Coney Island/Gravesend Sustainable Development Transportation Study

FINAL REPORT

P.I.N. - PT222-1915

June 2010

Michael R. Bloomberg
Mayor

Janette Sadik-Khan
Commissioner

A Member of the New York Metropolitan Transpotation Council

Coney Island/Gravesend Sustainable Development Transportation Study

PIN PT2221915

Contract No. D000642

CDOT-81-00

The preparation of this report has been financed in part through funds from the U.S. Department of Transportation, Federal Highway Administration under the Federal Highway Act of 1965, as amended, and the Urban Mass Transportation Act of 1964, as amended. The New York City Department of Transportation disseminates this document in the interest of information exchange. It reflects the views of the New York City Department of Transportation (NYCDOT) which is responsible for the facts and the accuracy of the data presented. The report does not necessarily reflect any official views or policies of the Federal Transit Administration, the Federal Highway Administration, or the State of New York. This report does not constitute a standard, specification, or regulation.

Prepared by:

New York City Department of Transportation

Janette Sadik-Khan, Commissioner
Lori A. Ardito, First Deputy Commissioner
Gerard Soffian, P.E., Deputy Commissioner
Joseph Palmieri, Brooklyn Borough Commissioner
Ryan Russo, Assistant Commissioner
Naim Rasheed, Project Director
Michael Griffith, Deputy Project Director
Carren Simpson, Project Manager
Milorad Ubiparip, Highway Transportation Specialist
Hau Cho Li, City Planner
Eva Marin, Highway Transportation Specialist
Ali Jafri, Highway Transportation Specialist
Hilary Gietz, PAA
Sowmya Bangalore, Graduate Intern

TABLE OF CONTENTS

General Introduction

Part I: EXISTING CONDITIONS

LIST OF TABLES

LIST OF FIGURES & CHARTS

Figures **Page**

Charts

PART II: FUTURE CONDITIONS

LIST OF TABLES

LIST OF FIGURES & CHARTS

Figures Cont'd..... Page

Chart ..... Page

Appendices

Part I: Existing Conditions

Part II: Future Conditions

General Introduction

This draft final report combines the two Technical Memoranda that were prepared for the Coney Island/Gravesend Sustainable Development Transportation Study that was initiated by the New York City Department of Transportation (NYCDOT) in 2001 in response to community concerns about the negative impacts of major new developments (such as, increased congestion, speeding, and double parking) on quality of life. The purpose of the study was to assess existing and future traffic conditions in three southern Brooklyn communities – Coney Island, Gravesend, and Brighton Beach. The study area spanned three community boards – 11, 13, and 15 with the boundaries being Kings Highway (north), Coney Island Avenue (northeast) and West End Avenue (southeast), Riegelmann Boardwalk to the south, and West 37th Street (southwest) and Bay Parkway (northwest). Public participation played a significant role throughout the study process with several public meetings, including a charette, being held prior to the preparation of each Technical Memorandum.

Technical Memorandum #1, which was released in May 2004, examined the existing conditions in the study area in 2002. It looked at the study area's demographics, land use and zoning, traffic conditions (including traffic volumes, geometry, level of service, speeds, and goods movement), pedestrian and bicycle (including volumes and facilities), accidents and safety, parking supply and demand, and public transportation. In Technical Memorandum #1, vehicular traffic data was analyzed at 57 intersections for the AM (8:00-9:00), midday (1:00-2:00 PM), and PM (5:00-6:00) weekday peak hours, as well as the Saturday midday peak hour (12:00 – 1:00 PM). Pedestrian counts were also conducted at 32 intersections during the peak hours. Additionally, Technical Memorandum 1 included a summary of comments and concerns community members expressed at several public meetings that were held when the study commenced. It also introduced the land use, transit, and transportation scenarios that would be modeled with the Best Practice Model.

Technical Memorandum #2, released in June 2010, examined the projected future 2015 conditions (as well as 2025 conditions). It includes an assessment of future demographics, land use and zoning, traffic and transportation, parking, and public transportation. The study assesses the development potential and the associated travel demand for its effect on the street network. Additionally, the report includes a discussion of the scenarios modeled with the Best Practice Model (BPM) as well as the results of the modeling exercise. It also contains recommended improvement measures (some of which have been implemented) to

satisfy travel demand and improve safety and traffic operation in the study area. The recommendations included short-term and long-term improvements such as geometric and signal timing changes, one-way street conversions, parking restrictions, pedestrian and bike friendly treatments, and other signage modifications.

PART I: EXISTING CONDITIONS

EXECUTIVE SUMMARY

The Coney Island/Gravesend Sustainable Development Transportation Study seeks to address the development and transportation needs of three communities (Coney Island, Gravesend, and Brighton Beach) in southern Brooklyn. The study area is bounded by Kings Highway on the north, Coney Island Avenue (northeast) and West End Avenue (southeast), the Riegelmann Boardwalk, and West 37th Street (southwest) and Bay Parkway (northwest). The purpose of the study is to assess the land use development potential and trends of the area and to evaluate their effects on the traffic network and transportation system. Of the three communities in the study area, Coney Island has the greatest growth potential because it has a concentration of prime vacant parcels and buildings that exceed those found in either Gravesend or Brighton Beach. Additionally, there have been some discussions about revitalizing Coney Island as a destination location for recreation and entertainment.

Technical Memorandum No. 1 assesses the existing conditions in the study area which will form the basis for future analysis and alternative development scenarios. It examines demographics, land use and zoning, traffic conditions including goods movement, pedestrians and bicycles, accidents and safety, parking supply and demand, and public transportation. The data collected for each subject area was supplemented with information gathered from community residents at several public forums held in the community.

S-1. Demographics

The population and characteristics of the study area is diverse including people of various racial, ethnic, and socioeconomic backgrounds as well as different types of residential buildings. Low density houses are concentrated in Gravesend while Coney Island and Brighton Beach have a higher concentration of high density dwelling units.

The demographics analysis for the study area examined population trends from 1980 to 2000. The analysis showed that between 1980 and 1990 the study area's population declined while the

population in New York City and Brooklyn increased. However, between 1990 and 2000 population growth in the study area (7.3%) was similar to that of Brooklyn (7.2%) and New York City (9.4%). The median income for the study area, which grew steadily between 1980 and 2000, was $29,303 in 2000; it was slightly lower than the median income for Brooklyn and New York City which was $33,056 and $38,293, respectively. Although the median income for the study area as a whole increased, there was an increase in the number of people living below the poverty level. This trend was more apparent in some census tracts than others. The majority of the study area residents (54%) used transit to complete their journey to work trips which was similar to New York City (52%) and Brooklyn (57%).

S-2. Land Use and Zoning

The majority of the study area is zoned and used for residential use. Commercial/retail uses are concentrated along 13 of the 14 major corridors in the study area. Most of the commercial/retail activities are small-scale independent enterprises; however, there are some major chain and big box stores such as McDonald's, Radio Shack, Toys R Us, Rite Aid, P.C. Richards, Pathmark, Kohl's, and Home Depot. Industrial use in the study area is dispersed but concentrated along some parts of Cropsey Avenue, Neptune Avenue, McDonald Avenue/Shell Road, and Stillwell Avenue. Some of New York City's major entertainment and recreation attractions – the New York Aquarium, the Coney Island Amusement Park, Keyspan Park, and the Boardwalk – are located in the study area.

Recent major developments such as Keyspan Park, Home Depot, and Oceana as well as small-scale in-fill developments indicate that some parts of the study area are being revitalized. Nevertheless, the potential for future development is still enormous with approximately 1.6 million square feet of vacant parcels in Coney Island alone.

S-3. Traffic and Transportation

The traffic and transportation analysis focused on the 14 major corridors in the study area – Coney Island Avenue, Ocean Parkway, Stillwell Avenue, McDonald Avenue/Shell Road, Kings Highway, Bay Parkway, Cropsey Avenue, 86th Street, Neptune Avenue, Mermaid Avenue, Surf Avenue, Brighton Beach Avenue, Avenue X, and Avenue U. The existing conditions of 53

intersections along these corridors were assessed for the AM (8:00-9:00), midday (1:00-2:00 PM), PM (5:00-6:00) weekday peak hours, and the Saturday peak hour (12:00 – 1:00 PM). The capacity and level of service (LOS) at these intersections were analyzed using the 2000 Highway Capacity Software.

Complex and high volume intersections such as McDonald Avenue/86th Street/Avenue X, Coney Island Avenue/Brighton Beach Avenue, Coney Island Avenue/Neptune Avenue, Ocean Parkway/Neptune Avenue, McDonald Avenue/Kings Highway, and Coney Island Avenue/Guider Avenue experienced unacceptable level of service (LOS E or F) for one or more of the peak hours.

S-4. Pedestrians and Bicycles

The analysis of pedestrian and bicycle transportation focused on activities along the major corridors and intersections. Two sets of pedestrian counts were conducted for weekdays and summer activities. Counts were conducted at a total of 32 intersections. The intersections with the most pedestrian activity are located along corridors with significant commercial activities or transportation transfer points. The corridors and intersections are Brighton Beach Avenue (between Ocean Parkway and Coney Island Avenue), 86th Street (between Bay Parkway and Stillwell Avenue), Coney Island Avenue/Brighton Beach Avenue, McDonald Avenue/Kings Highway, Surf Avenue/Stillwell Avenue, 86th Street/Bay Parkway, and McDonald Avenue/86th Street/Avenue X.

There are no on-street bicycle facilities in the study area. However, the Greenway paths on Ocean Parkway and the Coney Island Boardwalk (open to cyclists between 5-10 AM daily) are well utilized by residents. The Department of City Planning is currently conducting a study that examines options to close the gaps between the various segments of the Greenway in the study area.

S-5. Accidents/Safety Analysis

The accident and safety analysis examined 27 intersections in the study area that had an average of 20 or more accidents each year between 1996 and 2000. Analysis of the accidents by

corridors showed that each year Coney Island Avenue had the highest number of accidents. The data also showed that the Neptune Avenue/Ocean Parkway intersection was the most critical location with an average of 49 accidents per year for the five years analyzed. The second most critical intersection was Coney Island Avenue/Avenue Z with an average of 39 accidents per year. The data showed that there was one location with an average between 41 to 50 accidents per year, four locations with between 31 to 40 accidents, and 21 locations that averaged between 20 to 30 accidents per year.

S-6. Parking Analysis

The parking analysis focused on on-street parking supply and demand on the major corridors during the AM, midday, and PM peak hours. It also inventoried off-street parking facilities in the study area. The survey showed that parking supply met demand in most places except at those locations where there are a lot of commercial/retail activities, such as along Brighton Beach Avenue, 86th Street, and parts of Kings Highway.

S-7. Public Transportation

The transit needs of the study area are met with service provided by subways, buses (both local and express), and jitneys. More than half of the study area's population use mass transit to complete their journey to work trips.

There are nine local bus lines (B1, B3, B4, B6, B36, B64, B68, B74, and B82) and two express buses (X28 and X29) that provide service in the study area. The local buses connect the three communities with various neighborhoods and destinations in Brooklyn, while the express buses provide service between the study area, Manhattan, the Bronx, and Queens. The B, D, F, M, N, and Q trains provide service at 13 stops in the study area. Due to the reconstruction of the Stillwell Avenue station service is temporarily suspended at three stations (Neptune Avenue, Ocean Parkway, and West 8th Street). In addition to the subways and buses, jitneys fill some transportation needs for residents in Coney Island where service is provided between the Stillwell Avenue station and residences in the western tip of the peninsula.

Although the study area is generally well served, residents expressed the need for better service on the B74 route as well as service to Kings Borough Community College and Manhattan Beach. Residents also expressed the desire to have ferry service to Manhattan and the Rockaways.

S-8. Alternative Futures (Development Scenarios)

With the assistance of community groups and other stakeholders, a set of four transportation scenarios and three land use scenarios were identified for testing with the Best Practice Model. The New York Best Practice Model is a regional transportation modeling software developed by the New York Metropolitan Transportation Council to assess travel and transportation patterns in the region. The transportation and land use scenarios are shown in the matrix below. A combination of each transportation and land use scenario will be tested with the model and the results used to assess future transportation needs in the study area.

Alternative Transportation and Land Use Scenarios

TRANSPORTATION \ LAND USE →	1 Current Trend	2 Moderate Development	3 Full Buildout (Vacant Lots)
1 Current Programmed Projects			
2 Transportation Management Strategies			
3 Transit Focused Improvements			
4 Major Roadway Improvements			

1. INTRODUCTION

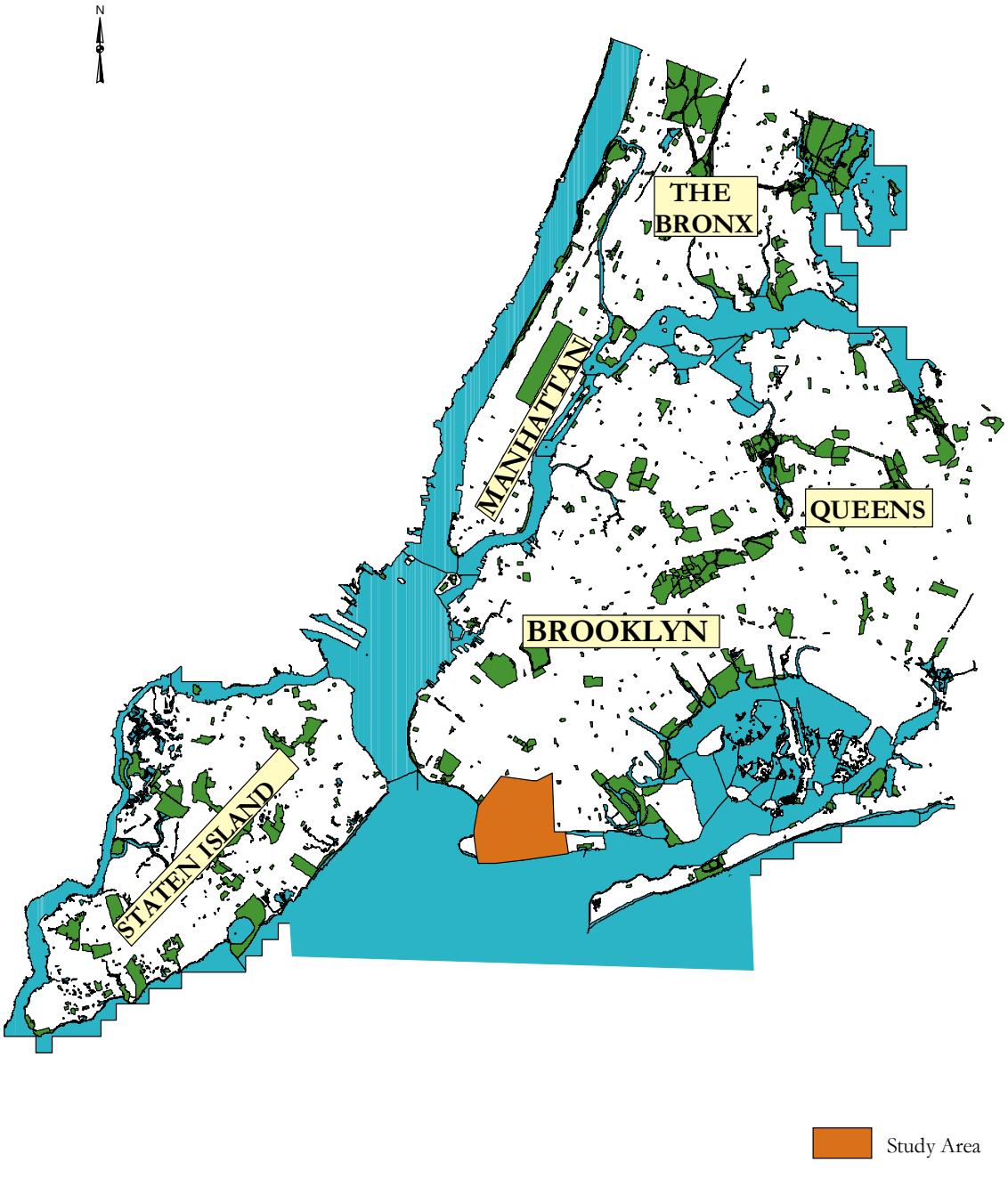
1.1 Introduction

The Coney Island/Gravesend Sustainable Development Transportation Study is a multimodal transportation and planning study that was initiated in response to community concerns about development trends and the resultant negative externalities such as increased congestion, speeding, and changes to neighborhood characteristics. The purpose of the study is to assess current and future land use development and transportation conditions and to ensure developments are sustainable. From a transportation-centered perspective a sustainable development process occurs in a manner where the transportation system maintains its ability to serve communities in safe and environmentally friendly ways. A study of this kind provides a link between future land use changes and transportation developments; addresses both regional and local transportation needs; enhances long term economic vitality; and, promotes cooperation among communities and agencies. The study complements the regional multimodal transportation study – the Southern Brooklyn Transportation Investment Study – being conducted by the New York Metropolitan Transportation Council (NYMTC).

The study area includes all or portions of Coney Island, Brighton Beach, and Gravesend; and Community Boards 11, 13, and 15. The boundaries are Coney Island Avenue to the northeast and West End Avenue to the southeast, Riegelmann Boardwalk to the south, West 37th Street to the southwest and Bay Parkway to the northwest, and Kings Highway to the north. Figure 1-1 shows the study area within a regional context and Figure 1-2 shows its boundaries and community boards.

Coney Island, Gravesend, and Brighton Beach are three of southern Brooklyn's legendary communities, having been destination points for the beach and other recreational and entertainment purposes for several years. All three communities have diverse populations and neighborhood characteristics. Gravesend primarily has one-and two-family homes with pockets of high-rise multi-family dwelling units; while Coney Island and Brighton Beach are beachfront communities that primarily have multi-family dwelling units and pockets of two- and three-family homes. Coney Island is one of New York City's major summer destinations that attract

Figure 1-1: Study Area in a Regional Context



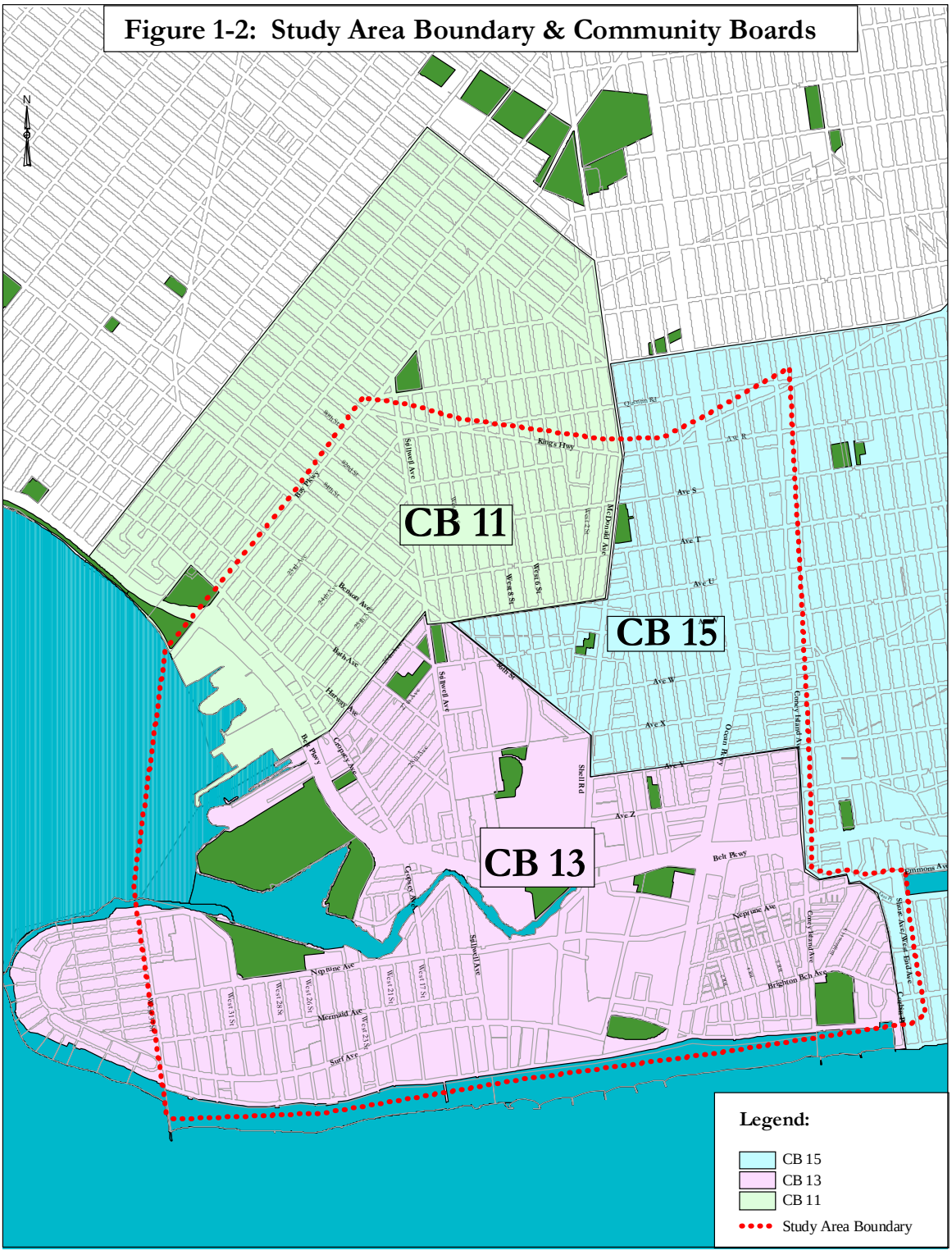


Figure 1-2: Study Area Boundary & Community Boards
CB 11
CB 15
CB 13
Legend:
CB 15
CB 13
CB 11
Study Area Boundary

millions of visitors each summer. It is especially attractive because it is home to an amusement park, the New York Aquarium, Keyspan Park (Steeplechase Park), Nathan's (home of the famous hot dog), and the beach.

All three communities that make up the study area are experiencing growth and revitalization or have the potential for further growth and development. New commercial, residential, and recreational developments are changing the economic and social trends in and around these communities. Three major recent developments in these communities are Home Depot (located in Gravesend) that was built in 2000, Keyspan Park (located in Coney Island) that was built in 2001, and Oceana, a large residential development (located in Brighton Beach), that will be completed in 2005. New developments, such as those above, that increase vehicular and pedestrian traffic add pressure to the traffic and transportation system and create the need to develop measures to alleviate the new pressures.

Based on the concept of sustainable development, the Coney Island/Gravesend Sustainable Development Transportation Study will examine the existing and future land use, demographic and socioeconomic characteristics, traffic and transportation conditions in the study area to identify its immediate and long-term transportation demands. The study involves significant community participation in an effort to support the vision of community stakeholders. The study's aim is to make proposals that expand transportation alternatives, improve travel conditions, air quality, preserve natural resources (waterfronts, parks), and help to restore local economic and social vitality.

1.2 Objectives of the Study

As a sustainable development study, the study's goal is to provide a framework to facilitate the development of improvement measures that safely accommodate future transportation needs (including those generated by new developments and economic growth), thereby satisfying future travel demand without negative environmental consequences. The study's main objectives therefore are:

- To examine the spatial distribution and intensity of land uses and its relationship to the derived demand for travel.

- To assess the area's economic base, employment opportunities and their implication for travel.
- To identify the travel and traffic characteristics, assess the existing and future transportation demand and needs of the study area, and evaluate their effects on the community.
- To develop and test land use/transportation scenarios.
- To improve travel conditions by reducing vehicular congestion, improving safety for all users (vehicular and pedestrian) and increasing the use of public transit or alternative modes.

An in-depth analysis of the following pertinent issues will provide the basis for realizing the study's goals and objectives along with extensive public outreach.

Public Participation – Community groups (residents, businesses, and other interested parties) in Coney Island, Gravesend, and Brighton Beach have been invited throughout the study process (open house, public meetings, etc) to provide input to the work being done in the study.

Demographics – An analysis of existing and future population trends in the study area that includes growth and decline, age distribution, household size, employment, income, journey to work choices, and car ownership rate will be addressed.

Land Use and Zoning – An analysis of existing and future zoning classifications and land use categories, spatial distribution and density of the various land uses (residential, commercial, community facilities, recreational and open spaces); identifies the major trip generators and examines land use trends and changes along with associated trip generating potential and characteristics.

Traffic – An analysis of the existing and future traffic conditions, an inventory of street and sidewalk widths, traffic flow directions, parking regulations, traffic controls, parking regulation compliance, and other items as required for traffic analysis; performs an area-wide traffic assessment using the Highway Capacity Manual (HCM) methodology to evaluate intersection volume-to-capacity (v/c) ratios, vehicular delay, and levels-of-service for the weekday AM, midday, and PM peak hour as well as Saturday peak hour.

Pedestrians/Bicycles – An analysis of existing and future pedestrian volume and level of service (LOS) during the summer (in proximity to the amusement/recreational activities) and non-summer periods at critical intersections; examines the demand for use of bicycles as an alternative mode and the need to create or enhance the bicycle network in the study area.

Accidents – The accident analysis includes the history of accidents at selected intersections for a five-year period using NYCDOT, NYPD, NYSDOT, and DMV's records; examines the types, frequency, severity, and causes of accidents; develops measures, where appropriate, to improve safety for motorists, pedestrians, and bicyclists.

Parking – The parking analysis for the existing and future conditions examines on- and off-street parking facilities during the weekday AM, midday, and PM peak periods; assesses available capacity and utilization of on-and off-street parking during the peak periods.

Goods Movement – An assessment of the effect of goods movements generated by retail, commercial, and other developments; and examines existing and future goods movements including truck routes, volume, frequency, and loading and unloading requirements.

Transit – An analysis of existing and future subway and bus routes, ridership, frequency of service, and adequacy of layover areas within the study area; examines the potential for alternative transportation services would also be examined.

1.3 The Study Area

The study area is well linked to the transportation network. It is currently served by five subway lines and ten bus lines (eight regular NYCT buses and two express buses with service to Manhattan). Access to the regional transportation network is also relatively easy as the Belt Parkway skirts the study area with several on and off ramps within it. In addition to the Belt Parkway, there are other major arterials in the study area including Ocean Parkway, Kings Highway, and Bay Parkway.

The primary north-south corridors in the study area are:

1. Coney Island Avenue
2. Ocean Parkway
3. Shell Road/McDonald Avenue
4. Stillwell Avenue
5. Bay Parkway

The primary east-west corridors are:

1. Kings Highway
2. 86th Street
3. Neptune Avenue
4. Surf Avenue
5. Cropsey Avenue

There are several commercial/retail strips in the study area that generate significant vehicular and pedestrian activity. These strips are concentrated along Kings Highway, 86th Street, Avenue X, Avenue U, Brighton Beach Avenue, and Coney Island Avenue. Smaller attractors are located along Neptune Avenue where there is a strip mall between West 8th and West 5th Streets, McDonald Avenue and Cropsey Avenue where there are car repair shops and other similar entities, and along Surf Avenue and Mermaid Avenue where there are a variety of stores.

1.4 Project Organization and Methodology

The project is organized in a series of task as follows:

Task 1 – Project Organization and Management (completed)

A detailed work program that outlines tasks, subtasks, task products, and schedule including Technical Advisory Committee (TAC) meetings.

Task 2 – Literature Search (completed)

A review of relevant major studies or project obtained from NYCDOT's Environmental Impact Statement Library, the Office of Environmental Coordination, EDC, the Department of City Planning, and other public or private agencies.

Task 3 – Public Participation (on-going)

Conduct community outreach activities to ensure the input of community groups throughout the study process.

Task 4 - Data Collection and Identification of Issues (completed)

Collect and analyze data on the study area's demographics, zoning and land-use, traffic, parking, pedestrians, accidents, goods movement and transit. The traffic data includes Automatic Traffic Recorder (ATR) counts, turning movements, vehicle classification, pedestrian counts, and an inventory of existing conditions on the traffic and transportation network.

Task 5 - Analysis of Existing Conditions (completed)

A comprehensive analysis of existing conditions (2002) covering data collected for the various subject areas was conducted and incorporated in Technical Memorandum No. 1. A Technical Advisory Committee (TAC) meeting and a public forum will be held to present and discuss findings of Technical Memorandum No. 1. A public forum will be held to present the findings of this task.

Task 6 – Analysis of Future Conditions

An analysis of future conditions (2012) will be conducted for all issues including traffic, transit, parking, goods movement, accidents and pedestrian activity and develop preliminary recommendations. This will be compiled in Technical Memorandum No. 2; a Technical Advisory Committee meeting and a public forum will be held to present and discuss findings of Technical Memorandum No. 2. A public forum will be held to present the findings of this task.

Task 7 – Development and Evaluation of Improvement Scenarios

Develop and evaluate alternatives (scenarios) in terms of effectiveness, community acceptance, cost, and consistency with objectives and long term strategy. A public forum will be held to present the findings of this task.

Task 8 – Recommendations and Implementation Plan

Recommend the preferred alternative based on Task 6 and develop a detailed implementation plan including cost and schedule. This will be presented in Technical Memorandum No. 3. A Technical Advisory Committee meeting and a public forum will be held to present and discuss the final technical memorandum.

1.5 Pubic Participation

Community involvement is a critical component of any development project, especially for those embracing the sustainable development concept. To ensure that the community is actively involved and their valuable input received from the outset of the study, five public outreach meetings exclusively for this study (details provided below) were held. Additionally, information obtained from the Southern Brooklyn Transportation Investment Study's public meetings was also incorporated into the database of community concerns and issues. The five public meetings were held in June and November 2002, November 2003, and April 2004 in Coney Island and Gravesend.

The first public meeting (an Open House) was held on June 27, 2002 at Our Lady of Solace School at 2865 West 19th Street (Coney Island). The meeting's format provided community residents with an opportunity to voice their perspectives on a variety of issues of concern to them. Although meeting participants were asked to express their concern and vision on any topic or issue affecting community life, a majority of their responses focused on issues relating to public transit and the street network (traffic – speeding, congestion, and faulty signals). The meetings format allowed participants to identify the community strengths, weaknesses, opportunities, and threats (SWOT). Participants were also asked to identify development issues and trends in the community as well as their visions and long term goals for the community. A summary of the issues raised by the community are as follows:

Strengths:

- Well served by public transportation;
- Access to the Belt Parkway; and
- Proximity to retail destinations.

Weaknesses:

- Insufficient express bus service;
- Some streets need maintenance;
- Need handicap access to subway, boardwalk and beach; and
- Inadequate parking at Keyspan Park.

Opportunities:

- Increase frequency of bus service;
- Reinstate express train service on the 'F' and 'Q' lines; and
- Expand train service between Brooklyn and Queens (provide direct service).

Threats:

- Noise from elevated subway lines;
- General safety of all transit users at particular locations;
- Poor street lighting; and
- Limited accessibility to Coney Island during games at Keyspan Park.

Development issues:

- Provision of ferry service to Manhattan;
- Improved access to airports via public transportation;
- Direct bus service to Kingsborough Community College from Coney Island; and
- Develop lots currently being used to park school buses.

Vision:

- Improved maintenance of subway facilities so that it is clean and safe;
- Provision of friendly and timely transit service; ferry service to Manhattan;
- Mermaid Avenue as a destination area (pedestrian mall with specialty stores);
- Gambling casinos, funeral home, movie theatre and entertainment, high school and junior high schools; and

- Development of commercial/retail activities on the pier.

Long Term Goals:

- Community renewal; and
- Establishment of a local development corporation.

Trends:

- Low income housing;
- Potential for new and infill development;
- Larger sports complex and the possibilities for 2012 Olympics; and
- Restoration of the Cyclone.

The second and third public meetings were held on Saturday, November 2nd (at the New York Aquarium in Coney Island) and Thursday, November 7, 2002 (at Lafayette High School in Gravesend). These meetings were organized as charrettes. Participants built on the information obtained at the meeting held in June. New issues included the need to develop an interconnected transit system between Coney Island, Brighton Beach, and Sheepshead Bay, especially during the summer; and the need to create a park and ride lot for trips to the city. The information was categorized into three groups – future development, community transportation issues, and community services and facilities – that formed the basis for discussion and further investigation.

In addition to the three initial Coney Island/Gravesend Sustainable Development Transportation Study meetings, New York Metropolitan Transportation Council (NYMTC) held two meetings in the study area as part of the visioning sessions for the Southern Brooklyn Transportation Investment Study. The information gathered at these meetings that specifically pertained to the Coney Island/Gravesend Sustainable Development Transportation Study area was obtained from NYMTC, and incorporated into the study.

The fourth and fifth meetings involved a presentation of the findings from the analysis of existing conditions and a discussion of the alternative development scenarios that will be tested with the Best Practice Model.

2. DEMOGRAPHIC ANALYSIS

2.1 Introduction

To understand the population dynamics of the study area, a comparative analysis of pertinent demographic data for New York City, Brooklyn, and the study area was conducted using the 1980, 1990, and 2000 Census data. The analysis examines population trends, poverty rates, household size, income, age, vehicle ownership, and home ownership in an attempt to better estimate and forecast travel behavior in the study area which includes 53 census tracts (shown in Figure 2-1). Forty-seven of these census tracts (294, 296, 298, 300, 302, 304, 306, 308, 314, 320, 326, 328, 330, 340, 342, 348.01, 348.02, 350, 352, 354, 356, 360.01, 360.02, 362, 364, 366, 370, 374, 382, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 414.01, 414.02, 416, 610.01, and 610.02) are located wholly in the study area, and six census tracts (270, 412, 418, 424, 426, and 428) are partially located in the study area.

2.2 Population Trend

The 2000 Census shows the population for New York City as 8,008,278, Brooklyn as 2,465,326 and the study area as 176,516. As shown in Table 2-1, unlike New York City's and Brooklyn's population that grew steadily between 1980 and 2000, the study area's population experienced a slight decrease between 1980 and 1990, but grew between 1990 and 2000.

Table 2-1: Total Population of New York City, Brooklyn and the Study Area (1980-2000)

Census Year/ Geographic Unit	1980 Total Population	1990 Total Population	Percent Change ('80-'90)	2000 Total Population	Percent Change ('90-'00)	Percent Change ('80-'00)
New York City	7,071,639	7,322,564	3.5%	8,008,278	9.4%	12.8%
Brooklyn	2,230,900	2,300,664	3.1%	2,465,326	7.2%	10.5%
Study Area	166,490	164,560	-1.2%	176,516	7.3%	6.0%

Source: US Census Bureau 1980, 1990 & 2000.

Between 1980 and 1990, approximately 72% of the census tracts (38 of 53) experienced population decline. However, most of these census tracts (35 of 38) recovered in the 1990s and registered population growth in the 2000 Census. Overall, one-fourth of the census tracts (13)

Figure 2-1: Population By Census Tract (1980-2000)

experienced a decrease in population during the analysis period. Chart 2-1 provides an overview of the population trend for each census tract in the study area. There were significant fluctuations in the study area's population. For example, census tract 320 lost more than 56% of its population between 1990 and 2000. On the other hand, between 1990 and 2000, the population in five census tracts (348.01, 348.02, 362, 364, and 398) increased by more than 35% (census tract 348.01 experienced the highest growth with an increase of over 100%). Figures 2-2a and 2-2b show a summary of population change in the study area between 1980 and 2000.

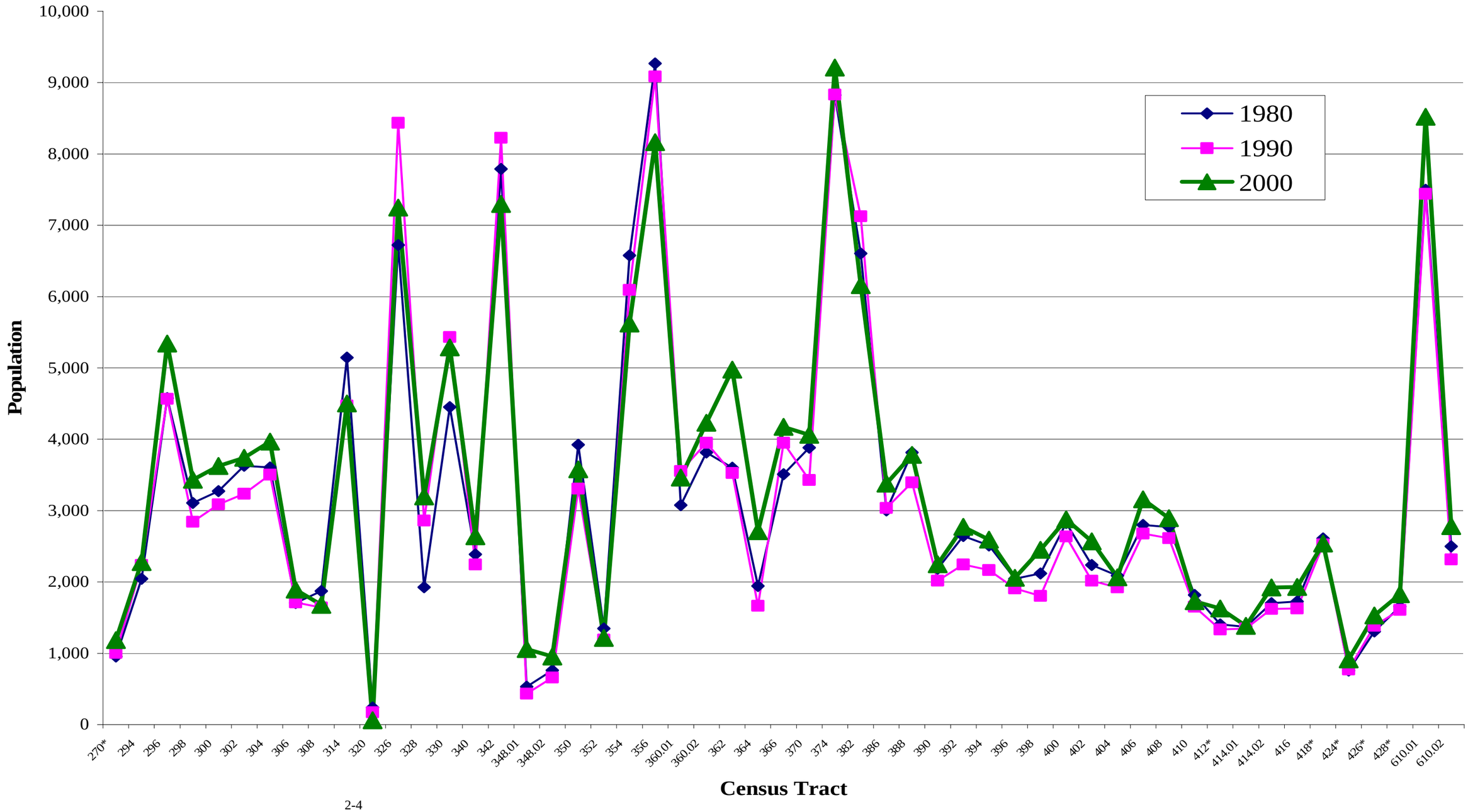
2.3 Age Characteristics in the Study Area

Age is a significant factor in determining travel behavior. The demand for travel varies by population age groups. The travel needs by mode and time of day is different for school-age children, working adults, and the retired population. The age distribution of these three groups – 0-17, 18-64, and 65 plus – was used to assess travel behavior in the study area. Census data from 1980 to 2000 showed that the percentage of the population in each age group did not change significantly in the study area. As shown in Chart 2-2 between 1980 and 2000, there was a slight population increase for the 0-17 and 18-64 age groups, while there was a decrease in the over 65 population. While there was not a significant difference between the youth and elderly populations in most census tracts, there were some census tracts where the difference was quite obvious. For example, in census tracts 326, 328, 330, 342, 348.02, and 382, the youth population was approximately three times greater than that of the elderly population. On the other hand, the elderly population was significantly greater than the youth population in census tracts 352, 354, 356, 360.01, 360.02, and 610.02. These tracts are concentrated in the southern portion of the study area. In 2000, the 'active population' – age 18 to 64 – made up approximately 59% of the population.

2.4 Income and Poverty Characteristics

In 2000, the study area's median household income was $29,303 which was slightly below that of Brooklyn ($33,056) and New York City ($38,293). Chart 2-3 shows the median income for New York City, Brooklyn, and the study area and the percent by which it grew between 1980 and 2000. The median income grew significantly in each geographic area between 1980 and

Chart 2-1: Study Population Trend (1980-2000)



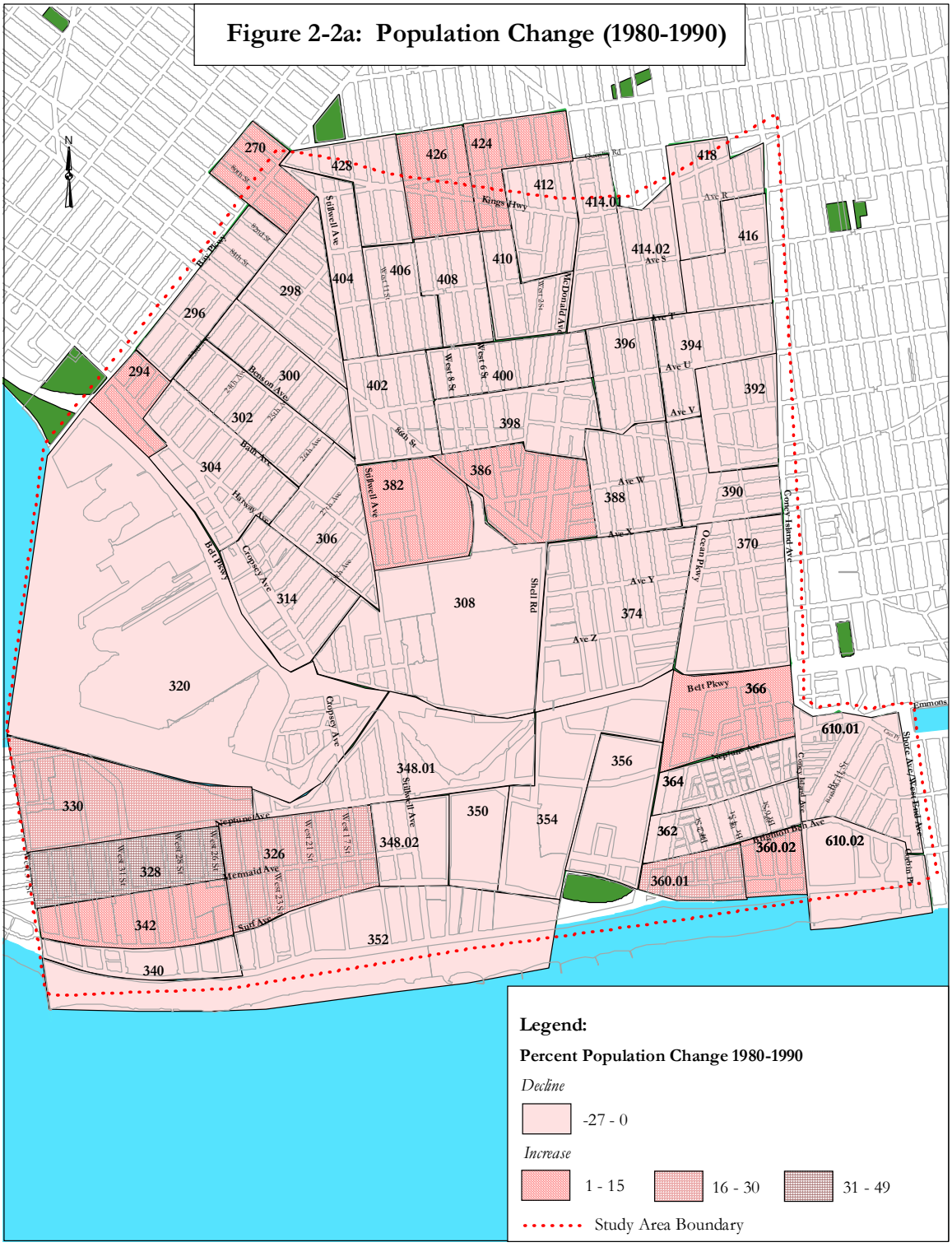


Figure 2-2a: Population Change (1980-1990)
N
Legend:
Percent Population Change 1980-1990
Decline
-27 - 0
Increase
1 - 15
16 - 30
31 - 49
Study Area Boundary

Figure 2-2b: Population Change (1990-2000)

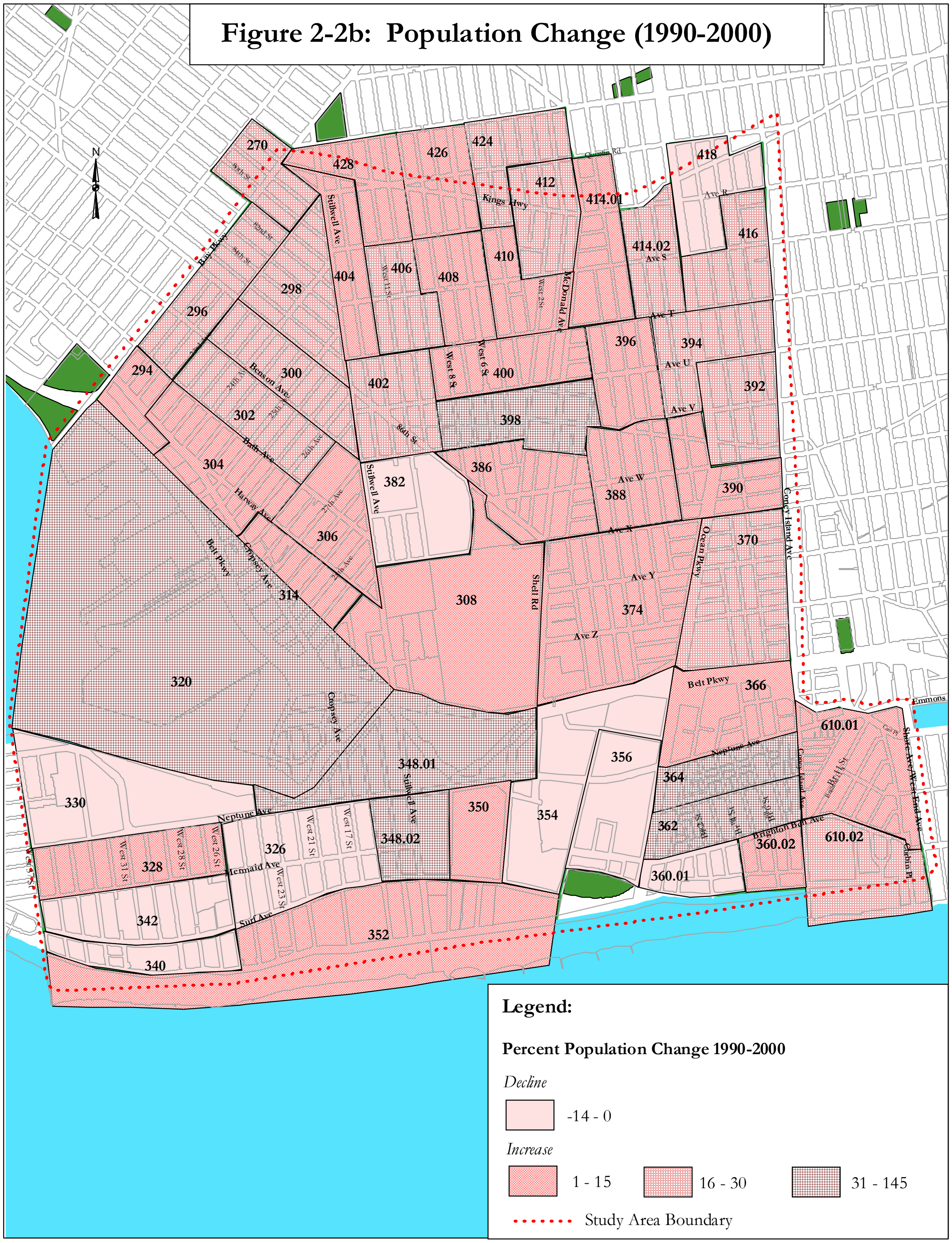
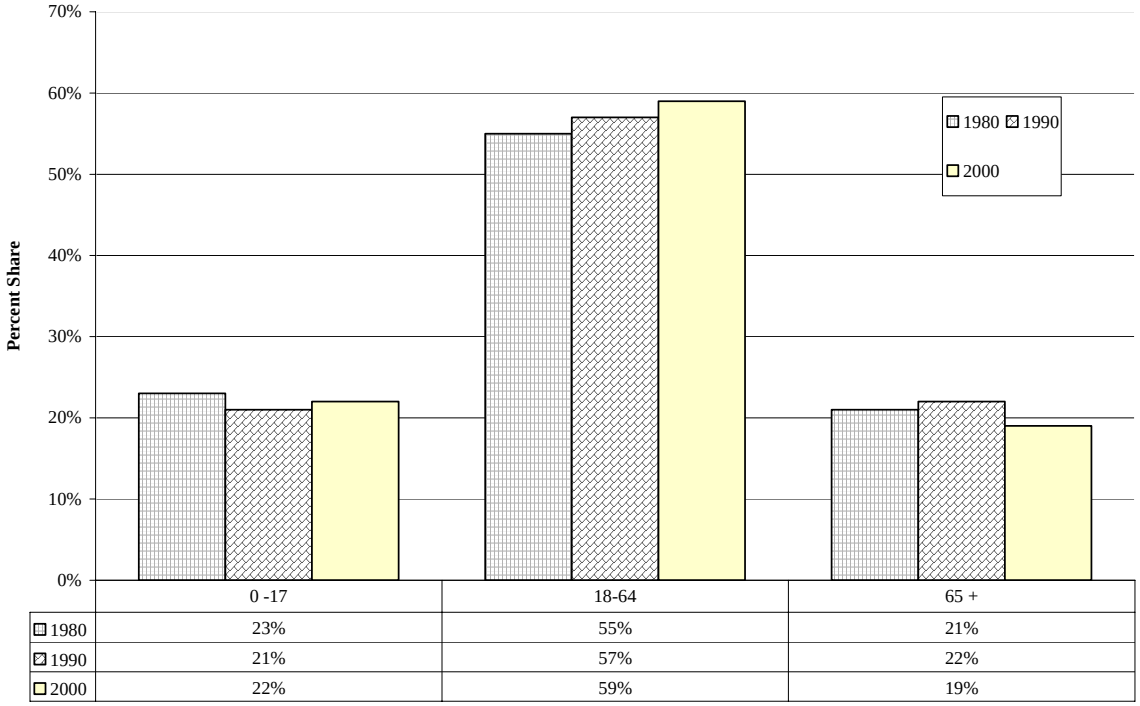


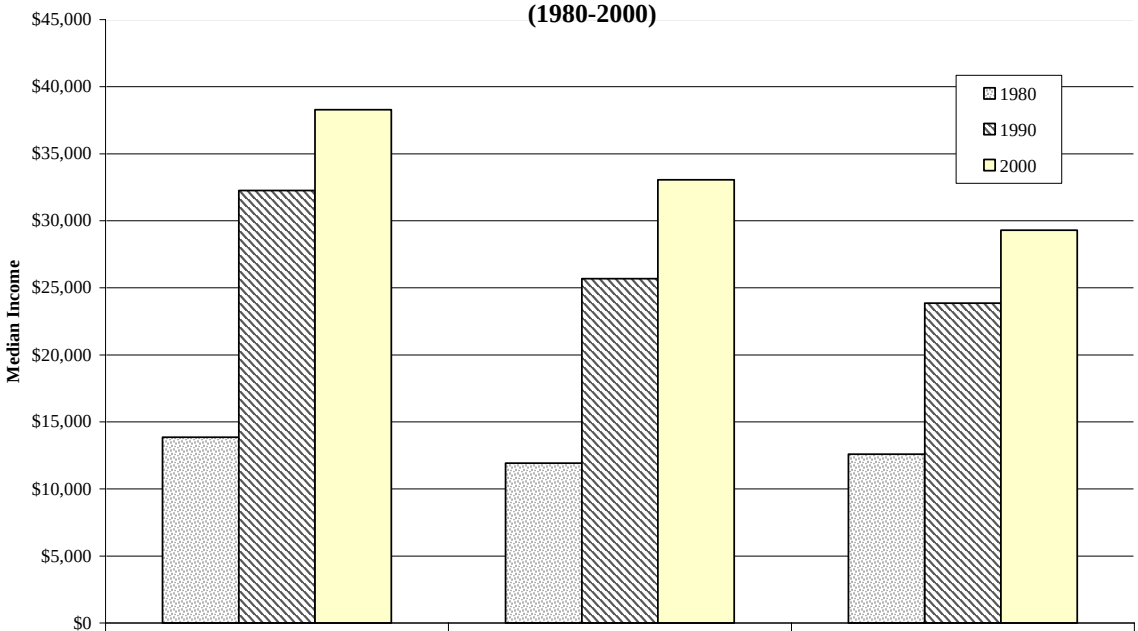
Chart 2-2: Study Area Age Distribution (1980-2000)



	0 -17	18-64	65 +
1980	23%	55%	21%
1990	21%	57%	22%
2000	22%	59%	19%

Age Groups

Chart 2-3: Median Household Income for New York City, Brooklyn, and Study Area (1980-2000)



	New York City	Brooklyn	Study Area
1980	$13,854	$11,919	$12,588
1990	$32,262	$25,684	$23,867
2000	$38,293	$33,056	$29,303

1990; however, between 1990 and 2000 the growth was less significant. Within the study area, median incomes were generally higher in the northern portion (Gravesend) of the study area (north of Shore Parkway) than the southern portion (Coney Island and Brighton Beach). On average, the median income for the census tracts south of Shore Parkway was less than $30,000 annually except in census tract 320 (over $50,000), census tract 356 (between $30,000-$39,999), and census tract 608 (between $40,000-$49,999). Between 1990 and 2000, the median income increased for a majority (47 of 53) of the census tracts; however, in six census tracts (270, 340, 362, 386, 392, and 394) the median income decreased.

Although the median income grew in all geographical areas, the pattern for the number of people living in poverty varied for each geographical area. As shown in Table 2-2, the population living in poverty in the study area grew throughout the analysis period, while the number of people living in poverty in New York City and Brooklyn decreased between 1980 and 1990 and increased between 1990 and 2000.

Table 2-2: Poverty Status - Study Area Compared to New York City and Brooklyn (1990-2000)

Place	1990 Total Population	Population Below Poverty Level	Percent Population Below Poverty Level	2000 Total Population	Population Below Poverty Level	Percent Population Below Poverty Level	Percent Change ('90-'00)
NYC	7,322,564	1,384,994	18.9%	8,008,278	1,668,938	20.8%	1.9%
Brooklyn	2,300,664	514,163	22.3%	2,465,326	610,476	24.8%	2.4%
Study Area	164,560	37,158	22.6%	176,516	48,137	27.3%	4.7%

Source: US Census Bureau 1990 & 2000.

Between 1990 and 2000 there was a 50 percent growth in the number of census tracts in the study area with more than 20 percent of its population living below the poverty level. As shown in Figures 2-3a and 2-3b, the number of census tracts with more than 20 percent of its population living in poverty increased from 15 in 1990 to 28 census in 2000.

Figure 2-3a: Percent of Population Living Below Poverty Level (1990)

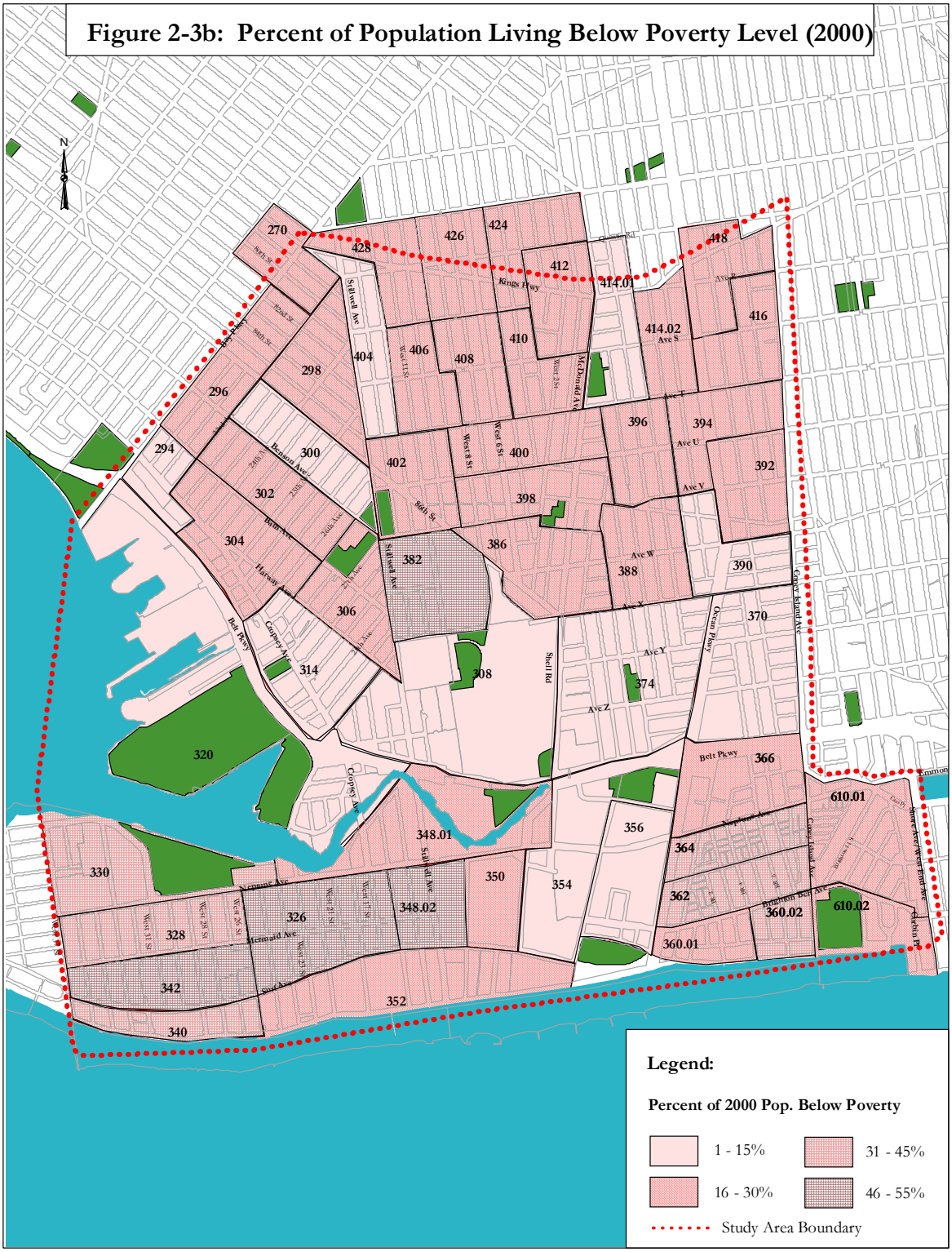


Figure 2-3b: Percent of Population Living Below Poverty Level (2000)
N
270
428
426
424
412
414.01
418
416
414.02
Ave S
410
408
406
404
298
296
294
300
302
304
306
314
382
386
398
400
402
396
394
392
390
388
370
374
308
320
330
328
326
342
340
352
348.01
348.02
350
354
356
366
364
362
360.02
360.01
610.01
610.02
Kings Hwy
Stillwell Ave
McDonald Ave
West 8 St
Ave U
Ave V
Ave W
Ave Y
Ave Z
Shell Rd
Ocean Pkwy
Grace Island Ave
Belt Pkwy
Harway Ave
Bay 44th St
Bay 43rd St
Bay 41st St
Bay 39th St
Bay 38th St
Bay 37th St
Bay 36th St
Bay 35th St
Bay 34th St
Bay 33rd St
Bay 32nd St
Bay 31st St
Bay 30th St
Bay 29th St
Bay 28th St
Bay 27th St
Bay 26th St
Bay 25th St
Bay 24th St
Bay 23rd St
Bay 22nd St
Bay 21st St
Bay 20th St
Bay 19th St
Bay 18th St
Bay 17th St
Bay 16th St
Bay 15th St
Bay 14th St
Bay 13th St
Bay 12th St
Bay 11th St
Bay 10th St
Bay 9th St
Bay 8th St
Bay 7th St
Bay 6th St
Bay 5th St
Bay 4th St
Bay 3rd St
Bay 2nd St
Bay 1st St
Boston Ave
Mermaid Ave
Coney Island Ave
Stillwell Ave
Gerritsen Ave
Emmons
Legend:
Percent of 2000 Pop. Below Poverty
1 - 15%
16 - 30%
31 - 45%
46 - 55%
Study Area Boundary

2.5 Household Characteristics

The 2000 Census indicates that the average household size in the study area is 2.45. Table 2-3 shows the household size for New York City, Brooklyn, and the study area for 1980, 1990, and 2000. The household size for the study area is slightly less than that of Brooklyn which is 2.80 and slightly larger than that of New York City which is 2.0. As an aggregate, the study area's household size remained constant between 1980 and 2000; however, slight changes occurred in each census tract. In 1990 the household size in many census tracts decreased below that of 1980. Although the household size of approximately half of the study area decreased between 1980 and 1990, majority of the census tracts regained and surpassed the 1980 household size in 2000. Majority of the census tracts (33) averaged between 2.00-2.99 persons per household; 13 census tracts had more than 3 persons per household, and 10 census tracts had less than 2 persons per household.

Table 2-3: Household Characteristics – New York City, Brooklyn, and Study Area (1980-2000)

Census Year	New York City	Percent Change	Brooklyn	Percent Change	Study Area	Percent Change
1980						
Population	7,071,639		2,230,936		166,490	
Households	3,502,233		828,257		68,023	
Persons Per Household	2.0		2.7		2.5	
1990						
Population	7,322,564	4	2,300,664	3.13	164,560	-1
Households	2,819,401	-19	827,679	-0.07	67,268	-1
Persons Per Household	2.6	29	2.8	3.20	2.5	-0.05
2000						
Population	7,489,400	2	2,465,326	7.16	176,560	7
Households	3,220,442	14	881,006	6.44	71,927	7
Persons Per Household	2.3	-10	2.8	0.67	2.5	0

Source: US Census Bureau 1980, 1990 & 2000

.

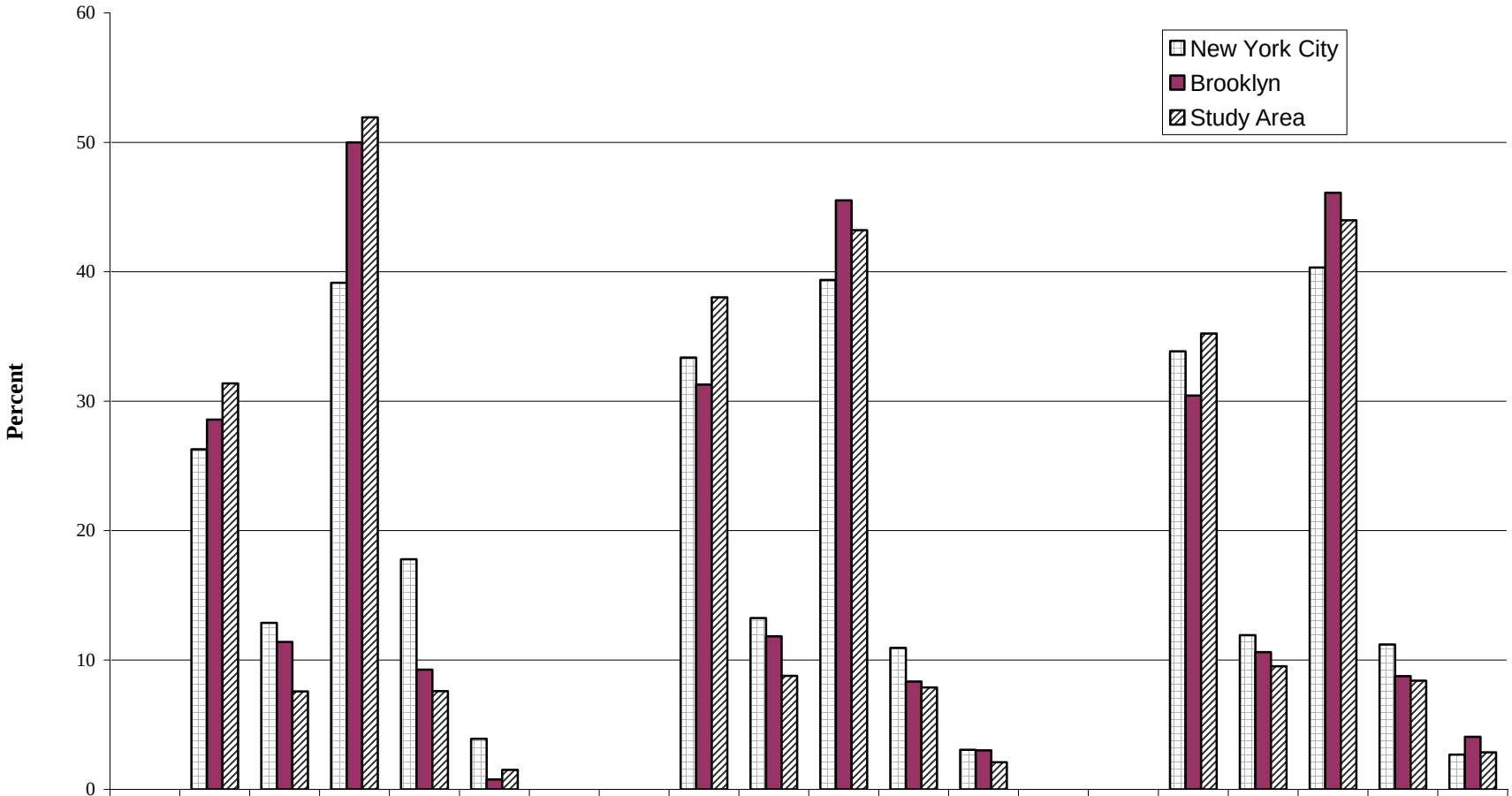
2.6 Journey to Work and Auto Ownership Characteristics

Public transit was the most popular mode for journey-to-work trips in the study area in 1980, 1990, and 2000. The portion of the population using mass transit decreased from 60% in 1980 to 52% in 1990; then between 1990 and 2000 it increased slightly to 54%. Automobile was the

second most popular with 33%, 38%, and 37% mode share for 1980, 1990, and 2000, respectively. Approximately eight percent of the population walked or biked to work in each census year. Chart 2-4 shows journey-to-work mode choices for New York City, Brooklyn and the study area, while Chart 2-5 shows journey-to-work choices for the study area and how it fluctuated during the analysis period.

The 1990 and 2000 Census data showed that vehicle ownership rates per household in the study area remained relatively constant. Chart 2-6 shows that in 1990 and 2000 approximately 54% of the households had no vehicles, 35% had one automobile, 9% had two automobiles, and two percent had three or more vehicles. The vehicle ownership rate distribution was similar to that of Brooklyn for both periods and New York City's for 2000. The percentage of New York City's population without an automobile decreased from 73% in 1990 to 56% in 2000.

Chart 2-4: Journey to Work Mode Choice



	1980	Auto	Bus	Subway	Walk	Other		1990	Auto	Bus	Subway	Walk	Other		2000	Auto	Bus	Subway	Walk	Other
New York City		26	13	39	18	4			33	13	39	11	3			34	12	40	11	3
Brooklyn		29	11	50	9	1			31	12	46	8	3			30	11	46	9	4
Study Area		31	8	52	8	2			38	9	43	8	2			35	10	44	8	3

Chart 2-5: Study Area Journey to Work Mode Choices

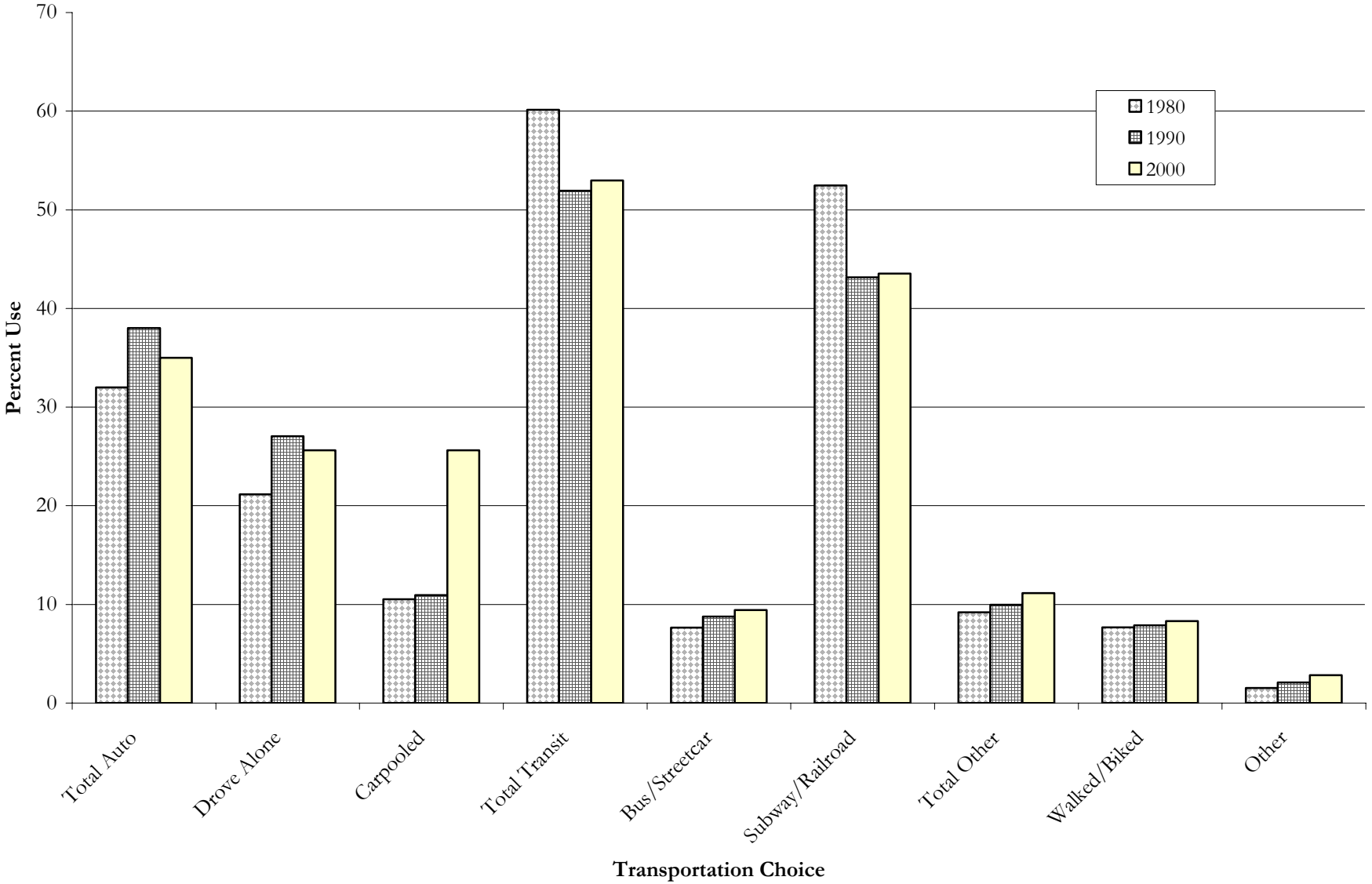
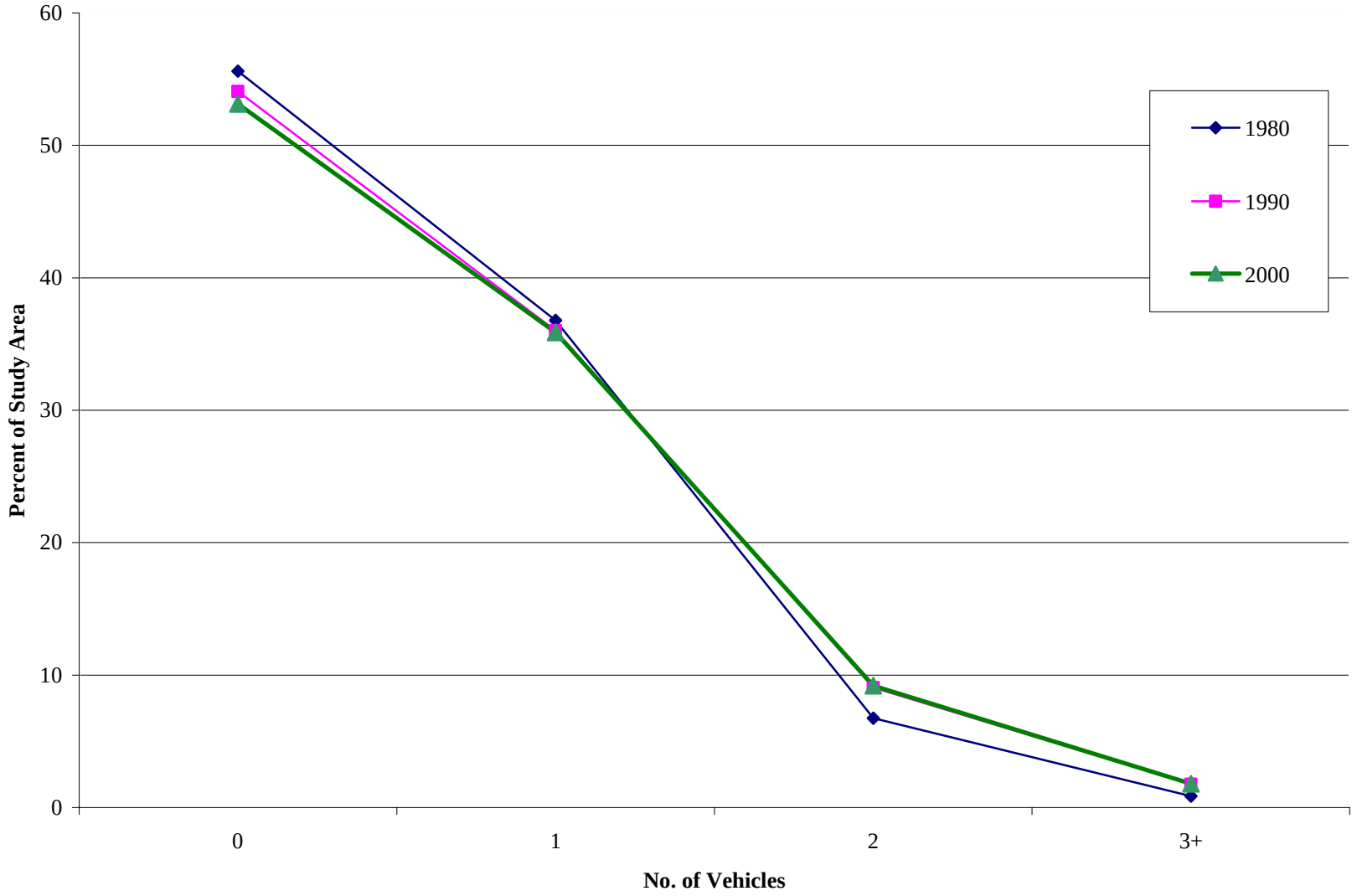


Chart 2-6: Vehicle Ownership Rates



3. ZONING AND LAND USE

3.1 Introduction

The existing zoning and land use in the study area were examined in order to determine traffic and travel characteristics resulting from the spatial distribution of the various land use. Field surveys were conducted to document the existing land use, secondary data from the Department of City Planning (DCP) reports and documents such as the New York City Zoning Resolution were also used.

3.2 Zoning

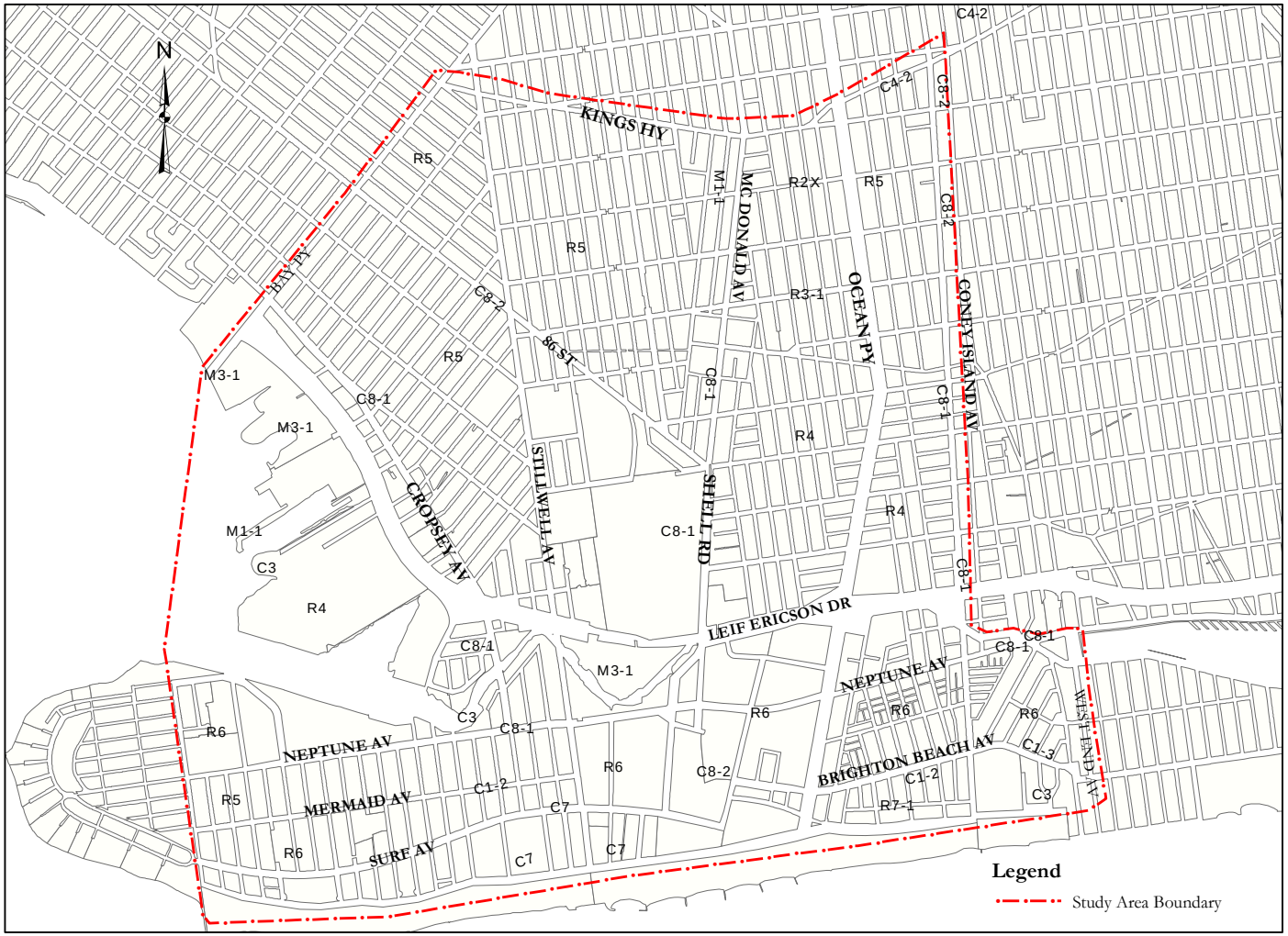
The three basic zoning designations in New York City are residential (R), commercial (C), and manufacturing (M); these are further subdivided into low, medium, or high-density designations. There are eight residential zoning districts within the study area (R7-1, R6A, R6, R5, R4, R3-2, R3-1, and R2X); nine commercial zoning districts (C8-1, C8-2, C7, C4-2, C3, C2-2, C2-1, C1-2, and C1-1); and four manufacturing zoning districts (M3-1, M2-1, M1-2, and M1-1) in the study area. The location of each zoning district is shown in Figure 3-1 (Zoning Map).

A. Residential

The predominant zoning designation in the study area is residential as approximately two-thirds (66%) of the area is zoned for residential use. R5 zoning designation appears to be predominant as it occupies approximately 27% of the area. The R5 districts are found mainly in the northwest portion of the study area. However, two small R5 districts can be found to the east of Ocean Parkway, while others are scattered throughout the southwest portion of the study area. The R6 category covers the second largest area; it makes up approximately 15% of the study area; in many instances R6 districts adjoin the R5 districts. The R6A category, which allows more lot coverage than R6, is only about 1% of the study area and is located mainly along Ocean Parkway between Kings Highway and Avenue S.

The higher density designation R7-1 represents approximately 4% of the study area, and is located to the southeast in Brighton Beach. The lower density R4 district makes up about

Figure 3-1: Zoning



14% of the study area, and is located between McDonald Avenue and Coney island Avenue to the centre of the study area. Also, two small R4 districts are located on the waterfront near Drier-Offerman Park. The R2X district, which has similar requirements to R4 districts, is only 3% of the study area and is located in the northeast part of it. The R3-1 district also has similar zoning requirement to the R4 and R2X districts and occupies approximately 2% of the study area located south of the R2X district, north of Avenue U between Ocean Parkway and McDonald Avenue. Figure 3-2 shows the distribution of these groups of residential use in the study area, R2 through R5; R6 through R7 and others.

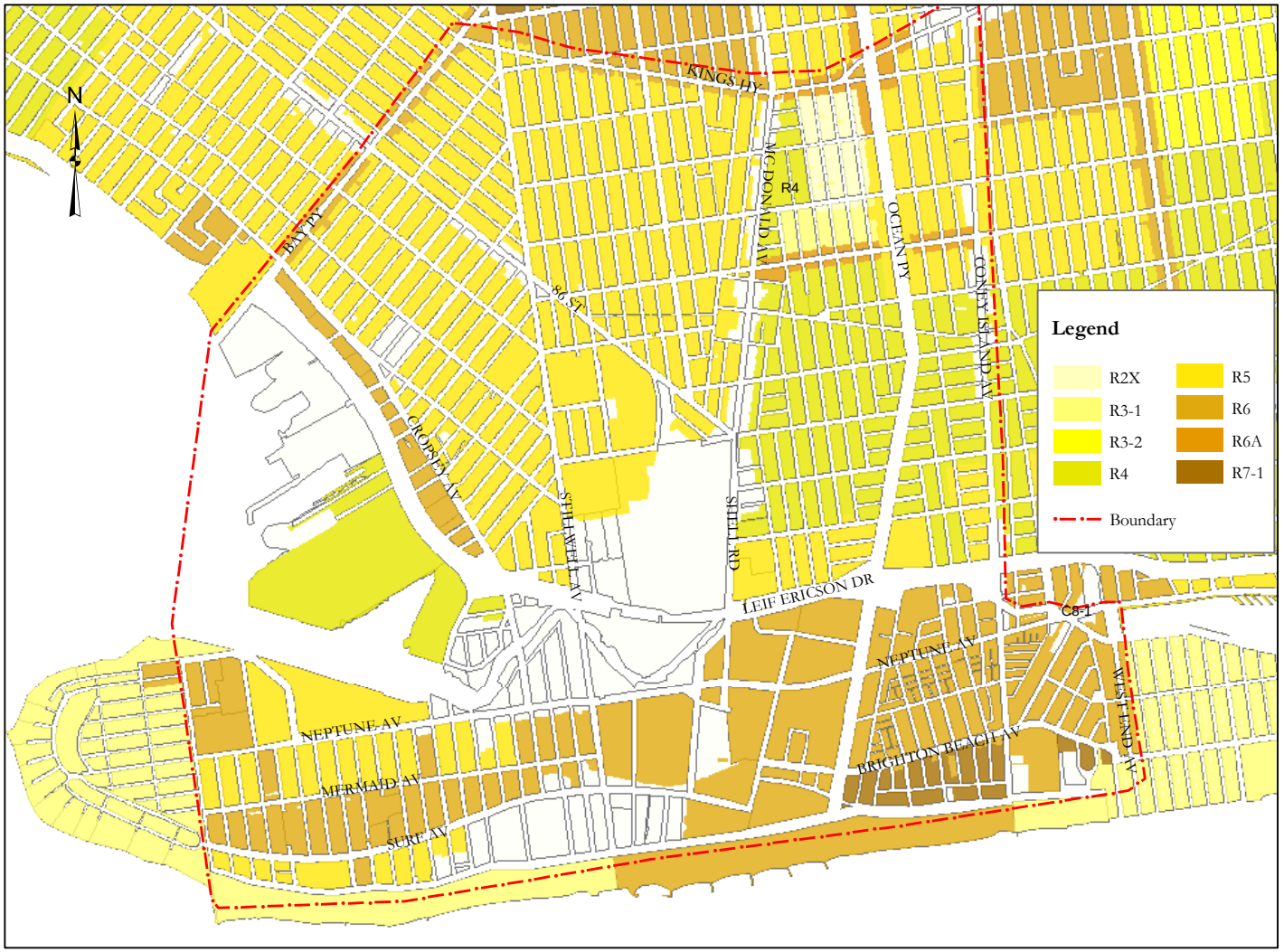
The density and size or (bulk) of a development on a lot is determined by the floor area ratio (FAR) which is specified in the zoning resolution for each zoning district. It is the principal bulk regulation in the resolution, controlling the physical volume of buildings. The floor area ratio expresses the relationship between the amount of usable floor area permitted in a building and the area of the lot on which the building stands. For example an A R7-1 district allows a floor area ratio (FAR) of 0.87 to 3.44; with a FAR of 3.44 typically producing 14-story building with low lot coverage.

An R6A district allows a FAR of 3.0; which yield typically six-story apartment building designed to be compatible with existing buildings found in older neighborhoods.

An R6 district is also a general residence district but with a FAR of 0.78 to 2.43; the higher end FAR is applied to new buildings that provide more open space. Typical R6 developments result in building with three to twelve stories. Hence approximately 18% of the study area is allowed to build at relatively high density.

R5 and R4 districts are usually a general residence districts that have detached single or two-family houses. The FAR for R5 districts is 1.25 and it provides a transition between lower and higher density neighborhoods. The FAR for R4 districts is 0.75 plus 0.15 attic allowance. R3-1 district has single or two-family detached or semi-detached residences with maximum FAR of 0.5 plus 0.1 attic allowance; while a R2X district allows large single-family detached houses with a FAR of 0.85 with an attic allowance of up to 0.17 FAR.

Figure 3-2: Residential Districts



B. Commercial

There are nine designated commercial zoning districts in the study area; they are C8-1, C8-2, C7, C4-2, C3, C2-2, C2-1, C1-2, and C1-1. The commercial zoning districts are concentrated along McDonald Avenue, Coney Island Avenue, Brighton Beach Avenue, Bay Parkway, 86th Street, Avenue U, Mermaid Avenue, and Avenue X. Areas zoned for commercial use make up approximately 26% of the study area.

The C8-1 zoning designation, which normally appears where automotive sales and service establishments are located, makes up approximately 7% of the area. The largest C8-1 designation is the Coney Island rail yard, located in the centre of the study area, immediately north of the Belt Parkway; other C8-1 designations are found along Coney Island Avenue, Neptune Avenue, and Cropsey Avenue. The C8-2 zoning designation, which permits automobile sales showrooms and offices, is approximately 3% of the study area and is located along 86th Street, Coney Island Avenue, and West 8th Street. The C7 designation, which allows commercial amusement parks, occupies approximately 4% of the study area is located in Coney Island along Surf Avenue. The C1-1 and C1-2 designations accommodate retail and personal service shops needed in residential neighborhoods, typical uses include grocery stores, small dry cleaning establishments, and restaurants. All cater to the daily needs of the immediate neighborhood. Regulations limit commercial use to one or two floors. Areas zoned C1-1 are approximately 2% of the study area and are located along major corridors like 86th Street, Kings Highway, and Avenue U. C1-2 is approximately 4% of the study area and is located along Mermaid Avenue, Brighton Beach Avenue, Avenue X, 86th Street, Neptune Avenue, and Kings Highway. The C2-1 and C2-2 designations permit a wider range of local retail and service establishments than C1 districts, and are intended to serve a wider neighborhood. Additional uses permitted in C2 include funeral homes, small bowling alleys, small business and trade schools and other businesses that can not be supported by smaller neighborhoods. However they are limited to one or two floors only. C2-1 districts comprise approximately 1.5% of the study area, and are located along Kings Highway and Avenue U. Similarly C2-2 comprises approximately 1.5% of the study area, and is located along Kings Highway, Coney Island Avenue, and Avenue U. The C4

designations are major commercial centers located outside of the central business districts. They allow department stores, theatres and other commercial uses that serve a larger area. Area zoned C4-2 is approximately 1% of the study area, and is located on the northeast of the study area. A C3 designation indicates areas where commercial recreational facilities maybe located; it makes up approximately 2% of the study area and is located on the waterfront. Figure 3-3 shows the distribution of the areas zoned for commercial use in the study area.

Floor Area Ratio in Areas Zoned for Commercial Use

As previously stated a C8-2 district permits automobile showrooms and offices, with a FAR of 2.0. The FAR in a C8-1 district, which permits automotive sales and services, is 1.0. A C7 designation has a maximum FAR of 2.0, and the C4-2 zoning designation has a FAR of 3.4. The C3 designation which permits marine or boat repair shops has a maximum FAR of 0.5. C1-1, C1-2, C2-1, C2-2 are zoning districts for local shopping and service with a FAR of 1.0 when they are mapped as overlays in R1 to R5 residential districts. When they are mapped as overlays in R6 to R10 residential zoning districts, the FAR is 2.0.

C. Manufacturing

There are four manufacturing districts in the study area (M1-1, M1-2, M2-1, and M3-1). They are concentrated along the waterfront, both sides of the Belt Parkway, and along McDonald Avenue. Manufacturing districts make up approximately 8% of the study area.

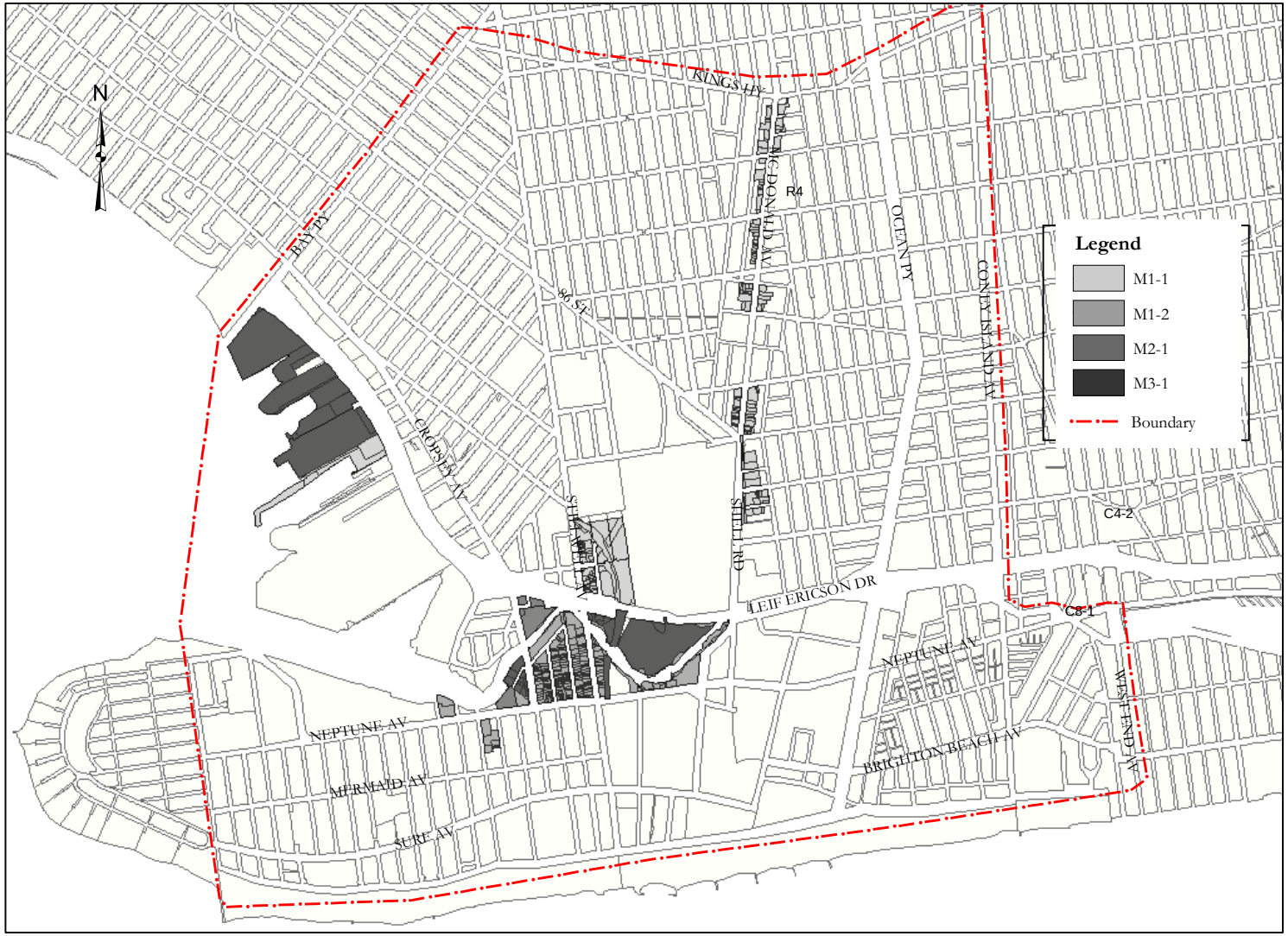
Areas zoned M1-1 constitutes approximately 2% of the study area, and is located along McDonald Avenue and on the waterfront (adjacent to the Belt Parkway). The M1-2 and M2-1 districts together make up approximately 3% of the area; while the M3-1 designation is approximately 3%. The manufacturing districts are concentrated on both sides of Coney Island Creek in the southwest part of the study area, south of the Belt Parkway. Figure 3-4 shows distribution of manufacturing districts in the study area.

Floor Area Ratio in Areas Zoned for Manufacturing Use

M1-1 districts permit light industrial activity and are usually located adjacent to low-density residential areas; with a FAR of 1.0. M1-2 districts are also for light industries, but are

Figure 3-3: Commercial Districts

Figure 3-4: Manufacturing Districts



located in older industrial areas and have a FAR of 2.0. M2-1 is another light industry that allows more noise and vibration. It is primarily located in older manufacturing areas and its FAR is 2.0. Areas zoned M3-1 are for heavy manufacturing use district with a FAR of 2.0.

D. Special Purpose Districts

There are two special districts (shown in Figure 3-5) in the study area: The Coney Island Mixed-Use District and the special Ocean Parkway District.

1. Special Coney Island Mixed-Use District

The special Coney Island mixed-use district covers approximately 10% of the area south of the Belt Parkway between the Coney Island Creek and Neptune Avenue. The objectives of this special district are to:

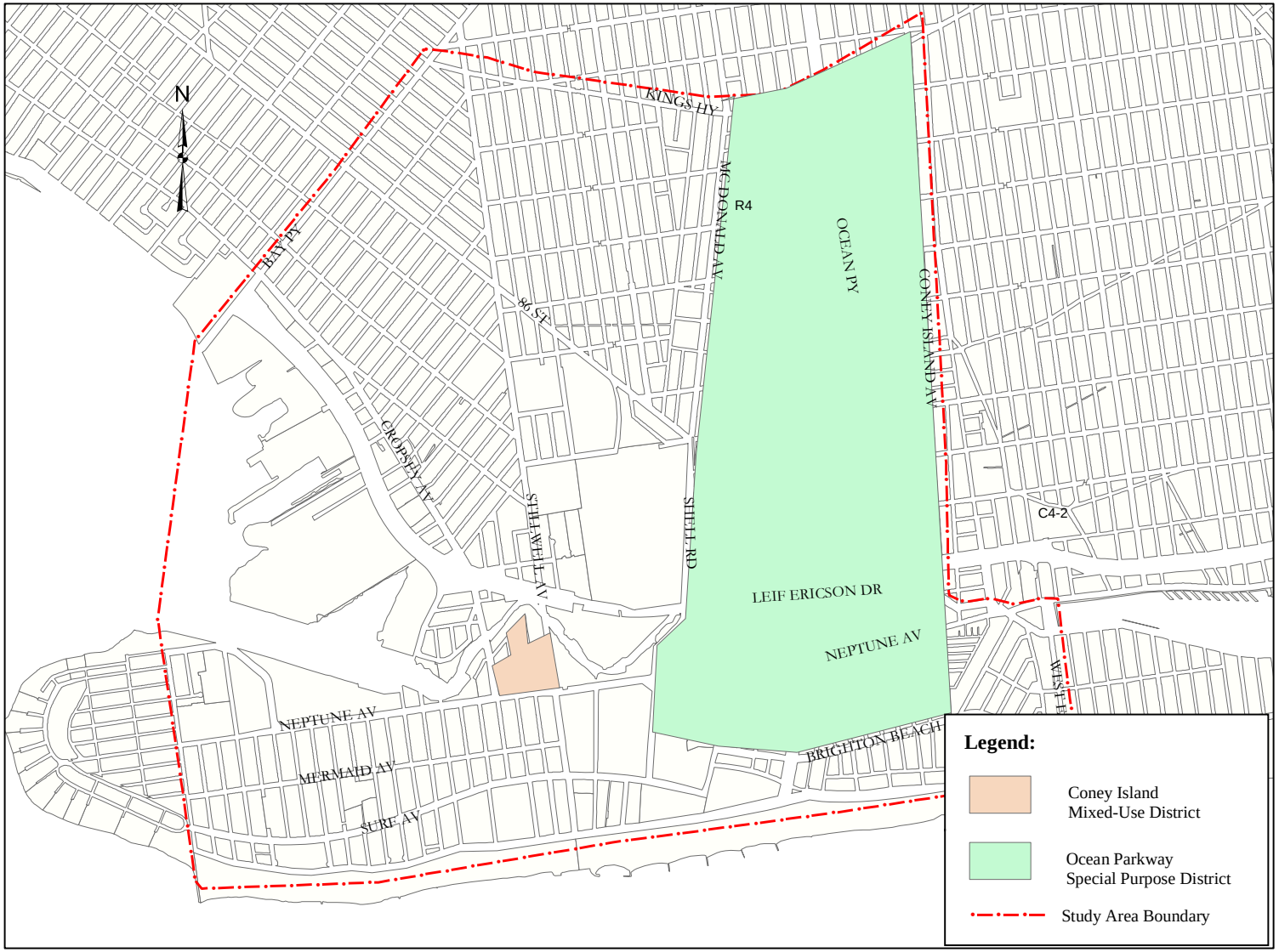
- Stabilize the residential future of this mixed residential and industrial area by permitting expansion and the development of residential and light manufacturing uses where adequate environmental standards are assured.
- To provide an opportunity for the development of Coney Island in a manner that is consistent with the objectives of the comprehensive plan of New York City.

2. Special Ocean Parkway District: (R4, R5, R6, R6A, R2-X, R3-1)

The special Ocean Parkway residential district covers approximately one-third of the study area; it is bounded by McDonald Avenue to the west and Coney Island Avenue to east and runs the entire length of the study area. The objectives of this special purpose district are:

- To promote and strengthen the scenic landmark designation of Ocean Parkway by requiring landscaping along Ocean Parkway.
- To maintain the existing scale and character of the community by limiting the bulk of permitted community facilities.
- To protect the environmental quality of and improve circulation within the district by requiring enclosed parking for all uses along Ocean Parkway and by requiring off-street loading for certain community facilities throughout the district.
- To promote the most desirable land use in this area and thus to conserve land value.

Figure 3-5: Special Purpose Districts



3.3 Land Use

The Coney Island/Gravesend study area contains various land uses supported by the various zoning districts. Existing land uses include offices, residential (one-, two-, and three-family houses as well as multi-family buildings), retail stores, cultural and educational institutions, industrial firms, rail lines and yards, and recreational facilities. Figure 3-6 shows the existing land use pattern in the study area.

North of the Belt Parkway within the boundaries of the study area, the predominant land use is residential, where there are primarily one and two-family homes, and town houses. Additionally, there are some apartment buildings and multi-family walkups scattered throughout of the area.

Adjacent to the residential areas are some mixed land uses where there is a combination of residential with local retail, offices, and other institutional/civic uses. Mixed residential and commercial uses can be found along Bay Parkway, Coney Island Avenue, Brighton Beach Avenue, Kings Highway, Avenue U, Avenue X, Mermaid Avenue, 86th Street, and to a lesser extent Avenue X, Stillwell Avenue, and Bath Avenue.

The industrial uses are concentrated in the southwest portion and on the waterfront of the study area. It includes such high performance industries as warehousing, distribution, and auto mechanic shops.

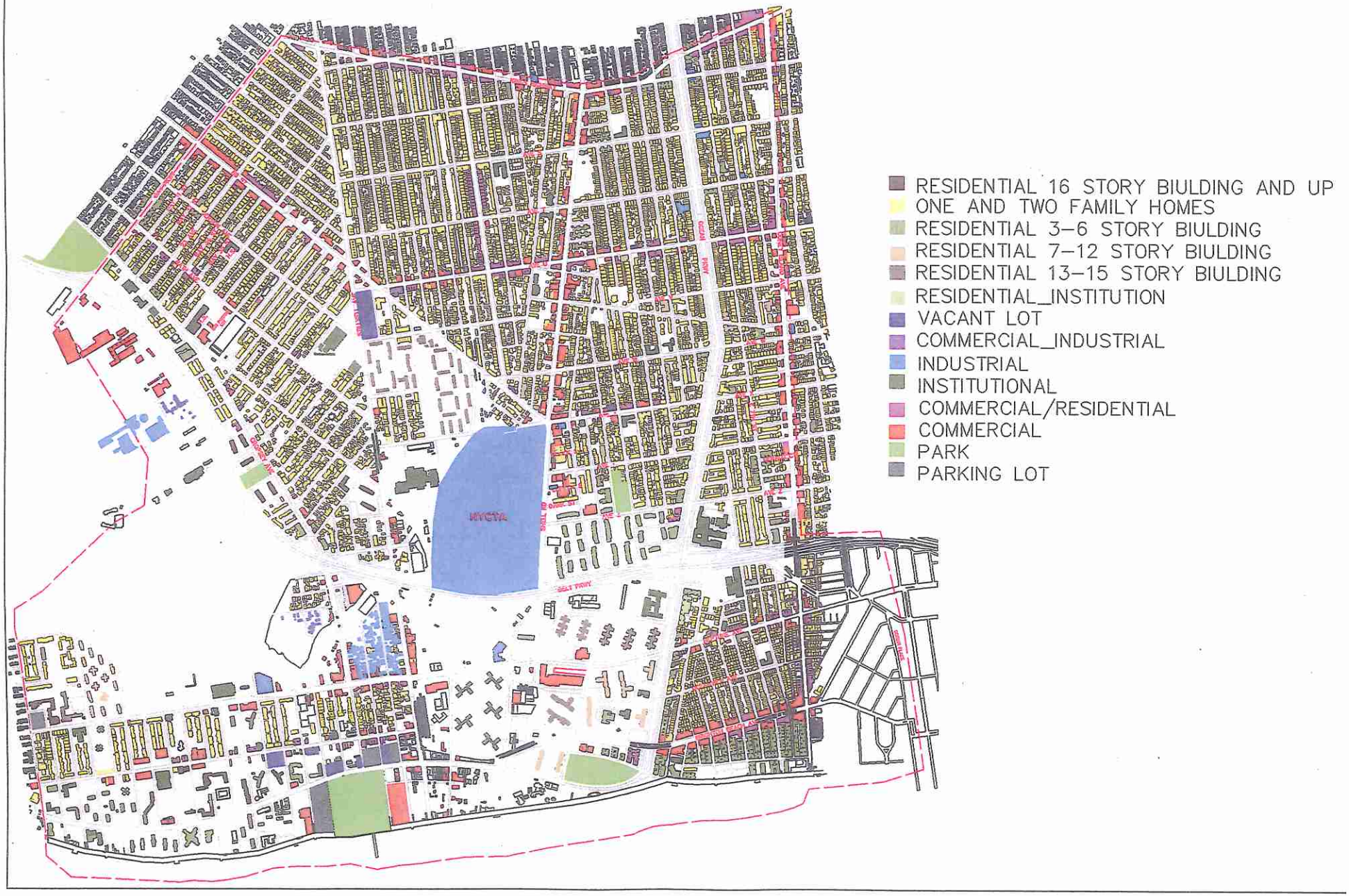
Land Use Along the Major Corridors in the Study Area

Land use along the major corridors in the study area helps to define the traffic and transportations conditions.

Coney Island Avenue

There is a lot of commercial activity along this corridor. There are several restaurants, retail clothing and shoes stores, pharmacies, offices, gas stations, fast food restaurants, and specialty stores. There are also some residential uses mixed with the commercial uses. Residential uses include two- and three-family homes as well as multi-unit dwellings.

Figure 3-6: Land Use



Brighton Beach Avenue

Commercial activity along this corridor is concentrated between Ocean Parkway and Coney Island Avenue, and is dispersed east of Coney Island Avenue and west of Ocean Parkway. As a result this corridor attracts both vehicular and pedestrian traffic. Commercial activity along this corridor includes clothing and shoes stores, banks, green grocery stores and supermarkets, restaurants, clubs, and specialty stores.

Kings Highway

There is a mixture of commercial and residential uses along Kings Highway. There are various types of commercial activity along the corridor that is both concentrated and dispersed between Ocean Parkway and Stillwell Avenue. Between McDonald Avenue and Ocean Parkway there is a concentration of alimentary stores (fish market, butcher, green grocery, restaurants); other commercial activity along the corridor also includes gas stations, an appliance store, a fabric store, a bank, delis, and other small grocery stores.

Ocean Parkway

The land use along Ocean Parkway is primarily residential including one-, two-, and three-family houses as well as multi-unit apartment buildings. There are also institutional uses including schools and religious gathering places.

86th Street

This corridor contains a mixture of commercial and residential uses. Commercial activity is concentrated between Bay Parkway and Stillwell Avenue where there are several clothing and shoes retail stores, green grocery stores, restaurants, pharmacies, banks, and medical offices. Between Stillwell Avenue and McDonald Avenue there is a mixture of commercial and residential uses.

Surf Avenue

The area along Surf Avenue contains a mixture of high-rise residential buildings, open space and recreational facilities, and the boardwalk where many recreational activities occur. Most of the commercial activity on Surf Avenue is concentrated between West 17th Street and

West 8th Street. Some of the commercial activities include Nathan's, the amusement park, Keyspan Park, the New York Aquarium, and the Abe Stark sports center which attract many visitors. Other commercial activities include furniture stores, fast food restaurants, and delis.

Bay Parkway

This corridor has a mixture of low- and high-density residential uses (two- and three-family houses and multi-unit dwellings). It also has some commercial and institutional uses including medical offices, retail stores, service stores (cell phones), delis, gas stations and schools.

Avenue X

This corridor contains a mixture of residential (multi-unit dwellings) and commercial (restaurants, delis, pharmacy, specialty stores, and variety stores) uses between McDonald Avenue and Ocean Parkway.

Avenue U

The area along Avenue U has mixed residential and commercial uses.

Neptune Avenue

There is a mixture of residential (multi-unit dwellings, and two- or three-family houses), commercial (supermarkets, dry cleaners, restaurants), institutional (schools), industrial uses (auto repair) along this corridor.

Mermaid Avenue

There is a mixture of residential (two- and/or three-family homes) and commercial (a small shopping centre, dry cleaners, a laundromat, banks, delis, pizzerias, and variety stores) uses.

Stillwell Avenue

Stillwell Avenue north of the Belt Parkway is mainly residential with "corner" stores located sporadically along the corridor, and south of the Belt Parkway there is a mixture of residential and industrial uses.

3.4 Vacant Parcels and Vacant Buildings

There are vacant lots of various characteristics dispersed throughout the study area. Figure 3-7 shows the vacant parcels in the study area by zoning regulations. The majority of the vacant lots in the study area are concentrated in Coney Island (south of the Belt Parkway between West 37th Street and West 8th Street). There is over 1.5 million square feet of vacant land in Coney Island of which 50% is zoned for residential use, 40% for commercial use, and 10% for manufacturing use. Appendix A provides detailed information about the vacant lots in Coney Island, including ownership, size, and zoning regulations. Additionally, Figure 3-8 shows the distribution of privately and publicly owned vacant lots in the study area. Most of the vacant lots are overgrown with weeds and attract illegal dumping while others are used as community gardens.

Community Garden – Surf Avenue

The concentration of vacant lots in Coney Island presents opportunities for the development of new buildings for residential, commercial, and recreational or entertainment purposes. At some locations there are single lots while at others there are multiple vacant lots adjacent to each other that may be combined for large scale projects. The vacant lots zoned for residential use (R5 and R6) are dispersed throughout the area, while majority of the commercially zoned vacant lots are concentrated on Surf Avenue (C7).

Figure 3-7: Vacant Parcels by Zoning

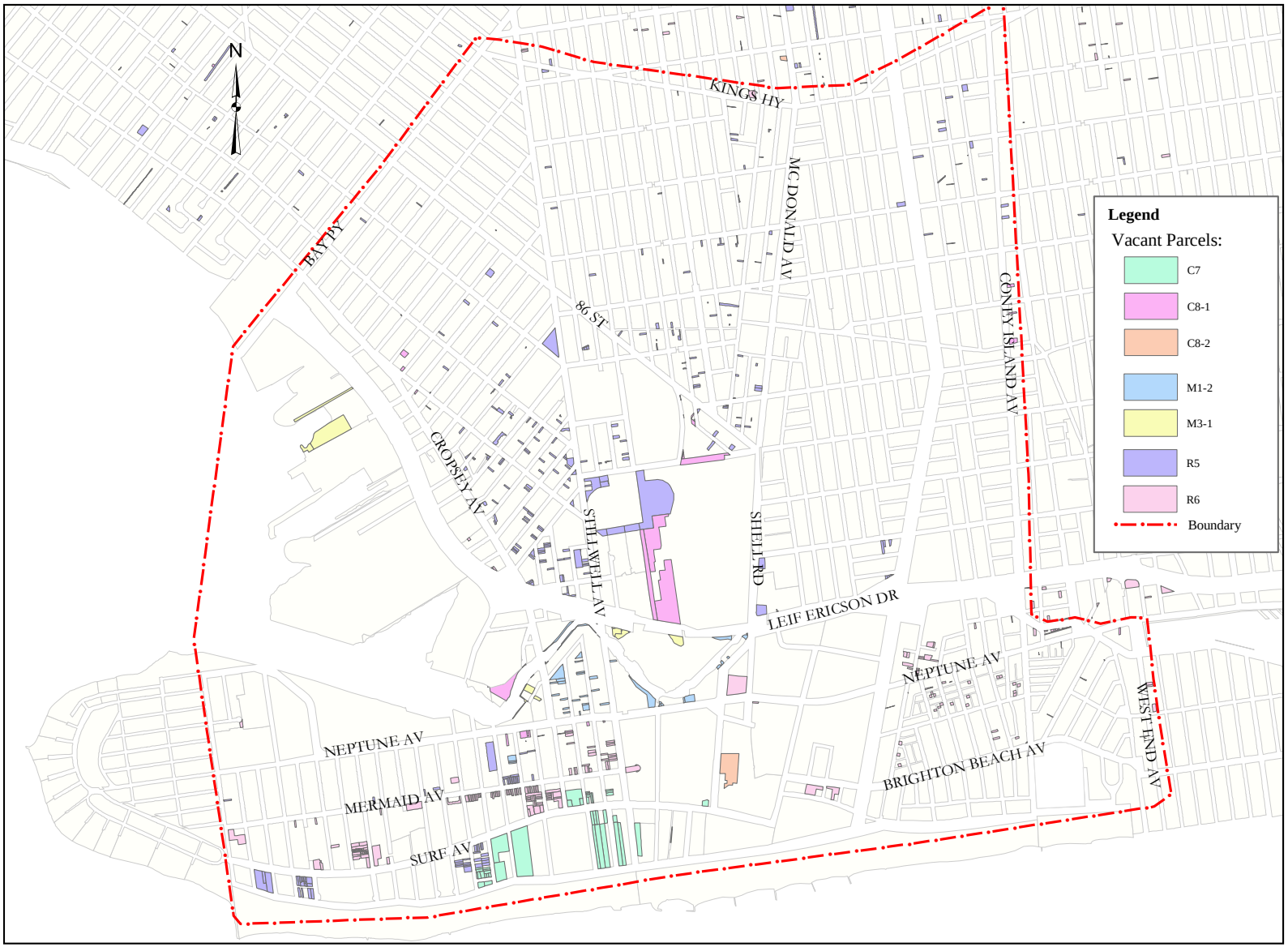
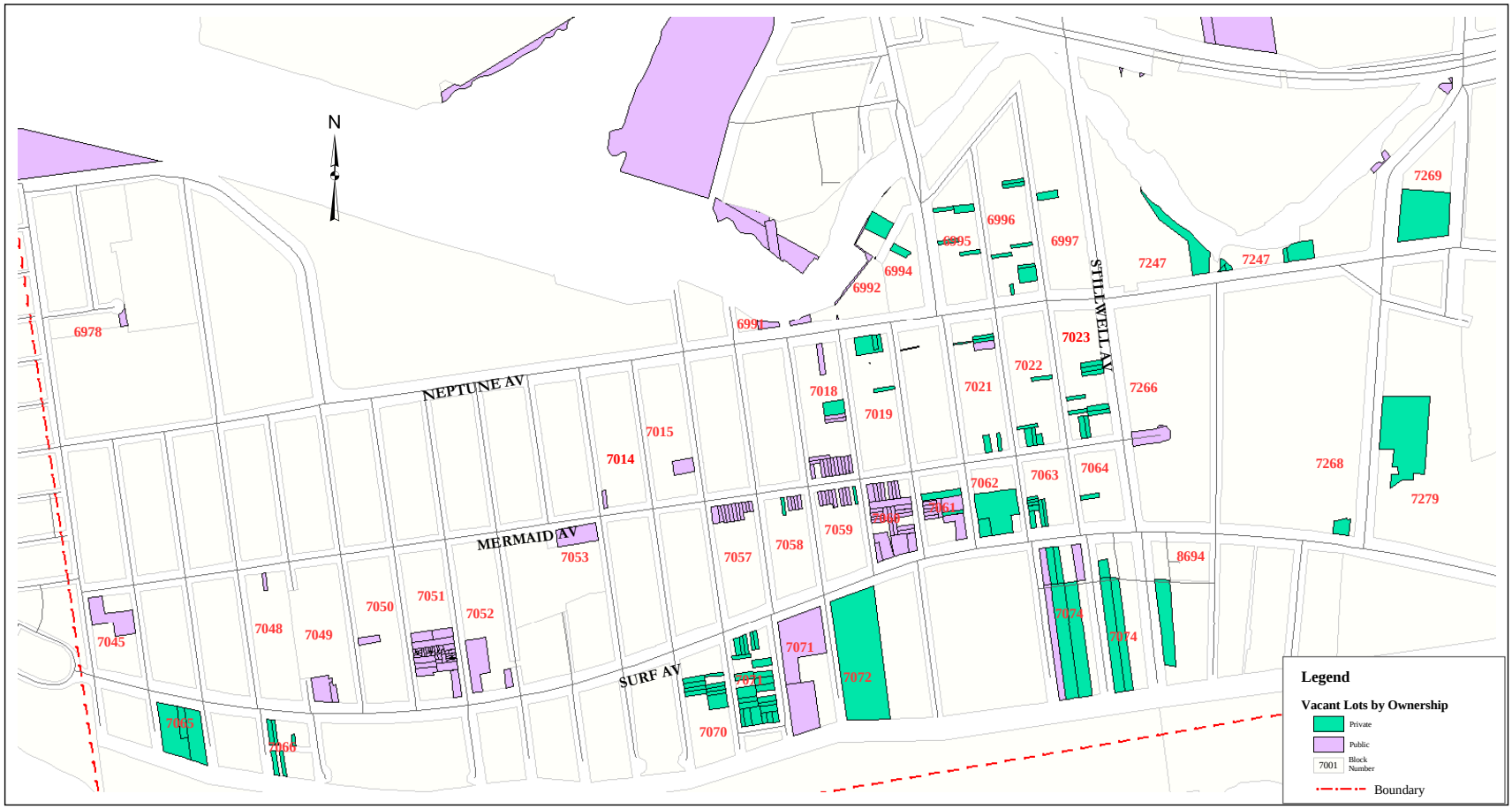


Figure 3-8: Vacant Parcels in Coney Island by Ownership



Surf Avenue is the corridor in Coney Island that has the greatest potential to lead the area's revitalization. It already has several destination spots – Nathan's, the New York Aquarium, the Amusement Park, and Keyspan Park – and a number of vacant or underutilized space that can accommodate new enterprises that would contribute to the economic vitality of the neighborhood. The idea of a waterpark and hotel is already being explored, but up-scale restaurants, novelty shops, banks, a movie theatre, a museum (celebrating Coney Island's past), and cafes could all be a part of the attractions that lead the way to the revitalization of Coney Island.

In Coney Island, vacant and abandoned buildings are Surf Avenue and Mermaid Avenue. These buildings were formerly used for commercial and residential uses. Additional vacant commercial properties are dispersed throughout the rest of the study area.

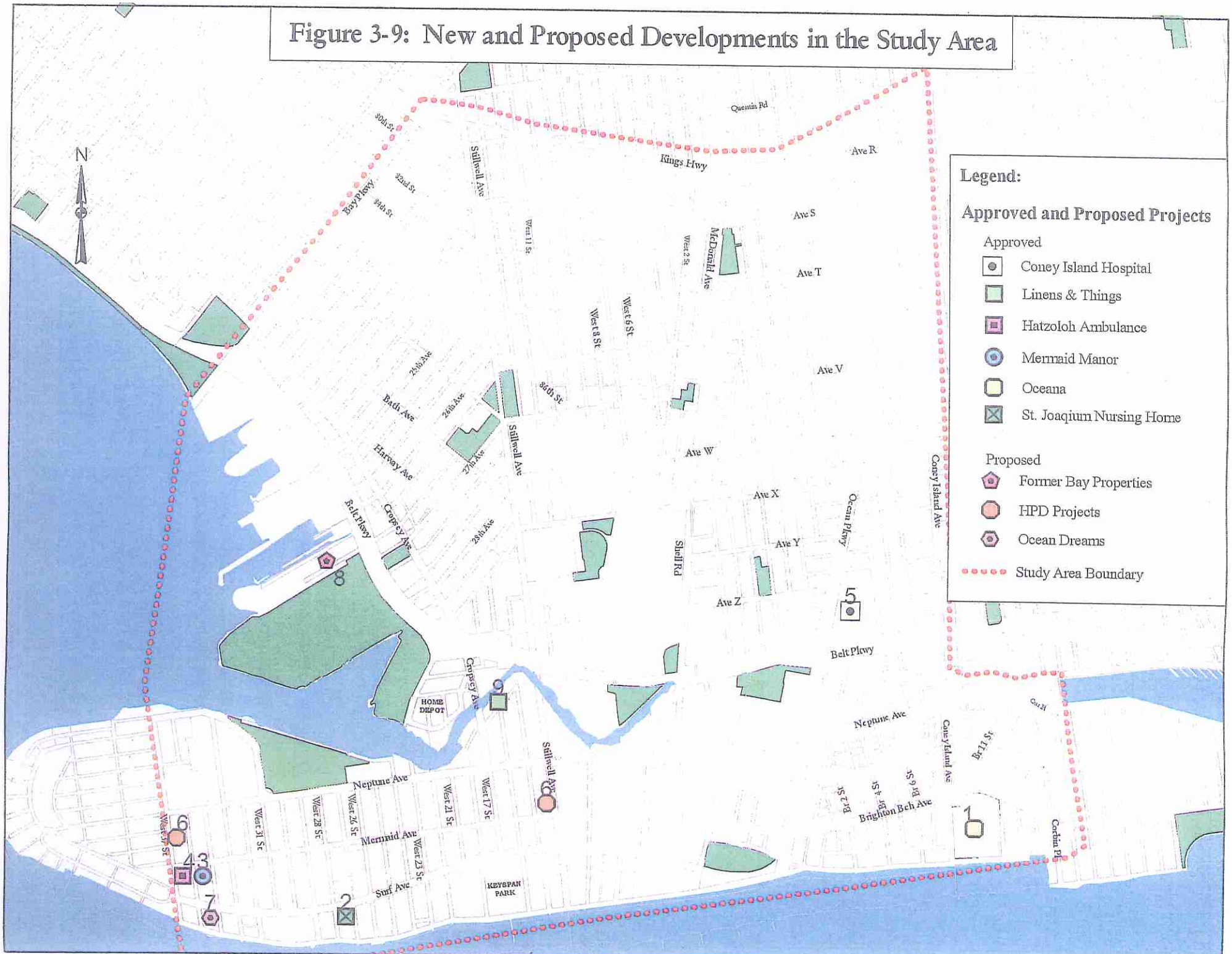
New and Proposed Developments

The Department of City Planning (DCP) has identified several new and proposed developments in the study area. Some developments have been approved and are in the construction phase while others have not yet been approved. Table 3-1 provides detailed information about these projects while Figure 3-9 shows the location of these developments.

Table 3-1: Approved and Proposed Projects in the Study Area

APPROVED PROJECTS					
NO.	**PROJECT**	**LOCATION**	**TYPE & SIZE**	**BUILD YR.**	**APPROVAL STATUS**
1	Oceana	Brighton Beach Ave & Coney Island Ave	Residential, 8560 units, 7-12 stories, 1.25M sq. ft. of floor area, 1,200 parking spaces	2005	Latest CPC approval July 2002
2	Saint Joaquim Nursing Home	Surf Ave & W. 27th St	Enlargement of Catholic Charities nursing home by 9,383 sq.ft., new gardens, parking increase from 63 to 79 spaces (no new beds)	2004	CPC approval April 2002
3	Mermaid Manor Enlargement	Mermaid Ave & W. 36th St	Enlargement of senior assisted living facility from 150 to 200 beds; 38,465 to 65,022 sq.ft. and 20 new parking spaces	2004	CPC approval May 2002
4	Hatzoloh Ambulance Station	Mermaid Ave & W. 37th St	One-story 5,554 sq.ft ambulance station & training facility, 15 parking spaces	2004	CPC approval May 2002
5	Linens N Things	Cropsey Ave & Hart Pl	Retail development; 40,000 sq.ft building with 320 parking spaces	2004	CPC special permit approved with modifications 3/98
6	Coney Island Hospital	Ocean Pkwy & Shore Pkwy	New 7-story 121,088 sq.ft in-patient facility; existing in-patient facility to become ambulatory/out-patient center	2004	CPC approval February 2002
DEVELOPMENT PROPOSALS					
NO.	**PROJECT**	**LOCATION**	**TYPE & SIZE**	**BUILD YR.**	**APPROVAL STATUS**
1	HPD Projects	Coney Island Urban Renewal Plan (north of Surf Ave, Stillwell Ave to West 37th St	Partnership Housing, retail, boys and girls club…		
2	Ocean Dreams	Surf Avenue between W. 36th St and W. 37th Sts	Proposed residential development, 273 units 107,000 sq.ft. and 200 parking spaces	2005	
3	Former Bay Properties	Shore Pkwy and Bay 44th St vicinty	Former site of unbuilt 96 units of residential housing & marina in the C3 zoning district. Possible new as of righ project		

Figure 3-9: New and Proposed Developments in the Study Area



4. TRAFFIC AND TRANSPORTATION

4.1 Introduction

The study area is bounded by Kings Highway on the north, Riegelmann Boardwalk on the south, Bay Parkway and West 37th Street on the west, and Coney Island Avenue and West End Avenue on the east. It has grid-like arterial network structure with two distinct grid systems coming together at Stillwell Avenue at a 45° angle. Surf Avenue, Mermaid Avenue, Neptune Avenue, the Shore (Belt) Parkway, and Kings Highway are the main east/west corridors traversing the Study area, with Coney Island Avenue, Ocean Parkway, McDonald Avenue/Shell Road, and Stillwell Avenue running north/south. Cropsey Avenue and 86th Street which form the other grid system run in a north west/south east direction with Bay Parkway at right angle in the north east/south west direction. Figure 4-1 illustrates the access routes to the study area and its main corridors.

The street network provides very good vehicular access to and from the study area. The Belt Parkway is the only regional facility that passes through the area. It provides access to Staten Island, Long Island, Queens and Brooklyn. It is a major east-west six-lane uninterrupted flow facility located in the southern portion of the study area with four entrance and exit ramps at Bay Parkway, Cropsey Avenue, Ocean Parkway and Coney Island Avenue. The Shore (Belt) Parkway is the main highway (non-commercial traffic only) serving southern Brooklyn from Gowanus Expressway to the west and the Southern State Parkway in Nassau County to the east, and it also provides access to John F. Kennedy International Airport. The characteristics of the major local arterials are as follows:

Surf Avenue is an east-west arterial street extending from West 37th Street to Ocean Parkway, and it is the southernmost arterial in the study area running near to the shore line. Typically, Surf Avenue comprises of two moving lanes and one parking lane in each direction, with a painted median (10 feet wide) for emergency vehicle use. There are residential and commercial as well as major recreational/entertainment centers located along this corridor.

Figure 4-1: Main Access Routes to Study Area

Legend

Study Area
Major Corridor

Mermaid Avenue which is a collector street runs parallel to (and between) Surf and Neptune Avenues from West 37th Street to Stillwell Avenue. It has one moving lane with a parking lane in each direction. There is a mixture of residential and commercial/retail land uses along this corridor.

Neptune Avenue is another east-west collector that extends from West 37th Street to West End Avenue. It has two moving lanes and a parking lane in each direction, and exclusive left-turn lanes at key intersections. Land use along this corridor includes residential, commercial, industrial and institutional (school) uses.

Kings Highway is an east-west collector street that extends from Bay Parkway in Bensonhurst to Eastern Parkway in Weeksville. It has one moving lane and a parking lane in each direction in the study area. There is a mixture of commercial/retail and residential uses along this corridor in the study area.

Coney Island Avenue is a north-south collector street running from Fort Hamilton Parkway (near Prospect Park) to Riegelman Boardwalk. In the study area, it has two moving lanes and one parking lane in each direction. There is a mixture of commercial/retail and residential uses along this corridor in the study area.

Ocean Parkway is a major two-way arterial for non-commercial traffic that runs from the Prospect Expressway to Surf Avenue in Coney Island. It has a main line and service roads with three moving lanes in each direction and left-turn lanes on the main line and one moving lane and parking lane on the service roads. The service roads are separated from the main line by a landscaped median with pedestrian and bicycle paths. There are only residential and institutional (schools, religious gathering places, and a hospital) along this corridor.

Stillwell Avenue is another north/south collector that traverses the study area from Avenue P to Surf Avenue. It has one moving lane in each direction under the train viaduct; but, outside the

viaduct, there is an additional moving lane in each direction. Along Stillwell Avenue there is a mixture of residential, commercial/retail and industrial uses.

Cropsey Avenue runs diagonally through the study area from Bay Parkway to Neptune Avenue. Between Bay 50th Street and Neptune Avenue, Cropsey Avenue has three moving lanes in each direction, serving a high volume of vehicles entering and exiting the Shore Parkway. South of Neptune Avenue, Cropsey Avenue becomes West 17th Street and it terminates after two blocks at Surf Avenue. West 17th Street is a two-way collector street and has one moving lane and one parking lane in each direction. North of the Belt Parkway there are primarily residential uses while south of the Belt Parkway there is a mixture of industrial and commercial uses.

Bay Parkway runs diagonally from Kings Highway to Shore (Belt) Parkway in the study area. It has two moving lanes with one parking lane in each direction. It collects traffic from the parkway and distributes it through out the study area. There is a mixture of residential, commercial/retail, and institutional uses along Bay Parkway.

McDonald Avenue is a north/south collector that extends from Avenue P/Quentin Road and Avenue X in Gravesend. It becomes Shell Road between Avenue X and the Belt Parkway. McDonald Avenue has one moving lane in each direction and runs under the viaduct of the F train. Outside the viaduct, there is an additional moving lane and a parking lane in each direction. There is a mixture of residential, commercial, and industrial uses along McDonald Avenue and Shell Road.

Eighty-sixth (86th) Street is a collector that extends from Shore Parkway to McDonald Avenue. It runs under the subway viaduct of the M and D lines within the study area. It has one moving lane in each direction under of viaduct and outside of the viaduct columns; there is an additional moving lane and a parking lane in each direction. Along 86th Street there is a mixture of residential and commercial uses.

4.2 Activity Centers and the Transportation Network

Peak hour vehicular trips in the study area are distributed between work and personal activities. The origin of trips leaving the area during the AM peak hour (home based trips or origins) are distributed through out the study area. The destinations, however, tend to be in a few activity centers where employment, commercial/retail activities, and services are concentrated. In the summer months, there is an evening peak associated with the amusement park/recreational activity. The study area street network does not process high volumes of through traffic, except along the Belt Parkway. Almost all the traffic in the area has an origin or destination within Coney Island, Gravesend and Brighton Beach.

There are basically eight activity centers in the study area. The four major ones are concentrated in the southwest section of the study area and the four smaller centers on the north and eastern periphery. Figure 4-2 shows the activity centers which are described below:

- *Activity Center #1* is located along Cropsey Avenue between the Belt Parkway and Neptune Avenue. Its main attractions are a big-box retail store (Home Depot) and a Pathmark supermarket. It also includes a site which is currently occupied by Linens N Things. This location is very accessible by private auto and is also served by the B82 and X28 buses.

- *Activity Center #2* is located along Surf Avenue between West 17th Street and West 8th Street. It is comprised primarily of amusement and recreational activity centers as well as the beach. It includes the New York Aquarium, Coney Island Amusement Park, Keyspan Park (a minor league baseball stadium), and Nathan's. This area is well served by public transportation with train stops at Stillwell Avenue and West 8th Street as well as the X28, X29, B36, B68, and B74 buses.

- *Activity Center #3 is* the Coney Island Hospital. It is located on Ocean Parkway and Avenue Z just north of the Shore Parkway. Coney Island Hospital is the largest medical facility in southern Brooklyn. The hospital has 440 in-patient beds and an extensive ambulatory care program, which includes a hospital-based primary care center and an outreach site at the Community Health Center in Coney Island. The hospital provides a full range of general and

specialty ambulatory care services, as well as full emergency and in-patient services. It is adequately served by transit with three public bus lines (B1, B4, and B36) that stops adjacent to the hospital, and it is easily accessible by automobile.

- *Activity Center #4* is the Ceasar's **Bay** Mall that is located south of the Shore Parkway Service Road and east of Bay Parkway. It consists of approximately 49,000 square feet of commercial/retail space with approximately 812 parking spaces. It includes major retailers such as Kohl's, Radio Shack, Toys R Us, Best Buy, and Modell's. There are two public bus lines (B6 and B82) that stop at or near the Mall.

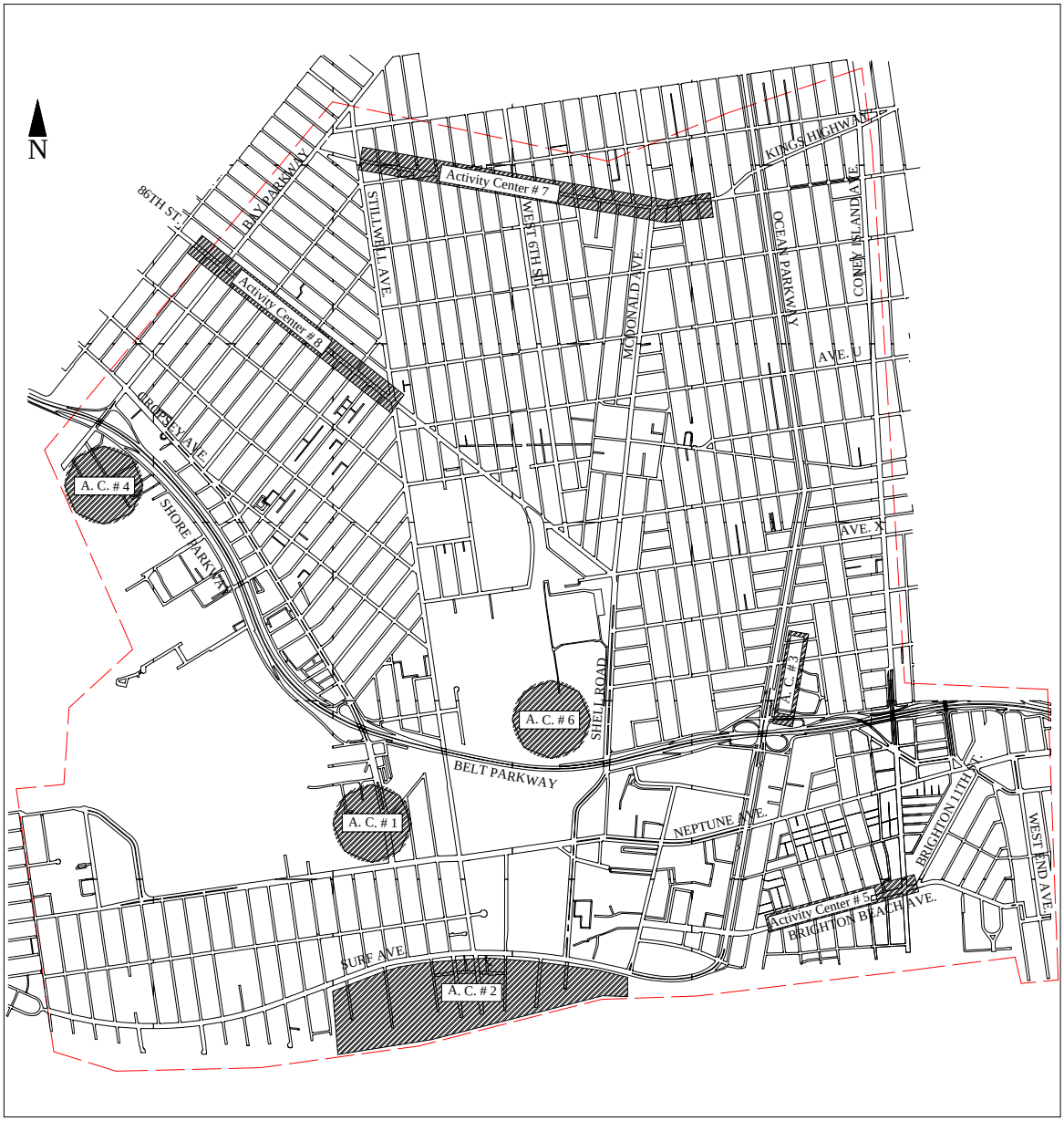
- *Activity Center #5* is located along Brighton Beach Avenue in the south-eastern tip of the study area. It includes retail stores (shoes, clothing, and pharmacy), grocery stores and supermarkets, entertainment (restaurants and clubs), and banking.

- *Activity Center #6* is the only major industrial activity center in the study area. It is located north of the Belt Parkway between Shell Road and Stillwell Avenue. It includes the New York City Transit rail yard as well as a number of automobile repair shops.

- *Activity Center #7* includes a strip of local retail stores along Kings Highway from Ocean Parkway to Stillwell Avenue.

- *Activity Center #8* is similar to Activity Center #7; it includes local retail stores along 86th Street between Bay Parkway and Stillwell Avenue.

Figure 4-2: Activity Centers in Coney Island/Gravesend



Legend

Activity Center

4.3 Data Collection & Traffic Operations

Traffic Network

Existing traffic conditions were defined through field surveys conducted from April to June 2002, and supplemented with information from recent environmental impact statements (EIS) projects within the study area, as well as from other previous studies such as Cropsey Avenue Home Depot FEIS, The Baseball Stadium at Park (Keyspan Park), and Bayside Theaters EA.

Traffic volume counts included vehicle classification, turning movements and pedestrian counts for three midweek days (Tuesday, Wednesday, and Thursday) during the AM, midday, and PM peak hours; as well as the Saturday peak hour. New Automatic Traffic Recording (ATR) machines were installed at six locations to collect daily volumes for the duration of seven days. Additional ATR data was obtained from NYSDOT and NYCDOT archives.

The ATR locations are as follows:

1. Shell Road @ Avenue X
2. Neptune Avenue @ West 6th Street
3. 86th Street @ Avenue U
4. Ocean Parkway @ Avenue Z
5. Bay Parkway between Cropsey Avenue and Bath Avenue
6. Belt Parkway Ramps at Bay Parkway

Figure 4-3 shows the traffic count locations and Figure 4-4 shows the traffic controls in the study area.

Figure 4-3: ATR, Manual, and Pedestrian Count Locations

Legend

- Turning Movement Counts
- Automatic Traffic Recorder (ATR)
- Pedestrian Counts

Figure 4-4: Type of Traffic Control System

Legend

- Signalized Intersection
- Unsignalized Intersection

Vehicle classification and turning movement counts were conducted for the various peak periods at the following locations:

1. Kings Highway @ Ocean Parkway, signalized
2. Kings Highway @ McDonald Avenue, signalized
3. Kings Highway @ Coney Island Avenue, signalized
4. Kings Highway @ Stillwell Avenue, signalized
5. Bay Parkway @ 86th Street, signalized
6. 81st Street @ 23rd Avenue, unsignalized
7. 84th Street @ 23rd Avenue, signalized
8. Bay 32nd Street @ Benson Avenue, signalized
9. Bay 35th Street @ Benson Avenue, unsignalized
10. Bay 35th Street @ Bath Avenue, signalized
11. 86th Street @ Stillwell Avenue, signalized
12. Harway Avenue @ Cropsey Avenue, unsignalized
13. Bay 48th Street @ Cropsey Avenue, signalized
14. Bay 49th Street @ Stillwell Avenue, signalized
15. Harway Avenue @ Stillwell Avenue, signalized
16. Avenue Z @ West 15th Street, unsignalized
17. Bay 54th Street @ Cropsey Avenue, signalized
18. West 11th Street @ Avenue S, unsignalized
19. West 7th Street @ Avenue S, unsignalized
20. West 9th Street @ Avenue T, signalized
21. West 5th Street @ Avenue T, signalized
22. West 11th Street @ Avenue U, signalized
23. West 7th Street @ Avenue U, signalized
24. Ocean Parkway @ Avenue W, signalized
25. McDonald Avenue @ 86th Street & Avenue X, signalized
26. Avenue X @ West 3rd Street, signalized
27. Avenue Y @ West 3rd Street, unsignalized
28. Avenue Y @ East 2nd Street, unsignalized

29. Avenue Y @ East 3rd Street, unsignalized
30. Ocean Parkway @ Avenue X , signalized
31. Ocean Parkway @ Avenue Z, signalized
32. Shell Road @ Avenue Z, signalized
33. Shell Road @ Neptune Avenue, signalized
34. Coney Island Avenue @ Neptune Avenue, signalized
35. West 12th Street @ Neptune Avenue, signalized
36. Cropsey Avenue @ Neptune Avenue &West 17th Street, signalized
37. Memaid Avenue @ Stillwell Avenue, signalized
38. Surf Avenue @ Stillwell Avenue, signalized
39. West 8th Street @ Surf Avenue, signalized
40. West 17th Street @ Mermaid Avenue, signalized
41. West 21st Street @ Mermaid Avenue, unsignalized
42. West 31st Street @ Bay View Avenue, unsignalized
43. West 37th Street @ Neptune Avenue, unsignalized
44. West 37th Street @ Surf Avenue, unsignalized
45. Coney Island Avenue @ Belt Parkway Entrance/Guider Avenue, signalized
46. Ocean Parkway @ Brighton Beach , signalized
47. Brighton Beach @ Coney Island Avenue, signalized
48. Ocean Parkway @ Neptune Avenue, signalized
49. Bay Parkway @ Cropsey Avenue, signalized
50. Brighton Beach @ Brighton 11th Street, signalized
51. Neptune Avenue @ Brighton 10th Street, signalized
52. Neptune /Emmons Avenue @ East 14th Street/Shore Parkway, signalized
53. Brighton Beach @ Brighton 4th Street, signalized

Pedestrian Data

During the summer months there is heavy pedestrian traffic in certain parts of the study area due to the presence of the amusement park, recreational facilities, and the beach. Two sets of pedestrian counts were conducted. Pedestrian counts were conducted at the locations listed

below during the summer recreation period, as well as when regular manual turning movement counts were being collected.

Summer Pedestrian Count Locations:

1. West 21st Street @ Surf Avenue
2. West 5th Street @ West Brighton Avenue
3. West 17th Street @ Surf Avenue
4. West 8th Street @ Surf Avenue
5. West 5th Street @ Surf Avenue
6. Mermaid Avenue @ Stillwell Avenue
7. Mermaid Avenue @ West 17th Street
8. Brighton Beach Avenue @ Ocean Avenue
9. Ocean Parkway @ Brighton Beach Avenue
10. Stillwell Avenue @ Surf Avenue

Pedestrian Count Locations used in LOS analysis:

1. Kings Highway @ Ocean Parkway
2. Kings Highway @ McDonald Avenue
3. Bay Parkway @ 86th Street
4. Bay 35th Street @ Bath Avenue
5. Harway Avenue @ Stillwell Avenue
6. West 7th Street @ Avenue U
7. Ocean Parkway @ Avenue W
8. McDonald Avenue @ 86th Street & Avenue X
9. Avenue X @ West 3rd Street
10. Ocean Parkway @ Avenue X
11. Ocean Parkway @ Avenue Z
12. Coney Island Avenue @ Neptune Avenue
13. Cropsey Avenue @ Neptune Avenue &West 17th Street
14. Memaid Avenue @ Stillwell Avenue

15. Surf Avenue @ Stillwell Avenue
16. West 8th Street @ Surf Avenue
17. West 17th Street @ Mermaid Avenue
18. Coney Island Avenue @ Belt Parkway Entrance/Guider Avenue

Traffic Control Devices

An inventory of traffic control devices including signal timing, phasing, and control type (such as stop and yield signs) was conducted.

Parking Data

Data was collected for off-street parking facilities as well as on-street meter parking and non-meter parking.

Accident Data

Accident data for 27 intersections for the years 1996-2000 from NYSDOT and DMV records was analyzed to identify patterns in the study area.

4.4 Network Traffic Volumes

A balanced traffic network for the various peak periods was prepared using the ATRs and the manual turning movement counts. This information has been plotted on traffic flow maps for the AM peak hour (8:00 - 9:00), midday peak hour (1:00 - 2:00), and PM peak hour (5:00 - 6:00). Figures 4-5, 4-6, and 4-7 show the network volumes for the AM, midday, and PM peak hours, respectively.

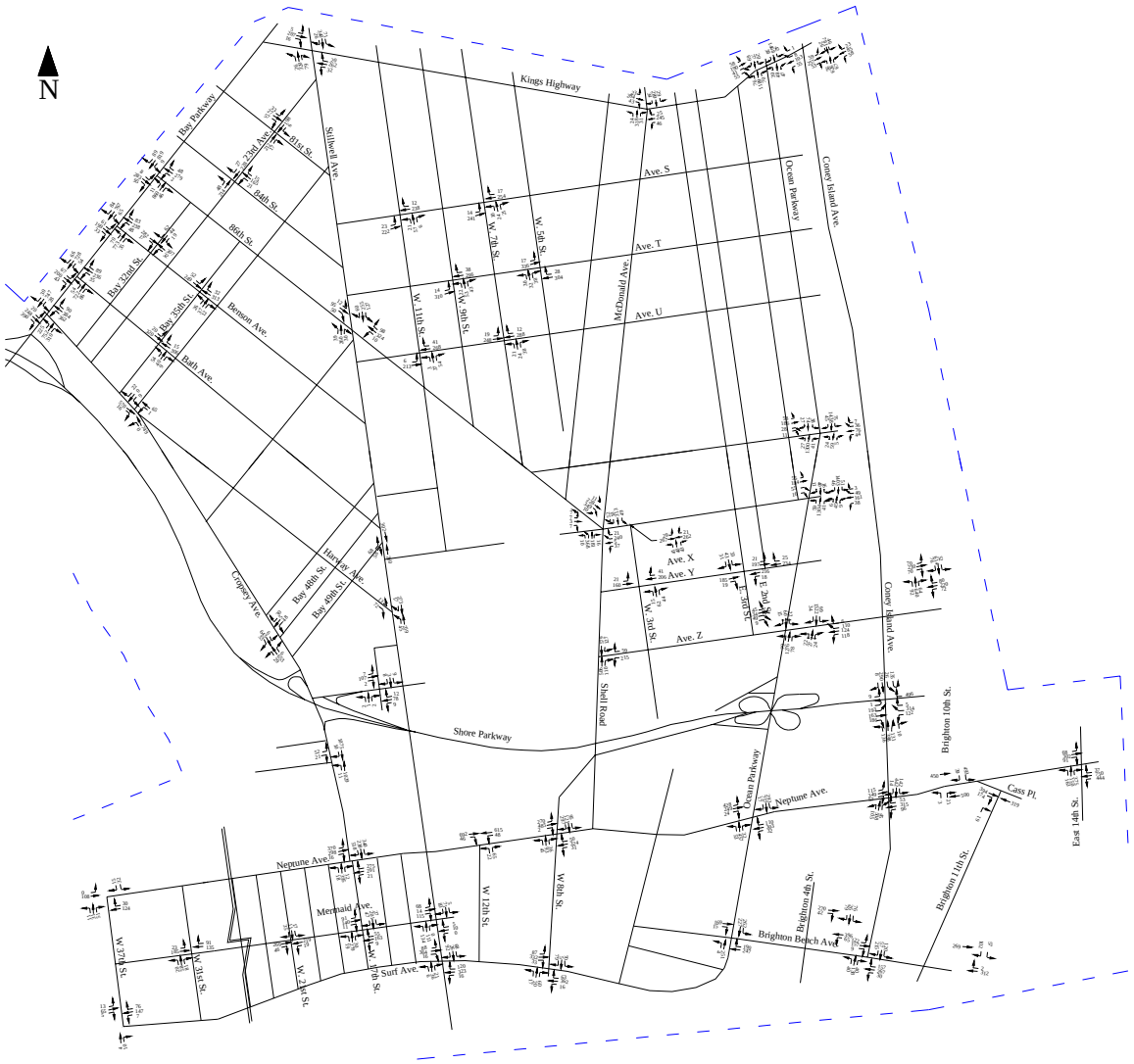
Data collected from the Automatic Traffic Recording (ATR) machines showed that Ocean Parkway processed the highest number of vehicles for all peak periods in the study area. The ATR machines showed the following:

1. Shell Road @ Avenue X - southbound traffic volume was approximately 828, 661, and 809 vehicles per hour (vph) in the AM, midday, and PM peak hour, respectively. Northbound

Exhibit 4-5: AM Peak Hour Volume

Figure 4-6: Midday Peak Hour Volume

Figure 4-7: PM Peak Hour Volume



traffic volume was approximately 686, 645, and 720 vph in the AM, midday, and PM peak hour, respectively.

2. Neptune Avenue @ West 6th Street - eastbound traffic volume was approximately 491, 682, and 616 vehicles per hour in the AM, midday, and PM peak hour, respectively. Westbound traffic volume was approximately 587, 573, and 507 vph in the AM, midday, and PM peak hour, respectively.
3. 86th Street @ Avenue U - eastbound traffic volume was approximately 277, 316, and 378 vehicles per hour in the AM, midday, and PM peak hour, respectively. Westbound traffic volume was approximately 374, 452, and 572 vph in the AM, midday, and PM peak hour, respectively.
4. Ocean Parkway @ Avenue Z - northbound traffic volume was approximately 1665, 1226, and 1458 vehicles per hour in the AM, midday, and PM peak hour, respectively. Southbound traffic volume was approximately 1233, 1151, and 1513 vph in the AM, midday, and PM peak hour, respectively.
5. Bay Parkway (between Cropsey Avenue and Bath Avenue) – southbound traffic volume was approximately 938, 770, and 890 vehicles per hour in the AM, midday, and PM peak hour, respectively. Northbound traffic volume was approximately 852, 838, and 938 vph in the AM, midday, and PM peak hour, respectively.
6. Shore (Belt) Parkway exit and entry ramps at Bay Parkway - each ramp processed approximately 830, 730, and 790 vehicles per hour in the weekday AM, midday, PM, peak hour, respectively.

4.5 Street Capacity & Level of Service (LOS)

The capacity of the roadways is the maximum rate of flow which may pass through a section of roadway under prevailing traffic, roadway and signalization conditions. The capacity of a roadway is determined by several factors including turning movements, signal timing, pedestrian movements, type of vehicle, illegal and/or double parking, grade, roadway conditions, and weather. In determining street capacity within the study area the 2000 Highway Capacity Manual (HCM) methodology was used. The methodology requires the use of official signal timings, street geometry, and other relevant information for performing capacity and LOS analyses.

The traffic flow characteristics are measured in terms of the volume-to-capacity (v/c) ratios and delays. The quality of the flow is expressed in terms of LOS, which is based on an average delay experienced by a vehicle; Table 4-1 traffic conditions for each LOS assignment. When the v/c ratio exceeds 1.0, a facility or intersection operates at or over capacity. In this situation severe congestion occurs in traffic with stop-and-start conditions, and extensive vehicle queuing and delays. Volume-to-capacity ratios of less than 0.85 are considered to be reflective of acceptable traffic conditions, with average delays of 30 seconds or less. The following table shows the level of service criteria as specified in the 2000 HCM Methodology.

The intersections studied were analyzed for roadway capacity, volume-to-capacity (v/c) ratios, vehicular delay, and level-of-service (LOS) for the weekday AM, midday, and PM peak hour; as well as the Saturday peak hour (12:00 – 1:00 PM).

Table 4-1: Signalized Intersection Level of Service (LOS)

Level of Service	Control Delay Per Vehicle	Description of Traffic Condition
A	≤10.0	LOS A describes operations with low control delay, up to 10 s/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	>10 to 20	LOS B describes operations with control delay greater than 10 and up to 20 s/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	> 20 to 35	LOS C describes operations with control delay greater than 20 and up to 35 s/veh. These higher delays may result from only fair progression, longer cycle lengths or both. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	> 35 to 55	LOS D describes operations with control delay greater than 35 and up to 55 s/veh. The influence of congestion becomes more noticeable at this level. Longer delays may result from a combination of unfavorable progression, long cycle lengths, and/or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 to 80	LOS E describes operations with control delay greater than 55 and up to 80 s/veh. These higher delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	> 80	LOS F describes operations with delay in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Sources: Highway Capacity Manual, Transportation Research Board;
National Research Council, Washington D.C., 2000;
New York City Department of Transportation;
New York State Department of Transportation.

Note: Control delay is measured in terms of seconds per vehicle.

4.6 Existing Traffic Conditions

Table 4-2 shows the 2002 Existing Conditions including v/c ratios, delays, and level of service (LOS) for the AM, midday, and PM peak hour for the intersections analyzed in the study area. The analysis showed that most intersections operated at an acceptable level-of-service with LOS B or better during the AM, midday, and PM peak periods. However, some intersections experienced LOS D, E, and F for some or all lane groups during some peak hours.

The intersections with overall LOS D (equal to or greater than 45 sec./veh.) or worse are listed below and shown in Figures 4-8, 4-9, and 4-10.

- Kings Highway @ Ocean Parkway (AM)
- Kings Highway @ McDonald Avenue (AM, midday, PM)
- Ocean Parkway @ Avenue W (AM)
- McDonald Avenue @ 86th Street & Avenue X (AM, midday, PM)
- Ocean Parkway @ Avenue X (AM)
- Coney Island Avenue @ Neptune Avenue (PM)
- Coney Island Avenue @ Belt Parkway Entrance/Guider Avenue (AM, midday, PM)
- Brighton Beach @ Coney Island Avenue (AM, midday, PM)
- Ocean Parkway @ Neptune Avenue (AM, midday, PM)
- Bay Parkway @ Cropsey Avenue (PM)

Table 4-2: Traffic Capacity Analysis for Signalized Intersections

(2002 Existing Conditions)

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS
Kings Hwy @ Ocean Pkwy	EB	LTR	0.97	78.00	E	0.78	49.60	D	0.81	51.40	D
	WB	LTR	1.05	96.00	F	0.85	56.50	E	0.50	37.50	D
	NB	L	0.24	28.80	C	0.39	39.90	D	0.31	39.70	D
		TR	1.03	60.10	E	0.82	31.70	C	0.64	26.30	C
	SB	L	0.11	44.00	D	0.32	41.70	D	0.16	25.60	C
		TR	0.63	26.10	C	0.69	27.50	C	0.76	29.40	C
Kings Hwy @ McDonald Avenue	EB	LTR	0.33	12.10	B	0.35	10.40	B	0.47	14.30	B
	WB	LTR	0.54	15.60	B	0.64	15.70	B	0.50	14.90	B
	NB	LTR	1.05	90.10	F	1.05	89.10	F	1.05	98.00	F
	SB	LTR	1.05	103.10	F	1.04	88.70	F	1.02	91.80	F
Kings Hwy @ Coney Island Avenue	EB	LTR	0.93	63.60	E	0.66	27.70	C	0.81	46.30	D
	WB	LTR	0.60	35.40	D	0.54	24.10	C	0.63	37.90	D
	NB	L	1.05	77.70	E	0.69	34.70	C	0.36	21.00	C
	NB	TR	0.59	20.70	C	0.59	18.90	B	0.49	18.80	B
	SB	LTR	0.63	22.20	C	0.78	24.90	C	0.71	24.40	C
Kings Hwy @ Stillwell Avenue	EB	LTR	0.24	11.00	B	0.18	8.50	A	0.29	11.50	B
	WB	LTR	0.62	17.90	B	0.49	12.10	B	0.46	14.10	B
	NB	LTR	0.69	42.40	D	0.89	48.00	D	0.67	41.90	D
	SB	LTR	0.73	44.60	D	0.92	51.80	D	0.93	63.20	E
Bay Pkwy @ 86th Street	EB	LTR	0.34	29.10	C	0.41	24.00	C	0.43	30.60	C
	WB	LTR	0.32	28.70	C	0.40	23.80	C	0.42	30.40	C
	NB	LTR	0.60	19.30	B	0.49	13.80	B	0.62	19.80	B
	SB	LTR	0.70	21.90	C	0.53	14.40	B	0.68	21.20	C
84th Street @ 23rd Avenue	WB	LTR	0.31	16.70	B	0.40	18.10	B	0.47	19.20	B
	NB	LT	1.05	82.20	F	1.05	79.30	E	1.05	80.80	F
	SB	TR	0.26	8.50	A	0.22	8.10	A	0.33	9.10	A
Bay 32nd Street @ Benson Avenue	EB	TR	0.28	8.70	A	0.33	9.10	A	0.39	9.80	A
	WB	LT	0.73	26.70	C	0.65	19.30	B	1.05	72.80	E
	SB	LTR	0.39	18.20	B	0.36	17.80	B	0.44	19.10	B
Bay 35th Street @ Bath Avenue	EB	LTR	1.05	78.20	E	0.67	21.50	C	0.83	28.30	C
	WB	LTR	0.41	10.00	A	0.31	8.90	A	0.47	10.60	B
	NB	LTR	0.32	16.90	B	0.26	16.10	B	0.29	16.50	B
86th Street @ Stillwell Avenue	EB	LTR	0.16	12.80	B	0.23	9.90	A	0.22	13.30	B
	WB	LTR	0.27	13.80	B	0.27	10.20	B	0.54	17.40	B
	NB	LTR	0.39	22.50	C	0.49	19.80	B	0.51	24.50	C
	SB	LTR	0.47	24.10	C	0.44	19.30	B	0.53	25.40	C
Bay 48th Street @ Cropsey Avenue	EB	LTR	0.40	10.60	B	0.44	11.10	B	0.42	10.80	B
	WB	LTR	0.45	11.20	B	0.43	11.00	B	0.44	11.10	B
	NB	LTR	0.33	27.10	C	0.46	29.60	C	0.25	25.90	C
Bay 49th Street @ Stillwell Avenue	EB	LR	0.48	17.90	B	0.46	17.50	B	0.42	16.70	B
	NB	T	0.21	7.10	A	0.21	7.10	A	0.20	7.10	A
	SB	T	0.24	7.30	A	0.23	7.20	A	0.23	7.30	A
Harway Avenue @ Stillwell Avenue	EB	LR	0.29	16.40	B	0.21	15.60	B	0.25	15.90	B
	NB	LT	0.37	9.00	A	0.29	8.40	A	0.24	8.00	A
	SB	TR	0.22	7.80	A	0.33	8.60	A	0.20	7.70	A
Bay 54th Street @ Cropsey Avenue	EB	L	0.25	22.40	C	0.09	19.70	B	0.09	20.60	C
		LR	0.12	20.90	C	0.06	19.50	B	0.06	20.30	C
	NB	L	0.37	18.80	B	0.06	9.70	A	0.07	10.70	B
		T	0.41	12.70	B	0.35	11.40	B	0.41	12.70	B
	NB	TR	0.50	13.70	B	0.39	11.80	B	0.45	13.20	B

Table 4-2: Traffic Capacity Analysis for Signalized Intersections
(2002 Existing Conditions)

INTERSECTION	Lane Group		AM			MID			PM		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
West 9th Street @ Avenue T	EB	LT	0.65	18.40	B	0.57	14.60	B	0.92	42.10	D
	WB	TR	0.30	8.80	A	0.32	9.00	A	0.43	10.20	B
	NB	LTR	0.38	17.80	B	0.38	18.00	B	0.34	17.20	B
West 5th Street @ Avenue T	EB	LT	1.05	77.70	E	0.87	34.20	C	1.02	64.60	E
	WB	TR	0.31	8.90	A	0.31	9.00	A	0.46	10.60	B
	NB	LTR	0.28	16.50	B	0.28	16.50	B	0.31	16.90	B
West 7th Street @ Avenue U	EB	LT	0.42	10.20	B	0.43	10.30	B	0.47	10.80	B
	WB	TR	0.39	9.80	A	0.43	10.20	B	0.48	10.90	B
	NB	LTR	0.19	15.30	B	0.22	15.60	B	0.24	15.90	B
West 11th Street @ Avenue U	EB	LT	0.57	15.20	B	0.71	25.30	C	0.47	12.00	B
	WB	TR	0.43	10.40	B	0.48	14.60	B	0.54	12.00	B
	NB	LTR	0.30	16.70	B	0.26	11.90	B	0.35	17.50	B
Ocean Pkwy @ Avenue W	EB	LTR	0.75	60.60	E	0.90	63.60	E	0.74	45.90	D
	WB	LTR	1.05	104.90	F	0.54	40.20	D	0.55	38.50	D
	NB	L	0.16	18.20	B	0.10	22.80	C	0.16	32.20	C
	NB	TR	1.04	55.40	E	0.61	25.70	C	0.66	26.70	C
	SB	L	0.36	48.70	D	0.16	24.70	C	0.37	37.10	D
	SB	TR	0.56	19.00	B	0.61	25.60	C	0.76	29.60	C
McDonald Avenue @ 86th Street & Avenue X	EB	LTR	0.57	53.70	D	0.30	30.70	C	0.23	43.40	D
	WB	LTR	1.05	116.30	F	1.05	95.00	F	1.05	107.60	F
	NB	LTR	0.65	34.10	C	0.74	33.40	C	0.61	33.30	C
	SB	LTR	0.96	74.40	E	1.05	87.60	F	1.05	94.10	F
	NWB	LTR	0.81	47.40	D	0.76	36.90	D	0.84	49.30	D
Avenue X @ West 3rd Street	EB	LTR	0.91	43.10	D	1.05	80.70	F	1.05	75.70	E
	WB	LTR	0.40	10.00	A	0.42	10.20	B	0.44	10.40	B
	NB	LTR	0.30	16.70	B	0.39	17.90	B	0.36	17.40	B
Ocean Pkwy @ Avenue X	EB	LTR	1.05	102.40	F	0.99	85.60	F	1.02	92.50	F
	WB	LTR	1.05	100.90	F	0.89	63.40	E	0.80	52.70	D
	NB	L	0.34	37.90	D	0.27	34.10	C	0.28	36.40	D
	NB	TR	1.05	67.20	E	0.69	27.60	C	0.70	27.70	C
	SB	L	0.16	44.10	D	0.19	29.50	C	0.22	31.30	C
	SB	TR	0.71	28.00	C	0.70	27.90	C	0.72	28.50	C

Table 4-2: Traffic Capacity Analysis for Signalized Intersections

(2002 Existing Conditions)

INTERSECTION	Lane Group		AM			MID			PM		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Ocean Pkwy @ Avenue Z	EB	LTR	0.90	74.20	E	0.74	51.10	D	0.84	63.30	E
	WB	LTR	1.05	106.50	F	0.91	74.10	E	1.05	100.70	F
	NB	L	0.18	19.30	B	0.25	21.90	C	0.38	30.50	C
	NB	TR	0.94	33.60	C	0.49	20.60	C	0.55	18.80	B
	SB	L	0.50	54.00	D	0.26	20.50	C	0.39	28.60	C
	SB	TR	0.52	18.30	B	0.53	21.20	C	0.58	19.40	B
Shell Road @ Avenue Z	WB	LR	0.45	19.20	B	0.56	21.10	C	0.65	23.80	C
	NB	TR	0.42	10.30	B	0.41	10.20	B	0.43	10.40	B
	SB	LT	0.64	13.50	B	0.68	14.70	B	0.74	16.50	B
Shell Road/West 8th Street @ Neptune Avenue	EB	LTR	0.88	31.20	C	0.54	15.10	B	0.89	32.00	C
	WB	LTR	0.38	14.80	B	0.43	13.30	B	0.46	15.90	B
	NB	LTR	0.23	18.90	B	0.11	15.60	B	0.17	18.20	B
	SB	LTR	0.34	20.00	C	0.38	18.20	B	0.48	21.90	C
Coney Island Avenue @ Neptune Avenue	EB	L	0.91	102.00	F	0.65	32.70	C	1.05	142.60	F
	EB	TR	0.76	53.40	D	0.65	27.30	C	1.05	98.90	F
	WB	L	0.32	38.20	D	0.38	22.40	C	1.05	144.20	F
	WB	TR	1.05	104.80	F	0.67	28.20	C	1.05	101.20	F
	NB	LTR	0.31	10.50	B	0.60	19.50	B	0.55	14.00	B
	SB	LTR	0.44	12.30	B	0.23	14.20	B	0.59	15.00	B
West 12th Street @ Neptune Avenue	EB	TR	0.53	14.60	B	0.31	12.00	B	0.55	14.90	B
	WB	LT	0.47	14.00	B	0.40	13.00	B	0.66	17.50	B
	NB	LR	0.31	23.70	C	0.26	23.20	C	0.26	23.00	C
Cropsey Avenue @ Neptune Avenue & West 17th Street	EB	L	0.37	34.90	C	0.71	42.40	D	0.71	42.70	D
		TR	0.47	13.20	B	0.15	10.10	B	0.21	10.60	B
	WB	L	0.08	22.40	C	0.01	20.90	C	0.07	21.80	C
		TR	0.97	51.00	D	0.64	29.70	C	0.71	31.60	C
	NB	LTR	0.60	29.70	C	0.57	28.70	C	0.79	37.50	D
	SB	L	0.90	65.80	E	1.00	87.50	F	1.05	92.20	F
		T	0.33	24.10	C	0.37	24.70	C	0.42	25.50	C
		R	0.56	14.20	B	0.35	11.50	B	0.39	11.90	B
Mermaid Avenue @ Stillwell Avenue	EB	LR	0.46	14.40	B	0.55	16.20	B	0.33	12.70	B
	NB	LT	0.27	12.00	B	0.35	13.10	B	0.43	14.00	B
	SB	TR	0.16	10.70	B	0.19	10.90	B	0.15	10.70	B

Table 4-2: Traffic Capacity Analysis for Signalized Intersections

(2002 Existing Conditions)

INTERSECTION	Lane Group		AM			MID			PM		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Surf Avenue @ Stillwell Avenue	EB	LTR	0.43	8.10	A	0.32	7.10	A	0.36	7.50	A
	WB	LTR	0.32	7.10	A	0.24	6.50	A	0.31	7.00	A
	NB	LTR	0.06	28.20	C	0.72	56.70	E	0.25	30.90	C
	SB	LTR	0.50	34.00	C	0.76	45.30	D	0.51	35.00	C
West 8th Street @ Surf Avenue	EB	L	0.13	6.10	A	0.17	6.40	A	0.19	6.70	A
	EB	TR	0.26	6.60	A	0.20	6.20	A	0.21	6.30	A
	WB	L	0.01	5.30	A	0.00	5.20	A	0.07	5.70	A
	WB	TR	0.23	6.40	A	0.15	5.90	A	0.26	6.60	A
	NB	LTR	0.01	27.50	C	0.26	30.70	C	0.44	34.10	C
	SB	L	0.77	54.60	D	0.37	34.90	C	0.49	41.00	D
	SB	TR	0.09	28.30	C	0.42	32.30	C	0.20	29.50	C
West 17th Street @ Mermaid Avenue	EB	LTR	0.57	16.30	B	0.45	14.00	B	0.49	15.10	B
	WB	LTR	0.30	12.20	B	0.29	12.10	B	0.39	13.20	B
	NB	LTR	0.45	14.10	B	0.43	13.90	B	0.58	16.50	B
	SB	LTR	0.22	11.20	B	0.22	11.20	B	0.25	11.40	B
Coney Island Avenue @ Guider Avenue	EB	LTR	1.05	86.70	F	1.05	93.60	F	1.05	91.70	F
	WB	LTR	1.05	88.90	F	1.05	85.70	F	1.05	83.20	F
	NB	LTR	0.44	14.00	B	0.55	15.80	B	0.55	15.80	B
	SB	LTR	0.41	13.90	B	0.34	13.10	B	0.48	15.00	B
Brighton Beach Avenue @ Ocean Parkway	EB	LTR	0.28	41.20	D	0.29	41.90	D	0.36	42.50	D
	WB	LTR	0.43	32.80	C	0.44	27.40	C	0.51	34.20	C
	NB	L	0.01	10.10	B	0.01	14.60	B	0.01	10.10	B
	NB	TR	0.12	21.20	C	0.16	29.80	C	0.19	25.10	C
	SB	L	0.26	13.10	B	0.34	19.70	B	0.39	15.70	B
	SB	TR	0.13	21.30	C	0.19	30.10	C	0.17	24.80	C
Brighton Beach Avenue @ Coney Island Avenue	EB	L	0.83	76.50	E	1.05	106.40	F	0.99	111.20	F
		TR	0.62	44.70	D	0.72	41.10	D	0.49	39.90	D
	WB	LTR	0.77	48.50	D	0.75	36.50	D	0.65	42.00	D
	NB	LTR	0.17	25.00	C	0.43	30.20	C	0.60	35.40	D
	SB	LTR	1.05	96.70	F	1.05	89.90	F	1.05	92.00	F
Neptune Avenue @ Ocean Parkway	EB	LTR	1.05	80.90	F	1.05	82.90	F	1.05	79.70	E
	WB	LTR	1.05	98.70	F	1.05	95.90	F	1.05	93.70	F
	NB	L	0.06	19.20	B	0.12	20.30	C	0.16	23.80	C
	NB	TR	0.28	28.50	C	0.33	30.50	C	0.37	31.10	C
	SB	L	0.43	24.70	C	0.53	30.90	C	0.68	38.20	D
	SB	TR	0.39	30.10	C	0.35	30.8	C	0.5	33.1	C

Table 4-2: Traffic Capacity Analysis for Signalized Intersections

(2002 Existing Conditions)

INTERSECTION	Lane Group		AM			MID			PM		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Bay Parkway @ Cropsey Avenue	EB	L	0.19	35.30	D	0.19	29.60	C	0.27	44.60	D
		T	0.43	38.70	D	0.43	32.00	C	0.51	40.70	D
		R	0.56	36.40	D	0.69	35.70	D	0.74	44.60	D
	WB	L	0.21	23.30	C	0.19	19.10	B	0.34	25.40	C
		TR	0.41	25.70	C	0.61	25.00	C	1.05	74.40	F
	NB	L	0.11	24.20	C	0.7	38.90	D	1.05	115.60	F
		TR	0.19	16.90	B	0.44	15.30	B	0.53	21.60	C
	SB	L	0.1	24.30	C	0.23	22.40	C	0.30	30.60	C
		TR	0.61	32.30	C	0.74	29.60	C	0.96	54.50	D
Brighton Beach Avenue @ Brighton 11th Street	EB	T	0.45	12.20	B	0.46	14.80	B	0.40	13.80	B
	WB	TR	0.28	9.60	A	0.30	11.90	B	0.23	11.20	B
	SB	LR	0.39	21.80	C	0.27	22.60	C	0.46	26.50	C
Neptune Avenue @ Brighton 10th Street	EB	T	0.55	16.00	B	0.53	15.8	B	0.53	15.6	B
	WB	T	0.43	13.90	B	0.45	14.2	B	0.58	16.5	B
	NB	LR	0.07	20.40	C	0.15	21.4	C	0.06	20.3	C
	SB	L	0.47	24.70	C	0.39	23.5	C	0.45	24.4	C
	SB	R	0.13	21.20	C	0.17	21.7	C	0.11	20.9	C
Neptune/Emmons Avenue @ E 14th St./Shore Blvd	EB	L	0.33	21.00	C	0.35	23.70	C	0.41	27.20	C
		TR	0.32	18.60	B	0.31	20.90	C	0.36	21.60	C
	WB	L	0.79	24.90	C	0.57	17.90	B	0.72	25.10	C
		TR	0.39	8.80	A	0.33	10.40	B	0.46	11.70	B
	NB	L	0.71	39.00	D	0.54	35.60	D	0.48	34.30	C
		T	0.46	30.80	C	0.30	30.50	C	0.39	32.00	C
		R	0.60	25.00	C	0.71	32.40	C	0.74	33.40	C
Brighton Beach Avenue @ Brighton 4th Street	EB	TR	0.12	6.40	A	0.14	6.60	A	0.18	6.80	A
	WB	LT	0.18	6.80	A	0.21	7.00	A	0.37	8.30	A
	SB	LTR	0.24	28.80	C	0.27	29.20	C	0.69	41.70	D
Coney Island Avenue @ Avenue Z	EB	LTR	0.65	44.10	D	0.51	27.1	C	0.56	35.8	D
	WB	LTR	0.64	45.00	D	0.55	27.9	C	0.67	39.3	D
	NB	L	0.18	14.30	B	0.37	20.5	C	0.36	24.3	C
	NB	TR	0.3	14.30	B	0.41	17.6	B	0.38	21.3	C
	SB	L	0.14	10.90	B	0.09	11.8	B	0.16	16.8	B
	SB	TR	0.29	9.30	A	0.32	10.6	B	0.28	12.3	B

: approach with LOS F

Figure 4-8: Intersections with LOS D, E, and F (AM Peak Hour)

Figure 4-9: Intersections with LOS D, E, and F (Midday Peak Hour)

Legend

- LOS D (Intersection Delay >45 sec./veh.)
- LOS E
- LOS F

Figure 4-10: Intersections with LOS D, E, and F (PM Peak Hour)

4.7 Vehicular Speeds

To measure peak hour travel time and vehicular speeds in the study area and to identify locations where traffic delay exists, speed and travel time runs were conducted.

The travel time runs were conducted for each peak period for three consecutive weekdays concurrently with traffic volume data collection. Three travel runs were performed for each link during each peak travel period.

The "floating car" method (a technique whereby a field vehicle travels at speeds under prevailing traffic conditions) was used to measure travel time and speed. Travel time and speed runs were conducted at the following corridors:

1. McDonald Avenue/Shell Road from Kings Highway to Neptune Avenue
2. Ocean Parkway from Kings Highway to Surf Avenue
3. King Highway from Coney Island Avenue to Bay Parkway
4. Cropsey Avenue from Bay Parkway to Neptune Avenue
5. Coney Island Avenue from Kings Highway to Brighton Beach Avenue
6. 86th Street from Bay Parkway to Stillwell Avenue
7. Avenue U from 86th Street to Coney Island Avenue
8. Brighton Beach Avenue from Coney Island Avenue to Ocean Parkway
9. Neptune Avenue from Cropsey Avenue to Coney Island Avenue
10. Bay Parkway from Kings Highway to Shore (Belt) Parkway
11. Surf Avenue from Ocean Parkway to West 37th Street
12. Stillwell Avenue from Surf Avenue to Kings Highway

Congestion occurs on several corridors and intersections particularly during the peak hours. The conditions are attributed to several factors including bus, car, truck, and pedestrian conflicts, as well as illegal curbside and double parking and standing which reduce roadway capacity and result in delays and reduced travel speeds. This is evident along same corridors such as Kings Highway, 86th Street, McDonald Avenue, and Brighton Beach Avenue.

Figure 4-11 shows the corridors where travel time runs were conducted and Table 4-3 summarizes the average travel speeds for each corridor by direction for the various peak hours. Travel speeds throughout the study area for the various peak periods range from 8 mph to 31 mph. The corridors with low speeds, i.e. less than 10 mph during one or more peak hours, are:

- Kings Highway;
- 86th Street;
- Brighton Beach Avenue, and
- Avenue U.

Figure 4-11: Speed Run Corridors

Legend

Speed Run Corridor

Study Area

Table 4-3: Corridor Travel Speeds

(Page 1 of 2)

No.	Corridors	Peak Hour	Direction	Existing Conditions Average Speed
1	McDonald Avenue/Shall Road/West 8th Street from Kings Highway to Surf Avenue	AM	NB	13
			SB	14
		MD	NB	14
			SB	14
		PM	NB	15
			SB	16
2	Ocean Parkway from Kings Highway to Surf Avenue	AM	NB	22
			SB	14
		MD	NB	15
			SB	14
		PM	NB	13
			SB	31
3	King Highway from Coney Island Avenue to Bay Parkway	AM	EB	11
			WB	13
		MD	EB	11
			WB	9
		PM	EB	9
			WB	10
4	Cropsey Avenue from Bay Parkway to Neptune Avenue	AM	EB	12
			WB	20
		MD	EB	13
			WB	18
		PM	EB	13
			WB	20
5	Coney Island Avenue from Kings Highway to Brighton Beach Avenue	AM	NB	18
			SB	15
		MD	NB	13
			SB	14
		PM	NB	14
			SB	20
6	86th Street from Bay Parkway to Stillwell Avenue	AM	EB	11
			WB	15
		MD	EB	12
			WB	9
		PM	EB	14
			WB	10

Table 4-3: Corridor Travel Speeds
(Page 2 of 2)

No.	Corridors	Peak Hour	Direction	Existing Conditions Average Speed
7	Stillwell Avenue from Surf Avenue to Kings Highway	AM	NB	12
			SB	16
		MD	NB	13
			SB	17
		PM	NB	14
			SB	16
8	Surf Avenue from Ocean Parkway to West 37th Street	AM	EB	16
			WB	17
		MD	EB	18
			WB	18
		PM	EB	16
			WB	23
9	Bay Parkway from Kings to Shore (Belt) Parkway	AM	NB	15
			SB	12
		MD	NB	15
			SB	16
		PM	NB	14
			SB	10
10	Neptune Avenue from Cropsey Avenue to Coney Island Avenue	AM	EB	12
			WB	11
		MD	EB	14
			WB	13
		PM	EB	12
			WB	13
11	Brighton Beach from Coney Island Avenue to Ocean Parkway	AM	EB	9
			WB	9
		MD	EB	9
			WB	8
		PM	EB	11
			WB	9
12	Avenue U from 86th Street to Coney Island Avenue	AM	EB	12
			WB	10
		MD	EB	9
			WB	10
		PM	EB	10
			WB	9

4.8 Goods Movement

There are a lot of goods movements along some corridors where commercial activities are concentrated. In general, goods movement occurs along designated truck routes. The designated truck routes in the study area are shown in Figure 4-12. The truck route network comprises two categories of routes:

(a) Through truck routes - routes for use by all trucks and;

(b) Local truck routes - routes for use by trucks with local origins and/or destinations.

There are no through truck routes in the Study area. The local truck routes in the study area are:

- Bay Parkway from Kings Highway to Shore Parkway Service Road
- King Highway from Coney Island Avenue to Bay Parkway
- McDonald Avenue/Shell Road from Kings Highway to Neptune Avenue
- Coney Island Avenue from Kings Highway to Neptune Avenue
- Neptune Avenue from Coney Island Avenue to Cropsey Avenue
- Cropsey Avenue from Bay Parkway to Neptune Avenue
- Avenue U from West 12th Street to Coney Island Avenue
- 25th Avenue from Cropsey Avenue to 86th Street
- 86th Street from 25th Avenue to West 12th Street

Truck traffic on the local truck routes in the study area shows morning and midday peaks, with a sharp drop in volume after 4PM. In general, inbound volumes are highest during the morning peak.

Due to a deficiency in designated loading and unloading areas for commercial vehicles along the major corridors where commercial activities are concentrated, delivery trucks sometimes illegally or double park. This is particularly evident at the following locations:

- Kings Highway between McDonald Avenue and Stillwell Avenue;
- Brighton Beach between Ocean Parkway and Brighton 12th Street;
- 86th Street from Bay Parkway to Stillwell Avenue;
- McDonald Avenue between Avenue X and Kings Highway.

Figure 4-12: Truck Routes

Legend

Local Truck Routes

Study Area

5. PEDESTRIAN AND BICYCLE ANALYSES

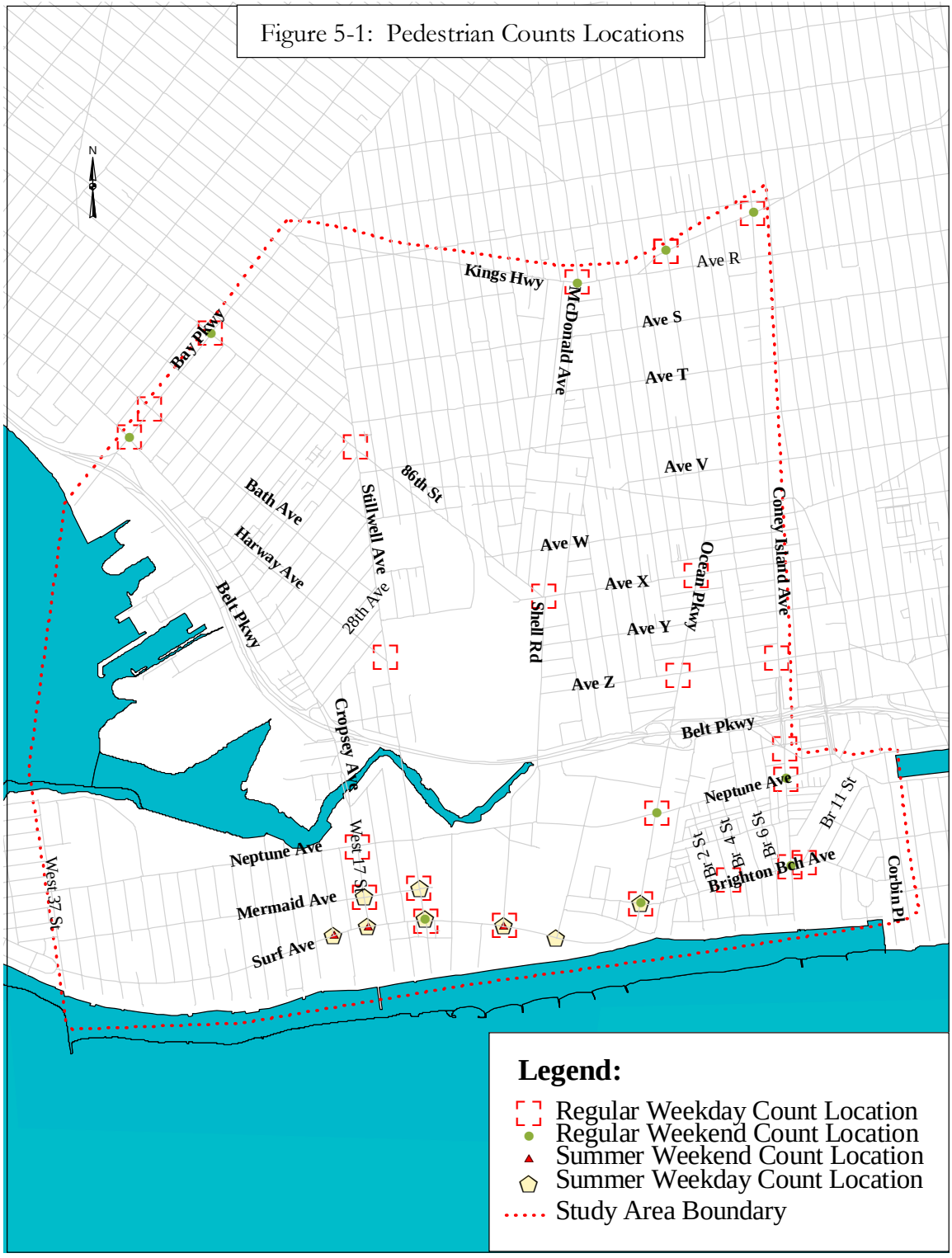
5.1 Introduction

Person trips generated by land uses within the study area contain a walking component either at the beginning or end of each trip. Each of these person trips can contribute to the pedestrian volumes on sidewalks and in crosswalks. In general, the trips are dispersed in residential and industrial areas but tend to be more concentrated where there are significant commercial/retail activities, office or institutional facilities, or transportation hubs. This is evident in the study area where there is significant pedestrian activity along Brighton Beach Avenue (between Ocean Parkway and Coney Island Avenue) and 86th Street (between Bay Parkway and Stillwell Avenue) where a concentration of commercial/retail enterprises exists. It is also evident at the intersections of Coney Island Avenue/Brighton Beach Avenue, McDonald Avenue/Kings Highway, Surf Avenue/Stillwell Avenue, 86th Street/Bay Parkway, and McDonald Avenue/86th Street/Avenue X where there are major transit stops and transfer points.

5.2 Existing Pedestrian Analysis

To assess pedestrian activities in the study area, pedestrian counts were conducted during the AM (8:00 – 9:00), midday (1:00 – 2:00 PM), and PM (5:00 – 6:00 PM) peak hours during weekdays; as well as during the weekend (Saturday) peak hour. Additional counts were conducted in Coney Island during the summer months (weekdays and weekends from 7:00 – 9:00 PM) to evaluate pedestrian activity in the recreational areas of the peninsula. The summer weekday and weekend counts were conducted during late evening hours with the assumption that amusement area activities would peak during these hours. Counts were conducted at 32 intersections - regular weekday counts were conducted at 24 intersections and weekend counts were conducted at 11 of these intersections; summer counts were conducted at eight intersections. The count locations are listed below and shown in Figure 5-1.

Figure 5-1: Pedestrian Counts Locations



Pedestrian Count Locations

Regular Weekday

1. Kings Highway/Ocean Parkway
2. Kings Highway/McDonald Avenue
3. Kings Highway/Coney Island Avenue
4. Bay Parkway/86th Street
5. Harway Avenue/Stillwell Avenue
6. McDonald Avenue/86th Street/Avenue X/Shell Road
7. Ocean Parkway/Avenue X
8. Ocean Parkway/Avenue Z
9. Coney Island Avenue/Neptune Avenue
10. Cropsey Avenue/Neptune Avenue/West 17th Street
11. Mermaid Avenue/Stillwell Avenue
12. Surf Avenue/Stillwell Avenue
13. West 8th Street/Surf Avenue
14. West 17th Street/Mermaid Avenue
15. Coney Island Avenue/Guider Avenue (Belt Parkway Entrance)
16. Coney Island Avenue/Brighton Beach Avenue
17. Ocean Parkway/Brighton Beach Avenue
18. Brighton Beach Avenue/Brighton 11 Street
19. 86th Street/Stillwell Avenue
20. Bay Parkway/Bath Avenue
21. Bay Parkway/Cropsey Avenue
22. Neptune Avenue/Ocean Parkway
23. Coney Island Avenue/Avenue Z
24. Brighton Beach Avenue/Brighton 4 Street

Regular Weekend

1. Coney Island Avenue/Brighton Beach Avenue
2. Coney Island Avenue/Neptune Avenue
3. Coney Island Avenue/Kings Highway
4. Ocean Parkway/Kings Highway
5. Ocean Parkway/Neptune Avenue
6. Ocean Parkway/Brighton Beach Avenue

7. Bay Parkway/86th Street
8. Bay Parkway/Cropsey Avenue
9. McDonald Avenue/Kings Highway
10. Surf Avenue/Stillwell Avenue

Summer Weekday

1. Surf Avenue/West 8th Street
2. Stillwell Avenue/Surf Avenue
3. West 17th Street/Mermaid Avenue
4. Ocean Parkway/Brighton Beach Avenue
5. Stillwell Avenue/Mermaid Avenue
6. Surf Avenue/West 5th Street
7. Surf Avenue/West 21st Street
8. Surf Avenue/West 17th Street

Summer Weekend

1. Surf Avenue/West 17th Street
2. Surf Avenue/West 21st Street
3. Surf Avenue/West 8th Street

The following intersections had the highest crosswalk pedestrian volumes during the AM, midday, and PM peak hours for regular weekdays:

1. Kings Highway/Coney Island Avenue (730, 1,139, 1,331)
2. Bay Parkway/86th Street (1,177, 1,303, 2,610)
3. McDonald Avenue/86th Street/Avenue X (1,572, 654, 889)
4. Surf Avenue/Stillwell Avenue (535, 587, 1,030)
5. Coney Island Avenue/Brighton Beach Avenue (1,373, 1,398, 1,474)
6. Brighton Beach Avenue/Brighton 11 Street (947, 1,372, 1,152)
7. Brighton Beach Avenue/Brighton 4 Street (956, 1,757, 1,438)
8. Ocean Parkway/Neptune Avenue (628, 551, 569)
9. Coney Island Avenue/Avenue Z (749, 555, 480)
10. Ocean Parkway/Brighton Beach Avenue (400, 593, 497)

Table 5-1 provides a summary of the crosswalk and corner volumes for the 24 intersections analyzed on weekdays. Additionally, Figures 5-2, 5-3, 5-4 show the existing weekday pedestrian volumes during the

Table 5-1: Existing Condition (Weekdays)
Pedestrian Crosswalk Volume

	Intersection	AM		MD		PM	
		Cross Walk (Ped/Hr)	Corner (Ped/Hr)	Cross Walk (Ped/Hr)	Corner (Ped/Hr)	Cross Walk (Ped/Hr)	Corner (Ped/Hr)
1	Kings Highway/Ocean Parkway	422	74	347	67	473	51
2	Kings Highway/McDonald Avenue	497	485	426	202	596	431
3	Kings Highway/Coney Island Avenue	730	256	1139	239	1331	324
4	Bay Parkway/86th Street	1177	1022	1303	818	2610	847
5	Harway Avenue/Stillwell Avenue	175	46	311	129	34	18
6	McDonald Avenue/86th Street & Avenue X	1572	65	654	31	889	38
7	Ocean Parkway/Avenue X	194	63	144	31	146	36
8	Ocean Parkway/Avenue Z	326	48	257	65	214	46
9	Coney Island Avenue/Neptune Avenue	345	125	287	69	460	160
10	Cropsey Avenue/Neptune Avenue/West 17th Street	58	10	112	21	84	24
11	Memaid Avenue/Stillwell Avenue	373	141	377	84	605	118
12	Surf Avenue/Stillwell Avenue	535	492	587	469	1030	302
13	West 8th Street/Surf Avenue	94	42	172	106	135	33
14	West 17th Street/Mermaid Avenue	423	37	526	52	540	52
15	Coney Island Avenue/Guider Avenue (Belt Pkwy Entrance)	163	42	131	12	180	17
16	86th Street/Stillwell Avenue.	250	344	202	138	255	163
17	Coney Island Avenue/Brighton Beach Avenue	1373	190	1398	226	1474	148
18	Ocean Parkway/Brighton Beach Avenue	400	125	593	303	497	180
19	Bay Parkway/Bath Avenue	222	58	301	62	321	68
20	Bay Parkway/Cropsey Avenue	255	36	210	28	263	36
21	Brighton Beach Avenue/Brighton 11	947	126	1372	107	1152	115
22	Brighton Beach Avenue/Brighton 4 Street	956	103	1757	154	1438	138
23	Ocean Parkway/Neptune Avenue	628	318	551	179	569	196
24	Coney Island Avenue/Avenue Z	749	134	555	281	480	230

Figure 5-2: Pedestrian Volume (AM Peak Hour)

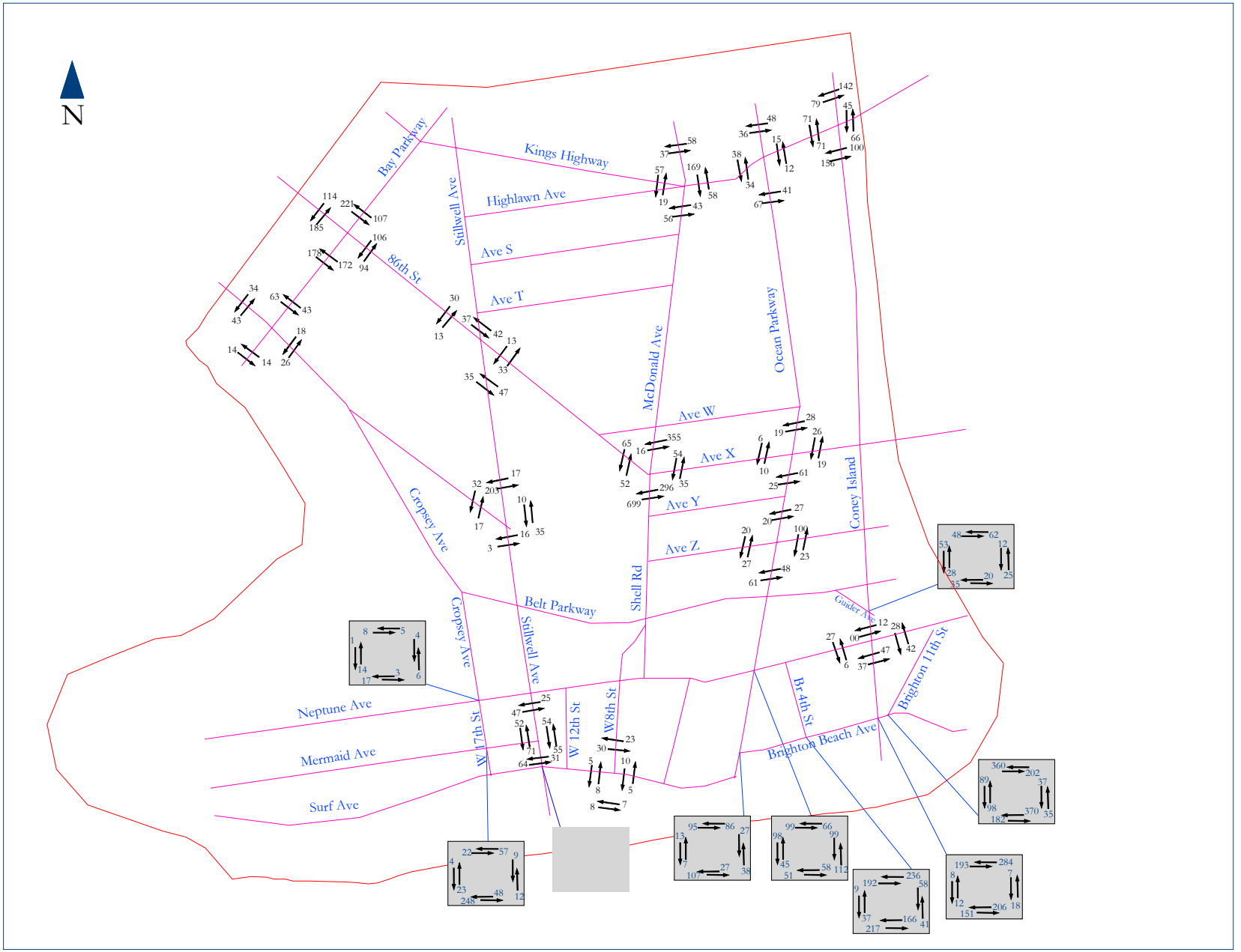


Figure 5-3: Pedestrian Volume (Midday Peak Hour)

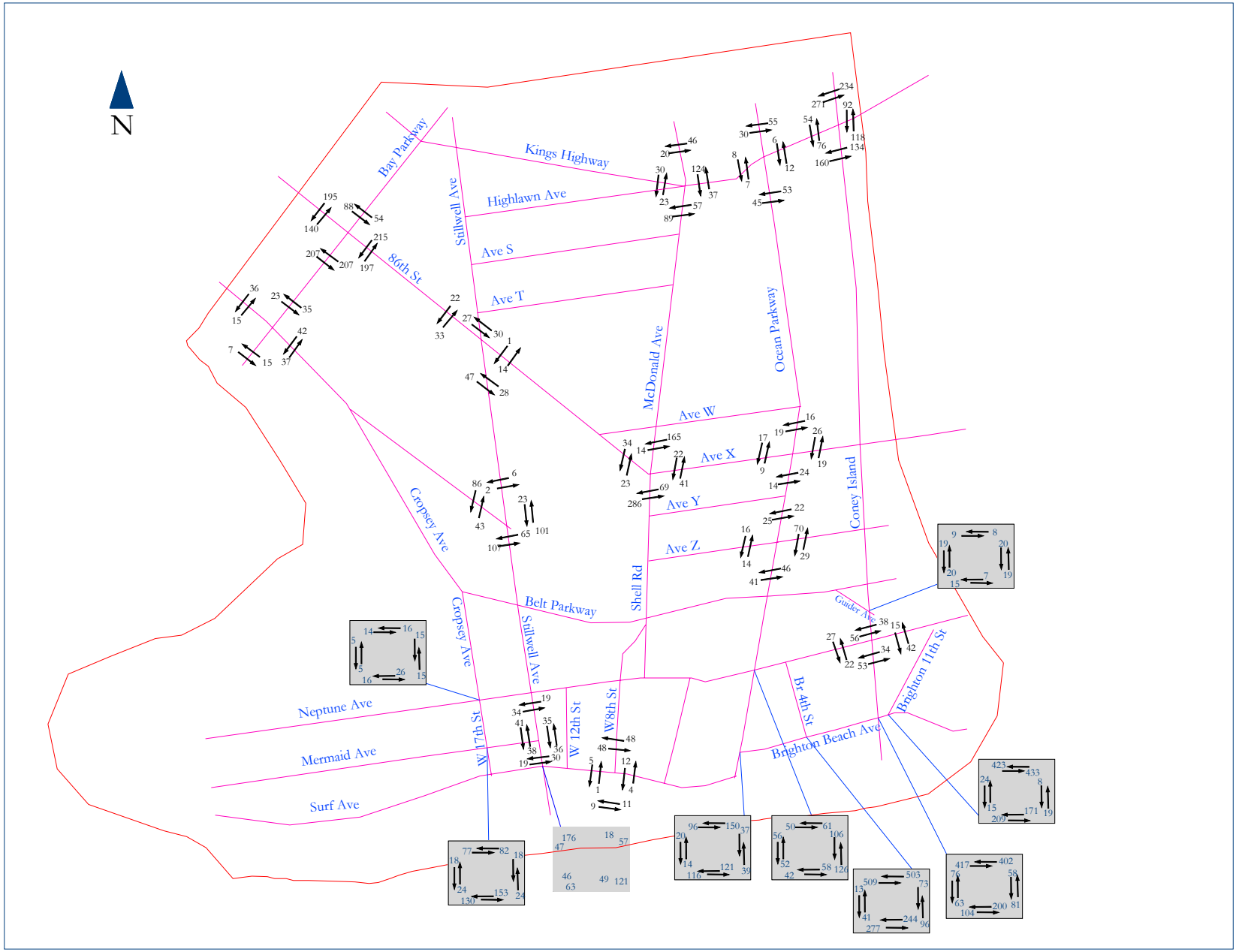
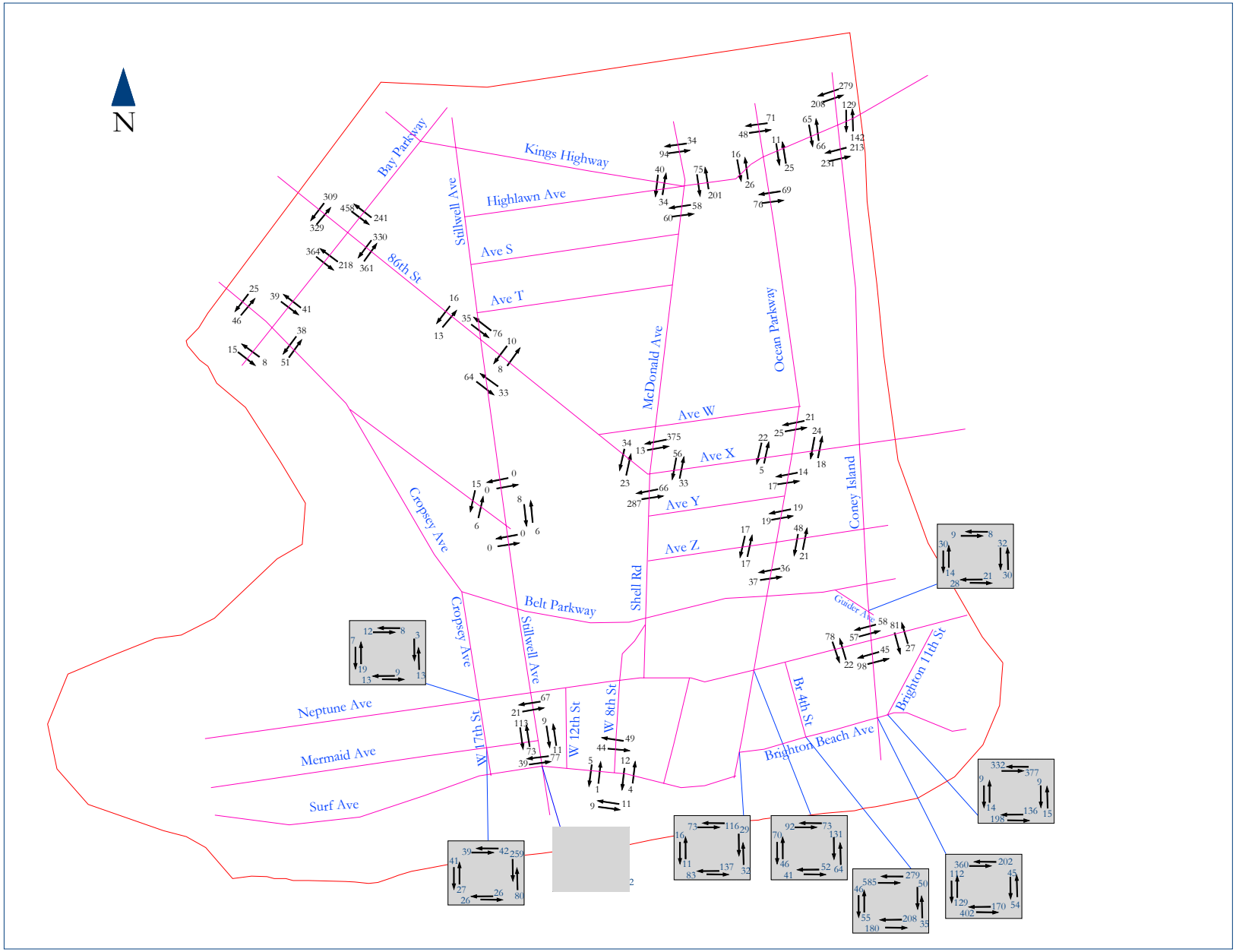


Figure 5-4: Pedestrian Volume (PM Peak Hour)



AM, midday, and PM peak hours at the selected intersections. Table 5-2 shows the existing pedestrian volumes for those intersections where counts were performed in the summer.

The Bay Parkway/86th Street intersection recorded the highest pedestrian volumes followed by the Coney Island Avenue/Brighton Beach Avenue intersection, then by the Brighton Beach Avenue/Brighton 4 Street and the Brighton Beach Avenue/Brighton 11 Street intersections with the third and fourth highest pedestrian volumes. The high pedestrian volumes at these locations are due to a combination of transit stops, transfer points, and the presence of commercial/retail activities.

The Highway Capacity Manual (2000) was used to determine pedestrian capacity at the crosswalks and corners of the intersections being studied. The analysis examined the level of service (LOS) for the AM, midday, and PM peak hours of crosswalks and corners for the 2002 existing condition. Both the crosswalk and corner analysis showed that the intersections operated at an acceptable LOS of C or better. Appendix B provides a summary of the crosswalk and corner analysis for both the weekday and summer weekday and weekend analysis. Figure 5-5 shows the criteria for analyzing pedestrian level of service as defined by the Highway Capacity Manual.

Table 5-2: Existing Condition (Summer Weekday & Weekend)
Pedestrian Crosswalk Volume

		Weekday		Weekend - Saturday		Weekend - Sunday	
	Intersection	**PM**		**PM**		**PM**	
		Cross Walk (Ped/Hr)	**Corner (Ped/Hr)**	**Cross Walk (Ped/Hr)**	**Corner (Ped/Hr)**	**Cross Walk (Ped/Hr)**	**Corner (Ped/Hr)**
1	Memaid Avenue/Stillwell Avenue	378	92			755	146
2	Surf Avenue/Stillwell Avenue	1077	548				
3	West 8th Street/Surf Avenue	128	40	824	152		
4	West 17th Street/Mermaid Avenue	268	48	394	87		
5	Ocean Parkway/Brighton Beach Avenue	1224	341				
6	West 17th Street/Surf Avenue	102	47	139	106	180	117
7	West 5th Street/Surf Avenue	339	39	142	35		
8	West 21st Street/Surf Avenue	191	75	222	114	285	102

Figure 5-5: Pedestrian Level of Service (LOS)

LEVEL OF SERVICE A

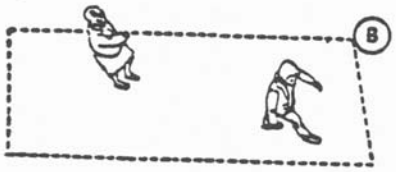
Pedestrian Space: ≥ 130 sq ft/ped Flow Rate: ≤ 2 ped/min/ft

At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.

LEVEL OF SERVICE B

Pedestrian Space: ≥ 40 sq ft/ped Flow Rate: ≤ 7 ped/min/ft

At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



LEVEL OF SERVICE C

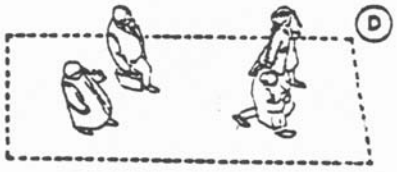
Pedestrian Space: ≥ 24 sq ft/ped Flow Rate: ≤ 10 ped/min/ft

At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.

LEVEL OF SERVICE D

Pedestrian Space: ≥ 15 sq ft/ped Flow Rate: ≤ 15 ped/min/ft

At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



LEVEL OF SERVICE E

Pedestrian Space: ≥ 6 sq ft/ped Flow Rate: ≤ 25 ped/min/ft

At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.

LEVEL OF SERVICE F

Pedestrian Space: ≤ 6 sq ft/ped Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

5.3 Existing Bicycle Analysis

According to the 2000 Census the use of bicycle as an alternative mode of transportation is limited in the study area and tends to be more for recreational purpose. According to the 2000 Census only a small percent (8% of the population walked or biked to work) of the population in the study area used bicycles as a mode of transportation. The data is supported by observations in the study area that showed a limited number of persons using bicycles. Although bicycle use in the study area appears to be low, efforts are underway to improve bicycle facilities in the study area due to its proximity to the waterfront and other recreational areas.

Currently, there are no on-street bike lanes in the study area. However, there are existing off-street greenway paths along the Coney Island Boardwalk, where cycling is permitted from 5-10 AM only, and along the medians of Ocean Parkway. Additionally, the current New York City Cycling Map identifies several recommended routes in the study area. These routes include:

- Surf Avenue (between West 36th and Ocean Parkway)
- Cropsey Avenue (between Bay Parkway and Neptune Avenue)
- West 17th Street (between Neptune and Surf Avenues)
- Bath Avenue (between Bay Parkway and Stillwell Avenue)
- Stillwell Avenue (between 86th Street and Surf Avenue)
- Neptune Avenue (between Stillwell Avenue and West End Avenue)
- Avenue T (between Stillwell Avenue and Coney Island Avenue)
- 26th Avenue (between Bath Avenue and Stillwell Avenue)
- Bay Parkway (between Bath Avenue and Cropsey Avenue)

The routes along Cropsey Avenue, West 17th Street, Surf Avenue (between West 17th Street and Ocean Parkway), and Neptune Avenue (between Ocean Parkway and West End Avenue) are greenway connector routes (on-street, signed routes). The existing greenway, recommended, and other bicycle routes are shown in Figure 5-6.

Figure 5-6: Greenways and Bicycle Routes

The Department of City Planning is currently conducting Shore Parkway Greenway (Connector Master Plan) study of bicycle routes in southern Brooklyn which includes portions of the study area. The study is exploring ways to link the Shore Parkway Greenway, which currently stops at Bay Parkway/Shore Parkway, with greenways in Coney Island.

5.4 Safety - Accidents Involving Pedestrians and Bicyclists

The accident data for 1996-2000 showed that approximately ten intersections in the study area qualified as a high accident pedestrian location for pedestrians (five or more pedestrian accidents) for one or more of the years analyzed. Table 5-3 shows the pedestrian accident history in the study area. The top ten pedestrian accident locations were:

1. Bay Parkway/86th Street
2. Coney Island Avenue/Kings Highway

Table 5-3: Pedestrian Accidents (1996-2000)

Node #	Intersection		1996	1997	1998	1999	2000	TOTAL
7059/ 7064/ 7069	Neptune Ave	Ocean Parkway	6	1	4	2	1	**14**
6907	Coney Island Ave	Guider Ave (Ramp to Belt Parkway)	1	0	0	1	0	**2**
7931	Neptune Ave	W 17th Street	0	0	2	0	1	**3**
8200	Avenue Z	Coney Island Ave	3	3	1	5	3	**15**
7927	Neptune Av	W 8th Street	0	2	0	2	0	**4**
7073/ 7099/ 7120	Ocean Parkway	Avenue Z	1	3	0	2	2	**8**
8255	Avenue U	Coney Island Ave	3	0	1	6	1	**11**
7086/ 7107/ 7134	Avenue S	Ocean Parkway	0	2	2	2	2	**8**
8044	Coney Island Ave	Neptune Ave	4	4	5	2	0	**15**
6839	Cropsey Ave	Bay Parkway	2	1	1	2	2	**8**
7442	Bath Ave	Bay Parkway	1	2	0	4	2	**9**
8074	Brighton Beach Ave	Coney Island Ave	2	4	2	2	0	**10**
7076/ 7100/ 7123	Avenue Y	Ocean Parkway	0	0	0	0	0	**0**
7101/ 7126/ 7079	Ocean Parkway	Avenue X	1	1	0	0	1	**3**
7440	86th Street	Bay Parkway	3	5	4	5	7	**24**
8269	Avenue V	Coney Island Ave	0	1	0	0	0	**1**
7088/ 7136/ 7109	Ocean Parkway	Kings Highway	0	0	2	2	2	**6**
8032	Neptune Ave	W 5th Street	5	3	1	2	3	**14**
7021	Shore Boulevard	Emmons Ave	1	1	1	1	0	**4**
8241	Avenue S	Coney Island Ave	0	1	1	0	0	**2**
7084/ 7105/ 7132	Avenue U	Ocean Parkway	0	1	2	3	1	**7**
8316	Avenue Y	Coney Island Ave	0	2	0	0	1	**3**
7441	Bay Parkway	Benson Ave	1	2	1	1	1	**6**
7770	86th Street	Avenue X	1	0	0	1	1	**3**
7085/ 7106/ 7133	Avenue T	Ocean Parkway	0	0	2	0	1	**3**
8376	Kings Highway	Coney Island Ave	2	5	5	1	5	**18**

3. Ocean Parkway/Neptune Avenue
4. Neptune Avenue/West 8th Street
5. Brighton Beach Avenue/Brighton 5th Street
6. Coney Island Avenue/Neptune Avenue
7. Kings Highway/East 13th Street
8. Avenue Z/Coney Island Avenue
9. Avenue U/Coney Island Avenue
10. Kings Highway/West 6th Street

Table 5-4 shows the accident history for cyclists at the 27 locations selected for detailed accident analysis in the study area between 1996 and 2000 as well as other locations that had two or more accidents involving cyclists.

5.5 Pedestrian and Bicycle Issues in the Public Participation Process

At public meetings held in June and November residents expressed some of their concerns and desires regarding pedestrian and bicycle issues in the study area. Residents identified the following pedestrian or bicycle issues:

- Neptune Avenue is not pedestrian friendly.
- The intersection of Neptune Avenue/West 6th Street is a difficult location for pedestrians to cross, especially the elderly.
- Existing subway stations should be made handicapped accessible.
- The pedestrian bridge over Surf Avenue at West 8th Street needs to be repaired.
- Sidewalks along Cropsey, Stillwell, and Neptune Avenues are blocked by activities related to auto repair shops.
- A refuge island should be added to wide streets such as Surf Avenue and Neptune Avenue.
- The intersection of Cropsey Avenue/Canal Street is unsafe for pedestrian to cross.
- Pedestrian crosswalks are needed at intersections adjacent to Keyspan Park.
- Bike amenities are needed.
- Handicapped access to the beach from the boardwalk is needed.
- Better mid-block pedestrian access is needed to Luna Park.
- Faulty pedestrian signals need to be repaired speedily and regularly maintained.

Table 5-4: Bicycle Accidents (1996-2000)

Node #	Intersection		1996	1997	1998	1999	2000	TOTAL
7059/ 7064/ 7069	Neptune Ave	Ocean Parkway	2	0	0	1	1	**4**
6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	1	0	1	0	1	**3**
7931	Neptune Ave	W 17th Street	1	0	0	0	0	**1**
8200	Avenue Z	Coney Island Ave	0	1	0	0	2	**3**
7927	Neptune Av	W 8th Street	0	0	1	0	1	**2**
7073/ 7099/ 7120	Ocean Parkway	Avenue Z	1	0	0	0	1	**2**
8255	Avenue U	Coney Island Ave	0	0	0	1	0	**1**
7086/ 7107/ 7134	Avenue S	Ocean Parkway	2	1	0	0	0	**3**
8044	Coney Island Ave	Neptune Ave	0	1	0	0	4	**5**
6839	Cropsey Ave	Bay Parkway	1	2	2	1	1	**7**
7442	Bath Ave	Bay Parkway	1	0	0	1	0	**2**
8074	Brighton Beach Ave	Coney Island Ave	1	1	0	1	1	**4**
7076/ 7100/ 7123	Avenue Y	Ocean Parkway	1	0	1	2	0	**4**
7101/ 7126/ 7079	Ocean Parkway	Avenue X	1	2	1	0	0	**4**
7440	86th Street	Bay Parkway	1	0	0	0	0	**1**
8269	Avenue V	Coney Island Ave	0	0	1	0	0	**1**
7088/ 7136/ 7109	Ocean Parkway	Kings Highway	1	0	0	1	1	**3**
8032	Neptune Ave	W 5th Street	0	0	2	0	0	**2**
7021	Shore Boulevard	Emmons Ave	0	1	1	0	0	**2**
8241	Avenue S	Coney Island Ave	0	0	1	0	0	**1**
7084/ 7105/ 7132	Avenue U	Ocean Parkway	4	0	2	0	2	**8**
8316	Avenue Y	Coney Island Ave	1	0	1	0	0	**2**
7441	Bay Parkway	Benson Ave	1	1	1	1	0	**4**
7770	86th Street	Avenue X	1	1	0	0	0	**2**
7085/ 7106/ 7133	Avenue T	Ocean Parkway	1	2	0	0	0	**3**
8376	Kings Highway	Coney Island Ave	1	0	1	1	0	**3**

6. ACCIDENT AND SAFETY ANALYSIS

6.1 Introduction

An accident and safety analysis is an important component of traffic and transportation planning studies as accident frequency and patterns can shed light on locations needing special attention and possibly safety improvement measures. In order to identify the locations where traffic accidents are prevalent and where safety issues may exist in the study area, it was necessary to gather and analyze a set of accident data that would establish patterns. Consequently all the existing accident data for the period 1996 to 2000 was assembled and analyzed. These records were collected using the New York City Department of Transportation (NYCDOT) accident database which includes New York State Department of Motor Vehicle (NYSDMV) and New York Police Department (NYPD) reported accidents. This data was used to identify critical locations with high accident frequency, to determine the severity, type, and cause of the accidents as well as other pertinent factors.

The traffic accident analysis showed that some intersections in the study area ranked among the top 75 accident-prone locations in Brooklyn. As a result, the detailed traffic accident analysis concentrated only on those locations where the average annual reportable accident for the analysis period was greater than 20. There were 26 locations, located primarily along the main corridors that met this criterion. Table 6-1 shows the 26 intersections studied and a summary of their accident history from 1996 to 2000; the location of these intersections is also shown in Figure 6-1.

Analysis of the accidents by corridors showed that each year Coney Island Avenue had the highest number of accidents. The data also showed that the Neptune Avenue/Ocean Parkway intersection was the most critical location with an average of 49 accidents per year for the five years analyzed. The second most critical intersection was Coney Island Avenue/Avenue Z with an average of 39 accidents per year. The data showed that there was one location with an average between 41 to 50 accidents per year, four locations with between 31 to 40 accidents, and twenty-one locations that averaged between 20 to 30 accidents per year.

Table 6-1: Study Area Accident History (1996-2000)

No	Node#	Main Street	Cross Street	1996	1997	1998	1999	2000	Total	Average
1	7059/7064/7069	Neptune Avenue	Ocean Parkway	51	38	45	59	52	245	49
2	8200	Avenue Z	Coney Island Avenue	32	48	37	46	31	194	39
3	6907	Coney Island Avenue	Guider Avenue (Ramp to Belt Pkwy)	41	39	43	29	24	176	35
4	8044	Coney Island Avenue	Emmons Avenue	27	33	27	38	47	172	34
5	6839	Cropsey Avenue	Bay Parkway	25	28	39	32	34	158	32
6	7073/7099/7120	Ocean Parkway	Avenue Z	30	30	22	31	31	144	29
7	7440	86th Street	Bay Parkway	23	26	31	27	34	141	28
8	8032	Neptune Avenue	West 5th Street	21	25	32	35	27	140	28
9	7088/7136/7109	Ocean Parkway	Kings Highway	23	26	33	35	19	136	27
10	7931	Neptune Avenue	West 17th Street	32	17	31	27	27	134	27
11	8074	Brighton Beach Avenue	Coney Island Avenue	24	24	25	32	28	133	27
12	7086/7107/7134	Avenue S	Ocean Parkway	28	18	28	35	23	132	26
13	8255	Avenue U	Coney Island Avenue	29	17	24	30	24	124	25
14	7085/7106/7133	Avenue T	Ocean Parkway	14	22	24	31	32	123	25
15	7442	Bath Avenue	Bay Parkway	24	19	28	27	21	119	24
16	7927	Neptune Avenue	West 8th Street	30	24	19	24	21	118	24
17	7770	86th Street	Avenue X	16	19	24	30	22	111	22
18	7084/7105/7132	Avenue U	Ocean Parkway	19	15	25	23	28	110	22
19	7441	Bay Parkway	Benson Avenue	16	19	31	18	25	109	22
20	7021	Shore Boulevard	Emmons Avenue	20	21	22	19	21	103	21
21	8376	King Highway	Coney Island Avenue	13	26	20	22	21	102	20
22	7101/7126/7079	Ocean Parkway	Avenue X	24	20	19	21	18	102	20
23	8241	Avenue S	Coney Island Avenue	20	18	29	11	23	101	20
24	8269	Avenue V	Coney Island Avenue	23	17	18	20	21	99	20
25	8316	Avenue Y	Coney Island Avenue	17	18	24	15	24	98	20
26	7076/7100/7123	Avenue Y	Ocean Parkway	24	19	18	16	21	98	20
TOTAL				**646**	**626**	**718**	**733**	**699**	**3,422**	**684**

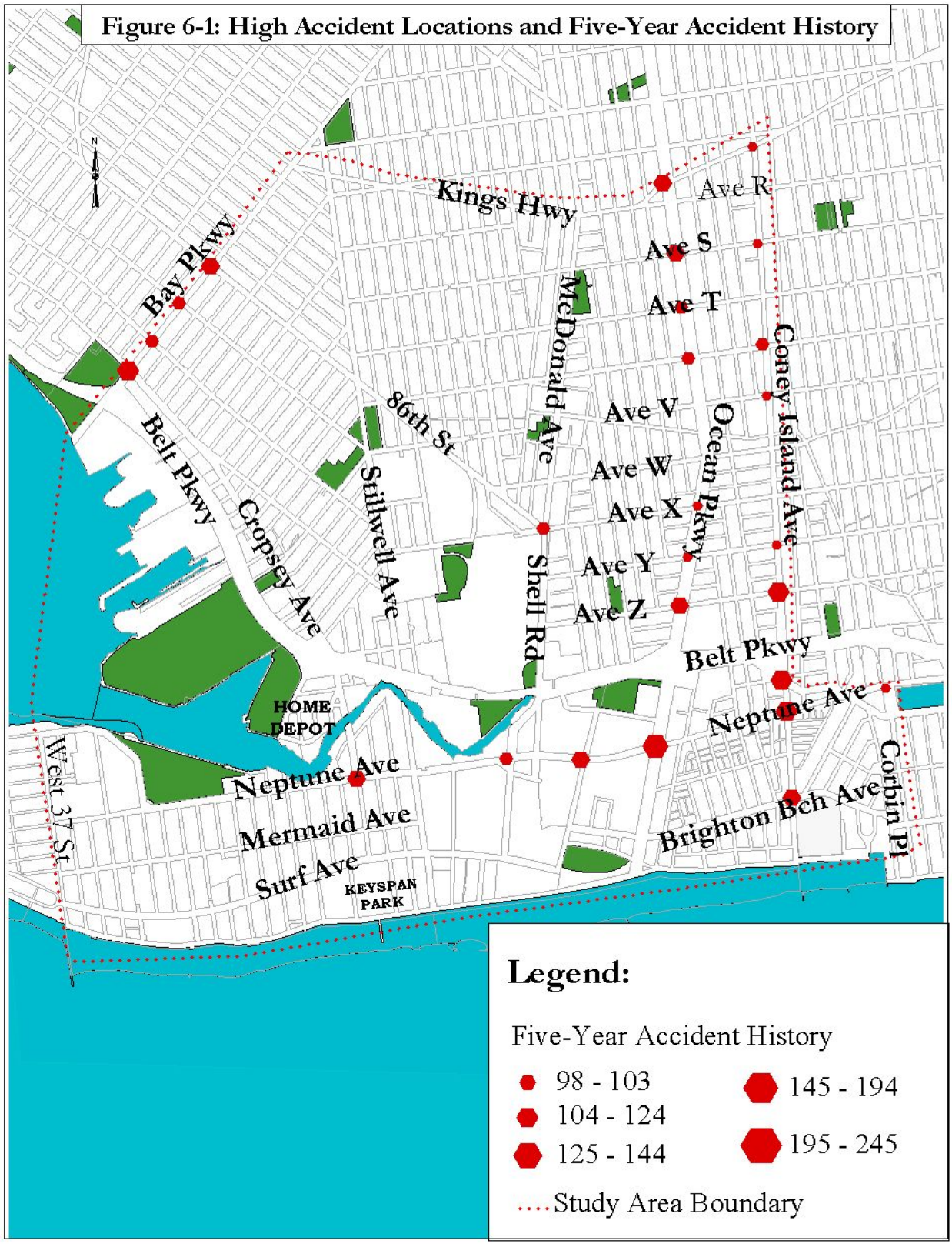


Figure 6-1: High Accident Locations and Five-Year Accident History
Kings Hwy
Ave R
Ave S
Ave T
Ave V
Ave W
Ave X
Ave Y
Ave Z
Bay Pkwy
Belt Pkwy
Cropsey Ave
Stillwell Ave
86th St
McDonald Ave
Ocean Pkwy
Coney Island Ave
Shell Rd
Belt Pkwy
Neptune Ave
HOME DEPOT
West 37 St
Neptune Ave
Mermaid Ave
Surf Ave
KEYSPAN PARK
Brighton Bch Ave
Corbin Pl
Legend:
Five-Year Accident History
98 - 103
104 - 124
125 - 144
145 - 194
195 - 245
Study Area Boundary

6.2 Cost Analysis of Accidents

There is a cost associated with all accidents – reportable and non-reportable. For reportable accidents, a cost is assigned based on the severity of personal injury and the amount of property damage sustained in the accident. There are three classifications for personal injury – Type A, Type B, and Type C; Type C being the least severe and Type A being the most severe form of injury.

The NYCDOT Safety Division developed a set of equations to assess a location's relative accident experience in a quantitative measurement. These equations allow us to calculate the Severity and Frequency Factor of a location. In addition, the ratio of the Severity to Frequency Factor, the Composite Index, makes it possible for one to determine if the accidents at a location is skewed toward severity or frequency.

Severity Factor

The severity factor (SF) was developed from accident cost research. It describes the cost associated with an accident based on its classification among the six different accidents classes utilized by New York State and shown in Table 6-2.

Table 6-2: Average Cost of Accidents by Class

Accidents Class	Average Cost	Relative Weight
Non-Reportable (NR)	$1,000	1
Property Damage (PD)	$3,800	4
Injury-Class C (IC)	$96,000	96
Injury-Class B (IB)	$385,000	385
Injury-Class A (IA)	$1,548,000	1,548
Fatal Accidents (FA)	$3,468,000	3,468

Non-Reportable accidents are defined as any accident that costs under $1,000. These are the least severe and costly accidents with the average non-reportable accident in New York costing $1,000. The average cost for property damage is $3,800. It is important to point out that property

damage is considered only when public or private properties such as buildings, houses, business stores or other assets are damaged but does not include damage or injuries to the cars, pedestrians or bicyclists involved in the accident. An accident class (A, B, or C) is determined by the most severe physical injury irrespective of the number of injuries incurred. An accident is considered fatal when someone dies as a result of injuries sustained in the accident.

The relative weight scale is used to facilitate comparisons of the financial cost of each type of accident. For example, if an accident resulted in a Class C injury, its average cost would be 96 times that of a non-reportable accident. The use of the relative weight values allows us to determine the final severity factor and assign a value between 0 and 10. Various levels of severity can be determined from the relative weight assigned to each accident class.

In the mathematical expression for the calculation of the severity factor, the relative weight of each accident class is multiplied by the number of accidents and summed. Later the natural logarithm of the sum is taken. The equation used to calculate the severity factor is as follows:

$$Ln(1*NR+4*PD+96*IC+385*IB+1548*IA+3468*FA)$$

Table 6-3 illustrates the calculation of the severity factor for accidents that occurred at Bay Parkway/Benson Avenue in 1998.

Table 6-3: Calculation of Severity Factor at Bay Parkway/Benson Avenue (1998)

Accidents Class	Relative Weight	Frequency (1998)	Total Relative Weight
Non-Reportable (NR)	1	15	15
Property Damage (PD)	4	0	0
Injury-Class C (IC)	96	15	1,440
Injury-Class B (IB)	385	4	1,540
Injury-Class A (IA)	1,548	4	6,192
Fatal accidents (FA)	3,468	1	3,468
		Total	12,655
		SF=Ln (Total)	**9.45**

The severity factor of 9.45 indicates that this location tends to have accidents with significant levels of damage with the likelihood of accidents resulting in Class A injuries. The total cost for accidents occurring at this location in 1998 is shown below in Table 6-4.

Table 6-4: Total Cost of Accidents at Bay Parkway/Benson Avenue (1998)

No. of Accidents	Accidents Class	Average Cost	Total Cost
15	Non-Reportable	$1,000	$15,000
0	Property Damage	$3,800	$0
15	Injury-Class C	$96,000	$1,440,000
4	Injury-Class B	$385,000	$1,540,000
4	Injury-Class A	$1,548,000	$6,192,000
1	Fatal Accident	$3,468,000	$3,468,000
		Total Cost:	$12,655,000

The analysis shows that the total cost for the 39 accidents that occurred at this intersection in 1998 was approximately $6.9 million with the highest cumulative cost resulting from four Class A injuries.

Frequency Factor

The frequency at which accidents occur at a location (frequency factor (FF)) is an additional tool to help understand accidents at a location. The frequency factor is based in part on the accident records supplied by NYSDMV and NYSDOT Centralized Local Accident Surveillance System (CLASS). The CLASS system evolved from a ten-year (1983-1992) study that identified the 10 locations with the highest number of accidents in the state, city, or geographical region. Locations with an average of 152 accidents were assigned a value of 10. For the final equation the frequency factor was also expressed as a natural logarithm and assigned a value between 0 and 10. The mathematical equation used is:

$$2 * Ln(number\ of\ \ accidents)\ or\ Ln(number\ of\ \ accidents)^2$$

Following the example used above, the frequency factor at the Bay Parkway/Benson Avenue intersection in 1998 is calculated as follows:

$$FF = 2 * Ln(number\ of\ \ accidents) = 2 * Ln(31) = 6.87\ or$$
$$FF = Ln(number\ of\ \ accidents)^2 = Ln(31)^2 = 6.87$$

Composite Index

The composite index (CI) indicates the ratio of the severity factor to the frequency factor. This index represents the distribution characteristics of a location's accidents with respect to the expected norm - 1.0. If this index is greater than 1.0, the location's accidents is skewed toward severity; if the index is less than 1.0, then it is skewed toward frequency.

Using the example of the Bay Parkway/Benson Avenue intersection, the Composite Index for year 1998 was:

$$CI = SF / FF = 9.21 / 6.87 = 1.34$$

With a severity factor greater than 7.0, a frequency factor greater than 6.0, and a composite index greater than 1.0, accidents with a fatality or Type A injuries are likely to happen at this location.

Table 6-5 shows a summary of sample severity factors, frequency factors, and composite index values that correspond to the type of injury and damage that is sustained in an accident.

Table 6-5: The Meaning of Critical Factors in Accidents

Severity Factor	Frequency Factor	Composite Index
7-10	7-10	>1.0
This scenario indicates the likelihood of fatal accidents or Type A injuries, or random accidents.		
Severity Factor	Frequency Factor	Composite Index
7-10	7-10	<1.0
This scenario indicates Type A and B injuries, no fatalities, but significant damages.		
Severity Factor	Frequency Factor	Composite Index
7-10	7-10	=1.0
This scenario illustrates fatal accidents or Type A or B injuries, there is both frequency and severity.		
Severity Factor	Frequency Factor	Composite Index
4-7	4-7	<1.0
This scenario illustrates Type C injuries and non-reportable accidents.		
Severity Factor	Frequency Factor	Composite Index
4-7	4-7	>1.0
This scenario illustrates Type C injuries and non-reportable accidents.		

6.3 Annual Accident Analysis

A. 1996

In 1996, the 26 intersections being analyzed experienced a total of 646 accidents, from which 331 (51%) were reportable. Figure 6-2 shows the distribution of accidents in the study area and Table 6-6 provides a detailed summary of these accidents. There were no fatalities; however there were 24 class A, 40 class B and 233 class C injuries. The intersection of Neptune Avenue/Ocean Parkway had the highest number of accidents (51), which resulted in 42 injuries, 5 of which were class A. The second highest location was Coney Island Avenue/Guider Avenue (Ramp to Belt Parkway) that had 41 accidents, including 29 injuries. The next two locations were Neptune Avenue/West 17th Street/Cropsey Avenue and Coney Island Avenue/Avenue Z, both of which had 32 accidents.

Accidents Involving Pedestrians and Bicyclists

In 1996 there were 37 accidents involving pedestrians at various locations in the study area. Six of these accidents occurred at the intersection of Neptune Avenue/Ocean Parkway. The critical locations for pedestrian accidents are those having three or more accidents involving pedestrians. There were 23 accidents involving bicyclists in the study area. The only critical location for accidents involving bicyclists was Ocean Parkway/Avenue U where there were four accidents involving bicyclists.

Accidents by Collision Type

The analysis of accidents that occurred in 1996 by the collision type showed that 30% were left turns, 40% were right angles, and 20% were rear ends. The three most critical locations for each of the three most prominent collision types were:

Left Turn:

1. Neptune Avenue/Ocean Parkway (9)
2. Coney Island Avenue/Guider Avenue (Ramp Belt Parkway) (7)
3. Emmons Avenue/Shore Boulevard (7)


Figure 6-2: 1996 Accident History
Kings Hwy
Ave R
Ave S
Ave T
Ave V
Ave W
Ave X
Ave Y
Ave Z
Bay Pkwy
Belt Pkwy
Cropsey Ave
86th St
Stillwell Ave
McDonald Ave
Shell Rd
Ocean Pkwy
Coney Island Ave
Belt Pkwy
Neptune Ave
Brighton Bch Ave
Corbin Pl
HOME DEPOT
West 37 St
Neptune Ave
Mermaid Ave
Surf Ave
KEYSPAN PARK
Legend:
1996 Accident History
< 15
16 - 30
31 - 45
46 - 51
Study Area Boundary

Table 6-6: Summary of Traffic Accidents (1996)

									ACCIDENT TYPE												
No	Node #	Main St	Cross St	Total Acc	RPT	Non-RPT	Fatal	Injury	Peds	Bikes	Fixed Obj.	Wet Road	Night	Left Turn	Rear End	Over-Taking	Right Angle	Right Turn	Head On	Side-Swipe	Other
1	7059/ 7064/ 7069	Neptune Ave	Ocean Pkwy	51	25	26	0	42	6	2	0	5	8	9	4	0	1	1	0	0	2
2	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	41	21	20	0	29	1	1	0	7	4	7	6	3	1	1	0	0	1
3	7931	Neptune Ave	W 17th St	32	16	16	0	26	0	1	3	4	8	3	1	2	1	1	1	0	3
4	8200	Avenue Z	Coney Island Ave	32	15	17	0	19	3	0	0	3	3	4	5	0	1		0	2	0
5	7927	Neptune Av	W 8th St	30	11	19	0	24	0	0	0	3	3	6	1	2	0	0	0	0	2
6	7073/ 7099/ 7120	Ocean Pkwy	Avenue Z	30	14	16	0	19	1	1	0	2	3	3	3	1	3	0	1	1	0
7	8255	Avenue U	Coney Island Ave	29	9	20	0	14	3	0	0	2	4	2	2	2	0	0	0	1	0
8	7086/ 7107/ 7134	Avenue S	Ocean Pkwy	28	19	9	0	26	0	2	1	2	7	3	4	2	5	0	0	0	2
9	8044	Coney Island Ave	Neptune Ave	27	16	11	0	20	4	0	0	7	5	5	1	0	3	1	0	1	1
10	6839	Cropsey Ave	Bay Pkwy	25	12	13	0	24	2	1	0	0	5	2	1	1	4	0	0	0	1
11	7442	Bath Ave	Bay Pkwy	24	9	15	0	10	1	1	1	1	0	2	1	2	1	0	0	0	0
12	8074	Brighton Beach Ave	Coney Island Ave	24	11	13	0	17	2	1	0	2	3	4	1	2	0	1	0	0	0
13	7076/ 7100/ 7123	Avenue Y	Ocean Pkwy	24	14	10	0	22	0	1	0	2	5	2	2	3	4	0	0	0	2
14	7101/ 7126/ 7079	Ocean Pkwy	Avenue X	24	9	15	0	14	1	1	0	1	3	3	0	0	4	0	0	0	0
15	7440	86th St	Bay Pkwy	23	12	11	0	13	3	1	0	0	1	0	2	1	4	0	0	0	1
16	8269	Avenue V	Coney Island Ave	23	9	14	0	20	0	0	0	3	0	2	5	0	1	0	0	0	1
17	7088/ 7136/ 7109	Ocean Pkwy	Kings Hwy	23	14	9	0	24	0	1	0	1	5	6	2	0	3	2	0	0	0
18	8032	Neptune Ave	W 5th St	21	17	4	0	24	5	0	0	7	7	5	0	1	3	1	0	1	1
19	7021	Shore Blvd	Emmons Ave	20	13	7	0	19	1	0	0	3	4	7	2	1	1	0	0	0	1
20	8241	Avenue S	Coney Island Ave	20	10	10	0	11	0	0	0	1	4	1	4	2	2	0	0	0	1
21	7084/ 7105/ 7132	Avenue U	Ocean Pkwy	19	13	6	0	22	0	4	0	2	6	1	2	1	3	0	0	0	2
22	8316	Avenue Y	Coney Island Ave	17	8	9	0	7	0	1	0	3	4	1	3	1	1	0	0	0	1
23	7441	Bay Pkwy	Benson Ave	16	10	6	0	15	1	1	1	0	2	1	1	1	3	0	0	0	1
24	7770	86th St	Avenue X	16	10	6	0	11	1	1	0	2	2	2	2	1	1	0	0	0	2
25	7085/ 7106/ 7133	Avenue T	Ocean Pkwy	14	8	6	0	8	0	1	1	2	3	0	0	1	4	1	0	0	0
26	8376	King Hwy	Coney Island Ave	13	6	7	0	8	2	1	0	0	2	1	0	0	1	1	0	0	0
TOTAL				646	331	315	0	488	37	23	7	65	101	82	55	30	55	10	2	6	25

Right Angle:

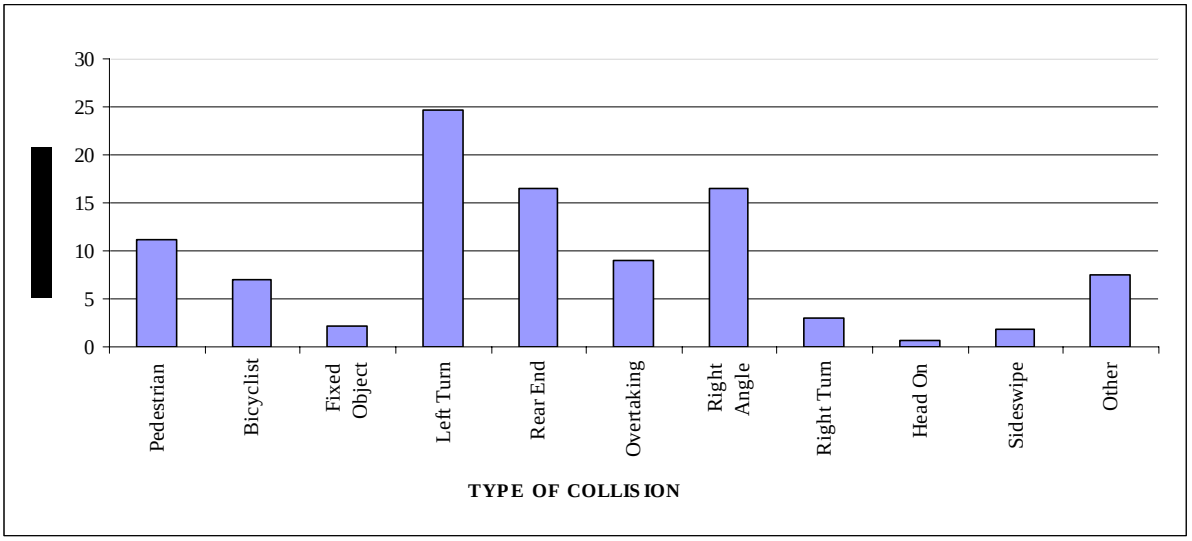
1. Ocean Parkway/Avenue S (5)
2. Ocean Parkway/Avenue X, Avenue Y, Avenue T (4)
3. Cropsey Avenue/Bay Parkway (4)
4. 86th Street/Bay Parkway (4)

Rear End:

1. Coney Island Avenue/Guider Avenue (Ramp Belt Parkway) (6)
2. Coney Island Avenue/Avenue V (5)
3. Coney Island Avenue/Avenue Z (5)

Chart 6-1 shows the distribution of reportable accidents in 1996 including those involving pedestrians and bicyclists.

Chart 6-1: 1996 Accidents by Collision Type



Accident Severity/Frequency Factors

During 1996, 17 intersections had a severity factor greater than 7.0, and 14 intersections had a frequency factor greater than 6.0. These intersections are shown in Table 6-7. The composite index for 25 of the 26 intersections being analyzed was greater than 1.0. This indicates that the majority of the accidents that occurred at these locations were skewed toward severity.

Table 6-7: Traffic Accident Analysis (1996)

No	Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
1	7059/7064/7069	Neptune Ave	Ocean Pkwy	0	5	0	19	1	26	51	8.66	6.80	1.27
2	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	0	2	4	12	3	20	41	8.43	7.43	1.13
3	7770	86th St	Avenue X	0	3	1	5	1	6	16	8.37	5.55	1.51
4	7073/7099/7120	Ocean Pkwy	Avenue Z	0	3	0	10	1	16	30	8.05	6.09	1.32
5	7927	Neptune Av	W 8th St	0	2	0	8	1	19	30	8.03	6.80	1.18
6	6839	Cropsey Ave	Bay Pkwy	0	1	4	7	0	13	25	8.00	6.44	1.24
7	8044	Coney Island Ave	Neptune Ave	0	1	2	11	2	11	27	7.89	6.59	1.20
8	7088/7136/7109	Ocean Pkwy	Kings Hwy	0	1	4	8	1	9	23	7.86	5.78	1.36
9	7086/7107/7134	Avenue S	Ocean Pkwy	0	1	2	12	4	9	28	7.83	5.89	1.33
10	8074	Brighton Beach Ave	Coney Island Ave	0	1	2	8	0	13	24	7.80	6.36	1.23
11	8032	Neptune Ave	W 5th St	0	1	0	15	1	4	21	7.77	6.09	1.28
12	7931	Neptune Ave	W 17th St	0	0	5	9	2	16	32	7.71	6.93	1.11
13	8200	Avenue Z	Coney Island Ave	0	1	0	12	2	17	32	7.67	6.93	1.11
14	8241	Avenue S	Coney Island Ave	0	1	1	5	3	10	20	7.56	5.99	1.26
15	7085/7106/7133	Avenue T	Ocean Pkwy	0	1	1	5	1	6	14	7.38	4.97	1.48
16	8255	Avenue U	Coney Island Ave	0	0	3	5	1	20	29	7.18	6.73	1.07
17	7021	Shore Blvd	Emmons Ave	0	0	2	9	2	7	20	7.17	5.99	1.20
18	7076/7100/7123	Avenue Y	Ocean Pkwy	0	0	2	12	0	10	24	6.97	5.28	1.32
19	7440	86th St	Bay Pkwy	0	0	0	12	0	11	23	6.83	6.27	1.09
20	8269	Avenue V	Coney Island Ave	0	0	1	8	0	14	23	6.83	6.27	1.09
21	7441	Bay Pkwy	Benson Ave	0	0	1	8	1	6	16	6.83	5.55	1.23
22	8376	King Hwy	Coney Island Ave	0	0	2	4	0	7	13	6.82	3.13	2.18
23	7084/7105/7132	Avenue U	Ocean Pkwy	0	0	2	9	2	6	19	6.74	5.42	1.24
24	8316	Avenue Y	Coney Island Ave	0	0	1	5	2	9	17	6.55	5.67	1.16
25	7442	Bath Ave	Bay Pkwy	0	0	0	7	2	15	24	6.32	6.36	0.99
26	7101/7126/7079	Ocean Pkwy	Avenue X	0	0	0	8	1	15	24	6.30	5.67	1.11

B. 1997

In 1997, there were 626 accidents at the 26 intersections analyzed. Fifty-five percent (339) of these accidents were reportable. There were no fatalities, 17 Class A injuries, 47 Class B injuries, and 248 Class C injuries. Figure 6-3 shows the distribution of accidents in the study area and Table 6-8 provides a detailed summary of these accidents.

The Coney Island Avenue/Avenue Z intersection had the highest number of accidents (48) with 30 being reportable. There was no fatality at this intersection; however it had the highest number of injuries (54). The Coney Island Avenue/Guider Avenue (Ramp to Belt Parkway) intersection had the second highest number of accidents in 1997 with 39; 50% of these accidents were reportable. The third ranked intersection was Neptune Avenue/Ocean Parkway with 38 accidents.

Accidents Involving Pedestrians and Bicyclists

In 1997, there were 44 pedestrians and 13 bicyclists involved in accidents. The most critical locations were King Highway/Coney Island Avenue and 86th Street/Bay Parkway with five pedestrian accidents each.

Accidents by Collision Type

The collision data showed that 24% of the accidents at the intersections being analyzed were left turns, 23% were right angles, and 20% were rear end collisions. The most critical intersections for the three most prominent type of collision were:

Left Turn:

1. 86th Street/Avenue X (7)
2. Neptune Avenue/West 8th Street (6)
3. Coney Island Avenue/Guider Avenue (Ramp Belt Parkway) (6)
4. Coney Island Avenue/Avenue Z (6)

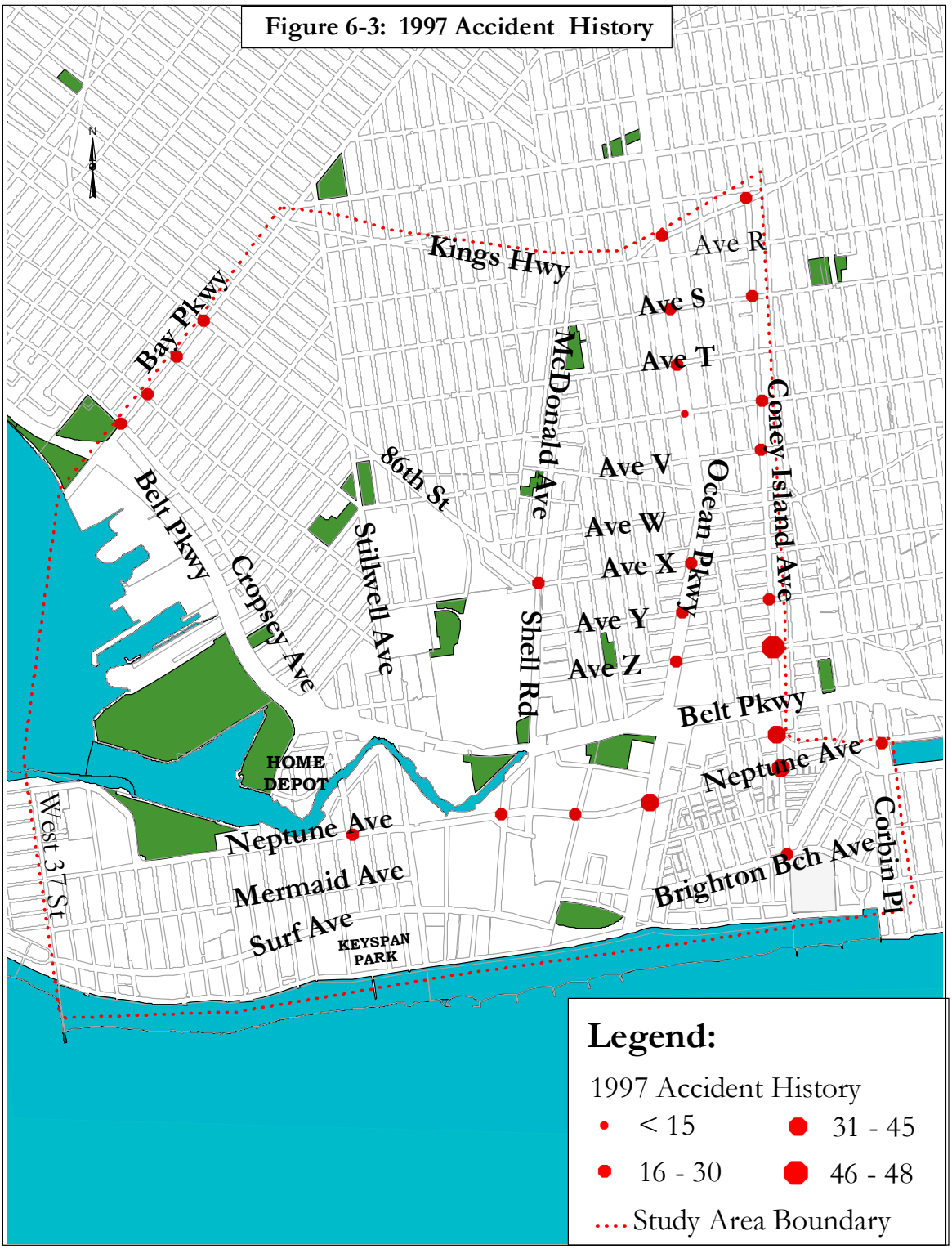


Figure 6-3: 1997 Accident History
N
Kings Hwy
Ave R
Ave S
Ave T
Ave V
Ave W
Ave X
Ave Y
Ave Z
Bay Pkwy
Belt Pkwy
Cropsey Ave
Stillwell Ave
86th St
McDonald Ave
Shell Rd
Ocean Pkwy
Coney Island Ave
Belt Pkwy
Neptune Ave
Brighton Bch Ave
Corbin Pl
HOME DEPOT
Neptune Ave
West 37 St
Mermaid Ave
Surf Ave
KEYSPAN PARK
Legend:
1997 Accident History
< 15
16 - 30
31 - 45
46 - 48
Study Area Boundary

Table 6-8: Summary of Traffic Accidents (1997)

									ACCIDENT TYPE												
No	Node #	Main St	Cross St	Total Acc	RPT	Non-RPT	Fatal	Injury	Peds	Bikes	Fixed Obj.	Wet Road	Night	Left Turn	Rear End	Over-Taking	Right Angle	Right Turn	Head On	Side-Swipe	Other
1	8200	Avenue Z	Coney Island Ave	48	30	18	0	54	3	1	0	10	9	6	7	2	4	0	0	2	5
2	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	39	19	20	0	26	0	0	1	7	7	6	4	1	5	0	0	0	2
3	7059/ 7064/ 7069	Neptune Ave	Ocean Pkwy	38	21	17	0	52	1	0	0	4	11	5	3	4	4	1	0	0	3
4	8044	Coney Island Ave	Neptune Ave	33	15	18	0	23	4	1	0	5	3	1	3	0	4	0	0	0	2
5	7073/ 7099/ 7120	Ocean Pkwy	Avenue Z	30	14	16	0	19	3	0	0	2	5	1	5	2	2	0	0	0	1
6	6839	Cropsey Ave	Bay Pkwy	28	14	14	0	20	1	2	0	0	1	4	2	0	3	0	0	0	2
7	7440	86th St	Bay Pkwy	26	12	14	0	15	5	0	0	1	5	0	2	1	2	1	0	0	1
8	8376	King Hwy	Coney Island Ave	26	11	15	0	21	5	0	0	3	7	1	2	2	0	0	0	0	1
9	7088/ 7136/ 7109	Ocean Pkwy	Kings Hwy	26	11	15	0	13	0	0	0	5	5	3	0	3	4	0	0	0	1
10	8032	Neptune Ave	W 5th St	25	11	14	0	19	3	0	0	4	1	3	0	0	2	2	0	1	0
11	7927	Neptune Av	W 8th St	24	13	11	0	25	2	0	0	5	2	6	0	2	2	0	0	0	1
12	8074	Brighton Beach Ave	Coney Island Ave	24	14	10	0	19	4	1	0	3	6	2	1	2	2	2	0	0	0
13	7085/ 7106/ 7133	Avenue T	Ocean Pkwy	22	14	8	0	22	0	2	0	1	2	2	6	1	3	0	0	0	0
14	7021	Shore Blvd	Emmons Ave	21	12	9	0	18	1	1	0	6	6	4	1	0	3	0	0	0	2
15	7101/ 7126/ 7079	Ocean Pkwy	Avenue X	20	11	9	0	21	1	2	0	2	4	1	1	0	3	0	0	0	3
16	7441	Bay Pkwy	Benson Ave	19	12	7	0	17	2	1	0	0	4	2	0	1	3	1	0	0	2
17	7442	Bath Ave	Bay Pkwy	19	10	9	0	15	2	0	0	2	6	3	0	1	3	0	0	0	1
18	7770	86th St	Avenue X	19	16	3	0	23	0	1	1	3	4	7	4	0	2	0	0	1	0
19	8241	Avenue S	Coney Island Ave	18	11	7	0	21	1	0	0	5	5	2	2	1	3	0	0	0	2
20	8316	Avenue Y	Coney Island Ave	18	11	7	0	20	2	0	0	3	5	2	3	3	0	0	0	0	1
21	7086/ 7107/ 7134	Avenue S	Ocean Pkwy	18	12	6	0	16	2	1	0	2	4	2	4	0	2	1	0	0	0
22	7931	Neptune Ave	W 17th St	17	12	5	0	14	0	0	3	4	5	1	0	1	1	1	2	1	2
23	8255	Avenue U	Coney Island Ave	17	10	7	0	28	0	0	0	3	6	1	2	0	3	0	0	1	3
24	8269	Avenue V	Coney Island Ave	17	6	11	0	8	1	0	0	2	1	0	2	1	0	1	0	1	0
25	7084/ 7105/ 7132	Avenue U	Ocean Pkwy	15	10	5	0	15	1	0	0	2	3	1	0	0	5	0	0	0	3
26	7076/ 7100/ 7123	Avenue Y	Ocean Pkwy	19	7	4	0	11	0	0	0	0	2	3	1	0	1	1	0	0	1
TOTAL				626	339	279	0	555	44	13	5	84	119	69	55	28	66	11	2	7	39

Right Angle:

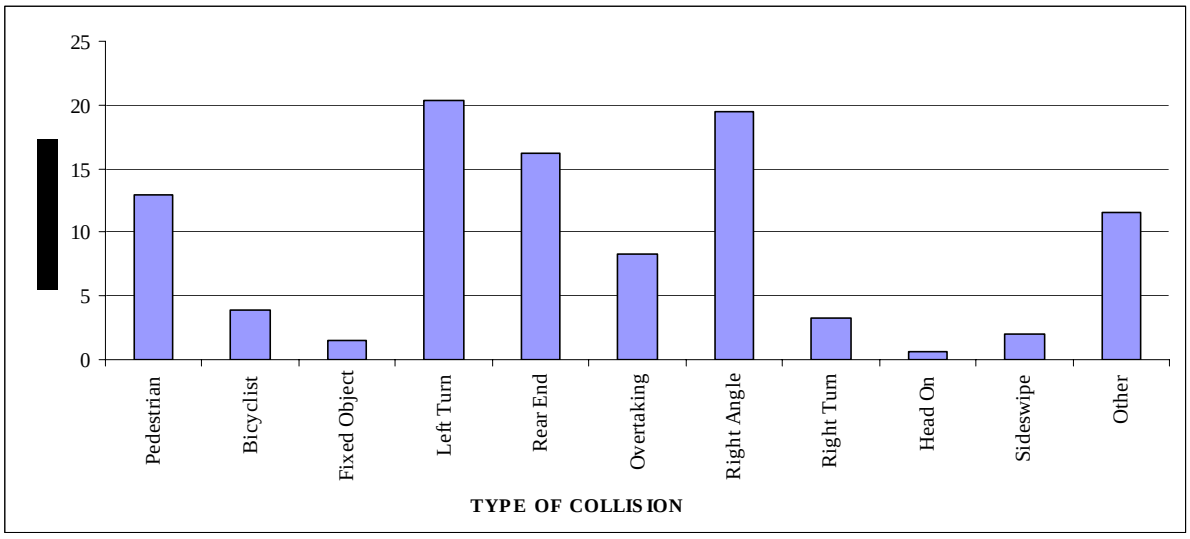
1. Coney Island Avenue/Guider Avenue (Ramp Belt Parkway) (5)
2. Ocean Parkway/Avenue U (5)
3. Coney Island Avenue/Neptune Avenue (4)
4. Ocean Parkway/Kings Highway

Rear End:

1. Coney Island Avenue/Avenue Z (7)
2. Ocean Parkway/Avenue T (6)
3. Ocean Parkway/Avenue Z (5)

Chart 6-2 shows the distribution of reportable accidents in 1996 including those involving pedestrians and bicyclists.

Chart 6-2: 1997 Accidents by Collision Type



Accident Severity/Frequency Factors

Approximately 77% of the intersections being analyzed had a severity factor greater than 7.0, while only approximately 38% of the intersections had a frequency factor greater than 6.5. The composite index was greater than 1.0 for all the intersections being analyzed. This indicates that the problems at these locations were more related to severity. This information is shown in

Table 6-9: Traffic Accident Analysis (1997)

No	Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
1	8200	Avenue Z	Coney Island Ave	0	1	3	25	1	18	48	8.31	7.74	1.07
2	7440	86th St	Bay Pkwy	0	1	4	6	1	14	26	7.97	6.52	1.22
3	7085/7106/7133	Avenue T	Ocean Pkwy	0	2	0	11	1	8	22	7.97	5.28	1.51
4	7101/7126/7079	Ocean Pkwy	Avenue X	0	2	1	8	0	9	20	7.94	5.13	1.55
5	7931	Neptune Ave	W 17th St	0	1	4	4	3	5	17	7.92	5.67	1.40
6	7059/7064/7069	Neptune Ave	Ocean Pkwy	0	1	3	14	3	17	38	7.80	5.99	1.30
7	8044	Coney Island Ave	Neptune Ave	0	1	1	12	1	18	33	7.80	6.99	1.12
8	8074	Brighton Beach Ave	Coney Island Ave	0	1	1	12	0	10	24	7.80	6.36	1.23
9	7441	Bay Pkwy	Benson Ave	0	1	2	8	1	7	19	7.80	5.89	1.32
10	8032	Neptune Ave	W 5th St	0	1	2	7	1	14	25	7.77	6.44	1.21
11	7770	86th St	Avenue X	0	0	5	9	2	3	19	7.70	5.89	1.31
12	7086/7107/7134	Avenue S	Ocean Pkwy	0	1	1	10	0	6	18	7.70	5.13	1.50
13	8255	Avenue U	Coney Island Ave	0	1	1	7	1	7	17	7.63	5.67	1.35
14	7088/7136/7109	Ocean Pkwy	Kings Hwy	0	1	2	5	3	15	26	7.59	4.39	1.73
15	8316	Avenue Y	Coney Island Ave	0	0	4	7	0	7	18	7.47	5.78	1.29
16	8376	King Hwy	Coney Island Ave	0	0	3	8	0	15	26	7.36	6.52	1.13
17	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	0	0	1	15	3	20	39	7.30	7.33	1.00
18	7073/7099/7120	Ocean Pkwy	Avenue Z	0	1	3	9	1	16	30	7.23	5.78	1.25
19	6839	Cropsey Ave	Bay Pkwy	0	0	1	12	1	14	28	7.12	6.66	1.07
20	7927	Neptune Av	W 8th St	0	0	1	12	0	11	24	7.11	6.36	1.12
21	8241	Avenue S	Coney Island Ave	0	0	1	9	1	7	18	6.91	5.78	1.20
22	7084/7105/7132	Avenue U	Ocean Pkwy	0	1	2	6	1	5	15	6.90	4.80	1.44
23	7021	Shore Blvd	Emmons Ave	0	0	0	12	0	9	21	6.83	6.09	1.12
24	7442	Bath Ave	Bay Pkwy	0	0	1	8	1	9	19	6.83	5.89	1.16
25	8269	Avenue V	Coney Island Ave	0	0	0	6	0	11	17	6.15	5.67	1.08
26	7076/7100/7123	Avenue Y	Ocean Pkwy	0	0	0	6	1	4	11	5.74	4.16	1.38

C. 1998

In 1998, there were 755 accidents recorded at the 27 intersections being analyzed, including Ocean Parkway/Brighton Beach Avenue. Approximately 50 percent of these accidents were reportable. There were two fatalities, 27 Class A injuries, 47 Class B injuries, and 463 Class C injuries. Figure 6-4 shows the distribution of accidents in the study area and Table 6-10 provides a detailed summary of the accidents at the selected locations, excluding Ocean Parkway/Brighton Beach Avenue.

The intersections Benson Avenue/Bay Parkway and Ocean Parkway/Avenue T each had one fatality. Neptune Avenue/Ocean Parkway had the highest number of accidents (45), followed by Coney Island Avenue/Guider Avenue with 43 accidents, and Cropsey Avenue/Bay Parkway with 39 accidents. The highest number of injuries occurred at Coney Island Avenue/Guider Avenue (47) and Neptune Avenue/Ocean Parkway (42).

Accidents Involving Pedestrians and Bicyclists

In 1998, there were 37 accidents involving pedestrians and 16 involving bicyclists. The Coney Island Avenue/Neptune Avenue and Coney Island Avenue/King Highway intersections had the highest number of pedestrian accidents with five each.

Accidents by Collision Type

Rear ends and left turn accidents each accounted for 19% of the accidents, followed by right angle collisions with 15%. The most critical intersections for the three most prominent types of collision were:

Left Turn:

1. 86th Street/Avenue X (9)
2. Bath Avenue/Bay Parkway (6)
3. Coney Island Avenue/Neptune Avenue (5)
4. Coney Island Avenue/Avenue Z (5)
5. Ocean Parkway/Avenue Z (5)
6. Benson Avenue/Bay Parkway (5)
7. Ocean Parkway/Neptune Avenue (5)

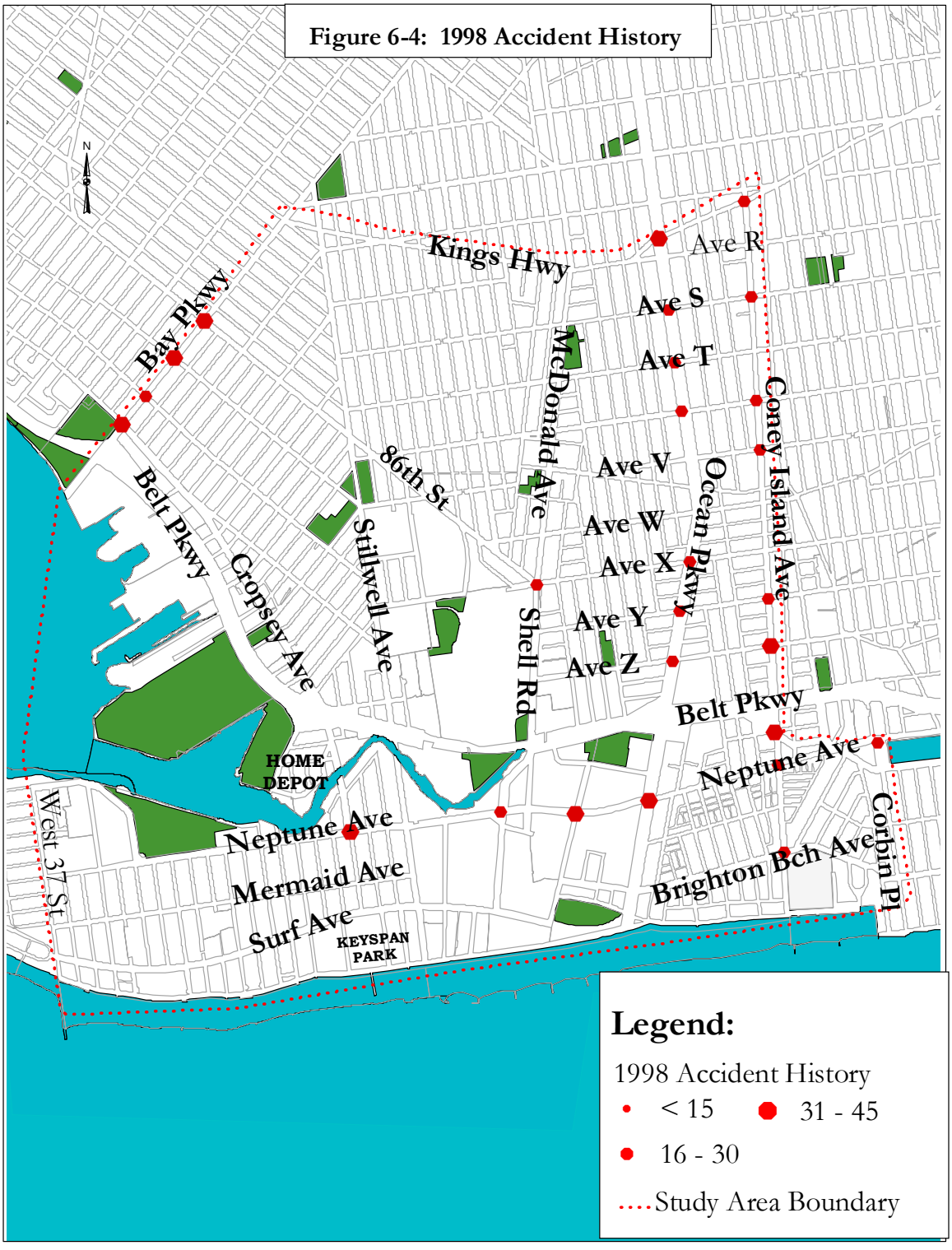


Figure 6-4: 1998 Accident History
N
Kings Hwy
Ave R
Ave S
Ave T
Ave V
Ave W
Ave X
Ave Y
Ave Z
Bay Pkwy
Belt Pkwy
Cropsey Ave
86th St
Stillwell Ave
McDonald Ave
Shell Rd
Ocean Pkwy
Coney Island Ave
Belt Pkwy
Neptune Ave
Brighton Bch Ave
Corbin Pl
HOME DEPOT
West 37 St
Neptune Ave
Mermaid Ave
Surf Ave
KEYSPAN PARK
Legend:
1998 Accident History
< 15
16 - 30
31 - 45
Study Area Boundary

Table 6-10: Summary of Traffic Accidents (1998)

									ACCIDENT TYPE												
No	**Node #**	**Main St**	**Cross St**	**Total Acc**	**RPT**	**Non-RPT**	**Fatal**	**Injury**	**Peds**	**Bikes**	**Fixed Obj.**	**Wet Road**	**Night**	**Left Turn**	**Rear End**	**Over-Taking**	**Right Angle**	**Right Turn**	**Head On**	**Side-Swipe**	**Other**
1	7059/ 7064/ 7069	Neptune Ave	Ocean Pkwy	45	23	22	0	42	4	0	0	9	8	5	5	2	5	0	1	0	5
2	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	43	26	17	0	47	0	1	0	15	9	3	12	2	2	0	0	0	7
3	6839	Cropsey Ave	Bay Pkwy	39	16	23	0	23	1	2	0	4	6	0	6	1	1	0	0	0	8
4	8200	Avenue Z	Coney Island Ave	37	14	23	0	24	1	0	0	3	5	5	3	0	3	0	0	0	3
5	7088/ 7136/ 7109	Ocean Pkwy	Kings Hwy	33	15	18	0	29	2	0	0	1	6	4	3	1	3	0	1	0	3
6	8032	Neptune Ave	W 5th St	32	12	20	0	16	1	2	0	5	6	2	2	0	2	0	0	0	6
7	7440	86th St	Bay Pkwy	31	13	18	0	25	4	0	0	1	5	0	2	3	2	1	0	0	5
8	7441	Bay Pkwy	Benson Ave	31	16	15	1	25	1	1	0	4	4	5	2	0	4	0	0	0	5
9	7931	Neptune Ave	W 17th St	31	15	16	0	18	2	0	0	4	4	3	4	0	0	0	2	1	5
10	8241	Avenue S	Coney Island Ave	29	13	16	0	22	1	1	0	3	3	2	3	1	2	1	0	0	4
11	7442	Bath Ave	Bay Pkwy	28	15	13	0	23	0	0	0	3	10	6	4	0	4	0	0	0	1
12	7086/ 7107/ 7134	Avenue S	Ocean Pkwy	28	15	13	0	26	2	0	0	2	4	3	5	1	2	0	0	0	4
13	8044	Coney Island Ave	Neptune Ave	27	18	9	0	33	5	0	0	4	3	5	2	0	4	0	1	0	6
14	8074	Brighton Beach Ave	Coney Island Ave	25	7	18	0	12	2	0	0	1	2	0	1	2	0	1	0	0	3
15	7084/ 7105/ 7132	Avenue U	Ocean Pkwy	25	14	11	0	26	2	2	0	3	6	2	2	1	3	0	0	0	6
16	7770	86th St	Avenue X	24	16	8	0	28	0	0	0	3	5	9	1	2	1	0	0	0	3
17	8255	Avenue U	Coney Island Ave	24	9	15	0	17	1	0	0	0	4	3	2	2	1	0	0	0	1
18	8316	Avenue Y	Coney Island Ave	24	15	9	0	16	0	1	0	3	6	2	1	4	4	2	0	0	2
19	7085/ 7106/ 7133	Avenue T	Ocean Pkwy	24	13	11	1	16	2	0	0	3	1	2	5	0	2	0	0	0	4
20	7021	Shore Blvd	Emmons Ave	22	9	13	0	12	1	1	0	1	3	3	2	1	1	0	0	0	2
21	7073/ 7099/ 7120	Ocean Pkwy	Avenue Z	22	14	8	0	29	0	0	0	4	6	5	3	0	2	0	0	0	4
22	8376	King Hwy	Coney Island Ave	20	13	7	0	20	5	1	0	5	5	1	3	1	1	0	0	1	6
23	7927	Neptune Av	W 8th St	19	14	5	0	21	0	1	0	3	4	3	0	2	6	0	0	0	3
24	7101/ 7126/ 7079	Ocean Pkwy	Avenue X	19	8	11	0	19	0	1	0	1	3	0	2	0	3	1	0	0	2
25	8269	Avenue V	Coney Island Ave	18	8	10	0	16	0	1	0	2	2	1	3	0	1	1	0	0	2
26	7076/ 7100/ 7123	Avenue Y	Ocean Pkwy	18	8	10	0	15	0	1	0	4	2	3	0	0	2	1	0	0	2
TOTAL				718	359	359	2	600	37	16	0	91	122	77	78	26	61	8	5	2	102

Rear End:

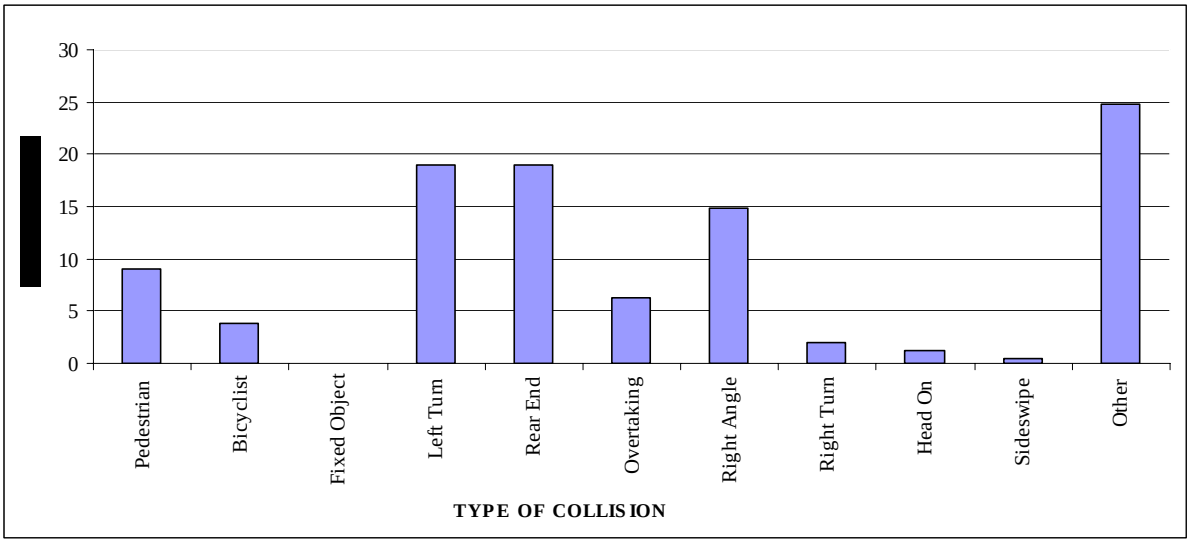
1. Coney Island Avenue/Guider Avenue (Ramp Belt Parkway) (12)
2. Cropsey Avenue/Bay Parkway (6)
3. Ocean Parkway/Neptune Avenue (5)
4. Ocean Parkway/Avenue S (5)
5. Ocean Parkway/Avenue T (5)

Right Angle:

1. Neptune Avenue/W 8th Street (6)
2. Ocean Parkway/Neptune Avenue (5)
3. Bay Parkway/Benson Avenue (4)
4. Bay Parkway/Bath Avenue (4)
5. Coney Island Avenue/Neptune Avenue (4)
6. Coney Island Avenue/Avenue Y (4)

In 1998, 25% of the accidents were categorized as "other". Chart 6-3 shows the distribution of the types of reportable accidents, including those involving pedestrians and bicyclists.

Chart 6-3: 1998 Accidents by Collision Type



Accident Severity/Frequency factors

Table 6-11 summarizes the type of injuries and the corresponding composite index for all of the intersections analyzed. Twenty-four locations had a severity factor greater than 7.0, 15 locations had frequency factors greater than 6.0, and 26 locations had a composite index greater than 1.0 which indicates that these locations may experience severe accidents.

Table 6-11: 1998 Traffic Accident Analysis

No	Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
1	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	0	0	3	37	0	17	43	8.22	7.52	1.09
2	6839	Cropsey Ave	Bay Pkwy	0	2	3	18	1	23	39	8.46	7.33	1.15
3	8200	Avenue Z	Coney Island Ave	0	2	0	19	0	23	37	8.27	7.22	1.15
4	8032	Neptune Ave	W 5th St	0	3	1	12	0	20	32	8.49	6.93	1.23
5	7440	86th St	Bay Pkwy	0	1	1	19	1	18	31	8.00	6.87	1.16
6	7441	Bay Pkwy	Benson Ave	1	4	4	15	0	15	31	9.20	6.87	1.34
7	7931	Neptune Ave	W 17th St	0	0	2	14	1	16	31	7.43	6.87	1.08
8	8241	Avenue S	Coney Island Ave	0	1	1	18	1	16	29	7.97	6.73	1.18
9	7442	Bath Ave	Bay Pkwy	0	0	0	20	0	13	28	7.33	6.66	1.10
10	8044	Coney Island Ave	Neptune Ave	0	1	4	28	0	9	27	8.42	6.59	1.28
11	7059/7064/7069	Neptune Ave	Ocean Pkwy	0	0	3	31	1	22	45	7.51	6.52	1.15
12	8074	Brighton Beach Ave	Coney Island Ave	0	0	1	10	0	18	25	6.98	6.44	1.08
13	7770	86th St	Avenue X	0	0	1	22	1	8	24	7.59	6.36	1.19
14	8255	Avenue U	Coney Island Ave	0	0	0	15	0	15	24	7.05	6.36	1.11
15	7021	Shore Blvd	Emmons Ave	0	1	0	11	0	13	22	7.63	6.18	1.23
16	7088/7136/7109	Ocean Pkwy	Kings Hwy	0	1	1	22	0	18	33	7.73	5.99	1.29
17	8376	King Hwy	Coney Island Ave	0	1	0	17	0	7	20	7.83	5.99	1.31
18	7927	Neptune Av	W 8th St	0	2	0	16	0	5	19	8.20	5.89	1.39
19	8269	Avenue V	Coney Island Ave	0	1	5	8	0	10	18	8.11	5.78	1.40
20	7076/7100/7123	Avenue Y	Ocean Pkwy	0	2	3	18	0	10	18	7.59	5.78	1.31
21	7073/7099/7120	Ocean Pkwy	Avenue Z	0	1	4	20	1	8	22	8.11	5.67	1.43
22	7085/7106/7133	Avenue T	Ocean Pkwy	1	1	0	12	0	11	24	8.44	5.55	1.52
23	7086/7107/7134	Avenue S	Ocean Pkwy	0	0	2	24	0	13	28	7.16	5.28	1.36
24	7084/7105/7132	Avenue U	Ocean Pkwy	0	2	4	16	0	11	25	8.04	5.28	1.52
25	7101/7126/7079	Ocean Pkwy	Avenue X	0	1	2	10	0	11	19	7.70	4.97	1.55
26	8316	Avenue Y	Coney Island Ave	0	0	2	11	0	9	24	7.28	3.36	2.17

D. 1999

The highest number of accidents (733) at the 26 intersections being analyzed, excluding Ocean Parkway/Brighton Beach Avenue, was recorded in 1999. Two fatalities were recorded, both along the Ocean Parkway corridor, one at the intersection with Avenue S, and the other at the intersection with Avenue U. There were 526 injuries (25 Class A, 53 Class B, and 448 Class C) in 1999 at the locations being analyzed. Figure 6-5 shows the distribution of accidents in the study area and Table 6-12 provides a detailed summary of the accidents at the selected locations, excluding Ocean Parkway/Brighton Beach Avenue. The intersection of Neptune Avenue/Ocean Parkway had the highest number of accidents (59), followed by Coney Island Avenue/Avenue Z with 46 accidents, and Coney Island Avenue/Neptune Avenue with 38 accidents.

Accidents Involving Pedestrians and Bicyclists

In 1999, there were 46 accidents involving pedestrians and 10 with bicyclists. The Coney Island Avenue/Avenue U intersection recorded the highest pedestrian accidents with six.

Accidents by Collision Type

Twenty-five percent of the accidents were rear ends, 18% right angles, and 16% left turn collisions. The intersections with the highest number of accidents for the three most prominent collision types were:

Rear End:

1. Ocean Parkway/Avenue T (7)
2. Ocean Parkway/Avenue S (6)
3. Avenue X/86th Street (6)
4. Ocean Parkway/Avenue U (6)

Right Angle:

1. Neptune Avenue/Ocean Parkway (14)
2. Coney Island Avenue/Neptune Avenue (6)
3. Ocean Parkway/Kings Highway (5)
4. Coney Island Avenue/Guider Avenue (Ramp to Belt Parkway) (5)

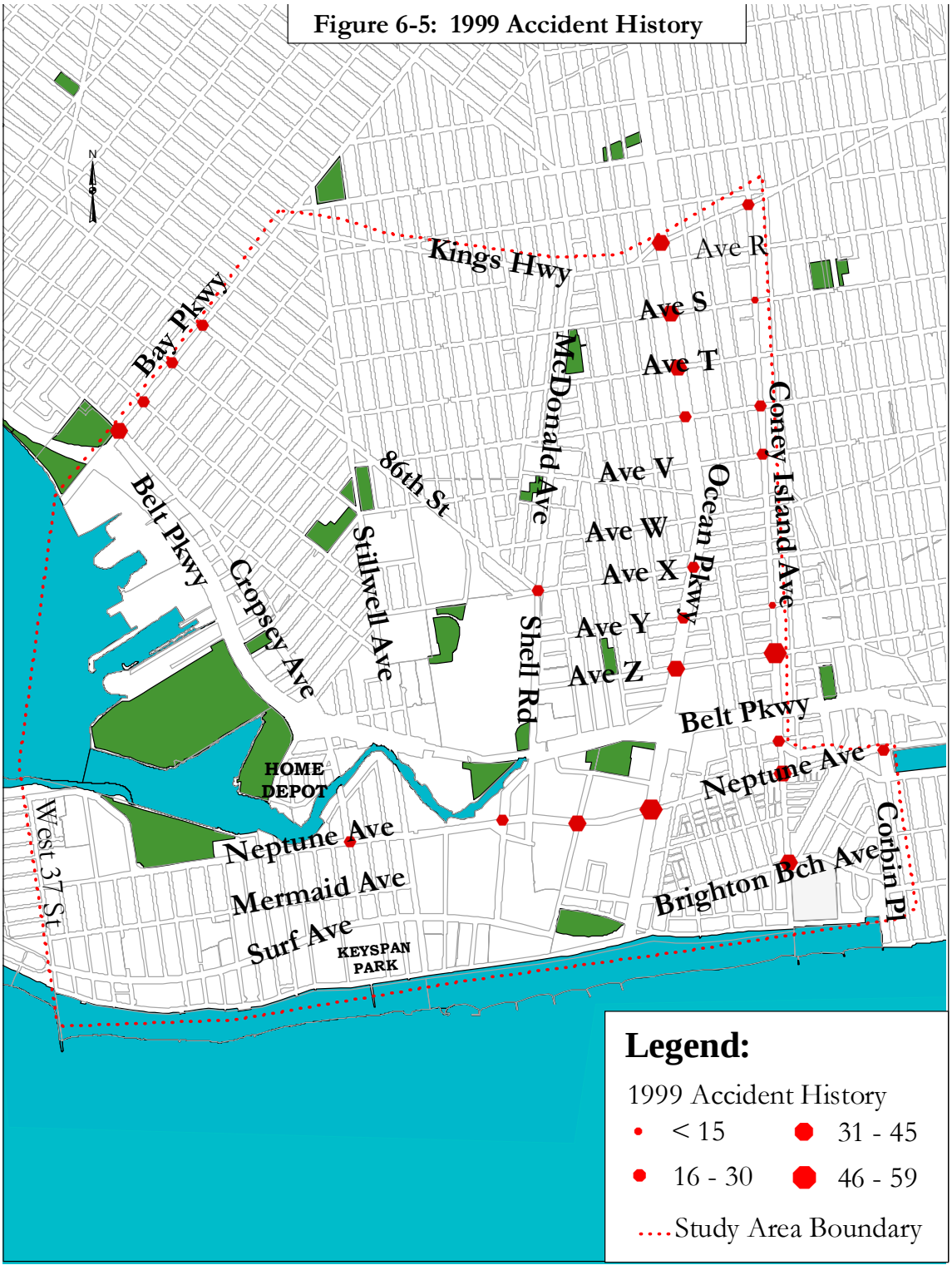


Figure 6-5: 1999 Accident History
N
Kings Hwy
Ave R
Ave S
Ave T
Bay Pkwy
McDonald Ave
Coney Island Ave
86th St
Ave V
Ocean Pkwy
Belt Pkwy
Ave W
Ave X
Stillwell Ave
Cropsey Ave
Shell Rd
Ave Y
Ave Z
Belt Pkwy
HOME DEPOT
Neptune Ave
West 37 St
Neptune Ave
Mermaid Ave
Surf Ave
KEYSPAN PARK
Brighton Bch Ave
Corbin Pl
Legend:
1999 Accident History
< 15
16 - 30
31 - 45
46 - 59
Study Area Boundary

Table 6-12: Summary of Traffic Accidents (1999)

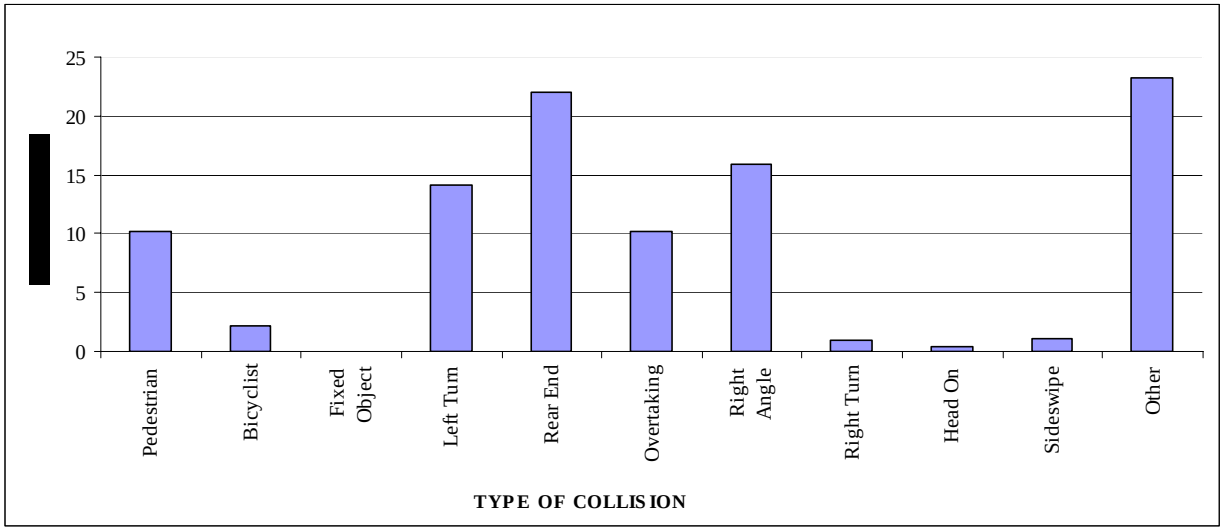
									ACCIDENT TYPE												
No	Node #	Main St	Cross St	Total Acc	RPT	Non-RPT	Fatal	Injury	Peds	Bikes	Fixed Obj.	Wet Road	Night	Left Turn	Rear End	Over-Taking	Right Angle	Right Turn	Head On	Side-Swipe	Other
1	7059/ 7064/ 7069	Neptune Ave	Ocean Pkwy	59	32	27	0	50	2	1	0	9	13	8	3	3	14	0	0	0	4
2	8200	Avenue Z	Coney Island Ave	46	23	23	0	23	5	0	0	0	6	0	5	5	3	1	0	1	8
3	8044	Coney Island Ave	Neptune Ave	38	22	16	0	33	2	0	0	6	8	2	3	3	6	1	0	0	7
4	8032	Neptune Ave	W 5th St	35	16	19	0	26	2	0	0	3	5	4	3	2	2	0	0	0	5
5	7086/ 7107/ 7134	Avenue S	Ocean Pkwy	35	21	14	1	44	2	0	0	5	12	7	6	0	3	0	0	0	5
6	7088/ 7136/ 7109	Ocean Pkwy	Kings Hwy	35	21	14	0	38	2	1	0	3	10	4	5	2	5	0	0	0	5
7	6839	Cropsey Ave	Bay Pkwy	32	18	14	0	24	2	1	0	3	8	3	5	4	2	0	0	0	4
8	8074	Brighton Beach Ave	Coney Island Ave	32	12	20	0	15	2	1	0	4	4	1	4	3	0	0	0	0	4
9	7073/ 7099/ 7120	Ocean Pkwy	Avenue Z	31	17	14	0	25	2	0	0	1	7	3	4	3	2	0	0	1	4
10	7085/ 7106/ 7133	Avenue T	Ocean Pkwy	31	16	15	0	23	0	0	0	3	4	5	7	0	3	0	1	0	0
11	7770	86th St	Avenue X	30	18	12	0	23	1	0	0	3	6	4	6	3	1	0	0	1	3
12	8255	Avenue U	Coney Island Ave	30	17	13	0	15	6	1	0	2	5	0	5	3	1	0	0	0	8
13	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	29	17	12	0	29	1	0	0	10	8	0	5	0	5	0	0	0	7
14	7440	86th St	Bay Pkwy	27	12	15	0	14	5	0	0	3	5	0	1	0	2	0	0	0	9
15	7442	Bath Ave	Bay Pkwy	27	17	10	0	20	4	1	0	2	5	4	3	0	2	0	0	1	7
16	7931	Neptune Ave	W 17th St	27	14	13	0	21	0	0	0	2	6	1	4	4	2	1	0	1	1
17	7927	Neptune Av	W 8th St	24	14	10	0	25	2	0	0	4	4	2	4	0	4	0	0	0	4
18	7084/ 7105/ 7132	Avenue U	Ocean Pkwy	23	14	9	1	20	3	0	0	2	7	0	6	0	3	0	0	0	5
19	8376	King Hwy	Coney Island Ave	22	7	15	0	4	1	1	0	2	2	0	1	2	0	1	0	0	3
20	7101/ 7126/ 7079	Ocean Pkwy	Avenue X	21	12	9	0	21	0	0	0	1	3	2	5	1	3	0	0	0	1
21	8269	Avenue V	Coney Island Ave	20	11	9	0	21	0	0	0	2	4	3	2	3	0	0	1	0	2
22	7021	Shore Blvd	Emmons Ave	19	10	9	0	15	1	0	0	1	2	4	1	1	1	0	0	0	3
23	7441	Bay Pkwy	Benson Ave	18	13	5	0	11	1	1	0	3	1	3	5	2	0	0	0	0	3
24	7076/ 7100/ 7123	Avenue Y	Ocean Pkwy	16	9	7	0	14	0	2	0	0	5	2	2	1	2	0	0	0	2
25	8316	Avenue Y	Coney Island Ave	15	5	10	0	9	0	0	0	0	1	1	1	1	2	0	0	0	0
26	8241	Avenue S	Coney Island Ave	11	7	4	0	10	0	0	0	0	1	1	1	0	4	0	0	0	1
TOTAL				733	395	338	2	573	46	10	0	74	142	64	97	46	72	4	2	5	105

Left Turn:

1. Ocean Parkway/Neptune Avenue (8)
2. Ocean Parkway/Avenue S (7)
3. Ocean Parkway/Avenue T (5)

Chart 6-4 shows the distribution of the types of reportable accidents, including those involving pedestrians and bicyclists.

Chart 6-4: 1999 Accidents by Collision Type



Accident Severity/Frequency factors

As shown in Table 6-13, twenty-two of the 26 locations studied had severity factors greater than 7.0; and, 14 had frequency factors greater than 6.0. The composite index calculation showed that 25 of the 26 locations had a composite index greater than 1.0. Thus, in 1999 accidents at a majority of the intersections were skewed towards severity.

Table 6-13: 1999 Traffic Accident Analysis

No	Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
1	8200	Avenue Z	Coney Island Avenue	0	1	1	21	2	23	46	8.05	7.66	1.05
2	8044	Coney Island Ave	Neptune Avenue	0	1	3	27	1	16	38	8.34	7.28	1.15
3	8032	Neptune Ave	W 5th Street	0	1	1	22	0	19	35	8.07	7.11	1.14
4	6839	Cropsey Ave	Bay Pkwy	0	1	1	21	0	14	32	8.05	6.93	1.16
5	8074	Brighton Beach Ave	Coney Island Avenue	0	0	0	15	0	20	32	7.05	6.93	1.02
6	7770	86th Street	Avenue X	0	1	4	18	1	12	30	8.24	6.80	1.21
7	8255	Avenue U	Coney Island Ave	0	0	2	13	0	13	30	7.38	6.80	1.09
8	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	0	1	2	26	0	12	29	8.24	6.73	1.22
9	7440	86th Street	Bay Pkwy	0	1	0	13	3	15	27	7.71	6.59	1.17
10	7442	Bath Ave	Bay Pkwy	0	1	7	10	0	10	27	8.32	6.59	1.26
11	7931	Neptune Ave	W 17th St	0	1	3	16	1	13	27	8.12	6.59	1.23
12	7059/7064/7069	Neptune Ave	Ocean Pkwy	0	1	8	32	0	27	59	8.04	6.36	1.26
13	7927	Neptune Av	W 8th St	0	2	5	18	0	10	24	8.58	6.36	1.35
14	8376	King Hwy	Coney Island Ave	0	0	0	4	0	15	22	5.78	6.18	0.94
15	7088/7136/7109	Ocean Pkwy	Kings Hwy	0	3	4	13	0	14	35	8.71	5.99	1.45
16	8269	Avenue V	Coney Island Ave	0	0	2	15	0	9	20	7.47	5.99	1.25
17	7021	Shore Blvd	Emmons Ave	0	0	1	13	0	9	19	7.17	5.89	1.22
18	7441	Bay Pkwy	Benson Ave	0	1	3	7	0	5	18	7.89	5.78	1.37
19	7086/7107/7134	Avenue S	Ocean Pkwy	1	3	4	35	1	14	35	8.95	5.55	1.61
20	8316	Avenue Y	Coney Island Ave	0	0	0	9	0	10	15	6.54	5.42	1.21
21	7073/7099/7120	Ocean Pkwy	Avenue Z	0	2	0	22	0	14	31	7.82	5.28	1.48
22	7085/7106/7133	Avenue T	Ocean Pkwy	0	0	1	21	0	15	31	6.90	4.80	1.44
23	7076/7100/7123	Avenue Y	Ocean Pkwy	0	1	1	12	0	7	16	7.73	4.80	1.61
24	8241	Avenue S	Coney Island Ave	0	1	0	9	0	4	11	7.55	4.80	1.57
25	7084/7105/7132	Avenue U	Ocean Pkwy	1	2	0	16	0	9	23	8.63	4.61	1.87
26	7101/7126/7079	Ocean Pkwy	Avenue X	0	0	0	20	0	9	21	6.97	4.61	1.51

E. 2000

There were 699 accidents in 2000 at the 26 locations studied, excluding Ocean Parkway/Brighton Beach Avenue. Fifty-three percent of these accidents were reportable. One fatality occurred at the intersection of Ocean Parkway/Avenue U, and there were 24 Class A, 28 Class B, and 427 Class C injuries. The intersection of Neptune Avenue/Ocean Parkway had the highest number of accidents (52) with the highest number of Class A injuries (4) and total injuries (41). Figure 6-6 shows the distribution of accidents in the study area and Table 6-14 provides a detailed summary of the accidents at the selected locations, excluding Ocean Parkway/Brighton Beach Avenue. Coney Island Avenue/Neptune Avenue had the second highest number of accidents (47), but it had the highest number of accidents involving bicyclist (4). The Bay Parkway/Cropsey Avenue intersection and Bay Parkway/86th Street intersection ranked third and fourth, with 34 accidents.

Accidents Involving Pedestrians and Bicyclists

In 2000 there were 37 accidents involving pedestrians and 15 accidents involving bicyclists. Bay Parkway/86th Street had the highest number of pedestrian accidents with 7. The intersection of Coney Island Avenue/Kings Highway had five pedestrian accidents. The highest number of accidents involving bicyclist occurred at the intersection of Coney Island Avenue/Neptune Avenue where four accidents involving bicyclist occurred.

Accidents by Collision Type

The analysis of the accidents by collision type showed that rear ends accounted for 23% of the accidents, followed by left turns (18%) and right angles (17%). The most critical intersections for each of the most prominent collision type were:

Rear End:

1. Ocean Parkway/Neptune Avenue (9)
2. Coney Island Avenue/Neptune Avenue (7)
3. Coney Island Avenue/Avenue Z (5)
4. Neptune Avenue/West 17th Street (5)
5. Coney Island Avenue/Avenue S (5)
6. Avenue X/86th Street (5)


Figure 6-6: 2000 Accident History
N
Kings Hwy
Ave R
Ave S
Ave T
Bay Pkwy
McDonald Ave
Coney Island Ave
Ave V
Ocean Pkwy
86th St
Belt Pkwy
Ave W
Ave X
Cropsey Ave
Stillwell Ave
Shell Rd
Ave Y
Ave Z
Belt Pkwy
HOME DEPOT
Neptune Ave
West 37 St
Neptune Ave
Mermaid Ave
Brighton Bch Ave
Corbin Pl
Surf Ave
KEYSPAN PARK
Legend:
2000 Accident History
< 15
16 - 30
31 - 45
46 - 52
Study Area Boundary

Table 6-14: Summary of Traffic Accidents (2000)

									ACCIDENT TYPE												
No	Node #	Main St	Cross St	Total Acc	RPT	Non-RPT	Fatal	Injury	Peds	Bikes	Fixed Obj.	Wet Road	Night	Left Turn	Rear End	Over-Taking	Right Angle	Right Turn	Head On	Side-Swipe	Other
1	7059/ 7064/ 7069	Neptune Ave	Ocean Pkwy	52	33	19	0	41	1	1	0	3	9	7	9	3	7	0	1	0	6
2	8044	Coney Island Ave	Neptune Ave	47	18	29	0	19	0	4	0	1	4	2	7	3	1	0	0	1	4
3	6839	Cropsey Ave	Bay Pkwy	34	19	15	0	32	2	1	0	3	4	6	3	2	3	0	0	0	5
4	7440	86th St	Bay Pkwy	34	15	19	0	18	7	0	0	4	7	1	1	1	1	0	0	0	11
5	7085/ 7106/ 7133	Avenue T	Ocean Pkwy	32	17	15	0	29	1	0	0	7	4	4	2	1	5	0	0	0	5
6	8200	Avenue Z	Coney Island Ave	31	16	15	0	22	3	2	0	2	4	3	5	2	0	1	0	0	5
7	7073/ 7099/ 7120	Ocean Pkwy	Avenue Z	31	15	16	0	23	2	1	0	4	5	5	3	1	2	1	0	0	3
8	8074	Brighton Beach Ave	Coney Island Ave	28	11	17	0	10	0	1	0	2	6	1	2	2	2	0	0	2	2
9	7084/ 7105/ 7132	Avenue U	Ocean Pkwy	28	14	14	1	14	1	2	0	2	7	3	2	1	3	0	0	0	5
10	7931	Neptune Ave	W 17th St	27	13	14	0	25	1	0	0	3	4	2	5	3	0	0	0	0	3
11	8032	Neptune Ave	W 5th St	27	13	14	0	14	3	0	0	1	4	5	2	1	0	0	0	0	5
12	7441	Bay Pkwy	Benson Ave	25	14	11	0	20	1	0	0	2	3	1	4	3	1	0	0	0	5
13	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	24	12	12	0	16	0	1	0	2	7	0	3	3	2	0	0	0	4
14	8255	Avenue U	Coney Island Ave	24	13	11	0	16	1	0	0	5	4	2	4	1	4	0	0	1	1
15	8316	Avenue Y	Coney Island Ave	24	10	14	0	8	1	0	0	3	2	2	1	2	4	0	0	0	1
16	8241	Avenue S	Coney Island Ave	23	16	7	0	24	0	0	0	2	11	0	5	2	7	0	0	0	2
17	7086/ 7107/ 7134	Avenue S	Ocean Pkwy	23	11	12	0	17	2	0	0	2	5	1	4	0	2	0	1	0	3
18	7770	86th St	Avenue X	22	15	7	0	26	1	0	0	4	5	3	5	0	0	2	0	2	3
19	7021	Shore Blvd	Emmons Ave	21	10	11	0	10	0	0	0	1	2	4	1	2	2	1	0	0	0
20	7442	Bath Ave	Bay Pkwy	21	14	7	0	17	2	0	0	4	5	5	3	2	0	0	0	0	4
21	7927	Neptune Av	W 8th St	21	7	14	0	14	0	1	0	0	3	2	2	1	1	0	0	0	1
22	8269	Avenue V	Coney Island Ave	21	10	11	0	14	0	0	0	1	5	0	3	1	5	0	1	0	0
23	8376	King Hwy	Coney Island Ave	21	11	10	0	14	5	0	0	2	6	2	0	2	1	0	1	0	5
24	7076/ 7100/ 7123	Avenue Y	Ocean Pkwy	21	16	5	0	20	0	0	0	3	7	4	1	2	5	1	0	0	3
25	7088/ 7136/ 7109	Ocean Pkwy	Kings Hwy	19	16	3	0	30	2	1	0	1	5	1	4	1	2	0	1	0	7
26	7101/ 7126/ 7079	Ocean Pkwy	Avenue X	18	9	9	0	8	1	0	0	1	3	2	3	0	2	0	1	0	1
TOTAL				699	368	331	1	501	37	15	0	65	131	68	84	42	62	6	6	6	94

Left Turn:

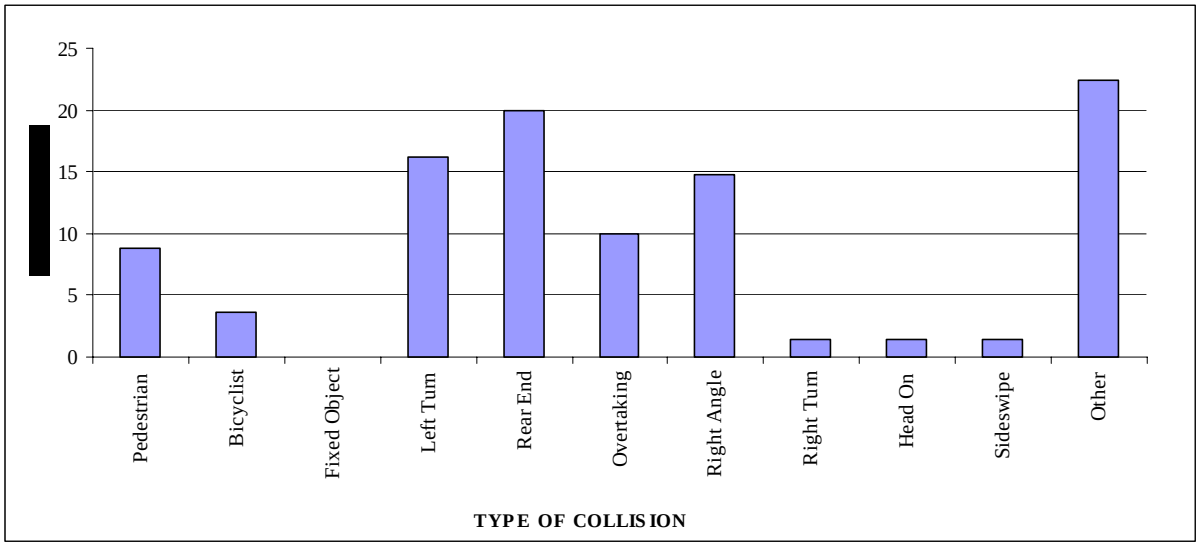
1. Ocean Parkway/Neptune Avenue (7)
2. Cropsey Avenue/Bay Parkway (6)
3. Avenue Z/Ocean Parkway (5)
4. Neptune Avenue/West 5th Street (5)
5. Bath Avenue/Bay Parkway (5)

Right Angle:

1. Neptune Avenue/Ocean Parkway (7)
2. Coney Island Avenue/Avenue S (7)
3. Ocean Parkway/Avenue T (5)
4. Coney Island Avenue/Avenue V (5)
5. Ocean Parkway/Avenue Y (5)

Chart 6-5 below shows the distribution of accidents by type, including those involving pedestrians and bicyclists.

Chart 6-5: 2000 Accidents by Collision Type



Accident Severity/Frequency Factors

The severity and frequency factors, the composite index, and the distribution of the accidents by injury type at the 26 intersections analyzed are shown in Table 6-15. Twenty-two of the 26 intersections had severity factors greater than 7.0, and 19 of the 26 intersections had frequency factors greater than 6.0. All intersections had a composite index greater than 1.0 indicating that accidents are skewed towards severity at these locations.

Table 6-15: 2000 Traffic Accident Analysis

No	Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
1	6839	Cropsey Ave	Bay Pkwy	0	4	0	27	0	15	34	8.84	7.05	1.25
2	7770	86th St	Avenue X	0	3	2	21	1	7	22	8.67	6.18	1.40
3	7059/7064/7069	Neptune Ave	Ocean Pkwy	0	3	4	31	0	19	52	8.42	6.09	1.38
4	8044	Coney Island Ave	Neptune Ave	0	2	2	15	0	29	47	8.34	7.70	1.08
5	7073/7099/7120	Ocean Pkwy	Avenue Z	0	2	1	20	0	16	31	8.18	4.61	1.77
6	7084/7105/7132	Avenue U	Ocean Pkwy	1	0	0	14	0	14	28	8.18	3.89	2.10
7	7085/7106/7133	Avenue T	Ocean Pkwy	0	1	5	22	0	15	32	8.13	4.61	1.76
8	8032	Neptune Ave	W 5th St	0	2	0	12	0	14	27	8.12	6.59	1.23
9	8200	Avenue Z	Coney Island Ave	0	1	2	19	0	15	31	8.09	6.87	1.18
10	7442	Bath Ave	Bay Pkwy	0	1	2	11	0	7	21	7.89	6.09	1.30
11	6907	Coney Island Ave	Guider Ave (Ramp to Belt Pkwy)	0	1	1	12	1	12	24	7.80	6.36	1.23
12	8376	King Hwy	Coney Island Ave	0	1	1	12	0	10	21	7.80	6.09	1.28
13	7931	Neptune Ave	W 17th St	0	0	1	24	0	14	27	7.66	6.59	1.16
14	8241	Avenue S	Coney Island Ave	0	0	1	23	0	7	23	7.63	6.27	1.22
15	7441	Bay Pkwy	Benson Ave	0	0	1	19	1	11	25	7.47	6.44	1.16
16	7088/7136/7109	Ocean Pkwy	Kings Hwy	0	1	0	19	0	3	19	7.46	3.22	2.32
17	8269	Avenue V	Coney Island Ave	0	0	2	12	0	11	21	7.33	6.09	1.20
18	8255	Avenue U	Coney Island Ave	0	0	1	15	0	11	24	7.28	6.36	1.14
19	7086/7107/7134	Avenue S	Ocean Pkwy	0	1	0	16	0	12	23	7.27	2.77	2.62
20	7440	86th St	Bay Pkwy	0	0	0	18	0	19	34	7.23	7.05	1.03
21	7927	Neptune Av	W 8th St	0	0	1	13	0	14	21	7.17	6.09	1.18
22	7101/7126/7079	Ocean Pkwy	Avenue X	0	1	0	7	0	9	18	7.11	4.39	1.62
23	7076/7100/7123	Avenue Y	Ocean Pkwy	0	0	1	19	0	5	21	6.89	3.58	1.92
24	8074	Brighton Beach Ave	Coney Island Ave	0	0	0	10	0	17	28	6.66	6.66	1.00
25	8316	Avenue Y	Coney Island Ave	0	0	0	8	0	14	24	6.44	6.36	1.01
26	7021	Shore Blvd	Emmons Ave	0	0	0	8	0	11	21	6.43	6.09	1.06

F. Accident Analysis for Ocean Parkway/Brighton Beach Avenue (1998-2000)

It was necessary to conduct a special analysis for the intersection of Ocean Parkway/Brighton Beach Avenue because data for this location was coded differently from other intersections. Also, data was only available for three (1998-2000) of the five analysis years. According to the data this intersection had an average of 31 accidents per year for the three years analyzed. A summary of the accident history at this intersection is shown below in Table 6-16.

Table 6-16: Brighton Beach Avenue/Ocean Parkway Accident Data

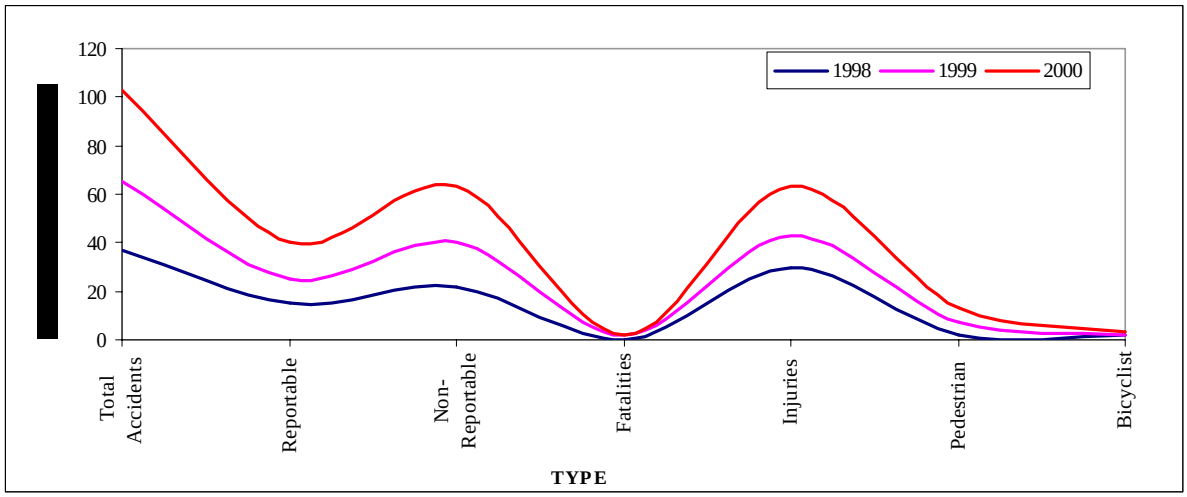
Year	Total Accidents	Reportable	Non-Reportable	Fatalities	Injuries	Pedestrian	Bicyclist
1998	37	15	22	0	30	2	2
1999	28	10	18	2	13	5	0
2000	38	15	23	0	20	6	1

In 1998 there were 37 accidents, of which 15 were reportable. There were no fatalities recorded for the year. The location had 30 injuries, two involving pedestrians, and two with bicyclists.

In 1999 there were 28 accidents, two of which resulted in fatalities. Thirteen injuries were reported from ten reportable accidents. There were five (5) accidents involving pedestrians.

In 2000 there were 38 accidents with 15 reportable. There were no fatalities recorded, but there were 20 injuries. Six pedestrians and one bicyclist were involved in accidents at this location during the year. Chart 6-6 shows the distribution of accidents by year.

Chart 6-6: Distribution of Accidents at Brighton Beach Avenue/Ocean Parkway (1998-2000)



6.4 Summary of Accident Analysis

As shown in Chart 6-7 the number of accidents at the 26 intersections analyzed remained relatively constant throughout the five-year analysis period (ranging from 626 to 733), except in 1997 where there was a slight decrease.

Chart 6-7: Total Accidents (1996-2000)

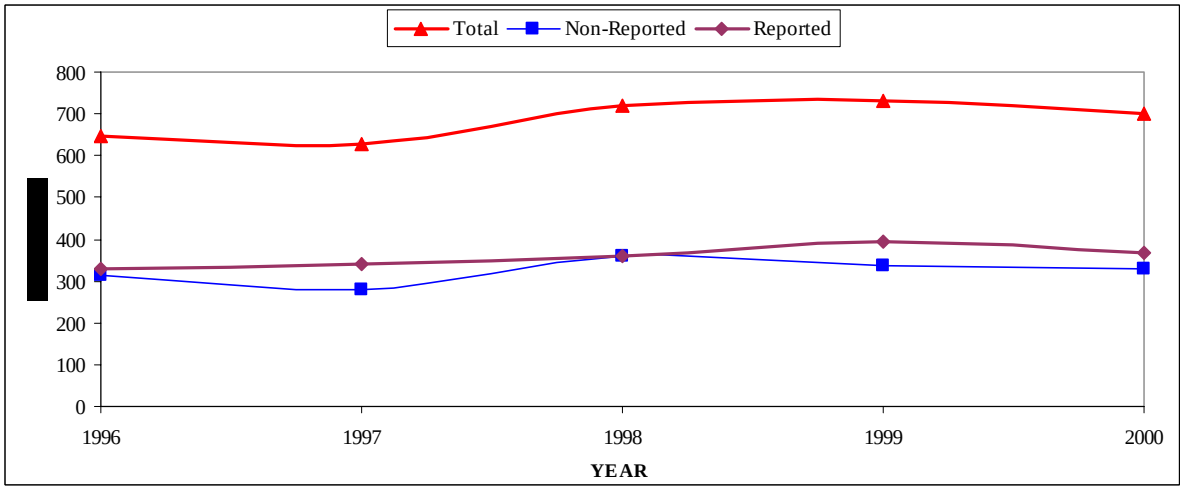


Table 6-17 provides a summary of the accident history at the 26 locations, excluding Ocean Parkway/Brighton Beach Avenue, analyzed for the five year analysis period.

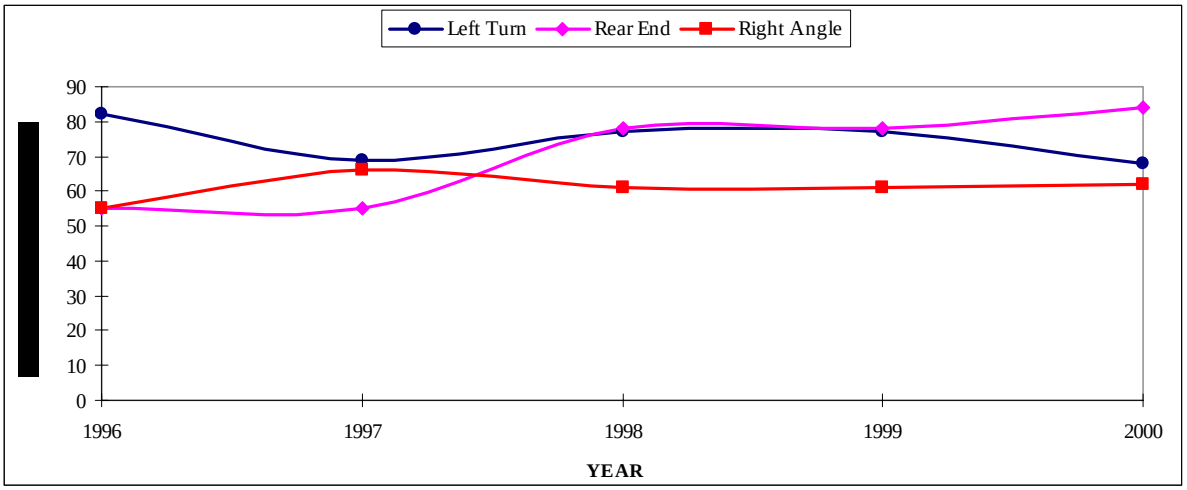
Table 6-17: Five-Year Accident Summary (1996-2000)

Year	Total Accidents	Reportable	Non-Reportable	Fatalities	Injuries	Pedestrian	Bicyclist
1996	646	331	315	0	488	37	23
1997	626	339	279	0	555	44	13
1998	718	359	359	2	600	37	16
1999	733	395	338	2	573	46	10
2000	699	368	331	1	501	37	15
Total	**3422**	**1792**	**1622**	**5**	**2717**	**201**	**77**

Accidents by Collision Type

Left turns, rear ends, and right angles were the most common collision types during the five years analyzed. Chart 6-8 shows the distribution of accidents by collision type. Of the three collision types, rear ends increased slightly during the analysis period, while left turns and right angles remained relatively constant.

Chart 6-8: Accidents by Collision Type (1996-2000)

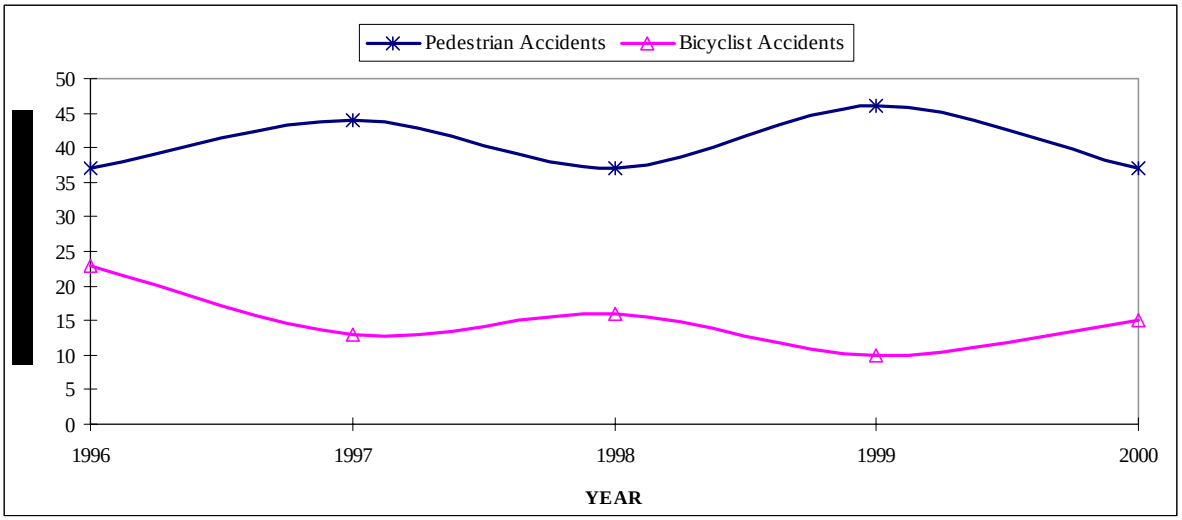


The Ocean Parkway/Neptune Avenue intersection experienced the highest number of right angles and left turn accidents with an average of fourteen (14) and nine (9) accidents per year, respectively. For rear ends, the Ocean Parkway/Avenue T intersection had an average of seven accidents per year.

Pedestrians/Bicyclist Accidents

As shown in Chart 6-9 there is no evident trend or pattern to accidents involving pedestrians and bicyclists. No strong correlation can be established between accidents involving pedestrians and bicyclists, or any other factor. Paradoxically, pedestrian and bicyclist accidents tend to move in the opposite direction during the year, which confirms the fact that accidents are indeed random. When pedestrian accidents increased, bicyclists' accidents decreased and vice versa.

Chart 6-9: Total Pedestrians/Bicyclists Accidents (1996-2000)



Severity/Frequency of Accidents

The main objective of this study is to identify locations that experience higher than average accidents and with greater severity, to determine the causes (identify if there are geometric or traffic control deficiencies), and to develop corrective measures. Table 6-18 shows the locations with the highest frequency and severity factors for each year analyzed.

Table 6-18: Critical Severity and Frequency Factor Locations (1996-2000)

Year	Locations	
1996	SF	Neptune Avenue/Ocean Parkway
	FF	Coney Island Avenue/Guider Avenue (Ramp Belt Parkway)
1997	SF	Coney Island Avenue /Avenue Z
	FF	Coney Island Avenue/Avenue Z
1998	SF	Bay Parkway/Benson Avenue
	FF	Coney Island Avenue/Guider Avenue (Ramp Belt Parkway)
1999	SF	Avenue S/Ocean Parkway
	FF	Coney Island Avenue/Avenue Z
2000	SF	Cropsey Avenue/Bay Parkway
	FF	Coney Island Avenue/Neptune Avenue

This clearly shows that the Coney Island Avenue/Avenue Z intersection is a critical location, followed by Coney Island Avenue/Guider Avenue.

7. PARKING

7.1 Introduction

Parking is an essential part of the overall transportation system. Inadequate parking could lead to unnecessary circulation as motorists search for parking spaces, or to illegal and double parking, thus reducing roadway capacity. The purpose of this analysis is to determine the study area's parking demand and supply, identify areas where parking deficiencies exist, and to generate recommendations to address the area's short and long-term parking needs.

Both on-street and off-street parking facilities exist in the study area. On-street parking is generally permitted on all streets in the study area except where parking regulation prohibits. Off-street parking facilities are associated with large multi-unit dwellings as well as with some commercial, entertainment and recreational establishments in the study area.

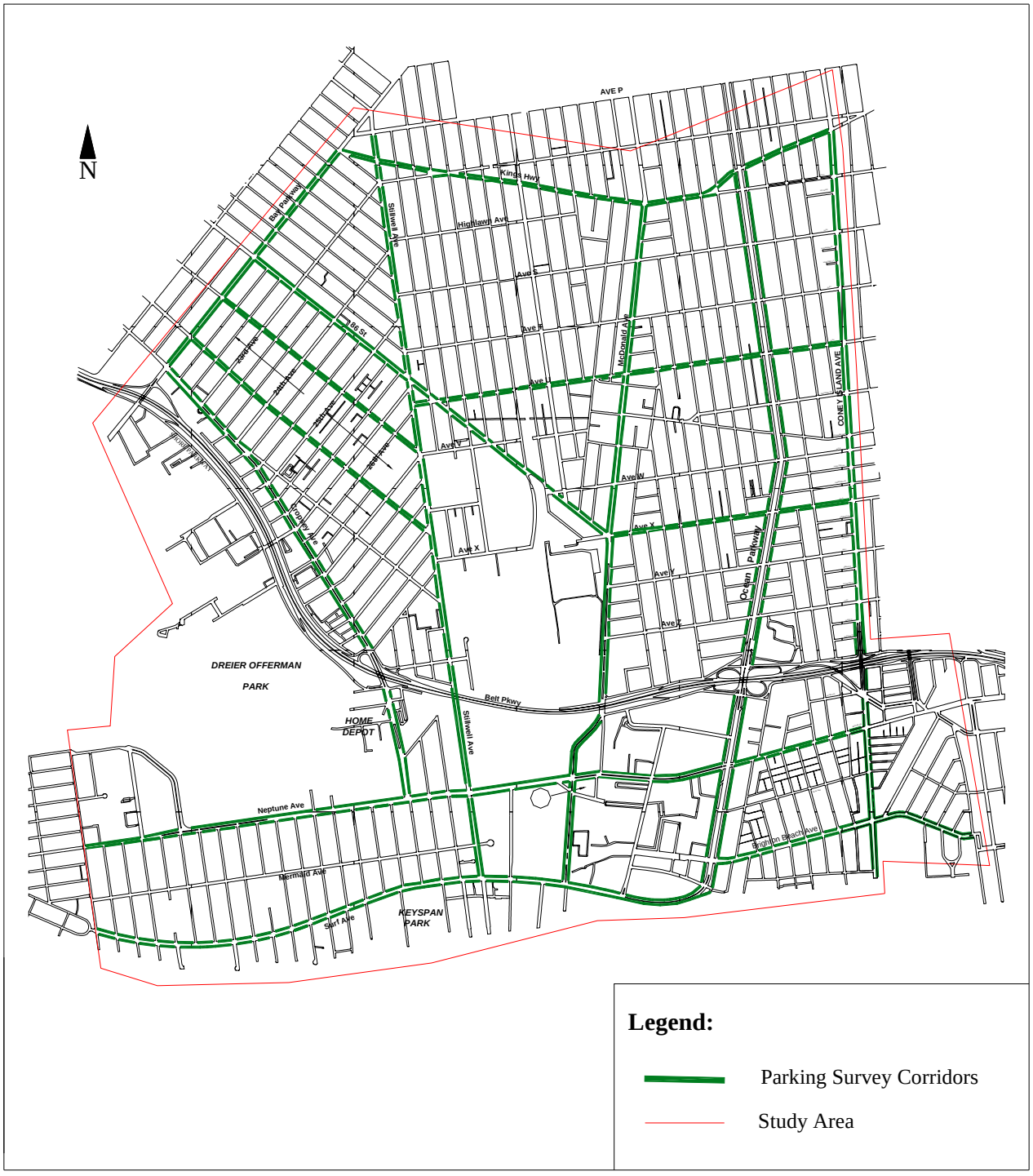
The parking analysis for the study area included surveys of on-street and off-street parking facilities. The survey of parking along the major corridors in the study area was conducted during the weekday peak hours (8:00 – 9:00 AM, 1:00 – 2:00 PM, and 5:00 – 6:00 PM) to determine the supply and demand in the study area.

7-2 On-Street Parking

The on-street parking survey focused on the major corridors in the study area where commercial activities and high density residential uses are concentrated. Only the major corridors were studied because these streets have higher traffic volumes and higher parking demand. The major corridors analyzed are shown in Figure 7-1 and listed below:

- Bay Parkway between Kings Highway and Cropsey Avenue
- Kings Highway between Coney Island Avenue and Bay Parkway
- Coney Island Avenue between Kings Highway and the Boardwalk
- Ocean Parkway between Kings Highway and Surf Avenue

Figure 7-1: On-Street Parking Survey Locations



- McDonald Avenue/Shell Road between Kings Highway and Neptune Avenue
- Stillwell Avenue between Kings Highway and Surf Avenue
- Cropsey Avenue between Bay Parkway and Neptune Avenue
- Neptune Avenue between Coney Island Avenue and West 37th Street
- Surf Avenue between Ocean Parkway and West 37th Street
- 86th Street between Bay Parkway and McDonald Avenue
- Avenue X between McDonald Avenue and Coney Island Avenue
- Avenue U between 86th Street and Coney Island Avenue

The parking survey documented the parking accumulation (the number of parked vehicles) by time of day for the AM, midday, and PM peak hour. Parking regulations on each block face along the major corridors were recorded along with capacity and utilization rates. Appendix C provides detailed parking capacity/utilization data.

A variety of on-street parking regulation were observed, and recorded, along the major corridors. Figure 7-2 shows the alternate-side street cleaning regulations, Figure 7-3 shows the "No Parking" and "No Standing" regulations, and Figure 7-4 shows where metered parking regulations exist in the study area which is normally found in proximity to commercial/retail activities. Table 7-1 provides a list of parking regulations along the major corridors studied.

The parking survey showed that demand for parking was highest at the following locations:

1. Kings Highway throughout the study area,
2. Cropsey Avenue throughout the study area,
3. Brighton Beach Avenue east of Ocean Parkway, and
4. 86th Street from Bay Parkway to Stillwell Avenue

Of the four locations above, Brighton Beach Avenue east of Ocean Parkway had the most parking shortfall. Parking spaces were fully utilized with the excess demand resulting in double parking and illegal parking. Figures 7-5, 7-6, and 7-7 show the locations where parking demand exceeded supply for the AM, midday, and PM peak hours, respectively.

Figure 7-2: Alternate Side Street Cleaning Regulations

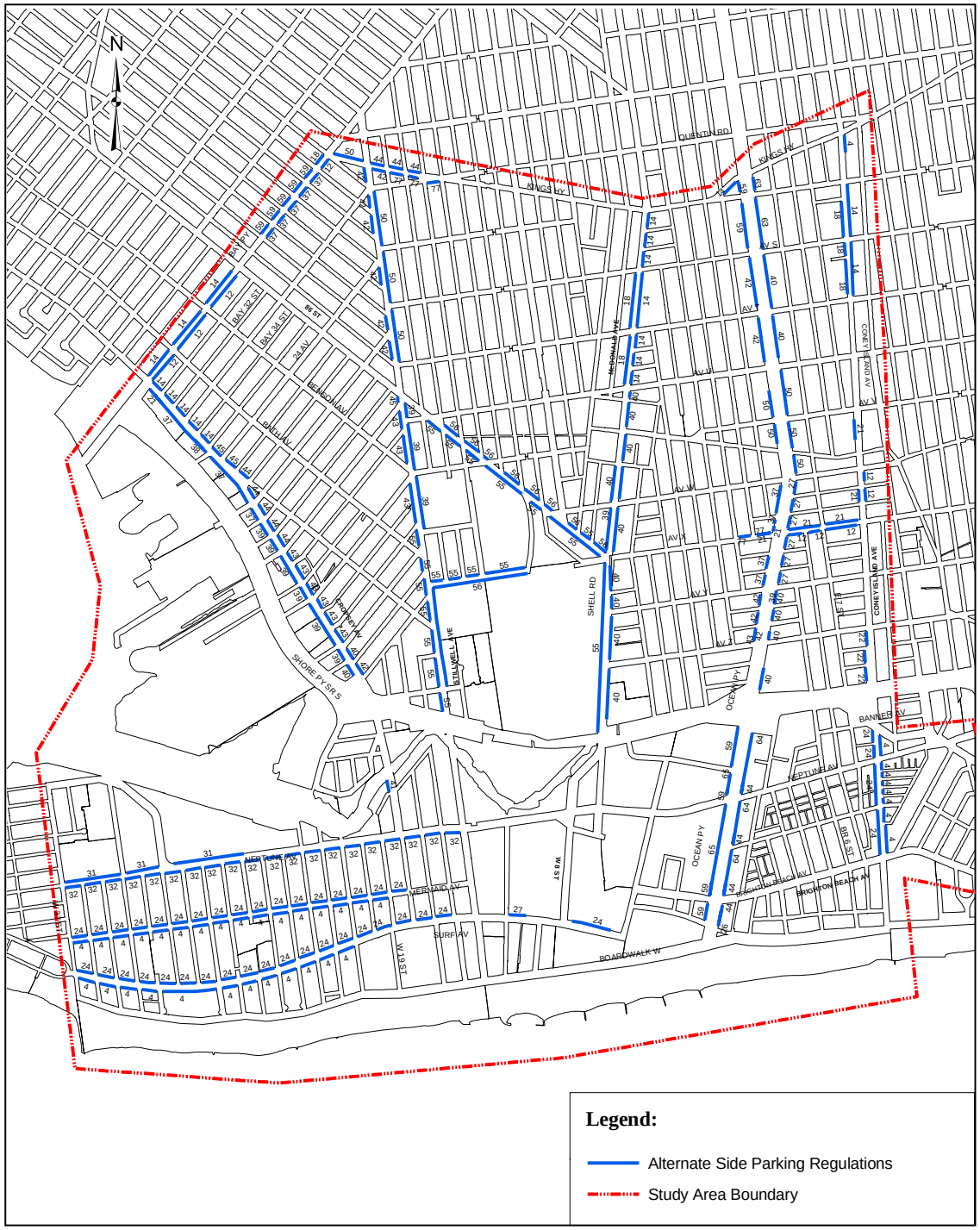


Figure 7-3: No Parking/No Standing Any Time Regulations

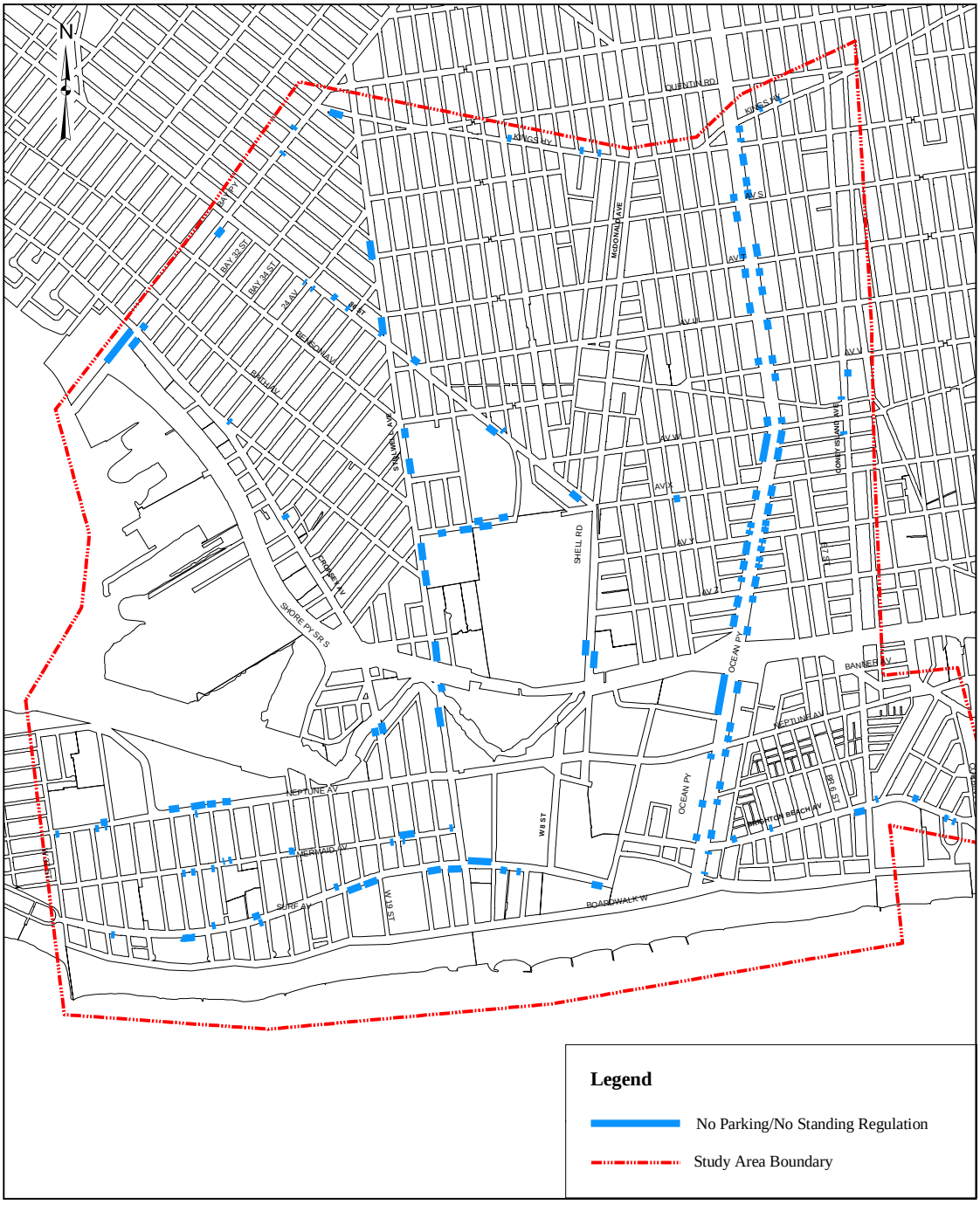


Figure 7-4: Metered Parking Locations

Table 7-1: Parking Regulation Codes

Code	Regulation	Code	Regulation
1	NP 8:00 - 8:30 AM Except Sunday	39	NP 11:30 AM - 1:00 PM Tuesday
2	1 HR Parking 8:30 AM - 7:00 PM Including Sunday	40	NP 11:30 AM - 1:00 PM Friday
3	No Parking Anytime	41	NP 8:00 - 11:00 AM Tuesday & Friday
4	No Parking 8:00 - 9:30 AM Tuesday and Friday	42	NP 11:30 AM - 1:00 PM Thursday
5	No Parking 8:00 AM - 6:00 PM Monday - Friday	43	NP 11:30 AM - 1:00 PM Monday
6	No Parking 7:30 - 8:00 AM Tuesday	44	NP 9:30 - 11:00 AM Monday
7	No Parking 7:30 - 8:00 AM Monday, Tuesday, Thursday & Friday	45	NP 8:30 - 10:00 AM Monday
8	1 HR Parking 8:00 AM - 7:00 PM Including Sunday	46	NP 7:30 - 8:00 AM Tuesday & Friday
9	No Parking 7:00 AM - 4:00 PM School Days	47	1 HR Parking 9:00 AM - 7:00 PM Except Sunday
10	No Parking 8:30 - 9:00 AM Except Sunday	48	NP 8:30 - 9:00 AM Thursday
11	1 HR Parking 9:00 AM - 7:00 PM Including Sunday	49	2 HR Parking 9:00 AM - 7:00 PM Except Sunday
12	No Parking 8:30 - 10:00 AM Friday	50	NP 11:30 AM - 1:00 PM Wednesday
13	No Standing Anytime	51	2 HR Parking 8:00 AM - 7:00 PM Except Sunday
14	No Parking 8:30 - 10:00 AM Wednesday	52	NP 7:30 - 8:00 AM Wednesday
15	No Parking 8:30 - 9:00 AM Tuesday, Thursday & Sat	53	1 HR Parking 8:30 AM - 7:00 PM Except Sunday
16	No Parking 8:30 - 9:00 AM Monday, Wednesday & Friday	54	2 HR Parking 8:30 AM - 7:00 PM Including Sunday
17	X - Removed, Broken	55	NP 11:30 - 1:00 PM Monday & Thursday
18	No Parking 8:30 - 10:00 AM Thursday	56	NP 11:30 - 1:00 PM Tuesday & Friday
19	2 HR Parking 8:00 AM - 7:00 PM Including Sunday	57	NP 7:00 AM - 5:00 PM School Days
20	No Parking 7:30 - 8:00 AM Except Sunday	58	1 HR Parking 8:00 AM - 10:00 PM Including Sunday
21	No Parking 8:30 - 10:00 AM Tuesday	59	NP 9:30-11:00 AM Thursday
22	No Parking 11:30 AM - 1:00 PM Monday	60	NP 8:00 - 8:30 AM Tuesday
23	1 HR Parking 8:00 AM - 7:00 PM Except Sunday	61	NP 8:00 - 9:00 AM Except Sunday
24	No Parking 8:00 - 9:30 AM Monday and Thursday	62	NP 7:30 - 8:00 AM Monday
25	No Parking 8:00 AM - 6:00 PM Except Sunday	63	NP 9:30 - 11:00 AM Wednesday
26	No Parking 9:00 - 10:30 AM Friday	64	NP 8:00 - 9:30 AM Tuesday
27	No Parking 9:30 - 11:00 AM Friday	65	NP 8:00 - 9:30 AM Friday
28	2 HR Parking 8:30 AM - 7:00 PM	66	2 HR Parking 8:00 AM -10:00 PM Including Sundays
29	No Parking 7:30 - 8:00 AM Monday and Thursday	67	Doctors Only
30	No Parking 7:00 AM - 7:00 PM Except Sunday	68	NP 3:00 PM - 5:00 PM
31	No Parking 9:00 - 10:30 AM Monday and Thursday	70	1 HR Parking 9:30 AM - 7:00 PM
32	No Parking 9:00 - 10:30 AM Tuesday and Friday	71	1 HR Parking 8:30 AM - Midnight
33	No Parking 8:00 AM - 8:00 PM Monday - Friday	72	1 HR Parking 8:00AM - Midnight
34	No Parking 8:00 - 8:30 AM Monday, Tuesday, Thursday & Friday	73	2 HR Parking 8:00 AM - Midnight
35	2HR Parking 8:00 AM - 10:00 PM Except Sunday	74	NP 7:30 - 8:00 AM Monday - Friday
36	Authorized Vehicles Only	75	1HR Parking 8:00 AM - 7:00 PM Including Sundays
37	NP 9:00 - 11:00 AM Tuesday	77	NP 9:00 - 11:00 AM Tuesday
38	NP 11:00 AM - 2:00 PM Thursday & Friday	78	NP 11:00 AM - 2:00 PM Thur & Friday

Figure 7-5: On-Street Parking Demand (AM)

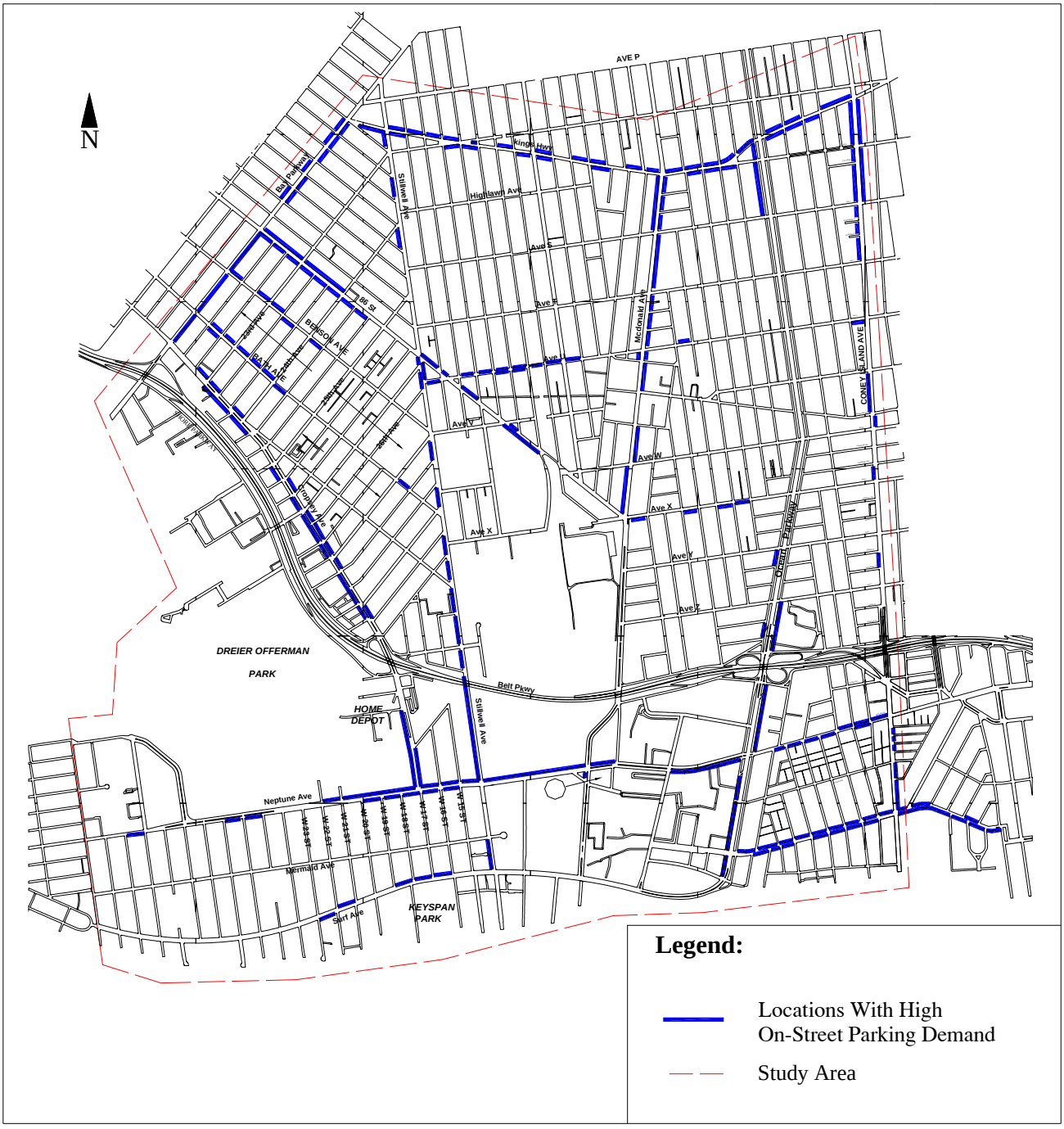


Figure 7-6: On-Street Parking Demand (Midday)

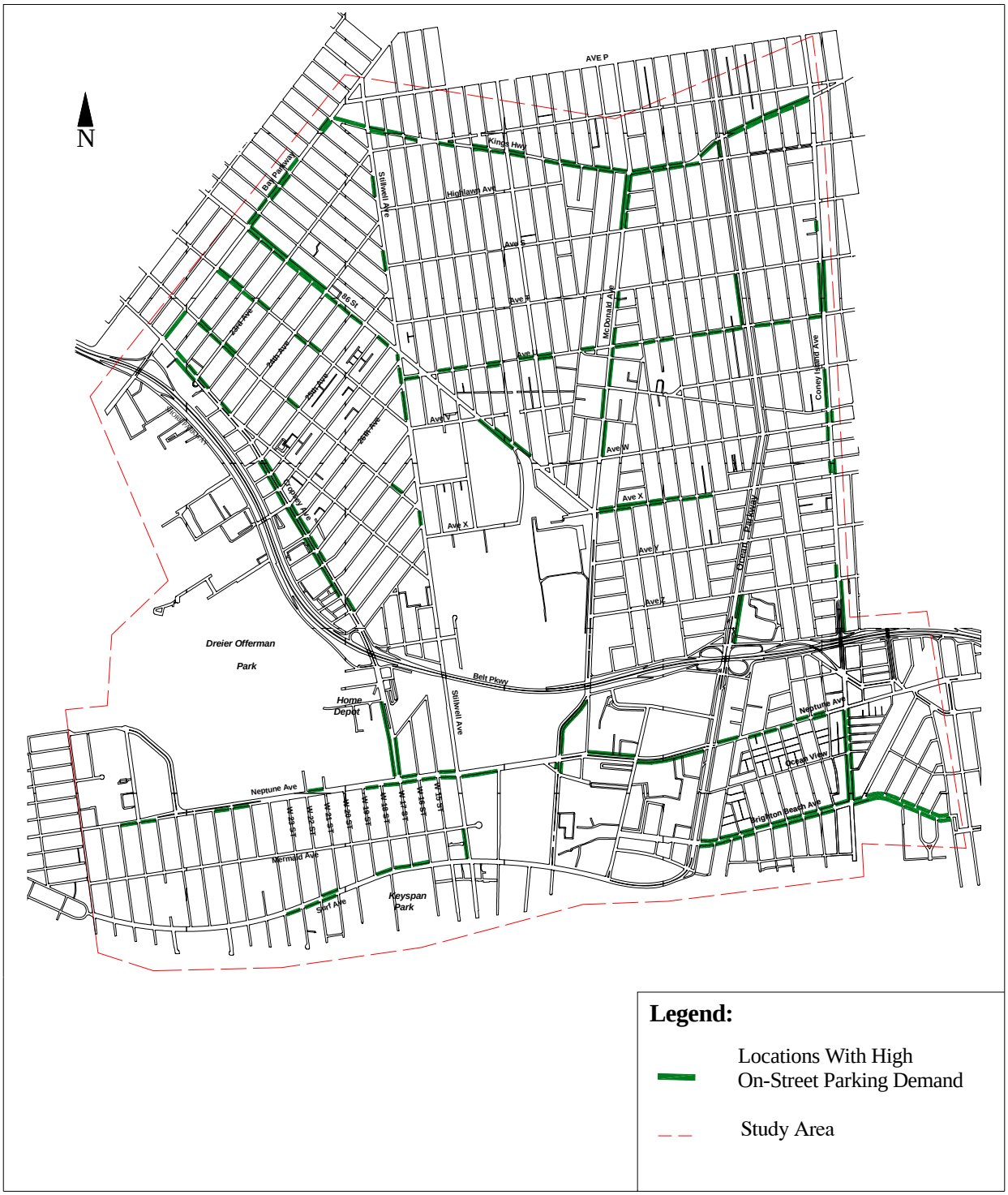
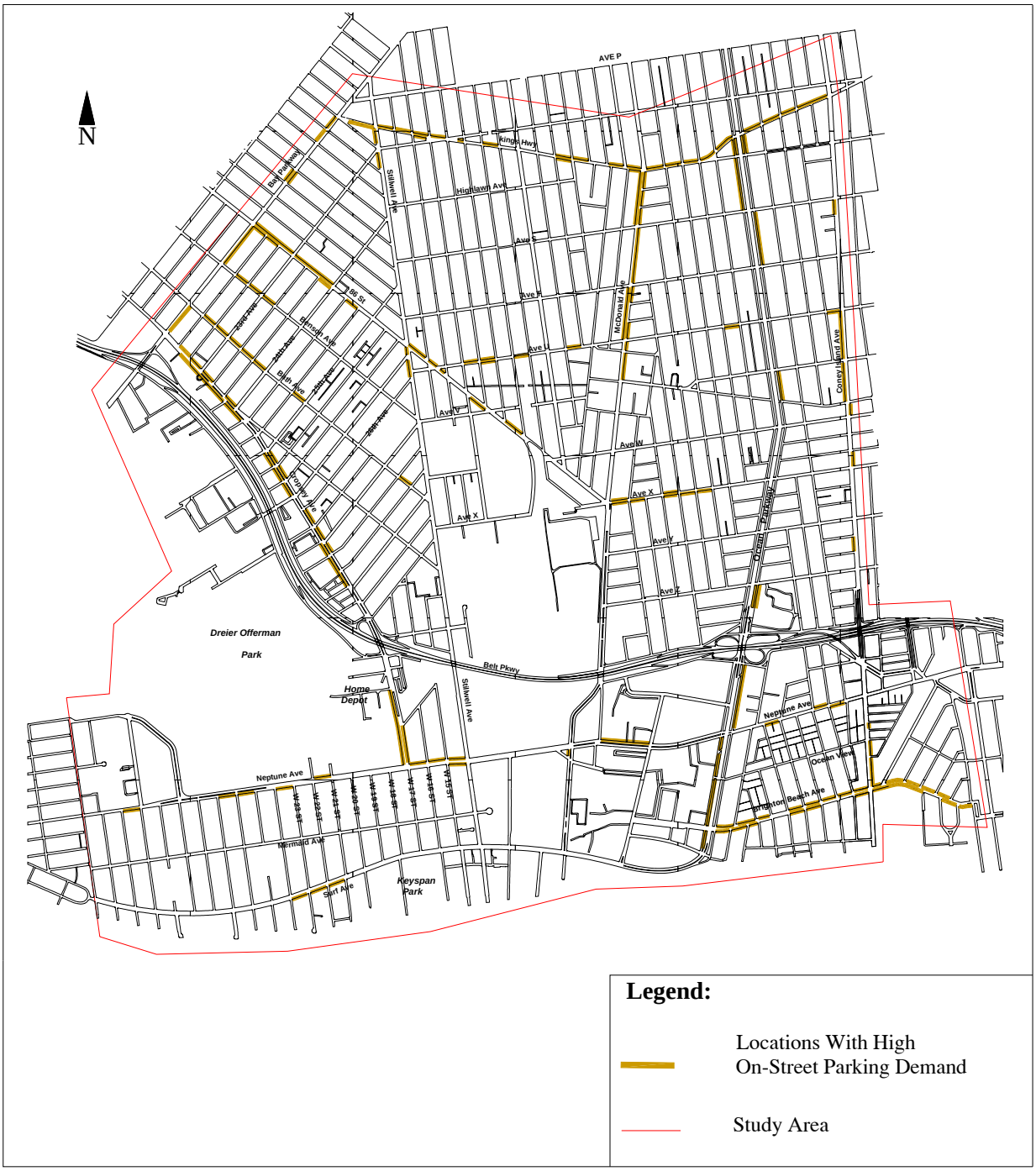


Figure 7-7: On-Street Parking Demand (PM)



7.3 Off-Street Parking

Most of the off-street parking facilities in the northern part of the study area are small parking lots associated with commercial establishments (restaurants, pharmacy, variety stores) and multi-unit residential dwellings. The off-street parking facilities south of the Belt Parkway are associated with the high-rise residential buildings as well as commercial, entertainment and recreational establishments. The off-street parking lots associated with Keyspan Park and the Aquarium charge fees, while customers for the commercial establishments such as Home Depot, Ceasar's Bay Mall, and Pathmark do not pay fees. The parking lots serving recreational facilities such as Keyspan Park, the Aquarium, and the Amusement Park reach peak utilization during summer months from approximately May to September. Consequently, the parking demand generated by the recreational facilities is primarily seasonal, based on the public's attraction to the beach and the adjacent attractions.

Some of the commercial off-street parking facilities (and their capacity) in the study area are:

- Brighton Beach Municipal Lot – 271 spaces
- New York Aquarium – 330 spaces
- Luna Parking – 250 spaces
- Abe Stark Center – 250 spaces
- Keyspan Park – 1,158 spaces
- Home Depot – 572 spaces
- Mermaid Avenue strip malls – 124 spaces
- Neptune Avenue strip malls/supermarket – 450 spaces

The analysis of parking supply and demand in the study area showed that parking demand was met along most of the major corridors in the study area. However, in some instances, particularly along 86th Street and Brighton Beach Avenue the parking demand was greater than supply. These two corridors require new approaches to address the parking shortfall that exists for both delivery trucks and private automobiles. Also, based on information gathered from

community groups a shortfall in off-street parking exists in the Coney Island/Brighton Beach area; particularly in the summer when there is an influx of visitors.

8. PUBLIC TRANSPORTATION

8.1 Introduction

Public transportation plays a vital role in the transportation system of an area and it also helps to minimize traffic congestion and other traffic-related externalities. Three types of public transit are examined in this report, the area is already served by two forms - bus and train, and the community has expressed interest in a third - ferry.

According to the 2000 Census, the portion of the study area residents who use mass transit (19% or 32,816) is slightly larger than those who use private automobile (12% or 21,612) for their journey-to-work trips. New York City Transit is the primary provider of public transit service in the study area. It provides local and express bus service and train service in the study area. There are nine local bus lines (B1, B3, B4, B6, B36, B64, B68, B74, and B82) and two express bus lines **(**X28 and X29) that serve the study area. The local buses provide daily service to points within the study area and Brooklyn, while the express buses provide service between the study area and Manhattan. There are six subway lines (B, F, N, D, Q and M) that serve the study area. The B, F, N, D, and Q trains provide service throughout the study area, while the M train serves only one station (Bay Parkway/86th Street) in the study area.

The reconstruction of the Coney Island/Stillwell Avenue station and adjacent stations will impact public transportation service in the study area for the duration of the project which is expected to last approximately 18-24 months (September 2002 to May 2004). For part of the reconstruction period, only the W train (which replaced the D train) stopped at the Coney Island/Stillwell Avenue station, while the N, F and Q line routes are truncated. The N train terminates service at 86th Street, the F line terminates at Avenue X, and the Q line terminates at Brighton Beach Avenue. Consequently, subway service is temporarily not available at Ocean Parkway and West 8th Street (Q line), Neptune Avenue and West 8th Street (F line), and Coney Island/Stillwell Avenue (N, F, and Q line). Shuttle bus service has been provided to complete the route stops for the subway stations that are closed. The completion of the Manhattan Bridge reconstruction has

resulted in the restoration of D train service to Coney Island which replaces service previously provided by the W train in the study area.

8.2 Surface Transit

A. Bus

The analysis of bus services in the study area examines how well the area is served spatially as well as the frequency of the service. Figure 8-1 shows the local and express buses and the corridors on which they travel in the study area, while Table 8-1 provides headway information for each route. Tables 8-2 to 8-5 show the existing conditions for AM, midday, PM, and Saturday midday peak hour service. Additionally, Table 8-6 provides the annual ridership data for the local bus routes. The analysis of bus service is derived from ridership and operating data for each bus line that was provided by the New York City Transit (NYCT). Detailed information, including passenger volume per peak hour, capacity, and headways for each bus line operating in the study area is presented below:

B1

The B1 bus provides service between Bay Ridge and Manhattan Beach. In the study area it provides service along 86th Street, Avenue X, Ocean Parkway and Brighton Beach Avenue. According to 2001 data it carried approximately 962, 659, and 530 passengers during the morning, midday, and evening peak hours which represented about 52%, 44%, and 59% of its service capacity. Average use during the Saturday peak hour was approximately 41% of capacity. In 2001, the B1 line transported an average of 20,359 passengers on a weekday and 11,514 passengers on weekends. Ridership increased by 13% and 15% between 1999 and 2001 for weekdays and Saturdays, respectively. The maximum load points were Brighton Beach Avenue/Brighton 1 during the AM peak hour, and 86th Street/Stillwell Avenue during the midday and PM peak hours.

Headway varies according to demand for service. During the AM peak hour, the headway is three minutes for southbound and nine minutes for northbound buses. During the PM peak hour, the headway is nine minutes for southbound and ten minutes for northbound buses.

Figure 8-1: Bus Routes in the Study Area

Table 8-1: Local Bus Routes Serving the Study Area (Coney Island/Gravesend/Brighton Beach)

Bus Route	Main Corridors Travelled in the Study Area	Direction	Origin/Destination	Headway in Minutes			
				AM	MD	PM	SAT MD
B1	Brighton Beach Avenue, Ocean Parkway, Avenue X, 86th Street	NB	From: Oriental Blvd/Mackenzie St	9	5	10	8
		SB	To: Shore Rd/Mackay Pl	3	9	9	9
B3	Avenue U, 86th Street, 25th Avenue	EB	From: 25th Ave/Harway Ave	10	8	7	N/A
		WB	To: E.74th St/Avenue X	5	9	7	N/A
B4	Ocean Parkway, 86th Street, Stillwell Avenue	EB	From: Voorhies Ave/Knapp St	12	15	15	20
		WB	To: Narrows Ave/77th St	15	15	15	20
B6	Shore Parkway, Cropsey Avenue, Bay Parkway	EB	From: Harway Ave/Bay 37th St	7	N/A	N/A	6
		WB	To: Livonia Ave/Ashford St	3	N/A	N/A	6
B36	Avenue Z, Ocean Parkway, Neptune Avenue, Surf Avenue	EB	From: Nostrand Ave/Gravesend Neck Rd	3	9	8	10
		WB	To: 37th St/Surf Ave	4	9	8	10
B64	Stillwell Avenue, Harway Avenue, Bath Avenue	EB	From: Stillwell Ave/Mermaid Ave	15	12	12	10
		WB	To: Forth Ave/86th St	12	12	12	10
B68	Neptune Avenue, Brighton Beach Avenue, Coney Island Avenue	EB	From: West 5 Street/Surf Ave.	7	6	7	40
		WB	To: Bartel Pritchard Square/Prospect Park West	6	6	10	40
B74	Mermaid Avenue, Stillwell Avenue	Loop	Stillwell Terminal	9	12	8	20
B82	Kings Highway, Bay Parkway, Cropsey Avenue	EB	From: Seaview Ave/Pennsylvania Ave	5	8	6	N/A
		WB	To: Canal Ave/Cropsey Ave	6	8	6	N/A

Source: New York City Transit

Table 8-2: Existing Conditions - Bus Service
AM Peak Hour (8 - 9 AM) Weekdays

Bus Route	Direction	Maximum Load Point Location	Buses Per Hour	Hourly Passenger Volume	Bus Capacity Per Hour	Average Ridership Bus	Available Capacity	Hourly Passenger Volume
	NB		7	227	490	33	263	
B1	SB	Brighton Beach Ave & Brighton 1 St	18	735	1260	41	525	962
	EB	Avenue U & Ocean Ave.	6	232	420	39	188	
B3	WB	Avenue U & Ocean Ave.	12	571	840	48	269	803
	EB	Bay Ridge Pkwy & 18th Avenue	5	130	350	26	220	
B4	WB	Bay Ridge Pkwy & 18th Avenue	4	148	280	37	132	278
	EB	Bay Pkwy & 60th Street	9	497	630	55	133	
B6	WB	Glenwood Rd. & Nostrand Ave	21	1024	1470	49	446	1521
	EB		18	733	1260	41	527	
B36	WB	Sheephead Bay Rd. & E 16 St.	17	597	1190	35	593	1330
	EB		4	142	280	36	138	
B64	WB	86th Street & 14th Avenue	5	186	350	37	164	328
	NB	Coney Island Ave & Kings Hwy and Coney Island Ave & Ave J	11	415	770	38	355	
B68	SB	Coney Island Ave & Ave U and Coney Island Ave & Ave J	11	427	770	39	343	842
B74	Loop	Stillwell Terminal (Arrive)	8	310	560	39	250	310
	EB	Coney Island Ave & Kings Hwy	12	525	840	44	315	
B82	WB		10	569	700	57	131	1094
TOTAL				**7,468**	**12,460**			**7,468**

Notes:
1. Derived from NYCT Ridercheck Survey
2. Maximum load point is defined as the peak passenger accumulation point on a bus route.
3. The hourly volume is calculated by adding the highest accumulation on each bus during the peak hour.
4. Available capacity is calculated by multiplying the existing bus frequency by the bus capacity and subtracting the hourly volume.
5. Maximum capacity of buses is 70 passengers per bus.

Source: *New York City Transit*

Table 8-3: Existing Conditions - Bus Service
Midday Peak Hour (1 - 2 PM) Weekdays

Bus Route	Direction	Maximum Load Point Location	Buses Per Hour	Hourly Passenger Volume	Bus Capacity Per Hour	Average Ridership Bus	Available Capacity	Hourly Passenger Volume
	NB	Oriental Bl. & Mackenzie St.	13	494	910	38	416	
B1	SB	86th Street & Stillwell Avenue	7	165	490	24	325	659
	EB	Avenue U & Ocean Ave.	8	268	560	34	292	
B3	WB	Avenue U & Ocean Ave.	7	217	490	31	273	485
B4	EB	Bay Ridge Pkwy & 18th Ave.	4	104	280	26	176	
	WB	Bay Ridge & Fort Hamilton Pkwy	4	93	280	23	187	197
	EB	Glenwood Road & Nostrand Ave.	11	326	770	30	444	
B6	WB	Glenwood Road & Nostrand Ave.	10	352	700	35	348	678
	EB	Surf & Stillwell Avenues	7	182	490	26	308	
B36	WB	Surf & Stillwell Avenues	7	222	490	32	268	404
	EB	Fourth Avenue & 86th Street	5	157	350	31	193	
B64	WB	86th Street & 14th Avenue	5	137	350	27	213	294
	NB	Coney Island Ave & Ave U	9	286	630	32	344	
B68	SB	Coney Island Ave & Ave J	10	338	700	34	362	624
B74	Loop	Stillwell Terminal (Leave)	5	131	350	26	219	469
	EB	Coney Island Ave & Kings Hwy	8	247	560	31	313	
B82	WB	Coney Island Ave & Kings Hwy	8	245	560	31	315	492
TOTAL				**3,964**	**8,960**			**4,302**

Notes:
1. Derived from NYCT Ridercheck Survey
2. Maximum load point is defined as the peak passenger accumulation point on a bus route.
3. The hourly volume is calculated by adding the highest accumulation on each bus during the peak hour.
4. Available capacity is calculated by multiplying the existing bus frequency by the bus capacity and subtracting the hourly volume.
5. Maximum capacity of buses is 70 passengers per bus.

Source: *New York City Transit*

Table 8-4: Existing Conditions - Bus Service
PM Peak Hour (5 - 6 PM) Weekdays

Bus Route	Direction	Maximum Load Point Location	Buses Per Hour	Hourly Passenger Volume	Bus Capacity Per Hour	Average Ridership Bus	Available Capacity	Hourly Passenger Volume
B1	NB	86th Street & Stillwell Avenue	6	268	420	45	152	532
	SB		7	264	490	38	226	
B3	EB	Avenue U & Ocean Ave.	9	235	630	26	395	493
	WB	Avenue U & Ocean Ave.	9	258	630	29	372	
B4	EB	Bay Ridge Pkwy & 18th Avenue	4	107	280	27	173	209
	WB	Bay Ridge Pkwy & 18th Avenue	4	102	280	26	178	
B6	EB	Glenwood Road & Nostrand Ave and Ave H & Utica Ave	17	688	1190	40	502	1087
	WB	Glenwood Road & Nostrand Ave and Rockaway Parkway Station	13	399	910	31	511	
B36	EB	Sheephead Bay Rd. & E 15 St.	8	408	560	51	152	661
	WB	Surf & Stillwell Avenues	8	253	560	32	307	
B64	EB	86th Street & 14th Avenue	5	205	350	41	145	380
	WB	86th Street & 14th Avenue	5	175	350	35	175	
B68	NB	Coney Island Ave & Ave J and Coney Island Ave & Kings Hwy	10	385	700	39	315	744
	SB	Coney Island Ave & Ave J and Coney Island Ave & Kings Hwy	9	359	630	40	271	
B74	Loop	Stillwell Terminal (Leave)	9	275	630	31	355	275
B82	EB	Coney Island Ave & Kings Hwy	10	472	700	47	228	708
	WB	Coney Island Ave & Kings Hwy	10	236	700	24	464	
TOTAL				**5,089**	**10,010**			**5,089**

Notes:
1. Derived from NYCT Ridercheck Survey
2. Maximum load point is defined as the peak passenger accumulation point on a bus route.
3. The hourly volume is calculated by adding the highest accumulation on each bus during the peak hour.
4. Available capacity is calculated by multiplying the existing bus frequency by the bus capacity and subtracting the hourly volume.
5. Maximum capacity of buses is 70 passengers per bus.

Source: *New York City Transit*

Table 8-5: Existing Conditions - Bus Service
Saturday Peak Hour (1 - 2 PM)

Bus Route	Direction	Maximum Load Point Location	Buses Per Hour	Hourly Passenger Volume	Bus Capacity Per Hour	Average Ridership Bus	Available Capacity	Hourly Passenger Volume
	NB	86th Street & Stillwell Avenue	8	213	560	27	347	
B1	SB	86th Street & Stillwell Avenue	7	217	490	31	273	430
	EB	Avenue U & Nostrand Avenue	9	406	630	45	224	
B3	WB	Avenue U & Nostrand Avenue	10	229	700	23	471	635
	EB	Bay Ridge Pkwy & 18th Avenue	3	91	210	30	119	
B4	WB	Bay Ridge Pkwy & 18th Avenue	3	83	210	28	127	174
	EB	Glenwood Rd. & Nostrand Ave	10	277	700	28	423	
B6	WB	Avenue H & Utica Avenue	10	396	700	40	304	673
	EB	Surf Avenue & Stillwell Avenue	6	181	420	30	239	
B36	WB	Sheephead Bay Rd. & E 16 St.	6	150	420	25	270	331
	EB	4th Avenue & 86th Street	6	157	420	26	263	
B64	WB	86th Street & 14th Avenue	6	152	420	25	268	309
	NB	Coney Island Avenue & King Hwy	8	167	560	21	393	
B68	SB	Coney Island Avenue & King Hwy	8	210	560	26	350	377
B74	Loop	Stillwell Terminal (Leave)	3	55	210	18	155	55
	EB	Kings Hwy & Ocean Avenue	6	193	420	32	227	
B82	WB	Kings Hwy & West 7th Street	6	187	420	31	233	380
TOTAL				**3,364**	**8,050**			**3,364**

Notes: 1. Derived from NYCT Ridercheck Survey

2. Maximum load point is defined as the peak passenger accumulation point on a bus route.

3. The hourly volume is calculated by adding the highest accumulation on each bus during the peak hour.

4. Available capacity is calculated by multiplying the existing bus frequency by the bus capacity and subtracting the hourly volume.
5. Maximum capacity of buses is 70 passengers per bus.

Source: *New York City Transit*

Table 8-6: Average Bus Ridership

	1999		2000		2001	
Bus Route	**Average Weekday**	**Average Saturday**	**Average Weekday**	**Average Saturday**	**Average Weekday**	**Average Saturday**
B 1	18,018	9,993	18,983	10,130	20,359	11,514
B 3	13,599	10,202	14,407	10,445	14,989	11,529
B 4	6,401	4,087	6,478	4,058	6,578	4,451
B 6	33,538	20,312	35,960	21,905	38,381	25,493
B 36	15,019	7,394	15,767	7,437	16,498	8,293
B 64	5,606	4,118	5,770	4,243	6,312	4,939
B 68	16,931	10,259	16,560	9,795	18,083	11,527
B 74	3,650	1,030	3,929	1,637	4,013	1,787
B 82	26,059	14,692	26,883	15,048	27,880	15,505
X 28	3,376	n/a	3,865	n/a	4,117	n/a
X 29	517	n/a	595	n/a	664	n/a

Source: NYCT

B3

The B3 bus provides service between Bath Beach and Bergen Beach. In the study area it provides service along Avenue U, Stillwell Avenue, and 25th Avenue before approaching its last stop at 25th Avenue/Harway Avenue. According to 2001 data it carried approximately 485, 493, and 803 passengers during the morning, midday and evening peak hours which represented about 62%, 46%, and 39% of its service capacity in both directions. In 2001, the B3 bus transported an average of 14,989 passengers on weekdays and 11,529 passengers on weekends. Between 1999 and 2001 there was a 10% and 13% increase in weekday and Saturday ridership volume. The maximum load point for all peak periods was Avenue U/Ocean Avenue, which is located outside the study area.

Headway for this bus line differs by peak hour and direction according to demand. During the AM peak hour its headway is five minutes for eastbound and ten minutes for westbound buses, but in the PM peak hour it shifts to seven minutes in both directions.

B4

The B4 bus provides service between Bay Ridge and Sheepshead Bay. In the study area it provides service along Stillwell Avenue, 86 Street, Shell Road, Avenue Z, Ocean Parkway, and Neptune Avenue. According to 2001 data it carried approximately 197, 278, and 209 passengers during the morning, midday and evening peak hours which represented about 45%, 35%, and 37% of it service capacity in both directions. During the Saturday peak hour, it operated at approximately 42% of its capacity. In 2001 this bus carried an average of 6,578 passengers on weekdays and 4,451 passengers on weekends. Between 1999 and 2001 weekday and Saturday ridership volume increased 3% and 9%, respectively. The maximum load points for this bus line were Brighton Beach Avenue/Brighton 1(morning peak hour) and 86th Street/Stillwell Avenue (midday and evening peak hours).

A significant difference does not exist between the headways for AM and PM peak hours. During the morning peak hour the headway is twelve for eastbound and fifteen minutes for westbound buses; the headway is 15 minutes in both directions during the PM peak hour.

B6

The B6 bus line provides service between Bath Beach and East New York. In the study area it provides service along Bay Parkway, Shore Parkway, and 26th Avenue. According to 2001 data it transported approximately 1,521, 678, and 1,087 passengers, which represented about 73%, 46%, and 52% of its service capacity in both directions, during the AM, midday and PM peak hours. During the Saturday peak hour, the bus operated at approximately 48% of its capacity. In 2001 this bus line carried an average of 38,381 passengers on a weekday and 25,493 passengers on weekend. Between 1999 and 2001 weekday and Saturday ridership increased 14% and 26%, respectively. The maximum load point for this bus line is outside the study area. The headway for this bus line in the morning is three minutes and seven minutes for westbound and eastbound buses, respectively; on Saturdays the headway shifts to six minutes.

B36

The B36 bus provides service between Coney Island and Sheepshead Bay (Avenue U). It provides service along Ocean Parkway, Neptune Avenue, West 5th Street, Surf Avenue, West 37th Street, and West 33rd Street. According to 2001 data it transported approximately 1,330, 404, and 661 passengers, which represented about 54%, 41%, and 59% of its service capacity in both directions, during the AM, midday, and PM peak hours. During the Saturday peak hour, the bus operated at approximately 40% of its capacity. In 2001 this bus carried an average of 16,498 passengers on weekdays and 8,293 passengers on weekends. Between 1999 and 2001 there was a 10% and 12% increase in the weekday and Saturday ridership volume. The maximum load point is outside the study area during the AM peak hour, and during the midday and evening peak hours it is at Surf/Stillwell Avenues.

During the AM peak hour the headway is three minutes for eastbound buses and four minutes for westbound buses; and during the PM hour the headway is eight minutes in both directions.

B64

The B64 bus provides service between Bay Ridge and Coney Island. In the study area it provides service along the Bath Avenue, 25th Avenue, Harway Avenue, Stillwell Avenue,

Mermaid Avenue, Surf Avenue, Bay View Avenue, and 37th Street. In 2001 it transported approximately 328, 294, and 380 passengers, which represented about 52%, 42%, and 55% of capacity in both directions, during the AM, midday, and PM peak hours. During the Saturday peak hour, the bus operated at approximately 37% of its capacity. In 2001 this bus carried an average of 6,312 passengers on a weekday and 4,939 passengers on weekends. Between 1999 and 2001 weekday and Saturday ridership increased 13% and 20%, respectively. The maximum load point for this bus line lies outside the study area. Headway for this bus line is 15 and 12 minutes for the AM and PM peak hours, respectively.

B68

The B68 bus provides service between Coney Island and Park Slope. In the study area it provides service along Coney Island Avenue, Brighton Beach Avenue, and Surf Avenue. According to 2001 data it transported approximately 842, 624, and 744 passengers, which represented about 55%, 47%, and 56% of its capacity in both directions during the AM, midday, and PM peak hours. During the Saturday peak hour, the bus operated at approximately 37% of its capacity. In 2001 this bus line carried an average of 18,083 passengers on a weekday and 11,527 passengers on weekend. Between 1999 and 2001 weekday and Saturday ridership increased by 7% and 12%, respectively. The headway is the same for both AM and PM peak hours – eight minutes and seven minutes in each direction.

B74

The B74 bus provides service between Sea Gate and Coney Island. It provides service along Mermaid Avenue, Neptune Avenue, Bay View Avenue, and 33rd Street. According to 2001 data it carried approximately 310, 131, and 275 passengers, which represented about 55%, 37%, and 44% of its capacity in both directions, during the AM, midday, and PM peak hours. In 2001, this bus line transported an average of 4,013 passengers each weekday, and 1,787 passengers on weekends. Between 1999 and 2001 weekday and Saturday ridership increased 10% and 73%, respectively. The maximum load point location for this bus line is the Stillwell Avenue Terminal for all periods. The headways for the peak hours are nine minutes in the morning and seven minutes in the evening.

B82

The B82 bus provides service between Gravesend and Starrett City. In the study area it runs along Cropsey Avenue, Bay Parkway, and Kings Highway. According to 2001 data it transported approximately 1,094, 492, and 708 passengers, which represented about 72%, 44%, and 50% of the total capacity in both directions, during the AM, midday, and PM peak hours. In 2001, this bus line transported an average of 27,880 passengers on weekdays and 15,505 passengers on weekends. Between 1999 and 2001 weekday and Saturday ridership increased 7% and 6%, respectively. The maximum load point for this bus line is Coney Island Avenue/Kings Highway for all weekday peak hours. The headway is five minutes for eastbound buses and six minutes for westbound buses during the AM peak; the PM peak headway is six minutes in both directions.

X28

The X28 bus provides service between Sea Gate or Bensonhurst and Manhattan. The service originates at various locations within the study area with stops along Surf Avenue and Cropsey Avenue. In 2001, the X28 transported approximately 4,117 passengers daily. Between 1999 and 2001 there was a 22% increase in the weekday ridership volume.

X29

The X29 bus provides service between Coney Island and Manhattan. In the study area the service originates at Stillwell/Surf Avenues and runs along Surf Avenue, West 5th Street, Neptune Avenue, and Coney Island Avenue. In 2001 an average of 664 passengers were transported daily. Between 1999 and 2001 there was a 28% increase in the weekday ridership volume.

B. Jitney Cabs/Taxis

The presence of jitneys ("dollar cabs") in the study area is very visible in Coney Island where they provide feeder service to the Stillwell Avenue station. Jitneys serve residents primarily in the western portion of Coney Island, where there are several New York City Housing Authority buildings and a low-income population. The jitneys provide service primarily along the B74 bus route which runs along Mermaid Avenue and Surf Avenue. The popularity of the jitneys in this

area, west of Stillwell Avenue, may be linked to the sporadic bus service offered by New York City Transit which residents complained about at the visioning sessions held by NYCDOT and NYMTC.

8.3 Subway Service

Six subway lines (B, F, N, D, Q and M) operate within the study area. The five subway lines make a total of 13 stops in the study area. The B train provides express service in the study area and replaces service previously provided by the Q diamond. The Q train provides local service in the study area. Figure 8-2 shows the subway routes and stops in the study area. Under normal conditions, the local train terminates at the Coney Island/Stillwell Avenue station while the express train terminates at Brighton Beach; however, while the repairs are being made to the Coney Island/Stillwell Avenue Station, both lines terminate at the Brighton Beach station. The Coney Island/Stillwell Avenue station is the main terminal for three trains (F, Q, and D) operating in the study area; it is also a major transfer point for commuters using the B36, B64, and B74 buses.

B Train

Following the completion of renovations on the Manhattan Bridge in February 2004, the B train resumed service to the study area providing service from Bedford Park Boulevard, the Bronx and Brighton Beach. The B train provides local service in Manhattan and express service in Brooklyn.

D Train

The D train provides service between 205th Street (Norwood) in the Bronx and Coney Island. It makes four stops in the study area – Bay Parkway, 25th Avenue, Bay 50th Street, and terminates at Coney Island/Stillwell Avenue. Transfers to surface transit can be made at Bay Parkway (B6 and B82 bus lines), 25th Avenue (B3 and B4 bus lines), Bay 50th Street (B64), and Coney Island/Stillwell Avenue (B74). The headway for this train is ten minutes during the peak and off peak hours (weekdays), and it decreases to eight minutes on weekends.

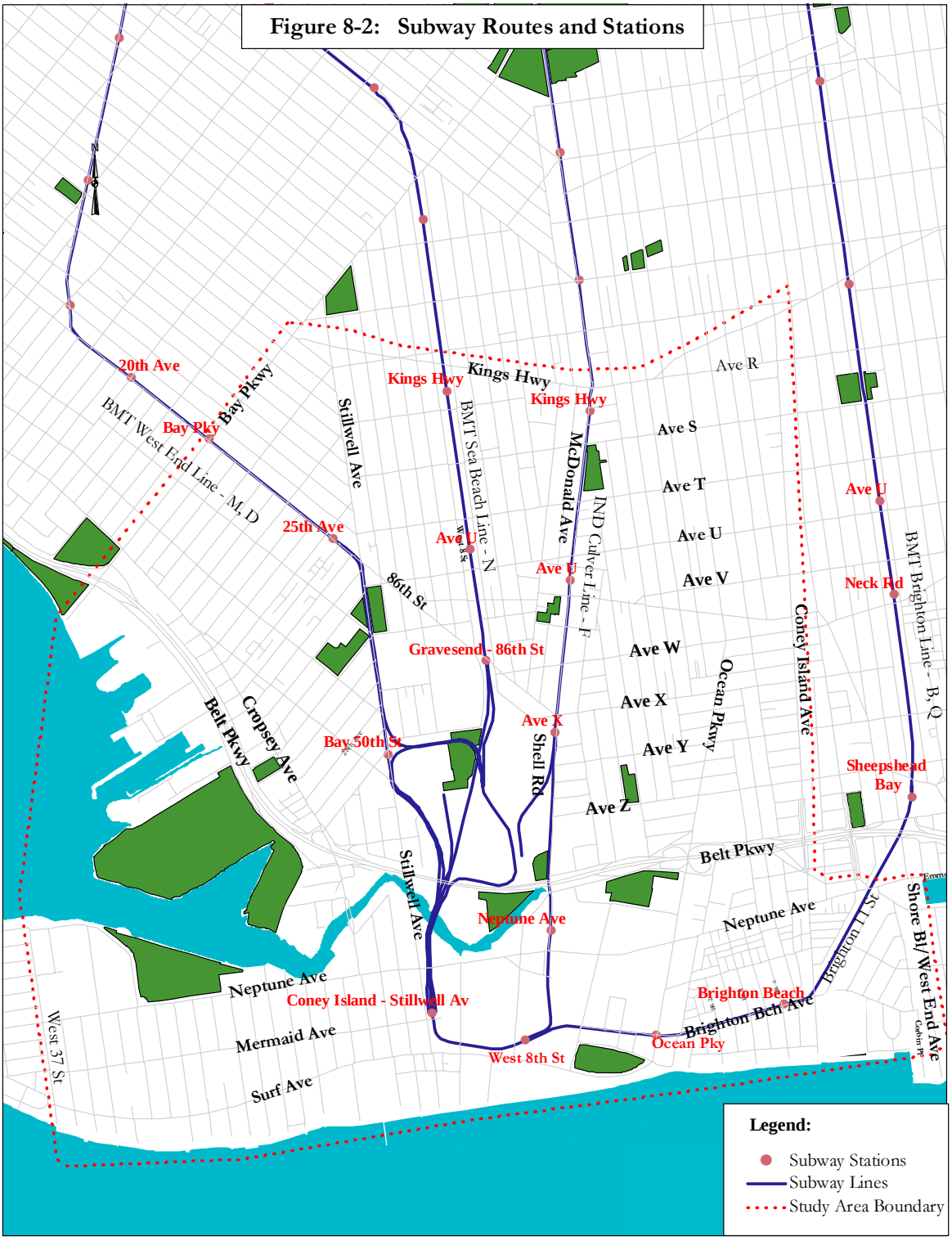


Figure 8-2: Subway Routes and Stations
20th Ave
Bay Pky
Bay Pkwy
BMT West End Line - M, D
Stillwell Ave
Kings Hwy
Kings Hwy
Kings Hwy
BMT Sea Beach Line - N
McDonald Ave
IND Culver Line - F
Ave R
Ave S
Ave T
Ave U
Ave U
Ave U
Ave V
25th Ave
Ave U
86th St
Gravesend - 86th St
Ave W
Ave X
Ave X
Ave Y
Ave Z
Ocean Pkwy
Coney Island Ave
Neck Rd
BMT Brighton Line - B, Q
Belt Pkwy
Cropsey Ave
Bay 50th St
Shell Rd
Sheepshead Bay
Belt Pkwy
Stillwell Ave
Neptune Ave
Neptune Ave
Brighton 11 St
Shore Bl/West End Ave
Neptune Ave
Coney Island - Stillwell Av
Brighton Beach
Brighton Bch Ave
Mermaid Ave
Ocean Pky
West 37 St
West 8th St
Surf Ave
Legend:
Subway Stations
Subway Lines
Study Area Boundary

According to 2001 data, on an average weekday this train transports approximately 6,337 passengers traveling from the 25th Avenue and Bay 50th Street stations. From the other two stations – Bay Parkway and Coney Island/Stillwell Avenue – where the D train provides service along with the F, Q, and M ridership in 2001 averaged 16,742 commuters on weekdays. Between 1999 and 2001, the number of commuters entering the system at 25th Avenue, the maximum load point on the D train in the study area, increased 5%. As shown in Table 8-7, approximately 1,982 and 160 commuters entered the system at this station during the AM and PM peak hours.

F Train

The F train operates between Jamaica Estates, Queens and Coney Island. Within the study area, it runs along McDonald Avenue making a total of six stops in the study area – Kings Highway, Avenue U, Avenue X, Neptune Avenue, West 8th Street, and Coney Island/Stillwell Avenue where the line terminates. Transfers to surface transportation can be made at Kings Highway (B82), Avenue U (B3), Avenue X (B1, B4, and shuttle bus to Coney Island while Coney Island/Stillwell Avenue station reconstruction is in progress). It provides only local service and the headway for this train varies from 4 to 6 minutes during the peak hours and 6 to 8 minutes during the off peak hours (weekdays).

According to 2001 data, on an average weekday this trains transported approximately 9,860 passengers traveling from Avenue U, Avenue X, Kings Highway, and Neptune Avenue. The F train also provides service from Coney Island/Stillwell Avenue and West 8th Street where the Q and D trains also operate. In 2001, approximately 13,000 commuters accessed the system from these stations. Between 1999 and 2001, Kings Highway was the maximum load point for commuters using this line in the study area; ridership at this station increased 14% in the same period. As shown in Table 8-7 during the AM and PM peak hours approximately 1,648 and 213 commuters accessed the system at the Kings Highway station.

Table 8-7: Average Subway Ridership

	1999		2000		2001	
Station (Train)	**Average Weekday**	**Average Saturday**	**Average Weekday**	**Average Saturday**	**Average Weekday**	**Average Saturday**
25 Ave. (W)	3,697	1,486	3,931	1,589	3,898	1,587
86 St. (N)	1,241	635	1,453	862	1,599	1,014
Ave. U (F)	2,103	1,036	2,225	1,115	2,371	1,161
Ave. U (N)	1,612	691	1,971	1,104	2,190	1,355
Ave. X (F)	2,853	1,278	2,985	1,331	3,102	1,384
Bay 50 St. (W)	2,325	1,033	2,366	972	2,439	961
Bay Pkwy. (M,W)	5,748	3,077	6,020	3,086	5,986	2,787
Kings Highway (F)	3,266	1,813	3,421	1,838	3,731	2,215
Kings Highway (N)	2,510	1,123	2,878	1,594	3,030	1,789
Neptune Ave. (F)	1,638	629	1,713	691	1,852	745
Ocean Pkwy. (Q)	2,555	1,641	2,728	1,722	2,844	1,755
Stillwell Ave.-Coney Island (F,Q,W)	9,499	8,646	10,056	8,951	10,756	9,809
West 8 St.-New York Aquarium (F,Q)	2,270	1,838	2,207	1,765	2,200	2,025

Source: NYCT

While the Stillwell Avenue station is undergoing reconstruction, F train service will terminate at Avenue X. Shuttle bus service will be provided between Avenue X and Stillwell Avenue. Additionally, the B68 bus line has been extended until Stillwell Avenue serving West 8th Street and Neptune Avenue along its new route.

M Train

The M train provides service between Middle Village, Queens and Gravesend. It makes only one stop (Bay Parkway/86th Street) in the study area. Commuters can transfer to the B1, B6, and B82 bus lines at this location.

According to 2001 data, on an average weekday there were 5,986 passengers traveling from the Bay Parkway station. As Bay Parkway serves commuters for the M and D trains, it is not clear what portion of the commuters uses the M train. As shown in Table 8-7, between 1999 and 2001, ridership at this station increased 4%.

N Train

The **N** train provides service between Astoria (Ditmars Boulevard) and Gravesend (86th Street). This train makes three stops in the study area at Kings Highway, Avenue U and 86th Street. At Kings Highway passengers can make connection to the B82 bus. It provides only local service. Headway along this line varies from eight to ten minutes on weekdays.

According to 2001 data, shown in Table 8-7, this train transported approximately 6,819 passengers traveling from 86th Street, Avenue U, and Kings Highway on weekdays. New York City Transit 2001 data also indicate that the Kings Highway station was the maximum load point for this line in the study area, and that ridership from this station increase 21% between 1999 and 2001. For the duration of the Stillwell Avenue reconstruction period, the N train service will continue to terminate service at the 86th Street Station as it has since November 2001.

Q Train

The Q train provides service between 57th Street, Manhattan and Coney Island. It makes four stops in the study area – Brighton Beach, Ocean Parkway, West 8th Street, and Coney

Island/Stillwell Avenue. In general, the Q train provides express service in Manhattan and local service in Brooklyn. Due to the reconstruction of the Coney Island/Stillwell Avenue station, service is currently terminated at Brighton Beach. Transfers to surface transit at the Brighton Beach station include the B1, B36 and B68 bus lines. Headway for this train varies from six to eight minutes during the peak hours and ten minutes during the off peak hours (weekdays).

According to 2001 data, on an average weekday the Q train transported approximately 2,844 passengers traveling from the Ocean Parkway station. Between 1999 and 2001, the Ocean Parkway station remained the highest loading point for the Q in the study area; ridership at this station increased 11% for the same period. As shown in Table 8-7, approximately 1,095 and 259 commuters entered the system at this station during the AM and PM peak hours.

Due to the Coney Island/Stillwell Avenue rehabilitation project, the Q train will terminate service at the Brighton Beach station; service to other stops will be provided by the B68 bus line.

8.4 Stillwell Avenue Terminal Rehabilitation Project

To cater to the growing need of commuters using the Stillwell Avenue station, New York City Transit (NYCT) has committed to a major rehabilitation of the station. The first phase of the $220 million project begun in Fall 2001, and the second phase begun in September 2002 and will continue until May 2004. During the reconstruction period, bus and subway service will be affected.

As previously noted service at the following stations has been affected:

- **Coney Island/Stillwell Avenue –** termination of F, Q, and N train service
- **Neptune Avenue/Shell Road –** termination of F train service
- **West 8th Street** – termination of F and Q train service
- **Ocean Parkway –** termination of Q train service

Service on the following bus lines has also been affected:

- **B3 –** in the study area this bus travels all along Avenue U, Stillwell Avenue and 25th Avenue, before approaching its last stop at 25th Avenue/Harway Avenue. Along its route, it also

provides feeder services to the Q train at Avenue U Station and D train at 23rd Avenue Station. These extensions are done due to the extension project of the Stillwell Avenue Terminal.

- **B36 –** the existing westbound B36 bus stop located at the intersection of Stillwell and Surf Avenue will be relocated from the near side of Stillwell Avenue to the far side on the same avenue.
- **B68** – due to the temporary closure of the Stillwell Avenue station that will affect train routes in this area, B68 will be replacing the Q train route and will travel until Stillwell Avenue. It will also provide service to the Neptune Avenue station (F train), Ocean Parkway station (Q train), West 8th Street station (F and Q trains), and Stillwell Avenue station (F and Q trains). The new schedule for this route is as follows:

  Southbound: regular route from Windsor Terrace to Brighton Beach Avenue/Ocean Parkway; then via West Brighton Avenue, West 5th Street, Neptune Avenue, and Stillwell Avenue.

  Northbound: from Stillwell Avenue, near side of Surf Avenue, then via: Stillwell Avenue, Surf Avenue, West Brighton Avenue, onto Brighton Beach Avenue, then on to its regular route to Windsor Terrace.

8.5 Public Transportation Issues Raised by the Community

At the public meetings held in the study area, community groups provided input about weaknesses in the public transit service and changes they would like to see.

<u>Bus Transit</u>

Community groups raised the following issues:

- The need for bus service on Neptune Avenue from West 5th Street to West 36th Street.
- The need for direct bus service between Kingsborough Community College and Coney Island; i.e., feeder service from nearby subway stations.
- The B3 bus service on Avenue U, Nostrand Avenue to Kings Plaza experiences congestion and overcrowding, and it is slow. The B36 one-stop-ride service to Kings Plaza should be reinstated to alleviate the B3 problems and improve quality of service
- The need for additional service on the B74 line after school hours, especially in the evenings.

- Increase the frequency of bus service as a method to reduce Dollar Van competition.
- A bus hub is needed in Coney Island to serve Keyspan Stadium. The B64, B68, and B82 bus routes should be extended to this hub.
- A transfer is needed from subway to bus service from 86th Street in Gravesend connecting to the West 8th Street subway station on Coney Island.
- Initiate weekend operation for existing express bus services.

Rapid Transit

- Stillwell Station should be accessible to ADA standards. No wheelchair access exits there.
- All-day Metrocards (FunCards) should be available at the booths.
- Express Q-train service should be extended to Stillwell Avenue.
- Brooklyn/Queens (inter-borough) train service should be expanded.
- Additional express service is needed on all subway lines - Q, F, N, and R.
- NYCT right-of-ways should be better maintained; for example, landscaping areas around subway structures would beautify the areas and help avert dumping.
- Better coordination for special-event transit scheduling is required.
- Provision of a less maintenance-intensive and cleaner subway system.
- More reliable and on-time subway service is needed.

Ferry Service

- The provision of ferry service to Manhattan and the Rockaways is desired and should be examined.

9. SCENARIOS

9-1. Introduction

Community input received at the public forums were used to develop the scenarios (development alternatives) that will be tested using the Best Practice Model (BPM) which is a set of transportation models developed by the New York Metropolitan Transportation Council (NYMTC) to meet the federal requirements for long-range planning. The Best Practice Model incorporates transportation behavior and relationships that have been developed with an extensive set of data that includes a major travel survey of households in the region, land-use inventories, socioeconomic data, traffic and transit counts, and travel times. The BPM facilitates the prediction of trip generation, trip distribution, and mode choice based on land use and other factors.

9-2. Alternative Futures (Development Scenarios)

Four transportation and three land use scenarios were developed with the information gathered from field surveys and public forums held in the community. These scenarios will be tested using a combination of each transportation and land use scenario as highlighted in the matrix below (Figure 9-1). Consequently, twelve combinations will be modeled and assessed.

Figure 9-1: Proposed Scenarios

TRANSPORTATION \ LAND USE	1 Current Trend	2 Moderate Development	3 Full Buildout (Vacant Lots)
1 Current Programmed Projects			
2 Transportation Management Strategies			
3 Transit Focused Improvements			
4 Major Roadway Improvements			

Transportation Scenarios

1. *Current Programmed Projects* – includes projects that are already programmed by NYCDOT or are in the Transportation Improvement Plan (TIP). The projects that are currently programmed include:
   - Reconstruction of Bayview Avenue (between West 31 Street and West 36 Street) and along McDonald Avenue (between Avenue X and Cortelyou Road);
   - Resurfacing Shore Parkway Service Road (between Bay Parkway and 23 Avenue); and,
   - Extension of Shore Parkway exit ramp at Bay Parkway.

2. *Transportation Management Strategies* – includes the application of the following strategies where appropriate to improve traffic circulation:
   - Park and ride facilities;
   - Improved signage;
   - Signal and/or intersection improvements;
   - Pedestrian/bicycle facilities;
   - One-way street pair; and,
   - On-street parking changes.

3. *Transit Focused Improvements* – includes potential changes to the transit system as expressed by community residents. They include:
   - Ferry service between Coney Island and the Rockaways and/or Manhattan;
   - Inter-Neighborhood Transit (bus service between Coney Island, Brighton Beach, and Manhattan Beach); and,
   - Additional express bus service.

4. *Major Roadway Improvement(s)* – reflects potential changes to the street network. The following item was identified by the community in Coney Island to reduce delays at the Cropsey Avenue exit from the Belt Parkway.
   - New exit ramp from Belt Parkway at Stillwell Avenue (eastbound and westbound).

Land Use Scenarios

1. *Current Trend* – follows the existing development pattern in the study area. It includes the following potential changes:
   - Development based on current trends in the community;
   - Infill residential vacant lots with one- and two-family homes; and,
   - Introduction of small scale commercial/retail entities.

2. *Moderate Development* – includes some deviation from the current development pattern. It would include new developments such as co-ops and condos to complement the low-income housing being built in Coney Island. Developments under this scenario would help to stabilize the economic base of the community. Potential changes would include:
   - Increased commercial/retail developments;
   - Intensification and mixture of housing types; and,
   - Additional recreational/entertainment developments.

3. *Full Build Out (of vacant lots)* – would include developments that maximize building potential under the current zoning regulations or some changes to the current regulations that would increase density. Developments under this scenario would include:
   - Build out vacant lots to the maximum allowed under current zoning;
   - Upzoning or changing zoning regulations, if necessary, to meet development objectives;
   - Increased amusement/recreational developments, such as a water park; and,
   - Development of a hotel and office space.

9-3. Guiding Principles

A set of overarching principles, or guiding principles, were developed using the study's goals/objectives, community visions, and other stakeholders input to frame future outcomes in the study area. The guiding principles complement the transportation and land use alternative futures; they are as follows:

Transportation

- Improve the aesthetics of major gateways and corridors;
- Provide increased options for bicyclists and pedestrians;

- Enhance transportation connections and use of public transit; and,
- Develop solutions to reduce congestion and improve safety along major corridors and at intersections, where necessary.

Environment

- Protect natural resources – shorelines, open spaces, and parks and recreational areas.

Community and Land Use

- Provide a mix of housing types to support economic development and diversity;
- Develop vacant lots and renovate or demolish abandoned buildings; and,
- Create an attractive and revitalized amusement/recreation center in Coney Island.

9-4. Strategic Outcomes

A list of strategic outcomes, results-based outcomes, corresponding to each strategic area and consistent with the guiding principles was identified by the community. The following strategic outcomes for each strategic area were developed to assess the results of the modeling process:

Principle 1: Transportation

- Improved lighting;
- Better curbside management;
- Greater parking turnover;
- Better truck route;
- Improved interface with Belt Parkway;
- Better walk/transit access to activity centers;
- Expediting buses through traffic;
- Focus on transit to Keyspan Park – incentives; and,
- Enhanced Coney Island bus service.

Principle 2: Environment

- Maximize the use of the beach and open/park space;
- Continuity and access in recreational areas.

Principle 3: Community and Land Use

- Reduced density in Gravesend;
- Open space preservation/greenery;
- Maintaining nature of current streets;
- More of a land use mix; same level of density;
- Affordable housing for seniors;
- Amusement/recreation center in Coney Island; and,
- Improved community facilities/community space.

9-5. Performance Measures

Performance measures are used to evaluate the effectiveness of alternatives and to identify opportunities for improvement and guide the selection of the best scenario or combination of scenarios. The following are some of the performance measures that will be used to assess the outcomes of the modeling process:

- Share of person trips by transit;
- Bus travel speeds;
- Auto occupancy;
- Number of auto trips;
- Auto miles of travel;
- Auto travel time lost to congestion;
- Surface transit time lost to congestion;
- Number of congested route miles;
- Number of truck trips; and
- Auto travel speed.

10. CONCLUSION

The analyses of the existing conditions formed the basis for identifying various issues and problems in the study area that requires further study.

Demographics

The socio-economic and demographic data analyzed for the study area showed that in general the study area's population is increasing. Likewise, the number of people living below the poverty level in the study area has also increased in the most recent Census.

Land Use and Zoning

The analysis of existing land use and zoning in the study area shows that majority of the study area is stable and vibrant; however, there are pockets of vacant lots and buildings as well as under-utilized lots that together tarnishes the image of the study area. These locations, many of which are located in Coney Island, provide opportunities for development and revitalization. This process has begun along Mermaid Avenue where some vacant lots are being developed with single family homes by Astella Development Corporation.

Traffic and Transportation

Many of the intersections analyzed in the study area operate at an acceptable level of service. However, many of the major intersections in the study area operate at level of service E or worse for one or more of the peak hours. These intersections include:

- Coney Island Avenue/Brighton Beach Avenue;
- Coney Island Avenue/Guider Avenue;
- Ocean Parkway/Neptune Avenue;
- McDonald Avenue/86th Street/Avenue X/Shell Road;
- Coney Island Avenue/Neptune Avenue; and,
- McDonald Avenue/Kings Highway.

Double-parked trucks are evident along streets with a concentration of commercial activities. These corridors include:

- Kings Highway between Ocean Parkway and Stillwell Avenue;
- Brighton Beach Avenue between Ocean Parkway and Brighton 12th Street;
- 86th Street from Bay Parkway to Stillwell Avenue; and,
- McDonald Avenue between Avenue X and Kings Highway.

Pedestrians and Bicycles

The analysis of existing conditions revealed several locations that require further study and improvements due to high pedestrian volumes and/or accidents. Some of these intersections include:

- Coney Island Avenue/Brighton Beach Avenue
- Bay Parkway/86th Street
- Ocean Parkway/Neptune Avenue
- Kings Highway/Coney Island Avenue
- Coney Island Avenue/Neptune Avenue

All crosswalks in the area have an acceptable level of service (LOS) – C or better. Large surges of pedestrian volumes were observed at Bay Parkway/86th Street, Brighton Beach Avenue/Coney Island Avenue, and Avenue X/McDonald Avenue/86th Street.

Accidents/Safety Analysis

The five-year (1996-2000) accident analysis revealed 27 intersections with more than 20 accidents per year. The top five locations were:

- Ocean Parkway/Neptune Avenue;
- Coney Island Avenue/Avenue Z;
- Coney Island Avenue/Guider Avenue;
- Coney Island Avenue/Neptune Avenue; and,
- Cropsey Avenue/Bay Parkway.

The 27 locations will be further analyzed to determine what actions, if any, are needed to improve safety at these intersections. Particular attention will be given to intersections that had more than five pedestrian accidents in a given year.

Parking Analysis

Currently, on-street parking supply meets demand in most of the study area. However, problems (caused primarily by double-parked delivery trucks) exist on Brighton Beach Avenue, 86th Street, and Kings Highway. Double-parked vehicles on these corridors impede circulation and contribute to congestion. Additionally, parking deficiency exists during the summer months when the beach, the Aquarium, the Amusement Park, and Keyspan Park attract a lot of visitors.

Public Transportation

In general, the study area is adequately served by mass transit; however, infrequent service on some routes, such as the B74 line, is a major concern for the community. Due to infrequent service on this route, many residents are forced to use jitneys. The opportunity to improve transit service between communities on the peninsula also exists and is desired. The feasibility of a new route serving Coney Island, Brighton Beach, and Manhattan Beach should be explored.

Alternative Futures (Development Scenarios)

Four transportation and three land use scenarios were developed using the information gathered from residents and community groups at public forums. These scenarios represent potential land use and transportation futures in the study area based on the community's visions. The feasibility and potential impact of the implementation of the scenarios will be assessed with the Best Practice Model.

PART II: FUTURE CONDTIONS 2015 & RECOMMENDATIONS

EXECUTIVE SUMMARY

The Coney Island/Gravesend Sustainable Development Transportation Study aims at identifying the development potentials and the transportation needs of three communities in southern Brooklyn (Coney Island, Gravesend, and Brighton Beach) that comprise the study area. The study area is bounded by Kings Highway on the north, Coney Island Avenue (northeast) and West End Avenue (southeast), the Riegelmann Boardwalk, and West 37th Street (southwest) and Bay Parkway (northwest). Coney Island is one of New York City's premier summer beach recreation and entertainment destinations. Brighton Beach is primarily a residential community, but it also has year-round attractions (restaurants and specialty stores) for various immigrant groups. Unlike Coney Island and Brighton Beach, Gravesend is primarily a residential neighborhood that is not a tourist attraction. Of the three communities, Coney Island has the greatest potential for growth due to the concentration of prime vacant land parcels compared to either Gravesend or Brighton Beach.

This report is an analysis mainly of the projected future 2015 conditions; it also presents a limited examination of the projected future 2025 conditions. A package of improvement measures to alleviate traffic congestion, improve parking provision, transit, and safety for all street users (vehicular, bicycles, and pedestrian) in the study area is also presented. The report builds on information presented in Technical Memorandum No. 1 which analyzed the existing conditions in the study area.

S1. Future Conditions

The future traffic conditions are influenced primarily by three factors: demographics, land use and zoning, and major planned development projects.

An increase in the study area's population, especially the economically active segment, contributes to increased travel demand that manifests itself in increased work, shopping, and other trips.

The increase in urban development density and associated land use changes also adds to increased vehicular trips. This study assesses the development potential and the associated travel demand for its effect on the transportation network. It also contains strategies and improvement measures to satisfy travel demand and improve safety and traffic operation in the study area.

S1.1. Demographic Analysis

Projections of future population and other demographics in New York City, Brooklyn, and the study area relied on a trend analysis of three decades of Census data as well as population projections made by the New York Metropolitan Transportation Council (NYMTC). Population projection for 2015 and 2025 for the study area assumes a steady growth rate of between 6.0-7.0% each decade. For the purpose of comparison, population projection were also done for NYC and Brooklyn as a whole.

S1.2. Land Use and Zoning

Future land use in the study area is expected to change according to the distribution of vacant lots and development opportunities. As such, land use changes in the northern portion of the study area will primarily be in-fill residential developments on the vacant lots scattered throughout the area. On the other hand, in the southern portion of the study area, particularly in Coney Island, numerous and significant land use changes are expected for both residential and commercial developments.

An inventory of vacant lots in the study area showed that there is close to two million square feet (1,803,475**)** of vacant land zoned for residential development, over 700,000 square feet (720,166**)** zoned for commercial development, and close to 200,000 square feet (191,867**)** are zoned for manufacturing. If these vacant lots are developed under existing zoning conditions, approximately 986 residential units could be added to the study area. Additionally, over one million square feet of space could be developed for commercial use.

S1.3. Traffic and Transportation

The intersections capacity and LOS analysis for both future condition scenarios (2015 and 2025) show that approximately half of the intersections will have unacceptable levels of service. In 2015, 22 of the 41 intersections analyzed are projected to have unacceptable LOS during at least one peak hour and 13 intersections with an unacceptable LOS during all weekday peak hours. Eleven of the 14 intersections analyzed for the weekend peak hour operations had unacceptable LOS E or F. The three intersections with acceptable LOS during the weekend peak hour are Kings Highway/Ocean Parkway, Kings Highway/Coney Island Avenue, and Surf Avenue/Stillwell Avenue (during the off-peak period). In 2025, 25 of the 41 intersections are projected to operate at unacceptable LOS during at least one peak hour and 17 intersections with an unacceptable LOS during all weekday peak hours. However, as a result of the improvement measures, all of these locations are expected to perform well above their future conditions.

S1.4 Pedestrians and Bicycles

The future 2015 conditions for pedestrians will not be significantly different from the existing conditions except in those areas where commercial and recreational facilities are concentrated as well as those areas being revitalized. The expansion and upgrade of bicycle facilities in the study area is expected to continue as per the Bicycle Master Plan.

S1.5. Parking

Under future conditions, the parking supply meets demand in the overall study area; however, in areas where entertainment, recreation, and commercial activities are concentrated, both on-street and off-street parking provision will be below demand. However, it is anticipated that increased parking will be provided as additional off-street facilities are developed as part of the Coney Island Rezoning and Revitalization Plan and as the NYCDOT muni-meter parking system is expanded.

S1.6. Public Transportation

An increased demand is expected in the future 2015 and 2025 conditions based on background growth and future developments. With the projected system-wide service

changes due to take effect end of June 2010 because of budgetary constraints at the MTA, the exact impact on the study area is not clear. A review of the proposed changes indicates that commuting time might be lengthened as routes are eliminated, curtailed, or consolidated. The revitalization of Coney Island as envisioned in the Coney Island Rezoning plan will add pressures to the public transportation system, particularly buses. The Environmental Impact Statement for the project estimates that in the 2019 build year several bus routes (B36, B68, B74, B82, and X38) will be adversely affected by the new development.

S2. Best Practice Model

The New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM) was used to model travel demand of potential future development scenarios in the study area. Two land use scenarios, two transportation (highway) scenarios, and one transit scenario were identified and modeled. The BPM does not use land use variables as direct input for the model; hence, the socio-economic variables (data) in the transportation analysis zones (TAZs) that account for the anticipated land use changes are the inputs that were changed. The two land use scenarios focused on land use changes anticipated by 2015 Land Use Scenario #1 (LUS1) and 2025 Land Use Scenario #2 (LUS2) based on the existing vacant lots in the study area. The two transportation (highway) scenarios sought to increase capacity along critical corridors of the street network. The first transportation (highway) scenario involved the creation of a one-way pair - West 17 Street and West 19th Street between Neptune Avenue and Surf Avenue. Although only 30 feet wide, West 17th Street functions as a two-way street with two southbound and one northbound lane. During the peak summer season, when traffic volume is high, the existing configuration causes congested conditions. The scenario comprised of West 17 Street operating one-way southbound with West 16th and West 19th Streets operating one-way northbound. The second transportation (highway) scenario provided for an additional moving lane during the AM and PM peak hours on Ocean Parkway. Finally the transit scenario provided for a bus loop connecting Coney Island, Brighton Beach, and Manhattan Beach. Evaluation of the various measures of effectiveness, i.e., speeds, v/c ratios, highlighted the implications of the changes reflected in the various scenarios.

S3. Recommendations

Based on the analysis of existing and future conditions as well as results from the Best Practice Model process, a set of recommendations to improve traffic operations and safety in the study area was developed. The recommendations developed included short-term and long-term improvements at over thirty locations in the study area. The proposed recommendations include geometric and signal timing changes, one-way conversions, parking restrictions, pedestrian and bike friendly treatments, and signage modifications. Improvement measures were recommended, and some implemented, for the following locations:

1. Bay Parkway & Cropsey Avenue/Shore Parkway WB (implemented)
2. Cropsey Avenue/West 17th Street and Neptune Avenue (along with West 15th Street to West 19th Street (between Surf Avenue and Hart Place) – one-way street reversals (implemented)
3. Coney Island Avenue & Guider Avenue/Belt Parkway Entrance
4. Coney Island Avenue & Neptune Avenue
5. McDonald Avenue/Shell Road & 86th Street/Avenue X
6. Surf Avenue (West 8th Street to West 19th Street)
7. Shell Road/West 8th Street & Neptune Avenue
8. Truck Loading/Unloading Zones on 86th Street, Kings Highway, and Brighton Beach Avenue
9. Ocean Parkway & West Avenue
10. Installation of bicycle lane on West Avenue (Ocean Parkway to West 5th Street) and West 5th Street (West Avenue to Surf Avenue)
11. Kings Highway & Ocean Parkway
12. Kings Highway & McDonald Avenue
13. Kings Highway & Stillwell Avenue
14. Kings Highway & Coney Island Avenue
15. Coney Island Avenue & Avenue Z
16. Ocean Parkway & Avenue W

17. Ocean Parkway & Avenue X
18. Ocean Parkway & Avenue Z\
19. Avenue T & West 5th Street
20. Avenue X & West 3rd Street
21. Bay 32nd Street & Benson Avenue
22. 23rd Avenue & 84th Street
23. Bath Avenue & Bay 35th Street

Recently Implemented Improvement Measures

In addition to the improvements at the intersections of Bay Parkway with Cropsey Avenue and Shore Parkway WB entrance and exit and Neptune Avenue with Cropsey Avenue/West 17th Street and West 19th Street a few other improvements were made as part of Safe Routes for Seniors Initiative. As part of the Brighton Beach Senior Pedestrian Focus Study several improvements were implemented throughout Brighton Beach. Some of the improvement measures were area-wide while others were location-specific.

Some area-wide improvements included:

1. changing the signal timing for pedestrian crossing time from 4 feet/second to 3 feet/second
2. installing stop bars 10 feet from the crosswalk at signalized intersections, and
3. upgrading or refurbishing signage, ramps, roadbeds, and curbs.

Significant improvements were made at the following locations:

1. Ocean Parkway/Neptune Avenue
2. Brighton Beach Avenue Corridor
3. Brighton Beach Avenue/Coney Island Avenue.
4. Neptune Avenue/West 5th Street.

1. INTRODUCTION & PROJECT DESCRIPTION

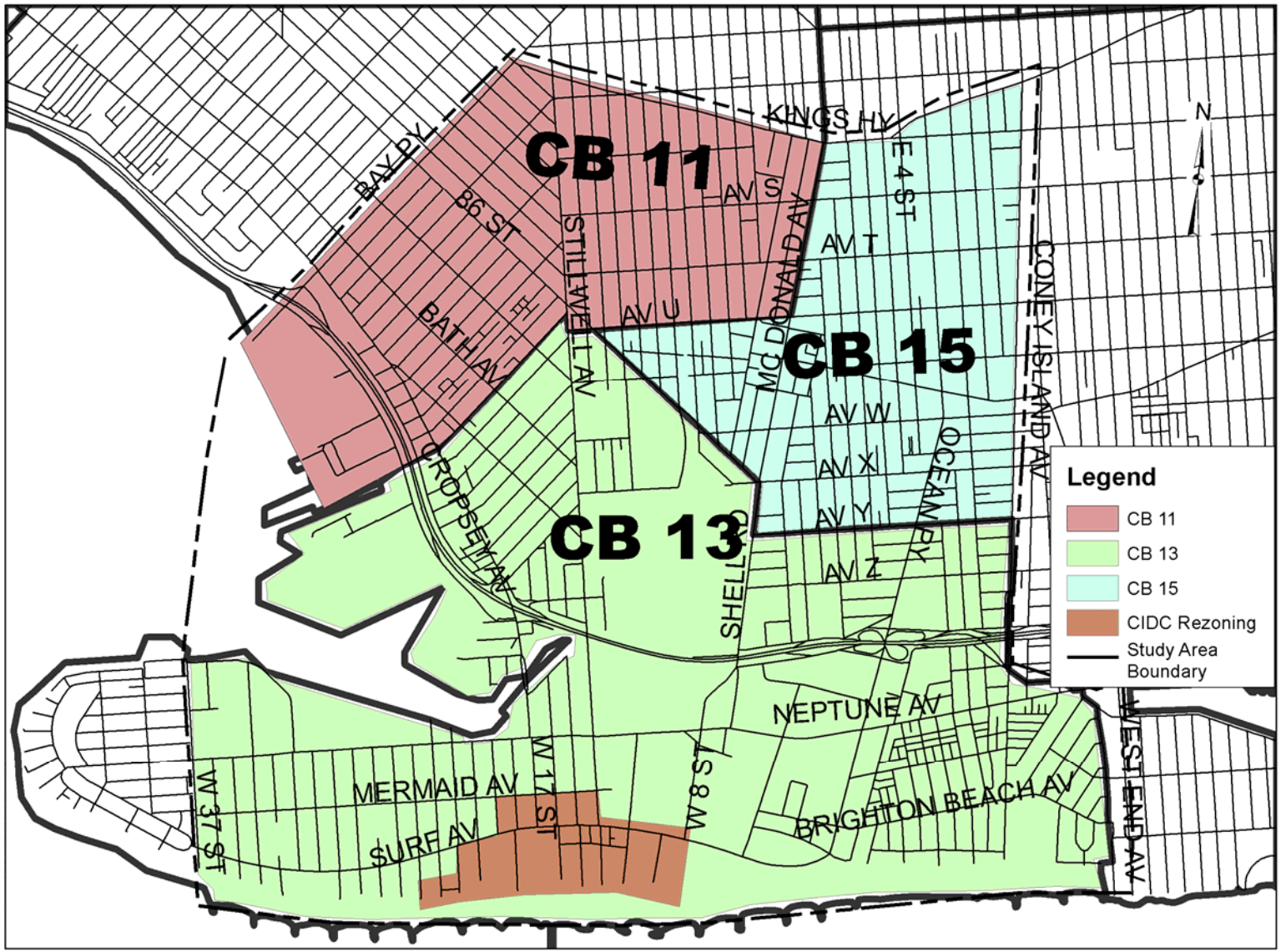
1.1 Introduction

The Coney Island/Gravesend Sustainable Development Transportation Study is a multi-modal transportation and planning study that was initiated in response to community concerns about development trends and the resultant negative externalities (such as increased congestion and changes to the neighborhood character). The purpose of the study is to assess current and future land use changes and transportation conditions in a sustainable development framework. From a transportation-centered perspective a sustainable development process occurs in a manner where the transportation system maintains its ability to serve communities in safe and environmentally friendly ways. The study complements the regional multi-modal transportation study, the Southern Brooklyn Transportation Investment Study, that was conducted by the New York Metropolitan Transportation Council (NYMTC); it also relied on the NYMTC staff and the NYBPM to model and to evaluate development options. The application of NYMTC's Best Practice Model in this effort was significant, both in terms of analysis and staff development. This tool was used in conjunction with New York City's City Environmental Quality Review (CEQR) methodology. The Technical Memorandum No. 1 documented the existing conditions (2002) and was released in 2004. Technical Memorandum No. 2 analyzes future conditions (2015 and 2025) with recommendations.

The study area includes all or portions of Coney Island, Brighton Beach, and Gravesend; and covers parts of Community Boards 11, 13, and 15. The boundaries are Coney Island Avenue to the northeast and West End Avenue to the southeast, Riegelmann Boardwalk to the south, West 37th Street to the southwest and Bay Parkway to the northwest, and Kings Highway to the north. Figure 1-1 shows its boundaries and community boards.

Two of the communities in the study area (Coney Island and Brighton Beach) are southern Brooklyn's legendary communities, being destination points for the beach and other recreational and entertainment purposes for generations. All three communities have diverse populations and neighborhood characteristics. Gravesend primarily has one-and two-

Figure 1-1: Study Area Boundary & Community Boards



family homes with pockets of high-rise multi-family dwellings; while Coney Island and Brighton Beach are beachfront communities that primarily have multi-family dwellings and pockets of two- and three-family homes. Coney Island is one of New York City's major summer destinations that attract millions of visitors each year. It is especially attractive because it is home to an amusement park, the New York Aquarium, Keyspan Park (Steeplechase Park), Nathan's (home of the famous hot dog), and the beach.

All three communities that make up the study area are experiencing growth and revitalization or have the potential for further development. New commercial, residential, and recreational developments are changing the economic and social makeup of these communities. Three relatively recent major developments in these communities are Home Depot (located in Gravesend) built in 2000, Keyspan Park (located in Coney Island) built in 2001, and Oceana, a large residential development (located in Brighton Beach), completed in 2005. New developments, such as these increase vehicular and pedestrian traffic adding pressure to the existing traffic and transportation system, creating the need to develop measures to alleviate current and future congestion.

Based on the concept of sustainable development, the Coney Island/Gravesend Sustainable Development Transportation Study examined the existing and future land use, demographic and socioeconomic characteristics, traffic and transportation conditions in the study area to identify immediate and long-term travel demand. The study involved significant community participation in an effort to support the vision of community stakeholders.

1.2 Objectives of the Study

As a sustainable development study, the study's goal is to provide a framework to facilitate the development of transportation improvement measures that safely accommodate future travel needs (including those generated by new developments and economic growth), thereby satisfying future travel demand without negative environmental consequences. Also, to develop proposals that expand transportation alternatives, improve travel conditions, air quality, preserve and help to restore local economic and social vitality. The study's main objectives therefore are:

- To examine the spatial distribution and intensity of land uses and the resultant derived demand for travel.
- To identify the travel and traffic characteristics and assess the existing and future traffic conditions.
- To develop and test land use/transportation scenarios.
- To recommend improvement measures aimed at reducing vehicular congestion, improving safety for all users (vehicular, bicycles, and pedestrian) and increasing the use of public transit or alternative modes.
- To generate the recommendation and improvements measures the study examined, the following subject areas:
  a. Demographics
  b. Land use and Zoning
  c. Traffic and Transportation
  d. Accident and Safety
  e. Parking, and
  f. Public Transportation

2. FUTURE CONDITIONS (2015)

2.1 Demographics

The future (2015) demographics of the Study Area, Brooklyn, and New York City are expected to increase modestly as they have in the preceding decades. Projections of future population and other demographic characteristics in the Study Area, Brooklyn, and New York City, relied on a trend analysis as well as population projections made by the New York Metropolitan Transportation Council (NYMTC). The future conditions analysis for the Study Area examines population trends, household size, and vehicle ownership in an attempt to better estimate and forecast travel behavior in the Study Area.

Population projections for 2015 and 2025 for New York City, Brooklyn, and the Study Area show a growth rate that is similar to past census decades. It is anticipated that the Study Area's population will increase at a slightly lower rate between 2000-2015 and 2015-2025 than in the previous years when the population increased by an average of six percent. Table 2.1-1 shows the population for the past two decades and projections for the Study Area, Brooklyn, and New York City. Figure 2.1-1 shows the Study Area's census tracts.

Table 2.1-1: Population of New York City, Brooklyn and the Study Area (1980-2025)

Census Year/ Geographic Unit	1980	1990	% Change ('80-'90)	2000	% Change ('90-'00)	Proj. Pop. 2015	% Change ('00-'15)	Proj. Pop. 2025	% Change ('15-'25)
New York City	7,071,639	7,322,564	3.5	8,008,278	9.4	8,224,700	6	8,446,400	6.5
Brooklyn	2,230,900	2,300,664	3.1	2,465,326	7.2	2,501,000	5.1	2,529,500	5.1
Study Area	166,490	164,560	-1.2	176,525	7.3	187,932	3.1	199,412	3.1

Figure 2.1-1: Study Area Census Tracts

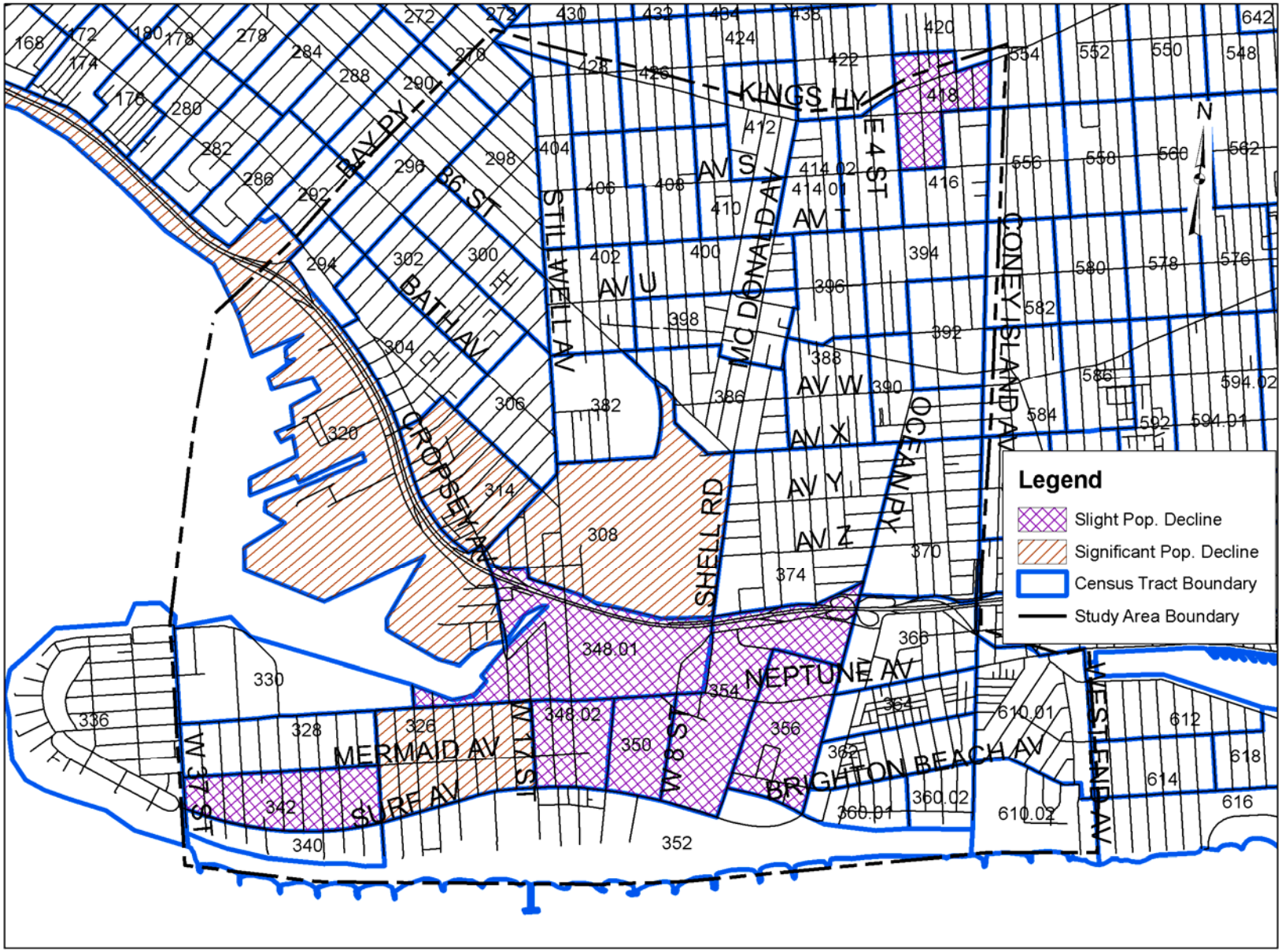


Table 2.1-2 shows the Study Area's population by Census Tract for 1980, 1990, and 2000 as well as projections for 2015 and 2025. Between 1980 and 1990, 71% of the census tracts experienced a decline in population, but between 1990 and 2000 only 17% of the census tracts experienced population decline. Of the fifty three census tracks, eleven (308, 314, 320, 342, 350, 352, 354, 356, 382, 410, and 418) experience a decrease in population between 1980 and 2000. The population decrease in these census tracts ranged from 3.8% to 65.5%.

The growth in the Study Area's population is due to natural increase as well as new developments coming to the area. This general population growth in the number of household and auto ownership translates potentially into more auto trips in the Study Area.

2.1.1 .Household Characteristics

The number of households and average household size in New York City, Brooklyn, and the Study Area is expected to increase through time. The number of households in New York City will decrease slightly even though there will be an increase in population in Brooklyn and the Study Area. However, the average household size is expected to increase. Table 2.1-3 shows the projected household characteristics in New York City, Brooklyn, and the Study Area.

Table 2.1-2: Population by Census Tract (1980-2025)

Tract No.	Portion in Study Area	1980	1990	% Change ('80-'90)	2000	% Change ('90-'00)	2015	% Change ('00-'15)	2025	% Change ('15-'25)	% Change (80-25)
*270**	*50%*	954	1,005	5.4%	1,186	18.0%	1,334	12.5%	1,502	13.5%	57.5%
294	*100%*	2,046	2,237	9.3%	2,277	1.8%	2,422	6.4%	2,579	7.3%	26.1%
296	*100%*	4,577	4,566	-0.2%	5,343	17.0%	5,835	9.2%	6,379	10.2%	39.4%
298	*100%*	3,109	2,842	-8.6%	3,433	20.8%	3,670	6.9%	3,929	7.9%	26.4%
300	*100%*	3,272	3,089	-5.6%	3,627	17.4%	3,871	6.7%	4,136	7.7%	26.4%
302	*100%*	3,628	3,236	-10.8%	3,742	15.6%	3,862	3.2%	3,992	4.2%	10.0%
304	*100%*	3,605	3,503	-2.8%	3,966	13.2%	4,204	6.0%	4,462	7.0%	23.8%
306	*100%*	1,706	1,714	NA	1,893	10.4%	2,012	6.3%	2,140	9.9%	25.4%
308	*100%*	1,872	1,641	-12.3%	1,678	2.3%	1,606	-4.3%	1,540	-3.3%	-17.7%
314	*100%*	5,146	4,471	-13.1%	4,501	0.7%	4,253	-5.5%	4,031	-4.5%	-21.7%
320	*100%*	239	174	-27.2%	60	-65.5%	32	-45.9%	17	-44.7%	-92.9%
326	*100%*	6,723	8,435	25.5%	7,247	-14.1%	7,718	6.5%	8,230	7.5%	22.4%
328	*100%*	1,925	2,861	48.6%	3,198	11.8%	4,196	31.2%	5,497	32.0%	185.6%
330	*100%*	4,451	5,435	22.1%	5,288	-2.7%	5,845	10.5%	6,467	11.5%	45.3%
340	*100%*	2,387	2,245	-5.9%	2,641	17.6%	2,817	6.7%	3,008	7.6%	26.0%
342	*100%*	7,788	8,227	5.6%	7,299	-11.3%	7,147	-2.1%	7,016	-1.1%	-9.9%
348.01	*100%*	530	432	-18.5%	1,060	145.4%	1,746	64.7%	2,864	65.4%	440.4%
348.02	*100%*	760	659	-13.3%	956	45.1%	1,116	16.8%	1,303	17.7%	71.4%
350	*100%*	3,924	3,309	-15.7%	3,579	8.2%	3,471	-3.0%	3,375	-2.0%	-14.0%
352	*100%*	1,348	1,190	-11.7%	1,215	2.1%	1,165	-4.1%	1,121	-3.1%	-16.8%
354	*100%*	6,576	6,092	-7.4%	5,622	-7.7%	5,238	-6.8%	4,896	-5.8%	-25.5%
356	*100%*	9,268	9,085	-2.0%	8,164	-10.1%	7,728	-5.3%	7,338	-4.3%	-20.8%
360.01	*100%*	3,078	3,555	15.5%	3,464	-2.6%	3,716	7.3%	3,991	8.2%	29.7%
360.02	*100%*	3,815	3,951	3.6%	4,230	7.1%	4,489	6.1%	4,770	7.1%	25.0%
362	*100%*	3,601	3,528	-2.0%	4,977	41.1%	5,994	20.4%	7,217	21.3%	100.4%
364	*100%*	1,944	1,667	-14.2%	2,711	62.6%	3,393	25.1%	4,242	26.0%	118.2%
366	*100%*	3,510	3,952	12.6%	4,173	5.6%	4,587	9.9%	5,047	10.9%	43.8%
370	*100%*	3,883	3,428	-11.7%	4,062	18.5%	4,232	4.2%	4,416	5.2%	13.7%
374	*100%*	8,827	8,831	0.0%	9,211	4.3%	9,483	3.0%	9,781	3.9%	10.8%
382	*100%*	6,604	7,125	7.9%	6,161	-13.5%	6,033	-2.1%	5,923	-1.1%	-10.3%
386	*100%*	3,003	3,038	1.2%	3,377	11.2%	3,613	7.0%	3,869	7.9%	28.8%
388	*100%*	3,815	3,394	-11.0%	3,780	11.4%	3,815	0.9%	3,859	1.9%	1.2%
390	*100%*	2,186	2,019	-7.6%	2,248	11.3%	2,307	2.6%	2,372	3.6%	8.5%
392	*100%*	2,645	2,243	-15.2%	2,773	23.6%	2,912	5.0%	3,062	6.0%	15.8%
394	*100%*	2,512	2,168	-13.7%	2,592	19.6%	2,688	3.7%	2,793	4.7%	11.2%
396	*100%*	2,045	1,908	-6.7%	2,058	7.9%	2,086	1.4%	2,118	2.3%	3.6%
398	*100%*	2,120	1,806	-14.8%	2,452	35.8%	2,730	11.3%	3,041	12.3%	43.4%
400	*100%*	2,826	2,638	-6.7%	2,878	9.1%	2,935	2.0%	3,000	3.0%	6.2%
402	*100%*	2,236	2,016	-9.8%	2,568	27.4%	2,815	9.6%	3,087	10.5%	38.1%
404	*100%*	2,089	1,922	-8.0%	2,065	7.4%	2,075	0.5%	2,089	1.5%	0.0%
406	*100%*	2,800	2,678	-4.4%	3,160	18.0%	3,401	7.6%	3,665	8.6%	30.9%
408	*100%*	2,769	2,614	-5.6%	2,893	10.7%	2,989	3.3%	3,093	4.3%	11.7%
410	*100%*	1,819	1,652	-9.2%	1,729	4.7%	1,703	-1.5%	1,681	-0.5%	-7.6%
*412**	*60%*	1,404	1,334	-5.0%	1,630	22.2%	1,783	9.4%	1,952	10.4%	39.0%
414.01	*100%*	1,371	1,348	-1.7%	1,386	2.8%	1,405	1.3%	1,426	2.3%	4.0%
414.02	*100%*	1,704	1,620	-4.9%	1,922	18.6%	2,069	7.7%	2,230	8.6%	30.9%
416	*100%*	1,727	1,628	-5.7%	2,574	58.1%	2,070	-19.6%	2,223	12.4%	28.8%
*418**	*75%*	2,611	2,527	-3.2%	1,904	-24.7%	2,522	32.5%	2,511	3.0%	-3.8%
*424**	*25%*	757	771	1.9%	914	18.4%	1,014	11.0%	1,126	11.9%	48.7%
*426**	*40%*	1,306	1,385	6.0%	1,529	10.4%	1,667	9.0%	1,820	10.0%	39.3%
*428**	*50%*	1,656	1,607	-3.0%	1,828	13.7%	1,941	6.2%	2,063	7.1%	24.6%
610.01	*100%*	7,497	7,442	-1%	8,519	14%	9,174	7.7%	9,890	8.6%	31.9%
610.02	*100%*	2,497	2,317	-7%	2,784	20%	2,987	7.3%	3,208	8.2%	28.5%
Study Area Total		166,490	164,560	-1%	176,525	7%	187,932	6.5%	199,412	6.1%	19.8%

*Partially included in the Study Area.

Table 2.1-3: Household Characteristics for New York City, Brooklyn, and the Study Area (1980-2025)

Census Year	New York City	% Change	Brooklyn	% Change	Study Area	% Change
1980						
Population	7,071,639		2,230,936		166,490	
Households	3,502,233		828,257		68,023	
Persons Per Household	2.02		2.69		2.45	
1990						
Population	7,322,564	3.55	2,300,664	3.13	164,560	-1.16
Households	2,819,401	-19.50	827,679	-0.07	67,268	-1.11
Persons Per Household	2.60	28.63	2.78	3.20	2.45	-0.05
2000						
Population	8,008,278	9.36	2,465,326	7.16	176,560	7.29
Households	3,220,442	14.22	881,006	6.44	71,927	6.93
Persons Per Household	2.49	-4.25	2.80	0.67	2.45	0.34
2015						
Population	8,224,700	2.70	2,501,000	1.45	187,932	6.44
Households	3,135,540	-2.64	909,080	3.19	74,019	2.91
Persons Per Household	2.79	12.19	2.85	1.93	2.46	0.15
2025						
Population	8,446,400	2.70	2,529,500	1.14	197,414	5.05
Households	3,052,876	-2.64	938,049	3.19	76,171	2.91
Persons Per Household	3.13	12.19	2.91	1.93	2.46	0.15

2.1.2. Auto Ownership Characteristics and Journey to Work

Vehicle ownership rate have not shown significant changes in the past and a similar trend is expected in the future. Between 2000 and 2015 the number of households in Brooklyn without a vehicle is projected to decrease slightly from 55.8% to 54.9%, and in the Study Area, it is expected also to decrease from 51.0% to 49.1%. Households with one vehicle are expected to increase slightly in Brooklyn - from 33.9% to 34.6%, but decrease in the Study Area - from 34.6% to 33.3%. The pattern for households with two or more vehicles shows an insignificant change in Brooklyn and the Study Area. Overall, the vehicle ownership rate for Brooklyn is expected to increase from 44.2% to 45.1% between 2000 and 2015, and from 49.0% to 51.1% in the Study Area. Table 2.1-4 shows the past and projected households with zero, one, two and three or more vehicles in Brooklyn and Study Area.

Table 2.1-4: Number of Vehicles per Household (Brooklyn vs. Study Area)

Area/Year	Households	Zero	One	Two	Three+	Total Vehicles Owned
Brooklyn						
1980	711,940	278,073	319,765	96,632	17,479	433,867
%	100	39.1	44.9	13.6	2.5	60.9
1990	828,199	469,817	274,581	69,814	13,987	358,382
%	100	56.7	33.2	8.4	1.7	43.3
2000	848,234	473,162	287,642	72,000	15,430	375,072
%	100	55.8	33.9	8.5	1.8	44.2
2015	860,130	476,507	300,703	74,186	16.873	391,762
%	100	54.9	34.6	8.5	1.9	45.1
2025	852,500	481,272	303,710	74,928	17	395,680
%	100	55.4	35.0	8.6	2.0	45.6
Study Area						
1980	68,023	37,513	25,442	4,480	588	30,510
%	100	55.1	37.4	6.6	0.9	44.9
1990	67,268	36,531	23,884	5,884	1,092	30,860
%	100	54.3	35.5	8.7	1.6	45.9
2000	71,927	36,680	24,881	6,005	1,237	32,123
%	100	51.0	34.6	8.3	1.7	44.7
2015	75,703	37,193	25,229	6,090	1,254	32,573
%	100	49.1	33.3	8.0	1.7	43.0
2025	76,460	37,565	25,481	6,150	1,267	32,899
%	100	49.1	33.3	8.0	1.7	43.0

The journey-to-work data for 1990 and 2000 indicated that public transportation (bus, subway, and railroad) was the most utilized mode of transportation for residents in the Study Area, Brooklyn, and New York City. Under future condition 2015 (and 2025), these mode shares are not expected to change significantly with approximately 53.5% of the Study Area's labor force using public transportation for journey-to-work compared to 52.3% and 56.7% for New York City and Brooklyn, respectively. The mode share therefore is not expected to show any significant change under future conditions. Also, the distribution of journey-to-work trips by mode as shown in Table 2.1-5 is not expected to change significantly under the projected future condition.

Table 2.1-5: Journey to Work by Mode - New York City, Brooklyn, and the Study Area (1980-2025)

Census Year/Mode	New York City	% Share	Brooklyn	% Share	Study Area	% Share
1980						
Automobile	567,774	26.3	222,836	28.6	18,662	31.4
Bus/Streetcar	278,273	12.9	88,900	11.4	4,508	7.6
Subway/Railroad	846,047	39.1	389,983	50.0	30,882	51.9
Walk	384,393	17.8	72,149	9.3	4,518	7.6
Other	84,819	3.9	6,036	0.8	903	1.5
1990						
Automobile	1,036,654	33.4	283,765	31.3	23,761	38.0
Bus/Streetcar	411,415	13.2	107,343	11.8	5,484	8.8
Subway/Railroad	1,223,062	39.4	412,842	45.5	26,997	43.2
Walked	340,077	10.9	75,664	8.3	4,922	7.9
Other	95,061	3.1	27,396	3.0	1,313	2.1
2000						
Automobile	1,049,396	33.9	274,301	30.4	21,612	35.2
Bus/Streetcar	369,509	11.9	95,566	10.6	5,838	9.5
Subway/Railroad	1,250,367	40.3	415,496	46.1	26,978	44.0
Walked/Biked	347,288	11.2	78,933	8.8	5,148	8.4
Other	83,359	2.7	36,731	4.1	1,752	2.9
2015						
Automobile	1,077,730	26.3	278,141	30.4	21,915	35.2
Bus/Streetcar	376,899	9.2	96,904	10.6	5,920	9.5
Subway/Railroad	1,275,374	31.2	421,313	46.1	27,356	44.0
Walked/Biked	1,275,374	31.2	80,038	8.8	5,220	8.4
Other	85,610	2.1	37,245	4.1	1,777	2.9
2025						
Automobile	1,106,828	27.1	285,651	31.3	22,506	36.2
Bus/Streetcar	387,075	9.5	99,520	10.9	6,080	9.8
Subway/Railroad	1,309,809	32.0	432,688	47.4	28,094	45.2
Walked/Biked	1,309,809	32.0	82,199	9.0	5,361	8.6
Other	87,921	2.1	38,251	4.2	1,824	2.9

2.2 Land Use and Zoning

Future land use in the Study Area can vary according to the distribution of vacant lots and development opportunities. As such it is expected that land use changes in the northern portion of the Study Area will primarily be in-fill residential developments on vacant lots scattered throughout the area. On the other hand, in the southern portion of the Study Area, particularly in Coney Island, significant changes are expected with potential major urban development projects having, residential, commercial, office and recreational components.

For several decades portions of Coney Island languished in blight as demographic changes and population shifts eroded the economic base that once made it a vibrant community and destination location. Although Coney Island continued to function as a summer destination location, many residents and public officials thought that it was not living up to its full potential. Consequently, in September 2003, the Coney Island Development Corporation (CIDC) was formed to develop a strategic plan to revitalize the amusement/recreational area of Coney Island along Surf Avenue.

Based on preliminary plans released by the CIDC, Coney Island's redevelopment promises to completely change the look and feel of Coney Island. The preliminary plans include a multi-cultural center, mixed income housing, new parking options, year-round entertainment and cultural activities, a hotel/beach club/beach spa, new pedestrian streets, the reactivation of Shore Theatre and Child's Restaurant, a transit loop and ferry service, among other things. Most of the new developments associated with the work of the CIDC will occur along Surf Avenue. However, it is anticipated that the revitalization efforts will extend to other areas such as Stillwell Avenue, Mermaid Avenue, and Neptune Avenue. In recent years, revitalization efforts have been apparent with the development of residential units on vacant lots throughout Coney Island. They have also initiated improvement efforts for business entities along Mermaid Avenue. Figure 2.2-1 shows the vacant lots in the Study Area as well as the area where the Coney Island Development Corporation's urban development and revitalization program will be focused.

Figure 2.2-1: Vacant Land in the Study Area

An inventory of vacant lots in the Study Area shows that there is over 1,000,000 square feet of vacant land zoned for residential development, approximately 700,000 square feet zoned for commercial development, and approximately 200,000 square feet zoned for manufacturing. If these vacant lots are developed under existing zoning, approximately 986 residential units could be added to the Study Area. Table 2.2-1 shows a summary of vacant lots in the Study Area by community board.

Table 2.2-1: Vacant Lots by Community Boards

Community Board	Residential (sq. ft.)	Commercial (sq. ft.)	Manufacturing (sq. ft.)	Total (sq. ft.)
CB11	52,329	0	12,044	**64,373**
CB13	1,534,921	720,166	175,198	**2,430,285**
CB15	216,225	0	4,625	**220,850**
	1,803,475	**720,166**	**191,867**	**2,715,508**

It is expected that by 2015 many land use changes will occur in the Study Area resulting from of developments stemming from CIDC's vision for Coney Island. The assumption is that approximately 822 residential units will be developed by 2015 and 549 by 2025. Additionally, 1,065,395 square feet of commercial floor space will be developed by 2015 and 111,307 by 2025. This is consistent with Land Use Alternatives 2 (moderate development) outlined in alternative future (development scenarios) in Technical Memo. No. 1.

2.3. Traffic and Transportation

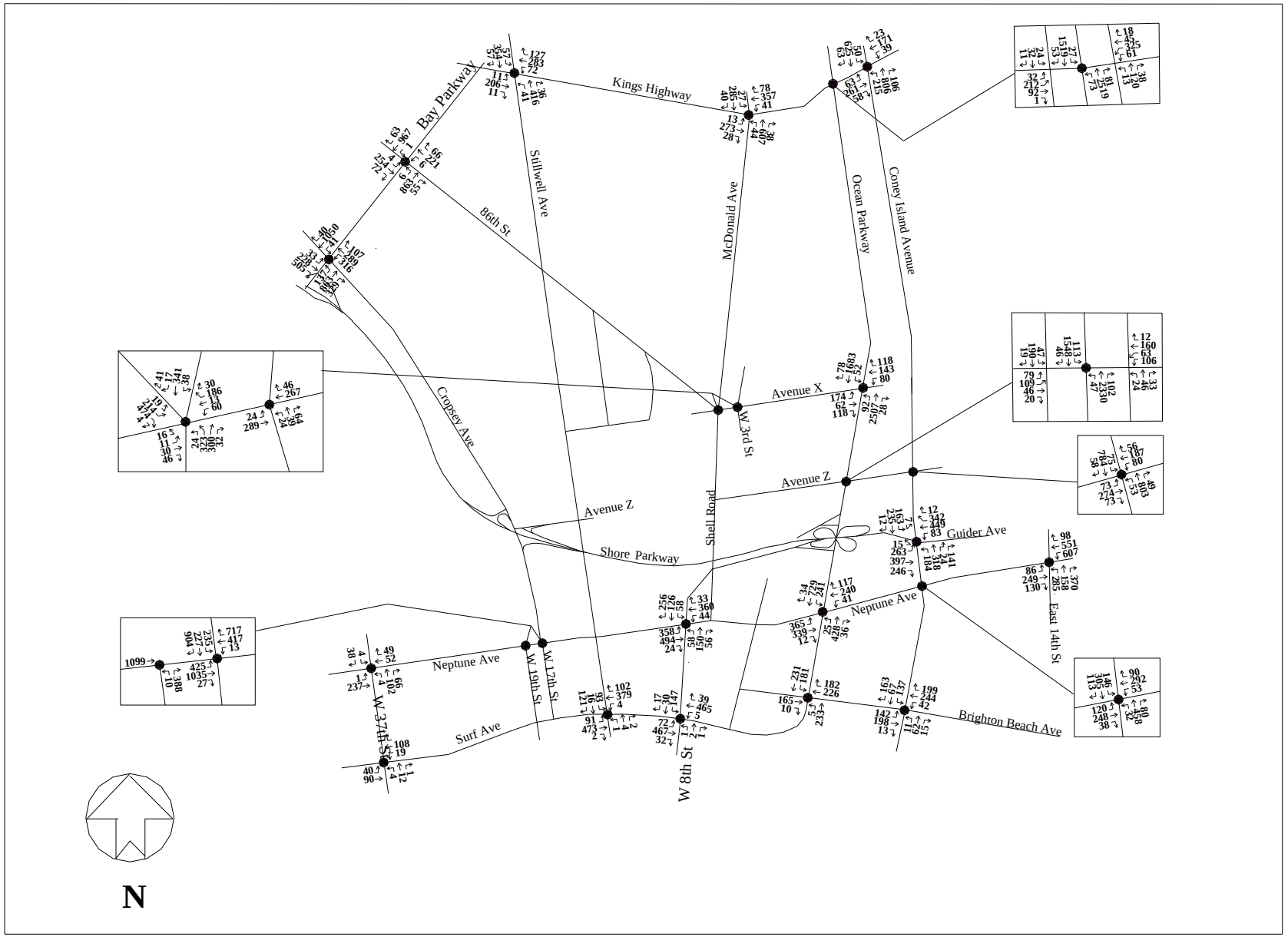
To assess the implications of the anticipated developments on the traffic and transportation systems with respect to congestion and safety the future 2015 and 2025 conditions analyzed 41 intersections in the Study Area for the AM (8:00 – 9:00), midday (1:00 – 2:00), PM (5:00 – 6:00), and Saturday (1:00 – 2:00) peak hours. The future conditions traffic network was developed by growing the 2002 base traffic volumes by 1.5% per year. In general, base year traffic volumes in Brooklyn would be grown by 1% per annum, but a 1.5% growth rate was used in this case to account for background growth in traffic as well as the increase that will result from any developments in Coney Island.

2.3.1. Traffic Analysis

Figures 2.3-1 to 2.3-4 and Figures 2.3-5 to 2.3-8 show the future 2015 and 2025 traffic volumes for the AM, midday, PM, and Saturday peak hours, respectively. These maps contain an abbreviated number of the intersections analyzed (volume maps with all the intersections analyzed are found in Appendix A. Table 2.3-1 shows the level of service (LOS) criteria for signalized intersections.

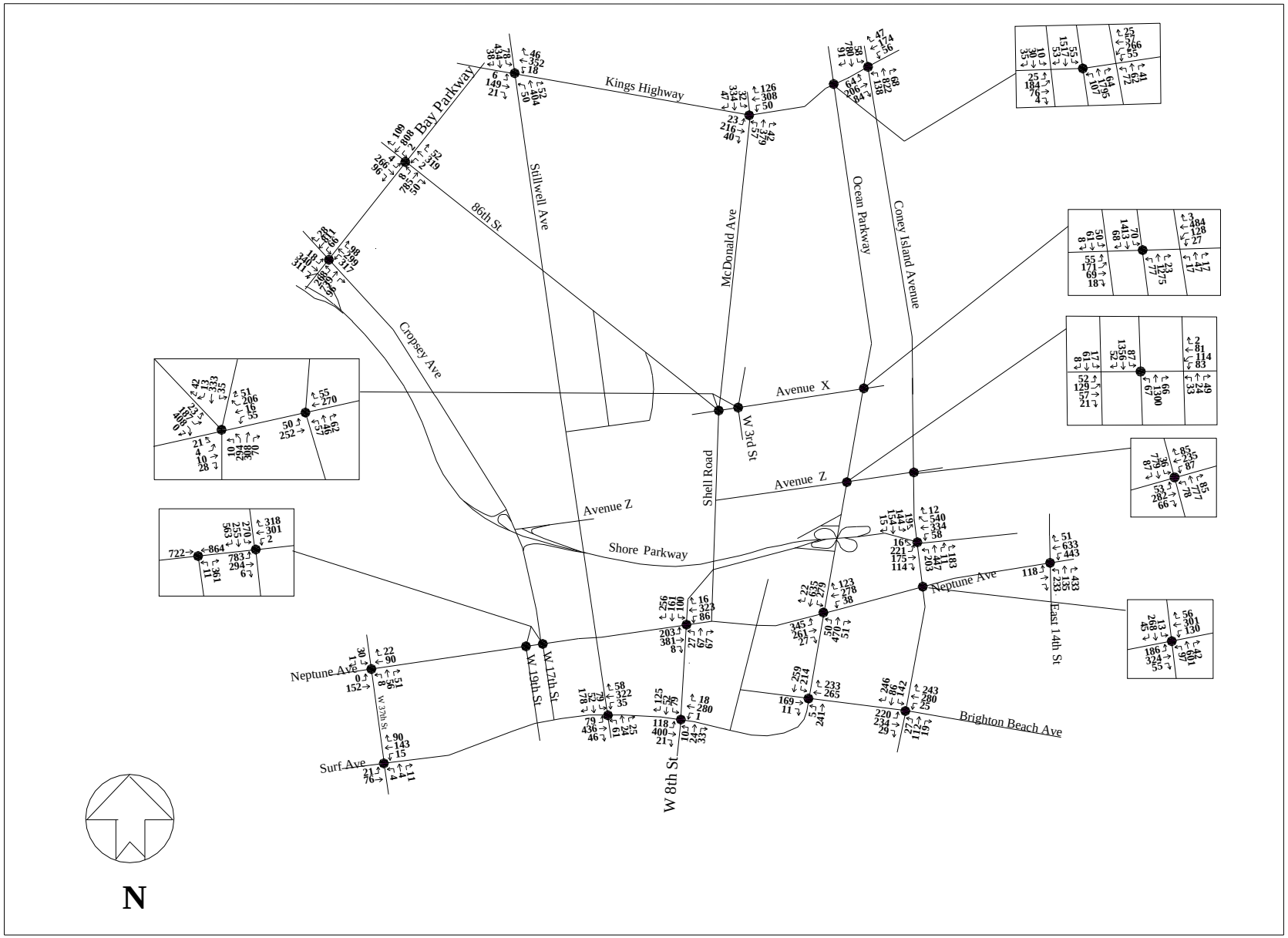
The capacity and LOS analyses for both future conditions show that in 2015, 22 of the 41 intersections analyzed are projected to have unacceptable LOS during at least one of the peak hours and 13 intersections will have an unacceptable LOS during all weekday peak hours. All, but three, of the 14 intersections analyzed for the weekend peak hour of operation had unacceptable LOS E or F. The three intersections expected to operate at acceptable LOS during the weekend peak hour are Kings Highway/Ocean Parkway, Kings Highway/Coney Island Avenue, and Surf Avenue/Stillwell Avenue. In 2025, 25 of the 41 intersections are projected to operate at an unacceptable LOS during at least one of the peak hours and 17 intersections are projected to have an unacceptable LOS during all weekday peak hours.

Figure 2-3.1: Future 2015 AM Peak Hour Volume*



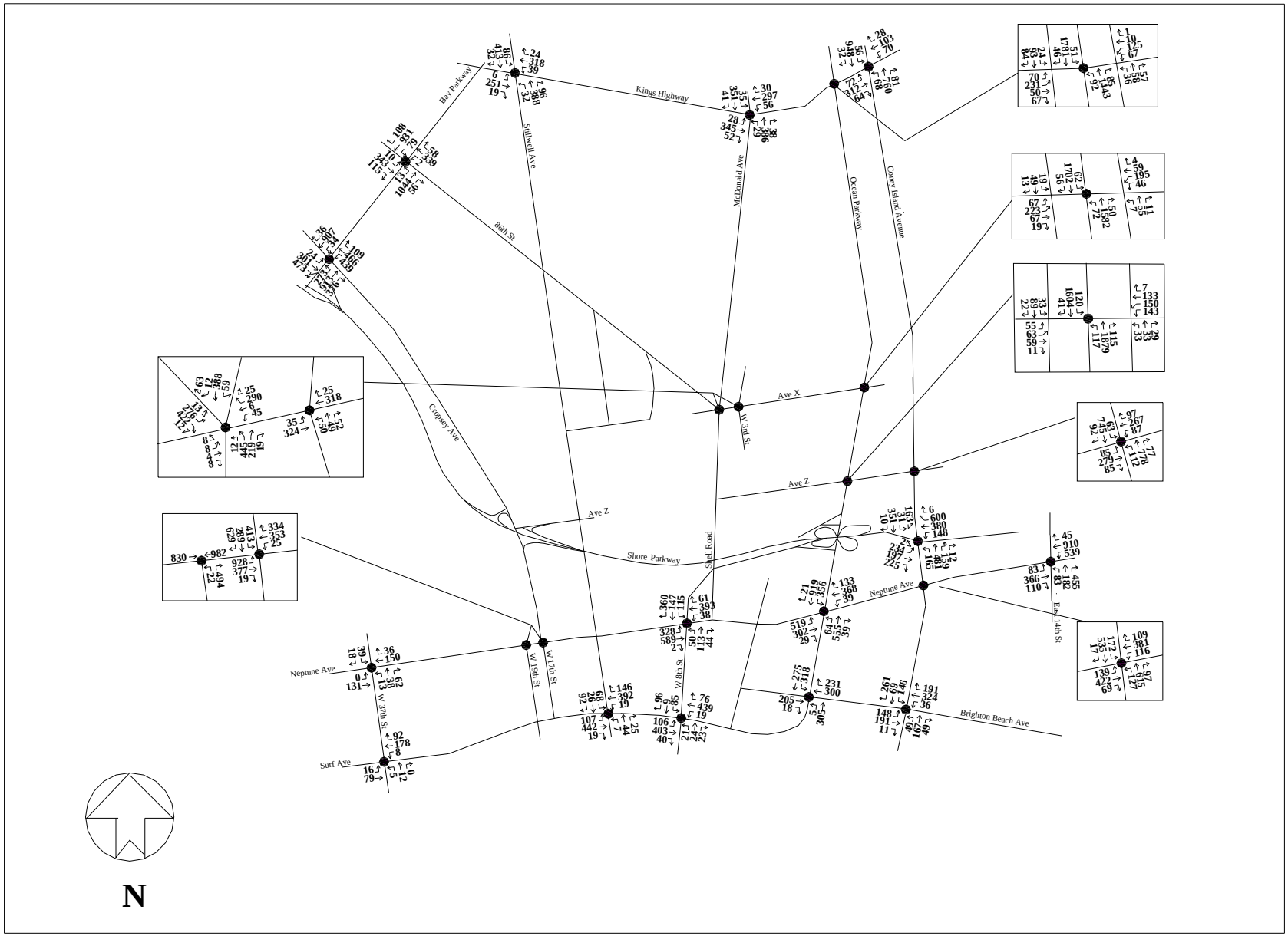
*See Appendix A for map with all intersections analyzed.

Figure 2.3-2: Future 2015 Midday Peak Hour Volume*



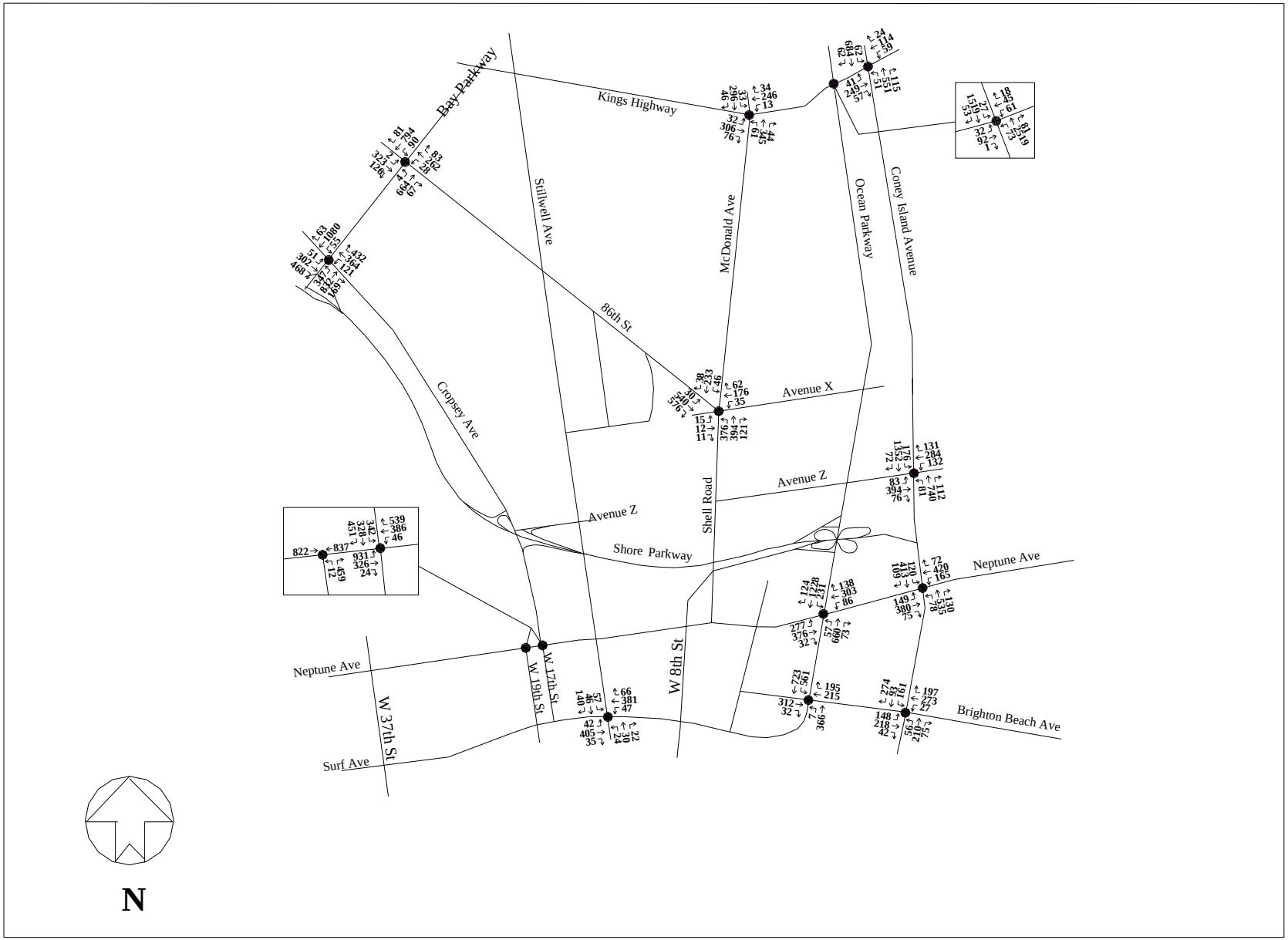
*See Appendix A for map with all intersections analyzed.

Figure 2.3-3: Future 2015 PM Peak Hour Volume*



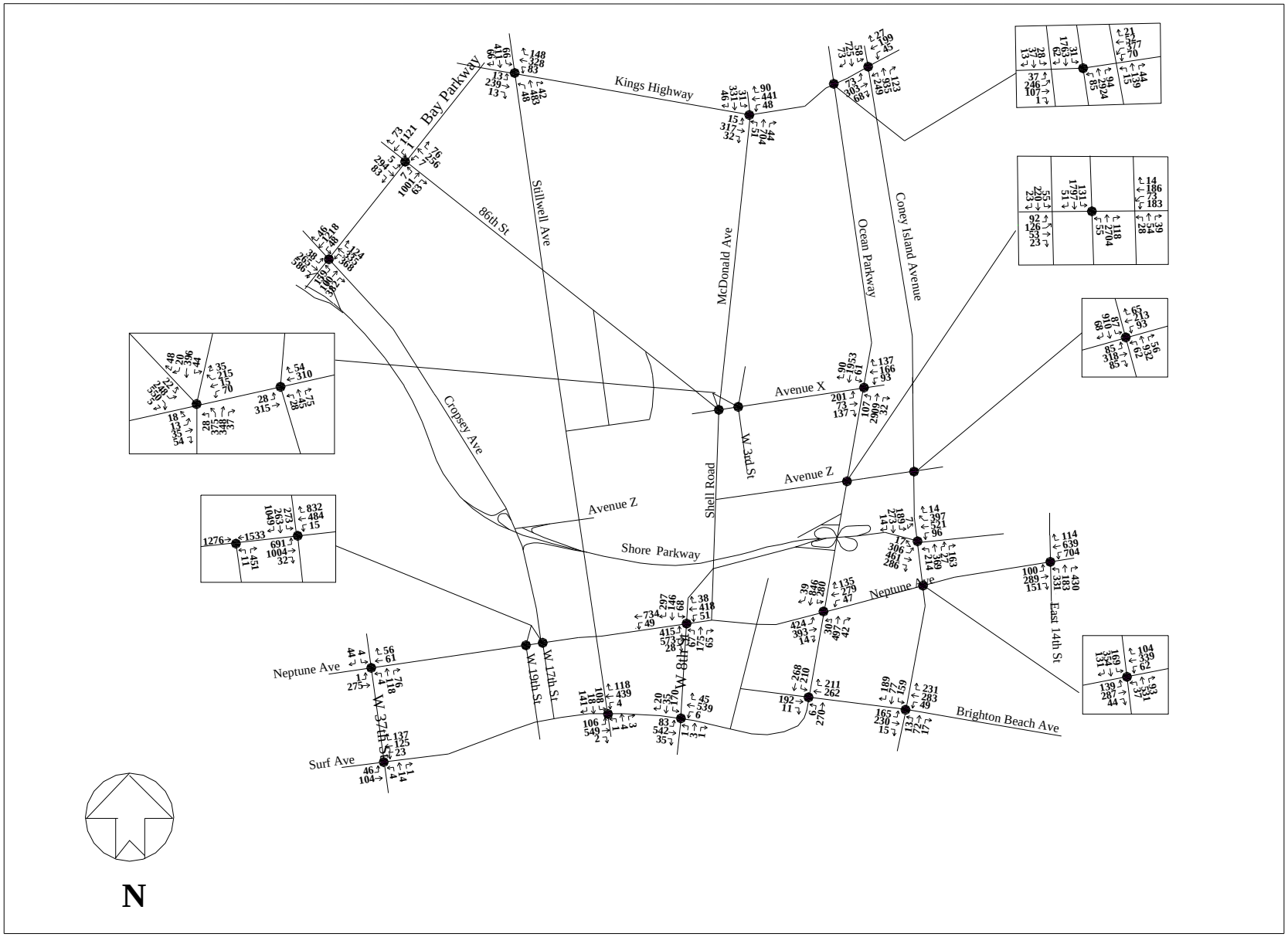
*See Appendix A for map with all intersections analyzed.

Figure 2.3-4: Future 2015 Saturday Midday Peak Hour Volume*



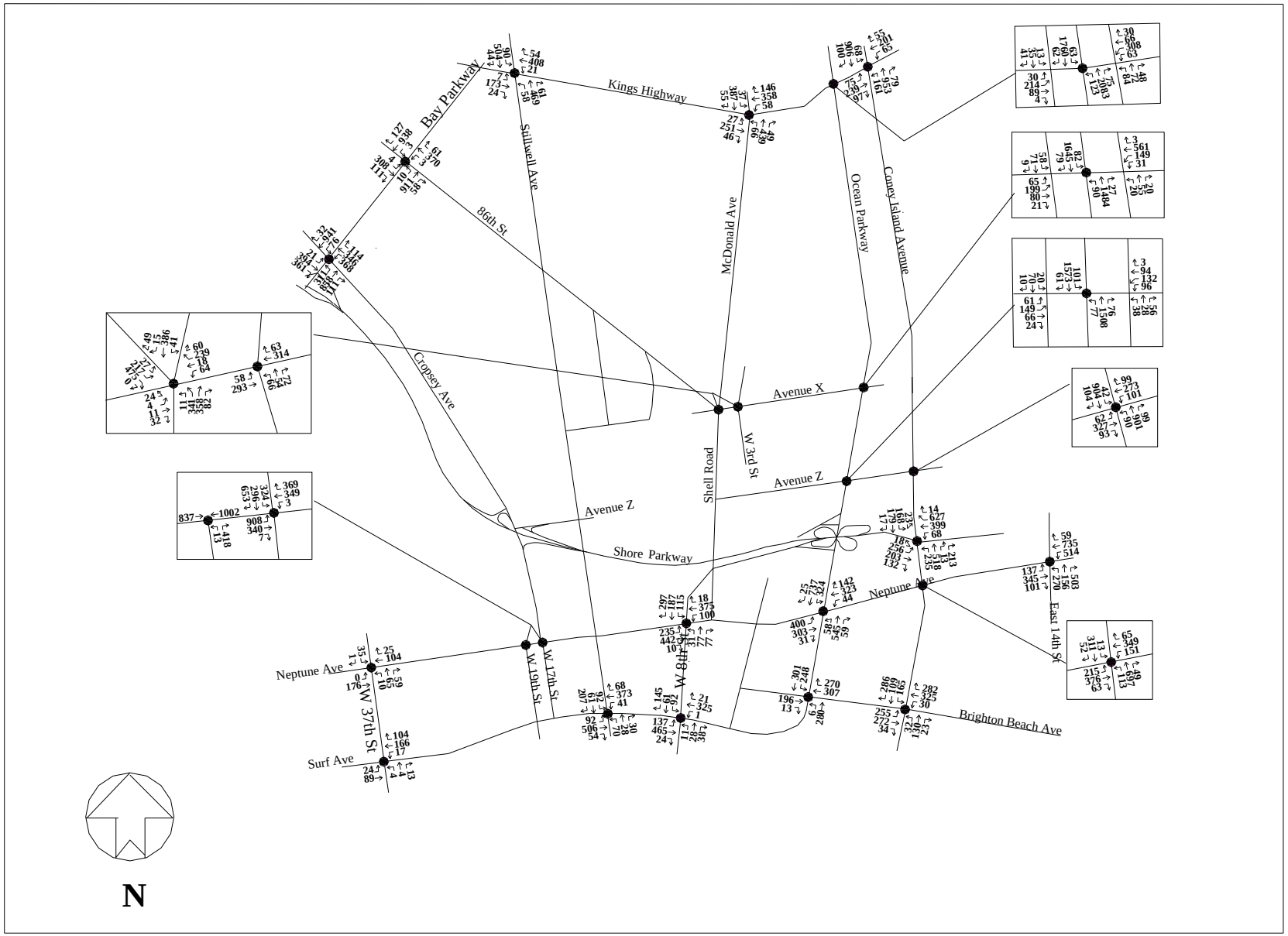
*See Appendix A for map with all intersections analyzed.

Figure 2.3-5: Future 2025 AM Peak Hour Volume*



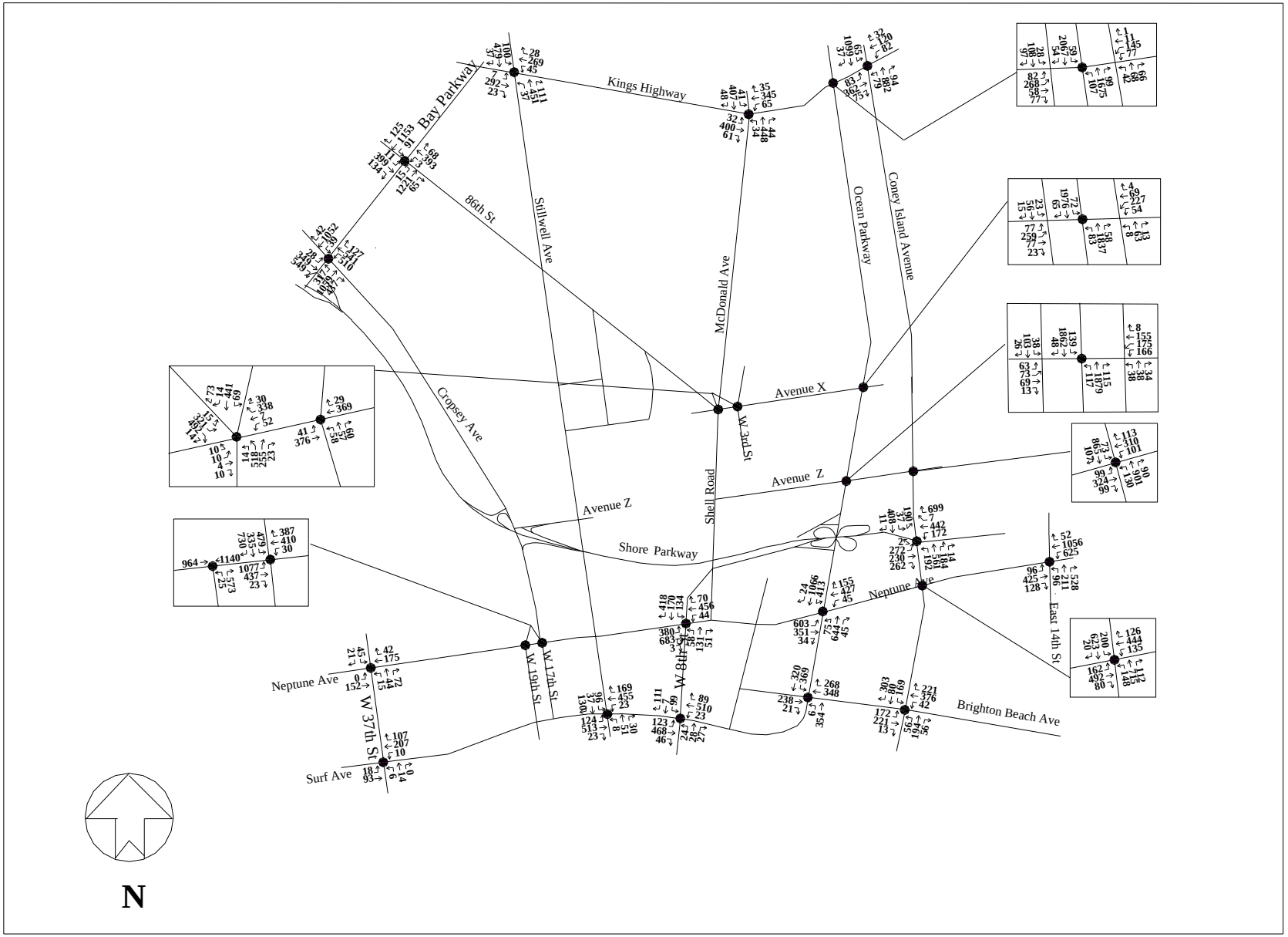
*See Appendix A for map with all intersections analyzed.

Figure 2.3-6: Future 2025 Midday Peak Hour Volume*



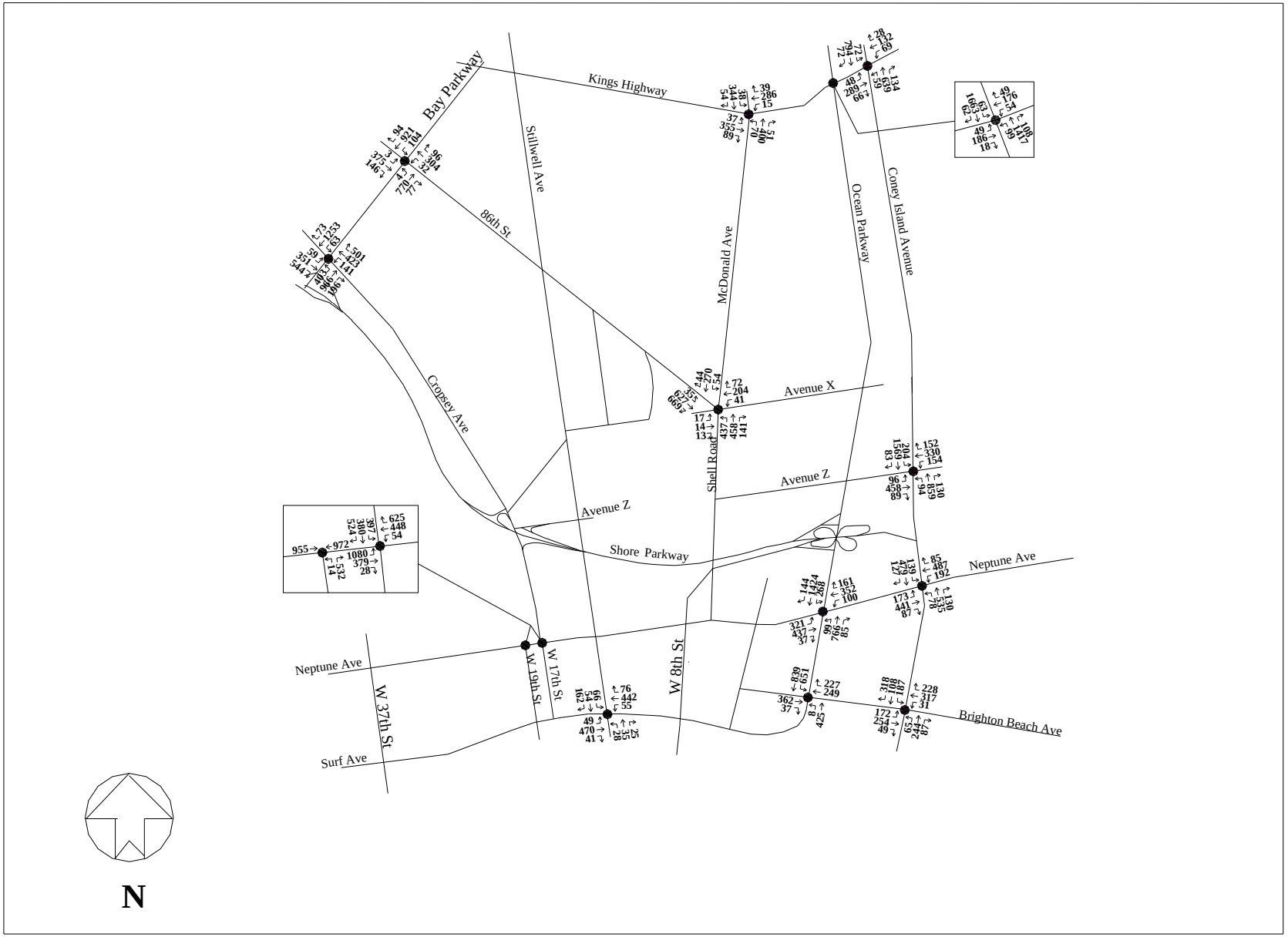
*See Appendix A for map with all intersections analyzed.

Figure 2.3-7: Future 2025 PM Peak Hour Volume*



*See Appendix A for map with all intersections analyzed.

Figure 2.3-8: Future 2025 Saturday Midday Peak Hour Volume*



*See Appendix A for map with all intersections analyzed.

Table 2.3-1: Signalized Intersection Level of Service

Level of Service (LOS)	Control Delay Per Vehicle	Description of Traffic Condition
A	**< 10.0**	Describe operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	**10.1 to 20.0**	Describes operations with control delay greater than 10 and up to 20 sec. per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	**20.1 to 35.0**	Describes operations with control delay greater than 20 and up to 35 sec. per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.through the intersection without stopping.
D	**35.1 to 55.0**	Describes operations with control delay greater than 35 and up to 55 sec. per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	**55.1 to 80.0**	Describes operations with control delay greater than 55 and up to 80 sec. per vehicle. This level of service is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	**> 80**	Describes operations with control delay in excess of 80 sec. per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factor to such delay levels.

Sources: Highway Capacity Manual, Special Report 209, Third Edition, Transportation Research Board, National Research Council, Washington, D.C. 1998.

Tables 2.3-2 and 2.3-3 show a summary of the level of service (LOS), delays, and volume to capacity (v/c) ratios for the future AM, midday, PM, and Saturday peak hours for 2015 and 2025, respectively. Below is a listing of the intersections operating at LOS D, E, and F for various peak hours for the 2015 future conditions. This information is also shown in Figures 2.3-9 to 2.3-12.

Intersections with LOS D (2015)

1. Kings Highway @ Ocean Parkway (midday, PM)
2. Kings Highway @ Coney Island Avenue (midday, PM)
3. Kings Highway @ Stillwell Avenue (AM)
4. Ocean Parkway @ Avenue W (midday, PM)
5. Ocean Parkway @ Avenue Z (midday, PM)
6. Shell Road/ West 8th St @ Neptune Avenue (AM, PM)
7. Cropsey Avenue @ Neptune Avenue & West 17th Street (midday, PM)
8. Coney Island Avenue @ Guider Street (midday)
9. Bay Parkway @ Cropsey Avenue (midday)

Intersections with LOS E (2015)

1. Kings Highway @ McDonald Avenue (SAT)
2. Kings Highway @ Coney Island Avenue (AM)
3. Kings Highway @ Stillwell Avenue (PM)
4. Bay Parkway @ 86th Street (SAT)
5. 84th Street @ 23rd Avenue (AM, PM)
6. Bay 32nd Street @ Benson Avenue (PM)
7. Bay 35th Street @ Bath Avenue (AM)
8. Avenue X @West 3rd Street (midday, PM)
9. Ocean Parkway @ Avenue X (PM)
10. Coney Island Avenue @ Neptune Avenue (SAT)
11. Cropsey Avenue @ Neptune Avenue & West 17th Street (AM)
12. Coney Island Avenue @ Guider Street (PM)
13. Brighton Beach @ Ocean Parkway (SAT)
14. Neptune Avenue @ Ocean Parkway (SAT)

15. Coney Island Avenue @ Avenue Z (SAT)

Intersections with LOS F (2015)

1. Kings Highway @ Ocean Parkway (AM)
2. Kings Highway @ McDonald Avenue (AM, midday, PM)
3. Kings Highway @ Stillwell Avenue (midday)
4. 84th Street @ 23rd Avenue (midday)
5. West 5th Street @ Avenue T (AM)
6. Ocean Parkway @ Avenue W (AM)
7. McDonald Avenue @ 86th Street & Avenue X (AM, midday, PM, SAT)
8. Ocean Parkway @ Avenue X (AM, midday)
9. Ocean Parkway @ Avenue Z (AM)
10. Coney Island Avenue @ Neptune Avenue (AM, PM)
11. Cropsey Avenue @ Neptune Avenue & West 17th Street (SAT)
12. Coney Island Avenue @ Guider Avenue (AM, SAT)
13. Brighton Beach @ Coney Island Avenue (AM, midday, PM, SAT)
14. Neptune Avenue @ Ocean Parkway (AM, midday, PM)
15. Bay Parkway @ Cropsey Avenue (PM, SAT)

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections

Page 1 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
Kings Hwy @ Ocean Pkwy	EB	LTR	1.30	194.90	F	1.02	91.00	F	1.02	88.40	F	0.63	41.20	D
	WB	LTR	1.27	179.70	F	1.11	119.50	F	0.69	46.90	D	0.73	46.50	D
	NB	L	0.33	40.70	D	0.49	48.30	D	0.38	46.10	D	0.42	42.30	D
		TR	1.25	149.40	F	0.99	49.60	D	0.77	29.90	C	0.67	27.10	C
	SB	L	0.13	44.40	D	0.40	48.60	D	0.21	34.80	C	0.27	32.70	C
		TR	0.77	29.70	C	0.84	32.50	C	0.92	38.00	D	0.71	28.00	C
Overall LOS				**F**			**D**			**D**			**C**	
Kings Hwy @ McDonald Ave	EB	LTR	0.41	13.10	B	0.44	11.50	B	0.59	16.70	B	0.70	17.30	B
	WB	LTR	0.66	18.90	B	0.80	22.00	C	0.62	17.90	B	0.44	11.40	B
	NB	LTR	1.27	177.10	F	1.28	174.40	F	1.28	183.80	F	1.12	113.50	F
	SB	LTR	1.28	185.60	F	1.37	213.60	F	1.36	219.90	F	1.17	131.80	F
Overall LOS				**F**			**F**			**F**			**E**	
Kings Hwy @ Coney Island Ave	EB	LTR	1.18	140.00	F	0.83	37.40	D	1.02	81.20	F	0.72	29.90	C
	WB	LTR	0.77	45.70	D	0.70	30.10	C	0.86	58.70	E	0.51	23.60	C
	NB	L	1.27	163.30	F	1.19	157.90	F	0.63	39.00	D	0.32	18.90	B
	NB	TR	0.72	24.00	C	0.71	21.80	C	0.60	20.80	C	0.55	18.20	B
	SB	LTR	0.87	33.90	C	1.06	70.10	E	0.96	45.20	D	0.90	33.90	C
Overall LOS				**E**			**D**			**D**			**C**	
Kings Hwy @ Stillwell Ave	EB	LTR	0.30	11.60	B	0.22	8.80	A	0.36	12.30	B	*N/A*		
	WB	LTR	0.77	23.90	C	0.59	14.20	B	0.57	16.40	B			
	NB	LTR	0.93	62.50	E	1.23	150.70	F	0.93	64.30	E			
	SB	LTR	0.99	77.90	E	1.24	157.10	F	1.23	158.80	F			
Overall LOS				**D**			**F**			**E**				
Bay Pkwy @ 86th St	EB	LTR	0.42	30.40	C	0.50	25.40	C	0.53	32.50	C	0.56	26.30	C
	WB	LTR	0.39	29.90	C	0.48	25.10	C	0.51	32.10	C	0.83	37.60	D
	NB	LTR	0.74	23.00	C	0.59	15.50	B	0.77	24.20	C	0.60	15.60	B
	SB	LTR	0.85	28.20	C	0.64	16.40	B	0.83	27.10	C	1.27	151.90	F
Overall LOS				**C**			**B**			**C**			**E**	
84th St @ 23rd Ave	WB	LTR	0.37	17.60	B	0.48	19.60	B	0.57	21.40	C	*N/A*		
	NB	LT	1.28	163.60	F	1.28	163.40	F	1.27	160.70	F			
	SB	TR	0.32	9.00	A	0.27	8.50	A	0.41	9.90	A			
Overall LOS				**E**			**F**			**E**				
Bay 32nd St @ Benson Ave	EB	TR	0.34	9.30	A	0.40	9.90	A	0.48	10.90	B			
	WB	LT	0.39	10.20	B	0.43	10.70	B	1.27	156.00	F			
	SB	LTR	0.47	19.80	B	0.45	19.30	B	0.53	21.20	C			
Overall LOS				**B**			**B**			**E**				
Bay 35th St @ Bath Ave	EB	LT	1.28	159.30	F	0.33	9.20	A	0.52	11.40	B			
	WB	TR	0.50	11.10	B	0.38	9.60	A	0.57	12.10	B			
	NB	LTR	0.38	17.90	B	0.31	16.80	B	0.35	17.40	B			
Overall LOS				**E**			**B**			**B**				

N/A – Not analyzed.

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections
Page 2 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
86th St @ Stillwell Ave	EB	LTR	0.20	13.10	B	0.28	10.30	B	0.27	13.80	B	*N/A*		
	WB	LTR	0.33	14.50	B	0.33	10.70	B	0.67	19.80	B			
	NB	LTR	0.48	24.00	C	0.61	22.00	C	0.60	26.50	C			
	SB	Def L							0.66	36.80	D			
		TR							0.57	27.80	C			
	SB	LTR	0.60	27.20	C	0.59	22.10	C						
Overall LOS				**C**			**B**			**C**				
Bay 48th St @ Cropsey Ave	EB	LTR	0.49	11.70	B	0.55	12.50	B	0.52	11.90	B			
	WB	LTR	0.57	12.90	B	0.55	12.70	B	0.55	12.60	B			
	NB	LTR	0.40	28.40	C	0.56	32.10	C	0.30	26.70	C			
Overall LOS				**B**			**B**			**B**				
Bay 49th St @ Stillwell Ave	EB	LR	0.58	20.40	C	0.56	19.70	B	0.51	18.50	B			
	NB	T	0.26	7.40	A	0.25	7.40	A	0.24	7.30	A			
	SB	T	0.29	7.60	A	0.27	7.50	A	0.28	7.60	A			
Overall LOS				**B**			**B**			**A**				
Harway Ave @ Stillwell Ave	EB	LR	0.35	17.30	B	0.25	16.10	B	0.30	16.60	B			
	NB	LT	0.46	10.00	A	0.37	9.10	A	0.29	8.40	A			
	SB	TR	0.27	8.20	A	0.40	9.20	A	0.25	8.00	A			
Overall LOS				**B**			**A**			**A**				
Bay 54th St @ Cropsey Ave	EB	L	0.30	23.20	C	0.11	19.90	B	0.12	20.80	C			
		LR	0.15	21.30	C	0.08	19.60	B	0.07	20.40	C			
	NB	L	0.68	46.30	D	0.10	10.60	B	0.12	12.30	B			
		T	0.50	13.70	B	0.43	12.10	B	0.50	13.70	B			
	NB	TR	0.60	15.20	B	0.47	12.60	B	0.55	14.30	B			
Overall LOS				**B**			**B**			**B**				
West 9th St @ Avenue T	EB	LT	0.38	9.70	A	0.39	9.80	A	0.69	15.40	B			
	WB	TR	0.36	9.50	A	0.38	9.70	A	0.63	13.70	B			
	NB	LTR	0.46	19.30	B	0.46	19.40	B	0.49	20.10	C			
Overall LOS				**B**			**B**			**B**				
West 5th St @ Avenue T	EB	LT	1.28	160.70	F	0.57	12.60	B	0.63	14.00	B			
	WB	TR	0.37	9.60	A	0.38	9.70	A	0.55	12.10	B			
	NB	LTR	0.33	17.20	B	0.34	17.40	B	0.38	17.90	B			
Overall LOS				**F**			**B**			**B**				
West 7th St @ Avenue U	EB	LT	0.51	11.60	B	0.52	11.80	B	0.57	12.60	B			
	WB	TR	0.48	10.90	B	0.52	11.50	B	0.58	12.60	B			
	NB	LTR	0.23	15.70	B	0.26	16.20	B	0.29	16.40	B			
Overall LOS				**B**			**B**			**B**				

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections
Page 3 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
West 11th St @ Avenue U	EB	LT	0.37	9.70	A	0.48	14.80	B	0.38	9.70	A			
	WB	TR	0.53	11.80	B	0.58	16.70	B	0.65	14.50	B			
	NB	LTR	0.37	17.70	B	0.31	12.50	B	0.44	18.90	B			
Overall LOS				**B**			**B**			**B**				
Ocean Pkwy @ Avenue W	EB	LTR	0.97	95.00	F	1.11	119.80	F	0.93	68.00	E	*N/A*		
	WB	LTR	1.28	189.20	F	0.74	53.30	D	0.72	46.80	D			
	NB	L	0.22	27.80	C	0.14	30.30	C	0.20	40.40	D			
		TR	1.26	146.40	F	0.74	28.90	C	0.80	30.90	C			
	SB	L	0.44	50.60	D	0.23	34.70	C	0.49	47.70	D			
		TR	0.68	21.50	C	0.74	28.80	C	0.93	38.80	D			
Overall LOS				**F**			**D**			**D**				
McDonald Ave @ 86th St & Avenue X	EB	LTR	0.74	66.80	E	0.40	33.50	C	0.28	44.90	D	0.25	29.40	C
	WB	LTR	1.28	198.50	F	1.28	179.50	F	1.27	189.20	F	0.78	46.20	D
	NB	Def L	1.84	431.50	F	2.50	727.40	F	2.38	674.00	F	1.27	170.40	F
	NB	TR	0.78	43.80	D	0.97	67.80	E	0.52	32.80	C	1.27	167.10	F
	SB	LTR	1.02	81.90	F	1.28	171.90	F	1.28	179.10	F	1.24	165.40	F
	NW L	LTR	0.98	69.00	E	0.92	50.20	D	1.02	78.10	E	1.28	163.30	F
Overall LOS				**F**			**F**			**F**			**F**	
Avenue X @ West 3rd St	EB	LTR	0.49	11.20	B	1.28	163.70	F	1.27	155.80	F			
	WB	LTR	0.49	11.10	B	0.51	11.40	B	0.53	11.70	B			
	NB	LTR	0.37	17.60	B	0.47	19.40	B	0.43	18.70	B			
Overall LOS				**B**			**E**			**E**				
Ocean Pkwy @ Avenue X	EB	LTR	1.28	186.60	F	2.19	591.10	F	1.36	220.60	F			
	WB	LTR	1.28	184.60	F	1.94	473.30	F	1.04	97.50	F			
	NB	L	0.42	45.30	D	0.33	42.30	D	0.34	43.20	D			
	NB	TR	1.28	161.00	F	0.84	32.70	C	0.85	33.00	C			
	SB	L	0.20	44.70	D	0.24	38.20	D	0.27	39.80	D			
	SB	TR	0.86	33.50	C	0.85	33.30	C	0.88	34.90	C			
Overall LOS				**F**			**F**			**E**		*N/A*		
Ocean Pkwy @ Avenue Z	EB	LTR	1.16	147.40	F	0.95	78.20	E	1.10	122.20	F			
	WB	LTR	1.28	188.90	F	1.21	165.20	F	1.27	183.40	F			
	NB	L	0.27	28.00	C	0.35	33.60	C	0.57	51.60	D			
	NB	TR	1.14	94.10	F	0.59	22.40	C	0.67	21.10	C			
	SB	L	0.61	62.10	E	0.36	30.50	C	0.58	48.90	D			
	SB	TR	0.63	20.40	C	0.64	23.30	C	0.71	22.10	C			
Overall LOS				**F**			**D**			**D**				
Shell Road @ Avenue Z	WB	LR	0.55	21.40	C	0.68	24.90	C	0.79	30.90	C			
	NB	TR	0.51	11.20	B	0.49	11.10	B	0.52	11.40	B			
	SB	LT	0.85	21.30	C	0.90	26.30	C	0.97	37.30	D			
Overall LOS				**B**			**C**			**C**				

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
Shell Road/West 8th St @ Neptune Ave	EB	Def L	1.12	103.90	F				1.08	93.80	F			
		TR	0.90	38.10	D				1.00	56.70	E			
		LTR				0.69	18.80	B						
	WB	LTR	0.44	15.60	B	0.57	15.90	B	0.53	17.00	B			
	NB	LTR	0.29	19.50	B	0.14	15.80	B				*N/A*		
		Def L							0.27	21.60	C			
		TR							0.19	18.50	B			
	SB	LTR	0.42	21.00	C	0.47	19.40	B	0.57	23.50	C			
Overall LOS				**D**			**B**			**D**				
Coney Island Ave @ Neptune Ave	EB	L	1.88	490.30	F	0.97	78.60	E	1.27	218.50	F	1.14	142.50	F
		TR	0.93	74.10	E	0.79	34.40	C	1.28	182.90	F	1.00	64.80	E
	WB	L	0.50	47.20	D	0.57	30.10	C	1.28	222.40	F	1.28	190.90	F
		TR	1.27	186.60	F	0.82	36.40	D	1.28	184.50	F	1.03	71.20	E
	NB	LTR	0.38	11.30	B	0.76	24.10	C	0.65	16.10	B	0.87	30.70	C
	SB	LTR	0.58	14.70	B	0.28	14.70	B				0.90	36.10	D
		Def L							0.71	27.30	C			
		TR							0.69	18.50	B			
Overall LOS				**F**			**C**			**F**			**E**	
West 12th St @ Neptune Ave	EB	TR	0.64	16.50	B	0.38	12.70	B	0.67	17.10	B			
	WB	LT	0.60	16.10	B	0.49	14.20	B	0.91	30.80	C	*N/A*		
	NB	LR	0.37	24.90	C	0.32	24.10	C	0.32	24.00	C			
Overall LOS				**B**			**B**			**C**				
Neptune Ave @ Cropsey Ave & West 17th St	EB	L	0.45	36.10	D	0.86	51.50	D	0.87	52.50	D	1.02	80.70	F
		TR	0.57	14.60	B	0.18	10.40	B	0.25	10.90	B	0.22	10.70	B
	WB	L	0.13	24.20	C	0.01	20.90	C	0.10	22.20	C	0.22	24.10	C
		TR	1.17	119.00	F	0.78	34.30	C	0.86	39.20	D	1.24	149.10	F
	SB	L	0.63	16.40	B	0.55	15.10	B	0.65	16.80	B	0.58	15.50	B
		T	0.40	25.10	C	0.45	26.00	C	0.51	27.20	C	0.69	32.30	C
		R	0.68	16.50	B	0.42	12.30	B	0.47	12.90	B	0.33	11.30	B
Overall LOS				**E**			**D**			**D**			**F**	
Mermaid Ave @ Stillwell Ave	EB	LR	0.55	16.20	B	0.66	19.10	B	0.40	13.60	B			
	NB	LT	0.35	13.00	B	0.45	14.80	B	0.55	16.30	B			
	SB	TR	0.19	11.00	B	0.23	11.10	B	0.19	10.90	B	*N/A*		
Overall LOS				**B**			**B**			**B**				

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections
Page 5 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
Surf Ave @ Stillwell Ave	EB	LTR	0.55	9.60	A	0.41	7.90	A	0.46	8.60	A	0.37	7.50	A
	WB	LTR	0.39	7.70	A	0.29	6.90	A	0.38	7.50	A	0.40	7.80	A
	NB	LTR	0.07	28.30	C	1.09	142.00	F	0.30	31.80	C	0.73	53.60	D
	SB	Def L	0.75	51.50	D									
		TR	0.63	43.20	D									
		LTR				0.92	62.90	E	0.62	38.20	D	0.80	49.50	D
Overall LOS			**B**			**C**			**B**			**B**		
West 8th St @ Surf Ave	EB	L	0.17	6.60	A	0.22	6.90	A	0.26	7.60	A	*N/A*		
	EB	TR	0.32	7.00	A	0.24	6.50	A	0.26	6.60	A			
	WB	L	0.02	5.40	A	0.01	5.20	A	0.09	5.90	A			
	WB	TR	0.28	6.70	A	0.18	6.10	A	0.32	7.00	A			
	NB	LTR	0.01	27.50	C	0.31	31.60	C	0.54	36.70	D			
	SB	L	0.94	79.00	E	0.48	39.00	D	0.67	54.50	D			
	SB	TR	0.11	28.50	C	0.51	33.80	C	0.25	30.00	C			
Overall LOS			**B**			**B**			**B**					
West 17th St @ Mermaid Ave	EB	LTR	0.70	19.70	B	0.55	15.70	B	0.64	18.90	B			
	WB	LTR	0.37	12.90	B	0.36	12.80	B	0.48	14.30	B			
	SB	LTR	0.27	11.50	B	0.26	11.50	B	0.31	11.90	B			
Overall LOS			**B**			**B**			**B**					
Coney Island Ave @ Guider Ave	EB	LTR	1.15	118.90	F	0.93	44.70	D	1.15	122.60	F	0.52	22.50	C
	WB	LTR	1.15	120.20	F	0.93	38.30	D	1.14	115.70	F	0.68	24.60	C
	NB	LTR	0.50	16.00	B	0.79	24.60	C	0.64	18.90	B			
		Def L										1.02	89.70	F
		TR										1.13	99.80	F
	SB	Def L	0.66	26.40	C	1.14	133.50	F	0.81	42.70	D	0.99	78.10	E
		TR	0.37	14.60	B	0.32	15.90	B	0.47	16.20	B	2.19	567.00	F
Overall LOS			**F**			**D**			**E**			**F**		
Brighton Beach @ Ocean Parkway	EB	TR	0.34	42.60	D	0.35	42.80	D	0.44	44.40	D	0.69	50.5	D
	WB	TR	0.53	35.20	D	0.53	29.10	C	0.63	37.40	D	0.44	27.4	C
	NB	L	0.01	10.50	B	0.01	14.90	B	0.01	10.70	B	0.02	21.9	C
	NB	T	0.15	21.90	C	0.20	30.20	C	0.24	26.10	C	0.3	31.5	C
	SB	L	0.32	14.60	B	0.42	21.70	C	0.49	20.00	C	1.21	145.7	F
	SB	T	0.16	22.00	C	0.23	30.60	C	0.20	25.70	C	0.64	37.5	D
Overall LOS			**C**			**C**			**C**			**E**		

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections

Page 6 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
Brighton Beach Ave @ Coney Island Ave	EB	L	1.29	218.90	F	1.28	187.50	F	1.56	330.50	F	0.75	47.90	D
		TR	0.75	51.70	D	0.88	55.40	E	0.47	38.80	D	0.77	43.40	D
	WB	LTR	1.03	89.20	F	0.96	57.90	E	0.74	45.10	D	0.88	46.50	D
	NB	LTR	0.21	25.60	C	0.62	37.10	D	0.70	39.50	D	1.27	175.20	F
	SB	Def L							0.58	36.50	D	1.13	139.50	F
		TR							1.94	478.30	F	1.27	173.70	F
	SB	LTR	1.27	179.60	F	1.27	171.80	F						
Overall LOS				**F**			**F**			**F**			**F**	
Neptune Ave @ Ocean Parkway	EB	L	1.56	317.40	F	1.53	300.80	F	2.60	782.40	F	0.89	74.7	E
		T	0.48	27.90	C	0.33	23.90	C	0.38	26.00	C	0.41	25.3	C
		R	0.04	30.60	C	0.08	29.20	C	0.10	31.50	C	0.11	29.6	C
	WB	LTR	1.27	180.20	F	1.27	180.70	F	1.27	178.70	F	1.28	179.2	F
	NB	L	0.08	21.50	C	0.15	22.80	C	0.22	28.60	C	0.21	40.9	D
	NB	TR	0.34	29.30	C	0.40	31.50	C	0.45	32.30	C	0.53	33.6	C
	SB	L	0.56	31.60	C	0.70	41.80	D	0.89	60.30	E	0.73	48.7	D
	SB	TR	0.47	31.40	C	0.43	31.9	C	0.61	35.1	D	0.99	60.7	E
Overall LOS				**F**			**F**			**F**			**E**	
Bay Parkway @ Cropsey Ave	EB	L	0.26	37.20	D	0.26	31.70	C	0.32	47.90	D	0.76	67.10	E
		T	0.52	41.00	D	0.52	34.10	C	0.62	44.20	D	0.90	57.50	E
		R	0.68	41.20	D	0.84	46.60	D	0.90	60.30	E	1.28	172.10	F
	WB	L	0.29	24.60	C	0.26	20.20	C	0.47	28.50	C	0.56	29.00	C
		TR	0.5	27.30	C	0.75	28.90	C	1.28	165.20	F	0.84	32.50	C
	NB	L	0.16	28.70	C	0.99	81.50	F	1.30	208.10	F	1.27	181.90	F
		TR	0.23	17.30	B	0.53	16.60	B	0.64	24.10	C	0.73	20.70	C
	SB	L	0.14	24.90	C	0.35	27.00	C	0.53	46.00	D	1.16	179.50	F
		TR	0.74	36.40	D	0.9	39.30	D	1.16	120.40	F	1.15	108.90	F
Overall LOS				**C**			**D**			**F**			**F**	
Brighton Beach Ave @ Brighton 11th St.	EB	T	0.58	17.20	B	0.56	16.80	B	0.48	15.20	B			
	WB	TR	0.37	12.60	B	0.37	12.50	B	0.28	11.60	B			
	SB	LR	0.5	26.50	C	0.32	23.40	C	0.56	28.90	C			
Overall LOS				**B**			**B**			**B**				
Neptune Ave @ Brighton 10th St.	EB	T	0.66	18.80	B	0.65	18.4	B	0.65	18.2	B	*N/A*		
	WB	T	0.52	15.40	B	0.54	15.9	B	0.7	19.9	B			
	NB	LR	0.08	20.50	C	0.19	21.8	C	0.08	20.4	C			
	SB	L	0.57	26.40	C	0.47	24.7	C	0.55	26	C			
	SB	R	0.16	21.50	C	0.21	22.2	C	0.14	21.2	C			
Overall LOS				**C**			**C**			**C**				

Table 2.3-2: Future 2015 Traffic Capacity Analysis for Signalized Intersections

Page 7 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
Neptune/Emmons Avenue @ E 14th St./Shore Blvd	EB	L	0.50	27.30	C	0.51	29.50	C	0.70	48.70	D	*N/A*		
		TR	0.39	19.40	B	0.38	21.70	C	0.44	22.60	C			
	WB	L	1.02	60.90	E	0.74	26.30	C	0.93	46.90	D			
		TR	0.47	9.60	A	0.41	11.10	B	0.56	13.00	B			
	NB	L	0.86	50.80	D	0.65	39.40	D	0.59	37.40	D			
		T	0.56	33.20	C	0.36	31.60	C	0.47	33.70	C			
		R	0.73	29.80	C	0.87	43.60	D	0.89	46.60	D			
Overall LOS				**C**			**C**			**C**				
Brighton Beach @ Brighton 4th Street	EB	TR	0.14	6.60	A	0.17	6.80	A	0.22	7.10	A			
	WB	LT	0.22	7.10	A	0.26	7.40	A	0.46	9.40	A			
	SB	LTR	0.29	29.50	C	0.32	30.00	C	0.84	53.10	D			
Overall LOS				**B**			**B**			**B**				
Coney Island Avenue @ Avenue Z	EB	LTR	0.86	57.20	E	0.65	30.6	C	0.76	43.5	D	1.26	161.0	F
	WB	LTR	0.84	57.60	E	0.73	33.8	C	0.88	54.5	D	1.17	126.8	F
	NB	L	0.28	16.50	B	0.56	28.8	C	0.55	32.6	C	1.33	234.3	F
	NB	TR	0.36	15.10	B	0.49	18.7	B	0.46	22.5	C	0.49	18.6	B
	SB	L	0.2	13.10	B	0.12	13.9	B	0.22	20.6	C	0.6	29.0	C
	SB	TR	0.35	9.90	A	0.38	11.2	B	0.34	12.9	B	0.6	13.9	B
Overall LOS				**C**			**C**			**C**			**E**	

Figure 2.3-9: Intersections with LOS D, E, and F (AM Peak Hour 2015)

Figure 2.3-10: Intersections with LOS D, E, and F (Midday Peak Hour 2015)

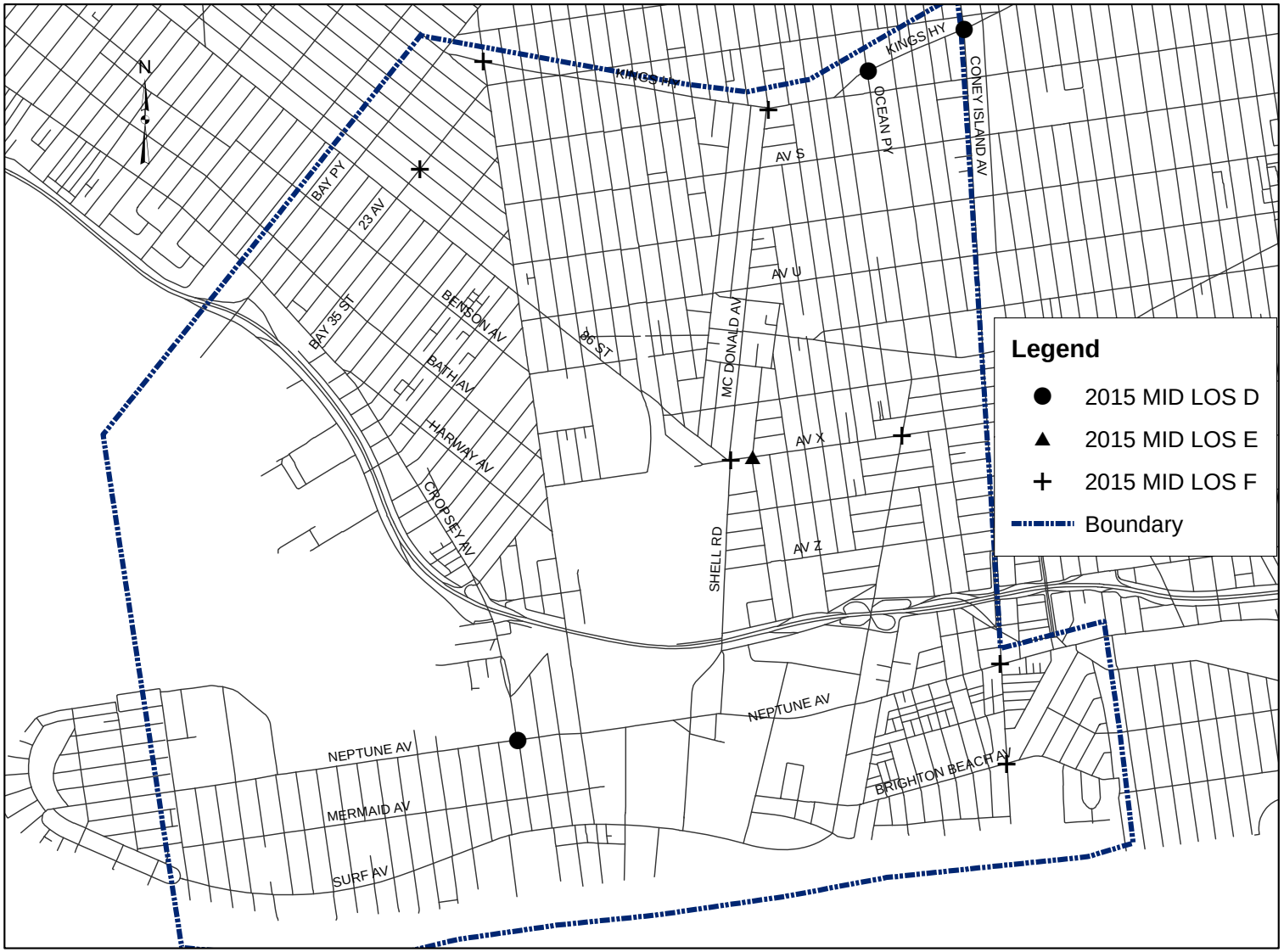


Figure 2.3-11: Intersections with LOS D, E, and F (PM Peak Hour 2015)

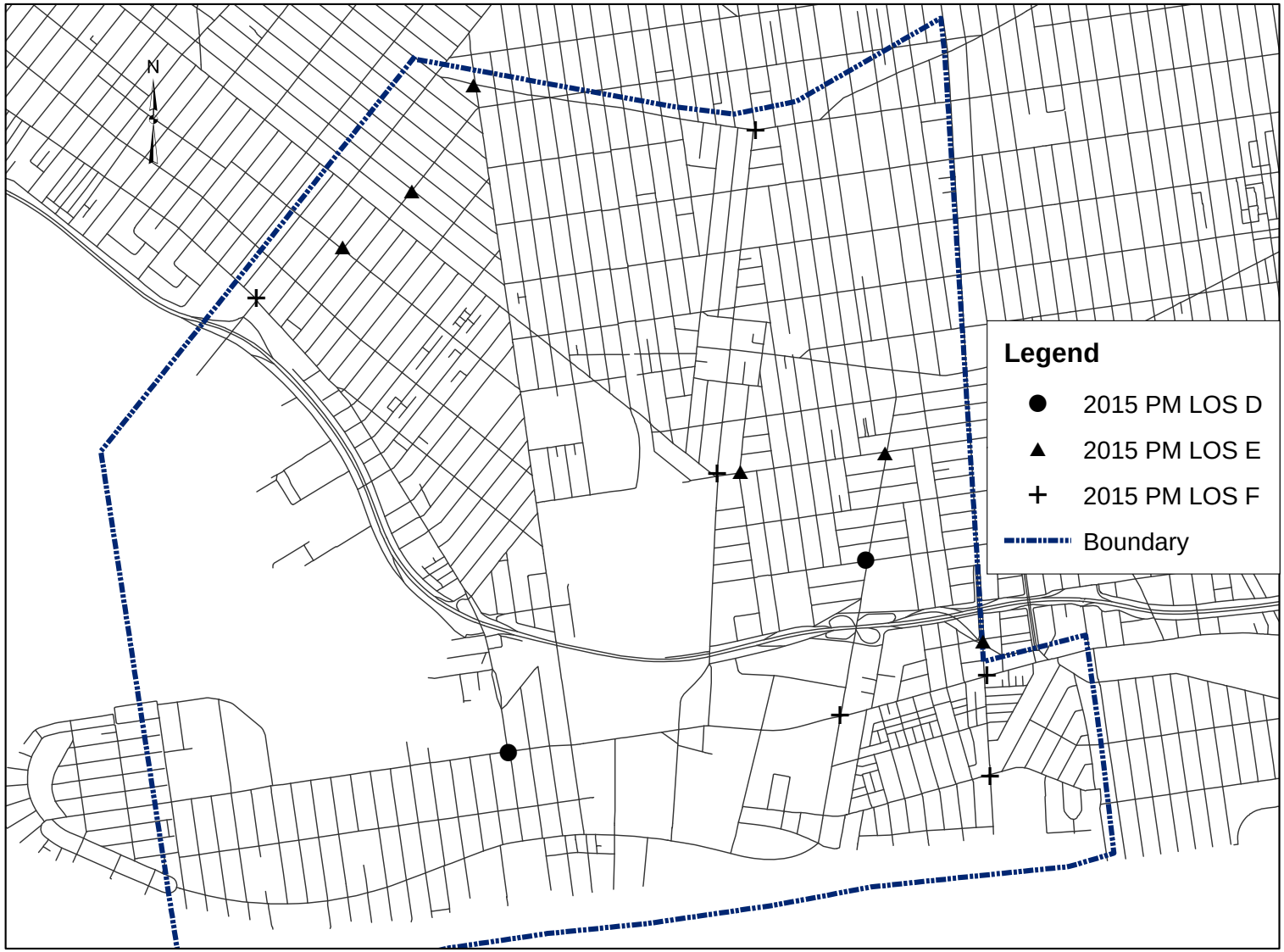
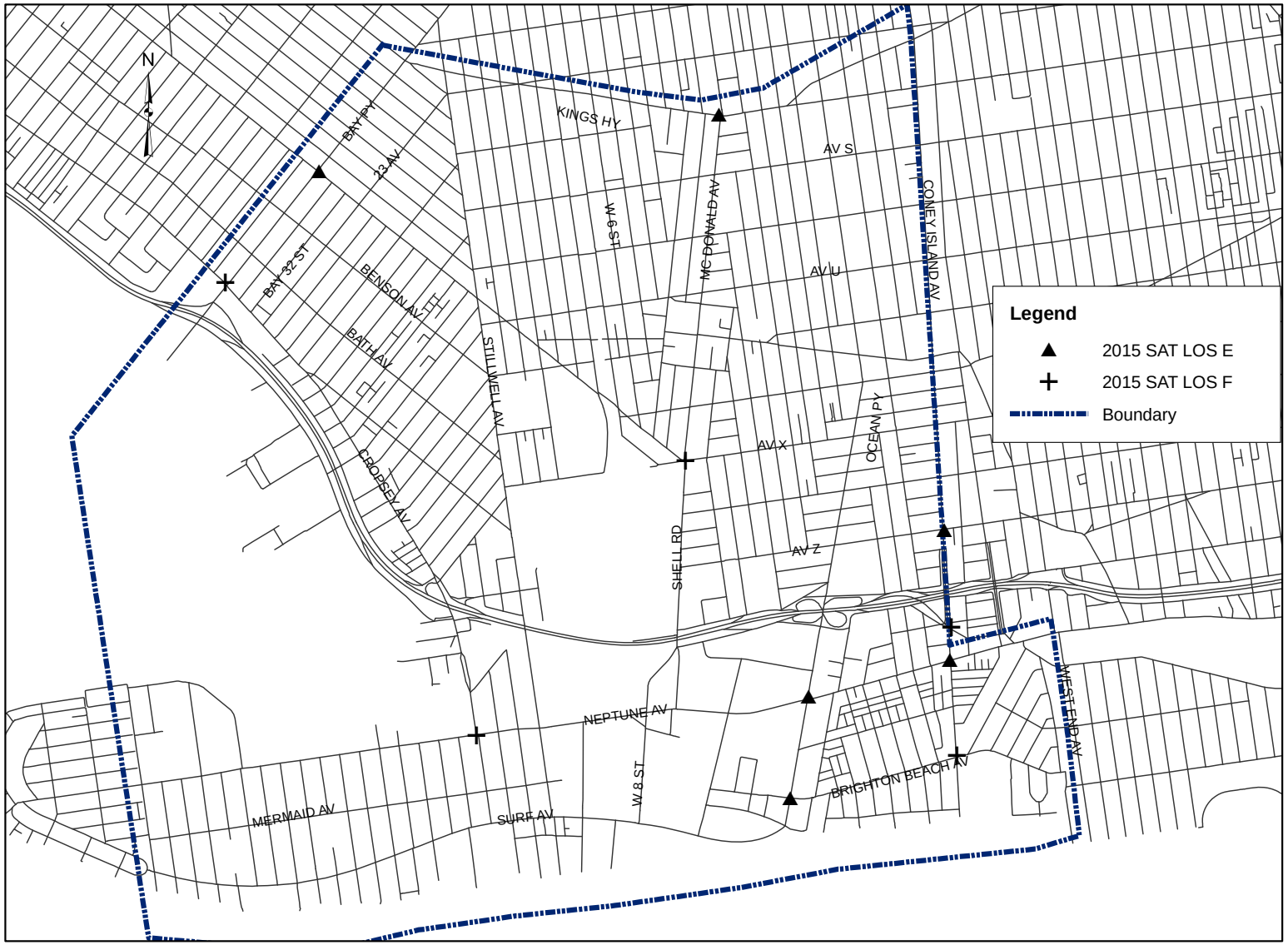


Figure 2.3-12: Intersections with LOS D, E, and F (Saturday Midday Peak Hour 2015)



Under the 2025 future condition, as is to be expected, there are more intersections that have deteriorated LOS. For example, there are five more intersections with LOS F than under the 2015 conditions. Table 2.3-3 show a summary of the level of service (LOS), delays, and volume to capacity (v/c) ratios for the future AM, midday, PM, and Saturday peak hours for 2025. The intersections operating at LOS D, E, and F for various peak hours are listed below and are also shown in Figures 2.3-13 to 2.3-16.

Intersections with LOS D (2025)

1. Kings Highway @ Ocean Parkway (Sat.)
2. Bay Parkway @ 86th Street (PM)
3. Ocean Parkway @ Avenue W (midday)
4. Coney Island Avenue @ Avenue Z (PM)
5. Neptune Avenue @ Shore Boulevard (midday, PM)
6. Bay Parkway @ Cropsey Avenue (AM, midday)

Intersections with LOS E (2025)

1. Kings Highway @ Ocean Parkway (PM)
2. Kings Highway @ McDonald Avenue (SAT)
3. Ocean Parkway @ Avenue W (PM)
4. Ocean Parkway @ Avenue Z (midday, PM)
5. Shell Road/West 8th Street @ Neptune Avenue (AM, PM)
6. Neptune Avenue @ Coney Island Avenue (midday)
7. Kings Highway @ Stillwell Avenue (PM)
8. West 12th Street @ Neptune Avenue (PM)
9. Surf Avenue @ Stillwell Avenue (midday)
10. Neptune Avenue @ Shore Boulevard (AM)

Intersections with LOS F (2025)

1. Kings Highway @ Ocean Parkway (AM, midday)
2. Kings Highway @ McDonald Avenue (AM, midday, PM, SAT)

3. Kings Highway @ Stillwell Avenue (AM, midday, PM)
4. Bay Parkway @ 86th Street (SAT)
5. 84th Street @ 23rd Avenue (AM, midday, PM)
6. Bay 32nd Street @ Benson Avenue (PM)
7. Bay 35th Street @ Bath Avenue (AM)
8. West 5th Street @ Avenue T (AM)
9. Ocean Parkway @ Avenue W (AM)
10. McDonald Avenue @ 86th Street & Avenue X (AM, midday, PM, SAT)
11. Avenue X @ West 3rd Street (midday, PM)
12. Ocean Parkway @ Avenue X (AM, midday, PM)
13. Ocean Parkway @ Avenue Z (AM)
14. Coney Island Avenue @ Neptune Avenue (AM, PM, SAT)
15. Cropsey Avenue @ Neptune Avenue & West 17th Street (AM, midday, PM, SAT)
16. Coney Island Avenue @ Guider Avenue (AM, midday, PM, SAT)
17. Brighton Beach Avenue @ Coney Island Avenue (AM, midday, PM, SAT)
18. Neptune Avenue @ Ocean Parkway (AM, midday, PM, SAT)
19. Bay Parkway @ Cropsey Avenue (PM, SAT)
20. Coney Island Avenue @ Avenue Z (SAT)

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections

Page 1 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Kings Hwy @ Ocean Pkwy	EB	LTR	1.63	339.40	F	1.28	187.70	F	1.22	157.10	F	0.77	49.10	D
	WB	LTR	1.48	266.30	F	1.37	222.10	F	0.90	70.50	E	0.90	64.80	E
	NB	L	0.38	45.60	D	0.56	53.80	D	0.44	50.70	D	0.50	48.70	D
		TR	1.45	238.50	F	1.15	106.30	F	0.90	36.10	D	0.78	30.30	C
	SB	L	0.15	44.70	D	0.46	51.20	D	0.24	40.70	D	0.33	41.10	D
		TR	0.89	35.60	D	0.97	45.30	D	1.07	72.10	E	0.82	31.80	C
Overall LOS			**F**			**F**			**E**			**D**		
Kings Hwy @ McDonald Avenue	EB	LTR	0.47	14.30	B	0.52	12.90	B	0.69	19.70	B	0.82	23.20	C
	WB	LTR	0.77	23.90	C	0.94	36.40	D	0.75	22.60	C	0.51	12.60	B
	NB	LTR	1.48	265.60	F	1.48	260.20	F	1.48	271.50	F	1.30	183.50	F
	SB	LTR	1.48	272.50	F	1.64	333.40	F	1.72	377.60	F	1.44	245.20	F
Overall LOS			**F**			**F**			**F**			**F**		
Kings Hwy @ Coney Island Ave	EB	LTR	1.43	244.30	F	1.00	66.00	E	1.20	146.50	F	0.85	38.60	D
	WB	LTR	0.97	75.10	E	0.87	44.40	D	1.12	126.30	F	0.64	28.20	C
	NB	L	1.48	250.40	F	2.05	526.30	F	1.09	145.90	F	0.51	28.70	C
	NB	TR	0.83	28.90	C	0.83	26.10	C	0.69	23.20	C	0.63	19.80	B
	SB	LTR	1.12	97.60	F	1.39	205.60	F	1.24	141.80	F	1.15	102.50	F
Overall LOS			**F**			**F**			**F**			**E**		
Kings Hwy @ Stillwell Avenue	EB	LTR	0.35	12.30	B	0.25	9.10	A	0.42	13.20	B	*N/A*		
	WB	LTR	0.91	36.00	D	0.69	16.90	B	0.67	19.30	B			
	NB	LTR	1.20	146.40	F	1.62	321.80	F	1.22	157.80	F			
	SB	LTR	1.28	182.90	F	1.57	298.60	F	1.53	288.00	F			
Overall LOS			**F**			**F**			**F**					
Bay Pkwy @ 86th Street	EB	LTR	0.48	31.70	C	0.58	27.00	C	0.61	34.50	C	0.65	28.40	C
	WB	LTR	0.45	31.00	C	0.56	26.60	C	0.59	34.00	C	1.05	78.00	E
	NB	LTR	0.86	28.70	C	0.69	17.60	B	0.98	45.10	D	0.69	17.60	B
	SB	LTR	0.98	45.00	D	0.75	19.20	B	0.99	46.50	D	1.58	287.40	F
Overall LOS			**D**			**C**			**D**			**F**		
84th Street @ 23rd Avenue	WB	LTR	0.43	18.60	B	0.56	21.40	C	0.66	24.20	C	*N/A*		
	NB	LT	1.48	247.30	F	1.49	249.50	F	1.47	246.30	F			
	SB	TR	0.37	9.50	A	0.32	8.90	A	0.47	10.70	B			
Overall LOS			**F**			**F**			**F**					
Bay 32nd Street @ Benson Avenue	EB	TR	0.40	10.00	A	0.46	10.70	B	0.55	12.10	B			
	WB	LT	0.46	11.20	B	0.50	11.90	B	1.48	242.10	F			
	SB	LTR	0.54	21.50	C	0.51	20.70	C	0.62	23.70	C			
Overall LOS			**B**			**B**			**F**					
Bay 35th Street @ Bath Avenue	EB	LT	1.49	247.80	F	0.39	9.80	A	0.61	13.10	B			
	WB	TR	0.58	12.50	B	0.44	10.30	B	0.66	14.10	B			
	NB	LTR	0.45	19.10	B	0.36	17.50	B	0.40	18.20	B			
Overall LOS			**F**			**B**			**B**					

N/A – Not analyzed

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections

Page 2 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
86th Street @ Stillwell Avenue	EB	LTR	0.23	13.40	B	0.33	10.70	B	0.32	14.40	B			
	WB	LTR	0.38	15.10	B	0.38	11.20	B	0.78	23.20	C			
	NB	LTR	0.57	25.80	C	0.74	26.10	C	0.73	30.20	C			
	SB	Def L							0.91	68.90	E			
		TR							0.67	30.90	C			
	SB	LTR	0.73	31.90	C	0.72	26.40	C						
Overall LOS			**C**			**B**			**C**					
Bay 48th Street @ Cropsey Avenue	EB	LTR	0.59	13.10	B	0.66	14.40	B	0.60	13.20	B			
	WB	LTR	0.70	15.80	B	0.71	16.20	B	0.68	15.10	B			
	NB	LTR	0.47	29.80	C	0.65	35.10	D	0.36	27.60	C			
Overall LOS			**B**			**B**			**B**					
Bay 49th Street @ Stillwell Avenue	EB	LR	0.68	23.60	C	0.65	22.40	C	0.59	20.50	C	*N/A*		
	NB	T	0.30	7.70	A	0.29	7.60	A	0.28	7.50	A			
	SB	T	0.33	7.90	A	0.32	7.80	A	0.33	7.90	A			
Overall LOS			**B**			**B**			**B**					
Harway Avenue @ Stillwell Avenue	EB	LR	0.41	18.10	B	0.30	16.60	B	0.34	17.20	B			
	NB	LT	0.55	11.10	B	0.45	9.80	A	0.35	8.80	A			
	SB	TR	0.31	8.50	A	0.47	9.80	A	0.29	8.30	A			
Overall LOS			**B**			**B**			**A**					
Bay 54th Street @ Cropsey Avenue	EB	L	0.35	23.90	C	0.12	20.10	C	0.13	21.00	C			
		LR	0.17	21.60	C	0.09	19.80	B	0.09	20.60	C			
	NB	L	0.99	117.60	F	0.15	12.30	B	0.20	15.90	B			
		T	0.58	14.80	B	0.49	12.90	B	0.58	14.70	B			
	NB	TR	0.70	16.90	B	0.55	13.60	B	0.64	15.70	B			
Overall LOS			**B**			**B**			**B**					
West 9th Street @ Avenue T	EB	LT	0.44	10.50	B	0.46	10.70	B	0.66	14.50	B			
	WB	TR	0.41	10.10	B	0.45	10.50	B	0.61	13.10	B			
	NB	LTR	0.53	20.90	C	0.54	21.10	C	0.47	19.60	B			
Overall LOS			**B**			**B**			**B**					
West 5th Street @ Avenue T	EB	LT	1.49	247.50	F	0.66	14.80	B	0.74	17.40	B	*N/A*		
	WB	TR	0.43	10.30	B	0.44	10.40	B	0.64	13.90	B			
	NB	LTR	0.39	18.30	B	0.39	18.20	B	0.44	19.10	B			
Overall LOS			**F**			**B**			**B**					
West 7th Street @ Avenue U	EB	LT	0.60	13.20	B	0.62	13.80	B	0.67	15.00	B			
	WB	TR	0.55	12.10	B	0.60	13.00	B	0.67	14.70	B			
	NB	LTR	0.26	16.10	B	0.31	16.80	B	0.34	17.20	B			
Overall LOS			**B**			**B**			**B**					

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections
Page 3 of 7

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	SAT V/C	SAT DELAY	SAT LOS
West 11th Street @ Avenue U	EB	LT	0.43	10.50	B	0.56	16.30	B	0.44	10.50	B			
	WB	TR	0.61	13.50	B	0.67	19.10	B	0.76	18.10	B			
	NB	LTR	0.43	18.60	B	0.36	13.10	B	0.50	20.20	C			
Overall LOS				**B**			**B**			**B**				
Ocean Pkwy @ Avenue W	EB	LTR	1.12	139.90	F	1.32	200.40	F	1.15	130.80	F	*N/A*		
	WB	LTR	1.48	275.10	F	0.97	93.30	F	0.90	67.60	E			
	NB	L	0.26	35.90	D	0.16	36.00	D	0.23	46.00	D			
		TR	1.46	236.60	F	0.86	33.60	C	0.93	38.70	D			
	SB	L	0.51	52.80	D	0.26	40.10	D	0.57	53.10	D			
		TR	0.79	24.60	C	0.85	33.40	C	1.07	75.20	E			
Overall LOS				**F**			**D**			**E**				
McDonald Avenue& Shell Rd @ 86th Street & Avenue X	EB	LTR	0.88	86.10	F	0.48	36.40	D	0.38	48.40	D	0.31	30.70	C
	WB	LTR	1.48	281.60	F	1.49	267.30	F	1.48	278.70	F	0.91	60.80	E
	NB	Def L	2.48	719.70	F	3.67	1253.00	F	3.22	1051.00	F	1.48	258.50	F
	NB	TR	0.91	56.50	E	1.13	114.90	F	0.60	35.50	D	1.48	257.50	F
	SB	LTR	1.28	181.00	F	1.48	259.80	F	1.48	265.60	F	0.92	56.70	E
	NW L	LTR	1.14	119.50	F	1.07	85.90	F	1.18	135.80	F	1.48	253.70	F
Overall LOS				**F**			**F**			**F**			**F**	
Avenue X @ West 3rd Street	EB	LTR	0.57	12.60	B	1.48	249.60	F	1.47	242.60	F			
	WB	LTR	0.56	12.40	B	0.59	12.80	B	0.61	13.40	B			
	NB	LTR	0.43	18.60	B	0.55	21.10	C	0.50	20.00	B			
Overall LOS				**B**			**F**			**F**				
Ocean Pkwy @ Avenue X	EB	LTR	1.48	271.70	F	1.64	340.30	F	1.69	362.60	F			
	WB	LTR	1.48	271.80	F	1.44	254.00	F	1.30	193.80	F			
	NB	L	0.49	50.20	D	0.38	47.20	D	0.39	48.20	D			
	NB	TR	1.48	252.00	F	0.98	45.90	D	0.98	47.60	D			
	SB	L	0.24	45.30	D	0.28	44.10	D	0.32	45.40	D			
	SB	TR	0.99	50.20	D	0.99	48.90	D	1.02	56.80	E			
Overall LOS				**F**			**F**			**F**				
Ocean Pkwy @ Avenue Z	EB	LTR	1.40	243.70	F	1.14	134.30	F	1.30	201.60	F	*N/A*		
	WB	LTR	1.48	276.30	F	1.48	280.50	F	1.48	271.20	F			
	NB	L	0.35	40.10	D	0.45	44.50	D	0.66	59.90	E			
	NB	TR	1.32	173.70	F	0.69	24.50	C	0.78	24.10	C			
	SB	L	0.71	68.40	E	0.47	42.90	D	0.71	63.40	E			
	SB	TR	0.74	22.90	C	0.74	25.90	C	0.82	25.80	C			
Overall LOS				**F**			**E**			**E**				
Shell Road @ Avenue Z	WB	LR	0.64	24.10	C	0.79	30.50	C	0.92	44.40	D			
	NB	TR	0.59	12.30	B	0.57	12.10	B	0.60	12.50	B			
	SB	LT	1.10	73.30	E	1.12	81.20	F	1.20	116.60	F			
Overall LOS				**D**			**D**			**E**				

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections
Page 4 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Shell Road/West 8th St @ Neptune Ave	EB	Def L	1.47	247.80	F	0.74	29.10	C	1.45	244.10	F	*N/A*		
		TR	1.05	70.30	E	0.79	24.40	C	1.17	111.60	F			
		LTR												
	WB	LTR	0.53	17.00	B	0.62	16.60	B	0.67	20.00	C			
	NB	LTR				0.16	16.00	B						
		Def L	0.35	23.00	C				0.37	25.20	C			
		TR	0.31	19.80	B				0.22	18.80	B			
	SB	LTR	0.48	22.00	C	0.55	20.60	C	0.67	25.60	C			
Overall LOS			**E**			**C**			**E**					
Coney Island Ave @ Neptune Avenue	EB	L	2.52	772.10	F	1.40	238.60	F	1.48	299.40	F	2.23	616.80	F
		TR	1.07	111.10	F	0.92	47.80	D	1.48	270.70	F	1.16	117.60	F
	WB	L	0.75	75.70	E	0.83	55.60	E	1.48	302.00	F	2.26	623.10	F
		TR	1.48	272.60	F	0.95	53.50	D	1.48	272.80	F	1.19	128.30	F
	NB	LTR	0.46	12.30	B	0.91	34.60	C	0.80	21.40	C	1.10	85.90	F
	SB	LTR	0.70	18.20	B	0.33	15.30	B				1.14	99.90	F
		Def L							1.02	82.30	F			
		TR							0.80	23.50	C			
Overall LOS			**F**			**E**			**F**			**F**		
West 12th Street @ Neptune Avenue	EB	TR	0.74	19.00	B	0.44	13.40	B	0.78	20.10	C	*N/A*		
	WB	LT	0.77	21.00	C	0.58	15.60	B	1.18	112.40	F			
	NB	LR	0.43	26.10	C	0.37	25.00	C	0.37	25.00	C			
Overall LOS			**C**			**B**			**E**					
Neptune Ave @ Cropsey Ave & West 17th St	EB	L	0.52	37.30	D	0.99	73.60	E	1.01	76.60	E	1.19	137.70	F
		TR	0.66	16.30	B	0.21	10.60	B	0.29	11.30	B	0.26	11.00	B
	WB	L	0.21	28.30	C	0.01	20.90	C	0.13	22.80	C	0.28	25.30	C
		TR	1.36	199.80	F	0.90	43.40	D	1.00	59.90	E	1.44	235.40	F
	SB	L	0.43	25.8	C	0.38	27.6	C	0.34	31.90	C	0.41	33.4	CDD
		T	0.46	26.30	C	0.52	27.40	C	0.59	29.10	C	0.80	37.70	D
		R	0.78	19.80	B	0.49	13.10	B	0.55	14.00	B	0.39	11.90	B
Overall LOS			**F**			**F**			**F**			**F**		
Mermaid Avenue @ Stillwell Avenue	EB	LR	0.64	18.30	B	0.77	23.60	C	0.46	14.50	B	*N/A*		
	NB	LT	0.42	14.10	B	0.58	18.20	B	0.67	19.90	B			
	SB	TR	0.22	11.20	B	0.27	11.40	B	0.22	11.20	B			
Overall LOS			**B**			**B**			**B**					

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections
Page 5 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Surf Avenue @ Stillwell Avenue	EB	LTR	0.68	12.00	B	0.49	8.80	A	0.57	10.20	B	0.44	8.20	A
	WB	LTR	0.45	8.30	A	0.35	7.40	A	0.44	8.20	A	0.48	8.70	A
	NB	LTR	0.08	28.40	C	1.53	316.10	F	0.35	32.80	C	1.02	111.50	F
	SB	Def L	0.87	66.20	E									
		TR	0.73	49.70	D									
		LTR				1.07	100.40	F	0.72	42.40	D	0.93	66.30	E
Overall LOS			**B**			**E**			**B**			**C**		
West 8th Street @ Surf Avenue	EB	L	0.22	7.20	A	0.27	7.50	A	0.34	9.00	A	*N/A*		
	EB	TR	0.37	7.40	A	0.28	6.70	A	0.30	6.90	A			
	WB	L	0.03	5.40	A	0.01	5.20	A	0.12	6.20	A			
	WB	TR	0.33	7.10	A	0.21	6.30	A	0.37	7.40	A			
	NB	LTR	0.01	27.50	C	0.37	32.60	C	0.63	40.00	D			
	SB	L	1.08	117.90	F	0.59	44.90	D	0.86	82.30	F			
	SB	TR	0.13	28.70	C	0.60	35.70	D	0.28	30.40	C			
Overall LOS			**C**			**B**			**B**					
West 17th Street @ Mermaid Avenue	EB	LTR	0.84	27.30	C	0.64	17.90	B	0.81	28.10	C			
	WB	LTR	0.43	13.60	B	0.41	13.40	B	0.55	15.60	B			
	SB	LTR	0.31	11.90	B	0.31	11.90	B	0.36	12.30	B			
Overall LOS			**B**			**B**			**C**					
Coney Island Ave @ Guider Avenue	EB	LTR	1.33	197.20	F	1.07	81.70	F	1.33	199.50	F	0.61	24.50	C
	WB	LTR	1.33	197.60	F	1.08	76.80	E	1.33	194.60	F	0.79	28.20	C
	NB	LTR	0.60	17.80	B	0.92	34.70	C	0.77	23.00	C			
		Def L										1.55	296.10	F
		TR										1.31	174.30	F
	SB	Def L	0.91	55.60	E	1.87	443.50	F	1.20	150.80	F	1.44	247.50	F
		TR	0.44	15.70	B	0.37	16.60	B	0.54	17.70	B	2.54	723.50	F
Overall LOS			**F**			**F**			**F**			**F**		
Brighton Beach Ave @ Ocean Parkway	EB	TR	0.39	43.50	D	0.41	43.70	D	0.52	45.80	D	0.8	55.8	E
	WB	TR	0.62	37.20	D	0.61	31.00	C	0.73	40.60	D	0.51	28.7	C
	NB	L	0.01	10.50	B	0.01	15.40	B	0.01	11.10	B	0.02	24.3	C
	NB	T	0.17	22.20	C	0.23	30.60	C	0.28	26.60	C	0.35	32.2	C
	SB	L	0.38	15.80	B	0.50	24.60	C	0.60	25.30	C	1.47	258.2	F
	SB	T	0.18	22.30	C	0.27	31.10	C	0.24	26.10	C	0.75	40.5	D
Overall LOS			**C**			**C**			**C**			**F**		

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections
Page 6 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Brighton Beach Ave@ Coney Island Ave	EB	L	1.92	491.70	F	1.48	272.50	F	2.39	699.70	F	0.87	61.90	E
		TR	0.86	63.10	E	1.02	85.00	F	0.55	40.70	D	0.90	56.70	E
	WB	LTR	1.28	185.00	F	1.24	152.50	F	0.92	60.40	E	1.12	106.60	F
	NB	LTR	0.24	26.20	C	0.86	58.50	E	0.89	58.20	E	1.48	261.50	F
	SB	Def L							0.73	45.40	D	1.52	297.30	F
		TR							2.26	617.70	F	1.47	260.20	F
	SB	LTR	1.48	266.30	F	1.48	260.80	F						
Overall LOS			**F**			**F**			**F**			**F**		
Neptune Avenue @ Ocean Parkway	EB	L	1.48	275.70	F	1.48	279.50	F	1.47	269.80	F	1.06	115.2	F
		T	0.55	29.50	C	0.38	24.80	C	0.45	27.10	C	0.48	26.5	C
		R	0.05	30.80	C	0.09	29.30	C	0.11	31.70	C	0.13	29.9	C
	WB	LTR	1.47	267.30	F	1.48	266.80	F	1.48	267.80	F	1.48	268.3	F
	NB	L	0.10	24.00	C	0.19	25.50	C	0.27	34.90	C	0.24	42.8	D
	NB	TR	0.39	30.10	C	0.46	32.50	C	0.53	33.60	C	0.61	35.2	D
	SB	L	0.70	40.60	D	0.87	59.40	E	1.11	118.70	F	0.92	73.5	E
	SB	TR	0.55	32.70	C	0.49	33	C	0.7	37.5	D	1.15	116.5	F
Overall LOS			**F**			**F**			**F**			**F**		
Bay Parkway @ Cropsey Avenue	EB	L	0.33	39.60	D	0.35	35.20	D	0.37	51.50	D	1.34	248.90	F
		T	0.61	43.60	D	0.6	36.60	D	0.72	48.80	D	1.04	89.60	F
		R	0.78	47.80	D	0.97	68.40	E	1.04	92.70	F	1.48	260.00	F
	WB	L	0.36	26.20	C	0.33	21.50	C	0.61	33.50	C	0.71	38.70	D
		TR	0.58	29.10	C	0.86	35.50	D	1.48	255.50	F	0.97	47.80	D
	NB	L	0.21	33.90	C	1.23	165.00	F	1.51	295.90	F	1.47	268.10	F
		TR	0.27	17.80	B	0.61	18.00	B	0.74	27.10	C	0.85	25.30	C
	SB	L	0.17	25.60	C	0.54	40.20	D	0.94	127.60	F	1.34	243.40	F
		TR	0.86	42.90	D	1.04	68.60	E	1.35	200.40	F	1.34	187.30	F
Overall LOS			**D**			**D**			**F**			**F**		
Brighton Beach Ave @ Brighton 11th St.	EB	T	0.67	19.90	B	0.65	19.10	B	0.56	16.80	B	*N/A*		
	WB	TR	0.43	13.20	B	0.42	13.20	B	0.32	12.10	B			
	SB	LR	0.58	28.50	C	0.38	24.30	C	0.65	31.90	C			
Overall LOS			**B**			**B**			**B**					
Neptune Ave @ Brighton 10th St.	EB	T	0.77	22.80	C	0.75	22.0	C	0.75	21.8	C			
	WB	T	0.60	17.10	B	0.63	17.8	B	0.82	25.0	C			
	NB	LR	0.09	20.70	C	0.22	22.2	C	0.09	20.6	C			
	SB	L	0.66	28.40	C	0.54	25.9	C	0.63	27.7	C			
	SB	R	0.18	21.90	C	0.24	22.7	C	0.16	21.5	C			
Overall LOS			**C**			**C**			**C**					

Table 2.3-3: Future 2025 Traffic Capacity Analysis for Signalized Intersections

Page 7 of 7

INTERSECTION	Lane Group		AM			MID			PM			SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Neptune/Emmons Avenue @ E 14th St./Shore Blvd	EB	L	0.73	45.60	D	0.72	43.60	D	1.14	161.90	F	*N/A*		
		TR	0.46	20.30	C	0.44	22.60	C	0.51	23.70	C			
	WB	L	1.24	145.70	F	0.90	42.30	D	1.14	110.80	F			
		TR	0.55	10.50	B	0.47	11.80	B	0.65	14.60	B			
	NB	L	1.00	76.30	E	0.75	44.80	D	0.68	41.10	D			
		T	0.65	36.20	D	0.42	32.70	C	0.54	35.60	D			
		R	0.85	37.80	D	1.01	69.00	E	1.04	77.00	E			
Overall LOS			**E**			**D**			**D**					
Brighton Beach Ave @ Brighton 4th St	EB	TR	0.17	6.70	A	0.20	7.00	A	0.26	7.30	A			
	WB	LT	0.26	7.40	A	0.30	7.70	A	0.56	10.70	B			
	SB	LTR	0.33	30.20	C	0.37	30.90	C	0.97	74.80	E			
Overall LOS			**B**			**B**			**C**					
Coney Island Ave @ Avenue Z	EB	LTR	0.94	67.90	E	0.82	38.8	D	0.96	67.6	E	1.36	201.9	F
	WB	LTR				0.92	50.4	D	1.09	104.7	F			
		Def L	1.13	168.00	F							2.11	570.7	F
		TR	0.93	75.10	E							1.25	160.8	F
	NB	L	0.4	20.90	C	0.81	54.6	D	0.78	55.6	E	1.6	341.5	F
	NB	TR	0.42	15.80	B	0.57	19.8	B	0.54	23.8	C	0.57	19.8	B
	SB	L	0.26	16.00	B	0.15	16.3	B	0.29	25.5	C	0.78	44.0	D
	SB	TR	0.41	10.40	B	0.45	11.9	B	0.4	13.5	B	0.7	15.6	B
Overall LOS			**C**			**C**			**D**			**F**		

Figure 2.3-13: Intersections with LOS D, E, and F (AM Peak Hour 2025)

Figure 2.3-14: Intersections with LOS D, E, and F (Midday Peak Hour 2025)

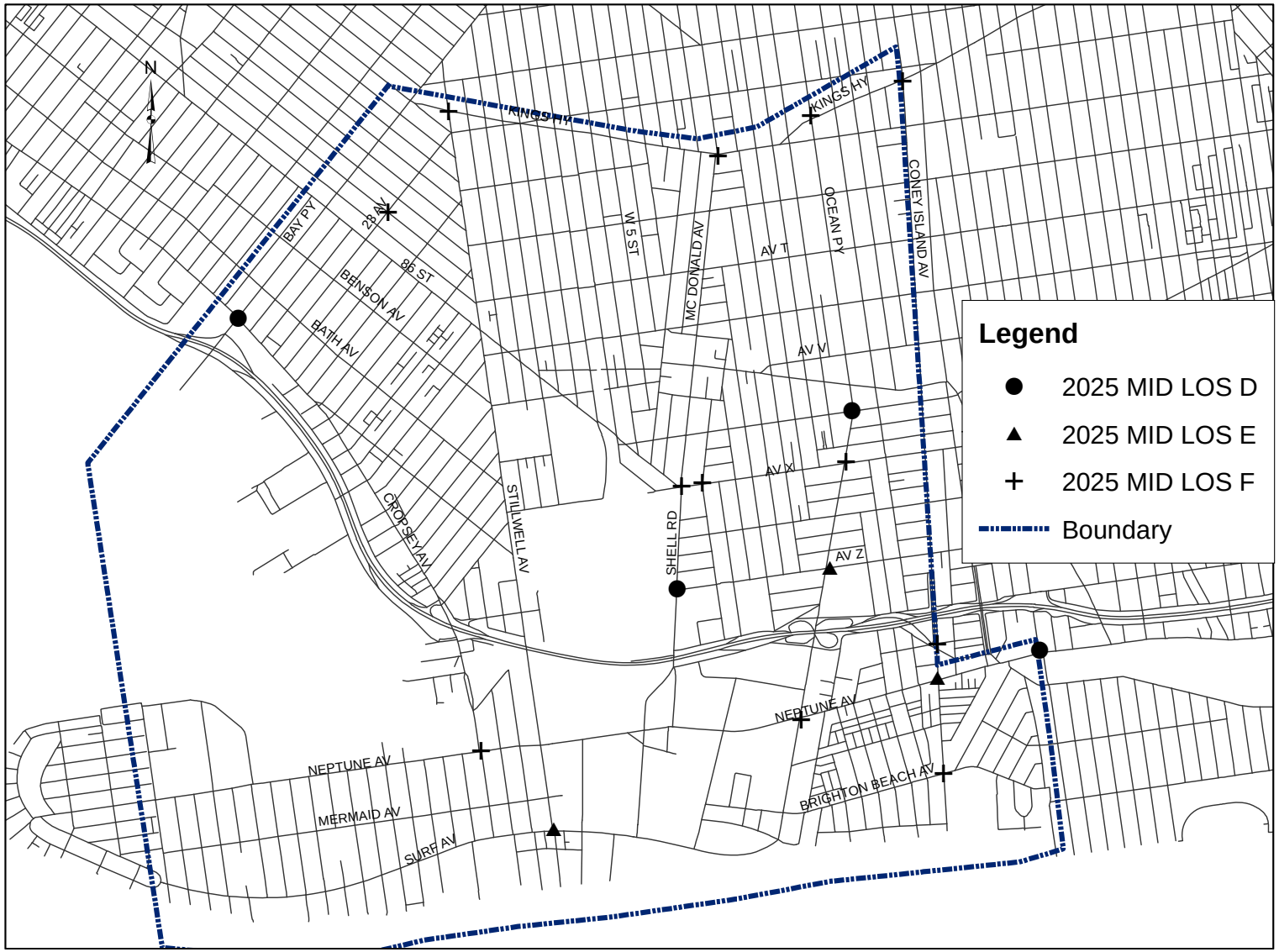


Figure 2.3-15: Intersections with LOS D, E, and F (PM Peak Hour 2025)

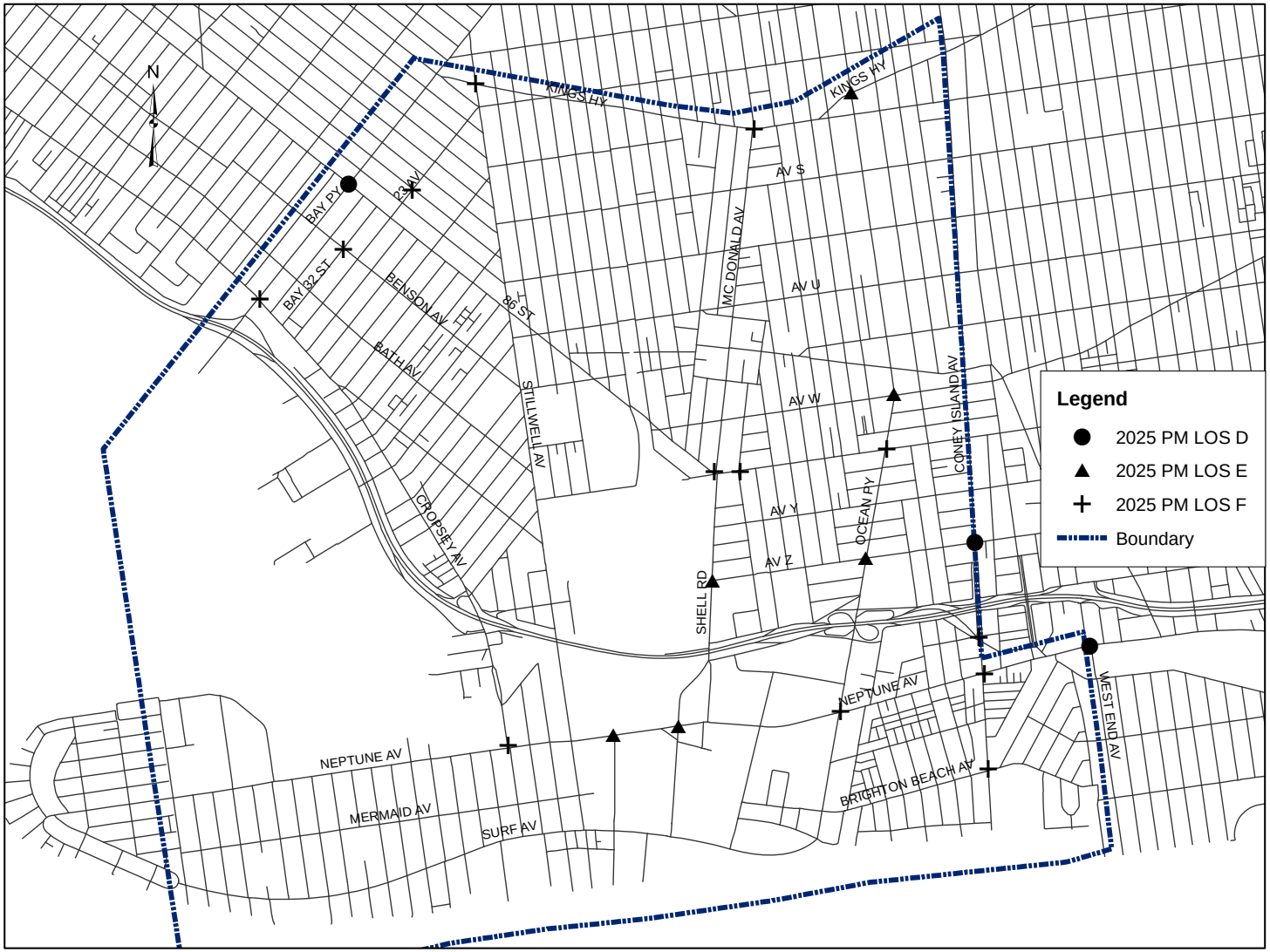
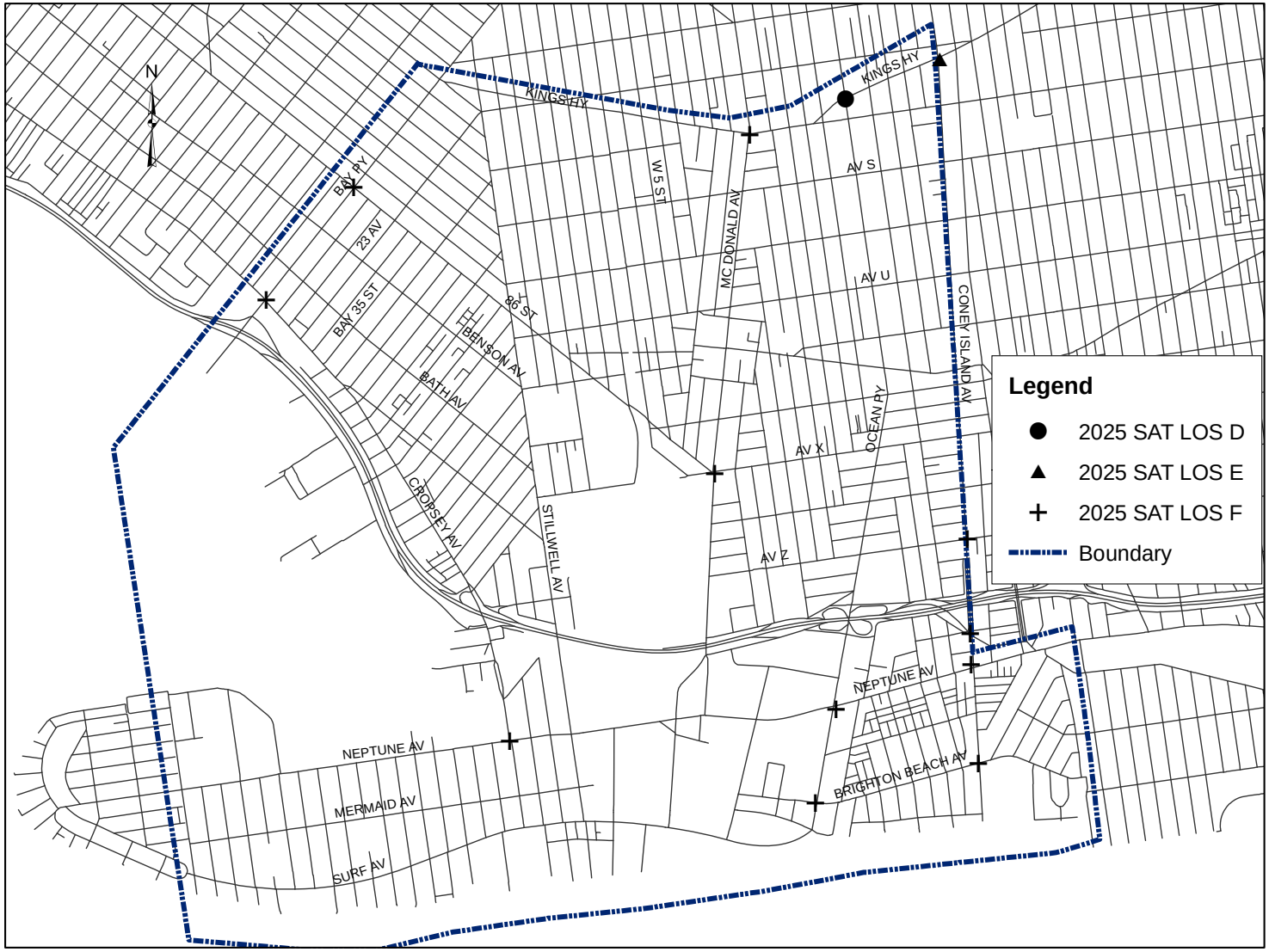


Figure 2.3-16: Intersections with LOS D, E, and F (Saturday Midday Peak Hour 2025)



2.3.2. Future Travel Speeds

Travel speed is a useful indicator of levels of congestion on any traffic network as there is a direct relationship between congestion and delays. The future (2015) travel speeds along the major corridors within the Study Area were calculated for the AM, midday and PM peak hours using the existing conditions (2002) speed and delay as well as the future 2015 delay. The following twelve corridors (shown in Figure 2.3-17) were analyzed for travel time and delay under the future conditions:

North-South Corridors

- McDonald Avenue/Shell Road from Kings Highway to Neptune Avenue
- Ocean Parkway from Kings Highway to Surf Avenue.
- Cropsey Avenue from Bay Parkway to Neptune Avenue
- Coney Island Avenue from Kings Highway to Brighton Beach Avenue
- Bay Parkway from Kings Highway to Shore Parkway
- Stillwell Avenue from Surf Avenue to Kings Highway

East-West Corridors

- Kings Highway from Coney Island Avenue to Bay Parkway
- Avenue U from 86th Street to Coney Island Avenue
- Brighton Beach Avenue from Coney Island Avenue to Ocean Parkway
- Neptune Avenue from Cropsey Avenue to Coney Island Avenue
- Surf Avenue from Ocean Parkway to West 37th Street
- 86th Street from Bay Parkway to Stillwell Avenue

Table 2.3-4 shows the future average travel speeds for the corridors analyzed. Most of the corridors will experience a 30% or greater reduction travel speed during one or all peak periods under projected future conditions. Only Surf Avenue and Avenue U did not experience a significant reduction in travel speed. McDonald Avenue followed by Kings Highway then Neptune Avenue will have the most significant speed reduction.

Figure 2.3-17: Speed Run Corridors

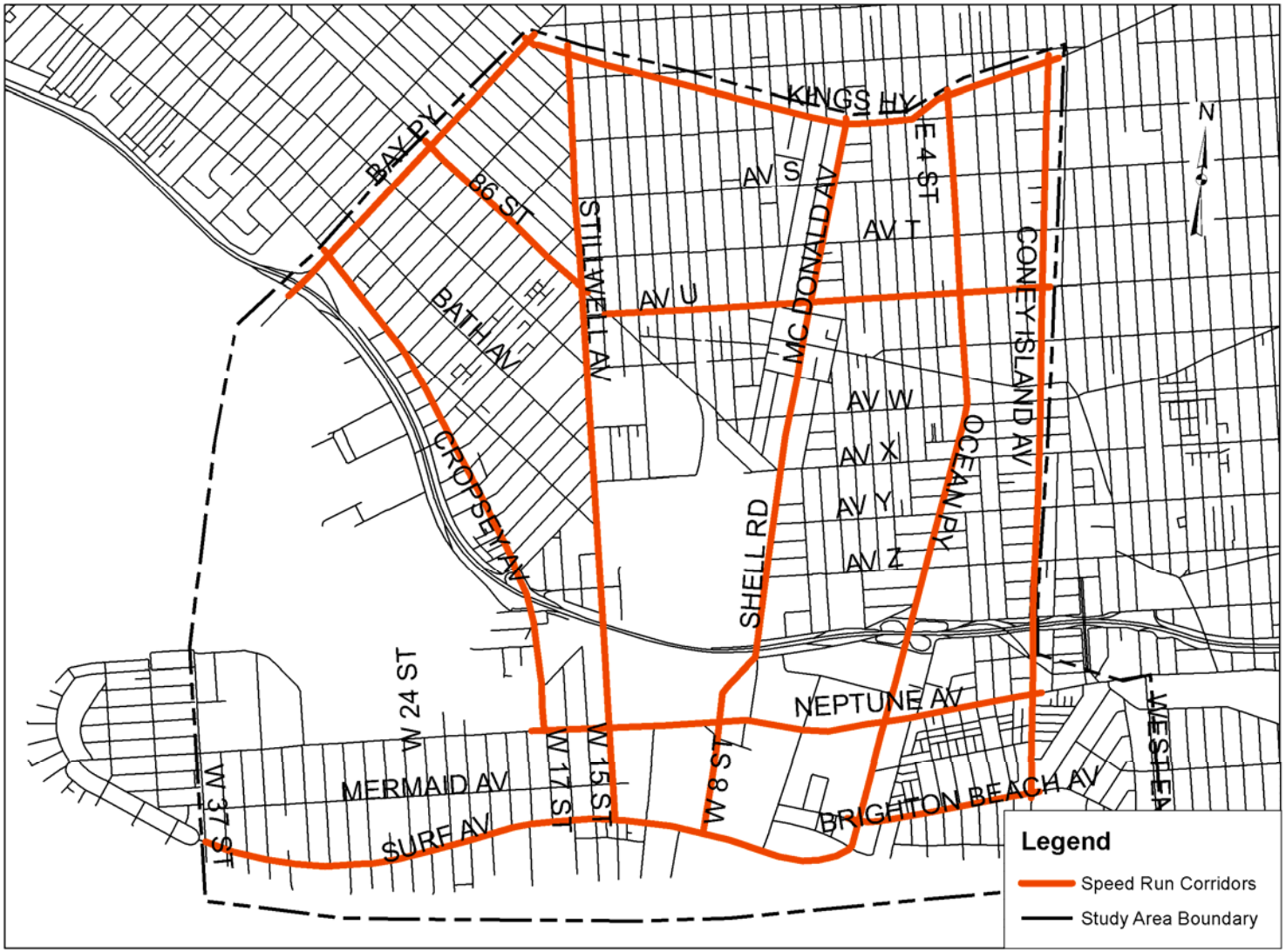


Table 2.3-4: Future Corridor Travel Speed
Page 1 of 2

No.	Corridors	Peak Hour	Direction	Existing Average Speed (MPH)	Future Average Speed (MPH)
1	McDonald Avenue/Shall Road from Kings Highway to Surf Avenue	AM	NB	13	8
			SB	14	10
		MD	NB	14	7
			SB	14	7
		PM	NB	15	9
			SB	16	8
2	Ocean Parkway from Kings Highway to Surf Avenue	AM	NB	22	10
			SB	14	13
		MD	NB	15	13
			SB	14	13
		PM	NB	13	12
			SB	31	26
3	King Highway from Coney Island Avenue to Bay Parkway	AM	EB	11	5
			WB	13	8
		MD	EB	11	7
			WB	9	5
		PM	EB	9	6
			WB	10	7
4	Cropsey Avenue from Bay Parkway to Neptune Avenue	AM	EB	12	11
			WB	20	19
		MD	EB	13	12
			WB	18	16
		PM	EB	13	11
			WB	20	11
5	Coney Island Avenue from Kings Highway to Brighton Beach Avenue	AM	NB	18	17
			SB	15	9
		MD	NB	13	10
			SB	14	8
		PM	NB	14	13
			SB	20	6
6	86th Street from Bay Parkway to Stillwell Avenue	AM	EB	11	10
			WB	15	14
		MD	EB	12	9
			WB	9	6
		PM	EB	14	12
			WB	10	9
7	Stillwell Avenue from Surf Avenue to Kings Highway	AM	NB	12	10
			SB	16	12
		MD	NB	13	6
			SB	17	9
		PM	NB	14	11
			SB	16	10

Table 2.3-4: Future Corridor Travel Speed
Page 2 of 2

No.	Corridors	Peak Hour	Direction	Existing Average Speed (MPH)	2015 Average Speed (MPH)
8	Surf Avenue from Ocean Parkway to West 37th Street	AM	EB	16	14
			WB	17	16
		MD	EB	18	17
			WB	18	17
		PM	EB	16	15
			WB	23	22
9	Bay Parkway from Kings to Shore (Belt) Parkway	AM	NB	15	13
			SB	12	10
		MD	NB	15	14
			SB	16	13
		PM	NB	14	10
			SB	10	5
10	Neptune Avenue from Cropsey Avenue to Coney Island Avenue	AM	EB	12	10
			WB	11	6
		MD	EB	14	10
			WB	13	8
		PM	EB	12	8
			WB	13	8
11	Brighton Beach from Coney Island Avenue to Ocean Parkway	AM	EB	9	8
			WB	9	6
		MD	EB	9	8
			WB	8	6
		PM	EB	11	6
			WB	9	5
12	Avenue U from 86th Street to Coney Island Avenue	AM	EB	12	10
			WB	10	9
		MD	EB	9	8
			WB	10	9
		PM	EB	10	10
			WB	9	8

2.4. Pedestrians/Bikes

2.4.1. Pedestrian Analysis

The analysis of existing pedestrian conditions showed that in general pedestrian volumes were high in those areas where commercial and recreational activities are concentrated in proximity to transit stations or hubs. For example, pedestrian volumes were high along 86th Street and Brighton Beach Avenue and at the Brighton Beach (Q), Avenue X (F), Kings Highway (F) subway stations. The projected future pedestrian volumes for most of the Study Area were generated by using the existing pedestrian volumes and adding a 1.0% per year growth rate. However, a 1.5% growth rate was applied to those locations in Coney Island where major developments are expected in the future. In general, changes in pedestrian volumes are attributed to land use changes (residential and commercial developments) and economic growth. The pedestrian analysis focused on LOS analysis for crosswalks at key intersections in the Study Area. Table 2.4-1 shows the total future crosswalk volumes for the intersections analyzed. Appendix B shows projected crosswalk level of service for the weekday and weekend. All intersections crosswalks under future conditions are expected to operate at acceptable levels of service. However, at some location, particularly along Surf Avenue, safety improvements such as a leading pedestrian interval (LPI) and crosswalk widening are recommended. Figures 2.4-1, 2.4-2 and 2.4-3 show the 2015 pedestrian volumes and LOS for the AM, midday, and PM peak hours.

During the peak summer season, there is a surge in pedestrian volumes in Coney Island and Brighton Beach in those areas next to the beach and entertainment facilities. Intersections along Surf Avenue and Brighton Beach Avenue experience an increase in pedestrian volumes, particularly on weekends, a pattern that is expected to continue under future conditions.

Table 2.4-1: Future 2015 Pedestrian Volumes (Crosswalk)

	Intersection	Pedestrian Crosswalk Volume		
		AM	Midday	PM
		Cross Walk (Ped/Hr)	Cross Walk (Ped/Hr)	Cross Walk (Ped/Hr)
1	Kings Highway/Ocean Parkway	353	262	414
2	Kings Highway/McDonald Avenue	602	516	723
3	Kings Highway/Coney Island Avenue	885	1383	1617
4	Bay Parkway/86th Street	1429	1582	3167
5	McDonald Avenue/86th Street & Avenue X	732	557	688
6	Ocean Parkway/Avenue X	235	175	176
7	Ocean Parkway/Avenue Z	395	319	268
8	Coney Island Avenue/Neptune Avenue	242	348	566
9	Cropsey Avenue/Neptune Avenue/West 17th Street	85	103	135
10	Memaid Avenue/Stillwell Avenue	485	305	496
11	Surf Avenue/Stillwell Avenue	263	700	1250
12	West 8th Street/Surf Avenue	116	167	163
13	West 17th Street/Mermaid Avenue	514	639	656
14	Coney Island Avenue/Guider Avenue (Belt Pkwy Entrance)	342	141	208
15	86th Street/Stillwell Avenue.	303	245	309
16	Coney Island Avenue/Brighton Beach Avenue	1067	1699	1790
17	Ocean Parkway/Brighton Beach Avenue	485	1092	603
18	Bay Parkway/Cropsey Avenue	309	254	319
19	Brighton Beach Avenue/Brighton 11	1666	1580	1323
20	Brighton Beach Avenue/Brighton 4 Street	1183	2134	1745
21	Ocean Parkway/Neptune Avenue	762	669	692

Figure 2.4-1: Future 2015 Pedestrian Volumes - AM Peak Hour

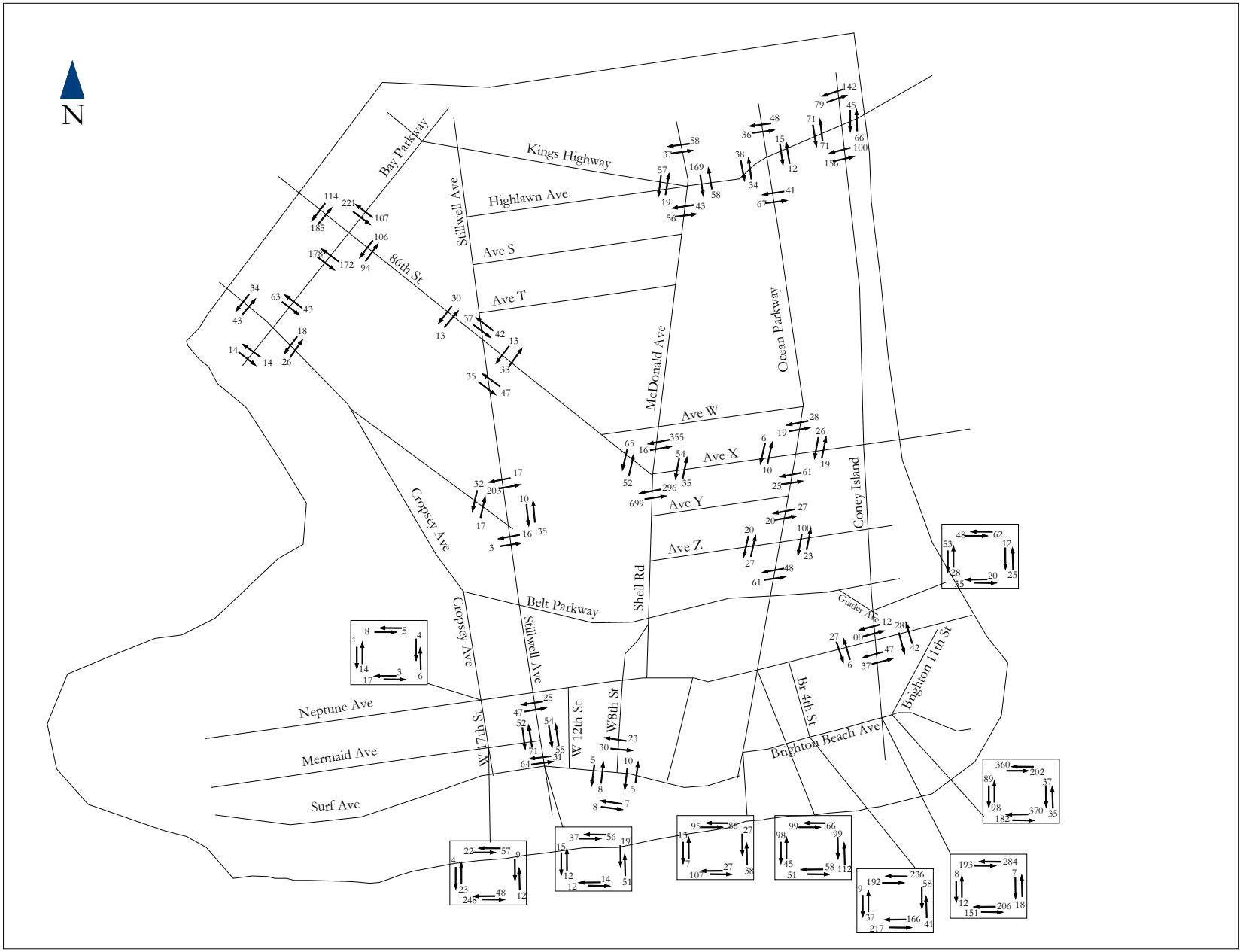


Figure 2.4-2: Future 2015 Pedestrian Volumes - Midday Peak Hour

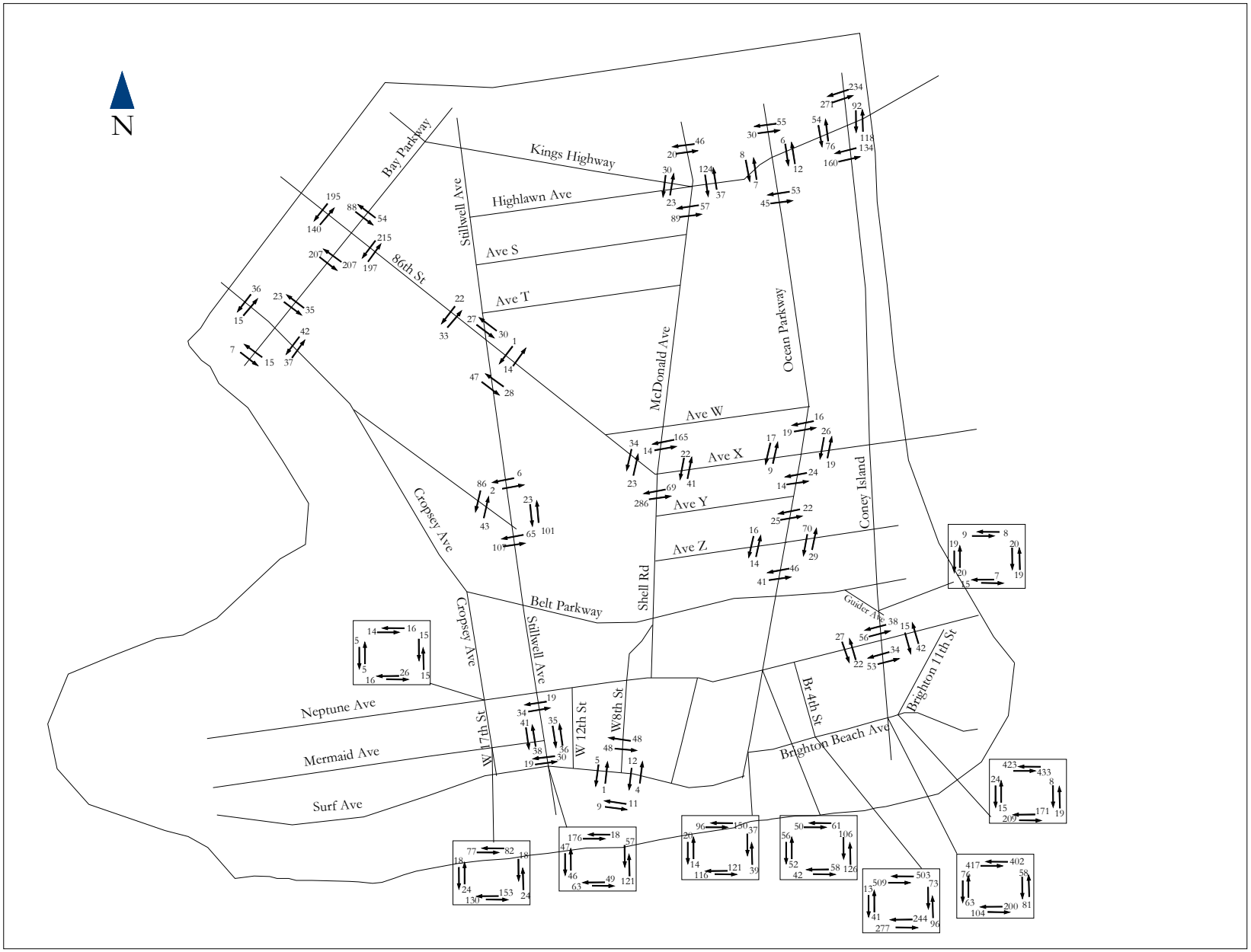
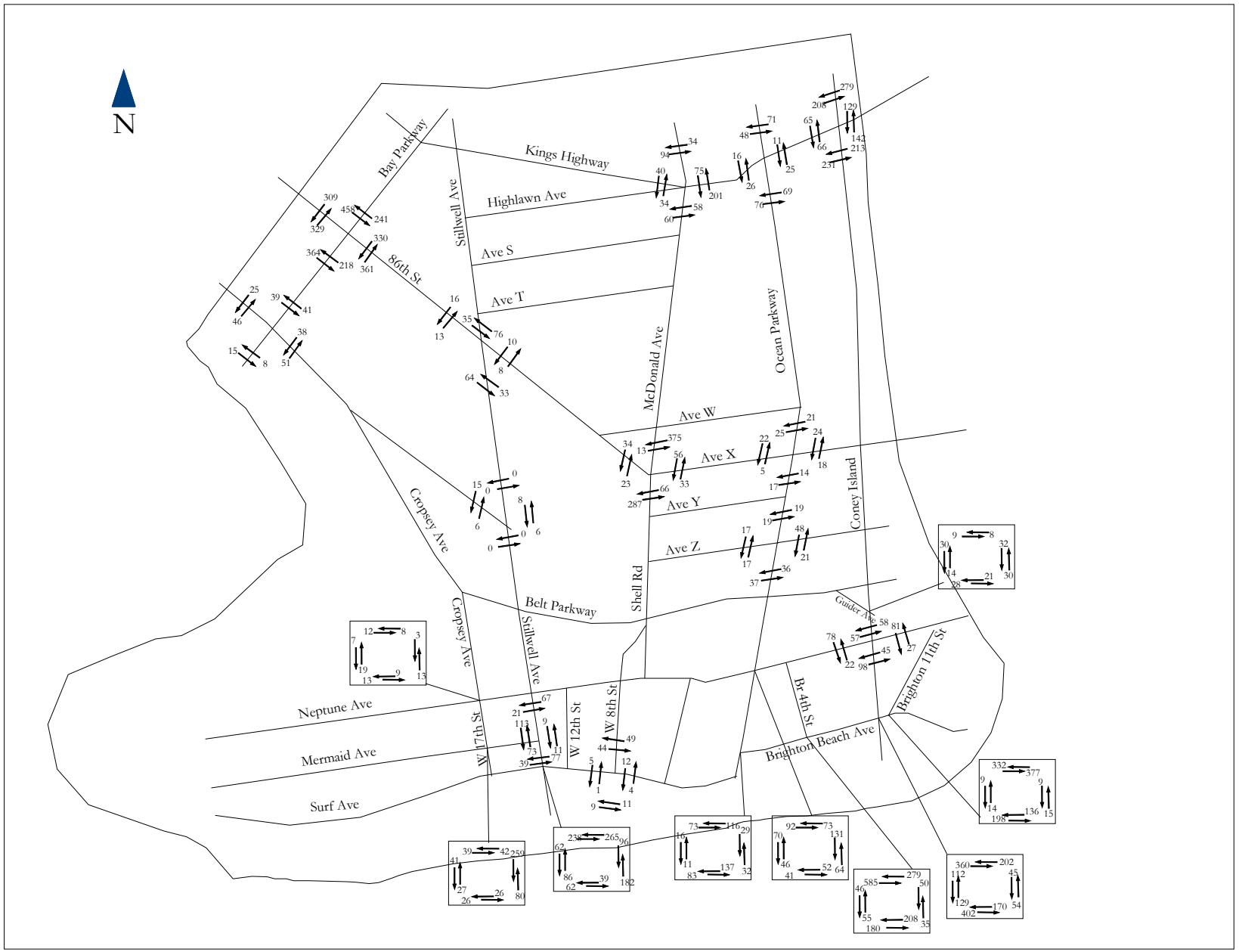


Figure 2.4-3: Future 2015 Pedestrian Volumes - PM Peak Hour

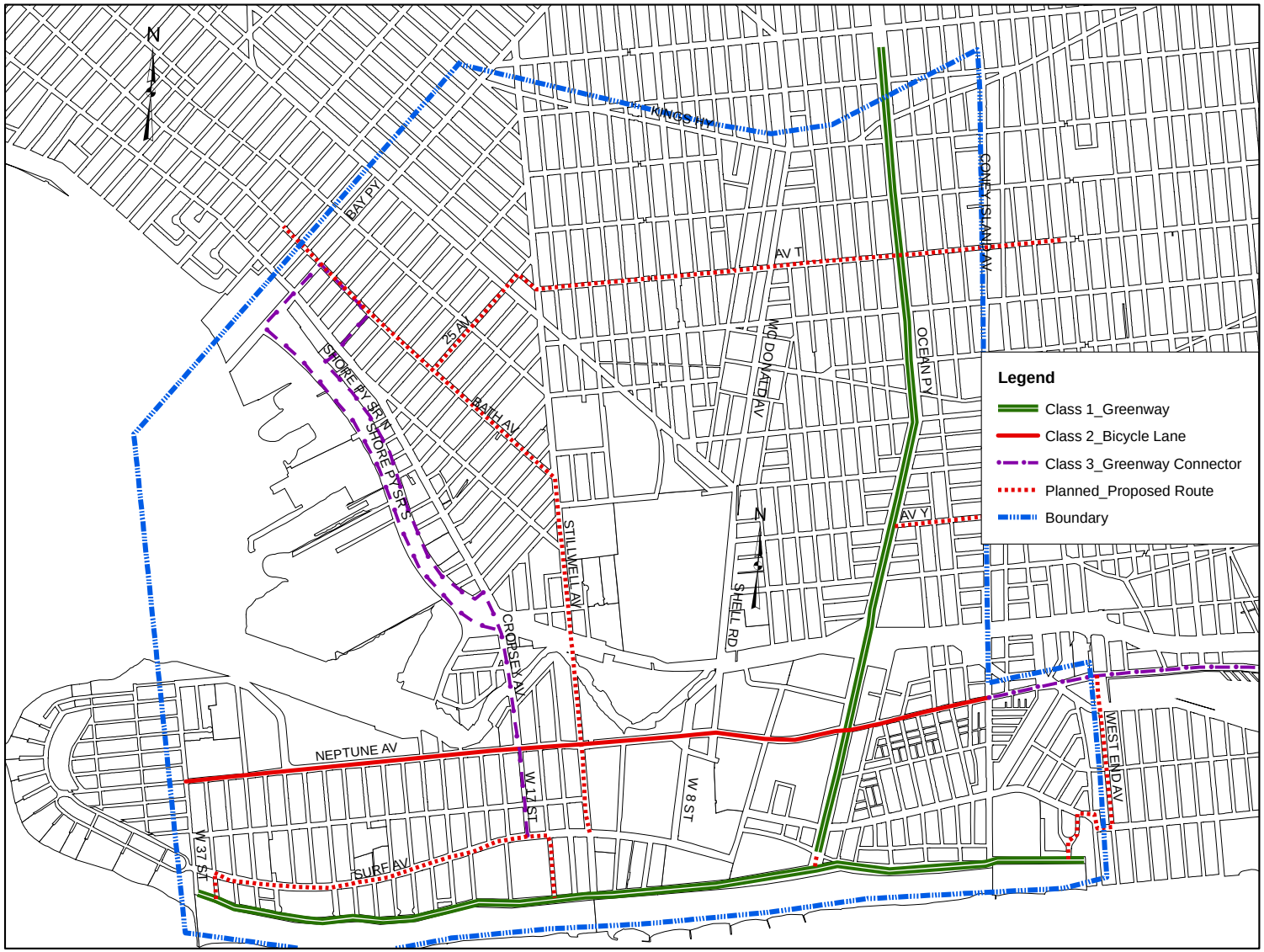


2.4.2. Bicycle/Greenway Analysis

According to the 2000 Census the use of bicycles as an alternative mode of transportation is limited in the Study Area; also, bicycle use tends to be primarily for recreational purposes. Only a small percent (8%) of the population walked or biked to work. Under future conditions, use of this mode share is expected to increase as the bicycle network expands throughout the city and thus increasing commuting options for workers.

Although cycling for journey to work trips is not widespread in the Study Area, bikes are popular for recreational purposes. Greenway and on-street bicycle facilities are relatively extensive, and are expected to be expanded in the future based on recommendations made in the Shore Parkway Connector study recently completed by the Department of City Planning. The first on-street marked and signed bicycle facility in the Study Area was installed along Neptune Avenue (from West 37th Street to Ocean Parkway) in June 2005. The lane was added to both sides of the street to accommodate cyclists traveling in both directions. Beside Neptune Avenue marked bicycle paths are located on the Ocean Parkway esplanade and the boardwalk, where cycling is permitted from 6 AM to 10 AM daily. Figure 2.4-4 shows the bicycle and greenway facilities in the Study Area.

Figure 2.4-4: Bicycle Facilities



2.5. Parking

In general, the parking supply is adequate to satisfy demand in the Study Area, but there are specific locations particularly where commercial and amusement activities are concentrated that have parking shortfall. Based on current demand in these areas along with population growth, changes in zoning and land use, and potential for new developments, it is anticipated that the parking shortfall would be exacerbated. The parking analysis focused on the main corridors in the Study Area – Coney Island Avenue, Ocean Parkway, Brighton Beach Avenue, Surf Avenue, Mermaid Avenue, Neptune Avenue, Cropsey Avenue, Stillwell Avenue, Kings Highway, Bay Parkway, McDonald Avenue/Shell Road, 86th Street, Avenue X, and Avenue U. The areas where parking shortfall are expected include portions of 86th Street (Bay Parkway to Stillwell Avenue), Surf Avenue (seasonal), Brighton Beach Avenue, Mermaid Avenue, portions of Coney Island Avenue and Kings Highway.

2.5.1. On-Street Parking

Future demand for on-street parking is expected to be higher where recreational and commercial activities are concentrated and new developments are expected to occur. The projected future on-street parking supply, demand, and utilization for the weekday and weekend peak hours in the Study Area are shown in Appendix C.

The future conditions parking analysis projects that on-street parking utilization rates would be higher (greater than 75%) on Coney Island Avenue (80%, 92% and 78% for the AM, midday, and PM, respectively), McDonald Avenue (100%, 100% and 98% for the AM, midday, and PM, respectively), Kings Highway (96%, 99%, and 77% for the AM, midday, and PM, respectively), Neptune Avenue (93%, 92%, and 89% for the AM, midday, and PM, respectively), Cropsey Avenue (99%, 100%, 100% for the AM, midday, and PM, respectively), Avenue U (75% for midday), and Brighton Beach Avenue (93%, 99%, 93% for the AM, midday, and PM, respectively). Table 2-5.1 summarizes the parking utilization (excluding double-parked vehicles) along the major corridors in the Study Area.

Table 2-5.1: Future 2015 Parking Utilization (%)

Corridor	AM	MID	PM
Coney Island Avenue	80	92	78
Ocean Pkwy	66	60	71
McDonald Avenue	108	101	101
Shell Road	72	68	70
Bay Parkway	56	52	53
Avenue X	69	70	68
86th Street	70	64	64
Kings Highway	96	99	77
Neptune Avenue	93	92	89
Surf Avenue	55	51	53
Stillwell Avenue	54	55	44
Cropsey Avenue	99	100	100
Avenue U	59	75	49
Brighton Beach Avenue	93	99	93

2.5.2. Off-Street Parking

Most of the off-street parking facilities in the northern part of the Study Area are small parking lots associated with commercial establishments (restaurants, pharmacy, variety stores) and multi-unit residential buildings.

The off-street parking facilities south of the Belt Parkway are associated with the high-rise residential buildings as well as commercial, entertainment and recreational establishments. The off-street parking lots associated with Keyspan Park and the Aquarium are paid facilities, while Home Depot, Ceasar's Bay Mall, and Pathmark parking is free. Currently, the parking lots serving recreational facilities such as Keyspan Park, the Aquarium, and the Amusement Park reach peak utilization during summer months usually May to September. However, in light of the revitalization effort to make Coney Island a year-round destination, off-street parking demand and utilization are expected to increase notably.

The Coney Island Development Corporation's preliminary vision plan calls for additional off-street parking facilities in Coney Island, or in its proximity, to meet the expected demand during peak periods. Visitors using the amusement and entertainment sites would be bused

from the proposed parking facility to their destination via a proposed shuttle service for the area.

The existing conditions parking demand and supply analysis showed that parking demand was satisfied along most of the major corridors in the Study Area. However, in some instances, particularly along 86th Street and Brighton Beach Avenue where retail establishments are concentrated, the parking demand was greater than the supply. Consequently, the use of muni-meters will be expanded to increase parking turnover and satisfy demand of both trucks and private automobiles. In October 2005 muni-meters were installed on Brighton Beach Avenue and adjacent street corners between Brighton 11th Street and Ocean Parkway.

2.6. Public Transportation

The study area is currently well served by public transportation. Metropolitan Transportation Authority-New York City Transit is the provider of public transit service - both subway and bus - in the study area. In light of the Metropolitan Transportation Authority's current budgetary constraints and announced service cuts, service provision in the study area may change significantly. Proposed service changes within the study area include: eliminating X28 service on weekends, discontinuing B64 overnight service, terminating B4 service at Avenue Z and Coney Island Avenue, and eliminating M line train service at Bay Parkway.

Subway Service

Six New York City Transit subway lines - B, D, F, M, N, and Q - operate in the study area. These lines make 14 stops in the study area. The B/Q train runs on the same route and makes the same stops in the study area. The D, F, and N lines run on separate routes in the study area; and the M train shares one stop with the D train (until the end of June 2010 when service on that line will be terminated).

B Train

The B train provides service to the study area (Brighton Beach) from Bedford Park Boulevard, the Bronx. It provides local service in Manhattan and express service in Brooklyn. The headway for this train is six to eight minutes northbound during the AM peak hour and every ten minutes during the PM peak hour.

D Train

The D train provides service between 205th Street (Norwood) in the Bronx and Coney Island. It makes four stops in the study area – Bay Parkway, 25th Avenue, Bay 50th Street, and terminates at Coney Island/Stillwell Avenue. The headway for this train is six to eight minutes during the AM peak hour and seven to ten minutes during the PM peak hour.

F Train

The F train operates between Jamaica Estates, Queens and Coney Island. Within the study area, it runs along McDonald Avenue making a total of six stops in the study area – Kings

Highway, Avenue U, Avenue X, Neptune Avenue, West 8th Street, and Coney Island/Stillwell Avenue where the line terminates. The headway for this train varies from four to six minutes during the AM and PM peak hours.

M Train

The M train provides service between Middle Village, Queens and Gravesend. It makes only one stop (Bay Parkway/86th Street) in the study area. The headway for northbound trains varies from 7 to 12 minutes during the AM peak hour and eight to ten minutes during PM peak hour. Service on this line will be terminated end of June 2010.

N Train

The **N** train provides service between Astoria (Ditmars Boulevard) and Gravesend (86th Street). This train makes three stops in the study area at Kings Highway, Avenue U, 86th Street, and Coney Island/Stillwell Avenue. Headway along this line varies during the AM and PM peak hours – seven to nine minutes in the AM and 7 to 14 minutes in the PM.

Q Train

The Q train provides service between 57th Street, Manhattan and Coney Island/Stillwell Avenue. It makes four stops in the study area – Brighton Beach, Ocean Parkway, West 8th Street, and Coney Island/Stillwell Avenue. In general, the Q train provides express service in Manhattan and local service in Brooklyn. Headway for this train varies from six to nine minutes during the AM and PM peak hours.

Figure 2.6-1 shows the train lines and stations in the study area.

Figure 2.6-1: Subway Routes and Stations in the Study Area

Bus Service

In the study area there are nine local bus lines (B1, B3, B4, B6, B36, B64, B68, B74, and B82) and two express bus lines **(**X28/X38). The local buses provide daily service to points within the study area and Brooklyn, while the express bus provides service between the study area and Manhattan. A summary of service provision on each bus line is below:

B1

The B1 bus provides service between Bay Ridge and Manhattan Beach. In the study area it provides service along 86th Street, Avenue X, Ocean Parkway and Brighton Beach Avenue. Headway varies according to demand for service. During the AM peak hour, the headway is ten minutes for southbound and nine minutes for northbound buses. During the PM peak hour, the headway is nine minutes for southbound and ten minutes for northbound buses.

B3

The B3 bus provides service between Bath Beach and Bergen Beach. In the study area it provides service along Avenue U, Stillwell Avenue, and 25th Avenue before approaching its last stop at 25th Avenue/Harway Avenue. A significant difference does not exist between the headways for AM and PM peak hours. During the AM peak hour the headway is eight for eastbound and seven minutes for westbound buses; the headway is ten minutes in both directions during the PM peak hour. Effective end of June 2010 service south of Avenue U and East 71 Street will be discontinued on this route.

B6

The B6 bus line provides service between Bath Beach and East New York. In the study area it provides service along Bay Parkway, Shore Parkway, and 26th Avenue. The headway for this bus line in the AM peak hour for eastbound service is nine minutes for local service and eight minutes for limited stop service; westbound service headway is eight minutes for local service and eight minutes for limited stop service. During the PM peak hour, the headway for eastbound service is ten minutes for local and six minutes for limited stop service; for westbound service it is ten minutes for local and five minutes for limited stop service.

B36

The B36 bus provides service between Coney Island and Sheepshead Bay (Avenue U). It provides service along Ocean Parkway, Neptune Avenue, West 5th Street, Surf Avenue, West 37th Street, and West 33rd Street. During the AM peak hour the headway is three to six minutes for eastbound buses and four to six minutes for westbound buses; during the PM hour the headway is seven to eight minutes in both directions.

B64

The B64 bus provides service between Bay Ridge and Coney Island. In the study area it provides service along the Bath Avenue, 25th Avenue, Harway Avenue, Stillwell Avenue, Mermaid Avenue, Surf Avenue, Bay View Avenue, and 37th Street. During the AM peak headway for this bus line is 11 to 15 minutes for eastbound service and 8 to 10 minutes for westbound service. During the PM peak hour, the headway is ten minutes in both directions. Effective end of June 2010 service south of 25th Avenue will be discontinued on this route as well as overnight service.

B68

The B68 bus provides service between Coney Island and Park Slope. In the study area it provides service along Coney Island Avenue, Brighton Beach Avenue, and Surf Avenue. The headway is the same for both AM and PM peak hours – six to eight minutes in both directions.

B74

The B74 bus provides service between Sea Gate and Coney Island. It provides service along Mermaid Avenue, Neptune Avenue, Bay View Avenue, and 33rd Street. The headway during the AM peak hour is nine minutes and during the PM peak hour it is seven minutes.

B82

The B82 bus provides service between Gravesend and Starrett City. In the study area it runs along Cropsey Avenue, Bay Parkway, and Kings Highway. The headway is six to eight

minutes eastbound and nine minutes westbound during the AM peak; during the PM peak hour, the headway is seven to eight minutes westbound and 12 minutes eastbound.

X28/X38

The X28/X38 bus lines provide express service between Sea Gate/Bensonhurst and Manhattan (X28 to West 23 Street/Broadway and X38 to East 57 Street/Madison Avenue). Within the study area there are stops along Surf Avenue and Cropsey Avenue. During the AM peak hour both buses provide Manhattan-bound service every six to ten minutes; during the PM peak hour Brooklyn-bound service is provided every eight minutes on the X38 and every 12 minutes on the X28.

Figure 2.6-2 shows the bus routes in the study area.

Figure 2.6-2: Bus Routes in the Study Area

3.0 BEST PRACTICE MODEL

The NYMTC Best Practice Model (BPM) is a regional travel demand model that was developed to forecast travel patterns in the NYMTC region consisting of 28 counties in New York, New Jersey, and Connecticut. The BPM contains information about the demographic characteristics of each sub-area – transportation analysis zone (TAZ), data about the transportation systems (bus, train, and ferry routes), as well as information about the major arterials and highways throughout the region. There are 3,500 TAZs in the NYMTC region, of which 33 are located in the Study Area. Figure 3-1 shows the TAZs in the Study Area.

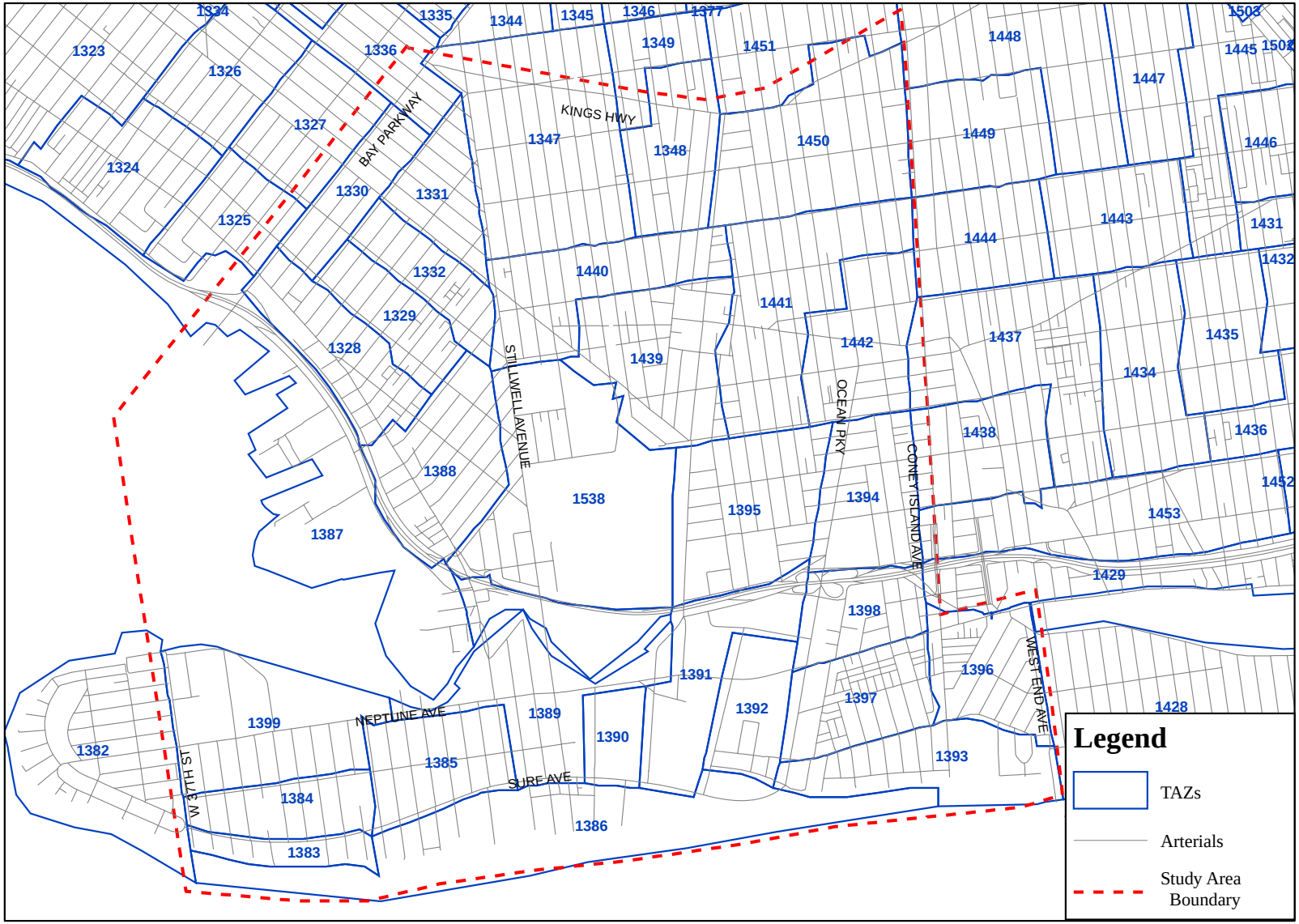
Community Outreach Process

Community input regarding land use and transportation issues in the Study Area was solicited at several meetings and charrettes (public planning workshops). These meetings also sought to obtain from residents their vision of the future for their community.

Scenario Development

Based on the existing land use (including the distribution of vacant lots) and the street network in the Study Area, two land use scenarios and two transportation scenarios were identified to be modeled with the Best Practice Model (BPM). The land use scenarios explored hypothetical development of the vacant lots in the Study Area, primarily in Coney Island where the majority of vacant lots are located. On the other hand, the transportation scenario largely derives from comments community residents made at the various visioning sessions that were held when the study initially began. The impact traffic and transportation issues have on residents' life was evident as they were clear about their desires in this regard. One issue that was heard repeatedly was the problem of accessing Coney Island from Cropsey Avenue during special events at Keyspan Park. Related to this matter, some residents thought that an additional exit ramp from the eastbound Belt Parkway onto Stillwell

Figure 3-1: Transportation Analysis Zones (TAZs) in the Study Area



Avenue would be an alternative to the congested Cropsey Avenue. This alternative was initially explored as a potential scenario, however, upon closer examination of the existing field conditions, including the proximity of the Cropsey Avenue entrance ramp to Stillwell Avenue, it was deemed infeasible and was not modeled. Another prominent issue raised by the community was the need for a bus service that linked Coney Island, Brighton Beach, and Manhattan Beach and provided direct service from Coney Island to Kingsborough Community College.

3.1. Scenarios Modeled

This task was a modeling exercise of transportation alternatives to evaluate likely outcomes and feasibility. When conducting traffic and transportation studies, NYCDOT normally does a projected future condition assessment for at least 10 years from the existing base year. In order to synchronize NYCDOT's with NYMTC's future travel needs assessment, the traditional 10-year horizon to 2012 was changed to 2015. As a result, the modeling was done for the 2002 (existing conditions) which was the BPM built in base year, two future baseline years in 2015 and 2025 using unmodified (no change) BPM projected data (called 2015N and 2025N), and two future proposed build years in 2015 and 2025 using modified BPM data reflecting assumed future condition (called 2015P and 2025P). Table 3-1 is a simple matrix showing the transportation and land use scenarios that were modeled and described in further details in the following sections.

Table 3-1: Future Proposed Transportation and Land Use Scenarios

TRANSPORTATION / LAND USE		1 Moderate Development (2015P)	2 Aggressive Development (2025P)
1	Transportation System Management (TSM) Strategies	Transportation West 15 and West 17 Street one-way southbound; West 19 and West 16 Streets one-way northbound ·Additional moving lane on Ocean Parkway service road by peak hour	Transportation - same as 2015P
2	Transit Focused Improvements	Transit Extend B74 bus to serve Coney Island, Brighton Beach, and Manhattan Beach	Transit - same as 2015P

3.2. Land Use Scenarios

Within the Study Area, the vacant lots amount to over two million square feet of space that could be utilized for residential, commercial, and light manufacturing, as permitted by the existing zoning regulations. The majority of vacant lots in the Study Area can be found in Community Board 13. The table below shows the distribution of vacant lots in the Study Area by community districts.

Table 3-2: Vacant Lots by Community Boards

Community Board	Residential (sq. ft.)	Commercial (sq. ft.)	Manufacturing (sq. ft.)	Total (sq. ft.)
CB11	52,329	0	12,044	**64,373**
CB13	1,534,921	720,166	175,198	**2,430,285**
CB15	216,225	0	4,625	**220,850**
Total	**1,803,475**	**720,166**	**191,867**	**2,715,508**

Land Use Scenario 1 – Moderate Development (LUS1/2015P)

The Land Use Scenario 1 advocates moderate development by the year 2015 consistent with existing development patterns geographically and the development density. It embraces a development pattern that would result in little or no change to land use patterns. It is assumed that vacant lots zoned for residential use would be developed consistent with the existing building context. Similarly, lots zoned for commercial or manufacturing uses would adhere to the existing context and uses in the neighborhood. This scenario also assumes that no major proposed developments by any development agency (NYC Economic Development Corporation (EDC), Empire State Development Corporation (ESDC), or the Coney Island Development Corporation (CIDC)) would occur prior to 2015 and that only 60% of vacant lots zoned for residential developments would be developed by 2015 and the remaining 40% by 2025. The vacant lots zoned for commercial and manufacturing development would be 40% developed by 2015 and the remaining 60% developed by 2025. Based on these assumptions, developments that occur prior to 2015 would be primarily residential in nature and small in scale (built at or below the maximum FAR permissible).

Land Use Scenario 2 – Aggressive Development (LUS 2/2025P)

At the core of this development scenario is the concept/plan to revitalize Coney Island. The development concept focuses on the core of Coney Island's entertainment area along Surf Avenue. It encapsulates the vision for the area developed by CIDC that calls for developments that will attract visitors throughout the year, instead of primarily during the summer months as is currently the case. While the plan will enhance the overall attractiveness of Coney Island, most of the new developments will be concentrated between West 23rd Street and Stillwell Avenue from Surf Avenue to the Boardwalk.

The general development concept plan for Coney Island includes uses/activities such as:

1. Hotel,
2. Multi-Cultural Community Center,
3. Mixed Income/Mixed Use Developments,
4. New entertainment facilities, and
5. New recreational facilities.

Currently, the vacant land in the core of Coney Island entertainment area identified for development amounts to approximately 115,000 square feet for residential use in R5 and R6 zones and 556,535 square feet for commercial use in a C7 zone. These proposed developments are expected to maximize the permissible floor area ratio FAR. Based on these permissible FAR there would be approximately 229,652 square feet floor space for residential development and 1,113,071 square feet floor for commercial development. It is anticipated that some rezoning will be necessary to meet the future development objectives. For example, some of the lots currently zoned for residential development may be rezoned for commercial/mixed use developments.

This scenario assumes that in the CIDC target area all lots currently zoned for residential development will be developed prior to 2015 and 90% of the lots zoned for commercial development will be built by 2015 with the remaining 10% by 2025. Areas outside the CIDC target area would be developed consistent with the moderate development scenario – 60% of residential development and 40% of commercial development before 2015; and 40% of residential development and 60% of commercial development by 2025. Table 3-3 shows the planned developments by floor area for major land uses in the three community boards.

Table 3-3: Scenario #1 – Moderate Development for 2015 and 2025

Community Board	Residential (sq. ft.)	Commercial (sq. ft.)	Manufacturing (sq. ft.)	Total (sq. ft.)	Residential (Units)			Commercial (SqFt)		Manufacturing (SqFt)	
					No of Units	2015	2025	2015	2025	2015	2025
CB 11	52,329	0	12,044	**64,373**	39	23	16	0	0	4,818	7,226
CB 13	1,631,993	1,176,702	175,198	**2,983,893**	1,205	723	482	1,065,395	111,307	70,080	105,118
CB 15	216,225	0	4,625	**220,850**	127	76	51	0	0	1,850	2775
	1,900,547	**1,176,702**	**191,867**	**3,269,116**	1,371	822	549	1,065,395	111,307	76,748	115,119

Table 3-4: Scenario #2 – Aggressive Development for 2015 and 2025

Community Board	Residential (sq. ft.)	Commercial (sq. ft.)	Manufacturing (sq. ft.)	Total (sq. ft.)	Residential (Units)			Commercial (SqFt)		Manufacturing (SqFt)	
					No of Units	2015	2025	2015	2025	2015	2025
CB 11	52,329	0	12,044	**64,373**	39	23	16	0	0	4,818	7,226
CB 13	1,402,341	63,631	175,198	**1,641,170**	706	424	282	63,631		70,080	105,118
CB13 - EDC	229,652	1,113,071	0	**1,342,723**	499	499	0	1,001,764	111,307	0	0
CB 15	216,225	0	4,625	**220,850**	127	76	51	0	0	1,850	2775
	1,900,547	**1,176,702**	**191,867**	**3,269,116**	1,371	1,022	349	1,065,395	111,307	76,748	115,119

Based on the above land use development scenarios, estimates of future population, household, employment and vehicular trips were made for input in the models. The model inputs for each land use scenario are shown in Table 3-5 below.

Table 3-5: Model Inputs for LUS1 and LUS2

Scenario	2015P					2025P				
	Potential Dwelling Units	Pop.	H'holds	Jobs	Vehicular Trips	Potential Dwelling Units	Pop.	H'holds	Jobs	Vehicular Trips
LUS1	641	1,282	641	100	75	345	690	345	400	200
LUS2	1,024	2,048	1,048	600	300	347	694	347	100	100

3.3. Transportation Scenarios

Accompanying the land use scenarios are transportation options that will be integrated into the overall development concept. There are two distinct elements to the transportation component, the highway network and transit network. The model combines these components into one scenario. The proposed transportation scenario therefore includes a combination of changes to the highway network and the transit network. This transportation scenario will be applied to the 2015P and 2025P scenarios.

The proposed changes to the highway network derive from the community's request to improve access for residents during events at Keyspan Park, when changes to traffic patterns are usually made. Secondly, the proposal to provide an additional moving lane on Ocean Parkway is designed to relieve congestion during the AM and PM peak hours in the future. The HCS capacity analysis conducted along Ocean Parkway showed that the northbound approach on 4 of 6 intersections will be failing in 2015 and some southbound approaches would operate at LOS D in the PM peak.

The modeled changes to the highway network include the following:

1. Convert West 17th Street to one-way southbound between Neptune Avenue and Surf Avenue

2. Convert West 19th Street to one-way northbound from Surf Avenue to Neptune Avenue.
3. Convert West 16th Street to one-way northbound, West 15th Street to one-way southbound, and convert Hart Place between West 16th and 15th streets to one-way eastbound.
4. Extend Hart Place east of Cropsey Avenue to Stillwell Avenue.
5. Provide an additional lane on Ocean Parkway during rush hour. This would be done by restricting parking (e.g. "No Parking 7-10 AM and 4-7 PM) based on peak direction travel on the service roads.

Figure 3-2 shows the locations of the proposed highway network changes in the Study Area.

Transit

The simulated change to the transit system is the extension of the B74 bus loop to provide service to Brighton Beach and Manhattan Beach as well. Figure 3-3 shows the existing and simulated B74 bus route.

3.4. Results of Modeling Effort

To assess the future conditions using the BPM, the modeling process begun by calibrating the 2002 base year. After the 2002 base year condition was modeled, the BPM future baseline 2015N and 2025N conditions were modeled. Then, the proposed scenarios in the LUS1 and LUS2 plus transportation options were modeled for 2015P and 2025P with the necessary adjustments to the model.

To assess the results and potential impacts of the scenarios on the Study Area, transportation performance measures specifically related to the TAZs in the Study Area were extracted and analyzed. The analysis examined changes in traffic (volume) for the AM, midday, and PM peak periods, average travel speed along major corridors and transit bus trips on Neptune Avenue. The BPM peak periods cover a four-hour time span as follows – AM (6-10 AM), midday (10 AM-3 PM), and the PM (3-7 PM).

Figure 3-2: Highway Network Changes for the Future Build Scenarios (2015P and 2025P)

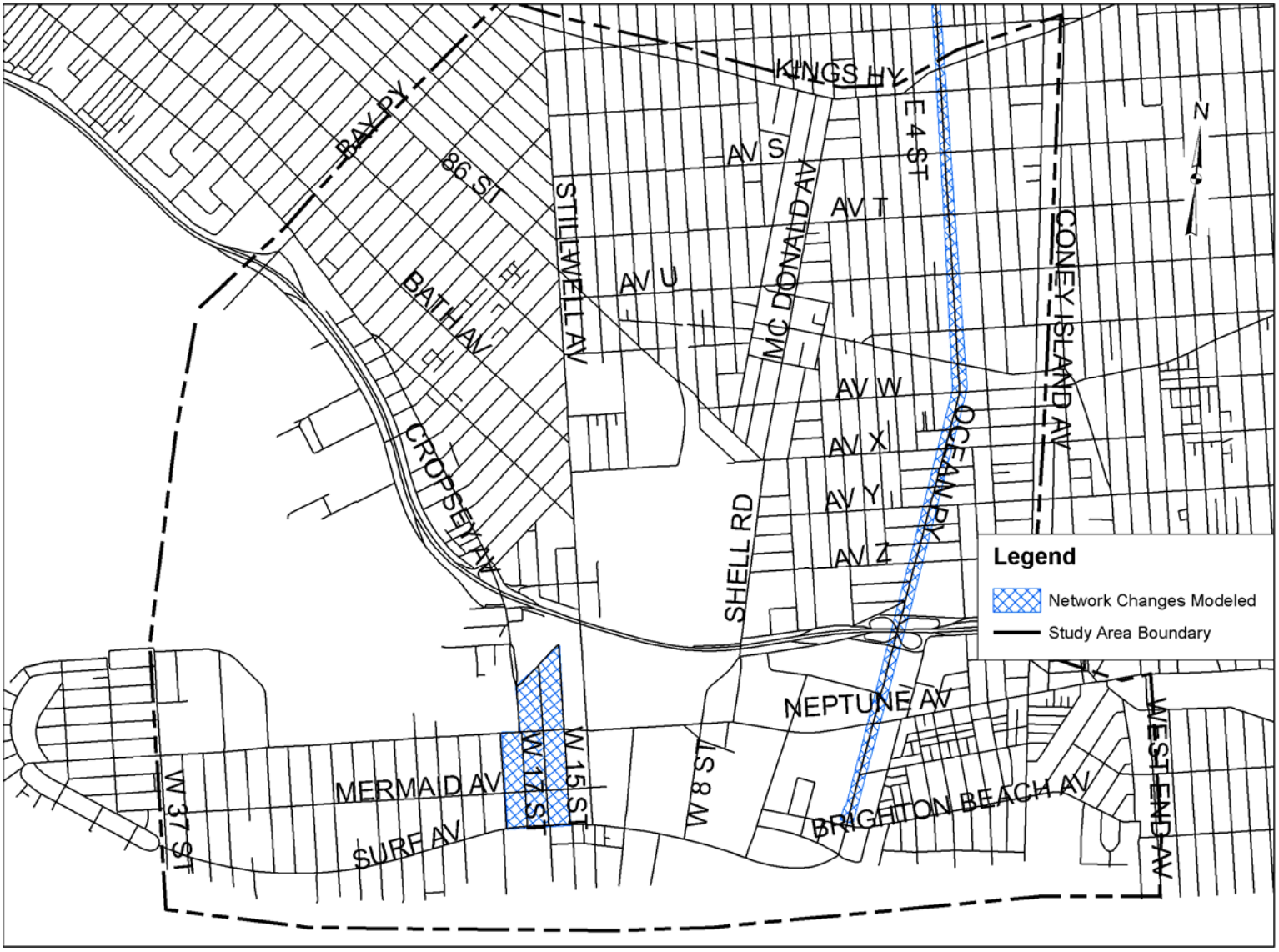
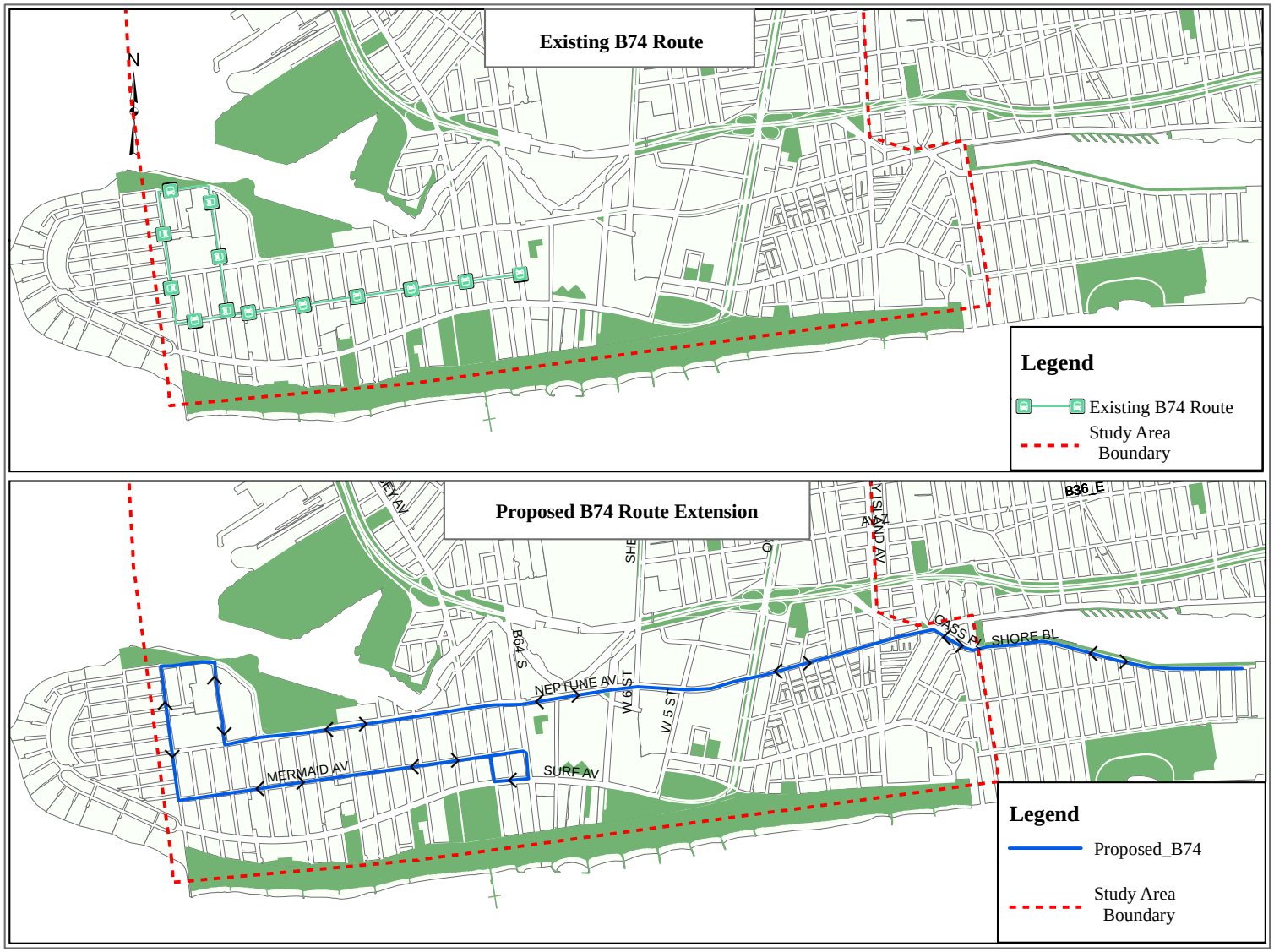


Figure 3-3: Transit Network Changes for the Future Build Scenarios (2015P and 2025P)



In addition to comparing results of one scenario against the other, the BPM results for the 2002 base year and the 2015 future baseline year were compared to the NYCDOT 2002 existing condition and the 2015 future condition, that was derived from traffic counts conducted for the local network and projected to 2015 using the CEQR criteria, i.e. a background growth rate of 1.0% per year plus the trips of any known developments likely to be built before 2015. However, where there was little known future development, a 1.5% annual background growth rate was applied to be conservative.

BPM Results – Vehicular Volumes

The results of the BPM modeling process for 2002 Base Year, 2015N, and 2025N shows that between 2002 and 2015N the traffic volume on the major corridors in the Study Area decreased slightly during the AM and PM periods but increased slightly during the midday peak hour. Ironically, the midday volumes in the Study Area were higher than the AM and PM peak period volumes in each scenario year. This does not correlate with data collected in the field by NYCDOT for the traditional traffic analysis. The chart also shows that there was no significant difference (average 2%) in traffic volumes between the 2015N and 2025N scenario years. Chart 3-1 shows the traffic volumes in the Study Area during the AM, midday, and PM periods.

Chart 3-1: Comparison of Vehicle Volume for 2002 Base Year & Future Baseline (N) Scenarios

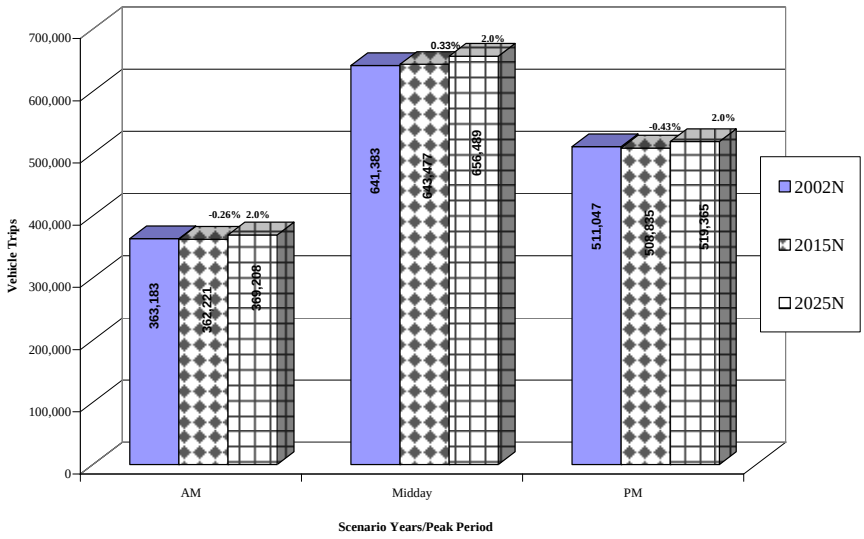


Chart 3-2 compares the 2002 Base Year trips to future build scenarios in LUS1/2015P and LUS2/2025P. This chart shows that there was a small decline in trips between 2002N and 2015P in the AM peak period. Unlike the baseline future scenario years, there was a significant difference (average 12.5%) between the 2015P and 2025P trips for each peak period.

Chart 3-2: Comparison of Vehicular Volume for 2002 Base Year and Future Build (P) Scenarios

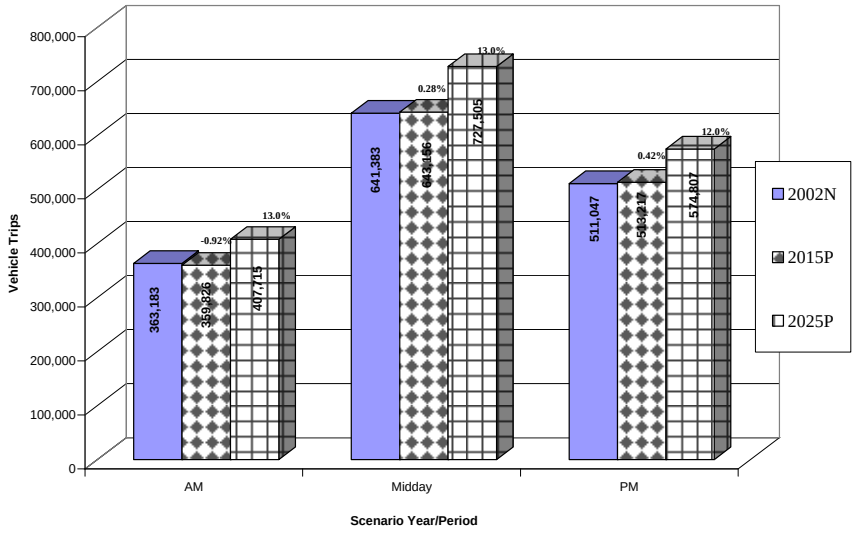
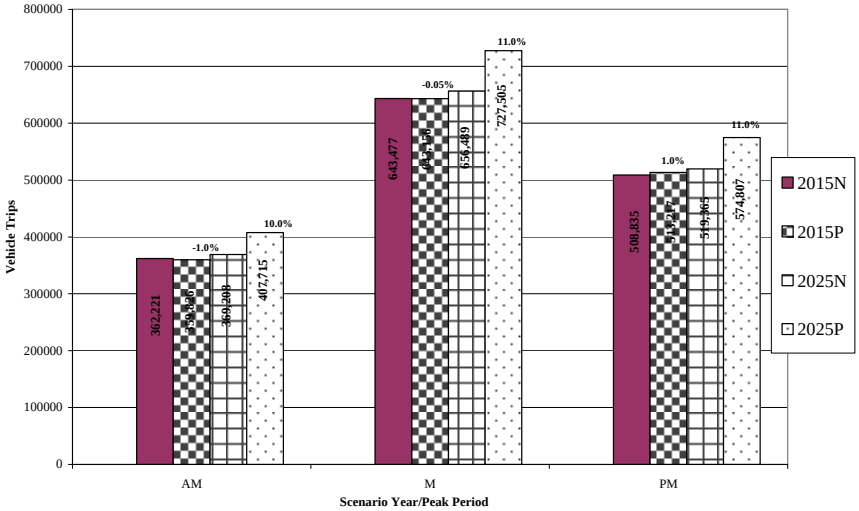


Chart 3-3 shows the difference in traffic volumes for the AM, midday, and PM period between 2015N and 2015P, and 2025N and 2025P. The data shows that between 2015N and 2015P, the change in vehicular volumes was insignificant. However, there was a significant difference (average 10.5%) for the vehicular volumes in all peak periods between 2025N and 2025P.

Chart 3-3: Comparison of No Build (N) and Build (P) Scenario Vehicular Volumes



Traffic Volumes on Major Corridors

To assess BPM projected travel patterns in the Study Area a comparison of volumes along the major corridors for each peak period and scenario year was done. Additionally, the NYCDOT collected and projected traffic volumes were compared to that of the BPM for 2002 and 2015N. As the BPM peak period extends for four hours, the 2002 ATR data used for the study was consulted to determine what percent of the same four hour period constituted the NYCDOT peak hour travel volumes. This analysis showed that the AM, midday, and PM peak hour constituted 32%, 26%, and 27%, respectively, of the BPM peak period.

Table 3-6 below supports the area-wide data that showed the midday peak period having a higher volume than the AM or PM peak period. The table also shows that the vehicular volumes declined along some of the major corridors between the 2002 base year and the future baseline years (2015N and 2025N) in one or more peak periods. The same also applied to the future build scenarios (2015P and 2025P) although there were only three instances where the 2025P volumes were less than the 2002N volumes. The reason for these anomalies is not clear. However, it could be attributed to future planned changes to the highway network that would affect flows as trips can be diverted elsewhere. Also, it could be attributed to the provision of increased transit service which could have caused a change in mode from auto to transit for some travelers.

Table 3-6: BPM Generated Vehicular Volumes along Major Corridors - AM, Midday, and PM Peak Periods

Corridors	2002			2015N			2015P			2025N			2025P		
	AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM
86 Street	24,621	46,903	37,789	20,806	39,873	31,728	19,053	37,644	29,442	21,624	42,327	33,048	26,352	50,221	39,269
Bay Parkway	44,510	74,444	59,522	42,222	68,154	55,512	40,787	67,417	54,371	42,133	68,492	56,376	44,872	73,318	59,616
Coney Island Avenue	29,126	47,209	36,867	32,823	54,295	41,021	27,842	45,942	34,715	29,898	49,380	37,458	28,788	48,210	36,228
Cropsey Avenue	23,814	46,742	37,629	23,167	46,152	36,965	27,069	53,766	42,251	23,929	49,767	38,785	27,891	55,854	44,611
Kings Highway	21,245	38,901	31,970	21,497	39,199	31,538	20,613	38,287	31,533	22,062	40,217	32,491	21,331	38,891	31,681
McDonald Avenue/ Shell Road	22,415	37,355	28,703	24,082	40,865	31,450	22,019	38,337	28,958	25,108	42,058	32,205	23,438	42,015	30,860
Neptune Avenue	40,029	72,361	57,710	37,046	70,097	55,406	45,039	82,857	65,906	38,517	72,586	57,144	47,148	85,932	67,827
Ocean Parkway	47,470	77,750	63,035	48,317	79,162	64,327	48,864	75,947	65,518	49,526	81,086	65,883	52,280	81,451	68,743
Stillwell Avenue	25,397	46,479	37,222	25,890	47,610	37,463	24,014	45,639	36,160	31,265	65,747	44,337	25,624	48,696	37,986
Surf Avenue	13,231	27,136	20,809	15,069	31,506	23,689	17,140	38,894	31,047	15,987	32,807	25,087	16,628	37,363	28,354

Comparison of NYCDOT and BPM Vehicular Volumes and Speeds for 2002 and 2015

Traffic Volumes

The application of the NYCDOT's ATR peak hour percentages of the BPM peak period (four hours) volumes provided a basis to compare the BPM volume and NYCDOT peak hour volumes. Tables 3-7 and 3-8 show the bi-directional volumes along the major corridors for the AM (8-9 AM), midday (1-2 PM), and PM (5-6 PM) peak hours for 2002 and 2015 from both sources. The tables show that for both 2002 and 2015 the BPM AM and PM peak hour volumes were less than NYCDOT derived volume on all the major corridors except three (86 Street, Stillwell Avenue, and Kings Highway). During the midday peak hour, the BPM volumes were less on all major corridors except one (Ocean Parkway).

Vehicular Speed

Comparison of NYCDOT's field measured and projected travel speed to that of the BPM for 2002 and 2015N shows that in most cases the BPM speeds exceeded the NYCDOT measured travel speed by 30% or higher. Tables 3-9 and 3-10 show the speed data along the ten major corridors in the Study Area.

Table 3-7: DOT/BPM (2002) Peak Hour Volumes

Corridor	Direction	AM (8-9 AM)			MID (1-2 PM)			PM ((5-6 PM)		
		DOT	BPM	Percent Diff.	DOT	BPM	Percent Diff.	DOT	BPM	Percent Diff.
Bay Parkway	NB	862	843	2%	802	1,105	-27%	986	813	21%
	SB	878	740	19%	752	1,128	-33%	872	907	-4%
	TOTAL	1,740	1,583	10%	1,554	2,233	-30%	1,858	1,720	8%
Coney Island Avenue	NB	514	538	-5%	611	713	-14%	619	518	20%
	SB	530	498	6%	489	704	-31%	609	547	11%
	TOTAL	1,043	1,036	1%	1,100	1,416	-22%	1,228	1,065	15%
Cropsey Avenue	EB	860	518	66%	691	882	-22%	739	685	8%
	WB	652	435	50%	539	696	-23%	742	538	38%
	TOTAL	1,512	953	59%	1,230	1,577	-22%	1,481	1,223	21%
Kings Highway	EB	260	448	-42%	226	671	-66%	323	521	-38%
	WB	338	402	-16%	326	642	-49%	241	518	-53%
	TOTAL	598	850	-30%	552	1,313	-58%	564	1,039	-46%
McDonald Avenue/ Shell Road	NB	492	369	33%	406	494	-18%	434	353	23%
	SB	443	348	27%	450	515	-13%	499	393	27%
	TOTAL	935	717	30%	856	1,009	-15%	933	746	25%
Neptune Aveune	EB	555	409	36%	440	606	-27%	514	449	15%
	WB	524	374	40%	449	605	-26%	495	471	5%
	TOTAL	1,079	783	38%	889	1,211	-27%	1,009	919	10%
Ocean Parkway	NB	2,236	508	340%	1,009	398	153%	1,114	297	275%
	SB	1,451	504	188%	1,102	442	149%	1,348	358	277%
	TOTAL	3,687	1,012	264%	2,110	840	151%	2,462	1,065	131%
Stillwell Avenue	NB	263	470	-44%	275	677	-59%	232	507	-54%
	SB	279	342	-19%	341	578	-41%	259	461	-44%
	TOTAL	542	812	-33%	615	1,255	-51%	491	968	-49%
Surf Avenue	EB	349	272	28%	322	413	-22%	334	310	8%
	WB	340	258	32%	264	401	-34%	377	291	29%
	TOTAL	689	529	30%	586	814	-28%	711	601	18%
86 Street	EB	429	718	-40%	357	1,106	-68%	380	734	-48%
	WB	240	407	-41%	369	703	-48%	334	669	-50%
	TOTAL	669	1,125	-41%	726	1,809	-60%	714	1,403	-49%

Table 3-8: DOT/BPM (2015) Peak Hour Volumes

Corridor	Direction	AM (8-9 AM)			MID (1-2 PM)			PM ((5-6 PM)		
		DOT	BPM	Percent Diff.	DOT	BPM	Percent Diff.	DOT	BPM	Percent Diff.
Bay Parkway	NB	1,130	894	26%	802	1,127	-29%	1,197	852	41%
	SB	1,087	795	37%	752	1,173	-36%	1,071	953	12%
	TOTAL	2,217	1,689	31%	1,554	2,254	-31%	2,268	1,804	26%
Coney Island Avenue	NB	671	534	26%	611	725	-16%	760	527	44%
	SB	601	516	17%	489	741	-34%	738	540	37%
	TOTAL	1,272	1,050	21%	1,100	1,466	-25%	1,498	1,067	40%
Cropsey Avenue	EB	954	511	87%	691	862	-20%	955	669	43%
	WB	772	416	86%	539	696	-23%	889	533	67%
	TOTAL	1,726	927	86%	1,230	1,558	-21%	1,844	1,201	53%
Kings Highway	EB	315	450	-30%	226	672	-66%	392	517	-24%
	WB	410	410	0%	326	651	-50%	292	508	-43%
	TOTAL	725	860	-16%	552	1,323	-58%	684	1,025	-33%
McDonald Avenue/ Shell Road	NB	597	369	62%	406	516	-21%	526	364	44%
	SB	538	401	34%	450	587	-23%	607	453	34%
	TOTAL	1,135	771	47%	856	1,103	-22%	1,133	818	39%
Neptune Aveune	EB	673	380	77%	440	594	-26%	688	448	53%
	WB	635	348	82%	449	589	-24%	691	440	57%
	TOTAL	1,308	728	80%	889	1,183	-25%	1,379	889	55%
Ocean Parkway	NB	1,930	314	514%	1,009	401	152%	1,415	323	338%
	SB	1,427	304	369%	1,102	454	143%	1,640	346	374%
	TOTAL	3,357	619	443%	2,111	855	147%	3,055	669	357%
Stillwell Avenue	NB	349	462	-24%	275	675	-59%	268	498	-46%
	SB	345	367	-6%	341	610	-44%	385	476	-19%
	TOTAL	694	828	-16%	616	1,285	-52%	653	974	-33%
Surf Avenue	EB	571	244	134%	322	439	-27%	404	315	28%
	WB	509	239	113%	264	411	-36%	455	301	51%
	TOTAL	1,080	482	124%	586	851	-31%	859	616	40%
86 Street	EB	434	633	-31%	357	876	-59%	461	796	-42%
	WB	365	477	-23%	369	972	-62%	430	579	-26%
	TOTAL	799	1,110	-28%	726	1,848	-61%	891	1375	-35%

Table 3-9: DOT/BPM (2002) Vehicular Travel Speed

Corridors	AM						MID						PM					
	DOT		BPM		% Speed Diff.		DOT		BPM		% Speed Diff.		DOT		BPM		% Speed Diff.	
East/West	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**
86th Street	11	15	21	21	89%	38%	12	9	19	18	59%	100%	14	10	19	18	36%	84%
Kings Highway	11	13	14	13	27%	1%	11	9	12	11	7%	22%	9	10	11	11	25%	12%
Cropsey Avenue	12	20	23	22	93%	10%	13	18	22	20	70%	11%	13	20	22	20	69%	0%
Surf Avenue	16	17	25	25	55%	44%	18	18	24	24	33%	33%	16	23	24	24	51%	4%
Neptune Avenue	12	11	21	21	73%	87%	14	13	20	20	40%	54%	12	13	20	20	63%	53%
North/South	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
McDonald Avenue/ Shell Road	13	14	18	17	37%	21%	14	14	17	17	18%	19%	15	16	17	17	10%	8%
Ocean Parkway	22	14	13	14	-41%	1%	14	14	13	14	-7%	-2%	13	31	13	14	1%	-56%
Coney Island Avenue	18	15	19	19	7%	26%	13	14	18	18	42%	31%	14	20	18	19	31%	-6%
Stillwell Avenue	12	16	22	21	83%	29%	13	17	21	20	58%	15%	14	16	20	20	46%	24%
Bay Parkway	15	12	19	18	26%	49%	15	16	17	17	11%	8%	14	10	16	18	16%	78%

Table 3-10: DOT/BPM (2015) Vehicular Travel Speed

Corridors	AM						MID						PM					
	DOT		BPM		% Speed Diff.		DOT		BPM		% Speed Diff.		DOT		BPM		% Speed Diff.	
East/West	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**
86th Street	10	14	21	21	107%	47%	9	6	19	18	109%	202%	12	9	19	18	59%	102%
Kings Highway	5	8	14	13	176%	63%	7	5	12	11	66%	127%	6	7	11	11	89%	61%
Cropsey Avenue	11	19	23	22	113%	17%	12	16	22	20	84%	27%	11	11	22	20	101%	84%
Surf Avenue	14	16	25	24	76%	53%	17	17	24	24	40%	39%	15	22	24	24	60%	8%
Neptune Avenue	10	6	20	19	96%	222%	10	8	18	18	83%	126%	8	8	18	18	129%	127%
North/South	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
McDonald Avenue/ Shell Road	8	10	17	17	114%	70%	7	7	16	16	125%	134%	9	8	16	17	75%	113%
Ocean Parkway	10	13	24	24	137%	85%	13	13	23	23	77%	78%	12	26	23	23	90%	-12%
Coney Island Avenue	17	9	19	19	11%	110%	10	8	18	18	80%	128%	13	6	18	19	42%	209%
Stillwell Avenue	10	12	22	21	117%	72%	6	9	20	20	236%	117%	11	10	20	20	83%	99%
Bay Parkway	13	10	19	18	46%	80%	14	13	17	18	21%	37%	10	5	16	18	64%	263%

Highway Network Changes

West 17th Street (and adjacent streets) and Ocean Parkway

As stated under Section 3.3, Transportation Scenarios, specific network changes were identified for simulation and evaluation. In evaluating elements of the transportation scenario, the focus was on West 17th and adjacent streets as well as Ocean Parkway.

West 17th Street

West 17th Street is a narrow, local street (30 feet wide) that operates as an arterial/feeder for two blocks between Neptune Avenue and Surf Avenue. It is one of the main entry/exit routes for Coney Island and operates with two southbound lanes and one northbound lane. For the future build scenarios (2015P and 2025P), the street network was modeled with the proposed changes i.e. West 17th Street operating one-way southbound and with the adjacent streets West 16th Street and West 19th Street operating one-way northbound.

Table 3-11 shows the comparison of volumes and speed as a result of highway network changes on West 15th Street, West 16th Street, West 17th Street, and West 19th Street. According to the Model, the change from a two-way to one-way operation on West 17th Street would result in an increase of southbound traffic volumes from 562 to 1,053 (87%), from 1,058 to1,436 (36%), and 811 to 1,124 (39%) during the AM, midday, and PM period, respectively, in 2015. For the other scenarios, there would be an increase in volume of 1% (1,053 to 1,065) and 3% (1,436 to 1,477) in the AM and midday period between 2015P and 2025P and 1% (from 1,124 to 1,108) decrease in the PM period. Along West 16th Street, the northbound volume during the AM, midday, and PM peak periods in 2015 would be 945, 2279, and 1851, respectively. Adjusting for the peak hour percentages* would yield 302, 593, and 500 vehicles in each peak hour. Along West 19th Street, the northbound volume during the same period would be 408, 952, and 792. These numbers appear to be very inflated because they are higher than existing numbers along West

*As the BPM peak period data spanned a four-hour time period while the DOT peak hour data was for only one hour, ATR data was analyzed to determine what percent of the same four-hour period used by the BPM constituted the DOT peak hour. The ATR data showed that the DOT peak hour constituted 32%, 26%, and 27% of the AM, midday, and PM peak period, respectively, utilized in the BPM.

Table 3-11: Comparison of Volume and Speed Resulting From Highway Network Changes on West 15th Street, West 16th Street, West 17th Street, and West 19th Street

		West 17 Street						West 15 Street			West 16 Street			West 19 Street		
Scenario Year	Direction	AM		MID		PM		AM	MID	PM	AM	MID	PM	AM	MID	PM
		Volume	Speed	Volume	Speed	Volume	Speed	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume
2002N	NB	551	22	1406	21	1222	20									
	SB	570	24	1091	22	844	22									
2015N	NB	549	22	1432	21	1173	20									
	SB	562	24	1058	22	811	23									
2015P	NB	0		0		0		0	0	0	945	2279	1851	408	952	792
	SB	1053	33	1436	33	1124	33	328	598	352	0	0	0	0	0	0
2025N	NB	581	22	1464	20	1211	20									
	SB	574	24	1122	22	864	22									
2025P	NB	0		0		0		0	0	0	314	726	592	410	1008	790
	SB	1065	33	1477	33	1108	33	2	1	2	0	0	0	0	0	0

17th Street and higher than the numbers along other major corridors in the Study Area. Some post-implementation observation would be conducted to test these results.

Ocean Parkway

To increase capacity or improve operations along Ocean Parkway during the AM and PM peak periods, the addition of one moving lane along the service road in the peak travel direction by removing parking was considered and modeled. Table 3-12 shows the summary and results for AM and PM peak period volumes and some speed data along Ocean Parkway for the existing, future without changes, and proposed conditions (no build scenarios (2002 and 2015N) and build scenario (2015P)).

Table 3-12: BPM Traffic Volume and Speeds along Ocean Parkway Mainline and Service Roads (2002, 2015N, 2015P)

	2002N				2015N				2015P			
Corridor	**AM**	**PM**	**AM Speed**	**PM Speed**	**AM**	**PM**	**AM Speed**	**PM Speed**	**AM**	**PM**	**AM Speed**	**PM Speed**
Ocean Pkwy - Mainline NB	18,725	25,733			19,567	27,380			15,701	24,397		
Ocean Pkwy - Mainline SB	18,325	24,618			19,551	26,385			17,690	23,742		
Ocean Pkwy - Service NB	5,502	3,984	19	20	4,997	2,901	19	21	11,004	6,423	21	21
Ocean Pkwy - Service SB	4,918	8,699	19	18	4,202	7,661	20	18	4,469	10,956	19	19

The simulation shows that increase in lane capacity on the service road would result in an increase in volumes on the service roads while mainline volumes would decrease. During the AM peak period, there was a net volume increase of 8.7% on the corridor with the service road having a 120% increase while the mainline volume decreased by 19.75%. During the PM peak period there was a 1.9% net volume increase on the corridor with the service road volume increased by 43% while the mainline volume decreased on by 10%. Correspondingly, there was a slight increase in speed from 19 mph to 21 mph during the AM peak period and 18 mph to 19 mph during the PM peak period on the corridor.

4.0 RECOMMENDATIONS

The future 2015 traffic network volumes include the existing volumes plus the background growth specified in the City Environmental Quality Review (CEQR) Technical manual (1% per year in this case) and the trips generated by known planned developments in the area. The planned revitalization of Coney Island will increase pedestrian and vehicular traffic in some areas of the study area. To account for the new trips, a 1.5% growth rate was applied to the existing traffic volumes.

The future conditions traffic analysis showed that conditions would deteriorate at many intersections in terms of v/c ratio, delay, and LOS. Table 4-1 shows intersections operating at LOS D or worse for each scenario year and peak hour. It shows that between the existing conditions and 2015 future conditions, the number of intersections operating at LOS D or worse doubled and in some instances more than doubled for each peak hour. For the AM peak hour, the number of failing intersections increased from 8 to 16; for the midday, PM, and Saturday peak hours, the number of failing intersections increased from 5 to 11, 5 to 13, and 5 to 10, respectively. Between the 2015 and 2025 future conditions, there was a slight increase in the number of failing intersections during the AM and Saturday peak hours; however, during the midday and PM peak hours there was a significant change from 11 to 21 and 13 to 24 failing intersections, respectively, due to increased volumes from projected future developments.

The future conditions analysis show that 24 intersections approaches experienced significant degradation in level of service to LOS E or F over the existing conditions, requiring various improvement measures. Table 4-2 shows the results of the capacity analyses (v/c ratios, delays, and LOS) for each critical intersection as well as the recommended improvement measures for the 2015 future condition for the AM, midday, PM, and Saturday peak hours. The critical intersections and affected periods are listed below:

1. Kings Highway and Ocean Parkway (AM, Midday, & PM)
2. Kings Highway and McDonald Avenue (AM, Midday, PM, & SAT)

3. Kings Highway and Coney Island Avenue (AM, Midday, & PM)
4. Kings Highway and Stillwell Avenue (AM, Midday, & PM)
5. Ocean Parkway and Avenue W (AM & Midday)
6. Ocean Parkway and Avenue X (AM, Midday, & PM)
7. Ocean Parkway and Avenue Z (AM, Midday, & PM)
8. Ocean Parkway and Neptune Avenue (AM, Midday, PM, & SAT)
9. Coney Island Avenue and Neptune Avenue (AM, Midday, & PM)
10. Coney Island Avenue and Avenue Z (AM & SAT)
11. Coney Island Avenue and Guider Avenue/Belt Pkwy Entrance (AM, Midday, PM, & SAT)
12. Coney Island Avenue and Brighton Beach Avenue (AM, Midday, PM, & SAT)
13. Cropsey Avenue and Bay Parkway (PM & SAT)
14. Cropsey Avenue/West 17th Street and Neptune Avenue (AM, Midday, PM, & SAT)
15. Shell Rd/West 8th Street and Neptune Avenue (AM)
16. McDonald Avenue/Shell Road and 86th Street/Avenue X (AM, Midday, PM, & SAT)
17. East 14th St and Shore Blvd/Emmons Avenue (AM)
18. Surf Avenue and Stillwell Avenue (Midday)
19. Avenue X and West 3rd Street (Midday & PM)
20. Bay 32nd Street and Benson Avenue (PM)
21. Avenue T and West 5th Street (AM)
22. 23rd Avenue and 84th Street (AM, Midday, & PM)
23. Bath Avenue and Bay 35th Avenue (AM)
24. West 8th Street and Surf Avenue (AM)

To improve safety and traffic flow along the major corridors, improve operations at congested intersections, minimize conflicts and improve safety; the following proposed measures were developed that include:

- Signal timing and geometric changes;
- Parking restrictions or modification;
- Pedestrian crossing treatments – widen crosswalks, install median;.

Table 4-1: Locations with Mid LOS D or worse (Existing and Future Conditions)

Intersection	Existing				Future 2015				Future 2025			
	AM	**Mid**	**PM**	**Sat**	**AM**	**Mid**	**PM**	**Sat**	**AM**	**Mid**	**PM**	**Sat**
Bay Parkway/Cropsey Avenue			●	●			●	●	●	●	●	●
Bath Avenue/Bay 35th Street					●				●			
23rd Avenue/84th Street					●	●	●		●	●	●	
Kings Highway/Stillwell Avenue					●	●	●		●	●	●	
Avenue T/West 5th Street					●				●	●	●	
Kings Highway/McDonald Avenue	●	●	●		●	●	●		●	●	●	●
Kings Highway/Ocean Parkway	●				●	●			●	●	●	●
Ocean Parkway/Avenue W	●				●				●	●	●	
Ocean Parkway/Avenue X	●				●	●	●		●	●	●	
Ocean Parkway/Avenue Z					●		●	●	●	●	●	
Ocean Parkway/Neptune Avenue	●	●	●	●	●		●	●	●	●	●	●
McDonald Avenue-Shell Road/86th Street/Avenue X	●	●	●	●	●	●	●	●	●	●	●	●
Neptune Avenue/Cropsey Avenue-West 17th Street				●	●	●	●	●	●	●	●	●
Neptune Avenue/Shell Road-West 8th Street									●	●	●	
Coney Island Avenue/Guider Avenue	●	●	●	●	●	●	●	●	●	●	●	●
Coney Island Avenue/Neptune Avenue					●			●	●	●	●	●
Coney Island Avenue/Brighton Beach Avenue	●	●	●	●	●	●	●	●	●	●	●	●
Neptune Avenue/West End Avenue									●	●	●	
Coney Island Avenue/Kings Highway					●	●				●	●	●
Avenue X/West 3rd Street						●	●			●	●	
Shell Road/Avenue Z										●	●	
Surf Avenue/Stillwell Avenue										●	●	
86th Street/Bay Parkway								●			●	●
Benson Avenue/Bay 32nd Street							●				●	
Surf Avenue/West 12th Street											●	
Coney Island Avenue/Avenue Z											●	●
Ocean Parkway/Brighton Beach Avenue				●				●				●

Table 4-2: Proposed Improvement Measures for Critical Intersections - AM Peak Hour
Page 1 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Kings Highway & Ocean Parkway	EB	LTR	0.97	78.00	E	0.99	88.80	F	0.53	35.70	D	Prohibit parking for 100' from 7 – 10 AM on NB service road; provide 2 moving lanes for thru and right movements.	Prohibit parking 100' (7-10 AM) and re-stripe EB/WB to two moving lanes.
	WB	LTR	1.05	96.00	F	1.13	121.20	F	0.64	38.20	D		
	NB	TR	1.03	60.10	E	1.12	93.30	F	1.03	59.20	E		
Kings Highway & McDonald Avenue	NB	LTR	1.05	90.10	F	1.07	97.10	F	0.49	35.50	D	Prohibit parking 7-10 AM and re-stripe NB/SB to two moving lanes.	No Action Required.
	SB	LTR	1.05	103.10	F	1.11	121.20	F	0.51	36.90	D		
Kings Highway & Coney Island Avenue	EB	LTR	0.93	63.60	E	1.01	78.00	E	0.45	28.70	C	No Action Required	Prohibit parking 7 - 10 AM and re-stripe EB/NB to two moving lanes (4 meters).
	NB	L	1.05	77.70	E	1.11	95.40	F	0.91	42.80	D		
Kings Highway & Stillwell Avenue	SB	LTR	0.73	44.60	D	0.95	67.30	E	0.54	12.50	B	Add 4 seconds.	Take 4 seconds.
23rd Avenue & 84th Street	NB	LT	1.05	82.20	F	1.20	132.50	F	0.54	12.50	B	Prohibit parking 7-10 AM and provide NB to two moving lanes.	No Action Required
Bath Ave & Bay 35th Street	EB	LT	1.05	78.20	E	1.16	113.10	F	0.60	13.40	B	No Action Required	Prohibit parking for 100' from 7 - 10 AM and provide two moving lanes for EB/WB.
Avenue T & West 5th Street	EB	LT	1.05	77.70	E	1.10	88.50	F	0.49	48.80	D	Take 3 seconds.	Add 3 seconds.
Ocean Parkway & Avenue W	EB	LTR	0.84	73.30	E	0.89	79.00	E	0.49	41.10	D	Prohibit parking for 100' from 7 – 10 AM on NB service road; provide 2 moving lanes for thru and right movements.	Prohibit parking for 100' from 7 - 10 AM and provide two moving lanes for EB/WB.
	WB	LTR	0.74	51.20	D	0.79	73.30	E	0.98	51.10	D		
	NB	TR	0.95	68.60	E	1.10	78.60	E	0.71	42.60	D		
Ocean Parkway & Avenue X	EB	LTR	0.95	67.20	E	1.04	97.00	F	0.66	46.10	D	Prohibit parking for 100' from 7 – 10 AM on NB service road; provide 2 moving lanes for thru and right movements.	Prohibit parking for 100' from 7 - 10 AM and provide two moving lanes for EB/WB.
	WB	LTR	1.05	100.90	F	1.08	107.20	F	0.56	36.80	D		
	NB	TR	1.05	67.20	E	1.11	89.30	F	1.05	67.20	E		

Table 4-2: Proposed Improvement Measures for Critical Intersections - AM Peak Hour
Page 2 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Ocean Parkway & Avenue Z	EB	LTR	0.90	74.20	E	0.93	77.80	E	0.48	41.00	D	Prohibit parking for 100' from 7 – 10 AM on NB service road; provide 2 moving lanes for thru and right movements.	Prohibit parking 7-10 AM and provide two moving lanes for EB/WB; move bus stop 50' back.
	WB	LTR	1.05	106.50	F	1.14	132.30	F	0.57	42.60	D		
	NB	TR	0.94	33.60	C	1.09	74.20	E	1.02	46.90	D		
Shell Rd/W.8th Street & Neptune Avenue	EB	LTR/ DefL	0.88	31.20	C	1.12	103.90	F	0.81	35.70	D	Take 4 secs. from NB/SB for EB exclusive left phase.	Create excl. left phase for EB; take 8+4 secs. from EB/WB & NB/SB approaches.
West 8th Street & Surf Avenue	SB	L	0.77	54.6	D	0.85	62.60	E	0.41	32.50	C	Prohibit curbside parking & re-stripe SB to four moving lanes (L, L, T, R).	Install WB-L phase (12 secs.) during summer peak.
Cropsey Avenue/ W. 17th Street & Neptune Avenue	WB	TR	0.97	51.00	D	1.03	65.40	E	0.98	51.60	D	Convert W. 17 St. to one-way SB and reverse direction of W. 19 St, West 16 St, and W. 15 St. Restripe outbound north leg to 2 moving lanes, bike lane and parallel parking.	Prohibit curbside parking; re-stripe WB to three TR+1RT moving lanes. Extend EB dual left lanes to W. 19 St/
	SB	L	0.90	65.80	E	1.31	201.50	F	0.45	26.30	C		
Coney Island Avenue & Guider Avenue/Belt Pkwy Entrance	NB	DefL\L TR				0.53 0.65	22.4 23.1	C C	0.82 0.42	53.40 24.50	D C		
	SB	DeftL TR				0.98 0.75	80.10 26.40	F C	0.65	28.9	C	Create exclusive LT lane and phase for NB approach.	Implemented.
E. 14th St & Shore Blvd/ Emmons Avenue	WB	L	0.79	24.9	C	1.02	60.90	E	0.67	34.50	C	No Action Required	Re-stripe WB to two (L, TR) moving lanes.
Coney Island Avenue & Avenue Z	EB	LTR	0.65	44.10	D	0.86	57.20	E	0.74	45.00	D		
	WB	LTR	0.64	45.00	D	0.84	57.60	E	0.71	44.60	D	Take 4 seconds.	Add 4 seconds.

Table 4-2: Proposed Improvement Measures for Critical Intersections - Midday Peak Hour
Page 3 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Kings Highway & Ocean Parkway	EB	LTR	0.78	49.60	D	0.96	75.80	E	0.54	36.20	D		Prohibit parking for 100'; provide 2 moving lanes.
	WB	LTR	0.85	56.50	E	1.05	96.50	F	0.60	37.60	D	No Action Required	
Kings Highway & McDonald Avenue	NB	LTR	1.05	89.10	F	1.28	174.40	F	0.66	32.20	C	Prohibit parking for 100'; provide 2 moving lanes.	
	SB	LTR	1.04	88.70	F	1.37	213.60	F	0.71	34.60	C		No Action Required
Kings Highway & Coney Island Avenue	NB	L	0.69	34.70	C	0.98	87.70	F	0.79	44.40	D	Add 2 seconds.	Take 2 seconds.
Kings Highway & Stillwell Avenue	NB	LTR	0.89	48.00	D	1.03	77.20	E	0.84	39.60	D		
	SB	LTR	0.92	51.80	D	1.10	97.90	F	0.89	43.60	D	Add 4 seconds.	Take 4 seconds.
23rd Avenue & 84th Street	NB	LT	1.05	79.30	E	1.09	85.30	F	0.72	18.30	B	Prohibit parking for 100'; provide 2 moving lanes.	No Action Required
Ocean Parkway & Avenue W	EB	LTR	0.90	63.60	E	1.02	88.90	F	0.90	62.20	E	No Action Required	Prohibit parking for 100'; provide 2 moving lanes.
Ocean Parkway & Avenue X	EB	LTR	0.99	85.60	F	1.04	95.50	F	0.66	40.50	D		
	WB	LTR	0.89	63.40	E	1.10	108.00	F	0.70	40.20	D	No Action Required	Prohibit parking for 100'; provide 2 lanes.
Ocean Parkway & Avenue Z	EB	LTR	0.74	51.10	D	0.95	77.60	E	0.54	39.50	D		
	WB	LTR	0.91	74.10	E	1.10	124.80	F	0.55	40.40	D	No Action Required	Prohibit parking for 100'; provide 2 moving lanes.
Coney Island Avenue & Neptune Avenue	EB	L				0.97	78.60	E	0.52	29.60	C	Change signal phasing from two to three phase adding exclusive LT phase for EB/WB approaches. Take 8 seconds of green time.	Prohibit parking for 100'; provide 3 moving lanes. Add 8 seconds to exclusive left turn phase.
		LTR /TR	0.65	32.70	C	0.79	34.4.60	C	0.54	30.20	C		
Avenue X & West 3 Street	EB	LTR	1.05	80.7	F	1.18	126.20	F	0.96	53.50	D	Take 3 seconds.	Add 3 seconds.
Cropsey Avenue/W.17th Street & Neptune Avenue	SB	L	1.00	87.50	F	1.13	123.10	F	0.88	53.60	D	Convert W. 17 St. to one-way SB and reverse direction of W. 19 St, West 16 St, and W. 15 St. Restripe outbound north leg to 2 moving lanes, bike lane and parallel parking.	No Action Required
Surf Avenue & Stillwell Avenue	NB	LTR	0.72	56.7	E	0.96	102.2	F	0.66	45.1	D	Add 4 seconds	Take 4 seconds
Coney Island Avenue & Guider Avenue	SB	Def L	1.05	86.7	F	1.06	117.4	F	0.6	43.7	D	Create exclusive LT lane and phase for NB approach.	Implemented.

Table 4-2: Proposed Improvement Measures for Critical Intersections - Midday Peak Hour
Page 4 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Kings Highway & Ocean Parkway	EB	LTR	0.81	51.40	D	1.02	88.40	F	0.55	35.90	D	No Action Required	Prohibit parking 100'; make 2 moving lanes
Kings Highway & McDonald Avenue	NB	LTR	1.05	98.00	F	1.15	133.00	F	0.52	36.70	D	Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.	
	SB	LTR	1.02	91.80	F	1.24	168.40	F	0.55	37.60	D		No Action Required
Kings Highway & Coney Island Avenue	EB	LTR	0.81	46.30	D	0.98	72.80	E	0.48	29.60	C	No Action Required	Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.
Kings Highway & Stillwell Avenue	SB	LTR	0.93	63.20	E	1.13	118.20	F	0.90	53.80	D	Add 5 seconds	Take 5 seconds
23rd Avenue & 84th Street	NB	LT	1.05	80.80	F	1.27	160.70	F	0.55	12.70	B	Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.	No Action Required
Bay 32 Street & Benson Avenue	WB	LT	1.05	72.80	E	1.18	117.90	F	0.57	12.40	B	No Action Required	Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.
Avenue X & West 3 Street	EB	LTR	1.05	75.70	E	1.09	84.20	F	0.99	54.00	D	Take 3 seconds.	Add 3 seconds.
Ocean Parkway & Avenue X	EB	LTR	1.02	92.50	F	1.10	114.80	F	0.58	37.40	D		Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.
	WB	LTR	0.80	52.70	D	0.96	76.00	E	0.52	36.10	D	No Action Required	
Ocean Parkway & Avenue Z	EB	LTR	0.84	63.30	E	0.94	76.00	E	0.48	38.60	D		Prohibit parking for 100' from 4 - 7 PM; provide 2 moving lanes.
	WB	LTR	1.05	100.70	F	1.15	134.60	F	0.60	40.80	D	No Action Required	
Coney Island Avenue & Neptune Avenue	EB	L	1.05	142.60	F	1.27	218.50	F	0..67	52.00	D	Change signal phasing from two to three phases adding exclusive LT phase for EB/WB approaches. Take 12 seconds of green time.	Prohibit parking 100'; make 3 moving lanes; add 12 seconds.
		TR	1.05	98.90	F	1.28	182.90	F	0.54	39.20	D		
	WB	L	1.05	144.20	F	1.28	222.40	F	0.65	50.80	D		
		TR	1.05	101.20	F	1.28	184.50	F	0.53	39.00	D		
Cropsey Avenue/ W. 17th St. & Neptune Ave	SB	L	1.05	92.20	F	1.13	115.40	F	0.92	53.90	D	Convert W. 17 St. to one-way SB and reverse direction of W. 19 St, West 16 St, and W. 15 St. Restripe outbound north leg to 2 moving lanes, bike lane and parallel parking.	

Table 4-2: Proposed Improvement Measures for Critical Intersections - PM Peak Hour
Page 5 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Coney Island Avenue & Guider Avenue												Create exclusive LT lane and phase for NB approach.	Changed signal timing plan in 2006; added dual EB/WB LT phase
	SB	DefL	0.94	54.90	D	1.00	92.50	F	0.4	20.60	C		
Bay Parkway & Cropsey Avenue	WB	TR	1.05	74.40	E	1.10	91.30	F	0.98	54.40	D	Convert the southern leg to 3 NB and 3 SB lanes	Re-stripe WB to 4 lanes - make 2 L+1 T + 1 R; move centerline farther south to enable 2 left lanes; add signal phase for WB exclusive left
	NB	L	1.05	115.60	F	1.20	168.60	F	0.34	41.40	D		
	SB	TR	0.96	54.50	D	1.07	84.30	F	0.96	52.30	D		

Table 4-2: Proposed Improvement Measures for Critical Intersections - Saturday Peak Hour
Page 6 of 7

Intersection	Approach/ Movement		Existing Condition 2002			Future Condition 2015			Future Condition (2015) with Improvement			Proposed Improvement Measures	
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	NB/SB	EB/WB
Kings Highway & McDonald Avenue	NB	LTR	0.92	58.40	E	1.00	72.90	E	0.59	30.50	C	Prohibit parking for 100'; provide 2 lanes.	
	SB	LTR	0.90	56.10	E	1.04	87.20	F	0.53	29.30	C		
Cropsey Avenue & W. 17th St/ Neptune Avenue	WB	TR	1.02	67.50	E	1.06	77.00	E	0.72	30.50	C	Convert W. 17 St. to one-way SB and reverse direction of W. 19 St, West 16 St, and W. 15 St. Restripe outbound north leg to 2 moving lanes, bike lane and parallel parking.	Prohibit parking for 100'; provide 3 lanes.
	SB	L	1.05	85.70	F	1.08	93.50	F	0.90	50.30	D		
Coney Island Avenue & Guider Avenue	NB	DefL/L				0.95	75.60	F	0.78	54.10	D	Create exclusive LT lane and phase for NB approach.	Changed signal timing plan in 2006; added dual EB/WB LT phase.
		LTR/ TR	0.98	49.10	D	0.95	49.80	E	0.61	30.00	C		
	SB	DefL/L				0.84	57.80	E					
		LTR/ TR	1.05	66.80	E	1.11	97.6	F	0.82	37.5	D		
Bay Parkway & Cropsey Avenue	EB	L	0.48	39.2	D	0.64	53.40	D	0.64	53.40	D	Convert the southern leg to 3 NB and 3 SB lanes	Re-stripe WB to 4 lanes - make 2 L+1 T + 1 R; move centerline farther south to enable 2 left lanes; add signal phase for WB exclusive left
		T	0.74	42.7	D	0.88	54.80	D	0.88	54.80	D		
		R	1.05	89.1	F	1.12	109.5	F	0.90	49.20	D		
	NB	L	1.05	100.80	F	1.08	106.5	F	0.53	34.10	C		
	SB	L	0.68	53.3	D	0.70	62.20	E	0.59	45.00	D		
		TR	0.95	45.5	D	1.06	71.2	E	0.95	43.50	D		
Coney Island Avenue & Avenue Z	EB	LTR	0.95	54.6	D	1.05	77.10	E	0.69	30.2	C	Prohibit parking for 100'; provide 3 moving lanes.	
	WB	LTR	0.88	46.8	D	0.99	64.00	E	0.72	35.5	D		

Based on the HCS analysis and field observations, the following locations were identified for improvements:

1. Bay Parkway/Cropsey Avenue and Bay Parkway/Shore Pkwy (Implemented)

This intersection is extremely congested with heavy vehicular traffic during the peak hours and throughout the day because Bay Parkway and Cropsey Avenue are two major arterials in the area. There is also Belt Parkway on and off ramps that feed these corridors. The existing and future conditions analysis showed that the northbound, southbound, and westbound approaches experience failing LOS (E or F).

The following measures were recommended to improve operating conditions at these intersections:

1. Bay Parkway/Cropsey Avenue. On the westbound approach, shift the centerline farther south (10 feet) to create two exclusive left turn lanes, one through, and one right turn lane; create an additional phase for the exclusive left movement.
2. Bay Parkway (between Cropsey Avenue & Shore Parkway WB). Remove the raised median and crosswalk to permit the creation of three southbound and three northbound lanes on Bay Parkway. This would enable an exclusive right turn lane for Belt Parkway WB vehicles and reduce overall delays.
3. Bay Parkway/Shore Parkway WB exit. Reconfigure the approach by reducing the size of the island and creating two exclusive right and left turn lanes.

The above recommendations/implemented measures would improve safety and facilitate operations at both the intersection of Bay Parkway/Cropsey Avenue and Bay Parkway/Shore Parkway entrance and exit ramps. Figures 4-1 and 4-2 show the existing and proposed conditions at this location, additionally, the following pictures show delay for SB traffic at this location.

Figure 4-1: Bay Parkway/Cropsey Avenue and Bay Parkway/Shore Pkwy WB - Existing Conditions

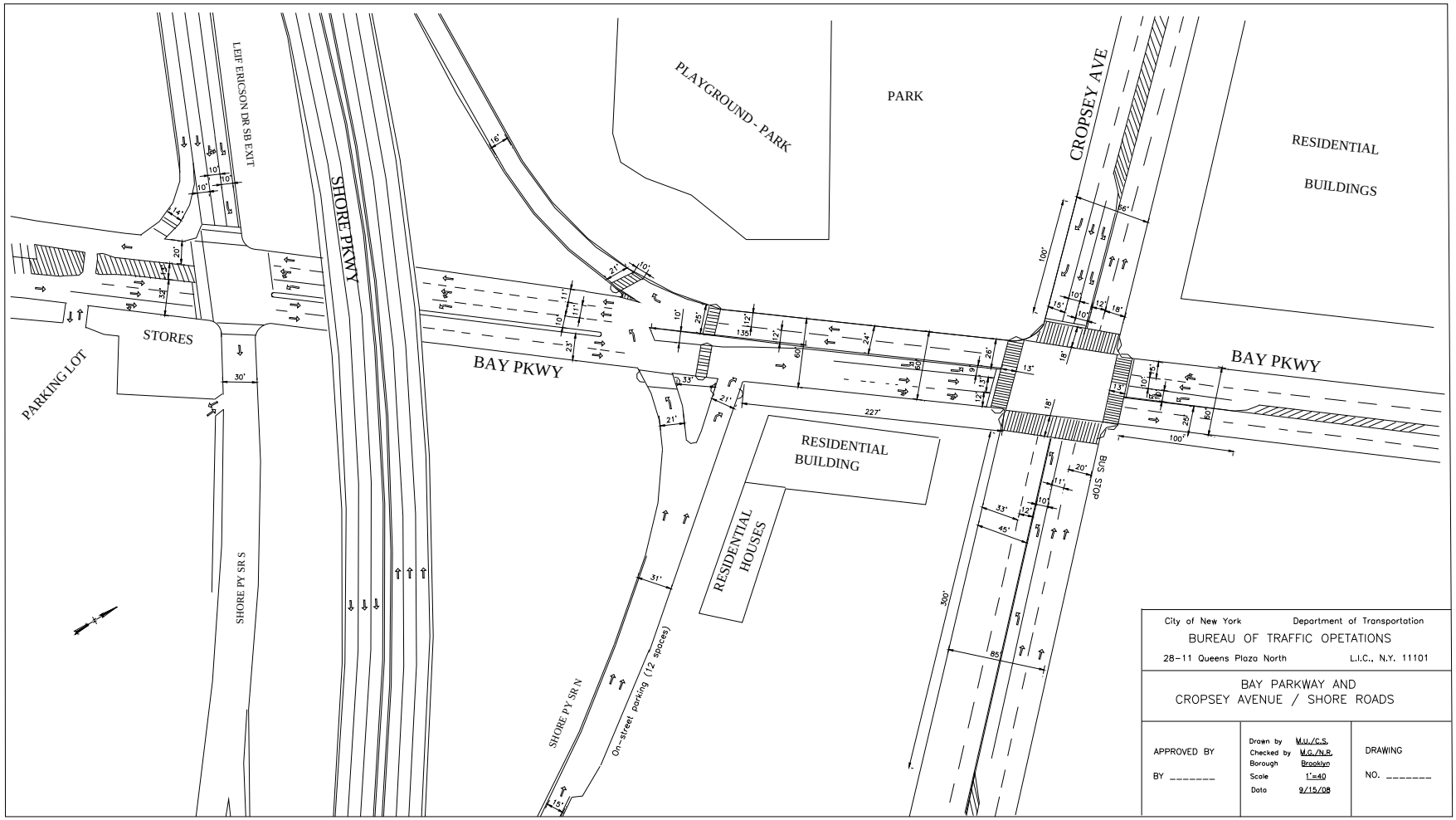
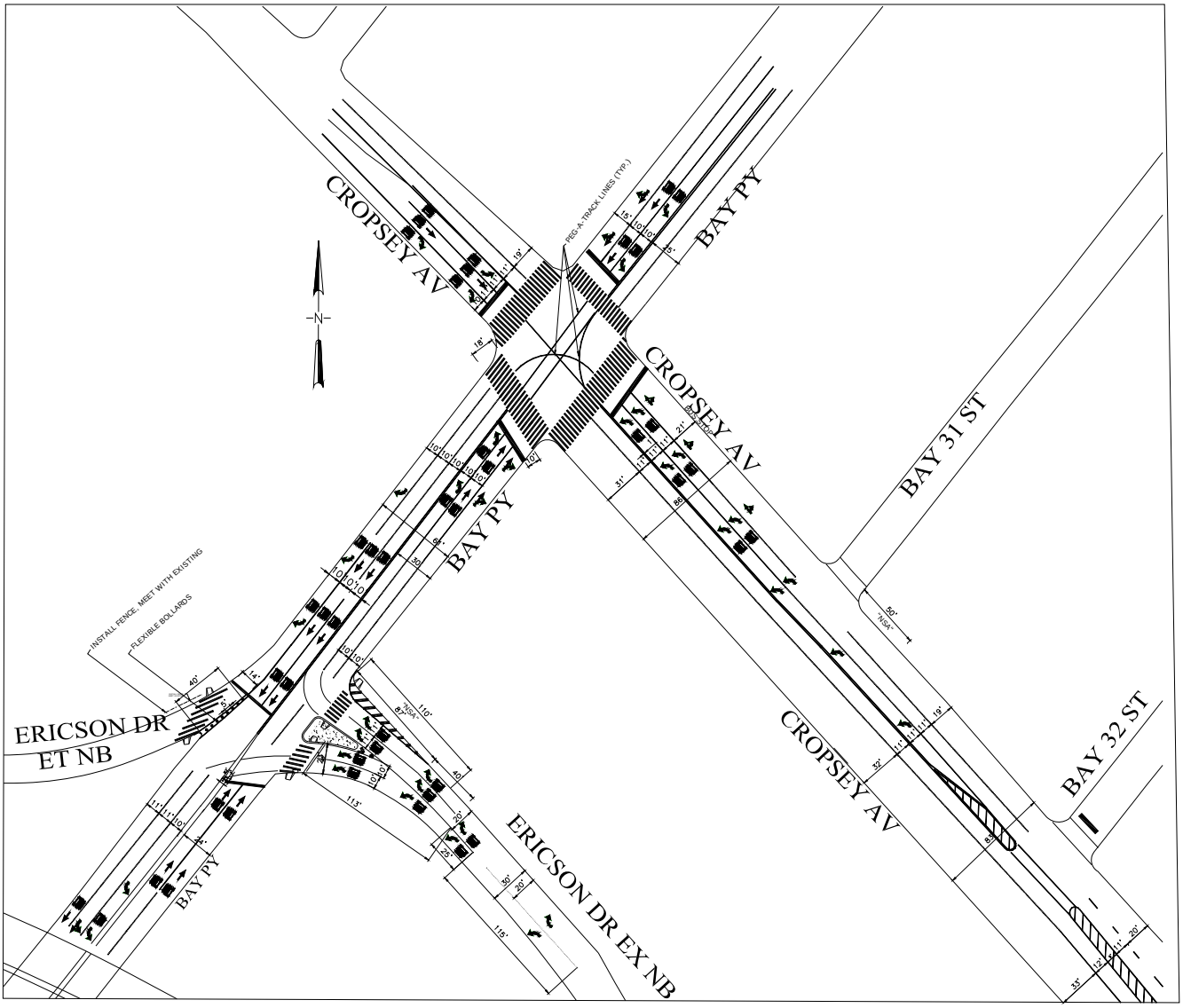


Figure 4-2: Bay Parkway/Cropsey Avenue and Bay Parkway/Shore Pkwy WB - Proposed Conditions



2. Cropsey Avenue/W. 17th Street and Neptune Avenue (Implemented)

This intersection is congested due to heavy vehicular volume and illegal parking activities at auto repair shops on the northeast and northwest corners of the intersection. Under future conditions for the AM, midday, PM, and Saturday peak hours, the southbound and westbound approaches experience LOS F.

The intersection's operation could be improved with the following measures:

1. Convert West 17th Street to one-way southbound from Neptune Avenue to Surf Avenue; convert West 19th Street to one-way northbound from Surf Avenue to Neptune Avenue; convert West 16th Street to one-way northbound from Surf Avenue to Hart Place; convert West 15th Street to one-way southbound from Hart Place to Surf Avenue; and convert Hart Place between West 16th and West 15th streets from westbound to eastbound.
2. On West 17th Street, remove parking for an additional 100 feet from the intersection on the south leg by installing "No Standing, 7AM – 7PM, Monday to Friday" parking regulations.
3. Restripe the northbound northern leg to two moving lanes, a bike lane, and parallel parking (currently angled parking).
4. Signalize the Neptune Avenue/West 19th Street intersection and install a pedestrian refuge on Neptune Avenue.

These changes would improve operations at this intersection by eliminating the southbound left conflict and delays as well as northbound delays due to illegally parked vehicles on the north leg. Figures 4-3, 4-4, and 4-5 show the existing and proposed conditions.

Figure 4-3: Neptune Avenue & Cropsey Avenue/West 17th Street - Existing Condition

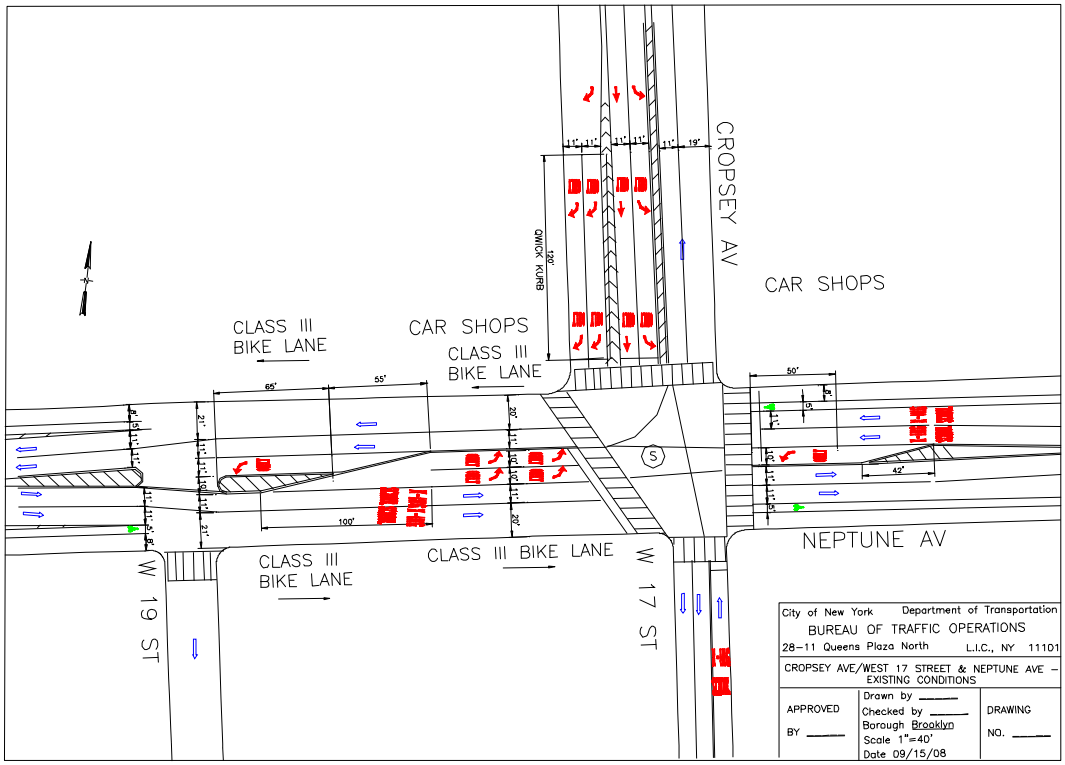


Figure 4-4: Neptune Avenue & Cropsey Avenue/West 17th Street - Proposed Condition

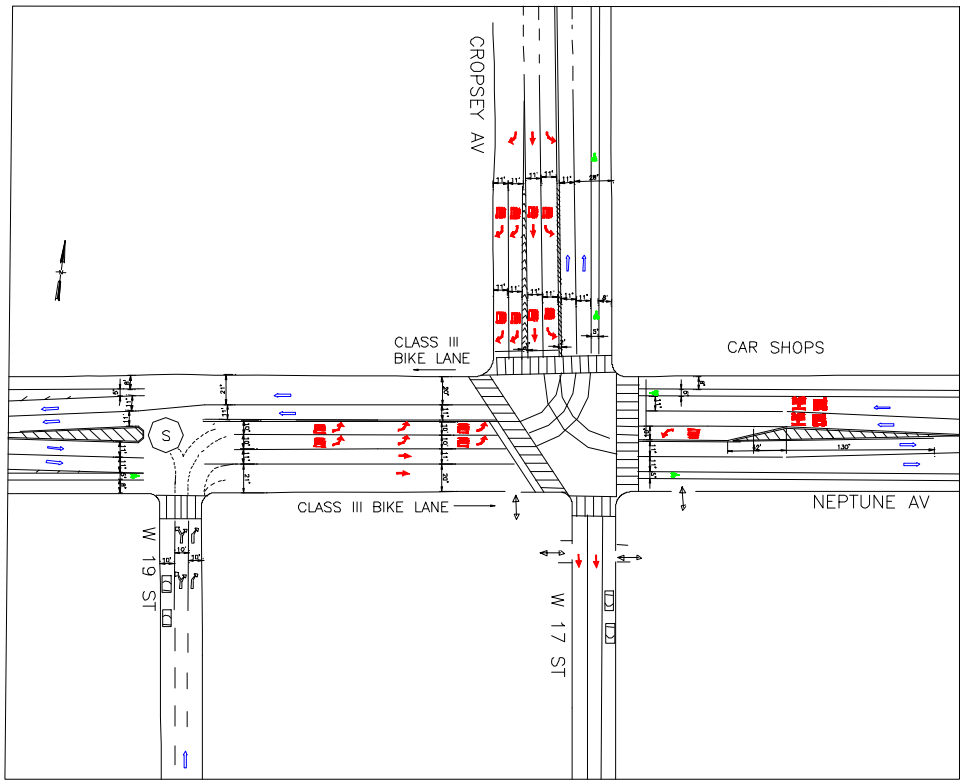
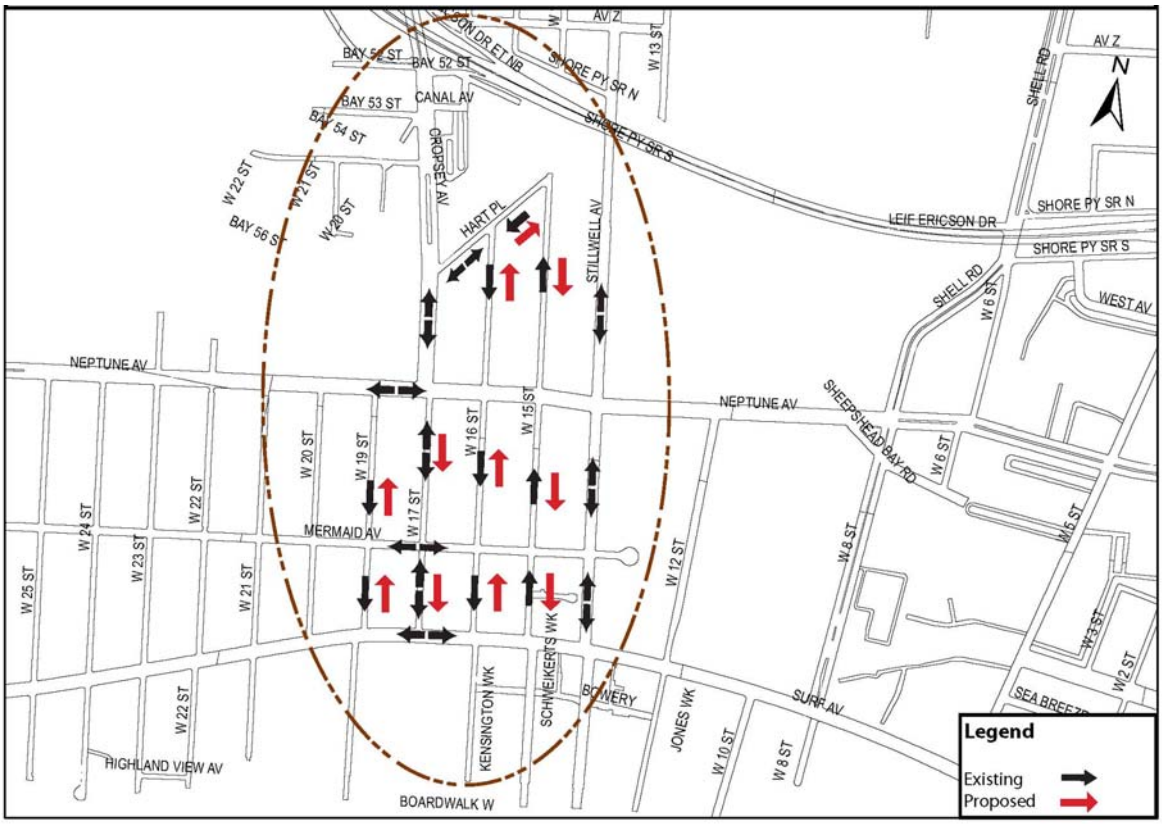


Figure 4-5: Proposed Street Direction Changes for Hart Place, West 19th, West 17th, West 16th, and West 15th Streets



3. Coney Island Avenue and Guider Avenue/Belt Pkwy Entrance

This intersection is extremely congested with heavy vehicular traffic during all peak hours and throughout the day due to Coney Island and Guider Avenues being major thoroughfares that provide access to ramps for the Belt Parkway. The existing condition analysis showed that the eastbound approach experienced a failing LOS (E or F). The future conditions analysis along with field observations show that the northbound and southbound left movements need to be improved.

The intersection's operation could be improved by with the following measures:

1. Restripe the northbound approach to provide an exclusive left turn lane, a through, and a through-right lane; and create a 12 seconds northbound left turn phase.
2. Prohibit southbound left turns and redirect the traffic to the next intersection (Coney Island Avenue/Neptune Avenue).

As a result of these improvements, safety and operations will be improved due to fewer conflicts between through and turning vehicles. Figures 4-6 and 4-7 show the existing and proposed geometric configuration for the intersection.

4. Coney Island Avenue and Neptune Avenue

The existing and future conditions analyses showed that during the AM, midday, and PM peak hours, the eastbound and westbound approaches experience LOS F. Prohibition of the southbound left turns at Coney Island Avenue/Guider Avenue will increase the southbound left volume at Coney Island Avenue and Neptune Avenue

The following measures are proposed to improve operating conditions at this intersection:

1. Install an exclusive left lane and phase (15 secs) for the southbound and northbound movement,
2. Install a left turn phase for the eastbound/westbound traffic (13 secs.), and
3. Restrict parking for 100 feet from the intersection to provide an additional moving lane by installing "No Standing 7AM-7PM Monday to Friday" sign on the southwest and northeast curbs of Neptune Avenue. Mark the new lane for through/right movements and the inner lane for through/left movements on the east and westbound approaches.

Figures 4-8 and 4-9 show the existing and proposed conditions at this location. As a result of the above improvement measures, overall operations at this location will be improved.

Figure 4-6: Coney Island Ave & Guider Ave/Belt Pkwy Entrance - Existing Condition

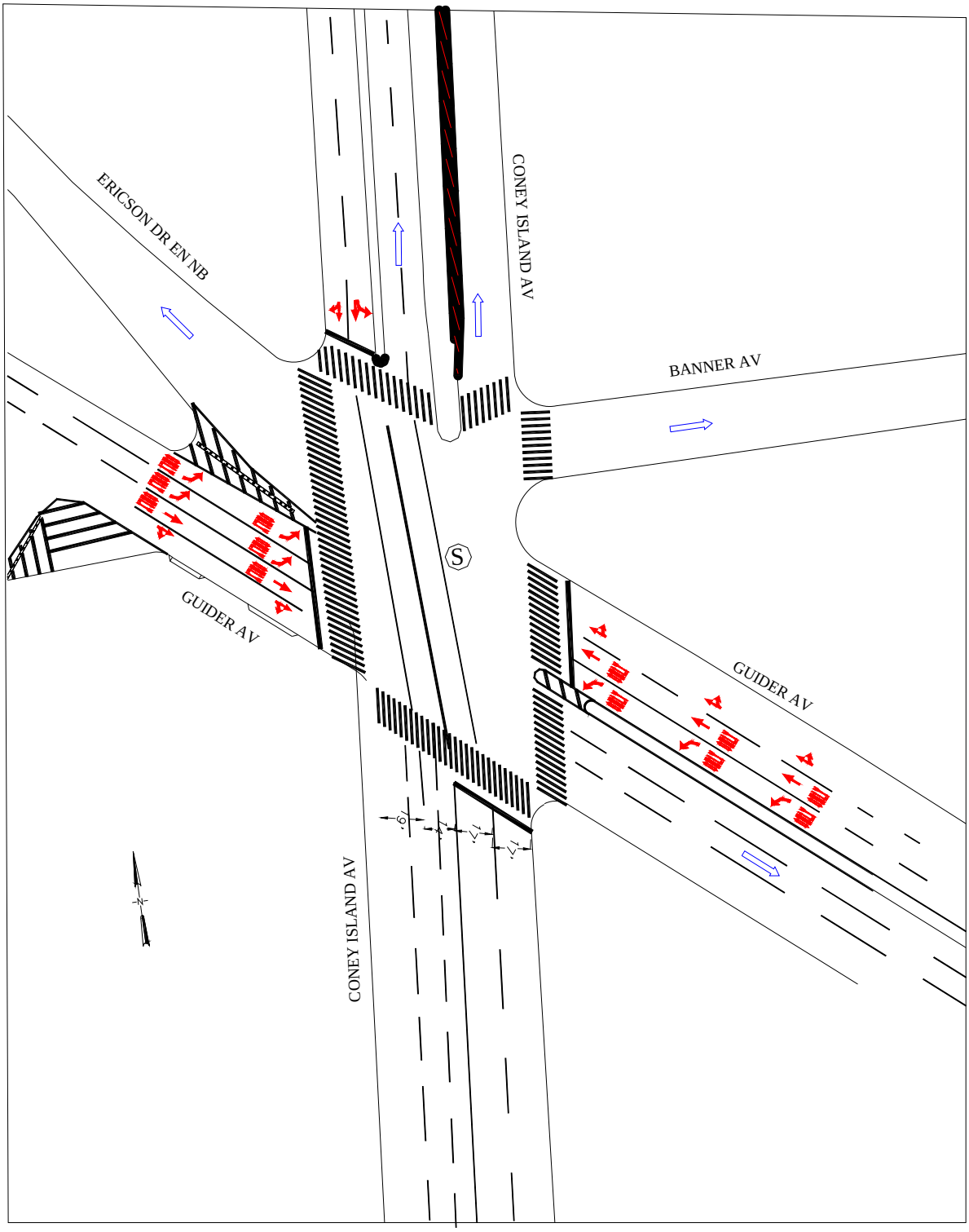


Figure 4-7: Coney Island Ave & Guider Ave/Belt Pkwy Entrance - Proposed Condition

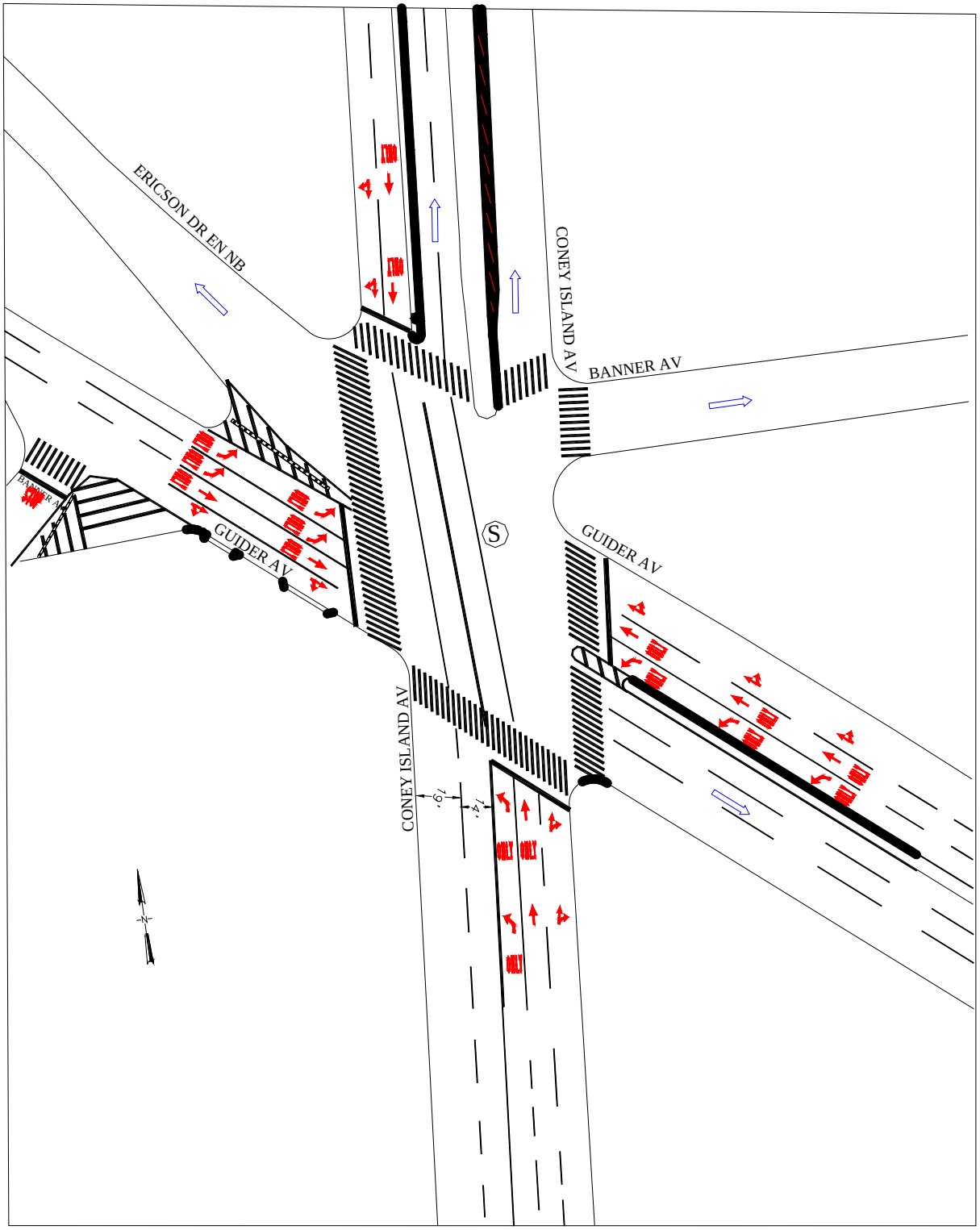


Figure 4-8: Coney Island Avenue/Neptune Avenue - Existing Condition

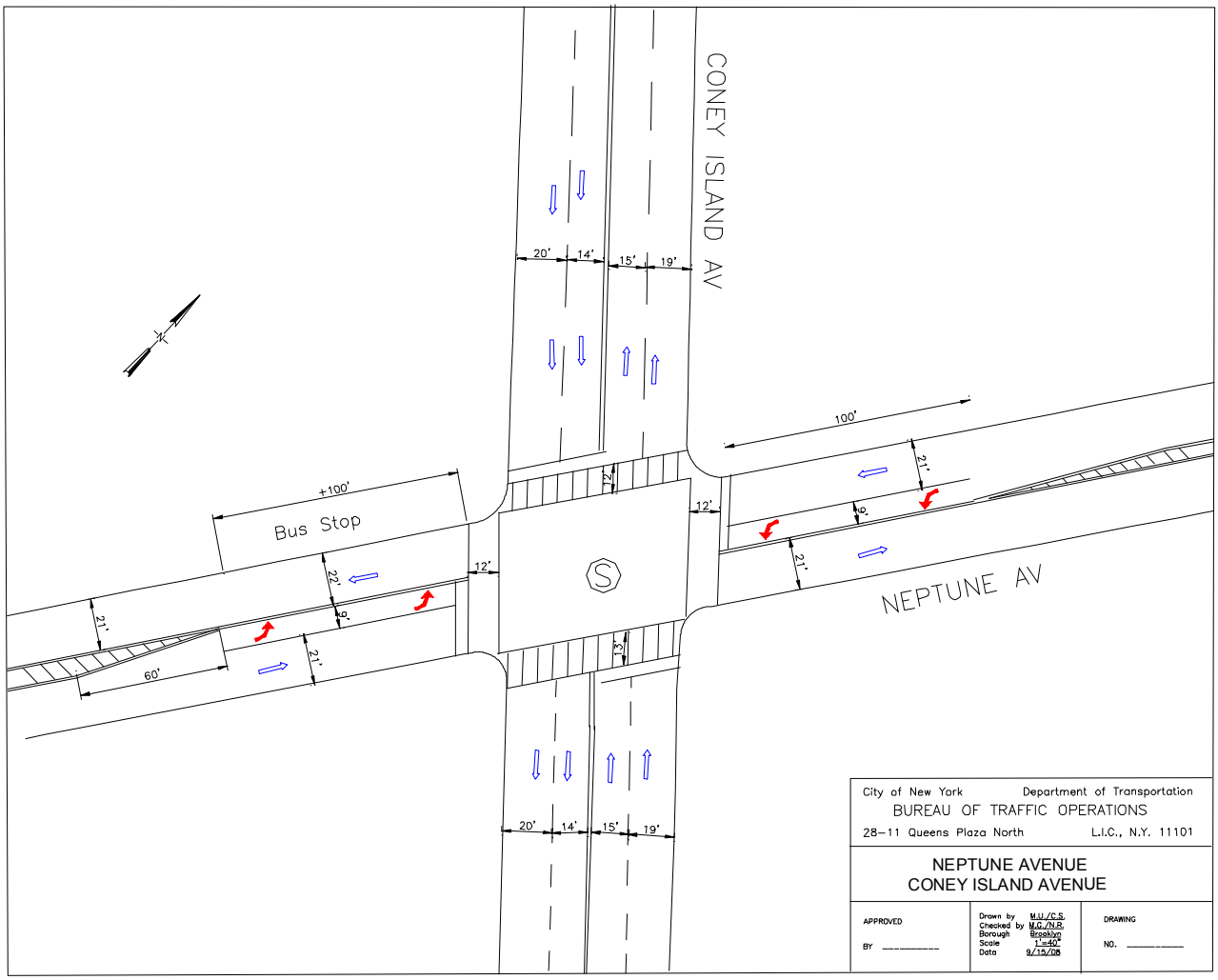
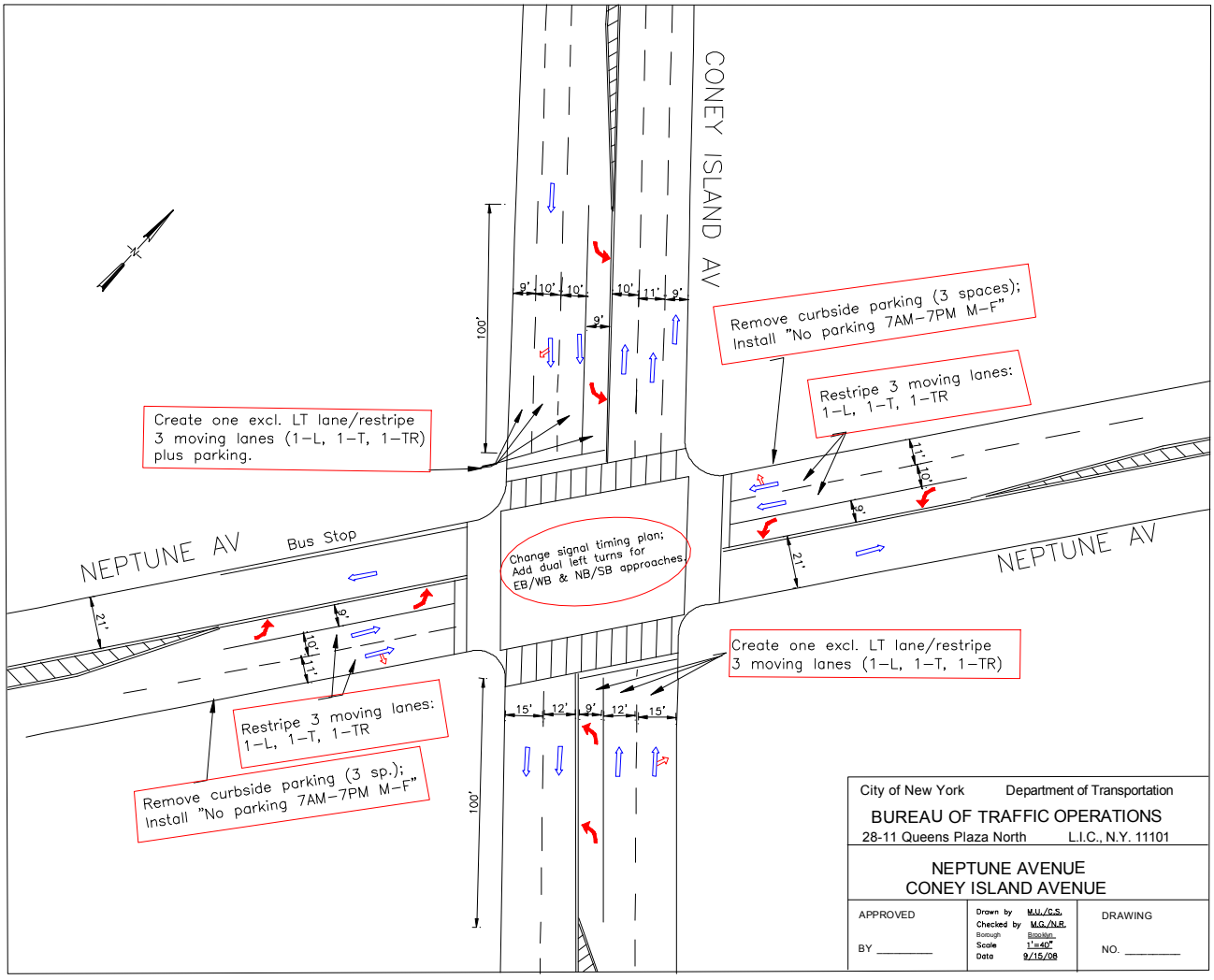


Figure 4-9: Coney Island Avenue/Neptune Avenue - Proposed Condition



5. Surf Avenue Entertainment District (West 8 Street to West 19 Street)

Surf Avenue has been, and will continue to be, a major destination in Coney Island due to the many attractions located there. The following proposed recommendations would improve safety along the corridor (between West 8 Street and West 19 Street) where heavy pedestrian activity occurs.

West 8th Street.

- Extend the westbound left turn bay by 100 feet to accommodate high volumes during the peak periods.
- Modify signal timing plan to provide an exclusive left turn phase on the westbound approach during the summer months.
- Install pedestrian signal on the eastbound approach.
- During the AM peak hour, restrict parking on the southbound approach for 100 feet to provide an additional moving lane by installing "No Standing Anytime, 7AM to 10 AM" sign. The southbound approach would be restriped as four lanes (two exclusive left, one through, and one right moving lane).

The existing and proposed improvements for West 8 Street and West 10 Street are shown in Figures 4-10 and 4-11.

Figure 4-10: Surf Avenue at West 8th Street and West 10th Street - Existing Condition

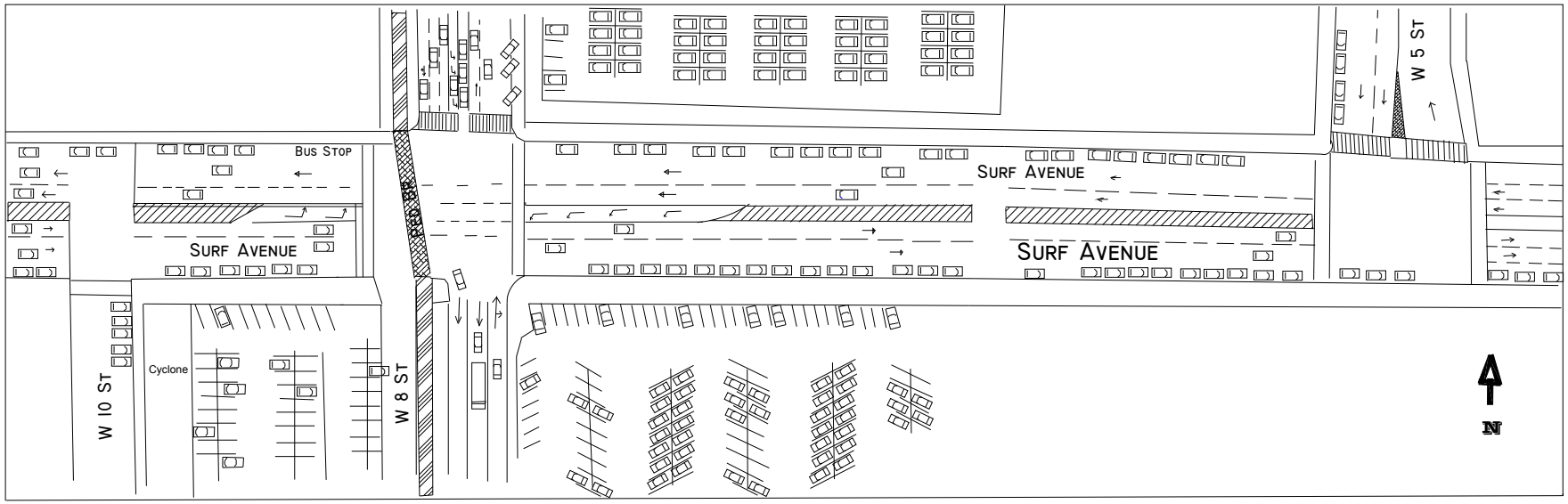
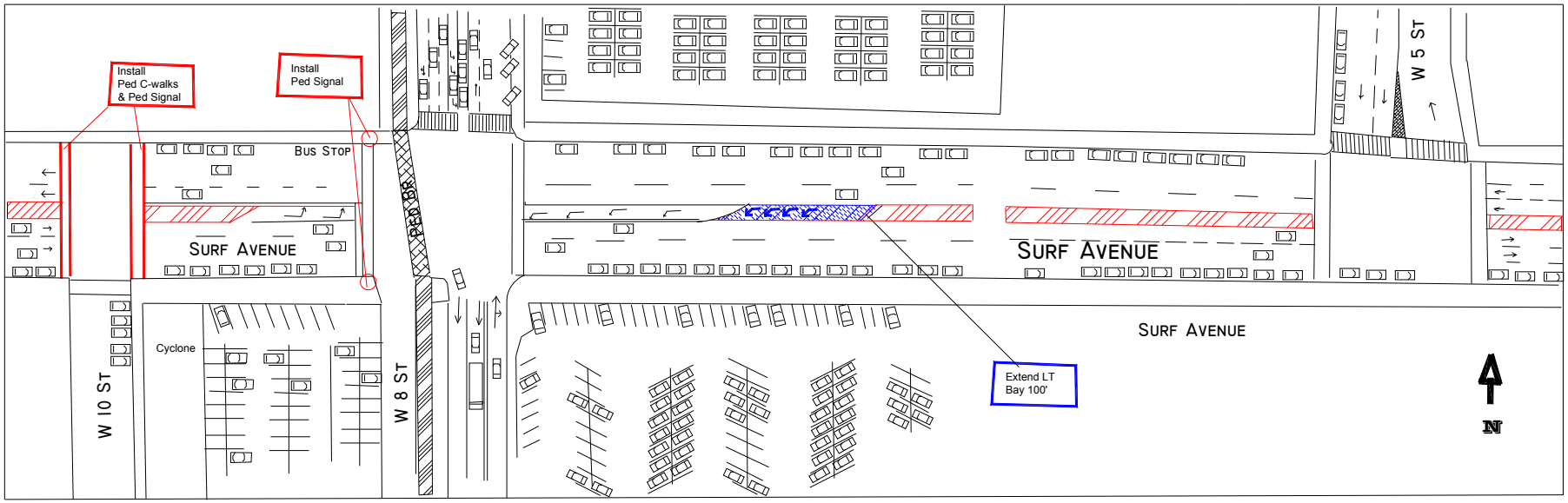


Figure 4-11: Surf Avenue from West 8th Street to West 10th Street - Proposed Condition



Stillwell Avenue.

- Reallocate four seconds of green time from EB/WB phase to the NB/SB phase during the midday peak hour.
- Install pedestrian fence on the north side of Surf Avenue at the subway entrance for 75 feet from starting at the crosswalk to encourage pedestrians to use the crosswalk. Relocate westbound bus stop 75 feet from intersection (behind pedestrian fence).
- Widen the westbound approach crosswalk from 12 to 20 feet to accommodate heavy pedestrian volume in the summer.
- Introduce a leading pedestrian interval (LPI) in the signal plan for the NB/SB movement to reduce conflicts between pedestrians and motorists.
- Daylight the northbound approach by restricting parking for approximately 75 feet from the intersection and post "No Standing Anytime" sign to create two lanes (one left-through and one right turn) in order to reduce approach delay.
- Extend westbound left turn bay for an additional 100 feet.

The existing conditions and proposed improvements for Surf Avenue/Stillwell Avenue are shown in Figures 4-12 and 4-13.

The pictures below show typical pedestrian crossing pattern at the intersection of Surf Avenue/Stillwell Avenue as passengers exit the train station during the summer peak period.

Surf & Stillwell Avenues (looking north) - Peak period pedestrian activity

Figure 4-12: Surf Avenue/Stillwell Avenue - Existing Condition

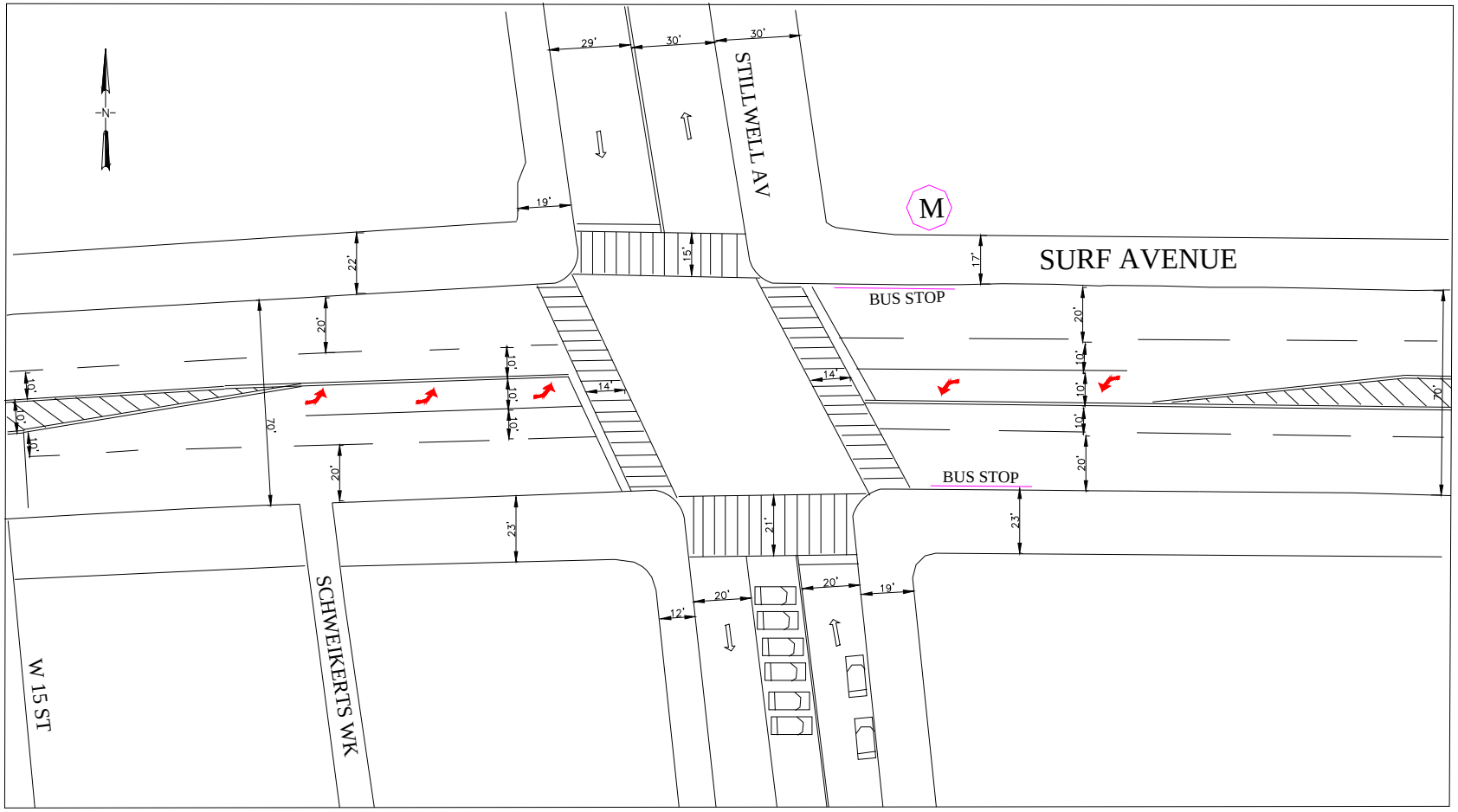
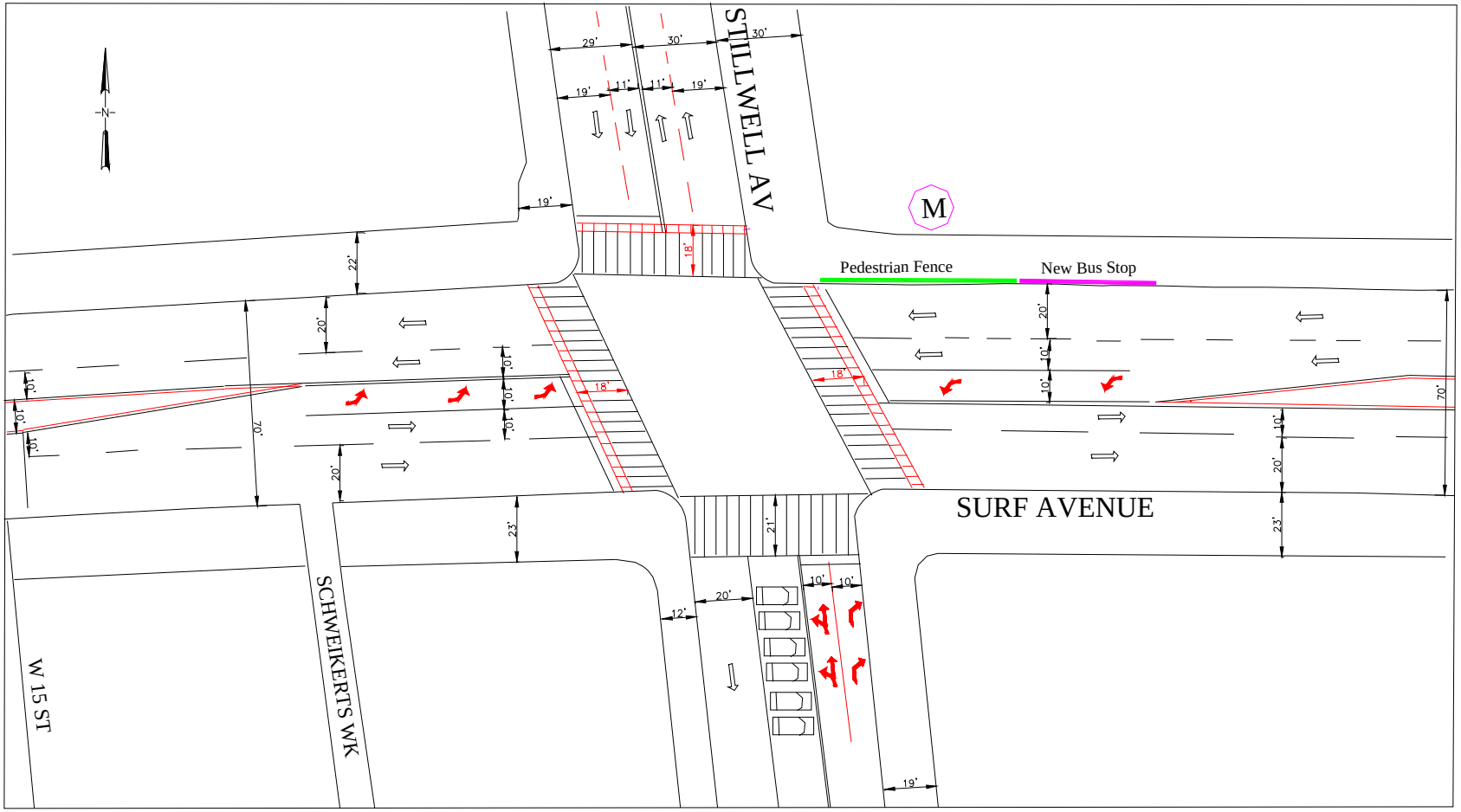


Figure 4-13: Surf Avenue/Stillwell Avenue - Proposed Condition

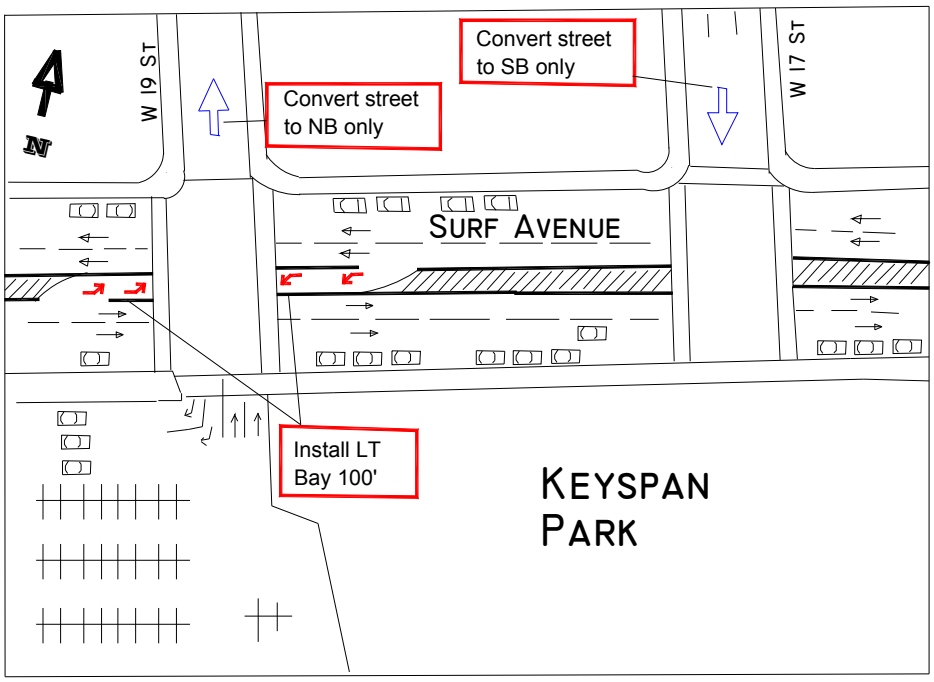


West 19th Street.

- Install left turn bays (100 feet) on the eastbound and westbound approaches.

The proposed improvements for the intersection of Surf Avenue/West 19th Street are shown in Figure 4-14.

Figure 4-14: Surf Avenue/West 19th Street - Proposed Condition



6. Shell Road/West 8th Street and Neptune Avenue

The future conditions analysis showed that during the AM peak hour, the eastbound approach experiences LOS F due to roadway capacity limitations, heavy vehicular demands and signal timing.

To improve operations during the AM peak hour, install an exclusive dual left turn phase for the eastbound and westbound approaches. Restripe eastbound and westbound approaches to provide exclusive left turn lanes for 100 feet. Reallocate eight seconds from EB/WB and four seconds from NB/SB phase for the new exclusive left turn phase. Figures 4-15 and 4-16 show the existing and proposed conditions at this location.

Figure 4-15: Neptune Avenue & Shell Road/West 8th Street - Existing Condition

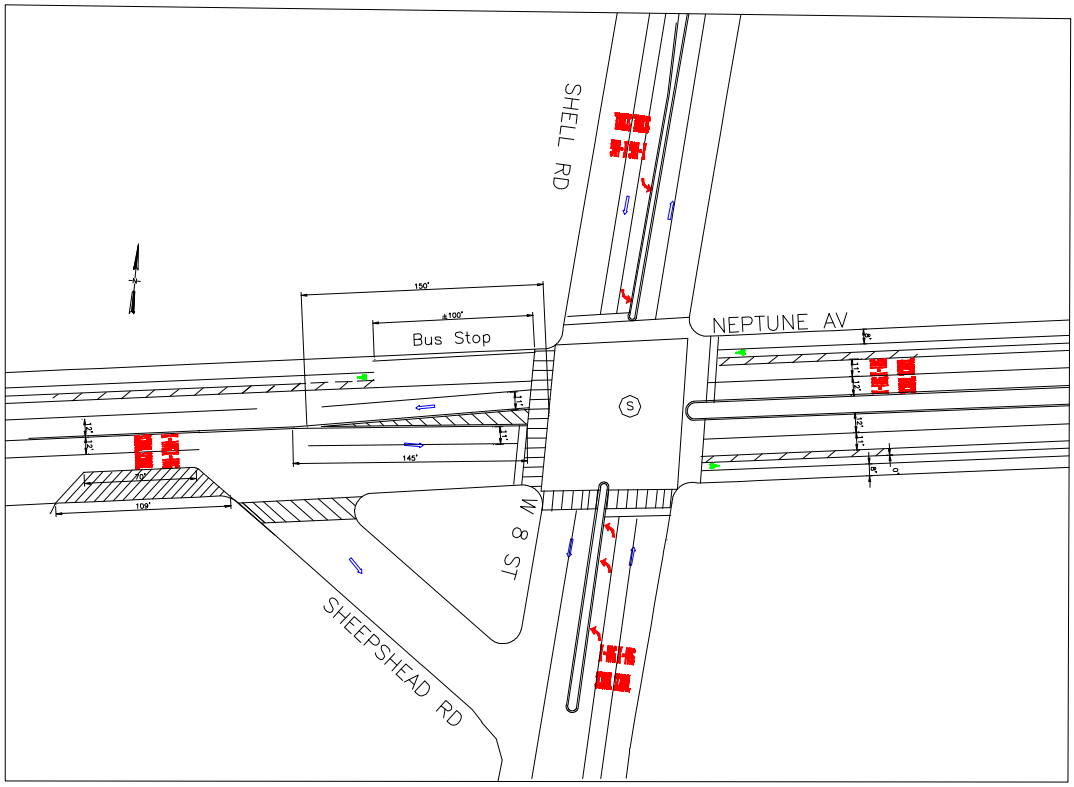
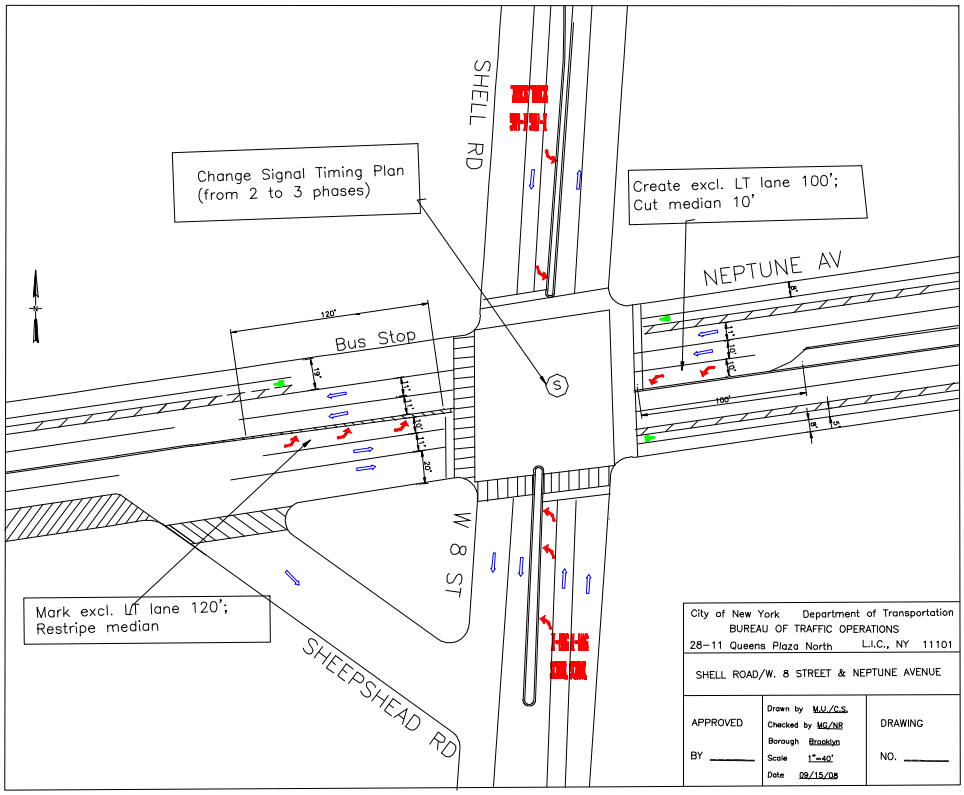


Figure 4-16: Neptune Avenue & Shell Road/West 8th Street - Proposed Conditions



7. Cropsey Avenue/Avenue Z/Shore Parkway Exit

Avenue Z merges with Shore Parkway Exit where Cropsey Avenue begins. No controls currently exist for motorists on either approach and there is an active pedestrian crossing (unmarked) a few feet away. To improve safety at this location, it is proposed that a flashing light be installed on Shore Parkway exit, a STOP sign on Avenue Z, and daylight the southern curb of Avenue Z. The existing and proposed conditions are shown in Figure 4-17 and 4-18.

Figure 4-17: Cropsey Avenue/Avenue Z/Shore Parkway Exit - Existing Condition

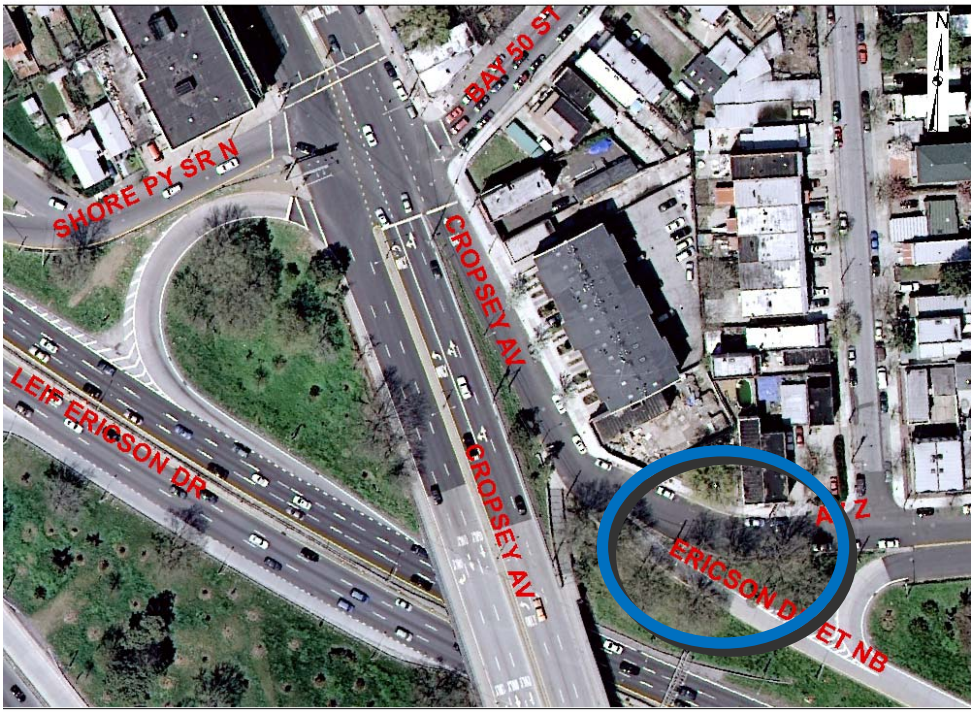
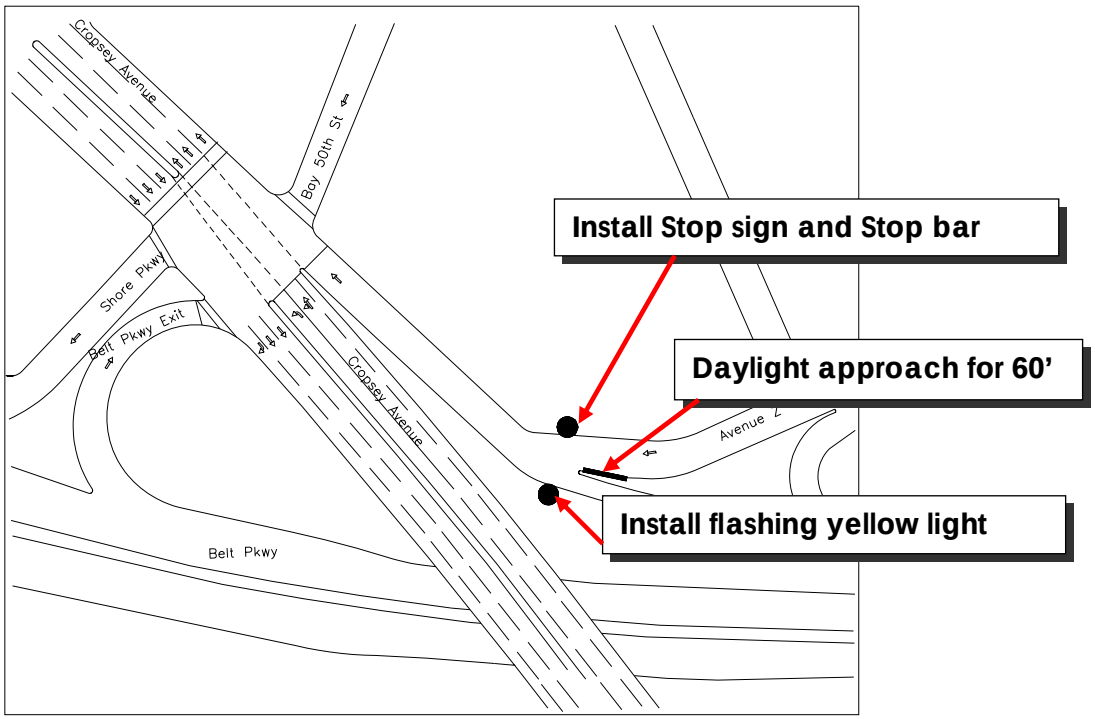


Figure 4-18: Cropsey Avenue/Avenue Z/Shore Parkway Exit - Proposed Condition



8. Ocean Parkway/West Avenue

Conflict exists between Ocean Parkway mainline southbound vehicles making a right turn onto West Avenue and vehicles on service road travelling southbound. It is recommended that the service road be signalized to minimize conflicts and to facilitate the addition of a pedestrian signal on West Avenue (the eastbound approach), where many students cross the roadway. The pictures below show the existing and proposed conditions at this location.

Ocean Pkwy/West Ave – looking northwest
(no pedestrian signal on West Avenue)

Ocean Pkwy/West Ave – looking north
(pedestrian signal on Greenway)

Ocean Parkway/West Avenue – looking west

9. Brighton Beach Avenue, and 86 Street Truck Loading/Unloading Zones.

Brighton Beach Avenue between Ocean Parkway and Coney Island Avenue, and 86th Street between Bay Parkway and Stillwell Avenue are two areas where commercial activity is concentrated in the study area and where double-parked trucks are often observed.

Parking along Brighton Beach Avenue and a portion of 86th Street is controlled by muni-meters. Figures 4-19a-b show the proposed locations for truck loading/unloading areas on each aforementioned corridor. The restricted truck loading/unloading area would be about 80 feet long (four car spaces).

Figure 4-19a: Brighton Beach Avenue - Proposed Truck Loading/Unloading Zones

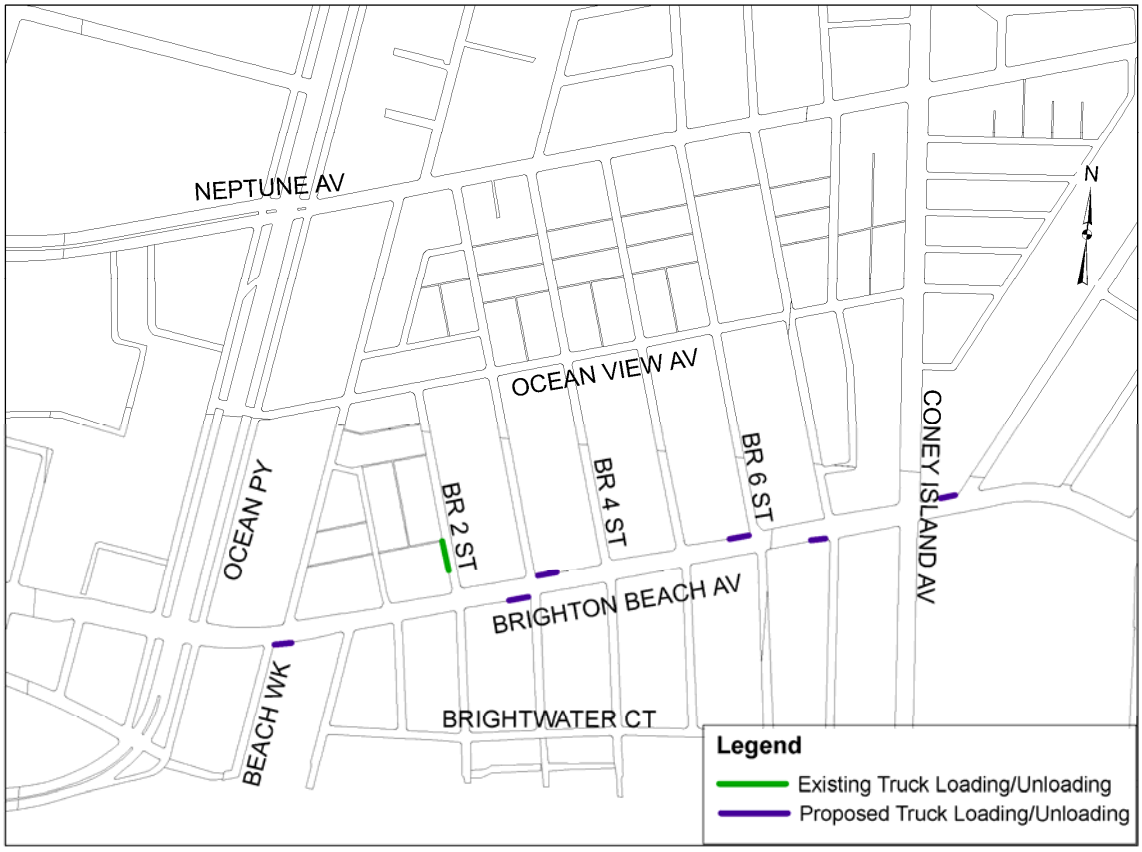


Figure 4-19b: 86th Street = Proposed Truck Loading/Unloading Zones

10. Installation of Bike Lane along West Avenue and West 5th Street

Both West Avenue and West 5th Street traverse areas that have high residential population density, green spaces, and schools. These wide streets (50 feet) operate with one moving lane in each direction. To reduce speed, improve safety, and link green spaces and recreational areas, the addition of a bike lane on both corridors would be beneficial.

11. Kings Highway and Ocean Parkway

The future conditions analysis showed that during the AM, midday, and PM peak hours, the eastbound, westbound, and northbound approaches experience LOS F.

To improve these conditions, it is recommended that parking be restricted for approximately 100 feet by installing "No Standing 7AM-7PM, Monday to Friday" sign on the northeast and southwest curbs of Kings Highway to provide an additional moving

lane. This would result in the loss of five parking spaces. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements.

12. Kings Highway and McDonald Avenue

The analysis showed that under both the existing and future condition, the northbound and southbound approaches experience LOS F during the AM, midday, PM, and Saturday midday peak hours.

To improve these conditions, it is recommended that parking be restricted for approximately 100 feet by installing "No Standing 7AM-7PM, Monday to Friday" sign on the southeast and northwest curbs of McDonald Avenue to provide an additional moving lane during the AM, midday, and PM peak hours. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements.

13. Kings Highway and Stillwell Avenue

The existing and future conditions analysis show that during the AM, midday, and PM peak hours, the eastbound and westbound approaches of Kings Highway experience LOS E and F.

To improve operations, reallocate four seconds of green time from the eastbound/westbound phase to the northbound/southbound Avenue phase during the AM and midday peak hours and five seconds during the PM peak hour.

14. Kings Highway and Coney Island Avenue

The existing and future conditions analysis showed that the eastbound and northbound approaches experience LOS E or F during the AM, midday, and PM peak hours.

To improve operations it is recommended that parking be restricted for 100 feet by installing "No Standing 7AM-7PM, Monday to Friday" sign on the southwest curb of Kings Highway and southeast curb of Coney Island Avenue to provide an additional moving lane during the rush hours. The additional lane in both the eastbound and northbound approach would be marked for through/right movements and the inner lane on Kings Highway would be marked for through/left movements.

15. Coney Island Avenue and Avenue Z

The future conditions analysis showed that during the AM and Saturday midday peak hours, the eastbound and westbound approaches of Avenue Z experience LOS E.

To improve operating conditions, reallocate four seconds of green time from the NB/SB (Coney Island Avenue) phase to the EB/WB (Avenue Z) phase during the AM and Saturday midday peak hours.

16. Ocean Parkway and Avenue W

The existing and future conditions analysis showed that during the AM and midday peak hours, the eastbound, westbound, and northbound approaches experience LOS E or F.

To improve operations it is recommended that parking be restricted during the AM and midday (EB and WB) peak hours for approximately 100 feet from the intersection to provide an additional moving lane by installing "No Standing 7-10 AM and Noon-3PM, Monday to Friday" regulations on the northeast and southwest curbs of Avenue W. The additional lane would be marked for through/right movements and the inner lane should be marked for through/left movements.

17. Ocean Parkway and Avenue X

The existing and future conditions analysis showed that during the AM, midday, and PM peak hours, the eastbound, westbound, and northbound approaches experience failing LOS (E or F).

On the eastbound and westbound approach, restrict parking for approximately 100 feet to provide an additional moving lane by installing "No Standing 7AM-7PM, Monday to Friday" regulation. This would involve the loss of five parking spaces during the weekday peak hours. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements.

18. Ocean Parkway and Avenue Z

The existing and future conditions analysis showed that during the AM, midday, and PM peak hours, the eastbound, westbound, and northbound approaches experience LOS E.

On the eastbound and westbound approach, restrict parking for 100 feet to provide an additional moving lane by installing "No Standing 7AM-7PM, Monday to Friday" regulation. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements

19. Avenue T and West 5th Street

The future conditions analysis showed that during the AM peak hour, the eastbound approach of Avenue T experiences LOS F. To improve operation, reallocate three seconds of green time from NB/SB phase to the EB/WB phase during the AM peak hour.

20. Avenue X and West 3rd Street

The future conditions analysis showed that during the midday and PM peak hours, the eastbound approach of Avenue X experiences LOS F. To improve operation, reallocate three seconds of green time from NB/SB phase to the EB/WB phase during the midday and PM peak hours.

21. Bay 32nd Street and Benson Avenue

The future conditions analysis showed that during the PM peak hour, the westbound approach experiences LOS F. To improve operation, restrict parking for 100 feet by installing "No Standing 4PM-7PM, Monday to Friday" sign on the northeast curb of Benson Avenue to provide an additional moving lane during the PM peak hour. The additional lane should be marked for through/right movements and the inner lane should be marked for through/left movements.

22. 23rd Avenue and 84th Street

The future conditions analysis showed that during the AM, midday, and PM peak hours, the northbound approach experiences LOS F. On the northbound approach restrict parking for 100 feet to provide an additional moving lane by installing "No Standing 7AM -7PM, Monday to Friday" sign. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements.

23. Bath Avenue and Bay 35th Street

The future conditions analysis showed that during the AM peak hour, the eastbound approach experiences LOS F due to roadway capacity limitations and heavy vehicular demands.

To improve operation during the AM peak hour, restrict parking for 100 feet by installing "No Standing 7AM-10AM, Monday to Friday" sign on the southwest curb of Bath Avenue to provide an additional moving lane. The additional lane would be marked for through/right movements and the inner lane would be marked for through/left movements.

.

Recent Improvements

As part of the Brighton Beach Senior Pedestrian Focus Study several improvements were implemented throughout Brighton Beach. Some of the improvement measures were area-wide while others were location-specific.

Some area-wide improvements included:

1. changing the signal timing for pedestrian crossing time from 4 feet/second to 3 feet/second
2. installing stop bars 10 feet from the crosswalk at signalized intersections, and
3. upgrading or refurbishing signage, ramps, roadbeds, and curbs.

The location-specific improvements are as follows:

1. Ocean Parkway/Neptune Avenue. Improvement measures implemented at this location include:
    - Signal phase for vehicles making right turn from south bound Ocean Parkway mainline
    - Installation of pedestrian refuge on Ocean Parkway mainline
    - Reduction of the number of moving lanes between Belt Parkway and Sea Breeze Avenue from three lanes to two north of Neptune Avenue and four lanes to three south of Neptune Avenue
    - Reduction in the number of moving lanes on west bound Neptune Avenue from two to one.
    - Installation of high visibility crosswalks

2. Brighton Beach Avenue Corridor. Improvement measures include:
    - Installation of truck loading and unloading zones on the northside of corridor between Brighton 3 and 4 streets as well as Brighton 6 and 7 streets.
    - Installation of stop bars 10 feet from the crosswalk
    - Repair of broken sidewalks and curbs at West Brighton Avenue/West 5th Street, Brighton Beach Avenue/Ocean Parkway, and Brighton Beach Avenue/Brighton 4th Street.

3. Brighton Beach Avenue/Coney Island Avenue. Improvement measures include:
    - Installation of pedestrian refuge islands on the north and south legs of Coney Island Avenue and the east leg of Brighton Beach Avenue
    - Removal of the Barnes Dance from the signal timing plan and installation of a eight-second leading pedestrian interval (LPI) for both crossings
    - Installation of pedestrian signal on pillar of north crosswalk

4. Neptune Avenue/West 5th Street. Improvements measures include:
    - Removal of Barnes Dance from the signal timing plan and installation of a 12-second leading pedestrian interval (LPI) for Neptune Avenue crossing and a eight-second leading pedestrian interval (LPI) for West 5th Street.
    - Installation of left turn bay on westbound Neptune Avenue

APPENDICES

Part I: Existing Conditions

Appendix A Vacant Parcels in Coney Island
Appendix B Pedestrian Crosswalk/Corner Analyses
Appendix C Parking Utilization Rates

Part II: Future Conditions

Appendix A Complete 2015 and 2025 Traffic Volume Maps
Appendix B Pedestrian Crosswalk/Corner Analyses
Appendix C Projected Parking Utilization

Part I: Existing Conditions

APPENDIX A

Appendix A: Vacant Parcels in Coney Island

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	6978	22	DEPT OF GENERAL SERVICE	C8-1	38x121	3,557	3566 CANAL AVE
1	6991	41	DEPT OF GENERAL SERVICE	C3	125x54.85	6,856	NEPTUNE AVE
1	6992	47	DEPT OF GENERAL SERVICE	C3	117.63x53.33	6,273	2021 NEPTUNE AVENUE
2	6992	128	THREE G'S	M3-1	100x140.92	14,092	CONEY ISLAND AVENUE
						20,365	
1	6994	21	THREE G'S	M3-1	40x100	4,393	HAIT PLACE
1	6995	74	THEODORE DALMAZIO	M1-2	40 X 137.58	5,503	2706 W 16 ST
2	6995	76	ANGELO DESIMONE	M1-2	40 X 118.75	2,375	2710 W 16 ST
3	6995	89	YOLANDA YURMAN	M1-2	20 X 118.75	2,375	2742 W 16 ST
4	6995	96	GREG M SUGARMAN	M1-2	20 X 100	2,000	2758 W 16 ST
5	6995	99	UMBERTO ANZALONE	M1-2	20 X 100	2,000	2766 W 16 ST
6	6995	20	PAVEL B LESIN	M1-2	20 X 118.58	2,372	CROPSEY AVENUE
7	6995	29	ANGELO DESIMONE	M1-2	20 X 118.58	2,372	3069 CROPSEY AVENUE
						18,997	
1	6996	67	2772 W 15 ST ASSOC	M1-2	20 X 118.75	2,375	2730 W. 15 ST
2	6996	68	2772 W 15 ST ASSOC	M1-2	20 X 118.75	2,375	WEST 15 ST
3	6996	85	2772 W 15 ST ASSOC	M1-2	20 X 118.75	2,375	2768 W 15 ST
4	6996	91	JOHN E JUDICE	M1-2	20 X 100	2,000	WEST 15 ST
5	6996	92	JOHN E JUDICE	M1-2	80 X 100	8,000	2784 W 15 ST
6	6996	14	CK ISLAND REALTY	M1-2	20 X 118.75	2,375	WEST 16 ST
7	6996	104	JOHN RUGGIERO	M1-2	19.75 X 60	1,185	NEPTUNE AVENUE
						20,685	
1	6997	95	ZACHARY & PATRICIA CAVITOLO	M1-2	20 X 137	2,964	2774 STILLWELL AVENUE
2	6997	22	STEVEN FISHMAN	M1-2	20 X 118.75	2,375	2761 W 15 ST
3	6997	31	JACOB SHOIKETMAN	M1-2	40 X 118.75	4,750	WEST 15 ST
						10,089	

1	7004	68	BERNARD SANFORD	R5	20x118	2,296	2847 W. 37TH ST
1	7011	47	NESIM RAHMIN	R5	39.67x100	3,145	2809 MERMAID AVE
1	7013	14	NAOMI AMEZION CHURCH	R5	60x118.67	6,779	2814 W. 25TH ST
1	7014	53	HPD	R5	19.58x100	1,914	2427 MERMAID AVE

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7015	35	HPD	R6	80x118.75	9,249	W. 23RD ST
1	7017	160	NYC PARTNERSHIP	R5	431x118.83	50,000	2824 W. 21TH ST

1	7018	7	HPD	C8-1	30x175	5,367	NEPTUNE AVE
2	7018	31	HPD	M1-2	20x118.75	2,367	WEST 20TH ST
3	7018	30	HPD	M1-2	20x118.75	2,375	WEST 20TH ST
4	7018	26	KWOK HING WONG	M1-2	80x100	8,000	WEST 20TH ST
5	7018	45	HPD	R5	19.58 x 100	1,940	2009 MERMAID AVE
6	7018	46	HPD	R5	19.58x100	2,085	2011 MERMAID AVE
7	7018	47	HPD	R5	19.58x100	1,873	2013 MERMAID AVE
8	7018	48	HPD	R5	19.58x100	2,033	2015 MERMAID AVE
9	7018	49	HPD	R5	19.58x100	1,969	2017 MERMAID AVE
10	7018	50	HPD	R5	20x100	1,993	2023 MERMAID AVE
11	7018	53	HPD	R5	20x80	1,654	2029 MERMAID AVE
12	7018	42	HPD	R6	20 x 100	2,085	MERMAID AVE
13	7018	43	HPD	R6	19.67 x 100	1,985	2003 MERMAID AVE
14	7018	44	HPD	R6	19.67 x 100	2,040	2005 MERMAID AVE
						37,766	

1	7019	9	CLEMENT CHARLE	C8-1	25x80	2,000	1908 NEPTUNE AVE
2	7019	2	LOGAN AMUSEMENT	C8-1	147x100	13,000	NEPTUNE AVE
3	7019	24	JOHNSON ERVIN	R5	20x118.75	2,375	W. 19TH ST
4	7019	74	WINIARSKI DAVID	R5	17.92x118.75	2,220	2839 W.20TH ST
						19,595	
1	7020	83	1700 NEPTUNE AVE REALTY	R6	5x110	550	W. 19TH ST

1	7021	14	BARBARA KANTOR	C8-1	20x118.75	2,329	WEST 16TH ST
2	7021	44	CITY WIDE ADMINISTRATIVE SERVICES	R6	20 x 100	1,966	MERMAID AVE
3	7021	49	MOSCHOVITIS, PETER	R6	37.58 x 100	3,720	1613 MERMAID AVE
4	7021	82	REYES ANA	R6	5x118.75	690	2860 W. 17TH ST
5	7021	15	PERO EUGENE	R6	20x118.75	2,329	WEST 16TH ST
6	7021	16	HPD	R6	40x118.75	4,658	WEST 16TH ST
7	7021	23	J FALCONE	R6	20x118.75	2,329	1715 71ST ST
						18,021	

1	7022	9	1510 NEPTUNE AVE RTY	C8-1	35x62	2,208	NEPTUNE AVE
2	7022	49	MERMAID COMMONS LLC	R6	37.58 x 60	2,214	1515 W.15 ST
3	7022	51	MERMAID COMMONS LLC	R6	20 x 100	2,027	1519 W. 15 ST
4	7022	52	MERMAID COMMONS LLC	R6	40 x 100	3,961	1521 W. 15 ST
5	7022	33	ESPOSITO LOUIS	R6	40x118	4,592	WEST 15TH ST
6	7022	31	TABERNACLE CHURCH INC	R6	40x118	4,766	2856-58 W. 15TH ST
7	7022	28	ORVILLE JOB-PATSY JOB	R6	20x118	2,367	2848 W. 15TH ST
						22,135	

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7023	7	JOHN DITURI	C8-1	28x19	605	NEPTUNE AVE
2	7023	41	GREGAN EQUITIES INC	R6	25 x 125	3,160	1419 MERMAID AVE
3	7023	42	GREGAN EQUITIES INC	R6	31 x 125	3,745	1421 MERMAID AVE
4	7023	54	COMFORTING CHURCH	R6	20x111	2,130	W. 15TH ST
5	7023	50	GREGAN EQUITIES INC	R6	20x111	2,188	2871 W. 15TH ST
6	7023	33	GREGAN EQUITIES INC	R6	25x126.33	3,087	STILLWELL AVE
7	7023	31	MYRDOT REALTY CORP	R6	27x126.5	3,416	2868 STILLWELL AVE
8	7023	30	MYRDOT REALTY CORP	R6	25x126.58	3,165	STILLWELL AVE
9	7023	29	MYRDOT REALTY CORP	R6	25x126.67	3,167	STILLWELL AVE
10	7023	23	GREGAN EQUITIES INC	R6	25x127.33	3,183	STILLWELL AVE
11	7023	22	GREGAN EQUITIES INC	R6	25x127.42	3,183	STILLWELL AVE
12	7023	21	GREGAN EQUITIES INC	R6	25x127.5	3,183	STILLWELL AVE
						34,211	

1	7045	1	HPD	R6	80x160	31,556	3622 MERMAID AVE
1	7048	6	HPD	R6	19.33x100	1,839	3216 MERMAID AVE
1	7049	51	HPD	R6	100 X 138.25	13,825	3117 SURF AVE
1	7049	50	HPD	R6	36.75 X 115.75	4,254	SURF AVE
						18,079	
1	7050	74	HPD	R6	40 X 118.75	4,750	2953 MERMAID AVE
1	7051	68	HPD	R6	50 X 118.75	5,938	WEST 30 STREET
2	7051	35	HPD	R6	40 X 237.58	9,503	WEST 29 STREET
3	7051	37	HPD	R6	29.83 X 64.67	1,929	WEST 29 STREET
4	7051	38	HPD	R6	20.08 X 39.75	798	2968 WEST 29 STREET
5	7051	39	HPD	R6	26.83 X 52	1,395	2904 WEST 29 STREET
6	7051	40	HPD	R6	13.83 X 59	816	2970 WEST 29 STREET
7	7051	41	HPD	R6	9.67 X 59	571	WEST 29 STREET
8	7051	42	HPD	R6	49.92 X 118.83	5,932	WEST 29 STREET
9	7051	46	HPD	R6	47.5 X 150	7,125	2901 SURF AVE
10	7051	57	HPD	R6	44.5 X 118.67	5,281	WEST 30 STREET
11	7051	59	HPD	R6	29 X 118.75	3,444	WEST 30 STREET
12	7051	61	HPD	R6	35 X 118.75	4,156	2973 WEST 30 STREET
13	7051	63	HPD	R6	13.08 X 46.5	608	2971 WEST 30 ST
14	7051	64	HPD	R6	9.75 X 46.5	453	2969 WEST 30 ST
15	7051	65	HPD	R6	14.25 X 24.33	347	2967 WEST 30 ST
16	7051	68	HPD	R6	50 X 118.75	5,938	WEST 30 STREET
17	7051	138	HPD	R6	24.83 X 23.5	584	2966A WEST 29 ST
18	7051	139	HPD	R6	13.25 X 29.67	393	2968A WEST 29 ST

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
19	7051	140	HPD	R6	10.08 X 59	595	WEST 29 STREET
20	7051	141	HPD	R6	13.50 X 59	797	2974 WEST 29 ST
21	7051	142	HPD	R6	24.67 X 45.83	1,131	2974B WEST 29 ST
22	7051	143	HPD	R6	18.17 X 28.33	515	2974C WEST 29 ST
23	7051	144	HPD	R6	19.92 X 28.33	564	2974E WEST 29 ST
24	7051	145	HPD	R6	21.08 X 35.25	743	2974D WEST 29 ST
25	7051	165	HPD	R6	10.08 X 32.17	324	2926 WEST 30 ST
26	7051	166	HPD	R6	14.33 X 32.17	461	2928 WEST 30 ST
27	7051	167	HPD	R6	13.08 X 47.92	627	2924 WEST 30 ST
28	7051	168	HPD	R6	13 X 48.08	625	2922 WEST 30 ST
29	7051	169	HPD	R6	13.08 X 31.5	412	2918 WEST 30 ST
30	7051	170	HPD	R6	9.75 X 36.58	357	2916 WEST 30 ST
31	7051	171	HPD	R6	9.92 X 48.33	479	2914 WEST 30 ST
32	7051	172	HPD	R6	13.25 X 31.42	416	2912 WEST 30 ST
33	7051	239	HPD	R6	12.75 X 25	319	2906 WEST 29 ST
34	7051	269	HPD	R6	16.08 X 22.92	369	2920 WEST 30 ST
35	7051	339	HPD	R6	11.50 X 24.75	285	2910 WEST 29 ST
36	7051	439	HPD	R6	14.5 X 24.33	353	2908 WEST 29 ST
37	7051	33	HPD	R6	50 X 118.75	5,938	2954 WEST 29 ST
38	7051	56	HPD	R6	59.33 X 300.58	17,833	2999 SURF AVE
39	7051	47	HPD	R6	39.58 X 101.67	4,024	2801 SURF AVE
						92,375	

1	7052	11	SKRBIC LJUBO	R6	19.83x100	1,985	2804 MERMAID AVE
1	7054	1	NYC HOUSING AUTHORITY	R6	100x237	22,957	2524 MERMAID AVE

1	7057	1	HPD	R6	38.75FT X 95.00FT	3,620	2226 MERMAID AVENUE
2	7057	3	HPD	R6	20.00FT X 95.00FT	1,899	2224 MERMAID AVENUE
3	7057	4	HPD	R6	20.00FT X 100.00FT	2,000	2222 MERMAID AVENUE
4	7057	5	HPD	R6	20.00FT X 100.00FT	2,000	2218 MERMAID AVENUE
5	7057	6	HPD	R6	20.00FT X 100.00FT	2,000	2216 MERMAID AVENUE
6	7057	7	HPD	R6	20 x 100	2,000	2214 MERMAID AVENUE
7	7057	8	HPD	R6	20 x 100	1,997	2210 MERMAID AVE
8	7057	9	HPD	R6	20 x 100	1,895	2208 MERMAID AVE
9	7057	10	HPD	R6	19.33x60	1,125	2206 MERMAID AVE
10	7057	11	HPD	R6	19.42x60	1,125	2204 MERMAID AVE
11	7057	111	HPD	R6		1,087	2202 MERMAID AVE
						20,748	
1	7058	5	JOHN RANIERI	R6	20x76	1,548	2118 MERMAID AVE
2	7058	6	JOHN RANIERI	R6	18x100	1,853	2116 MERMAID AVE
3	7058	8	HPD	R6	20x77	1,551	2112 MERMAID AVE
4	7058	9	HPD	R6	20x77	1,151	2110 MERMAID AVE
5	7058	10	HPD	R6	20x77	1,151	2106 MERMAID AVE
6	7058	11	HPD	R6	20x77	1,151	2104 MERMAID AVE
						8,405	

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7059	2	HPD	R6	19.67x81	1,610	2026 MERMAID AVE
2	7059	3	HPD	R6	19.67x81	1,593	2024 MERMAID AVE
3	7059	4	HPD	R6	19.67x81	1,593	2022 MERMAID AVE
4	7059	5	HPD	R6	19.75x101.25	2,000	2020 MERMAID AVE
5	7059	6	HPD	R6	19.75x100.67	2,000	2016 MERMAID AVE
6	7059	8	HPD	R6	19.75x100	1,975	2012 MERMAID AVE
7	7059	9	HPD	R6	19.67x100	1,967	2010 MERMAID AVE
8	7059	10	HPD	R6	19.67x100	1,967	2006 MERMAID AVE
9	7059	12	SERAFINO NICHOLAS	R6	20x100	2,000	1743 W. 9TH ST
						16,705	
1	7060	14	HPD	R6	40x237.58	9,364	
2	7060	47	HPD	R6	22.17x74.58	1,653	2917 WEST 20TH ST
3	7060	46	HPD	R6	19x74.58	1,417	2919 WEST 20TH ST
4	7060	45	HPD	R6	19x74.58	1,417	2921 WEST 20TH ST
5	7060	44	HPD	R6	19x74.58	1,417	2923 WEST 20TH ST
6	7060	32	HPD	R6	63x158.58	9,991	SURF AVE
7	7060	35	HPD	R6	37.67x110	4,144	SURF AVE
8	7060	27	HPD	R6	91.08x106.25	9,677	1905 SURF AVE
9	7060	24	HPD	R6	49.42x106.25	5,251	1901 SURF AVE
10	7060	22	HPD	R6	24.67x99	2,442	2936 WEST 19TH ST
11	7060	21	HPD	R6	25x99	2,475	2934 WEST 19TH ST
12	7060	18	HPD	R6	20x99	1,980	2924 WEST 19TH ST
13	7060	17	HPD	R6	20x99	1,980	WEST 19TH ST
14	7060	16	HPD	R6	24.75x99	2,450	WEST 19TH ST
15	7060	48	HPD	R6	20x81.75	1,635	WEST 19TH ST
16	7060	49	HPD	R6	20x81.75	1,635	WEST 19TH ST
17	7060	50	HPD	R6	20x81.75	1,635	2938 WEST 19TH ST
18	7060	51	HPD	R6	20x81.75	1,635	2938A WEST 19TH ST
19	7060	147	HPD	R6	24x79.17	1,900	1924 WEST 20TH ST
20	7060	1	HPD	R6	37.58x100	3,729	1926 MERMAID AVE
21	7060	3	HPD	R6	20x100	2,000	1924 MERMAID AVE
22	7060	4	HPD	R6	20x100	2,000	1922 MERMAID AVE
23	7060	5	HPD	R6	20x100	2,000	1918 MERMAID AVE
24	7060	7	HPD	R6	20x100	2,000	1914 MERMAID AVE
25	7060	8	HPD	R6	20x100	2,000	1912 MERMAID AVE
26	7060	9	HPD	R6	20x100	2,000	1910 MERMAID AVE
27	7060	10	SAM FRIDMAN REALITY	R6	20x100	2,000	1906 MERMAID AVE
						81,827	

1	7061	21	HPD	R6	60x150	9,000	2930 WEST 17TH ST
2	7061	16	HPD	R6	80x128.58	10,286	WEST 17TH ST
3	7061	20	VINCENT NICHOLO	R6	20x128.75	2,575	2928 WEST 17TH ST
4	7061	14	MERMAID COMMONS LLC	R6	40x237.58	9,364	WEST 17TH ST
5	7061	39	DEPT OF GENERAL SERVICE	R6	20.17x85	1,714	WEST 19TH ST
6	7061	40	HPD	R6	20x85	1,700	WEST 19TH ST
7	7061	41	HPD	R6	20x85	1,700	WEST 19TH ST
8	7061	42	HPD	R6	20x85	1,700	WEST 19TH ST
9	7061	43	HPD	R6	20x85	1,700	2921 WEST 19TH ST
10	7061	45	HPD	R6	111x106	11,766	WEST 19TH ST
						51,506	

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7062	28	TILYOU RLTY CO	C7	120x250	30,000	1607 SURF AVE
2	7062	34	TILYOU RLTY CO	C7	68.75x100	6,875	SURF AVE
						36,875	
1	7063	32	SIRENA RLTY CORP	C7	20x158	3,160	SURF AVE
2	7063	33	SIRENA RLTY CORP	C7	20x158	3,160	SURF AVE
3	7063	35	GREGORY BITEZAKIS	C7	33.83x100	3,383	1527 SURF AVE
4	7063	38	SIRENA RLTY CORP	C7	30x60	1,800	2933 WEST 16TH ST
5	7063	39	SIRENA RLTY CORP	C7	20x60.08	1,200	2929 WEST 16TH ST
6	7063	40	SIRENA RLTY CORP	C7	16.67x60.08	1,002	2927 WEST 16TH ST
7	7063	41	SIRENA RLTY CORP	C7	16.67x60.58	1,050	2925 WEST 16TH ST
						14,755	
1	7064	38	DA LUIGI RLTY CORP	C7	25x110	2,582	293 W. 15TH ST
2	7064	35	DA LUIGI RLTY CORP	C7	41.92x110	4,611	2937 WEST 15TH ST
3	7064	37	DA LUIGI RLTY CORP	C7	25x110	2,750	2931 WEST 15TH ST
						9,943	
1	7065	20	OCEAN DREAMS LLC	R5	42.17 X 182.58	7,699	SURF AVE
2	7065	25	OCEAN DREAMS LLC	R5	91 X 309.67	28,180	BOARDWALK
						35,879	
1	7066	16	SEA GATE VILLA CORP	R5	26.42 X 143.58	3,793	SURF AVE
2	7066	18	BEACH FRONT LLC	R5	20.25 X 142.67	2,889	SURF AVE
3	7066	19	BEACH FRONT LLC	R5	20.25 X 92.83	1,880	SURF AVE
4	7066	20	BEACH FRONT LLC	R5	20.25 X 74.67	1,512	SURF AVE
5	7066	21	BEACH FRONT LLC	R5	20.25 X 74.67	1,512	SURF AVE
6	7066	22	BEACH FRONT LLC	R5	20.25 X 100	2,025	SURF AVE
7	7066	23	BEACH FRONT LLC	R5	20.17 X 76.17	1,536	3212 SURF AVE
8	7066	24	BEACH FRONT LLC	R5	80.75 X 100	8,075	SURF AVE
9	7066	28	BEACH FRONT LLC	R5	43.83 X 81	3,550	3006 SEA PLACE
10	7066	32	JANE H. HAUCK	R5	20.25 X 70.42	1,467	SEA PLACE
11	7066	33	BEACH FRONT LLC	R5	20.25 X 42.25	856	SEA PLACE
12	7066	34	BEACH FRONT LLC	R5	60.75 X 72	4,374	SEA PLACE
13	7066	46	BEACH FRONT LLC	R5	29.25 X 145	4,241	BOARDWALK
14	7066	49	P KREISLER	R5	20.25 X 150	3,038	BOARDWALK
15	7066	54	SURF ASSOCIATES LLC	R5	40 X 160	6,400	3210 BOARDWALK WEST
16	7066	56	SURF ASSOCIATES LLC	R5	41.08 X 165	6,778	3208 BOARDWALK WEST
						53,926	

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7070	179	NORMAN H STEIN/TRUSTE	R5	24.5x127.58	3,714	WEST 24TH ST
2	7070	178	NORMAN H STEIN/TRUSTE	R5	24.17x127.58	3,084	WEST 24TH ST
3	7070	177	NORMAN H STEIN/TRUSTE	R5	23.67x127.58	3,020	WEST 24TH ST
4	7070	176	NORMAN H STEIN/TRUSTE	R5	24.08x127.58	3,072	WEST 24TH ST
5	7070	138	NORMAN H STEIN/TRUSTE	R5	80x110	8,800	3036 WEST 23RD ST
6	7070	137	NORMAN H STEIN/TRUSTE	R5	20x100	2,000	WEST 23RD ST
7	7070	136	NORMAN H STEIN/TRUSTE	R5	20x100	2,000	WEST 23RD ST
8	7070	135	NORMAN H STEIN/TRUSTE	R5	20x100	2,000	WEST 23RD ST
9	7070	132	NORMAN H STEIN/TRUSTE	R5	20x100	2,000	WEST 23RD ST
						29,690	
1	7071	100	PARKS & RECREATIONS	C7	259.08x270.42	72,817	16 WEST 61ST ST
2	7071	226	MAX BERMAN	C7		7,238	3033 WEST 36TH ST
3	7071	231	EUGENE BERMAN	C7	118.75 X 46.38	5,546	3033 WEST 36TH ST
4	7071	30	SKOBLO ITCHAK	C7	35 X 60	2,100	WEST 23 STREET
5	7071	32	SKOBLO ITCHAK	C7	30.58 X60	1,836	WEST 23 STREET
6	7071	34	SKOBLO ITCHAK	C7	32.75 X 60	1,965	WEST 23 STREET
7	7071	28	SKOBLO ITCHAK	C7	40 X 98.33	3,933	BOARDWALK
8	7071	26	3046 W 22 ST OWNERS C	C7	30 X 108.75	3,263	HIGHLAND AVENUE
9	7071	81	NORMAN H STEIN/TRUSTE	C7	20 X 100	2,000	WEST 23 STREET
10	7071	79	NORMAN H STEIN/TRUSTE	C7	40 X 100	4,000	WEST 23 STREET
11	7071	76	SKOBLO ITCHAK	C7	60 X100	6,000	WEST 23 STREET
12	7071	142	PARKS & RECREATIONS	C7	161.75x292	47,231	2113 WEST 21 ST
13	7071	22	WEST 16-22 ST REALTY	R5	40 X 109.33	4,373	HIGHLAND AVENUE
14	7071	20	WEST 16-22 ST REALTY	R5	40 X 109.67	4,374	HIGHLAND AVENUE
15	7071	19	WEST 16-22 ST REALTY	R5	30 X 109.67	3,290	WEST 22 STREET
16	7071	16	WEST 16-22 ST REALTY	R5	40 X 110.67	4,427	WEST 22 STREET
17	7071	8	SYLVIA SALERNO	R5	20.42 X 105.67	2,158	SURF AVE
18	7071	7	SYLVIA SALERNO	R5	20.42 X 101.67	2,076	SURF AVE
19	7071	5	2216-2220 SURF AVE RE	R5	20.42 X 107.58	2,197	SURF AVE
20	7071	4	2216-2220 SURF AVE RE	R5	20.42 X 107.58	2,197	SURF AVE
21	7071	3	2216-2220 SURF AVE RE	R5	34.92 X 103.17	3,603	SURF AVE
22	7071	97	M HIEHSCHMAN	R5	20 X 110	2,200	WEST 23 STREET
23	7071	91	NORMAN H STEIN/TRUSTE	R5	40 X 110	4,400	WEST 23 STREET
24	7071	86	NORMAN H STEIN/TRUSTE	R5	60 X 110	6,600	3033 WEST 23 STREET
25	7071	85	NORMAN H STEIN/TRUSTE	R6	24 X 110	2,640	WEST 23 STREET
26	7071	83	NORMAN H STEIN/TRUSTE	R6	36 X 110	3,960	WEST 23 STREET
						206,424	

1	7072	1	CONEY ISLAND AMUSEMENT	C7	247.17x681	168,323	2015 BOARDWALK WEST
1	7074	310	IDA'S REALTY ASSOCS	C7	50.25x627	31,507	1314 BOWERY
2	7074	256	NATHANS FAMOURS INC	C7	60.25x636	38,319	1319 BOWERY
3	7074	254	SCAVULLO FAMILY PARTN	C7	60.17x93.92	5,651	1315 BOWERY
4	7074	170	DEPT OF GENERAL SERVICE	C7	48.42x189.75	9,188	1502 SURF AVE
5	7074	6	WANTANABE RLTY CORP	C7	25x192.33	4,808	1516 SURF AVE
6	7074	4	WANTANABE RLTY CORP	C7	40x192.33	7,693	1520 SURF AVE
7	7074	1	DEPT OF GENERAL SERVICE	C7	38.83x192.33	7,372	1528 SURF AVE
8	7074	20	DEPT OF GENERAL SERVICE	C7	39.25x643	25,238	1525 BOARDWALK WEST
9	7074	23	WANTANABE RLTY CORP	C7	65x599	38,935	1519 BOARDWALK WEST
						168,711	

NO.	BLOCK	LOT	OWNER	ZONING	DIMENSIONS	SQ. FT	ADDRESS
1	7247	133	1521 SQUARE INC	M1-2	101 X 199	46,933	NEPTUNE AVENUE
2	7247	132	ALEXANDER RATNER	M1-2	58 X 48	2,784	NEPTUNE AVENUE
3	7247	128	ALEXANDER RATNER	M1-2	40 X 42	1,680	NEPTUNE AVENUE
4	7247	130	ALEXANDER RATNER	M1-2	34.17 X 14.58	498	NEPTUNE AVENUE
5	7247	105	BKLYN UNION GAS	M1-2	150 X 100	15,000	851 NEPTUNE AVE
6	7247	113	BKLYN UNION GAS	M1-2	25 X 80	2,000	NEPTUNE AVENUE
						68,895	

1	7268	213	LUNA PARK HOUSING CORP	C7	103x71	7,909	SURF AVE
1	7269	1	2955 SHELL RD ASSOC	R6	288.17 X 301.87	86,990	SHELL ROAD
1	7279	134	LUNA PARK HOUSING CORP	C8-2	300 X 262	78,600	WEST 8 STREET
1	7280	110	SEA BREEZE ASSISTIVE	R6	150x144	21,600	1225 FRANKLIN AVE
1	7281	180	TRUMP VILLAGE SECT 2		40.42x155.92	6,302	SEA BREEZE AVE
1	8695	433	HB SINGER INC	C7	70x474	33,180	3029 STILLWELL AVE

APPENDIX B

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Coney Island Avenue & Guider Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	83	4	0.07	40	A	A	A
South	15	76	14	0.23	40	A	A	A
East	13	87	9	0.15	76	A	A	A
West	14	87	9	0.15	76	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	83	4	0.07	40	A	A	A
South	15	76	6	0.10	40	A	A	A
East	13	87	10	0.17	76	A	A	A
West	14	87	10	0.17	76	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	83	6	0.10	40	A	A	A
South	15	76	12	0.20	40	A	A	A
East	13	87	16	0.27	76	A	A	A
West	14	87	12	0.20	76	A	A	A

Coney Island Avenue & Neptune Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	9	68	28	0.47	37	A	A	A
South	13	68	18	0.30	37	A	A	A
East	12	50	18	0.30	79	A	A	A
West	12	40	20	0.33	79	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	9	68	24	0.40	40	A	A	A
South	13	68	22	0.37	40	A	A	A
East	12	50	15	0.25	46	A	A	A
West	12	40	13	0.22	46	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	9	68	28	0.47	37	A	A	A
South	13	68	36	0.60	37	A	A	A
East	12	50	27	0.45	79	A	A	A
West	12	40	26	0.43	79	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Coney Island Avenue & Brighton Beach Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	58	187	3.12	46	B	B	B
South	14	60	184	3.07	46	A	A	A
East	14	58	24	0.40	46	B	B	B
West	17	66	33	0.55	46	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	58	273	4.55	37	B	B	B
South	14	60	102	1.70	37	A	A	A
East	14	58	45	0.75	25	A	A	B
West	17	66	46	0.77	25	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	58	141	2.35	46	A	A	B
South	14	60	144	2.40	46	A	A	A
East	14	58	25	0.42	46	A	A	B
West	17	66	60	1.00	46	A	A	A

Ocean Parkway & Kings Highway

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	181	21	0.35	42	A	A	A
South	12	181	27	0.45	42	A	A	A
East	12	44	7	0.12	71	A	A	A
West	12	44	19	0.32	71	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	181	22	0.37	42	A	A	A
South	12	181	24	0.40	42	A	A	A
East	12	44	5	0.08	71	A	A	A
West	12	44	4	0.07	71	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	181	30	0.50	42	A	A	A
South	12	181	36	0.60	42	A	A	A
East	12	44	9	0.15	71	A	A	A
West	12	44	11	0.18	71	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Ocean Parkway & Brighton Beach Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	182	45	0.75	34	A	A	A
South	14	182	34	0.57	34	A	A	A
East	12	58	16	0.27	65	A	A	A
West	12	46	5	0.08	65	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	182	62	1.03	43	A	A	A
South	14	182	59	0.98	43	A	A	A
East	12	58	19	0.32	66	A	A	A
West	12	46	9	0.15	66	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	182	47	0.78	34	A	A	A
South	14	182	55	0.92	34	A	A	A
East	12	58	15	0.25	65	A	A	A
West	12	46	7	0.12	65	A	A	A

Ocean Parkway & Avenue X

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	21	0.35	72	A	A	A
South	11	181	12	0.20	72	A	A	A
East	10	46	12	0.20	41	A	A	A
West	10	46	5	0.08	41	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	9	0.15	72	A	A	A
South	11	181	10	0.17	72	A	A	A
East	10	46	12	0.20	41	A	A	A
West	10	46	6	0.10	41	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	8	0.13	72	A	A	A
South	11	181	11	0.18	72	A	A	A
East	10	46	11	0.18	41	A	A	A
West	10	46	7	0.12	41	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Ocean Parkway & Avenue Z

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	12	0.20	36	A	A	A
South	11	181	27	0.45	36	A	A	A
East	11	44	31	0.52	78	A	A	B
West	11	44	12	0.20	78	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	12	0.20	37	A	A	A
South	11	181	22	0.37	37	A	A	A
East	11	44	25	0.42	76	A	A	B
West	11	44	7	0.12	76	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	181	10	0.17	36	A	A	A
South	11	181	18	0.30	36	A	A	A
East	11	44	17	0.28	78	A	A	B
West	11	44	8	0.13	78	A	A	A

Surf Avenue & West 8th Street

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	78	14	0.23	63	A	A	A
South		78	4	0.07	63	A	A	A
East	13	74	4	0.07	23	A	A	A
West	13	74	3	0.05	23	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	78	24	0.40	63	A	A	A
South		78	4	0.07	63	A	A	A
East	13	74	12	0.20	23	A	A	A
West	13	74	3	0.05	23	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	78	93	1.55	23	A	A	A
South		78	20	0.33	23	A	A	A
East	13	74	16	0.27	63	A	A	A
West	13	74	6	0.10	63	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Surf Avenue & Stillwell Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	15	59	51	0.85	63	A	A	A
South	21	58	7	0.12	63	A	A	A
East	14	72	7	0.12	23	A	A	A
West	14	72	7	0.12	23	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	15	59	49	0.82	63	A	A	A
South	21	58	28	0.47	63	A	A	A
East	14	72	47	0.78	23	A	A	A
West	14	72	24	0.40	23	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	15	59	126	2.10	23	A	A	A
South	21	58	26	0.43	23	A	A	A
East	14	72	70	1.17	63	A	A	A
West	14	72	38	0.63	63	A	A	A

Mermaid Avenue & Stillwell Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	48	18	0.30	29	A	A	A
South	13	48	24	0.40	29	A	A	A
West	12	44	31	0.52	29	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	48	14	0.23	29	A	A	A
South	13	48	10	0.17	29	A	A	A
West	12	44	20	0.33	29	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	48	22	0.37	29	A	A	A
South	13	48	29	0.48	29	A	A	A
West	12	44	46	0.77	29	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Mermaid Avenue & West 17th Street

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	32	79	1.32	29	A	A	A
South	15	32	298	4.97	29	A	A	A
East	14	43	21	0.35	29	A	A	B
West	13	43	27	0.45	29	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	32	159	2.65	29	A	A	A
South	15	32	283	4.72	29	A	A	A
East	14	43	42	0.70	29	A	A	A
West	13	43	42	0.70	29	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	32	81	1.35	29	A	A	A
South	15	32	52	0.87	29	A	A	B
East	14	43	339	5.65	29	A	A	A
West	13	43	68	1.13	29	A	A	A

Avenue X/McDonald Avenue/86th Street

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	61	89	1.48	53	A	A	A
South	12	45	117	1.95	53	A	A	A
East	12	43	995	16.58	62	A	A	A
West	12	49	371	6.18	62	A	A	A
Northwest	11	50	360	6.00	62	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	61	63	1.05	41	A	A	A
South	12	45	57	0.95	41	A	A	A
East	12	43	355	5.92	44	A	A	A
West	12	49	179	2.98	44	A	A	A
Northwest	11	50	120	2.00	44	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	61	89	1.48	53	A	A	A
South	12	45	57	0.95	53	A	A	A
East	12	43	355	5.92	62	A	A	A
West	12	49	388	6.47	62	A	A	A
Northwest	11	50	330	5.50	62	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Harway Avenue & Stillwell Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	210	3.50	23	A	A	A
South	12	60	19	0.32	23	A	A	A
West	12	44	109	1.82	35	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	8	0.13	23	A	A	A
South	12	60	172	2.87	23	A	A	A
West	12	44	129	2.15	35	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	0	0.00	23	A	A	A
South	12	60	0	0.00	23	A	A	A
West	12	44	21	0.35	35	A	A	A

Kings Highway & McDonald Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	72	95	1.58	77	A	A	A
South	16	60	99	1.65	77	A	A	B
East	12	44	227	3.78	39	A	A	A
West	16	44	76	1.27	39	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	72	66	1.10	57	A	A	A
South	16	60	146	2.43	57	A	A	B
East	12	44	161	2.68	29	A	A	A
West	16	44	53	0.88	29	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	72	128	2.13	77	A	A	A
South	16	60	118	1.97	77	A	A	B
East	12	44	276	4.60	39	A	A	A
West	16	44	74	1.23	39	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

86th Street & Stillwell Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	10	61	79	1.32	49	A	A	A
South	12	61	82	1.37	49	A	A	A
East	10	60	46	0.77	37	A	A	A
West	12	55	43	0.72	37	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	10	61	57	0.95	35	A	A	A
South	12	61	75	1.25	35	A	A	A
East	10	60	15	0.25	24	A	A	A
West	12	55	55	0.92	24	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	10	61	111	1.85	49	A	A	A
South	12	61	97	1.62	49	A	A	A
East	10	60	18	0.30	37	A	A	A
West	12	55	92	1.53	37	A	A	A

Bay Parkway & 86th Street

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	328	5.47	46	A	A	A
South	12	60	350	5.83	46	A	A	A
East	12	58	200	3.33	70	A	A	A
West	12	58	299	4.98	70	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	142	2.37	34	A	A	A
South	12	60	414	6.90	34	A	A	A
East	12	58	412	6.87	52	A	A	A
West	12	58	335	5.58	52	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	60	699	11.65	46	A	A	A
South	12	60	582	9.70	46	A	A	A
East	12	58	691	11.52	70	A	A	A
West	12	58	638	10.63	70	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Brighton 11 Street & Brighton Beach Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	55	477	7.95	48	A	A	B
East	10	53	25	0.42	30	A	A	B
West	12	58	20	0.33	30	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	55	856	14.27	48	A	A	B
East	10	53	27	0.45	30	A	A	B
West	12	58	39	0.65	30	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	16	55	709	11.82	48	A	A	B
East	10	53	24	0.40	30	A	A	B
West	12	58	23	0.38	30	A	A	A

Ocean Parkway & Neptune Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	68	165	2.75	44	A	A	A
South	15	68	109	1.82	44	A	A	A
East	12	50	211	3.52	56	A	A	A
West	12	50	143	2.38	56	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	68	111	1.85	46	A	A	A
South	15	68	100	1.67	46	A	A	B
East	12	50	132	2.20	54	A	A	A
West	12	50	108	1.80	54	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	68	165	2.75	44	A	A	A
South	15	68	93	1.55	44	A	A	A
East	12	60	195	3.25	56	A	A	A
West	12	50	116	1.93	56	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Coney Island Avenue & Kings Highway

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	65	56	0.93	46	A	A	B
South	15	65	64	1.07	46	A	A	A
East	17	43	28	0.47	64	A	A	A
West	17	43	36	0.60	64	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	65	127	2.12	37	A	B	B
South	15	65	74	1.23	37	A	A	A
East	17	43	53	0.88	43	A	A	A
West	17	43	33	0.55	43	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	65	122	2.03	46	A	B	B
South	15	65	111	1.85	46	A	A	A
East	17	43	68	1.13	64	A	A	B
West	17	43	33	0.55	64	A	A	A

Cropsey Avenue/West 17th Street/Neptune Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	98	13	0.22	46	A	A	A
South	14	32	20	0.33	46	A	A	A
East	14	83	10	0.17	33	A	A	A
West	16	83	15	0.25	33	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	98	30	0.50	46	A	A	A
South	14	32	42	0.70	46	A	A	A
East	14	83	30	0.50	33	A	A	A
West	16	83	10	0.17	33	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	98	20	0.33	46	A	A	A
South	14	32	22	0.37	46	A	A	A
East	14	83	16	0.27	33	A	A	A
West	16	83	26	0.43	33	A	A	A

Appendix B-1: Existing Conditions - Crosswalk Capacity Analysis

Cropsey Avenue & Bay Parkway

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	59	106	1.77	45	A	A	A
South	10	57	28	0.47	45	A	A	A
East	13	85	44	0.73	55	A	A	A
West	15	62	77	1.28	55	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	59	58	0.97	30	A	A	A
South	10	57	22	0.37	30	A	A	A
East	13	85	79	1.32	40	A	A	A
West	15	62	51	0.85	40	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	59	80	1.33	45	A	A	A
South	10	57	23	0.38	45	A	A	A
East	13	85	89	1.48	55	A	A	A
West	15	62	71	1.18	55	A	A	A

Brighton 4 Street & Brighton Beach Avenue

AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	428	7.13	57	A	A	B
South	12	30	383	6.38	57	A	A	A
East	12	58	99	1.65	21	A	A	B
West	12	58	46	0.77	21	A	A	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	1012	16.87	57	B	B	C
South	12	30	522	8.70	57	A	A	A
East	12	58	169	2.82	21	A	A	B
West	12	58	54	0.90	21	A	A	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	864	14.40	57	A	A	C
South	12	30	388	6.47	57	A	A	A
East	12	58	85	1.42	21	A	A	B
West	12	58	101	1.68	21	A	A	A

Appendix B-2: Existing Conditions - Corner Capacity Analysis

Coney Island Avenue & Guider Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	1835	A	1543	A	1230	A
Southeast	1648	A	1094	A	704	A
Southwest	1041	A	592	A	508	A
Northwest	1289	A	876	A	1041	A

Coney Island Avenue & Neptune Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	548	A	409	A	306	A
Southeast	477	A	351	A	252	A
Southwest	429	A	362	A	307	A
Northwest	594	A	496	A	447	A

Coney Island Avenue & Brighton Beach Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	1772	A	985	A	958	A
Southeast	1142	A	446	A	470	A
Southwest	863	A	399	A	316	A
Northwest	677	A	449	A	312	A

Ocean Parkway & Kings Highway

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	1548	A	1319	A	1025	A
Southeast	988	A	1126	A	700	A
Southwest	1135	A	1444	A	1101	A
Northwest	1252	A	1222	A	1207	A

Ocean Parkway & Brighton Beach Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	3688	A	1147	A	1135	A
Southeast	4295	A	765	A	801	A
Southwest	1152	A	276	A	433	A
Northwest	1670	A	600	A	1093	A

Ocean Parkway & Avenue X

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	570	A	628	A	412	A
Southeast	890	A	911	A	565	A
Southwest	895	A	764	A	474	A
Northwest	386	A	357	A	233	A

Appendix B-2: Existing Conditions - Corner Capacity Analysis

Ocean Parkway & Avenue Z

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	1292	A	1688	A	1090	A
Southeast	960	A	1594	A	657	A
Southwest	242	A	100	B	80	B
Northwest	1590	A	569	A	602	A

Surf Avenue & West 8th Street

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	845	A	1343	A	979	A
Southeast	488	A	822	A	502	A
Southwest	417	A	343	A	301	A
Northwest	438	A	357	A	350	A

Surf Avenue & Stillwell Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	903	A	764	A	932	A
Southeast	574	A	439	A	603	A
Southwest	332	A	481	A	337	A
Northwest	100	B	164	A	100	B

Mermaid Avenue & Stillwell Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	517	A	512	A	460	A
Southeast	1043	A	894	A	846	A
Southwest	578	A	741	A	404	A
Northwest	442	A	609	A	315	A

Mermaid Avenue & West 17th Street

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	255	A	405	A	302	A
Southeast	225	A	253	A	178	A
Southwest	228	A	228	A	149	A
Northwest	176	A	216	A	142	A

Avenue X/McDonald Avenue/86th Street

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	85	B	165	A	208	A
Southeast	246	A	238	A	260	A
Southwest	175	A	245	A	342	A
Northwest	77	B	139	A	217	A

Appendix B-2: Existing Conditions - Corner Capacity Analysis

Harway Avenue & Stillwell Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	980	A	528	A	923	A
Southeast	986	A	350	A	1386	**A**
Southwest	318	A	241	A	1129	A
Northwest	574	A	288	A	799	A

Kings Highway & McDonald Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	564	A	406	A	429	A
Southeast	416	A	527	A	571	A
Southwest	523	A	446	A	376	A
Northwest	633	A	740	A	622	A

86th Street & Stillwell Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	567	A	540	A	541	A
Southeast	410	A	332	A	329	A
Southwest	448	A	417	A	405	A
Northwest	625	A	619	A	600	A

Bay Parkway & 86th Street

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	630	A	1039	A	1165	A
Southeast	901	A	778	A	713	A
Southwest	1144	A	707	A	733	A
Northwest	273	A	992	A	1224	A

Brighton 11 Street & Brighton Beach Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	840	A	993	A	802	A
Southeast	613	A	1306	A	1256	A
Southwest	556	A	1742	A	1530	A
Northwest	617	A	443	A	354	A

Ocean Parkway & Neptune Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	110	B	481	A	625	A
Southeast	128	B	361	A	563	A
Southwest	96	B	198	A	473	A
Northwest	52	B	207	A	488	A

Appendix B-2: Existing Conditions - Corner Capacity Analysis

Coney Island Avenue & Kings Highway

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	73	B	587	A	202	A
Southeast	131	A	911	A	121	A
Southwest	98	B	940	A	161	A
Northwest	82	B	584	A	41	A

Cropsey Avenue/West 17th Street/Neptune Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	328	A	368	A	180	A
Southeast	314	A	472	A	109	A
Southwest	223	A	417	A	133	A
Northwest	191	A	326	A	36	A

Cropsey Avenue & Bay Parkway

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	388	A	850	A	644	A
Southeast	292	A	340	A	458	A
Southwest	208	A	505	A	507	A
Northwest	213	A	807	A	655	A

Brighton 4 Street & Brighton Beach Avenue

Corner Location	AM		MD		PM	
	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS	Sq.Ft/Ped	LOS
Northeast	614	A	699	A	91	A
Southeast	704	A	702	A	103	A
Southwest	657	**A**	530	A	78	A
Northwest	555	A	401	A	45	A

Appendix B-3: Existing Conditions - Summer Crosswalk Capacity Analysis (Weekday and Weekends)

Surf Avenue & West 17th Street

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	30	21	0.35	62	A	A	A
East	13	70	0	0	62	A	A	A
West	13	63	0	0	23	A	A	A

Surf Avenue & West 21 Street

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	26	0.43	63	A	A	A
South	12	30	13	0.22	23	A	A	A
East	13	73	1	0.02	63	A	A	A
West	13	63	9	0.15	23	A	A	A

West 5th Street & Surf Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	11	29	26	0.43	62	A	A	A
East	13	63	60	1.00	23	A	A	A
West	13	63	9	0.15	23	A	A	A

West 8th Street & Surf Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	68	30	0.50	62	A	A	A
East	13	73	4	0.07	23	A	A	A
West	13	63	19	0.32	23	A	A	A

Appendix B-3: Existing Conditions - Summer Crosswalk Capacity Analysis (Weekday and

Stillwell Avenue & Mermaid Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	13	60	34	0.57	29	A	A	A
South	13	60	75	1.25	29	A	A	A
West	11	50	37	0.62	29	A	A	A

Ocean Parkway & Brighton Beach Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	14	182	116	1.93	40	A	A	A
South	14	182	144	2.40	71	A	A	A
East	12	58	75	1.25	40	A	A	A
West	12	46	108	1.80	71	A	A	A

Stillwell Avenue & Surf Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	15	59	27	0.45	62	A	A	A
South	21	58	165	2.75	23	A	A	A
East	14	70	130	2.17	62	A	A	A
West	14	72	54	0.90	23	A	A	A

West 17th Street & Mermaid Avenue

PM Peak Hour								
Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	30	27	0.45	29	A	A	A
South	15	31	46	0.77	29	A	A	A
East	13	44	6	0.10	29	A	A	A
West	13	43	1	0.02	29	A	A	A

Appendix B-3: Existing Conditions - Summer Crosswalk Capacity Analysis (Weekday and

Summer Weekend Counts

Surf Avenue & West 17th Street

PM Peak Hour (Saturday)								
Side of Street	Crosswalk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	30	98	1.63	62	A	A	A
East	13	70	17	0.28	62	A	A	A
West	13	63	4	0.07	23	A	A	A

PM Peak Hour (Sunday)								
Side of Street	Crosswalk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	30	120	2.00	62	A	A	A
East	13	70	18	0.30	62	A	A	A
West	13	63	22	0.37	23	A	A	A

Surf Avenue & West 21 Street

PM Peak Hour (Saturday)								
Side of Street	Crosswalk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	116	1.93	63	A	A	A
South	12	30	49	0.82	23	A	A	A
East	13	73	10	0.17	63	A	A	A
West	13	63	47	0.78	23	A	A	A

PM Peak Hour (Sunday)								
Side of Street	Crosswalk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	12	30	159	2.65	63	A	A	A
South	12	30	47	0.78	23	A	A	A
East	13	73	31	0.52	63	A	A	A
West	13	63	48	0.80	23	A	A	A

West 8th Street & Surf Avenue

PM Peak Hour (Saturday)								
Side of Street	Crosswalk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	Flow Rate (Ped/Min)	G + Amber (sec)	Without Vehicles LOS	With Vehicles LOS	Maximum Surge LOS
North	17	68	242	4.03	62	A	A	A
East	13	73	80	1.33	23	A	B	A
West	13	63	502	8.37	23	B	B	B

Appendix B-4: Existing Conditions - Summer Corner Capacity Analysis (Weekday and Weekends)

Surf Avenue & West 17th Street

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	2342	A
Northwest	2410	A

Surf Avenue & West 21 Street

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	3586	A
Southeast	3427	A
Southwest	3622	A
Northwest	3318	A

West 5th Street & Surf Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	2998	A
Northwest	2790	A

West 8th Street & Surf Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	2680	A
Northwest	2541	A

Stillwell Avenue & Mermaid Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northwest	2180	A
Southwest	1780	A

Appendix B-4: Existing Conditions - Summer Corner Capacity Analysis (Weekday and Weekends)

Ocean Parkway & Brighton Beach Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	1475	A
Southeast	1388	A
Southwest	1523	A
Northwest	1189	A

Stillwell Avenue & Surf Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	992	A
Southeast	1490	A
Southwest	1214	A
Northwest	998	A

West 17th Street & Mermaid Avenue

PM Peak Hour

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	1152	A
Southeast	1583	A
Southwest	1684	A
Northwest	1782	A

Summer Weekend Counts

Surf Avenue & West 17th Street

Corner Location	PM Saturday	
	Sq.Ft/Ped	LOS
Northeast	1168	A
Southeast	1236	A
Southwest	1381	A
Northwest	1189	A

Corner Location	PM Sunday	
	Sq.Ft/Ped	LOS
Northeast	1073	A
Southeast	997	A
Southwest	981	A
Northwest	1189	A

Appendix B-4: Existing Conditions - Summer Corner Capacity Analysis (Weekday and Weekends)

Surf Avenue & West 21 Street

Corner Location	PM Saturday	
	Sq.Ft/Ped	LOS
Northeast	1534	A
Southeast	1490	A
Southwest	1214	A
Northwest	1610	A

Corner Location	PM Sunday	
	Sq.Ft/Ped	LOS
Northeast	1348	A
Southeast	1436	A
Southwest	1022	A
Northwest	1287	A

West 8th Street & Surf Avenue

Corner Location	PM	
	Sq.Ft/Ped	LOS
Northeast	1352	A
Northwest	1514	A

APPENDIX C

Appendix C: Parking Utilization Rates

Coney Island Avenue

East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	18	3	105	17	0	85	19	0	95	20
Avenue R & Avenue S	36	0	100	32	0	89	33	0	92	36
Avenue S & Avenue T	21	0	81	20	0	77	21	0	81	26
Avenue T & Avenue U	15	0	65	24	0	104	11	0	48	23
Avenue U & Avenue V	9	0	69	10	0	77	10	0	77	13
Avenue V & Gravesend Neck Rd	8	0	57	12	0	86	8	0	57	14
Gravesend Neck Rd & Avenue W	3	0	100	3	0	100	3	0	100	3
Avenue W & Lancaster Avenue	4	0	50	5	0	63	4	0	50	8
Lancaster Avenue & Crawford Avenue	4	0	67	4	0	67	4	0	67	6
Crawford Avenue & Avenue X	3	0	75	4	1	125	4	1	125	4
Avenue X & Avenue Y	10	2	86	11	0	79	10	0	71	14
Avenue Y & Avenue Z	13	3	94	14	1	88	12	1	76	17
Avenue Z & Belt Pkwy	6	0	67	7	2	100	5	1	67	9
Guider Avenue & Neptune Avenue	6	0	75	3	0	38	5	0	63	8
Neptune Avenue & Brighton 10 Court	0	0	0	0	0	0	0	0	0	1
Brighton 10 Court & Brighton 10 Path	4	0	100	4	0	100	3	0	75	4
Brighton 10 Path & Brighton 10 Terr	4	0	100	4	0	100	4	0	100	4
Brighton 10 Terr & Brighton 10 Lane	1	0	50	1	0	50	1	0	50	2
Brighton 10 Lane & Ocean View Avenue	10	0	100	10	0	100	11	0	110	10
Ocean View Avenue & Brighton Beach Avenue	15	2	106	18	2	125	16	1	106	16

West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Avenue R & Kings Highway	17	0	100	15	1	94	15	1	94	17
1st Court & Avenue R	21	2	92	3	0	12	20	0	80	25
Avenue S & 1st Court	23	0	96	18	0	75	21	0	88	24
Hutchinson Court & Avenue S	3	0	100	2	0	67	3	0	100	3
Homcrest Court & Hutchinson Court	5	0	63	10	1	138	4	2	75	8
Avenue T & Homcrest Court	10	0	100	8	0	80	9	0	90	10
Avenue U & Avenue T	14	0	70	24	0	120	15	0	75	20
Avenue V & Avenue U	17	1	100	16	0	89	17	0	94	18
Gravesend Neck Rd & Avenue V	14	0	82	17	4	124	16	3	112	17
Avenue W & Gravesend Neck Rd	4	0	57	7	0	100	5	0	71	7
Lancaster Avenue & Avenue W	2	1	75	4	0	100	2	0	50	4
Crawford Avenue & Lancaster Avenue	2	0	67	3	0	100	2	0	67	3
Avenue X & Crawford Avenue	7	2	129	6	0	86	5	0	71	7
Desmond Court & Avenue X	2	0	40	5	0	100	2	0	40	5
Dunne Court & Desmond Court	2	0	29	3	0	43	2	0	29	7
Avenue Y & Dunne Court	2	0	40	2	0	40	2	0	40	5
Gerald Court & Avenue Y	2	0	50	3	0	75	2	0	50	4
Kathleen Court & Gerald Court	2	0	100	1	0	50	2	0	100	2
Avenue Z & Kathleen Court	2	0	25	8	0	100	2	0	25	8
Manor Court & Avenue Z	5	0	63	7	0	88	4	0	50	8

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Coney Island Avenue (2)

West Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
Ocean View Avenue & Neptune Avenue	16	1	81	24	2	124	18	1	90	21
Brighton Beach Avenue & Ocean View Avenue	19	1	95	18	2	95	16	0	76	21

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Ocean Parkway

East Curb(mid island curb side)										
Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	9	0	82	9	0	82	11	0	100	11
Avenue R & Avenue S	31	0	89	29	0	83	33	0	94	35
Avenue S & Avenue T	19	0	54	15	0	43	17	0	49	35
Avenue T & Avenue U	17	0	55	16	0	52	15	0	48	31
Avenue U & Avenue V	17	0	55	19	0	61	21	0	68	31
Avenue V & Gravesend Rd	13	0	81	13	0	81	15	0	94	16
Gravesend Rd & Avenue W	8	0	53	6	0	40	8	0	53	15
Avenue W & Lancaster Avenue	5	0	50	0	0	0	2	0	20	10
Lancaster Avenue & Crawford Av	6	0	55	1	0	9	3	0	27	11
Crawford Avenue & Avenue X	4	0	44	3	0	33	2	0	22	9
Avenue X & Avenue Y	1	0	3	2	0	7	3	0	10	30
Avenue Y & Avenue Z	17	0	49	18	0	51	20	0	57	35
Avenue Z & Belt Pkwy	25	0	93	27	0	100	32	2	126	27
Belt Pkwy & Neptune Avenue	33	0	80	27	0	66	37	0	90	41
Neptune Avenue & Ocean View A	24	0	80	22	0	73	28	0	93	30
Ocean View Avenue & Brighton I	27	0	79	29	0	85	32	0	94	34

East Curb(side walk curb)										
Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	7	0	78	5	0	56	9	0	100	9
Avenue R & Avenue S	0	0	0	0	0	0	0	0	0	0
Avenue S & Avenue T	1	0	0	0	0	0	2	0	200	0
Avenue T & Avenue U	5	0	38	4	0	31	3	0	23	13
Avenue U & Avenue V	0	0	0	0	0	0	0	0	0	0
Avenue V & Gravesend Rd	1	0	0	0	0	0	2	0	200	0
Gravesend Rd & Avenue W	5	0	56	3	0	33	3	0	33	9
Avenue W & Lancaster Avenue	0	0	0	0	0	0	0	0	0	0
Lancaster Avenue & Crawford Avenue	0	0	0	0	0	0	0	0	0	0
Crawford Avenue & Avenue X	6	0	60	5	0	50	7	0	70	10
Avenue X & Avenue Y	0	0	0	0	0	0	0	0	0	0
Avenue Y & Avenue Z	11	0	35	10	0	32	15	0	48	31
Avenue Z & Belt Pkwy	31	0	194	27	0	169	35	0	219	16
Belt Pkwy & Neptune Avenue	13	0	108	11	0	92	15	0	125	12
Neptune Avenue & Ocean View Avenue	17	0	77	15	0	68	20	0	91	22
Ocean View Avenue & Brighton Beach Avenue	11	0	52	10	0	48	18	0	86	21

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Ocean Parkway (2)

West Curb (mid island curb side)										
Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	7	0	70	10	0	100	10	0	100	10
Avenue R & Avenue S	22	0	59	22	0	59	28	0	76	37
Avenue S & Avenue T	15	0	42	17	0	47	14	0	39	36
Avenue T & Avenue U	9	0	25	13	0	36	10	0	28	36
Avenue U & Avenue V	3	0	10	5	0	17	3	0	10	30
Avenue V & Gravesend Rd	4	0	20	4	0	20	4	0	20	20
Gravesend Rd & Avenue W	9	0	60	8	0	53	9	0	60	15
Avenue W & Angela Dr	9	0	45	10	0	50	10	0	50	20
Angela Dr & Avenue X	7	0	47	7	0	47	7	0	47	15
Avenue X & Ocean Court	7	0	70	5	0	50	7	0	70	10
Ocean Court & Parkway Court	7	0	70	6	0	60	7	0	70	10
Parkway Court & Avenue Y	6	0	60	7	0	70	6	0	60	10
Avenue Y & Manhattan Court	7	0	64	9	0	82	8	0	73	11
Manhattan Court & Brighton Court	9	0	82	5	0	45	9	0	82	11
Brighton Court & Avenue Z	8	0	73	6	0	55	8	0	73	11
Avenue Z & Murdock Court	0	0	0	0	0	0	0	0	0	4
Murdock Court & Nixon Court	0	0	0	0	0	0	0	0	0	0
Nixon Court & Belt Pkwy	0	0	0	0	0	0	0	0	0	0
Belt Pkwy & West Avenue	19	0	63	15	0	50	21	0	70	30
West Avenue & Neptune Avenue	15	0	100	11	0	73	13	0	87	15
Neptune Avenue & W. Brighton Avenue	49	0	96	44	0	86	51	0	100	51
W.Brighton Avenue & Sea Breeze Avenue	11	0	110	9	0	90	10	0	100	10

West Curb (side walk curb)										
Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	9	0	113	7	0	88	8	0	100	8
Avenue R & Avenue S	19	0	119	15	0	94	17	0	106	16
Avenue S & Avenue T	0	0	0	0	0	0	0	0	0	4
Avenue T & Avenue U	8	0	67	5	0	42	6	0	50	12
Avenue U & Avenue V	10	0	42	7	0	29	9	0	38	24
Avenue V & Gravesend Rd	0	0	0	0	0	0	0	0	0	4
Gravesend Rd & Avenue W	0	0	0	0	0	0	0	0	0	0
Avenue W & Angela Dr	4	0	19	0	0	0	1	0	5	21
Angela Dr & Avenue X	0	0	0	0	0	0	0	0	0	14
Avenue X & Ocean Court	0	0	0	0	0	0	0	0	0	0
Ocean Court & Parkway Court	0	0	0	0	0	0	0	0	0	0
Parkway Court & Avenue Y	0	0	0	0	0	0	0	0	0	0
Avenue Y & Manhattan Court	4	0	100	3	0	75	3	0	75	4
Manhattan Court & Brighton Court	0	0	0	0	0	0	0	0	0	0
Brighton Court & Avenue Z	4	0	67	2	0	33	2	0	33	6
Avenue Z & Murdock Court	7	0	78	3	0	33	5	0	56	9
Murdock Court & Nixon Court	8	0	133	3	0	50	2	0	33	6
Nixon Court & Belt Pkwy	0	0	0	0	0	0	0	0	0	0
Belt Pkwy & West Avenue	11	0	34	15	0	47	17	0	53	32
West Avenue & Neptune Avenue	13	0	72	11	0	61	12	0	67	18
Neptune Avenue & W. Brighton Avenue	33	0	60	35	0	64	38	0	69	55
W. Brighton Avenue & Sea Breeze Avenue	6	0	67	8	0	89	8	0	89	9

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

McDonald Avenue

McDonald Avenue - East Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
Kings Highway & Billing P	8	0	133	6	1	117	7	0	117	6
Billings Pl & Colin P	6	0	150	6	0	150	6	0	150	4
Colin Pl & Avenue S	12	0	133	11	0	122	10	0	111	9
Avenue S & Avenue T	34	0	106	29	0	91	35	0	109	32
Avenue T & Sloan Pl	9	0	150	8	0	133	9	0	150	6
Sloan Pl & Whitney Pl	6	0	67	7	0	78	7	0	78	9
Whitney Pl & Avenue U	9	1	200	9	1	200	8	1	180	5
Ave U & Village Rd NC	6	1	117	6	0	100	5	1	100	6
Village Rd NO & Gravesend Avenue	10	2	133	9	1	111	8	1	100	9
Gravesend Avenue & Village Rd SO	11	0	73	10	1	73	9	0	60	15
Village Rd SO & Avenue W	13	0	100	13	0	100	11	0	85	13
Avenue W & Avenue X	13	0	76	13	0	76	14	0	82	17

McDonald Avenue - West Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
Kings Highway & Avenue S	23	0	128	21	2	128	23	0	128	18
Avenue S & Avenue T	27	0	93	24	0	83	24	0	83	29
Avenue T & Avenue U	22	2	89	17	0	63	20	1	78	27
Avenue U & Gravesend Neck	5	0	167	2	0	67	4	0	133	3
Gravesend Neck & Village Rd SO	8	0	73	13	0	118	7	0	64	11
Village Rd SO & Avenue W	8	0	62	12	0	92	7	0	54	13
Avenue W & Avenue X	20	3	100	18	0	78	19	2	91	23

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Shell Road

Shell Road - East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Avenue X & Bouck Court	3	0	75	3	0	75	2	0	50	4
Bouck Court & Avenue Y	7	0	88	6	0	75	6	0	75	8
Avenue Y & Cobek Court	8	0	73	7	0	64	7	0	64	11
Cobek Court & Dank Court	3	0	50	4	0	67	3	0	50	6
Dank Court & Avenue Z	4	0	50	1	0	13	4	0	50	8
Avenue Z & Belt Pkwy	15	0	60	1	0	4	13	0	52	25
Belt Pkwy & Neptune Avenue	24	0	89	28	0	104	22	0	81	27
Neptune Avenue & Sheepshead Bay	3	0	75	4	0	100	3	0	75	4
Sheepshead Bay & Surf Avenue	76	0	94	72	0	89	72	0	89	81

Shell Road - West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Avenue X & Belt Pkwy	32	0	45	22	0	31	36	0	51	71
Belt Pkwy & Neptune Avenue	22	0	58	28	0	74	20	0	53	38
Neptune Avenue & Sheepshead Bay	4	0	100	4	0	100	4	0	100	4
Sheepshead Bay & Surf Avenue	49	0	84	55	0	95	51	0	88	58

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Bay Parkway

East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & 79th Street	4	0	100	4	0	100	3	0	75	4
79th Street & 80th Street	6	0	100	5	0	83	5	0	83	6
80th Street & 81st Street	10	0	100	7	0	70	9	0	90	10
81st Street & 82nd Street	4	0	67	7	3	167	4	0	67	6
82nd Street & 83rd Street	10	2	120	10	0	100	9	1	100	10
83rd Street & 84th Street	10	0	100	9	1	100	9	0	90	10
84th Street & 85th Street	6	0	67	8	0	89	7	0	78	9
85th Street & 86th Street	2	0	67	3	0	100	2	0	67	3
86th Street & Benson Avenue	25	3	112	15	0	60	23	2	100	25
Benson Avenue & Bath Avenue	34	2	100	32	0	89	33	2	97	36
Bath Avenue & Crospey Avenue	9	0	100	9	0	100	9	0	100	9

West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
78th Street & 79th Street	4	0	100	3	2	125	4	0	100	4
79th Street & 80th Street	6	0	100	5	0	83	7	0	117	6
80th Street & 81st Street	3	0	75	3	0	75	3	0	75	4
81st Street & 82nd Street	3	0	75	6	0	150	3	0	75	4
82nd Street & 83rd Street	8	0	100	8	0	100	9	0	113	8
83rd Street & 84th Street	1	0	25	5	0	125	2	0	50	4
84th Street & 85th Street	6	0	100	8	0	133	5	0	83	6
85th Street & 86th Street	1	0	33	4	0	133	2	0	67	3
86th Street & Benson Avenue	2	0	9	18	0	78	3	0	13	23
Benson Avenue & Bath Avenue	4	0	14	22	0	79	5	0	18	28
Bath Avenue & Crospey Avenue	2	0	22	7	0	78	1	0	11	9

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

86th Street

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 23 Avenue	29	1	107	28	8	129	27	1	100	28
23 Avenue & 24th Avenue	25	3	112	25	4	116	22	2	96	25
24th Avenue & 25th Avenue	11	1	71	12	2	82	13	0	76	17
25TH Avenue & Stillwell Avenue	2	0	22	2	0	22	2	0	22	9
Stillwell Avenue & West 13 Street	5	0	100	4	0	80	5	0	100	5
West 13 Street & West 12 Street	6	0	100	4	0	67	7	0	117	6
West 12 Street & West 11 Street	4	0	50	2	0	25	5	0	63	8
West 11 Street & West 10 Street	11	0	100	8	0	73	10	0	91	11
West 10 Street & West 9 Street	2	0	50	1	0	25	1	0	25	4
West 9 Street & West 8 Street	9	0	90	9	0	90	7	0	70	10
West 8 Street & West 7 Street	6	0	120	6	0	120	5	0	100	5
West 7 Street & West 6 Street	5	0	71	3	0	43	5	0	71	7
West 6 Street & Van Sicklen Street	5	0	56	2	0	22	5	0	56	9
Van Sicklen Street & Lake Street	0	0	0	0	0	0	0	0	0	7
Lake Street & McDonald Avenue	4	0	57	3	0	43	4	0	57	7

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & Bay 31 Street	7	2	129	7	2	129	6	1	100	7
Bay 31 Street & Bay 32nd Street	8	0	114	8	1	129	6	1	100	7
Bay 32nd Street & 23 Avenue	7	1	133	7	0	117	5	0	83	6
23 Avenue & Bay 34th Street	6	1	100	7	2	129	5	1	86	7
Bay 34th Street & Bay 35th Street	7	0	100	7	1	114	6	0	86	7
Bay 35th Street & 24th Avenue	6	1	117	7	1	133	6	1	117	6
24th Avenue & Bay 37th Street	7	0	100	7	0	100	6	0	86	7
Bay 37th Street & Bay 38th Street	6	0	300	4	0	200	5	0	250	2
Bay 38th Street & 25th Avenue	5	0	71	4	0	57	5	0	71	7
25th Avenue & Bay 40 Street	4	0	57	2	0	29	4	0	57	7
Bay 40 Street & Bay 41 Street	7	0	78	9	0	100	4	0	44	9
Bay 41 Street & 26th Avenue	0	0	0	0	0	0	0	0	0	1
Stillwell Avenue & West 13 Street	4	0	57	3	0	43	3	0	43	7
West 13 Street & West 12 Street	5	0	56	4	0	44	6	0	67	9
West 12 Street & West 11 Street	4	0	33	3	0	25	5	0	42	12
West 11 Street & West 10 St	6	0	75	7	0	88	8	0	100	8
West 10 Street & West 8 Street	14	0	100	15	0	107	11	0	79	14
West 8 Street & West 7 Street	7	0	78	7	0	78	8	0	89	9
West 7 Street & McDonald Avenue	25	0	78	26	0	81	22	0	69	32

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Avenue X

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
McDonald Avenue & Stryker Street	7	1	114	7	1	114	7	0	100	7
Stryker Street & West 1 Street	8	0	80	9	1	100	7	0	70	10
West 1 Street & West Street	5	1	120	5	0	100	5	0	100	5
West Street & E 1st Street	6	0	86	7	1	114	6	0	86	7
E 1st Street & E 2nd Street	4	1	63	5	2	88	3	1	50	8
E 2nd Street & E 3rd Street	2	0	22	2	1	33	2	0	22	9
E 3rd Street & E 4th Street	4	0	40	4	0	40	4	0	40	10
E 4th Street & Ocean Pkwy	4	0	36	4	0	36	5	0	45	11
Ocean Pkwy & East 7th Street	11	0	52	13	0	62	13	0	62	21
East 7th Street & Coney Island Avenue	9	1	83	8	1	75	9	2	92	12

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
McDonald Avenue & West 3 Street	7	0	100	7	0	100	7	0	100	7
W 3 Street & W 2 Street	6	0	86	7	0	100	7	0	100	7
W 2 Street & W1 Street	5	0	83	4	0	67	5	0	83	6
W1 Street & West Street	3	0	100	3	0	100	4	0	133	3
West Street & E 1st Street	2	0	67	1	0	33	3	0	100	3
E 1st Street & E 2nd Street	8	0	114	8	1	129	8	0	114	7
E 2nd Street & E 3rd Street	11	1	109	10	1	100	10	0	91	11
E 3rd Street & Ocean Pkwy	11	0	85	12	0	92	9	0	69	13
Ocean Pkwy & Hubbard Street	7	0	54	7	0	54	7	0	54	13
Hubbard Street & East 7th Street	6	0	67	4	0	44	6	0	67	9
East 7th Street & Coney Island Avenue	14	0	82	16	0	94	13	0	76	17

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Kings Highway

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & Stillwell Avenue	11	0	79	14	0	100	10	0	71	14
Stillwell Avenue & West 13 Street	2	0	200	1	0	100	2	0	200	1
West 13 Street & West 12 Street	6	1	233	3	0	100	7	0	233	3
West 12 Street & West 11 Street	8	1	129	5	0	71	7	0	100	7
West 11 Street & West 10 Street	7	0	175	3	0	75	7	0	175	4
West 10 Street & West 9 Street	2	0	100	2	0	100	3	0	150	2
West 9 Street & West 8 Street	3	0	75	2	0	50	2	0	50	4
West 8 Street & West 7 Street	2	0	200	3	0	300	2	0	200	1
West 7 Street & West 6 Street	5	0	63	4	0	50	4	0	50	8
West 6 Street & West 5 Street	4	1	125	4	0	100	3	0	75	4
West 5 Street & West 4 Street	2	0	25	2	1	38	1	1	25	8
West 4 Street & West 3 Street	3	0	100	2	0	67	2	1	100	3
West 3 Street & West 2 Street	3	0	150	2	0	100	2	2	200	2
West 2 Street & West 1 Street	1	0	17	2	0	33	3	2	83	6
West 1 Street & Dahill Road	5	1	120	5	0	100	6	4	200	5
Dahil Road & McDonald Avenue	6	0	120	6	2	160	5	5	200	5
Mc Donald Avenue & East 2nd Street	8	1	225	4	0	100	4	5	225	4
East 2nd Street & East 3rd Street	9	1	125	8	2	125	7	7	175	8
East 3rd Street & East 4th Street	5	0	125	4	0	100	4	4	200	4

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & Stillwell Avenue	20	0	182	6	0	55	18	0	164	11
Stillwell Avenue & West 13 Street	5	0	100	5	0	100	4	0	80	5
West 13 Street & West 12 Street	4	0	57	6	0	86	5	0	71	7
West 12 Street & West 11 Street	0	0	0	4	0	100	4	0	100	4
West 11 Street & West 10 Street	8	0	100	8	0	100	7	0	88	8
West 10 Street & West 9 Street	7	1	100	6	0	75	5	0	63	8
West 9 Street & West 8 Street	3	0	60	5	0	100	4	0	80	5
West 8 Street & West 7 Street	2	0	50	4	0	100	3	0	75	4
West 7 Street & West 6 Street	8	0	100	8	0	100	7	0	88	8
West 6 Street & West 5 Street	6	0	67	7	0	78	5	0	56	9
West 5 Street & West 4 Street	4	0	67	6	0	100	5	0	83	6
West 4 Street & West 3 Street	3	0	75	4	0	100	4	0	100	4
West 3rdStreet & Kings Place	9	0	129	7	0	100	6	0	86	7
Kings Place & Van Sicklen Street	3	0	100	0	0	0	1	0	33	3
Van Sicklen Street & Lake Street	3	0	100	3	0	100	2	0	67	3
Lake Street & McDonald Avenue	1	0	100	0	0	0	1	0	100	1
McDonald Avenue & East 2nd Street	7	0	50	14	0	100	9	0	64	14
East 2nd Street & East 3rd Street	3	0	33	9	0	100	2	0	22	9
East 3rd Street & East 4th Street	4	0	80	5	0	100	3	0	60	5

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Kings Highway (2)

North Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
East 4th Street & East 5th Street	9	1	125	6	0	75	5	5	125	8
East 5th Street & Ocean Pkwy	5	0	125	3	0	75	3	3	150	4
Ocean Pkwy & East 7th Street	7	0	117	6	0	100	5	5	167	6
East 7th Street & East 8th Street	5	0	125	5	0	125	5	4	225	4
East 8th Street & East 9th Street	6	0	86	7	0	100	7	6	186	7
East 9th Street & Coney Island Avenue	15	2	113	15	0	100	14	14	187	15

South Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
East 4th Street & East 5th Street	8	0	80	10	0	100	7	0	70	10
East 5th Street & Ocean Pkwy	9	0	82	11	0	100	10	0	91	11
Ocean Pkwy & East 7th Street	11	1	109	11	0	100	9	1	91	11
East 7th Street & East 8th Street	8	2	125	8	0	100	6	1	88	8
East 8th Street & East 9th Street	9	0	100	9	0	100	7	0	78	9
East 9th Street & East 10th Street	5	0	83	6	0	100	4	0	67	6
East 10th Street & Coney Island Avenue	6	0	75	8	0	100	4	0	50	8

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Neptune Avenue

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 33rd Street	18	0	72	20	0	80	16	0	64	25
West 33rd Street & West 31st Street	11	0	85	9	0	69	7	0	54	13
West 31st Street & West 23rd Street	17	0	53	15	0	47	13	0	41	32
West 23rd Street & West 22nd Street	10	0	111	9	0	100	9	0	100	9
West 22nd Street & West 21st Street	8	0	89	7	0	78	7	0	78	9
West 21st Street & West 17th Street	26	4	107	28	5	118	26	3	104	28
West 17th Street & West 16th Street	4	1	125	4	2	150	4	1	125	4
West 16th Street & West 15th Street	5	10	300	5	12	340	4	8	240	5
West 15th Street & Stillwell Avenue	8	10	225	8	9	213	7	0	88	8
Stillwell Avenue & Shell Roac	23	5	104	21	3	89	18	1	70	27
Shell Road & West 6th Street	13	0	100	13	0	100	15	0	115	13
West 6th Street & West 5th Street	17	0	85	18	0	90	18	0	90	20
West 5th street & Ocean Pkwy	39	0	89	41	0	93	41	0	93	44
Ocean Pkwy & Brighton 1st Street	0	0	0	0	0	0	0	0	0	0
Brighton 1st Street & Brighton 3rd Street	5	0	83	4	0	67	5	0	83	6
Brighton 3rd street & Brighton 4th Street	9	0	90	9	0	90	9	0	90	10
Brighton 4th Street & Brighton 7th Street	5	0	100	5	0	100	5	0	100	5
Brighton 7th Street & Brighton 8th Street	10	0	100	10	0	100	9	0	90	10
Brighton 8th Street & Coney Island Avenue	8	0	100	7	0	88	7	0	88	8

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 36th Street	4	0	40	4	0	40	6	0	60	10
West 36th Street & West 35th Street	5	0	63	6	0	75	6	0	75	8
West 35th Street & West 33rd Street	2	0	200	4	4	400	0	1	100	0
West 33rd Street & West 32nd Street	7	0	47	2	0	13	11	0	73	15
West 32nd Street & West 31st Street	5	0	71	2	1	43	5	0	71	7
West 31st Street & West 30th Street	3	0	60	3	0	60	3	0	60	5
West 30th Street & West 29th Street	4	0	80	2	0	40	4	0	80	5
West 29th Street & West 28th Street	0	0	0	0	0	0	0	0	0	4
West 28th Street & West 27th Street	2	0	50	2	0	50	1	0	25	4
West 27th street & West 25th Street	7	8	167	9	9	200	6	4	111	9
West 25th Street & West 24th Street	4	0	25	2	0	13	6	0	38	16
West 24th Street & West 23rd Street	3	0	75	3	0	75	5	0	125	4
West 23rd Street & West 22nd Street	3	0	50	3	0	50	3	0	50	6
West 22nd Street & West 21st Street	2	0	67	1	0	33	2	0	67	3
West 21st Street & West 20th Street	11	0	85	9	0	69	11	0	85	13
West 20th Street & West 19th Street	9	0	100	8	0	89	7	0	78	9
West 19th Street & West 17th Street	10	0	111	9	0	100	8	0	89	9
West 17th Street & West 16th Street	7	0	100	7	0	100	5	0	71	7
West 16th Street & West 15th Street	11	0	110	10	1	110	8	0	80	10

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Neptune Avenue (2)

South Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
West 15th Street & Stillwell Avenue	6	7	186	5	11	229	5	3	114	7
Stillwell Avenue & West 12th Street	21	0	53	26	0	65	22	0	55	40
West 12th Street & Sheepshead Bay Road	21	0	88	23	0	96	19	0	79	24
Sheepshead Bay Road & West 6th Street	7	0	78	7	0	78	6	0	67	9
West 6th Street & West 5th Street	36	0	82	34	0	77	33	0	75	44
West 5th street & Ocean Pkwy	52	4	102	54	4	105	46	3	89	55
Ocean Pkwy & Brighton 1st Street	5	0	71	5	0	71	4	0	57	7
Brighton 1st Street & Brighton 3rd Street	7	0	117	5	0	83	5	0	83	6
Brighton 3rd street & Brighton 4th Street	4	0	133	3	0	100	3	0	100	3
Brighton 4th Street & Brighton 5th Street	5	0	100	5	0	100	4	0	80	5
Brighton 5th Street & Brighton 6th Street	8	0	100	8	0	100	6	0	75	8
Brighton 6th Street & Brighton 7th Street	3	0	60	2	0	40	4	0	80	5
Brighton 7th Street & Brighton 8th Street	8	0	114	7	0	100	7	0	100	7
Brighton 8th Street & Coney Island Avenue	4	0	67	4	0	67	5	0	83	6

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Surf Avenue

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 36th Street	5	0	83	5	0	83	4	0	67	6
West 36th Street & West 35th Street	5	0	71	5	0	71	4	0	57	7
West 35th Street & West 33rd Street	5	0	71	6	0	86	5	0	71	7
West 33rd Street & West 32nd Street	6	0	75	5	0	63	6	0	75	8
West 32nd Street & West 31st Street	7	0	88	4	0	50	6	0	75	8
West 31st Street & West 30th Street	10	0	83	7	0	58	8	0	67	12
West 30th Street & West 29th Street	7	0	78	5	0	56	6	0	67	9
West 29th Street & West 28th Street	5	0	56	3	0	33	6	0	67	9
West 28th Street & West 27th Street	5	0	71	5	0	71	6	0	86	7
West 27th street & West 25th Street	0	0	0	0	0	0	0	0	0	0
West 25th Street & West 24th Street	8	0	53	12	0	80	7	0	47	15
West 24th Street & West 23rd Street	0	0	0	0	0	0	0	0	0	0
West 23rd Street & West 22nd Street	2	0	20	0	0	0	1	0	10	10
West 22nd Street & West 21st Street	6	0	100	6	0	100	5	0	83	6
West 21st Street & West 20th Street	10	0	83	8	0	67	9	0	75	12
West 20th Street & West 19th Street	7	0	78	5	0	56	7	0	78	9
West 19th Street & West 17th Street	5	0	100	5	0	100	4	0	80	5
West 17th Street & West 16th Street	7	0	100	7	0	100	6	0	86	7
West 16th Street & West 15th Street	8	0	89	5	0	56	8	0	89	9

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 36th Street	6	0	75	4	0	50	6	0	75	8
West 36th Street & West 35th Street	1	0	10	1	0	10	2	0	20	10
West 35th Street & West 33rd Street	4	0	57	4	0	57	5	0	71	7
West 33rd Street & West 32nd Street	5	0	45	4	0	36	8	0	73	11
West 32nd Street & West 29th Street	7	0	44	11	0	69	11	0	69	16
West 29th Street & West 28th Street	6	0	55	7	0	64	7	0	64	11
West 28th Street & West 27th Street	0	0	0	0	0	0	0	0	0	0
West 27th Street & West 25th Street	2	0	17	1	0	8	0	0	0	12
West 25th Street & West 24th Street	5	0	83	4	0	67	4	0	67	6
West 24th Street & West 23rd Street	5	0	83	6	0	100	6	0	100	6
West 23rd Street & West 22nd Street	6	1	117	4	2	100	6	0	100	6
West 22nd Street & West 21st Street	11	0	92	12	0	100	12	0	100	12
West 21st Street & West 19th Street	0	0	0	0	0	0	0	0	0	0
West 19th Street & West 16th Street	0	0	0	0	0	0	0	0	0	0
West 16th Street & Kensington Wk	0	0	0	0	0	0	0	0	0	0
Kensington Wk & West 15th Street	0	0	0	0	0	0	0	0	0	0
West 15th Street & Schweikeris WK	0	0	0	1	0	25	2	0	50	4
Schweikeris WK & Stillwell Avenue	0	0	0	1	0	50	0	0	0	2
Stillwell Avenue & Henderson WK	0	0	0	0	0	0	0	0	0	0

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Surf Avenue (2)

North Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
West 15th Street & Stillwell Avenue	6	0	67	2	0	22	5	0	56	9
Stillwell Avenue & West 12th Street	6	0	75	5	0	63	4	0	50	8
West 12th Street & West 8th Street	14	0	67	11	0	52	11	0	52	21
West 8th Street & West 5th Street	24	0	83	26	0	90	22	0	76	29
West 5th Street & Ocean Pkwy	0	0	0	0	0	0	0	0	0	0

South Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
Henderson WK & West 12th Street	0	0	0	1	0	13	1	0	13	8
West 12th Street & Jones WK	7	0	88	4	0	50	6	0	75	8
Jones WK & West 10th Street	0	0	0	0	0	0	0	0	0	8
West 10th Street & Ocean Pkwy	40	1	41	42	1	43	45	0	45	100

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Stillwell Avenue

East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings HWY & Quentin Road	5	0	50	4	0	40	4	0	40	10
Quentin Road & Avenue R	15	0	65	14	0	61	11	0	48	23
Avenue R & Avenue S	17	0	65	13	0	50	16	0	62	26
Avenue S & Avenue T	13	0	54	18	0	75	11	0	46	24
Avenue T & 86th Street	7	0	58	9	0	75	7	0	58	12
86th Street & Avenue U	8	0	160	2	0	40	1	0	20	5
Avenue U & Avenue V	8	0	21	2	0	5	2	0	5	39
Avenue V & Avenue W	18	0	95	16	0	84	13	0	68	19
Avenue W & Avenue X	0	0	0	1	0	3	4	0	13	31
Avenue X & Avenue Z	16	0	48	29	0	88	21	0	64	33
Avenue Z & Shore Pkwy	9	0	60	7	0	47	9	0	60	15
Shore Pkwy & Neptune Avenue	19	4	56	22	0	54	16	0	39	41
Neptune Avenue & Surf Avenue	9	0	69	7	0	54	7	0	54	13

West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings HWY & 78th Street @ 23rd Avenue	12	0	171	4	0	57	11	0	157	7
78th Street @ 23rd Avenue & 79th Street	5	0	83	5	0	83	6	0	100	6
79th Street & 80th Street	12	0	100	12	0	100	11	0	92	12
80th Street & 24th Avenue	1	0	10	2	0	20	0	0	0	10
24th Avenue & 82nd Street	12	0	133	8	0	89	7	0	78	9
82nd Street & 83rd Street	4	0	57	7	0	100	5	0	71	7
83rd Street & 25th Avenue	8	0	89	11	1	133	6	0	67	9
25th ave & 85th Street	13	0	93	13	0	93	11	0	79	14
85th Street & 86th Street	7	0	50	9	0	64	7	0	50	14
86th Street & 26th Avenue	2	0	100	2	0	100	3	0	150	2
26th Avenue & Bay 43rd Road	9	2	110	9	1	100	7	0	70	10
Bay 43rd Road & Benson Avenue	9	0	32	10	0	36	7	0	25	28
Benson Avenue & 27th Avenue	1	0	100	0	0	0	0	0	0	1

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Stillwell Avenue (2)

West Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
27th Avenue & Bay 46th Street	4	0	44	6	0	67	4	0	44	9
Bay 46th Street & Bay 47th Street	7	2	129	5	2	100	4	0	57	7
Bay 47th Street & Bath Avenue	6	0	75	7	0	88	6	0	75	8
Bath Avenue & Bay 49th Street	7	0	117	7	0	117	5	0	83	6
Bay 49th Street & Bay 50th Street	8	1	113	4	1	63	5	0	63	8
Bay 50th Street & Harway Avenue	10	0	100	8	1	90	7	0	70	10
Harway Avenue & West 15th Place	11	0	138	4	0	50	5	0	63	8
West 15th Place & Avenue Z	14	0	78	15	0	83	11	0	61	18
Avenue Z & Shore Pkwy	7	0	70	9	0	90	7	0	70	10
Shore Pkwy & Neptune Avenue	28	6	106	27	0	84	22	0	69	32
Neptune Avenue & Mermaid Avenue	2	0	5	15	0	38	9	0	23	39
Mermaid Avenue & Surf Avenue	1	0	100	2	0	200	0	0	0	1

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Cropsey Avenue

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 31st Street	0	0	0	0	0	0	0	0	0	0
31st Street & 32nd Street	6	0	86	8	1	129	7	0	100	7
32nd Street & 23rd Avenue	3	0	75	4	0	100	4	0	100	4
23rd Avenue & Bay 34th Street	11	0	122	10	0	111	11	0	122	9
Bay 34th Street & 24th Avenue	8	0	114	7	0	100	8	0	114	7
24th Avenue & Bay 38th Street	2	0	33	1	0	17	2	0	33	6
Bay 37th Street & Bay 38th Street	0	0	0	0	0	0	0	0	0	0
Bay 38th Street & 25th Avenue	0	0	0	0	0	0	0	0	0	0
25th Avenue Bay 40th Street	6	0	150	4	0	100	5	0	125	4
Bay 40th Street & Bay 41st Street	7	0	0	8	0	133	6	0	100	6
Bay 41st Street & 26th Avenue	5	0	167	4	0	133	5	0	167	3
26th Avenue & Bay 44rd Street	16	0	94	15	0	88	12	0	71	17
Bay 44th Street & 27th Avenue	6	0	120	5	0	100	3	0	60	5
27th Avenue & Bay 46th Street	2	0	67	3	0	100	3	0	100	3
Bay 46th Street & Bay 48th Street	16	0	107	14	0	93	11	0	73	15
Bay 48th Street & Bay 49th Street	3	0	100	4	2	200	3	0	100	3
Bay 49th Street & Shore Pkwy	6	0	75	5	0	63	6	0	75	8
Shore Pkwy & Canal Avenue	0	0	0	0	0	0	0	0	0	0
Hart Place & Neptune Avenue	27	2	100	29	4	114	33	3	124	29

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 31st Street	1	0	0	3	0	0	3	0	0	3
31st Street & 32nd Street	7	0	100	8	1	129	7	0	100	7
32nd Street & 23rd Avenue	5	0	100	5	0	100	5	0	100	5
23rd Avenue & Bay 34th Street	9	0	100	10	0	111	11	0	122	9
Bay 34th Street & Bay 35th St	5	0	71	5	0	71	5	0	71	7
Bay 35th Street & 24th Avenue	3	0	150	2	0	100	3	0	150	2
24th Avenue & Bay 37th Street	6	0	0	6	0	0	6	0	0	0
Bay 37th Street & Bay 38th Street	0	0	0	0	0	0	0	0	0	0
Bay 38th Street & 25th Avenue	0	0	0	0	0	0	0	0	0	0
25th Avenue & Bay 40th Street	4	0	0	5	0	100	5	0	100	5
Bay 40th Street & Bay 41st Street	9	0	150	9	0	150	9	0	150	6
Bay 41st Street & 26th Avenue	3	0	50	3	0	50	3	0	50	6
26th Avenue & Bay 43rd Street	4	0	133	3	0	100	2	0	67	3
Bay 43rd Street & Bay 44th Street	9	0	225	8	0	200	7	0	175	4
Bay 44th Street & 27th Avenue	4	0	200	4	0	200	5	0	250	2
27th Avenue & Bay 46th Street	3	0	150	3	0	150	5	0	250	2
46th Street & Bay 47th Street	2	0	50	2	0	50	2	0	50	4
Bay 47th Avenue & Bay 48th Street	3	0	43	3	0	43	2	0	29	7
Bay 48th Street & Bay 49th Street	4	0	100	3	2	125	3	0	75	4
Bay 49th Street & Shore Pkwy	5	0	71	5	0	71	4	0	57	7
Shore Pkwy & Canal Avenue	0	0	0	0	0	0	0	0	0	0
Hart Place & Neptune Avenue	35	2	148	40	4	176	33	3	144	25

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Avenue U

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Stillwell Avenue & West 13th Street	1	0	25	2	0	50	0	0	0	4
West 13th Street & West 12th Street	0	0	0	0	0	0	0	0	0	4
West 12th Street & West 11th Street	10	0	111	9	0	100	9	0	100	9
West 11th Street & West 10th Street	3	0	300	4	0	400	2	0	200	1
West 10th Street & West 9th Street	6	0	100	3	0	50	5	0	83	6
West 9th Street & West 8th Street	8	0	100	8	0	100	7	0	88	8
West 8th Street & West 7th Street	4	0	80	0	0	0	4	0	80	5
West 7th Street & West 6th Street	8	1	113	8	0	100	7	0	88	8
West 6th Street & West 5th Street	8	1	225	7	0	175	7	0	175	4
West 5th Street & West 4th Street	6	0	75	3	0	38	5	0	63	8
West 4th Street & Van Sicklen Street	1	0	25	2	0	50	0	0	0	4
Van Sicklen Street & Lake Street	1	0	25	4	0	100	0	0	0	4
Lake Street & McDonald Avenue	6	0	86	2	0	29	4	0	57	7
McDonald Avenue & West Street	9	0	90	7	0	70	7	0	70	10
West Street & East 1st Street	5	0	100	5	0	100	4	0	80	5
East 1st Street & East 2nd Street	0	0	0	5	0	100	0	0	0	5
East 2nd Street & East 3rd Street	2	0	25	3	0	38	1	0	13	8
East 3rd Street & East 4th Street	6	0	86	6	0	86	5	0	71	7
East 4th Street & East 5th Street	6	0	75	0	0	0	5	0	63	8
East 5th Street & Ocean Pkwy	8	0	80	1	0	10	7	0	70	10
Ocean Pkwy & East 7th Street	3	0	30	5	0	50	2	0	20	10

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Stillwell Avenue & West 13th Street	7	0	100	7	0	100	5	1	86	7
West 13th Street & West 12th Street	0	0	0	0	0	0	0	0	0	0
West 12th Street & West 11th Street	7	0	78	8	0	89	6	0	67	9
West 11th Street & West 10th Street	1	0	25	0	0	0	0	0	0	4
West 10th Street & West 9th Street	5	0	83	3	0	50	4	0	67	6
West 9th Street & West 8th Street	6	0	150	4	0	100	5	0	125	4
West 8th Street & West 7th Street	4	0	100	3	0	75	3	0	75	4
West 7th Street & West 6th Street	7	1	160	4	0	80	6	1	140	5
West 6th Street & West 5th Street	6	1	88	5	3	100	5	1	75	8
West 5th Street & Van Sicklen Street	4	0	57	6	0	86	4	0	57	7
Van Sicklen Street & Lake St	4	0	57	6	0	86	4	0	57	7
Lake Street & McDonald Avenue	3	0	43	3	0	43	3	0	43	7
Mc Donald Avenue & West Street	11	1	80	15	0	100	9	0	60	15
West Street & East 1st Street	4	0	80	5	0	100	4	0	80	5
East 1st Street & East 2nd Street	5	0	83	6	0	100	4	0	67	6
East 2nd Street & East 3rd Street	5	0	50	5	0	50	4	0	40	10
East 3rd Street & East 4th Street	5	0	71	4	0	57	4	0	57	7
East 4th Street & East 5th Street	4	0	80	5	0	100	5	0	100	5
East 5th Street & Ocean Pkwy	5	0	71	7	0	100	5	0	71	7
Ocean Pkwy & East 7th Street	6	0	67	10	0	111	4	0	44	9
East 7th Street & East 8th Street	6	0	55	11	0	100	5	0	45	11

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Avenue U (2)

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
East 7th Street & East 8th Street	3	0	38	8	0	100	3	0	38	8
East 8th Street & East 9th Street	3	0	43	7	0	100	2	0	29	7
East 9th Street & Coney Island Avenue	0	0	0	4	0	100	0	0	0	4

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
East 8th Street & East 9th Street	4	1	83	5	0	83	4	0	67	6
East 9th Street & Coney Island Avenue	5	0	500	4	0	400	3	0	300	0

Brighton Beach Avenue

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
ocean Pkwy & Brighton 1st Street	4	1	100	5	1	120	5	2	140	5
Brighton 1st Street & Brighton 1st Place	6	3	129	7	4	157	7	3	143	7
Brighton 1st Place & Brighton 2nd Street	6	0	100	7	1	133	6	1	117	6
Brighton 2nd Street & Brighton 3rd Street	5	1	120	4	2	120	3	1	80	5
Brighton 3rd Street & Brighton 4th Street	7	2	129	8	2	143	7	2	129	7
Brighton 4th Street & Brighton 5th Street	4	0	100	4	0	100	5	0	125	4
Brighton 5th Street & Brighton 6th Street	7	0	117	7	0	117	6	0	100	6
Brighton 6th Street & Brighton 7th Street	8	0	114	7	0	100	7	1	114	7
Brighton 7th Street & Coney Island Avenue	4	1	125	5	1	150	4	0	100	4
Coney Island Avenue & Brighton 11th Street	5	0	125	4	0	100	5	0	125	4
Brighton 11th Street & Brighton 12th Street	5	0	100	5	0	100	5	0	100	5
Brighton 12th Street & Brighton 13th Street	7	0	88	8	0	100	8	0	100	8
Brighton 13th Street & Brighton 14th Street	2	1	75	3	2	125	4	1	125	4
Brighton 14th Street & Brighton 15th Street	6	0	100	7	0	117	6	1	117	6
Brighton 15th Street & Corbin Place	9	0	90	10	0	100	9	0	90	10

South Curb

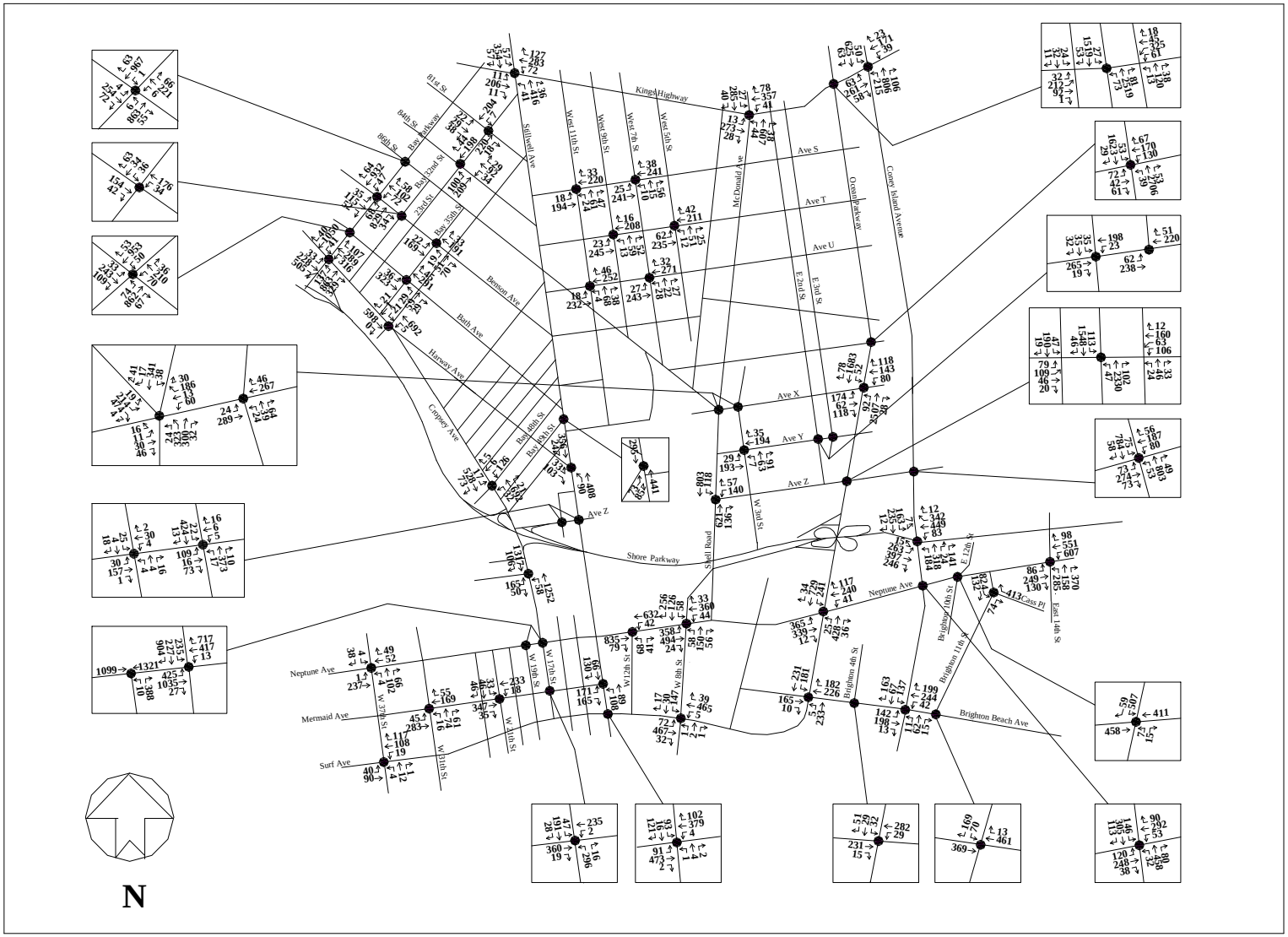
Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
ocean Pkwy & Brighton 1st rd	8	0	89	9	0	100	9	0	100	9
Brighton 1st rd & Brighton 1st Place	5	0	125	4	0	100	4	1	125	4
Brighton 1st Place & Brighton 2nd Street	5	1	150	4	1	125	5	0	125	4
Brighton 2nd Street & Brighton 3rd Street	6	0	100	5	1	100	4	1	83	6
Brighton 3rd Street & Brighton 4th Street	0	0	0	0	0	0	0	0	0	0
Brighton 4th Street & Brighton 5th Street	7	2	100	9	2	122	8	1	100	9
Brighton 5th Street & Brighton 6th Street	2	2	100	4	3	175	2	2	100	4
Brighton 6th Street & Brighton 7th Street	8	1	113	8	1	113	6	0	75	8
Brighton 7th Street & Coney Island Avenue	0	0	0	0	0	0	0	0	0	2
Coney Island Avenue & Brighton 13th Street	27	0	96	30	0	107	28	0	100	28
Brighton 13th Street & Brighton 14th Street	8	0	100	8	0	100	7	0	88	8
Brighton 14th Street & Brighton 15th Street	5	1	120	5	0	100	5	0	100	5
Brighton 15th Street & Corbin Place	4	1	100	5	1	120	5	1	120	5

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

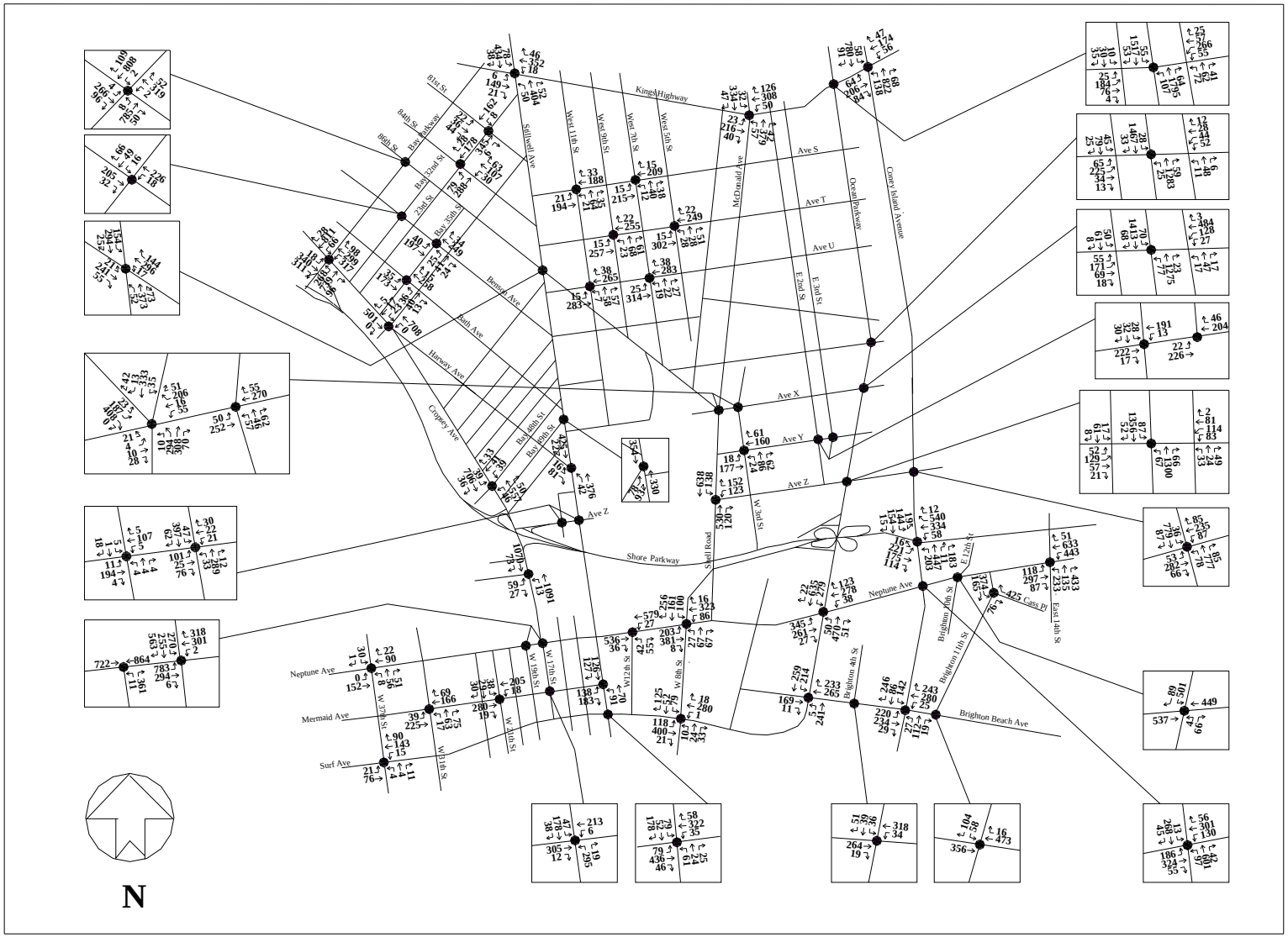
Part II: Future Conditions 2015

APPENDIX A

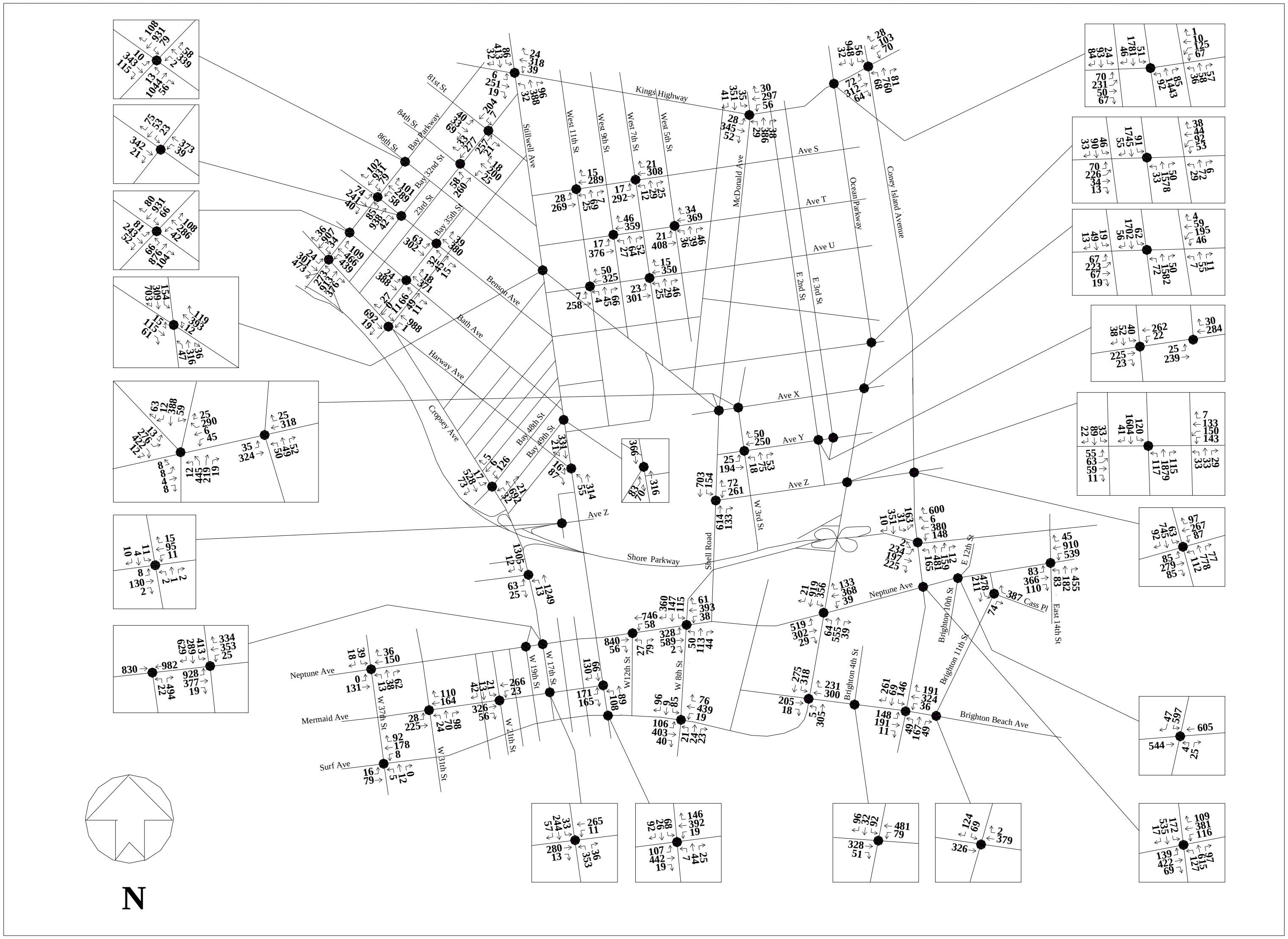
Future 2015 AM Peak Hour Volume



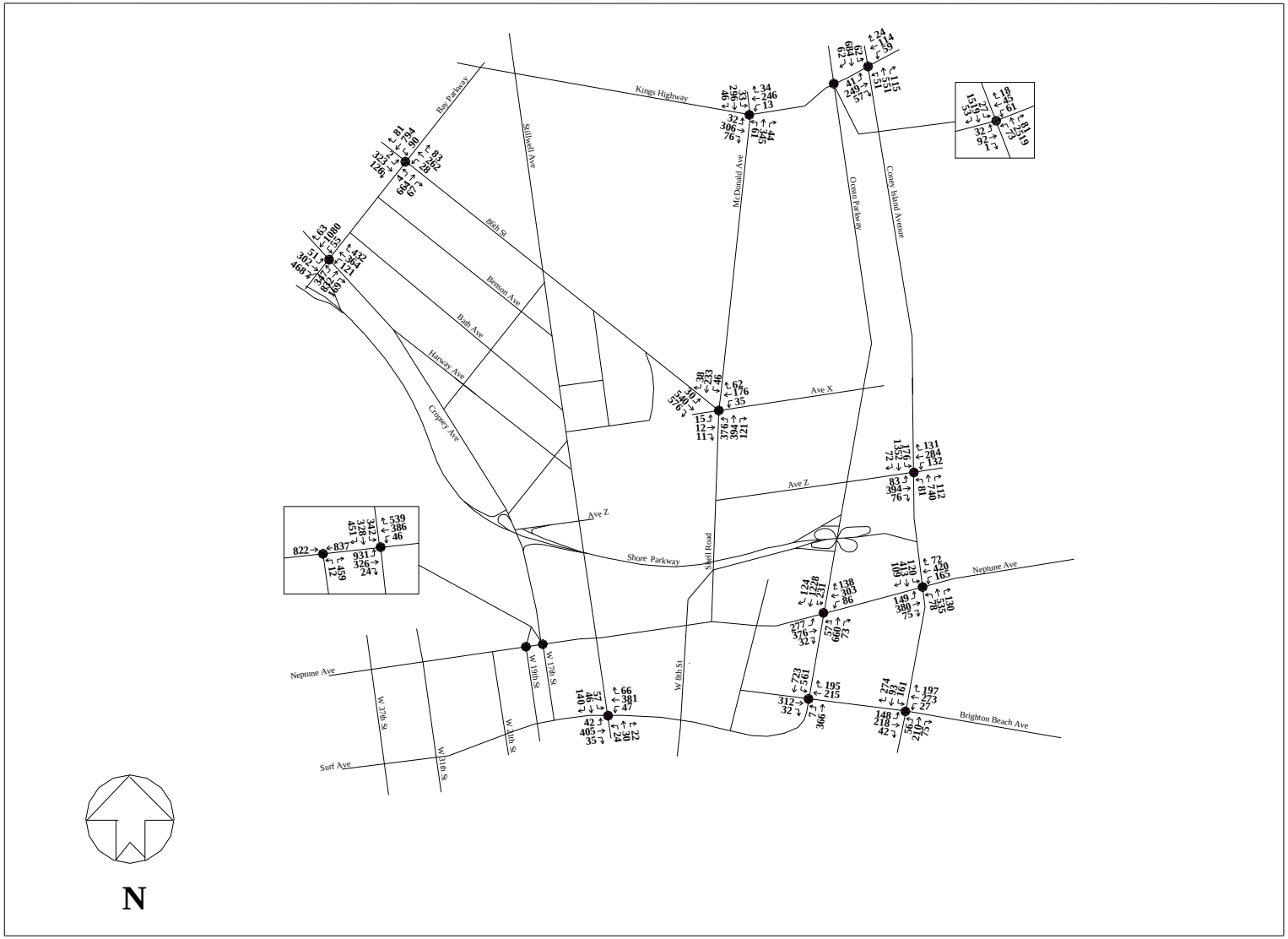
Future 2015 Midday Peak Hour Volume



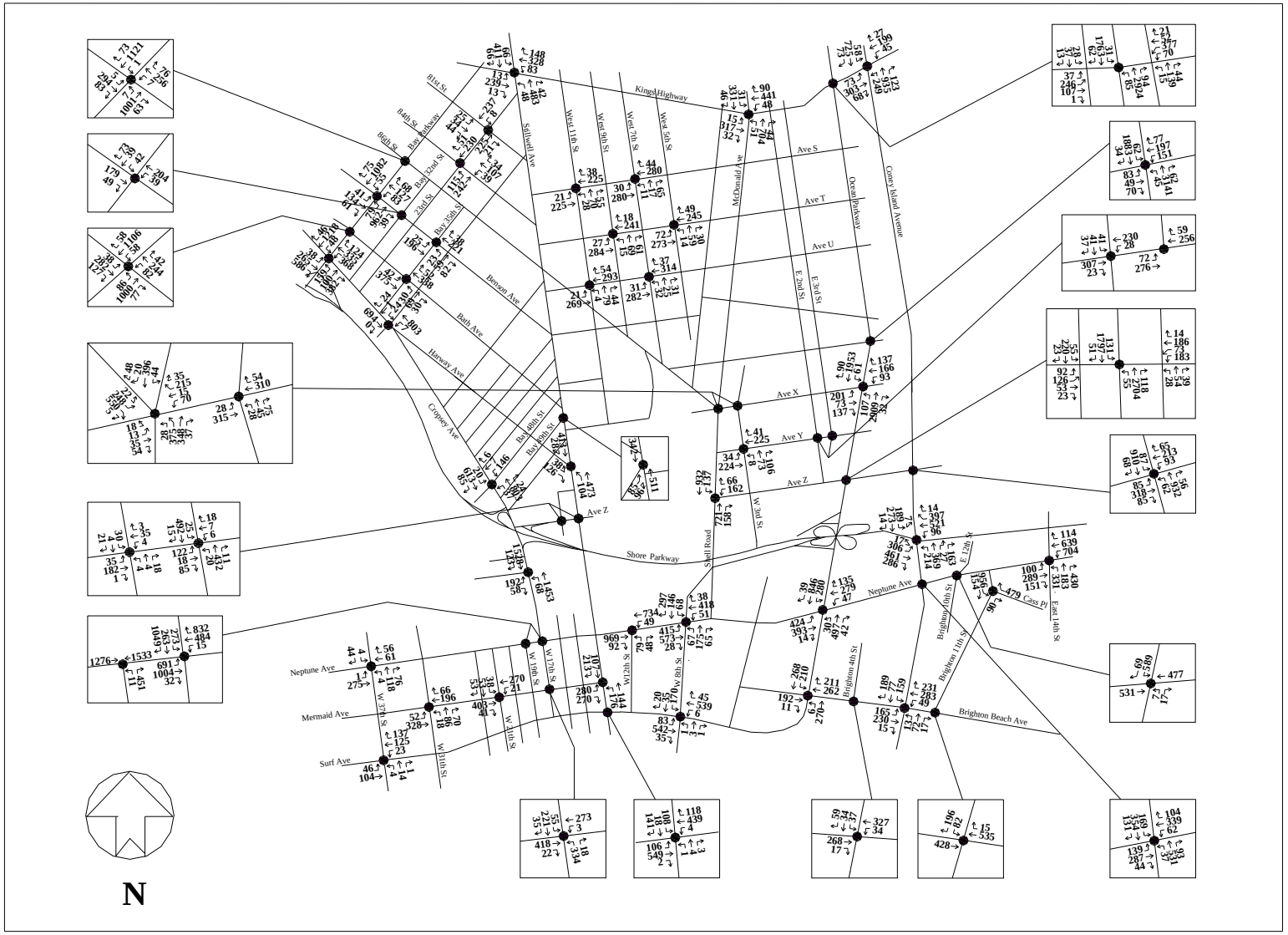
Future 2015 PM Peak Hour Volume



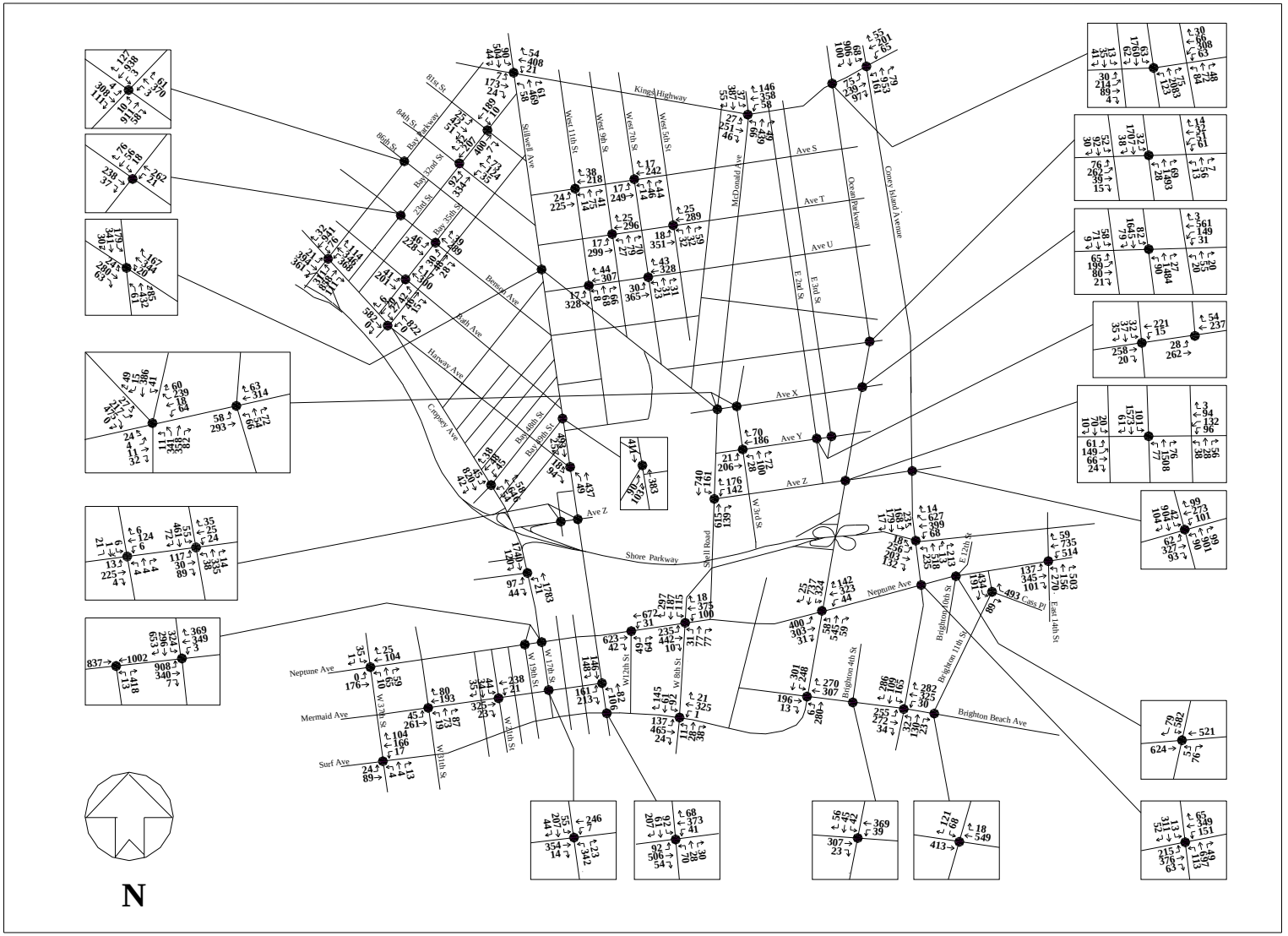
Future 2015 Saturday Midday Peak Hour Volume



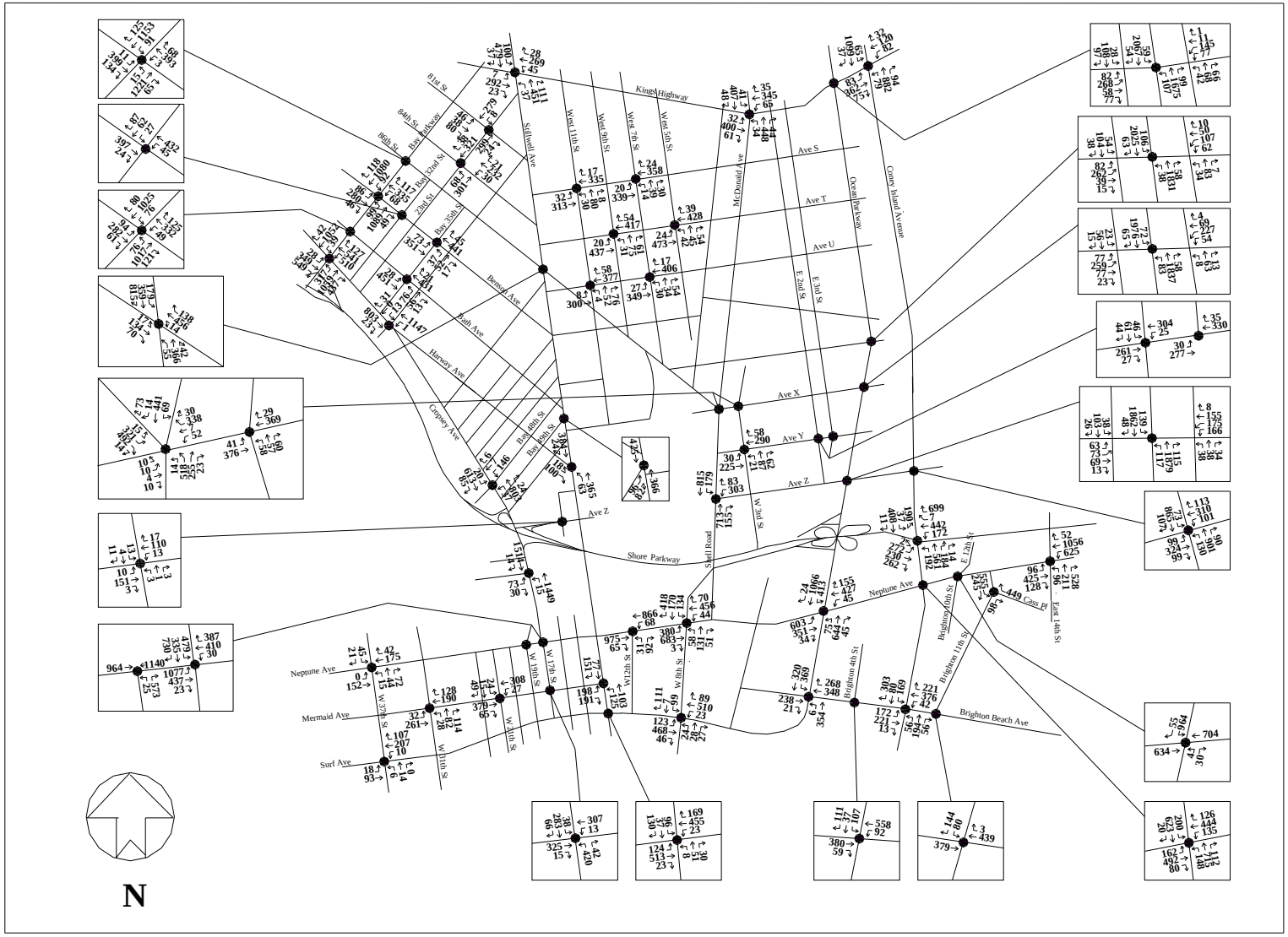
Future 2025 AM Peak Hour Volume



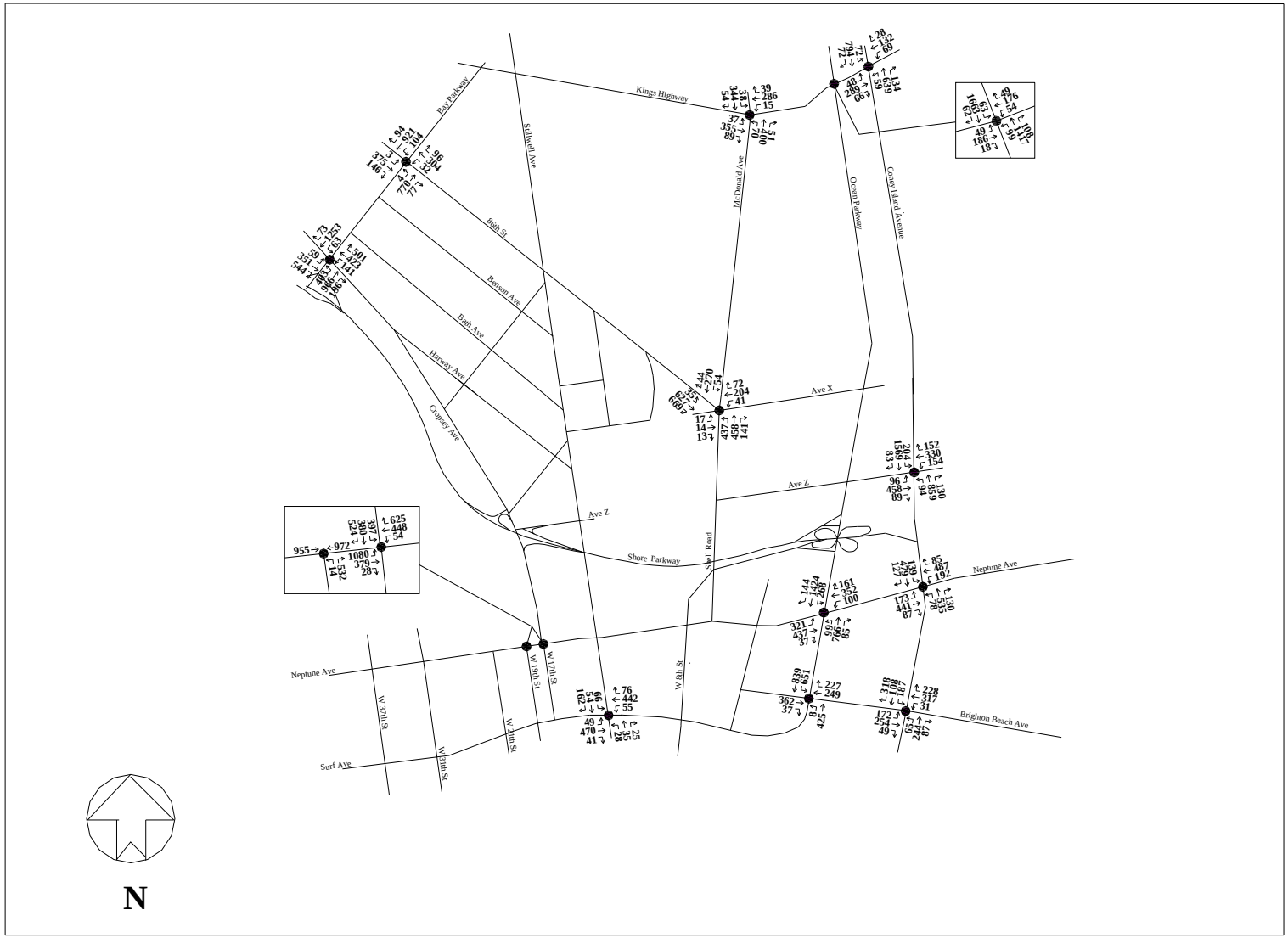
Future 2025 Midday Peak Hour Volume



Future 2025 PM Peak Hour Volume



Future 2025 Saturday Midday Peak Hour Volume



APPENDIX B

Future Conditions - Crosswalk Capacity Analysis
(Page 1 of 11)

Coney Island Avenue & Guider Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	93	133	A
South	13	93	67	A
East	15	76	45	A
West	15	76	98	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	93	21	A
South	13	93	27	A
East	15	76	47	A
West	15	76	47	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	93	21	A
South	13	93	59	A
East	15	76	75	A
West	15	76	53	A

Coney Island Avenue & Neptune Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	15	A
South	13	70	102	A
East	12	50	85	A
West	12	50	40	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	114	A
South	13	70	106	A
East	12	50	69	A
West	12	50	59	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	140	A
South	13	70	174	A
East	12	50	131	A
West	12	50	121	A

Future Conditions - Crosswalk Capacity Analysis
(Page 2 of 11)

Coney Island Avenue & Brighton Beach Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	579	A
South	13	70	433	A
East	16	55	30	A
West	16	55	24	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	994	B
South	13	70	369	B
East	16	55	169	A
West	16	55	169	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	682	C
South	13	70	694	C
East	16	55	120	A
West	16	55	292	A

Ocean Parkway & Kings Highway
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	102	A
South	15	187	131	A
East	11	44	33	A
West	11	44	87	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	103	A
South	15	187	119	A
East	11	44	22	A
West	11	44	18	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	144	A
South	15	187	176	A
East	11	44	44	A
West	11	44	51	A

Ocean Parkway & Brighton Beach Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	220	A
South	15	187	163	A
East	16	55	79	A
West	16	55	24	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	220	A
South	15	187	198	A
East	16	55	460	A
West	16	55	214	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	229	A
South	15	187	267	A
East	16	55	74	A
West	16	55	33	A

Ocean Parkway & Avenue X
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	57	A
South	15	187	104	A
East	10	46	55	A
West	10	46	19	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	42	A
South	15	187	46	A
East	10	46	55	A
West	10	46	32	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	56	A
South	15	187	38	A
East	10	46	51	A
West	10	46	33	A

Future Conditions - Crosswalk Capacity Analysis
(Page 4 of 11)

Ocean Parkway & Avenue Z
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	57	A
South	15	187	132	A
East	11	46	149	A
West	11	46	19	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	57	A
South	15	187	106	A
East	11	46	120	A
West	11	46	36	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	46	A
South	15	187	89	A
East	11	46	84	A
West	11	46	41	A

Surf Avenue & West 8th Street
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	50	64	A
South	17	50	18	A
East	13	74	18	A
West	13	74	16	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	50	117	A
South	17	50	24	A
East	13	74	19	A
West	13	74	7	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	50	113	A
South	17	50	24	A
East	13	74	19	A
West	13	74	7	A

Future Conditions - Crosswalk Capacity Analysis
(Page 5 of 11)

Surf Avenue & Stillwell Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	21	59	113	A
South	21	59	32	A
East	13	74	85	A
West	13	74	33	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	21	59	235	A
South	21	59	136	A
East	13	74	216	A
West	13	74	113	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	21	59	610	A
South	21	59	123	A
East	13	74	337	A
West	13	74	180	A

Mermaid Avenue & Stillwell Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	87	A
South	12	44	115	A
West	17	31	149	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	64	A
South	12	44	59	A
West	17	31	96	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	107	A
South	12	44	141	A
West	17	31	226	A

Mermaid Avenue & West 17th Street
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	44	96	A
South	13	44	359	A
East	17	31	25	A
West	17	31	33	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	44	193	A
South	13	44	343	A
East	17	31	51	A
West	17	31	51	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	44	98	A
South	13	44	63	A
East	17	31	411	A
West	17	31	83	A

Avenue X/McDonald Avenue/86th Street
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	450	A
South	14	44	1207	A
East	12	29	108	A
West	12	29	142	A
Northwest	11	50	360	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	217	A
South	14	44	431	A
East	12	29	76	A
West	12	29	69	A
Northwest	11	50	120	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	471	B
South	14	44	428	B
East	12	29	108	A
West	12	29	69	A
Northwest	11	50	330	A

Future Conditions - Crosswalk Capacity Analysis
(Page 7 of 11)

Harway Avenue & Stillwell Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	60	210	A
South	12	60	19	A
West	12	44	109	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	60	8	A
South	12	60	172	A
West	12	44	129	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	60	0	A
South	12	60	0	A
West	12	44	21	A

Kings Highway & McDonald Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	115	A
South	14	44	120	A
East	11	44	275	A
West	11	44	92	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	80	A
South	14	44	177	A
East	11	44	195	A
West	11	44	64	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	44	155	A
South	14	44	143	A
East	11	44	335	A
West	11	44	35	A

86th Street & Stillwell Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	96	A
South	12	44	100	A
East	15	60	56	A
West	15	60	52	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	69	A
South	12	44	91	A
East	15	60	18	A
West	15	60	67	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	44	135	A
South	12	44	118	A
East	15	60	22	A
West	15	60	35	A

Bay Parkway & 86th Street
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	58	398	A
South	17	58	425	A
East	15	60	243	A
West	15	60	363	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	58	172	A
South	17	58	502	A
East	15	60	500	A
West	15	60	407	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	17	58	848	B
South	17	58	706	B
East	15	60	839	B
West	15	60	774	B

Brighton 11 Street & Brighton Beach Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	10	58	682	C
East	16	55	87	C
West	16	55	227	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	10	58	1039	C
East	16	55	33	C
West	16	55	47	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	10	58	860	B
East	16	55	405	B
West	16	55	28	A

Ocean Parkway & Neptune Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	200	A
South	15	187	132	A
East	12	50	256	A
West	12	50	174	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	135	A
South	15	187	121	A
East	12	50	282	A
West	12	50	131	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	15	187	200	A
South	15	187	113	A
East	12	50	237	A
West	12	50	141	A

Coney Island Avenue & Kings Highway
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	268	A
South	13	70	311	A
East	11	44	135	A
West	11	44	172	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	613	A
South	13	70	357	A
East	11	44	255	A
West	11	44	158	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	13	70	591	B
South	13	70	539	B
East	11	44	329	A
West	11	44	159	A

Cropsey Avenue/West 17th Street/Neptune Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	16	A
South	14	80	24	A
East	16	83	12	A
West	16	83	18	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	36	A
South	14	80	51	A
East	16	83	36	A
West	16	83	12	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	24	A
South	14	80	27	A
East	16	83	19	A
West	16	83	32	A

Future Conditions - Crosswalk Capacity Analysis
(Page 11 of 11)

Cropsey Avenue & Bay Parkway
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	93	A
South	14	80	53	A
East	17	58	129	A
West	17	58	34	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	70	A
South	14	80	27	A
East	17	58	96	A
West	17	58	62	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	14	80	97	A
South	14	80	28	A
East	17	58	108	A
West	17	58	86	A

Brighton 4 Street & Brighton Beach Avenue
AM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	30	519	A
South	12	30	465	A
East	16	55	120	A
West	16	55	80	A

Midday Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	30	1228	C
South	12	30	632	C
East	16	55	208	A
West	16	55	66	A

PM Peak Hour

Side of Street	Cross Walk Width (ft.)	Street Width (ft.)	Ped. Volume (Ped/Hr)	LOS
North	12	30	1049	B
South	12	30	471	B
East	16	55	103	A
West	16	55	123	A

APPENDIX C

Parking Utilization Rates - Future Condition 2015

Coney Island Avenue

East Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
Kings Highway & Avenue R	20	3	114	18.778	0	94	21	0	105	**20**
Avenue R & Avenue S	40	0	110	35.347	0	98	36	0	101	**36**
Avenue S & Avenue T	23	0	89	22.092	0	85	23	0	89	**26**
Avenue T & Avenue U	17	0	72	26.51	0	115	12	0	53	**23**
Avenue U & Avenue V	10	0	76	11.046	0	85	11	0	85	**13**
Avenue V & Gravesend Neck Rd	9	0	63	13.255	0	95	9	0	63	**14**
Gravesend Neck Rd & Avenue W	3	0	110	3	0	110	3	0	110	**3**
Avenue W & Lancaster Avenue	4	0	55	6	0	69	4	0	55	**8**
Lancaster Avenue & Crawford Avenue	4	0	74	4	0	74	4	0	74	**6**
Crawford Avenue & Avenue X	3	0	83	4	1	135	4	1	135	**4**
Avenue X & Avenue Y	11	2	93	12.151	0	87	11	0	79	**14**
Avenue Y & Avenue Z	14	3	102	15.464	1	97	13	1	84	**17**
Avenue Z & Belt Pkwy	7	0	74	8	2	108	6	1	72	**9**
Guider Avenue & Neptune Avenue	7	0	83	3	0	41	6	0	69	**8**
Neptune Avenue & Brighton 10 Court	0	0	0	0	0	0	0	0	0	**1**
Brighton 10 Court & Brighton 10 Path	4	0	110	4	0	110	3	0	83	**4**
Brighton 10 Path & Brighton 10 Terr	4	0	110	4	0	110	4	0	110	**4**
Brighton 10 Terr & Brighton 10 Lane	1	0	55	1	0	50	1	0	50	**2**
Brighton 10 Lane & Ocean View Avenue	1	0	11	11.046	0	110	12	0	122	**10**
Ocean View Avenue & Brighton Beach Avenue	17	2	116	19.883	2	137	18	1	117	**16**

West Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
Avenue R & Kings Highway	19	0	110	17	1	103	17	1	103	**17**
1st Court & Avenue R	23	2	101	3	0	12	22	0	88	**25**
Avenue S & 1st Court	25	0	106	20	0	83	23	0	97	**24**
Hutchinson Court & Avenue S	3	0	110	2	0	67	3	0	100	**3**
Homcrest Court & Hutchinson Court	6	0	69	11	1	151	4	2	80	**8**
Avenue T & Homcrest Court	11	0	110	9	0	88	10	0	99	**10**
Avenue U & Avenue T	15	0	77	27	0	133	17	0	83	**20**
Avenue V & Avenue U	19	1	110	18	0	98	19	0	104	**18**
Gravesend Neck Rd & Avenue V	15	0	91	19	4	134	18	3	122	**17**
Avenue W & Gravesend Neck Rd	4	0	63	8	0	110	5	0	71	**7**
Lancaster Avenue & Avenue W	2	1	75	4	0	110	2	0	50	**4**
Crawford Avenue & Lancaster Avenue	2	0	67	3	0	100	2	0	67	**3**
Avenue X & Crawford Avenue	8	2	139	7	0	95	5	0	71	**7**
Desmond Court & Avenue X	2	0	40	6	0	110	2	0	40	**5**
Dunne Court & Desmond Court	2	0	29	3	0	43	2	0	29	**7**
Avenue Y & Dunne Court	2	0	40	2	0	40	2	0	40	**5**
Gerald Court & Avenue Y	2	0	50	3	0	75	2	0	50	**4**
Kathleen Court & Gerald Court	2	0	100	1	0	50	2	0	100	**2**
Avenue Z & Kathleen Court	2	0	25	9	0	110	2	0	25	**8**
Manor Court & Avenue Z	6	0	69	8	0	97	4	0	50	**8**
Ocean View Avenue & Neptune Avenue	18	1	89	27	2	136	20	1	99	**21**
Brighton Beach Avenue & Ocean View Avenue	21	1	105	20	2	104	18	0	84	**21**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Ocean Parkway (1)

East Curb(mid island curb side)										
Block	**AM**			**Midday**			**PM**			**Curb Cap.**
	PV	**DPV**	**% Util.**	**PV**	**DPV**	**% Util.**	**PV**	**DPV**	**% Util.**	
Kings Highway & Avenue	10	0	90	9	0	85	12	0	110	**11**
Avenue R & Avenue S	34	0	98	32	0	92	36	0	104	**35**
Avenue S & Avenue T	21	0	60	17	0	47	19	0	54	**35**
Avenue T & Avenue U	19	0	61	18	0	57	17	0	53	**31**
Avenue U & Avenue V	19	0	61	21	0	68	23	0	75	**31**
Avenue V & Gravesend Rd	14	0	90	14	0	90	17	0	104	**16**
Gravesend Rd & Avenue W	9	0	59	7	0	44	9	0	59	**15**
Avenue W & Lancaster Av	6	0	55	0	0	0	2	0	20	**10**
Lancaster Avenue & Craw	7	0	60	1	0	9	3	0	27	**11**
Crawford Avenue & Aven	4	0	44	3	0	33	2	0	22	**9**
Avenue X & Avenue Y	1	0	3	2	0	7	3	0	10	**30**
Avenue Y & Avenue Z	19	0	54	20	0	57	22	0	63	**35**
Avenue Z & Belt Pkwy	28	0	102	30	0	110	35	2	138	**27**
Belt Pkwy & Neptune Ave	36	0	89	30	0	73	41	0	100	**41**
Neptune Avenue & Ocean	27	0	88	24	0	81	31	0	103	**30**
Ocean View Avenue & Bri	30	0	88	32	0	94	35	0	104	**34**

East Curb(side walk curb)										
Block	**AM**			**Midday**			**PM**			**Curb Cap.**
	PV	**DPV**	**% Util.**	**PV**	**DPV**	**% Util.**	**PV**	**DPV**	**% Util.**	
Kings Highway & Avenue R	8	0	86	5	0	56	10	0	110	**9**
Avenue R & Avenue S	0	0	0	0	0	0	0	0	0	**0**
Avenue S & Avenue T	1	0	0	0	0	0	2	0	200	**0**
Avenue T & Avenue U	5	0	38	4	0	31	3	0	23	**13**
Avenue U & Avenue V	0	0	0	0	0	0	0	0	0	**0**
Avenue V & Gravesend Rd	1	0	0	0	0	0	2	0	200	**0**
Gravesend Rd & Avenue W	5	0	56	3	0	33	3	0	33	**9**
Avenue W & Lancaster Avenue	0	0	0	0	0	0	0	0	0	**0**
Lancaster Avenue & Crawford Avenue	0	0	0	0	0	0	0	0	0	**0**
Crawford Avenue & Avenue X	7	0	66	5	0	50	8	0	77	**10**
Avenue X & Avenue Y	0	0	0	0	0	0	0	0	0	**0**
Avenue Y & Avenue Z	12	0	39	11	0	36	17	0	53	**31**
Avenue Z & Belt Pkwy	34	0	214	30	0	186	39	0	242	**16**
Belt Pkwy & Neptune Avenue	14	0	120	12	0	101	17	0	138	**12**
Neptune Avenue & Ocean View Avenue	19	0	85	17	0	75	22	0	100	**22**
Ocean View Avenue & Brighton Beach Avenue	12	0	58	11	0	53	20	0	95	**21**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Ocean Parkway (2)

West Curb (mid island curb side)

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	8	0	77	11	0	110	11	0	110	**10**
Avenue R & Avenue S	24	0	66	24	0	66	31	0	84	**37**
Avenue S & Avenue T	17	0	46	19	0	52	15	0	43	**36**
Avenue T & Avenue U	10	0	28	14	0	40	11	0	31	**36**
Avenue U & Avenue V	3	0	10	5	0	17	3	0	10	**30**
Avenue V & Gravesend Rd	4	0	20	4	0	20	4	0	22	**20**
Gravesend Rd & Avenue W	10	0	66	9	0	59	10	0	66	**15**
Avenue W & Angela Dr	10	0	50	11	0	55	11	0	55	**20**
Angela Dr & Avenue X	8	0	52	8	0	52	8	0	52	**15**
Avenue X & Ocean Court	8	0	77	6	0	55	8	0	77	**10**
Ocean Court & Parkway Court	8	0	77	7	0	66	8	0	77	**10**
Parkway Court & Avenue Y	7	0	66	8	0	77	7	0	66	**10**
Avenue Y & Manhattan Court	8	0	70	10	0	90	9	0	80	**11**
Manhattan Court & Brighton Court	10	0	90	6	0	50	10	0	90	**11**
Brighton Court & Avenue Z	9	0	80	7	0	60	9	0	80	**11**
Avenue Z & Murdock Court	0	0	0	0	0	0	0	0	0	**4**
Murdock Court & Nixon Court	0	0	0	0	0	0	0	0	0	**0**
Nixon Court & Belt Pkwy	0	0	0	0	0	0	0	0	0	**0**
Belt Pkwy & West Avenue	21	0	70	17	0	55	23	0	77	**30**
West Avenue & Neptune Avenue	17	0	110	12	0	81	14	0	96	**15**
Neptune Avenue & W. Brighton Avenue	54	0	106	49	0	95	56	0	110	**51**
W.Brighton Avenue & Sea Breeze Avenue	12	0	122	10	0	99	11	0	110	**10**

West Curb (side walk curb)

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue R	9	0	113	7	0	88	8	0	100	**8**
Avenue R & Avenue S	19	0	119	15	0	94	17	0	106	**16**
Avenue S & Avenue T	0	0	0	0	0	0	0	0	0	**4**
Avenue T & Avenue U	8	0	67	5	0	42	6	0	50	**12**
Avenue U & Avenue V	10	0	42	7	0	29	9	0	38	**24**
Avenue V & Gravesend Rd	0	0	0	0	0	0	0	0	0	**4**
Gravesend Rd & Avenue W	0	0	0	0	0	0	0	0	0	**0**
Avenue W & Angela Dr	4	0	21	0	0	0	1	0	5	**21**
Angela Dr & Avenue X	0	0	0	0	0	0	0	0	0	**14**
Avenue X & Ocean Court	0	0	0	0	0	0	0	0	0	**0**
Ocean Court & Parkway Court	0	0	0	0	0	0	0	0	0	**0**
Parkway Court & Avenue Y	0	0	0	0	0	0	0	0	0	**0**
Avenue Y & Manhattan Court	4	0	100	3	0	75	3	0	75	**4**
Manhattan Court & Brighton Court	0	0	0	0	0	0	0	0	0	**0**
Brighton Court & Avenue Z	4	0	67	2	0	33	2	0	33	**6**
Avenue Z & Murdock Court	7	0	78	3	0	33	5	0	56	**9**
Murdock Court & Nixon Court	8	0	133	3	0	50	2	0	33	**6**
Nixon Court & Belt Pkwy	0	0	0	0	0	0	0	0	0	**0**
Belt Pkwy & West Avenue	11	0	34	15	0	47	17	0	53	**32**
West Avenue & Neptune Avenue	13	0	72	11	0	61	12	0	67	**18**
Neptune Avenue & W. Brighton Avenue	33	0	60	35	0	64	38	0	69	**55**
W. Brighton Avenue & Sea Breeze Avenue	6	0	67	8	0	89	8	0	89	**9**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

McDonald Avenue

McDonald Avenue - East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Billing Pl	9	0	147	7	1	127	8	0	129	**6**
Billings Pl & Colin Pl	7	0	166	7	0	166	7	0	166	**4**
Colin Pl & Avenue S	13	0	147	12	0	135	11	0	123	**9**
Avenue S & Avenue T	30	0	94	32	0	100	32	0	100	**32**
Avenue T & Sloan Pl	9	0	150	9	0	147	10	0	166	**6**
Sloan Pl & Whitney Pl	7	0	74	8	0	86	8	0	86	**9**
Whitney Pl & Avenue U	8	1	180	10	1	219	9	1	197	**5**
Ave U & Village Rd NO	7	1	127	7	0	110	6	1	109	**6**
Village Rd NO & Gravesend Avenue	10	2	133	10	1	122	9	1	109	**9**
Gravesend Avenue & Village Rd SO	10	0	67	11	1	80	10	0	66	**15**
Village Rd SO & Avenue W	10	0	77	14	0	110	12	0	93	**13**
Avenue W & Avenue X	12	0	71	11	0	65	15	0	91	**17**

McDonald Avenue - West Curb

Block	AM			Midday			PM			Curb Cap
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & Avenue S	25	0	141	23	2	140	25	0	141	**18**
Avenue S & Avenue T	30	0	103	27	0	91	27	0	91	**29**
Avenue T & Avenue U	24	2	97	19	0	70	22	1	86	**27**
Avenue U & Gravesend Neck	6	0	184	2	0	67	4	0	147	**3**
Gravesend Neck & Village Rd SO	9	0	80	14	0	131	8	0	70	**11**
Village Rd SO & Avenue W	9	0	68	13	0	102	8	0	59	**13**
Avenue W & Avenue X	22	3	109	20	0	86	21	2	100	**23**

Shell Road

Shell Road - East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Avenue X & Bouck Court	3	0	75	3	0	75	2	0	50	**4**
Bouck Court & Avenue Y	7	0	88	6	0	75	6	0	75	**8**
Avenue Y & Cobek Court	8	0	73	7	0	64	7	0	64	**11**
Cobek Court & Dank Court	3	0	50	4	0	67	3	0	50	**6**
Dank Court & Avenue Z	4	0	50	1	0	13	4	0	50	**8**
Avenue Z & Belt Pkwy	15	0	60	1	0	4	13	0	52	**25**
Belt Pkwy & Neptune Avenue	24	0	89	28	0	104	22	0	81	**27**
Neptune Avenue & Sheepshead Bay	3	0	75	4	0	100	3	0	75	**4**
Sheepshead Bay & Surf Avenue	76	0	94	72	0	89	72	0	89	**81**

Shell Road - West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Avenue X & Belt Pkwy	32	0	45	22	0	31	36	0	51	**71**
Belt Pkwy & Neptune Avenue	22	0	58	28	0	74	20	0	53	**38**
Neptune Avenue & Sheepshead Bay	4	0	100	4	0	100	4	0	100	**4**
Sheepshead Bay & Surf Avenue	49	0	84	55	0	95	51	0	88	**58**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Bay Parkway

East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings Highway & 79th Str	4	0	100	4	0	100	3	0	75	**4**
79th Street & 80th Street	6	0	100	5	0	83	5	0	83	**6**
80th Street & 81st Street	10	0	100	7	0	70	9	0	90	**10**
81st Street & 82nd Street	4	0	67	7	3	167	4	0	67	**6**
82nd Street & 83rd Street	10	2	120	10	0	100	9	1	100	**10**
83rd Street & 84th Street	10	0	100	9	1	100	9	0	90	**10**
84th Street & 85th Street	6	0	67	8	0	89	7	0	78	**9**
85th Street & 86th Street	2	0	67	3	0	100	2	0	67	**3**
86th Street & Benson Aven	25	3	112	15	0	60	23	2	100	**25**
Benson Avenue & Bath Av	34	2	100	32	0	89	33	2	97	**36**
Bath Avenue & Crospey A	9	0	100	9	0	100	9	0	100	**9**

West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
78th Street & 79th Street	4	0	100	3	2	125	4	0	100	**4**
79th Street & 80th Street	6	0	100	5	0	83	7	0	117	**6**
80th Street & 81st Street	3	0	75	3	0	75	3	0	75	**4**
81st Street & 82nd Street	3	0	75	6	0	150	3	0	75	**4**
82nd Street & 83rd Street	8	0	100	8	0	100	9	0	113	**8**
83rd Street & 84th Street	1	0	25	5	0	125	2	0	50	**4**
84th Street & 85th Street	6	0	100	8	0	133	5	0	83	**6**
85th Street & 86th Street	1	0	33	4	0	133	2	0	67	**3**
86th Street & Benson Avenu	2	0	9	18	0	78	3	0	13	**23**
Benson Avenue & Bath Ave	4	0	14	22	0	79	5	0	18	**28**
Bath Avenue & Crospey Av	2	0	22	7	0	78	1	0	11	**9**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Avenue X

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
McDonald Avenue & Stryker Street	7	1	114	7	1	114	7	0	100	**7**
Stryker Street & West 1 Street	8	0	80	9	1	100	7	0	70	**10**
West 1 Street & West Street	5	1	120	5	0	100	5	0	100	**5**
West Street & E 1st Street	6	0	86	7	1	114	6	0	86	**7**
E 1st Street & E 2nd Street	4	1	63	5	2	88	3	1	50	**8**
E 2nd Street & E 3rd Street	2	0	22	2	1	33	2	0	22	**9**
E 3rd Street & E 4th Street	4	0	40	4	0	40	4	0	40	**10**
E 4th Street & Ocean Pkwy	4	0	36	4	0	36	5	0	45	**11**
Ocean Pkwy & East 7th Street	11	0	52	13	0	62	13	0	62	**21**
East 7th Street & Coney Island Avenue	9	1	83	8	1	75	9	2	92	**12**

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
McDonald Avenue & West 3 Street	7	0	100	7	0	100	7	0	100	**7**
W 3 Street & W 2 Street	6	0	86	7	0	100	7	0	100	**7**
W 2 Street & W1 Street	5	0	83	4	0	67	5	0	83	**6**
W1 Street & West Street	3	0	100	3	0	100	4	0	133	**3**
West Street & E 1st Street	2	0	67	1	0	33	3	0	100	**3**
E 1st Street & E 2nd Street	8	0	114	8	1	129	8	0	114	**7**
E 2nd Street & E 3rd Street	11	1	109	10	1	100	10	0	91	**11**
E 3rd Street & Ocean Pkwy	11	0	85	12	0	92	9	0	69	**13**
Ocean Pkwy & Hubbard Street	7	0	54	7	0	54	7	0	54	**13**
Hubbard Street & East 7th Street	6	0	67	4	0	44	6	0	67	**9**
East 7th Street & Coney Island Avenue	14	0	82	16	0	94	13	0	76	**17**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

86th Street

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 23 Avenue	29	1	107	28	8	129	27	1	100	**28**
23 Avenue & 24th Avenue	25	3	112	25	4	116	22	2	96	**25**
24th Avenue & 25th Avenue	11	1	71	12	2	82	13	0	76	**17**
25TH Avenue & Stillwell Avenue	2	0	22	2	0	22	2	0	22	**9**
Stillwell Avenue & West 13 Street	5	0	100	4	0	80	5	0	100	**5**
West 13 Street & West 12 Street	6	0	100	4	0	67	7	0	117	**6**
West 12 Street & West 11 Street	4	0	50	2	0	25	5	0	63	**8**
West 11 Street & West 10 Street	11	0	100	8	0	73	10	0	91	**11**
West 10 Street & West 9 Street	2	0	50	1	0	25	1	0	25	**4**
West 9 Street & West 8 Street	9	0	90	9	0	90	7	0	70	**10**
West 8 Street & West 7 Street	6	0	120	6	0	120	5	0	100	**5**
West 7 Street & West 6 Street	5	0	71	3	0	43	5	0	71	**7**
West 6 Street & Van Sicklen Street	5	0	56	2	0	22	5	0	56	**9**
Van Sicklen Street & Lake Street	0	0	0	0	0	0	0	0	0	**7**
Lake Street & McDonald Avenue	4	0	57	3	0	43	4	0	57	**7**

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & Bay 31 Street	7	2	129	7	2	129	6	1	100	**7**
Bay 31 Street & Bay 32nd Street	8	0	114	8	1	129	6	1	100	**7**
Bay 32nd Street & 23 Avenue	7	1	133	7	0	117	5	0	83	**6**
23 Avenue & Bay 34th Street	6	1	100	7	2	129	5	1	86	**7**
Bay 34th Street & Bay 35th Street	7	0	100	7	1	114	6	0	86	**7**
Bay 35th Street & 24th Avenue	6	1	117	7	1	133	6	1	117	**6**
24th Avenue & Bay 37th Street	7	0	100	7	0	100	6	0	86	**7**
Bay 37th Street & Bay 38th Street	6	0	300	4	0	200	5	0	250	**2**
Bay 38th Street & 25th Avenue	5	0	71	4	0	57	5	0	71	**7**
25th Avenue & Bay 40 Street	4	0	57	2	0	29	4	0	57	**7**
Bay 40 Street & Bay 41 Street	7	0	78	9	0	100	4	0	44	**9**
Bay 41 Street & 26th Avenue	0	0	0	0	0	0	0	0	0	**1**
Stillwell Avenue & West 13 Street	4	0	57	3	0	43	3	0	43	**7**
West 13 Street & West 12 Street	5	0	56	4	0	44	6	0	67	**9**
West 12 Street & West 11 Street	4	0	33	3	0	25	5	0	42	**12**
West 11 Street & West 10 St	6	0	75	7	0	88	8	0	100	**8**
West 10 Street & West 8 Street	14	0	100	15	0	107	11	0	79	**14**
West 8 Street & West 7 Street	7	0	78	7	0	78	8	0	89	**9**
West 7 Street & McDonald Avenue	25	0	78	26	0	81	22	0	69	**32**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Kings Highway

North Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
Bay Pkwy & Stillwell Avenue	11	0	79	14	0	100	10	0	71	**14**
Stillwell Avenue & West 13 Street	2	0	200	1	0	100	2	0	200	**1**
West 13 Street & West 12 Street	6	1	233	3	0	100	7	0	233	**3**
West 12 Street & West 11 Street	8	1	129	5	0	71	7	0	100	**7**
West 11 Street & West 10 Street	7	0	175	3	0	75	7	0	175	**4**
West 10 Street & West 9 Street	2	0	100	2	0	100	3	0	150	**2**
West 9 Street & West 8 Street	3	0	75	2	0	50	2	0	50	**4**
West 8 Street & West 7 Street	2	0	200	3	0	300	2	0	200	**1**
West 7 Street & West 6 Street	5	0	63	4	0	50	4	0	50	**8**
West 6 Street & West 5 Street	4	1	125	4	0	100	3	0	75	**4**
West 5 Street & West 4 Street	2	0	25	2	1	38	1	1	25	**8**
West 4 Street & West 3 Street	3	0	100	2	0	67	2	1	100	**3**
West 3 Street & West 2 Street	3	0	150	2	0	100	2	2	200	**2**
West 2 Street & West 1 Street	1	0	17	2	0	33	3	2	83	**6**
West 1 Street & Dahill Road	5	1	120	5	0	100	6	4	200	**5**
Dahil Road & McDonald Avenue	6	0	120	6	2	160	5	5	200	**5**
Mc Donald Avenue & East 2nd Street	8	1	225	4	0	100	4	5	225	**4**
East 2nd Street & East 3rd Street	9	1	125	8	2	125	7	7	175	**8**
East 3rd Street & East 4th Street	5	0	125	4	0	100	4	4	200	**4**
East 4th Street & East 5th Street	9	1	125	6	0	75	5	5	125	**8**
East 5th Street & Ocean Pkwy	5	0	125	3	0	75	3	3	150	**4**
Ocean Pkwy & East 7th Street	7	0	117	6	0	100	5	5	167	**6**
East 7th Street & East 8th Street	5	0	125	5	0	125	5	4	225	**4**
East 8th Street & East 9th Street	6	0	86	7	0	100	7	6	186	**7**
East 9th Street & Coney Island Avenue	15	2	113	15	0	100	14	14	187	**15**

South Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
Bay Pkwy & Stillwell Avenue	20	0	182	6	0	55	18	0	164	**11**
Stillwell Avenue & West 13 Street	5	0	100	5	0	100	4	0	80	**5**
West 13 Street & West 12 Street	4	0	57	6	0	86	5	0	71	**7**
West 12 Street & West 11 Street	0	0	0	4	0	100	4	0	100	**4**
West 11 Street & West 10 Street	8	0	100	8	0	100	7	0	88	**8**
West 10 Street & West 9 Street	7	1	100	6	0	75	5	0	63	**8**
West 9 Street & West 8 Street	3	0	60	5	0	100	4	0	80	**5**
West 8 Street & West 7 Street	2	0	50	4	0	100	3	0	75	**4**
West 7 Street & West 6 Street	8	0	100	8	0	100	7	0	88	**8**
West 6 Street & West 5 Street	6	0	67	7	0	78	5	0	56	**9**
West 5 Street & West 4 Street	4	0	67	6	0	100	5	0	83	**6**
West 4 Street & West 3 Street	3	0	75	4	0	100	4	0	100	**4**
West 3rdStreet & Kings Place	9	0	129	7	0	100	6	0	86	**7**
Kings Place & Van Sicklen Street	3	0	100	0	0	0	1	0	33	**3**
Van Sicklen Street & Lake Street	3	0	100	3	0	100	2	0	67	**3**
Lake Street & McDonald Avenue	1	0	100	0	0	0	1	0	100	**1**
McDonald Avenue & East 2nd Street	7	0	50	14	0	100	9	0	64	**14**
East 2nd Street & East 3rd Street	3	0	33	9	0	100	2	0	22	**9**
East 3rd Street & East 4th Street	4	0	80	5	0	100	3	0	60	**5**
East 4th Street & East 5th Street	8	0	80	10	0	100	7	0	70	**10**
East 5th Street & Ocean Pkwy	9	0	82	11	0	100	10	0	91	**11**
Ocean Pkwy & East 7th Street	11	1	109	11	0	100	9	1	91	**11**
East 7th Street & East 8th Street	8	2	125	8	0	100	6	1	88	**8**
East 8th Street & East 9th Street	9	0	100	9	0	100	7	0	78	**9**
East 9th Street & East 10th Street	5	0	83	6	0	100	4	0	67	**6**
East 10th Street & Coney Island Avenue	6	0	75	8	0	100	4	0	50	**8**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Neptune Avenue

North Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
West 37th Street & West 33rd Street	18	0	72	20	0	80	16	0	64	**25**
West 33rd Street & West 31st Street	11	0	85	9	0	69	7	0	54	**13**
West 31st Street & West 23rd Street	17	0	53	15	0	47	13	0	41	**32**
West 23rd Street & West 22nd Street	10	0	111	9	0	100	9	0	100	**9**
West 22nd Street & West 21st Street	8	0	89	7	0	78	7	0	78	**9**
West 21st Street & West 17th Street	26	4	107	28	5	118	26	3	104	**28**
West 17th Street & West 16th Street	4	1	125	4	2	150	4	1	125	**4**
West 16th Street & West 15th Street	5	10	300	5	12	340	4	8	240	**5**
West 15th Street & Stillwell Avenue	8	10	225	8	9	213	7	0	88	**8**
Stillwell Avenue & Shell Road	23	5	104	21	3	89	18	1	70	**27**
Shell Road & West 6th Street	13	0	100	13	0	100	15	0	115	**13**
West 6th Street & West 5th Street	17	0	85	18	0	90	18	0	90	**20**
West 5th street & Ocean Pkwy	39	0	89	41	0	93	41	0	93	**44**
Ocean Pkwy & Brighton 1st Street	0	0	0	0	0	0	0	0	0	**0**
Brighton 1st Street & Brighton 3rd Street	5	0	83	4	0	67	5	0	83	**6**
Brighton 3rd street & Brighton 4th Street	9	0	90	9	0	90	9	0	90	**10**
Brighton 4th Street & Brighton 7th Street	5	0	100	5	0	100	5	0	100	**5**
Brighton 7th Street & Brighton 8th Street	10	0	100	10	0	100	9	0	90	**10**
Brighton 8th Street & Coney Island Avenue	8	0	100	7	0	88	7	0	88	**8**

South Curb

Block	AM PV	AM DPV	AM % Util.	Midday PV	Midday DPV	Midday % Util.	PM PV	PM DPV	PM % Util.	Curb Cap.
West 37th Street & West 36th Street	4	0	40	4	0	40	6	0	60	**10**
West 36th Street & West 35th Street	5	0	63	6	0	75	6	0	75	**8**
West 35th Street & West 33rd Street	2	0	200	4	4	400	0	1	100	**0**
West 33rd Street & West 32nd Street	7	0	47	2	0	13	11	0	73	**15**
West 32nd Street & West 31st Street	5	0	71	2	1	43	5	0	71	**7**
West 31st Street & West 30th Street	3	0	60	3	0	60	3	0	60	**5**
West 30th Street & West 29th Street	4	0	80	2	0	40	4	0	80	**5**
West 29th Street & West 28th Street	0	0	0	0	0	0	0	0	0	**4**
West 28th Street & West 27th Street	2	0	50	2	0	50	1	0	25	**4**
West 27th street & West 25th Street	7	8	167	9	9	200	6	4	111	**9**
West 25th Street & West 24th Street	4	0	25	2	0	13	6	0	38	**16**
West 24th Street & West 23rd Street	3	0	75	3	0	75	5	0	125	**4**
West 23rd Street & West 22nd Street	3	0	50	3	0	50	3	0	50	**6**
West 22nd Street & West 21st Street	2	0	67	1	0	33	2	0	67	**3**
West 21st Street & West 20th Street	11	0	85	9	0	69	11	0	85	**13**
West 20th Street & West 19th Street	9	0	100	8	0	89	7	0	78	**9**
West 19th Street & West 17th Street	10	0	111	9	0	100	8	0	89	**9**
West 17th Street & West 16th Street	7	0	100	7	0	100	5	0	71	**7**
West 16th Street & West 15th Street	11	0	110	10	1	110	8	0	80	**10**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

South Curb										
	AM			Midday			PM			
Block	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	Curb Cap.
West 15th Street & Stillwell Avenue	6	7	186	5	11	229	5	3	114	**7**
Stillwell Avenue & West 12th Street	21	0	53	26	0	65	22	0	55	**40**
West 12th Street & Sheepshead Bay Road	21	0	88	23	0	96	19	0	79	**24**
Sheepshead Bay Road & West 6th Street	7	0	78	7	0	78	6	0	67	**9**
West 6th Street & West 5th Street	36	0	82	34	0	77	33	0	75	**44**
West 5th street & Ocean Pkwy	52	4	102	54	4	105	46	3	89	**55**
Ocean Pkwy & Brighton 1st Street	5	0	71	5	0	71	4	0	57	**7**
Brighton 1st Street & Brighton 3rd Street	7	0	117	5	0	83	5	0	83	**6**
Brighton 3rd street & Brighton 4th Street	4	0	133	3	0	100	3	0	100	**3**
Brighton 4th Street & Brighton 5th Street	5	0	100	5	0	100	4	0	80	**5**
Brighton 5th Street & Brighton 6th Street	8	0	100	8	0	100	6	0	75	**8**
Brighton 6th Street & Brighton 7th Street	3	0	60	2	0	40	4	0	80	**5**
Brighton 7th Street & Brighton 8th Street	8	0	114	7	0	100	7	0	100	**7**
Brighton 8th Street & Coney Island Avenue	4	0	67	4	0	67	5	0	83	**6**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Surf Avenue

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 36th Street	5	0	83	5	0	83	4	0	67	**6**
West 36th Street & West 35th Street	5	0	71	5	0	71	4	0	57	**7**
West 35th Street & West 33rd Street	5	0	71	6	0	86	5	0	71	**7**
West 33rd Street & West 32nd Street	6	0	75	5	0	63	6	0	75	**8**
West 32nd Street & West 31st Street	7	0	88	4	0	50	6	0	75	**8**
West 31st Street & West 30th Street	10	0	83	7	0	58	8	0	67	**12**
West 30th Street & West 29th Street	7	0	78	5	0	56	6	0	67	**9**
West 29th Street & West 28th Street	5	0	56	3	0	33	6	0	67	**9**
West 28th Street & West 27th Street	5	0	71	5	0	71	6	0	86	**7**
West 27th street & West 25th Street	0	0	0	0	0	0	0	0	0	**0**
West 25th Street & West 24th Street	8	0	53	12	0	80	7	0	47	**15**
West 24th Street & West 23rd Street	0	0	0	0	0	0	0	0	0	**0**
West 23rd Street & West 22nd Street	2	0	20	0	0	0	1	0	10	**10**
West 22nd Street & West 21st Street	6	0	100	6	0	100	5	0	83	**6**
West 21st Street & West 20th Street	10	0	83	8	0	67	9	0	75	**12**
West 20th Street & West 19th Street	7	0	78	5	0	56	7	0	78	**9**
West 19th Street & West 17th Street	5	0	100	5	0	100	4	0	80	**5**
West 17th Street & West 16th Street	7	0	100	7	0	100	6	0	86	**7**
West 16th Street & West 15th Street	8	0	89	5	0	56	8	0	89	**9**
West 15th Street & Stillwell Avenue	6	0	67	2	0	22	5	0	56	**9**
Stillwell Avenue & West 12th Street	6	0	75	5	0	63	4	0	50	**8**
West 12th Street & West 8th Street	14	0	67	11	0	52	11	0	52	**21**
West 8th Street & West 5th Street	24	0	83	26	0	90	22	0	76	**29**
West 5th Street & Ocean Pkwy	0	0	0	0	0	0	0	0	0	**0**

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
West 37th Street & West 36th Street	6	0	75	4	0	50	6	0	75	**8**
West 36th Street & West 35th Street	1	0	10	1	0	10	2	0	20	**10**
West 35th Street & West 33rd Street	4	0	57	4	0	57	5	0	71	**7**
West 33rd Street & West 32nd Street	5	0	45	4	0	36	8	0	73	**11**
West 32nd Street & West 29th Street	7	0	44	11	0	69	11	0	69	**16**
West 29th Street & West 28th Street	6	0	55	7	0	64	7	0	64	**11**
West 28th Street & West 27th Street	0	0	0	0	0	0	0	0	0	**0**
West 27th Street & West 25th Street	2	0	17	1	0	8	0	0	0	**12**
West 25th Street & West 24th Street	5	0	83	4	0	67	4	0	67	**6**
West 24th Street & West 23rd Street	5	0	83	6	0	100	6	0	100	**6**
West 23rd Street & West 22nd Street	6	1	117	4	2	100	6	0	100	**6**
West 22nd Street & West 21st Street	11	0	92	12	0	100	12	0	100	**12**
West 21st Street & West 19th Street	0	0	0	0	0	0	0	0	0	**0**
West 19th Street & West 16th Street	0	0	0	0	0	0	0	0	0	**0**
West 16th Street & Kensington Wk	0	0	0	0	0	0	0	0	0	**0**
Kensington Wk & West 15th Street	0	0	0	0	0	0	0	0	0	**0**
West 15th Street & Schweikeris WK	0	0	0	1	0	25	2	0	50	**4**
Schweikeris WK & Stillwell Avenue	0	0	0	1	0	50	0	0	0	**2**
Stillwell Avenue & Henderson WK	0	0	0	0	0	0	0	0	0	**0**
Henderson WK & West 12th Street	0	0	0	1	0	13	1	0	13	**8**
West 12th Street & Jones WK	7	0	88	4	0	50	6	0	75	**8**
Jones WK & West 10th Street	0	0	0	0	0	0	0	0	0	**8**
West 10th Street & Ocean Pkwy	40	1	41	42	1	43	45	0	45	**100**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Stillwell Avenue

East Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings HWY & Quentin Road	5	0	50	4	0	40	4	0	40	**10**
Quentin Road & Avenue R	15	0	65	14	0	61	11	0	48	**23**
Avenue R & Avenue S	17	0	65	13	0	50	16	0	62	**26**
Avenue S & Avenue T	13	0	54	18	0	75	11	0	46	**24**
Avenue T & 86th Street	7	0	58	9	0	75	7	0	58	**12**
86th Street & Avenue U	8	0	160	2	0	40	1	0	20	**5**
Avenue U & Avenue V	8	0	21	2	0	5	2	0	5	**39**
Avenue V & Avenue W	18	0	95	16	0	84	13	0	68	**19**
Avenue W & Avenue X	0	0	0	1	0	3	4	0	13	**31**
Avenue X & Avenue Z	16	0	48	29	0	88	21	0	64	**33**
Avenue Z & Shore Pkwy	9	0	60	7	0	47	9	0	60	**15**
Shore Pkwy & Neptune Avenue	19	4	56	22	0	54	16	0	39	**41**
Neptune Avenue & Surf Avenue	9	0	69	7	0	54	7	0	54	**13**

West Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Kings HWY & 78th Street @ 23rd Avenue	12	0	171	4	0	57	11	0	157	**7**
78th Street @ 23rd Avenue & 79th Street	5	0	83	5	0	83	6	0	100	**6**
79th Street & 80th Street	12	0	100	12	0	100	11	0	92	**12**
80th Street & 24th Avenue	1	0	10	2	0	20	0	0	0	**10**
24th Avenue & 82nd Street	12	0	133	8	0	89	7	0	78	**9**
82nd Street & 83rd Street	4	0	57	7	0	100	5	0	71	**7**
83rd Street & 25th Avenue	8	0	89	11	1	133	6	0	67	**9**
25th ave & 85th Street	13	0	93	13	0	93	11	0	79	**14**
85th Street & 86th Street	7	0	50	9	0	64	7	0	50	**14**
86th Street & 26th Avenue	2	0	100	2	0	100	3	0	150	**2**
26th Avenue & Bay 43rd Road	9	2	110	9	1	100	7	0	70	**10**
Bay 43rd Road & Benson Avenue	9	0	32	10	0	36	7	0	25	**28**
Benson Avenue & 27th Avenue	1	0	100	0	0	0	0	0	0	**1**
27th Avenue & Bay 46th Street	4	0	44	6	0	67	4	0	44	**9**
Bay 46th Street & Bay 47th Street	7	2	129	5	2	100	4	0	57	**7**
Bay 47th Street & Bath Avenue	6	0	75	7	0	88	6	0	75	**8**
Bath Avenue & Bay 49th Street	7	0	117	7	0	117	5	0	83	**6**
Bay 49th Street & Bay 50th Street	8	1	113	4	1	63	5	0	63	**8**
Bay 50th Street & Harway Avenue	10	0	100	8	1	90	7	0	70	**10**
Harway Avenue & West 15th Place	11	0	138	4	0	50	5	0	63	**8**
West 15th Place & Avenue Z	14	0	78	15	0	83	11	0	61	**18**
Avenue Z & Shore Pkwy	7	0	70	9	0	90	7	0	70	**10**
Shore Pkwy & Neptune Avenue	28	6	106	27	0	84	22	0	69	**32**
Neptune Avenue & Mermaid Avenue	2	0	5	15	0	38	9	0	23	**39**
Mermaid Avenue & Surf Avenue	1	0	100	2	0	200	0	0	0	**1**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Cropsey Avenue

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 31st Street	0	0	0	0	0	0	0	0	0	**0**
31st Street & 32nd Street	6	0	86	8	1	129	7	0	100	**7**
32nd Street & 23rd Avenue	3	0	75	4	0	100	4	0	100	**4**
23rd Avenue & Bay 34th Street	11	0	122	9	0	100	11	0	122	**9**
Bay 34th Street & 24th Avenue	8	0	114	7	0	100	8	0	114	**7**
24th Avenue & Bay 38th Street	2	0	33	1	0	17	2	0	33	**6**
Bay 37th Street & Bay 38th Street	0	0	0	0	0	0	0	0	0	**0**
Bay 38th Street & 25th Avenue	0	0	0	0	0	0	0	0	0	**0**
25th Avenue Bay 40th Street	6	0	150	4	0	100	5	0	125	**4**
Bay 40th Street & Bay 41st Street	7	0	0	8	0	133	6	0	100	**6**
Bay 41st Street & 26th Avenue	5	0	167	4	0	133	5	0	167	**3**
26th Avenue & Bay 44rd Street	16	0	94	13	0	76	12	0	71	**17**
Bay 44th Street & 27th Avenue	6	0	120	5	0	100	3	0	60	**5**
27th Avenue & Bay 46th Street	2	0	67	3	0	100	3	0	100	**3**
Bay 46th Street & Bay 48th Street	14	0	93	12	0	80	11	0	73	**15**
Bay 48th Street & Bay 49th Street	3	0	100	4	2	200	3	0	100	**3**
Bay 49th Street & Shore Pkwy	6	0	75	5	0	63	6	0	75	**8**
Shore Pkwy & Canal Avenue	0	0	0	0	0	0	0	0	0	**0**
Hart Place & Neptune Avenue	20	2	76	26	4	103	33	3	124	**29**

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Bay Pkwy & 31st Street	1	0	0	3	0	0	3	0	0	**3**
31st Street & 32nd Street	7	0	100	6	1	100	7	0	100	**7**
32nd Street & 23rd Avenue	5	0	100	5	0	100	5	0	100	**5**
23rd Avenue & Bay 34th Street	9	0	100	9	0	100	10	0	111	**9**
Bay 34th Street & Bay 35th St	5	0	71	5	0	71	5	0	71	**7**
Bay 35th Street & 24th Avenue	3	0	150	2	0	100	3	0	150	**2**
24th Avenue & Bay 37th Street	6	0	0	6	0	0	6	0	0	**0**
Bay 37th Street & Bay 38th Street	0	0	0	0	0	0	0	0	0	**0**
Bay 38th Street & 25th Avenue	0	0	0	0	0	0	0	0	0	**0**
25th Avenue & Bay 40th Street	4	0	0	4	0	80	5	0	100	**5**
Bay 40th Street & Bay 41st Street	9	0	150	9	0	150	9	0	150	**6**
Bay 41st Street & 26th Avenue	3	0	50	2	0	33	3	0	50	**6**
26th Avenue & Bay 43rd Street	4	0	133	3	0	100	2	0	67	**3**
Bay 43rd Street & Bay 44th Street	9	0	225	6	0	150	7	0	175	**4**
Bay 44th Street & 27th Avenue	4	0	200	4	0	200	5	0	250	**2**
27th Avenue & Bay 46th Street	3	0	150	3	0	150	5	0	250	**2**
46th Street & Bay 47th Street	2	0	50	2	0	50	2	0	50	**4**
Bay 47th Avenue & Bay 48th Street	3	0	43	3	0	43	2	0	29	**7**
Bay 48th Street & Bay 49th Street	4	0	100	3	2	125	3	0	75	**4**
Bay 49th Street & Shore Pkwy	5	0	71	4	0	57	4	0	57	**7**
Shore Pkwy & Canal Avenue	0	0	0	0	0	0	0	0	0	**0**
Hart Place & Neptune Avenue	35	2	148	36	4	160	32	3	140	**25**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Avenue U

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Stillwell Avenue & West 13th Street	1	0	25	2	0	50	0	0	0	**4**
West 13th Street & West 12th Street	0	0	0	0	0	0	0	0	0	**4**
West 12th Street & West 11th Street	10	0	111	9	0	100	9	0	100	**9**
West 11th Street & West 10th Street	3	0	300	4	0	400	2	0	200	**1**
West 10th Street & West 9th Street	6	0	100	3	0	50	5	0	83	**6**
West 9th Street & West 8th Street	8	0	100	8	0	100	7	0	88	**8**
West 8th Street & West 7th Street	4	0	80	0	0	0	4	0	80	**5**
West 7th Street & West 6th Street	8	1	113	8	0	100	7	0	88	**8**
West 6th Street & West 5th Street	8	1	225	7	0	175	7	0	175	**4**
West 5th Street & West 4th Street	6	0	75	3	0	38	5	0	63	**8**
West 4th Street & Van Sicklen Street	1	0	25	2	0	50	0	0	0	**4**
Van Sicklen Street & Lake Street	1	0	25	4	0	100	0	0	0	**4**
Lake Street & McDonald Avenue	6	0	86	2	0	29	4	0	57	**7**
McDonald Avenue & West Street	9	0	90	7	0	70	7	0	70	**10**
West Street & East 1st Street	5	0	100	5	0	100	4	0	80	**5**
East 1st Street & East 2nd Street	0	0	0	5	0	100	0	0	0	**5**
East 2nd Street & East 3rd Street	2	0	25	3	0	38	1	0	13	**8**
East 3rd Street & East 4th Street	6	0	86	6	0	86	5	0	71	**7**
East 4th Street & East 5th Street	6	0	75	0	0	0	5	0	63	**8**
East 5th Street & Ocean Pkwy	8	0	80	1	0	10	7	0	70	**10**
Ocean Pkwy & East 7th Street	3	0	30	5	0	50	2	0	20	**10**
East 7th Street & East 8th Street	3	0	38	8	0	100	3	0	38	**8**
East 8th Street & East 9th Street	3	0	43	7	0	100	2	0	29	**7**
East 9th Street & Coney Island Avenue	0	0	0	4	0	100	0	0	0	**4**

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
Stillwell Avenue & West 13th Street	7	0	100	7	0	100	5	1	86	**7**
West 13th Street & West 12th Street	0	0	0	0	0	0	0	0	0	**0**
West 12th Street & West 11th Street	7	0	78	8	0	89	6	0	67	**9**
West 11th Street & West 10th Street	1	0	25	0	0	0	0	0	0	**4**
West 10th Street & West 9th Street	5	0	83	3	0	50	4	0	67	**6**
West 9th Street & West 8th Street	6	0	150	4	0	100	5	0	125	**4**
West 8th Street & West 7th Street	4	0	100	3	0	75	3	0	75	**4**
West 7th Street & West 6th Street	7	1	160	4	0	80	6	1	140	**5**
West 6th Street & West 5th Street	6	1	88	5	3	100	5	1	75	**8**
West 5th Street & Van Sicklen Street	4	0	57	6	0	86	4	0	57	**7**
Van Sicklen Street & Lake St	4	0	57	6	0	86	4	0	57	**7**
Lake Street & McDonald Avenue	3	0	43	3	0	43	3	0	43	**7**
Mc Donald Avenue & West Street	11	1	80	15	0	100	9	0	60	**15**
West Street & East 1st Street	4	0	80	5	0	100	4	0	80	**5**
East 1st Street & East 2nd Street	5	0	83	6	0	100	4	0	67	**6**
East 2nd Street & East 3rd Street	5	0	50	5	0	50	4	0	40	**10**
East 3rd Street & East 4th Street	5	0	71	4	0	57	4	0	57	**7**
East 4th Street & East 5th Street	4	0	80	5	0	100	5	0	100	**5**
East 5th Street & Ocean Pkwy	5	0	71	7	0	100	5	0	71	**7**
Ocean Pkwy & East 7th Street	6	0	67	10	0	111	4	0	44	**9**
East 7th Street & East 8th Street	6	0	55	11	0	100	5	0	45	**11**
East 8th Street & East 9th Street	4	1	83	5	0	83	4	0	67	**6**
East 9th Street & Coney Island Avenue	5	0	500	4	0	400	3	0	300	**0**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity

Brighton Beach Avenue

North Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
ocean Pkwy & Brighton 1st Street	4	1	100	5	1	120	5	2	140	**5**
Brighton 1st Street & Brighton 1st Place	6	3	129	7	4	157	7	3	143	**7**
Brighton 1st Place & Brighton 2nd Street	6	0	100	7	1	133	6	1	117	**6**
Brighton 2nd Street & Brighton 3rd Street	5	1	120	4	2	120	3	1	80	**5**
Brighton 3rd Street & Brighton 4th Street	7	2	129	8	2	143	7	2	129	**7**
Brighton 4th Street & Brighton 5th Street	4	0	100	4	0	100	5	0	125	**4**
Brighton 5th Street & Brighton 6th Street	7	0	117	7	0	117	6	0	100	**6**
Brighton 6th Street & Brighton 7th Street	8	0	114	7	0	100	7	1	114	**7**
Brighton 7th Street & Coney Island Avenue	4	1	125	5	1	150	4	0	100	**4**
Coney Island Avenue & Brighton 11th Street	5	0	125	4	0	100	5	0	125	**4**
Brighton 11th Street & Brighton 12th Street	5	0	100	5	0	100	5	0	100	**5**
Brighton 12th Street & Brighton 13th Street	7	0	88	8	0	100	8	0	100	**8**
Brighton 13th Street & Brighton 14th Street	2	1	75	3	2	125	4	1	125	**4**
Brighton 14th Street & Brighton 15th Street	6	0	100	7	0	117	6	1	117	**6**
Brighton 15th Street & Corbin Place	9	0	90	10	0	100	9	0	90	**10**

South Curb

Block	AM			Midday			PM			Curb Cap.
	PV	DPV	% Util.	PV	DPV	% Util.	PV	DPV	% Util.	
ocean Pkwy & Brighton 1st rd	8	0	89	9	0	100	9	0	100	**9**
Brighton 1st rd & Brighton 1st Place	5	0	125	4	0	100	4	1	125	**4**
Brighton 1st Place & Brighton 2nd Street	5	1	150	4	1	125	5	0	125	**4**
Brighton 2nd Street & Brighton 3rd Street	6	0	100	5	1	100	4	1	83	**6**
Brighton 3rd Street & Brighton 4th Street	0	0	0	0	0	0	0	0	0	**0**
Brighton 4th Street & Brighton 5th Street	7	2	100	9	2	122	8	1	100	**9**
Brighton 5th Street & Brighton 6th Street	2	2	100	4	3	175	2	2	100	**4**
Brighton 6th Street & Brighton 7th Street	8	1	113	7	1	100	6	0	75	**8**
Brighton 7th Street & Coney Island Avenue	0	0	0	0	0	0	0	0	0	**2**
Coney Island Avenue & Brighton 13th Street	27	0	96	28	0	100	28	0	100	**28**
Brighton 13th Street & Brighton 14th Street	8	0	100	8	0	100	7	0	88	**8**
Brighton 14th Street & Brighton 15th Street	5	1	120	5	0	100	5	0	100	**5**
Brighton 15th Street & Corbin Place	4	1	100	5	1	120	5	1	120	**5**

PV - Parked Vehicles
DPV - Double Parked Vehicles
% Util. - % Utilization
Curb Cap. - Curbside Capacity