including the new streets, would remain below the 100-year floodplain.

Because the District would remain built out with industrial uses, unlike the proposed Plan, an on-site detention tank or other comparable detention feature necessary to avoid expanding the

existing outfalls or constructing a new outfall could not be provided. Therefore, in order to accommodate stormwater runoff generated onsite that is beyond the discharge capacity of the existing outfalls on 126th Street and 127th Street, these outfalls and sections of their piping would need to be reconstructed; alternatively, a new outfall could be provided in combination with rebuilding the existing outfalls, although that option would be the least cost effective. In order for the new storm sewer system to meet the DEC discharge water quality requirements, pretreatment of stormwater would be necessary prior to the point of discharge.

Although any necessary remediation of hazardous materials would be undertaken in areas of utility construction, a comprehensive remediation plan for the District would not be implemented, and some soil and groundwater would continue to be contaminated.

Similar to the proposed Plan, the Municipal Services Alternative would require a new pump station and main to transmit sanitary flow from the District to the existing 96-inch-diameter City sewer in 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). The new pump station would most likely be constructed within the southern area of the District on a lot purchased from private lot owners, or alternatively would be constructed at a location outside the District. The sanitary force main route would be directed across the area occupied by the Citi Field parking lots to connect to the nearest system at 108th Street en route to the Bowery Bay WPCP.

The Municipal Services Alternative would not change the allowable development density of the District; however, it is likely that some new industrial uses could occur within the District once the new infrastructure has been provided. This potential new development would generate vehicle trips (although less than the proposed Plan), and like the proposed Plan, the Municipal Services Alternative could result in significant adverse traffic impacts at a majority of study area locations, given the substantial no-build traffic in the study area even without development from the proposed Plan. The Municipal Services Alternative would not result in the business relocation associated with the proposed Plan and would not result in permanent direct residential or business displacement; however, it may result in some temporary displacement of businesses to provide for an on-site pump station. Due to the extensive sewer reconstruction that would be required, some temporary displacement and access impacts may be relatively long term.

STAGED ACQUISITION ALTERNATIVE

The Staged Acquisition Alternative would result in a development program that is the same as the proposed Plan, but properties would be acquired and developed over time to allow the City additional time to find suitable relocation sites and to spread the cost of property acquisition and infrastructure improvements over time. It is anticipated that the western portion of the District would be developed by 2013, with the eastern portion of the site to be built out by 2017. The development would take place continuously throughout the 2009 to 2017 time period.

At full build-out, this Alternative would develop the District with the same gross floor area and mix of uses as the proposed Plan. In general, the most substantial differences between the Staged Acquisition Alternative and the proposed Plan are the timing of property acquisition and construction phasing. While the necessary remediation, grading, and infrastructure improvements would take place across the District at the beginning stages of construction for the proposed Plan, they would occur more incrementally under this alternative. This could require additional safeguards to ensure that existing hazardous materials contamination on the eastern portion of the District would not migrate to the western portion of the District subsequent to the remediation of the western properties. It could also require a more complex stormwater

management plan, since new storm systems put in place prior to 2013 would need to ensure adequate retention and discharge of stormwater in the western portion of the District, and after 2013 would need to be integrated with new stormwater systems put in place in the eastern portion of the site to ensure efficient District-wide stormwater management. Roadway access to the eastern portion of the site would need to be maintained for several years while the western portion of the site is being developed, and until such time when the City acquires the eastern properties for development under the build-out.

The siting of uses would be the same under the Staged Acquisition Alternative and proposed Plan. The layout of the District's street grid would also be the same as under the proposed Plan. However, under the Staged Acquisition Alternative, new connections to the Van Wyck Expressway would conform to the existing street network. Before complete acquisition of the eastern portion of the District, east-west streets would be elevated above the floodplain in the western portion of the District, and would be graded to slope down to the existing streets to the east, allowing continued access to and from remaining businesses in the District. After acquisition of the eastern properties, streets in that area would be raised above the floodplain. Streets in the redeveloped western portion of the District that were constructed to slope down to existing eastern streets would be regraded to meet the new elevated streets to the east.

The Staged Acquisition Alternative, like the proposed Plan, would utilize E-designations and Restrictive Declarations to ensure that there would be no significant adverse impacts with respect to hazardous materials, noise attenuation, and air quality (specifically associated with heating, ventilation, and air conditioning [HVAC] systems).

In general, traffic generated in 2013 under the Staged Acquisition Alternative would be approximately 60 to 70 percent of the traffic generated under the full build-out of the Proposed Plan, or the full build-out of the Staged Acquisition Alternative. An examination of eight critical intersections during the Saturday midday non-game and Saturday pre-game peak hours indicates that, in general, the number of significant adverse traffic impacts in 2013 under the Staged Acquisition Alternative would be similar to those identified in the 2017 proposed Plan. Mitigation measures for 2013 would also be similar to those identified for the proposed Plan in 2017.

In 2013, the numbers of transit and pedestrian trips generated as a result of the Staged Acquisition Alternative would be substantially fewer than those projected for the proposed Plan. Nonetheless, the Staged Acquisition Alternative in 2013 is expected to result in significant adverse impacts at the same street-level subway stairway. Although the amount of stairway widening necessary for mitigation would be less in 2013, it is anticipated that the full widening that would take place with the proposed Plan would also take place under this alternative by 2013. Compared with the proposed Plan, the Staged Acquisition Alternative in 2013 would have significant adverse impacts on the same bus routes in the study area. However, under this alternative, the impacts would not be as severe, and fewer additional buses would be needed to mitigate the impacts. Similarly, this alternative in 2013 would yield fewer and less severe significant adverse pedestrian impacts than the proposed Plan in 2017, and mitigation measures would be less.

Like the proposed Plan, in 2013 and 2017 this alternative would not result in any significant adverse air quality impacts from either mobile or stationary sources.

Noise levels in 2017 with the Staged Acquisition Alternative would be the same as for the full build-out of the proposed Plan. However, unlike the proposed Plan, there would be no

significant adverse noise impacts in 2013 with the Staged Acquisition Alternative. As with the proposed Plan, window/wall attenuation measures would be included in buildings built in both 2013 and 2017 to achieve acceptable interior noise levels.

B. NO ACTION ALTERNATIVE

DESCRIPTION

The No Action Alternative has been discussed as the "future without the proposed Plan" in the technical chapters of this DGEIS. It assumes the continuation of industrial uses within the District and would not result in the creation of the mixed-use development proposed by the Willets Point Development Plan. As such, the No Action Alternative would not require acquisition and disposition of property within the District; rezoning of the District and creation of special district regulations; demapping of streets; or approval of a ramp connection to the Van Wyck Expressway. The No Action Alternative would also not result in the remediation of contaminated soils within the District; filling of the District to above flood elevation; or the creation of new streets, sewers, and other public infrastructure within the District.

NO ACTION ALTERNATIVE COMPARED WITH THE PROPOSED PLAN

The following sections compare conditions under the No Action Alternative with conditions with the proposed Plan.

LAND USE, ZONING, AND PUBLIC POLICY

The No Action Alternative would not alter existing land uses or the zoning within the District, and the continuation of industrial uses would be consistent with the areas to its north and east. Although the No Action Alternative, like the proposed Plan, would not result in adverse impacts on land use, zoning, and public policy, it would not provide the benefits that would be achieved through redevelopment of the District. The No Action Alternative would not create the Special Willets Point District and would not result in the creation of a dynamic, sustainable community that integrates regional attractions and residential, retail, and other uses. Because it would permit no other uses aside from industrial, the No Action Alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing, improvement of environmental conditions, and integration of new development in the District with surrounding amenities. The No Action Alternative would also not provide for new affordable housing units, community facilities, or open space within the District.

SOCIOECONOMIC CONDITIONS

The No Action Alternative would not result in direct or indirect residential or business displacement, would not require property acquisition or the relocation of businesses, and would not generate substantial new residents or employees in Queens. The existing auto-related and other businesses would continue to operate, and the one residential unit would remain.

The No Action Alternative would not contribute to the revitalization of the Willets Point Development District and surrounding area. The proposed Plan for the District includes a mix of residential, retail, hotel, convention center, entertainment, commercial office, community facility, a public school, publicly accessible open space, and parking uses. Under this

Alternative, these uses would not be developed in the District, jobs would not be created, and the supply of affordable housing would not be increased in the study area.

Therefore, the No Action Alternative would not result in the economic benefits derived from new jobs, consumers, and residents in the District. While the No Action Alternative would not involve the same expenditure of public funds as the proposed Plan, it would not result in the substantial economic benefits that would be realized with implementation of the proposed Plan.

COMMUNITY FACILITIES

As with the proposed Plan, public schools and day care facilities would continue to operate above capacity under this alternative, while there would continue to be sufficient library and health care services. However, unlike the proposed Plan, the No Action Alternative would not generate new demand for public school seats or public day care seats, and would not create a new school. With the proposed Plan, the New York City Economic Development Corporation (NYCEDC) would require, as part of the developer's agreement, consultation with the New York City Administration for Children's Services (ACS) consultation to determine the appropriate way to meet demand for day care services generated by development in the District; this would not be required under the No Action Alternative.

OPEN SPACE

The No Action Alternative would not provide for a minimum of eight acres of new open space within the District, but it would also not generate demand for such resources from new residents or workers. With both the No Action Alternative and the proposed Plan (including anticipated development on Lots B and D), passive open space ratios for the study area would exceed the New York City Department of City Planning (DCP)'s planning goals, indicating that the area would continue to be well served by passive open space. The active open space ratio for the No Action Alternative would also exceed DCP's planning goals, but with the proposed Plan, it would be below DCP's planning goals. Although the active open space ratio would be greater for the No Action Alternative than for the proposed Plan, neither would result in significant adverse impacts on open space resources.

SHADOWS

The No Action Alternative would have none of the incremental increases in shadows associated with the proposed Plan, since this alternative would not result in any new development in the District. As described in Chapter 7, "Shadows," while the proposed Plan would cast some incremental shadow onto Flushing Bay, the Flushing Bay Promenade, and the Flushing River in some seasons, the extent and duration of such incremental shadow would not be large or long enough to cause a significant adverse impact on any of these resources. Therefore, neither the No Action Alternative nor the proposed Plan would have significant adverse shadow impacts.

HISTORIC RESOURCES

Archaeological Resources

While the proposed Plan would result in ground disturbance, the No Action Alternative would not. However, since the New York City Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) have

determined that the District does not have potential for archaeological sensitivity, neither the No Action Alternative nor the proposed Plan would adversely impact archaeological resources.

Architectural Resources

The District contains the former Empire Millwork Corporation Building, which has been determined by OPHRP as a potential architectural resource. Under the proposed Plan, it is anticipated that the former Empire Millwork Corporation Building would be demolished, resulting in a significant adverse impact on this resource. In the No Action Alternative, the former Empire Millwork Corporation Building would remain under private ownership and could be demolished as-of-right, and mitigation measures such as photographic documentation would not be required.

URBAN DESIGN AND VISUAL RESOURCES

Unlike the proposed Plan, the No Action Alternative would not transform the underutilized site into a new retail and entertainment destination that would greatly increase the use of the site and improve the overall appearance of the area. Land within the District would remain underdeveloped and environmentally degraded. The District would remain isolated from the surrounding area, and a new street pattern would not be established. Therefore, overall, the No Action Alternative would not benefit urban design as compared with the proposed Plan.

The No Action Alternative would not result in new construction within the District; whereas the proposed Plan would result in the development of multiple buildings of varying heights. While the proposed Plan would create taller structures, views of nearby visual resources would not be blocked by the new development, nor would the new structures be highly visible from these resources. Therefore, neither the No Action Alternative nor the proposed Plan would adversely impact any visual resources in the surrounding area, including Flushing Bay, the Flushing Bay Promenade, Flushing Meadows-Corona Park, and the 1964 World's Fair structures.

NEIGHBORHOOD CHARACTER

The No Action Alternative would allow for the ongoing industrial use of the District, and therefore, would not alter its current character. It would not result in new vehicle trips, and therefore, traffic operations would be less congested as compared with the proposed Plan. Also, since the No Action Alternative would generate substantially fewer vehicle trips, it would not significantly increase noise levels at World's Fair Marina Park. Therefore, like the proposed Plan, the No Action Alternative would not result in significant adverse impacts on neighborhood character.

While conditions with respect to traffic and noise would not be changed under the No Action Alternative, it would not provide the neighborhood character benefits of the proposed Plan. The No Action Alternative would not result in a new mixed-use residential community with commercial, community facility, retail, and entertainment uses. It would not provide for new affordable housing. It would not create a minimum of eight acres of new open space, and it would not construct pedestrian and streetscape enhancements throughout the District. Furthermore, the No Action Alternative would not provide for new streets and infrastructure within the District, nor would it remediate existing environmental contaminations.

NATURAL RESOURCES

The No Action Alternative would not result in the loss of a small area of successional plant communities that is currently found in the District and serves as habitat for urban tolerant species. However, the No Action Alternative would also not result in the creation of a minimum of eight acres of new open space within the District that could also serve as habitat for these species. Furthermore, the No Action Alternative would not provide for other open space areas that may be developed under the proposed Plan as part of the Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) certification efforts, such as green roofs and bioswales, which could provide additional habitat for wildlife.

Like the proposed Plan, the No Action Alternative would not result in new development within DEC or U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapped wetlands. However, because the No Action Alternative would not raise the elevation of the site with up to six feet of clean fill, it would allow for the continued human occupation of land below flood elevation.

Under the No Action Alternative, contaminated soils would not be removed or capped, and new sanitary and storm sewers would not be constructed. Therefore, with the No Action Alternative there would continue to be degraded water quality and potential impacts to aquatic biota through the continued discharge of wastewater, polluted stormwater, and sediments from the District to the Flushing River, Flushing Bay, and groundwater aquifers.

HAZARDOUS MATERIALS

Soil and groundwater sampling of the District confirmed that contamination is present. Given the presence of this groundwater contamination and the historic uses within the District, other potential contamination is expected to be widespread on private properties. With the proposed Plan, remediation measures and engineering/institutional controls would be implemented through E-designations and Restrictive Declarations such that contaminated materials would be removed or capped. Under the No Action Alternative, there would be no requirement to perform remediation beyond specific regulatory requirements, and contamination would remain within the soils and groundwater of the District.

WATERFRONT REVITALIZATION PROGRAM (WRP)

The No Action Alternative would not result in new development within the New York City Coastal Zone, and would not fulfill the WRP policy of encouraging commercial and residential redevelopment in appropriate coastal zone areas. Unlike the proposed Plan, this alternative would not include infrastructure improvements that would address the policy issues of improving water quality, minimizing losses due to flooding, minimizing environmental degradation from hazardous materials, and creating new open space within the coastal zone. Since this alternative would not provide for new open space within the District, it also would not address the policy of improving public access in the coastal zone.

INFRASTRUCTURE

Unlike the proposed Plan, the No Action Alternative would not generate new demand for potable water, sanitary sewage disposal, or stormwater discharge. However, the No Action Alternative would also not result in construction of new storm or sanitary sewer systems within

the District, and parcels would not be raised above flood elevation. Consequently, the District would continue to be prone to flooding.

SOLID WASTE AND SANITATION SERVICES

The No Action Alternative would not result in new residences or community facilities within the District; therefore, it would not generate new demand for municipal solid waste collection. Industrial and commercial uses that currently operate within the District would remain, thus continuing demand for private waste collection. However, like the proposed Plan, the No Action Alternative would not overburden the City's solid waste collection and sanitation services.

ENERGY

The No Action Alternative would generate less energy demand than with the proposed Plan. Nevertheless, it is anticipated that energy supplies could meet the demand from the District under both the No Action Alternative and the proposed Plan.

TRAFFIC AND PARKING

Traffic

The No Action Alternative itself would not generate new vehicular traffic, but there would be increased volumes from background growth and other proposed development projects outside of the District. While overall the resultant volumes would be lower than with the proposed Plan and anticipated development on Lots B and D, there would be a number of intersections on a typical weekday with substandard operations, as described below:

- In the weekday AM peak hour, 15 of the 29 signalized intersections analyzed would operate at overall level of service (LOS) E or F with 49 individual traffic movements also operating at LOS E or F.
- In the weekday midday peak hour, 12 of the 29 signalized intersections analyzed would operate at LOS E or F with 39 individual traffic movements also operating at LOS E or F.
- In the weekday PM peak hour, 17 of the 29 signalized intersections analyzed would operate at an overall LOS E or F with 52 individual traffic movements also operating at LOS E or F.
- In the Saturday midday peak hour, 19 of the 29 signaled intersections analyzed would operate at an overall LOS E or F with 60 individual traffic movements also operating at LOS E or F.

Under the No Action Alternative with a Mets game, traffic conditions in the study area would be even worse, as described below.

- In the weekday PM pre-game peak hour, 19 of the 29 signalized intersections analyzed would operate at an overall LOS E or F with 73 individual traffic movements also operating at LOS E or F.
- In the weekend midday pre-game peak hour, 19 of 29 signalized intersections analyzed would operate at an overall LOS E or F with 58 individual traffic movements also operating at LOS E or F. Furthermore, the unsignalized intersection of the westbound Grand Central Parkway ramp at West Park Loop/Stadium Road would operate at LOS F.
- In the weekend PM post-game peak hour, the 19 of 29 signalized intersections analyzed would operate at an overall LOS E or F with 62 individual traffic movements operating at

LOS E or F. Furthermore, the unsignalized intersection of Boat Basin Road at World's Fair Marina Park would operate at LOS F.

The proposed Plan would result in more locations with substandard operations, but mitigation measures would be implemented such that intersections would operate at their No Action Alternative condition or better, except as follows:

- In the non-game weekday AM peak hour, there would be three partially mitigated intersections, Northern Boulevard at Parsons Boulevard, 34th Avenue at 126th Street, and Sanford Avenue at Parsons Boulevard, and twelve unmitigatable intersections, including Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets, Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince and Main Streets, and 126th Street at the new Willets Point Boulevard.
- In the non-game weekday midday peak hour, two intersections, Northern Boulevard at Union Street and at Parsons Boulevard, would be partially mitigated, while eight additional intersections, 126th Street at Northern Boulevard, 34th Avenue, and new Willets Point Boulevard, and Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince, and Main Streets were found to be unmitigatable.
- In the non-game weekday PM peak hour, there would be three partially mitigated intersections, including Parsons Boulevard at Northern Boulevard, Roosevelt Avenue and Sanford Avenue, and fourteen intersections would be unmitigatable, including Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets; Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince, Main, and Union Streets, and 126th Street at 34th Avenue and at new Willets Point Boulevard.
- In the non-game Saturday midday peak hour, there would be three partially mitigated intersections, Parsons Boulevard at Northern Boulevard, Roosevelt Avenue, and Sanford Avenue and thirteen unmitigatable intersections, including Northern Boulevard at 108th, 126th, Prince, Main, and Union Streets, Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince, Main, and Union Streets, and 126th Street at 34th Avenue and at the new Willets Point Boulevard.
- In the weeknight pre-game peak hour, there would be two partially mitigated intersections, including Northern Boulevard at Parsons Boulevard and 126th Street at 34th Avenue, and fourteen intersections would be unmitigatable, including Northern Boulevard at 108th, 114th, 126th, Prince, Main, and Union Streets, Roosevelt Avenue at College Point Boulevard and at 114th, 126th Prince, Main, and Union Streets, Parsons Boulevard at Sanford Avenue, and 126th Street at the new Willets Point Boulevard.
- In the Saturday pre-game peak hour, four intersections, Northern Boulevard at Union Street and at Parsons Boulevard, Sanford Avenue at Parsons Boulevard, and 126th Street at 34th Avenue, would be partially mitigated, while thirteen additional intersections, Northern Boulevard at 108th, 114th, 126th, Prince, and Main Streets, Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince, Main, and Union Streets, 126th Street at the new Willets Point Boulevard, and College Point Boulevard at the Northern Boulevard service road were found to be unmitigatable.
- In the Saturday post-game peak hour, three intersections, Parsons Boulevard at Northern Boulevard, Roosevelt Avenue, and Sanford Avenue, would be partially mitigated, while thirteen additional intersections, Northern Boulevard at 108th, 114th, 126th, Prince and Union Streets, Roosevelt Avenue at College Point Boulevard and at 114th, 126th, Prince,

Main, and Union Streets, and 126th Street at 34th Avenue and at the new Willets Point Boulevard, were found to be unmitigatable.

For significant adverse impacts that would be unmitigated or partially mitigated with the proposed Plan, traffic operations would be better under the No Action Alternative. However, in either case, there would continue to be a number of congested locations within the study area with LOS E or F conditions during the peak hours analyzed.

The No Action Alternative would not provide a new ramp connection to the Van Wyck Expressway, but background traffic growth and trips generated by other proposed development projects outside of the District would increase volumes on the highways near the District. As a result, six of the seven analyzed highway segments and four of the 12 analyzed ramps would operate at marginally unacceptable or unacceptable (LOS D, E, or F) conditions on non-game days during one or more of the peak hours of analysis. On game days, six of the seven analyzed highway segments and six of the 12 ramps would operate at marginally unacceptable or unacceptable (LOS D, E, or F) conditions during one or more of the peak hours of analysis. With the proposed Plan, the LOS would further deteriorate during certain time periods, but in either scenario, there would be considerable congestion at multiple locations within the local highway network.

Parking

The No Action Alternative itself would not generate new demand for parking, but it would also not provide for new on- or off-street parking within the District and on Lots B and D. However, parking demand would increase as a result of background growth and other proposed development projects outside of the District, including Citi Field.

On a typical weekday game day, weekday non-game day, and weekend non-game day, it is projected that there would be adequate off-street capacity under the No Action Alternative to meet demand. However, on a typical Saturday game day, off-street demand could exceed 100 percent of capacity, and weekday and weekend on-street demand would also exceed the legal capacity. The proposed Plan would provide for new curbside and surface spaces within the District to fully meet its demand. During certain periods, this new parking would not be fully occupied, and with the proposed Plan, some of the unmet on- and off-street demand projected under the No Action Alternative could be accommodated. Therefore, it is anticipated that the proposed Plan would provide for greater capacity to meet parking demand than the No Action Alternative.

TRANSIT AND PEDESTRIANS

The No Action Alternative itself would not generate new demand for subway service, but there would be additional riders from other proposed development projects outside of the District. Compared with the 2007 existing conditions, the subway line-haul volumes would increase by approximately 8 percent in the Manhattan-bound direction during the AM peak hour and by 9 percent in the Flushing-bound direction during the PM peak hour. As with the proposed Plan, the No. 7 subway line would continue to operate within guideline capacity under the No Action Alternative.

Increased subway trips associated with the proposed Plan would result in significant adverse impacts on the operation of the S2 subway stairway at the Willets Point-Shea Stadium station. Under the No Action Alternative, this stairway would operate at an acceptable LOS during peak periods.

With the proposed Plan, new development within the District would result in significant adverse impacts on the Q48 and Q66 bus routes, but the Q19 route would not be impacted. The No Action Alternative itself would not generate new demand for bus service, but there would be increases in ridership from background growth and other proposed development projects outside of the District. Under the No Action Alternative, the Q19 and Q48 routes would have adequate capacity to meet demand, but the Q66 route would not. Thus, both the No Action Alternative and the proposed Plan would necessitate additional service on the Q66 route, but the No Action Alternative would not require the additional service on the Q48 route that would be needed for the proposed Plan. Existing service on the Q19 route would be adequate to meet demand under both the No Action Alternative and the proposed Plan.

The No Action Alternative itself would not generate new pedestrian trips, but there would be additional demand from general background growth and other proposed development projects outside of the District. While there would be changes in the pedestrian network associated with Citi Field, there would be no new pedestrian facilities within the District itself. Under the No Action Alternative, pedestrian elements except for the east crosswalk at Northern Boulevard and 126th Street during the Saturday post-game peak period, would continue to operate at acceptable levels (13 PFM for sidewalks; 20 SFP for corners and crosswalks) during all analysis time periods, and the significant adverse crosswalks impacts predicted for the proposed Plan would not occur.

AIR QUALITY

The No Action Alternative would result in less vehicular traffic than the proposed Plan, meaning that its mobile source emissions would be lower, but it would allow for the continued operation of industrial uses within the District. Unlike the proposed Plan, the No Action Alternative would not require restrictions on the placement of HVAC stacks to avoid potential stationary source air quality impacts. But neither the proposed Plan nor the No Action Alternative would result in significant adverse air quality impacts.

NOISE

The No Action Alternative would result in less vehicular traffic in the study area than the proposed Plan and additional development on Lots B and D; however, ambient noise levels in the area would continue to be high. As with the proposed Plan, noise levels under the No Action Alternative at World's Fair Marina Park (Receptor Site 3) and the intersection of Roosevelt Avenue between College Point Boulevard and Prince Street (Receptor Site 2) would be in the "marginally unacceptable" category, and noise levels at the intersection of Roosevelt Avenue between 114th Street and 111th Street (Receptor Site 1) would be in the "clearly unacceptable" category. While the proposed Plan would result in a significant adverse impact at World's Fair Marina Park, noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways.

CONSTRUCTION

Since there would be no development under the No Action Alternative, potential significant adverse traffic impacts associated with construction of the proposed Plan would not occur. However, the substantial economic benefits attributable to construction expenditures and construction jobs under the proposed Plan would not be realized under the No Action Alternative.

PUBLIC HEALTH

The No Action Alternative would not comprehensively remediate hazardous materials within the district and could allow for the continued contamination of soil and groundwater, but since it involves no development, the No Action Alternative would not result in any of the air or noise emissions associated with the construction and operation of the proposed Plan. However, neither the No Action Alternative nor the proposed Plan would adversely impact public health.

C. NO UNMITIGATED IMPACT ALTERNATIVES

The proposed Plan and anticipated development on Lots B and D would result in unmitigated impacts with respect to historic resources, traffic, pedestrians, and noise. Therefore, alternatives were developed to explore modifications to the proposed Plan that would allow for the mitigation of these impacts.

HISTORIC RESOURCES

The proposed Plan would result in the demolition of the former Empire Millwork Corporation Building, which is considered eligible for State and National Registers of Historic Places (S/NR) listing by OPHRP, but measures such as photographic documentation of this resource would be undertaken to partially mitigate this impact. The No Unmitigated Significant Impacts Alternative would avoid demolition of this historic resource. Under this alternative, any new development at the project site would be designed so as to leave these structures in place. This could be achieved through adaptive reuse, but exterior elements such as windows and facades would need to be upgraded to comply with building codes and noise attenuation requirements. Furthermore, the building is located below flood elevation, and its site could not be raised if it would remain. Therefore, flood protection measures such as gates or pumps would be required to comply with flood insurance requirements.

This alternative would involve the same discretionary actions as the proposed Plan. However, preservation of the building would need to be required through the developer's formal request for proposals (RFP) process.

Overall, this alternative would reduce the footprint of any new development, which would result in greater density in the remainder of the District, fewer housing units, less open space, or some combination of these possibilities. The preservation of this resource would also significantly constrain the design of the proposed project in ways that could make future development of the District more difficult and may undermine the benefits of the proposed Plan. As noted under the No Action Alternative, the former Empire Millwork Corporation Building could be demolished as-of-right under existing conditions, and mitigation measures such as photographic documentation would not be required.

TRAFFIC

The proposed Plan and anticipated development on Lots B and D would result in significant adverse traffic impacts at intersections within the study area that cannot be fully alleviated with practical mitigation measures. Because of existing congestion at a number of intersections, even a minimal increase in traffic would result in unmitigated impacts. Based on a sensitivity analysis of intersections within the study area, it was determined that the addition of five vehicles through a lane group at a single intersection during the Saturday midday peak period would trigger an impact that cannot be fully mitigated. Thus, almost any new development in the District,

including new industrial development that could be constructed as-of-right, would result in unmitigated traffic impacts, and no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed Plan's stated goals.

PEDESTRIANS

The proposed Plan and anticipated development on Lots B and D would result in significant adverse pedestrian impacts at four study area crosswalks that may not be fully mitigated because the restriping of these crosswalks to wider lengths is limited by, per NYCDOT standards, the widths of the adjoining sidewalks. In order to make full mitigation possible, the incremental pedestrian volumes would have to be reduced by approximately 30 percent, with the parking garage associated with the Lot B development located on the north side of Roosevelt Avenue instead of on Lot D. This would require a substantial reduction in the development program. This alternative would involve the same discretionary actions as the proposed Plan. However, the maximum floor areas permitted in the Urban Renewal Plan (URP) would need to be substantially lowered.

NOISE

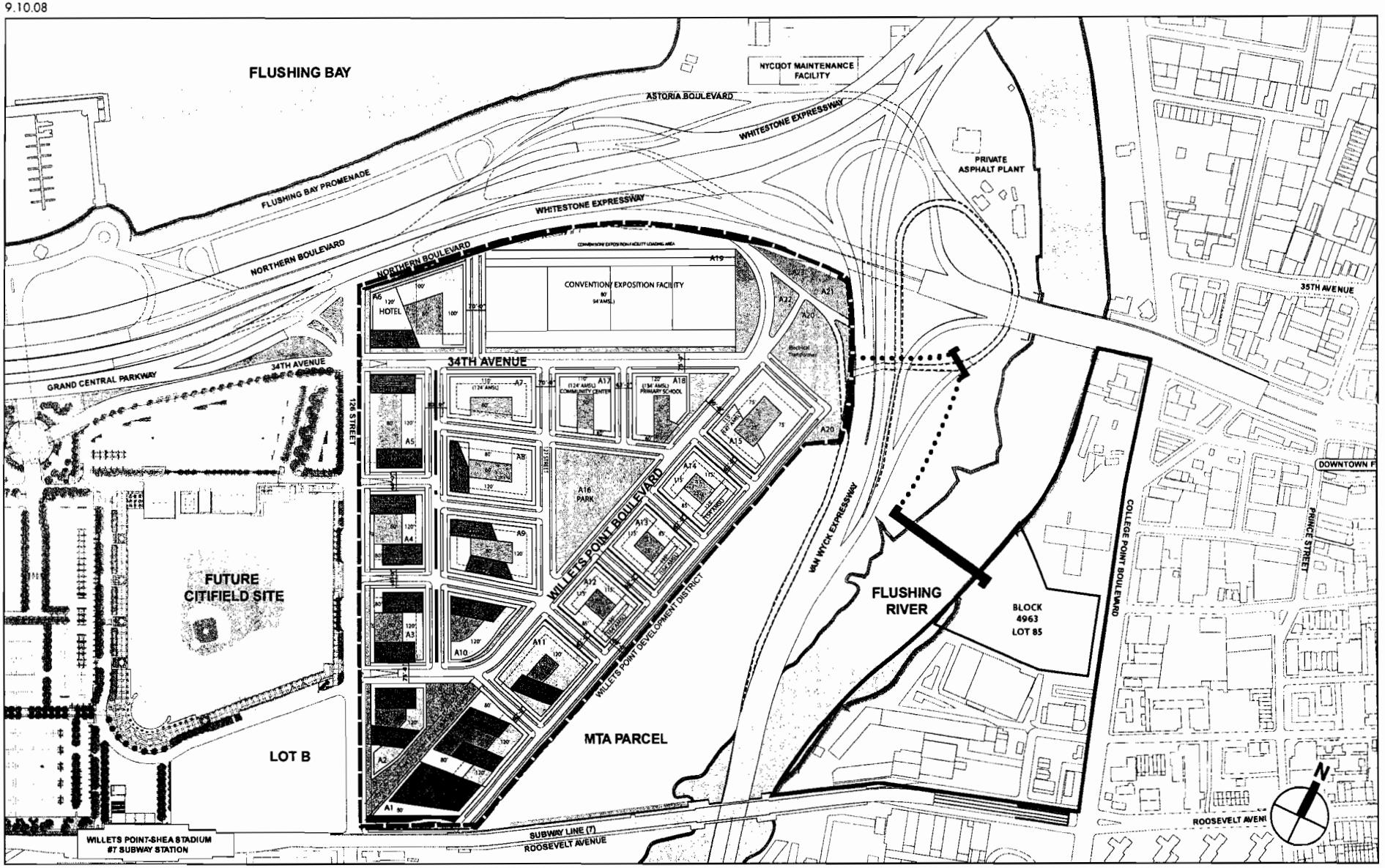
The proposed Plan and anticipated development on Lots B and D would result in a significant adverse noise impact at one location (Receptor 3, Boat Basin Road and World's Fair Marina Park) during the non-game Saturday midday time period. While the predicted noise level would exceed the CEQR threshold for a significant impact, it is not an uncommon level for a park in New York City. The impact would result from increases in traffic on roadways adjacent to Receptor 3. Noise barriers or berms are impractical because of space constraints. Therefore, future levels of traffic along those roadways would have to decrease in order to eliminate the significant adverse impact. Project-generated traffic volumes on Boat Basin Road would have to decrease by approximately 29 percent, and volumes on World's Fair Marina Park would have to decrease by approximately 12 percent to eliminate the significant impact at Receptor 3. Such reductions would necessitate a substantial reduction in the proposed Plan development program, and no reasonable alternative could be developed to avoid such impacts without substantially compromising the proposed Plan's stated goals. This alternative would involve the same discretionary actions as the proposed Plan. However, the maximum floor areas permitted in the URP would need to be substantially lowered.

D. FLUSHING BRIDGE ALTERNATIVE

DESCRIPTION

The Flushing Bridge Alternative would develop the District with the same gross floor area and mix of uses as the proposed Plan, including residential, retail, office, convention center, hotel, community facilities, and parking. The Flushing Bridge Alternative, like the proposed Plan, would also include a minimum of eight acres of open space, a new street grid, a new connection to the Van Wyck Expressway, and new public utilities within the District. Like the proposed Plan, the Flushing Bridge Alternative would include E-designations and Restrictive Declarations to ensure that no significant adverse impacts with respect to hazardous materials, noise attenuation, and air quality (specifically associated with the HVAC systems) would occur.

In addition to proposed development within the District, the Flushing Bridge Alternative would construct a pedestrian bridge linking the District with Flushing. As shown in Figure 24-1, the



Willets Point Development District · *Pedestrian Walkway* · *Block Boundary*

Pedestrian Bridge Crossing · *Lot Boundary*

FOR ILLUSTRATIVE PURPOSES

This figure has been updated since the DGEIS

Figure 24-1

Flushing Bridge Alternative

preliminary proposal for the bridge would include new and expanded sidewalks along Northern Boulevard between the District and the Van Wyck Expressway ramps to Northern Boulevard. An elevated structure would then carry pedestrians over the ramps to a new sidewalk along the western shore of the Flushing River. The sidewalk would be located within an area that is mapped as National Wetlands Inventory (NWI) wetlands and is characterized as high marsh and intertidal marsh. At the southern end of this sidewalk, a second bridge would traverse the Flushing River landing within an existing parking lot west of the intersection of 37th Avenue and College Point Boulevard. The heights of the pedestrian overpass and bridge would comply with NYSDOT requirements for clearance above the Van Wyck Expressway ramps and with all applicable requirements for clearance above the Flushing River. The walkways and bridges would be located and engineered to minimize effects on wetlands and would also comply with the Americans with Disabilities Act (ADA). Because of the expense involved in designing and constructing a pedestrian bridge of this complexity, the cost to the City of implementing this alternative would be substantially higher than the proposed Plan.

Like the proposed Plan, implementation of the Flushing Bridge Alternative would require discretionary actions by the City of New York, including adoption of a URP, acquisition and disposition of property, changes in the underlying zoning, creation of a zoning Special District, demapping and mapping of streets, and possible approval of business terms. Furthermore, the proposed connection to the Van Wyck Expressway under both the proposed Plan and the Flushing Bridge Alternative would require federal and state approval of a Freeway Access Modification Report.

In addition to the actions identified above for development within the District and the associated highway ramps, the Flushing Bridge Alternative would require approvals for the construction of the new pedestrian bridge. These would include acquisition of property, an easement, or a lease for right-of-way on state-owned property; approval by NYSDOT and potentially FHWA for construction of new structures above the Van Wyck Expressway ramps; approval by DEC and potentially USACE for construction above and adjacent to the Flushing River; and approval by the City of New York for acquisition of property, an easement, or a lease of private property within the view corridor of 37th Avenue east of the Flushing River.

Since the bridge itself would require discretionary approvals, its implementation would be subject to CEQR and SEQRA. While this alternative is presented qualitatively in this DGEIS, subsequent environmental documentation would be needed if it were to move forward.

FLUSHING BRIDGE ALTERNATIVE COMPARED WITH THE PROPOSED PLAN

As described above, the Flushing Bridge Alternative would result in the same gross floor area of development and the same site plan within the District as the proposed Project. Therefore, the effects of the Flushing Bridge Alternative and the proposed Plan would be the same with respect to socioeconomic conditions, community facilities, infrastructure, solid waste and sanitation services, energy, traffic and parking, air quality, noise, and public health, and any impacts and associated mitigation identified for the proposed Plan would also be the same for the Flushing Bridge Alternative. However, since the Flushing Bridge Alternative would result in the construction of a bridge on land outside the District and would create a structure not analyzed as part of the proposed Plan, effects with respect to the other technical analyses may vary as described below.

LAND USE, ZONING AND PUBLIC POLICY

Land Use

Like the proposed Plan, the Flushing Bridge Alternative would dramatically change land uses in the District. While the proposed Plan and the Flushing Bridge Alternative would result in a significant land use change, the effects of this change would not be adverse. The proposed convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed Plan and the Flushing Bridge Alternative would create a pedestrian-oriented regional entertainment and commercial center along 126th Street, which would complement the new retail uses planned along the west side of 126th Street as part of Citi Field, creating a synergy between the new Citi Field and the proposed District. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses are common throughout the study area, particularly within the dense commercial center of Downtown Flushing, but this connectivity would be further enhanced under the Flushing Bridge Alternative, since the District would be linked to Flushing by a new pedestrian bridge.

As a result of the rezoning of properties on the eastern side of the Flushing River waterfront, it is expected that some properties would be redeveloped with higher-density residential and commercial uses, and these future uses would be compatible with those contemplated for the District under the proposed Plan and the Flushing Bridge Alternative.

Overall, neither the proposed Plan nor the Flushing Bridge Alternative would result in significant adverse land use impacts.

Zoning and Public Policy

Both the proposed Plan and the Flushing Bridge Alternative would result in a change to the underlying zoning of the District from M3-1 manufacturing (and a small area zoned R3-2 residential) to a C4-4 commercial district. The proposed Plan and the Flushing Bridge Alternative represent a critical step in implementing the Downtown Flushing Development Framework. Both alternatives would advance a number of the Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing, improvement of environmental conditions, and integration of new development in the District with surrounding amenities, including the Flushing Bay Promenade, the new Citi Field, Flushing Meadows-Corona Park, and Downtown Flushing. While the proposed Plan would achieve goals of the Framework, the Flushing Bridge Alternative would further its implementation by providing for a pedestrian connection between Flushing and the District. Overall, neither the proposed Plan nor the Flushing Bridge Alternative would result in significant adverse zoning and public policy impacts.

OPEN SPACE

As with the proposed Plan, the Flushing Bridge Alternative would provide for new open space within the District. The Flushing Bridge Alternative would also provide pedestrian access between the District and Flushing. As compared with the proposed Plan, this bridge could improve access to new open space resources within the District as well as to the proposed esplanade along the eastern bank of the Flushing River. Although neither the Flushing Bridge Alternative nor the proposed Plan would result in significant adverse impacts on open space, the Flushing Bridge Alternative would improve access to new space within and outside the District.

SHADOWS

The proposed Plan and the Flushing Bridge Alternative would result in the same arrangement of buildings within the District, but the Flushing Bridge Alternative would also include an above-grade pedestrian bridge crossing the Flushing River. Since it is anticipated that the new bridge would be slender in massing the new shadows that it would cast would not be expected to be substantial in terms of their extent and duration. They would result in increased coverage over the Flushing River, but the river is not considered a critical habitat for aquatic species. Therefore, like the proposed Plan, the Flushing Bridge Alternative would not be expected to result in significant adverse shadow impacts on the sun-sensitive resources.

HISTORIC RESOURCES

Archaeological Resources

The proposed Plan and the Flushing Bridge Alternative would result in ground disturbance within the District. However, as LPC and OPHRP have determined that the District does not possess archaeological sensitivity, such disturbance would not result in significant adverse impacts on archaeological resources. Implementation of the Flushing Bridge Alternative would include an archaeological assessment to determine archaeological sensitivity in areas that would be disturbed by the bridge's construction. If archaeological resources were identified, appropriate mitigation would be developed through consultation with LPC and OPHRP.

Architectural Resources

The District contains one architectural resource, the former Empire Millwork Corporation Building, which would likely be demolished as part of the proposed Plan and the Flushing Bridge Alternative. The proposed site for the Flushing Bridge itself does not contain any known historic resources. Therefore, implementation of the Flushing Bridge Alternative would not result in impacts on architectural resources that would vary from those identified for the proposed Plan.

URBAN DESIGN AND VISUAL RESOURCES

Like the proposed Plan, the Flushing Bridge Alternative would convert the existing underdeveloped and environmentally degraded Willets Point Development District into a vibrant, mixed-use urban environment. Furthermore, the Flushing Bridge Alternative would provide for a pedestrian bridge between the District and Flushing, which would provide a link between the newly redeveloped District and the established community to its east. Both would also add new publicly accessible open spaces to the District, and the Flushing Bridge Alternative would improve access to this open space for residents of Flushing.

The proposed Plan and the Flushing Bridge Alternative would not adversely impact visual resources in the surrounding area, including Flushing Bay, the Flushing Bay Promenade, Flushing Meadows-Corona Park, and the 1964 World's Fair structures. While both would create structures that are taller than what currently exists on the site, views to these resources would not be blocked by the new development, nor would the new structures be highly visible from these resources. Unlike the proposed Plan, the pedestrian bridge in the Flushing Bridge Alternative would introduce a new structure above the Flushing River, which would provide for new views of the 1964 World's Fair structures and Flushing Meadows-Corona Park. While the bridge itself

would be visible from the highway and surrounding areas, like the proposed Plan, it would not impair views of important resources in the area.

Thus, overall, neither the proposed Plan nor the Flushing Bridge Alternative would result in significant adverse impacts on urban design or visual resources.

NEIGHBORHOOD CHARACTER

The proposed Plan and the Flushing Bridge Alternative would dramatically change neighborhood character in the District. The site planning and urban design under the Flushing Bridge Alternative and the proposed Plan would serve to integrate the District with surrounding entertainment and recreational uses to its west and south, but unlike the proposed Plan, the Flushing Bridge Alternative would also integrate the District with residential and commercial uses to its east by providing a pedestrian connection to Flushing. Nevertheless, neither the proposed Plan nor the Flushing Bridge Alternative would have a significant adverse neighborhood character impact on the District or the surrounding areas.

NATURAL RESOURCES

The Flushing Bridge Alternative would result in the mixed-use redevelopment of the District, including the provision of a minimum of eight acres of open space. It would also provide for a bridge spanning the Flushing River to connect the District with Flushing. Depending on the precise location of the bridge and how it is engineered, it could affect NWI-mapped wetlands along the Flushing River. These wetlands are characterized as high marsh and intertidal marsh. If the Flushing Bridge Alternative were to move forward, potential effects of the bridge on mapped wetlands would be assessed as part of the DEC permitting process and any associated environmental review.

Development under either scenario would offer benefits to natural resources, including improved habitat for birds and other wildlife within the new District open spaces. Either the proposed Plan or the Flushing Bridge Alternative would include the development of new sanitary sewer infrastructure that would connect to the City's sewage treatment system, eliminating the District's reliance on septic systems and associated impacts on ground and surface waters. They would also improve water quality in Flushing Bay by eliminating site flooding, improving the quality of the soil substrate of the site, and providing direct drainage to storm sewers; incorporating sustainable design features, where feasible, to reduce the discharge volume and increase the quality of storm water discharges; and preventing stormwater generated within the District from entering the combined sewer system, which would increase the frequency and volume of CSO discharges. In addition, sustainable design elements such as green roofs, graywater recycling, and bioswales would provide additional benefits to natural resources in and around the District.

HAZARDOUS MATERIALS

With the proposed Plan, remediation measures and engineering/institutional controls would be implemented through E-designations and Restrictive Declarations to mitigate the potential effects from exposure to hazardous materials. E-designations and Restrictive Declarations would also be implemented for the Flushing Bridge Alternative. Additional environmental studies would be needed to incorporate small areas of ground disturbance for the bridge's footings and landings, including areas adjacent to the Northern Boulevard ramps to the Van Wyck Expressway, along the western bank of the Flushing River, and within the parking area at the

foot of 37th Avenue. However, based on the historical uses in the adjacent areas, it is not anticipated that these studies would result in findings that would substantially differ from those for the District itself, and, as with the proposed Plan, construction activities in the Flushing Bridge Alternative would be required to comply with a Construction Health and Safety Plan (CHASP). Therefore, the potential impacts from exposure to hazardous materials and the measures to mitigate these effects would be the same for the proposed Plan and the Flushing Bridge Alternative.

WATERFRONT REVITALIZATION PROGRAM

Like the proposed Plan, the Flushing Bridge Alternative would develop land within the New York City Coastal Zone. Implementation of the Flushing Bridge Alternative would result in the construction of a maximum of 8.94 million gross square feet (gsf) of residential, commercial, community, and convention center buildings and a minimum of eight acres of publicly accessible open space in the District. It would be consistent with citywide goals for fostering residential and commercial development, creating public access in the coastal zone, and protecting sensitive natural and historic resources, and it would improve waterfront access by providing a connection between the District and Flushing via the Flushing River as well as to the proposed esplanade along the east bank of the Flushing River. Therefore, like the proposed Plan, the Flushing Bridge Alternative would be consistent with New York City's WRP.

TRANSIT AND PEDESTRIANS

As described above, the improved pedestrian access under the Flushing Bridge Alternative could result in mode shift from transit to walk trips as compared with the proposed Plan, but given the anticipated origins and destinations of future trips, the Flushing Bridge Alternative would not substantially reduce the number of subway and bus riders as compared with the proposed Plan. As such, the peak period impacts on the S2 stairway at the Willets Point-Shea Stadium subway station and on the Q48 and Q66 bus routes predicted for the proposed Plan would also occur under the Flushing Bridge Alternative. It is anticipated that these impacts could be fully mitigated with either development scenario.

Because it would provide for a pedestrian connection between the District and Downtown Flushing, the Flushing Bridge Alternative may divert some walk trips away from the pedestrian analysis locations. Since the analysis locations are located en route to and from the subway station and bus stops, diverted trips would not substantially reduce the total predicted future volumes at these locations as compared with the proposed Plan. Therefore, the Flushing Bridge Alternative would also result in significant adverse crosswalk impacts at the intersections of Roosevelt Avenue and 126th Street and Northern Boulevard and 126th Street, and at the new north crosswalk at the signalized intersection of Roosevelt Avenue and the Lot B driveway. As with the proposed Plan, it is expected that some of these impacts could not be fully mitigated.

CONSTRUCTION

Construction of the pedestrian bridge in the Flushing Bridge Alternative would require less than two years to complete and would not be expected to generate substantial construction-period traffic, air quality emissions, or noise. As with the proposed Plan, construction activities would comply with applicable local, state, and federal regulations. A maintenance and protection of traffic plan would be implemented for activities undertaken near the Van Wyck Expressway, and a CHASP would be implemented to protect workers and the general public from any exposure to

contaminated materials. Construction activities within the District would be the same in scope and duration for the proposed Plan and the Flushing Bridge Alternative, and the measures to minimize these effects would be the same for both.

E. MUNICIPAL SERVICES ALTERNATIVE

DESCRIPTION

During scoping for this DGEIS, current businesses within the District suggested an alternative that would allow for the continued operation of industrial uses within the District, but wherein the City would provide for new public infrastructure to serve it. For purposes of the following analysis, this is referred to as the Municipal Services Alternative.

Under the Municipal Services Alternative, the zoning of the District would not be changed, a URP would not be adopted, and a Special District would not be created. Similarly, the demapping or mapping of streets or acquisition of rights-of-way associated with the proposed Plan would not occur. As the improvements would largely be limited to public property, and existing private properties would remain developed with buildings at their current grade, this alternative presents more serious complications with respect to the feasibility of effectively upgrading the area's infrastructure than would whole-scale redevelopment of the District as would occur under the proposed Plan. Appendix I provides an assessment of the engineering issues and costs associated with the infrastructure reconstruction under this alternative.

Under the Municipal Services Alternative, like the proposed Plan, the City would supply new infrastructure to the District, including new streets and sidewalks, as well as sanitary and storm sewer systems. Materials and soils mobilized or exposed during excavation that are determined to contain hazardous constituents would be disposed of as required, and clean, approved backfill would be provided. The need for engineered or designed support systems for all underground infrastructure, including sanitary, storm, and potable water (if new water lines are needed in specific areas), would be based upon geotechnical information. The District and adjoining streets currently have a complete interconnected grid of water distribution mains that are served by a 72-inch prestressed reinforced concrete pipe (PRCP) water main located on Willets Point Boulevard. Unlike the proposed Plan, which contemplates the construction of a new water distribution system to serve newly configured streets and building lots, under the Municipal Services Alternative, the existing grid system would be maintained; in either case the District would continue to rely on the 72-inch water main for service. Other mains, because their age exceeds the New York City Department of Environmental Protection (DEP) requirements, would presumably be replaced in conjunction with the reconstruction of the sewer infrastructure.

As with the proposed Plan, separate storm and sanitary sewer systems would be installed and maintained. Nearby areas such as Shea Stadium direct their sanitary sewage to the 37th Avenue Pump Station. However, this pump station does not have sufficient capacity to accommodate sewage from the District under either the proposed Plan or the Municipal Services Alternative. Therefore, similar to the proposed Plan, this alternative would require a new pump station and main to transmit sanitary flow from the District to the existing 96-inch-diameter City sewer in 108th Street (which flows to the Bowery Bay Water Pollution Control Plant [WPCP]). The new pump station would most likely be constructed within the southern area of the District on a lot purchased from private lot owners, or alternatively would be constructed at a location outside the District. The sanitary force main route would be directed across the area occupied by the Citi

Field parking lots to connect to the nearest system at 108th Street en route to the Bowery Bay WPCP.

The existing storm sewer system in the area, which drains to outfalls at 126th Street and 127th Street, is insufficiently sized to accommodate the runoff that is currently being generated. To eliminate this deficiency, a new storm sewer system, including new piping and infrastructure, such as manholes and catch basins, would need to be installed. Based on a conceptual layout, which maintains as much existing infrastructure as possible, including portions of the two existing 60-inch diameters outfalls and adjacent storm sewers, a preliminary plan was analyzed that may be feasible for accommodating the District's stormwater. However, based on the elevation of the existing streets and outfalls, and the various distances over which stormwater would be required to travel, there is not sufficient elevation in all areas of the District to make an adequately sized and properly functioning storm sewer system. A substantial portion of the streets in the southern portion of the District would have to be raised to a grade sufficient to allow the system to function hydraulically.

Because the District would remain built out with industrial uses, unlike the proposed Plan, an on-site detention tank or other comparable detention feature necessary to avoid expanding the existing outfalls or constructing a new outfall could not be provided. Therefore, in order to accommodate stormwater runoff generated onsite that is beyond the discharge capacity of the existing outfalls on 126th Street and 127th Street, these outfalls and sections of their piping would need to be reconstructed; alternatively a new outfall could be provided in combination with rebuilding the existing outfalls, although that option would be the least cost effective. In order for the new storm sewer system to meet the DEC discharge water quality requirements, pretreatment of stormwater would be necessary prior to the point of discharge. Potential methods for providing the pretreatment required to adhere to water quality standards would include catch basins specifically designed to improve water quality, oil/water separators, filtration systems, or other sustainable design features. Since the design of a pretreatment facility is dependent on site grades and sewer system elevations, the most likely locations for a site pretreatment facility would be before the point of discharge in a parking lot under the jurisdiction of the New York City Department of Parks and Recreation adjacent to Flushing Bay.

Unlike the proposed Plan, the Municipal Services Alternative would not result in the filling of the District to above flood elevation. The District streets would not be elevated to the 100-year floodplain elevation—to do so would be infeasible given that the grades of existing developed lots would remain at their current elevation. However, as noted, streets in a substantial portion of the District would need to be raised between approximately 1 and 3 feet. Such changes would create differences in elevation between the new streets and the existing lots that abut them, which would create a serious complication with respect to successfully engineering an effective drainage plan. Specifically, each lot would have to install pumps to convey stormwater from that lot into the new stormwater system, which would exist at a higher grade than the lot. Any private parcel requiring a pump and hook up to the stormwater system would be required to meet DEP pretreatment requirements. Pretreatment on certain lots may not be feasible due to lack of adequate space to install and operate the necessary equipment. While the provision of new storm sewer lines and new or expanded outfalls would decrease the frequency and severity of flooding in the District (assuming that pumps are installed on privately owned lots), there would still be potential for flooding during storm conditions, since much of the District, including the new streets, would remain below the 100-year floodplain.

The Municipal Services Alternative would also not result in comprehensive environmental remediation across the District because the City would not have access and the ability to remediate privately held property within the District. Any remediation would generally be limited to public streets and areas where new sanitary and storm sewers are installed, and sites where regulatory agencies require cleanup of documented petroleum spills or other contamination.

While the Municipal Services Alternative would permit the continued industrial use of the District, some businesses may be temporarily relocated to allow for construction of streets and utilities. The Municipal Services Alternative would not change the allowable development density of the District; however, it is likely that some industrial redevelopment could occur within the District once the new infrastructure has been provided. Such industrial development would be consistent with the existing M3-1 zoning district.

The Municipal Services Alternative would not include the development of a new ramp connection to the Van Wyck Expressway. A new public school would not be constructed, no affordable housing provided, and new open space would not be created within the District. Because special district regulations would not be enacted, it is unlikely that sustainability or LEED requirements would be applied to private property under the Municipal Services Alternative, but the construction of new infrastructure by the City would comply with Local Law 77 and any other applicable environmental requirements for public projects.

MUNICIPAL SERVICES ALTERNATIVE COMPARED WITH THE PROPOSED PLAN

The following sections compare conditions under the Municipal Services Alternative with conditions with the proposed Plan and anticipated development on Lots B and D.

LAND USE, ZONING AND PUBLIC POLICY

The Municipal Services Alternative would not alter existing land uses or the zoning within the District, and the continuation of industrial uses would be consistent with the areas to its north and east. Although the Municipal Services Alternative, like the proposed Plan, would not result in significant adverse impacts on land use, zoning, and public policy, it would not provide the benefits that would be achieved through redevelopment of the District such as the creation of regional attractions, retail and commercial uses, new affordable housing units, community facilities, or open space. The Municipal Services Alternative would not create the Willets Point Special District and would not result in a dynamic, sustainable community that integrates regional attractions and residential, retail, and other uses. Because it would allow for the ongoing industrial use of the District, the Municipal Services Alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and integration of new development in the District with surrounding amenities. The Municipal Services Alternative would also not provide for new affordable housing units, community facilities, or open space within the District.

SOCIOECONOMIC CONDITIONS

The Municipal Services Alternative would not result in the business relocation associated with the proposed Plan and would not result in permanent direct residential or business displacement.

(The one exception would be the possible displacement of a business to provide for an on-site pump station, most likely in the southern portion of the District.) As noted above, this Alternative would likely entail the temporary relocation of the one household and some of the existing businesses during construction of the streets and related infrastructure, and would temporarily affect access to most businesses. Temporary relocation would be necessary to provide access to contractors to the work areas, as well as to protect residents and employees from construction-related activities and noise. Due to the extensive sewer reconstruction that would be required, some temporary displacement and access impacts may be relatively long term.

Like the proposed Plan, the Municipal Services Alternative would not result in any significant adverse socioeconomic impacts. However, the Municipal Services Alternative would not produce the economic benefits derived from new jobs and population in the District. Although some employment growth could occur due to expansion of existing businesses or establishment of new industrial businesses within the District, economic activity under the Municipal Services Alternative, including jobs, employee compensation, economic output, and taxes, would be small compared with the proposed Plan. Additionally, the Municipal Services Alternative would not provide any new affordable or market-rate housing.

COMMUNITY FACILITIES

As with the proposed Plan, public schools and day care facilities would continue to operate above capacity under this alternative, while there would continue to be sufficient library and health care services. However, unlike the proposed Plan, the Municipal Services Alternative would not generate new demand for public school seats or public day care seats and would not create a new school to meet that new demand. With the proposed Plan, NYCEDC would require, as part of the developer's agreement, consultation with ACS to determine the appropriate way to meet demand for day care services generated by development in the District. As there would not be new housing, this would not be necessary or required under the Municipal Services Alternative.

OPEN SPACE

Unlike the proposed Plan, the Municipal Services Alternative would not provide for a minimum of eight acres of new open space within the District. As it would not generate new residents or a substantial number of new workers, it would add only modestly, if at all, to the demand for open space resources. With the proposed Plan and anticipated development on Lots B and D , the workers and residents within the open space study areas would be well served by open spaces. For both the proposed Plan and the Municipal Services Alternative, active and passive open space ratios for the study area would generally exceed City planning goals, indicating that the area would continue to be well served by open space.

SHADOWS

The existing zoning of the District restricts building heights to a maximum of 60 feet. Based on the maximum building height, should any new development occur as a result of infrastructure improvements, the Municipal Services Alternative could result in a maximum shadow length of 258 feet as compared with 997.6 feet for the proposed Plan. Although shadows produced by the proposed Plan would be longer, neither scenario would be predicted to result in significant adverse impacts on sun-sensitive features.

HISTORIC RESOURCES

Archaeological Resources

Both the proposed Plan and the Municipal Services Alternative would result in ground disturbance. However, since LPC and OPRHP have determined that the District does not have potential for archaeological sensitivity, neither the proposed Plan nor the Municipal Services Alternative would adversely affect archaeological resources.

Architectural Resources

The District contains one State and National Register eligible historic resource, the former Empire Millwork Corporation Building. It is anticipated that this building would be demolished as part of the proposed Plan, and mitigation would be required to fully or partially avoid this impact. Under the Municipal Services Alternative, the elevation of a number of streets within the District would be raised; however, it would be the responsibility of private property owners to raise their individual sites. If such activities would not be undertaken for the site of the former Empire Millwork Corporation Building, it could remain in its existing location, and the Municipal Services Alternative would not adversely impact this historic resource. However, if the Empire Millwork Corporation Building were demolished by a private property owner, these activities could be undertaken without the benefit of mitigation measures that would be undertaken for the proposed Plan.

URBAN DESIGN AND VISUAL RESOURCES

Unlike the proposed Plan, the Municipal Services Alternative would not transform the District into a dynamic community that integrates regional attractions and residential, retail, and other uses that would greatly increase the use of the District and improve the overall appearance of the surrounding area. The District would remain isolated from the surrounding area, and a new street pattern would not be established. While new streets and sidewalks and stormwater infrastructure would be installed, the District would remain underutilized, and overall appearance of the District would remain degraded. Therefore, overall, the Municipal Services Alternative would not result in all of the urban design benefits that would be achieved by the proposed Plan.

Existing zoning would restrict buildings heights to 60 feet under the Municipal Services Alternative, which would not obstruct views of prominent resources in the area. The proposed Plan, however, would develop multiple buildings of varying heights. While the proposed Plan would create taller structures, views of nearby visual resources would not be blocked by the new development, nor would the new structures be highly visible from these resources. Therefore, neither the Municipal Services Alternative nor the proposed Plan would significantly adversely impact any visual resources in the surrounding area, including Flushing Bay, the Flushing Bay Promenade, Flushing Meadows-Corona Park, and the 1964 World's Fair structures.

NEIGHBORHOOD CHARACTER

Unlike the proposed Plan, the Municipal Services Alternative would allow for the ongoing industrial use of the District, and therefore, would not alter its current character. However, it would improve the District by improving the condition of roads and providing additional infrastructure such as sanitary sewers, as well as enhancing the existing storm sewer system. Since the amount of new development that could occur under the existing zoning would result in far less new traffic, traffic operations would be improved as compared with the proposed Plan.

However, any new development that might occur in the District under this alternative could, like the proposed Plan, result in significant adverse traffic impacts, (although to a much lesser extent) given the substantial no-build traffic in the study area even without development from the proposed Plan. Also, since the Municipal Services Alternative would generate substantially fewer vehicle trips, unlike the proposed Plan it would not significantly increase noise levels at the World's Fair Marina Park. Therefore, overall, the Municipal Services Alternative would not result in significant adverse impacts on neighborhood character.

The Municipal Services Alternative would not provide the neighborhood character benefits of the proposed Plan. It would not result in a new mixed-use residential community with commercial, community facility, retail, and entertainment uses. It would not provide for new affordable housing. It would not create a minimum of eight acres of new open space, and it would not construct pedestrian and streetscape enhancements throughout the District.

NATURAL RESOURCES

Development of the Municipal Services Alternative could result in the loss of successional plant communities, or urban tolerant species which depend on this habitat if vacant land within the district were developed for industrial uses; and, unlike the proposed Plan, no new open space would be developed that could serve as habitat for terrestrial species. Furthermore, the Municipal Services Alternative would not provide for other open space areas that may be developed under the proposed Plan as part of the LEED-ND certification efforts, such as green roofs and bioswales, which would provide additional habitat for wildlife.

Implementation of the Municipal Services Alternative would allow existing uses to continue to occupy land below flood elevation. However, with this Alternative, new infrastructure would be developed and constructed, including a separate storm sewer system, allowing surface waters from the streets, and if pumping systems were installed, from private properties, to drain and be discharged to Flushing Bay through sewer infrastructure. With this improvement, the frequency and severity of existing flooding would decrease. However, there would still be the potential for flooding during storm conditions, since the District would remain below the 100-year floodplain.

Some contaminated soils would be removed and capped, preventing further contamination of groundwater or runoff into surface waters, but the Municipal Services Alternative would not provide for the comprehensive remediation efforts that would be achieved by the proposed Plan. Like the proposed Plan, this alternative would eliminate the District's reliance on septic disposal, which would remove a potential source of pollution to groundwater.

HAZARDOUS MATERIALS

With the proposed Plan, remediation measures and engineering/institutional controls would be required through E designations and subsequent Restrictive Declarations to avoid the potential effects from exposure to hazardous materials. As described above, new infrastructure construction that would occur within the District under the Municipal Services Alternative would also need to comply with local, state, and federal environmental regulations, meaning that residual contamination would be remediated in the areas of utility construction. However, for private properties, remediation would not be required in the absence of reportable spills, and contaminants would remain in the soil or would continue to infiltrate groundwater. Since the Municipal Services Alternative would not comprehensively remediate contamination within the District, it would result in less benefit to human health than would be achieved with the proposed Plan.

WATERFRONT REVITALIZATION PROGRAM

The Municipal Services Alternative would allow for continued industrial use within the District, which lies within the coastal zone. Unlike the proposed Plan, it would not result in new development within the New York City Coastal Zone, and would not fulfill the WRP policies of improving public access in the coastal zone and of encouraging commercial and residential redevelopment in appropriate coastal zone areas. It would not fulfill the goal of encouraging non-industrial development that enlivens the waterfront and attracts the public, whereas the proposed Plan would result in substantially greater numbers of people coming to the area and would enliven this area of land near the waterfront. Also unlike the proposed Plan, this alternative would not create new open space within the coastal zone, which would provide nesting resources for birds, insects, amphibians, and other species. Nor would it address the policy issues of minimizing losses due to flooding or minimizing environmental degradation from hazardous materials to the same degree as the proposed Plan. In addition, as described above, engineering controls and pretreatment infrastructure necessary to protect water quality may not be feasible under this alternative.

INFRASTRUCTURE

New industrial development that could result with the Municipal Services Alternative would generate new demand for potable water, but like the proposed Plan, this demand would not result in a significant adverse impact on the City's water supply system. The District and adjoining streets currently have a complete interconnected grid of water distribution mains that are served by a 72-inch PRCP water main located on Willets Point Boulevard. The projected flow could be supplied by this existing water main. Unlike the proposed Plan, which contemplates the construction of a new water distribution system, under the Municipal Services Alternative, the existing grid system would be maintained; in either case, the District would continue to rely on the 72-inch water main for service.

Under the proposed Plan and the Municipal Services Alternative, the District would be connected to the City's sanitary sewer system, replacing the current reliance on septic tanks. The proposed Plan and Municipal Services Alternative would result in an increase of sanitary flow to the Bowery Bay WPCP, but this WPCP is projected to have adequate capacity to meet the increased demand. Nearby areas such as Shea Stadium direct their sanitary sewage to the 37th Avenue Pump Station. However, this pump station does not have sufficient capacity to accommodate sewage from the District under either the proposed Plan or Municipal Services Alternative. Therefore, similar to the proposed Plan, this alternative would require a new pump station and main to transmit sanitary flow from the District to the existing 96-inch-diameter City sewer in 108th Street (which flows to the Bowery Bay WPCP). The new pump station would be provided on a private lot that would be acquired in the District, or at a location outside of the District.

The proposed Plan and the Municipal Services Alternative would maintain separate stormwater and sanitary sewer systems, in accordance with the City's goals to reduce combined sewer overflow (CSO) events. However, since the District and Lots B and D are currently largely covered with impervious surfaces—including buildings, paved surfaces, and roads, which create surface runoff—the overall volume of runoff within the area would remain unchanged with development of the proposed Plan or the Municipal Services Alternative.

Unlike the proposed Plan, the Municipal Services Alternative would not result in the filling of the District to flood elevation. The elevation of certain streets in the southern portion of the

District would have to be raised approximately 1 to 3 feet in order to permit for a hydraulically adequate and properly functioning storm sewer system. The elevation of those streets would place adjoining developed lots at a lower relative elevation, requiring such lots to install pumps to convey stormwater from the lot into the new stormwater system. Any private parcel requiring a pump and hook up to the stormwater system would be required to meet DEP pretreatment requirements. Pretreatment on certain lots may not be feasible due to lack of adequate space to install and operate the necessary equipment.

Because the District would remain built out with industrial uses, unlike the proposed Plan, an on-site detention tank or other comparable detention feature necessary to avoid expanding the existing outfalls or constructing a new outfall could not be provided. Therefore, in order to accommodate stormwater runoff generated onsite that is beyond the discharge capacity of the existing outfalls on 126th Street and 127th Street, the existing outfalls would be modified and new piping provided, or alternatively a new outfall would be built in conjunction with reconstruction of the outfalls. In order for the new storm sewer system to meet the DEC water quality requirements, pretreatment of stormwater would be necessary prior to the point of discharge. Potential methods for providing the pretreatment required to adhere to water quality standards would include catch basins specifically designed to improve water quality, oil/water separators, filtration systems, or other sustainable design features.

While the provision of new storm sewer lines and new or expanded outfalls would decrease the frequency and severity of flooding in the District, unlike the proposed Plan, there would still be potential for flooding during storm conditions, since much of the District would remain below the 100-year floodplain.

SOLID WASTE AND SANITATION SERVICES

Unlike the proposed Plan, the Municipal Services Alternative would not result in new residential or community facilities within the District; therefore, it would not generate new demand for municipal solid waste collection. Both the proposed Plan and the Municipal Services Alternative would generate demand for private waste collection service, but there would be less commercial solid waste generated under the Municipal Services Alternative than with the proposed Plan.

Unlike the proposed Plan, the Municipal Services Alternative would not result in the displacement of the two waste transfer businesses currently operating in the District—Crown Container, which is authorized to process 375 tpd of mostly construction and demolition debris, and Tully Environmental, which has the capacity to process 900 tpd of putrescible municipal (DSNY) waste. However, as described in Chapter 15, "Solid Waste and Sanitation," the displacement of the two waste transfer businesses under the proposed Plan would not significantly impact the waste transfer industry within Queens or New York City. The permitted capacity of Crown Container is small, and the waste generated at that facility could be absorbed at other facilities. The North Shore Marine Transfer Station (MTS), when completed, will have the capacity to process the waste currently handled by Tully Environmental. If Tully were displaced from the District before the North Shore MTS became operational, DSNY waste currently processed by Tully would temporarily be transported to facilities in New Jersey in DSNY trucks. Therefore, neither the proposed Plan nor the Municipal Services Alternative would result in significant adverse impacts on solid waste and sanitation services.

ENERGY

The Municipal Services Alternative would facilitate the continued use of the District for industrial purposes, which would generate demand for approximately 13,360 megawatts of electricity. As with the proposed Plan, it is expected that measures would be taken to provide adequate electrical capacity and that the Municipal Services Alternative would not result in significant adverse impacts on the energy supply.

TRAFFIC AND PARKING

Traffic

The Municipal Services Alternative would result in newly-paved streets within the District, but a new ramp connection to the Van Wyck Expressway would not be provided. Municipal improvements within the District may spur as-of-right development of industrial uses that would generate new traffic, although the resultant volumes would be substantially lower than with the proposed Plan. Because a number of intersections operate at substandard levels of service in the No Action condition, potential increases in volumes with Municipal Services Alternative would likely result in significant adverse traffic impacts, although to a much lesser extent because the new traffic would be much less. As with the proposed Plan, impacts at certain locations could be mitigated with standard traffic engineering practices. However, given severe congestion at other locations, even with a modest amount of traffic from new development in the District, increases in traffic resulting from the Municipal Services Alternative would likely result in some of the same unmitigated traffic impacts predicted for the proposed Plan.

Parking

The Municipal Services Alternative is not expected to substantially increase demand for off-street parking; therefore, businesses within the District would continue to accommodate their parking needs as under existing conditions. The Municipal Services Alternative may also increase the supply of on-street parking within the study area, since new streets within the District could provide curbside spaces. These spaces may alleviate some of the excess demand for on-street parking expected under the No Action Alternative. Overall, like the proposed Plan, the Municipal Services Alternative would not result in a significant adverse shortfall of on- or off-street parking.

TRANSIT AND PEDESTRIANS

The Municipal Services Alternative itself would generate little, if any, new demand for subway service, but as with the proposed Plan, there would be additional riders from other proposed development projects outside of the District. As with the proposed Plan, the No. 7 subway line would continue to operate within guideline capacity under the Municipal Services Alternative. Because the Municipal Services Alternative would result in little or no increase in new riders at the Willets Point-Shea Stadium subway station, it would not result in significant adverse impacts on the S2 stairway, as would the proposed Plan.

With the proposed Plan and anticipated development on Lots B and D , new development within the District would result in significant adverse impacts on the Q48 and Q66 bus routes, but the Q19 route would operate within guideline capacity. The Municipal Services Alternative itself would generate little, if any, new demand for bus service, but there would be increases in ridership from background growth and other proposed development projects outside of the

District. Under the Municipal Services Alternative, the Q19 and Q48 routes would have adequate capacity to meet demand, but the Q66 route would not. Therefore, both the Municipal Services Alternative and the proposed Plan would necessitate additional service on the Q66 route, but the Municipal Services Alternative would not require additional service on the Q48 route, which would be needed for the proposed Plan. Existing service on the Q19 route would be adequate to meet demand under both the Municipal Services Alternative and the proposed Plan.

The Municipal Services Alternative would generate few, if any, new pedestrian trips, but as with the proposed Plan there would be additional demand from general background growth and other proposed development projects outside of the District. There would also be changes in the pedestrian network associated with Citi Field, and it is anticipated that new sidewalks would be constructed in tandem with the new streets in the District. Under the Municipal Services Alternative, all pedestrian elements except for the east crosswalk at Northern Boulevard and 126th Street during the Saturday post-game peak period, would continue to operate at acceptable levels (13 PFM for sidewalks; 20 SFP for corners and crosswalks) during all analysis time periods, and the significant adverse crosswalks impacts predicted for the proposed Plan would not occur.

AIR QUALITY

The Municipal Services Alternative would generate fewer new vehicle trips than the proposed Plan and anticipated development on Lots B and D, but neither the Municipal Services Alternative nor the proposed Plan would result in significant adverse impacts from mobile source emissions.

Under the Municipal Services Alternative, industrial uses would remain within the District. It is anticipated that stationary source emissions from these industrial uses would be comparable to existing conditions such that they would not result in exceedances of air quality standards and thresholds, and any new businesses that would be located within the District would need to comply with local, state, and federal air quality standards and regulations. Therefore, like the proposed Plan, the Municipal Services Alternative would not result in significant adverse impacts from stationary source emissions.

NOISE

The Municipal Services Alternative would result in less vehicular traffic in the study area than the proposed Plan; however, ambient noise levels in the area would continue to be high. As with the proposed Plan, noise levels under the No Action Alternative at World's Fair Marina Park (Receptor Site 3) and the intersection of Roosevelt Avenue between College Point Boulevard and Prince Street (Receptor Site 2) would be in the "marginally unacceptable" category, and noise levels at the intersection of Roosevelt Avenue between 114th Street and 111th Street (Receptor Site 1) would be in the "clearly unacceptable" category. While the proposed Plan would result in a significant adverse impact at World's Fair Marina Park and this alternative would not, noise levels of the magnitude expected with the proposed Plan frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways.

Unlike the proposed Plan, the Municipal Services Alternative would not be subject to E designations or Restrictive Declarations requiring noise attenuation to meet CEQR interior noise requirements.

CONSTRUCTION

Construction of new infrastructure under the Municipal Services Alternative would require excavation activities, utility installation, paving of streets, and related activities. As with the proposed Plan, construction activities for the Municipal Services Alternative undertaken by the City would comply with Local Law 77, the New York City Noise Control Code, and other applicable rules and regulations, but for any private development within the District under the Municipal Services Alternative, Local Law 77 requirements would be optional. Overall, both the proposed Plan and the Municipal Services Alternative have the potential to result in temporary construction-period impacts; however, the duration and extent of construction would be reduced under the Municipal Services Alternative as compared with the proposed Plan.

PUBLIC HEALTH

The Municipal Services Alternative would not result in significant adverse air quality or noise impacts. Although the Municipal Services Alternative is not anticipated to result in significant adverse impacts on public health, it would not comprehensively remediate hazardous materials within the District and would not achieve the public health benefits of the proposed Plan.

F. STAGED ACQUISITION ALTERNATIVE

DESCRIPTION

The Staged Acquisition Alternative would result in a development program that is the same as the proposed Plan, but properties would be acquired and developed over time. Under this alternative, the western portion of the District (roughly west of 127th Street) would be acquired and developed first. This would allow the City additional time to find suitable relocation sites for the District's larger businesses which are concentrated in the eastern portion of the District and which have more specific relocation needs than the District's smaller businesses. It would also spread the cost of property acquisition and infrastructure improvements over time. It is anticipated that the western portion of the District would be developed by 2013, with the eastern portion of the site to be built out by 2017. The development would take place continuously throughout the 2009 to 2017 time period.

Similar to the proposed Plan, at full build-out the Staged Acquisition Alternative would include residential, retail, office, convention center, hotel, and community facility uses, as well as parking, publicly-accessible open space, a new street grid, new connections to the Van Wyck Expressway, and new public utilities within the District. Like the proposed Plan, this alternative would include 20 percent of residential units as affordable housing in both 2013 and 2017. As shown in Table 24-1, the western portion of the site would be developed with approximately 5,770,000 gsf of residential, retail, office, hotel, and school uses, as well as parking and open space. The eastern portion of the site would be developed with additional residential, retail, parking, open space, and school uses, as well as community facilities and a convention center. It is anticipated that a larger school would be constructed in the eastern portion of the District after 2013, which would replace the smaller interim school that would serve the District until 2013. The interim school space would subsequently be redeveloped as additional retail space.

At full build-out, this Alternative would develop the District with the same gross floor area and mix of uses as the proposed Plan, and would have the same controls on floor area ratios set forth in the provisions of the Special District. It is anticipated that Citi Field Lots B and D would be developed by 2017, with the same program as outlined under the proposed Plan.

Table 24-1
Staged Acquisition Alternative—Program

Use	Proposed Plan	Staged Acquisition Alternative	
		2013	2017
Residential	5,500,000 gsf (*5,500 units*)	3,160,000 gsf (*3,160 units*)	5,500,000 gsf (*5,500 units*)
Retail	1,700,000	1,475,000	1,700,000
Office	500,000	500,000	500,000
Convention Center	400,000	—	400,000
Hotel	560,000 (*700 rooms*)	560,000 (*700 rooms*)	560,000 (*700 rooms*)
Community Facility	150,000 gsf	—	150,000 gsf
School (K-8)*	130,000 gsf (*Approx. 850 Seats*)	75,000 gsf (*Approx. 500 Seats*)	130,000 gsf (*Approx 850 Seats*)
Parking Spaces**	Approx. 6,700	Approx. 4,200	Approx. 6,700
Publicly Accessible Open Space	Minimum 8 Acres	3.6 Acres	Minimum 8 Acres

Notes:
* The capacity of the proposed school would meet the project-generated shortfall in school seats.
** The number of proposed parking spaces would be determined based on anticipated project-generated demand. Parking floor area is exempt from the gross floor area calculations, per the Special Willets Point zoning district.

Like the proposed Plan, the Staged Acquisition Alternative would include new connections to the Van Wyck Expressway in the northeast portion of the District. These connections would be constructed by 2013. Because this alternative would not include the early acquisition of eastern properties in the District, it is anticipated that the configuration of the new ramps would conform to the existing street network. Figures 24-2 and 24-3 show the potential configuration of the new ramps under the Staged Acquisition Alternative. The new connection to the Van Wyck Expressway would require federal (FHWA) and state (NYSDOT) approval of a Freeway Access Modification Report under both the proposed Plan and this alternative.

As shown in Figure 24-2 and Figure 24-3, the siting of uses and the layout of the District's street grid, with the exception of the northeastern portion of the District near the new Van Wyck connection, would be the same under the Staged Acquisition Alternative and proposed Plan. Before complete acquisition of the eastern portion of the District, east-west streets would be elevated above the floodplain in the western portion of the District, and would be graded to slope down to the existing streets to the east, allowing continued access to and from remaining businesses in the District. After acquisition of the eastern properties, streets in that area would be raised above the floodplain. Streets in the redeveloped western portion of the District which were constructed to slope down to existing eastern streets would be re-graded to meet the new elevated streets to the east.

Like the proposed Plan, implementation of the Staged Acquisition Alternative would require discretionary actions by the City of New York, including adoption of a URP, acquisition and disposition of property, changes in the underlying zoning, creation of a zoning Special District, demapping of streets, and possible approval of business terms. As discussed above, the new connection to the Van Wyck Expressway under the proposed Plan or this alternative would require federal and state approval of a Freeway Access Modification Report.

The Staged Acquisition Alternative, like the proposed Plan, would utilize E-designations and Restrictive Declarations to ensure that there would be no significant adverse impacts with respect to hazardous materials, noise attenuation, and air quality (specifically associated with the heating, ventilation, and air conditioning system). E-designations for hazardous materials, noise and air quality would be placed on all privately owned properties in the District until they are acquired by the City, at which point the E-designations would be replaced with Restrictive

Declarations. E-designations for eastern properties would remain in place for a longer duration under this alternative as compared with the proposed Plan, since they would be acquired later under the alternative.

Similar to the proposed Plan, the Staged Acquisition Alternative would include emissions and noise-reduction programs during construction, which would ensure that no significant impacts on air quality or long-term noise impacts would occur during construction. The preparation and enforcement of a Health and Safety Plan (HASP) would prevent any significant adverse impacts from hazardous materials.

In general, the most substantial differences between the Staged Acquisition Alternative and the proposed Plan are the timing of property acquisition and construction phasing. While the necessary remediation, grading, and infrastructure improvements would take place across the District at the beginning stages of construction for the proposed Plan, they would occur more incrementally under this alternative. This could require additional safeguards to ensure that existing hazardous materials contamination on the eastern portion of the District would not migrate to the western portion of the District subsequent to the remediation of the western properties. It could also require a more complex stormwater management plan, since new storm systems put in place prior to 2013 would need to ensure adequate retention and discharge of stormwater in the western portion of the District, and after 2013 would need to be integrated with new stormwater systems put in place on the eastern portion of the site to ensure efficient District-wide stormwater management. Roadway access to the eastern portion of the site would need to be maintained for several years while the western portion of the site is being developed, and until such time when the City acquires the eastern properties for development under the build-out. NYCEDC would require through the developer's agreement that an open space area of at least 15-feet in width be provided along the eastern portion of the area to be developed by 2013. This would provide a buffer between buildings being constructed on the western portion of the site and existing uses on the eastern portion of the site.

STAGED ACQUISITION ALTERNATIVE COMPARED WITH THE PROPOSED PLAN

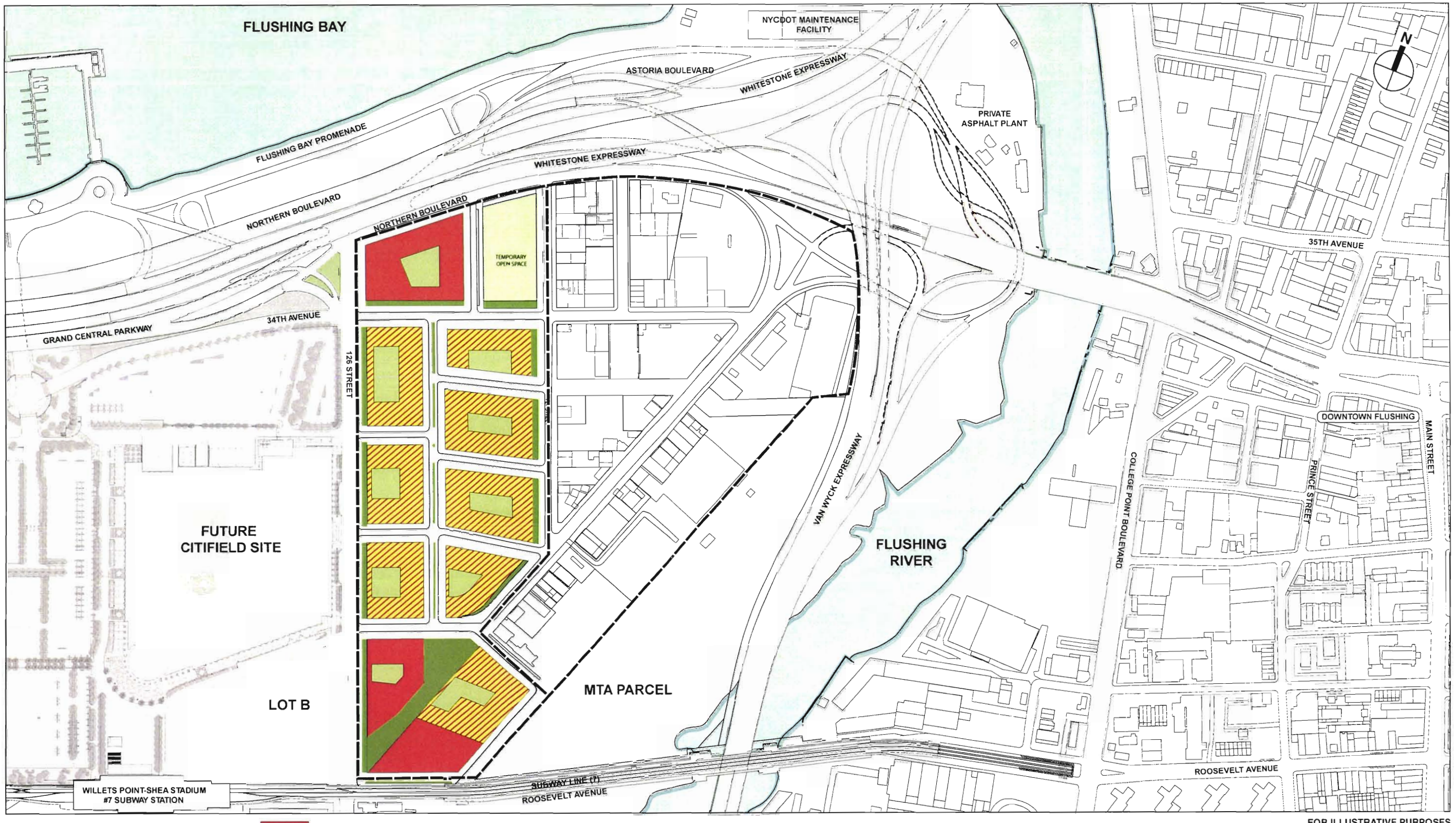
The following sections compare conditions under the Staged Acquisition Alternative to conditions with the proposed Plan.

LAND USE, ZONING, AND PUBLIC POLICY

Conditions in 2017

At full build-out, the effects of the Staged Acquisition Alternative would be very similar to those of the proposed Plan. Like the proposed Plan, this alternative would dramatically change land uses in the District by replacing predominantly low-density auto-related and industrial uses with a new mixed-use neighborhood that includes residential, retail, office, hotel, convention center, community facility and open space uses. In either case, the proposed uses would be compatible with much of the land use study area, although some of the uses would not be compatible with the industrial activities permitted on the adjacent Metropolitan Transportation Authority (MTA) property and more remote industrial uses along the waterfront to the north and east of the District. As with the proposed Plan, this juxtaposition would not constitute a significant adverse impact under the Staged Acquisition Alternative.

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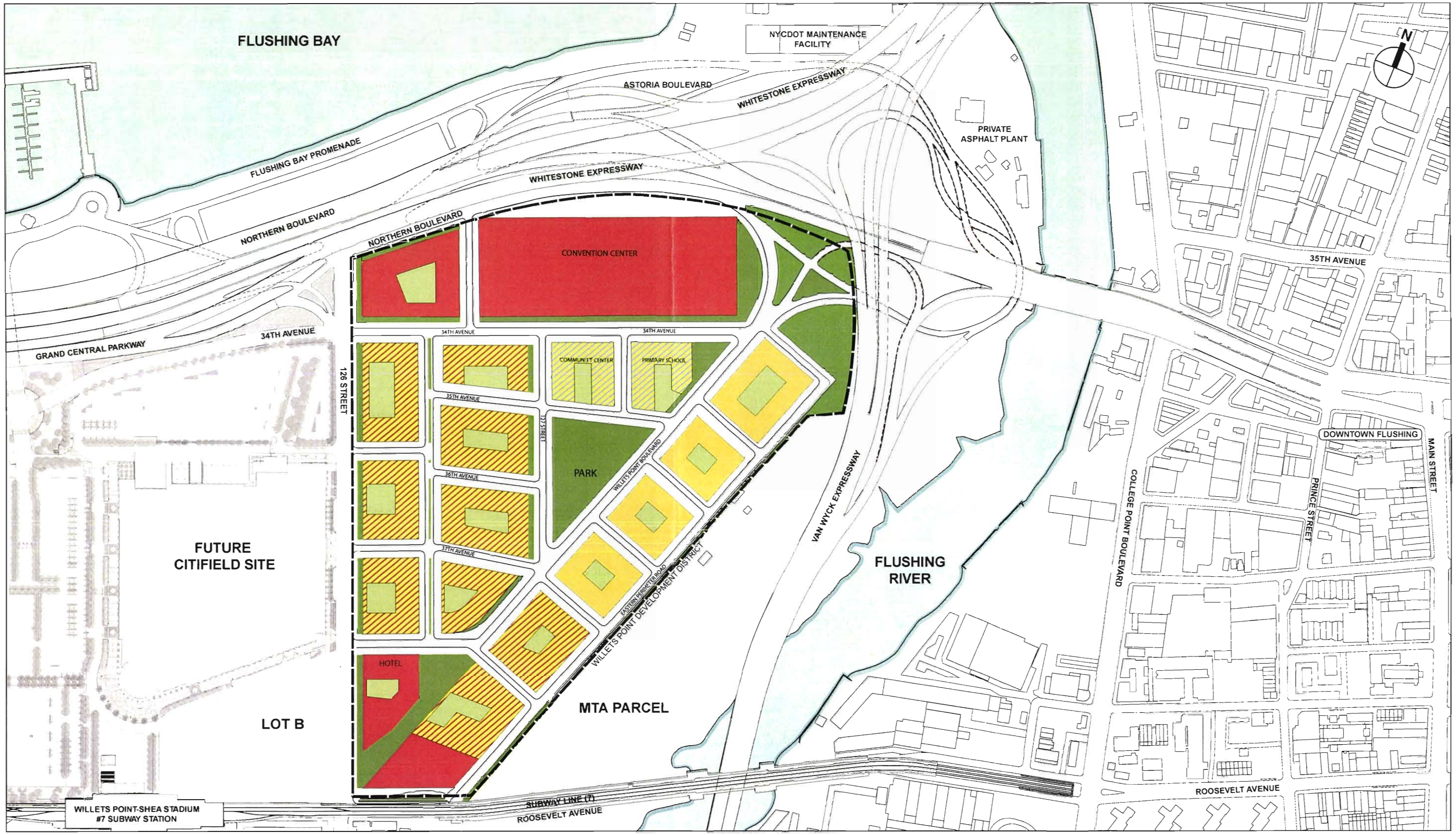


Willets Point Development District
Residential
Residential with Commercial Below
Residential with Community Facility Below
Commercial
Rooftop Courtyard
Open Space

FOR ILLUSTRATIVE PURPOSES

This figure has been updated since the DGEIS

Figure 24-2
Staged Acquisition Alternative — 2013



Willets Point Development District
Residential
Residential with Commercial Below
Residential with Community Facility Below
Commercial
Rooftop Courtyard
Open Space

FOR ILLUSTRATIVE PURPOSES
This figure has been updated since the DGEIS

Figure 24-3
Staged Acquisition Alternative — Full Buildout

As described above, the Staged Acquisition Alternative would include new connections to the Van Wyck Expressway, but the configuration of the new ramps would be different compared with the proposed Plan. Similar to the proposed Plan, under the Staged Acquisition Alternative the southern portion of 127th Street and all of 34th Avenue could remain in their current alignments. Willets Point Boulevard would remain in place in order to allow access to existing utilities beneath it, and would remain open to vehicular traffic except for its southern end, which would serve as a pedestrian boulevard and open space.

Overall, land use changes that would occur with either the proposed Plan or full build-out of this alternative would be beneficial. The convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. A synergy would be created between the District and Citi Field through a pedestrian-oriented regional entertainment and commercial center along 126th Street.

In terms of zoning and public policy, the Staged Acquisition Alternative would require the same changes to the underlying zoning of the District, would include the creation of a zoning Special District, and would create a URP to define District boundaries and the area to be redeveloped as per the City's redevelopment goals. The proposed C4-4 is consistent with the zoning that exists throughout much of the Downtown Flushing area. Although some of the uses permitted in the proposed C4-4 district would not be compatible with the M3-1 zoning of the adjacent MTA property, it is not uncommon for new higher-density residential and commercial districts to be located next to older heavy manufacturing districts near the waterfront.

Either the proposed Plan or the Staged Acquisition Alternative would represent a critical step in implementing the Downtown Flushing Development Framework and would advance a number of the Framework's fundamental goals, including: the creation of a regional destination that would enhance economic growth in Downtown Flushing; improvement of environmental conditions; and integration of new development in the District with surrounding amenities, including the Flushing Bay Promenade, the new Citi Field, Flushing Meadows-Corona Park, and Downtown Flushing.

Overall, full build-out of the Staged Acquisition Aternative is not expected to result in significant adverse impacts on land use, zoning, and public policy.

Conditions in 2013

By 2013, the western portion of the District would be completed. New construction would include 3.16 million gsf of residential uses, 1,475,000 gsf of retail space, 500,000 gsf of office space, an approximately 700-room hotel and a 75,000-gsf school. There would also be enough parking to meet project-generated demand for this alternative, and approximately 3.6 acres of publicly-accessible open space.

The eastern portion of the District would continue to contain industrial uses, although this would be an interim condition as this alternative contemplates the ongoing acquisition of parcels in the eastern portion of the District. In this area, many of the improvements that would occur under both the proposed Plan and full build-out of this alternative in 2017 would not be in place—there would be no District-wide improvements to drainage and sanitary sewers, streets, or pedestrian amenities, and there would be no remediation of hazardous materials conditions or filling of the area to raise it above the floodplain. Streets would not be elevated above the floodplain in the eastern portion of the District; to allow continued access to and from eastern portion of the District, streets in the western portion would be graded to slope down to the existing streets to the east. In terms of land use compatibility, the residential and other uses in the western part of

the District would not be compatible with the large number of auto and industrial uses that would remain in the western part of the District. In 2013, these businesses would become non-conforming uses under this alternative and would not be permitted to expand operations.

SOCIOECONOMIC CONDITIONS

As with the proposed Plan, development resulting from the Staged Acquisition Alternative would generate substantial economic benefits for New York City and New York State and would not cause any significant adverse impacts related to direct residential displacement, indirect residential displacement, direct business and institutional displacement, indirect business and institutional displacement, or effects on specific industries. Like the proposed Plan, this alternative would include 20 percent of residential units as affordable housing in both 2013 and 2017.

At full build-out in 2017, the effects of this alternative would be largely the same as those identified for the proposed Plan. However, under this alternative the City would be afforded additional time to find suitable relocation sites for the District's larger businesses, which are concentrated in the eastern portion of the District and have more specific relocation needs than the District's smaller businesses. By 2013, approximately 888 employees would be displaced from the western portion of the District, compared with the 1,711 employees that would be displaced under the proposed Plan or full build-out of this alternative in 2017.

COMMUNITY FACILITIES

Like the proposed Plan the Staged Acquisition Alternative would not result in significant adverse impacts on public schools, libraries, or health care facilities. In 2017, the Staged Acquisition Alternative would have the same number of residents as the proposed Plan, would include 20 percent of residential units as affordable housing, and would include the same number of school seats (sufficient to address the project-generated shortfall in seats). Unlike the proposed Plan, under the Staged Acquisition Alternative, an approximately 75,000-gsf (500-seat) school would be constructed by 2013 to address the demand that would result from 3,160 units of housing. By 2017, a larger 130,000-gsf school would replace the interim 75,000-gsf school and the interim school would be redeveloped with retail uses.

Both the proposed Plan and both stages of the Staged Acquisition Alternative could result in a significant adverse impact on day care facilities. The low- to moderate-income housing units anticipated could increase the net shortage of publicly funded child care slots beyond the *CEQR Technical Manual* threshold for an adverse impact. Therefore, should this occur, both the proposed Plan and the Staged Acquisition Alternative would require as part of the developer's agreement, that a future developer consult with the New York City Administration for Children's Services (ACS) to determine the appropriate way to meet demand for day care services generated by development in the District.

OPEN SPACE

Conditions in 2017

Like the proposed Plan, full build-out of the Staged Acquisition Alternative is not expected to result in significant adverse open space impacts. Both would generate the same number of new employees and residents and would create a minimum of eight acres of publicly accessible open space. The area surrounding the District would continue to have adequate active and passive open space resources. Although open space ratios would decline, for the most part the open space ratios

would exceed existing City guidelines. As shown in Table 24-2, within the commercial study area, there would be 0.77 acres of passive open space per 1,000 workers and 0.33 acres per 1,000 workers and residents. Within the residential study area, there would be 3.80 acres of total open space (comprising 1.81 acres of active and 1.99 acres of passive) per 1,000 residents and 0.98 acres of passive open space for the combined residential and worker population. Only the active open space ratio per 1,000 residents and the passive open space ratio per 1,000 workers and residents would be below the recommended ratio; the total open space ratios would be well above City goals. The open space ratios indicate that workers and residents would have adequate open space to meet their needs in the future. The extensive open space resources that lie just beyond the open space study area would also help offset the effects of development in the District.

Conditions in 2013

The Special District regulations require minimum public access area dimensions at various locations within the District, and ensure that public access areas are developed in conjunction with the surrounding development by stipulating the dimensions of public access areas that must be provided along with certain developments (e.g., with developments or enlargements at least 100,000 square feet (sf) in size and on zoning lots of at least 200,000 sf). Pursuant to the minimum public access area dimensions prescribed by the Special District regulations, there would be a minimum of 3.6 acres of publicly accessible open space in the western portion of the District in 2013. As shown in Table 24-2, above, open space ratios with the Staged Acquisition Alternative in 2013 would decline from background conditions in 2013. Within the commercial study area, the ratio of passive open space per 1,000 workers would be 0.70, which would be above the City's guideline of 0.15 acres. The passive open space ratio for the combined worker and residential population would be 0.34 acres per 1,000 people, which is slightly lower than the City's recommended weighted average ratio of 0.36 acres per 1,000 residents and workers.

Table 24-2
Summary of Open Space Ratios
Staged Acquisition Alternative

Ratio	City Guideline	Open Space Ratios			
		Existing Conditions	Future No Build Condition 2013	Staged Acquisition Alternative 2013	Staged Acquisition Alternative 2017
Commercial Study Area					
Passive/Workers	0.15	0.88	0.88	0.70	0.77
Passive/Total Population	0.28* Existing 0.28* 2013 NB 0.36* 2013 Build 0.35* 2017 Build	0.56	0.56	0.34	0.33
Residential Study Area					
Total/Residents	2.5	15.44	7.28	4.67	3.80
Active/Residents	2.0	7.71	3.63	2.25	1.81
Passive/Residents	0.5	7.73	3.65	2.42	1.99
Passive/Total Population	0.26* Existing 0.29* 2013 NB 0.31* 2013 Build 0.32* 2017 Build	2.32	1.48	1.11	0.98

Notes: * Weighted average combining 0.15 acres per 1,000 non- residents and 0.50 acres per 1,000 residents. Non-residents typically use passive open spaces; therefore, for the commercial study area, only passive open space ratios are calculated. For the residential study area, active, passive, and total park space ratios are calculated.

Sources: U.S. Census Bureau, 2000; Central Transportation Planning Package (CTPP) 2000 — Part 2; New York City Department of Parks and Recreation open space database.

Within the residential study area, there would be 104.21 acres of total open space (comprising 50.16 acres of active and 54.05 acres of passive). This would result in 4.67 acres of total open space per 1,000 residents, comprised of 2.25 acres of active open space per 1,000 residents and 2.42 acres of passive open space per 1,000 residents. The combined passive open space ratio would be 1.11 acres per 1,000 residents and workers. All of these ratios would be well above the recommended guidelines.

SHADOWS

It is expected that there would be no significant adverse shadow impacts as a result of either the proposed Plan or the Staged Acquisition Alternative. Similar to the proposed Plan, this alternative would be subject to the bulk regulations set forth in the URP and Special District text, and height limits across most of the District would be determined by the distance from LaGuardia Airport. As with the proposed Plan, buildings constructed under this alternative would range in maximum height from approximately 60 feet to 218 feet above ground level. Therefore, shadow conditions with this alternative would be very similar or the same as those with the proposed Plan, and while some incremental shadow would be cast onto Flushing Bay, the Flushing Bay Promenade, and the Flushing River in some seasons, there would not be a significant adverse shadow impact. In 2013, incremental shadows would be similar to those in the full build-out. At full build-out, the eastern section of the development site would be responsible only for small areas of incremental shadow on Flushing River in June and a portion of the incremental shadow falling on the Flushing Bay Promenade in December. Most of the incremental shadow on Flushing River and Flushing Bay Promenade, and all the incremental shadow on Flushing Bay, would come from the western section of the development site, which would be built out by 2013 under the Staged Acquisition Alternative.

HISTORIC RESOURCES

Archaeological Resources

LPC and OPRHP have determined that the District does not have the potential for archaeological sensitivity. Therefore, like the proposed Plan, the Staged Acquisition alternative would not have a significant adverse impact on archaeological resources in either 2013 or 2017.

Architectural Resources

Like the proposed Plan, it is anticipated that the Staged Acquisition Alternative at full build-out in 2017 would entail the demolition of the former Empire Millwork Corporation Building—found by OPRHP to be eligible for listing on S/NR. Demolition of this building under the proposed Plan or the Staged Acquisition Alternative would therefore constitute a significant adverse impact on architectural resources. Measures to mitigate this impact would be developed in consultation with OPRHP. These measures could include recording the building through a Historic American Buildings Survey (HABS)-level photographic documentation and accompanying narrative.

In 2013 under the Staged Acquisition Alternative, development would be limited to the western portion of the District and the former Empire Millwork Corporation Building would not be demolished. Therefore, there would be no effect on this building in 2013 and mitigation measures would not be required at that time. However, in the event that NYSDOT ultimately selects a ramp configuration other than the one assumed for this alternative, demolition of the

Empire Millwork Corporation Building may be required by 2013, and the impact would occur by 2013 as it would under the proposed Plan.

URBAN DESIGN AND VISUAL RESOURCES

Conditions in 2017

Like the proposed Plan, the Staged Acquisition Alternative at full build would dramatically alter and greatly improve the urban design and general appearance of the District. The site is currently underdeveloped with low-scale buildings primarily related to automotive repair, as well as larger industrial buildings. The Staged Acquisition Alternative and the proposed Plan would result in new buildings of various heights, and introduce active uses that would increase the vitality of the District and increase pedestrian traffic to the District and the surrounding area. The appearance of the District would also be improved by providing new streets and streetscape elements. The District and surrounding area would be integrated by creating a new pedestrian-scaled street network and adding new publicly accessible open spaces. Like the proposed Plan, a new street pattern and new block forms would be established in the District, with two main connector streets providing the main access streets into the District and the primary streets through the District. In both the Staged Acquisition Alternative and the proposed Plan the alignment of Willets Point Boulevard may be retained (with the exception of the southern portion), although the Staged Acquisition Alternative could result in a different access ramp connecting to the Van Wyck Expressway (see Figure 24-2). As described above, like the proposed Plan, buildings in this alternative would be subject to the URP, Special District text, and height limits due to the District's proximity to LaGuardia Airport. As with the proposed Plan, buildings constructed under this alternative would range in maximum height from approximately 60 feet to 218 feet above ground level.

In terms of visual resources, neither the proposed Plan nor the Staged Acquisition Alternative would have a significant adverse impact on visual resources. Like the proposed Plan, this alternative would not adversely affect views to or from Flushing Bay, the Flushing Bay Promenade, or views to the 1964 World's Fair structures in Flushing Meadows-Corona Park. While new development in the District would be visible in views south from the promenade, this is not the primary view from this location, and the buildings would be partially obscured by the elevated transportation structures and by the new Citi Field. This alternative also would not interfere with views across Flushing Bay from the promenade.

Conditions in 2013

By 2013, the area west of 127th Street would be redeveloped under this alternative, with the eastern portion of the District subject to ongoing acquisition by the City. Thus, only some of the improvements described above that would have a beneficial impact on the urban design and overall appearance and feel of the District would be in place by 2013. Compared to the proposed Plan (and this alternative at full build-out in 2017) there would be a stark contrast between the redeveloped portion of the District and the area that would remain largely industrial in nature, without adequate infrastructure, pedestrian amenities, or cohesive urban design.

NEIGHBORHOOD CHARACTER

Conditions in 2017

Like the proposed Plan, the Staged Acquisition Alternative would dramatically change neighborhood character in the District. The new, active mix of residential, retail/entertainment, office, open space, hotel and conference center, and community facility uses would represent an improvement to the character of the area. Development would be scaled to enhance pedestrian activity, with prescribed streetwall heights and locations, mandatory pedestrian circulation space, and other design elements to enhance building façades. The Special District would also mandate the provision of street trees, adequate sidewalks, and planted medians, and the development of a minimum of eight acres of publicly accessible open space. As with the proposed Plan, the Staged Acquisition Alternative would include environmental remediation, grading and elevating the District above the floodplain, the installation of new sanitary and storm sewer lines, and the creation of a new connection to the Van Wyck Expressway.

The convention center and commercial uses would enhance Flushing and Corona's roles as regional economic centers, and would attract visitors to the area. The proposed residential, commercial office, retail, hotel, community facility, open space, and parking uses would be consistent with the uses and character in the surrounding area, particularly those within the dense commercial center of Downtown Flushing. Although the proposed residential and community facility uses would not be compatible with industrial uses on the adjacent MTA property, it is not uncommon to find this type of juxtaposition in older manufacturing districts near the waterfront. As with the proposed Plan, traffic, transit, pedestrian and noise conditions would be adversely affected, but not (particularly with the mitigation measures proposed) to the degree that neighborhood character would experience significant adverse impacts.

Conditions in 2013

In 2013, industrial uses would continue in the eastern part of the District, while the western portion would contain active residential, commercial, school, open space and hotel uses.

Conditions with respect to traffic and noise would be better than those with either the proposed Plan or full build-out of this alternative in 2017. However, some of the neighborhood character benefits that would be realized under this alternative in 2017 (or with the proposed Plan) would not exist in 2013, including District-wide infrastructure improvements, pedestrian amenities, streetscape amenities, and improved urban design. The redeveloped portion of the District would contrast sharply with the eastern portion of the District, with residential, office and open space uses along 127th Street facing an automotive-oriented and industrial area.

NATURAL RESOURCES

Neither the Staged Acquisition Alternative nor the proposed Plan would result in significant adverse impacts on terrestrial natural resources, wetlands, aquatic resources, endangered species, threatened species, or species of special concern. Like the proposed Plan, this alternative would offer benefits to natural resources (such as improved habitat) and is expected to include sustainable design elements.

In 2013, eastern portions of the District would not be raised with up to seven feet of fill, and would allow for the continued occupation of land below flood elevation. For these areas, contaminated soils would not be removed or capped, and sanitary and storm sewers would not be constructed. This could result in potential effects on aquatic biota through the continued

discharge of wastewater, polluted stormwater, and sediments from the District to the Flushing River, Flushing Bay, and groundwater aquifers.

HAZARDOUS MATERIALS

Soil and groundwater sampling of the District confirmed that contamination is present. Given the presence of this groundwater contamination and the historic uses within the District, other potential contamination is expected to be widespread on private properties. The Staged Acquisition Alternative, like the proposed Plan, would utilize E-designations and Restrictive Declarations to ensure that there would be no significant adverse impacts with respect to hazardous materials. E-designations would be placed on all privately owned properties in the District until they are acquired by the City, at which point the E-designations would be replaced with Restrictive Declarations. E-designations for eastern properties would remain in place for a longer duration under this alternative as compared with the proposed Plan, since they would be acquired later under the alternative. While it is not anticipated that private properties would be redeveloped on an individual basis, if such redevelopment were to occur, it would be subject to the E-designations, which would ensure that remediation would take place under New York City Department of Environmental Protection (DEP) oversight. With these measures in place, as with the proposed Plan, there would be no significant adverse hazardous materials impacts.

Since remediation activities would occur more incrementally under this alternative, additional safeguards may be required to ensure that existing hazardous materials contamination on the eastern portion of the District would not migrate to the western portion of the District subsequent to the remediation of the western properties.

WATERFRONT REVITALIZATION PROGRAM

Both the proposed Plan and the Staged Acquisition Alternative 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.

INFRASTRUCTURE

Conditions in 2017

Compared to the proposed Plan, the Staged Acquisition Alternative in 2017 would have the same demand for water, and would generate the same amount of sanitary sewage and stormwater runoff.

Conditions in 2013

Water Supply

Like the proposed Plan, under the Staged Acquisition Alternative, the existing 72-inch water main within Willets Point Boulevard would remain in place, and the developer would provide a permanent easement mapped on the City map, in order to provide acceptable access to the existing main. The width and designation of this easement would be determined in consultation with DEP. New local water supply distribution lines would be provided to the blocks in the western portion of the District, and uses in the eastern portion of the District would continue to be served by existing supply lines. Similar to the proposed Plan, the infrastructure would be built as private infrastructure, constructed to meet DEP standards.

The total water demand for the development in 2013 is estimated to be 2.6 million gallons per day (mgd), which is 2.2 mgd greater than the existing 0.42 mgd water demand (see Table 24-3). The demand for water from the Staged Acquisition Alternative in 2013 would represent 60.5 percent of the water demand of the proposed Plan. This demand would be within the available capacity limits of the existing 72-inch transmission main, and would represent approximately 0.22 percent of the City's total current average daily water demand of 1.2 billion gallons per day (gpd). This would not overburden the City's water supply system, nor would it significantly affect the water supply infrastructure outside the District.

Table 24-3
Projected Water Usage with the Staged Acquisition Alternative

Proposed Use	Flow Rate*			2013 Development (gsf)	2013 Water Consumption (gpd)	2017 Water Consumption (gpd)
	Type	Per Unit	Per sf			
Residential	Domestic	112	0.401	3,160,000	1,264,000	2,200,000
	Air Conditioning		0.17		537,200	935,000
Retail	Domestic		0.17	1,475,000	250,750	320,365
	Air Conditioning		0.17		250,750	320,365
Commercial/ Office	Domestic	25	0.10	500,000	50,000	78,000
	Air Conditioning		0.10		50,000	78,000
Hotel	Domestic	150	0.1875	560,000	105,000	105,200
	Air Conditioning		0.17		95,200	95,200
School	Domestic	30	0.205	75,000	15,000	25,500
	Air Conditioning		0.10		7,500	13,000
Total Development GSF				**5,770,000**		
Water Consumption Subtotals (gpd)				**Domestic**	**1,684,750**	**2,822,365**
				Air Conditioning	**940,650**	**1,535,065**
Total Water Consumption (gpd)					**2,625,400**	**4,357,430**

Notes: * Assumes: Residential—112 gpd/person; Retail—0.17 gpd/sf; Office—0.10 gpd/sf and 25 gpd/person, which equates to 1 person per 250 sf; Hotel—150 gpd per room; Medical—Assumes water usage and sewage generation rates for Commercial/Office; School—30 gpd/seat domestic use, 0.10 gpd/sf for air conditioning and approximately 153 sq ft per seat which equates to 15.3 gpd/seat.
Source: *CEQR Technical Manual*, Table 3L-2 "Water Usage and Sewage Generation Rates"

Sanitary Sewage

As discussed in Chapter 14, "Infrastructure," the District currently has no connection to the City's sanitary sewer system, and relies on individual septic systems. In order to implement the Staged Acquisition Alternative, a large portion of the infrastructure required to support the development of the entire district would be needed, including new sewers, pump station and force main.

In 2013, the Staged Acquisition Alternative would result in sanitary flows of approximately 1.68 mgd, as shown in Table 24-4. This represents 5.26 percent of the projected 118 mgd available capacity of the Bowery Bay Treatment facility in 2013. Sanitary sewage from the Staged Acquisition Alternative could not be accepted by the existing 37th Avenue pump station, since it currently operates at its capacity. Similar to the proposed Plan, this alternative would require the construction of a new pump station (most likely within the District), and a force main to connect the District to the combined sewer in 108th Street. This infrastructure would need to be sized sufficiently to accommodate the sanitary flows of the entire District. In addition, the Special District text allows for the development of a water reclamation facility, provided it would primarily serve the District. If proposed by a future developer, a water reclamation facility would

Table 24-4
Estimated Wastewater Generation with the Staged Acquisition Alternative

Proposed Use	Flow Rate			Development (gsf)	2013 Water Consumption (gpd)	2017 Water Consumption (gpd)
	Type	Per Unit	Per sf			
Residential	Domestic	112	0.401	3,160,000	1,264,000	2,200,000
Retail	Domestic		0.17	1,475,000	250,750	320,365
Commercial/ Office	Domestic	25	0.10	500,000	50,000	78,000
Hotel	Domestic	150	0.1875	560,000	105,000	105,000
School	Domestic	30	0.205	75,000	15,000	25,500
Total				5,770,000	1,684,750	2,822,365

Notes: * The following assumptions were made: Residential—112 gpd/person; Retail—0.17 gpd/sf; Office—0.10 gpd/sf and 25 gpd/person, which equates to 1 person per 250 sf; Hotel—150 gpd per room; Medical—Assumes water usage and sewage generation rates for Commercial/Office; School—30 gpd/seat domestic use, 0.10 gpd/sf for air conditioning and approximately 153 sq ft per seat which equates to 15.3 gpd/seat.
Source: *CEQR Technical Manual*, Table 3L-2 "Water Usage and Sewage Generation Rates"

require a special permit by the Board of Standards and Appeals (BSA), and would be subject to separate environmental and public review processes. The water reclamation facility would treat the District's sanitary wastewater to applicable water quality and effluent standards, return a portion of the treated water for reuse in the District (for toilets, cleaning, irrigation, air conditioning, etc.), and direct the remaining treated water to the stormwater system and existing outfall at 126th Street. The water reclamation facility would likely require a SPDES permit, and would result in a modest increase in the amount of detention to be provided in the District. If a water reclamation facility were constructed, it would obviate the need for a new pump station. Local sanitary sewer infrastructure would be developed within the new private streets to support new development in the western portion of the District. Similar to the proposed Plan, the sanitary infrastructure would be built to DEP standards, and include easement provisions to allow DEP unimpeded access.

Since the development within the District would provide separate, adequately-sized storm sewers, stormwater runoff would not contribute to flow being directed to the Bowery Bay WPCP. The only discharges to the Bowery Bay WPCP would be from sanitary sewers. The modeling analyses outlined in Chapter 14, "Infrastructure," indicate that the increase in sanitary flows would be a minor component of the wet weather flows that result in CSO events. The modeling results indicate that the frequency of CSO events would not increase with the proposed Plan, and thus the development of a portion of the District by 2013 would also not increase the frequency of CSO events.

Stormwater

As indicated in Chapter 14, "Infrastructure," the current stormwater conveyance system is insufficiently sized, which results in uncontrolled and untreated runoff and street flooding. As with the proposed Plan, the Staged Acquisition Alternative would require construction of a new stormwater conveyance system, including piping, sustainable design features, and an adequately-sized detention tank or equivalent means to accommodate the stormwater that is beyond the discharge capacity of the two storm water outfalls serving the District. It is assumed that stormwater from development of the Staged Acquisition Alternative in 2013 would be directed to the more proximate 126th street outfall. In 2013, the Staged Acquisition Alternative would generate

approximately 46 percent of the total 337 cubic feet per second (cfs) stormwater flow generated within the District. Since stormwater generated by development of the western portion of the District would be greater than the 60 cfs available capacity of the 126th Street outfall, 1.8 acre-feet of detention would be required to regulate stormwater flows from this area to the existing outfall. However, even with the stormwater management upgrades implemented by 2013 as part of this alternative, flooding may continue in the eastern portion of the District until implementation of the District-wide stormwater management features that would be in place by 2017. With both the proposed Plan and the Staged Acquisition Alternative, the developer would be required to prepare a site stormwater management plan, to be reviewed and approved by DEP, that would specify Best Management Practices and sustainable design features that the project would include. However, with the Staged Acquisition Alternative, the stormwater management plan would be implemented in stages, with implementation in the western portion of the District by 2013 and implementation in the eastern portion by 2017.

SOLID WASTE AND SANITATION SERVICES

No significant adverse impacts on solid waste and sanitation services would result from either the Staged Acquisition Alternative in 2013 or 2017, or from the proposed Plan. The municipal solid waste and sanitation services that serve the District have adequate capacity to meet the projected increases in demand. In addition, local improvements in City services would be undertaken with either the Staged Acquisition Alternative or the proposed Plan to address the needs of the Plan.

The proposed Plan would displace two waste transfer businesses from the District, but this displacement would not have a significant adverse impact on the waste and sanitation services in Queens or in New York City. Under the Staged Acquisition Alternative, the same displacement would occur by 2017. In 2013, it is assumed that Crown Container, which is located in the western portion of the District would be displaced, while Tully Environmental, which is located in the eastern portion of the District, would continue to operate in its current location.

ENERGY

Like the proposed Plan, the Staged Acquisition Alternative would increase demands on electricity and gas. However, relative to the capacity of these systems and the current levels of service within New York City, these increases in demand would be insignificant in both instances. Similar to the proposed Plan, improvements would be made to the local electric and gas distribution grids that would ensure proper service to the District, but under this alternative those improvements would be installed in 2013 to serve development in the western portion of the District and 2017 for the eastern portion of the District.

In any case, new demands for energy are not expected to result in a significant adverse impact on the supplies of electricity and gas in the region or the City as a whole, and with the future improvements to the distribution network, no significant adverse impact would occur locally with respect to electrical or gas utilities.

TRAFFIC AND PARKING

Traffic

Roadway modifications within the District in 2013 with the Staged Acquisition Alternative would be similar to the proposed Plan conditions for 2017 and would include the proposed

access ramp from the northbound Van Wyck Expressway and entrance ramp to the southbound Van Wyck Expressway; two new east-west retail streets located between 34th Avenue and 38th Avenue that extend into the District from their intersections at 126th Street; and a third retail street running north-south from 34th Avenue to 38th Avenue. As with the proposed Plan, the existing Willets Point Boulevard between 34th and 38th Avenues would maintain its current alignment, but between 38th Avenue and its unsignalized intersection with 126th Street, Willets Point Boulevard would be closed to vehicular traffic. As a result, Willets Point Boulevard traffic would access 126th Street via 38th Avenue, which would become the new Willets Point Boulevard under 2017 conditions. A new street along the District's eastern border and the abutting MTA parcel would provide access into the District from Roosevelt Avenue east of 126th Street, similar to 2017 conditions with the proposed Plan. Finally, 127th Street would provide access from eastbound Northern Boulevard along the northern edge of the District. With these roadway conditions for the 2013 Staged Acquisition Alternative, project-generated traffic would enter and exit the District with circulation patterns similar to the proposed Plan in 2017.

2013 Without the Staged Acquisition Alternative

Future traffic conditions in 2013 without the Staged Acquisition Alternative were established to provide a baseline against which the potential impacts of the 2013 development could be compared. Future No Build traffic volumes were developed by applying an annual background traffic growth rate of 1 percent per year and adding traffic from other area development projects expected to be operational by 2013.

The 2013 No Build condition for the Staged Acquisition Alternative would include the expected No-Build developments (approximately 90 sites) and the one-way pairing of Main and Union Streets in Downtown Flushing, similar to the 2017 No Build analysis discussed in the "Future Without the Proposed Plan" section of Chapter 17, "Traffic and Parking." The 1 percent per year background growth rate between the existing year 2006 to the future year 2013 would add about 7.2 percent more traffic to all roadways within the traffic study area. Including traffic expected to be generated by the no build developments, No Build volumes along Northern Boulevard in Downtown Flushing and North Corona would range between about 1,120 vehicles per hour (vph) and 2,860 vph per direction, while volumes along Northern Boulevard adjacent to the District would be approximately 1,110 vph to 2,960 vph per direction. Roosevelt Avenue volumes in Downtown Flushing and North Corona would be about 290 vph 860 vph per direction, and nearer to the District, between 114th Street and College Point Boulevard, Roosevelt Avenue volumes would range between 505 vph and 1,200 vph per direction, with the highest volumes occurring during the game day peak hours. College Point Boulevard volumes approaching Roosevelt Avenue would be about 1,020 vph to 1,620 vph in the northbound direction and 685 vph to 985 vph in the southbound direction. Volumes along 126th Street adjacent to the District would be approximately 170 vph to 675 vph.

2013 With the Staged Acquisition Alternative

The project-generated vehicle trips expected during each of the study peak hours are shown in Table 24-5 for the non-game day and game day peak hours. In general, traffic generated in 2013 under the Staged Acquisition Alternative would be approximately 60 to 70 percent of the traffic generated under the full build-out of the Proposed Plan, or the full build-out of the Staged Acquisition Alternative.

Table 24-5
Staged Acquisition Alternative
Vehicle Trip Generation for 2013

Use	Auto		Taxi		Delivery		Total		
	In	Out	In	Out	In	Out	In	Out	Total
WEEKDAY AM PEAK PERIOD									
Residential	112	451			11	11	123	462	585
Office	456	18			8	8	464	26	490
Destination Retail	398	255			38	38	436	293	729
Movie Theater	19	1			3	3	22	4	26
Hotel	48	69			10	10	58	79	137
School	68	52			1	1	69	53	122
Total	**1,101**	**846**	**68**	**68**	**71**	**71**	**1,240**	**985**	**2,225**
WEEKDAY MIDDAY PEAK HOUR									
Residential	148	142			9	9	157	151	308
Office	145	157			9	9	154	166	320
Destination Retail	1301	1064			55	55	1356	1119	2475
Movie Theater	37	22			3	3	40	25	65
Hotel	101	48			8	8	109	56	165
School	0	0			1	1	1	1	2
Total	**1,732**	**1,4 33**	**129**	**129**	**85**	**85**	**1,946**	**1,647**	**3,593**
WEEKDAY PM PEAK HOUR									
Residential	430	232			2	2	432	234	666
Office	28	524			2	2	30	526	556
Destination Retail	1137	1282			5	5	1142	1287	2429
Movie Theater	85	72			0	0	85	72	157
Hotel	81	56			0	0	81	56	137
School	8	10			1	1	9	11	20
Total	**1,769**	**2,1 76**	**160**	**160**	**10**	**10**	**1,939**	**2,346**	**4,285**
WEEKDAY PRE-GAME PEAK HOUR									
Residential	360	154			2	2	362	156	518
Office	7	29			2	2	9	31	40
Destination Retail	1060	1060			5	5	1065	1065	2130
Movie Theater	135	119			0	0	135	119	254
Hotel	71	48			0	0	71	48	119
School	0	0			0	0	0	0	0
Total	**1,633**	**1,4 10**	**138**	**138**	**9**	**9**	**1,780**	**1,557**	**3,337**
SATURDAY MIDDAY NON-GAME PEAK HOUR									
Residential	418	315			3	3	421	318	739
Office	32	21			1	1	33	22	55
Destination Retail	1553	1492			3	3	1556	1495	3051
Movie Theater	116	71			0	0	116	71	187
Hotel	111	87			3	3	114	90	204
School	0	0			0	0	0	0	0
Total	**2,230**	**1,9 86**	**259**	**259**	**10**	**10**	**2,499**	**2,255**	**4,754**
SATURDAY PRE-GAME PEAK HOUR									
Residential	321	321			3	3	324	324	648
Office	8	46			1	1	9	47	56
Destination Retail	1135	983			3	3	1138	986	2124
Movie Theater	116	71			0	0	116	71	187
Hotel	111	87			3	3	114	90	204
School	0	0			0	0	0	0	0
Total	**1,691**	**1,5 08**	**196**	**196**	**10**	**10**	**1,897**	**1,714**	**3,611**
SATURDAY POST-GAME PEAK HOUR									
Residential	330	330			1	1	331	331	662
Office	32	21			0	0	32	21	53
Destination Retail	755	834			1	1	756	835	1591
Movie Theater	114	186			0	0	114	186	300
Hotel	111	87			0	0	111	87	198
School	0	0			0	0	0	0	0
Total	**1,342**	**1,4 58**	**184**	**184**	**2**	**2**	**1,528**	**1,644**	**3,172**

Note: This table presents inbound and outbound taxi trips for the District rather than by a particular land use. Taxi trips are not assigned to a particular land use because taxi trips are assumed to be shared among all the land uses in the District. Taxi trips are balanced to account for some arriving empty and leaving full, some arriving full and leaving empty, and some arriving and leaving full.

In 2013 with this alternative, Northern Boulevard volumes can be expected to increase by about 55 to 150 vph per direction during the seven peak hours in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the Willets Point Development District and Citi Field, Northern Boulevard volumes can be expected to increase by approximately 60 to 320 vph per direction during each study peak hour, primarily due to traffic from the southbound Whitestone Expressway off-ramp onto westbound Northern Boulevard. Northern Boulevard volumes in the vicinity of 108th and 114th Street can be expected to increase by about 80 to 185 vph per direction during the seven peak hours.

Roosevelt Avenue volumes can be expected to increase by about 15 to 60 vph per direction during the non-game and game day peak hours in Downtown Flushing between Parsons Boulevard and College Point Boulevard. Adjacent to the District, Roosevelt Avenue volumes can be expected to increase by approximately 30 to 235 vph per direction during the peak hours without a Mets game and by about 60 to 310 vph per direction during the peak hours with a Mets game. Roosevelt Avenue volumes in the vicinity of 108th, 111th, and 114th Streets can be expected to increase by about 35 to 260 vph per direction during the seven peak hours analyzed.

Volumes along 126th Street in the vicinity of 34th Avenue can be expected to increase by approximately 90 to 575 vph per direction during the seven peak hours. In the vicinity of the intersections with Roosevelt Avenue and the new Willets Point Boulevard, 126th Street volumes can be expected to increase by about 35 to 360 vph per direction during all of the peak hours.

College Point Boulevard volumes near Roosevelt Avenue would increase by approximately 30 to 230 vph per direction during the seven peak analysis hours.

To determine the extent of significant adverse traffic impacts which may occur in 2013 under the Staged Acquisition Alternative, eight key intersections were selected for analysis during the Saturday midday non-game peak hour and Saturday pre-game peak hour. These peak hours were selected as they represent the worst-case site and street peak hours of the 2013 development program. The site peak hour, or the hour in which the project-generated traffic volumes are at their highest levels, occurs during the Saturday midday non-game peak hour. The street peak hour, or the hour in which the volumes on the street network are at their highest levels, occurs during the Saturday pre-game peak hour. The eight critical locations for analysis of the 2013 build condition were selected based on their proximity to the site and anticipated increase in project-generated traffic volumes. The critical intersections are as follows:

- 126th Street at Northern Boulevard
- Prince Street at Northern Boulevard
- 126th Street at 34th Avenue
- 114th Street at Roosevelt Avenue
- 126th Street at Roosevelt Avenue
- College Point Boulevard at Roosevelt Avenue
- Boat Basin Road at World's Fair Marina Park
- 126th Street at 38th Avenue (the new Willets Point Boulevard in 2017)

An examination of these critical intersections during the Saturday midday non-game and Saturday pre-game peak hours indicates that, in general, the extent of significant adverse traffic impacts in 2013 under the Staged Acquisition Alternative would be similar to those identified in the 2017 proposed Plan. As compared with the 2017 proposed Plan, some lane groups in 2013 under this

alternative would no longer be impacted, while others would experience slight reductions in delay due to the lesser amount of development in place by 2013. However, regardless of the reduced number of impacts and delays to specific lane groups, the critical intersections identified as significantly impacted under the 2017 proposed Plan would also be impacted in the 2013 Staged Acquisition Alternative condition, with the exception of 126th Street at 38th Avenue, which would not be significantly impacted during the Saturday midday non-game peak hour. It was also determined that mitigation measures for 2013 under this alternative would be similar to those identified in Chapter 23, "Mitigation" for the proposed Plan in 2017. The primary reason for the close similarity in mitigation measures is that by the 2013 No Build year conditions, many of the critical traffic study locations would experience substantial delays, a condition that would be exacerbated by the addition of trips generated by the development in place by 2013 under the Staged Acquisition Alternative. This condition is similar to the addition of trips by the proposed Plan onto the 2017 No Build conditions roadway network.

Based on this analysis of critical intersections during the worst-case site and street peak hours for 2013 under the Staged Acquisition Alternative, it could be expected that, in general, study intersections would require similar mitigation measures as those identified in Chapter 23 for the proposed Plan in 2017. It can also be expected that those intersections which could not be mitigated in the proposed Plan in 2017 would have unmitigated impacts at most of the same locations in 2013 of the Staged Acquisition Alternative, with the exception of College Point Boulevard at Roosevelt Avenue. This intersection was found to be partially mitigated during the Saturday pre-game peak hour. Overall, impacts were found to be less severe in 2013.

Parking

It is anticipated that parking needs for both 2013 and 2017 under this alternative would be met by new off-street and on-street parking capacity within the District.

TRANSIT AND PEDESTRIANS

Conditions in 2017

Like the proposed Plan, the Staged Acquisition Alternative when fully built out would generate the same numbers of transit and pedestrian trips and yield a similar pedestrian environment within the District. Therefore, this alternative is expected to result in the same or similar significant adverse transit and pedestrian impacts as the proposed Plan.

Conditions in 2013

In 2013, the numbers of transit and pedestrian trips generated as a result of the Staged Acquisition Alternative would be substantially fewer than those projected for the proposed Plan because trips associated with the local retail and community facility uses, as well as the convention center, would not have been realized, and those associated with the residential and school components would have only been partially realized. Table 24-6 compares the transit and pedestrian trip generation for the completed components of the Staged Acquisition Alternative and for the proposed Plan.

As with the proposed Plan, the Staged Acquisition Alternative in 2013 is expected to yield significant adverse impacts at the street-level stairway (S2) on the north side of Roosevelt Avenue at the Willets Point-Shea Stadium subway station. In 2013, only 9 inches of increased effective width at this stairway would be needed to mitigate the projected impacts rather than the 4 feet, 3 inches required for the proposed Plan. However, it is anticipated that the full widening would take place by 2013.

Table 24-6
Transit and Pedestrian Trip Generation:
Staged Acquistion Alternative (2013) vs. Proposed Plan

Peak Hour	Mode	Staged Acquisition Alternative			Proposed Plan		
		In	Out	Total	In	Out	Total
Weekday AM	Subway	691	1,072	1,691	1,151	1,790	**2,941**
	Bus	492	385	877	649	596	**1,245**
	Walk Only	592	551	1,143	1,429	1,231	**2,660**
	Total Person Trips	**1,775**	**2,008**	**3,783**	**3,229**	**3,617**	**6,846**
Weekday Midday	Subway	1,054	904	1,958	1,574	1,346	**2,920**
	Bus	939	781	1,720	1,296	1,119	**2,415**
	Walk Only	709	686	1,395	2,703	2,634	**5,337**
	Total Person Trips	**2,702**	**2,371**	**5,073**	**5,573**	**5,099**	**10,672**
Weekday PM	Subway	1,508	1,372	2,880	2,264	2,137	**4,401**
	Bus	927	1,092	2,019	1,224	1,387	**2,611**
	Walk Only	515	637	1,152	1,706	2,013	**3,719**
	Total Person Trips	**2,950**	**3,101**	**6,051**	**5,194**	**5,537**	**10,731**
Weekday Pre-game	Subway	1,355	957	2,312	1,979	1,547	**3,526**
	Bus	854	777	1,631	1,094	1,004	**2,098**
	Walk Only	440	337	777	1,371	1,404	**2,775**
	Total Person Trips	**2,649**	**2,071**	**4,720**	**4,444**	**3,955**	**8,399**
Saturday Midday	Subway	1,330	1,165	2,495	1,949	1,709	**3,658**
	Bus	1,286	1,207	2,493	1,559	1,446	**3,005**
	Walk Only	822	682	1,504	2,432	2,047	**4,479**
	Total Person Trips	**3,438**	**3,054**	**6,492**	**5,940**	**5,202**	**11,142**
Saturday Pre-game	Subway	1,008	898	1,906	1,564	1,367	**2,931**
	Bus	952	828	1,780	1,202	1,036	**2,238**
	Walk Only	628	589	1,217	2,174	1,901	**4,075**
	Total Person Trips	**2,588**	**2,315**	**4,903**	**4,940**	**4,304**	**9,244**
Saturday Post-game	Subway	814	909	1,723	1,307	1,479	**2,786**
	Bus	670	750	1,420	873	992	**1,865**
	Walk Only	566	613	1,179	1,895	2,179	**4,074**
	Total Person Trips	**2,050**	**2,272**	**4,322**	**4,075**	**4,650**	**8,725**

The Staged Acquisition Alternative in 2013 would have virtually the same significant adverse impacts on bus operations in the study area. For example, both the eastbound and westbound Q48 and the eastbound Q66 would be impacted during the AM and PM peak periods. During the AM peak period, the eastbound Q48 would require nine additional or 15 total buses under the Staged Acquisition Alternative in 2013, as compared with 14 additional or 20 total buses required for the proposed Plan, to operate within guideline capacity. The westbound Q48 would require four additional or nine total buses under the Staged Acquisition Alternative in 2013, as compared with eight additional or 13 total buses required for the proposed Plan, to operate within guideline capacity. During the PM peak period, the eastbound Q48 would require 18 additional or 22 total buses under the Staged Acquisition Alternative in 2013, as compared with 27 additional or 31 total buses required for the proposed Plan, to operate within guideline capacity. The westbound Q48 would require 17 additional or 21 total buses under the Staged Acquisition Alternative in 2013, as compared with 24 additional or 28 total buses required for the proposed Plan, to operate within guideline capacity.

During the AM peak period, the eastbound Q66 would require eight additional or 23 total buses under the Staged Acquisition Alternative in 2013, as compared with nine additional or 24 total

buses required for the proposed Plan, to operate within guideline capacity. During the PM peak period, the Q66 would require two additional or 13 total buses under the Staged Acquisition Alternative in 2013, as compared with three additional or 14 total buses required for the proposed Plan, to operate within guideline capacity.

The eastbound Q19 would operate within guideline capacity under both the Staged Acquisition Alternative in 2013 and the proposed Plan.

Therefore, under the Staged Acquisition Alternative, the impacts would not be as severe and fewer additional buses would be needed to mitigate the projected bus line-haul impacts.

At approximately half of the total projected pedestrian trips on 126th Street and Roosevelt Avenue and the anticipated development on Lots B and D not yet constructed, the Staged Acquisition Alternative in 2013 would yield fewer and less severe significant adverse pedestrian impacts than the proposed Plan. As a result, all of the impacts identified, as summarized below, could be fully mitigated with smaller crosswalk widenings than needed to mitigate impacts at full build-out.

- The north crosswalk at Roosevelt Avenue and 126th Street would experience its worst impact during the Saturday midday non-game peak period with operations declining to LOS D (18.5 SFP). Restriping this crosswalk from 17 to 18.5 feet wide would fully mitigate this impact.
- The east crosswalk at Roosevelt Avenue and 126th Street would experience its worst impact during the Saturday midday non-game peak period with operations declining to LOS D (15.2 SFP). Restriping this crosswalk from 11.5 to 15 feet wide would fully mitigate this impact.
- The west crosswalk at Roosevelt Avenue and 126th Street would experience its worst impact during the Saturday pre-game peak period with operations declining to LOS D (18.3 SFP). Restriping this crosswalk from 16 to 17.5 feet wide would fully mitigate this impact.
- The east crosswalk at Northern Boulevard and 126th Street would experience its worst impact during the Saturday post-game peak period with operations declining to LOS D (15.2 SFP). As with the proposed Plan, since the projected impacts would occur only on Saturday game days and when game-day traffic management measures—such as the stationing of traffic control officers at this location to facilitate traffic and pedestrian flows, which currently occurs on game days but was not accounted for in the pedestrian analysis—would be in place, restriping the existing crosswalk to a wider width would not be required.

AIR QUALITY

At full build-out in 2017 project-generated vehicle trips, parking facilities, and residential and other developments are expected to be the same under the proposed Plan and the Staged Acquisition Alternative. Therefore, air quality conditions in 2017 with the Staged Acquisition Alternative would be the same as for the proposed Plan.

Conditions in 2013 Without The Staged Acquisition Alternative

Without the Staged Acquisition Alternative, air quality conditions in the District would be similar to the existing air quality conditions and the conditions described for the future without the Proposed Plan in Chapter 19, "Air Quality." Traffic volumes in the area would be higher than under the existing conditions, but not as high as in 2017 without the proposed Plan. Total emissions from vehicles operating in and around the project site in 2013 would be slightly higher than under the existing conditions, but lower than 2017 conditions without the proposed Plan.

Therefore, the concentrations of mobile source pollutants in the District without the Staged Acquisition Alternative are expected to be in the range of concentrations reported for the existing conditions and the future without the proposed Plan in Chapter 19. In the future without the Staged Acquisition Alternative by 2013, HVAC systems, parking facility and industrial source emissions would likely be similar to the corresponding emissions under the existing conditions.

Conditions in 2013 With The Staged Acquisition Alternative

Mobile Sources

As discussed under "Traffic and Parking," traffic generated in 2013 with the Staged Acquisition Alternative would be approximately 60 to 70 percent of the traffic generated under the full build-out of the proposed Plan or the full build-out of the Staged Acquisition Alternative. No significant adverse air quality impacts were predicted for the proposed Plan, as discussed in Chapter 19. Since fewer project-generated vehicle trips are projected for the Staged Acquisition Alternative in 2013 than for the full build-out of the proposed Plan, no significant adverse air quality impacts would be expected in 2013 under the Staged Acquisition Alternative.

Parking Facilities

A conceptual garage at the proposed convention center was discussed in Chapter 19 as the parking facility having the greatest potential for adverse air quality impacts, and no significant impacts were predicted. Under the Staged Acquisition Alternative, the convention center would be built in 2017. Therefore, parking facilities developed by 2013 would be smaller than the conceptual convention center garage discussed in Chapter 19, and would not result in any adverse significant air quality impacts.

HVAC Systems

Fewer HVAC sources would be in operation in 2013 with the Staged Acquisition Alternative compared with the full build-out of the Proposed Plan. The uses developed by 2013 under the Staged Acquisition Alternative would be subject to the same restrictions on HVAC fuel use and exhaust stack placement presented in Chapter 19. The E-designations placed on the District properties would preclude the potential for significant adverse impacts to air quality under both the proposed Plan and the Staged Acquisition Alternative.

Industrial Sources

Under the Staged Acquisition Alternative, the properties on the western portion of the site would be available for residential and other uses by 2013, while the existing industrial and auto businesses on the eastern portion of the site could continue to operate. Those businesses, which were not included in the analysis described in Chapter 19 for the proposed Plan, were considered for their potential to impact the proposed uses that would be built in 2013 with the Staged Acquisition Alternative.

A screening level approach based on Table 3Q-3 in the *CEQR Technical Manual* was used. To assess the effects of multiple sources emitting the same pollutants, cumulative source impacts were determined. Predicted total worst-case impacts for each pollutant were compared with the

short-term guideline concentrations (SGCs) and annual guideline concentrations (AGCs) recommended in DEC's *DAR-1 AGC/SGC Tables.*[1]

Information regarding five additional air emission permits was obtained from DEP for businesses located within the portion of the project site that would not be redeveloped by 2013. Industrial emission sources assessed in the air quality analysis presented in Chapter 19 are all either farther than 1,000 feet from the area that would be developed by 2013, or emit pollutants that are different from those emitted by the existing uses in the District. Therefore, the industrial emission sources analyzed in Chapter 19 and the existing uses remaining in the District in 2013 would not have a cumulative effect.

Table 24-7 shows the air pollutants emitted by the businesses on the eastern portion of the District, the calculated concentrations at the buildings that would be developed by 2013, and the short-term (1-hour) and annual guideline concentrations for these pollutants. As shown in Table 24-7, the maximum predicted short-term and annual concentrations of pollutants emitted by industrial sources are below DEC short-term and annual guideline concentrations. Therefore, emissions from industrial sources would not have significant adverse air quality impacts on the development that would be introduced by 2013.

Table 24-7
Contaminant Concentrations Resulting From Businesses With DEC Permits

Potential Contaminants	Estimated Short-term Impact (ug/m^3)	SGC[a] (ug/m^3)	Estimated Long-term Impact (ug/m^3)	AGC[a] (ug/m^3)
Particulates	333	380	0.56	45[b]
Solvents	16,730	N/A	36	N/A
Toluene	138	37,000	0.21	5,000
N-Butyl Acetate	143	95,000	0.22	17,000
Propylene Glycol Methyl Ether Acetate	72	55,000	0.11	2,000
Ethylene Glycol Butyl Ether Acetate	26	N/A	0.04	310

Notes:
[a] DEC DAR-1 (Air Guide-1) AGC/SGC Tables, September, 2007.
AGC-Annual Guideline Concentrations
SGC-Short-term Guideline Concentrations
[b] Pigment and solids were assumed to be particulates.

NOISE

Conditions in 2017

With the Staged Acquisition Alternative, the project-generated vehicle trips, parking facilities, and building program in 2017 would be similar to those under the proposed Plan. Therefore, noise levels within and around the District in 2017 under the full build-out of the Staged Acquisition Alternative would be the same as for the full build-out of the proposed Plan in 2017.

Conditions in 2013 Without the Staged Acquisition Alternative

Without the Staged Acquisition Alternative, noise levels around the District are expected to be similar to existing noise levels and the conditions described for the future without the proposed

[1] DEC Division of Air Resources, Bureau of Stationary Sources, September, 2007.

Plan in Chapter 20, "Noise." Traffic volumes in the area would be slightly higher than under the existing conditions, although not as high as in 2017 without the proposed Plan, as a result of background growth. This may result in noise levels that are slightly higher than under the existing conditions, although less than noise levels in 2017 without the proposed Plan. The increase between existing noise levels and future 2013 noise levels without the Staged Acquisition Alternative are expected to be barely perceptible and insignificant according to CEQR criteria.

Conditions in 2013 With the Staged Acquisition Alternative

Mobile Sources

As discussed under "Traffic and Parking," traffic generated by the Staged Acquisition Alternative in 2013 would be approximately 60 to 70 percent of the traffic generated by full build-out of the proposed Plan or full build-out of the Staged Acquisition Alternative. The magnitude of the noise increases due to mobile sources would be expected to be less as well. The magnitude of the largest noise level increase in 2017 with the proposed Plan was 3.5 dBA at Site 3 during the Saturday midday time period, as discussed in Chapter 20, "Noise." With only 70 percent of the project-generated traffic, the increase would be approximately 2.1 dBA, which would be a barely perceptible and insignificant increase based upon CEQR criteria. At other locations, where smaller noise level increases are predicted to occur with the proposed Plan, noise levels would also be lower. At all locations with the Staged Acquisition Alternative the increases in noise levels would be smaller than the increase at Site 3 during the Saturday midday time period. As a result, no significant adverse noise impacts would be expected in 2013 with the Staged Acquisition Alternative.

Mechanical Equipment

No detailed designs of the buildings' mechanical systems (e.g., heating, ventilation, and air conditioning systems) are available at this time. However, the systems will be designed to satisfy Building Code regulations for isolation of mechanical noise from residences, and the mechanical equipment would be designed so as not to result in a significant impact on nearby residences.

Attenuation Requirements

The minimum required window/wall attenuation to meet CEQR interior noise level criteria for different locations within the District is shown in Table 20-11 in Chapter 20. Since noise levels at full build-out of the Staged Acquisition Alternative in 2017 are expected to be similar to those predicted for the future with the proposed Plan, these values would also be the minimum required window/wall attenuation to meet CEQR interior noise level criteria under the Staged Acquisition Alternative. The buildings proposed to be built in the western portion of the District by 2013 would require 37 dBA of window/wall attenuation for residential uses or 35 dBA for commercial uses. These E-designations are shown in Table G-1 in Appendix G. During the temporary condition between the 2013 and 2017 these buildings would be located adjacent to the existing uses on the eastern portion of the District, which have the potential to generate significant noise. However, these high levels of attenuation would likely be sufficient to ensure acceptable interior noise levels, based upon CEQR criteria.

PUBLIC HEALTH

Like the proposed Plan, the Staged Acquisition Alternative is not expected to result in significant adverse impacts to public health. As described above, like the proposed Plan, the Staged

Acquisition Alternative would include E-designations and subsequent Restrictive Declarations on properties acquired by the City to ensure that there would be no significant adverse impacts with respect to hazardous materials, noise attenuation, and air quality (specifically associated with the heating, ventilation, and air conditioning system). E-designations for eastern properties would remain in place for a longer duration under this alternative as compared with the proposed Plan, since they would be acquired later under the alternative.

In addition, the preparation and enforcement of a HASP is expected to prevent any significant adverse impacts from hazardous materials. The installation of a vapor control system would prevent vapors from volatile organic compounds (VOCs) that may remain in the soil from entering the buildings and harming public health.

Air emissions from construction equipment and trucks would be reduced to minimum levels by the enforcement of Local Law 77 of 2005, which requires all City-sponsored construction to reduce emissions of diesel particulate matter (DPM) from construction emissions and which is applicable for this project. While it is possible that the construction activities may exceed certain thresholds used for assessing the potential for significant adverse air quality impacts, any exceedances would be limited in extent, duration, and severity. The District is large, and much of it is well-removed from any sensitive receptor. The majority of the construction would not affect the public. Residents and workers in some of the buildings completed early in the Plan could be affected for short periods of time by the limited exceedances of guideline values during construction of the later buildings. Based on the limited duration of these potential exceedances above threshold values, and because of the distance from sensitive receptors, these limited potential increments greater than applicable thresholds are not expected to result in significant adverse impacts on future District populations or populations in the surrounding study area.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. While increases exceeding the CEQR impact criteria for a shorter period of time may be noisy and intrusive, they are not considered to be significant adverse noise impacts. The District is large, and much of it is well-removed from any sensitive receptor. In addition, little night work is expected, and any exceedances of the CEQR criteria at sensitive locations would occur during the day. Therefore, no long-term significant adverse noise impacts are expected from construction activities. ✷

Chapter 25: Unavoidable Significant Adverse Impacts

Unavoidable significant adverse impacts are defined as those that meet the following two criteria:

- There are no reasonably practicable mitigation measures to eliminate the impacts; and
- There are no reasonable alternatives to the proposed project that would meet the purpose and need of the action, eliminate the impact, and not cause other or similar significant adverse impacts.

As described in Chapter 23, "Mitigation," a number of the potential impacts identified for the Willets Point Development Plan could be mitigated. However, as described below, in some cases, project impacts would not be fully mitigated.

A. HISTORIC RESOURCES

As described in Chapter 8, "Historic Resources," the proposed Plan contemplates demolition of the former Empire Millwork Corporation Building, located at 128-50 Willets Point Boulevard in the Willets Point Development District. Demolition of this building would constitute a significant adverse impact on this historic resource. Measures to partially mitigate this impact, which could include archival photo documentation, would be developed in consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP). However, as further outlined in Chapter 23, 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 Plan.

B. TRAFFIC AND PARKING

As discussed in Chapter 17, "Traffic and Parking," the proposed Plan would result in significant adverse impacts at locations within the traffic study areas analyzed in the Draft Generic Environmental Impact Statement (DGEIS), pursuant to the methodologies contained within the *City Environmental Quality Review (CEQR) Technical Manual.* Generally less than half of the locations that would be significantly impacted could be mitigated with traffic improvements such as signal timing changes, installation of signal equipment, parking regulation changes, and a minor turn prohibition.

Under the proposed Plan, 10 to 17 intersections in the traffic study area in each analysis peak hour would experience unmitigatable impacts by the 2017 analysis year; of these, two to four intersections could be partially mitigated. The unmitigated intersections in one or more peak hours would include: Northern Boulevard at 108th, 114th, 126th, Main, Prince, and Union Streets; 34th Avenue at 126th Street; Roosevelt Avenue at 114th, 126th, Prince, Main, and Union Streets, and at College Point Boulevard; Sanford Avenue at Parsons Boulevard; College Point Boulevard at the Northern Boulevard service road; and 126th Street at the new Willets Point Boulevard.

The intersections where significant adverse impacts could be partially mitigated would include Northern Boulevard, at Main Street and at Parsons Boulevard, Roosevelt Avenue at Parsons Boulevard, 34th Avenue at 126th Street, and Sanford Avenue at Parsons Boulevard. At these intersections, traffic improvements would be able to mitigate one or more—but not all—approaches that would be significantly impacted. Specific affected peak hours are described in detail in Chapter 23.

At several of the locations with unmitigatable impacts, congestion would typify conditions under future conditions in 2017 without the proposed Plan. This would especially be the case along Roosevelt Avenue and portions of Northern Boulevard in Downtown Flushing. Traffic generated by the proposed Plan would generally constitute about 2 to 15 percent of the prevailing traffic volumes through the locations on Roosevelt Avenue at College Point Boulevard and at Prince, Main, and Union Streets. Project-generated traffic volumes at unmitigated intersections along Roosevelt Avenue nearer to the District, at 114th and 126th Streets, would generally constitute approximately 9 to 32 percent of the prevailing traffic volumes at those locations. On Northern Boulevard at the unmitigated intersections in one or more peak hours at Union, Main, Prince, 114th, and 108th Streets, and at College Point Boulevard, the volume increment for the proposed Plan would comprise approximately 4 to 19 percent of the total volumes through those traffic analysis locations during the peak hours. Along 126th Street immediately adjacent to the Willets Point Development District and Citi Field, where all analysis locations would be unmitigated, the proposed Plan's traffic would comprise a much larger percentage—about 38 to 69 percent—of the total traffic, since the project-generated increment would be concentrated at the key access/egress points to the District where background (No Build) traffic volumes are generally low, especially on non-game days. Also near the District, the increment through the intersection of 126th Street and Northern Boulevard would be between 14 percent and 25 percent of the total traffic volumes through that location.

Many of the unmitigated intersections would not have a broad range of effective mitigation options primarily because of geometric constraints, which would limit the opportunity for capacity improvements. These geometric constraints would include, for example, narrow roadway rights-of-way, complex intersection alignments with highway ramp connections, and structural obstacles. Also, the prevalence of curbside activity, including bus layover areas, bus stops, truck loading/unloading, and general parking, would limit the ability to gain additional capacity at significantly impacted intersections. Furthermore, because significant traffic impacts at these intersections are expected to occur on multiple approaches, or because congestion would typify the minor streets, any signal timing modifications to improve delays on some approaches would be impractical, since they would worsen—or create—significant impacts on other approaches.

C. TRANSIT AND PEDESTRIANS

As discussed in Chapter 18, "Transit and Pedestrians," the proposed Plan would result in significant adverse impacts on subway station operations, bus line-haul, and street level pedestrian facilities. Potential measures to mitigate these impacts are described in Chapter 23.

Significant adverse pedestrian impacts were identified for the east crosswalk at the intersection of Northern Boulevard and 126th Street during the Saturday pre-game and post-game peak periods. Game-day traffic management measures would be in place during these periods, so it is unlikely that physical widening of the existing crosswalk would be needed to mitigate this impact. However, the proposed Plan would also result in significant adverse pedestrian impacts at the north, east, and west crosswalks at the intersection of Roosevelt Avenue and 126th Street, and at the north crosswalk at the newly signalized intersection of Roosevelt Avenue and the Lot

B driveway during the weekday midday peak period, the weekday PM peak period, the weekday pre-game peak period, the Saturday non-game peak period, the Saturday pre-game peak period, and the Saturday post-game peak period. As described in Chapter 23, restriping these crosswalks would be required to mitigate these significant adverse impacts. If such widenings could not be achieved, the projected significant adverse impacts during these time periods would remain unmitigated or partially mitigated.

D. NOISE

As discussed in Chapter 20, "Noise," traffic generated by the proposed Plan would result in significant adverse noise impacts at the World's Fair Marina Park north of the District during the non-game Saturday midday time period. Although noise levels of this magnitude frequently occur at parks or portions of parks that are adjacent to heavily trafficked roadways, this noise level increase exceeds the CEQR threshold for a significant impact. There would be no feasible or practicable measures to mitigate this impact. As a result, this would be an unmitigatable significant adverse impact. ✷

Chapter 26: Growth-Inducing Aspects of the Proposed Plan

This chapter provides an assessment of the potential growth-inducing aspects of the proposed Plan. These generally refer to "secondary" impacts that could trigger additional development in areas outside of the Willets Point Development District that would not have such development without the proposed Plan. The *City Environmental Quality Review (CEQR) Technical Manual* indicates that an analysis of the growth-inducing aspects of a proposed action is appropriate when an action:

- Adds substantial new land use, new residents, or new employment that could induce additional development of a similar kind or of support uses, such as retail establishments to serve new residential uses; and/or
- Introduces or greatly expands infrastructure capacity.

The proposed Plan would transform a largely underutilized site with substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination. The Plan would introduce a variety of uses, including residential, retail, office, hotel, convention center, community facility, open space, and parking (see Chapter 1, "Project Description," for details).

As described in Chapter 2, "Procedural and Analytical Framework," it is anticipated that if the proposed Plan is approved and the District is redeveloped into a new mixed-use community, additional development could occur on Citi Field parking lot B (Lot B) and on Lot D, a surface parking lot south of Roosevelt Avenue that is currently used by commuters, as well as for Mets games and USTA National Tennis Center events. While specific development plans for Lots B and D have not yet been proposed, it is anticipated that approximately 280,000 sf of office and 184,500 sf of retail could potentially be developed on Lot B, and that a five-level parking garage containing approximately 1,543 parking spaces could be developed on Lot D. This garage would replace the parking uses on Lots B and Lot D, and provide additional parking to serve the new commercial uses developed on Lot B. While any future development on Lots B or D would require its own environmental review process subject to CEQR, this DGEIS considers the cumulative impacts of both the Willets Point Development Plan and the proposed development on Lots B and D.

While the uses proposed for the District would contribute to growth in the local Queens, City, and State economies, they would not be expected to induce notable growth outside of the District and anticipated development on Lots B and D. As described in Chapter 3, "Land Use, Zoning, and Public Policy," it is unlikely that the proposed Plan and development on Lots B and D would alter land use patterns in surrounding neighborhoods. Given the recent trend to redevelop underutilized sites near the Flushing River waterfront, it is possible that the proposed Plan and new development on Lots B and D could encourage further redevelopment of some nearby underutilized sites along the Flushing River. However, given that such changes are already under way, potential development parcels are limited, and the District is physically separated from surrounding neighborhoods by water bodies, roadways, and parkland, the ability of the proposed

Plan to alter land use and economic patterns or induce substantial growth in the study area would be minimal.

As described in Chapter 2, substantial infrastructure and roadway improvements would be provided as part of the proposed Plan. New sanitary and stormwater lines would be installed in the District, and a new pump station would be constructed, or water reclamation facility could potentially be constructed to accommodate the additional sanitary and stormwater demand generated by future development in the District and on Lots B and D. Some existing water mains would be replaced and possibly realigned, and additional power lines (and potentially a new cogeneration facility and/or substation) would be provided to serve the new uses in the District. New roadways would be provided within the District, and new ramps connecting the District to the Van Wyck Expressway would be constructed. Infrastructure and roadway improvements included in the proposed Plan are intended to support the anticipated growth in the District and on Lots B and D. The infrastructure in the study area is already well-developed such that improvements associated with the proposed Plan would not induce additional growth. ✷

Chapter 27: Irreversible and Irretrievable Commitment of Resources

There are a number of resources, both natural and built, that would be expended in the construction and operation of the proposed Plan. These resources include the building materials used in construction of the proposed Plan; energy in the form of gas and electricity consumed during construction and operation of the Plan; and the human effort (time and labor) required to develop, construct, and operate various components of the Plan. They are considered irretrievably committed because their reuse for some purpose other than the proposed Plan would be highly unlikely. The proposed Plan constitutes a commitment of the site as a land resource, thereby rendering land use for other purposes infeasible. However, the transformation of a largely underutilized site with substandard conditions and substantial environmental degradation into a lively, mixed-use, sustainable community and regional destination would be an improvement to the District and the surrounding areas. Meanwhile, the new land uses associated with the proposed Plan would be similar to, and compatible with, those in the surrounding areas. ✷

Chapter 28: Potential Effects of Acquisition and Relocation[1]

A. INTRODUCTION

The proposed Plan calls for the redevelopment of the Willets Point Development District (the District), an approximately 61-acre area generally bounded to the east by the Van Wyck Expressway and an undeveloped lot owned by the Metropolitan Transportation Authority, to the south by Roosevelt Avenue, to the west by 126th Street, and to the north by Northern Boulevard. The proposed Plan includes a mix of residential, retail, hotel, convention center, entertainment, commercial office, community facility, open space, and parking uses.

The District currently contains an estimated 260 businesses that, along with their attendant employees, would be directly displaced by the proposed Plan. (Chapter 4, "Socioeconomic Conditions," fully examines the potential effects of the proposed Plan on population and housing characteristics, economic activity, and the commercial real estate market.)

Since issuance of the DGEIS, the City has reached several individual agreements to purchase properties in Willets Point from their owners. As part of its ongoing relocation planning effort, to date the City has identified viable relocation sites for three businesses. These are discussed and evaluated in this analysis. For the sites that do not yet have specific relocation packages in place at this time, the evaluation of suitable potential relocation sites is in progress[2]. As the City reaches agreements with additional property owners, it is expected that relocation sites for those affected businesses would also be identified.

B. RELOCATION PLANNING AND ASSISTANCE

Aside from the relocation sites currently being contemplated, it is not possible to predict exactly where District businesses would relocate if they were displaced by the proposed Plan. However, it can be assumed that they would relocate to other parts of the City that are zoned to permit these uses. Aside from Tully Environmental and Crown Container, none of the businesses located in the District are large emitters of air pollutants (none require a State Facility or Title V permit), and none have unique operational characteristics that might cause them to have particular potential for effects on the environment[3]. Therefore, it is unlikely that individual

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[1] This chapter is new in the FGEIS.

[2] The City has entered into a contract to purchase the Willets Point property owned by BRD (Block 1823, Lots 47, 52, and 55) and entered into a contract to purchase property owned by MA Realty (Block 1822, Lot 17). The purchase of the BRD property has been the subject of its own environmental review. No relocation packages have been determined for the three businesses currently operating on the BRD property.

[3] Tully Environmental has a permit to operate as a Putrescible Solid Waste Transfer Station with a permitted capacity of 900 tons per day, and an associated operation, Willets Point Asphalt, has a New York State Department of Environmental Conservation (NYSDEC) State Facility air permit. Crown

District businesses would have the potential to result in significant adverse impacts in the areas to which they would relocate. As most District businesses would relocate individually, it is not expected that particular neighborhoods would experience an influx of new industrial uses. However, for the remaining businesses with no specific relocations plans available, any definitive assessment of the potential for significant adverse impacts would be speculative. Consequently, it is not possible to make site-specific conclusions about the potential for significant adverse impacts due to business relocation activity.

If the proposed Plan is approved, the City would offer assistance to individual employees working at businesses that are subject to direct displacement. In partnership with the New York City Department of Small Business Services (SBS), the New York City Economic Development Corporation (NYCEDC) has retained LaGuardia Community College (LAGCC) to develop a workforce assistance program for District workers who would be displaced by the proposed Plan. The workforce assistance program, which would commence after the ULURP process is completed in November, would include job training to prepare workers for job opportunities, and job placement for eligible participants. LAGCC plans to use existing career centers to provide educational, job placement, and career counseling services. LAGCC would conduct extensive outreach efforts to allow eligible District workers to gain access to their services. In addition, LAGCC would screen candidates to match qualified job seekers with jobs from employers in the auto, industrial and manufacturing sectors. NYCEDC is offering financial incentives to encourage participation by District workers in the program, such as stipends for transportation.

C. POTENTIAL RELOCATION SITES

The City has identified two viable relocation properties for three businesses. The relocation sites under consideration are in College Point Queens. The relocation properties are City-owned and no acquisition is needed. Table 28-1 shows each of the potential sites for relocation. Site 1 would house two separate businesses; the site would be divided proportionately based on the relative size of the properties each currently owns.

Table 28-1
Relocation Sites and Potential Uses

Relocation Site	Location	Existing Use	Potential Use
1	130th Street and 23rd Avenue College Point, Queens Block 4206, Lot 100 Block 4207, p/o Lot 1	Vacant	Industrial recycling, wholesaling, and distribution
			Auto-related use
2	29th Avenue and 122nd Street College Point, Queens Block 4317, Lots 1 and 20	Asphalt manufacturing plant	Wholesale dealer in used auto parts

Container has a permit to operate as a Non-Putrescible Solid Waste Transfer Station with a permitted capacity of 375 tons per day. Relocation sites for these businesses would most likely be in M3 zoning districts separated from sensitive uses, near other uses requiring similar types of permits. It is anticipated that if relocated, these businesses would obtain operating permits similar to those they now hold. Other measures to protect the environment that would be controlled by the permits or through DSNY siting criteria may include the maximum volume of waste stored, time frames for waste material to be removed from the transfer station for final disposition, the maximum height of waste piles, dust control measures, minimum distance from another transfer station; required enclosures; and sufficient space to allow for queuing of trucks.

D. POTENTIAL EFFECTS OF RELOCATION

SITE 1—QUEENS BLOCK 4206, LOT 100; BLOCK 4207, P/O LOT 1

A potential relocation site has been identified at 130th Street and 23rd Avenue in College Point, Queens. Currently, this is a vacant lot. It is expected that this City-owned site (Block 4206, Lot 100 and a portion of Block 4207, Lot 1) would be shared between two relocated businesses. The approximately 45,000-square-foot site would be divided proportionately based on the relative size of the properties each currently owns. The businesses that would relocate to the site include an industrial recycling, wholesale and distribution operation, and an auto-related use.

For each of the two businesses, a one-story building would be constructed and an access/driveway would be provided. Together, the two buildings are expected to include approximately 14,000 gross square feet of space.

LAND USE, ZONING, AND PUBLIC POLICY

The site is zoned M1-1, and there are a number of storage, distribution, and light manufacturing uses in the area (See Figure 28-1). There are also residential uses starting several blocks to the west, which includes an area of R4, R4A, R4-1, and R2A zoning districts.

The site is located within the boundaries of the College Point II Urban Renewal Plan (URP). The Urban Renewal Area is generally bounded by 14th Road and 15th Avenue to the north, the Whitestone Expressway to the east, 31st Road to the south, and 130th Street, 127th Street, 120th Street and 122nd Street to the west. The relocation site is also located in the College Point Corporate Park, a 550-acre corporate park formed in 1969 under the URP. The park was created to improve largely vacant land and attract investment in the College Point area by local and international companies. The park contains approximately 175 businesses and employs around 5,500 people. Notable industrial businesses include *The New York Times* printing and distribution plant; Judlau, a construction contracting company; Crystal Windows, a manufacturer of windows and doors; Ares Printing and Packaging, a printing and distribution company; and Graphic Communication Center, another printing and distribution company. Also within the park are the North American headquarters for Skanska (a Swedish construction company) and several big box retailers.

The use of the relocation site for industrial recycling, wholesaling and distribution and for auto-related uses would be in keeping with existing land uses and would be permitted by current zoning in the M1-1 zoning district. Overall, the relocation of two businesses to the site would not be expected to result in significant adverse impacts to land use, zoning, or public policy.

SOCIOECONOMIC CONDITIONS

According to the *New York City Environmental Quality Review (CEQR) Technical Manual*, a socioeconomic assessment should be conducted if a proposed project may reasonably be expected to create substantial socioeconomic changes within the area affected by the action that would not occur in the absence of the action. Residential development of 200 units or fewer or commercial development of 200,000 square feet or less would typically not result in significant socioeconomic impacts.

With the proposed relocation of an industrial recycling, wholesale and distribution operation, and an auto-related use, there would be no displacement of any residential populations,

businesses, or employees. The businesses would collectively include less than 200,000 square feet of space. There would not be a substantial change in the surrounding neighborhood's overall character, and no change in market-rate rents in the surrounding neighborhood. Overall, there would not be a significant adverse impact on the socioeconomic character of the community surrounding the site.

COMMUNITY FACILITIES AND SERVICES

The potential relocation of two businesses would not involve the development of any residential units. As such, no further analysis is required and the proposed action would not result in any significant adverse impacts to community facilities and services.

OPEN SPACE

The *CEQR Technical Manual*'s threshold for a detailed analysis of open space is an expected population increase of 200 or more residents or 500 or more employees. The relocation of an industrial recycling, wholesale and distribution operation, and an auto-related use would not result in any residential development and would result in far less than 500 employees (less than 15 full-time equivalent employees are expected based on these businesses current operations). Therefore, there would not be a significant adverse impact to open space and no further analysis is necessary.

SHADOWS

As described above, two one-story buildings would be constructed to accommodate the two businesses. These buildings would not include any new structures 50 feet or greater in height. The site is not immediately adjacent to a park, historic resource or important natural feature. Therefore, according to the guidelines of the *CEQR Technical Manual,* a detailed analysis is not required and there would not be a significant adverse shadow impact.

HISTORIC RESOURCES

The New York City Landmarks Preservation Commission (LPC) has determined that the relocation site is not sensitive for potential archaeological resources. Therefore, any work on the site would not have any effect on archaeology and there would not be a significant adverse impact.

Study areas for architectural resources are determined based on the area of potential effects for construction-period impacts, such as ground-borne vibrations, and on the area of potential effects for visual or contextual effects. There are no architectural resources on the site or in a 400-foot radius from the site. Therefore, the proposed relocation of two businesses to the site would have no adverse direct or indirect impacts on architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

The site is located in a mixed-use context within College Point that includes distribution, manufacturing, residential, and other uses. There are no visual resources on the site or in the surrounding area. There would be no significant impacts to the urban design of the site itself or the surrounding area. The proposed use would generally be in keeping with the surrounding area, and significant adverse impacts on urban design or visual resources are not anticipated.

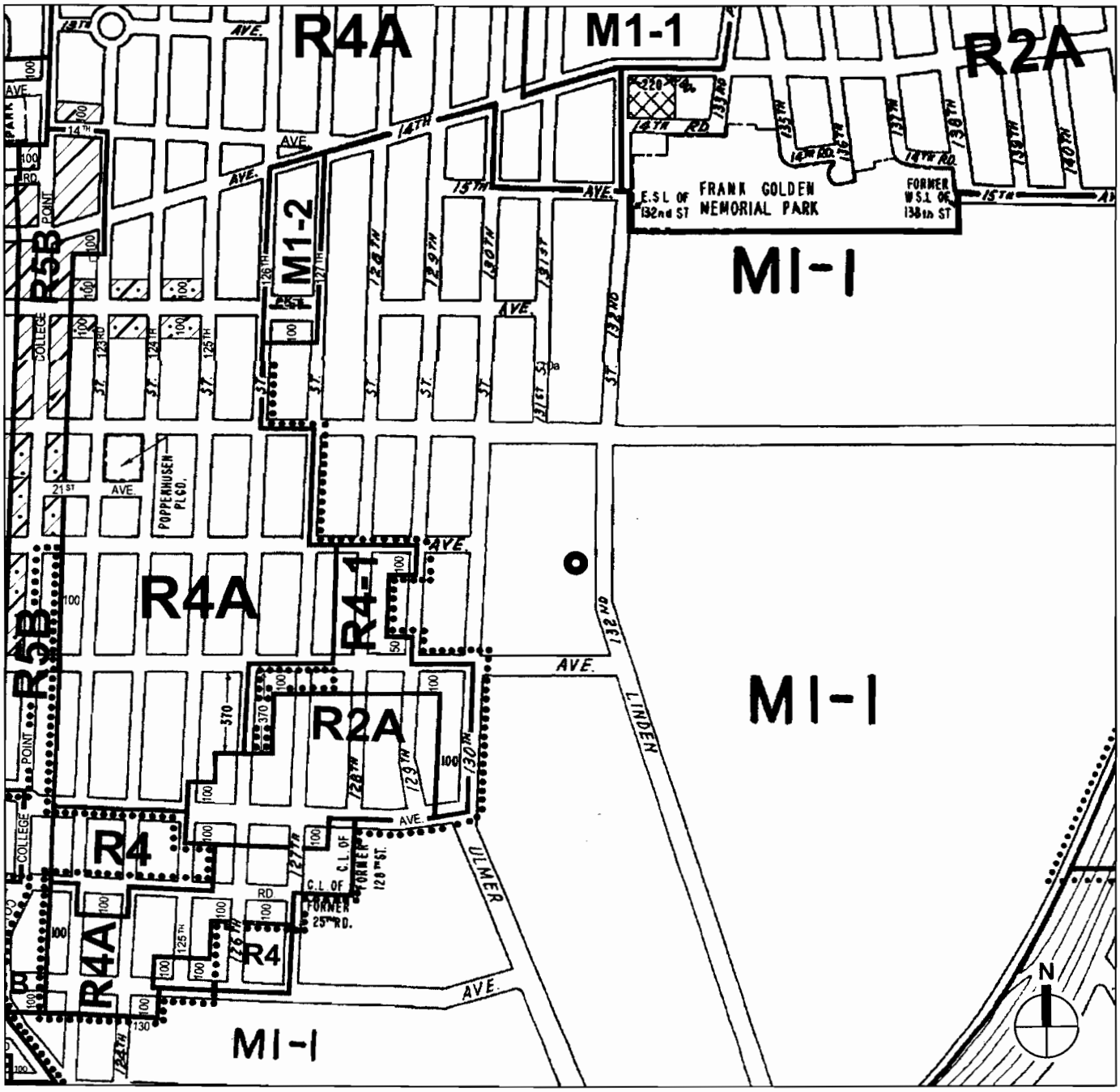


Figure 28-1
Potential Relocation Site—Zoning

NEIGHBORHOOD CHARACTER

The proposed use would be consistent with the existing neighborhood character, where warehouses, manufacturing, and other uses coexist. The proposed uses would be consistent with those permitted under zoning. The proposed relocation of the two businesses would not result in any significant adverse impacts to land use, traffic, noise, air quality, or any of the other elements that contribute to neighborhood character. Therefore, there would not be a significant adverse impact to neighborhood character.

NATURAL RESOURCES

A natural resources assessment is conducted when a natural resource is present on or near a site and when an action involves the disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetland resources, including freshwater and tidal wetlands; upland resources, including beaches, dunes, and bluffs, thickets, grasslands, meadows and old fields, woodlands and forests, and gardens and other ornamental landscaping; and built resources, including piers and other waterfront structures. A small area (estimated to be less than 4,000 square feet) on the eastern portion of the relocation site is part of a larger mapped freshwater wetland. A final site plan for the new buildings has not been completed. In the event that development occurs in the mapped wetland or adjacent area, a permit will be needed from NYSDEC and potentially the U.S. Army Corps of Engineers. Such permitting process would involve a separate environmental review. If any wetland filling should occur, mitigation would be provided in the former Flushing Airport area as part of the Flushing Airport Wetlands Restoration Project.

HAZARDOUS MATERIALS

A Phase I Environmental Site Assessment (ESA) was prepared for the site in 2007 by TRC Environmental Corporation to determine the potential for hazardous materials conditions, including any past uses, recorded spills, the potential for asbestos-containing materials, and other relevant information. According to the Phase I ESA, fill was placed on what was previously open water or wetlands; as a result, the generation of methane and related potential vapor intrusion represents a recognized environmental condition for on-site development.

The Phase I ESA made the following recommendations with respect to environmental concerns:

- If underground or aboveground structures or subsurface excavations are planned as part of the site development, a soil gas study should be conducted on the site to assess the presence and nature of methane vapors (an explosion or toxic byproduct gas hazard) associated with the historic filling of this area.
- If future development requires the disturbance and/or off-site disposal of on-site soils or fill, they should be appropriately characterized and managed in accordance with applicable local, state and federal regulations and guidelines.
- A limited amount of construction debris and litter was observed on the Site (i.e., steel I-beams, concrete, tires, wood planks, a shopping cart, plastic bottles) during the site reconnaissance. These materials should be collected and disposed of or recycled in accordance with local and state regulations.

As part of its contract to sell the relocation site and/or as part of deed restrictions on the property, the City will include language that identifies measures to be undertaken prior to

construction on the site, including, if appropriate, a soil gas study to determine the presence of methane vapors. Work would be conducted in accordance with a Remedial Action Plan (RAP) approved by the New York City Department of Environmental Protection (DEP) and, if applicable, NYSDEC, and would include a Health and Safety Plan (HASP). The HASP would detail measures to reduce the potential for exposure (e.g., dust control) and measures to identify and manage known contamination and unexpectedly encountered contamination. With these measures in place, it is expected that there would not be any significant adverse impacts from hazardous materials.

WATERFRONT REVITALIZATION PROGRAM

The relocation site is located within the coastal zone. The City's policy is to review a project's consistency with the waterfront revitalization program (WRP) policies if a proposed project is located within a coastal zone area. A Coastal Assessment Form has been prepared that evaluates consistency with New York City Coastal Zone policies and it has been determined that the anticipated uses on the relocation site would generally be consistent with the WRP. The Coastal Assessment Form is attached as Appendix D.

INFRASTRUCTURE

The use of the relocation site by an industrial recycling, wholesale and distribution operation, and an auto-related use would not result in an exceptionally large demand for water, nor would it generate unusually large sanitary or stormwater flows. Therefore, it would not result in any significant adverse impacts to infrastructure, and no further analysis is necessary.

SOLID WASTE AND SANITATION SERVICES

In accordance with the *CEQR Technical Manual*, which states that actions involving construction of housing or other development generally do not require evaluation of solid waste and sanitation impacts unless they are unusually large, a detailed assessment of solid waste and sanitation services is not warranted. The businesses proposed for relocation are fairly modest in size and will not have a noticeable effect on public solid waste and sanitation services. Any solid waste generated would be handled by commercial haulers. Overall, no significant adverse solid waste and sanitation services impacts are anticipated.

ENERGY

The proposed relocation of these businesses would not result in a substantial demand for energy. According to the *CEQR Technical Manual*, detailed assessments of energy impacts are limited to those actions that would significantly affect the transmission or generation of energy or that generate substantial indirect consumption of energy. The amount of energy that would be consumed by the two businesses would not be significant and would not place excessive burdens on the infrastructure used in the provision of energy. A detailed assessment of energy is not warranted, and there would not be any significant adverse impacts related to energy.

TRAFFIC AND PARKING

Based on the businesses' existing operations in Willets Point, the proposed relocation of an industrial recycling, wholesale and distribution operation, and an auto-related use would not result in more than 50 peak hour vehicle trips, the threshold for additional analysis set forth in the *CEQR Technical Manual*. Together, the two businesses would have less than 15 full-time

employees and are not expected to result in a significant amount of vehicle trips through area intersections. One business has three vehicles and no customers visiting its site. For the other business, material is picked up and delivered to the site two to three times per day in pickup trucks, while larger trailers make pickups once or twice per week. Overall, the two businesses collectively would not generate more than 50 peak hour vehicle trips, and no further analysis is necessary.

TRANSIT AND PEDESTRIANS

Transit and pedestrian analyses determine whether a proposed action can be expected to have a significant impact on public transportation facilities and services and on pedestrian flows. Together, the two businesses would have less than 15 full-time employees. Most or all access to the site is expected to be in private vehicles and trucks. Thus, the occupation of the relocation site by an industrial recycling, wholesale and distribution operation, and an auto-related use would not meet or exceed the thresholds established in the *CEQR Technical Manual*. Therefore, there would not be any significant adverse impacts to transit or pedestrian conditions.

AIR QUALITY

The proposed reuse of the site is not expected to notably alter traffic conditions. The maximum hourly incremental traffic would not exceed the *CEQR Technical Manual* air quality screening threshold of 100 peak hour vehicle trips. Since the proposed businesses would result in fewer than 100 new peak hour vehicle trips at nearby intersections in the study area, a quantified assessment of on-street mobile source emissions is not warranted. The primary source of emissions would likely be from fossil fuel-fired heating and hot water systems.

The primary pollutant of concern when burning natural gas is nitrogen dioxide, and when burning oil, sulfur dioxide. Section 3Q of the *CEQR Technical Manual* provides a screening methodology to determine the need for detailed analysis of the effects of a project's heating, ventilation, and air conditioning (HVAC) system on other buildings nearby. The nearest distance to a building of a similar or greater height with elevated receptors associated with a sensitive use was determined to be beyond 400 feet; therefore, this distance was chosen for the analysis in accordance with the guidance provided in the *CEQR Technical Manual*. The combined development space for both businesses is anticipated to be 14,000 square feet. Burning either fuel would not result in any significant stationary source air quality impact, since the proposed development on this site is below the maximum permitted size shown in Figure 3Q-3 on the *CEQR Technical Manual*. Therefore, the proposed reuse of the site would not result in any potential significant adverse air quality impacts.

NOISE

A noise analysis is appropriate if a project would generate any mobile or stationary sources of noise or would occur in an area with high ambient noise levels. According to the *CEQR Technical Manual*, a doubling of traffic volumes over existing levels (in terms of passenger car equivalents, or PCEs) is the increase that would result in a perceptible change to mobile-source noise levels. Since there would not be a doubling of PCEs, there would not be a noticeable change in noise levels due to project-generated traffic. The proposed operations are not expected to result in unusually high operating noise levels and would not result in sensitive uses in an area with existing high noise levels. Overall, there would not be a significant adverse noise impact, and no further analysis is necessary.

CONSTRUCTION IMPACTS

As described above, work will be needed on the site in order to accommodate the two businesses proposed for relocation. This is expected to include regrading and construction of one-story buildings and access/driveway points. Construction would result in temporary disruptions to the surrounding community, such as occasional noise and dust. These effects would be short-term and would not be considered significant. The project would be required to comply with applicable control measures for construction noise. Construction noise is regulated by the New York City Noise Control Code and by noise emission standards for construction equipment issued by the U.S. Environmental Protection Agency. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise standards; that, except under exceptional circumstances, construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction material be handled and transported in such a manner as to not create unnecessary noise.

PUBLIC HEALTH

As described above, the proposed relocation of the two businesses would not result in significant adverse impacts to air quality or noise. The proposed plan would not involve solid waste management practices that would attract vermin or pest populations. Hazardous materials conditions, if any, will be handled in accordance with applicable regulations to ensure that no potential effects on public health would occur.

SITE 2—QUEENS BLOCK 4317, LOTS 1 AND 20

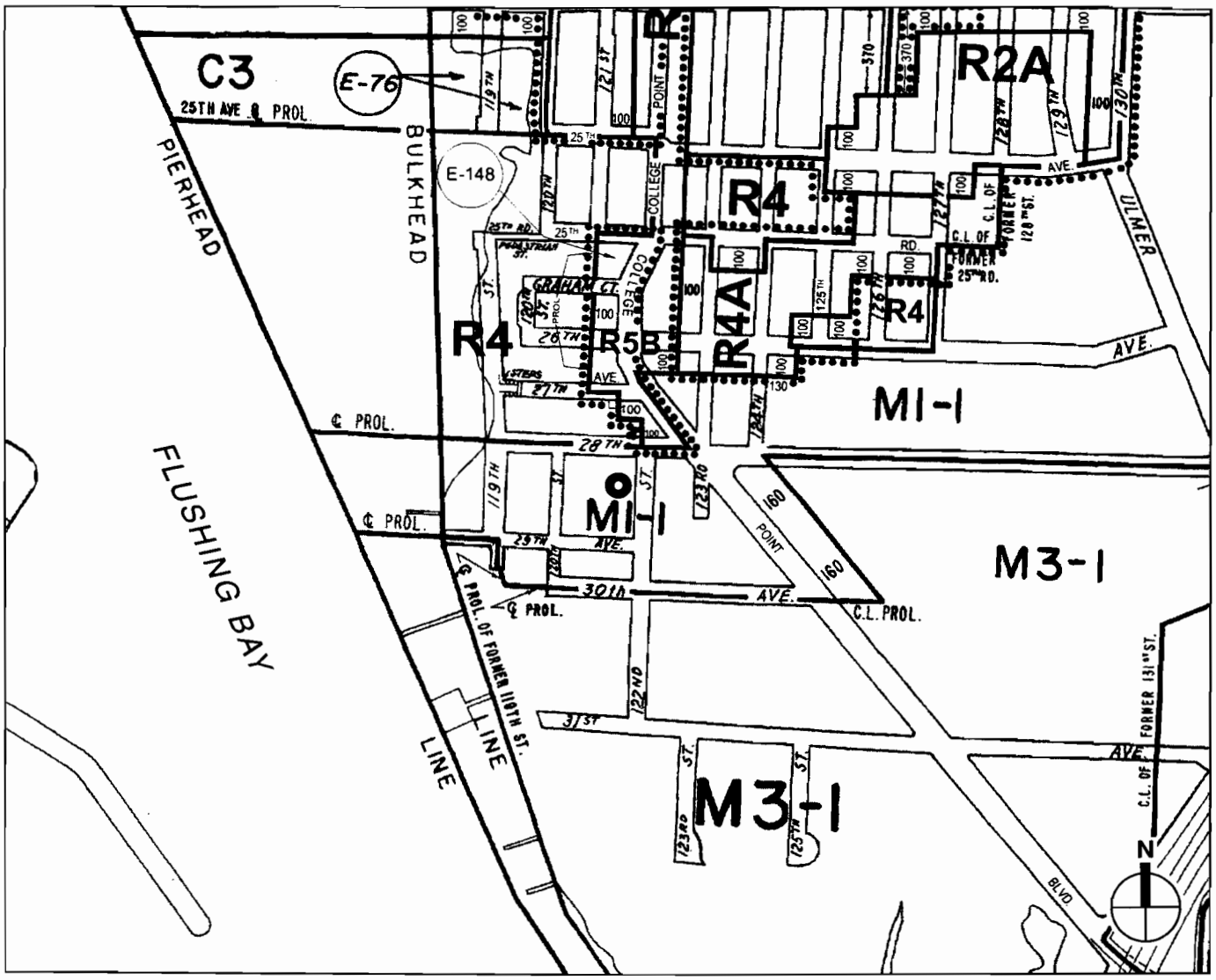
A second potential relocation site has been identified at 122nd Street and 29th Avenue in College Point, Queens. It is expected that this 45,750-square-foot site (Block 4317, Lots 1 and 2) would be occupied by a wholesaler and dealer in used auto parts. Currently, there is an asphalt manufacturing plant on the site that is expected to move and consolidate with the rest of that company's operations on a neighboring property.

To accommodate the relocated business, it is expected that an approximately 8,000-square-foot, one-story building would be constructed to house office space and another structure would be built for parts storage. Access to the site would likely be provided from 29th Avenue.

LAND USE, ZONING, AND PUBLIC POLICY

The site is zoned M1-1, and there are a number of storage, distribution, and other light industrial uses in the area. There are also residential uses to the north of the site, directly across 28th Avenue and approximately 250 feet to the west, on the west side of 120th Street. As shown in Figure 28-2, the area surrounding the site is zoned primarily M1-1, M3-1, R4 and R5-B. This relocation site is located within the boundaries of the College Point II URP and within the College Point Corporate Park.

The use of the relocation site for a wholesaler and dealer in used auto parts would be in keeping with the mix of existing land uses found in the area and would be permitted by current zoning in the M1-1 zoning district. Overall, the relocation of this business to the site would not be expected to result in significant adverse impacts to land use, zoning, or public policy.



Potential Relocation Site

Figure 28-2
Potential Relocation Site—Zoning

SOCIOECONOMIC CONDITIONS

As described above, according to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a proposed project may reasonably be expected to create substantial socioeconomic changes. With the proposed relocation of a wholesaler and dealer in used auto parts to the site, there would be no displacement of any residential populations, businesses, or employees, and the business would include less than 200,000 square feet of space. There would not be a substantial change in the surrounding neighborhood's overall character, and no change in market-rate rents in the surrounding neighborhood. Overall, there would not be a significant adverse impact on the socioeconomic character of the community surrounding the site.

COMMUNITY FACILITIES AND SERVICES

The potential relocation of a business to the site would not involve the development of any residential units. As such, no further analysis is required and the proposed action would not result in any significant adverse impacts to community facilities and services.

OPEN SPACE

The *CEQR Technical Manual*'s threshold for a detailed analysis of open space is an expected population increase of 200 or more residents or 500 or more employees. The relocation of a wholesaler and dealer in used auto parts would not result in any residential development and would result in far less than 500 employees (based on the business's current operations, there are expected to be approximately 10 full-time employees). Therefore, there would not be a significant adverse impact to open space and no further analysis is necessary.

SHADOWS

As described above, a small one-story office building would be constructed to accommodate the relocated business. There would also be a storage building for auto parts. Neither of these buildings is expected to be 50 feet or greater in height and would not be immediately adjacent to a park, historic resource or important natural feature. Therefore, according to the guidelines of the *CEQR Technical Manual,* a detailed analysis is not required and there would not be a significant adverse shadow impact.

HISTORIC RESOURCES

LPC has determined that the relocation site is not sensitive for potential archaeological resources. Therefore, any work on the site would not have any effect on archaeology and there would not be a significant adverse impact.

Study areas for architectural resources are determined based on the area of potential effects for construction-period impacts, such as ground-borne vibrations, and on the area of potential effects for visual or contextual effects. There are no architectural resources on the site or in a 400-foot radius from the site. As there are no architectural resources on the site or in the surrounding area, the proposed relocation of the business to the site would have no adverse direct or indirect impacts on architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

The site is located in a mixed-use context within College Point that includes distribution, manufacturing, residential, and other uses. There are no visual resources on the site or in the

surrounding area. There would be no significant impacts to the urban design of the site itself or the surrounding area. The proposed use would generally be in keeping with the surrounding area, and significant adverse impacts on urban design or visual resources are not anticipated.

NEIGHBORHOOD CHARACTER

The proposed use would be consistent with the existing neighborhood character, where industrial buildings, storage facilities, residences, and other uses are all found. The proposed use would be consistent with those permitted under zoning and in keeping with the mixed-use character of the area. The proposed relocation of a wholesaler and dealer in used auto parts would not result in any significant adverse impacts to land use, traffic, noise, air quality, or any of the other elements that contribute to neighborhood character. Therefore, there would not be a significant adverse impact to neighborhood character.

NATURAL RESOURCES

As described above, a natural resources assessment is conducted when a natural resource is present on or near a site and when a proposed project involves the disturbance of that resource. The relocation site is located in a well-developed light industrial and residential part of Queens, and there are no natural resources on or adjacent to the site. Therefore, the proposed action would not result in significant adverse impacts to natural resources, and no further analysis is required.

HAZARDOUS MATERIALS

Environmental conditions at the project site were evaluated in a 1998 Phase I Environmental Site Assessment (ESA) and an Investigation Summary Report dated January 2005. Past uses of the property included carting operations and automotive maintenance activities. Several petroleum aboveground and underground storage tanks were present, and diesel, gasoline, lubricants, hydraulic oils, and solvents were commonly used on-site. Reportedly, all underground storage tanks have been removed from the property.

According to the Investigation Summary Report, petroleum-contaminated soil was discovered during the closure of six underground storage tanks, and approximately 175 cubic yards of petroleum-contaminated soil were excavated during the tank closure activities. A spill was reported (Spill No. 98-11754) to NYSDEC. Numerous soil and groundwater investigations were conducted to ascertain subsurface conditions and determine the extent of contamination from the petroleum spill. The investigations included the advancement of soil borings, the installation of groundwater monitoring wells, and the collection of soil and groundwater samples for laboratory analysis. Petroleum-contamination was detected in both soil and groundwater and remedial actions were implemented, including the active pumping of contaminated groundwater from monitoring wells and the installation of passive skimmers to collect petroleum from the groundwater table.

An investigation was conducted in 2004 to facilitate the regulatory closure of the active spill. Elevated levels of contaminants detected in soil samples were attributed to the urban fill at the site; no further investigation or remediation of soil was recommended. Concentrations of petroleum-related compounds above regulatory criteria were detected in the groundwater in the area of the former six underground storage tanks and an active remedial action was recommended. Reportedly, the site was the subject of a Brownfield Cleanup Program (BCP)

application to address the residual groundwater contamination the site; however, no information regarding its acceptance into the program was available.

As part of its contract to sell the relocation site and/or as part of deed restrictions on the property, the City will include language that identifies measures to be undertaken prior to construction on the site. Work would be conducted in accordance with a RAP approved by DEP and, if applicable, NYSDEC, and would include a HASP. The HASP would detail measures to reduce the potential for exposure (e.g., dust control) and measures to identify and manage known contamination and unexpectedly encountered contamination. With these measures in place, it is expected that there would not be any significant adverse impacts from hazardous materials.

WATERFRONT REVITALIZATION PROGRAM

The relocation site is located within the coastal zone. The City's policy is to review a project's consistency with the WRP policies if a proposed project is located within a coastal zone area. A Coastal Assessment Form has been prepared that evaluates consistency with New York City Coastal Zone policies and it has been determined that the anticipated use on the relocation site would generally be consistent with the WRP. The Coastal Assessment Form is attached as Appendix D.

INFRASTRUCTURE

The use of the relocation site by a wholesaler and dealer in used auto parts would not result in an exceptionally large demand for water, nor would it generate unusually large sanitary or stormwater flows. Therefore, it would not result in any significant adverse impacts to infrastructure, and no further analysis is necessary.

SOLID WASTE AND SANITATION SERVICES

In accordance with the *CEQR Technical Manual*, which states that actions involving construction of housing or other development generally do not require evaluation of solid waste and sanitation impacts unless they are unusually large, a detailed assessment of solid waste and sanitation services is not warranted. The business proposed for relocation is fairly modest in size and will not have a noticeable effect on public solid waste and sanitation services. Any solid waste generated would be handled by commercial haulers. Overall, no significant adverse solid waste and sanitation services impacts are anticipated.

ENERGY

The proposed relocation of a wholesaler and dealer in used auto parts would not result in a substantial demand for energy. According to the *CEQR Technical Manual*, detailed assessments of energy impacts are limited to those actions that would significantly affect the transmission or generation of energy or that generate substantial indirect consumption of energy. The amount of energy that would be consumed would not be significant and would not place excessive burdens on the infrastructure used in the provision of energy. A detailed assessment of energy is not warranted, and there would not be any significant adverse impacts related to energy.

TRAFFIC AND PARKING

The *CEQR Technical Manual* specifies that if a proposed action would generate fewer than 50 peak hour vehicle trips, it is unlikely to result in significant adverse traffic and parking impacts,

and detailed quantified analyses are not warranted. Based on existing operational information, the relocated business would operate Monday through Saturday from 8 AM to 5 PM. The approximately 10 employees would typically arrive before 8 AM and depart after 5 PM. Three or four times a week, there would be a delivery and large pick-ups of 4 to 7 cars between 7 AM and 8 AM. On any given day, the business would also generate approximately 75 customer visits. These trips would be spread out during normal business hours between 8 AM and 5 PM.

Based on the above trip-making characteristics, the relocation site would have the following vehicular trip generation:

- Based on the 2000 U.S. census data, the auto share of work trips to Willets Point is approximately 65 percent at a vehicle occupancy of 1.14. Assuming conservatively the auto share for employees at the relocation site to be 70 percent at a vehicle occupancy of 1.14, there would be no more than 7 worker vehicle trips during the 7-8 AM and 5-6 PM hours. Combined with one delivery and up to 7 pick-ups making arrival and departure trips between 7 AM and 8 AM, there would be a maximum of 23 vehicle trips during the hour before regular business hours.
- During normal business hours, the 75 customer visits, if assumed to be individually made via auto, would generate 150 daily vehicle trips. For the 9 hours of facility operation, there would be on average 17 vehicle trips generated by customer visits. Slightly higher visitation levels could occur during certain hours of the day.

The above demonstrates that the combined employee, delivery, and customer trips would not generate 50 or more vehicle trips during any hour. Therefore, there would not be a potential for any significant adverse traffic impact. In addition, since all or most of the site vehicle activities would be accommodated on site, there would not be a demand for the area's parking resources and a potential for any significant parking impacts.

TRANSIT AND PEDESTRIANS

Transit and pedestrian analyses determine whether a proposed action can be expected to have a significant impact on public transportation facilities and services and on pedestrian flows. Most or all access to the site is expected to be in private vehicles and trucks. Thus, the occupation of the relocation site by a wholesaler and dealer in used auto parts would not meet or exceed the thresholds established in the *CEQR Technical Manual*. Therefore, there would not be any significant adverse impacts to transit or pedestrian conditions.

AIR QUALITY

The proposed reuse of the site is not expected to notably alter traffic conditions. The maximum hourly incremental traffic would not exceed the *CEQR Technical Manual* air quality screening threshold of 100 peak hour vehicle trips. Since the proposed business would result in fewer than 100 new peak hour vehicle trips at nearby intersections in the study area, a quantified assessment of on-street mobile source emissions is not warranted. The primary source of on-site emissions would likely be from fossil fuel-fired heating and hot water systems.

The primary pollutant of concern when burning natural gas is nitrogen dioxide, and when burning oil, sulfur dioxide. Section 3Q of the *CEQR Technical Manual* provides a screening methodology to determine the need for detailed analysis of the effects of a project's heating, ventilation, and air conditioning (HVAC) system on other buildings nearby. The nearest distance to a building of a similar or greater height with elevated receptors associated with a sensitive use

was determined to be approximately 200 feet. The anticipated development space for the administration building was used, which is approximately 8,000 square feet (the auto parts storage building would not be heated). Burning either fuel would not result in any significant stationary source air quality impact, since the proposed development on this site is below the maximum permitted size shown in Figure 3Q-3 on the *CEQR Technical Manual.* Therefore, the proposed reuse of the site would not result in any potential significant adverse air quality impacts.

NOISE

A noise analysis is appropriate if a project would generate any mobile or stationary sources of noise or would occur in an area with high ambient noise levels. According to the *CEQR Technical Manual,* a doubling of traffic volumes over existing levels (in terms of passenger car equivalents, or PCEs) is the increase that would result in a perceptible change to mobile-source noise levels. Since there would not be a doubling of PCEs, there would not be a noticeable change in noise levels due to project-generated traffic. The proposed operations are not expected to result in unusually high operating noise levels and would not result in sensitive uses in an area with existing high noise levels. Overall, there would not be a significant adverse noise impact, and no further analysis is necessary.

CONSTRUCTION IMPACTS

As described above, work will be needed on the site in order to accommodate the business proposed for relocation. This is expected to include construction of a one-story office and another storage structure. Construction would result in temporary disruptions to the surrounding community, such as occasional noise and dust. These effects would be short-term and would not be considered significant. The project would be required to comply with applicable control measures for construction noise. Construction noise is regulated by the New York City Noise Control Code and by noise emission standards for construction equipment issued by the U.S. Environmental Protection Agency. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise standards; that, except under exceptional circumstances, construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction material be handled and transported in such a manner as to not create unnecessary noise. Hazardous materials, if any, will be handled and disposed of in accordance with all applicable regulations.

PUBLIC HEALTH

As described above, the proposed relocation of the auto parts wholesaler and dealer would not result in significant adverse impacts to air quality or noise. The proposed plan would not involve solid waste management practices that would attract vermin or pest populations. If it is determined upon further investigation that any hazardous materials conditions are present on the site, measures will be established to ensure that no hazardous materials impacts—including potential effects on public health—would occur. ✷

Chapter 29: Response to Comments on the DGEIS[1]

A. INTRODUCTION

This document summarizes and responds to comments on the Draft Generic Environmental Impact Statement ("DGEIS"), issued on April 21, 2008, for the Willets Point Development Plan. Oral and written comments were received during the public hearing held by the City Planning Commission on August 13, 2008. Written comments were accepted from issuance of the Draft EIS through the public comment period which ended August 25, 2008.

Section B lists the elected officials, organizations, and individuals that provided relevant comments on the DGEIS. Section C contains a summary of these relevant comments and a response to each. These summaries convey the substance of the comments made, but do not necessarily quote the comments verbatim. Comments are organized by subject matter and generally parallel the chapter structure of the DGEIS. Where more than one commenter expressed similar views, those comments have been grouped and addressed together. A number of commenters submitted general comments about the proposed project. These comments were given due consideration but are not itemized below.

Some commenters did not make specific comments related to the proposed approach or methodology for the impact assessments. Where relevant and appropriate these edits, as well as other substantive changes to the Draft GEIS, have been incorporated into the Final Generic Environmental Impact Statement ("FGEIS").

B. LIST OF ELECTED OFFICIALS, ORGANIZATIONS, AND INDIVIDUALS WHO COMMENTED ON THE DGEIS

ELECTED OFFICIALS

1. Betsy Gotbaum, Public Advocate for the City of New York, oral comments and written submission dated 8/13/08
2. Helen M. Marshall, Queens Borough President, oral comments and written submission dated 8/13/08
3. Nettie Mayersohn, Member of the New York State Assembly, 27th Assembly District, oral comments and written submission dated 8/13/08
4. Hiram Monserrate, Member of the New York City Council, 21st District, oral comments and written submission dated 8/13/08
5. Toby Ann Stavisky, Member of the New York State Senate, 16th Senate District, oral comments and written submission dated 8/13/08

[1] This chapter is new to the FGEIS.

COMMUNITY BOARD

6. Queens Community Board 7, oral comments and written submission by Eugene T. Kelty dated 8/13/08; oral comments and written submission by Chuck Apelian dated 6/30/08

ORGANIZATIONS

7. ACORN, oral comments and written submission by Marilyn Mays dated 8/13/08
8. American Institute of Architects, Queens Chapter, oral comments by Alan Weinstein
9. Asian American Elderly Housing Development Corporation, oral comments by Charles Wang
10. Asian Americans for Equality, oral comments and written submission by Richard Lee dated 8/13/08
11. City University of New York-Institute for Sustainable Cities, oral comments and written submission by Carina Molnar dated August 13, 2008
12. Environmental Defense Fund, oral comments and written submission by Eddie Burgess dated 8/13/08
13. Flushing\Willets Point\Corona Local Development Corporation, oral comments by Joseph Farber, Peter Magnani, and Joel Miele; oral comments and written submission by Claire Shulman dated 8/13/08
14. Habitat for Humanity, written submission dated 8/13/08
15. Jamaica Business Resource Center, oral comments by Timothy Marshall
16. Local 32 BJSEIU, oral comments by Camille Rivera
17. Mason Tenders' District Council, oral comments and written submission by Michael McGuire dated 8/13/08
18. Municipal Art Society of New York City, oral comments and written submission dated 8/13/08; written submission dated 8/26/08
19. New York Building Congress, written submission by Richard Anderson dated 8/19/08
20. New York City Building Construction and Trades Council, oral comments by Edward J. Malloy
21. New York City Central Labor Council, oral comments and written submission by Heather Beaudoin dated 8/13/08
22. New York Hall of Science, oral comments and written submission by Dan Wempa dated 8/13/08
23. New York Hotel and Motel Trades Council, oral comments and written submission by Peter Ward dated 8/13/08
24. New York League of Conservative Voters, oral comments by Dan Hendrick
25. New Yorkers for Parks, oral comments and written submission by Okenfe Aigbe Lebarty dated 6/30/08

26. Partnership for New York City, oral comments and written submission by Kathryn Wylde dated 8/13/08
27. Queens Chamber of Commerce, oral comments and written submissions by Jack Friedman and Albert Pennisi dated 8/13/08
28. Real Estate Board of New York, written submission dated 8/13/08
29. Regional Plan Association, oral comments and written submission by L. Nicolas Ronderos dated 8/13/08
30. Retail, Wholesale and Department Store Union, oral comments and written submission by Jane Thompson dated 8/13/08
31. U.S. Green Building Council (USGBC New York), written submission by Yetsuh Frank dated 8/19/08
32. Willets Point Defense Committee of Small Businesses and Workers, oral comments by Arturo Olaya and Blass Olivarez; written submission dated 8/13/08
33. Willets Point Industry and Realty Association, oral comments and written submission by Michael B. Gerrard dated 8/13/08; oral comments and written submissions by Bernard Adler and Michael O'Rourke of Adler Consulting dated 8/13/08; written submission by Kevin Loyst of FPM Group dated 8/13/08; written submission by Michael B. Gerrard and Nelson D. Johnson of Arnold & Porter, Bernard Adler and Michael O'Rourke of Adler Consulting, Linda Sohl, Ph.D. and Mark Chandler, Ph.D of Svante Scientific, Inc., and Kevin Loyst and Kevin J. Phillips of FPM Group, Ltd. dated 8/25/08
34. Women Builders Council, oral comments and written submission by Sandra Wilkin dated 8/13/08

INTERESTED PUBLIC

35. Joseph Ardizonne, oral comments and written submission dated 8/13/08
36. Jim Conway, oral comments
37. Dan Feinstein, Feinstein Ironworks-affected property owner, oral comments
38. Anthony Fodera, Fodera Foods-affected property owner, oral comments and written submission dated 8/13/08
39. Benjamin M. Haber, written submission dated 8/25/08
40. Robert W. LoScalzo, written submission dated 8/25/08
41. Michael Meyer, TDC Development International, LLC, oral comments and written submission dated 8/13/08
42. Irene Presti, affected property owner, oral comments and written submission dated 5/10/08
43. Daniel Scully, Tully Environmental-affected property owner, oral comments and written submission dated 8/13/08

C. COMMENTS AND RESPONSES

PROJECT REVIEW PROCESS AND PUBLIC PARTICIPATION

Comment 1:

The needs of the local property and business owners and workers, as well as stakeholders in the two neighborhoods adjacent to the site, must be carefully considered as the City seeks to declare an Urban Renewal area. (18)

No one wants Willets Point to remain as it is today, with potholed streets resembling dirt trails, no sewers, and frequent flooding. We all want viable jobs, affordable housing, more schools, and the opportunity for economic growth. All of this can be realized in Willets Point, but only if everyone involved has a voice in the process. (1)

Since the first community meetings of the Flushing redevelopment process, when community residents expressed a desire to include the Iron Triangle in any long-term development plans, the details of the plan have been determined not by residents, but by the Economic Development Corporation. (4)

The FEIS should describe the process through which property owners, tenant businesses, and workers within the District were included in the planning process and demonstrate how their needs were incorporated into the final plan. (18)

The acrimonious atmosphere surrounding the development of Willets Point must be replaced by an honest, cooperative spirit that focuses first and foremost on meeting the needs of the community, the business/property owners, and the development goals, rather than individual and political agendas. (38)

Response 1:

The proposed Willets Point Development Plan seeks to fulfill many of the goals established by the broader community. As noted in Chapter 1, "Project Description", the proposed Plan is an outgrowth of the Downtown Flushing Development Framework, a land use and economic planning strategy for the growth of Downtown Flushing, the Flushing River waterfront, and the Willets Point peninsula. The Framework was developed by the Downtown Flushing Task Force, a group of city and state technical agencies, local developers and business owners, community board members, and local elected officials that the City requested to identify opportunities for growth and improvement in the area.

Additionally, the local community board would continue to have the opportunity after the Uniform Land Use Review Procedure (ULURP) process to provide input on the developer selection and final

development plan as part of the Willets Point Advisory Committee. After the developer selection process, the Committee would continue to meet with the selected developer during project planning and implementation. The City is working with the City Council to arrive at a process for post-ULURP-oversight involving the City Council and Community Board 7. The City would mandate quarterly meetings with the developer, the City, Community Board 7, and the Willets Point Advisory Committee through completion of the project.

With respect to the affected businesses and property owners in the District, it is the City's goal to work one-on-one with all interested Willets Point business or land owner to negotiate property acquisition and/or relocation agreements that meet their specific needs. The City is also working with LaGuardia Community College to establish a comprehensive workforce assistance and retraining program to help displaced Willets Point workers transition to new jobs.

Comment 2: Willets Point is located in Community Board #4 Corona. Why were decisions made by Community Board #7 Flushing? (35)

Response 2: The District is located within Community District 7. In accordance with ULURP process, Community Board 7 provided advisory recommendations on the proposed Plan to the Queens Borough President.

Comment 3: The Federal Highway Administration has not been consulted on this project even though it must approve any changes in access to the Interstate Highway. (33)

Response 3: As indicated in Chapter 2, "Procedural and Analytical Framework," modification of access to and from the Van Wyck Expressway requires the preparation of a Freeway Access Modification Report (AMR), and review and approval by NYSDOT, in the first instance, and the Federal Highway Administration (FHWA). To date, several conceptual ramp access alternatives have been presented to NYSDOT, and that agency has reviewed and commented on them and the proposed AMR process. Once the draft AMR is completed, in accordance with established procedure, NYSDOT will review the draft report. NYSDOT's comments will be incorporated before NYSDOT presents the AMR to FHWA for review and approval.

Comment 4: Why didn't the Mayor or his agencies contact the property owners when they were meeting with their potential new tenants for our property? (42)

Response 4: The City sent out letters to all property owners and tenants in September 2004 inviting them to attend one of several open information sessions

held at the Queens Borough President's office in October 2004. Over 40 businesses and/or owners attended. These meetings served to provide information on the Downtown Flushing Framework and its recommendations regarding Willets Point, and to discuss the City's process for issuing a Request for Expressions of Interest (RFEI) to the development community.

Comment 5: The ULURP process has the following deficiencies: the Development Plan has not been finalized and a Developer(s) has not been chosen, nor has a Budget and Funding been confirmed. (6)

The NYCEDC has attempted to short circuit the ULURP process, which is designed to give the community and the City Council input over land use in the City. It is a means to get commitments from the developer and to set guidelines for the project. To do this, a final plan, not a concept, should be presented to the Commission. But the NYCEDC has decided that it will negotiate with a developer and it will have the final approval of what will be built in Willets Point. (43)

Response 5: The City has chosen to pursue the Urban Renewal Plan and rezoning prior to developer selection in order to ensure that the resultant plan fits the City's vision for best planning practices on the site.

The City has complied with all applicable rules and regulations on the ULURP process. Numerous City agencies and local officials will have the opportunity to provide input on the developer selection and final development plan. NYCEDC has committed to including Community Board 7 on the Willets Point Advisory Committee, which would help guide selection of a developer for the District. After the selection process, the Committee would continue to meet with the selected developer during project planning and implementation. The City is working with the City Council to arrive at a process for post-ULURP-oversight involving the City Council and Community Board 7. In addition, the developer would be required to coordinate with agencies such as the New York City Department of Parks and Recreation (DPR) on open space design, the New York City Fire Department (FDNY) on site planning to ensure adequate emergency service access, and the New York City Department of Environmental Protection (DEP) on infrastructure design and hazardous materials remediation.

Comment 6: Community Board 7 and the Borough President have given their approvals to this proposal. However, those proposals come with heavy conditions that must be met by NYCEDC; so far, NYCEDC has not been able to do so with any conviction. (43)

Response 6:

NYCEDC is working to advance a number of recommendations that Community Board 7 expressed as conditions to their approval of the proposed Plan. Specifically:

- The City will exhaust every reasonable means of negotiation before considering using eminent domain to acquire the properties necessary to facilitate the implementation of the Willets Point Development Plan.
- The City is currently working with LaGuardia Community College to develop a comprehensive workforce assistance and retraining program to help displaced Willets Point workers transition to new jobs.
- The City would require the developer to establish a Traffic Mitigation and Infrastructure Fund, with an initial $5 million escrow deposit. This fund would be utilized for any currently unforeseen traffic mitigation and infrastructure improvements; all mitigation measures and infrastructure improvements disclosed in the GEIS would be required to be implemented through other developer or City funding. Any additional contributions to the Traffic Mitigation and Infrastructure Fund would be negotiated after developer selection.
- In accordance with the Urban Renewal Plan, the developer's Request for Proposals (RFP) will require a new public school of a size based on the new residential population to be generated by the project, with a minimum of 650 students for a K-8 school.
- The future developer would be required to attain LEED-ND certification. The project has already been designated a LEED-ND Pilot Project by the National Green Buildings Council.
- The Willets Point Advisory Committee would be continued for the duration of the project. The City anticipates mandating quarterly meetings between the developer, the City, Community Board 7, and the Willets Point Advisory Committee through completion of the project. For any scheduled meeting that the developer misses, the developer would be required to contribute $100,000 to the Traffic Mitigation and Infrastructure Fund.
- The City is currently exploring the feasibility of increasing the amount of affordable housing to be required as part of the proposed Plan, as well as the feasibility of dedicating some amount as senior housing.

Comment 7:

Community Board 7 intended its conditional approval to be considered a negative declaration for purposes of Charter §197-d(b)(2), if the conditions that the Board established are not adopted by the Commission; however, the Board neglected to so state within its written recommendation and the Queens Borough President and City Planning Commission were not informed of the Board's intention. (40)

Response 7: As indicated above, the City has been working to advance a number of recommendations that Community Board 7 expressed as conditions to their approval of the proposed Plan.

Comment 8: The City agencies have failed to respond to Freedom of Information Law (FOIL) requests in a timely manner, thereby withholding information from WPIRA. Accordingly, WPIRA has not yet had a full and fair opportunity to review information relevant to the Proposed Project. (33)

Response 8: City agencies have responded to FOIL requests on the Willets Point Development Plan in a timely manner. The Willets Point Industry and Realty Association's (33) first FOIL request was written to NYCEDC in February 2008, prior to issuance of the DGEIS. This letter was never received by NYCEDC and was returned to the sender as undeliverable because only NYCEDC's address and not the company name or floor was written on the delivery airbill, and the listed phone number on the airbill was not NYCEDC's. A FOIL request was submitted to the Deputy Mayor for Economic Development and Rebuilding in February as well, and documents were provided to WPIRA in response to that request in June. WPIRA submitted additional FOIL requests to NYCEDC, the New York City Department of City Planning (DCP) and the Metropolitan Transportation Authority (MTA) in June, several weeks after the issuance of the DGEIS on April 21, 2008. Because these requests were very broad in scope, the City's search for responsive records yielded a large number of documents and correspondence. A number of responsive materials have been sent to WPIRA. The City is continuing to review other documents and correspondence to determine whether or not they are responsive to WPIRA's request and if they are within the purview of FOIL.

Comment 9: Under SEQRA, the lead agency must be an agency that has jurisdiction by law to fund, approve, or directly undertake an action. The Office of the Deputy Mayor has no jurisdiction to do any of these things; consequently, it cannot be lead agency for this action. (33)

Response 9: The Office of the Deputy Mayor for Economic Development is representing the City, which is undertaking this initiative, issuing the developer RFP, selecting the developer, and providing funding, and thus is the appropriate lead agency for this project.

Comment 10: The Proposed Project requires a new interchange with the Van Wyck Expressway, which is part of the federal interstate highway system and requires approval by NYSDOT and FHWA. FHWA will have to

prepare its own assessment of the environmental impacts of the Proposed Project under NEPA. FHWA approval is highly doubtful, in view of the FHWA policy that approval of new access points to the existing Interstate System should meet the requirement that "the proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic." The DGEIS states that the proposed Van Wyck access points would ruin the operation of the Van Wyck and impair its safety, therefore they cannot be approved. It would be both unconscionable and unlawful for the City to start condemnation before completing FHWA and NYSDOT processes. (33)

Response 10: FHWA's environmental and design review will relate to the proposed ramps and their effect on the regional interstate highway system. The GEIS, on the other hand, analyzes the environmental impacts of traffic generated by the Willets Point Development Plan, and does not conclude that the new access points would ruin the operation of the Van Wyck Expressway or impair its safety. Rather, the proposed ramps are an integral part of the Plan because they would make traffic flow to and from the District much more efficient and reduce demand and congestion on local streets. If the Plan is approved, the City would not take possession of any property acquired by eminent domain until the ramps have been approved by NYSDOT and FHWA.

CHAPTER 1: PROJECT DESCRIPTION

GENERAL

Comment 1-1: It is appropriate that the plan emphasizes open space and pedestrian friendliness. (12)

Response 1-1: Comment noted.

Comment 1-2: At a time when families face a dire shortage of housing, redevelopment of Willets Point will create 5,500 units of housing in an area that currently has zero. (13)

Response 1-2: Comment noted.

Comment 1-3: Willets Point's accessibility and unlimited potential will guarantee its success, providing billions in revenue for the City, vastly enhancing the standard of living for New York residents who work in the area, and add much-needed parks and open spaces that will be available to all New Yorkers. These sustainability plans will also establish Queens as a

borough ready to support a green community in the City, instilling in its residents an added source of pride. (5)

Response 1-3: Comment noted.

Comment 1-4: The project will provide for good paying construction jobs, and will result in new hotel and convention space and on-site services. We are particularly pleased by the inclusion of new employment for women and minorities in its construction. (34)

We encourage the City to stand behind the full implementation of its commitment to hire minorities and women. (15)

Response 1-4: Comment noted.

Comment 1-5: This project will clean up one of the most contaminated areas in the region and turn it into New York City's first green neighborhood. The environmental benefit of this project—to our City and to the families living in the surrounding neighborhoods—is undeniable. (13)

Response 1-5: Comment noted.

Comment 1-6: We support the Willets Point Redevelopment Project. Willets Point is a huge brownfield site that should have been cleaned up years ago. We all know about the lack of sewers. More troubling is the widespread contamination from petroleum and automotive fluids and a number of other issues. (24)

Response 1-6: Comment noted.

Comment 1-7: The Regional Plan Association supports this project. Without clearing the site and starting over, not only will we be left with an area that is underperforming in its economic potential, but also we will be shirking our responsibility to protect public health and the urban environment. (29)

Response 1-7: Comment noted.

Comment 1-8: Major infrastructure improvements, such as a new sewer system, street network, and subway station access, will transform an area mostly known for its illegal dumping and constant flooding into a safe, clean neighborhood with new parks and playgrounds. (26)

Response 1-8: Comment noted.

Comment 1-9:

The potential to bring tourists, conventions, meetings and trade shows to Queens builds on the presence of two international airports and promises to contribute to the City's tax revenues and job base. The plan under consideration will stimulate significant private investment, as well as commercial and residential development activity. (26)

An influx of tourism means more economic development, more investment in cultural institutions, and more benefits for Queens. (22)

This project will provide an extremely important financial benefit to the business of Queens and the City of New York in these economic times. (27)

The Willets Point development will become a major engine for economic growth for Willets Point and permanent local jobs and business opportunities. (16, 21)

We hope that Willets Point will add to the opportunities for our young New Yorkers and a great career in the building construction trade. (20)

The Willets Point RFP will include language that favors developers that maximize the number of permanent jobs that meet the City's living wage and health benefits standards, giant steps forward for our retail working force. (30)

Response 1-9:

Comments noted.

Comment 1-10:

The retail and commercial mix in the Willets Point district should be complementary to the neighboring commercial centers in downtown Flushing and Corona. (2)

Response 1-10:

Comment noted. As described in Chapter 4, "Socioeconomic Conditions," the amount of indirect business displacement due to competition from the proposed Plan and Lot B would be minimal, is not expected to jeopardize the viability of any neighborhood retail strips, and is not expected to diminish the level of services provided.

Comment 1-11:

New developers will conduct their business for twenty-five years tax-free. Who will pay for their services? (35)

No one knows exactly how much taxpayer money will be spent to acquire all of the property, to be given the developer free of charge. (39)

Is NYCEDC properly considering the factor of costly environmental remediation costs in negotiation for the provision of infrastructure by the developer? (18)

Since the proposed Plan includes an urban renewal plan, it is crucial to disclose the costs to be borne by the public to redevelop Willets Point.

The FEIS should examine and make public the projected costs of the environmental remediation required for the site, site preparation, include infrastructure costs and the costs to raise the site out of the 100-year flood zone as well as the proposed sources of funding, including subsidy and incentive packages. (18)

The FEIS has to clearly spell out and quantify the public benefits derived from the proposed Plan and secure a timeline for when these benefits will be delivered. (18)

Response 1-11: As noted in Chapter 4, "Socioeconomic Conditions" of the GEIS, the developer of the proposed Plan would fund all site preparation, infrastructure improvements, and construction within the District, with the exception of the new pump station if constructed within District boundaries. It is anticipated that the City would fund certain infrastructure improvements that are necessary to support the proposed Plan, including the pump station and modified access to and from the Van Wyck Expressway. Costs associated with these City-funded improvements are preliminarily estimated at approximately $150 million.

Economic benefits of the proposed project are also quantified in Chapter 4 of the GEIS. Section H of that chapter estimates direct, indirect, and induced employment, wages and salaries, and economic output associated with the proposed Plan and No Convention Center Scenario, as well as the non-property-tax fiscal effects of the two scenarios. These benefits would be realized incrementally, as the ultimate development plan is built out and occupied. In addition, the City would receive annual property tax revenues. These revenues would be expected to change from year to year, and in any year would be based on the taxable assessed value and the applicable tax rate.

Comment 1-12: We question whether the Willets Point site is appropriately suited for the proposed development. The site is bounded by major highways that would effectively hem in this new neighborhood and at the same time interrupt pedestrian access to the waterfront. The lack of connectivity to surrounding neighborhoods would isolate potential future residents in the District from Downtown Flushing and Corona. (18)

The New York City Planning Commission and NYCEDC must work to develop direct connections between Willets Point, Downtown Flushing, Corona, and East Elmhurst. (2)

Response 1-12: Currently, there is little physical or functional connection between the District and surrounding areas. As described in the GEIS, the proposed Plan would improve connections between Willets Point and surrounding

communities by enhancing street and highway access and by creating new bike paths and open spaces that would connect to existing and planned bike paths, walkways, and recreational areas. As noted in the GEIS, bicycle lanes would be required on connector streets within the redeveloped District. In addition, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade and Flushing Meadows-Corona Park, as well as Downtown Flushing. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and NYCEDC is currently seeking funding and approvals to implement these improvements. The bicycle lanes in the District would connect to this area-wide bicycle and greenway network, and indoor accessory bicycle parking would be required for all new residential, office, and retail uses developed in the District. Together, these measures will improve connectivity between Willets Point and surrounding areas. Moreover, the proposed Plan calls for large commercial anchor blocks to be located at Northern Boulevard and Roosevelt Avenue along 126th Street, with retail uses concentrated in proximity to the new Citi Field. The proposed commercial and entertainment center would create a synergy between the new Citi Field and the District, and would function as a new regional attraction.

Comment 1-13: The FEIS must include a clear feasibility study, given the current downturn in the market. (18)

The public should be advised as to whether market analysis data exists that supports the plan and the feasibility of creating a significant proportion of affordable housing. (18)

The DGEIS analyzes a maximum development envelope. The GEIS should conduct and release a feasibility analysis of each of the proposed combination of land uses in the project area that may potentially be developed. (18)

Response 1-13: As described in Chapter 2, "Procedural and Analytical Framework" of the GEIS, the maximum development envelope is used as a framework to assess potential impacts, which allows the lead agency to make its CEQR findings. A market feasibility study is outside the scope of this GEIS and not required by CEQR. However, as indicated in Chapter 1, "Project Description," there is a substantial need for new housing, retail, and office development and strong demand for a convention center in Queens. Residential vacancy rates in Queens are lower than the citywide average, and the most recent DCP demographic study estimates that the population in Queens will increase by 15.1 percent

between 2000 and 2030. Queens residents are underserved by retail, with retail and food and drink stores in the borough capturing only 55 percent of the demand generated for those goods by Queens households. The office vacancy rate in Queens is lower than the vacancy rates for adjacent counties of Brooklyn and Nassau Counties. And a 2004 study conducted by the Queens Chamber of Commerce showed a strong demand for a convention center in Queens. The feasibility of the proposed Plan, if approved, will be further tested through the developer request for proposals (RFP) process.

Comment 1-14: The FEIS should include a full description of how the Willets Point development plan will ensure that the project will meet transit-oriented development criteria, given that the GEIS already acknowledges that the proposed plan will have significant adverse impacts with regard to automobile traffic patterns and congestion. (18)

How does the plan propose to "optimize use of the existing highway, public transit, and parking infrastructure to minimize local traffic impacts," given that the GEIS already acknowledges the adverse impacts the proposed Plan will have on traffic patterns and congestion? (18)

Response 1-14: The proposed Plan would be located next to existing subway and commuter rail lines, and the City is in consultation with MTA and New York City Transit (NYCT) on plans to extend and/or create new bus lines to serve the District and on extending regular LIRR service to the LIRR station when the actual demand shows that such service improvement is warranted. The proposed Van Wyck access ramps, which would offer a direct connection between the Willets Point Development District and the Van Wyck Expressway, optimize the ability of the Van Wyck Expressway to serve the District. The new ramps would help to minimize traffic volumes on nearby local streets and alleviate congestion on the local roadway network. Further, the proposed Plan would reserve up to five percent of off-street parking spaces for vehicles being shared by multiple households (e.g., car-sharing vehicles). Measures such as these are intended to reduce vehicular dependence and promote a more transit-oriented development.

PURPOSE AND NEED

Comment 1-15: The Willets Point plan fails to address long-term economic sustainability. It must address the economic imperative to preserve and provide good jobs with decent wages and benefits for New Yorkers in potential industrial growth sectors. The proposed plan facilitates the

erasure of an industrial land-base at a time when New York City is rapidly losing areas for manufacturing and industrial firms to locate and expand. (18)

Response 1-15: The proposed Plan represents an economically and socially sustainable project. The Plan would result in the development of a mix of uses including residential, retail, hotel, convention center, entertainment, commercial office, community facility, and open space, all in close proximity to public transit. The preservation of manufacturing firms is one of a number of priorities for the City. The City has strived to preserve and encourage manufacturing uses within designated Industrial Business Zones (IBZs) and Industrial Ombudsmen Areas, and as described in the GEIS, the City is making every effort to relocate District firms within the City. Other City goals include the provision of affordable housing and new commercial office space, encouraging sustainable design, and developing areas in a way that capitalizes on mass transit. The proposed Plan meets these goals.

Comment 1-16: Since the City is seeking to designate Willets Point as an Urban Renewal area in order to be able to acquire private properties on the site through eminent domain, affordable housing must make up a significant portion of new development on the site should the land use change be approved. (18)

Response 1-16: As indicated in Chapter 1, "Project Description," under the proposed Plan, 20 percent of the proposed housing units would be reserved for low- to moderate-income households. The FGEIS has been amended to indicate that these affordable units would be reserved for families earning between 60 percent and 130 percent of the U.S. Department of Housing and Urban Development (HUD) income limit for New York City. As is typical for units developed under New York City's affordable housing program, approximately half of the affordable units developed under the proposed Plan would likely be two- and three-bedroom units.

Comment 1-17: The City claims that the area needs to be leveled because it resides in the 100-year floodplain and must be raised. Many communities in New York City reside in the 100-year floodplain, yet do not need to be raised sacrificing livelihoods in the process to mitigate the situation. (38)

Response 1-17: Raising the floodplain within the District is only one of the goals of the proposed Willets Point Development Plan, as it seeks to fulfill many of the objectives established by the broader community as part of the Downtown Flushing Framework. Other City goals include the remediation of District, provision of affordable housing and new

commercial office space, encouraging sustainable design, and development that capitalizes on the District's proximity to mass transit. The proposed Plan would result in the development of a mix of uses including residential, retail, hotel, convention center, entertainment, commercial office, community facility, and open space, all in close proximity to public transit. It represents an economically and socially sustainable project. The proposed Plan meets these goals.

PROPOSED REDEVELOPMENT PLAN

Comment 1-18: To address the dire need for housing, the development should include a substantial opportunity for home ownership, possibly co-ops, that would add stability to the new Willets Point community. (2)

Response 1-18: As described in Chapter 1, "Project Description," the District would offer rental and homeownership opportunities for a range of incomes.

Comment 1-19: EDC should consider the ability of a developer to successfully market the potential residential units given the proximity of the airport and the potential for noise. (18, 40)

Response 1-19: A market study is outside the scope of analysis for this GEIS and not required under CEQR. However, as indicated in Chapter 1, "Project Description," there is a strong demand for housing in Queens; residential vacancy rates in Queens are lower than the citywide average, and the most recent DCP demographic study estimates that the population in Queens will increase by 15.1 percent between 2000 and 2030. NYCEDC has solicited input from developers on uses that would be appropriate and viable for the District and those elements have been included as part of the proposed Plan. Developers have expressed strong interest in developing residential units in the District, which indicates that there would be a market for such development. As described in Chapter 20, "Noise," noise attenuation measures prescribed for residential buildings in the District would maintain interior noise levels of 45 dBA or lower, as per DEP standards.

Comment 1-20: Due to the potential heavy contamination on the site, NYCEDC must do further studies as to the extent of the potential pollution on the site. Unexpected environmental remediation could increase projected costs, which may force a developer to cut costs in other ways. These may include a lower standard of design, less environmental sensitive materials or processes, or the reduction of affordable housing or other public amenities on the site. The analysis should include a reasonable

worst-case development scenario (RWCDS) due to the increased cost of remediation. (18)

If costs for remediation exceed what is predicted for the site, affordable housing will likely be the first casualty of a modified plan. (18)

Response 1-20: As detailed in Chapter 12, "Hazardous Materials," limited sampling was performed in areas where access was available (i.e., City-owned streets). A review of available New York Department of Environmental Conservation (DEC) files were undertaken, which indicated that through recent property transactions and due diligence work, several investigations and cleanups on individual sites were performed. These cleanups indicated that soil and groundwater contamination was present on sites that required remediation to meet industrial standards. It is reasonable to assume that there may be additional remediation necessary to meet the more restrictive residential clean up criteria. Based on the body of remedial knowledge available for specific land uses and the knowledge of the specific site uses, soil and groundwater conditions in the District, reasonable assumptions can be made for both soil removal and groundwater treatment options and projected costs. The proposed Plan would include 20 percent affordable housing units. This would be required as part of the developer's agreement with the City regardless of the cost of remediation.

Comment 1-21: The Affordable Housing Component should be increased to a minimum of 30 percent. Eligibility requirements should be less than $45,000 per year. Half of this component must be designated for senior affordable housing. As per HPD regulations, half of the Affordable Housing Component should be allocated to residents of CB7Q. The remaining half should be allocated to residents of CB3Q and CB4Q, which are located directly adjacent to the Willets Point Redevelopment. (6)

The City is proposing to create 5,500 new residential units at Willets Point, but it must be affordable to residents of the surrounding neighborhoods. We urge the City to make two-thirds of the housing units included in the Willets Point development in Community Board 7 affordable to working families in Queens, with special focus on affordability for the residents with greatest needs. We recommend that:

- At least one-third of the units should be affordable to very low-income families (households earning less than $25,000 a year).
- At least one-third of the units should be affordable to low-to-moderate- and middle-income families, using multiple income tiers to insure affordability at a range of incomes.

- Most of the units should be affordable to residents of the surrounding neighborhoods, at a range of low-, moderate-, and middle-incomes. (10, 14)

The meager 20 percent of so-called "affordable housing" that NYCEDC mentions is not guaranteed and won't be affordable to our members, the Willets workers, or to most of the residents of Queens. A significant percentage of the affordable housing should be affordable to families making less than $25,000 a year, as well as families making less than $45,000 a year. (7)

To increase affordability the development should be 50 percent market rate, 30 percent moderate income, and 20 percent affordable. (2)

While the NYCEDC claims to be allocating affordable housing, the development plans units only for households making greater than $55,000 a year (for a household of four). 35 percent of Queens residents earn less than $35,000 a year; in the surrounding communities this percentage is much higher. The community needs real affordable housing and the Willets Point Plan is a unique opportunity for Queens to receive a fair share of the City's affordable housing stock. (10)

Response 1-21: Under the proposed Plan, 20 percent of the proposed units would be reserved for households earning between 60 percent and 130 percent of HUD's income limit for New York City. As is typical for units developed under New York City's affordable housing program, approximately half of the affordable units developed under the proposed Plan would likely be two- and three-bedroom units. Income levels are based on HUD Income Limits, which are set annually for metropolitan areas and non-metropolitan counties by HUD. As of 2008 the HUD income limit for New York City was $76,800 for a family of four. Therefore, a family of four would need to earn between approximately $46,080 and $99,840 in order to qualify for an affordable housing unit in the District. Additionally, residents of Community Board 7 would be given preference for 50 percent of these affordable units.

Based on 2000 Public Use Microdata Samples (PUMS) data from the U.S. Census Bureau (adjusted to 2008 dollars), approximately 40 percent of all four person households in the Public Use Microdata Area (PUMA) that captures the District and the study area have incomes that are within the income bracket proposed for affordable units within the District.

Fair Housing laws prevent the City from providing a community preference for more than 50 percent of affordable housing units created; however, the City will work with Community Board 7 to determine the preferred split within that 50 percent.

Comment 1-22: Ten percent of the proposed residential development should be set aside for senior housing, in addition to the twenty percent already set aside for affordable housing. (9)

Response 1-22: The City is currently exploring the potential for increasing the amount of affordable housing to be required as part of the proposed Plan, as well as the feasibility of dedicating some amount as senior housing.

Comment 1-23: In order to discourage the use of cars and encourage mass transit use, there should not be any increases in the number of planned parking spaces within the Willets Point development. If Willets Point residents were to be given desirable mass transit options, they may choose to leave their cars at home. (12)

Response 1-23: The reasonable worst case development scenario for the proposed Plan anticipates that 6,700 parking spaces would be developed with the proposed Plan, or 6,000 spaces with the No Convention Center Scenario—a sufficient number to meet the demand generated by the redeveloped District's residents, workers, and visitors. The proposed Plan seeks to provide adequate parking while encouraging non-automobile means of transportation. As described in Chapter 1, "Project Description," of the GEIS, indoor accessory bicycle parking would be required in all buildings within the District and up to five percent of off-street parking spaces would be reserved for vehicles being shared by multiple households (e.g., car-sharing vehicles). Measures such as these are intended to reduce vehicular dependence and promote a more transit-oriented development.

Comment 1-24: Will the proposed Green Roof be public or privately accessible? (25)

Response 1-24: Green roofs developed as part of the proposed Plan could be public or private, depending on the ultimate development program. It is anticipated that any rooftop open spaces would be primarily intended for users of those buildings. However, the Urban Renewal Plan would require a minimum of eight acres of publicly accessible open space regardless of whether rooftop open space is provided.

Comment 1-25: The FEIS should study moving the convention center towards the Northern Boulevard/Van Wyck interchange. (18)

Response 1-25: The GEIS considers two potential locations for the convention center—one in the northeastern portion of the District and another in the southeastern portion of the District. Since issuance of the GEIS, the illustrative site plan has been modified to maintain the current alignment of Willets Point Boulevard and the 72-inch water main, thus

eliminating the potential for the convention center to be located in the southern location and limiting the convention center to the northern location, closer to Northern Boulevard and the proposed Van Wyck access ramps.

Comment 1-26: The parking requirement for the residential units should be increased to 100 percent. (6)

Response 1-26: The parking requirement for the residential units was determined based on a review of the 2000 U.S. Census data on car ownership in adjacent Flushing and Corona. Because of the types of residential development anticipated for the District, the variety of uses and services that would be available to the District's residents, and the District's proximity to transit, it was believed that car ownership levels would more closely resemble those in Flushing.

Van Wyck Access

Comment 1-27: The GEIS fails to explain how the proposed Van Wyck access ramps will meet the State's specific requirements for approval, as outlined in NYSDOT's *Project Development Manual* (PDM). There are numerous PDM requirements with which the Proposed Project fails to comply, including special geometries (i.e., the Proposed Project does not provide for all movements), safety considerations (i.e., the proposed project will require access from the left lane), and traffic considerations (i.e., the Proposed Project will devastate the regional traffic network). (33)

Response 1-27: The AMR, and the design of the ramps, will be prepared in accordance with the *NYSDOT Project Development Manual Appendix 8 - Freeway Access Modifications*. This is an iterative process that will be performed in coordination with NYSDOT and FHWA. The ultimate design of the ramps, developed in consultation with these agencies, will conform to applicable PDM requirements.

Comment 1-28: The American Association of State Highway and Transportation Officials' 2005 document *A Policy on Design Standards: Interstate System* states that each section of interstate highway should be designed to safely and efficiently accommodate the volumes of passenger vehicles, buses, trucks–including tractor-trailer and semi-trailer combinations, and corresponding military equipment estimated for the design year. The proposed ramps to and from the Van Wyck would violate this policy. (33)

Response 1-28: The preliminary design will be prepared in compliance with the *NYSDOT Project Development Manual*, which references standards. As

described above, the ultimate ramp design will be developed in consultation with NYSDOT and FHWA and will conform to applicable PDM requirements.

Comment 1-29: Indications are that New York City plans to fund the proposed ramp construction activity for $50,000,000 using only City funding sources and not by including this budget cost within the Transportation Improvement Program (TIP). This results in a startling lack of transparency concerning budgetary issues and required consultations with the Federal Highway Administration. (33)

Response 1-29: The project will be submitted to New York Metropolitan Transportation Council (NYMTC), the region's Metropolitan Planning Organization, this upcoming November to be included in the next TIP update. Thus, the project will be included in the TIP analysis in order to comply with state and federal regulations associated with the AMR process.

Comment 1-30: The proposed development would necessitate highway upgrades, which would cost hundred of millions, or billions, of dollars and accounting for them (as the GEIS fails to do) would fundamentally change the overall economics of this project and probably reverse the cost-benefit ratio. The costs of these inevitable highway upgrades should be built into the financial structure of the current project. (33)

Response 1-30: While cost is not a consideration under CEQR, the GEIS provides a preliminary estimate for the proposed Van Wyck access ramp and other off-site improvements that are necessary to support the proposed Plan (a total of approximately $150 million).

Sustainable Design

Comment 1-31: We support the concept of making Willets Point a model sustainable community. (11)

New York's next great neighborhood is also poised to make history as our City's first "green" community. (26)

We are excited about the potential of creating architectural statements that will propel the Borough of Queens to the forefront of sustainable design. (8)

The plan for Willets Point epitomizes smart growth because people can take the train to work instead of driving all over the place. (24)

NYCEDC has committed to a LEED-ND Certification for the Willets Point Development. This commitment ensures that the redevelopment will be a compact, open community of diverse uses with significant

public transportation options. As a result the proposed community will be far healthier, have a much lower environmental impact, and will be more likely to foster a vibrant, walkable neighborhood. (31)

Response 1-31: Comments noted.

Comment 1-32: We are pleased with the City's commitment to promote green building and sustainable design practices in the plan's implementation. No matter what plan is developed for Willets Point, we strongly urge the City to ensure that these commitments are fulfilled. (12)

The overall site must conform to LEED-ND Certification standards. (6)

The development should conform with the highest LEED-ND standards possible. (2)

Response 1-32: The future developer would be required to meet LEED-ND certification.

Comment 1-33: The FEIS should include a full description of what the LEED-ND designation will entail with the potential point categories on which the site development is slated to receive most of its points. This means a specific breakdown of the measures needed to achieve the different LEED-ND designations should follow in an appendix, with possible points achieved given various potential design requirements. This appendix should also include various scenarios of the different levels of the LEED-ND designation that are possible for the site to achieve (Silver, Gold, and Platinum). (18)

Response 1-33: There are numerous ways to achieve certification under the LEED-ND program. The GEIS lists a number of sustainable measures that would be required or encouraged of the future developer. NYCEDC is in the process of determining which level of LEED-ND would be required. However, in accordance with LEED-ND certification requirements, the proposed Plan may incorporate a number of sustainable practices from the following LEED categories: Smart Location and Linkage; Neighborhood Pattern and Design; Green Construction and Technology; and Innovation and Design Process. A project checklist for the LEED-ND pilot program has been appended to the FGEIS.

PROJECT IMPLEMENTATION AND ENFORCEMENT MECHANISMS

Comment 1-34: The DGEIS states that the Special District would allow the development of a power plant and electrical utility substation within the District. This is a significant piece of infrastructure that must be studied in the GEIS in detail. What are the potential sites for the power plant? What is the size of the potential power plant? What landscaping treatments will be

used to screen the potential power plant? How will the power plant affect the final design of the site? What impact will it have in terms of noise and air quality? (18)

The FEIS should examine the potential for co-generation on the site as well as other potential sources of power, such as solar and wind. Would the inclusion of these sources have the potential to reduce the overall footprint of the power plant needed for the site? (18)

Response 1-34: The inclusion of cogeneration and renewable energy sources would reduce the overall non-renewable energy demand for the site. As described in Chapter 1, "Project Description" of the GEIS, the Special District text would allow a cogeneration facility and/or substation to be constructed in the District, provided they would primarily serve the District. If proposed, these uses would be subject to separate environmental and public review processes. The cogeneration facility would require approval by the New York City Board of Standards and Appeals, as well as air quality permits from DEP and DEC. The substation would require authorization by the City Planning Commission (CPC). For either facility, the Special District text requires that the reviewing agencies prescribe appropriate conditions to minimize adverse effects on the character of the surrounding area, including emissions limits, as well as the concealment of such uses with building enclosures, landscaping, buffer zones, or other methods.

Comment 1-35: Incentive FAR bonuses are not adequate as they do not guarantee construction of affordable housing on the site. (18)

Should the rezoning be approved before a final RFP for a single developer is selected, a defined amount of affordable housing responding to the needs of the surrounding neighborhoods should be guaranteed for the site. (18)

Response 1-35: Under the proposed Plan, the affordable housing would not be encouraged through FAR bonuses, but rather required through the developer's contract. As described in Chapter 1, "Project Description," 20 percent of the proposed housing units would be reserved for households earning between 60 percent and 130 percent of the HUD income limit for New York City.

Comment 1-36: The affordable housing units created should be affordable in perpetuity. (10, 14)

Response 1-36: The terms for affordable housing units would depend on the affordable housing subsidy program(s) that are available at the time of implementation of the proposed Plan.

The Willets Point Development Plan, which relies on a single developer for site preparation as well as build-out, is a redevelopment model that has not proven to be successful, as demonstrated by the Atlantic Yards and Hudson Yards projects. By eschewing the public sectors' responsibility to prepare the site and provide the public infrastructure necessary for redevelopment, the City is running the risk that the development at Willets Point, as at Atlantic Yards, will stall indefinitely. The FEIS must present a thorough analysis of the financial feasibility of such a single developer model, and should examine any potential revenue streams that a phased model might bring the City. (18)

The FEIS must present in detail an alternate model that would require disposition of properties to multiple owners and multiple developers. (18)

Given the current economic climate, structuring the plan around a single developer risks long delays at the cost of promised public benefits. In addition, leaving the site preparation and infrastructure investment on the site to one developer could cause serious delay in the completion of the project. (18)

Response 1-37: The City has determined that a master plan, rather than piecemeal development, would be the best way to achieve the multiple goals laid out for the District. These goals include District-wide site grading, remediation, and infrastructure provision as well as 20 percent affordable housing, a new school, and a minimum of 8 acres of open space. Based on expressions of interest from developers, it is anticipated that any proposals received in response to the RFP would propose an approach that includes a master developer working with a team of architects, engineers, urban and landscape designers, and construction firms.

Comment 1-37: A convention center with an adjoining hotel must be included in any RFP responses to be eligible for consideration. (2)

Response 1-38: The City's vision for the District includes a convention center and a hotel. All RFP responses would be evaluated accordingly.

Comment 1-38: The Economic Development Corporation should open up the RFP process and share information with all affected parties. For the surrounding community to not know who will be responsible for the implementation of this project is unacceptable. (1)

Despite a two-year, two-tiered RFP process to determine a developer, the community has yet to be informed of who will be responsible for the project's implementation. (4)

Response 1-39: The City, through NYCEDC, has not yet issued the RFP to select a developer for the Willets Point Development Plan. NYCEDC issued a request for expressions of interest (RFEI) in 2004 and a targeted RFP in 2006. Responses to the RFEI and RFP were used to inform the mix of uses and maximum development program to be analyzed in the GEIS. Should the proposed Plan be approved, it is anticipated that NYCEDC would issue an RFP in the first quarter of 2009 and select a developer in Fall 2009. Developer selection would take place in consultation with the Willets Point Advisory Committee, which would include representation from Queens Community Board 7.

Comment 1-39: The Willets Point Advisory Committee should be continued for the duration of the project, including during developer selection, construction, implementation, and all other phases of Willets Point development. Upon selection of the developer, NYCEDC must provide project updates to the Willets Point Advisory Committee on the progress of the project on a quarterly basis. (2)

Response 1-40: The Willets Point Advisory Committee would be continued for the duration of the project. The City would mandate quarterly meetings with the developer, the City, Community Board 7, and the Willets Point Advisory Committee through completion of the project. For any scheduled meeting that the developer misses, the developer would be required to contribute $100,000 to the Traffic Mitigation and Infrastructure Fund.

Comment 1-40: Moving forward, the proposed benefits for the existing communities must be guaranteed by binding agreements and delivered according to an agreed upon, reasonable and predictable timeline. The plan should include a governance structure to ensure stakeholder participation in the monitoring of the development and design review process. (18)

Response 1-41: As indicated above, the Willets Point Advisory Committee would be continued for the duration of the project and would participate in developer selection and project oversight. Public benefits provided by the proposed Plan, including 20 percent affordable housing, a K-8 public school, and a minimum of 8 acres of publicly accessible open space would be required through the Urban Renewal Plan and/or agreements between the City and the developer.

Comment 1-41: The land has not been acquired, yet permission for conveyance is requested. The disposition of property the City acquires should be postponed until a final plan and developer are chosen to allow CB7Q and the Queens Borough Board input and final approval. (6)

Response 1-42: A developer and a detailed development program for the District would be identified before the City takes possession of any property acquired by eminent domain.

Comment 1-42: For the first five years of the development process, beginning with selection of a developer, $500,000 per year should be dedicated to a capacity building program that would allow local MWBEs to respond to requests for proposals to provide goods or services during and after construction; and for an ongoing outreach effort that will inform and promote opportunities available to the community and MWBE firms for the provision of goods and services for the project. (2)

Response 1-43: The City is committed to providing multiple opportunities for MWBE engagement in the project, both during and after construction. NYCEDC is currently working with LaGuardia Community College and the Borough President's office to formulate an MWBE program. The District's future developer would be required to set aside $2.5 million across the first five years of the proposed Plan to implement programs designed to strengthen the ability of eligible MWBEs, particularly those doing business in the surrounding areas of Queens, to compete successfully for District contracting opportunities.

CHAPTER 3: LAND USE, ZONING, AND PUBLIC POLICY

Comment 3-1: The FEIS should disclose possible future uses of the MTA site. (18)

Response 3-1: As described in Chapter 2, "Land Use, Zoning, and Public Policy," it is expected that by the 2017 Build year, the adjacent MTA property would continue to contain industrial uses that are the same as or similar to the construction and demolition debris recycling operation that exists there today.

Comment 3-2: The DEIS states that barging activity at College Point is poised to increase in the future at the North Shore Marine Transfer (MTS) Facility in College Point; how does this increase affect other potential recreational uses in the area? Does the proposed Plan represent an opportunity to increase water-borne and intermodal freight transportation? (18)

Response 3-2: The District does not have any direct waterfront access and therefore does not present an opportunity to increase water-born freight transportation. While it is likely that recreational uses on the Flushing River waterfront will expand as a result of the Waterfront Access Plan that is part of the existing zoning, this would occur independent of the proposed Plan.

Comment 3-3: The GEIS states that the proposed Plan would not be consistent with current industrial uses along the waterfront, but that those uses are separated from the District by the Whitestone Expressway, Northern Boulevard, and Flushing River. How can the Willets Point site be both isolated from existing industrial uses in the College Point area and connected to retail and residential developments in Flushing when similar infrastructure (highways and industrial uses, such as the MTA yard), separate the site from both areas? The FEIS needs to address this inconsistency in the analysis. (18)

Response 3-3: The GEIS did not state that the District would be connected to the retail and residential developments in Flushing, but rather states that the proposed Plan would be consistent with ongoing land use and development trends expected to continue in close proximity to the District, particularly along the Flushing River waterfront, as higher-density mixed-use development is expected to replace some older industrial uses along the waterfront.

CHAPTER 4: SOCIOECONOMIC CONDITIONS

DIRECT DISPLACEMENT

Comment 4-1: No businesses from the Willets Point area should be relocated in the College Point area. (6)

Response 4-1: Existing zoning in portions of College Point, Queens permits many of the types of uses now located in Willets Point. In addition, as with Willets Point, the area has appealing characteristics such as close proximity to highways and bridges.

Since publication of the GEIS, NYCEDC has identified viable relocation properties in College Point for some of the businesses that would be displaced from the District. As the College Point Corporate Park is largely occupied, it is anticipated that only a handful of the approximately 260 businesses would be relocated there, and only if they comply with the applicable zoning regulations of the area. The GEIS also identifies a number of other areas where the displaced businesses could relocate. Areas identified for auto-related businesses include Jamaica, Elmhurst, South Ozone Park, Hollis, and Queens Village in Queens; Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue; and Flatlands Avenue in Brooklyn; and Port Richmond/West New Brighton in Staten Island. Areas identified for non auto-related businesses include Jamaica, Maspeth, Long Island City, and Ridgewood.

Comment 4-2: Relocating existing businesses would irreparably damage their long-standing relationship with clients based on their geographic location. (42)

Response 4-2: As described in the detailed analysis of direct business displacement, most of the displaced businesses could relocate without great difficulty and remain viable in other locations. Furthermore, although the cluster of auto uses in Willets Point contributes to the success of some auto-related businesses, Willets Point is not the only cluster of such uses within Queens or the City as a whole, and auto business owners could experience similar benefits by locating in other auto industry clusters. Therefore, the displacement of the Willets Point auto cluster would not constitute a significant adverse impact under *CEQR* because many of the businesses could remain in Queens or New York City, with relocation possible in other auto clusters with appropriate manufacturing and commercial zoning.

Comment 4-3: A large number of businesses can only function in an M-3 Zone. (35)

Response 4-3: As discussed in Chapter 4, "Socioeconomic Conditions," certain businesses that would be displaced do require M3 zones and special permits to operate. These include waste transfer stations (Crown Container, Tully Environmental, and Evergreen Recycling), iron works (Feinstein Ironworks and QC Iron Works), sawdust operations (Bono Sawdust), and automobile wrecking and salvage operations. The GEIS identifies potential M3-zoned vacant land or buildings in Queens and New York City as a whole where these businesses could relocate. Therefore, although relocation would likely be difficult due to limited availability of M3 zoned parcels within the City, with proper permits, the potential for relocation does exist.

Other businesses in the District do not require M3 zones to operate. For instance, auto-related businesses within New York City can be located in various commercial and manufacturing zoning districts, depending on the use. Auto repair and maintenance establishments can be located in all manufacturing zones and in C8 commercial zones. Retail supply stores (without repair service) operate in commercial districts (C1, C2, C4, C5, C6, C8) and all manufacturing zones. The GEIS identifies a number of areas where these businesses could relocate. Areas identified for auto-related businesses include Jamaica, Elmhurst, South Ozone Park, Hollis, and Queens Village in Queens; Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue; and Flatlands Avenue in Brooklyn; and Port Richmond/West New Brighton in Staten Island. Areas identified for non auto-related businesses include Jamaica, Maspeth, Long Island City, and Ridgewood.

Comment 4-4: The employees of Willets Point are skilled professionals who earn excellent, middle-income wages. These employees neither need nor want retraining. They are specialized professionals who want the opportunities that the Willets Point businesses provide. They do not need or want minimum wage retail or hospitality jobs. (38)

Response 4-4: As discussed in the GEIS, the City is committed to relocating the displaced businesses. NYCEDC is actively working with the owner-occupied businesses in the District to identify viable relocation properties. Although NYCEDC is not permitted to negotiate with tenant businesses at this time (to do so would interfere with tenant/landlord relationships), they have retained a tenant outreach consultant which has been providing information to tenant businesses and gathering information on their relocation needs since January 2008. In addition, the City has selected a business relocation consultant to supplement the relocation assistance that NYCEDC is providing. Should the proposed Plan be approved, the relocation consultant would provide real estate and relocation services to the impacted businesses in the District. These services would include outreach, site research, presenting sites to participating businesses, facilitating negotiations, and providing logistical relocation support including moving and storage. It is reasonable to expect that employees of relocated businesses would be able to retain their jobs.

Furthermore, as discussed in the GEIS, businesses throughout Queens and New York City provide similar products and services compared to those offered in the District. As noted in the analysis, within New York City there are approximately 3,642 auto-related businesses, 11,800 construction firms, 53 metal manufacturers, 110 sign manufacturers, and 300 institutional furniture manufacturers. With the help of the Workforce Assistance Plan developed by LaGuardia Community College (LAGCC), affected District employees could seek employment at these similar businesses. As noted in the GEIS, the Workforce Assistance Plan would offer both job training and job placement for eligible participants. LAGCC would screen candidates to match qualified job seekers with jobs from employers in the auto, industrial and manufacturing sectors. LAGCC would conduct extensive outreach efforts to allow eligible District workers to gain access to their services. In addition, NYCEDC is offering financial incentives to encourage participation by District workers in the program, such as stipends and transportation support (i.e., Metrocards).

Comment 4-5: Was there a needs analysis performed to assess the needs and the impact of this plan on the employees of Willets Point? (38)

Over 1,500 immigrants, predominantly of Latino descent, will suffer due to the forceful displacement that will take place in Willets Point. (32)

Forceful displacement will make victims of 225 shops with over 1,500 workers and heads of households. These victims will be out of work and left without a source of income along with their families. (32)

Response 4-5: The detailed analysis of direct business and institutional displacement follows the methodology prescribed by CEQR and the final scope of work in assessing the effects of displacement on businesses and employees. Although the proposed Plan would displace businesses that employ many workers and offer products and services valued by certain consumers, the analysis finds that the displacement of these businesses would not meet the *CEQR Technical Manual* criteria for a significant direct displacement impact. The businesses and institutions that would be displaced were determined not to have a unique or substantial economic value to the City as defined under CEQR. As set forth in the *CEQR Technical Manual*, the consideration of a business or institution's economic value is based on the following criteria: (1) its products and services; (2) its location needs and whether those needs can be satisfied at other locations; and (3) the potential effects on businesses or on consumers of losing the displaced business or institution as a product or service. The District's businesses are not unique; similar services and products are provided throughout Queens, the City, and the region. Further, the businesses would be able to relocate within Queens or the City as a whole; they are not subject to regulations or publicly adopted plans to preserve, enhance, or protect them; and they are not a defining element of the study area's neighborhood character.

As described above, the City is committed to relocating the displaced businesses, and is already working with business outreach, business relocation, and job training consultants to provide assistance to displaced businesses and employees. It is reasonable to expect that employees of relocated businesses would be able to retain their jobs. Furthermore, as discussed in the analysis, business relocation would not significantly affect the District workforce in terms of its ability to travel to work.

The proposed Plan would maintain the availability of local jobs by providing project-generated employment opportunities. Although it would be speculative at this time to break down project-generated employment by job type (i.e., full-time, part-time, managerial, etc.), based on typical ratios of employees psf for the proposed uses (office, retail, hotel, etc.), the direct on-site employment in the completed development with the proposed Plan is estimated at approximately

7,251 permanent jobs. This would represent an increase of 5,540 over the area's existing employment figure of 1,711. As noted in the analysis, not all of this employment, however, would necessarily be new to New York City; some of this employment might represent jobs that relocate to the Willets Point Development District from elsewhere in the City. However, this employment would represent jobs either new or retained in New York City, which might have gone outside the City if the District were not redeveloped.

Comment 4-6: Relocating displaced industrial jobs must be done as completely and effectively as possible. (29)

The Economic Development Corporation must provide relocation, financial, and technical assistance to ensure the shortest possible and least disruptive business relocations. (27)

Existing businesses in the Willets Point community should be treated fairly, and the City must do everything possible to ensure their relocation in as smooth and painless a transition as possible. (3)

EDC must make every effort to help tenant businesses relocate and reestablish themselves as ongoing entities. (2, 19)

CPC should ensure that businesses and workers receive fair compensation and relocation. (10)

If eminent domain is used, the relocation process of current businesses would be best served by a detailed disposition of the businesses on-site and their needs for space. (18)

If businesses must move to make way for redevelopment, every courtesy must be extended to them, and they must be absolutely indemnified against any and all losses that may occur before, during and after the relocation. (40)

Response 4-6: As discussed in the GEIS, NYCEDC is committed to relocating the displaced businesses. NYCEDC is actively working with the owner-occupied businesses in the District to identify viable relocation properties, and since publication of the DGEIS, NYCEDC has identified viable relocation properties for three businesses. Should the proposed Plan be approved, all businesses currently located in the District would be offered a relocation package, which would likely include financial coverage for certain moving costs, re-establishment fees, and use of brokerage services to find alternative locations. NYCEDC is currently working with owner-occupied businesses in the District to identify viable relocation properties within New York City. Although NYCEDC is not permitted to negotiate with tenant businesses at this time (to do so

would interfere with tenant/landlord relationships) they have retained a tenant outreach consultant which has been providing information to tenant businesses and gathering information on their relocation needs since January 2008. In addition, the City has selected a business relocation consultant to supplement the relocation assistance that NYCEDC is providing. Should the proposed Plan be approved, the relocation consultant would provide real estate and relocation services to the impacted businesses in the District. These services would include outreach, site research, presenting sites to participating businesses, facilitating negotiations, and providing logistical relocation support including moving and storage.

Comment 4-7: The efforts by the City to work with business owners, retrain workers, and not reflexively rely on eminent domain demonstrates the commitment of the City to mitigate that displacement and achieve the project in the most responsible manner. (41)

Response 4-7: Comment noted.

Comment 4-8: EDC must keep their promises of unconditional effort for business relocation, worker relocation, and job retraining. (6)

EDC must make every effort to contact and help the current Willets Point workers with enhancement of their employment skills, finding new employment, and provide career counseling and other supportive services to assure that they are not adversely impacted by new development at Willets Point. (2)

Response 4-8: As discussed above, the City is committed to relocating the displaced businesses.

As described in the GEIS, business relocation would not significantly affect the District workforce. According to surveys conducted by Howard/Stein-Hudson, many employees in non auto-related businesses and auto-related wholesale businesses drive to work and, therefore, would not be significantly affected by business relocations. For employees who walk, bike, or take public transportation to their place of work, many of the relocation areas identified in the GEIS are in close proximity to subway and bus routes. Therefore, these employees would also not be significantly affected by business relocation.

As noted in the GEIS, the City would offer assistance to individual employees working at businesses that are subject to direct displacement. In partnership with the New York City Department of Small Business Services (SBS), NYCEDC has retained LAGCC to develop a Workforce Assistance Plan for District workers who would be displaced

by the proposed Plan. The workforce assistance program would include job training to prepare workers for job opportunities, and job placement for eligible participants. Job training would include vocational, soft skill training, GED coursework, and ESL where necessary. LAGCC plans to use existing career centers to provide educational, job placement, and career counseling services. LAGCC would conduct extensive outreach efforts to allow eligible District workers to gain access to their services. In addition, LAGCC would screen candidates to match qualified job seekers with jobs from employers in the auto, industrial and manufacturing sectors. NYCEDC is offering financial incentives to encourage participation by District workers in the program, such as stipends and transportation support (i.e., Metrocards).

Comment 4-9: Willets Point has been misrepresented. Willets Point is not a haven for the automotive industry. As a matter of fact, more than fifty percent of the land that's occupied by Willets Point is occupied by companies that are not related to the automotive industry. (37)

There is no truth to the popular myth that the area consists only of "junkyards," and the Commission should not be fooled by any such claims. (40)

Response 4-9: According to field surveys conducted by Howard/Stein-Hudson and AKRF, Inc., there are 260 businesses and institutions within the District. The majority of the 260 businesses that would be displaced by the proposed Plan are involved in automotive trades (227 businesses or 87 percent). These auto-related businesses employ an estimated 1,057 workers, accounting for 62 percent of all employment within the District.

The detailed analysis of direct business and institutional displacement was conducted according to *CEQR Technical Manual* methodology. Under *CEQR*, economic activity in a study area is measured by the number of businesses within an industry and the number of employees at those businesses. The amount of land occupied by a business is not considered a measure of economic activity under *CEQR*.

The GEIS does not characterize the District as consisting only of junkyards. The GEIS states that of the 227 auto-related businesses, 72 percent (163 of 227) are in the repair and maintenance services sector, 54 are auto-related retail establishments, five are towing companies, and only five are auto-related wholesalers (including scrap or junkyards).

Comment 4-10: The FEIS should substantiate the claim that the businesses in Willets Point were determined not to be of substantial economic value to the

region or the City by disclosing a thorough analysis of businesses that are to be displaced and their economic contribution to the City as well as their position in the market and their intra- as well as their inter-industry business relationships. (18)

Response 4-10: The detailed analysis of direct business displacement assessed the economic value of the displaced businesses according to the methodology set forth in the *CEQR Technical Manual.* As set forth in the *CEQR Technical Manual*, the consideration of a business' economic value is based on: (1) its products and services; (2) its locational needs, particularly whether those needs can be satisfied at other locations; and (3) the potential effects on business or consumers of losing the displaced business as a product or service. None of the products or services provided by the displaced businesses is unique to the District, City, or the region, and similar products and services are offered at other locations borough- and citywide. Their business operations do not require that they remain in the District and there would not be a significant adverse effect on businesses or consumers in losing any of the displaced businesses. Therefore, the displaced businesses would not be classified as having substantial economic value to the City or region.

In business surveys conducted by Howard/Stein-Hudson, many auto-related business owners stated that the cluster of auto-uses in Willets Point contributed substantially to the success of their businesses. While these cluster businesses consider the concentration beneficial to their operations, proximity to one another is not essential for their viability, as evidenced by the numerous auto repair, maintenance, wholesale and retail businesses operating successfully outside the most substantial clusters in the city. These businesses serve local clients, and order parts and supplies that they either pick up from local salvage yards, or have delivered to their establishments. Further, as discussed in the analysis, phone book research and conversations with real estate brokers indicate that there are other areas of the Queens and the City where similar businesses are clustered and where District businesses could relocate in close proximity to substantial numbers of other auto businesses.

Comment 4-11: The GEIS provides an inadequate analysis of determining the possible advantages represented by maintaining auto-related industry as a cluster. Simply citing the fact that 3,642 auto-related businesses are available throughout the rest of the City is inadequate analysis, given that this cluster is located in an isolated site and not scattered along commercial corridors nor immediately adjacent to residential neighborhoods. (18)

Response 4-11: The detailed analysis of direct business and institutional displacement contained in Chapter 4, "Socioeconomic Conditions," follows the methodology prescribed by the *CEQR Technical Manual* and the final scope of work. As noted in the analysis, many of the auto-related business owners stated that the cluster of auto uses in Willets Point contributed substantially to the success of their business. However, Willets Point is not the only cluster of such uses within Queens or the City as a whole, and auto business owners could experience similar benefits by locating in other auto industry clusters. Furthermore, while these cluster businesses consider the concentration beneficial to their operations, proximity to one another is not essential for their viability, as evidenced by the numerous auto repair, maintenance, wholesale and retail businesses operating successfully outside the most substantial clusters. Therefore, the displacement of the Willets Point auto cluster would not constitute a significant adverse impact under CEQR because many of the businesses could remain in Queens or New York City, with relocation possible in other auto clusters with appropriate manufacturing and commercial zoning.

Comment 4-12: The FEIS should substantiate the claim that the Willets Point cluster is not unique and that other auto-related businesses in the City are a suitable substitute for consumers of auto repair services that use Willets Point. (18)

The automotive businesses of Willets Point are undeservedly much maligned. That they have survived for decades despite the area's ridiculously pitiful infrastructure proves that their services are very much in demand. (40)

Response 4-12: As set forth in the *CEQR Technical Manual*, the consideration of a business' economic value is based on: (1) its products and services; (2) its locational needs, particularly whether those needs can be satisfied at other locations; and (3) the potential effects on business or consumers of losing the displaced business as a product or service. The purpose of identifying other clusters of auto-related businesses throughout the City is to demonstrate that consumers would still be able to obtain the products and services offered by District businesses. As discussed in the detailed analysis of direct business and institutional displacement, auto business clusters were identified in Jamaica, Elmhurst, South Ozone Park, Hollis, and Queens Village in Queens; Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue; and Flatlands Avenue in Brooklyn; and Port Richmond/West New Brighton in Staten Island. Therefore, although there is a large cluster of auto-related uses within the District, the products and services these businesses provide

are not unique to the area and can be found in other neighborhoods in Queens and New York City.

The analysis of direct business displacement does not assert that the products and services offered by the displaced businesses are not in demand. Rather, the analysis shows that demand for these products and services could be fulfilled at a number of other locations throughout Queens and the City, by businesses in the auto clusters noted above, by other stand-alone auto businesses, or by relocated District businesses.

Comment 4-13: The GEIS should thoroughly examine the impact of breaking up the auto-related business cluster at Willets Point. Is the cluster's market localized or does it serve a regional market? What will be the cost to consumers locally and within the region? What is the effect on other communities where these businesses might relocate? (18)

Response 4-13: The detailed analysis of direct business and institutional displacement in Chapter 4 follows *CEQR Technical Manual* guidelines in assessing the potential for impacts. One consideration in the analysis is the potential effects on business or consumers of losing the displaced business as a product or service. As discussed on pg. 4-40, consumers would not be adversely impacted by the displacement of auto-related businesses from the District. Consumers who utilize the automotive repair, maintenance, wholesale and retail businesses that are located within the District have numerous opportunities to obtain similar services throughout Queens and the City, even locally in Flushing and along Northern Boulevard in Corona and Elmhurst. The District may have some regional draw for auto repair and maintenance, but substantial auto centers are also located just outside the City, in Deer Park on Long Island, and Hillside and Harrison, New Jersey, indicating that customers outside of the City do not rely on District businesses for their automotive repair and supply needs.

For businesses where NYCEDC has identified viable relocation properties, the GEIS assesses the potential for their relocations to result in significant adverse impacts in Chapter 28, "Potential Effects of Acquisition and Relocation." However, for other businesses, it is not possible to predict exactly where they would relocate if they were displaced by the proposed Plan. It can be assumed that they would relocate to other parts of the City that are zoned to permit auto-related and other industrial uses. None of the auto-related businesses located in the District are large emitters of air pollutants (none require a State Facility or Title 5 permit), and none have unique operational characteristics that might cause them to have particular potential for effects on the environment. Therefore, it is unlikely that individual District businesses would have the potential to result in significant

adverse impacts in the areas to which they would relocate. As most District businesses would relocate individually, it is not expected that particular neighborhoods would experience an influx of new industrial uses. However, for the businesses with no specific relocations plans available, any definitive assessment of the potential for significant adverse impacts would be speculative. Consequently, it is not possible to make site-specific conclusions about the potential for significant adverse impacts due to business relocation activity.

Comment 4-14: The GEIS states that there would be no net loss from the displacement of the auto-related businesses, given the availability of commercial space. NYCEDC should analyze the customer base of these businesses to more explicitly investigate this hypothesis. (18)

Response 4-14: The GEIS states that many of the displaced auto-related businesses could remain within Queens or the City. As discussed in the detailed analysis of direct business displacement, many businesses could relocate without great difficulty to available spaces for automotive repair and service establishments and wholesale businesses, most likely in Jamaica, along Northern Boulevard in Elmhurst, in portions of Long Island City, and in areas of the Bronx and Brooklyn. These areas have existing clusters of auto businesses, appropriate manufacturing and commercial zoning, and competitive rents. Rents may be higher in available commercial and industrial spaces outside of the District, but these locations offer better infrastructure and higher quality space than what is currently available in the District.

Comment 4-15: EDC has asserted that at present, it cannot relocate tenant businesses, for fear of committing tortious interference. Meanwhile, the Willets Point businesses now operate under heightened anxieties, because no one has made their survival the top priority if the redevelopment proceeds. (40)

Response 4-15: At this time, tenant businesses can not be offered relocation sites. To do so would interfere with the tenant/landlord relationship and could be alleged to constitute tortious interference with a business relationship. However, NYCEDC has retained a tenant outreach consultant, which has been providing information to tenant businesses and gathering information on their relocation needs since January 2008. NYCEDC has also selected a relocation consultant. Should the proposed Plan be approved, the relocation consultant would provide real estate and relocation services to all impacted businesses in the District. These services would include outreach, site research, presenting sites to

participating businesses, facilitating negotiations, and providing logistical relocation support including moving and storage.

INDIRECT RESIDENTIAL DISPLACEMENT

Comment 4-16: EDC must expand the study area for indirect residential displacement into a greater portion of the Corona neighborhood. The ¾-mile perimeter distance proscribed by the *CEQR Technical Manual* does not take into account the impact of the plan on the residential base and commercial activity in the Corona neighborhood across the Grand Central Parkway. We recommend the perimeter of the study area definition be expanded ¾-mile west from 114th Street. (18)

In addition to expanding the study area, MAS also recommends expanding the "Indirect Residential Displacement" study to include the place of residence of the workers in Willets Point. (18)

Response 4-16: Following the guidelines of the *CEQR Technical Manual*, the socioeconomic study area boundaries are typically similar to those of the land use study area. The boundary should encompass the District and adjacent area within 400 feet, a quarter-mile, or a half-mile, depending on the project size and characteristics. Because of the scale of the proposed plan, both the land use analysis and the socioeconomic conditions analysis considered ¾-mile study areas. This is the area most likely to be affected by the proposed Plan.

The detailed analysis of indirect residential displacement was conducted according to the methodology prescribed by the *CEQR Technical Manual* and the final scope of work. The detailed analysis of indirect residential displacement did not find the potential for significant adverse impacts within the ¾-mile study area. Therefore, an investigation of potential impacts further out from the District is not warranted, as these areas would be subject to other influences, such as existing land uses and planned development projects, that would be greater than those of the proposed Plan in creating residential and commercial pressures for indirect displacement.

ECONOMIC AND FISCAL BENEFITS AND PUBLIC COSTS

Comment 4-17: The FEIS must construct a comparative table of the median annual income of employees on the site resulting from the current and projected economic activities on the site. (18)

Response 4-17: The median annual income for existing and future employees in the District is unknown. A detailed analysis of income levels for future District employees would be speculative because it would rely on

assumptions about the exact types of businesses that would locate in the new development. In addition, such an analysis is outside the scope of the GEIS.

The analysis of economic and fiscal benefits and costs provides estimates of the total number of jobs and total wages and salaries currently in the District and that would result from the development under the proposed Plan, based on Citywide data for broad categories of businesses. Based on typical ratios of employees per square foot for the proposed uses (office, retail, hotel, etc.), the direct on-site employment in the completed development with the proposed Plan is estimated at approximately 7,251 permanent jobs. Of the total 7,251 jobs, approximately 4,250 would come from the retail development, 2,000 from the office development, 259 from the hotel, 220 from the operation and maintenance of the residential development, 160 from the convention center, and the remainder from the community facility space, parking, and the school (see Table 4-39). As shown in Table 4-40, the GEIS estimates that the direct on-site wages and salaries from the annual operation of the completed proposed Plan would be $317.69 million in 2007 dollars.

Comment 4-18: The FEIS must spell out the break-down of jobs that are projected to be created as a result of the plan by full-time and part-time, managerial, professional and low-skilled retail and customer service positions, and attach average wages to each categories in order understand the distribution of income across different categories. (18)

Response 4-18: At this time, a breakdown of the jobs created by the proposed Plan by type of job and income level cannot be determined. Any discussion of the types of jobs created would be speculative because it would rely on assumptions about the exact types of businesses that would locate in the new development. Furthermore, the analysis of socioeconomic conditions does not consider the types of jobs and income levels created by a proposed project in its assessment of significant adverse impacts. In addition, an analysis of the types of jobs and income levels created under the proposed Plan is outside the scope of the GEIS.

As discussed above and in the analysis of economic and fiscal benefits and costs, based on typical ratios of employees per square foot for the proposed uses (office, retail, hotel, etc.), the proposed Plan would result in approximately 7,251 permanent jobs and direct on-site wages and salaries of approximately $317.69 million in 2007 dollars.

Comment 4-19: The FEIS should include a clearly delineated fiscal impact analysis. (18)

Response 4-19: The analysis of economic and fiscal benefits and costs follows the scope of work in providing information on the public sector fiscal benefits and costs associated with the proposed Plan.

As detailed in that section, the developer of the proposed Plan would fund all site preparation, infrastructure improvements, and construction within the District, with the exception of the new pump station if constructed within District boundaries. It is anticipated that the City would fund certain infrastructure improvements that are necessary to support the proposed Plan, including the pump station and modified access to and from the Van Wyck Expressway. Costs associated with these City-funded improvements are preliminarily estimated at approximately $150 million.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

Comment 4-20: The City must assess the areas of the City that are zoned for light industrial and auto-related uses to ensure that adequate space exists for these uses as well. (28)

Response 4-20: As discussed in the analysis of adverse effects on specific industries, auto-related businesses within New York City can be located in various manufacturing and commercial zoning districts, depending on the use. Auto repair and maintenance establishments can be located in all manufacturing zones and in C8 commercial zones. Retail supply stores (without repair service) operate in commercial districts (C1, C2, C4, C5, C6, C8) and all manufacturing zones. Automobile wrecking and salvage operations are limited to M3 zones. The detailed analysis of direct business and institutional displacement identified auto business clusters where these businesses could relocate in Jamaica, Elmhurst, South Ozone Park, Hollis, and Queens Village in Queens; Hunts Point, Eastchester, and Jerome Avenue in the Bronx; Bay Ridge, Atlantic Avenue; and Flatlands Avenue in Brooklyn; and Port Richmond/West New Brighton in Staten Island. As discussed on pg. 4-37, research and conversations with brokers indicated that space is available for automotive repair and service establishments, as well as the wholesale businesses, in these clusters and elsewhere in Queens and New York City as a whole.

Other light industrial businesses from the District could relocate to a number of areas throughout the city with the appropriate zoning. As noted in the detailed analysis of direct business and institutional displacement, available spaces for these types of businesses were indentified in Long Island City, Jamaica, Maspeth, and Ridgewood.

Comment 4-21: The automotive industry already has a black eye, and residents of other areas—who presumably already have local facilities—will be opposed to their relocation. (43)

Response 4-21: As noted in the detailed analysis of direct business and institutional displacement, it can be assumed that auto-related businesses displaced from the District would relocate to other parts of the City that are zoned to permit auto-related and other industrial uses. The detailed analysis of direct business and institutional displacement identified a number of areas throughout the city that have existing clusters of auto-related businesses and appropriate manufacturing and commercial zoning. Zoning that allows auto-related uses indicates that those uses are acceptable under existing City land use policy. Furthermore, most District businesses would relocate individually; it is not expected that particular neighborhoods would experience an influx of new industrial uses.

Comment 4-22: Our waste transfer station is one of the few in Northern Queens that provides a uniquely valuable service due to its geographical location. If they take this facility, where is all that fill going to go? That's a major impact on the construction industry in New York City. (43)

Response 4-22: Evergreen Recycling of Corona is a waste transfer station permitted to handle fill. It is located on the MTA parcel, which is outside of the District. While the GEIS conservatively assumes that this use would be displaced because it is currently accessed from a street within the District, it would not necessarily be displaced as part of the proposed Plan because it is anticipated that access would be maintained. Even if Evergreen were displaced, there are other M3 zoning districts that this use could relocate to. In addition, other facilities in the City and surrounding and the surrounding area could process the fill currently handled by Evergreen.

CHAPTER 5: COMMUNITY FACILITIES

Comment 5-1: The 850-seat K-8 public school must be provided on site and included in the Urban Renewal Plan. (6)

Response 5-1: Since issuance of the GEIS, the Urban Renewal Plan has been amended to include the provision of a public school. The URP would require a new public school of a size based on the new residential population to be generated by the project, with a minimum of 650 students for a K-8 school. The school would be located within the Willets Point Development District.

The school would meet the projected shortfall in elementary school seats that could result from the proposed project. Overall, the analysis concluded that neither the proposed Plan nor the No Convention Center Scenario would result in any significant adverse impacts on public schools within the one-mile study area, Zone 2 of Community School District (CSD) 25, or within CSD 25 as a whole.

Comment 5-2: Not only are the average response times of the FDNY to either fire or medical emergencies in Queens approximately 120 seconds more than the response time contained in the National Fire Protection Association (NFPA) Standard, it also takes between 60 and 90 seconds longer to respond to fire or medical emergencies in the Willets Point area than it does in Queens generally. This is a matter of significant concern, since, if developed as currently proposed, the Willets Point District will add almost 9,000,000 square feet of mixed residential, office, and retail development, which will generally lengthen the Willets Point and other local response times even further. It is also expected that between 850 and 900 school children would attend the school proposed for the neighborhood. The GEIS did not look at this matter at all, but the traffic analysis clearly shows that emergency vehicles will not be able to respond in a timely manner. Thus, both the need for emergency services and the City's inability to provide them will markedly worsen as a consequence of the proposed development. (33)

Response 5-2: The GEIS's analysis of fire protection services relied on *CEQR Technical Manual* methodologies. A detailed assessment of fire protection services is necessary only for projects that would affect the physical operations of, or access to and from, a station. The proposed project would not displace or physically alter a fire station. Therefore, in accordance with *CEQR Technical Manual* methodologies, the proposed project did not require detailed assessment of potential fire protection.

According to the *CEQR Technical Manual*, the "Fire Department does not allocate resources based on proposed or projected developments, but continually evaluates the need for changes in personnel, equipment or locations of fire stations and makes any adjustments necessary." Throughout the development of the proposed Plan, FDNY has evaluated the proposed Plan to ensure that the District would receive adequate emergency service coverage. If the proposed plan is approved, the City will ensure that the proposed Plan meets all relevant New York City fire safety standards.

Four fire stations are currently located in the area surrounding the Willets Point Development District. As noted in the GEIS analysis, FDNY units responding to a fire are not limited to the ones closest to it.

The FDNY has indicated that there will continue to be adequate fire protection and provision of emergency services in the area surrounding the District. The Department is well experienced with the logistical issues of the Willets Point area since it provides support for single and simultaneous events occurring at Shea Stadium, Flushing-Meadows Corona Park, and the USTA National Tennis Center, in particular the U.S. Open Tennis Tournament.

The commenter's comparison of the National Fire Protection Association's (NFPA's) 4-minute response time to the current response times for the Willets Point area and the borough of Queens is misleading. According to the FDNY, NFPA's 4-minute response time is a goal for a responder travel time that does not take into account the time for the initial call dispatch (e.g., 911 or call-box to the appropriate firehouse) and the turnout time for the firefighting team to head out, which could add between 60 to 90 seconds to total response time.[1] Overall, average FDNY response times to all emergencies decreased citywide and boroughwide from 2006 to 2007. During this time, FDNY response times in Queens to structural fires have decreased from 4 minutes and 59 seconds to 4 minutes and 56 seconds. During this same period, city-wide EMS response times decreased from 6 minutes and 42 seconds to 6 minutes and 36 seconds.[2]

Additionally, the proposed plan includes significant infrastructure improvements for the District, including road grading and paving, as well as improvements to city water service including enough fire hydrants to adequately serve the higher density development program. The District is currently characterized by unpaved, potholed roads. As such, the proposed project would result in significant improvements to on-site infrastructure that would bolster FDNY's fire fighting ability within the District. Chapter 5 of the FGEIS, "Community Facilities," has been updated to reflect a discussion of local emergency response.

Comment 5-3: A child care center should be designed early on to accommodate workers and residents. (9)

Response 5-3: The proposed redevelopment of the District could generate a significant number of children under age 12 that would be eligible for publicly financed child care. The proposed Plan would generate an additional 198 children eligible for subsidized day care. The No Convention Scenario could generate an additional 211 children eligible for

[1] Phone conversation with Patrick McNally, FDNY Chief of Operations, September 8, 2008.

[2] Mayor's Management Report, NYPD, Fiscal 2008.

subsidized day care. These additional children could result in an increase of more than 5 percent in the deficiency of day care slots over the No Build condition, which is the *CEQR Technical Manual* threshold for an adverse impact.

As described in the GEIS, if a shortfall in day care slots occurred, possible mitigation measures include adding capacity to existing facilities or providing a new day care facility within or near the area surrounding the Willets Point Development District. However, it is not possible to know exactly which type of mitigation would be most appropriate and when, because several factors may limit the number of children in need of publicly funded day care slots. For example, families in the one-mile study area could make use of alternatives to publicly funded day care facilities, and parents of eligible children may use New York City Administration for Children's Services (ACS) vouchers to finance care at private day care centers either within the one-mile study area or could utilize facilities outside of study area. To mitigate the potential impact on day care facilities, the City would require, as part of the developer's agreement, that a future developer consult with ACS to determine the appropriate way to meet demand for day care services generated by development in the District.

CHAPTER 6: OPEN SPACE

Comment 6-1: We applaud the administration's efforts to increase parks and open space in Queens through the Willets Point Redevelopment by about eight acres of open space. We support their plan to have maintenance of the open space covered by the developers, since maintenance funds are very difficult to obtain, especially in light of the current fiscal situation facing the City's economy. (25)

This project will revitalize the Flushing Waterfront and create a place where families can enjoy open space and recreation in what is now a blighted and polluted area. The creation of open space, parks, trees, a bicycle/pedestrian connection to Flushing Bay, will have a direct and profound impact on the daily lives of the people living in and around the area. This will be an enormous accomplishment and set a standard for others to follow throughout the City. (13)

Response 6-1: Comment noted.

Comment 6-2: What are the design standards for the implementation of the open space? (25)

Response 6-2: As described in Chapter 6, the Special District regulations would require pedestrian amenity areas or open landscaped areas, and specify

minimum dimensions of these public access areas including the two-acre park with primarily active recreational uses as well as other areas at various locations along the perimeter of the District. The Special District would encourage high-quality design of these publicly accessible areas by prescribing design standards largely based on those for public plazas set forth in the Zoning Resolution. The Special District standards would govern such elements as tree and groundcover plantings, seating, moveable chairs and tables, bicycle parking, and water fountains. Furthermore, the design and programming, as well as operation and maintenance plans of the future open spaces in the District would be subject to further review by DPR once a developer is designated.

Comment 6-3: What is the total acreage devoted to open space? (25)

Response 6-3: The URP would require the development to include a minimum of eight acres of privately-owned, publicly accessible open space. Of these eight acres, an approximately two-acre park would be developed with primarily active recreational uses. It is anticipated that the remaining six acres of open space would be programmed primarily for passive use. The GEIS also notes that the City would encourage the future developer to incorporate other recreational resources, such as rooftop amenities, into the project design as part of its RFP process. While these recreational amenities may be available only to tenants and residents of the site, they would help offset the burden on public active and passive resources resulting from the introduction of new users to the District.

Comment 6-4: EDC and the Parks Department must develop additional green space on the Flushing River and extend the Flushing Bay Promenade to the DOT facility. (2)

The existing Flushing Bay promenade, serving East Elmhurst and Corona now, should be positively linked to the Willets Point development and not just stop at the DOT vehicular maintenance facility on the Flushing Bay. (13)

Response 6-4: As described in the GEIS, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations. A number of bicycle and pedestrian access improvement measures have been identified throughout the area, including creating connections between the Flushing Bay Promenade and 126th Street, and between the Flushing Bay Promenade and Downtown Flushing. NYCEDC is currently seeking funding and approvals to implement these improvements. In addition, the City will

explore opportunities to develop additional green space along Flushing Bay and Flushing River.

Comment 6-5: Will the proposed public space and park be managed by the developer or by the Department of Parks and Recreation? If the developer will manage the park, safeguards should be included to ensure that the development maintains an open feel, and public spaces be truly accessible to the public and welcoming to residents from surrounding neighborhoods. (18)

Response 6-5: All of the open space provided under the proposed Plan would be privately-owned, but publicly-accessible open space. As such, the open space would be maintained by the developer and not DPR. As described in the analysis, in order to maintain programming and design flexibility, the open space planning is currently only conceptual. Details of the open space elements will be dependent on the developers' response to the City's RFP process. The design and programming of those future open spaces would be subject to further review by DPR once a developer is designated. In addition, the developer would be required to submit their operation and maintenance plans to DPR for review and approval.

Comment 6-6: EDC must mandate ground-level retail at the park's edge in order to guarantee activity and make the park lively. (18)

Response 6-6: The Special District requires that the two-acre park be centrally located within the District, located along a connector street, and bounded on all sides by streets or a school use. It is anticipated that this park will be widely used by the numerous residents, workers, and visitors to the District.

Comment 6-7: The noise impact of the project on the World's Fair Marina Park has section 4(f) consequences, which should have been addressed in the GEIS. (33)

Response 6-7: The GEIS discloses the potential for a significant noise impact at the World's Fair Marina Park during the Saturday midday time period as a result of the proposed Plan and the potential future development on Lots B and D. Under the CEQR impact criteria, a noise increase of 3dBA would be perceptible and would be considered a significant adverse impact. As noted in Chapter 20, "Noise", this location is projected to experience an increase of 3.5 dBA due to the additional project-generated traffic passing by this park to access the existing westbound Grand Central Parkway.

A Section 4(f) evaluation is not warranted since the projected noise impact would not be a result of the construction and operation of the proposed Van Wyck Expressway ramps, for which the FHWA would have approval jurisdiction. Further, construction of these ramps would neither encroach on this parkland nor result in the substantial impairment of its enjoyment, which would constitute a constructive use. The World's Fair Marina Park is a paved waterfront esplanade surrounded by the Grand Central Parkway, Northern Boulevard, parking fields and LaGuardia Airport, which is already subject to high levels of noise.

Further, it is not uncommon for a park in New York City that is adjacent to heavily trafficked roadways to experience elevated noise levels. The GEIS noise analysis excluded noise from aircraft operations at LaGuardia Airport, which is adjacent to the District. If the noise from aircraft operations were included in the baseline noise levels, it is unlikely that the CEQR impact identified at the World's Fair Marina Park would occur.

CHAPTER 7: SHADOWS

Comment 7-1: What is the shade impact on the courtyard? (25)

Response 7-1: According to the standard CEQR methodology used to conduct the shadows analysis, shadows cast on open spaces that are part of a proposed project are not considered impacts of a project, because without the project, the open space would not exist. Additionally, the shadows analysis conservatively analyzed the maximum building envelope allowed under the Federal Aviation Administration (FAA) limits throughout the District, to see whether shadow would affect nearby existing open spaces and natural resources such as the Flushing Bay Promenade and the Flushing River. Therefore, shadow effects involving individual buildings and open spaces within the illustrative site plan were not considered. However, given that some proposed structures in the District would be adjacent to the proposed open space, while also limited in height by the FAA limits, it is likely that any publicly-accessible open spaces in the District would experience areas of both direct sunlight and shade at different times of day and season.

CHAPTER 8: HISTORIC RESOURCES

Comment 8-1: The GEIS fails to address the procedures for evaluating impacts on historic property. The GEIS states that a building on the site that is eligible for listing on the State and National Registers of Historic Places would be demolished as part of the Proposed Project. It is apparent from

the maps in the GEIS that this demolition is necessary for the construction of the new ramps on and off the Van Wyck Expressway, which will require approval of both the NYSDOT and the FHWA. Consequently, demolition of the historic property on the District presents serious implications under Section 4(f) of the Department of Transportation Act. The demolition will trigger the consultation process under Section 106 of the National Historic Preservation Act, in which the FHWA affords the Advisory Council on Historic Preservation and other agencies, organizations and individuals an opportunity to comment on the demolition of the historic building. This process has not begun and can be very time-consuming. The GEIS should have discussed the Section 4(f) and Section 106 processes. (33)

Response 8-1: The GEIS discloses that the development of the proposed Plan—not the construction of the Van Wyck Expressway ramps—may require the demolition of the Former Empire Millwork Corporation Building, which has been found eligible for listing on the State and National Registers of Historic Places. As stated in the GEIS, demolition of this building would constitute a significant adverse impact on historic resources. Measures to mitigate this impact would be developed in consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and could include recording the building through a Historic American Buildings Survey (HABS)-level photographic documentation and accompanying narrative.

However, the Freeway Access Modification Report will examine design alternatives, which will include a configuration that would require demolition of this building. If the specific development plan proposed by a developer would not require demolition of the building but the design preferred by NYSDOT and FHWA for the ramps would require such demolition, FHWA would undertake the required Section 106 and Section 4(f) analyses.

CHAPTER 9: URBAN DESIGN AND VISUAL RESOURCES

Comment 9-1: The urban design, as well as design of open spaces and parks, should promote a public, open feeling and ensure public access. It is imperative that safeguards are included to ensure that the development maintains an open feel and is truly accessible to the public and welcoming to residents from surrounding neighborhoods. (18)

Response 9-1: The proposed Plan would include at least four entrances, plus a pedestrian entrance, on 126th Street to provide access to the site. The retail spaces, located in the area closest to 126th Street, would draw people into the site, and the two main connector streets would carry

pedestrians to the smaller retail areas and to the large, central open space. The two connector streets would converge near the large open space and the open spaces located on the northeastern section of the site.

Comment 9-2: The Van Wyck Expressway and other major highways create a boundary around the site, and would effectively hem in this new neighborhood and interrupt pedestrian access to the waterfront. (18)

Response 9-2: The City is currently studying ways to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade, Flushing Meadows-Corona Park, and Downtown Flushing. As part of this study, a number of bicycle and pedestrian access improvement measures have been identified throughout the area, and NYCEDC is currently seeking the necessary funding and approvals to implement these improvements. While the area-wide bicycle and greenway network is not part of the proposed Plan, new bicycle lanes would be required on the connector streets as part of the proposed Plan, which would supplement the area-wide bicycle and greenway network. Moreover, the proposed Plan calls for pedestrian-friendly widened sidewalks along 126th Street corridor with retail uses concentrated in proximity to the new Citi Field. This proposed commercial and entertainment center would create a synergy between the new Citi Field and the District.

Comment 9-3: What urban design solutions will effectively integrate the Willets Point site and the Flushing area? (18)

Response 9-3: The proposed Plan would create a walkable, urban streetscape by establishing dimensions and design parameters to address sidewalk width, travel lanes, parking lanes, bicycle lanes, street trees, and other pedestrian amenities. The District is separated from the Flushing area by the Flushing River; however, as described above the City is currently investigating ways to improve pedestrian and bicycle access to the site from a number of surrounding locations including the Flushing area.

CHAPTER 10: NEIGHBORHOOD CHARACTER

Comment 10-1: The DEIS acknowledges that the proposed plan will generate significant vehicular traffic increases. Given the emissions and noise pollution to which residents would be exposed (due to increased vehicular traffic) the site's condition and the plan's impacts will negate the goals of creating a residential, pedestrian-friendly streetscape and sustainable neighborhood. The bleak assessment regarding traffic and parking begs

the question: what makes this a sustainable and transit-oriented neighborhood development plan? (18)

Response 10-1: The traffic, air quality, and noise assessments performed for the GEIS represents a conservative analysis as it accounts for over 90 background development projects and an additional 11.5 percent background growth rate, plus the traffic generated the by proposed Plan. The analysis in the GEIS also represents the maximum envelope of development envisioned for the District. As a result, the volume generated by the development, impacts identified, and mitigation measures proposed in the GEIS represent a worst-case scenario. The proposed Plan would still be a sustainable and transit-oriented neighborhood development plan because the District is located next to existing subway and commuter rail lines. The City is in consultation with MTA and NYCT on plans to extend and/or create new bus lines to serve the District and to extend regular LIRR service to the LIRR station when the actual demand shows that such service improvement is warranted. The proposed Van Wyck access ramps, which would offer a direct connection between the Development District and the Van Wyck Expressway, optimize the ability of the Van Wyck Expressway to serve the District. The new ramps would help to minimize traffic volumes on nearby local streets and alleviate congestion on the local roadway network. Further, the proposed Plan would reserve up to five percent of off-street parking spaces for vehicles being shared by multiple households (e.g., car-sharing vehicles). A number of bicycle and pedestrian access improvement measures have been identified throughout the area, and NYCEDC is currently seeking funding and approvals to implement these improvements. The bicycle lanes in the District would connect to this area-wide bicycle and greenway network, and indoor accessory bicycle parking would be required for all new residential, office, and retail uses developed in the District. Measures such as these are intended to reduce vehicular dependence and promote a more transit-oriented development.

CHAPTER 11: NATURAL RESOURCES

Comment 11-1: Impacts to the surrounding area from site soil erosion need to be assessed. In particular, sediment transport to nearby water bodies and appropriate mitigation measures need to be further discussed in the GEIS. (33)

Response 11-1: Best management practices implemented during construction and project operation would include erosion and sediment control measures as part of a stormwater pollution prevention plan (SWPPP). Implementation of the SWPPP will minimize potential impacts

associated with sediment transport, particularly through surface water and stormwater runoff that could flow into the adjacent wetland and/or Flushing Bay and River. The SWPPP would comply with the New York Guidelines for Urban Erosion and Sediment Control and the New York State Management Design Manual. Furthermore, geotechnical investigations have determined that placement of fill in the District will not result in lateral instability along Flushing Bay and Flushing River.

CHAPTER 12: HAZARDOUS MATERIALS

Comment 12-1: In its efforts to justify the need to level the community, the City has been waging a campaign to portray Willets Point as highly contaminated. The City has yet to show data that supports this. Representatives from the NYCEDC and their consultant to us that they did *not* find widespread contamination. On the contrary, they found localized "pockets" of contamination that could be remediated without removing existing businesses. It is difficult to accept that in 2008, we don't have the technology to identify and remediate the environment without leveling an entire community. (38)

Soil and groundwater contamination squeezed out from the consolidated soils (see also Comment 12-3) can also migrate to the nearby Flushing River and Flushing Bay affecting aquatic resources. The water quality as well as habitat for aquatic species could be compromised. The effects of this contamination and potential impacts on tidal marshes, wetland habitat, fish, and benthic resources is not evaluated in the GEIS. (33)

Response 12-1: The scope of the studies completed to date were limited by property access; as access becomes available, site-specific Phase I ESAs would be performed. If found warranted in site-specific Phase I ESAs, Phase II ESAs would be performed to further investigate specific areas of concern and assess the extent of contamination.

The initial limited Phase II investigation, consisting only of samples collected from the public streets, found groundwater contamination consistent with suspected releases from private properties within the District. Historic land uses identified in the Phase One investigation included: automotive repair, automotive scrap yards, automotive painting, paint striping facilities, engine repair shops, automotive battery recycling, metals fabrication, metals recycling, scrap metals, waste transfer stations, waste handling facilities, equipment storage, equipment cleaning, and heavy equipment maintenance. These historic uses, along with the history of multiple documented petroleum spills, strongly suggest the presence of widespread contamination with

petroleum and potentially other hazardous materials throughout the District.

Although some remediation could take place on a site by site basis while leaving existing businesses in place, the GEIS notes that the extent of remediation on affected properties would likely be less than with the proposed Plan, as soil removal underneath roadways and adjacent properties that might have been affected by the spills is not usually required as part of site cleanups. The remediation of contamination at other sites would likely take place only if such sites were to be redeveloped, though little or no redevelopment is anticipated without the proposed Plan. In addition, many of the parcels currently contain septic systems that may have contributed to soil and groundwater contamination within the District. At many of these locations, above ground structures cover most of the site footprint, making removal of these underground systems and impacted soils extremely difficult without the removal of the structures.

DEC spill files indicate that there has been contamination migration between properties. It would be extremely costly and inefficient to install groundwater remediation systems on a parcel by parcel basis without hydraulically influencing adjacent properties. The remediation of shallow groundwater would inherently influence groundwater flow direction and the installation of soil vapor extraction and/or air sparging systems may result in vapor intrusion issues migrating to properties where the appropriate systems are not in place.

Comment 12-2: The redevelopment plan proposes adding up to six feet of fill to the site to raise the grade above the 100-year floodplain. If the City has underestimated the amount of fill necessary to do this, it will require that much more fill. The weight from fill used to raise the grade of the District will cause the subsurface compressible layers under the site to consolidate, squeezing contamination from the subsurface soil and groundwater into the surrounding portions of the aquifer. There is a hydraulic connection between the Brooklyn Queens Aquifers and active or potentially active existing DEP water supply wells. Additional water supply wells are also being proposed/implemented as part of the Brooklyn Queens Aquifer Study, which is seeking ways to utilize the Brooklyn Queens Aquifer during droughts and other water emergencies. If significant contamination is present, it could negatively impact the aquifers and water supply wells which utilize them. (33)

The EIS states that parts of the site are heavily contaminated. These areas are linked to an aquifer that is pumped as part of the New York City water system. The fill that will be brought in to build up the grade

will press down and squeeze the pollutants into the aquifer. The EIS ignores this effect, which violates the federal Safe Drinking Water Act. (33)

In WPIRA's comments on the Draft Scope of Work, we called for an analysis of how the proposed fill would surcharge the underlying areas. The City's Response to Comments document indicated that this issue would be discussed in the GEIS chapter on construction impacts, but it was not. (33)

The Access Modification report that NYSDOT will have to submit to the FHWA will be guided by FHWA's Technical Advisory T6640.8A, which requires information on whether any of the alternatives of a proposed project will affect a sole-source aquifer or any of the critical protection areas within the affected sole-source aquifer. (33)

Response 12-2: The estimate used to determine the amount of fill required to fill the site to the 100-year floodplain was calculated using a recent survey of the development parcel and boring results from a series of geotechnical borings. The fill heights noted in the GEIS account for 25 years of settlement based on the boring results and average soil densities. The fill material that was used for purposes of the geotechnical evaluation included a low density material that is available and is designed to minimize settlement. Additionally, the compressible layer beneath the District has already been put under pressure and settlement has occurred, which minimizes further settlement of that layer. Finally, the fill importation estimates only place fill on the roadbed portions and areas not occupied by structures. All building structures would be built on piles to raise them above floodplain elevation.

Deep geotechnical borings indicate that there are two aquitards (an impermeable layer that restricts the flow of groundwater from one aquifer to another) located beneath the District, an upper organic clay layer, and a varved silt and clay layer. Migration of contaminants through these aquitards to the sole source aquifer, located 200 feet below the surface, is highly unlikely. Based on geotechnical investigations of the area, it is unlikely that the filling of the District will have any significant effect on the groundwater table. In addition, the vast majority of chemical compounds considered to be of concern in the Willets Point area are petroleum based and less dense than water; therefore migration of these contaminants, even in soluble form, would require a significant downward gradient without the presence of aquitards.

Historically, Flushing Meadows-Corona Park was filled with approximately 50 million cubic yards of incinerator ash over the pre-1900 marshlands. The filling of the marshlands is not known to have

impacted the sole source aquifer with any of the contaminants found in the ash.

Comment 12-3: It is likely that the site will require substantial additional fill to raise it out of the floodplain. The addition of fill and the resulting differential settlement and potential lateral movement will impact current and future subsurface utilities (e.g., gas, sanitary sewer, electric, and oil lines), underground storage tanks, parking lots, and structures in the area. This fill will settle unevenly, causing utilities and surrounding pavements to settle independently of one another and buildings, potentially causing leaks from known and unknown underground storage tanks and gas, oil, and sewer lines and further soil and groundwater contamination. An engineering analysis of differential settlement on utility lines and the buildings themselves needs to be performed. (33)

Response 12-3: The amount of fill estimated by NYCEDC to fill the District to the 100-year floodplain was calculated using a recent survey of the development parcel and boring results from a series of geotechnical borings. The fill heights noted in the GEIS account for 25 years of settlement based on the boring results and average fill densities.

During demolition activities and prior to any filling, all existing underground utilities to be replaced would be demolished or abandoned in accordance with applicable regulations. A geophysical survey is planned to be conducted prior to any filling in order to locate the presence of any currently unidentified underground storage tanks or utilities. Any underground storage tanks within the District would be removed or abandoned in place in accordance with applicable regulations.

All utilities, tanks and underground structures to be installed in the new development will be pile supported or designed to ensure that such structures would not be adversely impacted by the settlement anticipated in the area.

Comment 12-4: Even the most responsible business owner cannot help having some spills of oil, gasoline, transmission fluids, and other carcinogenic materials. If businesses of this type remain in the area, the land can never be reclaimed to the point where it's safe for human occupation. (17)

Response 12-4: Comment noted.

Comment 12-5: Sampling undertaken as part of the Phase II ESA included only sampling locations under sidewalks and streets, and shows only minor

contamination is present. The only conclusion that can be drawn from the sampling data collected is that it is not representative of the site. By its own admission, the GEIS does not describe the environmental conditions representative of the area and therefore the project should not be allowed to continue without a complete characterization of the site. (33)

Response 12-5: Sampling was performed in areas where access was available (i.e., City-owned streets). Data was collected to determine if the overall areas of individual sites that are small and assumed to have isolated contamination would have spread and merged to larger areas. This data is representative of the roadway corridor given the distance between the borings. A review of available DEC files indicated that through recent property transactions and due diligence work, several investigations and cleanups on individual sites were performed. These cleanups indicated that soil and groundwater contamination was present on sites that required remediation to industrial standards. It is reasonable to assume that there may be additional remediation necessary to meet the more restrictive residential clean up criteria. Furthermore, as discussed in Chapter 12, "Hazardous Materials," as access to sites become available, site-specific Phase I ESAs would be performed. If found warranted in site-specific Phase I ESAs, Phase II ESAs would be performed to further investigate specific areas of concern and to assess the extent of contamination. A Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) would be developed to address handling and disposal of all materials requiring off-site disposal, including historic fill materials and any unexpectedly encountered contaminated materials. The RAP/CHASP would also include provisions for air monitoring (for volatile organics, methane, and particulates) during construction and the installation of appropriate systems to prevent the migration of vapors into any newly constructed buildings. The RAP would be reviewed and approved at a minimum by DEP and, if required by applicable laws and regulations, by DEC.

Comment 12-6: If significant contamination is present in the soils, significant soil removal or other treatment options would be required, which should be provided in the GEIS. In addition, if significant groundwater contamination is identified, groundwater treatment would be required to prevent contaminant migration, which will greatly impact project costs. This needs to be further evaluated in the GEIS. (33)

Response 12-6: Presumptive remedial actions were considered based upon known historic and existing land uses and site assessments that could be performed given available access. Based on the body of remedial knowledge available for specific land uses and the knowledge of the

specific site uses, soil and groundwater conditions in the District, reasonable assumptions can be made for both soil removal and groundwater treatment options and projected costs.

Comment 12-7: Additional sampling for methane across the District needs to be performed to determine the impacts, and what health and safety measures need to be employed during construction and engineering controls employed post construction. (33)

Response 12-7: District-wide methane sampling may be appropriate. Current mitigation for various contaminants that could be present in the District's subsurface is assumed to be necessary. These types of engineering mitigation controls would also be valid in addressing potential methane issues in the District. As described in Chapter 12, "Hazardous Materials," a RAP and CHASP would be developed to address handling and disposal of all materials requiring off-site disposal and include provisions for air monitoring (for volatile organics, methane, and particulates) during construction and the installation of appropriate systems to prevent the migration of vapors into any newly constructed buildings. The RAP would be reviewed and approved at a minimum by DEP and, if required by applicable laws and regulations, by DEC.

Comment 12-8: EDC must conduct a rigorous environmental remediation program if a school is to be sited in Willets Point. (18)

Response 12-8: One of the goals of the proposed Plan is to implement a District-wide remediation program that meets all the applicable City and State regulations. With respect to the remediation measures to be conducted for the siting of the school, in addition to the site meeting all the clean up thresholds required by DEP and DEC, the New York City School Construction Authority (SCA) will also conduct a due diligence review prior to the construction of the facility. Documentation would be submitted for SCA's review when a location and setting have been determined and access is granted to allow for a site-specific sampling program. Remediation, if required, would be implemented based on the findings of that site-specific sampling program.

CHAPTER 13: WATERFRONT REVITALIZATION PROGRAM

Comment 13-1: Pedestrian access to the waterfront and to adjoining neighborhoods, a desire of local communities, has not been solved. (29)

The current use of Willets Point means that the waterfront is really off-limits. (24)

Response 13-1: The District and Lot B are located inland from Flushing Bay and the Flushing River and are separated from the shoreline by several elevated roadways including Northern Boulevard and the Whitestone Expressway to the north, the Van Wyck Expressway to the east, and Roosevelt Avenue, with the elevated No. 7 subway line, to the south.

Both the proposed Plan and the No Convention Center Scenario recommend a change to the underlying zoning creating a mix of uses, including residential, retail, hotel, entertainment, office, community facility, and open space uses, and possibly a convention center. The proposed Plan also includes new pedestrian and bicycle connections to adjacent neighborhoods, Flushing Promenade, and the waterfront. These uses would result in substantially greater numbers of people coming to the area, would attract the public, and would enliven this area of land near the waterfront.

Comment 13-2: The waterfront property on the east side of the Flushing River should be developed into a mixed-use residential development with retail waterfront uses along the promenade that extend from Northern Boulevard to a development south of Roosevelt Avenue and to eventually create a new pedestrian biking link to Flushing Meadow-Corona Park. (13)

The site plan as presented does not advance Policy 1.2 of the New York City Waterfront Revitalization Program. This is no fault of the designers of the site plan—the site is simply ringed by major highways that do not allow access to the waterfront. NYCEDC should study various scenarios which will allow for legitimate waterfront access. (18)

Response 13-2: Comment noted. As stated above, with implementation of the proposed Plan, new pedestrian and bicycle connections would be created. Specifically. the new pedestrian and bicycle network intends to improve access from the District and Lot B to locations in adjacent neighborhoods, including areas east of the Flushing River via the Northern Boulevard Bridge and Roosevelt Avenue Bridge.

CHAPTER 14: INFRASTRUCTURE

Comment 14-1: The GEIS fails to address the permits necessary to construct a new stormwater outfall. While it mentions in passing that a new stormwater outfall may be needed, it fails to address the requirement for an DEC permit under the State Pollutant Discharge Elimination System to construct the outfall, together with the applicable standards, procedures, and time delays. (33)

Response 14-1: As described in Chapter 14, "Infrastructure," the proposed Plan would include implementation of various stormwater management features. If stormwater flow could be controlled to meet the allowable flow to the two existing outfalls, no new outfalls would be required.

If, notwithstanding the stormwater management features selected for a detailed development plan, runoff would exceed the allowable flow to the existing outfalls, a new outfall would be proposed to augment the discharge capacity of the existing system. This new outfall would require DEC and Army Corps of Engineers permits.

Comment 14-2: The FEIS must delineate the costs to the public projected over a reasonable number of years should the current activity be erased and no developer be capable of remediating the environmental issues and developing the site. (18)

Response 14-2: The GEIS makes a reasonable assumption as to the existence of contamination throughout the District. It is speculative and unsupported to assume that the contamination levels in the District are so severe that site remediation and development could not occur. Although site access to the private properties in the District is not available and site-specific sampling has not yet been undertaken, sampling was performed in areas where access was available (i.e., City-owned streets), allowing for a general assessment of groundwater conditions within the District. Soil and groundwater data as well as other information were used to determine whether contamination from individual sites may have migrated. Presumptive remedial actions were considered based upon known historic and existing land uses and site assessments that could be performed given available access. Based on the body of remedial knowledge available for specific land uses and the knowledge of the specific site uses, soil and groundwater conditions in the District, reasonable assumptions can be made for both soil removal and groundwater treatment options and projected costs.

CHAPTER 17: TRAFFIC AND PARKING

Comment 17-1: The Traffic and Transit mitigations are very inadequate. (6)

Response 17-1: The GEIS considers and identifies a comprehensive list of traffic mitigation measures for significantly impacted locations during seven traffic analysis peak hours – four non-game day peak hours and three game-day peak hours. The mitigation measures include traffic signal timing modifications, installation of computerized traffic signal controllers, parking prohibitions to allow for daylighted right-turn lanes and additional moving lanes at select locations, and turning prohibitions

to allow for better through movement operations. These measures are standard traffic capacity improvements that are implemented by the New York City Department of Transportation (NYCDOT) citywide. In addition to these mitigation measures, the proposed Plan also includes the construction of a new interchange at a cost of tens of millions of dollars directly connecting the Van Wyck Expressway with the District to allow for highway traffic to directly access the project area without relying on local streets in the area. These new ramps to and from the Van Wyck Expressway represent access improvements that significantly transcend and augment the more localized intersection improvements that typically constitute traffic improvements identified for mitigation under CEQR. Transit-related mitigation measures identified in the GEIS include stairway widening at the Willets Point–Shea Stadium No. 7 line subway station and increases in bus service. These measures were evaluated in coordination with the MTA and NYCT and would fully mitigate all projected transit-related significant adverse impacts. The MTA and NYCT routinely monitor changes in transit ridership and would make the necessary service adjustments where warranted, subject to the agencies' fiscal and operational constraints.

It is also important to note that the mitigation measures as proposed in the Willets Point DGEIS were developed using conservative traffic volume projections. The mitigation measures were developed for traffic volume conditions which included not only traffic generated by the proposed Build condition, but also background traffic from over 90 other area development sites (adding up to about 3,845 vehicles to the roadway network during a single peak hour), as well as an additional 11.5 percent background traffic growth, representing a highly conservative traffic projection. Furthermore, as stated in the GEIS, a detailed traffic monitoring program would be implemented in the future when the proposed Plan is built and occupied. This monitoring program will seek to verify and evaluate the need and effectiveness of the mitigation measures proposed in the GEIS.

Comment 17-2: The project will have a catastrophic effect on the Van Wyck Expressway. (33)

Traffic speeds will be cut in half; the congestion caused by these extremely low speeds will spill back both onto the highway network and the local streets, increasing the potential of accidents. (33)

Significant impacts will occur on the highway network, resulting in much slower speeds and bumper-to-bumper congestion in both directions on the Van Wyck Expressway and Grand Central Parkway, as

well as the southbound Whitestone Expressway. Traffic on the ramps will be intolerable as well; the congestion caused by extremely low speeds on the ramps will spill back onto the highway network and the local streets, which will already be overloaded. (33)

These adverse impacts will occur despite the ramp improvements that the City has proposed. (33).

Response 17-2: The GEIS analysis fully documents the level of operations on the highway network. The analysis performed for the GEIS represents a conservative analysis as it accounts for over 90 background development projects and an additional 11.5 percent background growth rate, plus the traffic generated by the proposed Plan.

The proposed new interchange ramps connecting the Van Wyck Expressway and the District have been developed at the concept level for illustrative purposes only in the GEIS and are subject to further refinement upon preliminary and final design in coordination with reviews by NYSDOT and FHWA. The design process, which will include long-term regional traffic modeling, will identify design elements that would enable the Van Wyck Expressway to process traffic most efficiently with the ramps in place. For example, the analysis in the GEIS does not assume that the ramps would have acceleration and deceleration lanes within their current conceptual plans. The addition of acceleration and deceleration lanes would likely improve traffic conditions on the highway network, and minimize queues and spillback, as vehicles would decelerate or accelerate outside of the expressway mainline through lanes, thereby resulting in conditions better than those projected in the GEIS as well as optimizing safety conditions. Other design improvements may also be incorporated as preliminary and final design development proceeds. During the design process, these considerations would be addressed in detail and, to the extent possible, further improvements added.

Comment 17-3: The GEIS indicates that the proposed development would cause severe congestion at most of the intersections studied, and much of this congestion could not be mitigated. It would be an unprecedented overload for the local road system. The GEIS clearly shows that residents will not be able to drive to and from work, businesses will not be able to receive shipments or customers, and travelers will not be able to reach airports or simply drive through; this degradation of the road and highway system would create an unprecedented daily transportation overload. (33, 35)

Response 17-3: In addition to the conservative traffic analysis that is presented in the GEIS, including a background growth rate of 11.5 percent and volume

from over 90 other area developments, the program analyzed in the GEIS represents the maximum envelope of development envisioned for the District. As a result, the volume generated by the development, impacts identified, and mitigation measures proposed in the GEIS represent a worst-case scenario. If the eventual plan to be built is less than the maximum development envelope analyzed in the GEIS, the volume of projected vehicle trips would be lower during all seven analysis peak hours, and the number and degree of significant adverse impacts would be reduced, and local intersection mitigation measures identified in the GEIS would be more effective. The GEIS does not conclude that residents would be unable to drive to work, that businesses would be unable to receive shipments or customers, or that travelers would be unable to reach airports. Additionally, the Willets Point Development District is located convenient to the # 7 subway station, the LIRR, and MTA bus service, offering District patrons transit options to access the site.

Comment 17-4: In Chapter 10 (Grade Separations and Interchanges) of A Policy on Geometric Design of Streets and Highways, American Association of State Highway and Transportation Officials (AASHTO) states: "Left-hand entrances and exits are contrary to the concept of driver expectancy when intermixed with right-hand entrances and exits. Therefore, extreme care should be exercised to avoid left-hand entrances and exits in the design of interchanges." AASHTO goes on to state that "Left-side ramp terminals break up the uniformity of interchange patterns and generally create uncertain operation on through roadways." Left-hand exit ramps are not expected by drivers, which can lead to confusion, delays, and the increased potential for accidents. There is a potential safety issue with the proposed exit ramp, which is a left-side exit from the existing ramp system. (33)

Response 17-4: The proposed exit ramp from the Van Wyck Expressway mainline would be located on the right-hand side of the roadway, thus, does not violate the AASHTO standard. It is only after vehicles exit the mainline that they are presented with a split in the ramp – either to the left or to the right. Vehicles seeking to access the Willets Point Development District would follow the ramp split to the left, while all other vehicles would follow the split to the right. There is no left-side exit from the expressway itself. The preliminary and final designs will be prepared in compliance with the NYSDOT PDM, which references AASHTO design standards, including ramp design.

Comment 17-5: Attention should be paid to auto access from Roosevelt Avenue and Northern Boulevard to ensure that there will be efficient traffic flow at the site. (28)

Response 17-5: Vehicular access would be provided from Northern Boulevard and Roosevelt Avenue into the District via 126th Street (existing) and a proposed north-south roadway along the eastern border of the District. In addition to 126th Street and the proposed north-south roadway which offer two points of access from Roosevelt Avenue and Northern Boulevard, a third access point from Northern Boulevard would be provided via a new local roadway.

Comment 17-6: Given the uncertainty of the necessary State and federal approvals, there should be an extensive analysis of how over 6,000 new peak vehicles would be able to enter or exit the District if the proposed ramps are not approved and cannot be constructed. (33)

Response 17-6: The City has maintained communication and close coordination with NYSDOT from the inception of the project, outlining a range of conceptual design options and working with options that NYSDOT determined were preferable. It is fully expected that such approvals will be obtained and the design will be progressed in light of design suggestions to be made by both NYSDOT and the FHWA. Furthermore, the proposed ramps are an integral part of the Willets Point Development Plan. The developer's agreement would stipulate that following approval of the Van Wyck Expressway ramps but prior to completion of ramp construction, no buildings could be occupied unless the developer demonstrates that earlier occupancy of such buildings would not result in significant adverse impacts that have not already been described in this GEIS.

Comment 17-7: The transportation component of the GEIS, as provided to the public, is not transparent because it does not provide the technical analyses upon which the transportation section of the GEIS is based, such as the worksheets for the intersection capacity analyses and the capacity analyses of the highways and ramps. (33)

Response 17-7: The technical analyses, including highway capacity software (HCS) analysis printouts on which the transportation section of the GEIS is based, were submitted to NYCDOT. NYCDOT thoroughly reviewed and approved these analyses and the results of the HCS analyses have been summarized in tabular format and included in the GEIS. This is typical for New York City EISs, as over 3,000 pages of highway capacity software analysis printouts would otherwise be appended to the

GEIS. This information is available from the lead agency through the Freedom of Information Law.

Comment 17-8: There is no identification of any intersections that are high accident locations for vehicular accidents, nor is any analysis provided. In the three-year period analyzed, there were a total of 52 reportable accidents at the intersection of 126th Street and Northern Boulevard, which is a major access/egress location for the Willets Point District. There were also 34 accidents at the intersection of Prince Street with Northern Boulevard, 30 reportable accidents at the intersection of Main Street and 25 accidents at the intersection of College Point Boulevard and Roosevelt Avenue in the three-year study period. There was a non-pedestrian related fatal accident at the intersection of 108th Street at Astoria Boulevard and another fatal accident, at the intersection of Prince Street and Northern Boulevard. (33)

Response 17-8: The evaluation of high vehicular accident locations is not required under *CEQR Technical Manual* guidelines, nor is it required by NYCDOT, the agency charged with maintaining the safety of the City's roadways. NYCDOT maintains accident data and implements safety improvements as warranted.

Comment 17-9: While it is not anticipated that the accident rates in terms of accidents per vehicle miles traveled would increase, there will be an increase in both vehicular and pedestrian volumes, including the number of school children. Accordingly, there will also be a concurrent increase in the opportunities for vehicular and pedestrian conflicts in the study area and, therefore, a significant increase in the number and severity of the accidents in the area should be anticipated. The safety analysis in the GEIS should acknowledge the increase in the accident potential and identify the corridors in the development where mitigation measures may be required. (33)

Response 17-9: There is no direct correlation between increased traffic volumes and increased potential for pedestrian accidents. For study area intersections that have a high pedestrian accident history, improvement recommendations are provided in the GEIS. The Special District Text design guidelines incorporate pedestrian facility requirements that well exceed those typically required in New York City, such as wide sidewalks and designated pedestrian zones. Furthermore, many pedestrian safety requirements have been, or are, in the process of being implemented, including numerous intersections in downtown Flushing, as part of NYCDOT's initiative of improving pedestrian safety. These changes have been incorporated into the GEIS analysis.

Comment 17-10: The Scope of Services for the GEIS states that travel speed and delay time runs were to be performed for portions of Northern Boulevard, Roosevelt Avenue, 126th Street, and along the Grand Central Parkway and the Van Wyck Expressway. No travel time information is contained within the GEIS; while the summary information discussed for the highway sections indicate travel speeds, it appears that these data are the output of the CORSIM modeling effort and not based on time and delay studies, which consist of actual data collected. (33)

Response 17-10: Travel speed and delay runs for local streets, which consist of actual field data collected, were conducted and incorporated into the GEIS traffic and environmental studies. Speed data are not typically included within the GEIS document itself as traffic analyses are based on a comparison of No Build and Build delays and levels of service which are developed using Highway Capacity Manual methodologies. Local street travel speed and delay runs are typically one of several sets of inputs into the detailed studies. Detailed travel speed and delay run studies on the highway network were also conducted and these data used to calibrate the existing CORSIM highway network model. The calibrated CORSIM model was then used as the basis for modeling future conditions both with and without the proposed plan. The observed speed run data for the highway network are included in Chapter 17 of the GEIS.

Comment 17-11: The Highway Capacity Software used for this analysis generates a value for intersection delay. However, when an intersection reaches a level of severe congestion, as encountered at many of the intersections in the study area, the analysis displays a value of 120+ seconds; it does not display the actual calculated delay value. To be able to assess the true change in the delay value from the No Build condition to the Build condition, and therefore understand the extent of the impacts, it is necessary that the actual delay values be calculated and reported. (33)

Response 17-11: Highway Capacity Software was used to calculate vehicular delay at study locations and NYCDOT was provided these delay values at study intersections, including actual values for those delays in excess of 120 seconds and mitigation measures were developed with regard to the actual delay projections. NYCDOT has thoroughly reviewed the analysis findings and has concurred with the findings and results of the traffic analysis, including the development of approved mitigation measures.

Comment 17-12: What are specific measures the plan introduces to reduce parking? (18)

Response 17-12: The proposed Plan was based on an assessment of likely car ownership and projected parking demand and accumulation for all proposed land uses comprising the Plan. Shared parking strategies within the District are proposed. For example, since designated parking areas for the retail, hotel, and convention center could be underutilized during weekdays, these parking facilities could also be used to accommodate office, community, and primary school demands. In addition, off-street parking garages within the District would include a combination of traditional, valet, and stacked parking which would reduce the overall floor area needed to accommodate parking within the District. Designated off-street parking spaces would also be provided for vehicles being shared by multiple households (i.e., car-sharing vehicles) in order to reduce vehicular dependence.

Comment 17-13: We applaud the City for proposing a lower ratio of parking required for the residential development than Community Board 7 requested. However, NYCEDC must ensure that the stricter residential parking requirements are not off-set by additional provision of parking for the commercial enterprises located at the site. (18)

Response 17-13: The amount of parking proposed under the Plan for commercial uses was based on a detailed parking demand and accumulation analysis using traffic generation factors reviewed and approved by NYCDOT. The projected parking accumulation was based on projections of hour-by-hour vehicular arrivals and departures using typical CEQR rates approved for the project by NYCDOT.

Comment 17-14: Car traffic should be minimized as much as possible on 126th Street, with diversions of parking traffic to garages and the parking lots that surround the stadium and the site. (18)

Response 17-14: All parking needs for the District would be contained within the District, close to the land uses which generate the parking demands. Access routes to the District and its parking areas include the new Van Wyck Expressway ramp connections, as well as direct access from Northern Boulevard, Roosevelt Avenue, and 126th Street. To the extent that projected traffic patterns would need to use 126th Street to reach on-site garages, these patterns are reflected in the GEIS analyses. It is not anticipated that diversions would occur to garages and/or parking areas outside the District.

Comment 17-15: If the development were truly transit-oriented, it would provide less parking for the commercial areas, based on accepted square footage/parking ratios. (18)

Response 17-15: The development is transit-oriented as it is located adjacent to a key subway line as well as LIRR service, and it is anticipated that MTA and NYCT would extend bus routes and/or create new bus routes to serve the site. The amount of parking being proposed is based on a detailed assessment of expected trip generation and hourly parking accumulation projections, based on accepted ratios of auto trips per square foot of development.

Comment 17-16: Parking strategies for the District should attempt to utilize the existing parking infrastructure as much as possible; parking and massing for large retail should take into account current parking opportunities in municipal lots, such as the ones used for game days. Amenities should be added to these lots to encourage walkability from these lots to the District. (18)

Response 17-16: To the extent possible, there will be some shared parking opportunities, but given the 81-plus ballgames played by the Mets annually, special events, and the needs of the U. S. Open, the parking facilities associated with those sports venues would not be available to the tens of thousands of residents, employees, shoppers and visitors expected to inhabit or visit the District on a daily basis, 365 days per year. Adequate parking needs to be provided within the District to ensure that the proposed Plan as well as the two sports venues have sufficient parking available when needed. The design of the District, including connections to and from proposed parking facilities, can and will encourage walkability and appropriate urban amenities.

Comment 17-17: One of the sources used for the transportation analysis—*Motor Trucks in the Metropolis* (Wilbur Smith Associates, 1969, 17-40)—is seemingly out of date and needs to be defended given changes in lifestyle and services since the publication of this book. Does this source account for the current trends of online commerce that relies on truck transportation (e.g., Fresh Direct)? (18)

Response 17-17: The source cited was approved for use by NYCDOT and is widely considered as one of the pre-eminent sources, if not the pre-eminent source, for projecting delivery vehicle trips in New York City. It has been approved for use on dozens of development project EISs by both NYCDOT and the DCP.

Comment 17-18: Based on NYSDOT responses to FOIL requests, NYSDOT appears quite uncomfortable with all of the proposed interchange configurations. (33)

Response 17-18: NYSDOT is not uncomfortable with all of the proposed interchange configurations. To date, several conceptual ramp access alternatives have been presented to NYSDOT, and that agency has reviewed and commented on them and the proposed AMR process. Once the draft AMR is completed, in accordance with established procedure, NYSDOT will review the draft report. NYSDOT's comments will be incorporated before NYSDOT presents the AMR to FHWA for review and approval.

Comment 17-19: NYSDOT has concerns as to whether adequate sight distance on the new ramp could be provided. (33)

Response 17-19: The preliminary design will be prepared in compliance with the *NYSDOT Project Development Manual* (PDM), which references standards, including adequate sight distance. The ultimate ramp design will be developed in consultation with NYSDOT and FHWA and will conform to applicable PDM requirements.

Comment 17-20: In preparation for the 1964 World's Fair and the opening the same year of Shea Stadium, new highway segments were built and what is now the Willets Point-Shea Stadium subway station was created. The current project requires no less of a radical reconfiguration of the transportation network there. (33)

Response 17-20: The proposed Plan includes a major transportation improvement – the construction of a new highway interchange directly connecting the Van Wyck Expressway to the Willets Point Development District. An improvement of this magnitude is one which goes beyond improvement measures typically recommended in EIS studies. This improvement further recognizes that many of the Willets Point District Development site generated trips will use the highway network and accommodates for this need by providing direct highway access to and from the District.

Comment 17-21: While the GEIS suggests that the Project generates the greatest number during the peak Saturday Highway Hour, a very significant number of trips are anticipated during the morning and afternoon commute time frames and during which time significant congestion is indicated to result as a function of the proposed development. (33)

Response 17-21: The GEIS provides a comprehensive analysis which reviews traffic conditions and findings not only during the Saturday peak hour, but also fully discusses traffic conditions and findings during a total of seven analysis peak hours, including the weekday non-game AM, midday, PM, and Saturday midday peak hours, and the weekday pre-game PM, Saturday pre-game, and Saturday post-game peak hours. The analysis

presented in the GEIS summarizes and fully documents the magnitude of site traffic generated by the proposed Plan, the number of impacts, the needed mitigation measures, and intersections which were found to be unmitigatable, and these detailed analyses were completed for all seven study peak hours described above.

CHAPTER 18: TRANSIT AND PEDESTRIANS

Comment 18-1: The Willets Point EIS predicts a significant increase in automobile traffic surrounding the development. The City must think creatively about how Willets Point can mitigate that traffic burden by becoming a less car-dependent community. This could mean creating easy mass transit access by making sure the MTA opens up the nearby LIRR stop not just on game days, or working with MTA to add inter- and intra-borough bus lines, depending on where it is people in Willets Pont are actually working. We call on the City to make sure Willets Point has desirable mass transit options for its residents. (12)

How will the City ensure that the proposed plan is linked to adequate public transit options? (18)

Response 18-1: The MTA and NYCT routinely monitors changes in transit ridership and would make the necessary service adjustments where warranted, subject to the agencies' fiscal and operational constraints. As discussed in the DEIS, the MTA and NYCT already has plans to schedule two more trains on the No. 7 subway line during peak hours in the peak direction. In addition, the City is in consultation with MTA and NYCT on plans to extend and/or create new bus lines to serve the District and on extending regular LIRR service to the LIRR station when the actual demand shows that such service improvement is warranted. To accommodate potential bus service improvements, new bus stops and layover areas would be needed in and around the District. The City will collaborate with the MTA and NYCT during and after this environmental review process to establish development guidelines and provisions to ensure that adequate bus service improvements would be implemented.

Comment 18-2: The commercial and convention center aspects to the development are unlikely to fulfill the intention of transit-oriented development and sustainable development as potential visitors to the commercial areas are more likely to drive there than take public transit. (18)

Response 18-2: While potential visitors to the commercial and convention center uses are typically more likely to drive than commuters traveling to and from the District, the proximity and convenience of the District to transit

access and the overall mixed-use nature of the District would only enhance the development's sustainability with regard to transportation. Furthermore, as stated above, the City and the MTA will collaborate in planning for improved transit services as part of the proposed development. Therefore, contrary to what the comment implies, the proposed development is expected to fulfill its sustainability goals, whereas, a development containing commercial and convention center uses that situates far from transit access would not be as transit-oriented and sustainable.

Comment 18-3: How does the City propose to link bicycle and pedestrian paths to larger networks to encourage alternate transport? (18)

EDC must be more aggressive in planning transportation routes to and from the No. 7 train and the LIRR. This should include a neighborhood bike and pedestrian plan, as well as the installment of infrastructure that will support and encourage these modes. (18)

Response 18-3: As the GEIS states, new bicycle lanes would be required on the connector streets as part of the proposed Plan. In addition, the City is currently pursuing additional bikeways and greenway connections between the Flushing Bay Promenade to the north and Flushing Meadows-Corona Park, as well as other areas surrounding the District. This ongoing effort will continue after the completion of this environmental review to integrate what would be included in this project into the area-wide bicycle and pedestrian network.

Comment 18-4: What are other specific design proposals, besides a potential pedestrian bridge, to integrate the two sides of the Flushing River across the MTA site? (18)

Response 18-4: As stated above, there is a plan to incorporate an extensive bicycle and pedestrian network across neighborhoods, including new/improved paths along Roosevelt Avenue and Northern Boulevard over the Flushing River.

Comment 18-5: The width of the streets would not achieve the goal of creating a pedestrian-oriented development. The FEIS should study narrower streets. (18)

Response 18-5: The design of the street network within and surrounding the District has been carefully planned to accommodate both vehicular and pedestrian space. In addition to typical sidewalk space, there would be delineated pedestrian space along many streets adjacent to various buildings to further provide a buffering effect between vehicles and pedestrians.

Nonetheless, adequate roadway space is needed to facilitate vehicular access, commercial services, and street vitality.

Comment 18-6: Trip generation statistics used in the GEIS should be more significantly based around transit. A study of the transit trip generation rates should be included in the FEIS with recommendations as to amendments to the design to maximize the number of transit users of the site (residential or commercial). (18)

Response 18-6: The trip generation estimates were based on census data, standard references, and other approved studies. These estimates underwent a rigorous review with the NYCDOT and were deemed appropriate for analysis.

Comment 18-7: EDC must make public the study that shows the site's potential for generating a population that will create consistent and commuter-based LIRR service, in contrast to the current baseball-game-based schedule. This study shows that the future population of the area will have the potential of being served by regularized LIRR service. (18)

Response 18-7: There is no study examining the future population's demand for regular LIRR service. However, the City is in consultation with MTA and NYCT on plans to extend and/or create new bus lines to serve the District and on extending regular LIRR service to the LIRR station when the actual demand shows that such service improvement is warranted.

Comment 18-8: The transportation components of the project, "Transit and Pedestrians" and "Traffic and Parking" should not be separated into two different chapters, given the "transit-orientation" emphasis of the project. The interplay between these two modes of transportation should be analyzed in tandem, with justifications for the balance (threshold limit of parking needed for commercial/retail viability vs. other uses of space) to be struck between the two. This is not currently mandated by CEQR, yet should be done in order to explain how the site is transit-oriented and to make the project a potential "model" project, placing New York at the cutting edge for this type of development. (18)

Response 18-8: The analyses presented in the GEIS were prepared in accordance with CEQR guidelines and reviewed/approved by the transportation agencies. The two analysis components referenced in the comments were analyzed collaboratively, as assumptions and findings on one would affect the other and vice versa. However, while planning and design focuses could ultimately affect how travel behaviors may transform in the future, the objectives of the CEQR analyses are to

present a reasonable worst-case scenario, identify potential significant adverse impacts, and recommend viable mitigation measures. Often, these findings are considered by policy makers and planners in their efforts to foster future improvement strategies.

CHAPTER 19: AIR QUALITY

Comment 19-1: What are you doing about the exhaust from the planes at takeoff? How will this new development be affected by exhaust? (35)

Response 19-1: The District is located approximately one mile from the nearest runway at LaGuardia Airport. For a proposed Plan with sensitive uses, the *CEQR Technical Manual* recommends an analysis of existing sources of emissions that are considered to have a potential significant impact. The largest sources of stationary sources emissions, including power plants, are required to be analyzed when a proposed project is within 1,000 feet of such source(s).

Although not classified as a large source, airports can produce emissions from planes, ground support operations, stationary sources such as building heating systems and mobile sources traveling to and from the airport. However, while LaGuardia Airport is a major regional airport, it would not result in a significant adverse impact on air quality at the District, based on measurements conducted on air quality in the area.

DEC maintains a network of ambient monitoring stations throughout New York City. While there are no monitoring stations currently operating in the area around the District, DEC previously operated two monitoring stations – at the College Point Post Office and at PS 214 in Flushing – which are similar in distance from the airport as compared to the District. These stations were reviewed to characterize air quality conditions nearer to the airport, and to determine whether conditions are worse near the airport than at other locations where monitoring is conducted.

The DEC monitoring site at the College Point Post Office measured background concentrations of nitric oxide (NO), NO_2 and ozone. This site is located slightly less than a mile from the airport, to the northeast. For the latest three-year period for which monitoring data is available (2003-2005), NO_2 and ozone concentrations were well below standards (ozone is considered a regional pollutant and therefore concentrations at this location would be less influenced by airport activities). Concentrations of monitored pollutants were comparable to levels measured at other monitoring sites in Queens, and lower than other sites in the Bronx and Manhattan, which are further distant from the airport.

The DEC PS 214 site in Flushing was used for measurement of $PM_{2.5}$. This site is located approximately 1.5 miles from the airport, to the east of the District. For the latest three-year period for which data are available (2000-2002), annual average $PM_{2.5}$ concentrations were below the $PM_{2.5}$ national ambient air quality standard (NAAQS) of 15 $\mu g/m^3$, and the 24-hour concentrations were below the NAAQS that was in effect at the time (65 $\mu g/m^3$). Measured $PM_{2.5}$ concentrations were comparable to maximum concentrations measured at other sites in Queens over the same time period, and lower than measurements at other locations such as in Manhattan.

While the airport and its related traffic does have some effect on the District's air quality, overall, emissions from operations at the airport are not anticipated to be significant. The District's distance from the airport is not considered to be a concern relative to emissions of $PM_{2.5}$ or other pollutants. As evidenced from previous monitoring conducted in the area by DEC, emissions of $PM_{2.5}$ and other pollutants from the airport would not result in violations of NAAQS at the District, and therefore air quality at the District is not considered to be adversely affected by the airport's operations.

Comment 19-2: The FEIS should include a detailed analysis of whether residential and school uses close to a heavy industrial area and adjacent to major highways as well as an airport are recommendable, which should consider whether existing air pollution at the site is suitable for residential and school uses. (18)

Response 19-2: The comment refers to three types of emission sources: industrial sources, highways and airports. Each of the first two source types is addressed in the GEIS. For emissions from industrial activities, the GEIS examines emission sources within 400 feet and larger emissions sources within 1,000 feet of the District boundaries, as recommended in the *CEQR Technical Manual.* No industrial emission sources were found within 400 feet of the District. Maximum predicted short-term and annual concentrations of pollutants emitted by industrial sources within 1,000 feet of the District were determined to be below the DEC guideline concentrations. Therefore no significant adverse air quality impacts from industrial sources on the development that would be introduced under the proposed Plan are anticipated. The GEIS also evaluates the impact of elevated roadways on sensitive uses within the District. Northern Boulevard, which borders the northern portion of the site, was selected for analysis based on the high volumes of traffic along this corridor, and its proximity to the District. The Whitestone Expressway, which borders the eastern boundary of the District, was not analyzed since it is significantly further from the proposed sensitive uses within the District

than Northern Boulevard. The results of the analysis determined that the vehicular traffic along the elevated portion of Northern Boulevard closest to the District would not result in any significant adverse air quality impacts. Regarding impacts from operations at LaGuardia Airport, please refer to the response to Comment 19-1.

Comment 19-3: The site chosen for background contamination, the Queens College campus, is insufficient due to the unique traffic confluence at the Willets Point site. (18)

Response 19-3: The closest and most representative air monitoring stations were selected in establishing ambient or background concentrations of criteria pollutants. The influence of traffic at the Willets Point site was assessed through mobile source modeling. Modeled concentrations were added to the measured background values, where appropriate, following the *CEQR Technical Manual* and DEP guidance, to assess the potential for significant impact. Overall pollutant concentrations at modeled intersections were found to be in compliance with applicable standards or thresholds.

Comment 19-4: The FEIS should include a potential point source pollution monitor placed near the intersection of Willets Point Boulevard and 34th Avenue in order to properly assess air quality impacts. This background measurement should then be considered in tandem with the potential traffic impacts of the proposed plan and the LOS designations of "E" or worse, because the locations selected for Modeled Existing and Future 8-hour Average CO Concentrations are insufficient in regards to prediction of pollutants. (18)

Response 19-4: The intersection of Willets Point Boulevard and 34th Avenue was included in the assessment of air quality impacts. Measured background concentrations from the nearest and most representative monitoring station were considered together with the results of the modeling analysis in predicting future potential concentrations. Four different locations were selected for the modeling analysis, based on the project-generated traffic, overall future projected traffic, LOS, and the intersection geometry – proximity of traffic to sensitive receptors. The locations were selected in accordance with the procedures recommended in the *CEQR Technical Manual*. The selection was approved by DEP.

Comment 19-5: Air pollutant impacts due to the site's proximity to LaGuardia Airport should be studied, as airplanes are major sources of $PM_{2.5}$. Airport

traffic at one of the busiest airports in the nation is at an all-time high and projected to increase. (18)

Response 19-5: Please refer to the response to Comment 19-1.

Comment 19-6: Given that the Van Wyck is a major commercial route, the effects of pollutants from diesel engines not involved in the project (i.e., from the proximate highways and streets) must also be considered. The study sites for PM (particulate matter) are away from major traffic and airport influences and are therefore questionable sources for this information. (18)

Response 19-6: The study site selected for analysis, at Roosevelt Avenue and 126th Street, examined potential air quality impacts at sidewalk receptors, located only a few feet from roadways. The analysis determined that there would be no significant adverse air quality impacts from sources of CO, PM_{10} and $PM_{2.5}$ emissions. The Van Wyck Expressway, while near the District, is much further away from sensitive receptor locations than are roadways located adjacent to at-grade sidewalks, and therefore, concentrations of pollutants would not be expected to result in any violations of standards.

CHAPTER 20: NOISE

Comment 20-1: Highway noise notably reduces the quality life of nearby residents with particularly detrimental effects on children. In the case of Willets Point, current measures of noise levels are fairly high to begin with and with the proposed project, according to the DEIS, would have to be attenuated. The DEIS states that "the noise levels and the impacts predicted exclude noise from aircraft operations at LaGuardia Airport, which is adjacent to the district" (23-14). As a result, the livability analysis is flawed and does not adequately address whether existing noise-level conditions should preclude outright residential and particularly school uses on the site. (18)

Response 20-1: The analysis at Sites 1, 2, and 3 excludes aircraft noise because using the lower baseline noise level that results from exclusion of aircraft noise from the analysis is conservative and maximizes potential project impacts. The locations that were analyzed as part of the building attenuation analysis (Sites 4 through 8) did not exclude noise due to aircraft operations and consequently were conservative and maximized building attenuation requirements.

Comment 20-2: The analysis only takes into consideration the incremental change in noise pollution due to its plan and does not assess whether the existing

conditions are appropriate for residential living and schooling. How will the current site conditions that cannot be altered impact adults and children mentally and physically? (18)

Response 20-2: The incremental change is examined only at existing noise-sensitive receptors outside of the District. The building attenuation analysis conservatively predicts the loudest noise levels that would occur in the District under the proposed Plan and recommends the necessary measures to provide acceptable interior noise levels for residential and/or educational uses. To meet CEQR interior noise level requirements, the analysis prescribes between 30 and 37 dB of building attenuation for buildings within the District, which would be ensured through E-designations and/or subsequent Restrictive Declarations on the District. With these measures in place, no significant adverse noise or public health impacts would occur.

Comment 20-3: The FEIS should include a detailed analysis of whether residential and school uses close to a heavy industrial area and adjacent to major highways as well as an airport are recommendable, which should consider whether existing noise pollution at the site is suitable for residential and school uses. (18)

The impacts of airport noise must be considered given the proximity to the airport. The justification given for exclusion is not adequate. (18)

An element of the proposed Willets Point redevelopment plan is the construction of housing units, to be situated directly beneath the well-worn flight path to LaGuardia's runway. Understand that Willets Point is at the closest possible location to this very active runway. (40)

Response 20-3: The analysis determines the building attenuation measures necessary to meet CEQR interior noise level criteria, and provides a means by which such measures can be required by future developers. Aircraft noise was included in the attenuation analyses.

Comment 20-4: It is unlikely that affordable housing development is feasible due to the high cost of noise attenuation at the site. Additional building attenuation (the highest building attenuation, 37 dBA) should be required for all residential buildings, irrespective of the market segment served (affordable or market-rate). The FEIS should provide a cost analysis of the highest noise attenuation possible for the proposed residential units. (18, 40)

Response 20-4: The analysis makes no differentiation between affordable and market-rate buildings. The amount of attenuation required at a given location is determined by its use (residential, commercial, etc.) and the nearby

noise sources only. Cost is not a factor in the determination of noise attenuation requirements.

CHAPTER 21: CONSTRUCTION IMPACTS

Comment 21-1: Environmental Defense Fund is pleased that the current plan for Willets Point calls for a thorough clean-up of the highly contaminated lands that are the result of years of neglect. Ensure complete clean up of the contaminated land in Willets Point and minimal runoff into nearby waterways. (12)

Response 21-1: Comment noted. As described in Chapter 12, "Hazardous Materials," of the GEIS, to prevent exposure to contaminants, the proposed Plan would include appropriate health and safety and investigative/remedial measures that would precede or govern both demolition and soil disturbance activities. These measures include procedures for pre-demolition removal of asbestos and appropriate management of lead-based paint, and PCB-containing equipment; additional subsurface investigation to better characterize soils to be removed for excavation; development of a Site Management Plan for site remediation, excavation, and redevelopment that would include procedures for managing both known contamination issues (e.g., tank removal, and soil and groundwater remediation of existing petroleum spills, excavation, and removal of existing septic tanks or fields, floor drains, and historic fill) and any unexpectedly encountered contamination issues. A CHASP would also be developed to include procedures for avoiding the generation of dust that could affect the surrounding community, as well as the monitoring necessary to ensure that no such impacts occur. Following completion of remediation and implementation of engineering and institutional controls as needed, the District would be safe for all uses anticipated by the Plan.

Comment 21-2: If significant chemical contamination is present, impacts to worker health and safety during construction as well as engineering/institutional controls for mitigating contaminant exposure to occupants of the new buildings need to be further evaluated in the GEIS. (33)

Response 21-2: There has not been any testing on any individual sites because access has not been granted; thus, specific contamination levels cannot yet be determined. However, given the level of experience in the development community, as well as within DEC and DEP, there are many cases where remediation and development have taken place in tandem without adverse impacts on worker health and safety. Final engineering and institutional controls are also readily available, and discussions of

specific mitigation are premature given the lack of specificity in the final plan. Routes of exposure include inhalation, ingestion, and dermal contact. The final remedy and redevelopment will eliminate these, and during remediation contractors will be required under either the E-designation, CEQR, or DEC Brownfield Cleanup Program (BCP) to use appropriate health and safety precautions and plans for specific work being performed.

Comment 21-3: The enormous amount of fill required would result in nearly 20,000 truck trips even if large capacity trucks are used. (33)

Response 21-3: The GEIS details the estimated numbers of daily worker and truck activities through different stages of construction, including site grading. The site grading was estimated to take about 7,200 truck trips. These estimates were subsequently used for the relevant construction impact analyses, the findings of which were also detailed in the GEIS.

Comment 21-4: The GEIS fails to address the impacts of placing fill in Willets Point; it will take an enormous amount of fill to raise the project area above even the current 100-year flood plain, much less the flood plain expected within the Proposed Project lifetime. The GEIS does not even estimate the quantities of this fill, much less where the fill will come from, how its cleanliness will be assured, the safety, environmental and energy impacts of the tens of thousands of truck trips required to haul the fill to Willets Point, the impacts of excavating the fill, and the impacts of the compression that the fill will both undergo and cause. (33)

Response 21-4: As stated in response to Comment 12-2, the estimate used to determine the amount of fill required to fill the site to the 100-year floodplain was calculated using a recent survey of the development parcel and boring results from a series of geotechnical borings. The compressible layer beneath the District has already been put under pressure and settlement has occurred, which minimizes further settlement of that layer. The fill material that was used for purposes of the geotechnical evaluation included a low density material that is available and is designed to minimize settlement. The fill material estimated to be imported was for the roadbeds and other areas not occupied by building structure. Specific procedures on the importation of the fill such as its cleanliness and handling procedures will be employed in accordance with 6NYCRR Part 360. Lastly, it should be noted that the GEIS details the estimated numbers of daily worker and truck activities through different stages of construction, including site grading. It is not tens of thousands of trips but is estimated to generate about 7,200 truck trips.

CHAPTER 22: PUBLIC HEALTH

Comment 22-1: The public health methodology proposed does not include the possible source of traffic as a source of the cause of asthma. The remark on page 22-9 regarding the potential of the effects of exhaust is not substantive:

The relationship between diesel exhaust and asthma has been studied experimentally and epidemiologically with inconclusive results.

The FEIS must give further justification for dismissing this relationship, including sources and research that shows evidence to the contrary. This is warranted, given the site's overwhelming similarities (proximity to major highways) with other areas of the City that have experienced increased asthma rates. (18)

Response 22-1: The GEIS has been revised to include an expanded discussion of the relationship of asthma to traffic and construction sources of air pollution.

Comment 22-2: The FEIS should include a more rigorous study of the effects of air pollution on public health, given the proximity to two major sources of pollution (abundant vehicle and airport traffic). This study should be done with the inclusion of a different air quality monitoring station than in Chapter 19, "Air Quality." This study should also consider cumulative impacts of these point sources of pollution on livability. (18)

Response 22-2: Please refer to the response to Comment 19-2. As discussed in the response, while the airport and its related traffic does have some effect on the District's air quality, overall, emissions from operations at the airport are not anticipated to be significant. The District's distance from the airport is not considered to be a concern relative to emissions of $PM_{2.5}$ or other pollutants. As evidenced from previous monitoring conducted in the area by DEC, emissions of $PM_{2.5}$ and other pollutants from the airport would not result in violations of National Ambient Air Quality Standards (NAAQS) at the District, and therefore air quality and public health at the District is not considered to be adversely affected by the airport's operations.

Comment 22-3: A more rigorous analysis of airport noise must be done before it is accepted that the impact of LaGuardia Airport will not create any public health issues. (18)

Response 22-3: Please refer to the responses to Comments 20-1 and 20-2.

Comment 22-4: The use of the Bronx Botanical Garden is particularly questionable, given its abundance of old-growth CO-fixing trees. It is understood that these study sites are more for regional air quality analysis. (18)

Response 22-4: Monitoring data from the Bronx Botanical Garden has not been used in the assessment of CO impacts in the GEIS, as the Queens College monitoring station is closer to the District and therefore considered more representative. As discussed in the Public Health Chapter, the Bronx Botanical Garden is one of a number of sites where the DEC analyzed the components of $PM_{2.5}$ to understand their origin. Since $PM_{2.5}$ is a regional pollutant, this data is relevant to New York City, not just air quality on a local basis.

CHAPTER 23: MITIGATION

Comment 23-1: An initial $5 million traffic and infrastructure mitigation fund should be established and increased if necessary. The City should monitor the potential impacts on area traffic and infrastructure related to the development and implement appropriate mitigation measures in a timely manner. (2)

Response 23-1: The City would require the developer to establish a Traffic Mitigation and Infrastructure Fund with an initial $5 million escrow deposit. This fund would be utilized for any currently unforeseen traffic mitigation and infrastructure improvements; all mitigation measures and infrastructure improvements disclosed in the GEIS would be required to be implemented through other developer or City funding. Any additional contributions to the Traffic Mitigation and Infrastructure Fund would be negotiated after developer selection.

Comment 23-2: The mitigation fund is extremely small; a Mitigation Fund equal to ten percent of the development costs should be established. (6)

In view of the magnitude of the expected traffic impacts, no meaningful mitigation could be accomplished with the $5 million fund that would be established for additional mitigation measures. (33)

Response 23-2: As indicated above, the Traffic Mitigation and Infrastructure Fund would be utilized for any currently unforeseen traffic and infrastructure improvements; all mitigation measures disclosed in the GEIS would be required to be implemented through other developer funding. Any additional contributions to the Traffic Mitigation and Infrastructure Fund would be negotiated after developer selection.

Comment 23-3: The analysis of the proposed traffic mitigation measures indicates that no attempt was made to take a "hard look" at any and all of the available measures that could be used to mitigate the traffic impacts of the development. None of the mitigation measures include the construction of additional travel lanes on any intersection approaches. (33)

Almost half of the intersections analyzed for game-day conditions would remain unmitigated. Leaving half of the intersections in the study area unmitigated is completely unprecedented, and the decision to attempt to mitigate using only low-cost operational changes is a serious omission. (33)

The City is severely shortchanging the transportation upgrades that are essential for a development of this magnitude, thus imposing massive costs on motorists in the form of delays that, upon completion of the development, they will find intolerable, leading inevitably to demands for highway upgrades. (33)

The only mitigation that would be feasible to accommodate the 6,000 new vehicles that will be generated in the peak hour will require the construction of additional travel lanes at intersections throughout the study area. Constructing these additional travel lanes at the beginning of the development process, when land is available, is the logical approach. (33)

Despite the "clean slate" that would be provided by the changes in grade for the District, the City has chosen not to construct the appropriate number of roadway lanes necessary to mitigate the impacts of the project and the approximately 6,090 vehicles that would be generated during a non-game-day weekday PM Peak Hour but has instead chosen to leave unmitigated traffic impacts throughout the development and surrounding area. (33)

Response 23-3: In the process of developing mitigation measures for the GEIS, extensive consideration was given to the type and extent of feasible and realistic mitigation measures which could be proposed at each location projected to experience significant adverse impacts. Due to the high density of the downtown Flushing area and many physical constraints including existing highway ramps, bridge support foundations, subway support columns, and the proximity of the Citi Field stadium adjacent to 126th Street, opportunities to widen existing roadways and provide additional travel lanes outside of the District are limited. Adjacent to the District, the widening of 126th Street was evaluated and it was determined that widening of the roadway would not serve the project goals to create a pedestrian and bicycle friendly zone. Similarly, widening streets within the District would also not meet the goals of the

project, nor would it help to alleviate congestion on the surrounding local street network.

A range of mitigation measures were identified during the course of the GEIS traffic studies and were reviewed in detail with several divisions of NYCDOT. Potential measures were often deemed infeasible by NYCDOT, including the addition of travel lanes at some locations. While the addition of increased travel lanes would have been helpful at some locations, it would be irresponsible to propose such lane additions in the GEIS analyses when such lanes could not feasibly be built.

The GEIS considers a comprehensive list of mitigation measures including traffic signal modifications, upgraded computerized controllers at select signalized intersections, parking prohibitions to allow for daylighted right-turn lanes and additional moving lanes at select locations, and turn prohibitions.

The proposed mitigation measures have been developed using conservative volume projections which included traffic from 90 No Build soft site developments, as well as an addition 11.5 percent of general traffic background growth. The GEIS also presents a worst-case analysis as it evaluates the maximum envelope of development. If the eventual development program is less intensive than the maximum development envelope analyzed in the GEIS, thereby lessening the number of projected vehicle trips, the level of significant adverse impacts would be lower and the identified mitigation measures would be more effective, or potentially not needed. Upon completion and occupancy of the District, a traffic monitoring program would be conducted to determine whether actual future conditions have resulted in significant impacts and would verify the need and effectiveness of those mitigation measures identified in the GEIS.

Comment 23-4: If there is to be additional mitigation of the numerous traffic impacts, identified as part of the traffic monitoring program, that mitigation must be identified and evaluated now as part of the CEQR process. (33)

Response 23-4: The intent of the monitoring program is not to identify additional mitigation measures beyond those disclosed in the GEIS upon completion and occupancy of the Willets Point Development District, but rather to evaluate the effectiveness and/or verify the need for the mitigation measures as proposed in the GEIS. The GEIS evaluates the maximum development scenario for the Willets Point Development District which is the basis on which impacts and proposed mitigation measures have been developed. It is possible that a less intensive development program may be constructed for which the monitoring program could serve as a tool to re-evaluate mitigation measures a

proposed in the GEIS. After any development project is built, should additional improvements be warranted, they could still be implemented just as is done citywide.

CHAPTER 24: ALTERNATIVES

Comment 24-1: A new pedestrian bridge between Flushing and Willets Point should be built in order to further integrate Flushing and Corona. (13)

Response 24-1: While a pedestrian bridge is not part of the proposed Plan, its construction is not precluded. Chapter 24, "Alternatives," of the GEIS includes an analysis of a Flushing Bridge Alternative, which assesses the proposed Plan with a new pedestrian bridge connecting the District and Downtown Flushing.

Comment 24-2: What have studies shown in terms of the use of pedestrian bridges spanning highways? Do people actually cross these bridges? Do they provide the required sense of connectivity the plan champions, creating an integrating factor? (18)

Response 24-2: The proposed Plan did not assess the demand for pedestrian bridges as they are not part of the Willets Point Development Plan. However, a pedestrian bridge linking Downtown Flushing and the District was included in the GEIS as an alternative because there is community support for this concept. As discussed in Chapter 24, "Alternatives," the Flushing Bridge Alternative would improve pedestrian access to the District, increase access to proposed open space, and help integrate new development in the District with surrounding amenities.

Comment 24-3: The entire Willets Point development project must proceed comprehensively and not be phased. (2, 6)

Response 24-3: As described in the GEIS, the City intends to undertake all necessary environmental remediation, site grading, and infrastructure improvements in a comprehensive manner, with the proposed Plan built out by 2017. Chapter 24, "Alternatives," includes an analysis of a Staged Acquisition Alternative, in which properties in the District would be acquired and infrastructure developed over time. Under this alternative, the western portion of the District would be acquired and developed first, allowing the City additional time to find suitable relocation sites for the District's larger businesses which are concentrated in the eastern portion of the District and which have more specific relocation needs than the District's smaller businesses. However, like the proposed Plan, development under the Staged Acquisition Alternative would be completed by 2017, and the

development would take place continuously throughout the 2009 to 2017 time period.

Comment 24-4: The City has not seriously considered alternative development scenarios for land use and it is not clear that Willets Point is at all suitable for residential living. (18)

Response 24-4: The District is a suitable location for residential use. It is located near mass transit, public open space and waterfront esplanade, and is surrounded by other residential neighborhoods. As discussed in response to Comment 1-19, there is a strong demand for housing in Queens with residential vacancy rates in the borough being lower than the citywide average, and projections of a 15 percent population increase by 2030. Developers have expressed strong interest in developing residential units in the District, as evident in their response to NYCEDC's RFEI for the District, which indicates that there would be a market for such development. Finally, as described in Chapter 1, "Project Description,", the proposed Plan would include a District-wide site clean up including remediation necessary to meet the more restrictive residential clean up criteria; regrading the site to be above the 100-year floodplain; and installation of basic infrastructure and utilities to support a mixed-use development program, all of which makes this site suitable for residential living.

In addition, the GEIS considers the Municipal Services Alternative, which assumes the continuation of industrial uses in the District. Appendix I of the FGEIS includes a detailed engineering report evaluating a conceptual plan for infrastructure improvements.

Comment 24-5: Given its adjacency to other industrial sites, its relative proximity to the College Point Industrial Park, and its accessibility to major transportation routes as well as the airport, the site may be more appropriate for strategic investment in industrial uses. The City should seriously examine the Municipal Services alternative the NYCEDC has proposed in the EIS for its potential to catalyze industrial reinvestment in the area. (18)

Response 24-5: The proposed Plan represents an economically and socially sustainable project. The Plan would result in the development of a mix of uses including residential, retail, hotel, convention center, entertainment, commercial office, community facility, and open space, all in close proximity to public transit. The preservation of manufacturing and industrial sectors is one of a number of priorities for the City, which it has strived to preserve and encourage those uses within designated IBZs

and Industrial Ombudsmen Areas. Other City goals include the provision of affordable housing and new commercial office space, encouraging sustainable design, and developing areas in a way that capitalizes on mass transit. The proposed Plan meets these goals and objectives. See response to Comment 24-4.

Comment 24-6: In 1993, a study authorized by then Borough President Claire Shulman concluded that the best use for the area was industrial/manufacturing. It was recommended that the infrastructure be implemented and the area would develop on its own. The infrastructure was never implemented. (38)

Response 24-6: The commenter seems to have confused two studies. In the early 1990s, two major redevelopment studies were prepared for the Willets Point area. While the 1991 study favored the redevelopment of the area with industrial and industry-related uses, the 1993 study was a direct response to the earlier analysis and provided alternative redevelopment schemes that took the changing nature of the City's workforce and economy into consideration.

"The Willets Point Planning Study", commissioned in 1991 by the New York City Public Development Corporation, analyzed three distinct development scenarios for Willets Points based on various degrees of public intervention. The study concluded that minimal intervention "will do less to help realize new development and the jobs and tax revenues associated with it"[1] while the greatest public intervention (e.g., rezoning and land acquisition) could help to remove blight and create new development sites.

Although the study found "Willets Points [to be] most suitable for industry and industry-related commercial uses", it also recognized that "its size is too small to provide adequate space to buffer office and other commercial development from noise, smells and unsightliness of industrial development. Commercial development would require more support restaurants and convenience stores, which, in turn, would be reluctant to establish themselves at Willets Point."[2]

Within the last three decades demand for industrial space has significantly shifted due to a general decline in the industrial sector. But even when the Willets Point Planning Study was first released it was

[1] New York City Public Development Corporation. "Willet Point Planning Study," October 1991, page 10.

[2] New York City Public Development Corporation. "Willet Point Planning Study," October 1991, page 35.

considered "disappointingly short-sighted" by the Queens Borough Office. In response the Borough President Claire Shulman authorized a study: "Willets Point: A new direction", which was published in 1993. The study prepared a plan that would "advance a broader approach to enable the City to capitalize on the full potential of the Willets Point area."[1] The study analyzed two distinct schemes, which would introduce new, non-industrial uses based on the realization that "it is not in the best interest of this area and the City to promote the continued industrial use of Willets Point."[1]

The study came to the conclusion that both recommended schemes would realize three to four times the projected revenues of a redevelopment plan that would entirely focus on industrial uses. The study further concluded that the Willets Point area would have to be developed with uses similar to uses recommended in the two non-industrial schemes in order to "justify the substantial infrastructure investment needed in the area ... and ... generate higher employment and taxes and transform the site's appearance to one which benefits its location."[2]

Comment 24-7: The GEIS fails to provide an adequate analysis of the Municipal Service Alternative, which would allow the continuation of industrial uses in the area. The GEIS should state that the Municipal Services Alternative will materially improve the socioeconomic conditions and neighborhood character of Willets Point, and remove the indicia of urban blight that the Lead Agency has alleged may be present. It should also state the Municipal Services Alternatives' effect on property values and hence on property tax revenues, as well as its effect on the economic benefits and revenues of the existing businesses. (33)

Response 24-7: The discussion of the Municipal Service Alternative has been expanded in the FGEIS and now includes as Appendix I, an assessment of the engineering issues and costs associated with the infrastructure reconstruction under this alternative. As the improvements would largely be limited to public property, and existing private properties would remain developed with buildings at their current grade, this alternative presents more serious complications with respect to the feasibility of effectively upgrading the area's infrastructure than would wholesale redevelopment of the District as would occur under the

[1] Claire Shulman, President. "Willets Point: A New Direction." Office of the Queens Borough President, May 1993, Page 1.

[2] Claire Shulman, President. "Willets Point: A New Direction." Office of the Queens Borough President, May 1993, Introduction.

proposed Plan. Besides not meeting the infrastructure upgrade that would be achieved by the proposed Plan, the Municipal Services Alternative would not create the Willets Point Special District and would not result in a dynamic, sustainable community that integrates regional attractions and residential, retail, and other uses. Because it would allow for the ongoing industrial use of the District, the Municipal Services Alternative would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and integration of new development in the District with surrounding amenities. The Municipal Services Alternative would also not provide for new affordable housing units, community facilities, or open space within the District.

Comment 24-8: No reason exists why the repairs cannot be made at this time and the current businesses remain. (39)

Response 24-8: As explained in Chapter 24, "Alternatives," given the inadequate existing services, and the grade changes that would be required to bring adequate utilities to the District, limiting improvements to the existing streets while not altering the private lots would fail to achieve the level of improvements provided by the proposed Plan. Moreover, to the extent that significant repairs can be made they would likely entail the temporary relocation of some of the existing businesses during construction of the streets and related infrastructure, and would temporarily affect access to most businesses. Temporary relocation would be necessary to provide access to contractors to the work areas, as well as to protect residents and employees from construction-related activities and noise. Due to the extensive sewer reconstruction that would be required, some temporary displacement and access impacts may be relatively long-term.

Comment 24-9: The FEIS should spell out in detail the potential for creating a manufacturing or industrial zone in the Willets Point area, taking into account superior access to transportation and freight transport routes. The FEIS should conduct an analysis of possible growth industries that could be located in Willets Point given the current zoning. (18, 40)

The FEIS should assess the synergies that might exist or could be developed between the Willets Point site, College Point, and adjacent industrial activities. (18)

Response 24-9: Industrial activity has decreased in the City over the past three decades. Market forces in the past and present have done little to eliminate the underutilized conditions in the District or capitalize on nearby industrial

synergies, as very little redevelopment has taken place in the District over the past several decades. Furthermore, even if there was sufficient market demand, as a substantial part of the District is occupied by established businesses, there would not be a substantial likelihood for large scale expansion or development. As explained above, continued manufacturing use in the District would fail to meet the City's land use and economic goals for Downtown Flushing.

Comment 24-10: A cost benefit analysis must be done to show that the proposed plan will provide the most benefits for the amount of City investment, rather than maintaining Willets Point as an industrial economic driver. The FEIS should include a sector analysis of growth potential industries for the City's economy, their infrastructure requirements, and the potential economic growth this might generate for the City. (18)

The FEIS should compare potential jobs created under an industrial/ manufacturing scenario with the proposed plan in terms of median wages, benefits, career paths, skill acquisition, and upward mobility. (18)

The FEIS' analysis of how the proposed service enhancements would allow for an improvement in the real estate market in the discrete area of Willets Point must be completed and compared to the benefits of the investment for the proposed plan. (18)

Response 24-10: A cost benefit analysis is outside the scope of CEQR.

Comment 24-11: The FEIS should provide an analysis for other creative uses of the site, including the creation of a unique "eco-industrial park" that could be an incubator for green manufacturing uses. (18)

The FEIS should include a feasibility study of a potential "green" auto repair cluster; given the skills of the current workforce in the repair of older automobiles, the area could become a center of green retrofit for these automobiles. (18)

Response 24-11: The GEIS includes an assessment of a range of alternatives, including continued use of the site for manufacturing. Such a plan would not meet the goals and objectives of the project sponsors.

Comment 24-12: The GEIS should state that the stormwater and sewage services can be provided using pumps regardless of the elevation of the streets, and without razing and regrading the site. (33)

Response 24-12: Chapter 24 and Appendix I (Municipal Services Alternative Infrastructure Analysis) describe the potential for stormwater and sewer infrastructure to be provided to the District without regrading the non-street portions of the site. As indicated in Chapter 24 and Appendix I, sanitary waste could be removed from within the District without raising the street elevations back to legal grade. In order to install a new stormwater conveyance system, streets in a substantial portion of the District would need to be raised between approximately 1 and 3 feet. Such changes would create differences in elevation between the new streets and the existing lots that abut them, which would create a serious complication with respect to successfully engineering an effective drainage plan. Each lot would have to install pumps to convey stormwater from that lot into the new stormwater system, which would exist at a higher grade than the lot. Any private parcel requiring a pump and hook up to the stormwater system would be required to meet DEP pretreatment requirements. Pretreatment on certain lots may not be feasible due to lack of adequate space to install and operate the necessary equipment.

Comment 24-13: Given the fact that Willets Point is such a large area, ideal for both business and residential development, and that many of the existing businesses in the Iron Triangle have been in that same location for decades, the City's lack of an informed and all-encompassing plan should signal a return of sorts back to the drawing board for a sensible compromise, and not a headlong rush into the approval process. (1)

Willets Point is a large industrial park, encompassing 61 acres, more than enough acreage to build a proper industrial park with sewers, water supply, sidewalks, bathrooms, etc., to house relocated businesses. It could be located on one side of that beautiful park shown in the plans for the area for all to share. The area can be redeveloped and accommodate all interested parties. (42)

Response 24-13: The continuation of industrial uses in the District would fail to meet the City's land use and economic goals for the Willets Point area; it would not advance a number of the Downtown Flushing Development Framework's fundamental goals, including the creation of a regional destination that would enhance economic growth in Downtown Flushing and Corona and integration of new development in the District with surrounding amenities. The provision of industrial uses alongside residential, open space, and other new uses in the District would not fulfill all of the objectives of the Willets Point Development Plan, including the creation of a dynamic, sustainable community that provides a substantial number of new housing units that would be affordable at a mix of incomes. The City does not typically promote the

development of new residential uses in M3 manufacturing districts, so as to insulate residential uses from potentially noxious uses, as well as to shield industry from nuisance-generated complaints.

CHAPTER 27: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Comment 27-1: The FEIS should address the irreversible change of zoning from industrial to residential/commercial. The site's rezoning should be placed in the larger context for the citywide initiative to rezone former manufacturing areas and the vision that City Planning has for the area. (18)

Response 27-1: For the last three decades, demand for industrial space has significantly shifted due to a general decline in the industrial sector. While the preservation of manufacturing firms is one of a number of priorities for the City, there are other City goals that include the provision of affordable housing and new commercial office space, encouraging sustainable design, and developing areas in a way that capitalizes on mass transit. The proposed Plan meets these goals. The City has strived to preserve and encourage manufacturing and industrial uses within the city boundaries and as such the City has established IIBZs and Industrial Ombudsmen Areas to help facilitate the growth of manufacturing and industrial businesses.

GENERAL COMMENTS

Comment G-1: College Point Boulevard should be rehabilitated with a pedestrian scale and amenities, as well as serving vehicular access. (13)

Response G-1: College Point Boulevard is not located within the Willets Point District. Within the District, the proposed Plan would improve connections between Willets Point and surrounding communities by enhancing street and highway access and by creating new bike paths and open spaces that would connect to existing and planned bike paths, walkways, and recreational areas. As noted in the GEIS, bicycle lanes would be required on connector streets within the redeveloped District. In addition, the City is currently pursuing opportunities to improve bicycle and pedestrian connections between Willets Point and surrounding destinations, such as Flushing Bay Promenade and Flushing Meadows-Corona Park, as well as Downtown Flushing.

CLIMATE CHANGE

Comment G-2: The Lead Agency has expressly refused to address the impacts of climate change on the District, though WPIRA requested such a discussion in our scoping comments. The Lead Agency's explanation for this refusal is that climate change impacts "are City-wide issues and are not addressed through CEQR on a project-specific level." This explanation explains nothing, however, since the Lead Agency cannot sensibly ignore prudent mitigation measures at Willets Point simply because similar measures may be necessary elsewhere. (33)

Raising the existing grade is helpful as a precaution to address climate change only if the grade is raised enough to be effective. The grade will have to be raised at least ten feet (not the proposed six feet) in order to avoid the 100-year flood plain. (33)

The projected increase in global mean sea level would be expected to raise both the stillwater height and the elevation of the 100-year flood level within the Willets Point area, as well as increase the impacts of storm surges produced by East Coast winter storms (nor'easters) and hurricanes. The planned new local elevation of 14 feet above stillwater height will be inadequate to protect the Willets Point Development District from 100-year flood events in the coming decades.

The new development should be approximately 18 to 24 feet above the current Stillwater height to adequately protect the planned Willets Point Development District from 100-year flood events over the coming decades.

We recommend that a reanalysis of the flood hazard at Willets Point be undertaken, using a current generation state-of-the-art Global Climate Model in combination with a downscaled regional climate model, which can factor in the most up-to-date climatological data with projected sea level increases and coastal flooding models.

The general flood hazard being used as a guideline for the minimum elevation of new construction at Willets Point is likely an underestimate that will prevent the community from maintaining National Flood Insurance Program eligibility in the coming decades. (33)

Response G-2: The commenter has provided a report pertaining to possible future flood vulnerability for the District in the years 2050 and 2090 due to global climate change, suggesting that "a minimum base elevation of approximately 18 to 24 feet above the current stillwater height is advisable" to protect the District from flooding in mid- and end-century years. This suggestion incorporates potential increments of varying types and degrees of certainty based on the existing scientific

knowledge: increased sea level due to warming and some ice cap, sea ice, and glacial melting; increased storm surge; increased frequency of severe storms; and additional sea level increase due to catastrophic acceleration of ice cap melting.

Although a large range of sea level rise is possible depending on the precise emissions and response scenarios used for global modeling, there is sufficient information to suggest an increment of approximately 1.6 feet by the end of the century based on warming and some ice cap, sea ice, and glacial melting. Note that the District's elevation of 14 feet is well above that stillwater level, so an increase of 1.6 feet would not impact the District under normal conditions.

The main components that inform infrastructure planning are storm surge and the frequency of severe storms. These components are much more uncertain at this time. Although catastrophic acceleration of ice cap melting is a possibility still being investigated by the scientific community, it is not considered sufficiently likely to be used for planning purposes, and the Intergovernmental Panel on Climate Change (IPCC)[1] did not include that component in its quantitative projections.[2] This component represents 9.8 feet of the commenter's predicted 11.4-foot sea level increase (excluding storm surge). Note that this predicted sea level increase is outside of the generally supported scientific consensus.

The current 100-year floodplain, defined as the level which storm waters may reach with a 1-percent chance in any given year, is based on historical data. This level is currently the only regulatory standard relating to elevation of new development. Under the proposed Plan, the District would be raised above the floodplain, reducing the District's vulnerability to storm surges as compared to existing conditions. The City has established an interagency group to work with the Federal Emergency Management Agency (FEMA) to revise the Flood Insurance Rate Maps for the City. These maps establish flood elevations, which are the triggers for the City building code's flood protection requirements. The City is working with FEMA to reflect current

[1] The IPCC is the internationally recognized organization tasked with providing decision-makers and others interested in climate change with an objective source of information about climate change. Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation. IPCC reports are neutral with respect to policy, are of high scientific and technical standards, and aim to reflect a range of views, expertise and wide geographical coverage.

[2] IPCC. "Climate Change 2007 - The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the IPCC", chapter 10. www.ipcc.ch. 2007.

shoreline and elevations, and technological changes that allow for more accurate map-making. It is anticipated that the map revisions will be completed in 2010. Subsequent development within the District will reflect any changes to the floodplain elevations.

The City is also engaged in several initiatives related to better assessing potential local impacts of global climate change and developing City-wide strategies to adapt to projected effects of climate change:

1. The City recently launched the Climate Change Adaptation Task Force, which is working to secure the city's critical infrastructure against rising seas, higher temperatures, and increasing precipitation projected to result from climate change. The Task Force is composed of over 35 city and state agencies, public authorities and companies that operate, regulate, or maintain critical infrastructure in New York City.

   The task force will be assisted by the New York City Panel on Climate Change (NPCC), which is modeled on the IPCC and includes leading climatologists, sea-level rise specialists, adaptation experts, and engineers, as well as representatives from the insurance and legal sectors. The NPCC will provide the city and task force members with information about climate risks (including climate change projections), adaptation, and risk assessment. The NPCC is expected to issue preliminary climate change projections in late 2008/early 2009.

2. The City is convening a task force to amend the building code to incorporate climate change adaptation measures on a City-wide basis. This task force will evaluate the need for new structural requirements.

3. DEP is in the process of evaluating adaptive strategies for City infrastructure. DEP has issued a preliminary report on future climate change predictions relating to sea levels in the New York City area. At this time, much of the data generated by scientific studies is not yet sufficiently detailed for site-specific infrastructure planning. [1] DEP will be undertaking a long-term planning and conceptual engineering effort, beginning in May 2009. The goal of this effort is to ensure that future design criteria and infrastructure sizing meet future population demands and minimize the risks posed by climate change to the drainage and wastewater management systems in the City.

[1] DEP, Assessment and Action Plan—Report 1: A Report Based on the Ongoing Work of the DEP Climate Change Task Force, May 2008.

As described in Chapter 14, "Infrastructure", the development would include a number of features, in addition to the requirements of the building code and current DEP drainage standards, designed to absorb or retain stormwater and reduce the potential for flooding. These features would form part of a site stormwater management plan that would be reviewed by DEP in light of its developing understanding of the effects of climate change on infrastructure. Furthermore, the developer would be required to submit to the City, prior to the placement of fill, an assessment of the appropriate grade for the District in light of all available information concerning potential sea level and other changes due to climate change. If appropriate and if warranted by data available at that time, the City would have the authority to require an increase in the proposed grade of the District at that time, but other measures could be used if more appropriate, as further delineated below.

However, as detailed below, the commenter's suggestion of raising grade to a level between 18 and 24 feet above stillwater would likely not be practicable. Furthermore, since wider solutions are available and would be necessary under such circumstances, and since raising the grade would not help solve the problem, it would not be recommended.

Figure 29-1 presents the District and the topographic elevations of 18 and 24 feet, suggested by the commenter as base flood elevations for planning purposes. This suggestion is based on projections of sea level rise which, as noted above, are outside of the general scientific consensus. As reflected in the figure, if the grade were raised to this level in the area of the District alone, storm events to such levels would inundate the entire surrounding area, including the basic infrastructure such as roadways, drainage, and sewers. In such an event, the proposed Plan would remain as an isolated island surrounded by water. Raising the grade in the entire area outside the District is not a viable solution for existing uses, and is impracticable.

Figure 29-2 presents those same topographic elevations on the City level. Clearly this magnitude of sea level and storm surge would present a city-wide challenge, not a local one. Examples of solutions to sea level rise broader than regrading are presented in the first report of the DEP Action Plan.[1] Those may include local protective barriers such as dunes, riprap, or seawalls, or city-wide strategies. Depending on the magnitude of predicted events, local protection strategies may be more appropriate, including measures such as raising key infrastructure,

[1] DEP, Assessment and Action Plan—Report 1: A Report Based on the Ongoing Work of the DEP Climate Change Task Force, May 2008.

watertight areas to protect equipment, the use of submersible pumps, and other measures.

As detailed projections of the local impacts of global climate change become available and are adopted into the City's infrastructure design criteria, such criteria would be incorporated into the development program. In addition, the City's agreement with the developer would require the preparation of an engineering study prior to commencement of construction that would assess the feasibility of implementing adaptation strategies for climate change impacts into the design of the development program in light of the most current climate change projections. Based on that engineering study, the City would require the developer to implement the adaption strategies that it determines are practicable.

PROPERTY ACQUISITION/EMINENT DOMAIN

Comment G-3: It's been intimated that local property owners don't cooperate, but that's really not the case. We've not been dealt with in an open and honest basis by the NYCEDC. (43)

We are concerned about the potential abuse of Eminent Domain, and insist NYCEDC diligently exhaust every means of negotiation prior to any action for Eminent Domain. (6, 32, 39, 40)

EDC must continue its good faith efforts with the property owners to come to a fair and equitable agreement for the purchase of their land in the Willets Point project area and exhaust every means of negotiations before considering the use of eminent domain. (2)

The "gun" of eminent domain remains on the table and as long as it is there, the commitment to fair and equitable negotiations is simply not believable. (38)

The City must negotiate in good faith with local property owners. The City needs to be responsive to their needs and treat them fairly. (27)

Response G-3: NYCEDC will exhaust every reasonable means of negotiation before considering using eminent domain to acquire the properties necessary to facilitate the Willets Point Redevelopment Plan.

NYCEDC's goal is to continue to work one-on-one with all interested Willets Point business or land owner to negotiate property acquisition and/or relocation agreements that meet their specific needs. NYCEDC began meeting with businesses and land owners in January 2008 to discuss potential property acquisition and relocation. Over the past year, NYCEDC has held over 500 meetings, phone calls, and emails to discuss potential property acquisition and business relocation plans with

District businesses and property owners. In addition, NYCEDC's outreach consultants from Howard Stein-Hudson have met with approximately 95 percent of all businesses currently located in the District to discuss their business characteristics and relocation needs.

Comment G-4: For the City, state, or federal government to take property from a person to sell it to a developer is an abuse of eminent domain. (35)

To my knowledge, this is the third attempt by the City to take this property from its rightful and legal owners and give it to big business and the politically connected few. To do so by Eminent Domain is shameful and, in reality, illegal. (42)

Response G-4: The use of eminent domain to facilitate the City's plan for redevelopment of the District will be in accordance with all applicable federal and state laws and constitutional requirements. In New York, property can only be taken for a "public use." However, New York courts have adopted a broad definition of the term "public use," which encompasses any use which contributes to the health safety, general welfare, convenience or prosperity of the community. It is well settled that urban renewal is a valid public use for purposes of eminent domain, since the primary aim of urban renewal is to remedy blight.

Comment G-5: Not only has the City's neglect resulted in a public perception of "blight," but it also prevented us from investing in and expanding our business, resulting in being designated as "underutilized." This "plan" is an egregious assault on our livelihoods and property rights. (38)

The media and the City of New York depict Willets Point property owners and businesses as the villains who have created the squalor, blight, and environmentally hazardous conditions that exist in parts of the area. The finger of blame for these conditions has to be pointed at the true villains: the City of New York, its agencies, and the developers working with them to steal this property. (42)

Willets Point is not blighted; it has been neglected by New York City for over 30 years. (32, 43)

The FEIS should delineate how the existing site conditions came about, given the long history of disinvestment in the area's infrastructure. (18)

Response G-5: The District has long been characterized by environmental concerns, underutilization, and physical degradation of buildings and lots. Market forces have done little to eradicate the blighted conditions in the District, as very little redevelopment has taken place there over the past several decades.

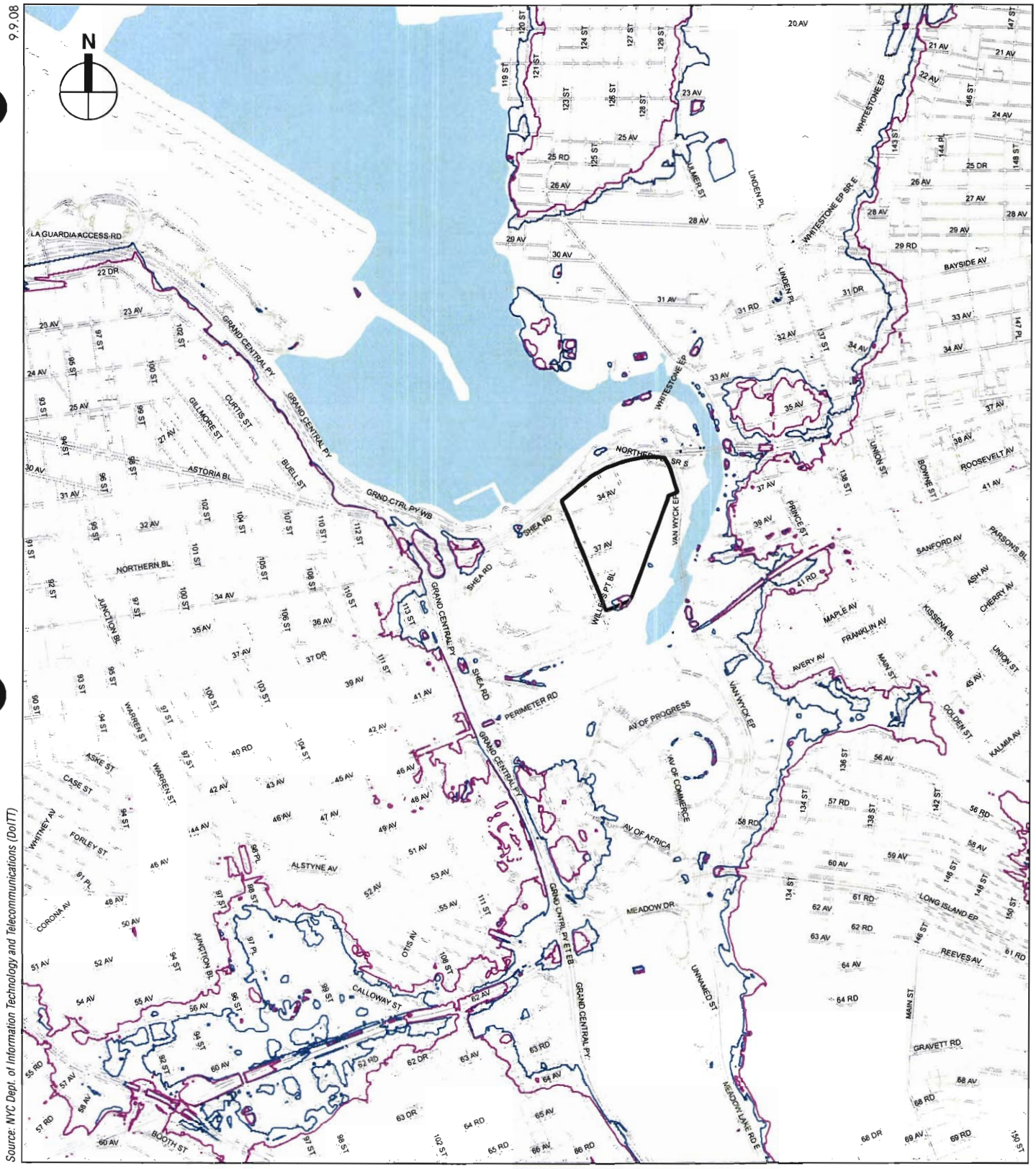


Figure 29-1

18- and 24-foot Topographic Elevations in the Willets Point Area



Figure 29-2
18- and 24-foot Topographic Elevations in New York City

Comment G-6: If the City acquires control over the entire site—if necessary through the use of eminent domain—local property owners will have relinquished their stake in the area. This creates the possibility that the site will remain vacant and/or underutilized for years to come. (18)

Response G-6: A developer and detailed development program for the District will be identified before the City takes possession of any property acquired by eminent domain.

Comment G-7: The ability of government to take control of land in the public interest has been absolutely essential for the renewal and growth of our city. The Housing Partnership participated with government in development activities that were absolutely essential for neighborhood revitalization and were only possible because the city was able to clear title and assemble land through condemnation or the threat of condemnation. Private owners are not always rational – in other words, they will not always act in their own best financial interests, let alone the public interest. Willets Point represents a responsible and necessary application of eminent domain. (26)

I applaud the administration and NYCEDC is making an unprecedented effort to handle property acquisitions and business relocations in a fair and responsible way. (23)

Response G-7: Comments noted.

Comment G-8: For actions subject to NEPA, actions that could have an adverse environmental impact are prohibited before the NEPA process has been completed. NEPA is concerned with the "human environment", which it defines broadly. The institution of eminent domain proceedings would have an adverse impact on the human environment of Willets Point by forcing the closure of several businesses that are significant sources of employment, that provide important services, and that as a practical matter cannot be relocated. Thus any and all condemnation actions should await completion of the NEPA process for the Van Wyck ramps. (33)

Response G-8: The City will not take possession of property acquired by eminent domain before the NEPA process is complete and the ramps are approved.

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