

# Queens Village/Jamaica Avenue Transportation Study



**Final Report**

**March 2015**

**P.I.N. PTD14D00.G05**



Bill de Blasio  
Mayor





# Queens Village/Jamaica Avenue Transportation Study

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# TABLE OF CONTENTS

## **S.0 EXECUTIVE SUMMARY**

- S.1 Introduction
- S.2 Demographics
- S.3 Land Use and Zoning
- S.4 Traffic and Transportation
- S.5 Public Transportation
- S.6 Parking
- S.7 Pedestrian and Bicycle Analysis
- S.8 Crashes/Safety
- S.9 Goods Movement

## **1.0 INTRODUCTION**

- 1.1 Background
- 1.2 Study Area
- 1.3 Goals and Objectives
- 1.4 Project Organization & Methodology

## **2.0 DEMOGRAPHIC ANALYSIS**

- 2.1 Introduction
- 2.2 Study Area Population
- 2.3 Population Trends
- 2.4 Household Vehicles
- 2.5 Journey to work by Mode

## **3.0 LAND USE AND ZONING**

- 3.1 Introduction
- 3.2 Zoning
- 3.3 Land Use

## **4.0 TRAFFIC AND TRANSPORTATION**

- 4.1 Introduction
- 4.2 Traffic Data Collection/Traffic Operations
- 4.3 Network Traffic Volumes
- 4.4 Street Capacity & Level of Service (LOS)
- 4.5 Existing Traffic Conditions
- 4.6 Vehicular Speeds
- 4.7 Future Traffic Conditions
- 4.8 Future Conditions Speeds

## **5.0 PUBLIC TRANSPORTATION**

- 5.1 Introduction

- 5.2 Buses
- 5.3 2012 Bus Ridership
- 5.4 Long Island Rail Road

## **6.0 PARKING**

- 6.1 Introduction
- 6.2 Off-Street Parking
- 6.3 On-Street Parking

## **7.0 PEDESTRIAN AND BICYCLISTS**

- 7.1 Introduction
- 7.2 Pedestrian Analysis Locations
- 7.3 Pedestrian Level of Service Analysis and Methodology
- 7.4 Existing Conditions Pedestrian Analysis
- 7.5 Bicycle Facilities
- 7.6 Future Conditions Pedestrian Analysis

## **8.0 CRASHES/SAFETY**

- 8.1 Introduction
- 8.2 Crashes 2010-2012
- 8.3 Crash Analysis
- 8.4 Fatalities & Injuries

## **9.0 GOODS MOVEMENT**

- 9.1 Introduction
- 9.2 Truck Routes in Study Area
- 9.3 Truck Traffic

## **10.0 PUBLIC PARTICIPATION**

- 10.1 Introduction
- 10.2 Notes of Meetings

## **11.0 RECOMMENDATIONS**

- 11.1 Issues and Improvement Measures
- 11.2 Hillside Avenue & Francis Lewis Blvd
- 11.3 Hempstead Avenue & Springfield Blvd
- 11.4 Jamaica Avenue & Francis Lewis Blvd
- 11.5 Jamaica Avenue & 212<sup>th</sup> Street
- 11.6 Jamaica Avenue & 213<sup>th</sup> Street
- 11.7 Jamaica Avenue & Springfield Blvd
- 11.8 Jamaica Avenue & 222<sup>nd</sup> Street

## **EXECUTIVE SUMMARY**

### **S-1 Introduction**

The Queens Village/Jamaica Avenue Transportation Study was initiated in response to community concerns about traffic congestion on some of the main arterials in Queens Village. Traffic to and from Cross Island Parkway compounded by heavy bus and truck activity contribute to congestion in the study area. The study seeks to examine existing and future traffic and transportation conditions and develop recommendations for improved traffic operation and safety. The study area is bounded by Braddock/Hillside Avenues to the north, Cross Island Parkway to the east, Murdock Avenue to the south and Francis Lewis Boulevard to the west. The major arterials in the study area are Braddock Avenue, Cross Island Parkway, Francis Lewis Boulevard, Hillside Avenue, Hollis Avenue, Hempstead Avenue, Jamaica Avenue, Murdock Avenue, and Springfield Boulevard. The study area falls in Community District 13 Queens.

### **S-2 Demographics**

The demographic analysis examined population data such as population growth, household size, median income, car ownership, and journey to work for 1990 to 2010 with projections to 2020. The 2010 study area population of 53,873 declined 9% between 2000 and 2010, yielding a net growth of about 5% from 1990. The average household size in 2010 was 3.37 persons, which is larger than both Queens and NYC. Median household income was significantly higher (\$71,866) than both Queens and NYC. Vehicle ownership is high in the study area, 79% of the households owned at least one vehicle. Car mode share for journey to work is higher than Queens and NYC while the public transportation share was lower than Queens and NYC.

### **S-3 Land Use and Zoning**

The predominant land use in the study area is low density residential with commercial along the major corridors - Jamaica Avenue, Braddock Avenue, Hempstead Avenue, and Springfield Boulevard. There are two manufacturing districts along 99<sup>th</sup> Avenue and Springfield Boulevard.

### **S-4 Traffic and Transportation**

The traffic analysis examined traffic operation at 27 intersections in the study area during the AM (7:30 – 8:30) and PM (5:00 – 6:00) peak hours. It relied on Automatic Traffic Recorders (ATR), Manual Turning Movement and Vehicle Classification Counts. The HCS capacity and level of service analyses showed most intersections operating at acceptable level of service (LOS); however some intersections had one or more lane groups that operated at LOS D, E, and F during the AM and PM peak hours. The most congested corridors in the study area are Francis Lewis Boulevard and Hillside Avenue. The average travel speed during the peak hours along Francis Lewis is approximately 15 to 17 miles per hour and 18 to 19 miles per hour on Hillside Avenue.

### **S-5 Public Transportation**

The public transit analysis focused on public transportation facilities and services (rail and bus services) with respect to capacity and ridership. The study area is well served and has adequate bus service on all routes. There are thirteen bus lines and an LIRR station in the area. There is no subway service in the study area, which contributes to reliance on surface transit (buses, dollar vans, car service) and private automobiles.

### **S-6 Parking**

The parking analysis assessed demand/supply for on-street and off-street parking facilities during the peak hours. This involved an inventory and evaluation of curbside parking regulations and curb usage. Some roadway segments along Jamaica Avenue,



Hillside Avenue, Springfield Boulevard, and Francis Lewis Boulevard, particularly near commercial establishments, were at capacity during the peak hours.

### **S-7 Pedestrians and Bicyclists**

The pedestrian analysis assessed locations with high pedestrian volume along major retail corridors and transit transfer points. It assessed vehicle-pedestrian conflicts and the capacity of existing pedestrian facilities. Pedestrian data was collected at eight (8) signalized and two (2) un-signalized intersections, all of which operated at acceptable LOS C or better.

### **S-8 Crash/Safety Analysis**

A detailed crash analysis was conducted for the three year period 2010-2012 for every intersection in the study area. No high crash intersections were identified. Four fatalities (three pedestrians and one vehicle occupant) occurred during this period. Two of the fatalities occurred on Jamaica Avenue.

### **S-9 Goods Movement**

There are six through truck routes (Francis Lewis Boulevard, Hillside Avenue, Braddock Avenue, Jamaica Avenue, Hempstead Avenue, and Springfield Boulevard) and no local truck routes in the study area. Truck activity is very high, particularly along Jamaica Avenue, Hempstead Avenue and Springfield Boulevard where many commercial/retail establishments are located.

### **S-10 Public Participation**

Public participation is an integral part of the planning process, providing information and feedback to help identify problems and issues in the study area. Technical Advisory Committee (TAC) meetings were held on March 20, 2013 and May 29, 2014. TAC members identified many traffic issues such as congestion along Jamaica Avenue and Truck traffic along the Clearview Expressway, and provided feedback on proposals.

## **S-11 Recommendations**

Based upon the analysis and community input, recommendations were developed to enhance traffic operations and pedestrian safety. These recommendations include signal timing changes, geometric improvements, lane configuration changes and parking regulation changes at the following locations:

- Hillside Avenue and Francis Lewis Boulevard
- Hempstead Avenue and Springfield Boulevard
- Jamaica Avenue and Francis Lewis Boulevard
- Jamaica Avenue and 212<sup>th</sup> Street
- Jamaica Avenue and 213<sup>th</sup> Street
- Jamaica Avenue and Springfield Boulevard
- Jamaica Avenue and 222<sup>nd</sup> Street

# **1 INTRODUCTION**

## **1.1 Background**

The Queens Village/Jamaica Avenue Transportation Study is being conducted in response to requests from the community and elected officials to address traffic congestion in the area and to enhance safety for all street users. The study area is situated in the eastern most section of Queens, bordering Nassau County. The study area falls within Community Board 13; it has direct access to regional facilities such as the Grand Central Parkway and Clearview Expressway to the north and the Cross Island Parkway to the east. Two of the principal arterials in the study area (Jamaica Avenue and Hillside Avenue) provide access to the CBD. The principal arterials (Hillside Avenue, Jamaica Avenue, Hempstead Avenue, Braddock Avenue, Francis Lewis Boulevard, and Springfield Boulevard) are generally congested during the peak hours as they fulfill the dual functions of through corridors and local destination strips. The predominant land use in the area is residential with few commercial and manufacturing districts. Figure 1-1 shows the study area in a regional context.

## **1.2 Study Area**

The study area is bounded by Hillside Avenue/Braddock Avenue to the north, Cross Island Parkway to the east, Murdock Avenue to the south and Francis Lewis Boulevard to the west. In addition to having close proximity to regional arterials, the study area is served by the Long Island Rail Road (LIRR) and surface transit, but it lacks subway service. The regional facilities in the vicinity of the study area (shown in Figures 1-1 and 1-2) are:

- Belt Parkway ((Route 27) to the south) - can be accessed from the Cross Island Parkway, Springfield Boulevard or Francis Lewis Boulevard;

- Van Wyck Expressway ((I-678) to the west) - can be accessed from Hillside Avenue or Jamaica Avenue;
- Cross Island Parkway (to the east) - can be accessed via Braddock Avenue, Hillside Avenue, and Jamaica Avenue;
- Grand Central Parkway (to the north) - can be accessed using Francis Lewis Boulevard and Hollis Court Boulevard.

**Figure 1-1: Study Area Regional Context**

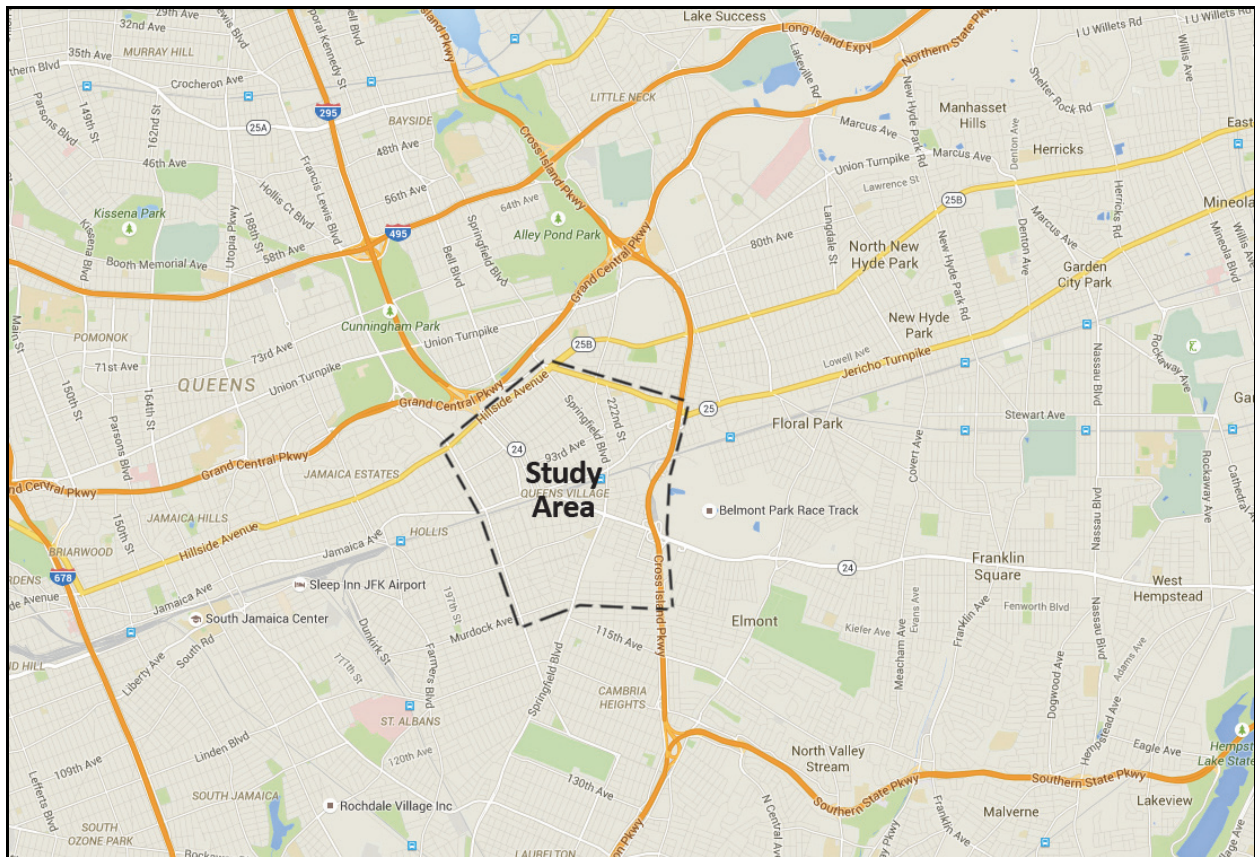


Figure 1-2: Study Area and Community Districts



### **1.3 Goals and Objectives**

The goal of the study is to reduce traffic congestion and enhance safety for all road users. The main objectives are:

- To identify the travel and traffic characteristics and to assess the existing transportation demand of the study area;
- To project and assess the future (2022) conditions of the study area with respect to demographic, land use, traffic, transit and pedestrian;
- To develop recommendations/improvement measures with community input.

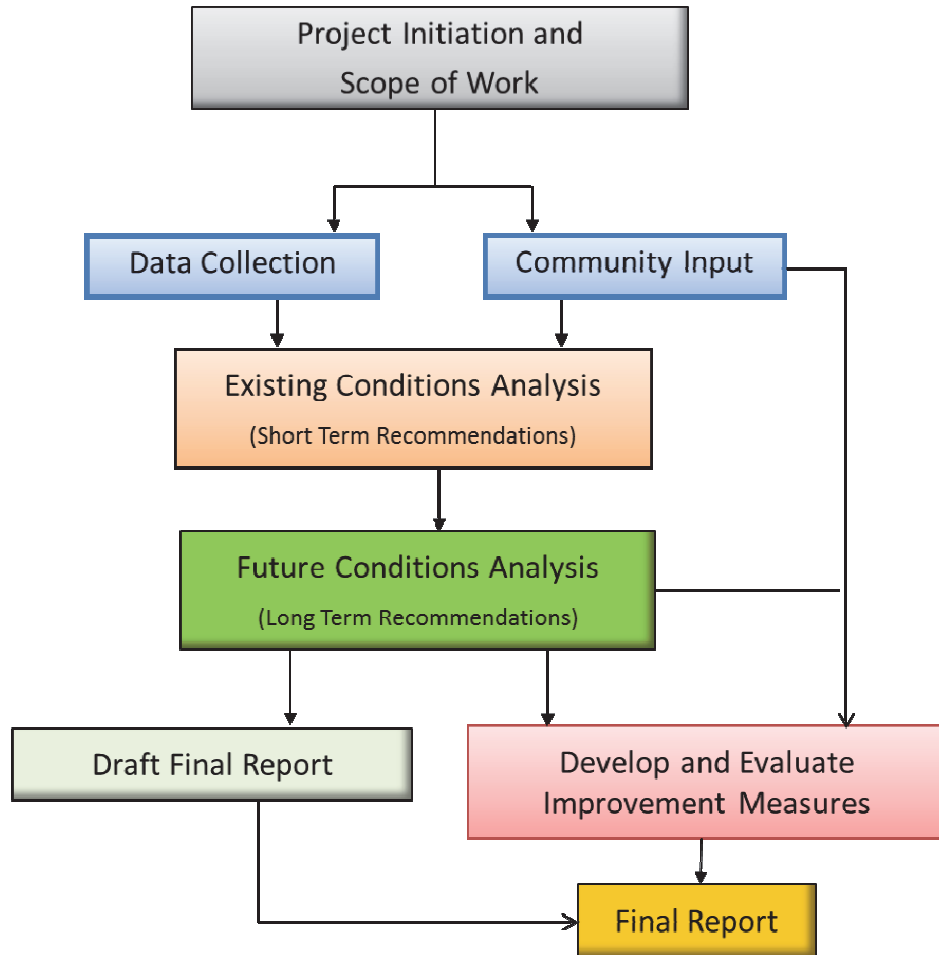
### **1.4 Project Organization and Methodology**

The study will examine both existing and future traffic and transportation conditions by analyzing the following:

- Demographics
- Zoning and Land Use
- Traffic and Transportation
- Pedestrians and Bicyclists
- Crashes and Safety
- Parking
- Public Transportation
- Goods Movement

The existing conditions base year is 2012 and the future conditions year is 2022. The study process is shown in Figure 1-4 followed by description of study tasks.

**Figure 1-3: Project Organization**



The following tasks will be undertaken:

- *Task 1 - Project Organization and Management* - Establish Technical Advisory Committee (TAC) and develop a detailed work program that outlines tasks, subtasks, and products.
- *Task 2 - Literature Search* - Identify relevant studies or projects in the study area.

- Task 3 - *Data Collection and Identification of Issues* - Collect data for demographics, land use and zoning, traffic, parking, pedestrians and bicyclists, transit, crashes, and goods movement to assess travel and traffic conditions.
- Task 4 - *Public Outreach* - Conduct public meetings to insure the involvement of community stakeholders.
- Task 5 – *Existing Conditions Analysis* - Conduct a comprehensive analysis of existing conditions utilizing all collected data and draft report. Hold TAC and public meetings to present findings.
- Task 6 – *Future Conditions Analysis* - Analyze the future (2022) conditions for all areas examined for the existing conditions.
- Task 7 – *Prepare a draft report with Existing and Future Conditions*
- Task 8 – *Development & Evaluation of Improvement Measures* - Generate improvement measures to address traffic and transportation deficiencies.
- Task 9 – *Prepare Draft Final and Final Report*
- Task 10 – *Prepare an Implementation Plan*



## **2 DEMOGRAPHIC ANALYSIS**

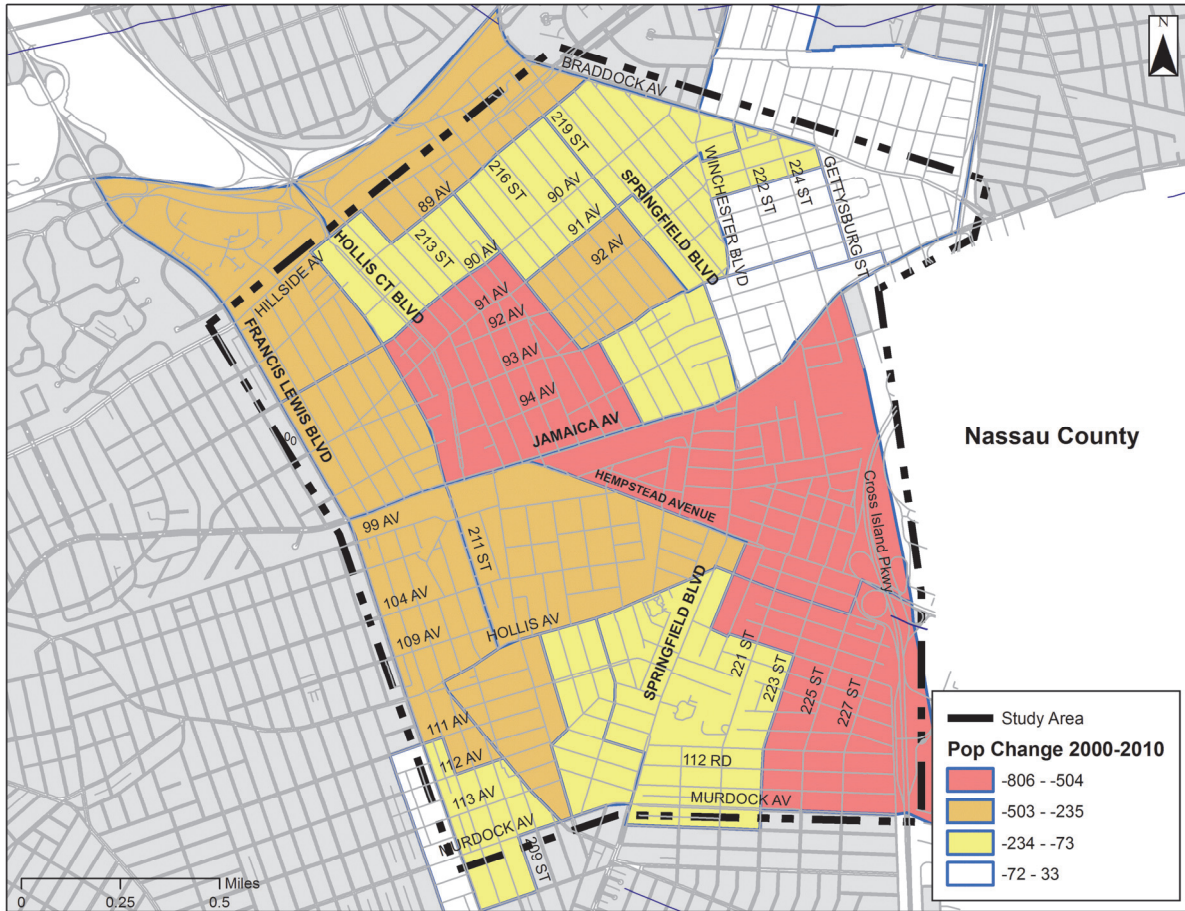
### **2.1 Introduction**

The demographic and socioeconomic analysis examined population changes, household size, median household income and vehicle ownership to identify trends to help project future travel needs in the study area. The analysis relied upon data from New York City Department of City Planning (NYCDCP), and the United States Department of Commerce – Bureau of Census. Data from 2000 and 2010 were analyzed for the study area and comparisons made with Queens and New York City.

### **2.2 Study Area Population**

The study area falls in Queens Community Districts 13 and consists of the following 2010 Census Tracts: 492\*, 496, 512, 516\*, 536.01, 538, 540, 542, 548, 552, 554, 556, 558, 560, 562, 564, 566, 568, 580, 582\*, and 1621\*. Seventeen census tracts are entirely within, while four are partially in the study area. The analysis assumes that the population and other related variables are evenly distributed geographically in the census tracts that are partially located in the study area. Figure 2-1 shows the census tracts and population change between 2000 and 2010.

**Figure 2-1: Census Tract Population Change 2000-2010**



### 2.3 Population Trends

The study area population in 1990, 2000, and 2010 was approximately 51,500, 59,300 and 53,870 respectively representing a 15% growth between 1990 and 2000, and a 9% decline between 2000 and 2010.

All census tracts exhibited growth between 1990 and 2000 while 19 of the 21 census tracts declined the following decade. The 2010 population density of 20,177 persons/square mile is similar to the average density of Queens (21,116 persons/sqare mile) and lower than the average density of New York City (27,243 persons/sqare mile).

In 2010, there were 15,912 households in the study area with an average household size of 3.37 and a median household income of \$71,866. The average household size and median household income are both larger than both Queens and New York City. Projected population growth for 2020 uses the Queens county growth rate from NYCDP. Tables 2-1, 2-2 and 2-3 provide a summary of the demographic/socio-economic data and projections for the study area, Queens and New York City in 2000, 2010 and 2020.

**Table 2-1: Population**

Census Year	Study Area	% Change	Queens	% Change	NYC	% Change
2000	59,303		2,229,379		8,008,278	
2010	53,873	-9%	2,230,722	0%	8,175,133	2%
*2020	56,642	5%	2,350,200	5%	8,692,564	6%

\*projected

**Table 2-2: Household Size**

Census Year	Study Area	% Change	Queens	% Change	NYC	% Change
2000	3.44		2.81		2.59	
2010	3.37	-2%	2.82	0%	2.57	0%
*2020	3.37	0%	2.82	0%	2.57	0%

\*projected

**Table 2-3: Median Household Income**

Census Year	Study Area	% Change	Queens	% Change	NYC	% Change
2000	\$ 55,068		\$ 42,439		\$ 38,293	
2010	\$ 71,866	31%	\$ 56,406	33%	\$ 51,270	34%
*2020	\$ 94,144	31%	\$ 75,020	33%	\$ 68,702	34%

\*projected

## 2.4 Household Vehicles

Eighty four percent of the households in the study area in 2010 had at least one vehicle compared to 64% in Queens and 45% in New York City. This high vehicle ownership in the study area is coupled with a propensity for multi vehicle households where 29% of the households have two vehicles compared to 17% and 11% of two-car households in Queens

and New York City, respectively. Sixteen percent (16%) of the study area households have three or more vehicles compared to 7% in Queens and 4% in New York City. Table 2-4 shows the household vehicle ownership in the study area, Queens and New York City for 2000, 2010, projected 2020.

**Table 2-4: Household Vehicles**

# of Vehicles	Study Area		Queens		NYC		
	2000	Total	% of Total	Total	% of Total	Total	% of Total
<b>Total Households</b>		17,094		782,664		3,021,588	
<b>No vehicle available</b>		3,657	21%	295,049	38%	1,682,946	56%
<b>1 vehicle available</b>		6,930	41%	321,337	41%	955,165	32%
<b>2 vehicles available</b>		5,041	29%	132,217	17%	305,267	10%
<b>3 vehicles available</b>		1,466	9%	34,061	4%	78,210	3%
	<b>2010</b>	<b>Total</b>	<b>% of Total</b>	<b>Total</b>	<b>% of Total</b>	<b>Total</b>	<b>% of Total</b>
<b>Total Households</b>		16,845		773,130		3,049,978	
<b>No vehicle available</b>		2,675	16%	283,440	37%	1,679,025	55%
<b>1 vehicle available</b>		6,694	40%	311,198	40%	955,187	31%
<b>2 vehicles available</b>		5,047	30%	137,354	18%	325,755	11%
<b>3+ vehicles available</b>		2,430	14%	41,138	5%	90,011	3%
	<b>*2020</b>	<b>Total</b>	<b>% of Total</b>	<b>Total</b>	<b>% of Total</b>	<b>Total</b>	<b>% of Total</b>
<b>Total Households</b>		17,687		839,782		3,304,528	
<b>No vehicle available</b>		2,476	14%	298,207	36%	1,774,532	54%
<b>1 vehicle available</b>		7,075	40%	327,515	39%	991,358	30%
<b>2 vehicles available</b>		5,660	32%	159,559	19%	429,589	13%
<b>3+ vehicles available</b>		2,901	16%	54,502	6%	109,049	3%

**\*Projected**

## 2.5 Journey to Work by Mode

Car/Truck/Van was the predominant journey to work mode with 56% share in 2010. This was much higher than that of Queens (39%) and New York City (28%). This decreased from 58% in 2000 largely due to a decrease in carpooling from 13% to 9%. as driving alone actually increased from 45% to 48% during this period. Public transportation share in the study area remained constant from 2000 to 2010 at 38%, much lower than the public

transportation share of Queens (51%) and New York City (55%). This is largely due to the absence of subway service resulting in a low subway share (18%) compared to Queens (37%) and New York City (41%). Bus share accounted for 16% of all trips while commuter rail accounted for 2%. Walk (2%) and Work from Home (2%) were the only other significant modes within the study area. Table 2-5 details the Journey to work mode share for 2000, 2010 and 2020 projections.

**Table 2-5: Journey to Work by Mode**

Journey to Work - Mode	Study Area			Queens			NYC		
	2000	2010	*2020	2000	2010	*2020	2000	2010	*2020
<b>Workers 16 and over</b>	26,212	29,234	30,737	931,709	1,035,828	1,151,582	3,192,070	3,658,527	4,193,147
<b>Car, truck, or van</b>	58.2%	56.3%	56.0%	44.5%	39.1%	37.0%	32.9%	28.0%	28.0%
<i>Drove alone</i>	45.1%	47.7%	48.0%	34.3%	32.1%	31.0%	24.9%	22.8%	23.0%
<i>Carpooled</i>	13.2%	8.6%	8.0%	10.2%	7.0%	6.0%	8.0%	5.2%	5.0%
<b>Public transportation</b>	37.7%	37.6%	38.2%	47.4%	51.3%	52.8%	52.8%	55.4%	54.9%
<i>Bus or trolley bus</i>	15.7%	16.4%	16.3%	10.2%	11.8%	12.5%	11.6%	12.4%	10.9%
<i>Subway or elevated</i>	19.0%	18.3%	17.3%	34.3%	37.0%	37.0%	37.6%	40.9%	42.0%
<i>Railroad</i>	2.4%	2.8%	3.7%	2.2%	2.5%	2.7%	1.6%	1.8%	2.0%
<i>Ferryboat</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.2%	20.0%
<i>Taxicab</i>	0.5%	0.6%	0.7%	0.7%	0.4%	60.0%	1.7%	1.1%	1.0%
<b>Motorcycle</b>	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	10.0%
<b>Bicycle</b>	0.2%	0.2%	0.4%	0.3%	0.4%	1.0%	0.5%	0.7%	1.5%
<b>Walked</b>	2.4%	3.2%	3.4%	5.7%	5.8%	5.7%	10.4%	10.3%	10.0%
<b>Other means</b>	0.2%	0.2%	0.2%	0.4%	0.5%	0.5%	0.5%	0.5%	50.0%
<b>Worked at home</b>	1.4%	2.0%	2.3%	1.8%	2.5%	3.0%	2.9%	3.9%	4.0%

**\*Projected**

## **3 ZONING AND LAND USE**

### **3.1 Introduction**

The existing zoning and land use in the study area were examined to understand trip characteristics, pedestrian density and traffic congestion. Different land uses have different trip generating characteristics and depending on their spatial distribution influence travel demand and behavior. Field surveys were conducted to document existing land uses in addition to reviewing DCP Zoning & Land Use application maps and NYC Zoning resolutions.

### **3.2 Zoning**

There are three basic zoning districts in New York City, residential (R), commercial (C) and manufacturing (M), (NYC DCP Zoning Handbook, 2006). These are further subdivided into low, medium and high density districts controlled by permitted coverage, floor area ratios and parking regulations.

#### **Study Area Zoning Districts**

Approximately 30 blocks in the northeast section of the study area were rezoned in 2013 as part of the Bellerose-Floral Park-Glen Oaks rezoning that sought to preserve the low-density residential character of the area and prevent commercial encroachment onto residential side streets. There are three residential districts (R2, R3, and R4), two commercial districts (C4-2 and C8-1) and two manufacturing districts (M1-1 and M1-2) in the study area. Table 3-1 shows the zoning districts and percentage distribution in the study area while Figure 3-1 shows the zoning map.

Figure 3-1: Study Area Zoning





**Table 3-1: Zoning Districts within the Study Area**

District	Zoning	FAR	Portion
Residential	R2	0.5	65%
	R3-2	0.75	20%
Commercial	C8-1	1	5%
	C4-2	3.4	5%
Manufacturing	M1-1	1	5%

***Residential Zoning Districts***

Eighty five percent of the study area is zoned residential with R2 and R3-2 districts. There are two types of residential districts present in the study area (R2 and R3-2). The R3-2 district permits a variety of housing types, including low-rise attached houses, small multi-family apartment buildings, as well as detached and semi-detached one-and two-family residences. The R3-2 district is mapped south of Hempstead Avenue to Murdock Avenue, east of 221<sup>st</sup> Street to Francis Lewis Boulevard, with a small portion north of Jamaica Avenue to Hillside Avenue, and west of 209<sup>th</sup> Street to Francis Lewis Boulevard.

The R2 district, for one and two family detached homes is dominant in the study area. It is mapped north of Jamaica Avenue to Hillside Avenue and east of 209<sup>th</sup> Street to Springfield Boulevard. it is also mapped south of 99<sup>th</sup> Avenue to Murdock Avenue and east of 221<sup>st</sup> Street to Queens County boundary line. In the south-west part of the study area, it is mapped south of 99<sup>th</sup> Avenue to Hollis Avenue and east 207<sup>th</sup> Street to 214<sup>th</sup> Street and from Hollis Avenue/214<sup>th</sup> Street to Robard Lane/ Monterey Street.

***Commercial Zoning Districts***

Two commercial districts (C4-2 and C8-1) and four overlays (C1-2, C1-3, C2-2, and C2-3) account for approximately 10% of the study area. The C4-2 is mapped along Jamaica Avenue between 215<sup>th</sup> Place and Springfield Boulevard. This district includes local retail, an auto glass repair shop, CitiBank, a medical office, a LIRR station, a Fire House, and a church. The C8-1 district is

also along Jamaica Avenue between 215<sup>th</sup> Place and Francis Lewis Boulevard. Businesses in this district include a post office, a charter school, auto repair shops and a driving school.

The C1-2 and C2-2 commercial overlays are mapped just outside the eastern and western boundaries of C4-2 district along Jamaica Avenue, Hillside Avenue, Francis Lewis Boulevard, and Springfield Boulevard, where some of the (R2) residential districts are located. These zoning districts permit commercial activities such as clothing and convenience stores, restaurants and repair shops. The C1-3 and C2-3/R3-2 districts are found near the main corridors, such as Braddock Avenue and Hempstead Avenue.

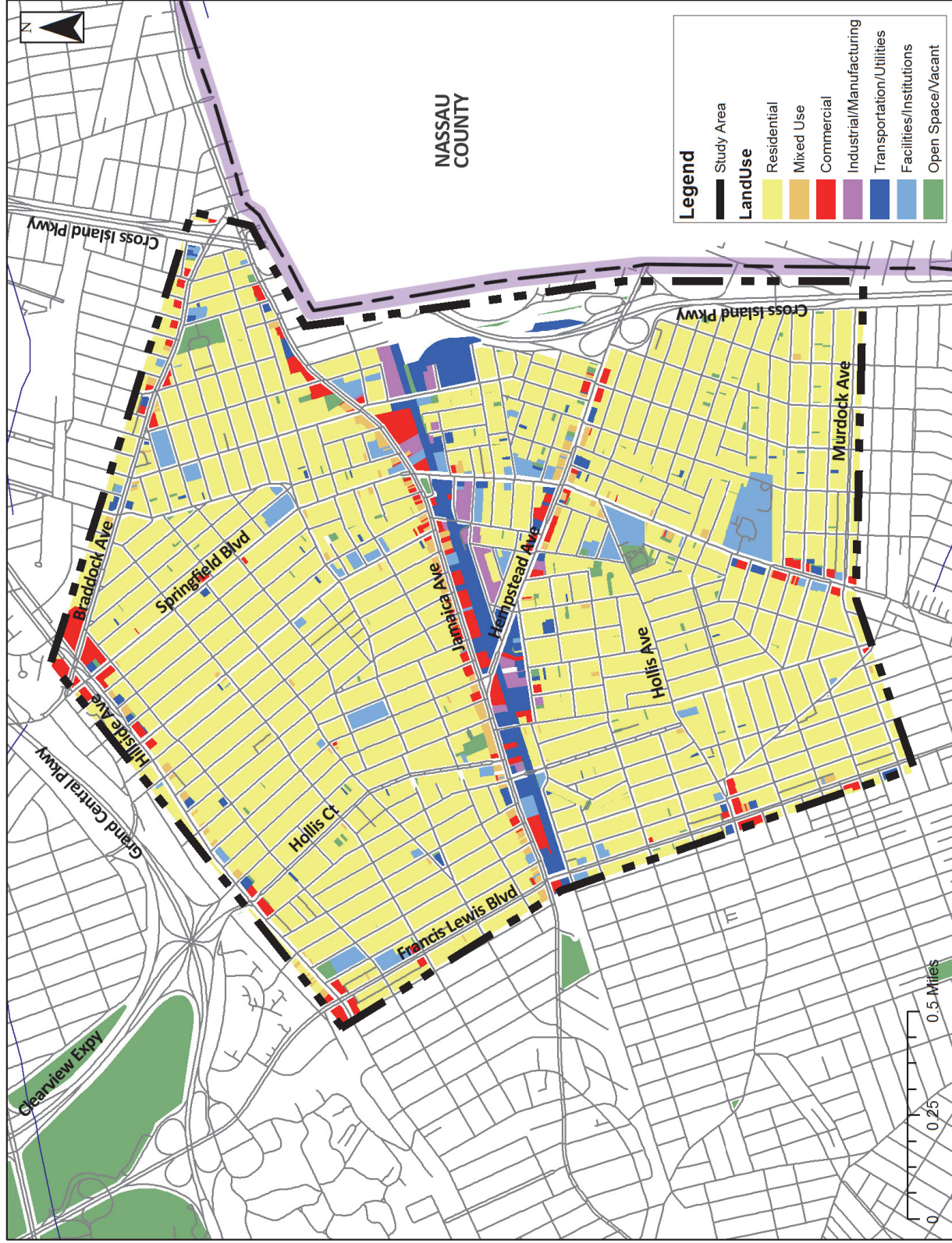
### ***Manufacturing Zoning Districts***

M1-1 and M1-2 manufacturing districts are mapped along Jamaica Avenue and small northern portions of Hempstead Avenue, 98<sup>th</sup> Avenue, and 97<sup>th</sup> Avenue/Amboy Lane where a LIRR station is located. This district permits light industry such as woodworking shops, auto storage and repair shops, and wholesale service and storage facilities. Manufacturing districts represents approximately 5% of the study area.

### **3.3 Land Use**

The study area is largely comprised of low density residential uses with commercial corridors along Jamaica Avenue, Springfield Boulevard, Hempstead Avenue, Hillside Avenue, and Francis Lewis Boulevard. Existing land uses in the study area include one and two family buildings, office space, retail stores, educational institutions, banks, medical centers, bus/rail terminals and churches amongst others. Figure 3-2 shows the existing land uses.

Figure 3-2: Existing Land Use in the Study Area



*Residential* is the predominant use in the study area and comprises mainly of one and two family buildings, followed by multifamily walk-up and elevator buildings. Most of the mixed residential/commercial uses with ground floor retail are located along Jamaica Avenue and Springfield Boulevard. See Figure 3-3 for typical residential buildings in the study area.

**Figure 3-3: Sample of Residential Uses**



*Commercial* uses are constructed along Jamaica Avenue, Hempstead Avenue/Springfield Boulevard, Hillside Avenue/Braddock Avenue and Murdock Avenue/Springfield Boulevard which include restaurants, retail stores, banks, food stores, etc. Auto repair shops, offices and businesses are dispersed on Jamaica Avenue and Francis Lewis Boulevard. See Figure 3-4.

**Figure 3-4: Commercial Uses in the Study Area**



*The Industrial* uses are concentrated in the central and eastern part of the study area along the Queens Village LIRR line and station (north of Hempstead Avenue between 212<sup>th</sup> Street and Springfield Boulevard). The area is well served with Institutional/community facilities such as a police precinct, a fire house, schools, daycare centers, and senior facilities. The 105th NYPD Precinct is located on 222<sup>nd</sup> Street and 92<sup>nd</sup> Road and a FDNY Fire House is located at 97<sup>th</sup> Ave between 218<sup>th</sup> Street and Springfield Blvd. There are 14 schools distributed throughout the study area as well as many daycare, health care and senior facilities. Figure 3-5 shows the locations of the various institutional facilities.



## **4 TRAFFIC AND TRANSPORTATION**

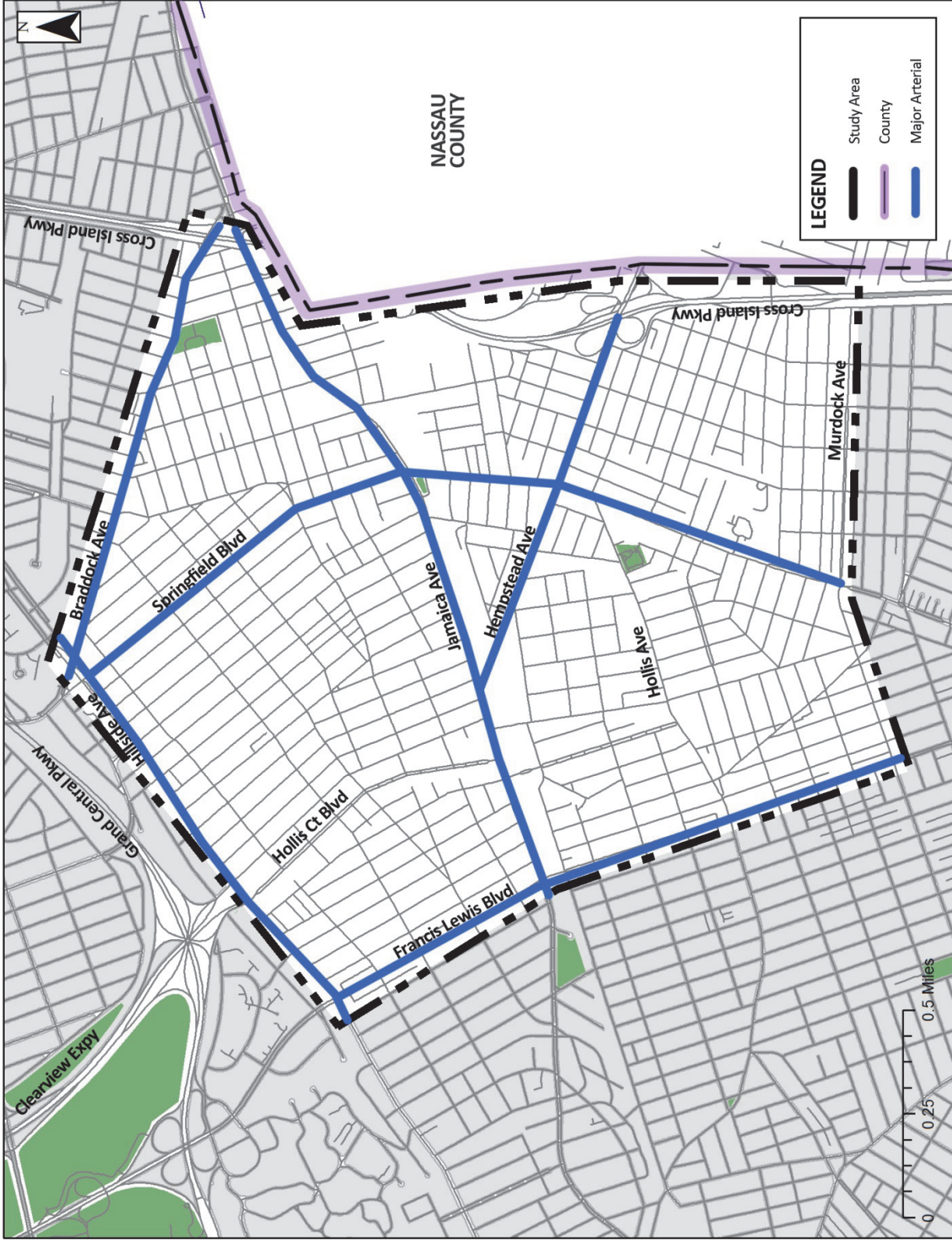
### **4.1 Introduction**

The traffic study area is bounded by Hillside Avenue/Braddock Avenue to the north, Cross Island Parkway to the east, Murdock Avenue to the south, and Francis Lewis Boulevard to the west. The street network approximates to a grid-like structure with some diagonal streets such as Braddock Avenue and Hempstead Avenue.

#### **Street Network and Roadway Characteristics**

The study area has direct access to major regional facilities such as the Cross Island Parkway, Grand Central Parkway and the Clearview Expressway. The main arterials in the study area are Hillside Avenue, Braddock Avenue, Francis Lewis Boulevard, Springfield Boulevard, Jamaica Avenue, and Hempstead Avenue. Hillside Avenue, Braddock Avenue, Jamaica Avenue, and Hempstead Avenue are the major east/west arterials; they connect to the Cross Island Expressway. Francis Lewis Boulevard, Springfield Boulevard, and Farmers Boulevard are the major north/south arterials; they provide access to the Grand Central Parkway and Clearview Expressway. Figure 4-1 shows the main arterials in the study area.

Figure 4-1: Major Arterials in the Study Area





*Hillside Avenue* is the northern boundary of the study area and is a major east/west corridor that connects to the Grand Central Parkway and Clearview Expressway at Hollis Court Boulevard and 212<sup>th</sup> Street. Hillside Avenue is a through which is 70'-0" wide with two moving lanes, a left turn bay and one parking lane in each direction.

*Braddock Avenue*, a major east west corridor and the northern boundary of the study area, intersects Hillside Avenue and provides access to Cross Island Parkway. The corridor has a combination of residential and a few commercial uses. It is also a two way through truck route separated by a raised concrete median. It has two moving lanes, a left turn bay and one parking lane in each direction and is 68 feet wide.

*Jamaica Avenue*, a major east/west corridor, connects to the Cross Island Parkway in the east. It is a through truck route with a considerable amount of commercial activity and operates as a two-way street with a raised concrete median. It has two moving lanes, one parking lane and is 69 feet wide.

*Hempstead Avenue*, located in the center of the study area, is a major east/west corridors that connects to the Cross Island Parkway (CIP). It is a 68 foot wide, two-way, through truck route with two moving lanes and one parking lane.

*Francis Lewis Boulevard*, the western boundary of the study area, is a major north/south corridor that connects to Grand Central Parkway (GCP) and Long Island Expressway (LIE) to the north. It is a 60 feet wide, two-way, through truck route with a raised concrete median.

*Springfield Boulevard*, a major north/south corridor, connects to the Belt Parkway to the south. It is a 70 foot wide, two-way through truck route with a painted median.

## **4.2 Data Collection and Traffic Operations**

### **Data Collection**

Existing traffic conditions were defined through field surveys conducted in 2012. Traffic volume counts including vehicle classification and turning movement were conducted for one midweek day (Tuesday, Wednesday, or Thursday) during the AM and PM peak hours.

Automatic Traffic Recorder (ATR) machines were placed at nine (9) locations for the duration of seven days. Figure 4-2 shows the pedestrian, ATR and traffic manual turning movement count locations in the study area. Speed and delay runs were also conducted for the various peak hours.

ATR machines were placed at the following nine (9) locations:

1. Francis Lewis Boulevard NB between 99<sup>th</sup> Avenue and Jamaica Avenue
2. Francis Lewis Boulevard SB between 99<sup>th</sup> Avenue and Jamaica Avenue
3. Hillside Avenue EB between 207<sup>th</sup> Street and Francis Lewis Boulevard
4. Hillside Avenue WB between 207<sup>th</sup> Street and Francis Lewis Boulevard
5. Jamaica Avenue EB between Springfield Boulevard and 220<sup>th</sup> Street
6. Hempstead Avenue WB between Springfield Boulevard and 218<sup>th</sup> Street
7. Hempstead Avenue EB between Springfield Boulevard and 218<sup>th</sup> Place
8. Hollis Avenue EB between 207<sup>th</sup> Street and Francis Lewis Boulevard
9. Hollis Avenue WB between 207<sup>th</sup> Street and Francis Lewis Boulevard

Vehicle classification and turning movement counts were conducted for the various peak periods at the following 18 intersections:

1. Francis Lewis Boulevard & 86<sup>th</sup> Road (204<sup>th</sup> Street) (Unsignalized)
2. Francis Lewis Boulevard & Hillside Avenue
3. Hillside Avenue & Hollis Court Boulevard
4. Hillside Avenue & 217<sup>th</sup> Street
5. Braddock Avenue & 92<sup>nd</sup> Ave
6. 222<sup>nd</sup> Street & 91<sup>st</sup> Avenue (Unsignalized)
7. Braddock Avenue & 242<sup>nd</sup> Street
8. Jamaica Avenue & Francis Lewis Boulevard

9. Jamaica Avenue & Hollis Court Boulevard
10. Jamaica Avenue & 213<sup>th</sup> Street
11. Jamaica Avenue & Springfield Boulevard
12. Jamaica Avenue & 222<sup>nd</sup> Street
13. Hempstead Avenue & 99<sup>th</sup> Avenue/217<sup>th</sup> Street
14. Hempstead Avenue & Springfield Boulevard
15. Hempstead Avenue & 225<sup>th</sup> Street
16. Francis Lewis Boulevard & Hollis Avenue
17. 104<sup>th</sup> Avenue & Springfield Boulevard
18. Francis Lewis Boulevard & Murdock Avenue

#### Parking

On and off-street parking facilities data includes metered parking and parking regulations.

#### Crash/Accident Data

Crash data from NYSDOT and DMV records was analyzed for the high accident location(s) for the most recent three years.

### **4.3 Traffic Network Volumes**

Balanced traffic networks for the various peak periods were prepared using the ATRs and the manual turning movement counts. Figures 4-3 and 4-4 show the existing peak hour traffic volumes for the AM (7:30 - 8:30) and PM (5:00 - 6:00), peak hours, respectively.

The traffic analysis revealed that Hillside Avenue processed the highest AM and PM peak hour volumes, as follows:

- Hillside Avenue eastbound between Francis Lewis Boulevard and 207<sup>th</sup> Street carries 848 and 1,219 vehicles during the AM and PM peak hours, respectively.

- Hillside Avenue westbound between Francis Lewis Boulevard and 207<sup>th</sup> Street carries 1,272 and 787 vehicles during the AM and PM peak hours, respectively.

Figure 4-2: Data Collection Plan

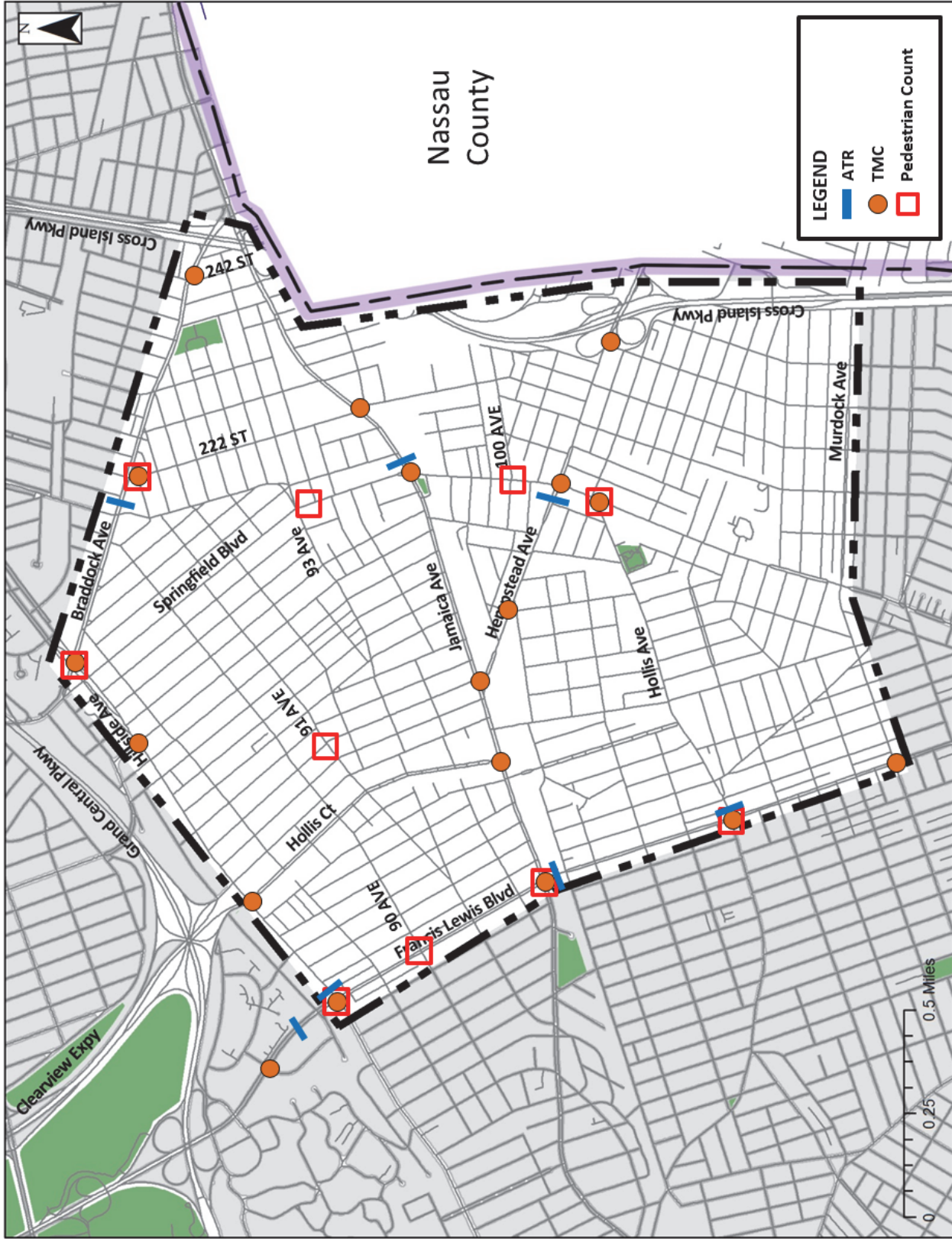
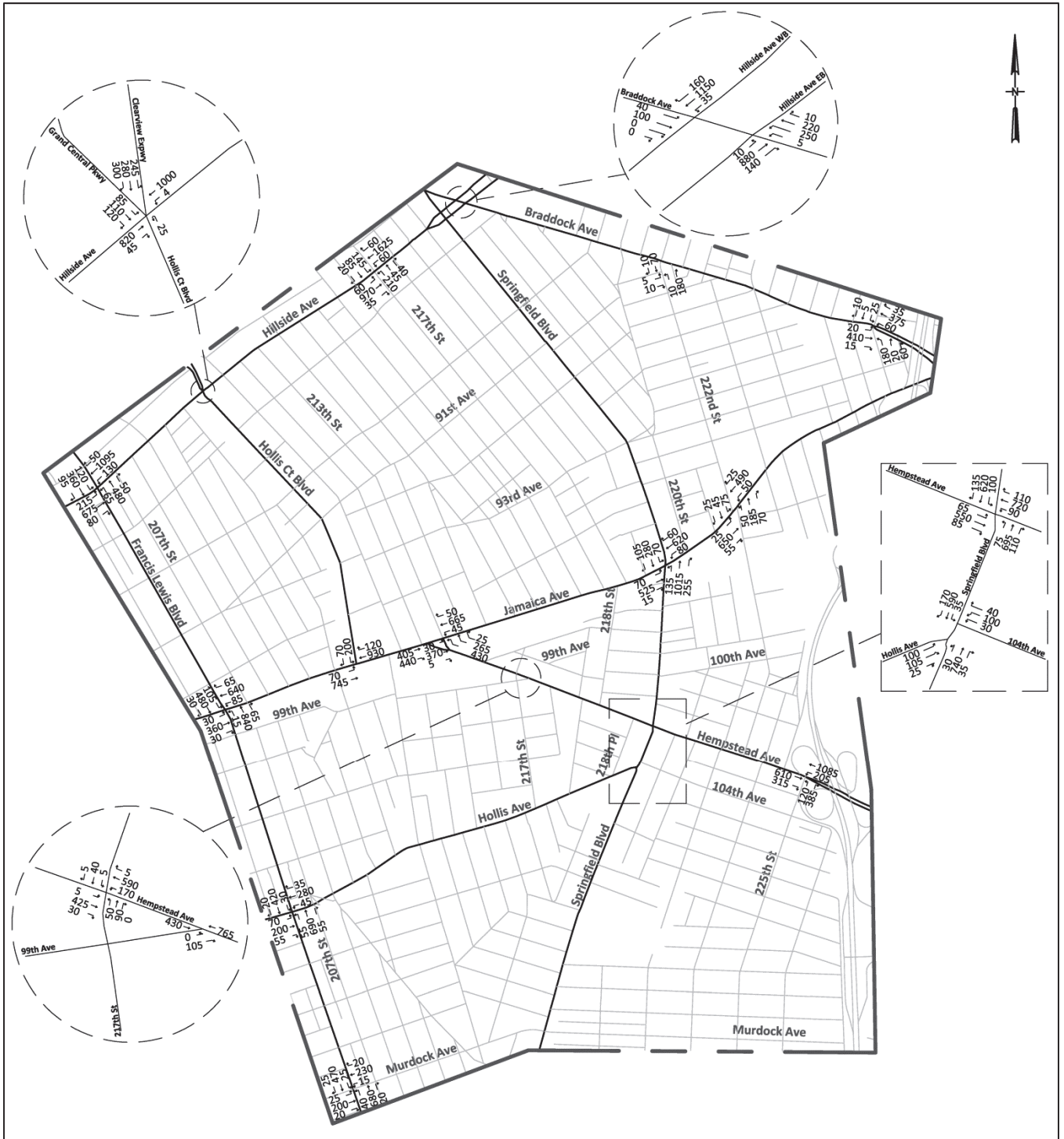


Figure 4-3: 2012 Existing Conditions - AM Peak Hour Traffic Volume





#### **4.4 Street Capacity and 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, geometric design of the intersection, pedestrian movements, type of vehicle, illegal and/or double parking, grade, roadway conditions, and weather. In determining street capacity within the study area, the 2010 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 analysis. The study area contains 16 signalized intersections; a visit was made to each intersection to ascertain its prevailing condition.

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. 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 with 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 45 seconds or less. Table 4-1 shows the level of service criteria as specified in the 2010 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 and PM peak hours.



**Table 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 sec/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 sec/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 sec/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 sec/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 sec/veh. These higher delay values generally indicate poor progression, long cycle length, 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 over-saturation, 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;	
Note:	Control delay is measured in terms of seconds per vehicle (sec/veh).	

## 4.5 Existing Traffic Conditions

Tables 4-2, 4-3 and 4-4 show the 2012 Existing Conditions including v/c ratios, delays, and level of service (LOS) for the AM 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 and PM peak periods. However, some intersections experienced LOS D, E and F for some or all lane groups during one or both peak hours.

The overall intersection LOS is shown in Figures 4-5 and 4-6. Intersections with approaches or lane groups with mid LOS D (equal to or greater than 45 sec/veh) or worse are listed below and shown in Figures 4-7 and 4-8.

- Hillside Avenue & Francis Lewis Boulevard (AM & PM)
- Hillside Avenue & Hollis Ct Boulevard (AM & PM)
- Hillside Avenue & 217<sup>th</sup> Street (AM & PM)
- Hillside Avenue & Braddock Avenue (AM & PM)
- Braddock Avenue & 242<sup>nd</sup> Street (AM)
- Jamaica Avenue & Francis Lewis Boulevard (AM & PM)
- Jamaica Avenue & Hollis Ct Boulevard (PM)
- Jamaica Avenue & 213<sup>th</sup> Street (AM & PM)
- Jamaica Avenue & Springfield Boulevard (AM & PM)
- Jamaica Avenue & 222<sup>nd</sup> Street (AM & PM)
- Hempstead Avenue & Springfield Boulevard (AM & PM)
- Hempstead Avenue & 225<sup>th</sup> Street (AM & PM)
- Hollis Avenue/104<sup>th</sup> Avenue & Springfield Boulevard (AM)

**Table 4- 2: Traffic Capacity Analysis for Signalized Intersections 2012 Existing Conditions**

**1 of 3**

Intersection	Approach	EXISTING : Weekday AM						EXISTING : Weekday PM					
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS
Hillside Ave & Francis Lewis Blvd	NB	L	65	LTR	1.05	89.0	F	L	100	LTR	1.04	81.3	F
		T	480					T	680				
		R	50					R	75				
	SB	L	120	L	0.67	56.6	E	L	255	L	1.01	103.4	F
		T	360	TR	0.69	41.3	D	T	390	TR	1.05	83.7	F
		R	95					R	175				
	EB	L	215	L	1.05	117.7	F	L	120	L	0.57	45.7	D
		T	675	TR	0.99	63.6	E	T	895	TR	1.03	71.7	E
		R	80					R	130				
	WB	L	130	L	0.56	46.3	D	L	115	L	0.68	57.6	E
		T	1095	TR	0.83	38.2	D	T	625	TR	0.78	37.2	D
		R	50					R	45				
	Overall					59.6	E					71.1	E
	Hillside Ave & Hollis Ct Blvd Clearview Expwy Exit	SB	L	245	L	1.04	114.3	F	L	240	L	0.87	74.3
T			280	T	0.95	86.6	F	T	390	T	1.05	108.2	F
R			300	R	1.05	113.3	F	R	340	R	1.04	107.1	F
EB		T	820	TR	0.49	22.0	C	T	1000	TR	0.67	25.5	C
		R	45					R	110				
		L	4	LT	0.64	24.9	C	L	15	LT	0.42	20.9	C
WB		L	4	LT	0.64	24.9	C	L	15	LT	0.42	20.9	C
		T	1000					T	570				
		Overall					48.2	D					49.6
Hillside Ave & Hollis Ct Blvd GCP Exit		SB	L	85	LTR	1.05	111.5	F	L	120	LTR	1.05	107.7
	T		110					T	195				
	R		120					R	65				
	EB	T	820	TR	0.49	22.0	C	T	1000	TR	0.67	25.5	C
		R	45					R	110				
		L	4	LT	0.64	24.9	C	L	15	LT	0.42	20.9	C
	WB	L	4	LT	0.64	24.9	C	L	15	LT	0.42	20.9	C
		T	1000					T	570				
		Overall					37.0	D					38.5
	Hillside Ave & 217th St	NB	L	210	LTR	1.05	109.4	F	L	75	LTR	0.66	50.5
T			45					T	100				
R			40					R	20				
SB		L	145	DefL	0.61	52.5	D	L	70	DefL	0.42	47.3	D
		T	85	TR	0.44	45.2	D	T	40	TR	0.26	41.1	D
		R	20					R	25				
EB		L	60	L	1.04	137.9	F	L	75	L	0.23	7.9	A
		T	970	TR	0.53	9.6	A	T	1355	TR	0.69	12.2	B
		R	35					R	55				
WB		L	60	L	0.31	10.2	B	L	70	L	0.52	20.7	C
		T	1625	TR	1.03	45.8	D	T	815	TR	0.44	8.5	A
		R	60					R	20				
Overall						42.9	D					16.3	B
Hillside Ave & Braddock Ave		NB	L	255	L	1.05	111.3	F	L	115	L	0.55	43.4
	T		220	TR	0.39	34.8	C	T	90	TR	0.16	31.3	C
	R		10					R	10				
	SB	L	40	LTR	0.29	33.3	C	L	165	LTR	0.98	71.6	E
		T	100					T	455				
		R	0					R	5				
	EB	L	10	LTR	0.54	14.2	B	L	25	LTR	0.89	25.9	C
		T	880					T	1160				
		R	140					R	380				
	WB	L	35	L	0.33	17.1	B	L	105	L	0.90	70.5	E
		T	1150	TR	0.60	14.9	B	T	565	TR	0.26	10.7	B
		R	160					R	60				
	Overall					25.4	C					34.5	C
	Braddock Ave & 242nd St	NB	L	180	LTR	1.05	86.4	F	L	25	LTR	0.26	16.7
T			20					T	25				
R			60					R	20				
SB		L	25	LTR	0.20	15.7	B	L	25	LTR	0.24	16.1	B
		T	5					T	15				
		R	10					R	10				
EB		L	20	L	0.08	7.4	A	L	40	L	0.27	9.6	A
		T	410	TR	0.38	9.0	A	T	660	TR	0.53	10.5	B
		R	15					R	45				
WB		L	60	L	0.33	12.1	B	L	115	L	0.85	49.8	D
		T	375	TR	0.37	9.1	A	T	315	TR	0.36	9.0	A
		R	35					R	60				
Overall						26.1	C					13.9	B
Jamaica Ave & Francis Lewis Blvd		NB	L	15	LTR	0.84	42.4	D	L	30	LTR	0.53	32.8
	T		840					T	410				
	R		65					R	70				
	SB	L	105	DefL	0.86	64.7	E	L	215	DefL	0.88	66.3	E
		T	480	TR	0.45	22.3	C	T	800	TR	0.71	28.1	C
		R	30					R	25				
	EB	L	30	LTR	0.61	28.8	C	L	30	LTR	0.71	31.4	C
		T	360					T	545				
		R	30					R	70				
	WB	L	85	LTR	1.05	78.0	E	L	80	LTR	1.00	67.8	E
		T	640					T	375				
		R	65					R	45				
	Overall					48.8	D					41.2	D

**Table 4-3: Traffic Capacity Analysis for Signalized Intersections 2012 Existing Conditions**  
**2 of 3**

Intersection	Approach	EXISTING : Weekday AM						EXISTING : Weekday PM					
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS
Jamaica Ave & Hollis Ct Blvd	SB	L	200	L	0.81	59.7	E	L	530	L	0.98	72.4	E
		R	70	LR				R	80	LR	0.26	38.0	D
	EB	L	70	R	0.30	38.9	D	L	55	R			
		T	745	LT	0.81	21.2	C	L	1015	LT	0.73	15.9	B
	WB	T	930	TR	0.80	18.7	B	T	685				
		R	120					T	35	TR	0.49	10.9	B
Overall					25.2	C					30.4	C	
Jamaica Ave & 213th St	NB	L	430	L	1.05	102.2	F	L	270	L	0.97	87.7	F
		T	265	LT	0.68	49.1	D	T	140	LT	0.39	40.3	D
		R	25	R	0.12	35.7	D	R	50	R	0.20	36.9	D
	EB	L	30	LTR	0.35	9.4	A	L	20	LTR	0.36	9.4	A
		T	370					T	540				
		R	5					R	10				
	WB	L	45	LTR	0.55	11.9	B	L	40	LTR	0.44	10.3	B
		T	665					T	465				
		R	50					R	60				
	Overall					35.9	D					26.8	C
Jamaica Ave & Springfield Blvd	NB	L	135	L	0.59	32.8	C	L	145	L	1.05	112.6	F
		T	1015	TR	1.83	409.6	F	T	290	TR	0.94	55.4	E
		R	255					R	195				
	SB	L	70	L	1.05	137.9	F	L	190	L	1.04	107.6	F
		T	280	TR	0.42	22.9	C	T	680	TR	0.64	27.3	C
		R	105					R	120				
	EB	L	70	L	0.84	71.6	E	L	40	L	0.35	27.0	C
		T	525	TR	0.57	25.6	C	T	600	TR	0.52	24.7	C
		R	15					R	35				
	WB	L	80	LTR	1.05	78.1	E	L	110	LTR	1.05	76.0	E
		T	620					T	445				
		R	60					R	70				
Overall					172.8	F					53.7	D	
Jamaica Ave & 222nd St	NB	L	50	LTR	1.05	106.9	F	L	55	LTR	0.57	46.0	D
		T	185					T	40				
		R	70					R	40				
	SB	L	75	LTR	1.05	118.7	F	L	50	LTR	1.04	110.8	F
		T	45					T	125				
		R	25					R	20				
	EB	L	25	LTR	0.60	12.7	B	L	10	LTR	0.62	13.3	B
		T	650					T	745				
		R	55					R	90				
	WB	L	50	LTR	0.54	12.1	B	L	75	LTR	0.63	14.0	B
		T	490					T	435				
		R	25					R	30				
Overall					39.4	D					28.2	C	
Hempstead Ave & 217th St	NB	L	50	LTR	0.36	17.2	B	L	35	LTR	0.28	16.4	B
		T	90					T	65				
		R	0					R	0				
	SB	L	5	LTR	0.17	15.2	B	L	5	LTR	0.33	17.7	B
		T	40					T	80				
		R	5					R	5				
	EB	L	5	LTR	0.44	9.8	A	L	5	LTR	0.79	16.2	B
		T	425					T	830				
		R	30					R	60				
	WB	L	170	LTR	0.91	26.1	C	L	140	LTR	0.63	12.9	B
		T	590					T	450				
		R	5					R	5				
Overall					19.6	B					15.2	B	
Hempstead Ave & Springfield Blvd	NB	L	75	L	0.60	36.4	D	L	85	L	0.62	37.2	D
		T	695	T	0.69	25.4	C	T	335	T	0.36	19.2	B
		R	110	R	0.21	18.0	B	R	65	R	0.14	17.2	B
	SB	L	100	L	0.60	34.1	C	L	150	L	0.92	72.8	E
		T	620	TR	0.85	32.9	C	T	435	TR	0.51	21.5	C
		R	135					R	50				
	EB	L	65	L	0.98	120.4	F	L	70	L	0.66	46.3	D
		T	550	TR	0.61	23.9	C	T	735	TR	0.88	35.0	C
		R	85					R	175				
	WB	L	90	L	1.05	127.1	F	L	90	L	1.05	133.0	F
		T	720	TR	1.05	72.1	E	T	640	TR	1.05	74.3	E
		R	110					R	105				
Overall					44.0	D					45.6	D	
Hempstead Ave & 225th St	NB	L	120	L	0.35	28.9	C	L	5	L	0.02	24.2	C
		R	385	R	1.05	89.9	F	R	160	R	0.48	31.4	C
	EB	T	610	TR	0.83	28.9	C	T	1025	TR	1.05	66.0	E
		R	315					R	470				
	WB	L	205	DefL	0.66	32.5	C	L	250	DefL	0.83	54.9	D
		T	1085	T	0.65	13.3	B	T	940	T	0.56	11.7	B
Overall					32.5	C					42.9	D	

**Table 4-4: Traffic Capacity Analysis for Signalized Intersections 2012 Existing Conditions**  
**3 of 3**

Intersection	Approach	EXISTING : Weekday AM						EXISTING : Weekday PM					
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS
Hollis Ave/ 104th Ave & Springfield Blvd	NB	L	30	L	0.35	28.8	C	L	25	L	0.26	25.6	C
		T	740	TR	1.05	75.3	E	T	370	TR	0.53	26.0	C
		R	35					R	20				
	SB	L	35	L	0.25	24.2	C	L	35	L	0.27	24.5	C
		T	590	TR	1.05	77.1	E	T	530	TR	0.92	44.5	D
		R	170					R	135				
	EB	L	100	LTR	0.79	44.2	D	L	95	LTR	0.70	37.9	D
		T	105					T	145				
		R	25					R	25				
	WB	L	30	LTR	0.94	77.4	E	L	25	LTR	0.65	43.9	D
		T	100					T	95				
		R	40					R	30				
		Overall				70.0	E					37.8	D
	Francis Lewis Blvd & Hollis Ave	NB	L	55	LTR	0.90	29.9	C	L	45	LTR	0.46	13.9
T			690					T	380				
R			55					R	55				
SB		L	30	LTR	0.53	15.1	B	L	60	LTR	0.81	22.4	C
		T	420					T	820				
		R	20					R	35				
EB		L	70	L	0.41	28.7	C	L	45	L	0.22	22.9	C
		T	200	TR	0.33	22.9	C	T	235	TR	0.38	23.4	C
		R	55					R	60				
WB		L	45	L	0.22	23.4	C	L	60	L	0.29	24.5	C
		T	280	TR	0.77	38.5	D	T	215	TR	0.57	29.3	C
		R	35					R	15				
		Overall				26.7	C					21.5	C
Francis Lewis Blvd & Murdock Ave		NB	L	40	LTR	0.73	17.0	B	L	30	LTR	0.37	10.6
	T		680					T	375				
	R		20					R	20				
	SB	L	25	LTR	0.54	13.0	B	L	45	LTR	0.73	16.9	B
		T	470					T	850				
		R	25					R	30				
	EB	L	25	LTR	0.52	28.9	C	L	35	LTR	0.55	29.5	C
		T	200					T	265				
		R	20					R	35				
	WB	L	15	LTR	0.47	27.7	C	L	15	LTR	0.29	25.2	C
		T	230					T	160				
		R	20					R	15				
		Overall				19.2	B					18.7	B



Figure 4- 6: Existing Conditions Intersection LOS – PM Peak Hour

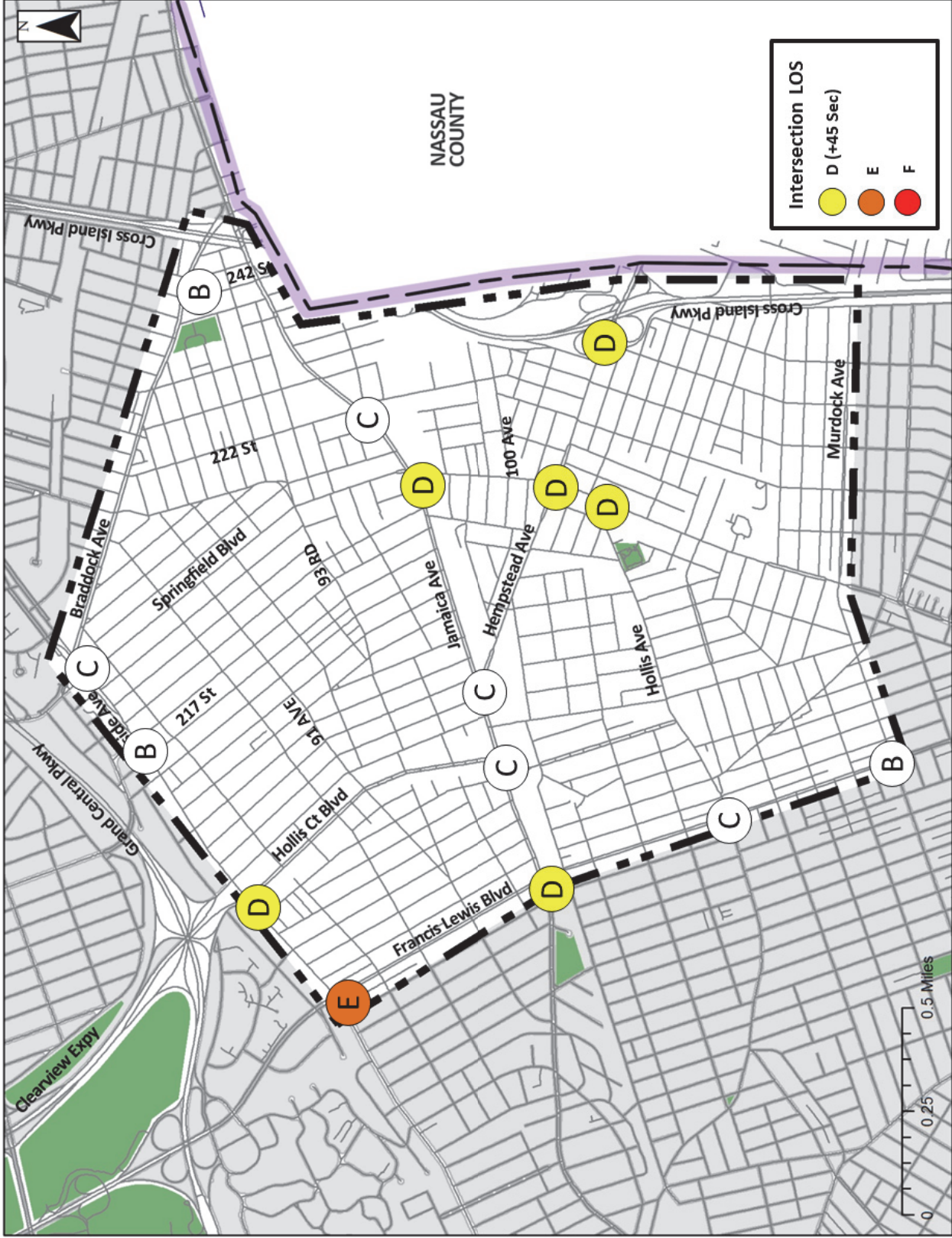






Figure 4-8: Existing Conditions Lane Group with LOS – PM Peak Hour



## 4.6 Vehicular Speeds

Congestion occurs on several corridors and intersections particularly during the peak hours. The conditions are attributed to several factors including conflicts between various users as well as illegal curbside activities and double parking.

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

### **East-West Bound**

1. Hillside Avenue between Francis Lewis Boulevard and Braddock Avenue (EB & WB)
2. Jamaica Avenue between Francis Lewis Boulevard and Cross Island Parkway Service Road (EB & WB)
3. Hempstead Avenue between Jamaica Avenue/213<sup>th</sup> Street and 225<sup>th</sup> Street (EB & WB)

### **North-South Bound**

4. Francis Lewis Boulevard between Hillside Avenue and Murdock Avenue (NB & SB)

The travel time surveys were conducted for each peak period for one weekday concurrently with traffic volume data collection. Three travel speed runs were performed for each link during each peak hour.

Figure 4-9 shows the travel run corridors with the average travel speed for AM and PM peak hours. Table 4-5 and 4-6 summarize the results of the travel speed and delay. The various peak hour travel speeds throughout the study area ranged from 15 mph to 28 mph. Most of the corridors have constant speed except at congested intersections.

Figure 4-9: Existing Conditions Travel Speeds - AM

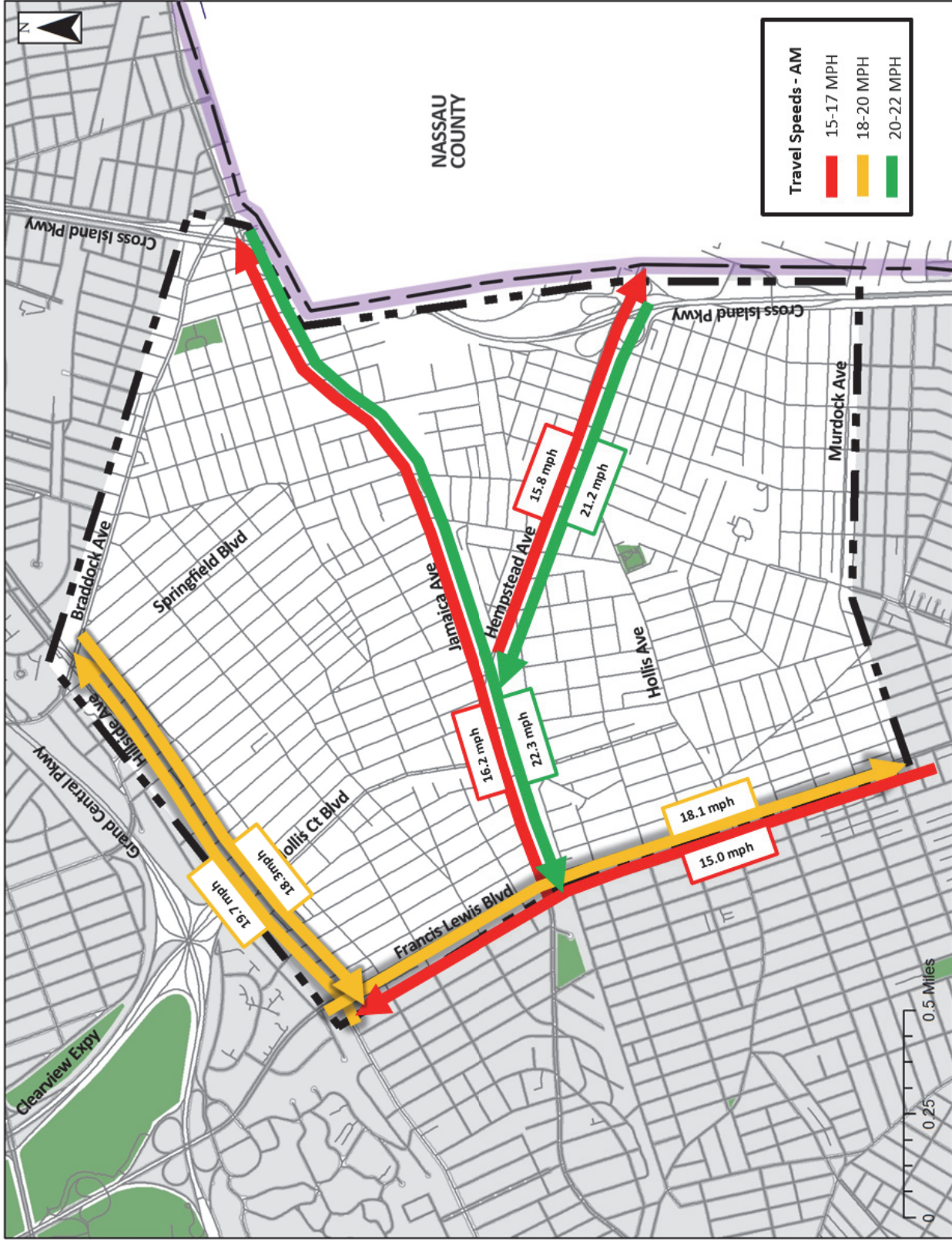
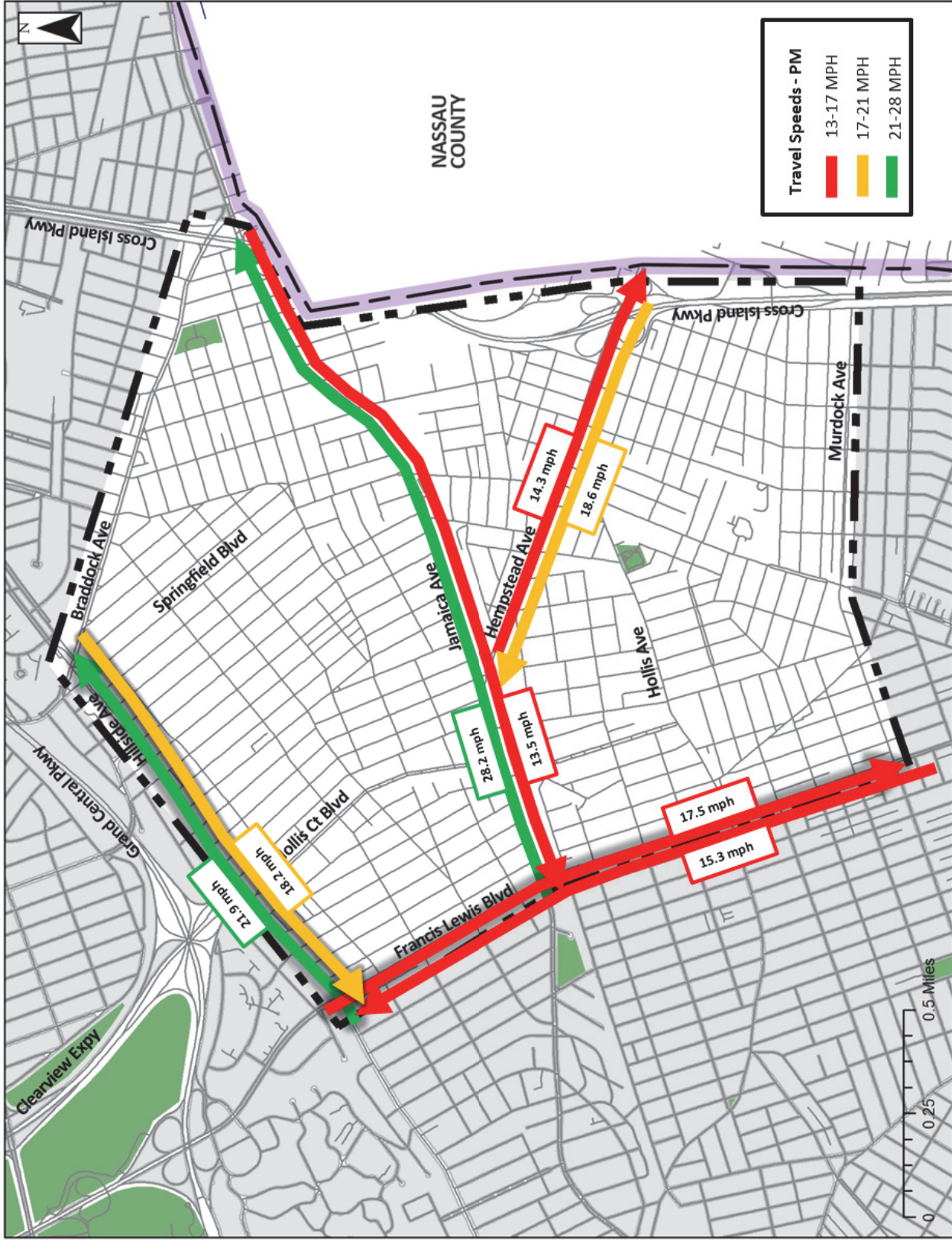
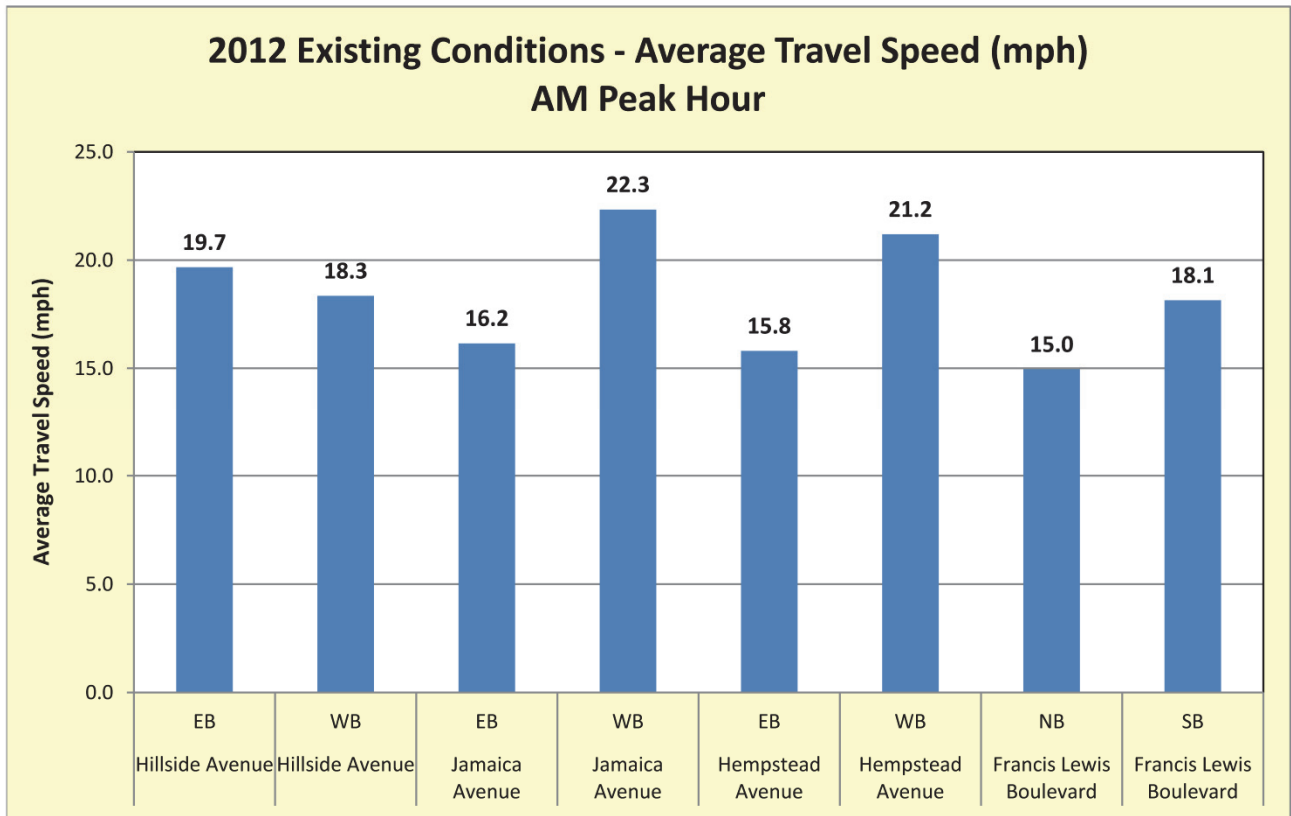


Figure 4-10: Existing Conditions Travel Speeds - PM



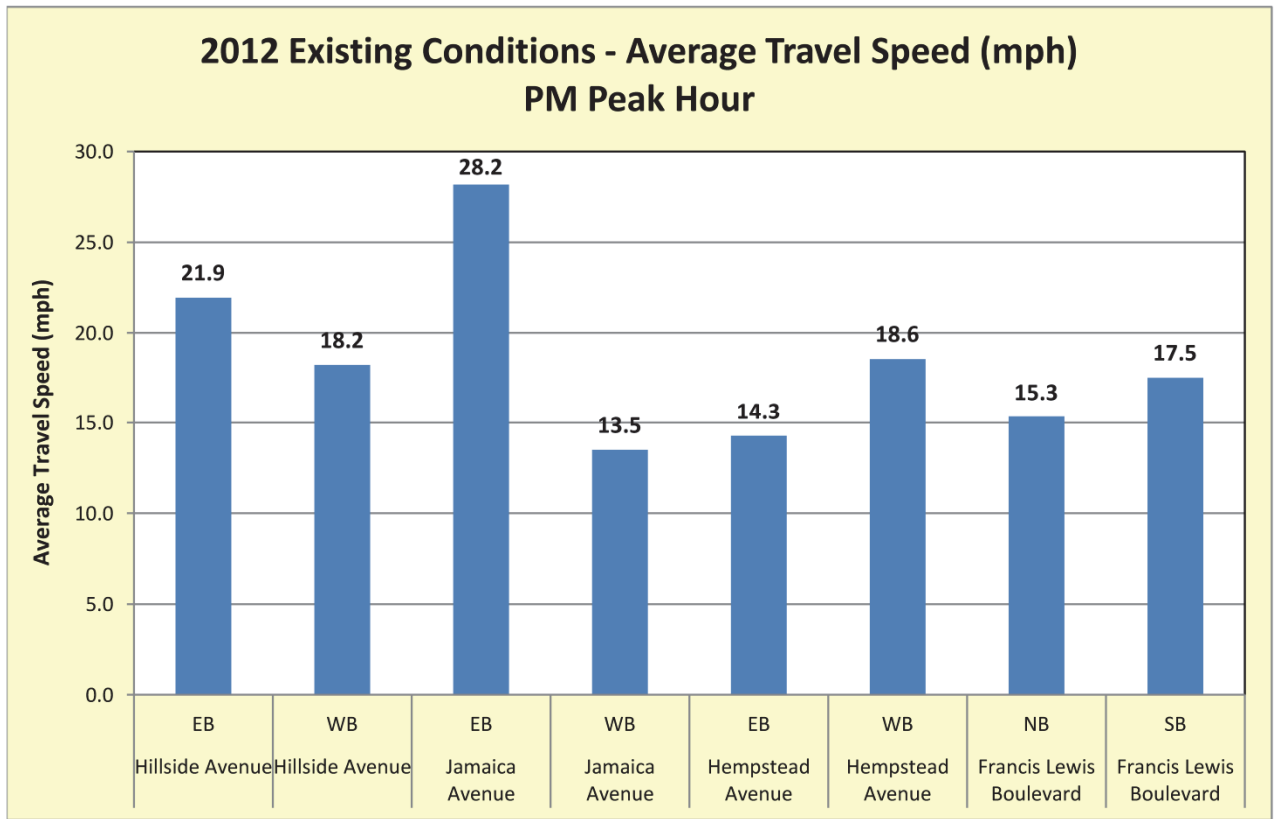
**Table 4-5: Corridor Travel Speeds – AM Peak Period**

Corridor	Direction	Between	Average Travel Time (sec)	Average Travel Speed (mph)
Hillside Avenue	EB	Francis Lewis Boulevard and Braddock Avenue	190	19.7
Hillside Avenue	WB	Francis Lewis Boulevard and Braddock Avenue	201	18.3
Jamaica Avenue	EB	Francis Lewis Boulevard and 244th Street	391	16.2
Jamaica Avenue	WB	Francis Lewis Boulevard and 244th Street	284	22.3
Hempstead Avenue	EB	Jamaica Avenue and 225th Street	197	15.8
Hempstead Avenue	WB	Jamaica Avenue and 225th Street	148	21.2
Francis Lewis Boulevard	NB	Hillside Avenue and Murdock Avenue	352	15.0
Francis Lewis Boulevard	SB	Hillside Avenue and Murdock Avenue	292	18.1



**Table 4-6: Corridor Travel Speeds – PM Peak Period**

Corridor	Direction	Between	Average Travel Time (sec)	Average Travel Speed (mph)
Hillside Avenue	EB	Francis Lewis Boulevard and Braddock Avenue	170	21.9
Hillside Avenue	WB	Francis Lewis Boulevard and Braddock Avenue	203	18.2
Jamaica Avenue	EB	Francis Lewis Boulevard and 244th Street	224	28.2
Jamaica Avenue	WB	Francis Lewis Boulevard and 244th Street	470	13.5
Hempstead Avenue	EB	Jamaica Avenue and 225th Street	219	14.3
Hempstead Avenue	WB	Jamaica Avenue and 225th Street	169	18.6
Francis Lewis Boulevard	NB	Hillside Avenue and Murdock Avenue	343	15.3
Francis Lewis Boulevard	SB	Hillside Avenue and Murdock Avenue	302	17.5



#### **4.9 Future Traffic Conditions**

The HCS analysis was conducted using the projected traffic volumes with known traffic network changes and signal timings. The 2022 Am and PM peak hour traffic volumes were developed by growing the 2012 existing traffic volume by 0.5 percent per year for the first five years and 0.25 percent per year for the next five years (0.38 percent per year over the ten years period). Figures 4-10 and 4-11 show the projected future traffic volumes for the AM and PM peak hours, respectively.

Figure 4-11: 2022 Future Conditions - AM Peak Hour Traffic Volume

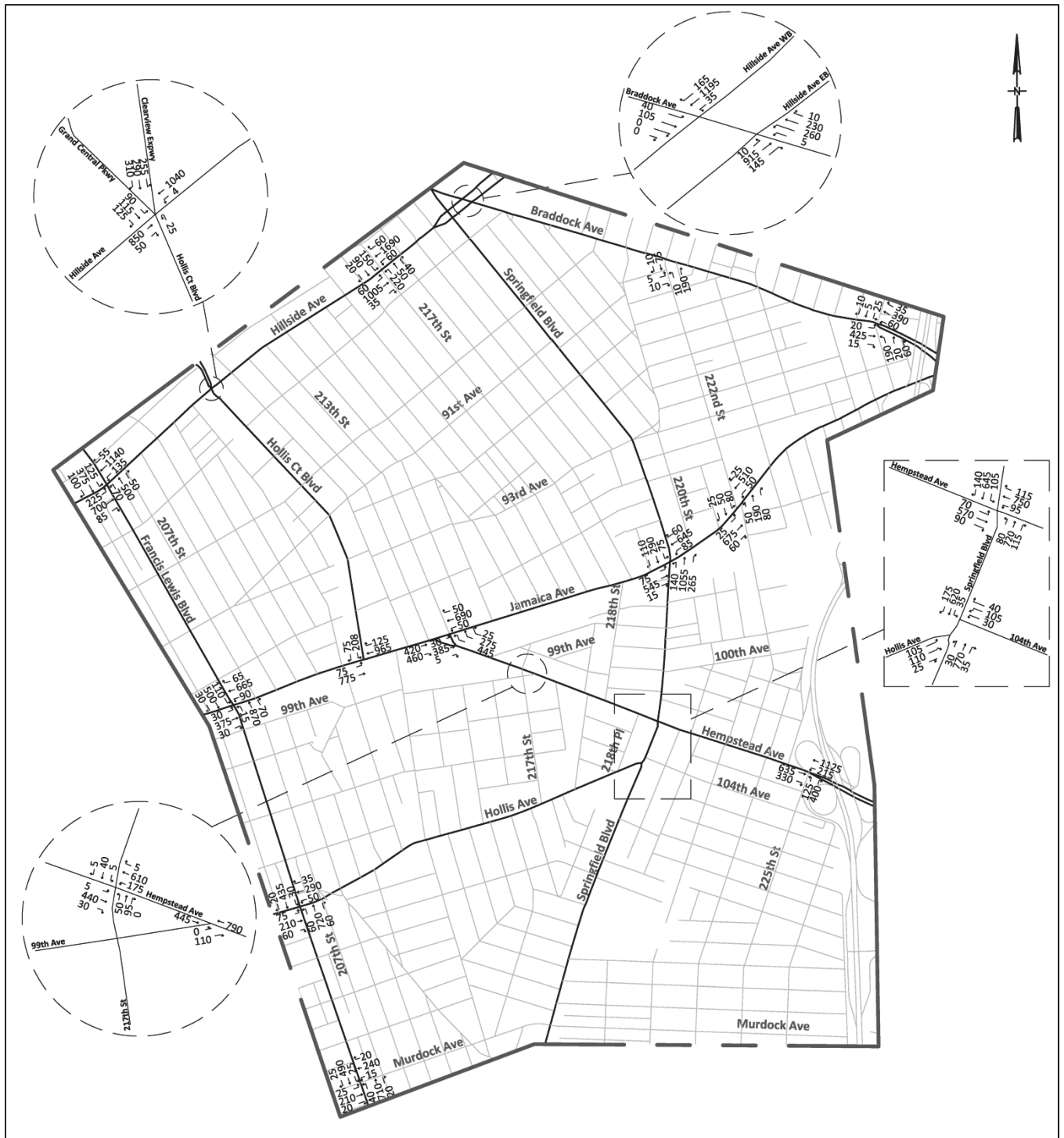
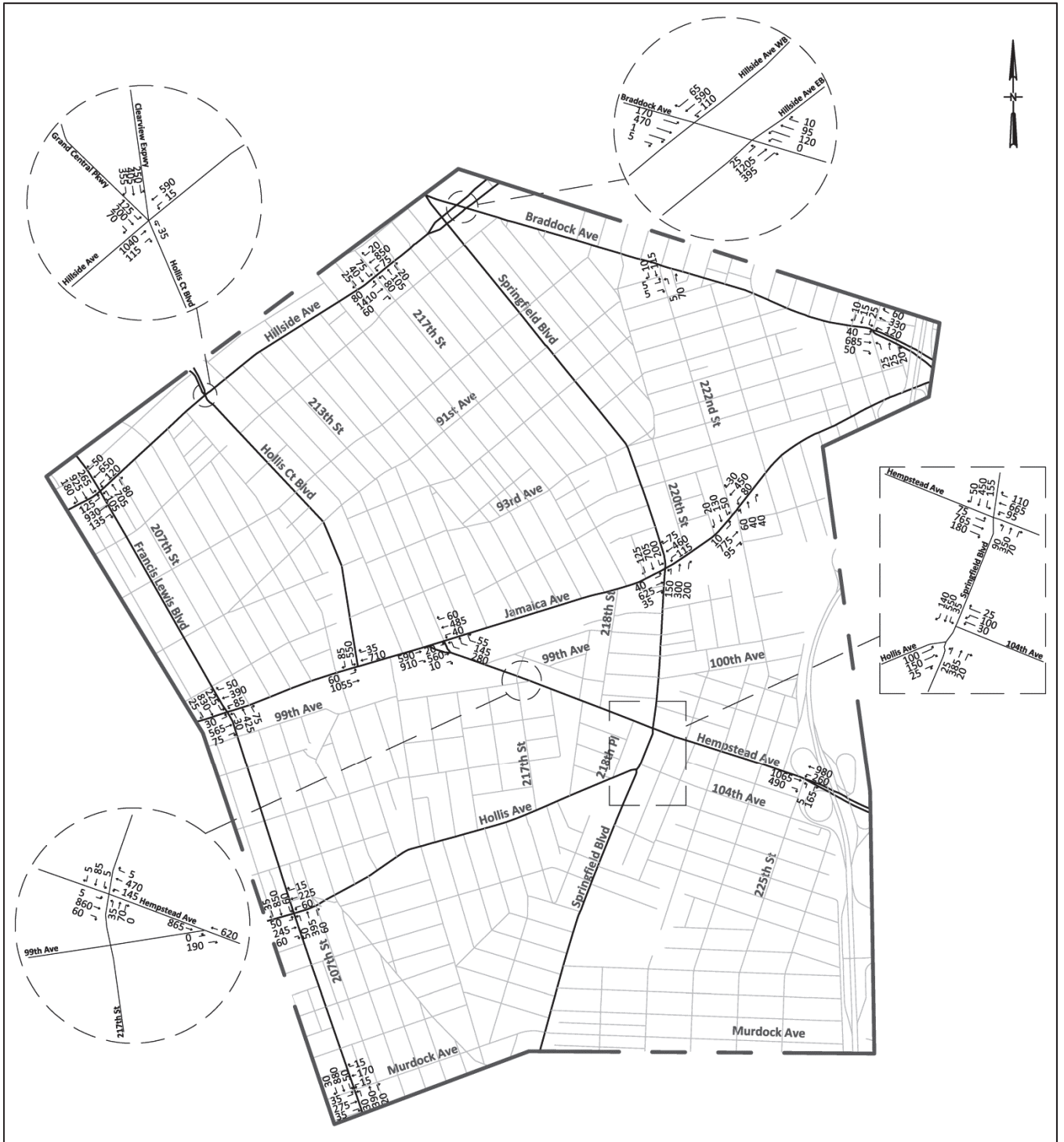




Figure 4-12: 2022 Future Conditions - PM Peak Hour Traffic Volume



**Table 4-7: Traffic Capacity Analysis for Signalized Intersections 2022 Future Conditions**

**1 of 3**

Intersection	Approach	2022 Future : Weekday AM						2022 Future : Weekday PM					
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS
Hillside Ave & Francis Lewis Blvd	NB	L	70	LTR	1.09	103.3	F	L	105	DefL	0.58	57.6	E
		T	500					T	705	TR	1.68	354.9	F
		R	50					R	80				
	SB	L	125	L	0.71	61.2	E	L	265	L	1.06	118.2	F
		T	375	TR	0.72	42.6	D	T	925	TR	1.09	97.5	F
		R	100					R	180				
	EB	L	225	L	1.10	133.6	F	L	125	L	0.59	47.5	D
		T	700	TR	1.03	74.1	E	T	930	TR	1.07	84.8	F
		R	85					R	135				
	WB	L	135	L	0.58	47.5	D	L	120	L	0.71	59.9	E
		T	1140	TR	0.86	40.4	D	T	650	TR	0.81	39.2	D
		R	55					R	50				
	Overall					66.6	E					126.8	F
	Hillside Ave & Hollis Ct Blvd Clearview Expwy Exit	SB	L	255	L	1.08	127.2	F	L	250	L	0.91	80.2
T			290	T	0.98	94.5	F	T	405	T	1.10	121.5	F
R			310	R	1.09	124.4	F	R	355	R	1.09	121.3	F
EB		T	850	TR	0.52	22.4	C	T	1040	TR	0.69	26.2	C
		R	50					R	115				
		L	4	LT	0.66	25.5	C	L	15	LT	0.44	21.1	C
WB		L	4	LT	0.66	25.5	C	L	15	LT	0.44	21.1	C
		T	1040					T	590				
		Overall					51.7	D					54.0
Hillside Ave & Hollis Ct Blvd GCP Exit		SB	L	90	LTR	1.11	128.0	F	L	125	LTR	1.10	122.3
	T		115					T	200				
	R		125					R	70				
	EB	T	850	TR	0.52	22.4	C	T	1040	TR	0.69	26.2	C
		R	50					R	115				
		L	4	LT	0.66	25.5	C	L	15	LT	0.44	21.1	C
	WB	L	4	LT	0.66	25.5	C	L	15	LT	0.44	21.1	C
		T	1040					T	590				
		Overall					40.0	D					41.5
	Hillside Ave & 217th St	NB	L	220	LTR	1.10	125.0	F	L	80	LTR	0.70	52.3
T			50					T	105				
R			40					R	20				
SB		L	150	DefL	0.63	53.7	D	L	75	DefL	0.46	48.8	D
		T	90	TR	0.47	45.8	D	T	40	TR	0.26	41.1	D
		R	20					R	25				
EB		L	60	L	1.04	137.9	F	L	80	L	0.26	8.3	A
		T	1005	TR	0.55	9.8	A	T	1410	TR	0.72	12.9	B
		R	35					R	60				
WB		L	60	L	0.33	10.8	B	L	75	L	0.62	28.4	C
		T	1690	TR	1.07	58.9	E	T	850	TR	0.45	8.7	A
		R	60					R	20				
Overall						51.3	D					17.1	B
Hillside Ave & Braddock Ave		NB	L	265	L	1.09	123.9	F	L	120	L	0.57	44.3
	T		230	TR	0.40	35.1	D	T	95	TR	0.17	31.4	C
	R		10					R	10				
	SB	L	40	LTR	0.30	33.5	C	L	170	LTR	1.02	79.5	E
		T	105					T	470				
		R	0					R	5				
	EB	L	10	LTR	0.56	14.6	B	L	25	LTR	0.93	29.3	C
		T	915					T	1205				
		R	145					R	395				
	WB	L	35	L	0.33	17.1	B	L	110	L	0.95	81.5	F
		T	1195	TR	0.62	15.4	B	T	590	TR	0.27	10.8	B
		R	165					R	65				
	Overall					26.7	C					38.2	D
	Braddock Ave & 242nd St	NB	L	190	LTR	1.09	98.6	F	L	25	LTR	0.26	16.7
T			20					T	25				
R			60					R	20				
SB		L	25	LTR	0.20	15.7	B	L	25	LTR	0.24	16.1	B
		T	5					T	15				
		R	10					R	10				
EB		L	20	L	0.08	7.4	A	L	40	L	0.28	9.8	A
		T	425	TR	0.39	9.1	A	T	685	TR	0.56	10.8	B
		R	15					R	50				
WB		L	60	L	0.34	12.4	B	L	120	L	0.94	70.5	E
		T	390	TR	0.38	9.2	A	T	330	TR	0.38	9.1	A
		R	35					R	60				
Overall						28.9	C					15.9	B
Jamaica Ave & Francis Lewis Blvd		NB	L	15	LTR	0.87	44.6	D	L	30	LTR	0.55	33.3
	T		870					T	425				
	R		70					R	75				
	SB	L	110	DefL	0.91	75.0	E	L	225	DefL	0.95	80.7	F
		T	500	TR	0.47	22.6	C	T	830	TR	0.73	28.9	C
		R	30					R	25				
	EB	L	30	LTR	0.64	29.7	C	L	30	LTR	0.75	32.9	C
		T	375					T	565				
		R	30					R	75				
	WB	L	90	LTR	1.09	91.2	F	L	85	LTR	1.09	95.1	F
		T	665					T	390				
		R	65					R	50				
	Overall					54.3	D					48.9	D

**Table 4-8: Traffic Capacity Analysis for Signalized Intersections 2022 Future Conditions**

**2 of 3**

Intersection	Approach	2022 Future : Weekday AM						2022 Future : Weekday PM					
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS
Jamaica Ave & Hollis Ct Blvd	SB	L	208	L	0.84	63.1	E	L	550	L	1.02	81.6	F
		R	75	LR				R	85	LR	0.28	38.3	D
	EB	L	75	R	0.33	39.4	D	L	60	R			
		T	775	LT	0.88	26.6	C	L	1055	LT	0.77	17.5	B
	WB	T	965	TR	0.83	20.2	C	T	710				
		R	125					T	35	TR	0.50	11.2	B
	Overall					28.3	C					33.6	C
Jamaica Ave & 213th St	NB	L	445	L	1.09	113.3	F	L	280	L	1.01	96.9	F
		T	275	LT	0.71	50.5	D	T	145	LT	0.41	40.7	D
		R	25	R	0.12	35.7	D	R	55	R	0.22	37.3	D
	EB	L	30	LTR	0.37	9.6	A	L	20	LTR	0.38	9.5	A
		T	385					T	560				
		R	5					R	10				
	WB	L	50	LTR	0.58	12.4	B	L	40	LTR	0.45	10.5	B
T		690					T	485					
Overall					38.6	D					28.6	C	
Jamaica Ave & Springfield Blvd	NB	L	140	L	0.63	35.0	C	L	150	L	1.08	122.3	F
		T	1055	TR	1.90	441.7	F	T	300	TR	0.96	61.0	E
		R	265					R	200				
	SB	L	75	L	1.12	160.2	F	L	200	L	1.10	125.8	F
		T	290	TR	0.44	23.2	C	T	705	TR	0.67	28.0	C
	EB	L	110					R	125				
		L	75	L	0.97	102.5	F	L	40	L	0.37	28.4	C
	WB	T	545	TR	0.59	26.1	C	T	625	TR	0.55	25.2	C
		R	15					R	35				
		L	85	LTR	1.09	92.2	F	L	115	LTR	1.09	90.2	F
Overall					188.9	F					60.3	E	
Jamaica Ave & 222nd St	NB	L	50	LTR	1.11	124.0	F	L	60	LTR	0.59	46.8	D
		T	190					T	40				
		R	80					R	40				
	SB	L	80	LTR	1.12	142.0	F	L	50	LTR	1.06	118.9	F
		T	50					T	130				
	EB	L	25	LTR	0.62	13.3	B	R	20				
		T	675					L	10	LTR	0.65	13.9	B
	WB	R	60					T	775				
		L	50	LTR	0.57	12.6	B	R	95				
		T	510					L	80	LTR	0.67	15.3	B
Overall					45.5	D					29.7	C	
Hempstead Ave & 217th St	NB	L	50	LTR	0.37	17.4	B	L	35	LTR	0.25	15.9	B
		T	95					T	70				
		R	0					R	0				
	SB	L	5	LTR	0.17	15.2	B	L	5	LTR	0.30	16.9	B
		T	40					T	85				
	EB	R	5					R	5				
		L	5	LTR	0.45	10.0	A	L	5	LTR	0.81	17.2	B
	WB	T	440					T	860				
		R	30					R	60				
		L	175	LTR	0.94	29.8	C	L	145	LTR	0.66	13.5	B
Overall					21.7	C					15.9	B	
Hempstead Ave & Springfield Blvd	NB	L	80	L	0.64	39.2	D	L	90	L	0.66	40.0	D
		T	720	T	0.72	26.2	C	T	350	T	0.38	19.4	B
		R	115	R	0.22	18.1	B	R	70	R	0.15	17.3	B
	SB	L	105	L	0.63	36.2	D	L	155	L	0.95	80.1	F
		T	645	TR	0.89	36.5	D	T	450	TR	0.52	21.8	C
	EB	R	140					R	50				
		L	70	L	1.05	142.0	F	L	75	L	0.75	59.7	E
	WB	T	570	TR	0.63	24.5	C	T	765	TR	0.91	38.4	D
		R	90					R	180				
		L	95	L	1.11	147.4	F	L	95	L	1.11	152.3	F
Overall					50.4	D					51.7	D	
Hempstead Ave & 225th St	NB	L	125	L	0.37	29.1	C	L	5	L	0.02	24.2	C
		R	400	R	1.09	102.5	F	R	165	R	0.50	31.8	C
	EB	T	635	TR	0.87	32.0	C	T	1065	TR	1.11	85.4	F
		R	330					R	490				
	WB	L	215	DefL	0.72	36.9	D	L	260	DefL	0.87	59.6	E
		T	1125	T	0.68	13.8	B	T	980	T	0.59	12.1	B
	Overall					36.0	D					52.8	D

**Table 4-9: Traffic Capacity Analysis for Signalized Intersections 2022 Future Conditions**  
**3 of 3**

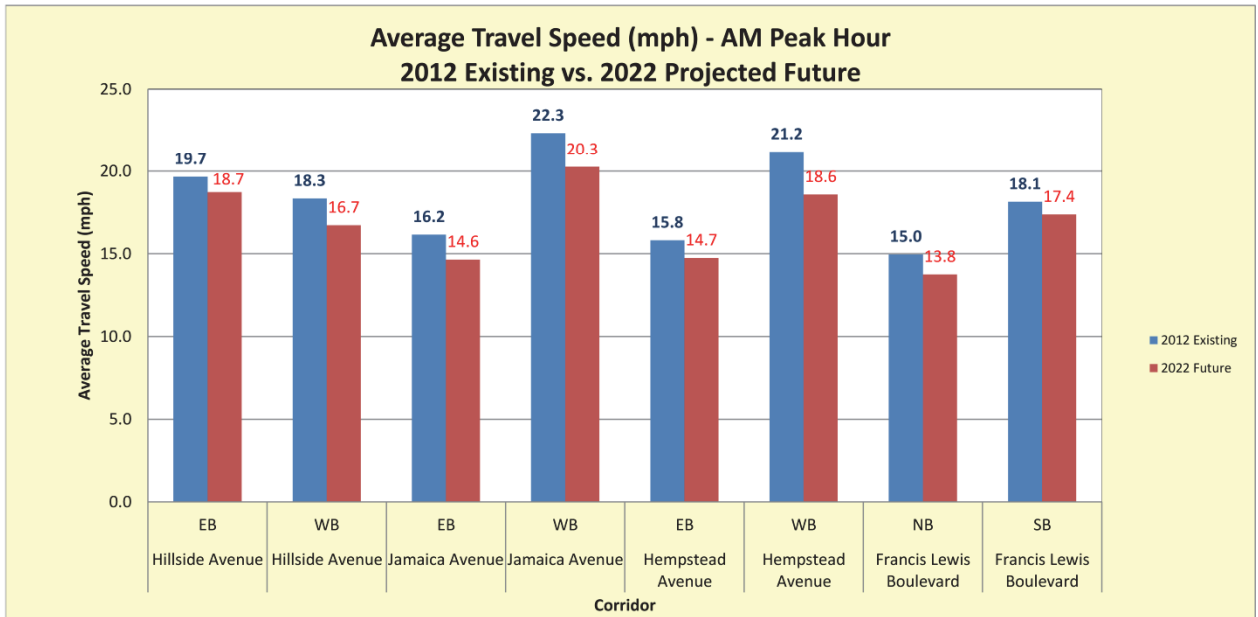
Intersection	Approach	2022 Future : Weekday AM						2022 Future : Weekday PM						
		Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	Movement	Volume	Lane Group	V/C Ratio	Avg Delay	LOS	
Hollis Ave/ 104th Ave & Springfield Blvd	NB	L	30	L	0.35	28.8	C	L	25	L	0.26	25.6	C	
		T	770	TR	1.10	89.4	F	T	385	TR	0.55	26.4	C	
		R	35					R	20					
	SB	L	35	L	0.25	24.2	C	L	35	L	0.27	24.5	C	
		T	620	TR	1.10	93.9	F	T	550	TR	0.95	49.5	D	
	EB	R	175					R	140					
		L	105	LTR	0.82	46.9	D	L	100	LTR	0.72	39.1	D	
	WB	T	110					T	150					
		R	25					R	25					
		L	30	LTR	0.96	81.6	F	L	30	LTR	0.67	44.9	D	
	Overall	T	105					T	100					
		R	40					R	25					
							82.0	F						
							40.4	D						
Francis Lewis Blvd & Hollis Ave	NB	L	60	LTR	0.96	38.3	D	L	50	LTR	0.50	14.6	B	
		T	720					T	395					
		R	60					R	60					
	SB	L	30	LTR	0.55	15.6	B	L	60	LTR	0.83	23.9	C	
		T	435					T	850					
	EB	R	20					R	35					
		L	75	L	0.45	30.3	C	L	50	L	0.26	23.7	C	
	WB	T	210	TR	0.35	23.1	C	T	245	TR	0.39	23.6	C	
		R	60					R	60					
		L	50	L	0.26	24.2	C	L	60	L	0.30	24.7	C	
	Overall	T	290	TR	0.79	40.1	D	T	225	TR	0.60	30.0	C	
		R	35					R	15					
							31.0	C						
							22.4	C						
Francis Lewis Blvd & Murdock Ave	NB	L	40	LTR	0.76	17.9	B	L	30	LTR	0.39	10.7	B	
		T	710					T	390					
		R	20					R	20					
	SB	L	25	LTR	0.56	13.3	B	L	50	LTR	0.77	18.2	B	
		T	490					T	880					
	EB	R	25					R	30					
		L	25	LTR	0.54	29.3	C	L	35	LTR	0.57	29.8	C	
	WB	T	210					T	275					
		R	20					R	35					
		L	15	LTR	0.48	28.0	C	L	15	LTR	0.31	25.3	C	
	Overall	T	240					T	170					
		R	20					R	15					
							19.8	B						
							19.4	B						

## 4.7 Future Speeds

The future delays and travel speed along the major corridors within the study area were calculated for the weekday AM and PM peak hours. Several factors may continue to cause speed reduction including potential vehicular and pedestrian conflicts, traffic controls, loading/unloading activities, queuing, restaurant parking activities (in and out), illegal curbside parking and standing, and roadway geometries, etc. The estimated number of vehicular trips from the base growth rate of 0.38 percent per year is relatively small. Therefore, the future travel speed will principally remain the same or worsen slightly along major corridors analyzed in the study area. Tables 4-10 and 4-11 compares the average travel speeds for the corridors analyzed between the existing and projected future conditions.

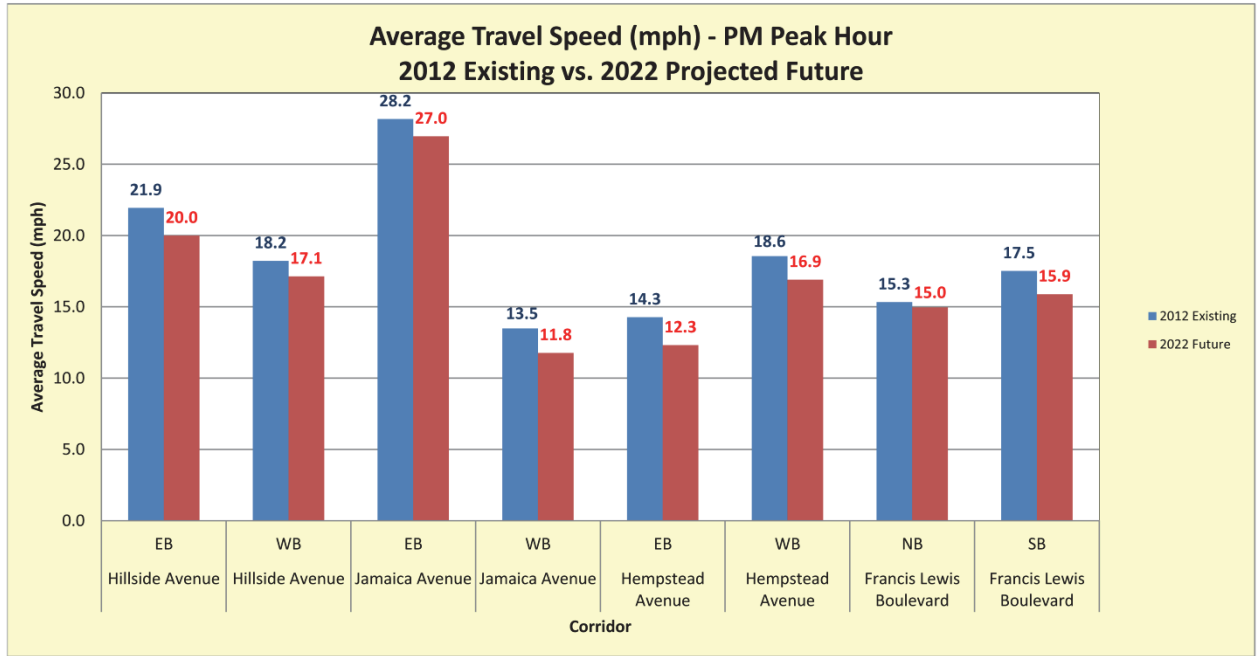
**Table 4-10: Existing and Future Average Speeds – AM Peak Period**

Corridor	Direction	Between	Average Travel Time (sec)		Average Travel Speed (mph)	
			2012 Existing	2022 Projected Future	2012 Existing	2022 Projected Future
Hillside Avenue	EB	Francis Lewis Boulevard and Braddock Avenue	190	199	19.7	18.7
Hillside Avenue	WB	Francis Lewis Boulevard and Braddock Avenue	201	221	18.3	16.7
Jamaica Avenue	EB	Francis Lewis Boulevard and 244th Street	391	431	16.2	14.6
Jamaica Avenue	WB	Francis Lewis Boulevard and 244th Street	284	313	22.3	20.3
Hempstead Avenue	EB	Jamaica Avenue and 225th Street	197	212	15.8	14.7
Hempstead Avenue	WB	Jamaica Avenue and 225th Street	148	168	21.2	18.6
Francis Lewis Boulevard	NB	Hillside Avenue and Murdock Avenue	352	383	15.0	13.8
Francis Lewis Boulevard	SB	Hillside Avenue and Murdock Avenue	292	305	18.1	17.4



**Table 4-11: Existing and Future Average Speeds – PM Peak Period**

Corridor	Direction	Between	Average Travel Time (sec)		Average Travel Speed (mph)	
			2012 Existing	2022 Projected Future	2012 Existing	2022 Projected Future
Hillside Avenue	EB	Francis Lewis Boulevard and Braddock Avenue	170	187	21.9	20.0
Hillside Avenue	WB	Francis Lewis Boulevard and Braddock Avenue	203	215	18.2	17.1
Jamaica Avenue	EB	Francis Lewis Boulevard and 244th Street	224	234	28.2	27.0
Jamaica Avenue	WB	Francis Lewis Boulevard and 244th Street	470	538	13.5	11.8
Hempstead Avenue	EB	Jamaica Avenue and 225th Street	219	253	14.3	12.3
Hempstead Avenue	WB	Jamaica Avenue and 225th Street	169	185	18.6	16.9
Francis Lewis Boulevard	NB	Hillside Avenue and Murdock Avenue	343	352	15.3	15.0
Francis Lewis Boulevard	SB	Hillside Avenue and Murdock Avenue	302	333	17.5	15.9



## 5 PUBLIC TRANSPORTATION

### 5.1 Introduction

Nine MTA local bus (Q1, Q2, Q27, Q36, Q43, Q77, Q83, Q88, Q110), an express bus (X68), and five Nassau Inter-County Express (NICE) bus (N1, N6, N22, N24, N26) lines serve the study area. There is no subway service, but there is a LIRR Hempstead branch-Queens Village station. Figure 5-1 shows the transit service in the study area. Bus routes exist on every major corridor (Hillside Avenue, Jamaica Avenue, and Hempstead Avenue, Francis Lewis and Springfield Boulevards) in the study area.

### 5.2 Buses

The service frequency varies greatly based on demand. Table 5-1 provides route headway information. A description of the buses serving the study area follows:

**Q1:** The Q1 bus has two service patterns. Some buses operate between 165<sup>th</sup> Street Bus Terminal (Jamaica) and Braddock Avenue/243 Street (Bellerose); other Q1 buses operate between 165<sup>th</sup> Street Bus Terminal (Jamaica) and Springfield Boulevard/Jamaica Avenue (Queens Village). In the study area, the major transfer points are Jamaica Avenue/Springfield Boulevard (access to LIRR train and Q36, Q88, and N24 buses) and Hillside Avenue/Springfield Boulevard (access to Q27, Q43, Q88, N22, and N26 buses).

**Q2:** The Q2 bus provides service between 165<sup>th</sup> Street Bus Terminal (Jamaica) and Hempstead Ave/225<sup>th</sup> Street (Belmont Park) daily from 12:00AM to 11:59PM. Within the study area, the Q2 bus operates along Hillside Avenue, Hollis Avenue, and Hempstead Avenue. The major transfer point in the study area is Hollis Avenue/Springfield Boulevard (access to the Q27, Q110, N1, N6 buses).

**Q27:** The Q27 bus provides service between Roosevelt Avenue/Main Street (Flushing) and Springfield Blvd/120 Avenue (Cambria Heights). Within the study area, it operates along Springfield Blvd and the major transfer point is Jamaica Avenue/Springfield Boulevard (access

to the LIRR and Q1, Q36, Q83, Q88, and N24 buses). The Q27 Limited operates only during weekday rush hours.

**Q36:** The Q36 bus provides service 165<sup>th</sup> Street Bus Terminal (Jamaica) and Jamaica Avenue/257<sup>th</sup> Street (Floral Park) daily from 12:00AM to 11:59PM. Within the study area, the Q36 bus operates along Jamaica Avenue. On school days, additional service is provided from 213<sup>th</sup> Street/92<sup>nd</sup> Avenue to Jamaica Avenue/165<sup>th</sup> Street at 2:30 and 3:06PM. Some rush hour service operates between Jamaica Avenue/257<sup>th</sup> Street and 179 Street (F Train). The major transfer point is Jamaica Avenue/Springfield Boulevard intersection (access to the LIRR and Q1, Q27, Q83, Q88, and N24 buses).

**Q43:** The Q43 bus provides service between Sutphin Boulevard/Archer Avenue (Jamaica Center) and Hillside Avenue/268<sup>th</sup> Street (Floral Park) daily from 12:00AM to 11:59PM. Within the study area, the Q43 bus operates along Hillside Avenue and the major transfer points are Hillside Avenue/Francis Lewis Boulevard (access to Q76, Q77, N1, N6, and N24 buses) and Hillside Avenue/Springfield Boulevard (access to Q1, Q27, and Q88 buses). The Q43 Limited provides service only during weekday rush hours.

**Q77:** The Q77 bus provides service between Merrick Boulevard/165 Street Bus Terminal (Jamaica) and Springfield Boulevard/145<sup>th</sup> Road (Laurelton) weekdays and Saturdays from 6:15AM to 9:30PM. Within the study area, the Q77 bus operates along Francis Lewis Boulevard; the major transfer points are Hillside Avenue/Francis Lewis Boulevard (access to the Q1, Q36, and Q43) and Jamaica Avenue/Francis Lewis Boulevard (access to the Q110, N1, N6, and N24 buses).

**Q83:** The Q83 bus provides service between 153<sup>rd</sup> Street/Hillside Avenue (Jamaica) and 113 Drive/227<sup>th</sup> Street (Cambria Heights) daily from 12:00AM to 11:59PM. Within the study area, the Q83 bus operates along Murdock Ave and Springfield Blvd; its Limited Stop service runs only during weekday rush hours.



**Q88:** The Q88 bus provides service between Woodhaven Boulevard/92<sup>nd</sup> Street (Elmhurst) and Springfield Boulevard/Jamaica Avenue (Queens Village); it operates daily between 5:35AM to 11:35PM. Within the study area, it operates along Springfield Boulevard.

**Q110:** The Q110 bus provides service between Hempstead Avenue/225<sup>th</sup> Street (Belmont Park) and Parsons Boulevard/88 Avenue (Jamaica). Within the study area, it operates along Jamaica Avenue and Hempstead Avenue. The Limited Stop service runs only during weekday rush hours.

**X68:** The X68 express bus provides service between 268<sup>th</sup> Street/Hillside Avenue (Floral Park) and East 23<sup>rd</sup> Street/First Avenue (Manhattan) from 6:40AM to 9:00AM weekdays. Within the study area, it operates along Hillside Avenue; the major transfer point in the study area is Hillside Avenue/Springfield Boulevard (access to the Q1, Q27, and Q88 buses).

**NICE Bus:**

**N1:** The N1 bus provides service between 165<sup>th</sup> Street Bus Terminal (Jamaica) and Broadway/Rockaway Avenue (Hewlett) between 4:05 and 7:35PM. Within the study area, the N1 bus operates along Francis Lewis Boulevard, Jamaica Avenue, and Hempstead Avenue. The Hillside Avenue/Francis Lewis Boulevard intersection is the major transfer point in the study area (access to the Q76, Q77, N2, N3, N6, N22, and N24 buses).

**N6:** The N6 bus provides service between Transit Center (Hempstead) and 165<sup>th</sup> Street Bus Terminal (Jamaica) between 12:30AM and 11:35PM. Within the study area, the N6 bus operates along Francis Lewis Boulevard, Jamaica Avenue, and Hempstead Avenue. The Hillside Avenue/Francis Lewis Boulevard intersection is a major transfer point (access to the Q76, Q77, N1, N3, N6, N22, and N24 buses). The N6 Limited Stop service runs only during weekday rush hours.

**N22:** The N22 bus provides service between Hicksville LIRR Station and 165<sup>th</sup> Street Bus Terminal between at 5:00AM and 11:35PM. Within the study area, it operates along Hillside Avenue. The Hillside Avenue/Francis Lewis Boulevard intersection is a major transfer point

(access to Q76, Q77, N1, N3, N6, N22, and N24 buses). The N22A and N22L Limited Stop service runs only during weekday rush hours.

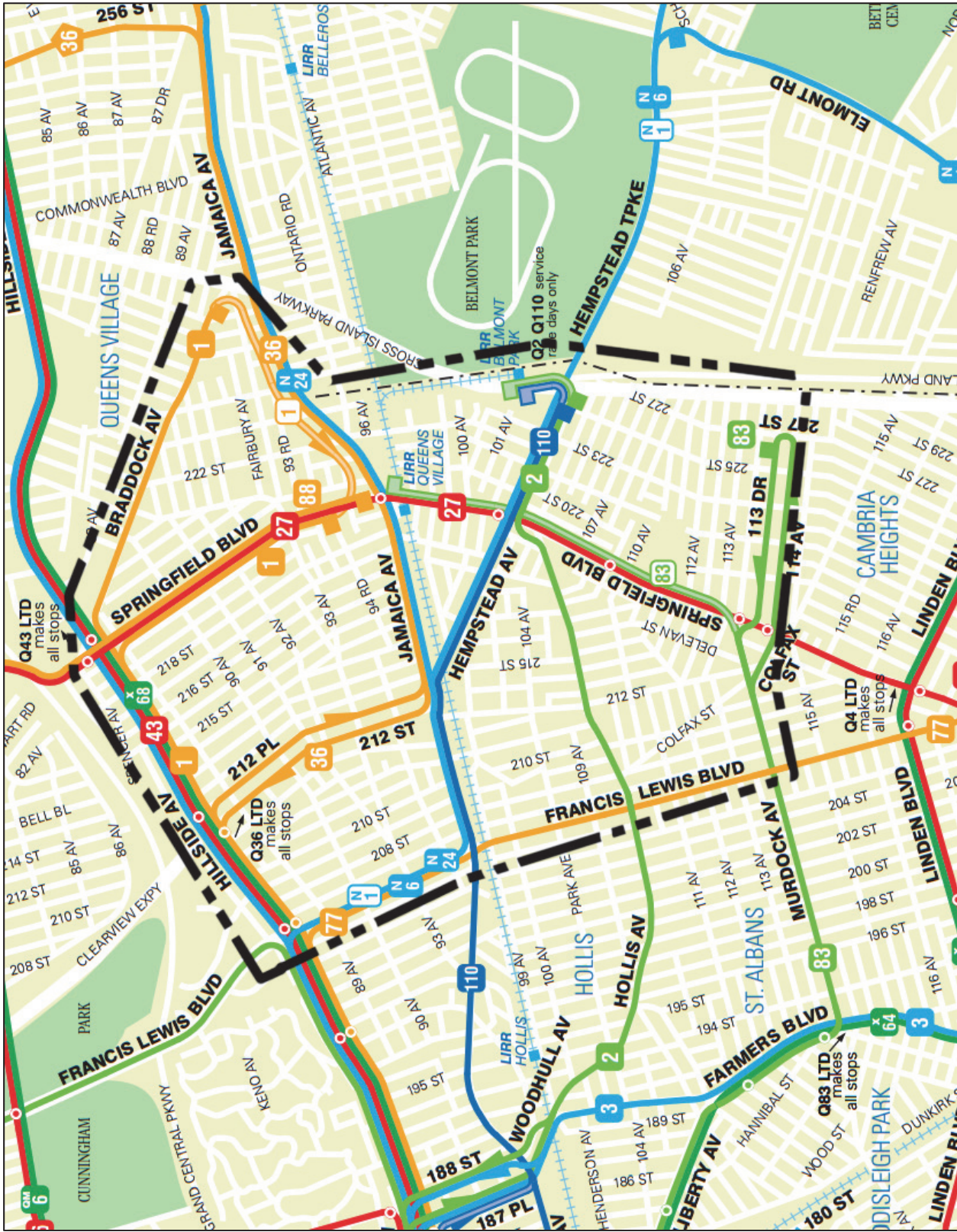
**Table 5-1: Average Frequency of NYCT and NICE Bus Service Bus (in minutes)**

Route	Weekday					Saturday					Sunday				
	AM	Noon	PM	Eve	Night	AM	Noon	PM	Eve	Night	AM	Noon	PM	Eve	Night
Q1	20	30	15	20	60	15	15	13	15	60	20	20	15	17	60
Q2	12	12	7	10	60	17	13	12	13	60	30	20	15	15	60
Q27	3	7	4	4	60	6	7	6	6	60	8	7	8	8	60
Q27(Ltd)	8	-	11	9	-	-	-	-	-	-	-	-	-	-	-
Q36	9	17	9	12	60	15	13	14	20	60	30	17	15	20	60
Q36(Ltd)	10	-	10	-	-	-	-	-	-	-	-	-	-	-	-
Q43	4	8	5	7	48	11	10	11	12	48	13	15	14	13	48
Q43(Ltd)	4	-	7	10	-	-	-	-	-	-	-	-	-	-	-
Q68															
Q77	7	17	10	13	-	30	20	20	24	-	-	-	-	-	-
Q83	8	11	10	9	48	12	10	10	10	48	15	15	12	12	48
Q83(Ltd)	6	-	8	24	-	-	-	-	-	-	-	-	-	-	-
Q88	3.5	11	6	15	-	15	9	11	13	-	60	15	15	17	-
Q110	7	10	8	12	60	17	10	12	15	60	30	15	17	20	60
N1	30	30	20	40	-	30	30	30	60	-	-	45	45	60	-
N6	10	12	10	12	30	15	12	13	17	30	20	15	15	24	30
N6 (Ltd)	10	-	-	10	-	-	-	-	-	-	-	-	-	-	-
N22, N22A	10	30	10	18	-	20	30	30	30	-	30	30	30	30	-
N24	15	30	15	30	-	30	30	30	40	-	60	60	60	60	-
N26	30	-	-	40	-	-	-	-	-	-	-	-	-	-	-

**Notes:** Time Periods: AM= 7-9 AM, Noon= 11 AM-1 PM, PM= 4-7 PM, Eve= 7-9 PM and Night= Midnight - 4 AM  
“-“ = no service during time period  
Headway in minutes

**N24:** The N24 bus provides service between 165<sup>th</sup> Street Bus Terminal and Hicksville LIRR station. Within the study area, the N24 bus operates along Hillside Avenue, Francis Lewis Boulevard and Jamaica Avenue. The Hillside Avenue/Francis Lewis Boulevard intersection is a major transfer point (access to the Q76, Q77, N1, N3, N6, and N22 buses).

Figure 5-1: Public Transportation



**N26:** The N26 bus provides service between 165<sup>th</sup> Street Bus Terminal and Great Neck LIRR Station between 7:00AM and 9:00AM towards Great Neck and between 4:00PM and 6:00PM towards Jamaica (165<sup>th</sup> Street Bus Terminal) on weekdays only. In the study area, it operates along Hillside Avenue.

### 5.3 2012 Bus Ridership

Bus ridership includes all passengers who board buses using a valid payment method; it does not include employees or non-revenue passengers such as children. Average weekday and weekend ridership does not include major holidays. Ridership on major holidays (New Year’s Day, Presidents’ Day, etc.) is included only in the annual total.

Bus ridership within the study area is shown in the Table 5-2 and Figures 5-2a, b, and c.

**Table 5-2: 2012 Bus Ridership**

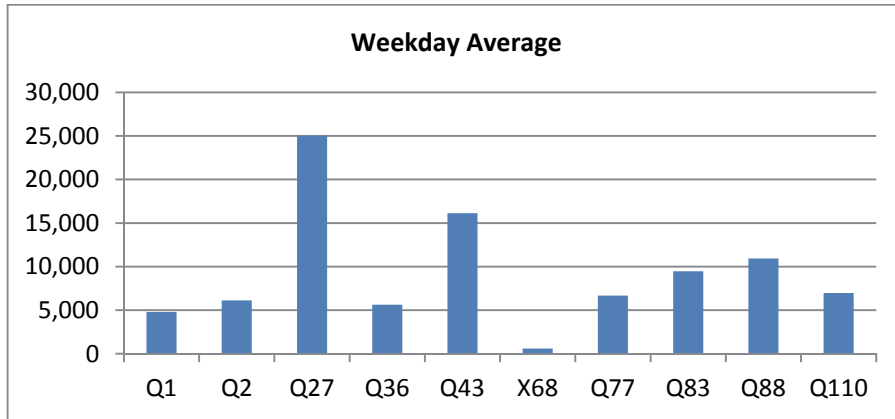
<b>Bus Route</b>	<b>*Rank</b>	<b>Annual Total</b>	<b>Weekday Average</b>	<b>Weekend Average</b>
Q1	133	1,480,099	4,799	5,105
Q2	121	1,880,405	6,117	6,446
Q27	19	7,534,745	25,033	23,509
Q36	126	1,721,216	5,620	5,818
Q43	43	4,802,253	16,129	14,188
X68	22	150,595	605	-
Q77	123	1,786,421	6,682	2,294
Q83	98	2,864,916	9,461	9,152
Q88	84	3,210,811	10,942	8,839
Q110	22	2,089,207	6,965	6,395

\*Ranking out of 190 Local bus lines and 29 Express routes (NYCT Bus).

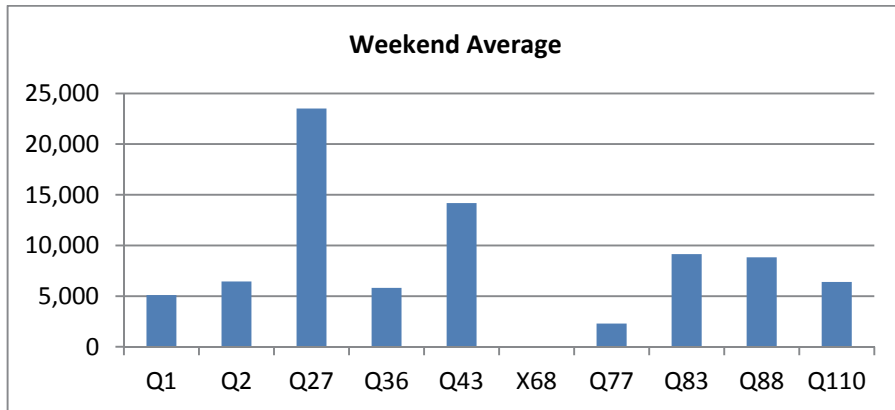
\*Ranking out of 45 Local bus line (MTA Bus)

Source: MTA

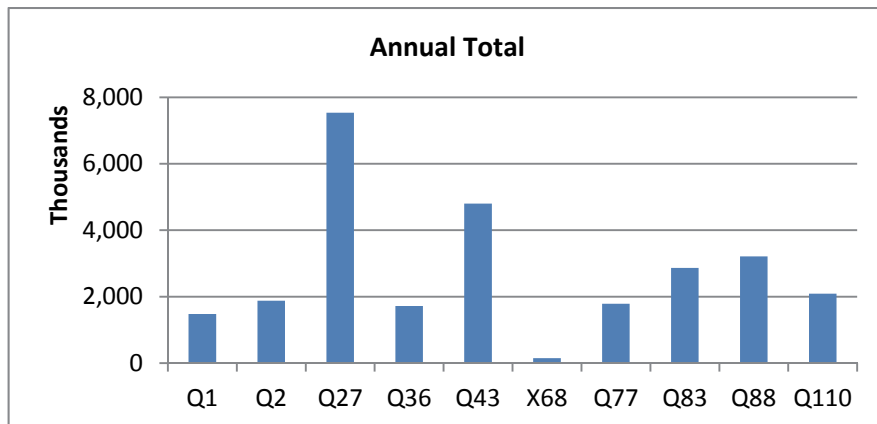
**Figure 5-2a: Weekday Bus Ridership**



**Figure 5-2b: Week end Bus Ridership**



**Figure 5-2c: Annual Bus Ridership**



#### **5.4 Long Island Rail Road**

The Long Island Rail Road (LIRR) Hempstead Branch-Queens Village station in the study area provides rail service between Jamaica and Hempstead. It is located at Jamaica Avenue and Springfield Boulevard (access to the Q1, Q27, Q36, Q88, and N24 buses).

## **6 PARKING**

### **6.1 Introduction**

The parking analysis focused on both on-street and off-street facilities on the major corridors during the weekday peak hours (7:30-8:30AM and 5:00-6:00PM) to determine parking demand. The existing on-street and off-street parking supply and utilization were documented through a combination of field observations and interviews.

On-street parking is generally permitted on all streets in the study area except where prohibited by parking regulations to facilitate street cleaning or traffic operations. Off-street parking facilities are generally associated with large multi-unit dwellings, commercial/retail, entertainment, and office activities.

### **6.2 On-Street Parking**

The on-street parking survey focused on major corridors where commercial activities are concentrated. The inventory includes on-street parking spaces and regulations. The regulations range from alternate side parking, metered parking, and time restricted parking, and authorized vehicles parking zones. Figure 6-1 maps the parking regulations codes which are explained in Table 6-1.

#### **On-Street Utilization/Demand**

The parking survey documented the existing parking spaces, utilization (number of parked vehicles), and parking regulations on each blockface along the major corridors during the AM and PM peak hours. Parking capacity is a function of parking regulations and thus varies by time of the day. There are approximately 1,790 on-street parking spaces in the study area; however, 1,713 are available during the AM peak hour and 1,696 spaces are available during the PM peak hour. Average parking utilization in the study area is 51% during the AM and 53% during the PM. Table 6-2 provides parking capacity and utilization by corridor.

**Table 6-1: On-Street Parking Regulations**

No.	Regulation	Time	Day
1	1/2 Hour Parking	7:00a - 4:00p	Mon-Fri
2	1 Hour Parking	8:00a - 7:00p	Except Sunday
3	1 Hour Parking	8:30a - 7:00p	Except Sunday
4	1 Hour Parking	8:30a - 4:00p	Except Sunday
5	1 Hour Parking	9:00a - 7:00p	Except Sunday
6	1 Hour Parking	9:00a - 4:00p	Except Sunday
7	2 Hour Parking	8:00a - 7:00p	Except Sunday
8	2 Hour Parking	8:30a - 7:00p	Except Sunday
9	2 Hour Parking	9:00a-7:00p	Except Sunday
10	2 Hour Parking	9:00a-4:00p	Except Sunday
11	NP	7:00a - 4:00p	School days
12	NP	7:30a - 8:00a	Except Sunday
13	NP	8:00a - 8:30a	Except Sunday
14	NP	8:30a - 9:00a	Except Sunday
15	NP	8:30a - 10:00a	Friday
16	NP	8:30a - 10:00a	Thursday
17	NP	6:00a-9:00a	Mon-Fri
18	NS Anytime Except authorized vehicles		
19	NS/Access A Ride Bus Stop		
20	No Standing/ Bus Stop		
21	NS	7:00a-9:00a	Mon - Fri
22	NS	4:00p - 7:00p	Except Sunday
23	NS	4:00p - 7:00p	Mon-Fri
24	No Stopping except Bus		
25	No Stopping in corner		
26	NP Anytime		
27	NS Anytime		
28	No Regulations		





**Table 6-2: On-Street Parking Supply and Demand**

Location	Direction	Meter Parking	Non Meter Parking	Total Capacity	Capacity		Occupancy		Utilization (%)	
					AM	PM	AM	PM	AM	PM
Springfield Blvd	East	23	188	211	211	211	123	145	58.3	68.7
	West	0	192	192	192	192	102	124	53.1	64.6
Jamaica Ave	North	154	56	210	210	210	108	91	51.4	43.3
	South	75	85	160	160	160	76	86	47.5	53.8
Francis Lewis Blvd	East	8	198	206	206	206	116	117	56.3	56.8
	West	8	139	147	147	147	69	80	46.9	54.4
Hillside Ave	North	0	80	80	0	80	0	36	-	45.0
	South	16	86	102	102	5	39	4	38.2	80.0
Bradrock Ave	North	11	127	138	138	138	69	47	50.0	34.1
	South	0	132	132	132	132	64	59	48.5	44.7
Heamstead Ave	North	28	86	114	114	114	56	49	49.1	43.0
	South	13	88	101	101	101	57	59	56.4	58.4
<b>Total</b>		<b>336</b>	<b>1,457</b>	<b>1,793</b>	<b>1,713</b>	<b>1,696</b>	<b>879</b>	<b>897</b>	<b>51.3</b>	<b>52.9</b>

**Metered Parking**

There are 336 metered spaces, concentrated mainly on Jamaica Avenue. Parking is restricted to a one to two-hour limit at a cost of \$0.25/15 minutes. Figure 6-2 shows metered parking in the study area.

**Double Parking**

Although parking supply exceeds demand, double parking is observed along Jamaica Avenue, Hillside Avenue and Hempstead Avenue where commercial activity is concentrated.

**6.3 Off-Street Parking**

Off-street parking includes accessory parking lots, a municipal garage, and a public parking lot. Both the municipal garage and the public parking lot are located adjacent to the Queens Village LIRR station. The municipal garage is located on Jamaica Avenue (218<sup>th</sup> Street). It has 52 spaces with a 4-hour limit and 26 spaces with a 14-hour limit; the rate is \$0.25/15 minutes. The public parking lot is located on Springfield Boulevard; it has 75 spaces. There are 97 off-street parking facilities. The majority of these garages/lots are located on Hillside Avenue and Springfield Boulevard. The largest off-street parking facility

(170 spaces) serves the Shopping Center on Hillside Avenue. Figure 6-3 shows the off-street capacity by corridor.

Figure 6-2: Metered Parking

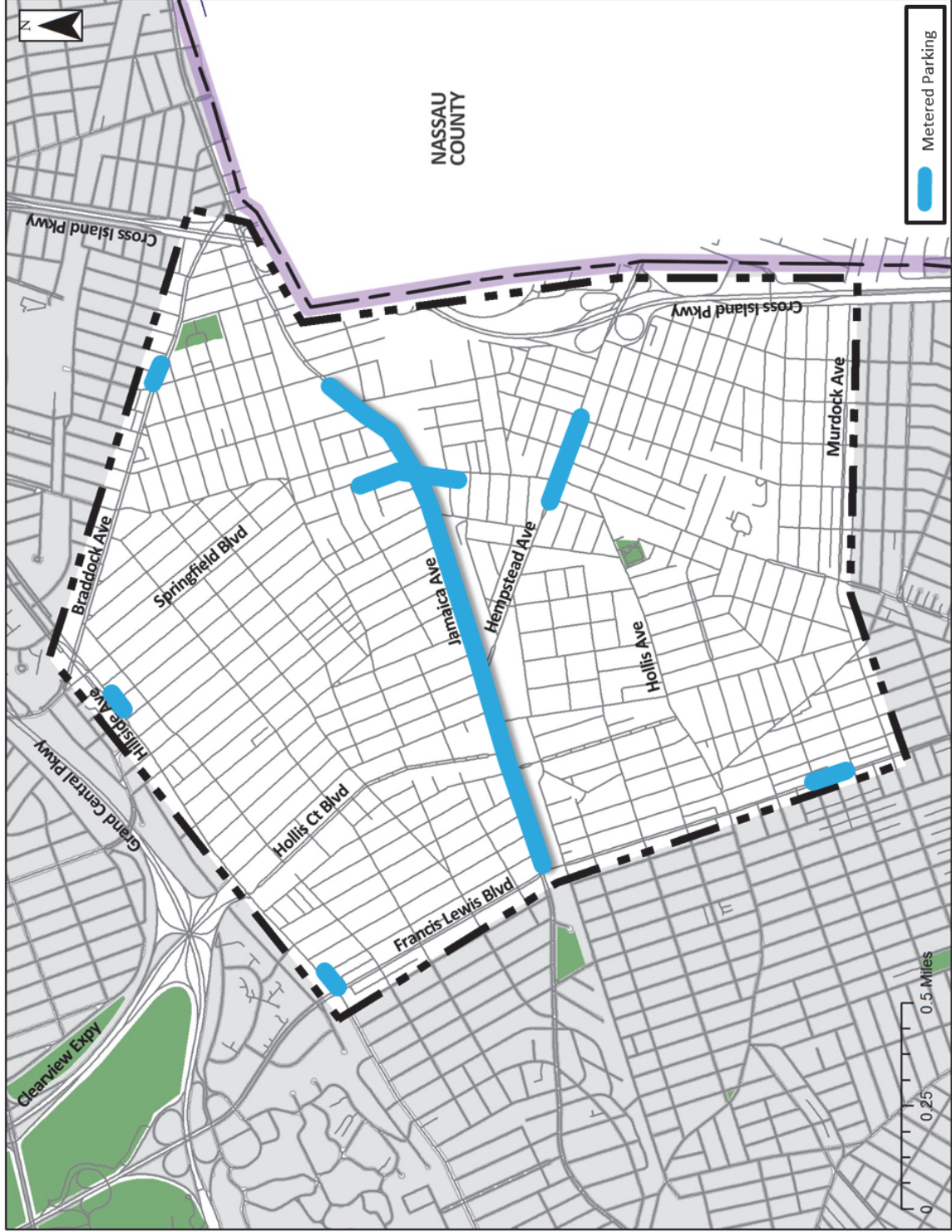
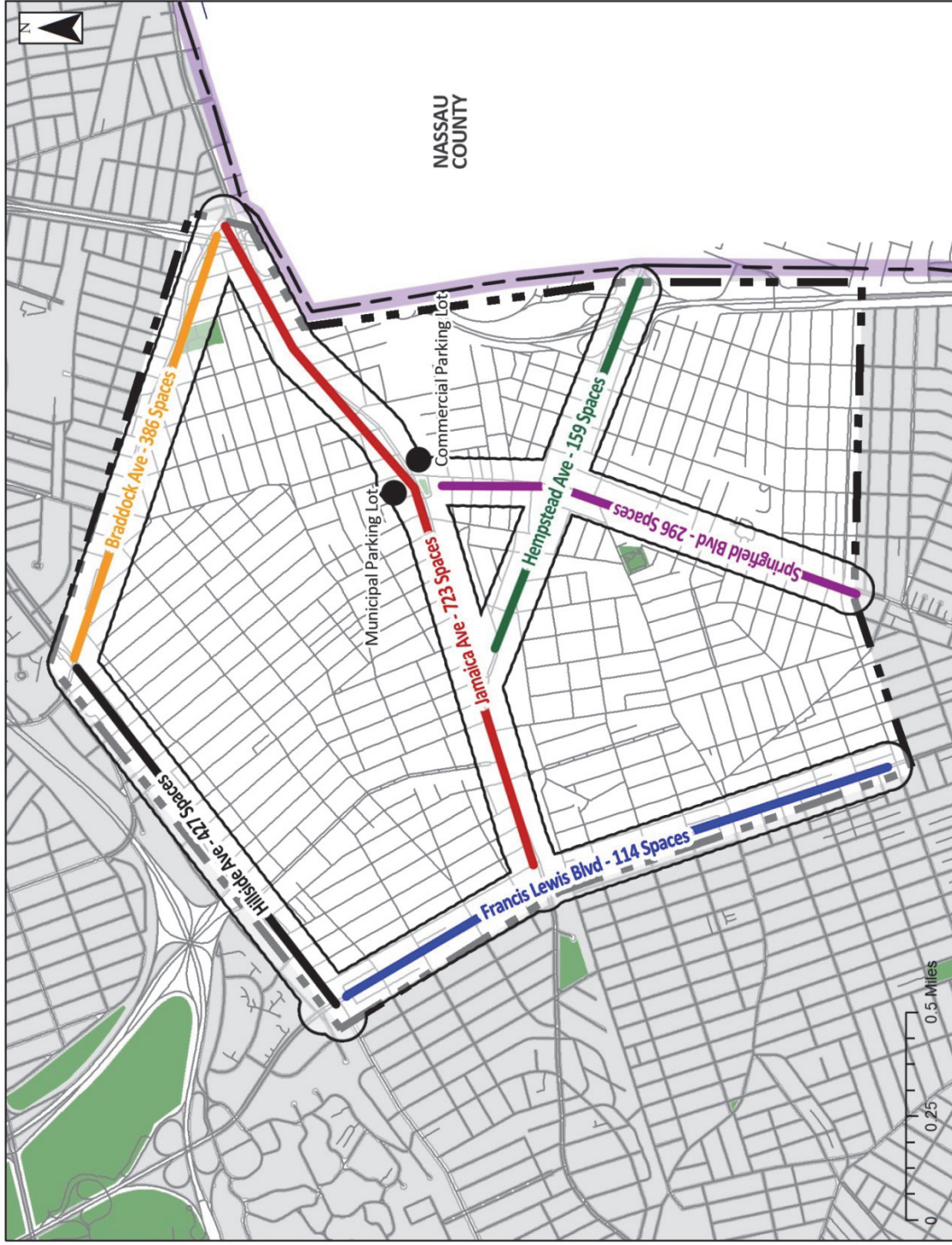


Figure 6-3: Off-Street Parking Capacity by Corridor





## **7 PEDESTRIANS ANALYSIS**

### **7.1 Introduction**

Pedestrian activity is an important element in traffic capacity analysis of urban streets and the design and operation of transportation systems. When considering various modes of travel, walking and bicycle can be significant and a vital role in managing congestion. Consistent with the objective of improving access and mobility for all street users, this section examines the existing pedestrian and bicycle activity and the adequacy of existing facilities to satisfy existing and future demand.

Pedestrian flow rate, which incorporates pedestrian speed, density and volume is equivalent to vehicular flow. According to the Highway Capacity Manual (HCM), “as volume and density increase, pedestrian speed declines. As density increases and pedestrian space decreases, the degree of mobility afforded to the individual pedestrian declines, as does the average speed of the pedestrian stream”.

### **7.2 Pedestrian Analysis Locations**

Pedestrian traffic is mainly associated with the shopping mall and other local commercial/retail activities along the major corridors. Significant pedestrian activity was observed are:

- Francis Lewis Boulevard between Hillside Avenue and Hollis Avenue,
- Springfield Boulevard between Hillside Avenue and Hollis Avenue,
- Hillside Avenue between Springfield Boulevard and Braddock Avenue

The pedestrian analysis was conducted for crosswalks at 10 intersections, listed below, along the major corridors during the AM (7:30-8:30) and PM (5:00-6:00) peak hours. See Figure 7-1.

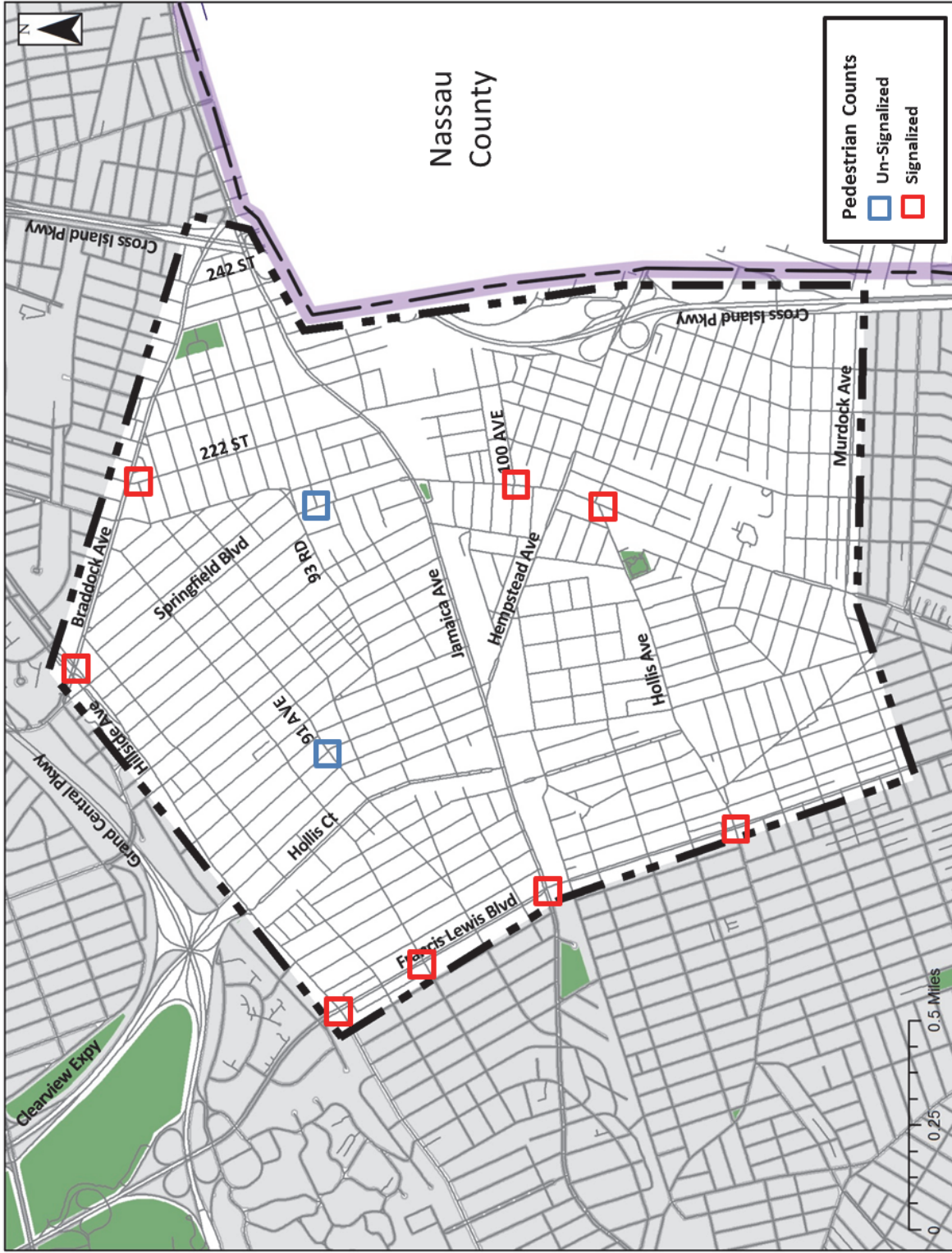
- Hillside Avenue @ Francis Lewis Boulevard
- Jamaica Avenue @ Francis Lewis Boulevard
- Francis Lewis Boulevard @ 90<sup>th</sup> Avenue
- Francis Lewis Boulevard @ Hollis Avenue
- Springfield Boulevard @ 93<sup>rd</sup> Road
- Springfield Boulevard @ 100<sup>th</sup> Avenue
- Springfield Boulevard @ Hollis Avenue
- Braddock Avenue @ 222<sup>th</sup> Street
- 213<sup>th</sup> Street @ 91<sup>th</sup> Avenue
- Hillside Avenue @ Braddock Avenue

### **7.3 Pedestrian Level of Service Analysis & Methodology**

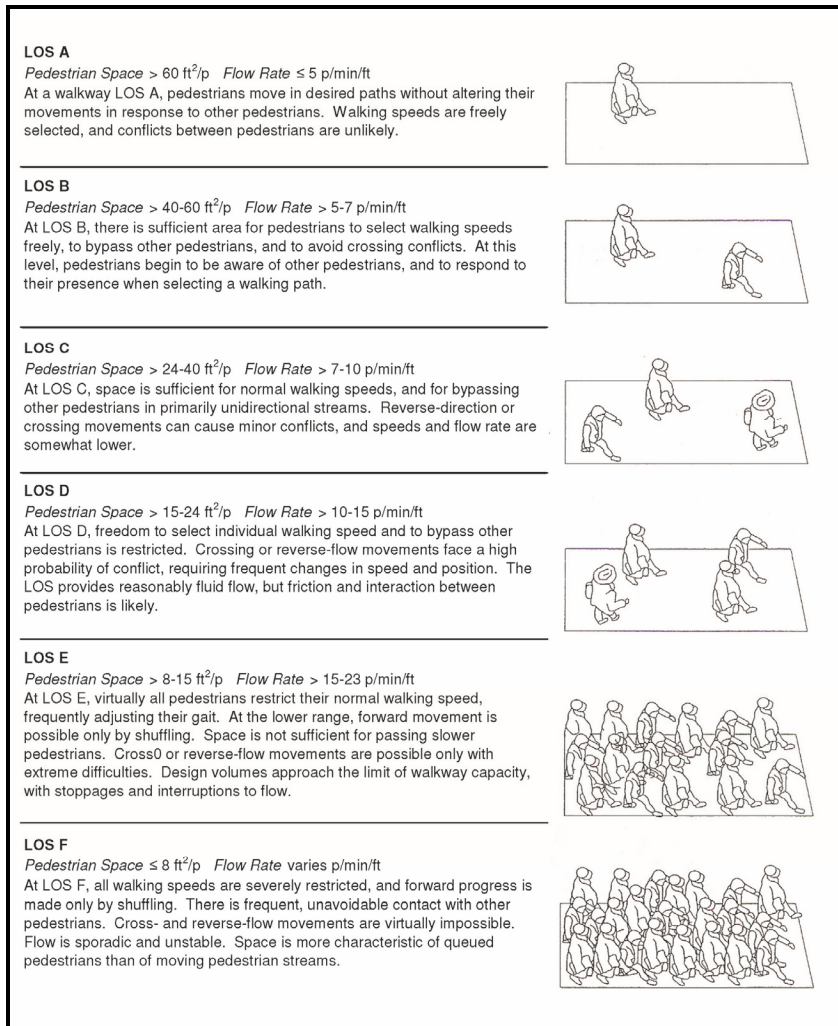
The Highway Capacity Manual methodology was used to determine pedestrian levels of service at the crosswalks of eight signalized intersections during the AM and PM peak hours. Pedestrian LOS is measured in terms of square feet of space per pedestrian (SF/P) as indicated in Figure 7-2. This indicates the quality of pedestrian movement and comfort and is defined in a density comfort relationship. Pedestrian volumes were collected in 15 minute increments during the weekday peak hours.



Figure 7-1: Pedestrian Count Locations



**Figure 7-2: Pedestrian LOS Criteria**



## 7.4 Existing Conditions Pedestrian Analysis

Eight signalized intersections were analyzed. Generally, the highest pedestrian volumes occurred during the AM and PM peak period, particularly along Francis Lewis Boulevard. Figures 7-3 and 7-4 show the existing conditions pedestrian crosswalk volumes for the AM and PM peak hours, respectively.

The analysis showed all the crosswalks with an LOS A except the east crosswalk of Hillside Avenue and Francis Lewis Boulevard which has a LOS C during the PM peak hour. Table 7-1 shows the existing conditions crosswalk LOS analysis.





**Table 7-1: Existing Conditions Crosswalk Level of Service**

Location	Intersection	Crosswalk	AM		PM	
			SF/P	LOS	SF/P	LOS
1	Hillside Ave and Francis Lewis Blvd	North	168.6	A	172.1	A
		South	232.1	A	317.6	A
		East	84.9	A	37.0	C
		West	140.8	A	600.3	A
2	Francis Lewis Blvd and 90th Ave	North	649.3	A	674.0	A
		South	1437.3	A	1419.5	A
		East	662.1	A	680.4	A
		West	1245.9	A	1282.6	A
3	Jamaica Ave and Francis Lewis Blvd	North	436.4	A	592.8	A
		South	1442.8	A	996.7	A
		East	323.4	A	358.1	A
		West	556.4	A	737.1	A
4	Francis Lewis Blvd and Hollis Ave	North	143.7	A	304.7	A
		South	120.6	A	113.9	A
		East	511.2	A	804.0	A
		West	926.7	A	705.6	A
5	Springfield Blvd and 100 Ave	North	1555.6	A	1569.7	A
		South	905.4	A	905.4	A
		East	718.1	A	726.2	A
		West	589.3	A	586.4	A
6	Springfield Blvd and Hollis Ave/104 Ave	North	447.7	A	509.8	A
		South	123.8	A	1526.3	A
		East	290.7	A	474.3	A
		West	123.3	A	451.9	A
7	Braddock Ave and 222 St.	North	678.6	A	674.6	A
		South	769.1	A	787.8	A
		East	408.1	A	432.8	A
		West	273.8	A	316.7	A
8	Braddock Ave and Hillside Ave	North	371.9	A	384.0	A
		South	474.6	A	417.1	A
		East	830.5	A	602.8	A
		West	190.1	A	200.6	A

## **7.5 Future Conditions Pedestrian Analysis**

The pedestrian volume in the study area is not expected to increase significantly as a result of new developments or any other socioeconomic factors. Therefore, the future (2022) pedestrian volume in the study area was determined by applying a 3.8% growth rate to the existing conditions volume. The existing conditions analysis shows high pedestrian volumes near transit facilities, transit transfer points, and commercial/retail areas along major corridors. The analysis did not show any changes from the existing conditions. See Table 7-2. Figures 7-6 and 7-7 show the projected (future) 2022 pedestrian volumes for the AM and PM peak hours.



Figure 7-6: Future (2022) Pedestrian Volume – PM Peak

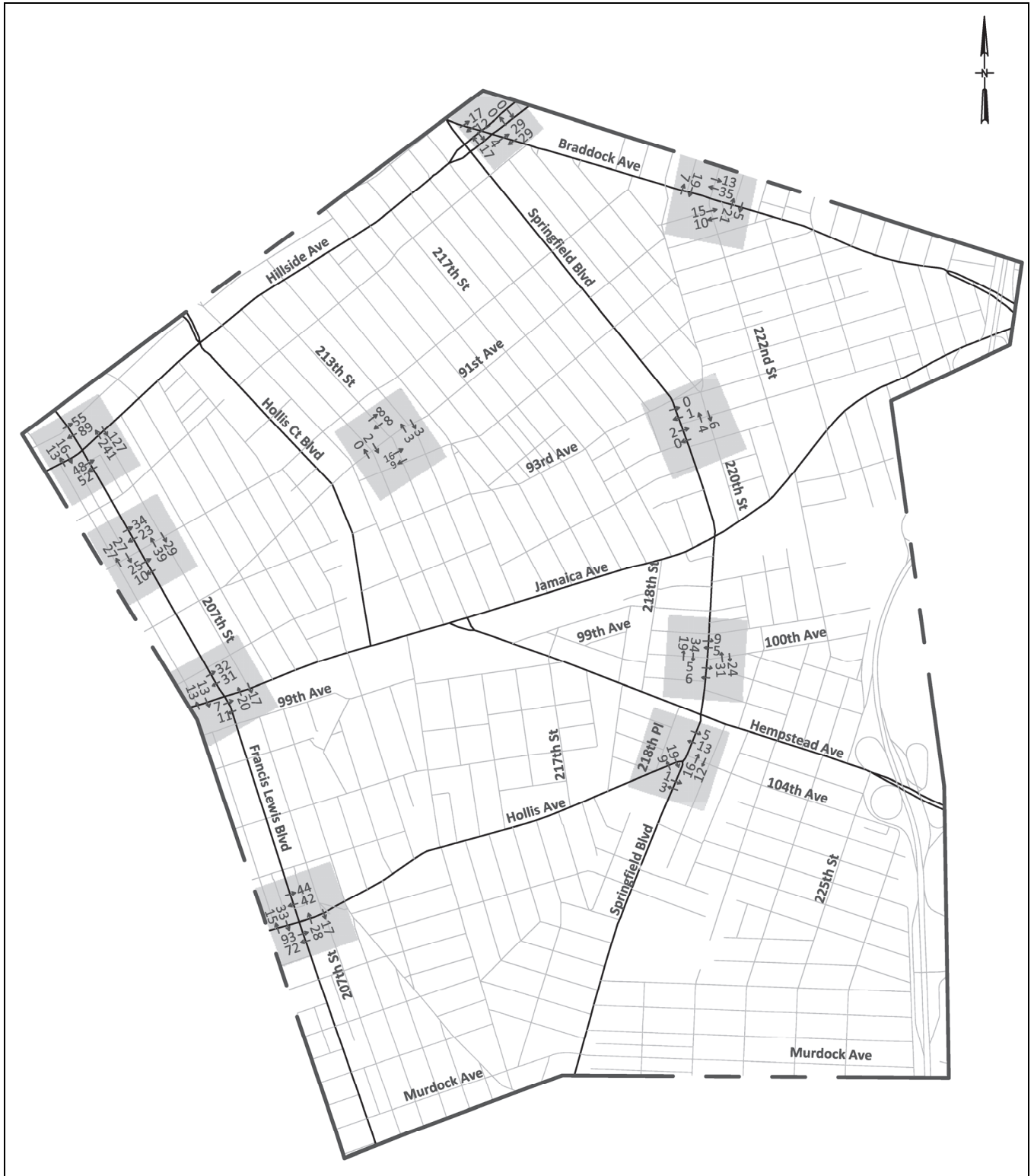


Table 7-2: Future (2022) Crosswalk Level of Service

Location	Intersection	Crosswalk	AM	PM
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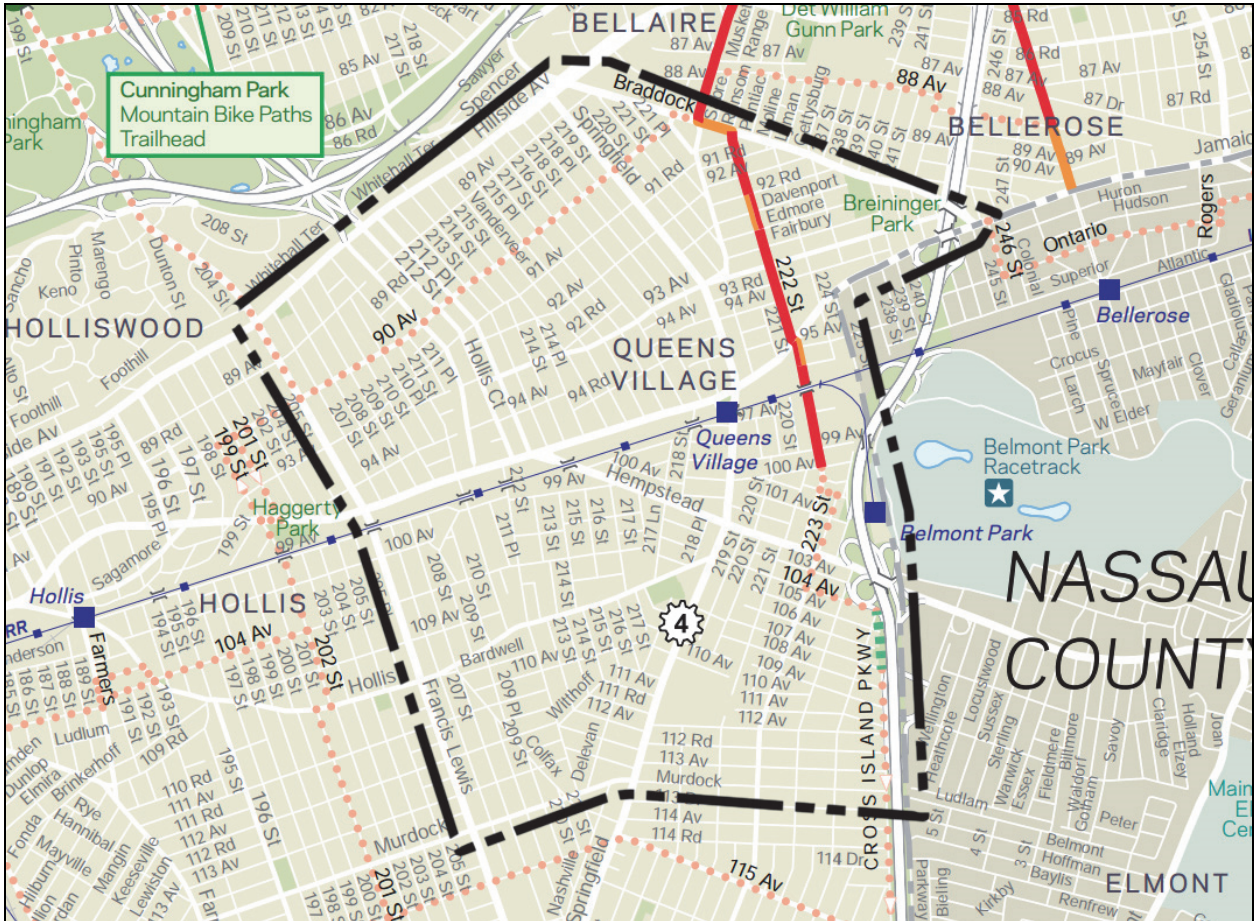
			SF/P	LOS	SF/P	LOS
1	Hillside Ave/Francis Lewis Blvd	North	160.4	A	164.9	A
		South	221.4	A	302.6	A
		East	81.5	A	34.9	C
		West	135.0	A	575.1	A
2	Francis Lewis Blvd/90th Ave	North	631.2	A	432.1	A
		South	1435.1	A	755.3	A
		East	639.7	A	698.1	A
		West	1199.3	A	792.4	A
3	Jamaica Ave/Francis Lewis Blvd	North	420.5	A	572.4	A
		South	1439	A	991.4	A
		East	315.1	A	334.5	A
		West	534.9	A	737.1	A
4	Francis Lewis Blvd/Hollis Ave	North	137.7	A	292.6	A
		South	115	A	112.1	A
		East	493.0	A	835.1	A
		West	886.6	A	669.4	A
5	Springfield Blvd/100 Ave	North	1554.6	A	747.7	A
		South	905.4	A	1368.5	A
		East	1948.4	A	546.3	A
		West	568.4	A	610.4	A
6	Springfield Blvd & Hollis Ave/104 Ave	North	147.0	A	505.4	A
		South	120.0	A	1526.3	A
		East	276.9	A	461.0	A
		West	138.7	A	430.3	A
7	Braddock Ave/222 St.	North	654.9	A	851.5	A
		South	742.7	A	882.3	A
		East	390.5	A	461.3	A
		West	263.8	A	383.3	A
8	Braddock Ave/Hillside Ave	North	357.4	A	2157.2	A
		South	455.9	A	746.9	A
		East	830.5	A	-	A
		West	182	A	959	A

## 7.6 Bicycle Facilities

Only one on-street bicycle lane currently exists in the study area. The bike lane extends from Braddock Avenue to 100<sup>th</sup> Avenue on 222<sup>nd</sup> Street. The lane can potentially be

extended along 223<sup>rd</sup> Street, 104<sup>th</sup> Avenue, and the Cross Island Parkway. Additionally a potential bike route has been identified along 90<sup>th</sup> Avenue. Figure 7-7 shows a portion of the NYC Bicycle Map in the study area.

**Figure 7-7: Bicycle Facilities**



## **8 CRASH/SAFETY ANALYSIS**

### **8.1 Introduction**

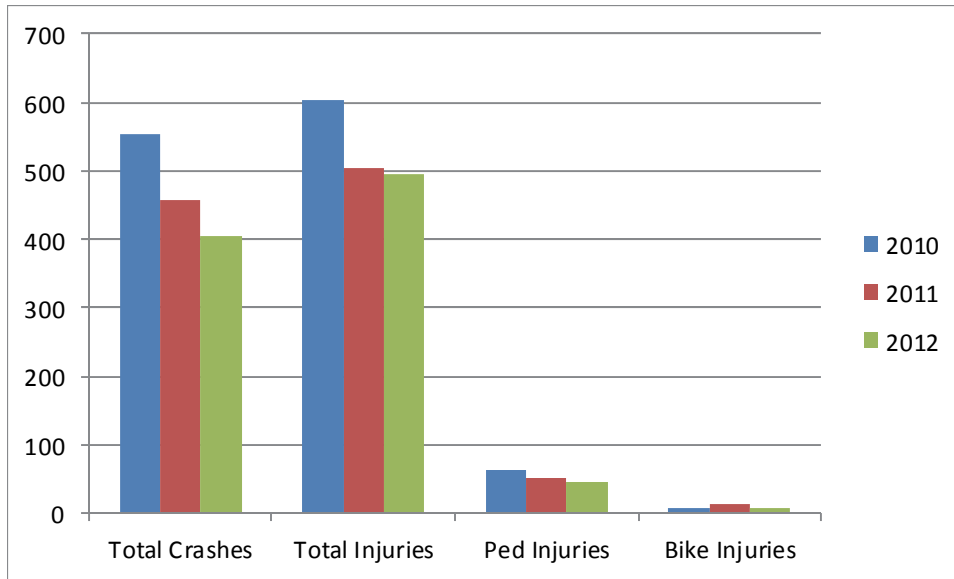
The analysis of crashes is an important component in traffic and transportation planning studies, as crashes can lead to loss of life and/or property damage. The main purpose of this analysis is to identify locations in the study area with safety issues that may need special attention and possibly safety improvement measures.

In order to identify locations with potential crash and safety issues in the study area, it was necessary to examine the crash history to see if any patterns can be established. Existing reportable crash data for the most recent three years (2010-2012) was assembled and analyzed. These records were collected from New York City Department of Transportation (NYCDOT) crash database which includes New York State Department of Motor Vehicle (NYSDMV) and New York Police Department reported crashes. This data provides information on location, severity, collision type, time of crash, and other pertinent factors such as weather conditions.

### **8.2 Crashes 2010-2012**

Crash records were examined for 341 intersections within the study area for the 3-year period between 2010 and 2012. The data identify the total number of reportable crashes (involving fatalities, injury, and property damage of more than \$1,000) as well as those involving pedestrians and bicyclists. There were 1,332 crashes resulting in 1,602 injuries of which 1,417 were vehicle occupants, 158 pedestrians and 27 bicyclists. Total reportable crashes decreased by 27% from 554 in 2010 to 405 in 2012. Figure 8-1 shows crashes by year.

**Figure 8-1: Crashes by Year**



Between 2010 and 2012 pedestrians were involved in 10% of all crashes, while less than 2% involved bicyclists. Three percent of all injuries were Type A (amputation), 6% were Type B (bleeding profusely), and 91% were Type C (complaint of pain but no visible injury). The three most common collision types were right angle (25%), rear end (14%), and overtaking (8%). Wet roadway conditions were reported in 13% of all crashes, while 30% of all crashes occurred during non-daylight hours.

### 8.3 Crash Analysis

The 2010-2012 crash data show no “High Crash Locations” (five or more pedestrian crashes or 23 or more reportable crashes during any 12 consecutive months). For this study three intersections having 10 or more crashes/year were subjected to detailed analysis. Table 8-1 details total crashes and pedestrian and bicycle crashes.

**Table 8-1: Crash Locations (2010-2012)**

Intersection	Crashes			Injuries			Pedestrian			Bikes		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Hillside Ave/Springfield Blvd	12	14	10	13	13	6	4	2	2	0	0	0
Hempstead Ave/Springfield Blvd	11	14	10	14	10	13	3	3	1	0	0	0
Jamaica Ave/212 Street	11	10	10	12	9	14	1	3	1	0	0	0

Table 8-2 shows information about crashes at the three intersections selected for detailed analysis. The Hillside Avenue/Springfield Boulevard and Hempstead Avenue/Springfield Boulevard intersections recorded the highest number of Type A injuries, while Jamaica Avenue/212 Street recorded the highest number of rear end crashes among the three selected locations.

**Table 8-2: Crash Details**

Intersection	Total Injuries	Injury Type			Collision Type			
	2010-2012	A	B	C	Left-Turn	Rear End	Over-Taking	Right-Angle
Hillside Ave/Springfield Blvd	32	4	2	26	2	4	2	4
Hempstead Ave/Springfield Blvd	37	4	2	31	2	6	7	0
Jamaica Ave/212 Street	35	0	2	33	0	12	5	2

#### 8.4 Fatalities & Injuries

Between 2010 and 2012, there were 4 fatalities - three pedestrians, and one vehicle occupant. Table 8-3 below lists the fatalities locations and related information, while Figure 8-2 shows the locations.

**Table 8-3: Fatalities 2010-2012**

Intersection	Fatality	Crashes	Injury Type			Total	PDO
			A	B	C		
89 Road/211 Street	1-Ped/2010	2	0	0	0	0	1
Hempstead Avenue/223 Street	1-Ped/2010	21	0	2	23	25	4
Jamaica Avenue/213 Street	1-Passenger/2011	27	0	3	21	24	8
Jamaica Avenue/240 Street	1-Ped/2010	1	0	0	0	0	0

Figure 8-2: Fatalities Locations (2010-2012)



## **9 GOODS MOVEMENT**

### **9.1 Introduction**

The delivery of goods and services in New York City is heavily dependent on trucks. Their presence in the traffic network impacts traffic operating conditions and contributes to congestion. There are also numerous quality of life issues associated with truck traffic such as noise, air pollution and safety.

Trucks are generally defined as any vehicle or combination of vehicles designed for the transportation of property which has either of the following characteristics: two axels and six tires, or three or more axels. In New York City trucks are confined to designated routes (local and through) except on reaching their origin or destination. They must leave a designated truck route at the nearest intersection that provides the most direct route to their destination. To facilitate truck operations in the city adequate space for truck loading and unloading is necessary.

### **9.2 Truck Routes in Study Area**

Truck movement in the study area is influenced by DOT designated truck routes and the concentration of industrial and commercial activities along certain corridors. There are two categories of truck routes in New York City:

- Through truck routes – routes for use by all trucks and;
- Local truck routes – routes for use by trucks with local origins and/or destinations.

There are no local truck routes in the study area, but there are five through truck routes (Figure 9-1). The through truck routes are:

- Hillside Avenue between Francis Lewis Boulevard and Braddock Avenue;
- Braddock Avenue between Hillside Avenue and Cross Island Parkway Service Road;
- Jamaica Avenue between Francis Lewis Boulevard and Cross Island Parkway Service Road;
- Hempstead Avenue between Jamaica Avenue and 225<sup>th</sup> Street;

- Francis Lewis Boulevard between Hillside Avenue and Murdock Avenue; and
- Springfield Boulevard between Jamaica Avenue and Murdock Avenue

Jamaica Avenue and Francis Lewis Boulevard are the busiest truck routes as they are the main commercial and industrial corridors in the study area. Both corridors provide connection to the major regional arterials – the Van Wyck Expressway and Clearview Expressway.

### **9.3 Truck Traffic**

Truck traffic counts were conducted at 18 locations during the various peak hours (8:00-9:00AM and 4:30-5:30PM weekdays). The truck percentage share was 5.2% and 3.3% of the total traffic during the AM and PM peaks, respectively. The highest truck volumes were observed during the AM peak hour. The locations with the highest percentage of trucks during the AM peak are Jamaica Avenue/Francis Lewis Boulevard, Braddock Avenue/ 242<sup>nd</sup> Street, and Hillside Avenue/Hollis Court Boulevard. Table 9-1 and Figure 9-2 provide information truck traffic in the study area.



Figure 9-1: Truck Route Map



**Table 9-1: Truck Volumes by Peak Hour**

Intersection	AM			PM		
	Traffic	Truck	% Truck	Traffic	Truck	% Truck
<b>Hillside Ave and</b>						
• Francis Lewis Blvd	3,415	195	5.70%	4,105	115	2.80%
• Hollis Court Blvd	3,034	255	8.40%	3,080	180	5.80%
• 217 <sup>th</sup> St	3,355	135	4.00%	2,721	65	2.40%
• Braddock Ave	3,000	115	3.80%	3,136	85	2.70%
<b>Jamaica Ave and</b>						
• Francis Lewis Blvd	2,745	285	10.40%	2,695	100	3.70%
• Hollis Court Blvd	2,070	130	6.30%	2,400	65	2.70%
• 213 <sup>th</sup> St/Hempstead Ave	2,325	55	2.40%	2,470	50	2.00%
• Springfield Blvd	3,230	115	3.60%	2,920	40	1.40%
• 222 <sup>nd</sup> St	1,745	65	3.70%	1,715	60	3.50%
<b>Springfield Blvd and</b>						
• Hempstead Ave	3,355	145	4.30%	2,935	105	3.60%
• Hollis Ave	2,000	100	5.00%	1,530	75	4.90%
<b>Francis Lewis Blvd and</b>						
• Hollis Ave	1,955	93	4.80%	2,025	45	2.20%
• Murdock Ave	1,770	75	4.20%	1,875	50	2.70%
<b>Braddock Ave and</b>						
• 222 <sup>nd</sup> St	285	15	5.30%	200	0	0.00%
• 242 <sup>nd</sup> St	1,240	200	16.10%	1,255	120	9.60%
<b>Hempstead Ave and</b>						
• 217 <sup>th</sup> St	1,415	60	4.20%	1,680	85	5.10%
• 99 <sup>th</sup> Ave	1,300	50	3.80%	1,610	80	5.00%
• 225 <sup>th</sup> St	2,720	60	2.20%	2,850	55	1.90%
<b>Total (18 intersections)</b>	<b>40,959</b>	<b>2,148</b>	<b>5.20%</b>	<b>41,202</b>	<b>1,375</b>	<b>3.30%</b>

Figure 9-2: Truck Traffic in the Traffic Stream (%)





## **10 PUBLIC OUTREACH AND COMMUNITY INPUT**

### **10.1 Introduction**

To gain an understanding of the community's perspective of the traffic and transportation issues and problems in the study area, two Technical Advisory Committee (TAC) meetings were held. The first TAC meeting was held on March 21, 2013 and the second on May 29, 2014.

The purpose of the first meeting was to introduce the study to the community and the purpose of the second meeting was to present the findings of the existing and future conditions analysis as well as preliminary recommendations. The notes from both meetings follow.

### **10.2 Technical Advisory Committee Meeting #1**

The first Technical Advisory Committee meeting for the Queens Village/Jamaica Avenue Transportation Study was held at the Queens Borough Commissioner's office (120-55 Queens Boulevard). In attendance were representatives from Community Boards 13, the Queens Borough President's office, the offices of NYS Senators Tony Avella, James Sanders Jr., and Malcolm A. Smith, the offices of Council Members Leroy Comrie and Mark Weprin, and the Queens Village Civic Association.

DOT Borough Commissioner Hall opened the meeting and invited attendees to introduce themselves and their organizations/agencies before the presentation was made. The objective of the meeting was to present the draft scope of the study and to receive technical and community input from the TAC. DOT then proceeded to make a PowerPoint presentation that identified the study area boundaries, goals/objectives, and the subjects (Demographics, Zoning & Land Use, Traffic, Parking, Pedestrian & Bicycles, Accidents/Safety, Public Transit and Goods Movements) that would be examined in the study.

In response to the presentation many issues were raised and suggestions made related to traffic and transportation issues in CB 13. The main comments/issues were as follows:

- A representative from Queens Village Civic Association said that congestion occurs on Jamaica Avenue at 212<sup>th</sup> Street as a result of the signal plan. He explained that the left-turn signal limits the through traffic. A letter was also written to the B/C requesting DOT investigate this matter.
- CB 13's District Manager noted that southbound trucks from Clearview Expressway travel straight along Hollis Court Boulevard, which is not a truck route, to access Jamaica Avenue, instead of going five blocks west to Francis Lewis Boulevard, the designated truck route.
- CB 13 requested pedestrian counts/analysis at the intersection of 91<sup>st</sup> Avenue and 212<sup>th</sup> Street near the school.
- CB 13 inquired about the status of the one-way street conversion of Braddock Avenue and Winchester Boulevard; the B/C stated that the conversion was approved and would be implemented soon.
- The Queens Civic Association representative requested a countdown signal at the Francis Lewis Boulevard and Hillside Avenue intersection.
- Ron Bramsen (DOT) commented on the Queens Village Transit Map and stated that it may be missing bus routes along Hempstead Avenue.
- The representatives from CB 13 and QBP's office expressed concern about a proposal for a medical center and the extension of the Ohel Chabad Lubavitch facility near Springfield Boulevard and Francis Lewis Boulevard, which are likely to contribute to congestion. It was stated that the projects may have traffic studies.

### **10.3 Technical Advisory Committee Meeting #2**

The second Technical Advisory Committee meeting for the study was held on May 29<sup>th</sup> 2014. The meeting was held at the Queens Borough Commissioner's office (120-55 Queens Boulevard). In attendance were representatives from NYS Senator James Sanders Jr.'s office and New York Metropolitan Transportation Council. A CB 13 or civic association representative was not present at the meeting.

Borough Commissioner, Dalila Hall, opened the meeting and invited attendees to introduce themselves and their organizations/agencies. The objective of the meeting was to present findings of the existing conditions analysis and to receive technical and community input from the TAC. DOT Traffic Planning staff made a PowerPoint presentation that outlined the findings of the existing conditions analysis.

The following comments were made:

- A representative from Senator James Sanders Jr.'s office asked if a public meeting had been scheduled; B/C Hall responded that a public meeting would be held in the fall.
- The representative from Senator James Sanders Jr.'s office also inquired about the study's completion date; he was informed by a Traffic Planning staff that a typical area-wide transportation study usually concludes in about 18 months.
- B/C Hall asked the DCP representative if there were any specific requests from CB 13 within the study area; the representative replied that the CB had requested low density residential rezoning in the study area similar to zoning in Laurelton/Rosedale study area.
- The representative from Senator James Sanders Jr.'s office commented that the Richmond Hill Association has been asking for a Transportation study in the vicinity

of Liberty Avenue specifically along Liberty Avenue and Van Wyck Expressway Service Road; but to date nothing has been done.



# 11 RECOMMENDATIONS

## 11.1 Issues and Improvement Locations

Information obtained from the existing and future conditions analysis as well as the community was used to identify locations for potential improvements. Figure 11-1 shows the locations experiencing traffic congestion and parking shortfalls as well as those intersections identified by community as having issues of concern.

The highest traffic volumes are along Jamaica Avenue and Hillside Avenue and congestion occurs on both of these corridors, particularly at major intersections such as Francis Lewis Boulevard, Springfield Boulevard, and Hempstead Avenue. Parking shortfalls are found along Jamaica Avenue where commercial land uses contribute to double parking and truck loading/unloading issues.

Some of the issues raised by the community are:

- Illegal truck traffic using Hollis Court Boulevard to access Jamaica Avenue
- Need for a countdown signal at Francis Lewis Boulevard and Hillside Avenue
- Pedestrian safety analysis at 91<sup>st</sup> Avenue and 212<sup>th</sup> Street which is near IS 109.

To address the issues above and others identified in the analysis, recommendations to enhance traffic operation and pedestrian safety were developed. Recommended improvements include geometric changes, signal timing adjustments, parking regulations and street direction changes. The locations for proposed improvements are listed below and shown in Figure 11-2.

### Hillside Avenue

- Hillside Avenue & Francis Lewis Boulevard

### Hempstead Avenue

- Hempstead Avenue & Springfield Boulevard

Figure 11-1-1: Traffic and Community Issues

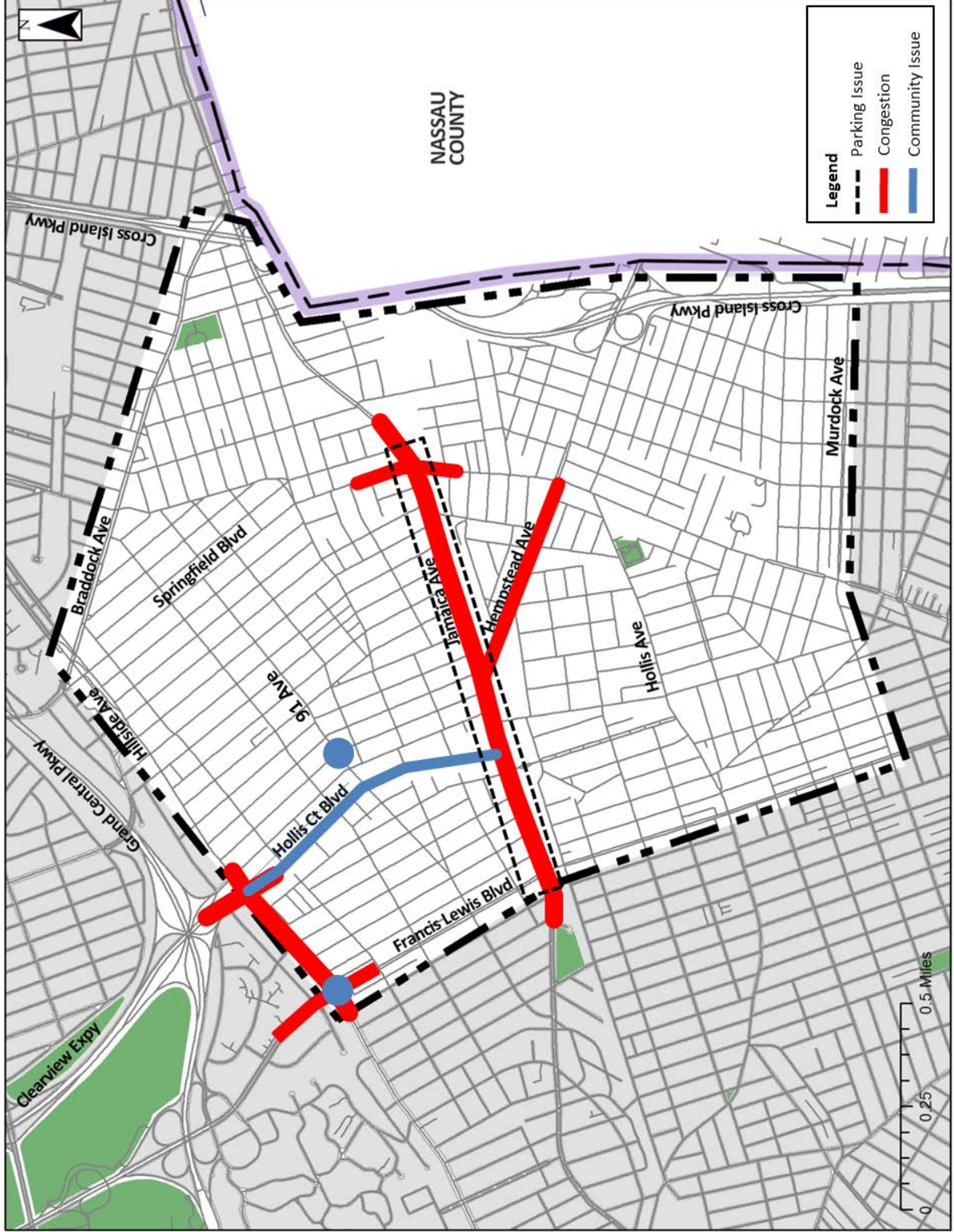
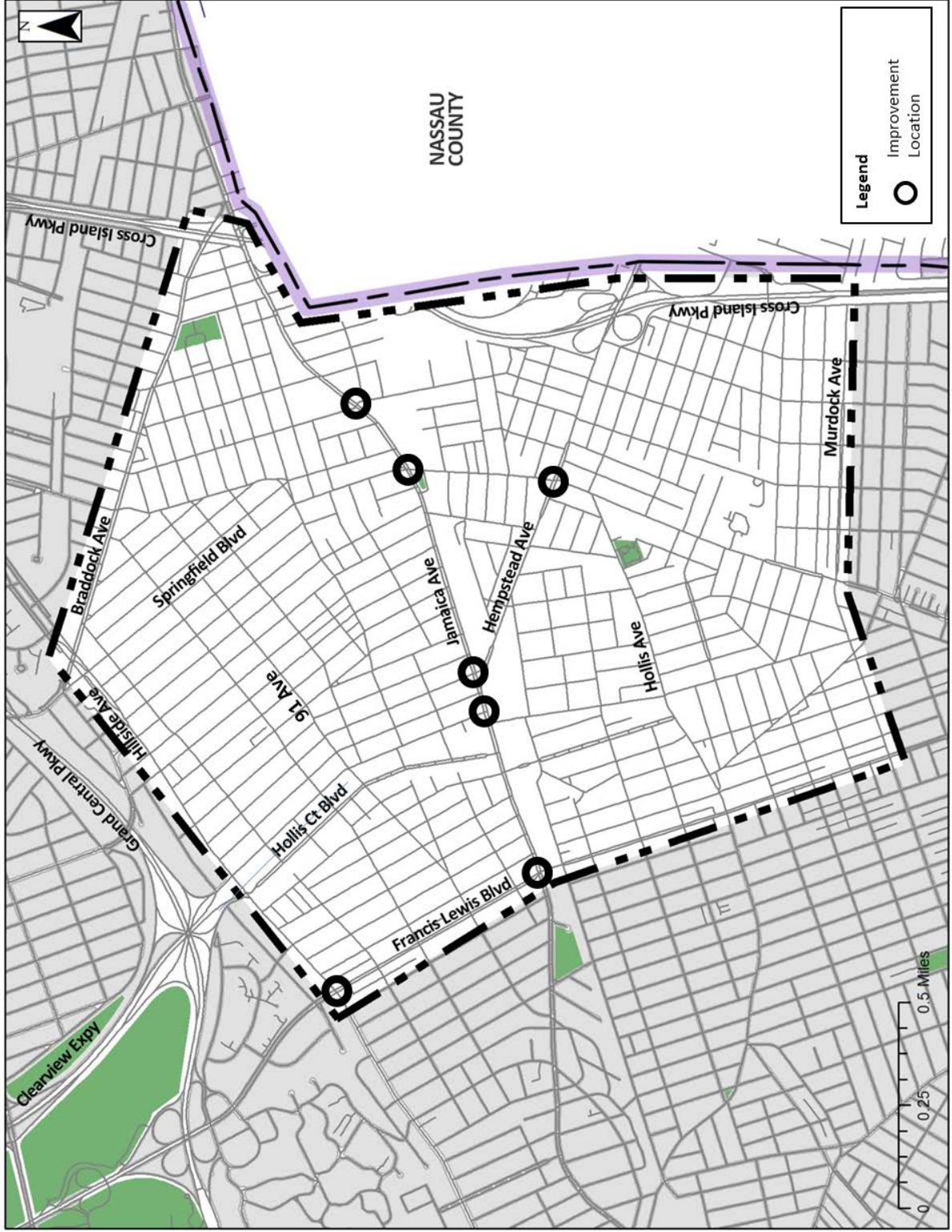


Figure 11-2: Improvement Locations



### Jamaica Avenue

- Jamaica Avenue & Francis Lewis Boulevard
- Jamaica Avenue & 212<sup>th</sup> Street
- Jamaica Avenue & 213<sup>th</sup> Street
- Jamaica Avenue & Springfield Boulevard
- Jamaica Avenue & 222<sup>nd</sup> Street

### **Hillside Avenue**

#### ***Hillside Avenue & Francis Lewis Boulevard***

##### *Issue(s):*

- Northbound and eastbound approaches experience heavy delay during the AM & PM peaks.

##### *Recommendation(s):*

- Remove one parking space on the northbound approach; install “No Standing Anytime” sign; restripe approach to provide one shared left-thru lane, one thru lane, and one 90-foot long right turn pocket lane.
- Take 3 seconds from the NB/SB phase and 1 second from the EB/WB phase to add a total of 4 seconds to the EB/WB left turn phase during AM peak period.
- Take 2 seconds from the EB/WB left turn phase to give 1 second to the NB/SB phase and 1 second to the NB/SB left turn phase during PM peak period.

Figure 11-3 shows the proposed conditions at this intersection.



## **Hempstead Avenue**

### ***Hempstead Avenue & Springfield Boulevard***

#### *Issue(s):*

- Heavy delay on the EB and WB left turn traffic during the AM & PM peaks.

#### *Recommendation(s):*

- Change the existing LPI to EB/WB dual left turn phase and shift 6 seconds from the NB/SB phase to the proposed EB/WB left turn phase.

## **Jamaica Avenue**

### ***Jamaica Avenue & Francis Lewis Boulevard***

#### *Issue(s):*

- Heavy delay on the WB approach during the AM & PM peaks.

#### *Recommendation(s):*

- Remove four parking spaces on the WB approach and install “No Standing Anytime”; restripe with one shared left-thru lane, one thru lane, and one right turn pocket lane.

Figures 11-4 and 11-5 show the existing and proposed conditions at this intersection.

### ***Jamaica Avenue & 212<sup>th</sup> Street***

#### *Issue(s):*

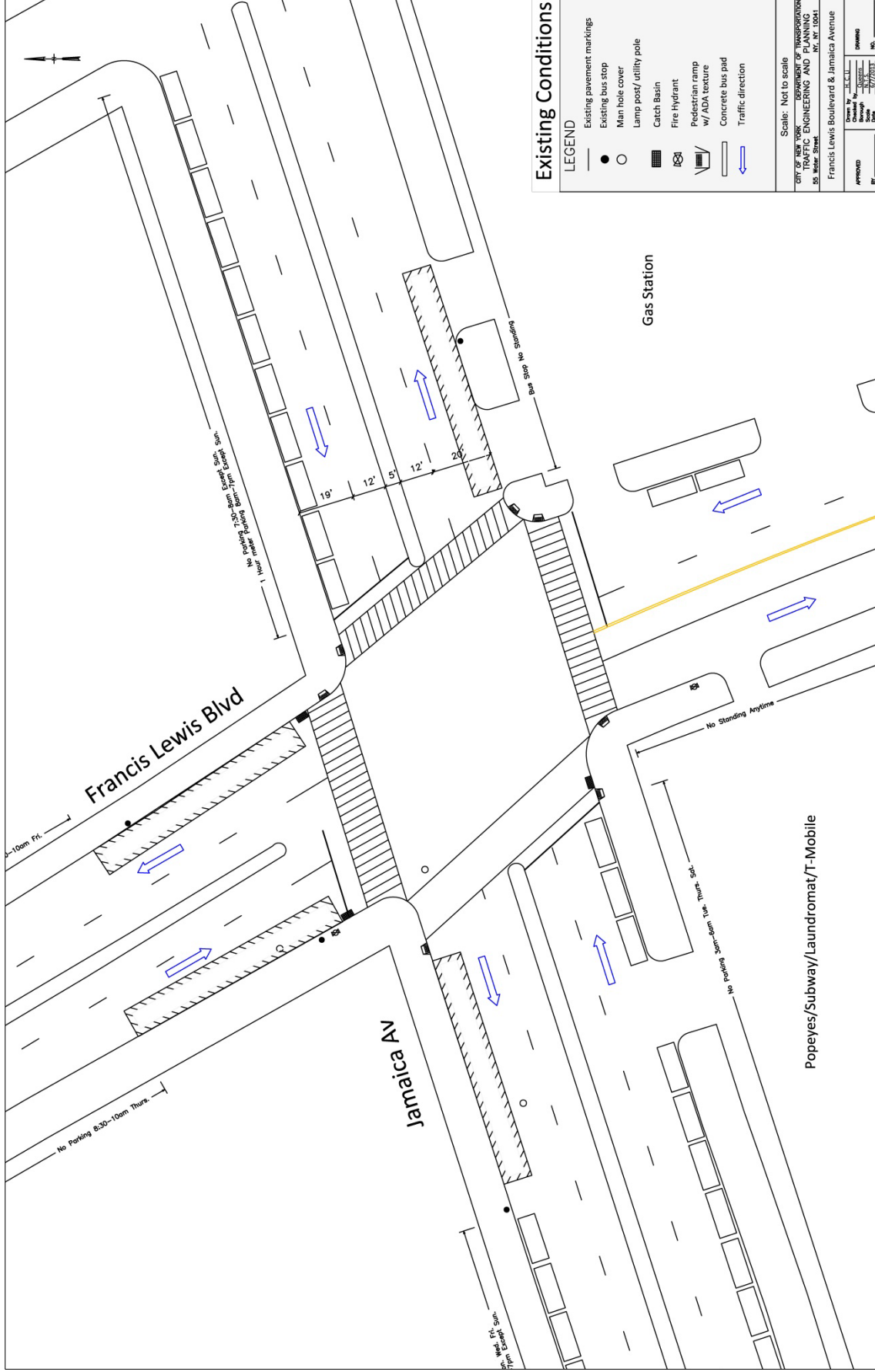
- Exclusive left turn lane on the EB approach is too short, driver doesn't have enough time to switch to the thru travel lane if they are not making left turn.

#### *Recommendation(s):*

- Extend the center median (Jamaica Avenue) to close the gap at 212<sup>th</sup> Street; make the NB right turn only.
- Extend the left turn only lane 100 feet to the west.
- Install “No U-Turn” sign for the EB approach.
- Realign the stop bar and install crosswalk on the EB approach.

Figures 11-6 and 11-7 show the existing and proposed conditions at this intersection.

**Figure 11- 4: Francis Lewis Boulevard and Jamaica Avenue (Existing)**



**Figure 11-5: Francis Lewis Boulevard and Jamaica Avenue (Proposed)**

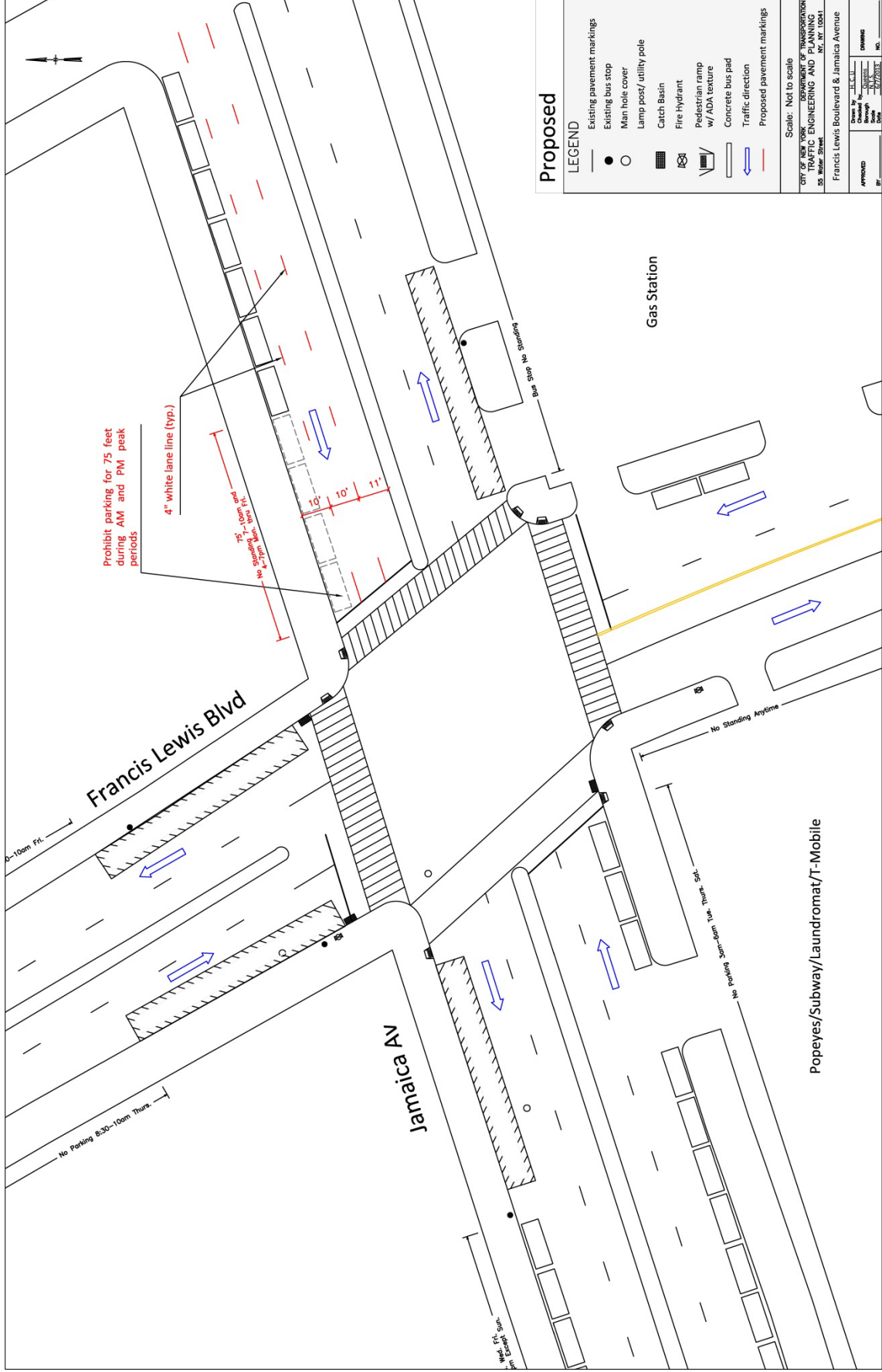




Figure 11-6: Jamaica Avenue and 212th Street (Existing)

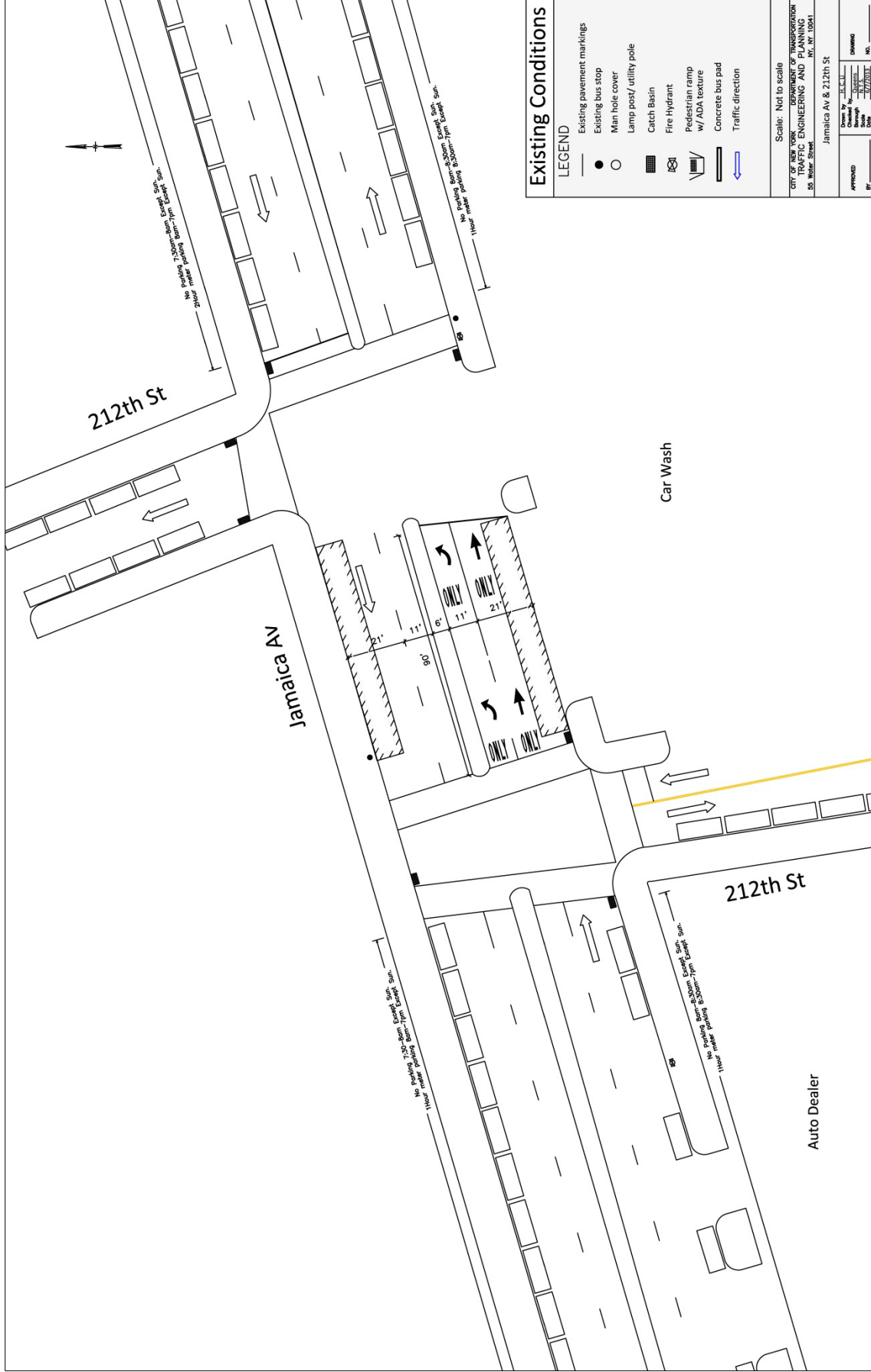
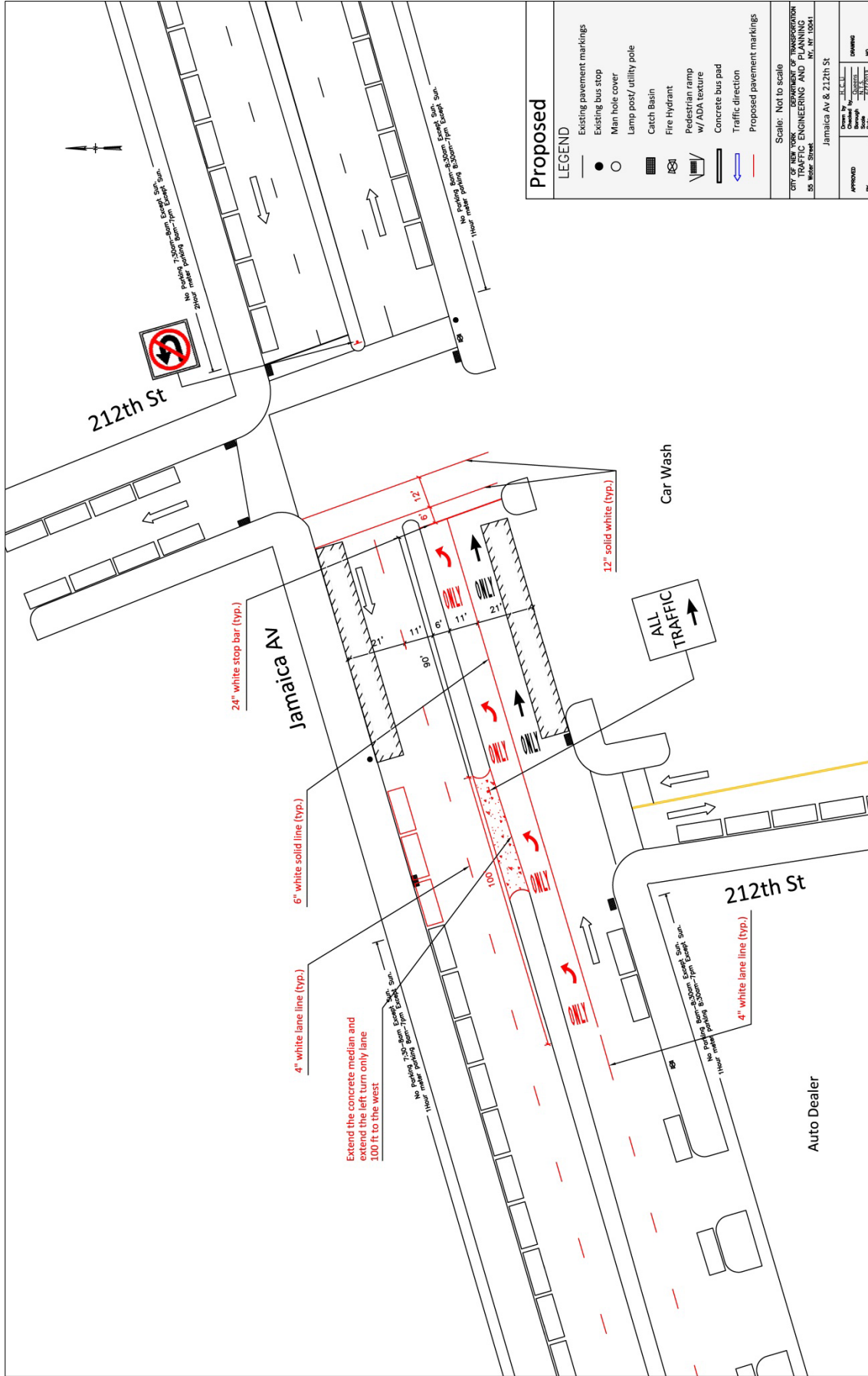


Figure 11-7: Jamaica Avenue and 212th Street (Proposed)



### ***Jamaica Avenue & 213th Street***

#### *Issue(s):*

- Heavy delay for the NB left turn traffic during the AM & PM peaks.

#### *Recommendation(s):*

- Restripe the NB approach to provide two exclusive left turn lanes, and one shared thru-right lane.

Figures 11-8 and 11-9 show the existing and proposed conditions at this intersection.

### ***Jamaica Avenue & Springfield Boulevard***

#### *Issue(s):*

- Heavy delay on the northbound approach during the AM & PM peaks.

#### *Recommendation(s):*

- Remove six parking spaces on the NB approach; install “No Standing 7-10AM/4-7PM”; restripe with one left turn lane, one thru lane, and one shared thru-right lane.

Figures 11-10 and 11-11 show the existing and proposed conditions at this intersection.

### ***Jamaica Avenue & 222<sup>nd</sup> Street***

#### *Issue(s):*

- Heavy delay on the NB and SB approaches during the AM & PM peaks.

#### *Recommendation(s):*

- Remove the existing hatching on the NB approach; restripe with one shared left-thru lane and one exclusive right turn lane.
- Remove four parking spaces on the SB approach; restripe with one shared left-thru lane, and one right turn pocket lane with “No Standing Anytime”.
- Change the bike lane at the southbound approach to a shared travel lane.

Figures 11-12 and 11-13 show the existing and proposed conditions at this intersection.

Tables 11-1 and 11-2 provide a summary of the HCS analysis for both the existing and proposed conditions during the AM and PM peak hours, respectively.

Figure 11-8: Jamaica Avenue and 213th Street (Existing)

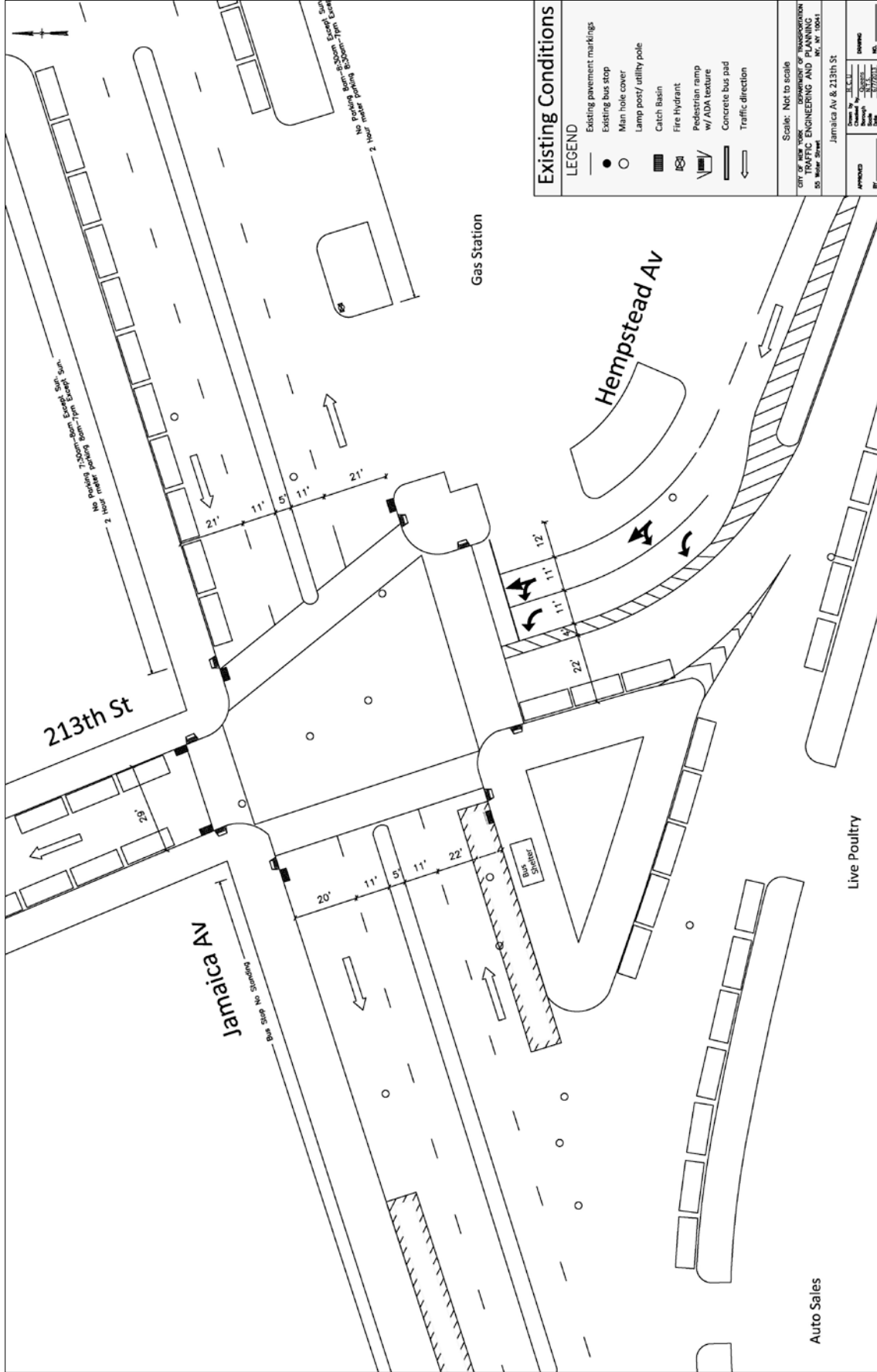


Figure 11-9: Jamaica Avenue and 213th Street (Proposed)

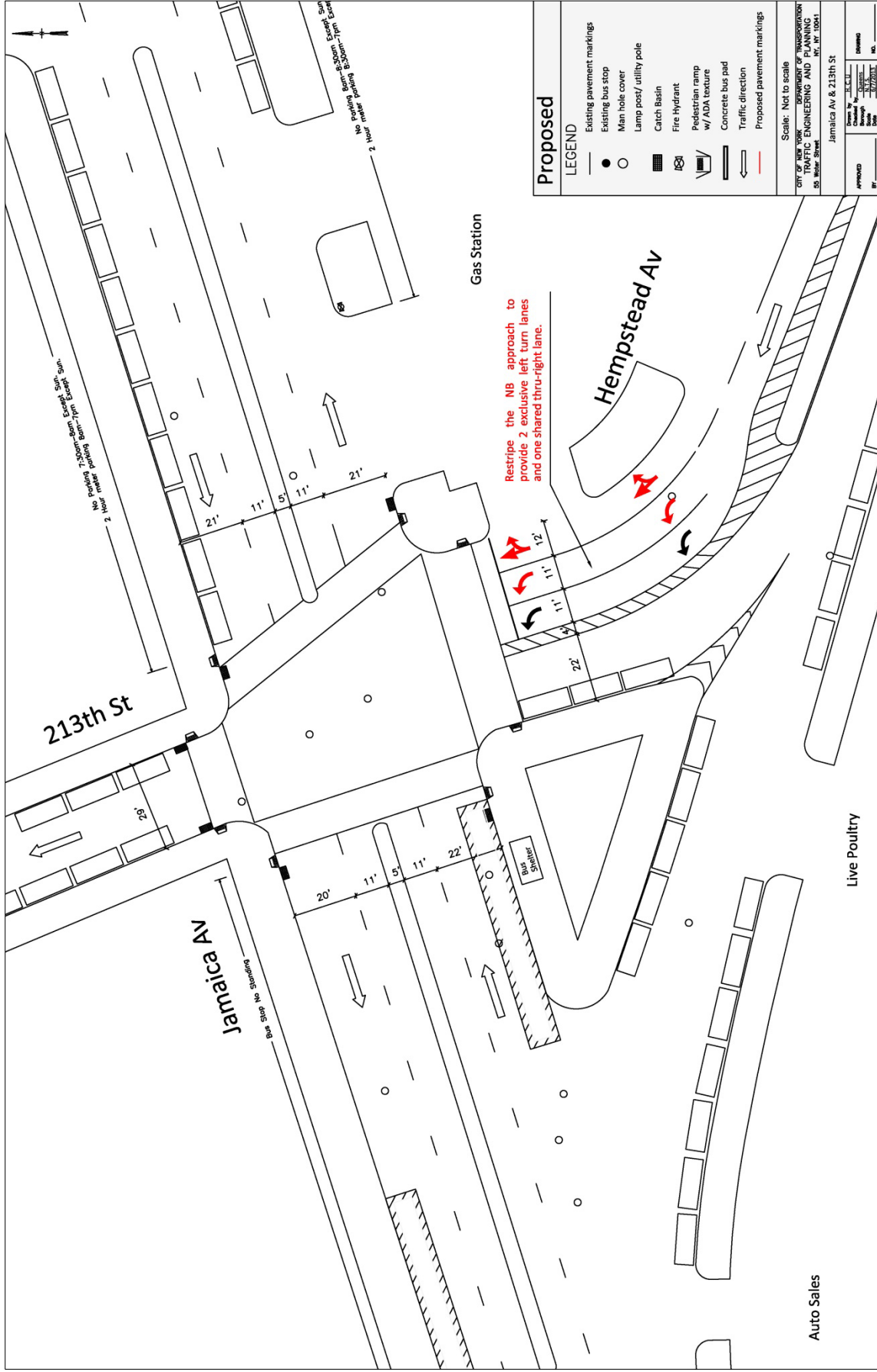
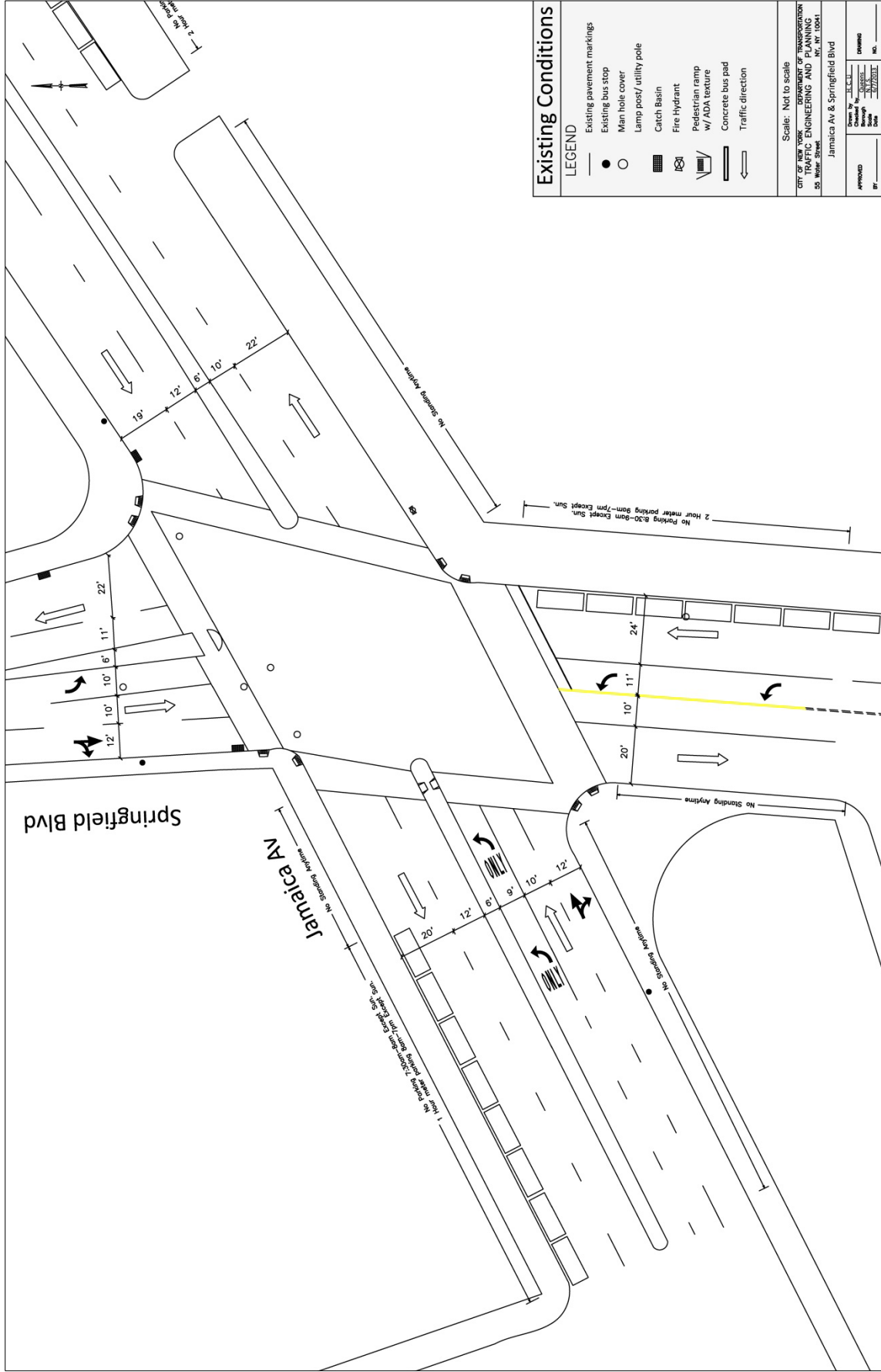


Figure 11-10: Jamaica Avenue and Springfield Boulevard (Existing)



**Existing Conditions**

**LEGEND**

- Existing pavement markings
- Existing bus stop
- Man hole cover
- Lamp post/ utility pole
- Catch Basin
- Fire Hydrant
- Pedestrian ramp w/ ADA texture
- Concrete bus pad
- Traffic direction

Scale: Not to scale

DATE: 08/11/2011  
 PROJECT: JAMAICA AV & SPRINGFIELD BLVD  
 TRAFFIC ENGINEERING AND PLANNING  
 55 West Street  
 Jamaica Av & Springfield Blvd  
 NY, NY 10041

APPROVED: [Signature] DATE: 8/11/2011  
 CHECKED: [Signature] DATE: 8/11/2011  
 DRAWN: [Signature] DATE: 8/11/2011

Figure 11-11: Jamaica Avenue and Springfield Boulevard (Proposed)

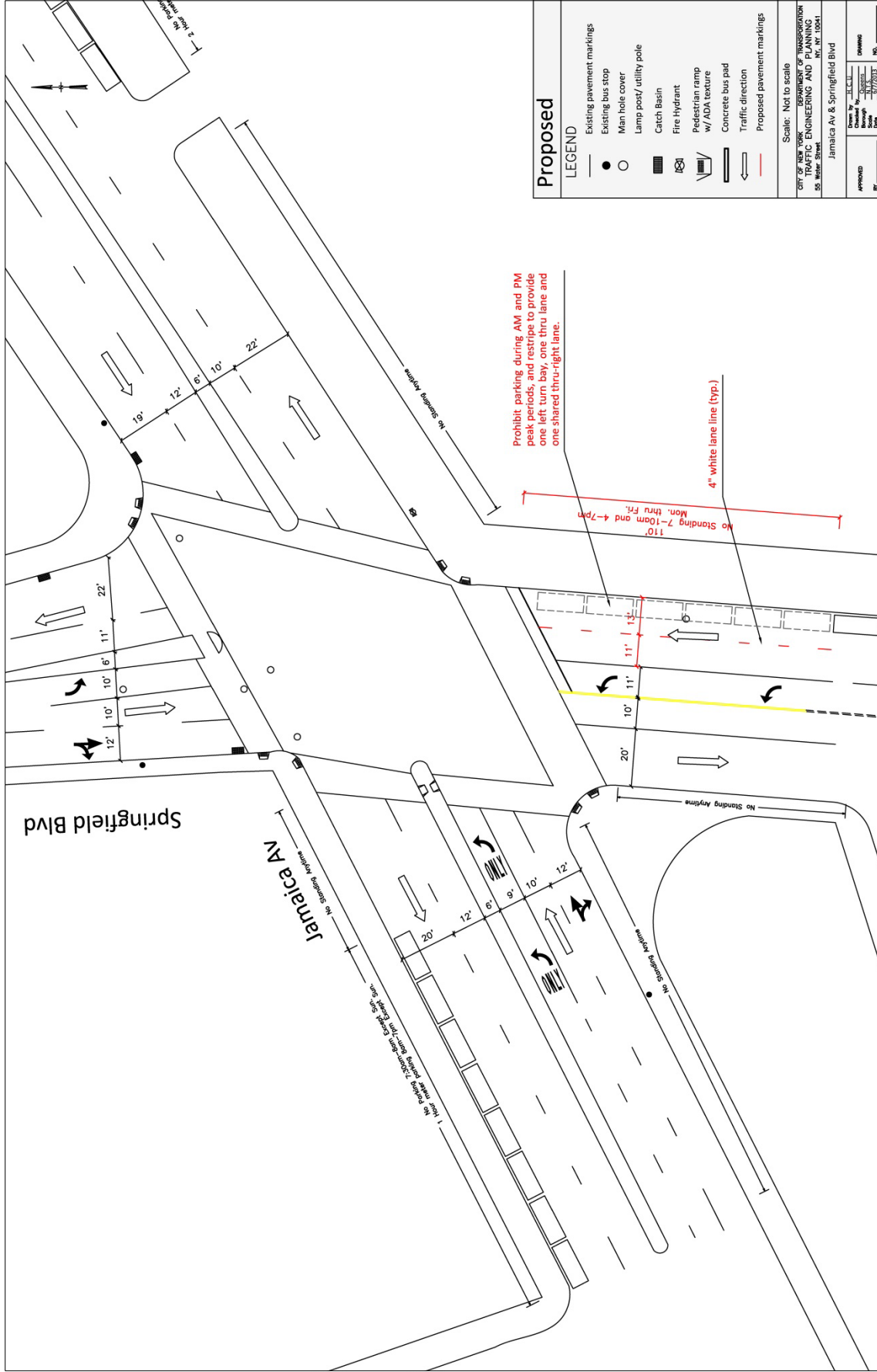


Figure 11-12: Jamaica Avenue and 222<sup>nd</sup> Street (Existing)

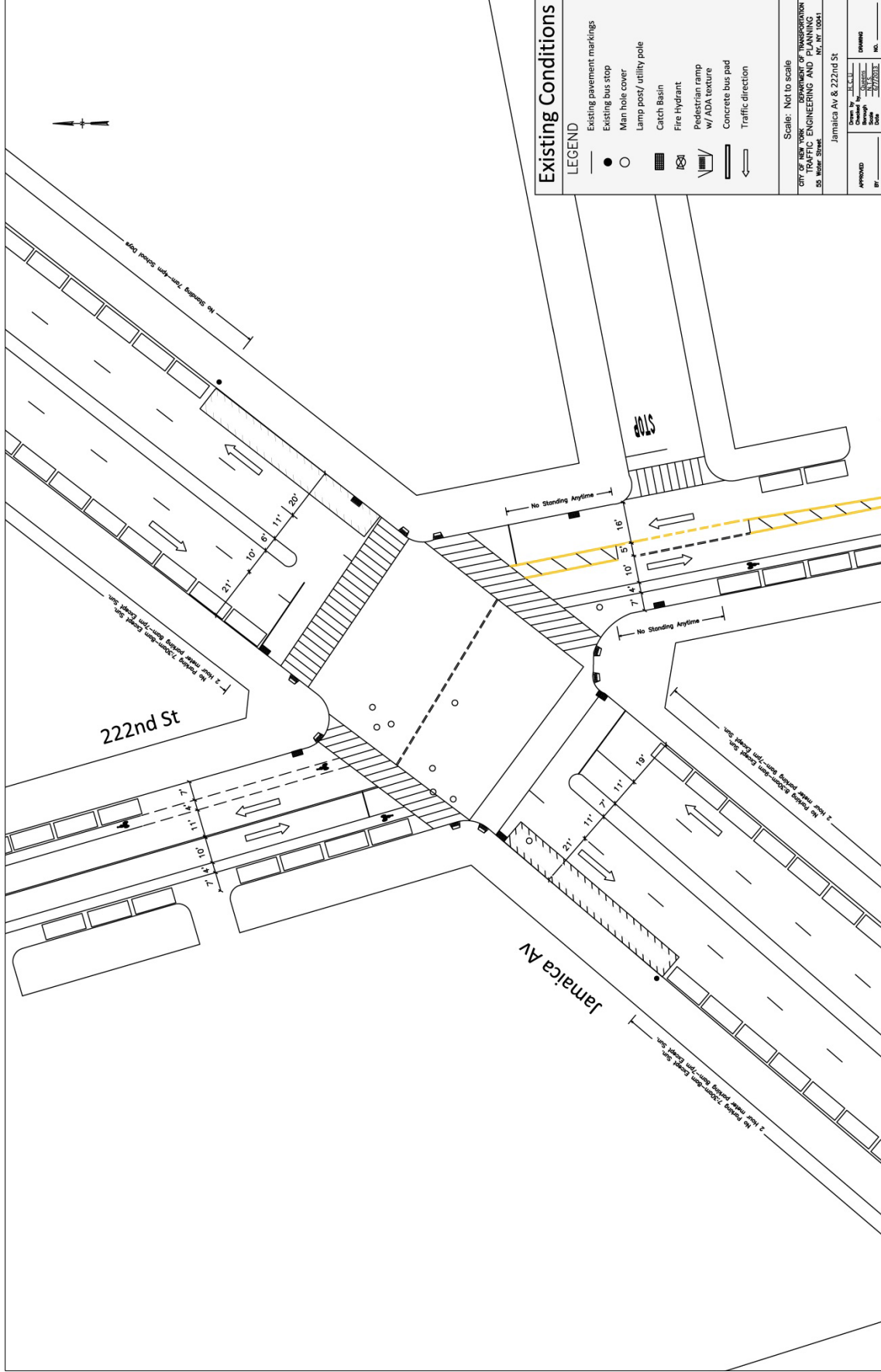
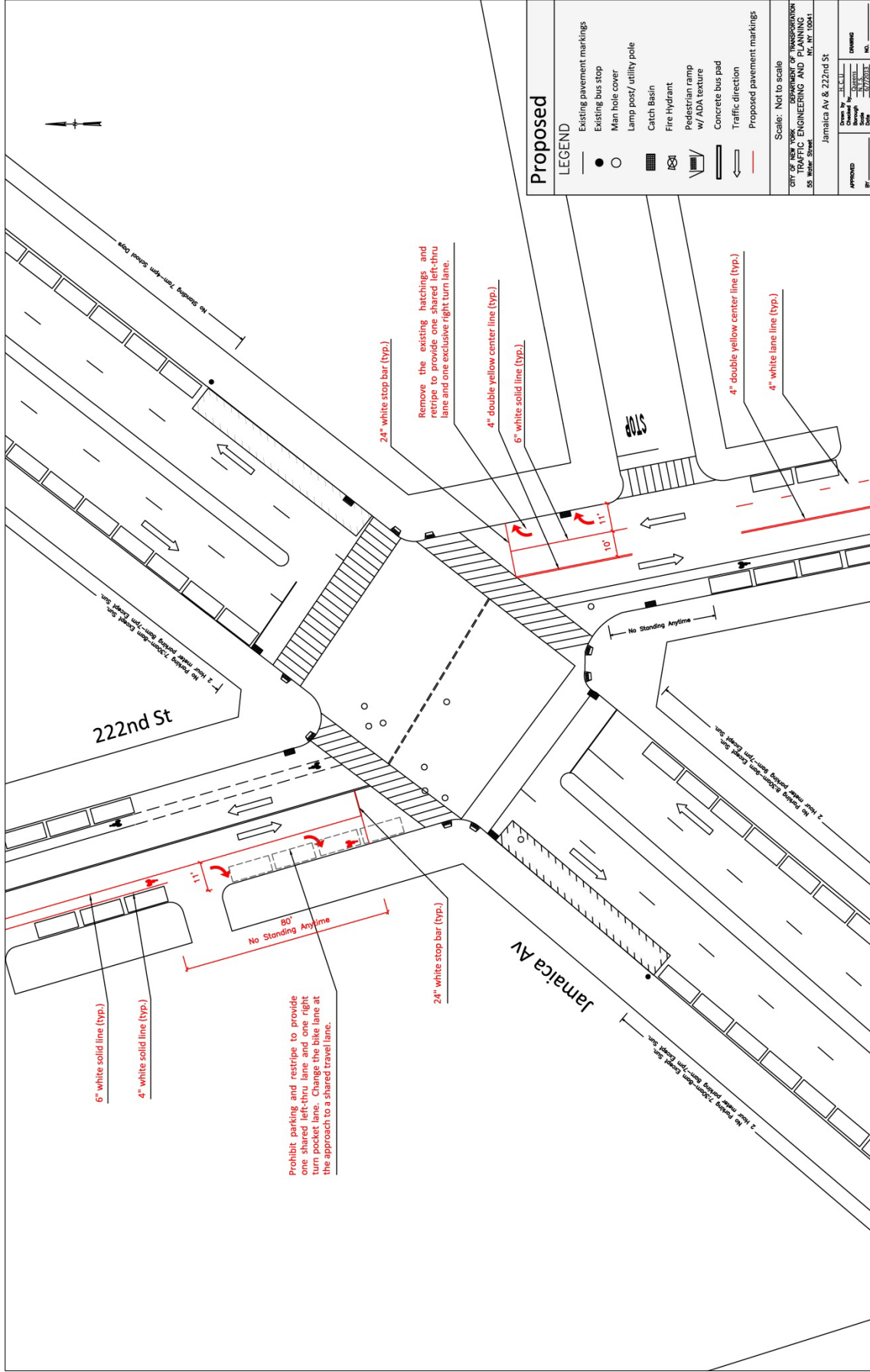




Figure 11-13: Jamaica Avenue and 222<sup>nd</sup> Street (Proposed)



**Table 11-1: Summary LOS (AM)**

1 of 2

Intersection	Appr.	Volume	Lane Config.	No. of Lanes	Existing Conditions					With Proposed Recommendations					Recommendations				
					V/C	Lane Group Delay	Lane Group LOS	Appr. Delay	Appr. LOS	Lane Config.	Lanes	Lane Group	V/C	Lane Group Delay		Lane Group LOS	Appr. Delay	Appr. LOS	
Francis Lewis Boulevard and Hillside Avenue	EB	L 215	L	1	1.05	117.7	F	75.8	E	L	1	L	0.90	75.1	E	<ul style="list-style-type: none"> <li>Remove one parking space on the northbound approach with "No Standing Anytime" and restripe to provide one shared left-thru lane, one thru lane, and one 90 feet long right turn pocket lane.</li> <li>Take 3 seconds from the NB/SB phase and 1 second from the EB/WB phase to add a total of 4 seconds to the EB/WB left turn phase during AM peak period.</li> </ul>			
		T 675	T	1	0.99	63.6	E			TR	1	TR	1.01	69.8	E		71.0	E	
	WB	L 130	L	1	0.56	46.3	D	39.0	D	L	1	L	0.48	40.3	D		39.9	D	
		T 1095	T	1	0.83	36.2	D			TR	1	TR	0.84	39.9	D				
	NB	L 65	L	1	1.05	89.0	F	89.0	F	LT	1	LT	0.90	56.6	E		56.8	E	
		T 480	T	1						TR	1	TR	0.34	39.9	D				
	SB	L 120	L	1	0.67	56.6	E	44.7	D	L	1	L	0.68	56.1	E		48.9	D	
		T 360	T	1	0.69	41.3	D			TR	1	TR	0.75	46.3	D				
	<b>TOTAL INTERSECTION</b>					Delay: 59.6    LOS: E					Delay: 53.5    LOS: D								
	Jamaica Avenue and Francis Lewis Boulevard	EB	L 30	LT	1	0.61	28.8	C	28.8	C	LT	1	LTR	0.58	27.8		C	<ul style="list-style-type: none"> <li>Remove four parking spaces on the westbound approach and install "No Standing Anytime" and restripe to provide one shared left-thru lane, one thru lane and one right turn pocket lane.</li> </ul>	
T 360			T	1					TR	1						27.8	C		
WB		L 85	LT	1	1.05	76.0	E	78.0	E	LT	1	LT	0.81	35.8	D	34.6	C		
		T 640	T	1					TR	1	R	0.38	26.0	C					
NB		L 15	LT	1	0.84	42.4	D	42.4	D	LT	1	LTR	0.88	46.8	D	46.8	D		
		T 840	T	1					TR	1									
SB		L 105	LT	1	0.86	64.7	E	30.6	C	LT	1	De/L	0.77	50.6	D	27.8	C		
		T 480	T	1	0.45	22.3	C			TR	1	TR	0.45	22.3	C				
<b>TOTAL INTERSECTION</b>					Delay: 48.8    LOS: D					Delay: 36.2    LOS: D									
Jamaica Avenue and 213th Street		EB	L 30	LT	1	0.35	9.4	A	9.4	A	LT	1	LTR	0.35	9.4	A	<ul style="list-style-type: none"> <li>Restripe the northbound approach to provide two exclusive left turn lanes, and one shared thru-right lane.</li> </ul>		
	T 370		T	1					TR	1						9.4		A	
	WB	L 45	LT	1	0.55	11.9	B	11.9	B	LT	1	LTR	0.55	11.9	B	11.9		B	
		T 665	T	1					TR	1									
	NB	L 430	L	1	1.05	102.2	F	79.1	E	L	2	L	0.54	40.2	D	46.9		D	
		T 265	LT	1	0.68	49.1	D			TR	1	TR	0.79	55.9	E				
	<b>TOTAL INTERSECTION</b>					Delay: 35.9    LOS: D					Delay: 24.1    LOS: C								
	Jamaica Avenue and Springfield Boulevard	EB	L 70	L	1	0.84	71.6	E	32.3	C	L	1	L	0.84	71.6	E		<ul style="list-style-type: none"> <li>Remove six parking spaces on the northbound approach and install "No Standing 7-10am and 4-7pm" and restripe to provide one left turn lane, one thru lane and one shared thru-right lane.</li> </ul>	
			T 525	T	1	0.57	25.6	C	32.3	C	TR	1	TR	0.57	25.6	C			32.3
		WB	L 80	LT	1	1.05	78.1	E	78.1	E	LT	1	LTR	1.05	78.1	E			78.1
T 620			T	1					TR	1									
NB		L 135	L	1	0.59	32.8	C	365.7	F	L	1	L	0.59	32.8	C	42.6	D		
		T 1015	TR	1	1.83	409.6	F			TR	1	TR	0.94	43.90	D				
SB		L 70	L	1	1.05	137.9	F	42.2	D	L	1	L	1.06	141.6	F	42.8	D		
		T 280	T	1	0.42	22.9	C			TR	1	TR	0.42	22.9	C				
<b>TOTAL INTERSECTION</b>					Delay: 172.8    LOS: F					Delay: 49    LOS: D									

**Table 11-1: Summary LOS (AM)**

2 of 2

Intersection	Appr.	Volume	Lane Config.	No. of Lanes	Lane Group	Existing Conditions				With Proposed Recommendations						Recommendations	
						V/C	Lane Group Delay	Lane Group LOS	Appr. Delay	Appr. LOS	Lane Config.	Lanes	Lane Group	V/C	Lane Group Delay		Lane Group LOS
Jamaica Avenue and 222nd Street	EB	L 25	LT	1	LTR	0.60	12.7	B			LT	1	LTR	0.61	14.0	B	<ul style="list-style-type: none"> <li>Remove the existing hatching on the northbound approach and restripe to provide one shared left-thru lane and one exclusive right turn lane.</li> <li>Remove four parking spaces on the southbound approach and restripe to provide one shared left-thru lane, and one right turn pocket lane with "No Standing Anytime".</li> <li>Change the bike lane at the southbound approach to a shared travel lane.</li> </ul>
		T 650	TR	1						TR	1						
		R 55															
	WB	L 50	LT	1	LTR	0.54	12.1	B			LT	1	LTR	0.56	13.4	B	
		T 490	TR	1						TR	1						
		R 25															
	NB	L 50	LTR	1		1.05	106.9	F			LT	1	LT	0.67	67.4	E	
		T 185								R	1	R	0.29	37.70	D		
		R 70															
	SB	L 75	LTR	1	LTR	1.05	118.7	F			LT	1	LT	0.67	51.0	D	
T 45									R	1	R	0.14	34.6	C			
R 25																	
<b>TOTAL INTERSECTION</b>																	
						Delay: 39.4	LOS: D							Delay: 25.3	LOS: C		
Hempstead Avenue and Springfield Boulevard	EB	L 65	L	1	L	0.98	120.4	F		L	1	L	0.43	20.6	C	<ul style="list-style-type: none"> <li>Change the existing LPI to EB/WB dual left turn phase and shift 6 seconds from the NB/SB phase to the proposed EB/WB left turn phase.</li> </ul>	
		T 550	T	1	TR	0.61	23.9	C		T	1	TR	0.61	23.9	C		
		R 85	TR	1						TR	1						
	WB	L 90	L	1	L	1.05	127.1	F		L	1	L	0.62	32.8	C		
		T 720	T	1	TR	1.05	72.1	E		T	1	TR	1.05	72.1	E		
		R 110	TR	1						TR	1						
	NB	L 75	L	1	L	0.60	36.4	D		L	1	L	0.72	54.2	D		
		T 695	T	2	T	0.69	25.4	C		T	2	T	0.63	35.4	D		
		R 110	R	1	R	0.21	18.0	C		R	1	R	0.25	22.5	D		
	SB	L 100	L	1	L	0.60	34.1	C		L	1	L	0.72	50.3	D		
T 620		T	1	TR	0.85	32.9	C		T	1	TR	1.01	64.2	E			
R 135		TR	1						TR	1							
<b>TOTAL INTERSECTION</b>																	
						Delay: 44.0	LOS: D							Delay: 49.2	LOS: D		

**Table 11-2: Summary LOS (PM)**

1 of 2

Intersection	Existing Conditions			With Proposed Recommendations							Recommendations							
	Appr.	Volume	Lane Config.	No. of Lanes	Lane Group	V/C	Lane Group Delay	Appr. Delay	Appr. LOS	Lane Config.		Lanes	Lane Group	V/C	Lane Group Delay	Lane Group LOS	Appr. Delay	Appr. LOS
Francis Lewis Boulevard and Hillside Avenue	EB	L 120	L	1	L	0.57	45.7	D	E	68.7	E	L	0.62	50.6	D	69.3	E	
		R 895	T	1	TR	1.03	71.7	E				TR	1.03	71.7	E			
	WB	L 115	L	1	L	0.68	57.6	E	D	40.8	D	L	0.75	65.6	E	42.3	D	
		R 625	T	1	TR	0.78	37.2	D				TR	0.78	37.2	D			
	NB	L 100	L	1	LTR	1.04	81.3	F	F	81.3	F	L	0.85	46.7	D	45.6	D	
		R 680	T	1	TR	1.01	103.4	F				R	0.38	36.3	D			
	SB	L 255	L	1	L	1.01	103.4	F	F	87.6	F	L	0.97	90.2	F	77.9	E	
		R 890	T	1	TR	1.05	83.7	F				T	1.03	74.8	E			
	<b>TOTAL INTERSECTION</b>																	
	Delay: 71.1      LOS: E      Delay: 61.5      LOS: E																	
Jamaica Avenue and Francis Lewis Boulevard	EB	L 30	L	1	LTR	0.71	31.4	C	C	31.4	C	L	0.70	31.1	C	31.1	C	
		R 545	T	1	TR							TR						
	WB	L 80	L	1	LTR	1.00	67.8	E	E	67.8	E	L	0.82	38.5	D	37.0	D	
		R 375	T	1	TR							R	0.19	21.6	C			
	NB	L 30	L	1	LTR	0.53	32.8	C	C	32.8	C	L	0.56	34.8	C	34.8	C	
		R 410	T	1	TR							T						
	SB	L 215	L	1	DefL	0.88	66.3	E	E	36.1	D	L	0.85	60.1	E	34.8	C	
		R 800	T	1	TR	0.71	28.1	C				T	0.71	28.1	C			
	<b>TOTAL INTERSECTION</b>																	
	Delay: 41.2      LOS: D      Delay: 34.4      LOS: C																	
Jamaica Avenue and 213th Street	EB	L 20	L	1	LTR	0.36	9.4	A	A	9.4	A	L	0.37	9.4	A	9.4	A	
		R 540	T	1	TR							TR						
	WB	L 40	L	1	LTR	0.44	10.3	B	B	10.3	B	L	0.44	10.3	B	10.3	B	
		R 465	T	1	TR							TR						
	NB	L 270	L	1	L	0.97	87.7	F	F	68.1	E	L	0.50	41.4	D	43.3	D	
		R 140	L	1	L	0.39	40.3	D				T	0.59	46.1	D			
	<b>TOTAL INTERSECTION</b>																	
	Delay: 26.8      LOS: C      Delay: 19.6      LOS: B																	
	Jamaica Avenue and Springfield Boulevard	EB	L 40	L	1	L	0.35	27.0	C	C	24.9	C	L	0.35	27.0	C	24.9	C
			R 600	T	1	TR	0.52	24.7	C				TR	0.52	24.7	C		
WB		L 110	L	1	LTR	1.05	76.0	E	E	76.0	E	L	1.05	76.0	E	76.0	E	
		R 445	T	1	TR							TR						
NB		L 145	L	1	L	1.05	112.6	F	F	70.7	E	L	1.05	112.6	F	47.9	D	
		R 290	T	1	TR	0.94	55.4	E				T	0.49	24.30	C			
SB		L 190	L	1	L	1.04	107.6	F	F	43.0	D	L	1.05	109.2	F	43.3	D	
		R 680	T	1	TR	0.64	27.3	C				T	0.64	27.3	C			
<b>TOTAL INTERSECTION</b>																		
Delay: 53.7      LOS: D      Delay: 48.9      LOS: D																		

**Table 11-2: Summary LOS (PM)**  
2 of 2

Intersection	Existing Conditions					With Proposed Recommendations					Recommendations				
	Appr.	Volume	Lane Config.	No. of Lanes	Lane Group	V/C	Lane Group Delay	Lane Group LOS	Appr. Delay	Appr. LOS		Lane Group Delay	Lane Group LOS	Appr. Delay	Appr. LOS
Jamaica Avenue and 222nd Street	EB	L 10 T 745 R 90	LT TR	1 1	LTR	0.62	13.3	B	13.3	B	13.3	B	13.3	B	
	WB	L 75 T 435 R 30	LT TR	1 1	LTR	0.63	14.0	B	14.0	B	14.0	B	14.0	B	
	NB	L 55 T 40 R 40	LTR	1	LTR	0.57	46.0	D	46.0	D	46.0	D	41.4	D	
	SB	L 50 T 125 R 20	LTR	1	LTR	1.04	110.8	F	110.8	F	54.1	D	54.1	D	
	<b>TOTAL INTERSECTION</b>														
	Delay: 28.2      LOS: C														
	Delay: 20.9      LOS: C														
	Hempstead Avenue and Springfield Boulevard	EB	L 70 T 735 R 175	L TR	1 1	L TR	0.66 0.88	46.3 35.0	D C	35.8	D	18.5 35.0	B C	33.7	C
		WB	L 90 T 640 R 105	L TR	1 1	L TR	1.05 1.05	133.0 74.3	F E	80.9	F	106.8 74.3	F E	78.0	E
		NB	L 85 T 335 R 65	L TR	1 1	L TR	0.62 0.36	37.2 19.2	D B	22.2	C	48.0 22.4	D C	26.8	C
SB		L 150 T 435 R 50	L TR	1 1	L TR	0.92 0.51	72.8 21.5	E C	34.0	C	108.8 25.4	F C	45.6	D	
<b>TOTAL INTERSECTION</b>															
Delay: 45.6      LOS: D															
Delay: 47.4      LOS: D															