North Corona Transportation Study

Final Report

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Executive Summary

The New York City Department of City Planning (NYCDCP) Transportation Division, in association with the NYCDCP Queens Office, conducted the North Corona Transportation Study. This transportation study was initiated in response to community concerns about existing and potential traffic congestion and safety issues with respect to traffic movements due to approved (as of September 17, 2003) rezoning and potential future land use developments. This study provides a comprehensive analysis of existing and projected future vehicular circulation, parking demand, public transit utilization, and pedestrian circulation patterns within the study area. This study develops recommendations to improve existing and future traffic circulation at principal intersections within the study area.

The overall objective of this study is to examine:

- the 2003 existing conditions, including traffic (during the AM, MD, PM, and Sunday MD peak hours), on- and off-street parking conditions, public transit services, and pedestrian circulation
- the 2013 future conditions, using the general background growth factor for Queens
- the 2013 future conditions, including the trips generated by four projected development sites (site no. 1 to 4, Figure 15).

This report presents detailed observations based on field reconnaissance, and documents and evaluates the existing conditions within the study area, including an inventory and analysis of existing land uses and zoning; demographic and socioeconomic profiles; and field data such as street network and geometry, the conditions of streets and sidewalks, on-street parking regulations, transit service, pedestrian circulation, and accident data. Additionally, traffic volume and vehicle classification counts were conducted at 28 signalized and 3 unsignalized intersections within the study area. Automatic Traffic Recorders (ATR) were used to conduct automatic 24-hour traffic counts for one full week (seven consecutive days) at five locations in the study area during October and November 2003. Also, pedestrian counts were conducted at eight locations. Five bus lines were examined as part of the analysis. Project 2013 future conditions including land use, zoning changes, traffic, parking, transit, and pedestrian activity were also analyzed. Level of service (LOS) analysis for 2003 existing and 2013 future conditions are included in the report.

Based on the results of the existing and future condition analyses, problems have been identified and the following improvements have been recommended:

- Vehicular Traffic - Vehicular flow and signage improvements are recommended.
- Intersection Operation Improvements - Daylighting and/or signal timing changes are recommended to improve signal functionality.
- Parking Improvements
  Off-Street Parking - The creation of parking facilities such as lots or garages are recommended.
  On-Street Parking - The changes in parking regulations are recommended.
- Public Transit
  Local Bus Service - Additional buses on two bus lines, Q66 and Q72, are recommended.
- Roadway Improvements - Resurfacing of Junction Boulevard between 35th and 37th Avenue is recommended.

These recommendations, shown in Figure RI (Page 133), enhance vehicular and pedestrian safety, allow higher parking turnover during day, and reduce congestion in the study area.

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Introduction

The New York City Department of City Planning (NYCDCP) Transportation Division, in association with the NYCDCP Queens Office is undertaking the North Corona Transportation Study. The study will assess approved (as of September 17, 2003) rezoning and potential future land use development scenarios in order to provide a comprehensive analysis of existing and projected future vehicular, parking, public transit conditions, and pedestrian circulation patterns within the study area. The traffic study will recommend possibilities for improving traffic circulation at principal intersections in the study area.

North Corona, located in northern Queens, encompasses a portion of Community District 3. The area is bounded generally by 89th Street to the west, Roosevelt Avenue to the south, Grand Central Parkway to the east, and 32nd Avenue and Astoria Boulevard to the north (see figure 2). Northern Boulevard and 34th, 37th, and Roosevelt avenues are the principal east-west traffic corridors, and Junction Boulevard, and 108th Street are the principal north-south traffic corridors in the study area.

From a transportation perspective, the Department of City Planning is concerned with facilitating the current traffic flow and pedestrian safety, planning for projected increases in traffic, and improving mobility.

Technical Memorandum 1 (TM1) presented a detailed work program which outlined the process, including tasks and products, and schedule for work completion. It also established a Technical Advisory Committee (TAC), which consists of representatives from the New York Metropolitan Transportation Council (NYMTC), NYCDCP Queens Office, New York City Department of Transportation (NYCDOT), New York State Department of Transportation (NYSDOT), Queens Borough President's Office, Queens Community Board 3, Queens Community Board 4, elected officials, and other relevant governmental and civic groups.

Additionally, this document presented a literature review of current and previous studies, including published reports, Environmental Assessment Statements (EAS), Environmental Impact Statements (EIS), and other relevant documents. It summarized the transportation components, including the analysis and recommendations.

Technical Memorandum 2 documented and evaluated the existing conditions within the study area. The following components were included:

- field reconnaissance of the study area
- inventory and analysis of existing land uses and zoning
- demographic and socioeconomic profiles
- field data such as street network and geometry, conditions of streets and sidewalks, traffic volumes, vehicle classification counts, signal timing and phasing, on/off street parking regulations, park-and-ride facilities, pedestrian circulation, accident data, and other warranted data.

Additionally, this document provided qualitative and quantitative analyses of existing conditions within the study area, such as level of service (LOS), parking demand, transit use, and pedestrian circulation.

Technical Memorandum 3 evaluated the future (projected) conditions within the study area. This evaluation included a detailed inventory of the plausible land uses, development potential, zoning changes, and an examination of demographic trends. Additionally, a quantitative analysis of the future conditions, such as traffic generation, parking demand, transit use, and pedestrian circulation, was performed. Based on the results of the analyses, problems have been identified, potential improvements have been recommended.

This report is the consolidation of TM 2 and TM 3, which have been reviewed by the Technical Advisory Committee.

Existing Conditions

Study Area Boundaries and Neighborhoods

The North Corona study area is situated in north central Queens, south of La Guardia Airport and west of Flushing Meadow Park. The study area is bounded generally by 89th Street to the west, Roosevelt Avenue to the south, Grand Central Parkway to the east, and 32nd Avenue and Astoria Boulevard to the north. This mainly residential area encompasses the North Corona neighborhood and the eastern part of Jackson Heights. The surrounding neighborhoods are Jackson Heights on the west, East Elmhurst on the north, Elmhurst and Corona on the south, and Flushing Meadows-Corona Park and Downtown Flushing on the east.

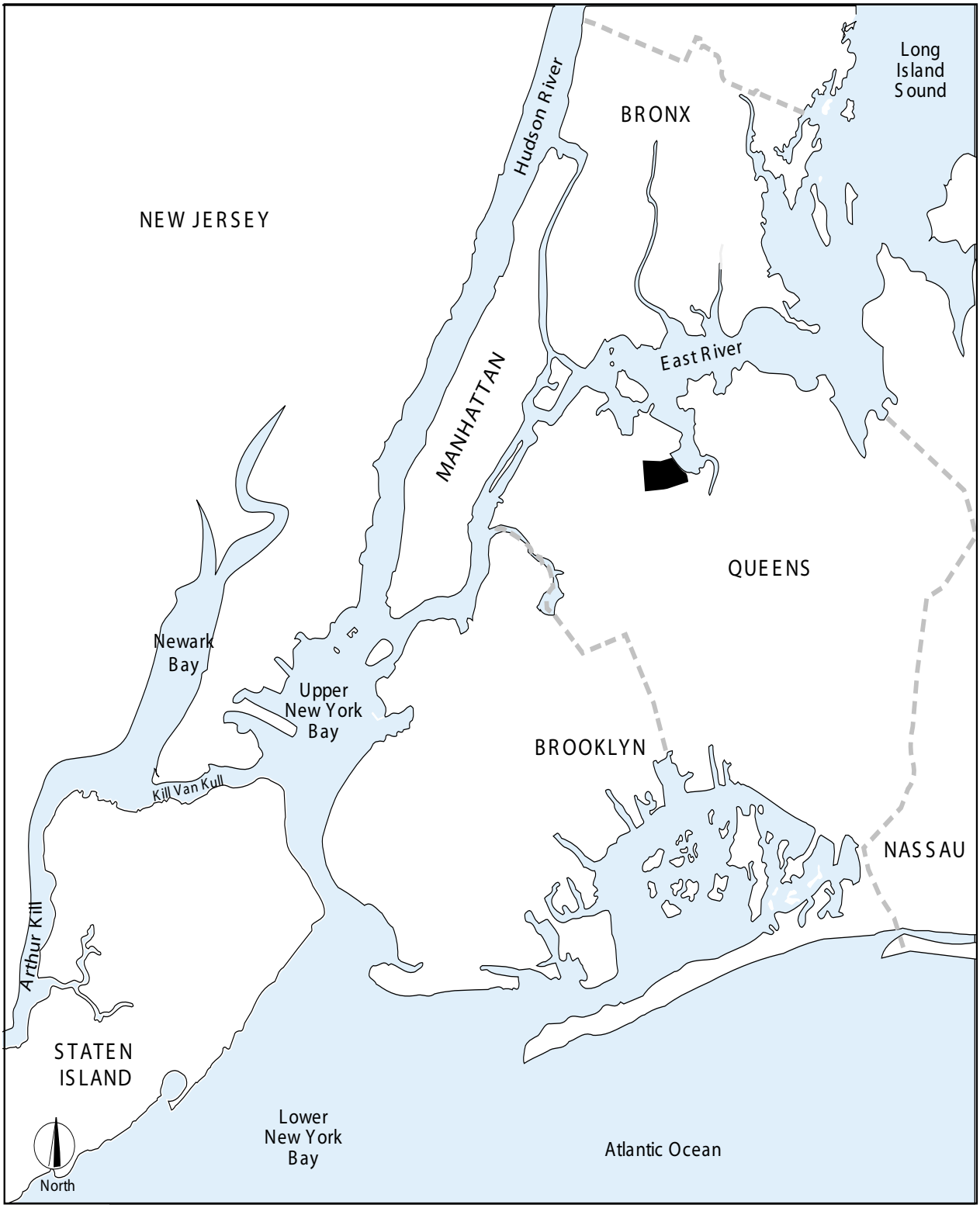
The study area is situated within the southeast section of Community District 3 and borders Community District 4, with Roosevelt Avenue as the divider. Figure 1 identifies the North Corona study area within the regional context and Figure 2 illustrates the study area.

Study Area History

The first inhabitants of the general area were the Matinecock Indians, who lived near bays and inlets along the coast, including what is now Flushing Bay. The Dutch explored the region in the early 1600s. English settlers entered Queens in the 1640s. English families settled in the vicinity of North Corona in the 1650s. The area population remained basically rural until approximately the 1830s, when the population markedly increased in the next decade. Urbanization accelerated during the 1850s. Speculators bought up farms between 1852 and 1854 for resale as village lots in West Flushing (now Corona, which lies south of Roosevelt Avenue) along the proposed route of the Long Island Rail Road. The railroad began offering service in 1854 between Hunter's Point and Flushing, a route which ran through the Corona area.

Corona was developed in 1854 by a group of speculators from New York City and named West Flushing. The developers planned the streets according to the route of the railroad, and settlement increased. In 1872, the village changed its name to Corona (the "crown" of villages on Long Island). Early factories made china, portable houses, and from 1893 into the 1930s, Tiffany glass. The population increased between the 1890s and 1910s, and continued to grow after 1917, when a branch of the subway service was extended along Queens Boulevard and Roosevelt Avenue and reached Corona. The Queensboro Bridge opened in 1909, providing access to the borough by automobile and trolley.

Corona's commercial center shifted in the 1920s from near the railroad station to Northern Boulevard, located in the North Corona area. Development was slowed by the Depression, but a number of public facilities helped further development in the North Corona area. The Grand Central Parkway opened in 1936. The established transportation network was improved: Astoria Avenue was widened and made into a boulevard, the Bronx-Whitestone Bridge was built, and La Guardia Airport opened in 1939. With these additions and the existing rail and subway services, north central Queens became readily accessible to residents from the rest of the city and an ideal location for the site of the World's Fair between 1939 and 1940 at nearby Flushing Meadows Park, which later was renamed Flushing Meadows-Corona Park. Postwar growth culminated in the opening of Shea Stadium in 1964 and the World's Fair of 1964-65, both in Flushing Meadows-Corona Park.

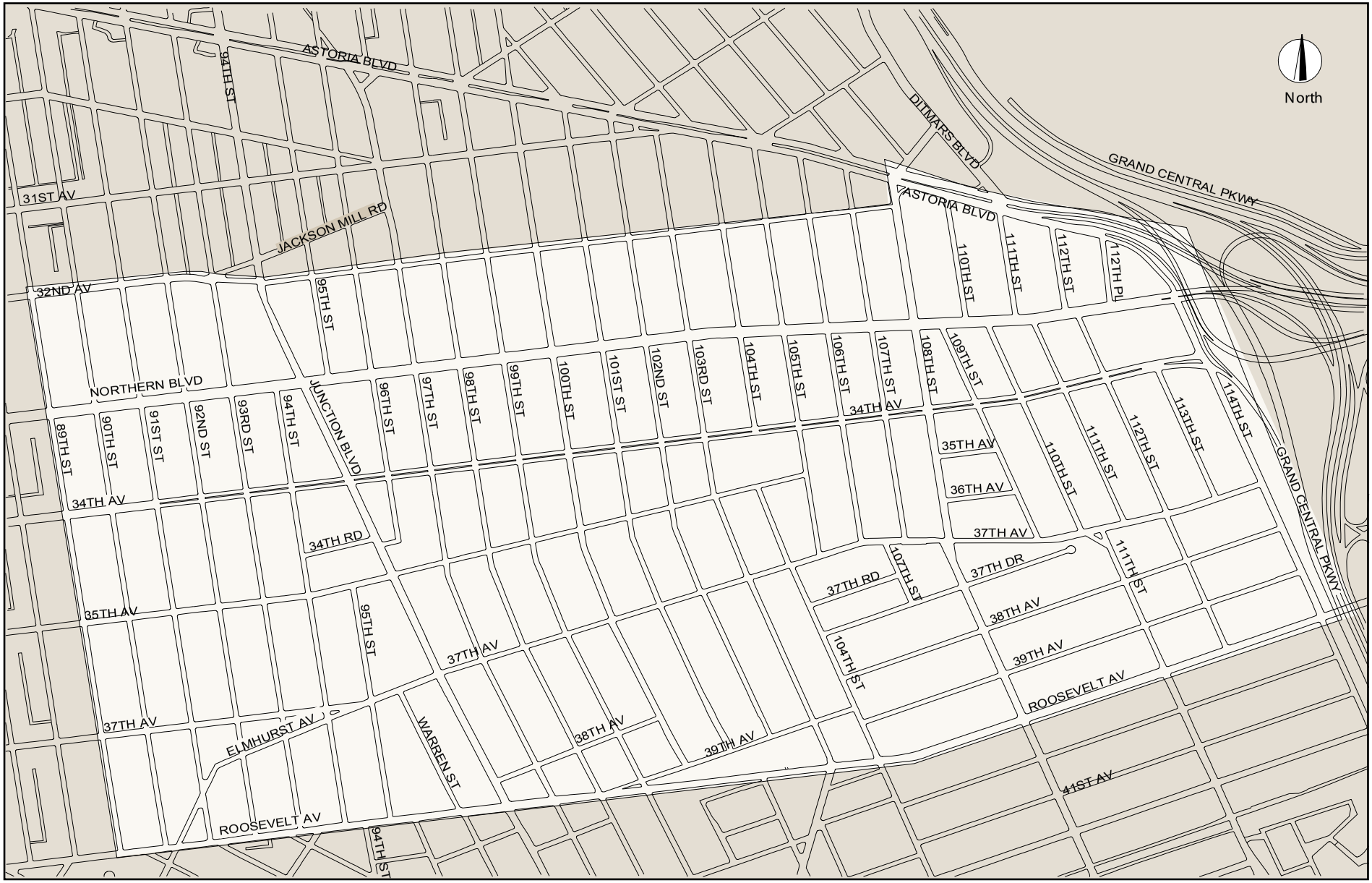


Regional Context

Study Area Location

Figure 1

NYC Department of City Planning, Transportation Division



Study Area

Figure 2

While the study area is comprised mainly of the North Corona neighborhood, it includes a portion of the Jackson Heights community, situated west of 94th Street. A large real estate syndicate planned and financed large-scale apartment house development in most of Jackson Heights during the 1910s and 1920s. The eastern section of Jackson Heights, located near Junction Boulevard and within the study area, was gradually developed with apartment houses during the 1930s.

From 1943 to 1971, the great jazz trumpeter, Louis Armstrong, lived in North Corona, when the neighborhood was evolving from a mainly middle-class suburban community with a large Jewish and Italian population to a very ethnically diverse community. The area gained a large Latin American community after the Second World War, at first Puerto Rican and after 1965 increasingly Dominican. There was a considerable movement of a variety of immigrant groups into the neighborhood starting in the 1980s.

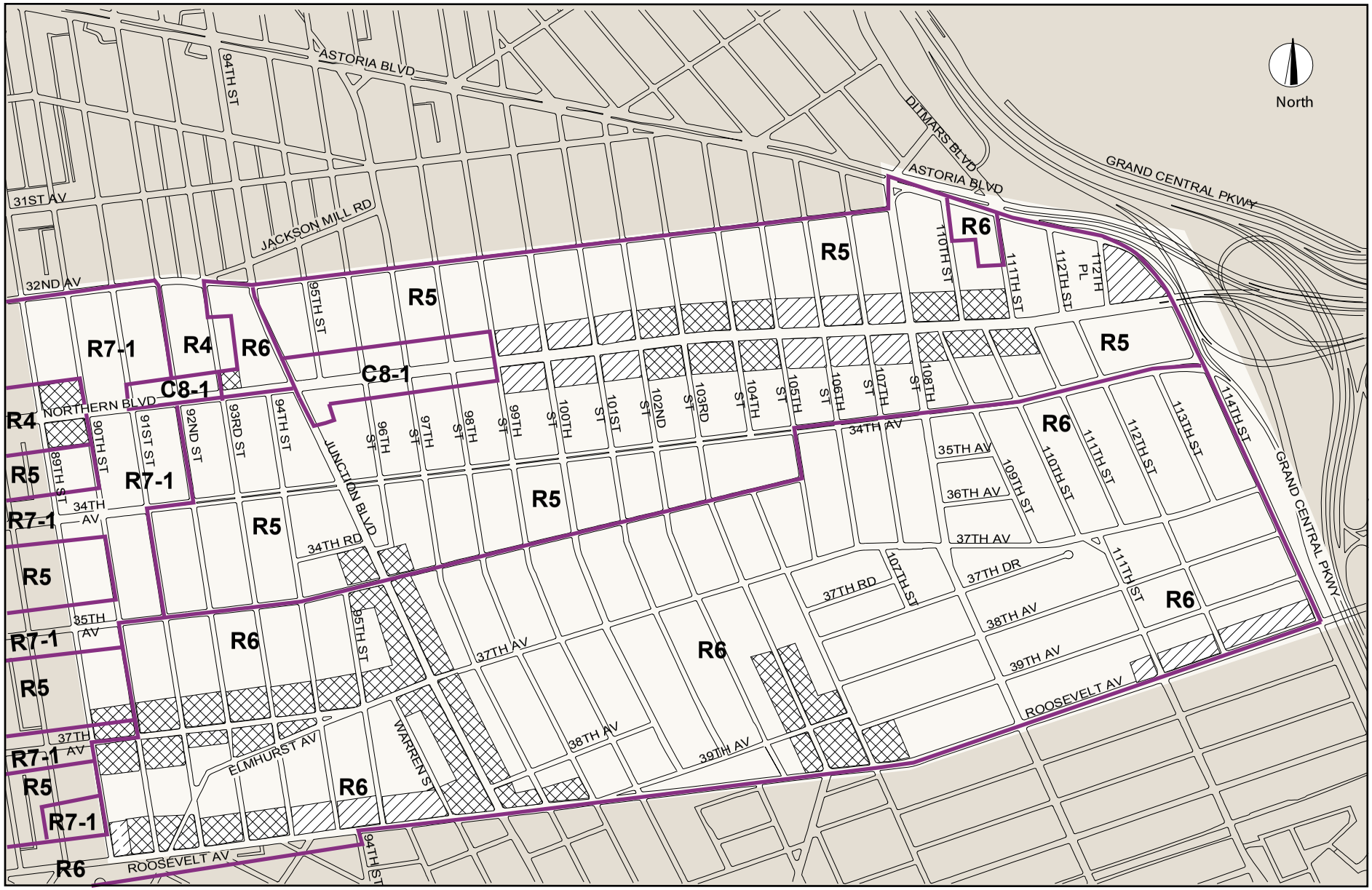
In the 1960s, certain sections of the North Corona rezoning area suffered a physical decline. Seeking to rectify this condition, East Elmhurst, a neighborhood that included portions of North Corona, was designated an urban renewal area. During this period, several publically assisted housing projects were completed. These varied in type from elevator apartment buildings to several, suburban type, single-family detached residential buildings on small vacant lots. Thereafter followed a period of reduced public housing, the result of the city's budget crisis of the 1970's. However, during the last decade, in reaction to the dramatic increase in population growth for North Corona triggered by new Latin American immigration, many new privately sponsored residential buildings have been completed. The configuration of this new residential construction has been mostly limited to three- and four-story, multiple-family walk-up apartment buildings that replace the lower-density, detached, single-family residences on wide lots.

Zoning

A brief overview of the citywide zoning is provided below. Thereafter, the existing conditions section describes the North Corona zoning districts in effect prior to September 2003, when North Corona underwent a major rezoning action. The future conditions section of this study will describe the rezoning which was approved in September 2003.

There are three basic zoning designations within New York City: residential (R), commercial (C), and manufacturing (M). These designations are further broken down by density. There are ten residential, eight commercial, and three manufacturing zoning districts of varying densities. Manufacturing zoning districts are further classified into performance zones.

Residential zoning districts range from R1 (the lowest density) to R10 (the highest density). R1 zoning districts are typically characterized by single-family detached homes, while R10 zoning districts are generally characterized by high-rise elevator buildings. Commercial zoning districts range from C1 to C8, with each zoning district designed to serve a specific purpose. Uses permitted in commercial zoning districts range from local retail and service establishments (C1 and C2) to retail and office uses in a central business district (C5 and C6) to heavy automotive-related services (C8). Finally, manufacturing zoning districts range from M1 (a high performance zone) to M3 (a low performance zone). High performance zones accommodate light manufacturing uses which are the least harmful industrial uses and often provide a buffer between manufacturing zoning districts and residential and commercial zoning districts. In contrast, low performance zones include heavy



Existing Zoning-Year 2003

R6 Zoning District Boundaries
Zoning District Designation

Commercial Overlay Districts
C1-2
C2-2
C2-3

Figure 3

manufacturing uses which are typically the most noxious industrial uses.

The zoning designation determines which uses are allowed in each zoning district. These uses are categorized into 18 Use Groups by their common functional or nuisance characteristics. Use Groups 1-4 include residential and community facility uses, which are considered the least burdensome uses on the nuisance scale. Use Groups 5-16 consist of commercial uses. However, these are further broken down into local retail and commercial uses (Use Groups 5-11), waterfront and recreational uses (Use Groups 12-15), and general service uses such as automotive-related services (Use Group 16). Finally, Use Groups 17 and 18 include manufacturing uses, which are considered the most burdensome uses on the nuisance scale.

Residential Zoning Districts

Within the North Corona study area, there are four residential zoning districts, ranging from the lower density R4 zoning district to the higher density R7-1 zoning district. Figure 3 presents the existing zoning mapped within the study area. Table 1 delineates the floor area ratios (FAR) for each residential zoning district located within the study area. This description assumes the zoning conditions prior to September 2003.

The following text specifies the zoning district type, the general location, and an overview of the district regulations pertaining to each residential district located within the study area.

R4 District: There are two small R4 zoning districts located in the northwestern section of the study area. One R4 district is bounded generally by 32nd Avenue to the north, 93rd Street to the east, Northern Boulevard to the south, and 92nd Street to the west, while another R4 district is situated on both sides of Northern Boulevard between 89th Street and 90th Street.

The R4 district is a general residence zone that allows for a variety of housing types including single- and two-family residences that are detached or semi-detached, row houses, and garden apartments. In general, the buildings are no taller than three stories. The R4 district allows for the same variety of housing types as the R3-2 district but with a higher density; the 50 percent increase in the floor area ratio (FAR) produces bulkier structures.

R5 District: A large R5 district encompasses most of the northern half of the study area and is bounded generally by 32nd Avenue and Astoria Boulevard to the north, 114th Street to the east, 34th Avenue and 35th Avenue to the south, and 91st Street, 92nd Street, and Junction Boulevard to the west.

Three small R5 districts are located along the western border of the study area. These R5 districts are situated on mid-blocks between Northern Boulevard to the north and 37th Avenue to the south and between 89th Street to the west and 90th Street to the east.

The R5 district allows for the same variety of housing types as does the R4 district, but with a higher density. The maximum FAR of 1.25 (the attic allowance does not apply) typically produces three-story row house and small apartment buildings.

R6 District: A large R6 district comprises the southern half of the study area. Its general boundaries are 35th Avenue and 34th Avenue to the north, 114th Street to the east, Roosevelt Avenue to the

south, and 89th Street and 90th Street to the west.

In addition, two small R6 districts are located along the study area's northern boundary to the far west and far east. An R6 district is bounded generally by 32nd Avenue to the north, Junction Boulevard to the east, Northern Boulevard to the south, and 93rd Street to the west. Another R6 district is situated along Astoria Boulevard between 110th Street and 111th Street.

The R6 zoning district permits medium density housing which usually is between three and twelve stories tall. The floor area ratio in an R6 district ranges from 0.78 to 2.43. The higher density ratio is applied to buildings that provide more open space. The maximum permitted density is nearly double that of the R5 zoning district.

The Quality Housing Program is optional in R6 districts; on wide streets, buildings would be similar to development in R6A districts and, on narrow streets, similar to development in R6B districts.

R7-1 District: An R7-1 district is situated along the western border of the study area. It is bounded generally by 32nd Avenue to the north, 91st Street and 92nd Street to the east, 35th Avenue to the south, and 89th Street and 90th Street to the west.

The R7-1 district is a medium density apartment house district. The FAR range is from 0.87 to 3.44. The higher FAR typically produces 14-story buildings with low lot coverage that are set back from the street.

The Quality Housing Program is optional in R7 districts; on wide streets, buildings would be similar to development in R7A districts and, on narrow streets, similar to development in R7B districts.

Table 1
Residential Zoning Districts Located Within the Study Area

Zoning District	Maximum Residential FAR	Maximum Commercial FAR	Maximum Manufacturing FAR	Maximum Community Facilities FAR
R4	0.75 (Attic Allowance 0.90)*	1.00	Not Allowed	2.00
R5	1.25	1.00	Not Allowed	2.00
R6	0.78 to 2.43**	2.00	Not Allowed	4.80
R7-1	0.87 to 3.44**	2.00	Not Allowed	4.80

* Up to 0.15 FAR attic allowance.
** The lowest density is for a single-story building and the highest is the maximum achievable in the district for taller buildings.

Commercial Zoning Districts

There are four commercial zoning districts in the study area, the C8-1 district and the C1-2, C2-2, and C2-3 commercial overlay districts. Table 2 delineates the floor area ratios (FAR) for commercial zoning districts and commercial overlay districts located within the study area. This description assumes the zoning conditions prior to September 2003.

C8-1 District: Two separate C8-1 districts are located along Northern Boulevard. One C8-1 district is situated on the northern side of Northern Boulevard between 91st Street and 93rd Street. The other C8-1 district lies on both sides of Northern Boulevard between Junction Boulevard and 99th Street.

The C8-1 district allows for automotive sales and service establishments, typically located along major vehicular traffic arteries where concentrations of automotive uses have developed. Housing is not permitted in this district.

C1-2, C2-2, and C2-3 Overlay Districts: A combination of C1-2 and C2-2 commercial overlay districts are located along several streets: Northern Boulevard between 89th Street and 90th Street, at 93rd Street, and between 99th Street and 114th Street; 37th Avenues between 89th Street and Junction Boulevard; Roosevelt Avenue between 89th Street and 98th Street, at 103rd Street and at 104th Street, and between 111th Street and 114th Street; Junction Boulevard between Roosevelt Avenue and 34th Road; and 103rd Street between Roosevelt Avenue and the mid-block between 37th Avenue and 39th Avenue.

A small C2-3 overlay district is situated at the far southwestern corner of the study area, along Roosevelt Avenue at 89th Street.

The C1-2 district is mapped as an overlay, generally along major avenues in residential districts. The C1-2 district accommodates the retail and personal service shops needed in residential neighborhoods. Regulations limit the commercial uses to one or two floors. Continuous, clustered retail development is desired in this district.

The C2-2 and C2-3 districts also are mapped as overlays in the residential districts. The C2-2 and C2-3 districts permit a wider range of local retail and service establishments than the C1-2 district. Additional uses permitted in the C2-2 and C2-3 districts are businesses that would not be supported by a smaller neighborhood. The height limit is one or two floors.

Table 2
Commercial Zoning Districts Located Within the Study Area

Zoning District	Maximum Residential FAR	Maximum Commercial FAR	Maximum Manufacturing FAR	Maximum Community Facility FAR
C8-1	Not Allowed	1.0	Not Allowed	2.4
C1-2 District in the R4 and R5 Districts	The FAR bulk regulations of the surrounding residential district in which the commercial district is mapped (see Table 1)	1.0	Not Allowed	The FAR bulk regulations of the surrounding residential district in which the commercial district is mapped (see Table 1)
C1-2 District in the R6 and R7-1 Districts		2.0	Not Allowed	
C2-2 District in the R5 District		1.0	Not Allowed	
C2-2 District in the R6 District		2.0	Not Allowed	
C2-3 District in the R6 District		2.0	Not Allowed	
C8-1 District	Not Allowed	1.0	Not Allowed	2.4

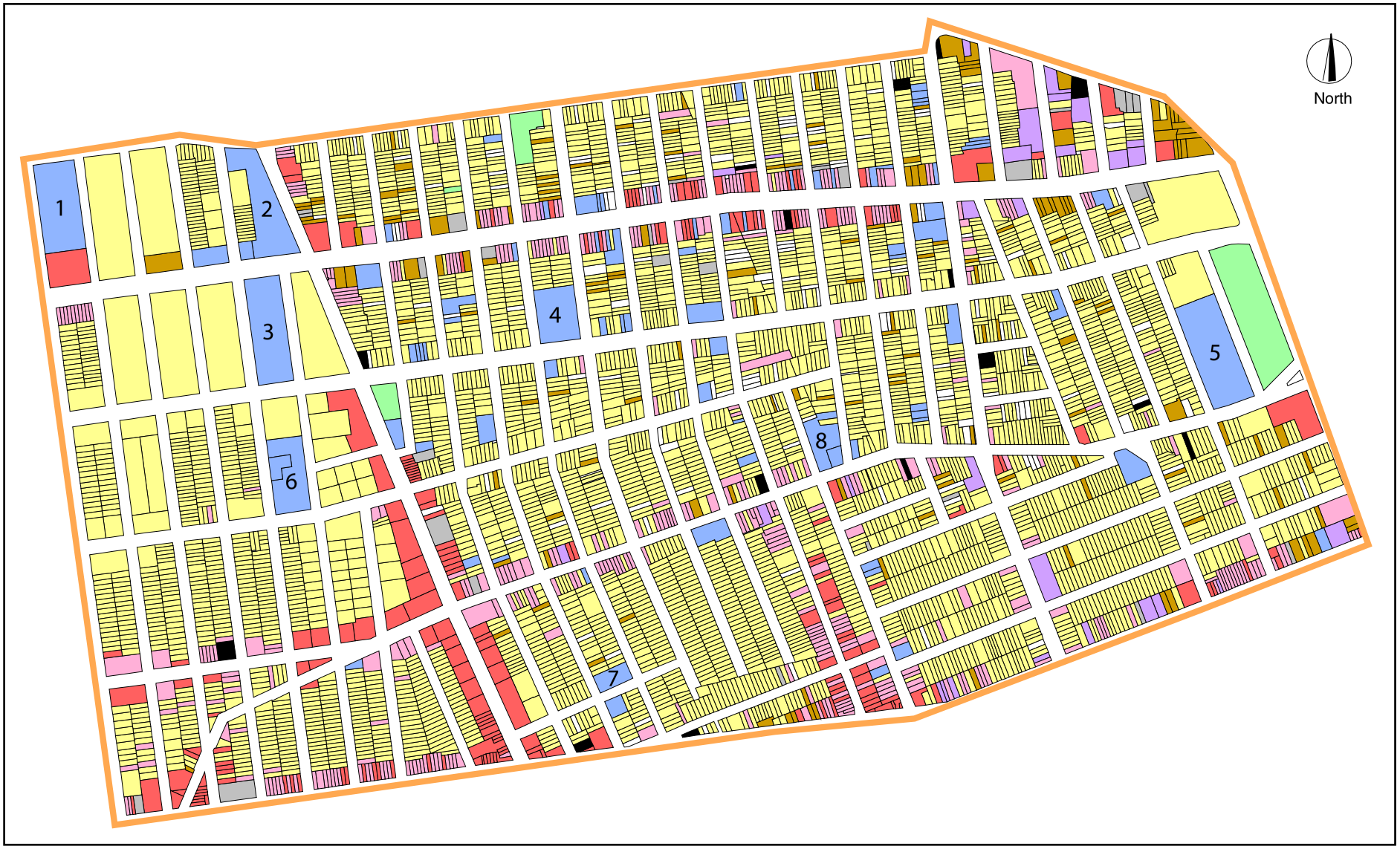
Land Use

North Corona is a predominantly residential neighborhood which includes a mix of uses. The land use is comprised of one- and two-family residential buildings, multiple-family walk-up and elevator buildings, mixed residential and commercial buildings, retail and office uses, schools and public facilities, parks and open space, light industrial and auto-related businesses, and vacant land and parking lots. Figure 4 presents the existing land use within the study area.

Residential Use

The housing stock is very diversified, encompassing many one- and two-family detached and semi-detached homes, numerous multiple dwelling walk-up buildings, and some multiple dwelling elevator apartment buildings.

East of Junction Boulevard, the housing stock is comprised mostly of small one- and two-family detached and semi-detached houses situated on narrow lots. This section of the study area also



Existing Land Use-Year 2003

- UNDER DEVELOPMENT
- RESIDENTIAL
- MIXED-USE / COMMERCIAL + RESIDENTIAL
- RETAIL / OFFICE
- MANUFACTURING / WAREHOUSE
- TRANSPORTATION / UTILITY
- PUBLIC FACILITY / SCHOOLS (See "School Locations" Table)
- OPEN SPACE / RECREATION
- PARKING (NON-PUBLIC)
- VACANT LAND

Figure 4

includes many small and moderately sized multiple dwelling walk-up buildings, which are regularly interspersed among the one- and two-family homes and located along narrower, mid-block streets. Several six- to 12-story apartment buildings are situated in the eastern portion of this section, along Astoria and Northern boulevards and 34th Avenue. The housing stock is often situated on the same block as non-residential uses, particularly along Northern Boulevard and between Northern Boulevard and both Astoria Boulevard and 34th Avenue. Mixed use residential buildings, with commercial activity on the ground floor, are concentrated along Roosevelt Avenue and, to a lesser extent, Northern Boulevard, 37th Avenue, and 103rd Street. On the blocks near to Junction Boulevard, newer semi-detached two-family structures are located on side streets.

West of Junction Boulevard, the housing stock typically consists of newer two-family, semi-detached, two-story houses and multi-family, six-to 12-story elevator buildings, located along the mid-blocks. This section of North Corona is solidly residential and generally devoid of the non-residential uses found east of Junction Boulevard. This western section of the study area includes a portion of the Jackson Heights National Register Historic District, which contains residential buildings of architectural and historic merit.

Commercial and Office Use

A number of streets in the North Corona study area contain strip retail shopping activity that serves the immediate residents as well as a regional clientele. Within the study area, the lengths of Northern Boulevard, Junction Boulevard, and Roosevelt Avenue, and parts of 37th Avenue and 103rd Street, contain commercial activity. The stores in North Corona offer ethnic services and goods related to the diverse immigrant population residing in the immediate area and nearby. Junction Boulevard, the commercial spine of the area with regional type shopping, contains one-story retail uses such as clothing stores, fast food restaurants, travel agencies, and supermarkets. Northern Boulevard, a major thoroughfare in the borough, contains retail shops that are adjacent to auto-related uses, parking lots, and industrial buildings. Roosevelt Avenue also contains retail shops along with a similar mix of activities (auto-related, industrial, etc.). An overhead subway structure (the #7 Flushing line) runs above Roosevelt Avenue. There are four subway station stops located along Roosevelt Avenue, and subway riders utilize the stores on Roosevelt Avenue.

Office land use, other than retail use, is located along Junction Boulevard and 37th Avenue and, to a lesser extent, Northern Boulevard, Roosevelt Avenue, and 103rd Street. For example, professional office and other businesses are situated at Junction Boulevard and 37th Avenue.

Schools and Public Facilities

The North Corona area contains a mix of public and private schools including four public elementary schools (PS 143 Meadow School, PS 92 Harry T. Stewart School, PS 149 Christa McAuliffe School, and PS 148 Ruby Allen School), one public intermediate school (IS 227 Louis Armstrong School), and at least a half-dozen private and parochial schools, operating mostly at the elementary school level. The above mentioned four public schools, one intermediate school, and three major private school locations are described in the following table and plotted in figure 4.

No. on Figure 4	School Name and Address *	Grade
1	P.S. 148, Ruby Allen School 89-02 32nd Avenue	Pre K - 8
2	I.S. 227, Louis Armstrong School 32-02 Junction Boulevard	Pre K - 8, 9 - 12
3	P.S. 149, Christa McAuliffe School 93-11 34th Avenue	Pre K - 8
4	P.S. 92, Harry T. Stewart School 99-01 34th Avenue	Pre K - 8
5	P.S. 143, Meadow School 34-74 113th Street	Pre K - 8
6	Blessed Sacrement School (Roman Catholic) Elementry School 34-20 94th Street	Pre K - 8
7	Transfiguration School (Greek Orthodox) 98-07 38th Avenue	K - 8, 9 - 12
8	Our Lady of Sorrows School (Roman Catholic) 35-34 105th Street	Pre K - 8
* Only Schools with approximately 100 or more Students are included in this Table.		

In addition, the area is served by two Queens Borough Public Library branches, the Langston Hughes Community Library and Cultural Center, situated at Northern Boulevard and 100th Street, and the Corona Branch Library, located at 104th Street and 38th Avenue. The 115th Police Precinct house is located on Northern Boulevard at 92nd Street, just west of Junction Boulevard.

A public health station, the Astoria-Corona District Health Center, is found on Junction Boulevard. Several public day care centers/ headstart centers are situated in the vicinity of Northern Boulevard, east of Junction Boulevard. Also, the study area contains at least two senior citizen centers, located on 111th Street at 37th Avenue and on 34th Avenue at 102nd Street.

Recreational Facilities, Parks, and Open Space Use

Local Facilities

The study area contains a number of NYC Department of Parks and Recreation (DPR)-owned parks and playgrounds (jointly operated with the Board of Education). These include Reverend George Warren Hinton Park, a three-acre site situated at 114th Street and 34th Avenue, a playground (known as Junction) at Junction Boulevard and 34th Avenue, and several one- to two-acre playgrounds at associated schools, PS 143 playground, PS 149 playground, and PS 148 playground. The City-operated outdoor Fischer swimming pool is located at 32nd Avenue and 99th Street. Also, there is an existing on-street bike lane on 34th Avenue Streching from 68th Street to 114th Street. In addition, a bike lane is recommended on 114th Street between 34th Avenue and Roosevelt Avenue.

Regional Facilities

The DPR's Flushing Meadows-Corona Park borders the eastern edge of the study area. The

regional park is wedged between and can be accessed from the Grand Central Parkway, Van Wyck Expressway, and Long Island Expressway. This 1,257.6 acre park contains such facilities as the New York Hall of Science, Queens Museum of Art, Queens Zoo, the World's Fair Marina, and the World's Fair Ice Skating Rink. Residents of the eastern portion of the study area can access the park on foot utilizing Roosevelt Avenue or 111th Street, and other residents can take public transportation, including the subway, to frequent the park.

Also, east of the North Corona study area across the Grand Central Parkway are Shea Stadium and the U.S.T.A. National Tennis Center, including Arthur Ashe and Louis Armstrong stadiums. The IRT #7 subway train stops at Shea Stadium.

The Flushing Bay Promenade waterfront is located outside the study area to the north. The promenade can be accessed via a pedestrian bridge over the Grand Central Parkway at 31st Drive.

Light Industrial and Auto-Related Uses

Light industrial and auto-related uses are situated on Astoria Boulevard and on the mid-blocks between Astoria Boulevard and Northern Boulevard in the northeast section of the study area. These uses occupy corner properties and mid-block locations near housing and other land uses. A number of auto-related uses, such as auto service and repair, car sales and car lots, and gas stations, are also found along Northern Boulevard and, to a lesser extent, Roosevelt Avenue and 38th Avenue.

Vacant Lots and Parking Lots

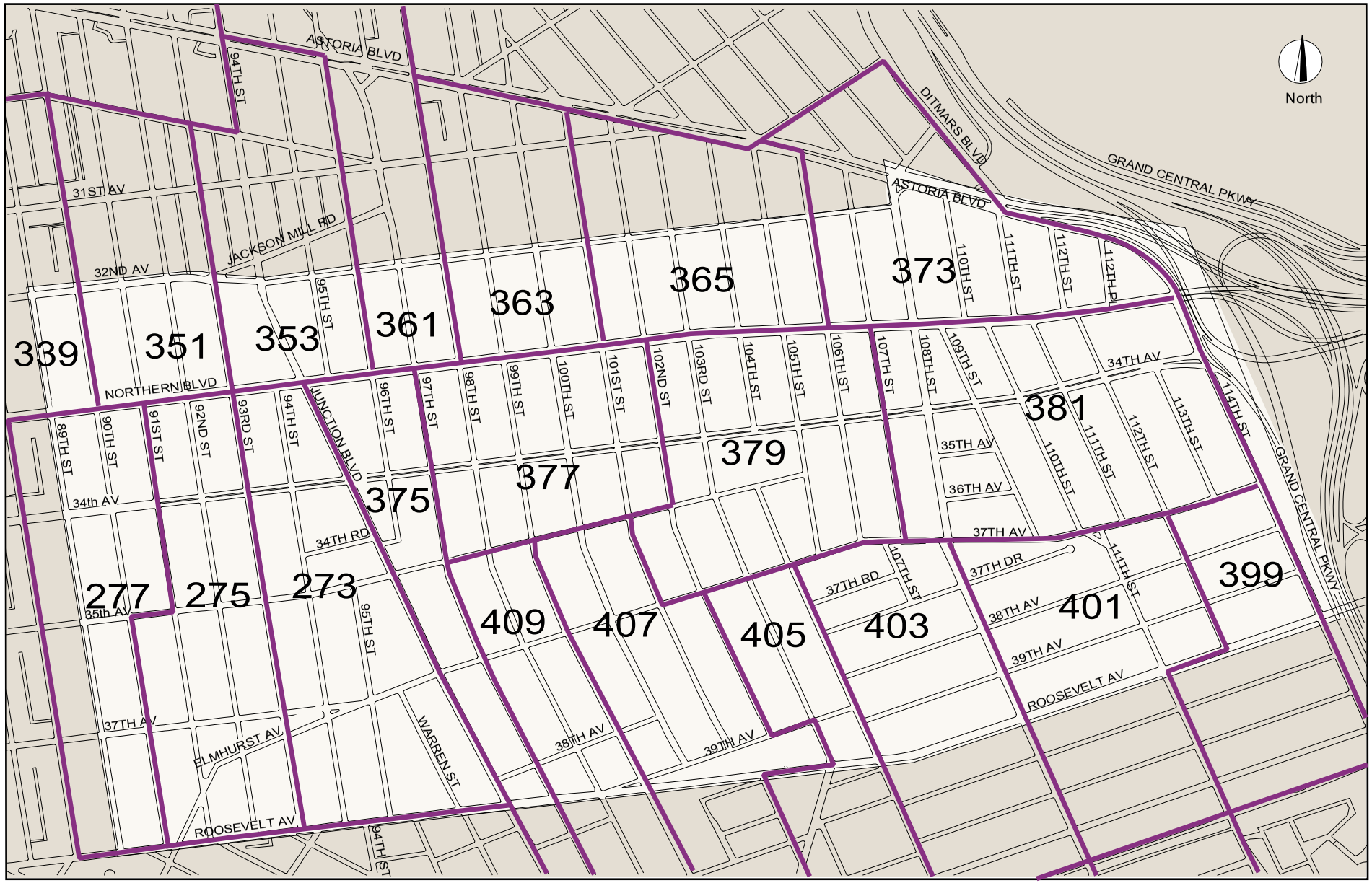
Vacant land and parking lots are interspersed throughout the mid-blocks east of Junction Boulevard, particularly north of 37th Avenue and east of 111th Street, south of 37th Avenue. These lots lie adjacent to housing and other land uses.

Socioeconomic Characteristics

The North Corona study area comprises twenty census tracts (see figure 5). The study area involves the all of census tracts 273, 275, 377, 379, 381, and approximately 60% of tract 277, 11% of tract 339, 38% of tract 351, 33% of tract 353, 25% of tract 361, 38% of tract 363, 50% of tract 365, 66% of tract 373, 63% of tract 375, 32% of tract 399, 64% of tract 401, 56% of tract 403, 50% of tract 405, 60% of tract 407, and 55% of tract 409.

In order to calculate the total population of the study area for the years 1990 and 2000, the percentage of the tract located within the study area was multiplied by the total population of the tract. For example, approximately 60 percent of tract 277 lies within the study area, and the total population of tract 277 (2000 data) was 9,360. The total population, 9,360, was multiplied by the approximate tract area located within the study area, 60 percent, which provided the estimated study area population for the tract, 5,616 persons.

According to 2000 U.S. Census data, 63,895 people resided within the North Corona study area. The comparable 1990 census figure was 47,526 people, indicating an increase in population of 34.4 percent (16,369) between 1990 and 2000 (see Table 3a). Table 3b shows the total number of households contained in the study area. Changes in population counts between 1990 and 2000 may not reflect actual changes that occured in neighborhoods over the past decade because of what may be shifts in population coverage. A shift in population coverage refers to a change in population



Census Tracts

Census Tract Boundary

377 Census Tract Number

Figure 5

from one census to the next that results from using different methods to enumerate the populations. Improvements in population coverage occured in 2000 as a result of an improved address list and better outreach. Thus, some of the increase in neighborhoods is attributable to residents who were counted in 2000, but were missed in 1990.

Table 3a
Study Area Population Change between 1990 and 2000

Census Tracts	Year 1990 Population	Year 2000 Population	Change in Population (Number)	Change in Population (Percent)
273	7,690	9,459	1,769	23.0
275	5,618	7,115	1,497	26.0
277@60%	4,389	5,616	1,227	28.0
339@11%	295	407	112	37.9
351@38%	1,366	1,629	263	19.2
353 @33%	719	877	158	22.0
361@25%	429	561	132	30.8
363@38%	593	828	235	39.6
365@50%	1,178	1,592	414	35.1
373@66%	938	1,423	485	51.7
375@63%	1,810	2,566	756	41.8
377	2,361	3,579	1,218	51.6
379	3,039	4,631	1,592	52.4
381	3,965	5,298	1,333	33.6
399@32%	921	1,148	227	24.6
401@64%	3,212	4,325	1,113	34.7
403@56%	2,324	3,590	1,266	54.5
405@50%	1,243	1,651	408	32.8
407@60%	3,516	4,742	1,226	34.9
409@55%	1,920	2,858	938	48.9
Total	**47,526**	**63,895**	**16,369**	**34.4**

Source: U.S. Census Bureau, 2000 Census Public Law 94-171 File and 1990 STF1

Table 3b
Study Area Total Households in 2000

Census tracts	Total Households	Census Tracts	Total Households
273	2,446	**375@63%**	629
275	2,177	**377**	896
277@60%	1,744	**379**	1,175
339@11%	135	**381**	1,535
351@38%	575	**399@32%**	310
353 @33%	250	**401@64%**	1,020
361@25%	184	**403@56%**	835
363@38%	237	**405@50%**	403
365@50%	455	**407@60%**	1,140
373@66%	454	**409@55%**	702
Total Households	**17,302**		

Source: U.S. Census Bureau, 2000 Census SF1

Journey-to-Work Modal Split

Part of the journey-to-work data for the 2000 Census is not available yet, so 1990 census data was used for some journey-to-work modal split analysis. The journey-to-work modal split analysis was done using data from the aforementioned census tracts that constitute the North Corona study area. Journey-to-work modal split analyses were performed for both the local resident labor force and the people who traveled into the study area to work.

2000 census data indicates that the study area had a local resident labor force (16 years or older) of 25,227 workers who either worked at home or commuted to work. Of the total local resident labor force, 26.8 percent (6,762) used car, truck or van, and either drove alone or carpooled (see Table 4a). The majority of the car, truck or van usage occurred by those who drove alone (68.8 percent). Of the remaining local resident labor force, 63.2 percent (15,951) used public transit, 7.2 percent (1,819) walked to work, 1.7 percent (424) worked at home, and 0.5 percent (127) used other means of transportation. For those workers who commuted using public transportation, 84.7 percent (13,516) were by subways, 12.4 percent (1,970) by bus, 1.7 percent (276) by railroad, and 1.2 percent (189) by taxicab.

With regard to place of work data for the 1990 Census, 92.8 percent (19,556) of the local resident labor force (16 years or older) worked in New York City, while the remaining 7.2 percent (1,513) worked in various places outside of New York City. Of the local resident labor force who worked in New York City, 49.5 percent (9,675) worked in Queens County, 38.6 percent (7,543) worked in New York County, 8.9 percent (1,742) worked in Kings County, 2.6 percent (512) worked in Bronx County, and 0.4 percent (84) worked in Richmond County. The remaining local resident labor force worked in New York State outside of New York City (4.1 percent), New Jersey (2.1 percent), Connecticut (less than 0.1 percent), and elsewhere (1.0 percent). See Table 4b.

Table 4a
Modal Split for Workers 16 Years and Older Who Reside Within the Study Area

Census Tracts	Means of Transportation														
	Car, Truck or Van	Drove Alone	Carpool	**Public Transportation**	Bus, Streetcar, or Trolley	Subway	Railroad	Ferryboat	Taxicab	**Motorcycle**	**Bicycle**	**Walk**	**Other Means**	**Work at Home**	**Total**
273	**887**	553	334	**2,771**	285	2379	79	0	28	**0**	**2**	**259**	**32**	**92**	**4,043**
275	**737**	544	193	**2,108**	118	1958	16	0	16	**0**	**26**	**168**	**0**	**58**	**3,097**
277@60%	**647**	491	156	**1,591**	178	1394	0	0	19	**4**	**13**	**130**	**22**	**18**	**2,425**
339@11%	**74**	57	17	**50**	12	36	1	0	1	**0**	**0**	**5**	**2**	**3**	**134**
351@38%	**225**	174	51	**323**	84	234	0	0	5	**0**	**3**	**29**	**0**	**12**	**592**
353 @33%	**122**	95	27	**187**	30	138	13	0	6	**0**	**0**	**11**	**0**	**6**	**326**
361@25%	**102**	74	28	**85**	12	73	0	0	0	**0**	**0**	**19**	**4**	**4**	**214**
363@38%	**104**	84	20	**159**	34	102	13	0	10	**0**	**0**	**11**	**0**	**9**	**283**
365@50%	**217**	132	85	**276**	118	150	8	0	0	**0**	**0**	**40**	**22**	**0**	**555**
373@66%	**209**	145	64	**289**	116	133	34	0	6	**0**	**0**	**44**	**0**	**0**	**542**
375@63%	**206**	148	58	**719**	71	621	4	0	23	**8**	**0**	**96**	**0**	**0**	**1,029**
377	**294**	227	67	**775**	125	638	0	0	12	**0**	**8**	**154**	**0**	**18**	**1,249**
379	**634**	423	211	**961**	142	778	10	0	31	**0**	**13**	**166**	**0**	**69**	**1,843**
381	**542**	381	161	**946**	290	601	55	0	0	**0**	**0**	**95**	**8**	**15**	**1,606**
399@32%	**143**	92	51	**314**	4	306	0	0	4	**0**	**1**	**24**	**0**	**8**	**490**
401@64%	**452**	316	136	**1,025**	77	936	0	0	12	**0**	**29**	**104**	**3**	**33**	**1,646**
403@56%	**282**	147	135	**1,043**	90	933	12	0	8	**0**	**20**	**72**	**14**	**17**	**1,448**
405@50%	**134**	111	23	**456**	52	394	10	0	0	**0**	**4**	**92**	**0**	**0**	**686**
407@60%	**455**	281	174	**1,076**	104	954	14	0	4	**0**	**0**	**249**	**9**	**62**	**1,851**
409@55%	**296**	175	121	**797**	28	758	7	0	4	**0**	**13**	**51**	**11**	**0**	**1,168**
Total	**6,762**	4,650	2,112	**15,951**	1,970	13,516	276	0	189	**12**	**132**	**1,819**	**127**	**424**	**25,227**
Percent	**26.8**	--	--	**63.2**	--	--	--	--	--	**0.1**	**0.5**	**7.2**	**0.5**	**1.7**	**100**

Source: U.S. Census 2000 (Table SF3 LF P-3)

Table 4b
Place of Work for Workers 16 Years and Older Who Reside Within the Study Area

Census Tracts	Place of Work													
	New York City (all counties)	New York County	Kings County	Queens County	Bronx County	Richmond County	**New York State (Outside NYC)**	Long Island	Westchester	New York Upstate	**Connecticut State**	**New Jersey State**	**Work Elsewhere**	**Total**
273	**3,186**	1,139	397	1,558	92	0	**76**	40	36	0	**0**	**59**	**35**	**3,356**
275	**2,305**	1,060	180	1,024	41	0	**163**	135	28	0	**0**	**39**	**81**	**2,588**
277@60%	**1,891**	965	134	728	52	12	**68**	45	23	0	**0**	**65**	**29**	**2,053**
339@11%	**130**	53	9	60	8	0	**8**	5	3	0	**0**	**2**	**0**	**140**
351@38%	**615**	293	68	251	3	0	**16**	16	0	0	**2**	**7**	**0**	**640**
353 @33%	**349**	136	23	163	21	6	**12**	12	0	0	**0**	**0**	**0**	**361**
361@25%	**164**	52	11	101	0	0	**20**	20	0	0	**0**	**0**	**0**	**184**
363@38%	**223**	65	19	139	0	0	**0**	0	0	0	**0**	**23**	**3**	**249**
365@50%	**507**	146	29	328	0	4	**6**	6	0	0	**0**	**26**	**0**	**539**
373@66%	**425**	153	28	244	0	0	**24**	24	0	0	**0**	**11**	**11**	**471**
375@63%	**761**	304	50	384	0	23	**15**	5	10	0	**0**	**30**	**0**	**806**
377	**1,109**	270	196	597	34	12	**59**	21	38	0	**0**	**12**	**0**	**1,180**
379	**1,151**	514	0	615	22	0	**85**	85	0	0	**0**	**0**	**0**	**1,236**
381	**1,777**	533	186	1,009	37	12	**95**	74	0	21	**0**	**0**	**0**	**1,872**
399@32%	**319**	115	19	174	11	0	**14**	9	5	0	**0**	**2**	**5**	**340**
401@64%	**1,281**	544	120	564	53	0	**35**	30	5	0	**0**	**31**	**17**	**1,364**
403@56%	**981**	322	112	514	33	0	**43**	43	0	0	**0**	**32**	**9**	**1,065**
405@50%	**522**	267	21	222	7	5	**0**	0	0	0	**0**	**20**	**19**	**561**
407@60%	**1,408**	579	103	645	71	10	**87**	49	38	0	**0**	**17**	**6**	**1,518**
409@55%	**452**	33	37	355	27	0	**34**	30	4	0	**0**	**56**	**4**	**546**
Total	**19,556**	**7,543**	**1,742**	**9,675**	**512**	**84**	**860**	**649**	**190**	**21**	**2**	**432**	**219**	**21,069**
Percent	**92.8**	--	--	--	--	--	**4.1**	--	--	--	**0.0**	**2.1**	**1.0**	**100**

Source: U.S. Census 1990

1990 census data indicates that the study area had a labor force (16 years or older) of 3,689 workers who traveled into the study area to work (inbound labor force) (see Table 5a). Of the total inbound labor force, 46.2 percent (1,705) used car, truck or van, either driving alone or carpooling. The bulk of the car, truck or van usage came from people who drove alone (79.5 percent). Of the remaining inbound labor force, 18.0 percent (661) used public transit, 35.3 percent (1,303) walked to work, and 0.5 percent (20) used other means of transportation. For those workers who commuted using public transit, 56.4 percent (373) was on subways, 31.0 percent (205) on bus, 11.7 percent (77) on rail road, and 0.9 percent (6) on taxicab.

With regard to place of origin, 86.4 percent (3,184) of the inbound labor force (16 years or older) resided in New York City, while the remaining 13.6 percent (505) resided in various places outside of New York City. Of the inbound labor force who resided in New York City, 87.0 percent (2,771) resided in Queens County, 6.2 percent (197) resided in Kings County, 4.6 percent (146) resided in New York County, 1.7 percent (53) resided in Bronx County, and 0.5 percent (16) resided in Richmond County. The remaining inbound labor force resided in New York State outside of New York City (8.6 percent), Connecticut (0.4 percent), New Jersey (4.3), and elsewhere (0.3 percent). See Table 5b.

2000 census data suggests that car availability in the study area was in keeping with the proportion of the city as a whole. As shown in Figure 6 and Table 6, 43.0 percent of the households located within the study area had at least one or more cars available, in contrast of the 57.0 percent with no car. The majority of the households with vehicles available had only one car (76.9 percent), followed by households with two cars (17.4 percent.), and households with three or more (5.7 percent). 2000 census data shows that 7,437 households has one or more vehicle available in the study area then 6,984 household had vehicle available in 1990 census.

Figure 6

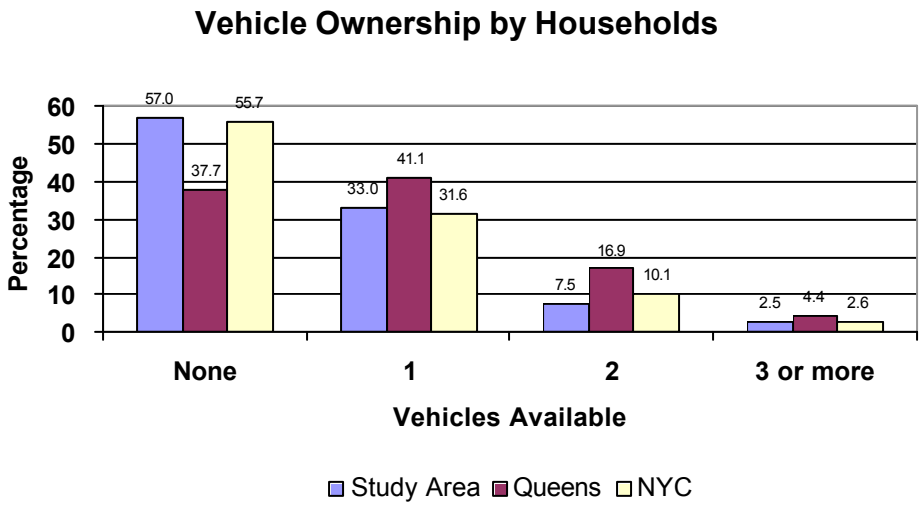


Table 5a
Modal Split for Workers 16 Years and Older Who Travel into the Study Area to Work

Census Tracts	Means of Transportation													
	Car, Truck or Van	Drove Alone	Carpool	**Public Transportation**	Bus, Streetcar, or Trolley	Subway	Rail Road	Ferryboat	Taxicab	**Motorcycle**	**Bicycle**	**Walk**	**Other Means**	**Total**
273	**373**	305	68	**163**	77	48	38	0	0	**0**	**0**	**312**	**0**	**848**
275	**89**	65	24	**26**	10	7	9	0	0	**0**	**0**	**174**	**0**	**289**
277@60%	**47**	29	18	**12**	0	12	0	0	0	**0**	**0**	**64**	**0**	**123**
339@11%	**1**	0	1	**1**	0	1	0	0	0	**0**	**0**	**7**	**0**	**9**
351@38%	**0**	0	0	**0**	0	0	0	0	0	**0**	**0**	**2**	**0**	**2**
353@ 33%	**15**	15	0	**0**	0	0	0	0	0	**0**	**0**	**6**	**0**	**21**
361@25%	**4**	2	2	**0**	0	0	0	0	0	**0**	**0**	**7**	**0**	**11**
363@38%	**17**	17	0	**11**	11	0	0	0	0	**0**	**0**	**39**	**0**	**67**
365@50%	**24**	19	5	**3**	0	0	3	0	0	**0**	**0**	**22**	**0**	**49**
373@66%	**136**	131	5	**60**	33	27	0	0	0	**0**	**0**	**36**	**0**	**232**
375@63%	**107**	74	33	**12**	1	7	4	0	0	**0**	**0**	**53**	**0**	**172**
377	**47**	37	10	**7**	0	7	0	0	0	**0**	**0**	**42**	**0**	**96**
379	**32**	32	0	**9**	0	9	0	0	0	**0**	**0**	**39**	**0**	**80**
381	**140**	100	40	**58**	10	32	16	0	0	**0**	**0**	**111**	**0**	**309**
399@32%	**174**	137	37	**62**	17	45	0	0	0	**0**	**0**	**14**	**0**	**250**
401@64%	**82**	60	22	**68**	17	51	0	0	0	**0**	**0**	**36**	**0**	**186**
403@56%	**147**	131	16	**83**	7	63	7	0	6	**0**	**0**	**108**	**10**	**348**
405@50%	**65**	47	18	**17**	7	10	0	0	0	**0**	**0**	**44**	**0**	**126**
407@60%	**69**	45	24	**7**	0	7	0	0	0	**0**	**0**	**113**	**10**	**199**
409@55%	**136**	110	26	**62**	15	47	0	0	0	**0**	**0**	**74**	**0**	**272**
Total	**1,705**	1,356	349	**661**	205	373	77	0	6	**0**	**0**	**1,303**	**20**	**3,689**
Percent	**46.2**	--	--	**18.0**	--	--	--	--	--	**0.0**	**0.0**	**35.3**	**0.5**	**100**

Source: U.S. Census 1990

Table 5b
Place of Origin for Workers 16 Years and Older Who Travel into the Study Area to Work

Census Tracts	Place of Origin													
	New York City (all counties)	New York County	Kings County	Queens County	Bronx County	Richmond County	**New York State (Outside NYC)**	Long Island	Westchester	New York Upstate	**Connecticut State**	**New Jersey State**	**Elsewhere**	**Total**
273	**723**	9	37	677	0	0	**38**	38	0	0	6	75	6	**848**
275	**281**	7	10	264	0	0	**8**	3	5	0	0	0	0	**289**
277@60%	**118**	0	2	109	7	0	**5**	5	0	0	0	0	0	**123**
339@11%	**9**	0	0	9	0	0	**0**	0	0	0	0	0	0	**9**
351@38%	**2**	0	0	2	0	0	**0**	0	0	0	0	0	0	**2**
353 @ 33%	**21**	0	0	21	0	0	**0**	0	0	0	0	0	0	**21**
361@25%	**9**	0	0	9	0	0	**1**	1	0	0	0	1	0	**11**
363@38%	**61**	0	0	61	0	0	**6**	6	0	0	0	0	0	**67**
365@50%	**27**	0	0	27	0	0	**22**	22	0	0	0	0	0	**49**
373@66%	**202**	7	62	119	9	5	**30**	30	0	0	0	0	0	**232**
375@63%	**134**	0	26	108	0	0	**36**	36	0	0	0	0	2	**172**
377	**91**	0	0	91	0	0	**5**	5	0	0	0	0	0	**96**
379	**80**	0	0	71	9	0	**0**	0	0	0	0	0	0	**80**
381	**290**	0	7	283	0	0	**19**	19	0	0	0	0	0	**309**
399@32%	**195**	0	0	181	14	0	**55**	47	5	3	0	0	0	**250**
401@64%	**141**	60	0	77	0	4	**10**	8	0	2	2	33	0	**186**
403@56%	**273**	57	18	192	6	0	**29**	24	0	5	8	38	0	**348**
405@50%	**89**	0	0	84	5	0	**37**	23	5	9	0	0	0	**126**
407@60%	**180**	6	0	174	0	0	**7**	7	0	0	0	12	0	**199**
409@55%	**257**	0	35	212	3	7	**11**	11	0	0	0	0	4	**272**
Total	**3,184**	146	197	2,771	53	16	**319**	285	15	19	**16**	**159**	**12**	**3,689**
Percent	**86.4**	--	--	--	--	--	**8.6**	--	--	--	**0.4**	**4.3**	**0.3**	**100**

Source: U.S. Census 1990

Table 6
Number of Vehicles Available in the Study Area

Census Tracts	Vehicles Available				Total Households	Vehicles per Household
	None	One	Two	Three +		
273	1,566	713	126	41	**2,446**	**0.44**
275	1,296	736	102	43	**2,177**	**0.49**
277@60%	998	642	104	0	**1,744**	**0.49**
339@11%	53	53	25	4	**135**	**0.85**
351@38%	228	287	57	3	**575**	**0.71**
353@33%	103	114	27	6	**250**	**0.74**
361@25%	68	89	19	8	**184**	**0.82**
363@38%	120	61	38	18	**237**	**0.81**
365@50%	260	143	49	3	**455**	**0.55**
373@66%	172	166	88	28	**454**	**0.94**
375@63%	393	182	45	9	**629**	**0.48**
377	431	301	120	44	**896**	**0.75**
379	641	372	121	41	**1,175**	**0.63**
381	855	551	78	51	**1,535**	**0.56**
399@32%	178	93	29	10	**310**	**0.58**
401@64%	556	342	84	38	**1,020**	**0.61**
403@56%	588	178	54	15	**835**	**0.40**
405@50%	218	158	27	0	**403**	**0.53**
407@60%	688	341	67	44	**1,140**	**0.53**
409@55%	453	193	34	22	**702**	**0.47**
Total	**9,865**	**5,715**	**1,294**	**428**	**17,302**	**--**
Percent	**57.0**	**33.0**	**7.5**	**2.5**	**100**	**--**

Source: U.S. Census 2000 (Table SF3 HU H-10)

Transportation

Street Network

Many of the streets within the North Corona study area follow a rectangular grid pattern, which is generally comprised of perpendicular east-west avenues and north-south streets. The east-west vehicular roadways located in the study area include (from north to south) 32nd Avenue/Astoria Boulevard, 33rd Avenue to 39th Avenue, and Roosevelt Avenue. The principal east-west roadways are Astoria Boulevard, Northern Boulevard, 37th Avenue, and Roosevelt Avenue.

The north-south roadways serving the study area extend from 89th Street on the west to 114th Street on the east. The principal north-south roadways are Junction Boulevard and 108th Street.

The east-west and north-south roadways run either completely or partly through the study area.

The east-west streets are two-directional or one-way eastbound or westbound. Two primary east-west streets, Northern Boulevard and Roosevelt Avenue, run in two directions. The north-south roadways tend to be one-directional, with the even numbered and odd numbered streets usually running northbound and southbound, respectively. However, the principal north-south streets, Junction Boulevard and 108th Street, operate in two directions. Some east-west and north-south streets run both two-way and one-way, at different locations.

The widths of the streets in the study area vary. The dimensions of the street rights-of-way (that is, the number of feet of the street bed plus the sidewalks or the number of feet from building line to building line on both sides of the street) vary, ranging from the approximately 150-foot-wide Astoria Boulevard and the 100-foot-wide Northern Boulevard as compared with the average 50- and 60-foot-wide rights-of-way of the minor north-south cross streets.

Many of the streets run true north-to-south and true east-to-west, as per the grid system, with 90 degree angled intersections. However, while the east-west 32nd Street and Northern Boulevard run generally straight east to west, most of the other east-west streets (south of 34th Avenue) run entirely or partly obliquely through the study area. Also, a number of true north-south streets bend eastward as they travel south. Nonetheless, since adjacent roadways tend to run parallel on the same oblique path, the grid system prevails.

Street Classification

The streets within the North Corona Transportation Study area are classified according to their function and physical features. Three main types of roadways within or near the study area are arterial highways with limited access, principal major collector roadways, and minor collector roadways.

Arterial Highways

The study area is served by nearby limited access highways which are located on four sides, thus enjoying accessibility to elsewhere in the City and to the surrounding outlying counties. The Long Island Expressway is situated just to the south and provides access to Manhattan and Long Island. The Grand Central Parkway is just to the east and leads to upper Manhattan and the Bronx via the Triborough Bridge and to Kennedy International Airport to the south. The Whitestone Expressway is also to the east and leads directly to the upper Bronx and Connecticut. It also connects with the Van Wyck Expressway which leads directly to Kennedy International Airport to the south. The

Brooklyn-Queens Expressway to the west continues into Brooklyn as the Gowanus Expressway and the Prospect Expressway.

Major Collector Streets

The principal major collector roadways listed above are expected to carry a significant amount of vehicular traffic in the study area and tend to be wider than minor streets. Also, the principal roadways are generally long roads which connect various communities and may provide linkage to a highway. All or some portion of the principal roadways are commercial streets which may contain retail stores, mixed use retail/residential buildings, and other non-residential uses. The principal roadways are likely to serve as bus routes, with a subway station connection, and in some instances through and/or local truck routes.

Major Collector East/West Streets

Astoria Boulevard: Astoria Boulevard, a through and local truck route, starts at 114th Street and the Grand Central Parkway access ramps in the study area on the east and continues to the Astoria section of Queens on the west. Within the study area, Astoria Boulevard runs between 108th Street and approximately midway between 112th Place and Northern Boulevard, where it becomes 114th Street. Astoria Boulevard comprises part of the northern boundary of the study area. The roadway, a very wide street, operates in two directions between 108th Street and 111th Street, where it has three moving lanes and a parking lane in each direction. Also, there is a median strip in this segment. The roadway operates in the southbound direction east and south of 111th Street, where the road narrows somewhat and there are one moving lane and one parking lane on each side of the street. Astoria Boulevard connects via 108th Street to Ditmars Boulevard, which provides access to/from the Grand Central Parkway eastbound and La Guardia Airport.

Northern Boulevard: This principal roadway runs a great length from Long Island City in western Queens (where it leads to the Queensboro Bridge) into Nassau and Suffolk counties on Long Island. Within the study area, this roadway is a major east-west commercial corridor which serves as both a through and local truck route and also a bus route (Q66). It is a two-way, wide roadway which consists of two moving lanes, a left-turn lane, and one parking lane in each direction along its length within the study area. Northern Boulevard, via 114th Street, traffic can access the Grand Central Parkway eastbound. Across 114th Street, it provides access to the Grand Central Parkway westbound. It crosses over the Grand Central Parkway, which runs below grade, and then continues on-grade.

37th Avenue: This roadway starts at 114th Street in study area and connects with Broadway in Elmhurst to the southwest. It is two directional between 89th Street and Junction Boulevard, one-way eastbound between Junction Boulevard and 108th Street, and again two directional between 108th Street and 114th Street. This somewhat narrow roadway carries one moving lane and one parking lane in each direction when operating two ways and one moving lane and two parking lanes when operating in one direction.

Roosevelt Avenue: This roadway extends a great length from its intersection with Northern Boulevard in Murray Hill on the east to its intersection with Queens Boulevard and continuation as Greenpoint Avenue on the west. Within the study area, the two-way roadway allows for one moving lane plus one parking lane in each direction. It is a local truck route and also serves as the Q48 bus route between 108thand 114th streets. The elevated Flushing #7 line runs on Roosevelt

Avenue and the "El's" structural components lie in the bed of Roosevelt Avenue, affecting traffic characteristics. Roosevelt Avenue is a shopping street, especially west of Junction Boulevard, and there are four subway stops in the study area: 90th Street and Elmhurst Avenue, Junction Boulevard, 103rd Street, and 111th Street. Bus routes cross Roosevelt Avenue at these streets to allow for a bus-subway transfer.

Major Collector North/South Streets

Junction Boulevard: This roadway, a local truck route, provides accessibility from La Guardia Airport in East Elmhurst on the north (where it becomes 94th Street) to its intersection with Queens Boulevard in Rego Park on the south. Within the study area, it is a two-way commercial roadway that diagonally traverses the study area grid system, intercepting 94th Street on the north and running between Warren Street and 97th Street on the south. Junction Boulevard carries one moving lane of traffic and one parking lane in each direction. The roadway serves as a local bus route (Q72), and there is a subway station at the intersection of Junction Boulevard and Roosevelt Avenue. There is major shopping activity along Junction Boulevard, especially south of 34th Road.

108th Street: This roadway moves traffic from Astoria Boulevard in East Elmhurst just north of the study area to its intersection with Queens Boulevard in Forest Hills on the south. Within the study area, this roadway functions as two way, with one moving lane and one parking lane in each direction. The roadway is a designated local truck route and serves as a route for bus Q48 within the study area. North of the study area, 108th Street intersects Ditmars Boulevard, which provides access to the Grand Central Parkway eastbound.

Minor Collector Streets

A minor collector street collects traffic from the interceding local streets and brings the traffic usually to a major collector but also to arterials or highways.

Minor Collector East/West Streets

34th Avenue: This roadway begins at 114th Street in the study area and runs westward. This wide street proceeds two ways within the study area and includes one moving lane, one bike lane and one parking lane in each direction. There is a median strip divider. Traffic along 34th Street, east of 114th Street, can access the Grand Central Parkway eastbound. Since some vehicular traffic utilizes 34th Avenue instead of Northern Boulevard within the study area, 34th Avenue operates as an alternate route to the heavily trafficked Northern Boulevard.

Minor Collector North-South Streets

103rd Street: This minor collector roadway runs entirely one-way northbound throughout the study area. The narrow roadway permits one moving lane and one parking lane on each side of the street. It serves as a route for the Q23N northbound (with 102nd and 104th streets acting as the southbound route, Q23S).

114th Street: This roadway forms the eastern boundary of the study area. The southern portion of 114th Street, located between Roosevelt Avenue and 34th Avenue, has a two-directional traffic flow. Here, there are one moving lane and one parking lane in each direction. North of 34th Avenue, where the roadway narrows and the traffic flow is one-way southbound, there are one moving lane and a parking lane on both sides of the street. Also north of Northern Boulevard, 114th Street, becomes known as Astoria Boulevard. The 114th Street roadway, at 34th Avenue, provides access to

the Grand Central Parkway eastbound.

Truck Routes

Truck movements within the five boroughs of New York City are currently governed by the traffic rules and regulations contained in the Rules of the City of New York, Volume II, Chapter 4-13. These regulations apply to vehicles which are designed for the transportation of property and have either of the following characteristics: two axles and six tires or three or more axles.

There are two major truck route designations: through and local truck routes. Through truck routes are designated for trucks having neither an origin nor a destination within the local area. Local truck routes are designated for trucks with origins or destinations within an area for the purpose of delivery, loading, or providing services. The boundaries of the through and local truck routes that traverse the study area are described in Table 7 and indicated in Figure 7. The major north/south route for trucks and passenger cars to La Guardia Airport is Junction Boulevard/94th Street in the study area.

Table 7
Truck Routes Within the Study Area

Type of Truck Route	Street Name	Limits Within the Study Area	Entire Limits - Within and Beyond the Study Area
Through Truck Routes	Astoria Boulevard	108th Street to Northern Boulevard	29th Street to Northern Boulevard
	Northern Boulevard	89th Street to 114th Street	Jackson Avenue to Nassau County Line
Local Truck Routes	Astoria Boulevard	108th Street to Northern Boulevard	8th Street to Northern Boulevard
	Northern Boulevard	89th Street to 114th Street	Jackson Avenue to Nassau County Line
	Junction Boulevard	32nd Avenue to Roosevelt Avenue	32nd Avenue to Queens Boulevard
	94th Street*	Astoria Boulevard to 32nd Avenue	LaGuardia Airport to 32nd Avenue
	Roosevelt Avenue	89th Street to 114th Street	Queens Boulevard to Main Street
	108th Street	Astoria Boulevard to Roosevelt Avenue	Astoria Boulevard to Queens Boulevard
* This entry pertains to the intersection of 94th Street and Astoria Boulevard.			

Accident Analysis

The data was compiled from the New York State Department of Transportation's Local Accident Surveillance Project (LASP) for 1998 through 2000 (the latest available year). The information that was gathered from LASP includes total accidents and pedestrian accidents, which are defined as follows:

- Total Accidents are the number of accidents wherein a police report was taken at the scene of the accident. The site of the accident may either be at an intersection or at a mid-block location between two intersections.
- Pedestrian Accidents are accidents in which a pedestrian was involved.

Truck Routes

Through Truck Route

Local Truck Route

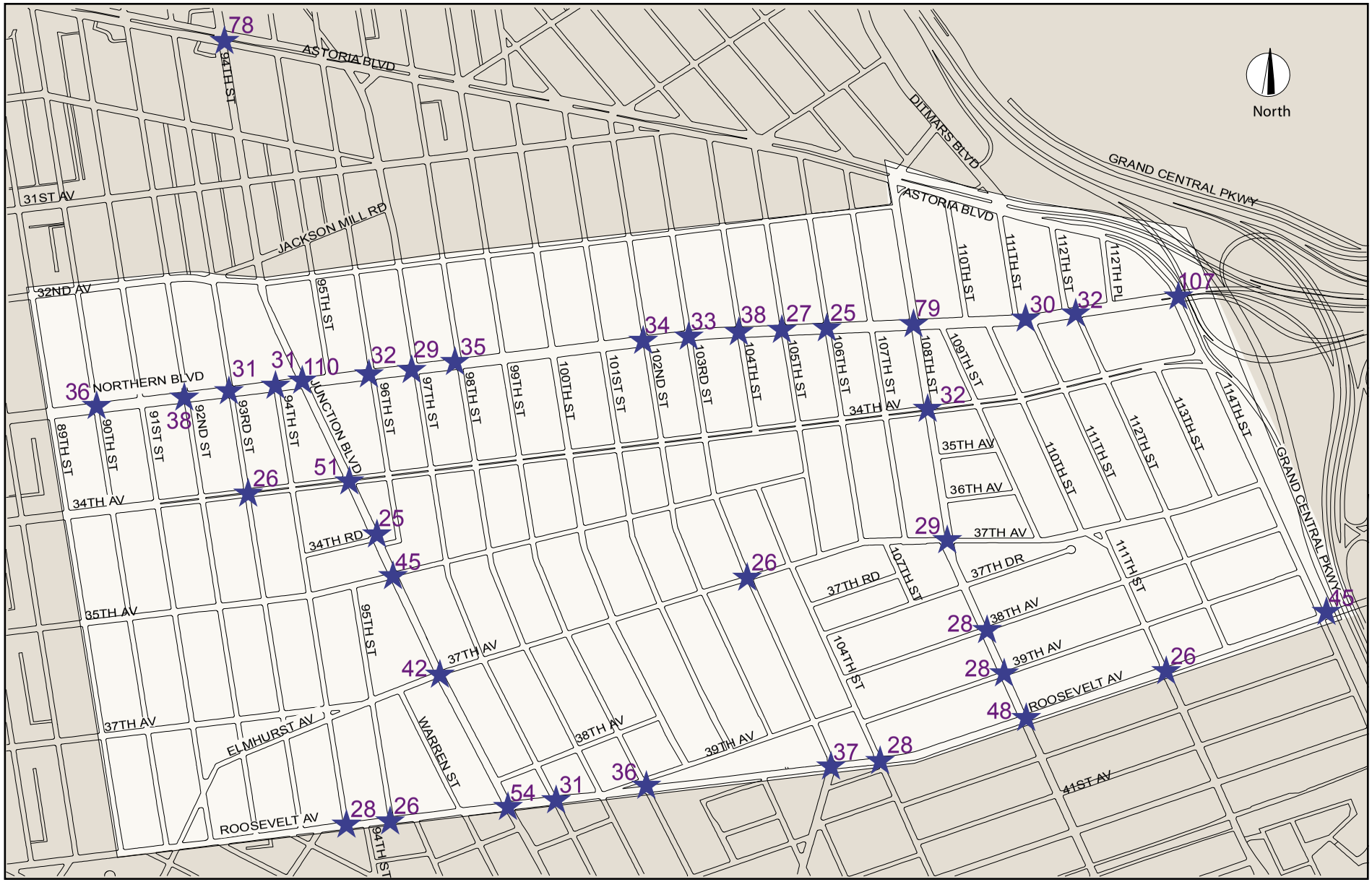
Figure 7

Table 8 shows all intersections in the study area with 25 or more accidents over the three-year period (see Figure 8).

Table 8

Intersections With the Highest Number of Total Recorded Accidents (1998-2000)

Intersections	Number of Reportable Accidents
Junction Boulevard and Northern Boulevard	110
Astoria Boulevard and Northern Boulevard	107
108th Street and Northern Boulevard	79
94th Street and Astoria Boulevard	78
Junction Boulevard and Roosevelt Avenue	54
34th Avenue and Junction Boulevard	51
108th Street and Roosevelt Avenue	48
35th Avenue and Junction Boulevard	45
Roosevelt Avenue and 114th Street	45
37th Avenue and Junction Boulevard	42
92nd Street and Northern Boulevard	38
104th Street and Northern Boulevard	38
103rd Street/National Street and Roosevelt Avenue	37
90th Street and Northern Boulevard	36
39th Avenue/Roosevelt Avenue and 99th Street	36
98th Street and Northern Boulevard	35
102nd Street and Northern Boulevard	34
103rd Street and Northern Boulevard	33
112th Street and Northern Boulevard	32
96th Street and Northern Boulevard	32
108th Street and 34th Avenue	32
93rd Street and Northern Boulevard	31
97th Street and Roosevelt Avenue	31
94th Street and Northern Boulevard	31
111th Street and Northern Boulevard	30
97th Street and Northern Boulevard	29
108th Street and 37th Avenue	29
108th Street and 39th Avenue	28
104th Street and Roosevelt Avenue	28
94th Street and Roosevelt Avenue	28
108th Street and 38th Avenue	28
105th Street and Northern Boulevard	27
95th Street and Roosevelt Avenue	26
34th Avenue and 93rd Street	26
111th Street and Roosevelt Avenue	26
103rd Street and 37th Avenue	26
106th Street and Northern Boulevard	25
34th Road and Junction Boulevard	25
Total	**1516**



Total Accidents From 1998 To 2000

(Intersections With 25 or More Accidents)

★48 *Location and Number of Accidents*

Figure 8

Table 9 and 10 shows mid-blocks with the highest number of total recorded accidents with 25 or more accidents, and locations where an accident involved a fatality in the study area over the three-year period.

Table 9

Mid-Blocks With the Highest Number of Total Recorded Accidents (1998-2000)

Mid-Blocks	Number of Accidents
103rd Street between 37th Avenue and 39th Avenue	40
Junction Boulevard between 37th Avenue and 38th Avenue	31
Roosevelt Avenue between 104th Street and 108th Street	28
Roosevelt Avenue between 112th Street and 1114th Street	25
Total	**124**

Table 10

Locations Where an Accident Involved a Fatality (1998-2000)

Location	Fatalities
102nd Street and Astoria Boulevard	1
35th Avenue and 90th Street	1
34th Avenue and 91st Street	1
95th Street and Astoria Boulevard	1

Evaluation of Existing Conditions

Vehicular Traffic

Level of Service Analysis and Methodology

The operation of signalized and unsignalized intersections within the study area was analyzed applying the methodologies presented in the 2000 *Highway Capacity Manual* (HCM2000). These procedures evaluate signalized and unsignalized intersections for average delay per vehicle and level of service (LOS).

Signalized Intersections

The capacity analysis methodology separates an intersection approach into lane groups on the basis of the movements occurring during each signal phase. The lane groups are then analyzed to determine the specific vehicular capacity and LOS. This analysis requires the following input parameters: intersection geometry, lane utilization, number of travel lanes, width of travel lanes, on-street parking conditions, locations of bus stops, number of buses stopping per hour, vehicle turning movements, vehicle classification, conflicting pedestrian movements, traffic signal cycle length, and allocation of green time.

The operating characteristics of signalized intersections can be estimated and evaluated by analyzing capacity and performance. The capacity of an intersection represents the throughput of a facility (i.e., the maximum number of vehicles that can be served in one hour). Capacity analyses results in the volume-to-capacity ratio (v/c ratio) which presents the proportion of capacity (supply) utilized by the existing traffic volume (demand). High v/c ratios (>0.85) indicate some traffic congestion, and low v/c ratios (<0.60) indicate a smooth traffic flow.

The performance of an intersection is based on the estimated average delay time (i.e., the average stopped time per vehicle) for each vehicle utilizing a roadway segment. Delay time is determined by the capacity of a lane group, the amount of green time allotted to a lane group, and the signal cycle length. Delay time is the factor which determines the LOS for a lane group.

Short delays receive a good LOS while long delays receive a poor LOS. For example, an average delay of up to ten seconds per vehicle corresponds to LOS A, while an average delay of 45 seconds corresponds to LOS D.

Unsignalized Intersections

The capacity analysis is based on the use of "gaps" in a major traffic stream by vehicles crossing through or turning into that stream. At unsignalized intersections, "Stop" or "Yield" signs are used to assign the right-of-way to one street while controlling the movements from the other street(s). The methodology assumes that major street traffic is not affected by minor street flows. Left turns from the major street are assumed to be affected by the opposing, oncoming, major street flow. Minor street traffic is obviously affected by all conflicting movements, vehicular and pedestrian.

Table 11 describes the LOS definitions for signalized intersections, and Table 12 describes the LOS definitions for unsignalized intersections.

Table 11
Level of Service Definitions for Signalized Intersections

Flow Quality	Description
Level A	Describes operation with very low delay, i.e., less than or equal to 10 seconds per vehicle. This occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
Level B	Describes operation with delay in the range of >10-20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
Level C	Describes operation with delay in the range of >20-35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although some may still pass through the intersection without stopping.
Level D	Describes operation with delay in the range of >35-55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, longer cycle lengths, or high v/c ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
Level E	Describes operation with delay in the range of >55-80 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
Level F	Describes operation with delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.
Source: *Highway Capacity Manual,* Transportation Research Board, National Research Council, Washington, D.C., 2000	

Table 12
Level of Service Definitions for Unsignalized Intersections

Level of Service	Control Delay (sec/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

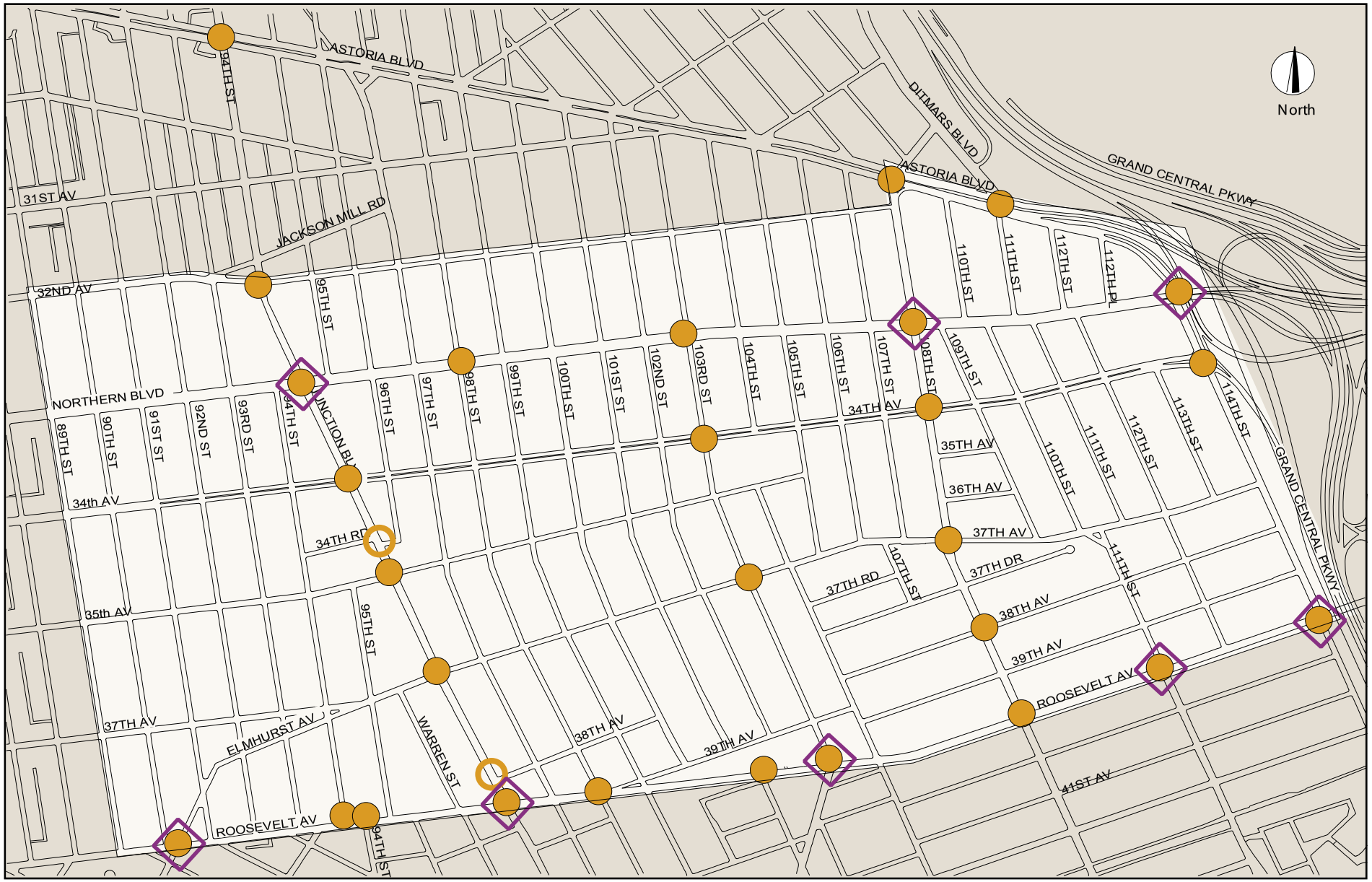
Intersection Analysis

A total of 31 intersections were selected for the analysis, of which 28 are signalized and 3 are unsignalized. Figure 9 illustrates the locations of these selected intersections within the North Corona study area. The following is a list of the signalized intersections:

1. Astoria Boulevard and 94th Street
2. Astoria Boulevard and 108th Street
3. Astoria Boulevard and 111th Street
4. 32nd Avenue and Junction Boulevard
5. Northern Boulevard and Junction Boulevard
6. Northern Boulevard and 98th Street
7. Northern Boulevard and 103rd Street
8. Northern Boulevard and 108th Street
9. Northern Boulevard and 114th Street
10. 34th Avenue and Junction Boulevard
11. 34th Avenue and 103rd Street
12. 34th Avenue and 108th Street
13. 34th Avenue and 114th Street
14. 35th Avenue and Junction Boulevard
15. 37th Avenue and Junction Boulevard
16. 37th Avenue and 103rd Street
17. 37th Avenue and 108th Street
18. 38th Avenue and 108th Street
19. Roosevelt Avenue and Elmhurst Avenue
20. Roosevelt Avenue and S 94th Street
21. Roosevelt Avenue and N 94th Street
22. Roosevelt Avenue and Junction Boulevard
23. Roosevelt Avenue and 98th Street
24. Roosevelt Avenue and 102nd Street
25. Roosevelt Avenue and 103rd Street
26. Roosevelt Avenue and 108th Street
27. Roosevelt Avenue and 111th Street
28. Roosevelt Avenue and 114th Street

The following is a list of the 3 unsignalized intersections:

1. Junction Boulevard and 38th Avenue
2. Junction Boulevard and 96th Street/34th Road East
3. Junction Boulevard and 34th Road West



Intersections Analyzed for Traffic And Pedestrian Analysis

Signalized Intersection
Unsignalized Intersection
Pedestrian Location

Figure 9

NYC Department of City Planning, Transportation Division

Existing Level of Service Conditions

The traffic analysis focused on the peak hour of traffic volume. The peak hour typically represents the most critical period of operation and has the highest capacity requirements. Temporary situations like games and events at Shea Stadium, USTA, and at Flushing Meadows Corona Park were not analyzed since the vehicular traffic and pedestrian activity varies during different time of the day and year depending on the public interests on the games or events.

Traffic volume, turning movement, and vehicle classification counts were performed during the weekday morning, midday, and evening and the Sunday afternoon hours at selected intersections within the study area. The peak hour was identified for weekdays as 7:30 AM to 8:30 AM for the morning period for Northern Boulevard and 32nd Avenue, and 8:00 AM to 9:00 AM for the morning period for all other Streets/Avenues/Boulevards, 1:00 PM to 2:00 PM for the midday period, and 5:00 PM to 6:00 PM for the evening period, and for weekends as 2:00 PM to 3:00 PM for the Sunday midday period.

The New York City Department of City Planning (NYCDCP), in conjunction with the consulting firm of J Rap and Associates, collected all necessary data for the study. Existing traffic volumes were based on weekday morning, midday, and evening hours and on weekend afternoon hours. The data was collected in October and November 2003. The existing balanced traffic volumes for weekday morning, midday, and evening peak hours and the Sunday afternoon peak hour are presented in Figures 10A, 10B, 10C, and 10D, respectively. For each signalized intersection, the signal timing, cycle length, and phasing were obtained from the New York City Department of Transportation (NYCDOT).

Automatic Traffic Recorders (ATR) were used to conduct automatic 24-hour traffic counts for one full week (seven consecutive days) at the following five locations:

1. Roosevelt Avenue between Warren Street and 108th Street
2. Northern Boulevard between Junction Boulevard and 112th Street
3. Astoria Boulevard between 94th and 110th Street
4. Junction Boulevard between 34th and 37th Avenue
5. 108th Street between 34th and 37th Avenue

The HCM summary sheets, which document the existing signal timing, phasing, allowed traffic movements, traffic volumes, peak hour factors, percent of heavy vehicles, LOS by approach, and LOS for the entire intersection, are on file at the NYCDCP. Tables 13 and 14 present the existing LOS conditions for the signalized and unsignalized intersections within the study area.

The capacity analysis (Table 13) shows that some signalized intersection approaches operate acceptably, at LOS C or better, for all peak hours. Also, some intersection approaches operate at LOS D, with 45 seconds of delay or less, which is considered acceptable for New York City. The exceptions are as follows:

During the Weekday Morning Peak Hour:

- The northbound 108th Street left-thru approach movement at Astoria Boulevard operates at LOS D with a delay of 54.1 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Astoria Boulevard

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Astoria Blvd & 94th Street													
	Eastbound												
	L	0.24	21.4	C	0.17	9.8	A	0.22	14.5	B	0.23	7.2	A
	TR	0.28	20.6	C	0.39	16.8	B	0.54	24.2	C	0.37	12.7	B
	Westbound												
	L	0.08	11.3	B	0.13	9.7	A	0.17	19.1	B	0.12	6.2	A
	TR	0.51	23.6	C	0.34	16.1	B	0.3	20.7	C	0.26	11.8	B
	Northbound												
	LTR	0.73	44.2	D	0.68	35.0	D	0.76	46.5	D	0.59	25.1	C
	Southbound												
	LTR	0.46	35.4	D	0.64	32.9	C	0.61	39.1	D	0.63	24.4	C
		Intersection Delay = 27.6 LOS = C			**Intersection Delay = 21.9 LOS = C**			**Intersection Delay = 28.0 LOS = C**			**Intersection Delay = 16.0 LOS = B**		
Astoria Blvd & 108th Street													
	Eastbound												
	LTR	0.29	17.3	B	0.28	13.3	B	0.52	20.4	C	0.33	13.5	B
	Westbound												
	L	0.10	5.6	A	0.07	5.6	A	0.13	7.0	A	0.16	8.4	A
	TR	0.48	7.9	A	0.30	6.5	A	0.36	6.9	A	0.33	8.9	A
	Northbound												
	LT	0.72	54.1	D	0.53	34.3	C	0.96	81.1	F	0.35	16.9	B
	Southbound												
	LTR	0.64	50.4	D	0.56	34.8	C	0.94	76.1	E	0.37	17.1	B
		Intersection Delay = 20.4 LOS = C			**Intersection Delay = 17.0 LOS = B**			**Intersection Delay = 30.8 LOS = C**			**Intersection Delay = 12.9 LOS = B**		
Astoria Blvd & 111th Street													
	Eastbound												
	LT	0.29	8.6	A	0.35	12.0	B	0.46	16.2	B	0.27	10.6	B
	Westbound												
	TR	0.46	10.1	B	0.31	11.5	B	0.44	16.1	B	0.37	11.4	B
	Northbound												
	LTR	0.11	35.4	D	0.07	20.1	C	0.06	25.6	C	0.10	12.3	B
	Southbound												
	L	0.99	77.0	E	0.96	53.7	D	0.96	59.4	E	0.93	37.4	D
		Intersection Delay = 29.3 LOS = C			**Intersection Delay = 26.1 LOS = C**			**Intersection Delay = 28.8 LOS = C**			**Intersection Delay = 20.4 LOS = C**		
32nd Ave & Junction Blvd													
	Eastbound												
	LR	0.11	10.6	B	0.10	10.5	B	0.09	10.5	B	0.08	10.4	B
	Westbound												
	LTR	0.07	10.2	B	0.04	10.0+	B	0.07	10.2	B	0.08	10.2	B
	Northbound												
	LT	0.71	20.6	C	0.72	21.5	C	0.81	26.3	C	0.22	11.6	B
	Southbound												
	TR	0.41	13.7	B	0.58	16.6	B	0.60	17.1	B	0.42	13.8	B
		Intersection Delay = 16.6 LOS = B			**Intersection Delay = 18.1 LOS = B**			**Intersection Delay = 20.5 LOS = C**			**Intersection Delay = 12.4 LOS = B**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & Junction Blvd													
	Eastbound												
	L	0.09	15.6	B	0.09	9.2	A	0.08	10.3	B	0.08	8.2	A
	TR	0.85	25.7	C	0.65	18.3	B	0.69	18.5	B	0.62	17.7	B
	Westbound												
	L	0.21	22.2	C	0.23	15.6	B	0.32	27.4	C	0.26	14.9	B
	TR	0.68	18.3	B	0.45	14.3	B	0.5	15	B	0.39	13.4	B
	Northbound												
	LTR	0.99	85.9	F	0.98	84.3	F	0.99	83.9	F	0.77	58.4	E
	Southbound												
	LTR	0.84	64.4	E	0.91	72.3	E	0.97	82.9	F	0.75	56.1	E
		Intersection Delay = 33.2 LOS = C			**Intersection Delay = 33.0 LOS = C**			**Intersection Delay = 32.9 LOS = C**			**Intersection Delay = 25.0 LOS = C**		
Northern Blvd & 98th Street													
	Eastbound												
	TR	0.69	12.1	B	0.67	14.0	B	0.60	9.8	A	0.71	14.9	B
	Westbound												
	L	0.25	9.2	A	0.37	14.2	B	0.47	21.3	C	0.53	20.3	C
	T	0.59	9.6	A	0.65	13.6	B	0.58	9.9	A	0.60	12.5	B
	Northbound												
	Southbound												
	LTR	0.96	84.2	F	0.94	75.6	E	0.98	86.7	F	0.97	80.9	F
		Intersection Delay = 17.8 LOS = B			**Intersection Delay = 21.9 LOS = C**			**Intersection Delay = 19.4 LOS = B**			**Intersection Delay = 23.6 LOS = C**		
Northern Blvd & 103rd Street													
	Eastbound												
	L	0.48	20.6	C	0.20	9.8	A	0.25	8.2	A	0.27	11.4	B
	T	0.59	9.6	A	0.56	11.8	B	0.87	18.5	B	0.64	13.4	B
	Westbound												
	TR	0.84	16.7	B	0.66	13.9	B	0.59	9.7	A	0.65	13.5	B
	Northbound												
	LTR	0.57	47.5	D	0.45	40.2	D	0.69	51.2	D	0.55	42.2	D
	Southbound												
		Intersection Delay = 17.2 LOS = B			**Intersection Delay = 16.1 LOS = B**			**Intersection Delay = 18.9 LOS = B**			**Intersection Delay = 17.3 LOS = B**		
Northern Blvd & 108th Street													
	Eastbound												
	L	0.21	22.1	C	0.17	16.7	B	0.28	20.2	C	0.3	21.2	C
	TR	0.78	22.2	C	0.76	21.7	C	0.68	18.2	B	0.76	21.6	C
	Westbound												
	L	0.16	17.4	B	0.18	18.7	B	0.2	20.2	C	0.25	19.6	B
	TR	0.71	18.9	B	0.7	19.5	B	0.74	20.8	C	0.76	21.7	C
	Northbound												
	LTR	0.89	67.4	E	0.95	79.9	E	0.98	81.6	F	0.86	65.5	E
	Southbound												
	LTR	0.56	46.7	D	0.66	49.8	D	0.96	80.4	F	0.74	54.7	D
		Intersection Delay = 27.3 LOS = C			**Intersection Delay = 30.6 LOS = C**			**Intersection Delay = 33.7 LOS = C**			**Intersection Delay = 29.8 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & 114th Street													
	Eastbound												
	T	0.71	32.5	C	0.59	17.8	B	0.86	27.6	C	0.71	20.7	C
	R	0.72	35.6	D	0.48	16.8	B	0.68	21.8	C	0.35	14.6	B
	Westbound												
	L	0.55	25.3	C	0.63	31.4	C	0.88	64.4	E	0.52	32.4	C
	T	0.77	10.9	B	0.54	6.8	A	0.54	6.9	A	0.55	6.9	A
	Northbound												
	Southbound												
	LTR	0.13	42.3	D	0.17	40.4	D	0.12	39.8	D	0.22	41.0	D
		Intersection Delay = 21.6 LOS = C			**Intersection Delay = 15.3 LOS = B**			**Intersection Delay = 23.5 LOS = C**			**Intersection Delay = 16.5 LOS = B**		
34th Ave & Junction Blvd													
	Eastbound												
	LTR	0.69	18.5	B	0.58	15.0	B	0.70	19.1	B	0.48	13.3	B
	Westbound												
	LTR	0.43	12.5	B	0.38	11.8	B	0.50	13.6	B	0.37	11.6	B
	Northbound												
	LTR	0.60	29.5	C	0.65	30.9	C	0.72	32.9	C	0.46	26.7	C
	Southbound												
	LTR	0.96	63.5	E	0.94	59.3	E	0.97	63.6	E	0.95	63.8	E
		Intersection Delay = 31.9 LOS = C			**Intersection Delay = 31.0 LOS = C**			**Intersection Delay = 33.5 LOS = C**			**Intersection Delay = 30.4 LOS = C**		
34th Ave & 103rd Street													
	Eastbound												
	LT	0.51	13.8	B	0.42	12.2	B	0.65	17.1	B	0.49	13.5	B
	Westbound												
	TR	0.45	12.6	B	0.29	10.5	B	0.44	12.4	B	0.35	11.3	B
	Northbound												
	LTR	0.43	26.4	C	0.44	26.7	C	0.5	27.7	C	0.54	28.4	C
	Southbound												
		Intersection Delay = 17.2 LOS = B			**Intersection Delay = 16.8 LOS = B**			**Intersection Delay = 18.9 LOS = B**			**Intersection Delay = 18.6 LOS = B**		
34th Ave & 108th Street													
	Eastbound												
	LTR	0.54	14.2	B	0.48	13.2	B	0.65	17.1	B	0.55	14.6	B
	Westbound												
	LTR	0.57	14.8	B	0.54	14.2	B	0.48	13.2	B	0.37	11.6	B
	Northbound												
	LTR	0.63	30.6	C	0.60	30.3	C	0.70	33.0	C	0.57	29.6	C
	Southbound												
	LTR	0.83	45.7	D	0.97	70.1	E	0.95	62.5	E	0.97	69.2	E
		Intersection Delay = 25.2 LOS = C			**Intersection Delay = 31.0 LOS = C**			**Intersection Delay = 31.5 LOS = C**			**Intersection Delay = 32.4 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
34th Ave & 114th Street													
	Eastbound												
	TR	0.30	14.9	B	0.38	20.7	C	0.45	21.7	C	0.41	18.0	B
	Westbound												
	Northbound												
	R	0.18	0.2	A	0.16	0.2	A	0.23	0.3	A	0.20	0.2	A
	Southbound												
	L	0.93	43.3	D	0.64	20.1	C	0.70	21.9	C	0.68	24.8	C
	T	0.12	16.7	B	0.14	12.4	B	0.21	13.1	B	0.10	14.7	B
		Intersection Delay = 25.9 LOS = C			**Intersection Delay = 15.5 LOS = B**			**Intersection Delay = 15.6 LOS = B**			**Intersection Delay = 16.0 LOS = B**		
35th Ave & Junction Blvd													
	Eastbound												
	LR	0.42	19.5	B	0.41	19.2	B	0.56	23.7	C	0.35	18.1	B
	Westbound												
	LTR	0.48	19.8	B	0.39	18.1	B	0.49	20.1	C	0.48	19.8	B
	Northbound												
	LT	0.59	22.8	C	0.71	27.4	C	0.87	40.0	D	0.73	29.2	C
	Southbound												
	TR	0.79	30.8	C	0.78	30.3	C	0.87	37.7	D	0.71	26.7	C
		Intersection Delay = 24.4 LOS = C			**Intersection Delay = 25.4 LOS = C**			**Intersection Delay = 32.5 LOS = C**			**Intersection Delay = 24.5 LOS = C**		
37th Ave & Junction Blvd													
	Eastbound												
	LTR	0.54	21.5	C	0.65	24.3	C	0.84	34	C	0.57	22.2	C
	Westbound												
	Northbound												
	LTR	0.33	17.3	B	0.36	17.6	B	0.41	18.3	B	0.33	17.3	B
	Southbound												
	LTR	0.91	43.5	D	0.96	52.1	D	0.99	58.8	E	0.83	34.7	C
		Intersection Delay = 29.4 LOS = C			**Intersection Delay = 33.1 LOS = C**			**Intersection Delay = 38.5 LOS = C**			**Intersection Delay = 25.5 LOS = C**		
37th Ave & 103rd Street													
	Eastbound												
	LT	0.20	8.8	A	0.26	9.3	A	0.35	10.1	B	0.31	9.7	A
	Westbound												
	Northbound												
	TR	0.38	25.7	C	0.43	26.6	C	0.5	27.8	C	0.61	30.4	C
	Southbound												
		Intersection Delay = 16.4 LOS = B			**Intersection Delay = 16.3 LOS = B**			**Intersection Delay = 16.8 LOS = B**			**Intersection Delay = 18.7 LOS = B**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
37th Ave & 108th Street													
	Eastbound												
	LT	0.37	10.3	B	0.37	10.3	B	0.52	12.4	B	0.32	9.8	A
	R	0.04	0.0	A	0.05	0.1	A	0.06	0.1	A	0.07	0.1	A
	Westbound												
	LR	0.19	8.8	A	0.25	9.5	A	0.37	11.3	B	0.28	9.9	A
	Northbound												
	TR	0.45	27.3	C	0.45	27.4	C	0.5	28.2	C	0.47	27.8	C
	Southbound												
	LT	0.34	25.7	C	0.35	25.7	C	0.51	28.4	C	0.39	26.4	C
		Intersection Delay = 18.6 LOS = B			**Intersection Delay = 18.2 LOS = B**			**Intersection Delay = 19.8 LOS = B**			**Intersection Delay = 18.5 LOS = B**		
38th Ave & 108th Street													
	Eastbound												
	LTR	0.27	26.3	C	0.32	27.1	C	0.31	27.0	C	0.16	24.7	C
	Westbound												
	Northbound												
	TR	0.40	11.0	B	0.39	11.0	B	0.40	11.0	B	0.38	10.8	B
	Southbound												
	LT	0.37	10.8	B	0.45	11.9	B	0.56	13.6	B	0.49	12.4	B
		Intersection Delay = 12.8 LOS = B			**Intersection Delay = 13.5 LOS = B**			**Intersection Delay = 14.2 LOS = B**			**Intersection Delay = 12.5 LOS = B**		
Roosevelt Ave & Elmhurst Ave													
	Eastbound												
	LT	0.26	8.5	A	0.21	8.0	A	0.26	8.4	A	0.24	8.2	A
	Westbound												
	TR	0.25	8.3	A	0.23	8.2	A	0.28	8.6	A	0.27	8.5	A
	Northbound												
	LTR	0.64	44.3	D	0.53	41.5	D	0.66	44.7	D	0.47	40.3	D
	Southbound												
		Intersection Delay = 20.8 LOS = C			**Intersection Delay = 19.5 LOS = B**			**Intersection Delay = 21.4 LOS = C**			**Intersection Delay = 17.5 LOS = B**		
Roosevelt Ave & 94th St South													
	Eastbound												
	T	0.72	30.6	C	0.54	24.1	C	0.93	49.0	D	0.64	27.3	C
	Westbound												
	T	0.74	31.6	C	0.57	25.1	C	0.64	27.3	C	0.63	26.9	C
	Northbound												
	Southbound												
	LR	0.52	50.0	D	0.58	52.1	D	0.66	56.0	E	0.56	50.2	D
		Intersection Delay = 33.7 LOS = C			**Intersection Delay = 29.6 LOS = C**			**Intersection Delay = 42.8 LOS = D**			**Intersection Delay = 31.3 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 94th St North													
	Eastbound												
	TR	0.42	20.4	C	0.34	19.2	B	0.48	21.4	C	0.39	20.0-	B
	Westbound												
	LT	0.71	30.5	C	0.59	25.7	C	0.69	29.7	C	0.61	26.2	C
	Northbound												
	LR	0.35	44.9	D	0.24	42.8	D	0.34	44.8	D	0.33	44.8	D
	Southbound												
		Intersection Delay = 26.7 LOS = C			**Intersection Delay = 23.7 LOS = C**			**Intersection Delay = 26.4 LOS = C**			**Intersection Delay = 24.8 LOS = C**		
Roosevelt Ave & Junction Blvd													
	Eastbound												
	LTR	0.81	30.4	C	0.68	23.9	C	0.81	31.0	C	0.79	29.9	C
	Westbound												
	LTR	0.61	21.5	C	0.54	19.6	B	0.75	27.7	C	0.64	22.6	C
	Northbound												
	LTR	0.54	33.1	C	0.50	32.4	C	0.56	33.6	C	0.48	31.7	C
	Southbound												
	LTR	0.48	31.5	C	0.50	31.9	C	0.55	33.1	C	0.42	30.6	C
		Intersection Delay = 29.3 LOS = C			**Intersection Delay = 27.0 LOS = C**			**Intersection Delay = 31.3 LOS = C**			**Intersection Delay = 28.6 LOS = C**		
Roosevelt Ave & 98th Street													
	Eastbound												
	TR	0.57	13.3	B	0.41	10.5	B	0.56	13.0	B	0.57	13.3	B
	Westbound												
	LT	0.52	12.6	B	0.51	12.2	B	0.68	17.0	B	0.50	12.0	B
	Northbound												
	Southbound												
	LTR	0.98	86.0	F	0.98	88.1	F	0.97	81.1	F	0.90	68.3	E
		Intersection Delay = 33.5 LOS = C			**Intersection Delay = 34.4 LOS = C**			**Intersection Delay = 33.5 LOS = C**			**Intersection Delay = 28.5 LOS = C**		
Roosevelt Ave & 102nd Street													
	Eastbound												
	TR	0.54	12.7	B	0.40	10.4	B	0.52	12.2	B	0.51	12.0	B
	Westbound												
	LT	0.48	11.6	B	0.41	10.6	B	0.55	12.8	B	0.45	11.0	B
	Northbound												
	LR	0.35	39.8	D	0.35	39.8	D	0.45	42.2	D	0.45	42.0	D
	Southbound												
		Intersection Delay = 15.3 LOS = B			**Intersection Delay = 14.5 LOS = B**			**Intersection Delay = 16.4 LOS = B**			**Intersection Delay = 16.2 LOS = B**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 13: 2003 Existing Conditions - Signalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 103rd Street													
	Eastbound												
	LTR	0.60	14.2	B	0.47	11.5	B	0.64	15.5	B	0.56	13.1	B
	Westbound												
	LTR	0.50	12.0	B	0.50	12.1	B	0.62	14.6	B	0.50	12.0	B
	Northbound												
	LTR	0.46	40.4	D	0.52	41.7	D	0.62	44.3	D	0.65	44.9	D
	Southbound												
		Intersection Delay = 19.5 LOS = B			**Intersection Delay = 20.2 LOS = C**			**Intersection Delay = 22.7 LOS = C**			**Intersection Delay = 23.1 LOS = C**		
Roosevelt Ave & 108th Street													
	Eastbound												
	LTR	0.25	8.3	A	0.22	8.0	A	0.25	8.3	A	0.31	8.8	A
	Westbound												
	LTR	0.24	8.2	A	0.22	8.1	A	0.25	8.3	A	0.22	8.1	A
	Northbound												
	LTR	0.70	48.0	D	0.72	49.9	D	0.79	54.4	D	0.73	50.2	D
	Southbound												
	LTR	0.69	47.7	D	0.66	46.1	D	0.80	53.0	D	0.88	63.5	E
		Intersection Delay = 26.7 LOS = C			**Intersection Delay = 27.1 LOS = C**			**Intersection Delay = 30.2 LOS = C**			**Intersection Delay = 30.8 LOS = C**		
Roosevelt Ave & 111th Street													
	Eastbound												
	LTR	0.23	8.1	A	0.21	8.0	A	0.22	8.0	A	0.29	8.6	A
	Westbound												
	LTR	0.54	12.9	B	0.50	12.2	B	0.58	13.9	B	0.63	15.3	B
	Northbound												
	LTR	0.86	64.4	E	0.91	72.0	E	0.97	82.8	F	0.96	79.7	E
	Southbound												
		Intersection Delay = 24.4 LOS = C			**Intersection Delay = 27.9 LOS = C**			**Intersection Delay = 33.0 LOS = C**			**Intersection Delay = 30.2 LOS = C**		
Rossevalt Ave & 114th Street													
	Eastbound												
	LTR	0.23	8.2	A	0.20	8.0	A	0.23	8.2	A	0.31	8.9	A
	Westbound												
	LTR	0.21	8.0	A	0.22	8.1	A	0.25	8.3	A	0.35	9.3	A
	Northbound												
	LTR	0.72	55.2	E	0.81	64.2	E	0.99	94.6	F	0.96	85.9	F
	Southbound												
	LTR	0.23	36.6	D	0.28	37.3	D	0.34	38.2	D	0.50	41.4	D
		Intersection Delay = 20.1 LOS = C			**Intersection Delay = 23.3 LOS = C**			**Intersection Delay = 31.4 LOS = C**			**Intersection Delay = 29.0 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle, LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

operates at LOS D with a delay of 50.4 seconds per vehicle.

- The southbound 111th Street left turn movement at Astoria Boulevard operates at LOS E with a delay of 77.0 seconds per vehicle.
- The northbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 85.9 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 64.4 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 84.2 seconds per vehicle.
- The northbound 103rd Street left-thru-right approach movement at Northern Boulevard operates at LOS D with a delay of 47.5 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 67.4 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS D with a delay of 46.7 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 63.5 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at 34th Avenue operates at LOS D with a delay of 45.7 seconds per vehicle.
- The southbound 94th Street South left-right turn approach movement at Roosevelt Avenue operates at LOS D with a delay of 50.0 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS F with a delay of 86.0 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 48.0 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 47.7 seconds per vehicle.
- The northbound 111th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 64.4 seconds per vehicle.
- The northbound 114th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 55.2 seconds per vehicle.

During the Weekday Midday Peak Hour:

- The southbound 111th Street left turn movement at Astoria Boulevard operates at LOS D with a delay of 53.7 seconds per vehicle.
- The northbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 84.3 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 72.3 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 75.6 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 79.9 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS D with a delay of 49.8 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 59.3 seconds per vehicle.

- The southbound 108th Street left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 70.1 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 37th Avenue operates at LOS D with a delay of 52.4 seconds per vehicle.
- The southbound 94th Street South left-right turn approach movement at Roosevelt Avenue operates at LOS D with a delay of 52.1 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS F with a delay of 88.1 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 49.9 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 46.1 seconds per vehicle.
- The northbound 111th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 72.0 seconds per vehicle.
- The northbound 114th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 64.2 seconds per vehicle.

During the Weekday Evening Peak Hour:

- The northbound 108th Street left-thru approach movement at Astoria Boulevard operates at LOS F with a delay of 81.1 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Astoria Boulevard operates at LOS E with a delay of 76.1 seconds per vehicle.
- The southbound 111th Street left turn movement at Astoria Boulevard operates at LOS E with a delay of 59.4 seconds per vehicle.
- The northbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 83.9 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 82.9 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 86.7 seconds per vehicle.
- The northbound 103rd Street left-thru-right approach movement at Northern Boulevard operates at LOS D with a delay of 51.2 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 81.6 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 80.4 seconds per vehicle.
- The westbound Northern Boulevard left turn approach movement at 114th Street operates at LOS E with a delay of 64.4 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 63.6 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 62.5 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 37th Avenue operates at LOS E with a delay of 58.8 seconds per vehicle.
- The southbound 94th Street South left-right turn approach movement at Roosevelt Avenue operates at LOS E with a delay of 56.0 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Roosevelt Avenue

operates at LOS F with a delay of 81.1 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 54.4 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 53.0 seconds per vehicle.
- The northbound 111th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS F with a delay of 82.8 seconds per vehicle.
- The northbound 114th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS F with a delay of 94.6 seconds per vehicle.

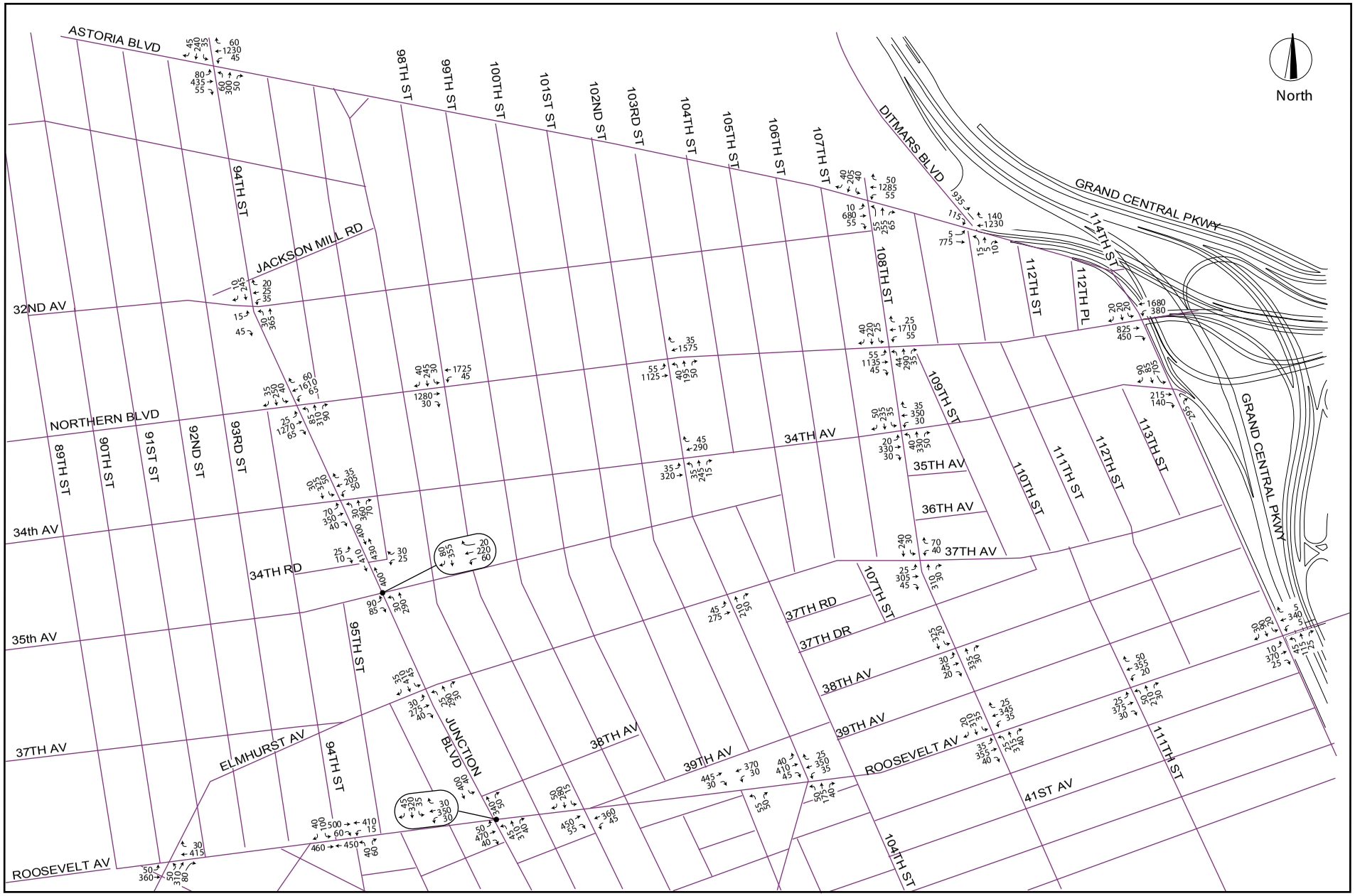
During the Sunday Midday Peak Hour:
- The northbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 58.4 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 56.1 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Northern Boulevard operates at LOS F with a delay of 80.9 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS E with a delay of 65.5 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Northern Boulevard operates at LOS D with a delay of 54.7 seconds per vehicle.
- The southbound Junction Boulevard left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 63.8 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at 34th Avenue operates at LOS E with a delay of 69.2 seconds per vehicle.
- The southbound 94th Street South left-right turn approach movement at Roosevelt Avenue operates at LOS D with a delay of 50.2 seconds per vehicle.
- The southbound 98th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 68.3 seconds per vehicle.
- The northbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS D with a delay of 50.2 seconds per vehicle.
- The southbound 108th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 63.5 seconds per vehicle.
- The northbound 111th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS E with a delay of 79.7 seconds per vehicle.
- The northbound 114th Street left-thru-right approach movement at Roosevelt Avenue operates at LOS F with a delay of 85.9 seconds per vehicle.

The capacity analysis (Table 14) shows that all unsignalized intersection approaches operate acceptably, at LOS C or better, for all peak hours.

Table 14: 2003 Existing Conditions - Unsignalized Intersections Level of Service

Intersection	Approach	AM			MD			PM			SUN MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Junction Blvd & 34th Road West	Northbound												
	Southbound												
	Westbound												
	Eastbound												
	LR	0.11	16.4	C	0.07	15.5	C	0.1	17.6	C	0.07	12.6	B
		EB Appr.Delay=16.4 LOS=C			EB Appr.Delay=15.5 LOS=C			EB Appr.Delay=17.6 LOS=C			EB Appr.Delay=12.6 LOS=B		
Junction Blvd & 96th Street/34th Road East	Northbound												
	Southbound												
	Westbound												
	LR	0.14	14.8	B	0.16	16.1	C	0.23	18.6	C	0.13	14.1	B
	Eastbound												
		WB Appr.Delay=14.8 LOS=B			WB Appr.Delay=16.1 LOS=C			WB Appr.Delay=18.6 LOS=C			WB Appr.Delay=14.1 LOS=B		
Junction Blvd & 38th Ave	Northbound												
	Southbound												
	LT	0.04	8.3	A	0.04	8.3	A	0.03	8.5	A	0.05	8.4	A
	Westbound												
	Eastbound												

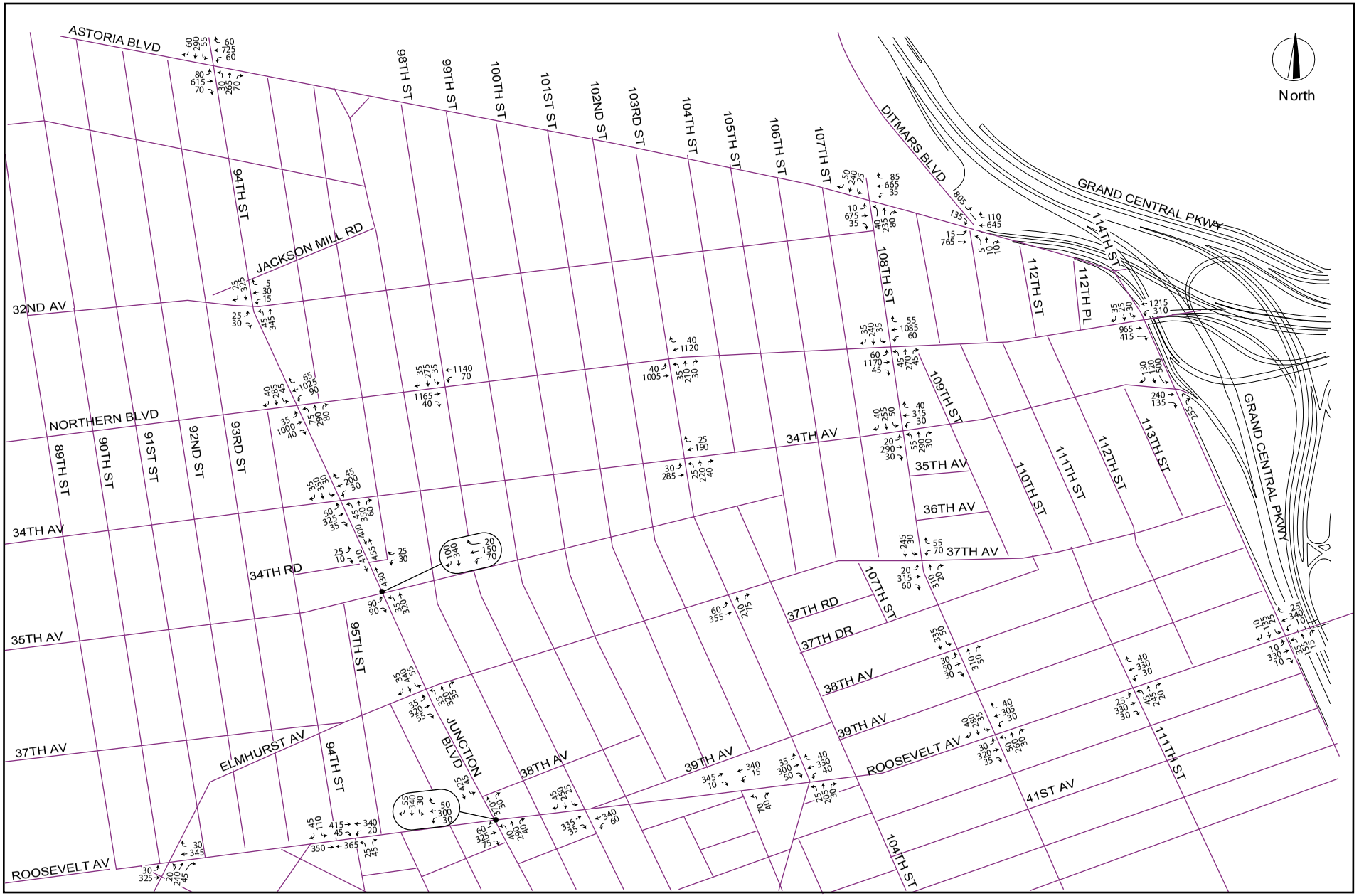
Abbreviations:
L-Left, T-Through, R-Right, V/C-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-15, C>15-25, D>25-35, E>35-50, F>50



Existing Traffic Volumes, AM Peak Hour

(7:30-8:30AM for Northern Boulevard and 32nd Avenue
8:00-9:00AM for Rest of the Area)

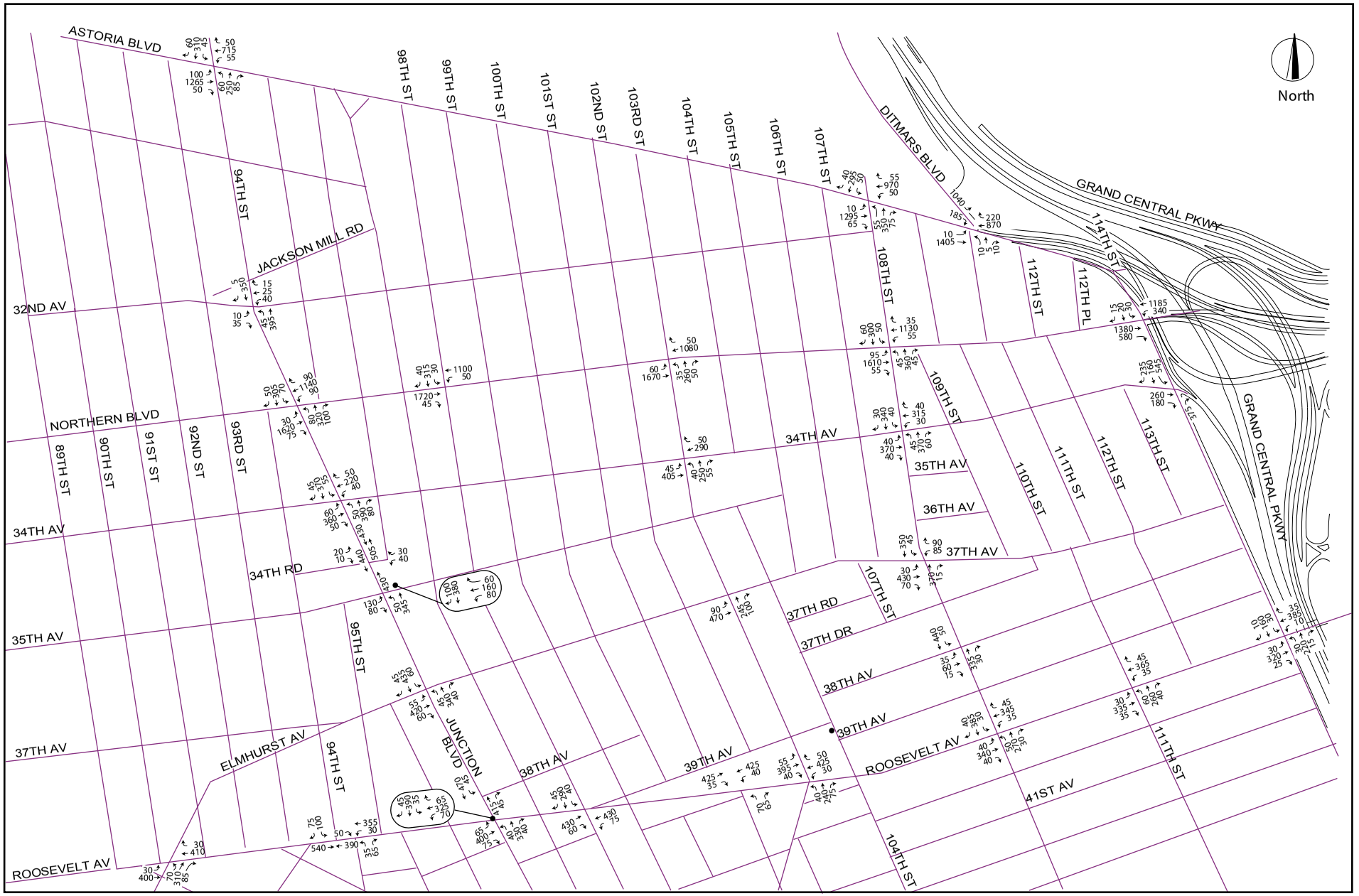
Figure 10A



Existing Traffic Volumes, MD Peak Hour

(1:00PM-2:00PM)

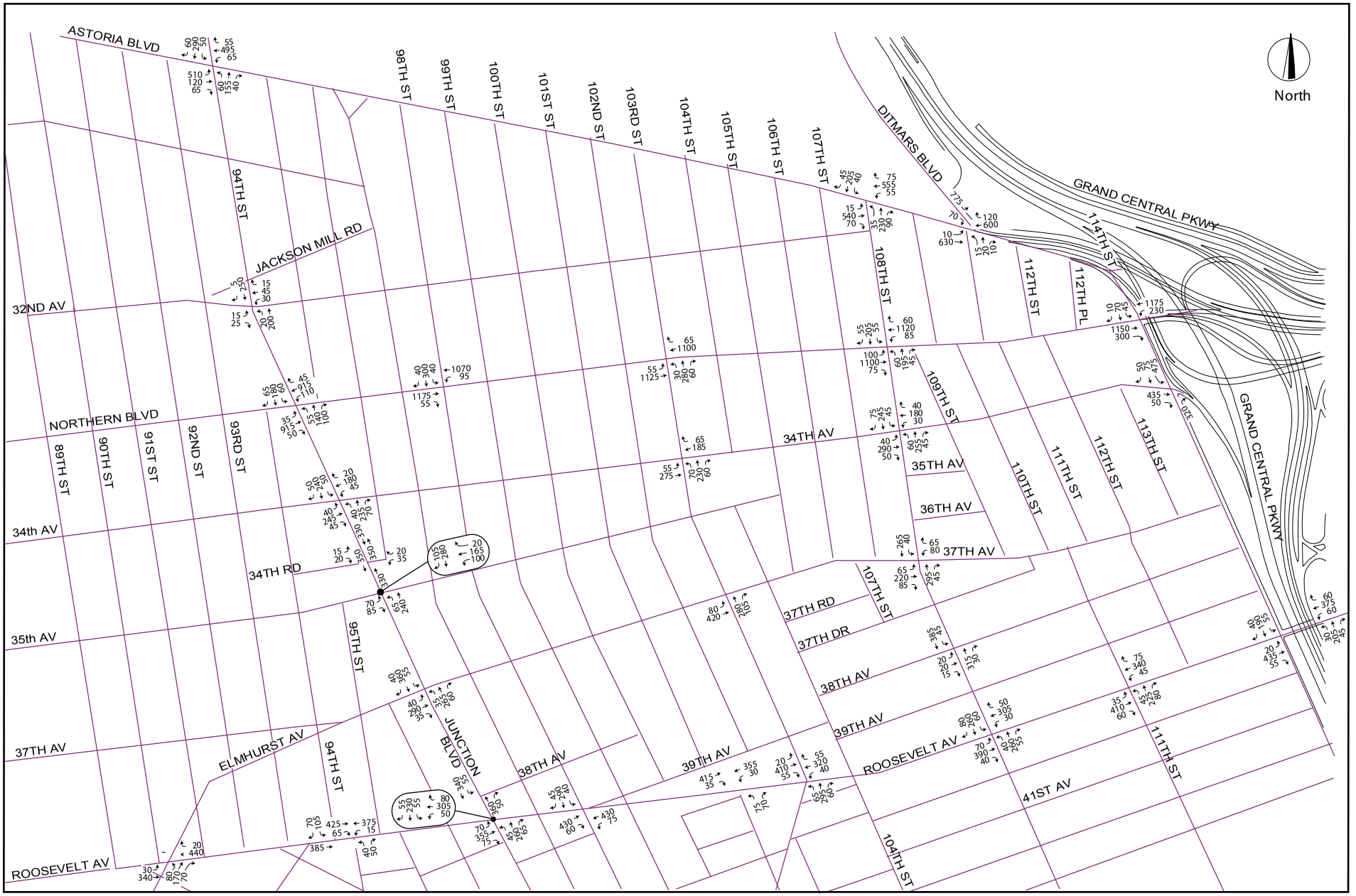
Figure 10B



Existing Traffic Volumes, PM Peak Hour

(5:00-6:00PM)

Figure 10C



Existing Traffic Volumes, Sunday, MD Peak Hour

(2:00-3:00PM)

Figure 10D

Parking

Off-Street Parking

There are no off-street public parking facilities within the study area.

On-Street Parking

The on-street parking regulations within the study area vary considerably. However, they can be grouped into the following three major categories:

I. Parking

- Permitted (metered and/or non-metered)
- During the day and/or night, or part of the day and/or night

II. No Parking

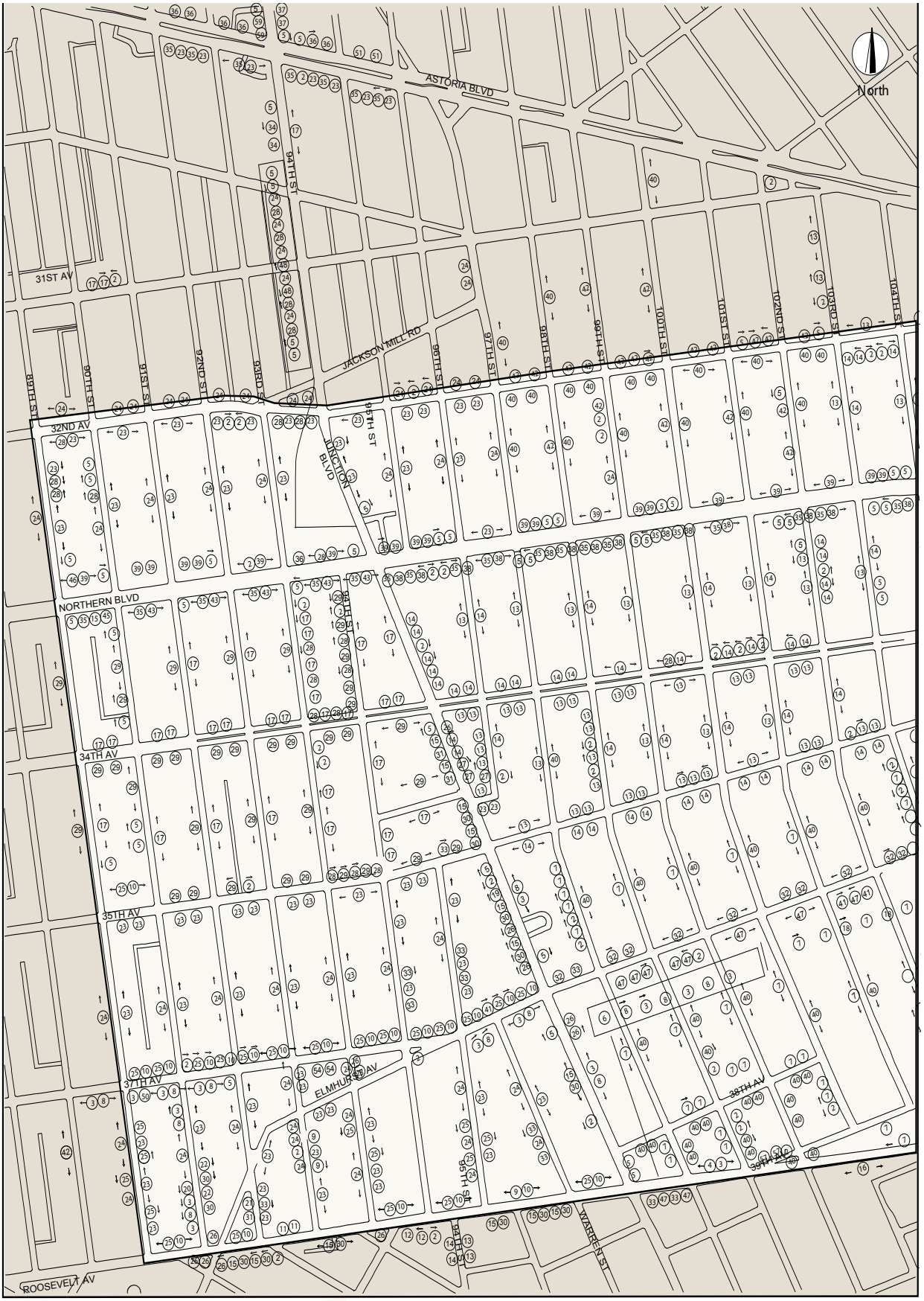
- Anytime or Part of the day and/or night or school days
- Monday thru Friday and/or including or excluding Sunday
- During street cleaning hours and/or snow emergency

III. No Standing

- Anytime or Part of the day and/or night
- Monday thru Friday and/or including or excluding Sunday
- During street cleaning hours and/or snow emergency
- With exceptions for truck (loading or unloading) and some authorized vehicles (such as police, fire, bus, taxis, etc.)

There are 58 different on-street parking regulations within the study area. These regulations are listed in Table 15, and plotted on an area street map in Figures 11A and 11B.

Table 15: On-Street Parking Regulations			
1	No Parking Street Cleaning Rules 8AM-8:30AM Mon &Wed	30	1 Hour Parking 8AM-7PM
2	No Parking Anytime	31	2 Hour Parking 8AM-7PM
3	No Parking Street Cleaning Rules 8AM-8:30AM Except Sun	32	No Parking Street Cleaning Rules 7:30AM-8AM Mon&Thurs
4	1 Hour Parking 8:30AM-7PM Except Sun	33	2 Hour Parking 9AM-7PM
5	No Standing Anytime Bus Stop	34	No Parking Street Cleaning Rules 9:30AM-11AM Thurs
6	No Standing Anytime Taxi Stand	35	No Standing 4PM-7PM Mon thru Fri
7	No Parking Street Cleaning Rules 8:30AM-10AM Wed	36	No Parking 7AM-10AM Mon thru Fri
8	1 Hour Parking 8:30AM-7PM	37	No Parking Street Cleaning Rules 11:30AM-1PM Fri
9	1 Hour Parking 9AM-7PM Except Sunday	38	No Parking Street Cleaning Rules 10AM-11:30AM Fri
10	No Parking Street Cleaning Rules 8:30AM-9AM Except Sun	39	No Standing 7AM-10AM Mon thru Fri
11	No Parking Street Cleaning Rules 8:30AM-9AM Thurs	40	No Parking Street Cleaning Rules 8:30AM-10AM Fri
12	No Parking Street Cleaning Rules 7:30AM-8AM Tues&Fri	41	No Parking 8AM-6PM Except Sun
13	No Parking Street Cleaning Rules 9:30AM-11AM Mon	42	No Parking Street Cleaning Rules 8:30AM-10AM Thurs
14	No Parking Street Cleaning Rules 9:30AM-11AM Tues	43	No Parking Street Cleaning Rules 10AM-11:30AM Tues
15	No Parking Street Cleaning Rules 7:30AM-8AM Except Sun	44	No Parking Street Cleaning Rules 11:30AM-1PM Thurs
16	No Parking Street Cleaning Rules 8:30AM-9PM Tues&Fri	45	1 Hour Parking 8AM-4PM Except Sun
17	No Parking Street Cleaning Rules 9:30AM-11AM Fri	46	1 Hour Parking 10AM-7PM Except Sun
18	2 Hour Parking 9AM-7PM Except Sun	47	No Parking Street Cleaning Rules 7:30AM-8AM Tues
19	No Parking Street Cleaning Rules 8AM-11AM Fri	48	No Standing 7AM-4PM School Days
20	No Parking 8AM-6PM Mon thru Fri	49	2 Hour Parking
21	No Parking Street Cleaning Rules 7:30AM-8AM Mon,Tues,Thurs,Fri	50	No Standing 9AM-9PM Except Trucks Loading and Unloading
22	No Parking Street Cleaning Rules 7:30AM-8AM Mon	51	No Parking Street Cleaning Rules 11:30AM-1PM Mon
23	No Parking Street Cleaning Rules 8:30AM-10AM Tues	52	No Parking Street Cleaning Rules 11:30AM-1PM Wed&Sun
24	No Parking Street Cleaning Rules 8:30AM-10AM Mon	53	No Parking Hotel Parking
25	1 Hour Parking 9AM-7PM	54	No Parking Street Cleaning Rules 8AM-8:30AM Fri
26	No Standing Anytime	55	No Parking Street Cleaning Rules 9AM-10:30AM Thurs
27	No Standing 8AM-6PM Mon thru Fri Except Authorized Vehicles Dept. of Health	56	No Parking Street Cleaning Rules 8AM-11AM Mon
28	No Standing 7AM-4PM School Days Except School Buses	57	No Parking Street Cleaning Rules 8AM-11AM Thurs
29	No Parking Street Cleaning Rules 9:30AM-11AM Wed	58	No Parking Street Cleaning Rules 8AM-11AM Fri



On Street Parking Regulations

Figure 11A

NYC Department of City Planning, Transportation Division

On Street Parking Regulations

Figure 11B

NYC Department of City Planning, Transportation Division

Public Transit

Subway Service

New York City Transit (NYCT) # 7 subway line operates at four subway stations located directly within the study area, as shown in Figure 12. This line serves the southern section of the study area, along Roosevelt Avenue. This route from the west connects Manhattan (along 42nd Street) and Long Island City (Queens) and Flushing to the east.

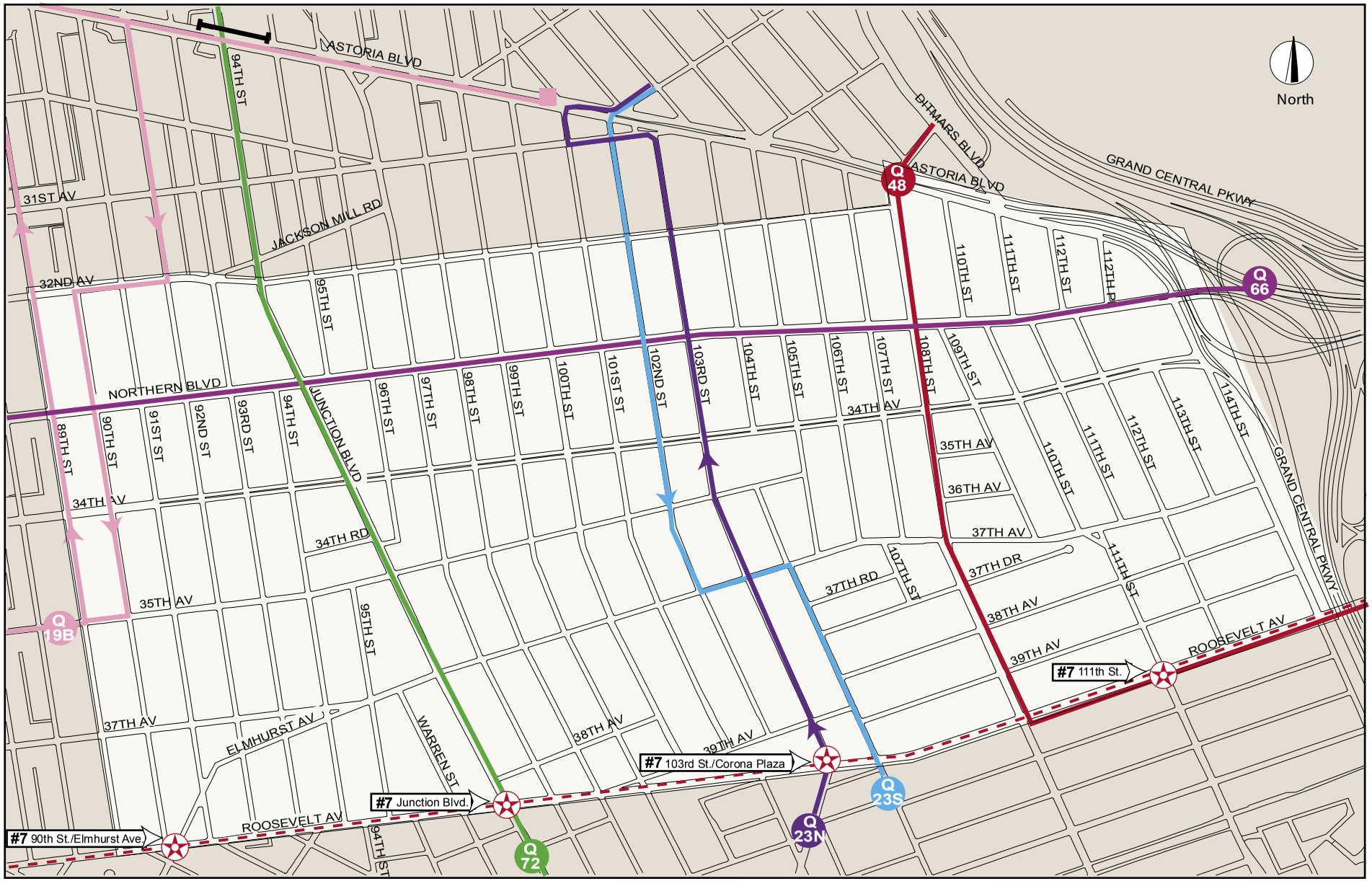
The North Corona subway stations are situated just west of the #7 line terminus located at Flushing-Main Street station, where many Queens local bus lines and the Long Island Rail Road's Flushing station are located. The Flushing #7 subway line operates primarily in an east-west direction, connecting residents of the North Corona study area with other sections of Queens and midtown Manhattan. The #7 subway line route allows residents of North Corona to make connections with system wide alternate subway lines as follows: at Jackson Heights-Roosevelt Avenue station, connecting to the E, F, R, V, and G train lines; at Queensboro Plaza station, connecting with the N and W lines; at Grand Central-42nd Street station, connecting with the 4, 5, 6, and S lines; and at Times Square-42nd Street station, connecting with the N, Q, R, S, W, 1, 2, and 3 train lines.

Within the study area, local only train service is provided at three stations, 90th Street-Elmhurst Avenue, 103rd Street-Corona Plaza, and 111th Street stations, while both local and express service is available at Junction Boulevard station. The Flushing #7 local train makes all stops from Flushing-Main Street in Queens to Times Square-42nd Street in Manhattan. The Flushing express train makes express stops between Flushing-Main Street in Queens and Times Square-42nd Street during the middays, rush hours, and weekday evenings until 10:00 PM. Note that the #7 express train skips all stations between Willets Point in Queens and Queensboro Plaza, except Junction Boulevard and 61st Street-Woodside stations on trips to Manhattan (AM) and to Queens (PM hours).

The subway stations are situated on streets that are served by local bus routes, facilitating a transfer. The 90th Street-Elmhurst Avenue subway station is located several blocks south of the east-west/north-south Q19B bus route. The Junction Boulevard subway station, 103rd Street-Corona Plaza station, and 111th Street station are located on the bus routes, Q72, Q23, and Q48, respectively. At the 111th Street station, the Q48 local bus provides connecting service to La Guardia Airport.

Existing pedestrian volumes at all subway elements were collected on weekdays from 7:00 AM to 9:00 AM in the morning and 4:30 PM to 6:30 PM in the evening, and on Sunday from 1:30 PM to 3:30 PM.

The subway station analysis was prepared using the design capacities for stairs, escalators, turnstiles, and high-wheel exits as specified in the New York City Transit Authority's (NYCTA) *Station Planning and Design Guidelines* (December 3, 1990), as well as with the procedures set forth in *Pedestrian Planning and Design* (1971) by John. J. Fruin. All analyses reflect peak 15 minute conditions in the AM and PM peak hours. The analysis was conducted using the Fruin pedestrian level of service methodology which equates pedestrian flow per minute per foot of stairway width with qualitative measures of pedestrian comfort. Based on the calculated values of pedestrian volumes per minute per foot width of stair, Fruin defined six levels of service, designated by the letters A through F. Level of service A represents free flowing conditions without



Existing Public Transit Network

Bus Route and Number

Bus Route Direction

Bus Route Terminus

Segment of Bus Route Which is Outside of the Study Area

Subway Line and Subway Station Name and Location

Figure 12

pedestrian conflicts, while LOS F indicates significant capacity limitations and inconvenience (see Table 16).

Table 16
Stairway Level of Service Definitions

Level of Service	Pedestrians/Foot/Minute (PFM)	Description
A	Up to 7	Free flow conditions.
B	7-10	Minor reverse flow will cause minor conflicts.
C	10-15	Slight restrictions in speed and difficulties in reverse flows.
D	15-20	Significant restriction in speed and difficulties in reverse flows.
E	20-25	Reductions of speeds, serious reverse traffic conflicts, and intermittent stoppages.
F	More than 25	Complete breakdown in traffic flow.

Source: *CEQR Technical Manual*, City of New York, October 2001

Demand levels were estimated for the various station elements, and passenger volumes were compared with the computed volume that each individual station element is capable of handling. Various capacity-reducing factors were applied to these station elements to account for pedestrian flow characteristics, such as friction caused by bi-directional flow, width reductions in stairwells prompted by handrails, and peaking characteristics generated by surge periods in the peak hour.

The service volume flow rate at the midpoint of LOS C and LOS D (SVCD), which is the level employed by the Metropolitan Transportation Authority (MTA), was used to determine the adequacy of various station elements to accommodate demand levels at an acceptable LOS. When actual or projected demands are less than the calculated SVCD, the LOS is considered acceptable.

Table 17 shows the Volume/SVCD (V/SVCD) ratios with the corresponding LOS. V/SVCD ratios between 0.00 and 0.45 represent LOS A, while V/SVCD ratios between 0.46 and 0.70 describe LOS B. V/SVCD ratios between 0.71 and 1.00 represent LOS C, while LOS D indicates a moderate degree of congestion with a V/SVCD ratio range between 1.01 and 1.33. The V/SVCD ratio range between 1.34 and 1.67 represent LOS E, this indicates severely restricted walking speeds and congestion. Finally, excessive delays occur at LOS F which is represented by a V/SVCD ratio equal to or greater than 1.68. LOS F indicates that demand exceeds capacity of the element.

Table 17
V/SVCD Ratio Definitions

LOS	Description	V/SVCD Ratio
A	Unrestricted.	< 0.45
B	Slightly restricted, no impact on speed.	0.46 to 0.70
C	Speeds reduced, difficult to pass.	0.71 to 1.00
D	Restricted, reverse flow conflicts.	1.01 to 1.33
E	Severely restricted.	1.34 to 1.67
F	Many stoppages, no discernible flow.	> 1.68
Source: *CEQR Technical Manual*, City of New York, October 2001		

Table 18 show the results of the analysis of the existing conditions of station elements in the weekday AM and PM peak hours, and Sunday midday peak hour at the four selected stations. As indicated in the tables, all elements operate at LOS A or B. The existing service conditions of the station elements at each subway station are described below.

90th Street/Elmhurst Avenue Station (7)
The existing conditions for the pedestrian flow at the fare control area (FCA No R527) were analyzed for this station and are summarized in Table 18. All of the station's fare control elements and stairs operate at LOS A or B.

Junction Boulevard Station (7)
The existing conditions for the pedestrian flow at the fare control area (FCA No. R528) were analyzed for this station and are summarized in Table 18. All of the station's elements operate at LOS A or B.

103rd Street/Corona Plaza Station (7)
The existing conditions for the pedestrian flow at four fare control areas (FCA No. R589) were analyzed for this station and are summarized in Table 18. All of the station's elements operate at LOS A or B.

111th Street Station (7)
The existing conditions for the pedestrian flow at four fare control areas (FCA No. R589) were analyzed for this station and are summarized in Table 18. All of the station's elements operate at LOS A or B.

Bus Service
Five local bus routes, Q66, Q19B, Q72, Q23, and Q48, serve the North Corona study area. Route Q66 operates primarily in an east-west direction, routes Q72, Q23, and Q48 operate primarily in a north-south direction, and route Q19B operates in both an east-west and a north-south direction. Within the study area, the bus routes link to several NYC Transit #7 line subway stations located along Roosevelt Avenue, providing access to the City's entire transit system. Outside the study area, the bus routes also connect to various subway stations, several LIRR train stations, and bus hubs (e.g., in the Roosevelt Avenue-Main Street, Flushing area).

Table 18
2003 Existing Conditions - Subway Stations Level of Service

Subway Station and Elements			15-Minute Pedestrian Volume			V/SVCD Ratio			Level of Service		
			AM	PM	SUN	AM	PM	SUN	AM	PM	SUN
90th Street/Elmhurst Avenue	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R527											
Turnstile	5	2	405	400	270	0.15	0.15	0.10	A	A	A
Turnstile (To West Bound Trains)	2	2	130	35	90	0.12	0.03	0.08	A	A	A
Turnstile (To East Bound Trains)	2	2	115	80	75	0.11	0.07	0.07	A	A	A
Service Gate	1	2	10	25	5	0.01	0.04	0.01	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S3 & M3)	4.7	3.7	170	225	115	0.34	0.45	0.23	A	B	A
NE (S2 & M2)	4.7	3.7	180	135	120	0.36	0.27	0.24	A	A	A
S (M1)	7.8	6.8	310	180	205	0.34	0.20	0.22	A	A	A
S (S1)	4.9	3.9	310	180	205	0.59	0.34	0.39	B	A	A
Junction Boulevard	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R528											
Turnstile	5	2	655	740	450	0.24	0.27	0.17	A	A	A
Turnstile	4	2	330	330	200	0.15	0.15	0.09	A	A	A
Service Gate	1	2	15	20	10	0.02	0.03	0.01	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S4&M4)	5.8	4.8	280	200	120	0.43	0.31	0.19	A	A	A
NE (S2&M2)	5.8	4.8	250	250	150	0.39	0.39	0.23	A	A	A
SW (S3&M3)	5.8	4.8	310	310	190	0.48	0.48	0.29	B	B	A
SE (S1&M1)	5.8	4.8	160	330	200	0.25	0.51	0.31	A	B	A
103rd Street/Corona Plaza	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R529											
Turnstile	5	2	660	660	425	0.24	0.24	0.16	A	A	A
Service Gate	1	2	10	15	10	0.01	0.02	0.01	A	A	A
High Exit Turnstile	2	1	15	70	45	0.02	0.09	0.06	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S4&M4)	4.7	3.7	165	175	110	0.33	0.35	0.22	A	A	A
NE (S2&M2)	4.7	3.7	195	205	120	0.39	0.41	0.24	A	A	A
SW (S3&M3)	4.6	3.6	90	190	130	0.19	0.39	0.27	A	A	A
SE (S1&M1)	4.8	3.8	235	175	123	0.46	0.34	0.24	B	A	A
111th Street	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R530											
Turnstile	5	2	675	525	435	0.25	0.19	0.16	A	A	A
Service Gate	1	2	15	30	5	0.02	0.04	0.01	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S1&M1	5.7	4.7	270	155	170	0.43	0.24	0.27	A	A	A
SW (S2&M2)	5.7	4.7	150	160	100	0.24	0.25	0.16	A	A	A
SE (S3&M3,4,5)	4.7	3.7	270	240	170	0.54	0.48	0.34	B	B	A

Notes:	The Capacity for Stairs = 10 persons per minute per foot The Capacity for Turnstiles = 40 persons per minute The Capacity for Service Gates = 50 persons per minute The Capacity for High Entrance Turnstiles = 20 persons per minute The Capacity for High Revolving Exit Gates = 30 persons per minute
Source:	New York City Transit, Stations Operations Planning Division City Environmental Quality Review Technical Manual Environmental Assessment and Review Division; NYC Department of City Planning, October 2001

Figure 12 shows the local bus routes and their relationship to the study area. The major streets of operation for the east-west bus routes are all or part of Northern Boulevard and Roosevelt Avenue, and for the north-south bus routes are all or part of 89th/90th streets, Junction Boulevard, 102nd/104th streets (SB) and 103rd Street (NB), and 108th Street.

Q66: Northern Boulevard (West)
The Q66 service operates daily between Flushing-Main Street #7 subway station, Flushing, and 21st Street/Queens Plaza, Long Island City. Additional Q66 service operates over a shorter route between Flushing-Main Street subway station, Flushing, and 51st Street/Northern Boulevard, Woodside.

The major streets of operation along the entire route are Main Street, Northern Boulevard, 35th Avenue, and 21st Street, and the major streets of operation along the abridged route are Main Street and Northern Boulevard. Northern Boulevard is the main street of operation within the study area.

Between Flushing/Main Street, Flushing, and 21st Street/Queens Plaza, Long Island City subway stations, the scheduled frequency of weekday service in both directions is 15 minutes (AM), 24 minutes (Noon), 15 minutes (PM), and 20 minutes (Evening). The scheduled frequency of Saturday and Sunday service in both directions is 30 minutes all day (AM, Noon, PM, and Evening).

The weekday, Saturday, and Sunday hours of operation for the complete route, from Flushing to Long Island City, are 4:35 AM to 1:50 AM toward Flushing and 4:00 AM to 1:15 AM toward Long Island City.

On the abridged route running between Flushing-Main Street #7 subway station, Flushing, and 51st Street/Northern Boulevard, Woodside, the scheduled frequency of service on weekdays in both directions is 5 minutes (AM), 12 minutes (Noon), 8 minutes (PM), and 20 minutes (Evening). The scheduled frequency of service on Saturdays and Sundays in both directions is 15 minutes (AM, Noon, and PM) and 30 minutes (Evening).

The weekday, Saturday, and Sunday hours of operation for the shortened route, between Flushing and Woodside, are 4:45 AM to 2:00 AM toward Flushing and 4:00 AM to 1:15 AM toward Woodside.

Q19B: 35th Avenue
The Q19B bus line operates daily between Jackson Heights-Roosevelt Avenue E, F, R, V, and G subway station and 74th Street/Broadway #7 subway station, Jackson Heights, and also between Astoria Boulevard/102nd Street, East Elmhurst.

The major streets of operation along the entire route in the SB/WB directions are Astoria Boulevard, 92nd Street, 32nd Avenue, 90th Street, 35th Avenue, 73rd Street, and Roosevelt Avenue. The major streets of operation along the entire route in the NB/EB directions are Roosevelt Avenue, 74th Street, 35th Avenue, 89th Street, and Astoria Boulevard. The major streets of operation within the study area in the SB direction are Astoria Boulevard, 90th Street, and 35th Avenue, and

the major street of operation in the NB direction is 89th Street, starting at 35th Avenue.

The scheduled frequency of service varies on weekdays, Saturdays, and Sundays. On weekdays, the scheduled frequency of service in both directions is 5 minutes (AM), 20 minutes (Noon), 6 minutes (PM), and 20 minutes (Evening). On Saturdays, the scheduled frequency of service is 20 minutes (AM, Noon, and PM) and 30 minutes (Evening). On Sundays, the scheduled frequency of service is 30 minutes all day (AM, Noon, PM, and Evening).

The weekday hours of operation are 4:20 AM to 1:20 AM toward Jackson Heights and 4:00 AM to 1:40 AM toward East Elmhurst. On both Saturdays and Sundays, the hours of operation are 4:00 AM to 1:00 AM toward Jackson Heights and 4:35 AM to 1:40 AM toward East Elmhurst.

Q72: Junction Boulevard

The Q72 bus line operates daily between 63rd Drive-Rego Park R, V, and G subway station, Rego Park, and 94th Street/Ditmars Boulevard, East Elmhurst.

The main streets of operation are Junction Boulevard and 94th Street. The main street of operation within the study area is Junction Boulevard.

The scheduled frequency of weekday service in both directions is 8 minutes (AM), 20 minutes (Noon), 12 minutes (PM), and 30 minutes (Evening). On Saturdays, the scheduled frequency of operation in both directions is 20 minutes (AM, Noon, and PM) and 30 minutes (Evening). On Sundays, the scheduled frequency of operation in both directions is 30 minutes (AM, Noon, PM, and Evening).

On weekdays, Saturdays, and Sundays, the hours of operation are 4:02 AM to 1:02 AM toward Rego Park and 4:25 AM to 1:30 AM toward East Elmhurst.

Extended service operates during early morning hours between 63rd Drive subway station, Rego Park, and Central Terminal Building, La Guardia Airport. Buses leave 63rd Drive Subway Station, Rego Park, daily at 12:30 AM and 1:30 AM; buses leave Central Terminal Building, La Guardia Airport daily at 1:00 AM and 4:00 AM.

Q23: 108th Street

The Q23 bus operates daily between Ditmars Boulevard/102nd Street, East Elmhurst, and Union Turnpike/Crescent Apartments, Forest Hills. During rush hours, additional service operates daily over a shortened route located outside the study area, between 62nd Drive/108th Street, Forest Hills, and Union Turnpike/Crescent Apartments, Forest Hills.

The major streets of operation along the entire route are Ditmars Boulevard, 29th Avenue, [102nd Street, 37th Avenue, 104th Street (SB)/National Street, 103rd Street, 32nd Avenue, 101st Street (NB)], 43rd Avenue, 108th Street, 71st Avenue, Austin Street, Yellowstone Boulevard, Burns Street, 69th Avenue, [Loubet Street, Metropolitan Avenue, Woodhaven Boulevard (SB)/71st Avenue, Kessel Street (NB)], and Union Turnpike (Terminus). The major streets of operation within the study area are 102nd Street, 37th Avenue, and 104th Street (SB) and 103rd Street (NB).

Operating along the full route between Ditmars Boulevard/102nd Street and Union Turnpike/

Crescent Apartments, the scheduled frequency of weekday service in both directions is 10 minutes (AM), 15 minutes (Noon), 10 minutes (PM), and 20 minutes (Evening). On both Saturdays and Sundays, the scheduled frequency of operation is 20 minutes (AM), 15 minutes (Noon and PM), and 30 minutes (Evening).

Operating along the full route between Ditmars Boulevard/102nd Street and Union Turnpike/ Crescent Apartments, the weekday and Sunday hours of operation are 4:20 AM to 1:12 AM toward East Elmhurst and 5:00 AM to 1:15 AM toward Forest Hills. On Saturdays, the hours of operation are 4:20 AM to 1:12 AM toward East Elmhurst and 4:55 AM to 1:15 AM toward Forest Hills.

Operating over the shortened route between 62nd Drive/108th Street and Union Turnpike/Crescent Apartments, the scheduled frequency of weekday service in both directions is 5 minutes (AM), 15 minutes (Noon), 5 minutes (PM), and 30 minutes (Evening). On Saturdays and Sundays, the scheduled frequency of service is 20 minutes (AM), 15 minutes (Noon and PM), and 30 minutes (Evening).

Operating over the shortened route between 62nd Drive/108th Street and Union Turnpike/Crescent Apartments, the weekday, Saturday, and Sunday hours of operation are 4:20 AM to 1:12 AM toward 62nd Drive. The weekday and Sunday hours of operation are 5:22AM to 1:37 AM toward Union Turnpike. The Saturday hours of operation are 5:17 AM to 1:37 AM toward Union Turnpike.

Q48: Roosevelt Avenue/Ditmars Boulevard/La Guardia Airport

The Q48 bus line operates daily between Flushing-Main Street #7 subway station/LIRR, Flushing and La Guardia Airport.

The major streets of operation along the entire route are Roosevelt Avenue, 108th Street, 31st Drive, Ditmars Boulevard, La Guardia Airport's internal roads (serving Main Terminal and Marine Air Terminal), and 23rd Avenue. The main streets of operation within the study area are Roosevelt Avenue and 108th Street.

The scheduled frequency of service varies on weekdays, Saturdays, and Sundays. The scheduled frequency of weekday service in both directions is 15 minutes (AM), 20 minutes (Noon), 15 minutes (PM), and 20 minutes (Evening). On Saturdays, the scheduled frequency of service in both directions is 20 minutes (AM, Noon, and PM) and 30 minutes (Evening). On Sundays, the scheduled frequency of service in both directions is 30 minutes (AM), 20 minutes (Noon and PM), and 30 minutes (Evening).

The hours of operation are almost the same for weekdays, Saturdays, and Sundays. On weekdays, the hours of operation are between 4:48 AM and 1:38 AM toward Main Street and between 4: 30 AM and 1:20 AM toward La Guardia Airport. On both Saturdays and Sundays, the hours of operation are between 4:46 AM and 1:36 AM toward Main Street and between 4:30 AM and 1:20 AM toward La Guardia Airport.

As shown in Table 19, all five bus lines operate below capacity during weekday AM, and PM peak hours, and the Sunday afternoon peak hour.

Table 19
2003 Existing Local Bus Condition

Weekday AM Peak Hour						
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Average Volume per Bus	Available Capacity
Q19B	WB	11	770	550	50	220
(Triboro Coach)	EB	4	280	80	20	200
Q23	NB	9	630	270	30	360
(Triboro Coach)	SB	8	560	440	55	120
Q48	WB	4	280	60	15	220
(NYCT)	EB	5	350	130	26	220
Q66	WB	10	700	650	65	50
(Queens Surface)	EB	14	980	560	40	420
Q72	NB	7	490	230	33	260
(Triboro Coach)	SB	7	490	455	65	35
Weekday PM Peak Hour						
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Average Volume per Bus	Available Capacity
Q19B	WB	4	280	160	40	120
(Triboro Coach)	EB	10	700	500	50	200
Q23	NB	11	770	385	35	385
(Triboro Coach)	SB	11	770	660	60	110
Q48	WB	4	280	120	30	160
(NYCT)	EB	4	280	66	17	214
Q66	WB	8	560	400	50	160
(Queens Surface)	EB	8	560	520	65	40
Q72	NB	5	350	325	65	25
(Triboro Coach)	SB	5	350	180	36	170
Sunday MD Peak Hour						
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Average Volume per Bus	Available Capacity
Q19B	WB	3	210	75	25	135
(Triboro Coach)	EB	3	210	60	20	150
Q23	NB	4	280	100	25	180
(Triboro Coach)	SB	4	280	80	20	200
Q48	WB	3	210	36	12	174
(NYCT)	EB	3	210	62	21	148
Q66	WB	4	280	180	45	100
(Queens Surface)	EB	4	280	180	45	100
Q72	NB	2	140	60	30	80
(Triboro Coach)	SB	2	140	90	45	50

Source: MTA-NYCT Operation Planning
Note: New York City Transit calculates capacity at 70 passengers per bus.

Pedestrians

The existing conditions analysis is used to determine existing volumes, pedestrian flow patterns, and levels of service (measure of congestion) in order to provide a baseline from which future conditions can be predicted. This analysis includes data about the capacity of sidewalks, crosswalks, and the intersection corners where pedestrians wait for a green traffic light enabling them to cross the street.

This analysis focused on eight high-volume and pedestrian accident locations. The following locations were identified:

1. Roosevelt Avenue at Elmhurst Avenue
2. Roosevelt Avenue at Junction Boulevard
3. Roosevelt Avenue at 103rd Street
4. Roosevelt Avenue at 111th Street
5. Roosevelt Avenue at 114th Street
6. Northern Boulevard at Junction Boulevard
7. Northern Boulevard at 108th Street
8. Northern Boulevard at 114th Street

Level of Service Analysis and Methodology

The pedestrian LOS on sidewalks or walkways is measured by the pedestrian flow rate per foot of width per minute (PFM). The PFM indicates the quality of pedestrian movement and comfort, and is defined by a density-comfort relationship (see Table 20). The pedestrian LOS on street corners and crosswalks is measured in terms of square feet of space per pedestrian, as defined below, with the definitions of LOS A through F. The methodologies presented in the HCM 2000 were used to analyze the pedestrian LOS.

Table 20
Level of Service Definitions for Pedestrians

Flow Quality	Space (Sq Ft/Ped)	Description	Density
LOS A	> 60	Unrestricted	5 PFM or less
LOS B	> 40-60	Slightly restricted	5 to 7 PFM
LOS C	> 24-40	Restricted but fluid	7 to 10 PFM
LOS D	> 15-24	Restricted; necessary to continuously alter walking stride and direction	10 to 15 PFM
LOS E	> 8-15	Severely restricted	15 to 23 PFM
LOS F	<= 8	Forward progress only by shuffling; no reverse movement possible	23 PFM or more

Source: *Highway Capacity Manual,* Transportation Research Board, National Research Council, Washington, D.C., 2000

Sidewalk Analysis

The sidewalk midblock analysis measures the average flow rate LOS as well as the “platoon” LOS, which occurs when transit vehicles release large groups of pedestrians in a short period of time. Figure 13 is a schematic diagram showing the numbering system for the location of the analyzed

walkways. An analysis of existing conditions at selected intersections indicates that the pedestrian LOS generally operates at a comfortable LOS A during the four peak periods. Table 21 presents a summary of the LOS results.

Figure 13
Intersection Schematic Showing Walkways

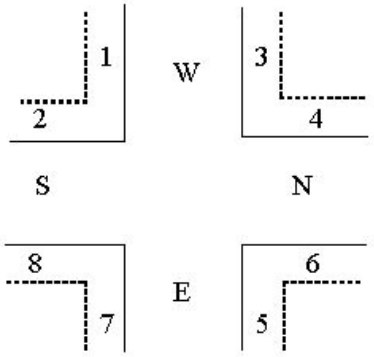


Table 21
2003 Existing Conditions - Sidewalk Level of Service
(p/m/f= Pedestrian/Minute/Foot)

Intersection	Walkway	AM		MD		PM		SUN MD	
		p/m/f	LOS	p/m/f	LOS	p/m/f	LOS	p/m/f	LOS
Northern Boulevard	1	0.7	A	0.5	A	0.5	A	0.1	A
@ Junction Boulevard	2	1.0	A	0.6	A	0.7	A	0.3	A
	3	0.4	A	0.3	A	0.2	A	0.1	A
	4	0.6	A	0.5	A	0.7	A	0.3	A
	5	0.4	A	0.3	A	0.4	A	0.2	A
	6	0.7	A	0.3	A	0.6	A	0.3	A
	7	1.0	A	1.0	A	1.1	A	0.6	A
	8	1.1	A	1.1	A	0.9	A	0.5	A
Northern Boulevard	1	0.2	A	0.2	A	0.3	A	1.0	A
@108th Street	2	0.2	A	0.2	A	0.4	A	0.5	A
	3	0.2	A	0.2	A	0.2	A	1.4	A
	4	0.2	A	0.4	A	0.3	A	1.0	A
	5	0.0	A	0.1	A	0.3	A	0.8	A
	6	0.1	A	0.3	A	0.4	A	0.9	A
	7	0.3	A	0.2	A	0.3	A	0.6	A
	8	0.2	A	0.2	A	0.2	A	0.5	A
Northern Boulevard	1	0.1	A	0.1	A	0.2	A	0.0	A
@ 114th Street	2	0.1	A	0.1	A	0.2	A	0.1	A
	3	0.1	A	0.1	A	0.1	A	0.1	A
	4	0.2	A	0.2	A	0.3	A	0.1	A

Abbreviation: LOS-Level of Service, A<=5, B>5-7, C> 7-10, D>10-15, E>15-23, and F>23

Table 21
2003 Existing Conditions - Sidewalk Level of Service
(p/m/f= Pedestrian/Minute/Foot)

Roosevelt Ave	1	1.1	A	1.9	A	1.7	A	2.1	A
@ Elmhurst Avenue	2	1.0	A	0.9	A	2.1	A	1.5	A
	3	1.9	A	2.3	A	2.0	A	1.9	A
	4	1.0	A	1.3	A	1.3	A	1.3	A
	5	1.8	A	2.4	A	2.4	A	2.0	A
	6	1.4	A	1.4	A	2.0	A	1.9	A
	7	N/A		N/A		N/A		N/A	
	8	N/A		N/A		N/A		N/A	
Roosevelt Avenue	1	1.1	A	0.7	A	1.3	A	0.1	A
@ Junction Boulevard	2	1.5	A	0.4	A	1.5	A	0.3	A
	3	0.9	A	0.8	A	1.0	A	0.1	A
	4	1.6	A	0.9	A	1.5	A	0.3	A
	5	0.8	A	0.6	A	0.9	A	0.2	A
	6	1.7	A	0.5	A	2.3	A	0.3	A
	7	1.3	A	0.8	A	1.9	A	0.6	A
	8	1.4	A	0.4	A	2.1	A	0.5	A
Roosevelt Avenue	1	3.3	A	0.6	A	2.9	A	1.0	A
@ 103rd Street	2	0.5	A	0.3	A	0.7	A	0.5	A
	3	3.9	A	0.9	A	3.6	A	1.9	A
	4	1.4	A	0.3	A	1.9	A	0.4	A
	5	2.3	A	2.2	A	2.6	A	2.3	A
	6	3.0	A	2.1	A	4.2	A	1.7	A
	7	1.8	A	0.9	A	2.2	A	1.9	A
	8	0.6	A	0.3	A	1.8	A	0.4	A
Roosevelt Avenue	1	1.7	A	0.7	A	1.4	A	0.9	A
@ 111th Street	2	1.8	A	0.6	A	2.3	A	0.5	A
	3	0.6	A	0.3	A	1.7	A	0.4	A
	4	0.8	A	0.5	A	0.8	A	0.3	A
	5	0.9	A	1.1	A	0.7	A	0.7	A
	6	1.3	A	0.5	A	0.9	A	0.4	A
	7	0.5	A	0.5	A	1.1	A	0.3	A
	8	1.1	A	0.4	A	1.1	A	0.3	A
Roosevelt Avenue	1	0.0	A	0.2	A	0.2	A	0.2	A
@ 114th Street	2	0.1	A	0.1	A	0.2	A	0.0	A
	3	0.1	A	0.0	A	0.0	A	0.0	A
	4	0.5	A	0.2	A	0.1	A	0.3	A
	5	0.0	A	0.1	A	0.0	A	0.0	A
	6	0.5	A	0.1	A	0.4	A	0.2	A
	7	0.2	A	0.1	A	0.4	A	0.1	A
	8	0.2	A	0.2	A	0.2	A	0.1	A

Abbreviation: LOS-Level of Service, A<=5, B>5-7, C> 7-10, D>10-15, E>15-23, and F>23

Corner Analysis

Street corner and crosswalk analyses are more complex than the sidewalk analysis since they involve sidewalk flows, pedestrian crossings, and other queued pedestrians waiting for the traffic signal to change. Analysis of the existing corners indicates that, during the four peak periods, corners generally operate at LOS C or better for all peak periods. Four corners operate at LOS D or worse. These corners, located at three intersections on Roosevelt Avenue, are shown in Table 22. These are also the intersections with subway stations.

Table 22
2003 Existing Conditions - Corner Level of Service
(SF/P = Square Foot per Pedestrian)

Intersection	Corner	AM		MD		PM		SUN MD	
		SF/P	LOS	SF/P	LOS	SF/P	LOS	SF/P	LOS
Northern Boulevard	Northeast	77.43	A	118.98	A	170.13	A	400.31	A
@ Junction Boulevard	Southeast	114.05	A	130.78	A	150.28	A	542.20	A
	Southwest	34.65	C	50.52	B	25.76	C	87.32	A
	Northwest	99.63	A	150.15	A	134.61	A	294.66	A
Northern Boulevard	Northeast	247.18	A	276.96	A	232.71	A	613.48	A
@ 108th St	Southeast	364.36	A	279.11	A	345.61	A	1016.64	A
	Southwest	406.09	A	289.62	A	325.80	A	1126.38	A
	Northwest	268.90	A	270.81	A	208.46	A	639.25	A
Northern Boulevard	Northwest	920.25	A	935.72	A	622.77	A	1783.64	A
@ 114th St	Southwest	665.51	A	676.71	A	690.69	A	1417.29	A
Roosevelt Avenue	Northeast	37.94	C	88.13	A	47.11	B	59.18	B
@ Elmhurst Avenue	Southeast	56.21	B	95.20	A	60.36	A	80.98	A
	Southwest	18.72	D	32.37	C	18.40	D	26.98	C
	Northwest	37.19	C	86.76	A	54.68	B	58.78	B
Roosevelt Avenue	Northeast	88.63	A	104.25	A	103.14	A	79.19	A
@ Junction Boulevard	Southeast	92.20	A	115.08	A	97.13	A	100.75	A
	Southwest	67.91	A	95.36	A	72.69	A	77.84	A
	Northwest	65.78	A	86.70	A	73.13	A	58.94	B
Roosevelt Avenue	Northeast	19.40	D	69.12	A	20.58	D	62.28	A
@ 103rd Street	Southeast	27.90	C	61.70	A	26.70	C	78.30	A
	Southwest	53.72	B	92.22	A	70.58	A	80.90	A
	Northwest	20.63	D	74.72	A	31.88	C	49.12	B
Roosevelt Avenue	Northeast	45.65	B	157.79	A	78.73	A	144.24	A
@ 111th Street	Southeast	26.94	C	73.10	A	25.21	C	84.52	A
	Southwest	107.59	A	284.76	A	111.58	A	318.47	A
	Northwest	23.54	D	102.05	A	40.95	B	75.55	A
Roosevelt Avenue	Northeast	52.56	B	34.62	C	34.07	C	104.80	A
@ 114th Street	Southeast	35.72	C	39.61	C	32.27	C	178.27	A
	Southwest	281.03	A	528.79	A	318.23	A	1274.62	A
	Northwest	599.23	A	637.31	A	518.41	A	1319.62	A

Abbreviation: LOS-Level of Service, A>60, B>40-60, C> 24-40, D>15-24, E>8-15, and F<8

Crosswalk Analysis

Analysis of the existing crosswalks, as shown in Table 23, indicates that during all peak periods, the crosswalks generally operate at LOS C or better for all peak periods. Two crosswalks operate at LOS D during different peak hours. These crosswalks are located at the intersections of Roosevelt Avenue and 103rd Street.

Table 23
2003 Existing Conditions - Crosswalk Level of Service
(SF/P = Square Foot per Pedestrian)

Intersection	Crosswalk	AM		MD		PM		SUN MD	
		SF/P	LOS	SF/P	LOS	SF/P	LOS	SF/P	LOS
Northern Boulevard	North	35.0	C	36.2	C	67.8	A	170.3	A
@ Junction Boulevard	West	98.3	A	242.5	A	225.1	A	493.2	A
	South	76.4	A	78.6	A	56.8	B	119.1	A
	East	289.2	A	413.3	A	173.4	A	874.4	A
Northern Boulevard	North	142.3	A	131.4	A	173.0	A	304.0	A
@ 108th Street	West	306.9	A	409.5	A	247.9	A	822.9	A
	South	177.7	A	126.2	A	122.0	A	352.0	A
	East	586.7	A	381.0	A	539.8	A	1975.8	A
Northern Boulevard	North	N/A		N/A		N/A		N/A	
@ 114th Street	West	1160.3	A	1494.3	A	1205.0	A	4944.3	A
	South	681.0	A	290.3	A	266.2	A	402.0	A
	East	2451.0	A	3956.9	A	1315.8	A	3976.2	A
Roosevelt Avenue	North	25.6	C	46.7	B	30.5	C	46.7	B
@ Elmhurst Avenue	West	36.3	C	124.5	A	51.1	B	52.8	B
	South	28.5	C	51.6	B	38.7	C	51.4	B
	East	131.8	A	192.0	A	125.4	A	157.3	A
Roosevelt Avenue	North	56.0	B	68.5	A	82.7	A	65.8	A
@ Junction Boulevard	West	101.4	A	127.3	A	88.0	A	64.9	A
	South	57.4	B	74.5	A	72.5	A	63.1	A
	East	105.9	A	127.5	A	84.9	A	116.8	A
Roosevelt Avenue	North	26.8	C	48.8	B	17.5	D	73.6	A
@ 103rd Street	West	17.3	D	125.2	A	28.9	C	69.7	A
	South	34.9	C	51.8	B	38.3	C	40.3	B
	East	53.5	B	110.9	A	87.3	A	113.3	A
Roosevelt Avenue	North	39.9	C	75.9	A	44.5	B	98.2	A
@ 111th Street	West	41.4	B	218.4	A	86.4	A	142.0	A
	South	35.6	C	95.0	A	41.9	B	108.2	A
	East	94.9	A	301.0	A	88.8	A	387.7	A
Roosevelt Avenue	North	236.5	A	181.9	A	156.1	A	1413.8	A
@ 114th Street	West	819.2	A	530.8	A	849.8	A	703.5	A
	South	241.7	A	393.3	A	210.6	A	1216.0	A
	East	446.2	A	843.4	A	673.5	A	2565.4	A

Abbreviation: LOS-Level of Service, A>60, B>40-60, C> 24-40, D>15-24, E>8-15, and F<8

Future Conditions

In order to assess the future conditions in the study area, a Build scenario must be estimated for a particular year, typically ten years from the base year. The future conditions analysis for the North Corona Transportation Study area was considered for the year 2013, ten years after the base year of 2003 for which an existing conditions analysis was performed.

Between 2003 and 2013, it is expected that the transportation demands within the study area will increase due to background traffic growth as well as potential developments in the area. To forecast the Build conditions, we analyzed the developments that are expected to be constructed and occupied by 2013. These Build developments were considered, in addition to a general annual background growth rate, and applied to the existing conditions.

Background Growth Factor

The future 2013 conditions were, in part, estimated using a general background growth factor for the borough of Queens. The recommended background growth rate for Queens is 1.0 percent per year, as stated in the *2001 CEQR Technical Manual*. Over a ten-year period, this growth factor would be compounded, resulting in a total growth rate of 10.46 percent between the years 2003 and 2013.

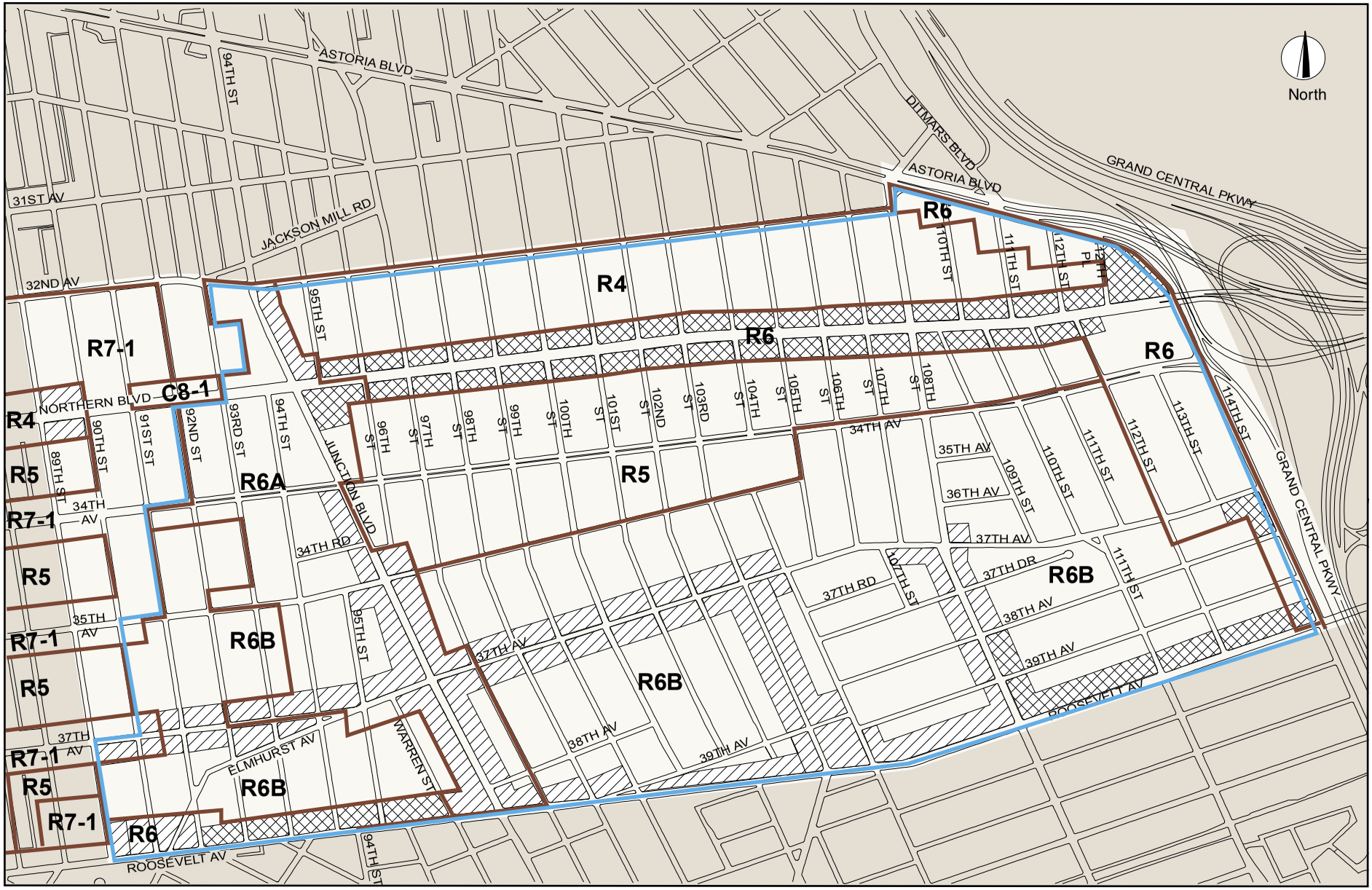
Zoning

September 2003 Zoning Map Amendment

The future Build conditions development scenario takes into consideration the land use development that is expected to occur as a result of a recent rezoning action. The incremental difference between the Build conditions and the existing conditions will serve as the basis for the transportation analysis.

On September 17, 2003, the City Council adopted a zoning map amendment which provided for the rezoning of most of the North Corona Transportation Study area. (The rezoning affected all or portions of 120 blocks in the study area.) The rezoned area's boundaries are nearly coterminous with the transportation study area's boundaries (see Figure 14). However, the rezoned area's western boundary constitutes a stepped line beginning at 89th Street and Roosevelt Avenue and ending at 93rd Street and 32nd Avenue whereas the transportation study area's western boundary is 89th Street between Roosevelt Avenue and 32nd Avenue.

Within the North Corona study area, the rezoning action replaced some or all of the existing R5, R6, and C8-1 districts with R4, R6, R6A, R6B, and R7-1 zoning districts. In the area which had been zoned R5, north of 35th Avenue, the majority of blocks were changed to R4 and R6. The R6 district south of 35th Avenue was changed to a contextual R6B district. A C8-1 district, comprised of several blockfronts on both sides of Northern Boulevard, east of Junction Boulevard, was changed to R6 and R6A. Small areas comprising the blockfronts at the intersection of 90th Street and 37th Avenue and 90th Street and 35th Avenue were changed from R6 to R7-1. The R5 and R6 districts west of Junction Boulevard were changed to contextual R6A and R6B districts. In addition, the rezoning action mapped new C1-4 and C2-4 commercial overlays to reflect the existing land use as well as to replace existing C1-2 and C2-2 commercial overlays on parts of Roosevelt Avenue, Northern Boulevard, 37th Avenue, Junction Boulevard, 103rd Street, 108th Street, and 114th Street. Also, the C1-4 and C2-4 overlays allowed for reduced parking requirements for



Zoning, Post-September 2003

Rezoned Area Boundary (Zoning Map Amendment: September 2003)

Zoning District Boundaries
R6 *Zoning District Designation*
Commercial Overlay Districts
C1-4
C2-4

Figure 14

local retail and service uses. Finally, the commercial overlays, which had been mapped to a depth of 150 feet, were remapped to 100 feet.

The rezoning aimed to maintain neighborhood character and prevent out-of-scale residential development. For example, it mapped higher density residential districts on blocks along wide streets, decreased density and limited building heights on interior residential blocks, and allowed for mixed-use commercial and residential development on major shopping corridors.

Post-September 2003 Zoning Districts

The zoning map change added the R6A and R6B residential districts and the C1-4 and C2-4 commercial overlay districts within the North Corona Transportation Study area. Prior to the rezoning, the study area contained the R4, R5, R6, and R7-1 residential zoning districts, the C8-1 commercial district, and the C1-2, C2-2, and C2-3 commercial overlay districts.

The zoning districts introduced into the study area by the zoning map change are described below. (The zoning districts that existed prior to the zoning map change are described in the Existing Conditions tech memo.)

R6A District. The R6A residential district differs from the R6 residential district, primarily in allowing for greater lot coverage and modified height and setback regulations. These regulations typically produce 6-story apartment buildings designed to be compatible with the existing buildings found in older neighborhoods. In general, the permitted density would increase from a 2.43 or lower FAR to 3.00 FAR. The increase in density would encourage new mixed use residential and retail development. New development would be compatible with the existing context because the R6A regulations limit height to 70 feet. The Quality Housing Program is mandatory in the R6A district in established or new commercial overlays.

R6B District. The regulations of the R6B residential district are similar to those of the R6A district; they encourage low-rise buildings with greater lot coverage. The R6B district allows a maximum of 2.0 FAR for residential development and a maximum building height of 50 feet. By reducing allowable density and building heights, and through the required street wall set back, new residential development would more closely match the scale of the existing built development. The R6B district typically produces shorter, 4-story rowhouses or apartment buildings. The Quality Housing Program is mandatory in the R6B district.

C1-4 and C2-4 Overlay Districts. The C1 commercial overlay district allows for the retail and personal service shops required in residential neighborhoods. The C2 commercial overlay district permits a broader range of local retail and service establishments than the C1 overlay district and is intended to serve a wider neighborhood.

Residential and community facility uses are permitted in theses districts. The maximum commercial FAR is 1.0 to 2.0. (Where C1-1 to C1-5 districts and C2-1 to C2-5 districts are mapped as overlays in R1 to R5 districts, the maximum commercial FAR is 1.0. Where C1-1 to C1-5 districts and C2-1 to C2-5 districts are mapped as overlays in R6 to R10 districts, the maximum commercial FAR is 2.0.) The residential FAR and community facility FAR are governed by the R district in which the C district is located.

The parking requirements are generally the same in C1 and C2 districts. The C1-4 and C2-4 districts differ from their C1-2 and C2-2 district counterparts in that their parking requirements are reduced.

Future 2013 Build Development Scenario

The future Build development scenario identified 18 anticipated development projects, located on 18 sites, with likely completion dates between 2003 and 2013. The project locations are shown in Figure 15 and described in Table 24.

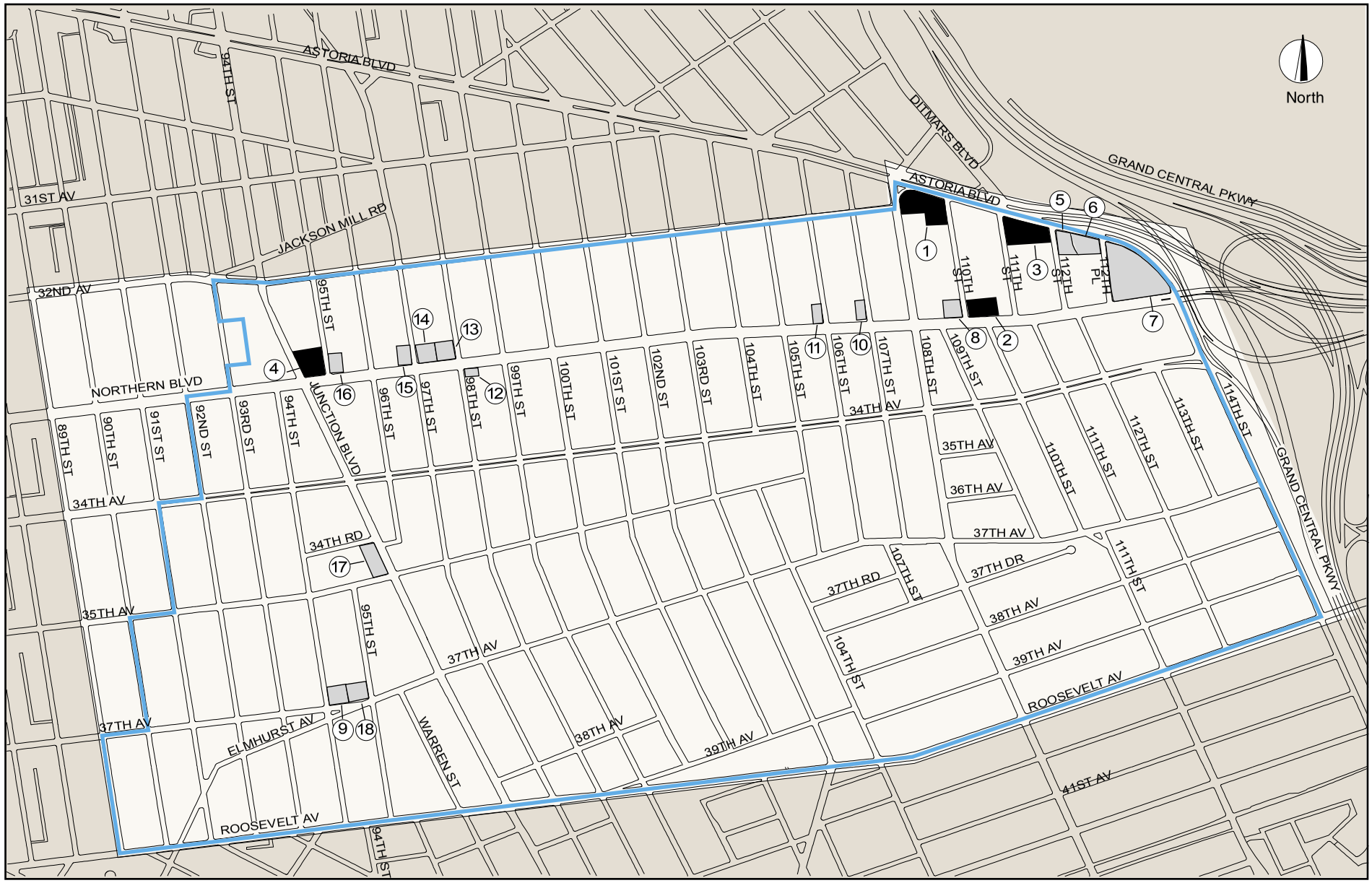
The expected development projects are also described, in terms of the type and amount of development that is expected to occur, in Table 25. The table is based upon information contained in the *North Corona Rezoning Environmental Assessment Statement* (EAS), dated April 15, 2003, prepared by the NYC Department of City Planning. In order to produce a reasonably conservative estimate of future growth, the EAS divided the development sites into two categories - projected development sites and potential development sites. The projected development sites were considered the more likely to be developed within the 10-year analysis period (build year 2013) and the potential development sites were considered less likely to be developed within the 10-year period. The EAS designated Sites 1- 4 as projected development sites and Sites 5-18 as potential development sites.

Vehicular Traffic

This transportation study analyzes the land use components of the future development projects for their contribution to vehicular traffic, parking conditions, public transit ridership, and pedestrian conditions. Table 25 provides the basis for calculating the person and vehicle trip generation characteristics for future Build conditions. The table indicates that the Build development scenario is likely to result in a combination of residential, local retail, and community facility development located on 18 sites within the North Corona Transportation Study area.

Table 24
Future Development Site Locations

Site Number	Location
1	Along Astoria Boulevard between 108th and 110th streets
2	Northeast corner of Northern Boulevard and 110th Street
3	Along Astoria Boulevard between 111th and 112th streets
4	Northern Boulevard between Junction Boulevard and 95th Street
5	Southeast corner of Astoria Boulevard and 112th Street
6	Southwest corner of Astoria Boulevard and 112th Place
7	Entire triangular block bounded by Astoria Boulevard, Northern Boulevard, and 112th Place
8	Northwest corner of Northern Boulevard and 110th Street
9	Northeast corner of 37th Avenue and 93rd Street
10	Northwest corner of Northern Boulevard and 107th Street
11	Northwest corner of Northern Boulevard and 106th Street
12	Southeast corner of Northern Boulevard and 98th Street
13	Northwest corner of Northern Boulevard and 98th Street
14	Northeast corner of Northern Boulevard and 97th Street
15	Northwest corner of Northern Boulevard and 97th Street
16	Northeast corner of Northern Boulevard and 95th Street
17	Along Junction Boulevard between 35th Avenue and 34th Road
18	Northwest corner of 37th Avenue and 94th Street



2013 Future Development Sites

Rezoned Area Boundary
Projected Development Sites
Potential Development Sites
2 Development Site Number

Figure 2

NYC Department of City Planning, Transportation Division

Table 25
Future Development Sites Build Scenario

Site No.	Block / Lot(s)	Lot Area	Zoning		Existing Conditions		Future Conditions			
			Pre-09/03	Post-09/03	Land Use	FAR	Residential FA	DUs	Commercial FA	Community Facilities FA
1	1703 / 86, 87, 93, 94, 97, 98, & 99	34,965	R5	R6	Surface Parking / Auto Repair / Auto Body	0.1	83,916	84	69,930	153,846
2	1704 / 140	15,500	R5 / C1-2	R6 / C2-4	Service Station	0.11	31,000	31	15,500	-
3	1705 / 1, 5, 10, & 61	32,621	R5	R6	Construction Equipment Storage	0.77	78,290	78	-	65,242
4	1424 / 33	19,000	C8-1, R5	R6A / C2-4	Fast Foods Restaurant	0.21	38,000	38	19,000	-
5	1706 / 1	14,918	R5	R6	Adult Entertainment	0.3	35,803	36	-	29,836
6	1706 / 5, 9, & 11	16,043	R5	R6	Auto Repair	0.8	38,503	39	-	32,086
7	1707 / 1, 3, 6, 7, 8, 13, 15, 17, 19, 33-36, 43, & 46	73,329	R5 / C2-2	R6 / C2-4	Auto Sales / Auto Repair	0.5	146,658	147	73,329	-
8	1703 / 44	8,970	R5 / C1-2	R6 / C2-4	Auto Parts / Tires	0.2	17,940	18	8,970	-
9	1467 / 39	10,000	R6 / C1-2	R6A / C1-4	Retail	0.97	20,000	20	10,000	-
10	1701 / 73	5,502	R5 / C2-2	R6 / C2-4	Retail	0.96	11,004	11	5,502	-
11	1700 / 36	7,144	R5 / C2-2	R6 / C2-4	Auto Parts	0.12	14,288	14	7,144	-
12	1713 / 1	5,220	C8-1	R6 / C2-4	Service Station	0.4	10,440	10	5,220	-
13	1427 / 33	10,000	C8-1	R6 / C2-4	Service Station	0.06	20,000	20	10,000	-
14	1427 / 38	10,000	C8-1	R6 / C2-4	Auto Parts	0.67	20,000	20	10,000	-
15	1426 / 33	8,000	C8-1	R6 / C2-4	Auto Parts	1.0	16,000	16	8,000	-
16	1425 / 39	12,000	C8-1	R6 / C2-4	Auto Parts	0.53	24,000	24	12,000	-
17	1455 / 70	16,741	R5 / C1-2	R6A / C1-4	Retail	1.0	33,482	33	16,741	-
18	1467 / 34	10,000	R6 / C1-2	R6A / C1-4	Retail	0.98	20,000	20	10,000	-

Source: *North Corona Rezoning Environmental Assessment Statement*, New York City Department of City Planning, April 2003

Trip Generation

The objectives of the future Build conditions analysis are:

- To determine projected future conditions with the proposed developments in place and fully operational, and
- To determine whether traffic operational measures and/or infrastructure improvements are warranted to facilitate the traffic flow within the study area.

Based on the *North Corona Rezoning Environmental Assessment Statement* (EAS), dated April 15, 2003, prepared by the NYC Department of City Planning, the four projected development sites (site no. 1 to 4) would generate 54, 28 and 63 vehicle trips during the weekday AM, Midday and PM peak hours, respectively. Since, the potential development sites were considered less likely to be developed within the 10-year period, all kind of trips generated from the potential development sites were considered as a part of the background growth.

The future traffic analysis was performed for weekday AM, Midday (MD), and PM, and weekend Sunday midday peak hours for the year 2013.

The assessment of the 2013 future Build conditions consists of a series of steps:

- Balancing the future Build baseline traffic volume map (with the growth factor);
- Adding trips from the proposed development to get the total 2013 future volumes;
- Conducting a traffic level of service (LOS) analysis; and
- Comparing and analyzing the changes from the existing conditions to the future build conditions scenario.

Traffic volume maps (Figures 16A, 16B, 16C, and 16D) illustrate the 2013 future balanced traffic volumes during the weekday AM, MD, and PM, and weekend Sunday midday peak hours.

Intersection Analysis

The intersection analysis involves recommending planning improvements for any lane group movement that has a delay exceeding mid-LOS D, or 45 seconds per vehicle for signalized intersections and 35 seconds per vehicle for unsignalized intersections.

Tables 26 and 27 present the Existing and Future Build conditions for signalized and unsignalized intersections during the four peak periods, including the resulting V/C ratios, delay time, and LOS for the intersections that exceed 45 seconds of delay per vehicle.

As shown in Table 26, with the proposed developments and zoning changes, many approaches will continue to operate at LOS D or better for all peak hours, with a delay time of 45 seconds or less per vehicle. There would be an increase in delay time at the following intersections during different peak hours:

Signalized Intersections

Astoria Boulevard at 94th Street

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 44.2 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru-right approach movement will continue operating at LOS D with the delay time deteriorating to 51.3 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 46.5 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 57.4 seconds per vehicle.

Astoria Boulevard at 108th Street

AM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 54.1 seconds per vehicle. Also, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 50.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 63.6 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 55.9 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS F with a delay of 81.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 76.1 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will continue operating at LOS F with the delay time deteriorating to 135.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 123.3 seconds per vehicle.

Astoria Boulevard at 111th Street

AM Peak Hour

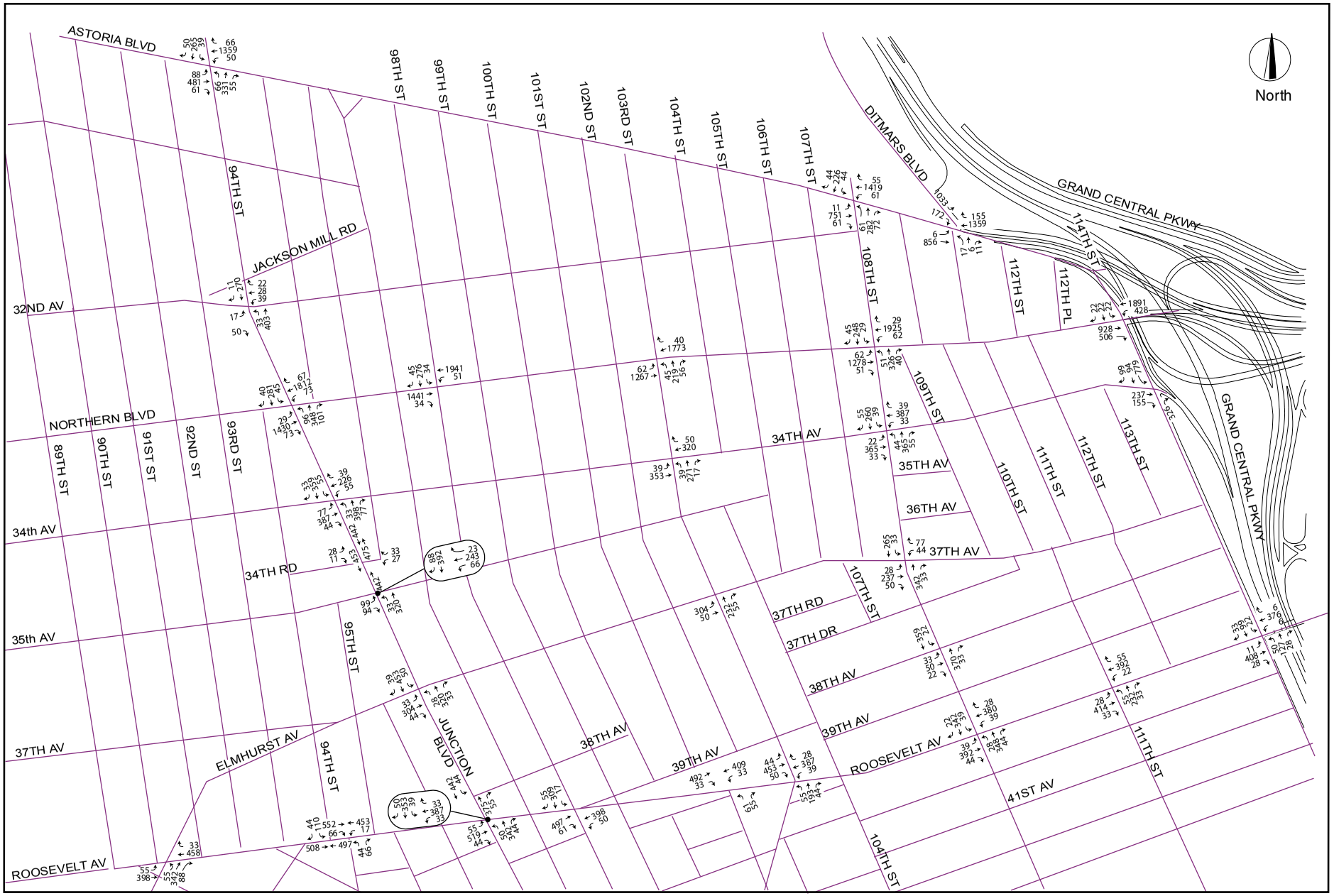
Currently, the intersection's southbound left-turn movement operates at LOS E with a delay of 77.0 seconds per vehicle.
In the future conditions, the intersection's southbound left-turn movement will operate at LOS F with the delay time deteriorating to 109.2 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-turn movement operates at LOS D with a delay of 53.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-turn movement will operate at LOS E with the delay time deteriorating to 79.6 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-turn movement operates at LOS E with a delay of 59.4 seconds per vehicle.
In the future conditions, the intersection's southbound left-turn movement will operate at LOS F with the delay time deteriorating to 84.8 seconds per vehicle.

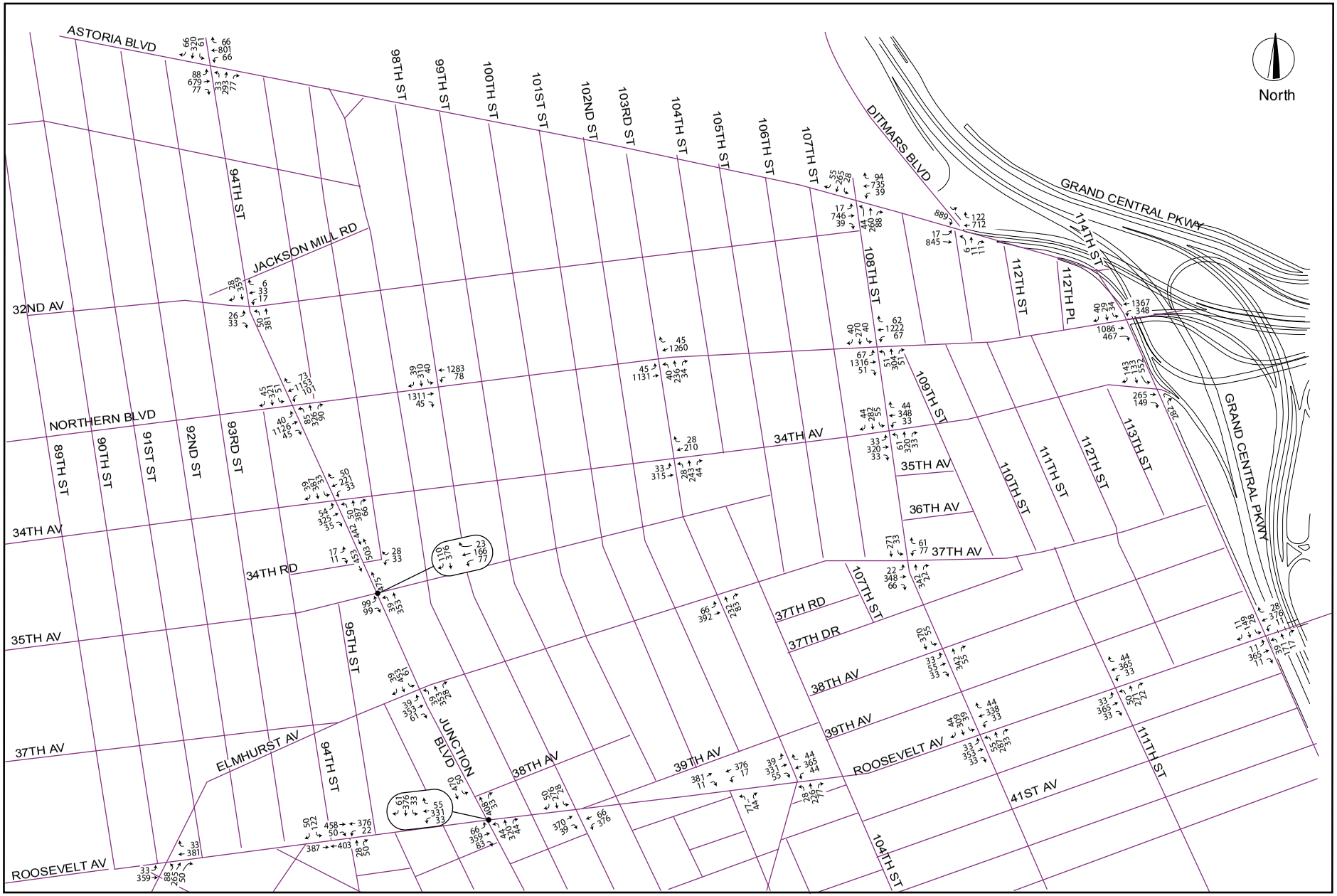


Future Traffic Volumes, AM Peak Hour

(7:30-8:30AM for Northern Boulevard and 32nd Avenue
8:00-9:00AM for Rest of the Area)

Figure 16A

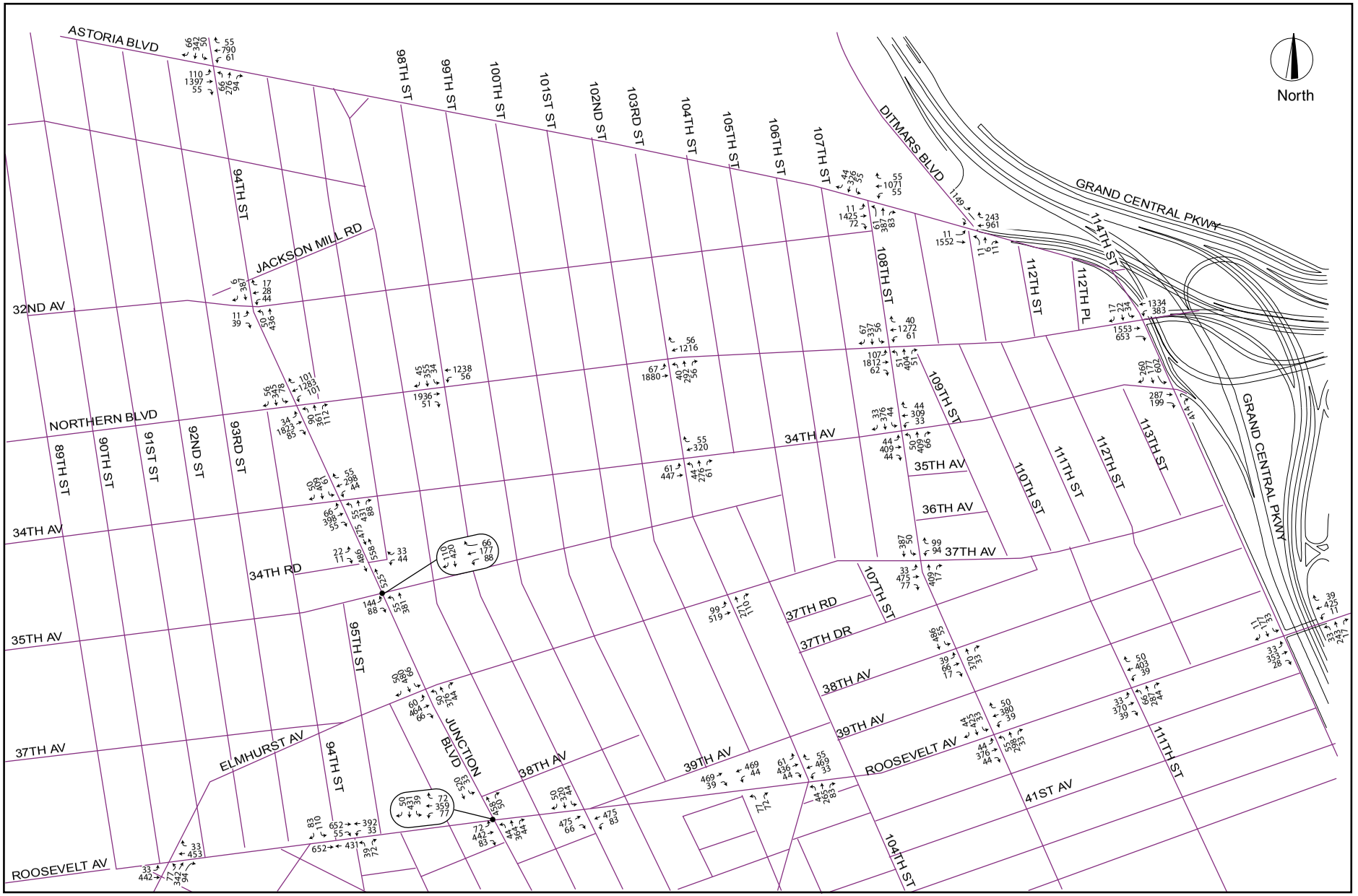
NYC Department of City Planning, Transportation Division



Future Traffic Volumes, MD Peak Hour

(1:00PM-2:00PM)

Figure 16B

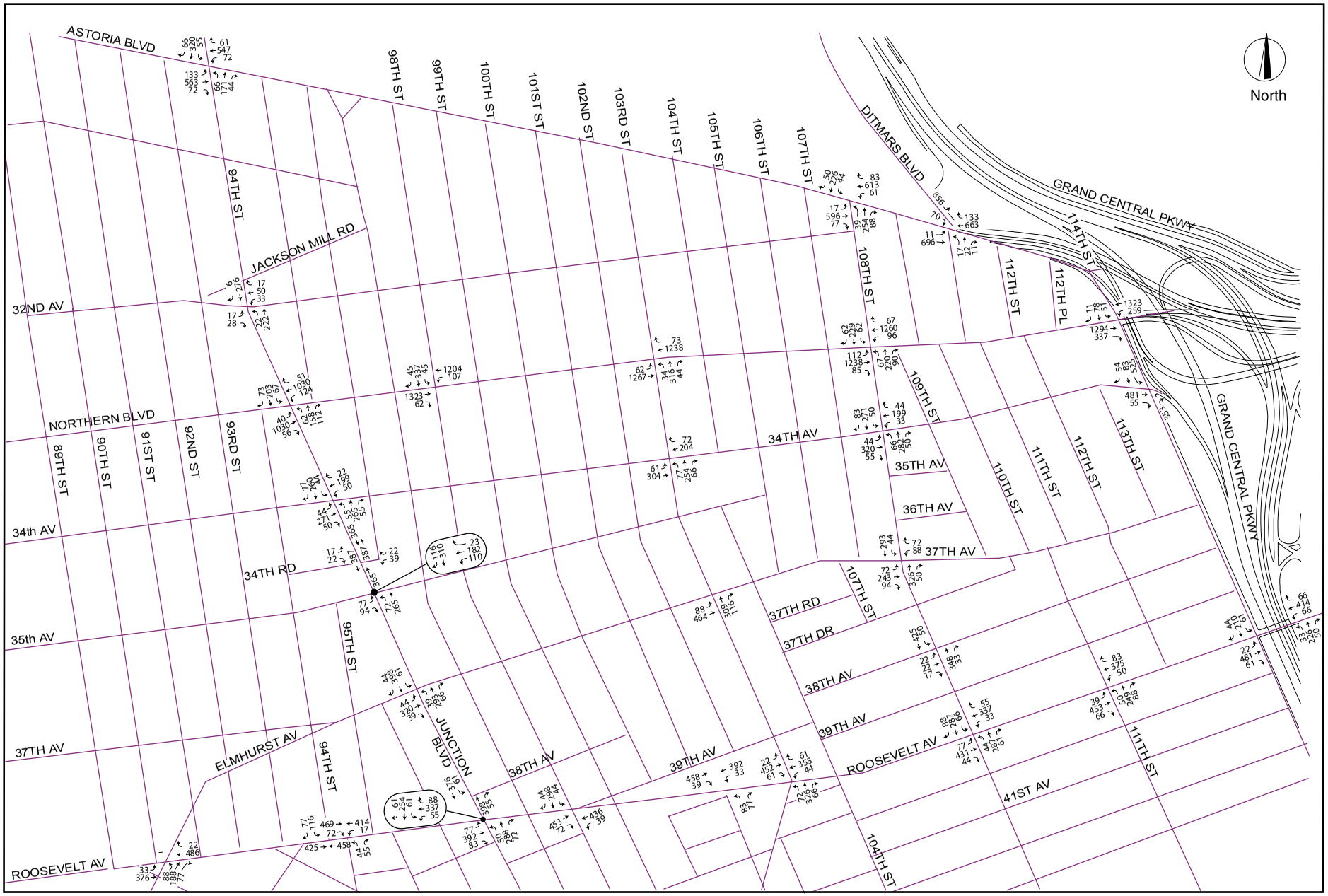


Future Traffic Volumes, PM Peak Hour

(5:00-6:00PM)

Figure 16C

NYC Department of City Planning, Transportation Division



Future Traffic Volumes, Sunday, MD Peak Hour

(2:00-3:00PM)

Figure 16D

Sunday MD Peak Hour
Currently, the intersection's southbound left-turn movement operates at LOS D with a delay of 37.4 seconds per vehicle.
In the future conditions, the intersection's southbound left-turn movement will operate at LOS E with the delay time deteriorating to 60.0 seconds per vehicle.

Northern Boulevard at Junction Boulevard
AM Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 85.9 seconds per vehicle. Also, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 64.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 124.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 106.1 seconds per vehicle.

MD Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 84.3 seconds per vehicle. Also, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 72.3 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 119.8 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS F with the delay time deteriorating to 132.4 seconds per vehicle

PM Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 83.9 seconds per vehicle. Also, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 82.9 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 120.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS F with the delay time deteriorating to 117.5 seconds per vehicle

Sunday MD Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 58.4 seconds per vehicle. Also, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 56.1 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 67.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS E with the delay time deteriorating to 67.7 seconds per vehicle.

Northern Boulevard at 98th Street
AM Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 84.2 seconds per vehicle.

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Astoria Blvd & 94th Street													
	Eastbound												
	L	0.24	21.4	C	0.28	25.9	C	0.17	9.8	A	0.2	10.8	B
	TR	0.28	20.6	C	0.31	21.0	C	0.39	16.8	B	0.4	17.3	B
	Westbound												
	L	0.08	11.3	B	0.10	11.9	B	0.13	9.7	A	0.2	10.5	B
	TR	0.51	23.6	C	0.56	24.5	C	0.34	16.1	B	0.4	16.5	B
	Northbound												
	LTR	0.73	44.2	D	0.83	51.3	D	0.68	35.0	D	0.8	38.9	D
	Southbound												
	LTR	0.46	35.4	D	0.53	37.0	D	0.64	32.9	C	0.7	36.9	D
		Intersection Delay = 27.6 LOS = C			**Intersection Delay = 29.6 LOS = C**			**Intersection Delay = 21.9 LOS = C**			**Intersection Delay = 23.5 LOS = C**		
Astoria Blvd & 108th Street													
	Eastbound												
	LTR	0.29	17.3	B	0.32	17.6	B	0.28	13.3	B	0.3	13.6	B
	Westbound												
	L	0.10	5.6	A	0.12	5.8	A	0.07	5.6	A	0.1	5.7	A
	TR	0.48	7.9	A	0.52	8.4	A	0.3	6.5	A	0.3	6.7	A
	Northbound												
	LT	0.72	54.1	D	0.84	63.6	E	0.53	34.3	C	0.6	36.7	D
	Southbound												
	LTR	0.64	50.4	D	0.75	55.9	E	0.56	34.8	C	0.6	36.3	D
		Intersection Delay = 20.4 LOS = C			**Intersection Delay = 22.5 LOS = C**			**Intersection Delay = 17.0 LOS = B**			**Intersection Delay = 17.7 LOS = B**		
Astoria Blvd & 111th Street													
	Eastbound												
	LT	0.29	8.6	A	0.33	8.8	A	0.35	12	B	0.4	12.4	B
	Westbound												
	TR	0.46	10.1	B	0.51	10.6	B	0.31	11.5	B	0.3	11.8	B
	Northbound												
	LTR	0.11	35.4	D	0.12	35.7	D	0.07	20.1	C	0.1	20.2	C
	Southbound												
	L	0.99	77.0	E	1.10	109.2	F	0.96	53.7	D	1.1	79.6	E
		Intersection Delay = 29.3 LOS = C			**Intersection Delay = 38.9 LOS = D**			**Intersection Delay = 26.1 LOS = C**			**Intersection Delay = 35.1 LOS = D**		
32nd Ave & Junction Blvd													
	Eastbound												
	LR	0.11	10.6	B	0.12	10.7	B	0.10	10.5	B	0.11	10.6	B
	Westbound												
	LTR	0.07	10.2	B	0.08	10.2	B	0.04	10.0+	B	0.05	10.0+	B
	Northbound												
	LT	0.71	20.6	C	0.78	24.3	C	0.72	21.5	C	0.84	28.7	C
	Southbound												
	TR	0.41	13.7	B	0.46	14.3	B	0.58	16.6	B	0.64	18.1	B
		Intersection Delay = 16.6 LOS = B			**Intersection Delay = 18.6 LOS = B**			**Intersection Delay = 18.1 LOS = B**			**Intersection Delay = 22.0 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & Junction Blvd													
	Eastbound												
	L	0.09	15.6	B	0.11	20.4	C	0.09	9.2	A	0.1	10.8	B
	TR	0.85	25.7	C	0.95	36.7	D	0.65	18.3	B	0.7	20.7	C
	Westbound												
	L	0.21	22.2	C	0.27	31.3	C	0.23	15.6	B	0.3	20.1	C
	TR	0.68	18.3	B	0.77	20.6	C	0.45	14.3	B	0.5	15.1	B
	Northbound												
	LTR	0.99	85.9	F	1.12	124.1	F	0.98	84.3	F	1.1	119.8	F
	Southbound												
	LTR	0.84	64.4	E	1.04	106.1	F	0.91	72.3	E	1.1	132.4	F
		Intersection Delay = 33.2 LOS = C			**Intersection Delay = 46.5 LOS = D**			**Intersection Delay = 33.0 LOS = C**			**Intersection Delay = 46.7 LOS = D**		
Northern Blvd & 98th Street													
	Eastbound												
	TR	0.69	12.1	B	0.78	14.6	B	0.67	14.0	B	0.76	16.4	B
	Westbound												
	L	0.25	9.2	A	0.37	13.8	B	0.37	14.2	B	0.53	22.6	C
	T	0.59	9.6	A	0.66	10.7	B	0.65	13.6	B	0.73	15.7	B
	Northbound												
	Southbound												
	LTR	0.96	84.2	F	1.08	118.4	F	0.94	75.6	E	1.06	105.2	F
		Intersection Delay = 17.8 LOS = B			**Intersection Delay = 22.8 LOS = C**			**Intersection Delay = 21.9 LOS = C**			**Intersection Delay = 27.9 LOS = C**		
Northern Blvd & 103rd Street													
	Eastbound												
	L	0.48	20.6	C	0.80	66.9	E	0.20	9.8	A	0.28	12.2	B
	T	0.59	9.6	A	0.66	10.9	B	0.56	11.8	B	0.63	13.1	B
	Westbound												
	TR	0.84	16.7	B	0.95	26.3	C	0.66	13.9	B	0.75	16.1	B
	Northbound												
	LTR	0.57	47.5	D	0.64	49.5	D	0.45	40.2	D	0.51	41.3	D
	Southbound												
		Intersection Delay = 17.2 LOS = B			**Intersection Delay = 23.7 LOS = C**			**Intersection Delay = 16.1 LOS = B**			**Intersection Delay = 17.8 LOS = B**		
Northern Blvd & 108th Street													
	Eastbound												
	L	0.21	22.1	C	0.25	30.7	C	0.17	16.7	B	0.2	21.5	C
	TR	0.78	22.2	C	0.87	27.6	C	0.76	21.7	C	0.9	26.4	C
	Westbound												
	L	0.16	17.4	B	0.21	22.5	C	0.18	18.7	B	0.2	24.7	C
	TR	0.71	18.9	B	0.8	21.6	C	0.7	19.5	B	0.8	22.5	C
	Northbound												
	LTR	0.89	67.4	E	1.06	108.8	F	0.95	79.9	E	1.2	139.4	F
	Southbound												
	LTR	0.56	46.7	D	0.69	51	D	0.66	49.8	D	0.8	57.5	E
		Intersection Delay = 27.3 LOS = C			**Intersection Delay = 35.2 LOS = D**			**Intersection Delay = 30.6 LOS = C**			**Intersection Delay = 41.6 LOS = D**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle, LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & 114th Street													
	Eastbound												
	T	0.71	32.5	C	0.80	36.2	D	0.59	17.8	B	0.66	19.5	B
	R	0.72	35.6	D	0.81	40.8	D	0.48	16.8	B	0.54	18.0	B
	Westbound												
	L	0.55	25.3	C	0.64	31.1	C	0.63	31.4	C	0.76	43.2	D
	T	0.77	10.9	B	0.87	14.9	B	0.54	6.8	A	0.60	7.6	A
	Northbound												
	Southbound												
	LTR	0.13	42.3	D	0.14	42.5	D	0.17	40.4	D	0.19	40.7	D
		Intersection Delay = 21.6 LOS = C			**Intersection Delay = 25.8 LOS = C**			**Intersection Delay = 15.3 LOS = B**			**Intersection Delay = 17.6 LOS = B**		
34th Ave & Junction Blvd													
	Eastbound												
	LTR	0.69	18.5	B	0.77	22.1	C	0.58	15.0	B	0.64	16.6	B
	Westbound												
	LTR	0.43	12.5	B	0.48	13.3	B	0.38	11.8	B	0.43	12.4	B
	Northbound												
	LTR	0.60	29.5	C	0.68	31.4	C	0.65	30.9	C	0.73	33.9	C
	Southbound												
	LTR	0.96	63.5	E	1.06	89.3	F	0.94	59.3	E	1.05	84.0	F
		Intersection Delay = 31.9 LOS = C			**Intersection Delay = 40.1 LOS = D**			**Intersection Delay = 31.0 LOS = C**			**Intersection Delay = 39.0 LOS = D**		
34th Ave & 103rd Street													
	Eastbound												
	LT	0.51	13.8	B	0.57	15.0	B	0.42	12.2	B	0.47	13.0	B
	Westbound												
	TR	0.45	12.6	B	0.50	13.4	B	0.29	10.5	B	0.32	10.8	B
	Northbound												
	LTR	0.43	26.4	C	0.47	27.1	C	0.44	26.7	C	0.49	27.5	C
	Southbound												
		Intersection Delay = 17.2 LOS = B			**Intersection Delay = 18.1 LOS = B**			**Intersection Delay = 16.8 LOS = B**			**Intersection Delay = 17.5 LOS = B**		
34th Ave & 108th Street													
	Eastbound												
	LTR	0.54	14.2	B	0.60	15.6	B	0.48	13.2	B	0.54	14.2	B
	Westbound												
	LTR	0.57	14.8	B	0.63	16.3	B	0.54	14.2	B	0.60	15.6	B
	Northbound												
	LTR	0.63	30.6	C	0.70	33.0	C	0.60	30.3	C	0.68	32.7	C
	Southbound												
	LTR	0.83	45.7	D	0.98	73.0	E	0.97	70.1	E	1.16	128.6	F
		Intersection Delay = 25.2 LOS = C			**Intersection Delay = 32.2 LOS = C**			**Intersection Delay = 31.0 LOS = C**			**Intersection Delay = 45.8 LOS = D**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
34th Ave & 114th Street													
	Eastbound												
	TR	0.30	14.9	B	0.33	15.2	B	0.38	20.7	C	0.42	21.3	C
	Westbound												
	Northbound												
	R	0.18	0.2	A	0.20	0.2	A	0.16	0.2	A	0.17	0.2	A
	Southbound												
	L	0.93	43.3	D	1.03	65.0	E	0.64	20.1	C	0.71	22.2	C
	T	0.12	16.7	B	0.13	16.8	B	0.14	12.4	B	0.16	12.5	B
		Intersection Delay = 25.9 LOS = C			**Intersection Delay = 36.6 LOS = D**			**Intersection Delay = 15.5 LOS = B**			**Intersection Delay = 16.5 LOS = B**		
35th Ave & Junction Blvd													
	Eastbound												
	LR	0.42	19.5	B	0.49	21.2	C	0.41	19.2	B	0.47	20.5	C
	Westbound												
	LTR	0.48	19.8	B	0.53	20.8	C	0.39	18.1	B	0.43	18.9	B
	Northbound												
	LT	0.59	22.8	C	0.68	25.8	C	0.71	27.4	C	0.83	36.2	D
	Southbound												
	TR	0.79	30.8	C	0.87	37.7	D	0.78	30.3	C	0.86	36.7	D
		Intersection Delay = 24.4 LOS = C			**Intersection Delay = 28.2 LOS = C**			**Intersection Delay = 25.4 LOS = C**			**Intersection Delay = 30.7 LOS = C**		
37th Ave & Junction Blvd													
	Eastbound												
	LTR	0.54	21.5	C	0.60	22.9	C	0.65	24.3	C	0.71	26.6	C
	Westbound												
	Northbound												
	LTR	0.33	17.3	B	0.37	17.8	B	0.36	17.6	B	0.40	18.1	B
	Southbound												
	LTR	0.91	43.5	D	1.01	65.5	E	0.96	52.1	D	1.07	82.1	F
		Intersection Delay = 29.4 LOS = C			**Intersection Delay = 39.1 LOS = D**			**Intersection Delay = 33.1 LOS = C**			**Intersection Delay = 45.7 LOS = D**		
37th Ave & 103rd Street													
	Eastbound												
	LT	0.20	8.8	A	0.22	9.0	A	0.26	9.3	A	0.28	9.5	A
	Westbound												
	Northbound												
	TR	0.38	25.7	C	0.42	26.3	C	0.43	26.6	C	0.48	27.4	C
	Southbound												
		Intersection Delay = 16.4 LOS = B			**Intersection Delay = 16.7 LOS = B**			**Intersection Delay = 16.3 LOS = B**			**Intersection Delay = 16.8 LOS = B**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
37th Ave & 108th Street													
	Eastbound												
	LT	0.37	10.3	B	0.41	10.8	B	0.37	10.3	B	0.41	10.8	B
	R	0.04	0.0	A	0.04	0.1	A	0.05	0.1	A	0.05	0.1	A
	Westbound												
	LR	0.19	8.8	A	0.22	9.1	A	0.25	9.5	A	0.28	9.9	A
	Northbound												
	TR	0.45	27.3	C	0.50	28.1	C	0.45	27.4	C	0.50	28.2	C
	Southbound												
	LT	0.34	25.7	C	0.38	26.2	C	0.35	25.7	C	0.39	26.3	C
		Intersection Delay = 18.6 LOS = B			**Intersection Delay = 19.1 LOS = B**			**Intersection Delay = 18.2 LOS = B**			**Intersection Delay = 18.8 LOS = B**		
38th Ave & 108th Street													
	Eastbound												
	LTR	0.27	26.3	C	0.30	26.8	C	0.32	27.1	C	0.35	27.8	C
	Westbound												
	Northbound												
	TR	0.40	11.0	B	0.44	11.6	B	0.39	11.0	B	0.43	11.5	B
	Southbound												
	LT	0.37	10.8	B	0.41	11.3	B	0.45	11.9	B	0.50	12.6	B
		Intersection Delay = 12.8 LOS = B			**Intersection Delay = 13.3 LOS = B**			**Intersection Delay = 13.5 LOS = B**			**Intersection Delay = 14.2 LOS = B**		
Roosevelt Ave & Elmhurst Ave													
	Eastbound												
	LT	0.26	8.5	A	0.30	8.8	A	0.21	8.0	A	0.23	8.2	A
	Westbound												
	TR	0.25	8.3	A	0.27	8.5	A	0.23	8.2	A	0.25	8.3	A
	Northbound												
	LTR	0.64	44.3	D	0.71	46.4	D	0.53	41.5	D	0.58	42.7	D
	Southbound												
		Intersection Delay = 20.8 LOS = C			**Intersection Delay = 21.7 LOS = C**			**Intersection Delay = 19.5 LOS = B**			**Intersection Delay = 20.0 LOS = C**		
Roosevelt Ave & 94th St South													
	Eastbound												
	T	0.72	30.6	C	0.80	35.0-	C	0.54	24.1	C	0.60	25.7	C
	Westbound												
	T	0.74	31.6	C	0.81	36.5	D	0.57	25.1	C	0.63	26.9	C
	Northbound												
	Southbound												
	LR	0.52	50.0	D	0.58	52.0	D	0.58	52.1	D	0.65	55.2	E
		Intersection Delay = 33.7 LOS = C			**Intersection Delay = 37.9 LOS = D**			**Intersection Delay = 29.6 LOS = C**			**Intersection Delay = 31.6 LOS = C**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 94th St North													
	Eastbound												
	TR	0.42	20.4	C	0.46	21.2	C	0.34	19.2	B	0.37	19.7	B
	Westbound												
	LT	0.71	30.5	C	0.79	35.1	D	0.59	25.7	C	0.65	27.8	C
	Northbound												
	LR	0.35	44.9	D	0.38	45.6	D	0.24	42.8	D	0.27	43.3	D
	Southbound												
		Intersection Delay = 26.7 LOS = C			**Intersection Delay = 28.9 LOS = C**			**Intersection Delay = 23.7 LOS = C**			**Intersection Delay = 24.9 LOS = C**		
Roosevelt Ave & Junction Blvd													
	Eastbound												
	LTR	0.81	30.4	C	0.90	39.3	D	0.68	23.9	C	0.75	27.4	C
	Westbound												
	LTR	0.61	21.5	C	0.68	23.9	C	0.54	19.6	B	0.60	21.2	C
	Northbound												
	LTR	0.54	33.1	C	0.62	35.4	D	0.50	32.4	C	0.58	34.2	C
	Southbound												
	LTR	0.48	31.5	C	0.53	32.7	C	0.50	31.9	C	0.56	33.3	C
		Intersection Delay = 29.3 LOS = C			**Intersection Delay = 33.4 LOS = C**			**Intersection Delay = 27.0 LOS = C**			**Intersection Delay = 29.1 LOS = C**		
Roosevelt Ave & 98th Street													
	Eastbound												
	TR	0.57	13.3	B	0.63	14.8	B	0.41	10.5	B	0.46	11.1	B
	Westbound												
	LT	0.52	12.6	B	0.59	14.0	B	0.51	12.2	B	0.56	13.4	B
	Northbound												
	Southbound												
	LTR	0.98	86.0	F	1.08	114.2	F	0.98	88.1	F	1.09	119.2	F
		Intersection Delay = 33.5 LOS = C			**Intersection Delay = 42.4 LOS = D**			**Intersection Delay = 34.4 LOS = C**			**Intersection Delay = 44.4 LOS = D**		
Roosevelt Ave & 102nd Street													
	Eastbound												
	TR	0.54	12.7	B	0.60	14.0	B	0.40	10.4	B	0.44	11.0	B
	Westbound												
	LT	0.48	11.6	B	0.54	12.7	B	0.41	10.6	B	0.46	11.2	B
	Northbound												
	LR	0.35	39.8	D	0.38	40.6	D	0.35	39.8	D	0.39	40.7	D
	Southbound												
		Intersection Delay = 15.3 LOS = B			**Intersection Delay = 16.4 LOS = B**			**Intersection Delay = 14.5 LOS = B**			**Intersection Delay = 15.2 LOS = B**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 103rd Street													
	Eastbound												
	LTR	0.60	14.2	B	0.67	16.1	B	0.47	11.5	B	0.52	12.4	B
	Westbound												
	LTR	0.50	12.0	B	0.56	13.2	B	0.50	12.1	B	0.56	13.2	B
	Northbound												
	LTR	0.46	40.4	D	0.50	41.4	D	0.52	41.7	D	0.57	43.0	D
	Southbound												
		Intersection Delay = 19.5 LOS = B			**Intersection Delay = 20.9 LOS = C**			**Intersection Delay = 20.2 LOS = C**			**Intersection Delay = 21.3 LOS = C**		
Roosevelt Ave & 108th Street													
	Eastbound												
	LTR	0.25	8.3	A	0.28	8.6	A	0.22	8.0	A	0.24	8.2	A
	Westbound												
	LTR	0.24	8.2	A	0.26	8.4	A	0.22	8.1	A	0.24	8.3	A
	Northbound												
	LTR	0.70	48.0	D	0.79	52.9	D	0.72	49.9	D	0.83	58.2	E
	Southbound												
	LTR	0.69	47.7	D	0.80	54.3	D	0.66	46.1	D	0.76	51.0	D
		Intersection Delay = 26.7 LOS = C			**Intersection Delay = 29.6 LOS = C**			**Intersection Delay = 27.1 LOS = C**			**Intersection Delay = 30.2 LOS = C**		
Roosevelt Ave & 111th Street													
	Eastbound												
	LTR	0.23	8.1	A	0.26	8.3	A	0.21	8.0	A	0.24	8.2	A
	Westbound												
	LTR	0.54	12.9	B	0.60	14.3	B	0.50	12.2	B	0.56	13.4	B
	Northbound												
	LTR	0.86	64.4	E	0.95	79.0	E	0.91	72.0	E	1.01	93.3	F
	Southbound												
		Intersection Delay = 24.4 LOS = C			**Intersection Delay = 28.8 LOS = C**			**Intersection Delay = 27.9 LOS = C**			**Intersection Delay = 34.5 LOS = C**		
Rossevalt Ave & 114th Street													
	Eastbound												
	LTR	0.23	8.2	A	0.25	8.4	A	0.20	8.0	A	0.23	8.1	A
	Westbound												
	LTR	0.21	8.0	A	0.23	8.2	A	0.22	8.1	A	0.24	8.3	A
	Northbound												
	LTR	0.72	55.2	E	0.82	65.9	E	0.81	64.2	E	0.91	78.8	E
	Southbound												
	LTR	0.23	36.6	D	0.25	36.9	D	0.28	37.3	D	0.31	37.8	D
		Intersection Delay = 20.1 LOS = C			**Intersection Delay = 22.2 LOS = C**			**Intersection Delay = 23.3 LOS = C**			**Intersection Delay = 26.3 LOS = C**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Astoria Blvd & 94th Street													
	Eastbound												
	L	0.22	14.5	B	0.26	16.0	B	0.23	7.2	A	0.26	7.7	A
	TR	0.54	24.2	C	0.60	25.3	C	0.37	12.7	B	0.41	13.1	B
	Westbound												
	L	0.17	19.1	B	0.20	22.4	C	0.12	6.2	A	0.14	6.7	A
	TR	0.3	20.7	C	0.33	21.1	C	0.26	11.8	B	0.29	12.0	B
	Northbound												
	LTR	0.76	46.5	D	0.88	57.4	E	0.59	25.1	C	0.69	28.8	C
	Southbound												
	LTR	0.61	39.1	D	0.71	42.7	D	0.63	24.4	C	0.71	26.4	C
		Intersection Delay = 28.0 LOS = C			**Intersection Delay = 30.6 LOS = C**			**Intersection Delay = 16.0 LOS = B**			**Intersection Delay = 17.1 LOS = B**		
Astoria Blvd & 108th Street													
	Eastbound												
	LTR	0.52	20.4	C	0.57	21.3	C	0.33	13.5	B	0.36	13.7	B
	Westbound												
	L	0.13	7.0	A	0.15	7.7	A	0.16	8.4	A	0.19	8.7	A
	TR	0.36	6.9	A	0.40	7.2	A	0.33	8.9	A	0.36	9.1	A
	Northbound												
	LT	0.96	81.1	F	1.14	135.1	F	0.35	16.9	B	0.39	17.3	B
	Southbound												
	LTR	0.94	76.1	E	1.11	123.3	F	0.37	17.1	B	0.41	17.6	B
		Intersection Delay = 30.8 LOS = C			**Intersection Delay = 44.2 LOS = D**			**Intersection Delay = 12.9 LOS = B**			**Intersection Delay = 13.2 LOS = B**		
Astoria Blvd & 111th Street													
	Eastbound												
	LT	0.46	16.2	B	0.51	16.9	B	0.27	10.6	B	0.30	10.8	B
	Westbound												
	TR	0.44	16.1	B	0.49	16.8	B	0.37	11.4	B	0.41	11.7	B
	Northbound												
	LTR	0.06	25.6	C	0.07	25.7	C	0.10	12.3	B	0.12	12.4	B
	Southbound												
	L	0.96	59.4	E	1.06	84.8	F	0.93	37.4	D	1.04	60.0	E
		Intersection Delay = 28.8 LOS = C			**Intersection Delay = 36.6 LOS = D**			**Intersection Delay = 20.4 LOS = C**			**Intersection Delay = 28.5 LOS = C**		
32nd Ave & Junction Blvd													
	Eastbound												
	LR	0.09	10.5	B	0.10	10.6	B	0.08	10.4	B	0.09	10.5	B
	Westbound												
	LTR	0.07	10.2	B	0.08	10.2	B	0.08	10.2	B	0.09	10.3	B
	Northbound												
	LT	0.81	26.3	C	0.94	41.8	D	0.22	11.6	B	0.44	14.2	B
	Southbound												
	TR	0.60	17.1	B	0.66	18.8	B	0.42	13.8	B	0.47	14.5	B
		Intersection Delay = 20.5 LOS = C			**Intersection Delay = 28.6 LOS = C**			**Intersection Delay = 12.4 LOS = B**			**Intersection Delay = 13.5 LOS = B**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & Junction Blvd													
	Eastbound												
	L	0.08	10.3	B	0.10	12.3	B	0.08	8.2	A	0.10	9.3	A
	TR	0.69	18.5	B	0.78	21.0	C	0.62	17.7	B	0.70	19.7	B
	Westbound												
	L	0.32	27.4	C	0.39	38.8	D	0.26	14.9	B	0.33	19.3	B
	TR	0.5	15	B	0.57	16.0	B	0.39	13.4	B	0.44	14.0	B
	Northbound												
	LTR	0.99	83.9	F	1.11	120.5	F	0.77	58.4	E	0.87	67.5	E
	Southbound												
	LTR	0.97	82.9	F	1.09	117.5	F	0.75	56.1	E	0.87	67.7	E
		Intersection Delay = 32.9 LOS = C			**Intersection Delay = 43.0 LOS = D**			**Intersection Delay = 25.0 LOS = C**			**Intersection Delay = 28.5 LOS = C**		
Northern Blvd & 98th Street													
	Eastbound												
	TR	0.60	9.8	A	0.68	11.0	B	0.71	14.9	B	0.79	17.8	B
	Westbound												
	L	0.47	21.3	C	0.73	54.4	D	0.53	20.3	C	0.77	45.0	D
	T	0.58	9.9	A	0.66	11.2	B	0.60	12.5	B	0.67	14.0	B
	Northbound												
	Southbound												
	LTR	0.98	86.7	F	1.11	125.2	F	0.97	80.9	F	1.09	115.4	F
		Intersection Delay = 19.4 LOS = B			**IntersectionDelay = 25.7 LOS = C**			**Intersection Delay = 23.6 LOS = C**			**Intersection Delay = 31.2 LOS = C**		
Northern Blvd & 103rd Street													
	Eastbound												
	L	0.25	8.2	A	0.34	10.9	B	0.27	11.4	B	0.39	15.7	B
	T	0.87	18.5	B	0.98	32.9	C	0.64	13.4	B	0.73	15.4	B
	Westbound												
	TR	0.59	9.7	A	0.67	11.0	B	0.65	13.5	B	0.73	15.6	B
	Northbound												
	LTR	0.69	51.2	D	0.77	55.1	E	0.55	42.2	D	0.62	44.1	D
	Southbound												
		Intersection Delay = 18.9 LOS = B			**Intersection Delay = 27.3 LOS = C**			**Intersection Delay = 17.3 LOS = B**			**Intersection Delay = 19.4 LOS = B**		
Northern Blvd & 108th Street													
	Eastbound												
	L	0.28	20.2	C	0.35	27.8	C	0.3	21.2	C	0.37	29.4	C
	TR	0.68	18.2	B	0.77	20.5	C	0.76	21.6	C	0.86	26.2	C
	Westbound												
	L	0.2	20.2	C	0.25	28.7	C	0.25	19.6	B	0.32	26.6	C
	TR	0.74	20.8	C	0.83	24.8	C	0.76	21.7	C	0.86	26.4	C
	Northbound												
	LTR	0.98	81.6	F	1.10	117.3	F	0.86	65.5	E	0.97	82.5	F
	Southbound												
	LTR	0.96	80.4	F	1.18	148.1	F	0.74	54.7	D	0.89	69.6	E
		Intersection Delay = 33.7 LOS = C			**Intersection Delay = 48.1 LOS = D**			**Intersection Delay = 29.8 LOS = C**			**Intersection Delay = 37.0 LOS = D**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle, LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Northern Blvd & 114th Street													
	Eastbound												
	T	0.86	27.6	C	0.97	40.4	D	0.71	20.7	C	0.79	23.8	C
	R	0.68	21.8	C	0.76	25.3	C	0.35	14.6	B	0.39	15.2	B
	Westbound												
	L	0.88	64.4	E	1.06	108.5	F	0.52	32.4	C	0.64	42.4	D
	T	0.54	6.9	A	0.61	7.7	A	0.55	6.9	A	0.62	7.8	A
	Northbound												
	Southbound												
	LTR	0.12	39.8	D	0.14	39.9	D	0.22	41.0	D	0.25	41.4	D
		Intersection Delay = 23.5 LOS = C			**Intersection Delay = 33.6 LOS = C**			**Intersection Delay = 16.5 LOS = B**			**Intersection Delay = 18.9 LOS = B**		
34th Ave & Junction Blvd													
	Eastbound												
	LTR	0.70	19.1	B	0.78	22.8	C	0.48	13.3	B	0.54	14.3	B
	Westbound												
	LTR	0.50	13.6	B	0.56	14.8	B	0.37	11.6	B	0.41	12.3	B
	Northbound												
	LTR	0.72	32.9	C	0.80	37.0	D	0.46	26.7	C	0.51	27.6	C
	Southbound												
	LTR	0.97	63.6	E	1.08	92.7	F	0.95	63.8	E	1.12	113.7	F
		Intersection Delay = 33.5 LOS = C			**Intersection Delay = 43.5 LOS = D**			**Intersection Delay = 30.4 LOS = C**			**Intersection Delay = 44.4 LOS = D**		
34th Ave & 103rd Street													
	Eastbound												
	LT	0.65	17.1	B	0.73	19.8	B	0.49	13.5	B	0.55	14.7	B
	Westbound												
	TR	0.44	12.4	B	0.49	13.1	B	0.35	11.3	B	0.39	11.7	B
	Northbound												
	LTR	0.5	27.7	C	0.56	28.8	C	0.54	28.4	C	0.59	29.6	C
	Southbound												
		Intersection Delay = 18.9 LOS = B			**Intersection Delay = 20.5 LOS = C**			**Intersection Delay = 18.6 LOS = B**			**Intersection Delay = 19.6 LOS = B**		
34th Ave & 108th Street													
	Eastbound												
	LTR	0.65	17.1	B	0.72	19.7	B	0.55	14.6	B	0.61	16.1	B
	Westbound												
	LTR	0.48	13.2	B	0.54	14.3	B	0.37	11.6	B	0.41	12.2	B
	Northbound												
	LTR	0.70	33.0	C	0.79	37.4	D	0.57	29.6	C	0.65	31.7	C
	Southbound												
	LTR	0.95	62.5	E	1.06	89.0	F	0.97	69.2	E	1.17	131.5	F
		Intersection Delay = 31.5 LOS = C			**Intersection Delay = 39.9 LOS = D**			**Intersection Delay = 32.4 LOS = C**			**Intersection Delay = 50.1 LOS = D**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
34th Ave & 114th Street													
	Eastbound												
	TR	0.45	21.7	C	0.50	22.5	C	0.41	18.0	B	0.45	18.5	B
	Westbound												
	Northbound												
	R	0.23	0.3	A	0.25	0.3	A	0.20	0.2	A	0.22	0.3	A
	Southbound												
	L	0.70	21.9	C	0.77	24.8	C	0.68	24.8	C	0.76	27.7	C
	T	0.21	13.1	B	0.23	13.3	B	0.10	14.7	B	0.11	14.8	B
		Intersection Delay = 15.6 LOS = B			**Intersection Delay = 16.9 LOS = B**			**Intersection Delay = 16.0 LOS = B**			**Intersection Delay = 17.2 LOS = B**		
35th Ave & Junction Blvd													
	Eastbound												
	LR	0.56	23.7	C	0.66	27.7	C	0.35	18.1	B	0.40	19.0	B
	Westbound												
	LTR	0.49	20.1	C	0.54	21.2	C	0.48	19.8	B	0.51	20.5	C
	Northbound												
	LT	0.87	40.0	D	1.03	74.1	E	0.73	29.2	C	0.82	36.9	D
	Southbound												
	TR	0.87	37.7	D	0.96	51.5	D	0.71	26.7	C	0.78	30.5	C
		Intersection Delay = 32.5 LOS = C			**Intersection Delay = 47.9 LOS = D**			**Intersection Delay = 24.5 LOS = C**			**Intersection Delay = 28.2 LOS = C**		
37th Ave & Junction Blvd													
	Eastbound												
	LTR	0.84	34	C	0.93	43.8	D	0.57	22.2	C	0.63	23.8	C
	Westbound												
	Northbound												
	LTR	0.41	18.3	B	0.46	19.1	B	0.33	17.3	B	0.37	17.7	B
	Southbound												
	LTR	0.99	58.8	E	1.14	108.8	F	0.83	34.7	C	0.93	46.9	D
		Intersection Delay = 38.5 LOS = C			**Intersection Delay = 60.2 LOS = E**			**Intersection Delay = 25.5 LOS = C**			**Intersection Delay = 30.8 LOS = C**		
37th Ave & 103rd Street													
	Eastbound												
	LT	0.35	10.1	B	0.39	10.5	B	0.31	9.7	A	0.35	10.0+	B
	Westbound												
	Northbound												
	TR	0.5	27.8	C	0.56	28.8	C	0.61	30.4	C	0.68	32.3	C
	Southbound												
		Intersection Delay = 16.8 LOS = B			**Intersection Delay = 17.5 LOS = B**			**Intersection Delay = 18.7 LOS = B**			**Intersection Delay = 19.7 LOS = B**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
37th Ave & 108th Street													
	Eastbound												
	LT	0.52	12.4	B	0.57	13.4	B	0.32	9.8	A	0.35	10.1	B
	R	0.06	0.1	A	0.06	0.1	A	0.07	0.1	A	0.07	0.1	A
	Westbound												
	LR	0.37	11.3	B	0.44	12.7	B	0.28	9.9	A	0.32	10.4	B
	Northbound												
	TR	0.50	28.2	C	0.56	29.3	C	0.47	27.8	C	0.52	28.7	C
	Southbound												
	LT	0.51	28.4	C	0.58	29.9	C	0.39	26.4	C	0.44	27.2	C
		Intersection Delay = 19.8 LOS = B			**Intersection Delay = 21.0 LOS = C**			**Intersection Delay = 18.5 LOS = B**			**Intersection Delay = 19.1 LOS = B**		
38th Ave & 108th Street													
	Eastbound												
	LTR	0.31	27.0	C	0.34	27.6	C	0.16	24.7	C	0.17	24.9	C
	Westbound												
	Northbound												
	TR	0.40	11.0	B	0.44	11.6	B	0.38	10.8	B	0.42	11.3	B
	Southbound												
	LT	0.56	13.6	B	0.62	15.0	B	0.49	12.4	B	0.54	13.4	B
		Intersection Delay = 14.2 LOS = B			**Intersection Delay = 15.2 LOS = B**			**Intersection Delay = 12.5 LOS = B**			**Intersection Delay = 13.3 LOS = B**		
Roosevelt Ave & Elmhurst Ave													
	Eastbound												
	LT	0.26	8.4	A	0.29	8.7	A	0.24	8.2	A	0.26	8.5	A
	Westbound												
	TR	0.28	8.6	A	0.31	8.8	A	0.27	8.5	A	0.30	8.8	A
	Northbound												
	LTR	0.66	44.7	D	0.73	47.1	D	0.47	40.3	D	0.52	41.3	D
	Southbound												
		Intersection Delay = 21.4 LOS = C			**Intersection Delay = 22.4 LOS = C**			**Intersection Delay = 17.5 LOS = B**			**Intersection Delay = 17.9 LOS = B**		
Roosevelt Ave & 94th St South													
	Eastbound												
	T	0.93	49.0	D	1.02	71.4	E	0.64	27.3	C	0.70	29.9	C
	Westbound												
	T	0.64	27.3	C	0.71	30.0	C	0.63	26.9	C	0.70	29.4	C
	Northbound												
	Southbound												
	LR	0.66	56.0	E	0.73	60.4	E	0.56	50.2	D	0.61	52.3	D
		Intersection Delay = 42.8 LOS = D			**Intersection Delay = 55.8 LOS = E**			**Intersection Delay = 31.3 LOS = C**			**Intersection Delay = 33.8 LOS = C**		

Abbreviation:
L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle
LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 94th St North													
	Eastbound												
	TR	0.48	21.4	C	0.53	22.3	C	0.39	20.0-	B	0.43	20.6	C
	Westbound												
	LT	0.69	29.7	C	0.77	34.1	C	0.61	26.2	C	0.68	28.6	C
	Northbound												
	LR	0.34	44.8	D	0.38	45.6	D	0.33	44.8	D	0.36	45.5	D
	Southbound												
		Intersection Delay = 26.4 LOS = C			**Intersection Delay = 28.5 LOS = C**			**Intersection Delay = 24.8 LOS = C**			**Intersection Delay = 26.2 LOS = C**		
Roosevelt Ave & Junction Blvd													
	Eastbound												
	LTR	0.81	31.0	C	0.91	41.4	D	0.79	29.9	C	0.89	39.4	D
	Westbound												
	LTR	0.75	27.7	C	0.85	36.1	D	0.64	22.6	C	0.71	25.3	C
	Northbound												
	LTR	0.56	33.6	C	0.65	36.3	D	0.48	31.7	C	0.53	32.9	C
	Southbound												
	LTR	0.55	33.1	C	0.62	34.8	C	0.42	30.6	C	0.49	32.0	C
		Intersection Delay = 31.3 LOS = C			**Intersection Delay = 37.3 LOS = D**			**Intersection Delay = 28.6 LOS = C**			**Intersection Delay = 32.7 LOS = C**		
Roosevelt Ave & 98th Street													
	Eastbound												
	TR	0.56	13.0	B	0.62	14.3	B	0.57	13.3	B	0.63	14.7	B
	Westbound												
	LT	0.68	17.0	B	0.78	21.4	C	0.50	12.0	B	0.56	13.1	B
	Northbound												
	Southbound												
	LTR	0.97	81.1	F	1.07	109.9	F	0.90	68.3	E	1.00	88.5	F
		Intersection Delay = 33.5 LOS = C			**Intersection Delay = 43.6 LOS = D**			**Intersection Delay = 28.5 LOS = C**			**Intersection Delay = 35.2 LOS = D**		
Roosevelt Ave & 102nd Street													
	Eastbound												
	TR	0.52	12.2	B	0.57	13.3	B	0.51	12.0	B	0.56	12.9	B
	Westbound												
	LT	0.55	12.8	B	0.61	14.3	B	0.45	11.0	B	0.50	11.9	B
	Northbound												
	LR	0.45	42.2	D	0.49	43.6	D	0.45	42.0	D	0.49	43.3	D
	Southbound												
		Intersection Delay = 16.4 LOS = B			**Intersection Delay = 17.7 LOS = B**			**Intersection Delay = 16.2 LOS = B**			**Intersection Delay = 17.1 LOS = B**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

Table 26: 2003 Existing Conditions and 2013 Future Conditions - Signalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			Existing Sun MD			Future Sun MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Roosevelt Ave & 103rd Street													
	Eastbound												
	LTR	0.64	15.5	B	0.72	18.3	B	0.56	13.1	B	0.62	14.5	B
	Westbound												
	LTR	0.62	14.6	B	0.69	16.7	B	0.50	12.0	B	0.56	13.2	B
	Northbound												
	LTR	0.62	44.3	D	0.68	46.4	D	0.65	44.9	D	0.72	47.2	D
	Southbound												
		Intersection Delay = 22.7 LOS = C			**Intersection Delay = 25.1 LOS = C**			**Intersection Delay = 23.1 LOS = C**			**Intersection Delay = 24.7 LOS = C**		
Roosevelt Ave & 108th Street													
	Eastbound												
	LTR	0.25	8.3	A	0.28	8.6	A	0.31	8.8	A	0.34	9.2	A
	Westbound												
	LTR	0.25	8.3	A	0.28	8.5	A	0.22	8.1	A	0.24	8.3	A
	Northbound												
	LTR	0.79	54.4	D	0.92	71.1	E	0.73	50.2	D	0.86	60.3	E
	Southbound												
	LTR	0.80	53.0	D	0.92	65.8	E	0.88	63.5	E	1.02	92.4	F
		Intersection Delay = 30.2 LOS = C			**Intersection Delay = 37.3 LOS = D**			**Intersection Delay = 30.8 LOS = C**			**Intersection Delay = 40.1 LOS = D**		
Roosevelt Ave & 111th Street													
	Eastbound												
	LTR	0.22	8.0	A	0.24	8.2	A	0.29	8.6	A	0.32	8.9	A
	Westbound												
	LTR	0.58	13.9	B	0.65	15.7	B	0.63	15.3	B	0.71	17.9	B
	Northbound												
	LTR	0.97	82.8	F	1.07	110.3	F	0.96	79.7	E	1.06	106.9	F
	Southbound												
		Intersection Delay = 33.0 LOS = C			**Intersection Delay = 42.0 LOS = D**			**Intersection Delay = 30.2 LOS = C**			**Intersection Delay = 38.7 LOS = D**		
Rossevalt Ave & 114th Street													
	Eastbound												
	LTR	0.23	8.2	A	0.25	8.4	A	0.31	8.9	A	0.35	9.2	A
	Westbound												
	LTR	0.25	8.3	A	0.27	8.5	A	0.35	9.3	A	0.39	9.7	A
	Northbound												
	LTR	0.99	94.6	F	1.12	132.7	F	0.96	85.9	F	1.15	145.6	F
	Southbound												
	LTR	0.34	38.2	D	0.38	39.0	D	0.50	41.4	D	0.57	43.1	D
		Intersection Delay = 31.4 LOS = C			**Intersection Delay = 39.8 LOS = D**			**Intersection Delay = 29.0 LOS = C**			**Intersection Delay = 40.4 LOS = D**		

Abbreviation:

L-left, T-Through, R-Right, V/C Ratio-Volume to Capacity Ratio, Delay-Seconds per Vehicle

LOS-Level of Service, A<=10, B>10-20, C>20-35, D>35-55, E>55-80, F>80

In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 118.4 seconds per vehicle.

MD Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 75.6 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 105.2 seconds per vehicle.

PM Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 86.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 125.2 seconds per vehicle.

Sunday MD Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 80.9 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 115.4 seconds per vehicle.

Northern Boulevard at 103rd Street
AM Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 47.5 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 49.5 seconds per vehicle.

PM Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 51.2 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 55.1 seconds per vehicle.

Northern Boulevard at 108th Street
AM Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 67.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 108.8 seconds per vehicle.

MD Peak Hour
Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 79.9 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 49.8 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 139.4 seconds per vehicle, and the

intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 57.5 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 81.6 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 80.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 117.3 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 148.1 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 65.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 54.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 82.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 69.6 seconds per vehicle.

Northern Boulevard at 114th Street

PM Peak Hour

Currently, the intersection's westbound left-turn movement operates at LOS E with a delay of 64.4 seconds per vehicle.
In the future conditions, the intersection's westbound left-turn movement will operate at LOS F with the delay time deteriorating to 108.5 seconds per vehicle.

34th Avenue at Junction Boulevard

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 89.3 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 59.3 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 84.0 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.6 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 92.7 seconds per vehicle.

Sunday MD Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.8 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 113.7 seconds per vehicle.

34th Avenue at 108th Street
AM Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 45.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 73.0 seconds per vehicle.

MD Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 70.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 128.6 seconds per vehicle.

PM Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 62.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 89.0 seconds per vehicle.

Sunday MD Peak Hour
Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 69.2 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 131.5 seconds per vehicle.

34th Avenue at 114th Street
AM Peak Hour
Currently, the intersection's southbound left-turn movement operates at LOS D with a delay of 43.3 seconds per vehicle.
In the future conditions, the intersection's southbound left-turn movement will operate at LOS E with the delay time deteriorating to 65.0 seconds per vehicle.

35th Avenue at Junction Boulevard
PM Peak Hour
Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 40.0 seconds per vehicle, and the intersection's southbound thru-right approach movement operates at LOS D with a delay of 37.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 74.1 seconds per vehicle, and the intersection's southbound thru-right approach movement will operate at LOS D with the delay time deteriorating to 51.5 seconds per vehicle.

37th Avenue at Junction Boulevard

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 43.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 65.5seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 52.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 82.1 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 58.8 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 108.8 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS C with a delay of 34.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 46.9 seconds per vehicle.

Roosevelt Avenue at 94th Street South

MD Peak Hour

Currently, the intersection's southbound left-right approach movement operates at LOS D with a delay of 52.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-right approach movement will operate at LOS E with the delay time deteriorating to 55.2 seconds per vehicle.

PM Peak Hour

Currently, the intersection's eastbound thru approach movement operates at LOS D with a delay of 49.0 seconds per vehicle, and the intersection's southbound left-right approach movement operates at LOS E with a delay of 56.0 seconds per vehicle.
In the future conditions, the intersection's eastbound thru approach movement will operate at LOS E with the delay time deteriorating to 71.4 seconds per vehicle, and the intersection's southbound left-right approach movement will operate at LOS E with the delay time deteriorating to 60.4 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-right approach movement operates at LOS D with a delay of 50.2 seconds per vehicle.
In the future conditions, the intersection's southbound left-right approach movement will operate at LOS D with the delay time deteriorating to 52.3 seconds per vehicle.

Roosevelt Avenue at 94th Street North

AM Peak Hour

Currently, the intersection's northbound left-right approach movement operates at LOS D with a delay of 44.8 seconds per vehicle.
In the future conditions, the intersection's northbound left-right approach movement will operate at LOS D with the delay time deteriorating to 45.6 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-right approach movement operates at LOS D with a delay of 44.8 seconds per vehicle.
In the future conditions, the intersection's northbound left-right approach movement will operate at LOS D with the delay time deteriorating to 45.5seconds per vehicle.

Roosevelt Avenue at 98th Street

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 86.0 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 114.2 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 88.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 119.2 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 81.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 109.9 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 68.3 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 88.5 seconds per vehicle.

Roosevelt Avenue at 108th Street

AM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 48.0 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 47.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS D with the delay time deteriorating to 52.9 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 54.3 seconds per vehicle.

MD Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 49.9 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 46.1 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 58.2 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 51.0 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 54.4 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 53.0 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 71.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 65.8 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 50.2 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 60.3 seconds per vehicle.

Roosevelt Avenue at 111th Street

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 64.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 79.0 seconds per vehicle.

MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 72.0 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 93.3 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 82.8 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 110.3 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 79.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 106.9 seconds per vehicle.

Roosevelt Avenue at 114th Street

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 55.2 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 65.9 seconds per vehicle.

MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 64.2 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 37.3 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 78.8 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 37.8 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 94.6 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 132.7 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 85.9 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 145.6 seconds per vehicle.

Unsignalized Intersections

As shown in Table 27, with the proposed developments and zoning changes, the LOS analysis for three unsignalized intersections indicated that all the approaches would continue to operate acceptably, at LOS C or better, for all peak hours.

Table 27: 2003 Existing Conditions and 2013 Future Conditions - Unsignalized Intersections Level of Service

Intersection	Approach	Existing AM			Future AM			Existing MD			Future MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Junction Blvd & 34th Road West	Northbound												
	Southbound												
	Westbound												
	Eastbound												
	LR	0.11	16.4	C	0.14	18.3	C	0.07	15.5	C	0.09	17.1	C
		EB Appr.Delay=16.4 LOS=C			EB Appr.Delay=18.3 LOS=C			EB Appr.Delay=15.5 LOS=C			EB Appr.Delay=17.1 LOS=C		
Junction Blvd & 96th Street/34th Road East	Northbound												
	Southbound												
	Westbound												
	LR	0.14	14.8	B	0.17	16.3	C	0.16	16.1	C	0.19	17.9	C
	Eastbound												
		WB Appr.Delay=14.8 LOS=B			WB Appr.Delay=16.3 LOS=C			WB Appr.Delay=16.1 LOS=C			WB Appr.Delay=17.9 LOS=C		
Junction Blvd & 38th Ave	Northbound												
	Southbound												
	LT	0.04	8.3	A	0.04	8.4	A	0.04	8.3	A	0.05	8.5	A
	Westbound												
	Eastbound												

Table 4: 2003 Existing Conditions and 2013 Future Conditions - Unsignalized Intersections Level of Service

Intersection	Approach	Existing PM			Future PM			SUN MD			Future SUN MD		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Junction Blvd & 34th Road West	Northbound												
	Southbound												
	Westbound												
	Eastbound												
	LR	0.10	17.6	C	0.13	19.9	C	0.07	12.6	B	0.09	13.5	B
		EB Appr.Delay=17.6 LOS=C			EB Appr.Delay=19.9 LOS=C			EB Appr.Delay=12.6 LOS=B			EB Appr.Delay=13.5 LOS=B		
Junction Blvd & 96th Street/34th Road East	Northbound												
	Southbound												
	Westbound												
	LR	0.23	18.6	C	0.28	21.5	C	0.13	14.1	B	0.16	15.5	C
	Eastbound												
		WB Appr.Delay=18.6 LOS=C			WB Appr.Delay=21.5 LOS=C			WB Appr.Delay=14.1 LOS=B			WB Appr.Delay=15.5 LOS=C		
Junction Blvd & 38th Ave	Northbound												
	Southbound												
	LT	0.03	8.5	A	0.04	8.7	A	0.05	8.4	A	0.06	8.6	A
	Westbound												
	Eastbound												

Abbreviations:

L-Left, T-Through, R-Right, V/C-Volume to Capacity Ratio, Delay-Seconds per Vehicle, LOS-Level of Service, A<=10, B>10-15, C>15-25, D>25-35, E>35-50, F>50

Parking

Off-Street Parking

There are no proposed off-street public parking facilities within the study area.

On-Street Parking

In the future condition, no changes to on-street parking conditions are expected to occur.

Public Transit

Subway Service

Subway ridership demand within the study area will increase as a result of the proposed rezoning and proposed developments. The subway person trips were estimated using the area's general background growth factor (1.0 percent per year for Queens), resulting in a total of 10.46 percent compound background growth. Based on the *North Corona Rezoning Environmental Assessment Statement* (EAS), dated April 15, 2003, prepared by the NYC Department of City Planning, the four projected development sites (site no. 1 to 4) would generate 45, 24 and 55 subway person trips during the weekday AM, midday and PM peak hours, respectively. Since, the potential development sites were considered less likely to be developed within the 10-year period, all kind of trips generated from the potential development sites were considered as a part of the background growth.

Table 28 show the results of the analysis of the future conditions of station elements for the weekday AM and PM peak hours, and Sunday midday peak hour at the four selected stations. As indicated in the table, all elements will continue to operate at LOS A or B.

Local Bus Service

Bus service demand within the study area will increase as a result of the proposed rezoning and proposed developments. The bus person trips were estimated using the area's general background growth factor (1.0 percent per year for Queens), resulting in a total of 10.46 percent compound background growth. Based on the *North Corona Rezoning Environmental Assessment Statement* (EAS), dated April 15, 2003, prepared by the NYC Department of City Planning, the four projected development sites (site no. 1 to 4) would generate 34, 16 and 38 bus person trips during the weekday AM, midday and PM peak hours, respectively. Since, the potential development sites were considered less likely to be developed within the 10-year period, all kind of trips generated from the potential development sites were considered as a part of the background growth.

As shown in Table 29, three bus lines will continue to operate with available capacity during the weekday AM and PM peak hours, and the Sunday midday peak hour. Two bus lines will operate over capacity in the peak direction during the weekday AM and PM peak hours.

Table 28
2013 Future Conditions - Subway Stations Level of Service

Subway Station and Elements			15-Minute Pedestrian Volume			V/SVCD Ratio			Level of Service		
			AM	PM	SUN	AM	PM	SUN	AM	PM	SUN
90th Street/Elmhurst Avenue	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R527											
Turnstile	5	2	447	441	299	0.17	0.16	0.11	A	A	A
Turnstile (To West Bound Trai	2	2	144	39	99	0.13	0.04	0.09	A	A	A
Turnstile (To East Bound Train	2	2	128	89	83	0.12	0.08	0.08	A	A	A
Service Gate	1	2	10	25	5	0.01	0.04	0.01	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S3 & M3)	4.7	3.7	188	249	127	0.38	0.50	0.25	A	B	A
NE (S2 & M2)	4.7	3.7	199	148	132	0.40	0.30	0.26	A	A	A
S (M1)	7.8	6.8	343	200	228	0.37	0.22	0.25	A	A	A
S (S1)	4.9	3.9	343	200	228	0.65	0.38	0.43	B	A	A
Junction Boulevard	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R528											
Turnstile	5	2	723	817	497	0.27	0.30	0.18	A	A	A
Turnstile	4	2	364	364	221	0.17	0.17	0.10	A	A	A
Service Gate	1	2	17	23	11	0.03	0.03	0.02	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S4&M4)	5.8	4.8	310	220	132	0.48	0.34	0.20	B	A	A
NE (S2&M2)	5.8	4.8	276	276	166	0.43	0.43	0.26	A	A	A
SW (S3&M3)	5.8	4.8	342	343	210	0.53	0.53	0.32	B	B	A
SE (S1&M1)	5.8	4.8	176	365	221	0.27	0.56	0.34	A	B	A
103rd Street/Corona Plaza	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R529											
Turnstile	5	2	729	729	469	0.27	0.27	0.17	A	A	A
Service Gate	1	2	11	17	11	0.02	0.03	0.02	A	A	A
High Exit Turnstile	2	1	17	77	50	0.02	0.10	0.06	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S4&M4)	4.7	3.7	182	193	122	0.36	0.39	0.24	A	A	A
NE (S2&M2)	4.7	3.7	215	226	133	0.43	0.45	0.27	A	B	A
SW (S3&M3)	4.6	3.6	100	210	143	0.21	0.43	0.29	A	A	A
SE (S1&M1)	4.8	3.8	260	194	135	0.51	0.38	0.26	B	A	A
111th Street	Numbers	One- or Two-Way	In/Out	In/Out	In/Out						
Fare Control Area R530											
Turnstile	5	2	746	580	480	0.28	0.21	0.18	A	A	A
Service Gate	1	2	17	34	6	0.03	0.05	0.01	A	A	A
Stairs	Width (ft)	Effective Width (ft)	Down/Up	Down/Up	Down/Up						
NW (S1&M1	5.7	4.7	298	172	187	0.47	0.27	0.29	B	A	A
SW (S2&M2)	5.7	4.7	166	177	111	0.26	0.28	0.17	A	A	A
SE (S3&M3,4,5)	4.7	3.7	299	265	188	0.60	0.53	0.38	B	B	A

Notes:
The Capacity for Stairs = 10 persons per minute per foot
The Capacity for Turnstiles = 40 persons per minute
The Capacity for Service Gates = 50 persons per minute
The Capacity for High Entrance Turnstiles = 20 persons per minute
The Capacity for High Revolving Exit Gates = 30 persons per minute

Source:
New York City Transit, Stations Operations Planning Division
City Environmental Quality Review Technical Manual
Environmental Assessment and Review Division; NYC Department of City Planning, October 2001

Table 29
2013 Future Local Bus Condition

Weekday AM Peak Hour					
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Available Capacity
Q19B (Triboro Coach)	WB	11	770	608	162
	EB	4	280	88	192
Q23 (Triboro Coach)	NB	9	630	298	332
	SB	8	560	486	74
Q48 (NYCT)	WB	4	280	66	214
	EB	5	350	144	206
Q66 (Queens Surface)	WB	10	700	718	-18
	EB	14	980	619	361
Q72 (Triboro Coach)	NB	7	490	254	236
	SB	7	490	503	-13
Weekday PM Peak Hour					
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Available Capacity
Q19B (Triboro Coach)	WB	4	280	177	103
	EB	10	700	552	148
Q23 (Triboro Coach)	NB	11	770	425	345
	SB	11	770	729	41
Q48 (NYCT)	WB	4	280	133	147
	EB	4	280	73	207
Q66 (Queens Surface)	WB	8	560	442	118
	EB	8	560	574	-14
Q72 (Triboro Coach)	NB	5	350	359	-9
	SB	5	350	199	151
Sunday MD Peak Hour					
Bus Line	Direction	Buses per Hour	Hourly Capacity	Hourly Volume	Available Capacity
Q19B (Triboro Coach)	WB	3	210	83	127
	EB	3	210	66	144
Q23 (Triboro Coach)	NB	4	280	110	170
	SB	4	280	88	192
Q48 (NYCT)	WB	3	210	40	170
	EB	3	210	68	142
Q66 (Queens Surface)	WB	4	280	199	81
	EB	4	280	199	81
Q72 (Triboro Coach)	NB	2	140	66	74
	SB	2	140	99	41

Source: MTA-NYCT Operation Planning
Note: New York City Transit calculates capacity at 70 passengers per bus.

Pedestrians

The pedestrian volumes within the study area will increase as a result of the proposed developments. Based on the *North Corona Rezoning Environmental Assessment Statement* (EAS), dated April 15, 2003, prepared by the NYC Department of City Planning, the four projected development sites (site no. 1 to 4) would generate a total of 170, 88 and 200 person trips during the weekday AM, midday and PM peak hours, respectively. Since, the potential development sites were considered less likely to be developed within the 10-year period, all kind of trips generated from the potential development sites were considered as a part of the background growth. Level of service analyses of the future conditions were performed at eight locations that were analyzed for existing conditions in order to determine the projected future pedestrian conditions within the study area and whether or not they would significantly affect any locations requiring improvements.

Level of Service Analysis and Methodology

Future pedestrian conditions were analyzed for the year 2013. The pedestrian volumes were estimated using the area's general background growth factor (1.0 percent per year for Queens), resulting in a total of 10.46 percent compound background growth. The pedestrian trips generated by the projected developments were then added to the compound background growth.

The future pedestrian LOS conditions were analyzed for four peak periods for sidewalks, corners, and crosswalks, and are summarized in Tables 30 through 32.

Sidewalk Analysis

The analysis of the future conditions indicates that pedestrian traffic at the midblocks of sidewalks (or walkways) at the selected intersections would operate at LOS A during all four peak periods. Table 7 presents a summary of the LOS results.

Table 30
2013 Future Conditions - Sidewalk Level of Service (p/m/f= Pedestrian/Minute/Foot)
(p/m/f= Pedestrian/Minute/Foot)

Intersection	Walkway	AM		MD		PM		SUN MD	
		p/m/f	LOS	p/m/f	LOS	p/m/f	LOS	p/m/f	LOS
Northern Boulevard	1	0.7	A	0.6	A	0.5	A	0.1	A
@ Junction Boulevard	2	1.1	A	0.6	A	0.7	A	0.3	A
	3	0.5	A	0.4	A	0.2	A	0.1	A
	4	0.7	A	0.5	A	0.7	A	0.3	A
	5	0.5	A	0.4	A	0.4	A	0.2	A
	6	0.8	A	0.4	A	0.7	A	0.4	A
	7	1.0	A	1.1	A	1.3	A	0.7	A
	8	1.2	A	1.2	A	0.9	A	0.6	A
Northern Boulevard	1	0.3	A	0.2	A	0.4	A	0.0	A
@108th Street	2	0.2	A	0.3	A	0.4	A	0.1	A
	3	0.3	A	0.3	A	0.2	A	0.1	A
	4	0.2	A	0.4	A	0.4	A	0.2	A
	5	0.1	A	0.1	A	0.3	A	0.1	A
	6	0.1	A	0.3	A	0.5	A	0.2	A
	7	0.3	A	0.2	A	0.4	A	0.1	A
	8	0.2	A	0.2	A	0.2	A	0.1	A

Abbreviation: LOS-Level of Service, A<=5, B>5-7, C> 7-10, D>10-15, E>15-23, and F>23

Table 30 (Continued)
2013 Future Conditions - Sidewalk Level of Service (p/m/f= Pedestrian/Minute/Foot)

Northern Boulevard	1	0.3	A	0.1	A	0.2	A	0.0	A
@ 114th Street	2	0.3	A	0.1	A	0.2	A	0.1	A
	3	0.2	A	0.1	A	0.2	A	0.1	A
	4	0.4	A	0.3	A	0.3	A	0.1	A
Roosevelt Ave	1	1.2	A	2.1	A	1.9	A	2.4	A
@ Elmhurst Avenue	2	1.1	A	1.0	A	2.4	A	1.6	A
	3	2.1	A	2.5	A	2.2	A	2.1	A
	4	1.0	A	1.5	A	1.4	A	1.4	A
	5	2.0	A	2.7	A	2.7	A	2.2	A
	6	1.5	A	1.5	A	2.2	A	2.1	A
	7	N/A		N/A		N/A		N/A	
	8	N/A		N/A		N/A		N/A	
Roosevelt Avenue	1	1.2	A	0.8	A	1.5	A	1.1	A
@ Junction Boulevard	2	1.6	A	0.4	A	1.7	A	0.5	A
	3	1.0	A	0.9	A	1.1	A	1.5	A
	4	1.6	A	1.0	A	1.7	A	1.1	A
	5	0.9	A	0.7	A	1.0	A	0.8	A
	6	1.7	A	0.5	A	2.5	A	1.0	A
	7	1.4	A	0.9	A	2.1	A	0.7	A
	8	1.4	A	0.5	A	2.3	A	0.6	A
Roosevelt Avenue	1	3.7	A	0.7	A	3.2	A	1.1	A
@ 103rd Street	2	0.5	A	0.3	A	0.7	A	0.5	A
	3	4.3	A	1.0	A	4.0	A	2.1	A
	4	1.4	A	0.3	A	2.1	A	0.5	A
	5	2.6	A	2.5	A	2.9	A	2.5	A
	6	3.4	A	2.3	A	4.6	A	1.9	A
	7	2.0	A	1.0	A	2.4	A	2.1	A
	8	0.6	A	0.4	A	2.0	A	0.5	A
Roosevelt Avenue	1	1.8	A	0.8	A	1.6	A	1.0	A
@ 111th Street	2	1.9	A	0.6	A	2.3	A	0.6	A
	3	0.5	A	0.4	A	1.9	A	0.4	A
	4	0.9	A	0.5	A	0.9	A	0.3	A
	5	1.0	A	1.2	A	0.7	A	0.8	A
	6	1.5	A	0.6	A	1.0	A	0.4	A
	7	0.5	A	0.6	A	1.0	A	0.4	A
	8	1.2	A	0.4	A	1.2	A	0.4	A
Roosevelt Avenue	1	0.1	A	0.2	A	0.3	A	0.2	A
@ 114th Street	2	0.2	A	0.2	A	0.2	A	0.1	A
	3	0.1	A	0.0	A	0.0	A	0.0	A
	4	0.6	A	0.2	A	0.1	A	0.3	A
	5	0.0	A	0.1	A	0.0	A	0.0	A
	6	0.5	A	0.2	A	0.5	A	0.2	A
	7	0.2	A	0.1	A	0.4	A	0.1	A
	8	0.2	A	0.2	A	0.3	A	0.1	A

Abbreviation: LOS-Level of Service, A<=5, B>5-7, C> 7-10, D>10-15, E>15-23, and F>23

Corner Analysis

Table 31 presents the result of the corner analysis of the 2013 future conditions during the four peak periods. The analysis indicates that four corners that are operating at LOS D currently would continue to operate at LOS D, located at three intersections on Roosevelt Avenue, in the future. The southwest corner at the intersection of Northern Boulevard and Junction Boulevard would deteriorate and operate at LOS D during PM peak hour in the future.

Table 31
2013 Future Conditions - Corner Level of Service
(SF/P = Square Foot per Pedestrian)

Intersection	Corner	AM		MD		PM		SUN MD	
		SF/P	LOS	SF/P	LOS	SF/P	LOS	SF/P	LOS
Northern Boulevard	Northeast	69.28	A	106.48	A	153.74	A	358.71	A
@ Junction Boulevard	Southeast	102.55	A	117.31	A	135.41	A	490.96	A
	Southwest	30.57	C	44.51	B	22.48	D	77.87	A
	Northwest	89.90	A	135.60	A	121.25	A	264.97	A
Northern Boulevard	Northeast	222.15	A	249.88	A	209.09	A	549.50	A
@ 108th St	Southeast	327.41	A	252.89	A	312.69	A	901.70	A
	Southwest	368.62	A	262.35	A	296.27	A	1015.35	A
	Northwest	243.12	A	244.25	A	188.03	A	578.59	A
Northern Boulevard	Northwest	851.24	A	840.96	A	559.70	A	1611.71	A
@ 114th St	Southwest	613.24	A	621.71	A	620.67	A	1297.38	A
Roosevelt Avenue	Northeast	33.64	C	78.61	A	41.98	B	52.89	B
@ Elmhurst Avenue	Southeast	49.50	B	85.16	A	53.45	B	72.35	A
	Southwest	16.03	D	28.68	C	15.43	D	23.50	D
	Northwest	32.75	C	77.46	A	48.88	B	52.75	B
Roosevelt Avenue	Northeast	79.48	A	93.53	A	92.57	A	70.95	A
@ Junction Boulevard	Southeast	82.87	A	103.64	A	87.53	A	90.29	A
	Southwest	60.49	A	85.66	A	65.04	A	69.55	A
	Northwest	58.73	B	77.82	A	65.35	A	52.72	B
Roosevelt Avenue	Northeast	16.91	D	61.59	A	17.72	D	55.88	B
@ 103rd Street	Southeast	24.54	C	54.77	B	24.81	C	70.22	A
	Southwest	47.82	B	82.16	A	63.20	A	72.16	A
	Northwest	17.93	D	66.58	A	28.07	C	43.71	B
Roosevelt Avenue	Northeast	40.57	B	142.72	A	70.54	A	130.65	A
@ 111th Street	Southeast	23.59	D	65.62	A	21.98	D	75.59	A
	Southwest	96.20	A	258.07	A	100.31	A	288.01	A
	Northwest	20.68	D	91.58	A	36.16	C	67.77	A
Roosevelt Avenue	Northeast	46.72	B	30.08	C	29.62	C	96.58	A
@ 114th Street	Southeast	31.59	C	34.56	C	27.91	C	162.06	A
	Southwest	254.68	A	479.81	A	288.96	A	1163.50	A
	Northwest	544.87	A	575.94	A	471.86	A	1220.33	A

Abbreviation: LOS-Level of Service, A>60, B>40-60, C> 24-40, D>15-24, E>8-15, and F<8

Crosswalk Analysis

Table 32 presents the result of the crosswalk analysis for the 2013 future conditions during the four peak periods. The analysis indicates that the north crosswalk, at the intersection of Roosevelt Avenue and 103rd Street, which is operating at LOS D currently, would continue to operate at LOS D in the future. However, the west crosswalk at the same intersection would deteriorate and operate at LOS E in the future. In addition, the north crosswalk at the intersection of Roosevelt Avenue and Elmhurst Avenue would deteriorate to LOS D in the future.

Table 32
2013 Future Conditions - Crosswalk Level of Service
(SF/P = Square Foot per Pedestrian)

Intersection	Crosswalk	AM		MD		PM		SUN MD	
		SF/P	LOS	SF/P	LOS	SF/P	LOS	SF/P	LOS
Northern Boulevard	North	31.7	C	32.7	C	61.5	A	152.7	A
@ Junction Boulevard	West	87.5	A	217.8	A	203.3	A	441.6	A
	South	69.4	A	71.1	A	51.3	B	107.2	A
	East	261.2	A	370.6	A	155.9	A	795.1	A
Northern Boulevard	North	128.2	A	119.1	A	155.5	A	271.7	A
@ 108th Street	West	276.2	A	368.0	A	222.9	A	731.3	A
	South	162.8	A	114.9	A	111.3	A	323.1	A
	East	527.3	A	344.7	A	488.6	A	1726.7	A
Northern Boulevard	North								
@ 114th Street	West	1038.1	A	1291.8	A	1068.4	A	4944.3	A
	South	681.0	A	263.2	A	243.7	A	352.1	A
	East	2173.3	A	3956.9	A	1158.2	A	3976.2	A
Roosevelt Avenue	North	22.9	D	41.9	B	27.4	C	42.0	B
@ Elmhurst Avenue	West	30.8	C	110.6	A	44.9	B	46.7	B
	South	25.5	C	46.5	B	34.7	C	46.4	B
	East	117.4	A	172.8	A	111.8	A	140.9	A
Roosevelt Avenue	North	50.3	B	61.5	A	74.5	A	59.0	B
@ Junction Boulevard	West	90.3	A	114.3	A	78.5	A	57.8	B
	South	51.4	B	67.3	A	65.1	A	56.6	B
	East	94.6	A	114.7	A	76.1	A	104.3	A
Roosevelt Avenue	North	24.0	C	43.8	B	16.3	D	66.7	A
@ 103rd Street	West	15.0	E	111.5	A	25.1	C	66.8	A
	South	31.2	C	44.2	B	34.4	C	36.2	C
	East	47.1	B	98.5	A	77.6	A	100.9	A
Roosevelt Avenue	North	35.6	C	68.8	A	40.0	B	89.1	A
@ 111th Street	West	37.2	C	197.2	A	76.7	A	126.6	A
	South	31.9	C	86.0	A	37.8	C	98.1	A
	East	84.5	A	273.0	A	78.9	A	348.7	A
Roosevelt Avenue	North	212.5	A	164.1	A	140.2	A	1413.7	A
@ 114th Street	West	759.4	A	479.1	A	785.6	A	637.5	A
	South	216.5	A	360.3	A	191.2	A	1216.1	A
	East	406.7	A	746.8	A	607.5	A	2275.9	A

Abbreviation: LOS-Level of Service, A>60, B>40-60, C> 24-40, D>15-24, E>8-15, and F<8

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Identified Problems and Recommended Improvements

The following problems identified in the North Corona Study area, and the proposed improvements are recommended.

Vehicular Traffic

Northern Boulevard and 114th Street

Currently, traffic approaching this intersection has a safety issue in terms of accidents. At this intersection, the exit ramp from the Grand Central Parkway westbound meets with westbound Northern Boulevard. The traffic coming from the ramp seeks to merge on to the westbound through approach and traffic coming from westbound Northern Boulevard seeks to merge into the left lane to get on to Grand Central Parkway east or to 114th Street. This illegal two-merge traffic creates a double weaving problem and dangerous vehicular accident situation. See photo 1. Accident data for the years 1998 to 2000 shows that this intersection has the second highest number of accidents in the study area. In addition, this intersection already has a signage-pointing straight for Grand Central Parkway east to indicate an alternate route.

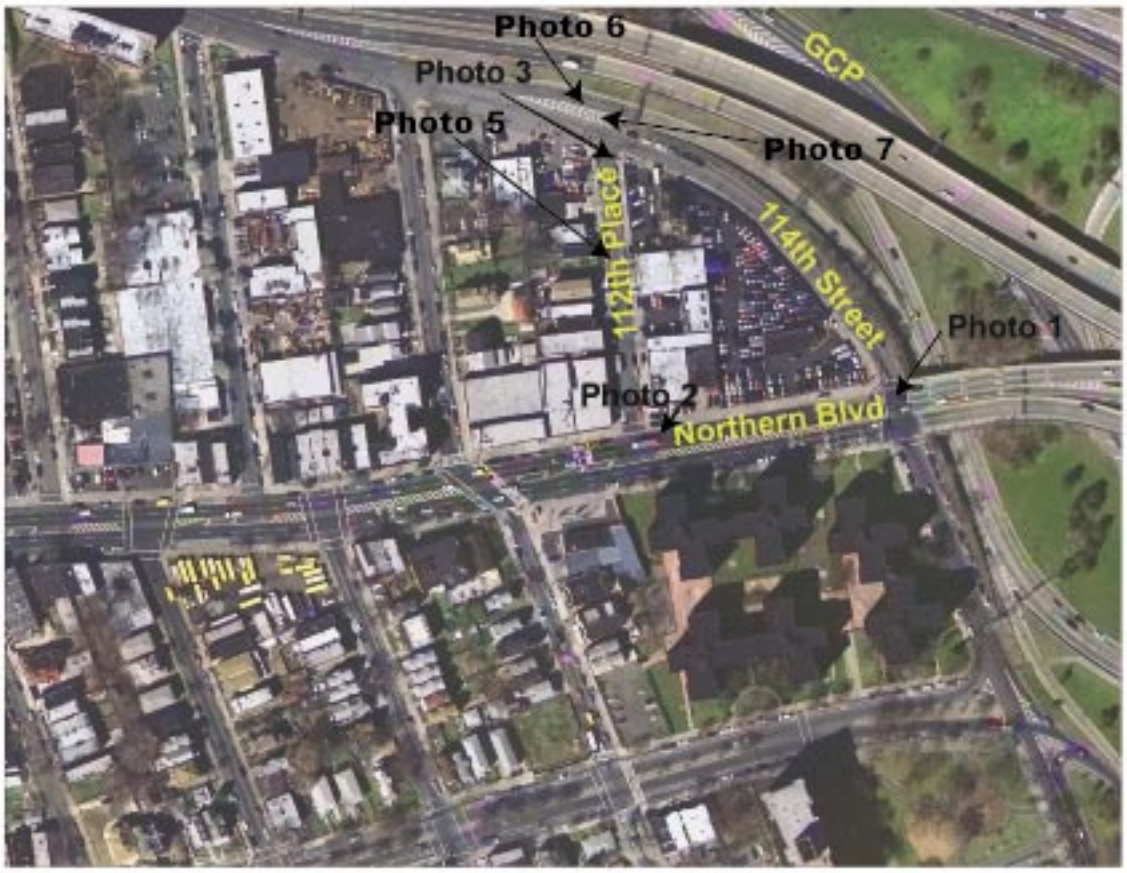
Photo 1 (Looking east on Northern Boulevard for Westbound Traffic)

At the next intersection of northern Boulevard and 112th Place, there is a signage for Grand Central Parkway east (see photo 2). 112th place at the other end meets to Astoria Boulevard, which becomes 114th Street. At this point, there is a signage for Grand Central Parkway east (see photo 3).

Photo 2 (Looking west on Northern Boulevard at 112th Place)

Photo 3 (Looking northeast on 112th Place at Astoria Boulevard)

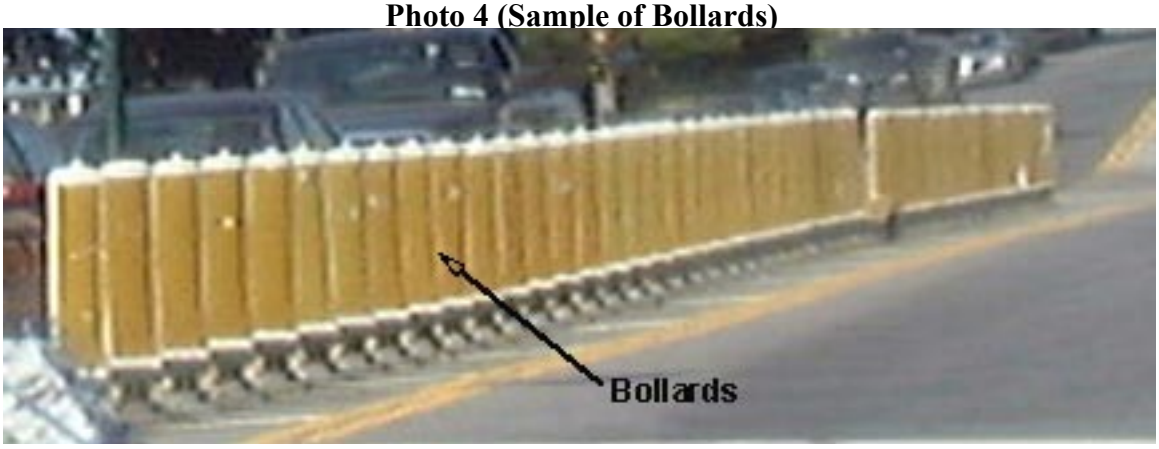
The following Aerial photo shows the locations of photos 1 to 3 and 5 to 7 at different intersections.



Proposed Improvements

To address the weaving problem and to improve safety, we propose to install bollards (photo 4) between the exit lane from the Grand Central Parkway west and Northern Boulevard westbound through traffic, and force the traffic that wants to go to 114th Street and/or Grand Central Parkway east to take 112th Place to 114th Street. 112th Place between Northern Boulevard and Astoria Boulevard has lots of illegal and/or double- parking (see photo 5). Strict enforcement is needed to stop the illegal and/or double parking, and a parking restriction on the east side of the street is recommended to have a smooth traffic movement on 112th Place. In addition, there is an entrance ramp for Grand Central Parkway east from Astoria Boulevard (photo 6). To avoid an illegal entry at this entrance ramp and to force the traffic to go to 114th Street (photo 7), other type of barriers instead of sand filled drums are proposed.

Photo 4 (Sample of Bollards)



NYC Department of City Planning, Transportation Division

Photo 5 (Looking south on 112th Place)

Photo 6 (Entrance to GCP/LIE east from Astoria Boulevard)

Photo 7 (Looking 114th Street at 112th Place)

37th Avenue and 114th Street

114th Street is two-way, and the traffic going north can only go to Grand Central Parkway east. There is signage on the left side to direct the traffic flow (see photo 8). The signage says that the through traffic has to make left and the traffic that wants to go to Grand Central Parkway has to continue straight. This signage is at a location that does not give enough warning to the unfamiliar driver in the area and leads to the highway and/or forces them to make an illegal u-turn at the intersection of 34th Avenue and 114th Street. This creates a dangerous situation. 114th Street between 34th Avenue and Astoria Boulevard is one-way southbound. The following photo shows this intersection.

Photo 8 (Looking north on 114th Street at 37th Avenue)

NYC Department of City Planning, Transportation Division

Proposed Improvements

A smaller message sign at the electric light pole (see photo 9) is proposed. This signage would help to inform/warn the unfamiliar driver before approaching the intersection and make a decision at the intersection.

Photo 9 (Looking north on 114th Street near 37th Avenue)

Intersection Operation Improvements

There are 16 out of 28 analyzed intersections that are congested currently and 19 out of 28 intersections will deteriorate more in the future in the study area. However, only the following intersections functionality would be improved by approach daylighting and lane re-striping. Daylighting is defined as the removal of on street parking and/or standing for about 100 feet (4 to 5 cars) from an intersection to provide for an additional moving lane. Existing on-street parking regulations at each approach for the recommended improvements for the following 7 intersections are shown in Figure 11A and 11B (Existing Condition Section).

1). Astoria Boulevard at 94th Street

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 44.2 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru-right approach movement will continue operating at LOS D with the delay time deteriorating to 51.3 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS D with a delay of 46.5 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru-right approach movement will

operate at LOS E with the delay time deteriorating to 57.4 seconds per vehicle.

Proposed Improvements:
A daylighting measure such as no standing for northbound approach from 7 AM to 10 AM and 4 PM to 7 PM with restriping is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						PM					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L	0.28	25.9	C	0.28	25.9	C	0.26	16.0	B	0.26	16	B
	TR	0.31	21.0	C	0.31	21.0	C	0.60	25.3	C	0.6	25.3	C
Westbound	L	0.10	11.9	B	0.10	11.9	B	0.20	22.4	C	0.2	22.4	C
	TR	0.56	24.5	C	0.56	24.5	C	0.33	21.1	C	0.33	21.1	C
Northbound	LTR	0.83	51.3	D	0.68	41.3	D	0.88	57.4	E	0.72	43.4	D
Southbound	LTR	0.53	37.0	D	0.53	37.0	D	0.71	42.7	D	0.71	42.7	D
Intersection Delay			29.6	C		28.0	C		30.6	C		28.8	C

2). <u>Northern Boulevard at Junction Boulevard</u>

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 85.9 seconds per vehicle. In addition, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 64.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 124.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 106.1 seconds per vehicle.

MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 84.3 seconds per vehicle. In addition, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 72.3 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 119.8 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS F with the delay time deteriorating to 132.4 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 83.9 seconds per vehicle. In addition, the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 82.9 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 120.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS F with the delay time deteriorating to 117.5 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 58.4 seconds per vehicle. In addition, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 56.1 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 67.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will continue operating at LOS E with the delay time deteriorating to 67.7 seconds per vehicle.

Proposed Improvements:

A daylighting measure such as no standing anytime for northbound approach with restriping is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L	0.11	20.4	C	0.11	20.4	C	0.1	10.8	B	0.11	10.8	B
	TR	0.95	36.7	D	0.95	36.7	D	0.7	20.7	C	0.74	20.7	C
Westbound	L	0.27	31.3	C	0.27	31.3	C	0.3	20.1	C	0.28	20.1	C
	TR	0.77	20.6	C	0.77	20.6	C	0.5	15.1	B	0.51	15.1	B
Northbound	LTR	1.12	124.1	F	1	85.7	F	1.1	119.8	F	0.99	83.9	F
Southbound	LTR	1.04	106.1	F	1.04	106.1	F	1.1	132.4	F	1.13	132.4	F
Intersection Delay			46.5	D		41.6	D		46.7	D		41.5	D

Direction	Appr.	PM						Sun MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L	0.10	12.3	B	0.10	12.3	B	0.10	9.3	A	0.10	9.3	A
	TR	0.78	21.0	C	0.78	21.0	C	0.70	19.7	B	0.70	19.7	B
Westbound	L	0.39	38.8	D	0.39	38.8	D	0.33	19.3	B	0.33	19.3	B
	TR	0.57	16.0	B	0.57	16.0	B	0.44	14.0	B	0.44	14.0	B
Northbound	LTR	1.11	120.5	F	1.00	83.3	F	0.87	67.5	E	0.72	53.4	D
Southbound	LTR	1.09	117.5	F	1.09	117.5	F	0.87	67.7	E	0.87	67.7	E
Intersection Delay			43.0	D		38.2	D		28.5	C		26.9	C

3). <u>Northern Boulevard at 108th Street</u>

AM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 67.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 108.8 seconds per vehicle.

MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 79.9 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 49.8 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 139.4 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 57.5 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS F with a delay of 81.6 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS F with a delay of 80.4 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 117.3 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 148.1 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's northbound left-thru-right approach movement operates at LOS E with a delay of 65.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 54.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 82.5 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 69.6 seconds per vehicle.

Proposed Improvements:

A daylighting measure such as no standing anytime for northbound approach with restriping is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L	0.25	30.7	C	0.25	30.7	C	0.2	21.5	C	0.22	21.5	C
	TR	0.87	27.6	C	0.87	27.6	C	0.9	26.4	C	0.86	26.4	C
Westbound	L	0.21	22.5	C	0.21	22.5	C	0.2	24.7	C	0.23	24.7	C
	TR	0.80	21.6	C	0.80	21.6	C	0.8	22.5	C	0.79	22.5	C
Northbound	LTR	1.06	108.8	F	0.87	63.2	E	1.2	139.4	F	0.94	74.4	E
Southbound	LTR	0.69	51.0	D	0.69	51.0	D	0.8	57.5	E	0.79	57.5	E
Intersection Delay			35.2	D		30.4	C		41.6	D		33.8	C

Direction	Appr.	PM						Sun MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L	0.35	27.8	C	0.35	27.8	C	0.37	29.4	C	0.37	29.4	C
	TR	0.77	20.5	C	0.77	20.5	C	0.86	26.2	C	0.86	26.2	C
Westbound	L	0.25	28.7	C	0.25	28.7	C	0.32	26.6	C	0.32	26.6	C
	TR	0.83	24.8	C	0.83	24.8	C	0.86	26.4	C	0.86	26.4	C
Northbound	LTR	1.10	117.3	F	0.97	77.6	E	0.97	82.5	F	0.79	56.2	E
Southbound	LTR	1.18	148.1	F	1.18	148.1	F	0.89	69.6	E	0.89	69.6	E
Intersection Delay			48.1	D		43.2	D		37.0	D		34.1	C

4). 34th Avenue at Junction Boulevard

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 89.3 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 59.3 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 84.0 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.6 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 92.7 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 63.8 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 113.7 seconds per vehicle.

Proposed Improvements:

A daylighting measure such as no standing anytime for southbound approach with restriping is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.77	22.1	C	0.77	22	C	0.64	16.6	B	0.63	16.5	B
Westbound	LTR	0.48	13.3	B	0.48	13.3	B	0.43	12.4	B	0.43	12.4	B
Northbound	LTR	0.68	31.4	C	0.69	32	C	0.73	33.9	C	0.77	35.9	D
Southbound	LTR	1.06	89.3	F	0.6	29.4	C	1.05	84.0	F	0.58	28.8	C
Intersection Delay			40.1	D		25.2	C		39.0	D		24.8	C

Direction	Appr.	PM						Sun MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.78	22.8	C	0.78	22.6	C	0.54	14.3	B	0.53	14.3	B
Westbound	LTR	0.56	14.8	B	0.56	14.8	B	0.41	12.3	B	0.41	12.3	B
Northbound	LTR	0.80	37.0	D	0.88	44.4	D	0.51	27.6	C	0.53	28.2	C
Southbound	LTR	1.08	92.7	F	0.6	28.9	C	1.12	113.7	F	0.59	29.7	C
Intersection Delay			43.5	D		29.0	C		44.4	D		21.9	C

5). 34th Avenue at 108th Street

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 45.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 73.0 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 70.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 128.6 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 62.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 89.0 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 69.2 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 131.5 seconds per vehicle.

Proposed Improvements:
A daylighting measure such as no standing anytime for southbound approach and restriping for both northbound and southbound approach is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.60	15.6	B	0.59	15.5	B	0.54	14.2	B	0.54	14.2	B
Westbound	LTR	0.63	16.3	B	0.63	16.3	B	0.60	15.6	B	0.60	15.6	B
Northbound	LTR	0.70	33.0	C	0.6	29.5	C	0.68	32.7	C	0.60	29.8	C
Southbound	LTR	0.98	73.0	E	0.47	27	C	1.16	128.6	F	0.53	28.2	C
Intersection Delay			32.2	C		21.8	C		45.8	D		21.8	C

Direction	Appr.	PM						Sun MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.72	19.7	B	0.72	19.6	B	0.61	16.1	B	0.61	16	B
Westbound	LTR	0.54	14.3	B	0.54	14.3	B	0.41	12.2	B	0.41	12.2	B
Northbound	LTR	0.79	37.4	D	0.69	31.9	C	0.65	31.7	C	0.58	29.4	C
Southbound	LTR	1.06	89.0	F	0.53	27.8	C	1.17	131.5	F	0.55	28.6	C
Intersection Delay			39.9	D		23.9	C		50.1	D		22.1	C

6). <u>35th Avenue at Junction Boulevard</u>

PM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 40.0 seconds per vehicle, and the intersection's southbound thru-right approach movement operates at LOS D with a delay of 37.7 seconds per vehicle.
In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 74.1 seconds per vehicle, and the intersection's southbound thru-right approach movement will operate at LOS D with the delay time deteriorating to 51.5 seconds per vehicle.

Proposed Improvements:
A daylighting measure such as no standing from 4 PM to 7 PM for northbound and southbound approach with restriping is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	PM					
		2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LR	0.66	27.7	C	0.65	27.1	C
Westbound	LTR	0.54	21.2	C	0.54	21	C
Northbound	LT	1.03	74.1	E	0.47	18.9	B
Southbound	TR	0.96	51.5	D	0.49	18.9	B
Intersection Delay			47.9	D		20.6	C

7). 37th Avenue at Junction Boulevard

AM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 43.5 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 65.5 seconds per vehicle.

MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 52.1 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 82.1 seconds per vehicle.

PM Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 58.8 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 108.8 seconds per vehicle.

Sunday MD Peak Hour

Currently, the intersection's southbound left-thru-right approach movement operates at LOS C with a delay of 34.7 seconds per vehicle.
In the future conditions, the intersection's southbound left-thru-right approach movement will operate at LOS D with the delay time deteriorating to 46.9 seconds per vehicle.

Proposed Improvements:

Restriping for both southbound and northbound is recommended. The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.60	22.9	C	0.60	22.9	C	0.71	26.6	C	0.71	26.5	C
Northbound	LTR	0.37	17.8	B	0.39	18.1	B	0.40	18.1	B	0.43	18.6	B
Southbound	LTR	1.01	65.5	E	0.52	20.0	B	1.07	82.1	F	0.55	20.6	C
Intersection Delay			39.1	D		20.3	C		45.7	D		21.9	C

Direction	Appr.	PM						Sun MD					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.93	43.8	D	0.93	43.6	D	0.63	23.8	C	0.63	23.8	C
Northbound	LTR	0.46	19.1	B	0.5	19.8	B	0.37	17.7	B	0.39	18.1	B
Southbound	LTR	1.14	108.8	F	0.65	23.1	C	0.93	46.9	D	0.48	19.3	B
Intersection Delay			60.2	E		29.5	C		30.8	C		20.3	C

With the implementation of above proposed No Standing anytime approximately 8 to 10 meter parking spaces and 28 to 35 on-street parking space will be lost in the study area.

The following intersection can be improved by signal timing change.

8). Astoria Boulevard at 108th Street

AM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS D with a delay of 54.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS D with a delay of 50.4 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru approach movement will operate at LOS E with the delay time deteriorating to 63.6 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS E with the delay time deteriorating to 55.9 seconds per vehicle.

PM Peak Hour

Currently, the intersection's northbound left-thru approach movement operates at LOS F with a delay of 81.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement operates at LOS E with a delay of 76.1 seconds per vehicle.

In the future conditions, the intersection's northbound left-thru approach movement will continue operating at LOS F with the delay time deteriorating to 135.1 seconds per vehicle, and the intersection's southbound left-thru-right approach movement will operate at LOS F with the delay time deteriorating to 123.3 seconds per vehicle.

Proposed Improvements:

A signal timing modification is recommended to improve the projected future conditions. The following table summarizes the existing and proposed signal timings for AM and PM peak hours.

Phase	Approach	Existing G/Y/R Time	Proposed G/Y/R Time
1	WB	20/3/2	15/3/2
2	EB/WB	61/3/2	61/3/2
3	NB/SB	24/3/2	29/3/2

The following table summarizes the v/c, delay and LOS for the future conditions as is and with recommended measures for each approach. As shown in the tables, the proposed measure would improve the poorly operating approaches and overall intersection performances.

Direction	Appr.	AM						PM					
		2013 Future			2013 Recommended			2013 Future			2013 Recommended		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	LTR	0.32	17.6	B	0.32	17.6	B	0.57	21.3	C	0.57	21.3	C
Westbound	L	0.12	5.8	A	0.12	7.4	A	0.15	7.7	A	0.18	9.7	A
	TR	0.52	8.4	A	0.56	11	B	0.40	7.2	A	0.43	9.4	A
Northbound	LT	0.84	63.6	E	0.66	46.9	D	1.14	135.1	F	0.87	60.6	E
Southbound	LTR	0.75	55.9	E	0.58	44.3	D	1.11	123.3	F	0.84	57.5	E
Intersection Delay			22.5	C		20.6	C		44.2	D		27.0	C

A preliminary analysis was performed for the intersections along Roosevelt Avenue. The congested/impacted intersections along Roosevelt Avenue cannot improve without removing on-street parking to provide an additional lane to increase vehicular capacity; by providing more signal timing to cross streets and breaking progression along Roosevelt Avenue. Therefore, a detail investigation needed as to keep the progression along Roosevelt Avenue and to avoid losing/eliminating of on-street parking spaces on cross streets. In addition, more enforcement is recommended to eliminate the double and/or illegal parking along Roosevelt Avenue.

Parking

Off-Street Parking

Since there is no off-street public parking facilities within the study area, and there is a shortage of parking, looking into the creation of parking facilities such as lots or garages, to relieve the parking shortage, is recommended.

On-Street Parking

A daylighting for above seven intersections is proposed to improve the intersection's functionality. In addition, various on-street parking changes at the following locations are proposed to improve the vehicular traffic condition and to have better parking turnover in the study area. All of the below Streets/Avenues allow parking with street cleaning schedules on different day of the week during different morning hours.

1). 95th Street at south of 37th Avenue both east and west side – 1 hour parking meters from 9 AM to 7 PM are proposed.

2). 95th Street at north of 37th Avenue west side - 2 hour parking meters from 9 AM to 7 PM are proposed.

3). Warren Street at south of 37th Avenue west side – 2 hour parking meters from 9 AM to 7 PM are proposed.

4). 97th Street both side between Roosevelt Avenue and 38th Avenue - 2 hour parking meters from 9 AM to 7 PM are proposed.

5). 97th Street at south/north of 37th Avenue both side - 2 hour parking meters from 9 AM to 7 PM

are proposed.

6). 37th Avenue between Junction Boulevard and 97th Street - Creating a truck loading/unloading zone is proposed.

7). 35th Avenue between Junction Boulevard and 97th Street - Creating a truck loading/unloading zone is proposed.

8). 96th Street at south of 34th Avenue west side - No standing 8AM to 6PM Mon thru Fri except authorized vehicles for Department of Health are proposed.

Field observations at various times of the day showed that the proposed changes for the on-street parking would relieve some parking shortage for shoppers by allowing higher parking turnover during the day while permitting residents to park overnight. Additionally, field observation revealed that large truck trailers were observed on junction Boulevard between 37th and 34th Avenue and on Roosevelt Avenue during the vehicular traffic peak hours. We proposed that business owners should negotiate with truck trailer operators to setup the delivery time during non-peak hours.

With the implementation of the above proposed on-street parking changes, 43 to 51 new meter parking spaces would be added, and 16 to 20 on-street parking spaces would be lost due to the creation of a truck loading/unloading zone in the study area. This would help to reduce double and/or illegal truck parking for loading/unloading and help traffic move without interruptions.

All above proposed changes should be discussed with NYCDOT, the Community Boards and the business owners before implementation.

Public Transit
Local Bus Service

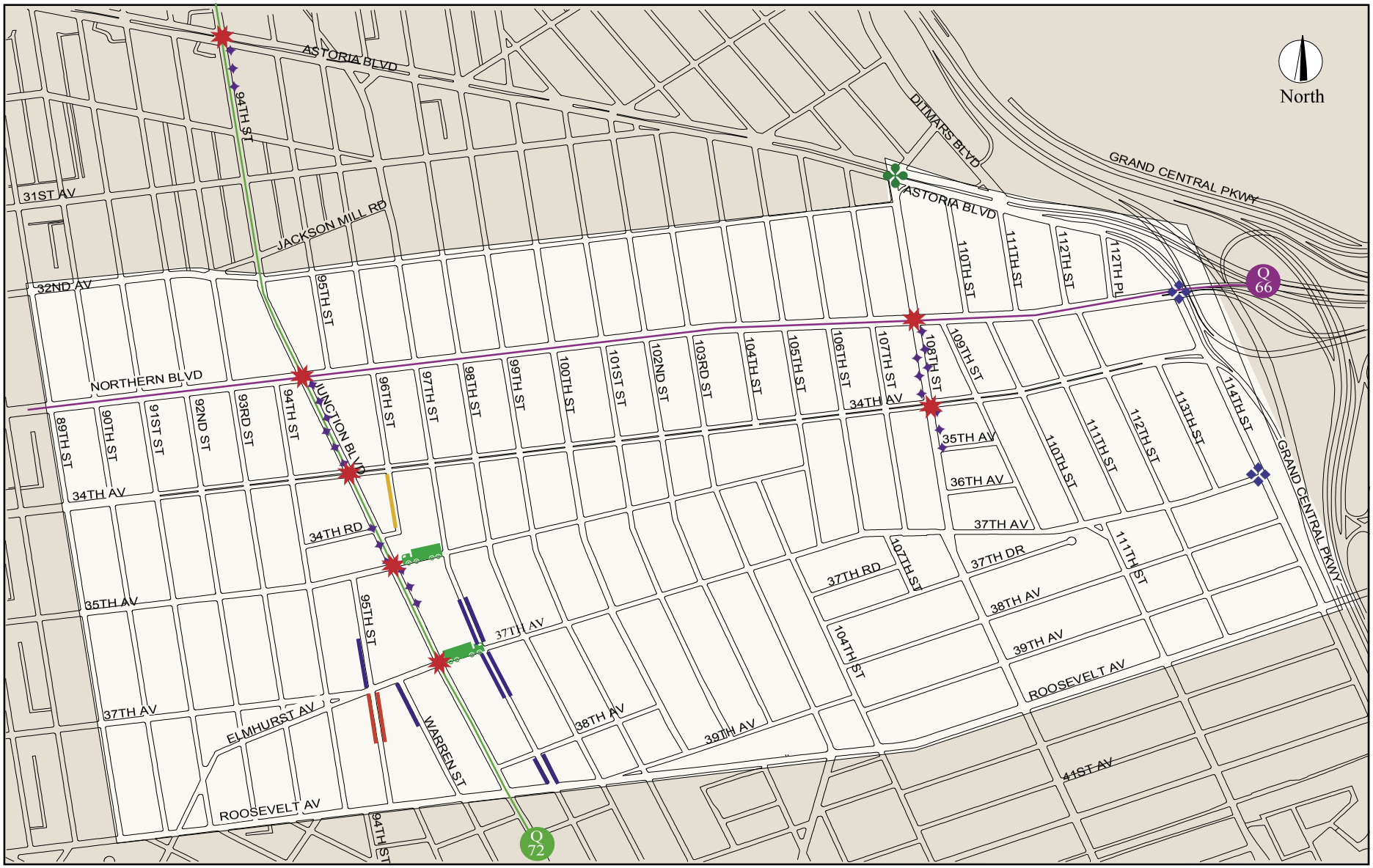
In the future, two bus lines, Q66 and Q 72, will operate over the capacity in the peak direction during the weekday AM and PM peak hours.

During the AM peak hour, the WB Q66 and SB Q 72 lines would exceed the capacity by 18 and 13 passengers respectively. These both route would require one additional bus to accommodate the demand in the future.

During the PM peak hour, the EB Q66 and NB Q 72 lines would exceed the capacity by 14 and 9 passengers respectively. These both route would require one additional bus to accommodate the demand in the future.

Roadway Improvements
Pavement condition on Junction Boulevard between 35th and 37th Avenue is poor. Since it is a local truck route in the study area, it is recommended that it should be resurfaced.

All the above proposed vehicular traffic, on-street parking and transit related improvements are shown in the Figure RI.



Recommended Improvements

- Bus Route and Number requires increase in frequency during peak hours
- Intersection's Physical/Signage Improvements
- Intersection's Operation Improvements with parking regulation changes and restriping pavements
- Intersection's Operation Improvements with Signal timing changes
- Proposed No Standing
- On-Street Parking changes 1 hour parking meters
- On-Street Parking changes 2 hour parking meters
- On-Street Parking changes NS 8AM-6PM except DOH
- On-Street Parking removal for truck loading/unloading zone

Figure RI

Conclusion

The North Corona Transportation Study is a first step forward addressing community's concerns dealing with vehicular traffic, parking, transit and pedestrian issues. This study analyzed and evaluated the existing conditions within the study area, including level of service (LOS), parking demand, transit utilization and service, and pedestrian circulation. In regard to the future conditions, this report provided a comprehensive analysis of the proposed and potential developments, their trip generation characteristics and their impact on future vehicular traffic, parking, transit and pedestrian components. Problems were identified, and improvements were recommended to improve vehicular traffic, parking and pedestrian conditions in the North Corona area.

In order to implement the recommendations of this study, the participation of different agencies and organizations will be required. Among them are: New York City Department of Transportation, Queens Borough President's Office, Community Boards 3 and 4 and local elected officials. The New York City Department of City Planning will continue to work with the community and relevant agencies to implement the recommendations of this study.

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