COLLEGE POINT TRANSPORTATION STUDY

Draft Technical Memorandum
TRAFFIC IMPROVEMENT MEASURES

The City of New York
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A Member of the New York Metropolitan Transportation Council

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College Point Transportation Study

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S-1 PROJECT DESCRIPTION

The College Point Transportation Study aims at examining the travel and transportation needs in the College Point section of the borough of Queens.

The area was identified during the 1960s for development with an emphasis on an industrial park accommodating over 4,000,000 square feet of office, retail, manufacturing and warehouse space, with over 12,000 employees. Amendments to the plan in recent years have shifted the emphasis to more commercial retail. This has implications for vehicular traffic on the street network and the limited access points to the area. This study is geared to provide a comprehensive overview of the issues and traffic conditions generated by this development, and to provide a framework for a more efficient and reliable traffic and transportation system in College Point.

S-2 DEMOGRAPHICS

The area's population has remained relatively stable over the past three decades with an average 1.3% increase. However there is over a 60% vehicle ownership rate with an increasing car/van mode share. This situation exists in conjunction with declining transit usage. These factors point to an increasing rate of single occupancy vehicles on the area's street network.

S-3 LAND USE AND ZONING

College Point was planned and zoned like a little town surrounded by the City. It is occupied predominantly by residential single-family and row houses. The newer developments consist mainly of townhouses and small apartment buildings.

A large part of the area was designated for Urban Renewal in 1967. The Urban Renewal Plan facilitated more industrial development in what was known as College Point Industrial Park.

Further amendments were made in the 1990s and the College Point Corporate Park evolved with more diverse land uses (including greater commercial retail) than was originally intended. These new uses and developments have the potential to and have generated significant growth in vehicle trips on the street network.

S-4 TRAFFIC AND TRANSPORTATION

The Study Area has a grid-like street network system. The Whitestone Expressway and College Point Boulevard are the two main north/south corridors, 14th Avenue and 20th Avenue are the main east/west corridors, and Linden Place runs diagonally through the area. The four main access points to College Point are along the Whitestone Expressway at:

(a) College Point Boulevard,
(b) Linden Place,
(c) 20th Avenue, and
(d) 14th Avenue.

Traffic congestion can be observed during the peak hours at the main access points, as well as along Northern Boulevard and College Point Boulevard where the local retail strips exists. The congestion is due to parking and limited roadway capacity. Travel speeds along Northern Boulevard in the eastbound direction is the lowest in the Study Area.

S-5 PEDESTRIAN ANALYSIS

Pedestrian volumes is generally low except along Northern Boulevard in the vicinity of Main Street. Pedestrian LOS is not unacceptable at any location.

S-6 ACCIDENTS / SAFETY

Three locations in the Study Area show more than 100 accidents over a three-year period. These are Northern Boulevard @ Prince Street, Northern Boulevard @ Union Street, and 20th Avenue @ Whitestone Expressway Northbound Service Road. These are locations with heavy vehicular volumes and multiple conflict points.

S-7 PARKING ANALYSIS

The Study Area generally has an adequate supply of parking spaces. However, there is a tendency for double parking along Northern Boulevard and College Point Boulevard in the local retail districts. This is clearly a problem of enforcement and not one of excess demand.

S-8 PUBLIC TRANSPORTATION

The area has less public transit service than most parts of the City. There is no subway service within the Study Area. The nearest subway is one mile away in Downtown Flushing (i.e., the # 7 Main Street Station). There also is no commuter rail service. However, many bus lines pass through or near the Study Area.

S-9 FUTURE CONDITIONS & RECOMMENDATIONS

Many recommendations in the form of improvement measures were developed in the NYCDOT 1990 Study and the 1997 College Point Retail EIS. These mainly include signal timing changes, roadway re-striping and intersection widening. Approximately 80% of these measures have been implemented. Additional recommendations were developed and refined for long term capital improvements. These were placed on an accelerated design build schedule to be incorporated into NYSDOT rehabilitation of the Whitestone Expressway Bridge over the Flushing River. These recommendations, detailed herein with other improvement measures, aimed at further improving traffic conditions throughout the Study Area.

1.0 INTRODUCTION

1.1 SETTING THE CONTEXT

The College Point Corporate Park, located in northern Queens County near La Guardia Airport, was designated as an urban renewal area in 1971. Previously, the area was zoned for industrial uses and was only marginally used because of difficult subsoil and drainage problems. It was the objective of the urban renewal plan (URA) to strengthen the overall economy of the City by providing useable land for industrial expansion, to create job opportunities, and to attract industrial firms to locate to an attractive and controlled industrial environment.

As the plan went into effect some factory and office space was built. Development in the area has generally conformed to the uses specified in the College Point Second Amended Urban Renewal Plan. Occupants of the park currently include light manufacturing facilities, office buildings, warehouses, a NYC Police Department Auto Pound, a bus depot, New York Times and a sanitation facility. More recently, significant retail stores have been constructed such as BJ's, Baby 'R' Us, Target and a Multi-Plex Cinema. The old Flushing Airport a general aviation facility closed since 1979 also is located within the boundaries of the park.

Historically, College Point and its surrounding area is characterized by low to high density, mainly single-family to multiple dwelling residential housing, commercial, manufacturing and warehousing. The College Point Corporate Park located on the College Point peninsula was anticipated to accommodate, by the year 2000, over 4,000,000 square feet of office, retail, manufacturing and warehouse space with over 12,000 employees (plan for New York City A Proposal 1969). The shift to more regional retail has resulted in the generation of increased traffic on the local street network as a result of the intense commercial / manufacturing / commercial uses in the area. It is this situation that has heightened the concern of Community Board 7 and several elected officials that has resulted in a request for NYCDOT to conduct the College Point Transportation Study.

1.2 OBJECTIVES

The objective of the study is to examine the existing transportation network problems as it relates to the area's travel needs as a function of traffic, transit, parking and pedestrian activity, and to generate effective solutions to the identified problems. Provide for public involvement and community participation in the planning process. Develop and present recommendations and improvement measures both for the short and long term. The study also will provide a framework for coordinating all transportation improvements that will be implemented by the various agencies.

1.3 THE STUDY AREA

College Point is an easily identifiable land mass bounded by water to the north, south, and west with the Whitestone Expressway being its eastern boundary. The Community has very strong economic/commercial and transportation ties to Downtown Flushing. To capture the main arterials leading to and from College Point the study area was extended beyond the immediate peninsula.

The study area boundaries are the East River on the north, Northern Boulevard on the south, Flushing Bay on the west, and Parsons Boulevard on the east. It is approximately one-fifth the size of Community District No. 7. See Exhibits 1-1 and 1-2 which show College Point in its regional setting and the study area, respectively.

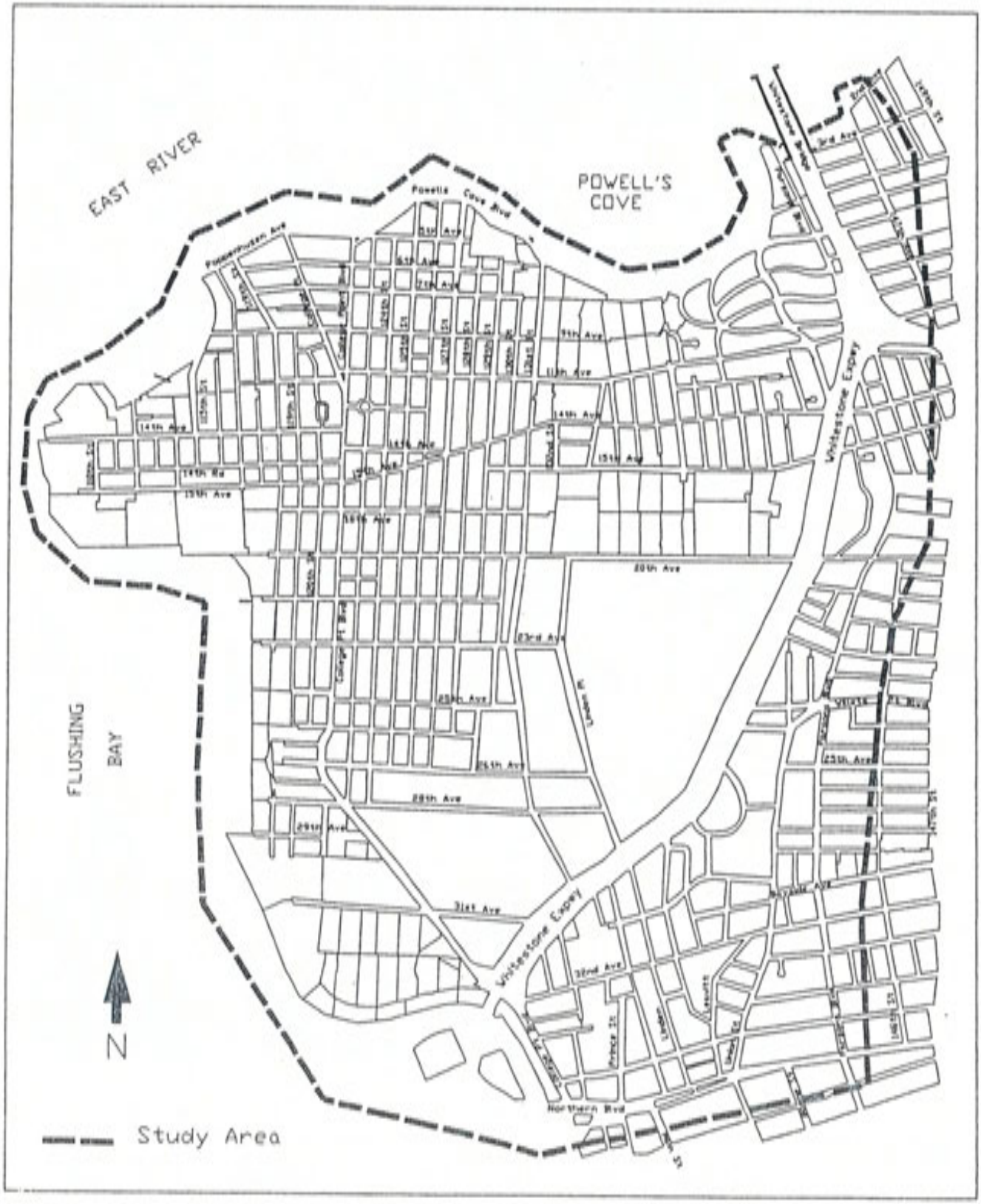
The study area is approximately one-fifth the size of Community District No.7.

EXHIBIT 1-1

College Point in the Regional Setting

EXHIBIT 1-2

College Point Transportation Study Area



1.4 PROJECT ORGANIZATION & METHODOLOGY

The traffic and transportation concerns of the community have been expressed at various forums and meetings. This resulted in Community Board No.7 and elected officials requesting NYCDOT to prepare a scope of work for the preparation of a traffic and transportation study.

The scope of work identified the tasks and issues to be addressed as part of the study. A Technical Advisory Committee (TAC) comprised of Community Groups, Elected Officials, City and State Officials was established for the execution of the study.

Task 1 - Project Organization and Management

A detailed work program that outlines tasks, sub-tasks and task products was developed for the study and a general reconnaissance was conducted of the area to assess some of the issues raised by the community. This helped to better define some of the tasks and sub-tasks.

Task 2 - Literature Search

Relevant studies were obtained from DOT's Environmental Impact Statement Library and from the Department of City Planning (DCP) and other public or private agencies. This task entailed a review of documents that included Environmental Impact Statements (EISs) and Environmental Assessment Statements (EASs) for actions within the study area that were prepared or reviewed by DOT. DOT consulted with DCP's main and borough offices, Economic Development Corporation (EDC), as well as the Mayor's Office of Environmental Coordination (OEC) in identifying additional projects within the study area.

List of Reports / Studies

Plan for New York City 1969 A Proposal 5 Queens	NYCDCP 1969
College Point Traffic Study	NYCDOT 1990
Ulmer Street Traffic Study	PHA 1993
College Point Retail Project	Allee, King, Rosen, & Fleming/
Linden Place Reconstruction	Edwards and Kelcey, (EDC) 2004
Downtown Flushing Traffic Study	NYCDOT (Draft Report) 1998
Community District Needs – Queens Fiscal Year 2004/2005	NYCDCP December 2005

Task 3 - Data Collection and Identification of Issues

Data was collected on traffic, parking, pedestrian, accident and transit at critical intersections throughout the study area. An inventory of information reflecting existing conditions was created and an existing condition analysis and report was issued in 1999. With significant capital improvements implemented which further altered the traffic characteristics, additional data was collected in 2004 and the 2004 existing conditions became the revised baseline.

Task 4 - Analysis of Future Conditions and Development of Improvement Packages

The analysis of the future (2014) conditions with respect to traffic, safety, transit, parking and pedestrian activity was conducted based on projected future conditions and was used to generate solutions and improvement strategies.

Task 5 - Draft Final Report

This will incorporate the views and concerns of the various community groups.

2.0 DEMOGRAPHIC ANALYSIS

2.1 METHODOLOGY

The College Point Study Area is located entirely within Community District No. 7, and includes the following Census Tracts (in whole or in part): 867*, 889, 907, 919, 925, 929, 939, 945, 947, 973*, 1039*, 1047*, and 1161. Nine tracts are located entirely within the Study Area, while four tracts are partially in the Study Area. In the analysis of partial census tracts, it is assumed that the population and other related variables are evenly distributed (geographically).

The demographic analysis relies on data from New York City Department of City Planning (NYCDCP) reports, data found in Decennial Census of Population and Housing publications (Socioeconomic Profiles and Demographic Profiles, 1980, 1990, and 2000), and computer files issued by the United States Department of Commerce - Bureau of the Census. Data was analyzed for the census years 1970, 1980, 1990, and 2000 where available. The future demographic characteristics projected for the year 2010 and 2014, also relied on the U.S. Census Bureau's population estimate for New York City, and the New York State Office of Aging recent study, "Project 2015: New York State Population Characteristics by County".

To better assess the conditions of the Study Area in a wider context, comparisons are made with the Borough of Queens and New York City mainly by way of comparative tables.

* Tracts partially within the Study Area

2.2 POPULATION TRENDS

The population analysis covers four decennial census years 1970, 1980, 1990 and 2000 and projections for 2010 and 2014 for the Study Area, the Borough of Queens and New York City as shown in Table 2-1 below.

The Study Area experienced a 5% population decline from 38,905 to 36,943 between 1970 and 1980. A similar trend was observed for Queens and the City with 4.8% and 10.4% decrease, respectively. However, over the two next decades (1980 to 2000) the Study Area, the borough of Queens and New York City experienced 20.4%, 17.4% and 12.9% population growth respectively.

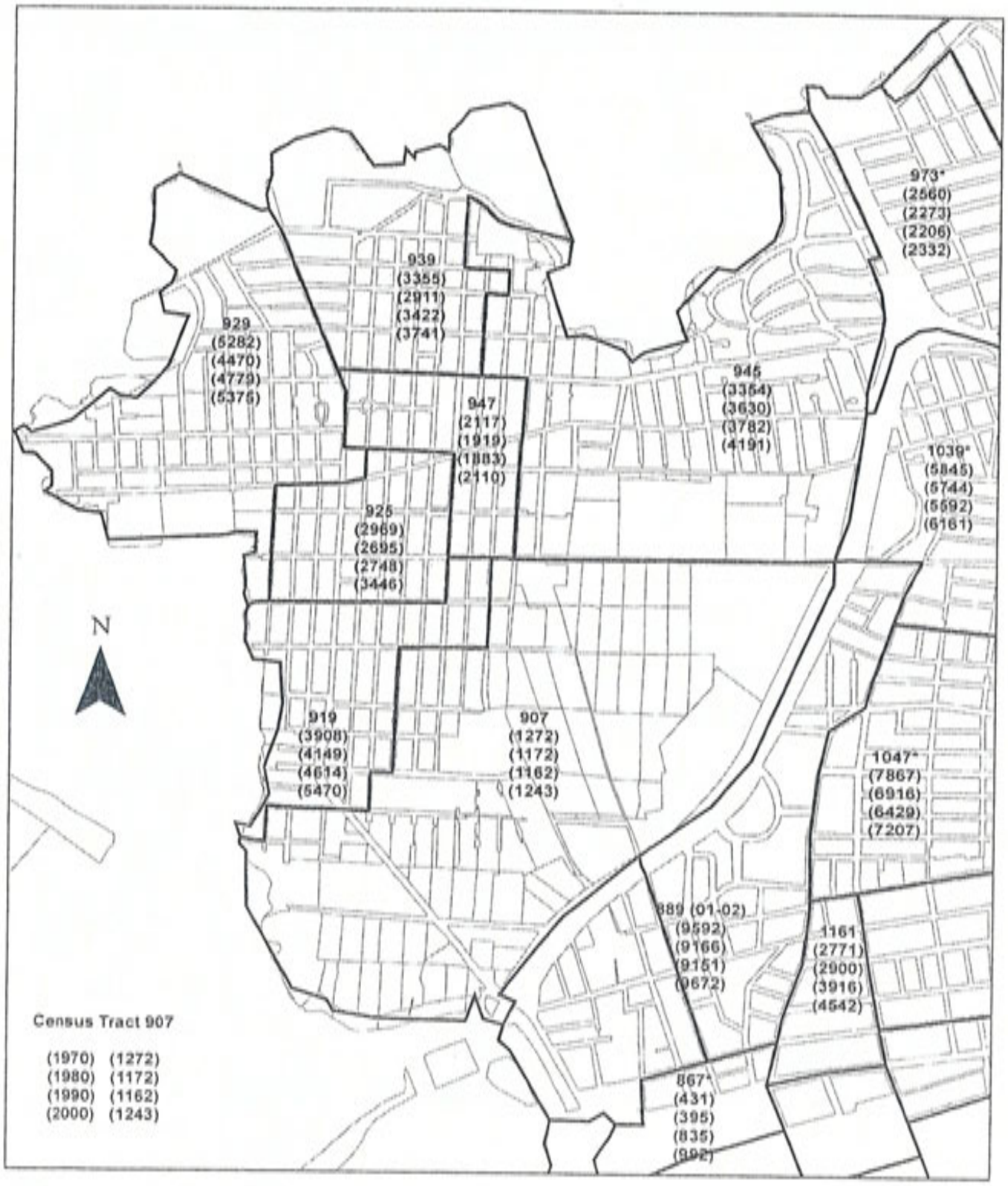
TABLE 2-1
Population by Area

Census Year	New York City	% Change	Borough of Queens	% Change	Study Area	% Change
1970	7,895,900	-	1,985,995	-	38,905	-
1980	7,071,639	-10.4	1,891,325	-4.8	36,943	-5.0
1990	7,322,564	3.5	1,951,598	3.2	39,431	6.7
2000	8,008,278	9.4	2,229,379	14.2	44,848	13.7
2010*	8,501,645	6.2	2,452,109	10.0	48,481	8.1
2014*	8,683,952	2.1	2,544,740	3.8	49,935	3.0

*projected Population

The resident population of New York City, Queens, and the Study Area is expected to increase between 2000 and 2014 based on Census Data, and anticipated economic growth. This trend is corroborated by the study "Project 2015 Population Characteristic by County and Demographic" from NY State office of Aging. Exhibit 2-1 shows the population by census tracts for 1970, 1980, 1990, and 2000 years.

Exhibit 2-1
POPULATION BY CENSUS TRACTS (1970, 1980, 1990, 2000)



2.3 TRAVEL BEHAVIOR

Automobile Use

Journey to work data and car ownership rates provide some insight into the travel behavior of the residents of the Study Area and Queens County. Vehicle ownership rate for Queens have been very stable since 1960 to the present with over 60% of the occupied housing units owning one or more vehicles. Table 2-2 shows the vehicle ownership for the Borough of Queens by years.

Assuming the Study Area vehicle ownership characteristics are similar to the Borough of Queens, the data shows that households with vehicles declined slightly from 66.3% in 1960 to 58.9% in 2000. The category 'household with one vehicle' experienced a decline from 58% in 1960 to 41.1% in 2000; however both households with two and three vehicles experienced increases of 9.8% and 3.5% respectively over the same period. These trends were extrapolated to estimate the 2010 and 2014 car ownership rates. Please see table 2-2 Vehicle Ownership per Household.

TABLE 2-2
Vehicle Ownership per Household (Borough of Queens)

VEHICLES/ HOUSEHOLD	1960	%	1970	%	1980	%	1990	%	2000	%	2010*	%	2014*	%
Occupied Housing Units	583,141	100	690,056	100	711,940	100	720,149	100	782,664	100	823,421	100	840,636	100
No Vehicles Available	196,805	34	251,125	36	278,073	39	263,702	37	295,049	38	320,005	39	335,100	40
One Vehicle Available	338,301	58	349,073	51	319,765	45	207,987	41	321,337	41	319,895	39	313,156	37
Two Vehicles Available	42,712	7.3	79,902	12	96,632	14	123,443	17	132,217	17	145,665	18	151,666	18
Three or More Vehicles Available	5,329	0.9	9,956	1.4	17,479	3	35,017	4.9	34,601	4.4	37,856	5	40,714	4.8

*Projected years (2010 and 2014)

This relatively high rate of vehicle ownership usually translates into a high automobile mode share for journey to work. This is seen in Table 2-3, Journey to work by mode for Community District No. 7 of which College Point is a part. The 1980, 1990 and 2000 journey to work data show automobile share ("Car/van") as 46.7%, 52.2% and 55.4%, respectively of total trips. This results in more single occupancy vehicles in the traffic stream. Based on these trends the 2000 to 2014 mode shares were projected and included in the table 2-3

TABLE 2-3
Journey to Work by Mode in Community District No. 7

Travel Mode	1980	%	1990	%	2000	%	2010*	%	2014*	%
Car / Van	44,563	46.7	55,281	52.2	58,086	55.4	63,508	57.0	64,855	57.1
Public Transit	42,667	44.7	40,162	37.9	36,586	34.9	37,122	33.3	37,540	33.1
Walked	6,231	6.5	7,741	7.3	7,219	6.9	7,572	6.8	7,655	6.7
Worked at Home	1,254	1.3	2,021	1.9	2,302	2.2	2,653	2.4	2,803	2.5
Others	674	0.7	680	0.6	620	0.6	625	0.6	642	0.6
Total	95,389	100	105,885	100	104,813	100	111,480	100	113,690	100

*Projected years (2010 and 2014)

Transit Use

Journey to work by public transit represent the second most commonly used mode, with a share of 44.7%, 37.9% and 34.9% for 1980, 1990 and 2000 respectively. This declining share implies a preference for automobile use. Due to the anticipated increase in population (5,087) between 2000 and 2014, and the slowing down of decline of public transit use, it is anticipated that public transit use will stabilize or experience a slight increase by 2014. This would also be facilitated by a policy to promote and encourage public transit use to alleviate traffic congestion.

Public transit comprises travel by bus, subway, railroad, taxicab and ferry; of these various options travel by subway represents the primary transit mode. It accounts for approximately 65% of transit usage for journey to work. Bus travel which is ranked second represents approximately 27% of the transit share. "Railroad" accounted for an average trip share of approximately 5.2% representing the third most frequently used transit mode.

Table 2-4 shows the various public transit modes share for Community District No. 7.

TABLE 2-4
Public Transit Journey to Work by Mode Share (Community District 7)

Mode	1980	%	1990	%	2000	%	*2010	%	*2014	%
Bus	11,336	26.6	10,084	25.1	11,124	30.4	11,525	31.0	11,807	31.5
Subway	28,791	67.5	26,369	65.7	22,257	60.8	22,368	60.3	22,456	59.8
Railroad	2,145	5.0	3,240	8.1	2,783	7.6	2,794	7.5	2,831	7.5
Taxicab	395	0.9	461	1.1	422	1.2	435	1.2	446	1.2
Ferryboat	N/A	N/A	8	0.0	0	0.0	0	0.0	0	0
Total Public Transit	42,667	100	40,162	100	36,586	100	37,122	100	37,540	100

*Projected years (2010 and 2014)

2.4 MEDIAN HOUSELHOLD INCOME

The household income for the Study Area can best be represented by data for Community District No. 7, of which the Study Area is a part. The data was obtained from the socioeconomic profile, labor force and income characteristic files provided by the population division of NYC Department of City Planning. Table 2-5 shows median household income for Community District No. 7, Queens and New York City for 1990 and 2000.

TABLE 2-5
Median Household Income by Area

Year	CD-7	% change	Queens	% change	NYC	% change
1990	46,924	-	44,601	-	32,262	-
2000	43,480	-7.3	42,439	-4.8	47,030	45.8

The table shows that median household income has decreased between 1990 and 2000 in Community District No. 7 and the Borough of Queens by approximately 7.2%, and 4.8% respectively. However, New York City as a whole enjoyed an approximately 45.8% increase over the same period.

The following basic conclusions can be drawn from the analysis and projections to the year 2014:

1. The study area will experience an increase in population of approximately 5,087 and approximately 1,500 housing units.
2. Stabilizing the decline or slight increase in transit usage and
3. An increase in automobile use and level of traffic congestion if no improvements are made.

In addition to the residence based increased automobile trips, there will be trips attracted from outside the Study Area due to land use changes that include large scale office, commercial and other retail developments. It is the combination of these two forces, demographic and land use, and their associated trip generation that has to be accommodated and planned for on the street network.

3.0 LAND USE AND ZONING

During the 1960s a preliminary development plan for College Point was sketched out to set guidelines for the future. Basically it provided for protecting the fine old community, building an outstandingly new one and making the best use of a rapidly vanishing asset – the New York Waterfront.

The vacant lands at College Point were the marshes along the Whitestone Expressway, being planned by the City as an industrial park and four waterfront coves, which are most suitable for residential use.

During the 1960s mainly industry and industrially zoned land surrounded the area, encompassing both the waterfront and marshlands. The industries during that period did well, but the East River industrial corridor was and still is accessible only through narrow residential streets.

The area was designated for Urban Renewal in 1967 and the Public Development Corporation was responsible to charter its development.

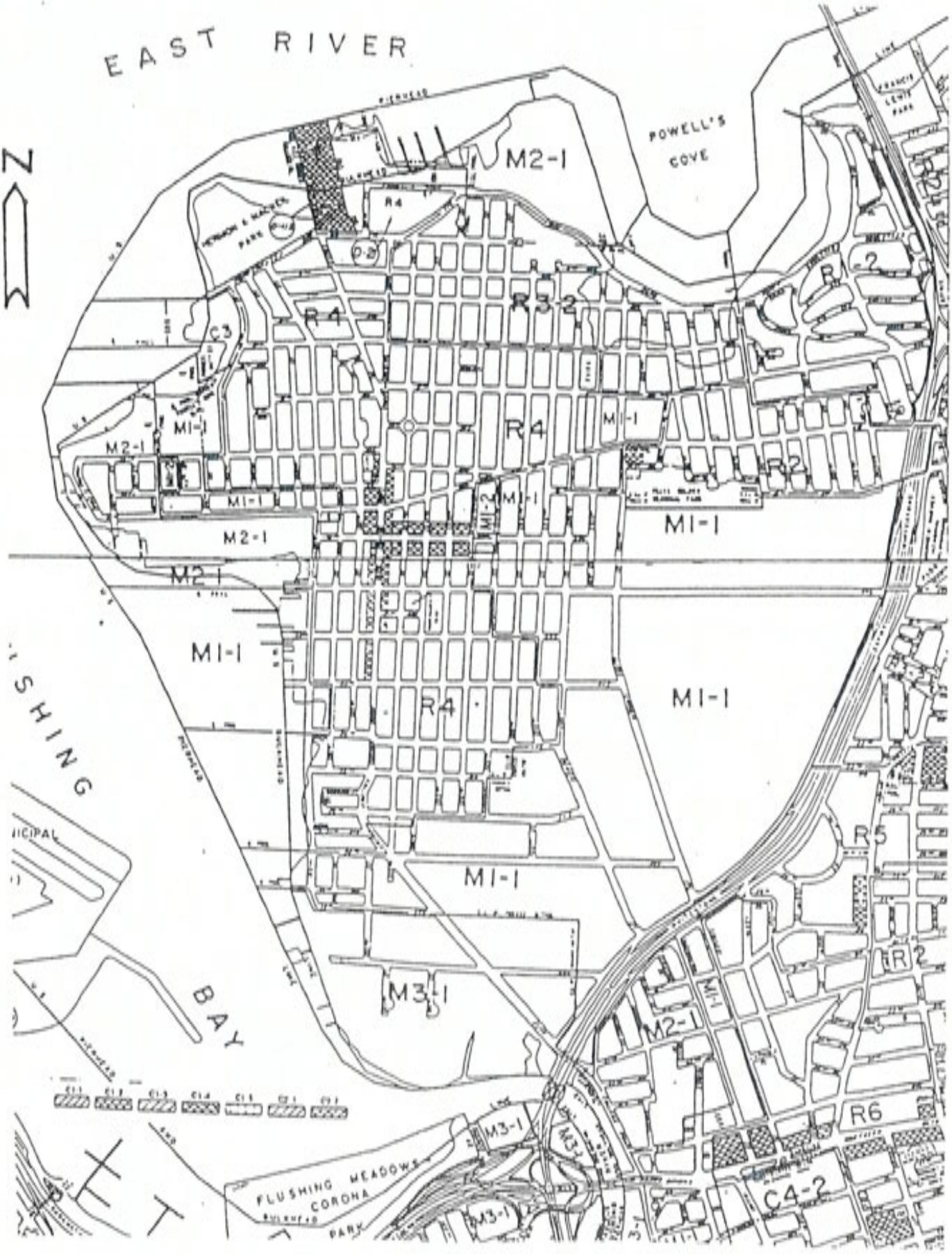
The College Point Industrial Park had about $1.4 million allocated in the 1969/70 Capital Budget for acquisition and site preparation as part of the early action. The College Point Industrial Park of approximately 415 acres is the marsh between the Whitestone Expressway and the jutting eastern residential area. It was expected that the industrial park would generate approximately 10,000 jobs. Exhibit 3-1 shows the 1990 land use developed by then NYC Public Development Corporation and Exhibit 3-2 shows the zoning map.

EXHIBIT 3-1
LAND USE 1990

Source: New York City Public Development Corporation

- Industrial Area A
- Industrial Area B
- Commercial Areas
- Parking Garage Sites
- Public Park
- Recreation Area (Athletic Fields)
- Drainage System
- Public Use or Industrial Area A
- Airport

EXHIBIT 3-2
ZONING MAP



Lack of industrial development as anticipated led to the Urban Renewal Plan being amended in the 1980s which facilitated and guided the development of College Point Corporate Park. In order to encourage development in the Corporate Park, certain commercial uses were permitted which resulted in the development of large commercial retail on the north side of 20th Avenue between Petracca Place and 132nd Street. This is now referred to as College Point Shopping Center which houses a BJ's, T.J.Max, Babys R US, Bolder Creek Steak House and Target. At another location, between Linden Place and Ulmer Street on the Whitestone Expressway can be found a Multiplex Cinema, Toys R US and Kids R US.

It is the number and scale of these developments along with the type (i.e., more commercial retail) that account for higher trip generation rates which in turn translates into higher traffic volumes on the street network. The traffic and transportation section of this report will assess the current traffic conditions based on data collected in 2004 after the developments are in place and some of the earlier recommended capital improvements have been implemented.

Exhibit 3-3 shows the 2000 land use and Exhibit 3-4 shows the 2004 land use plan prepared by NYC Economic Development Corporation.

EXHIBIT 3-3
LAND USE 2000

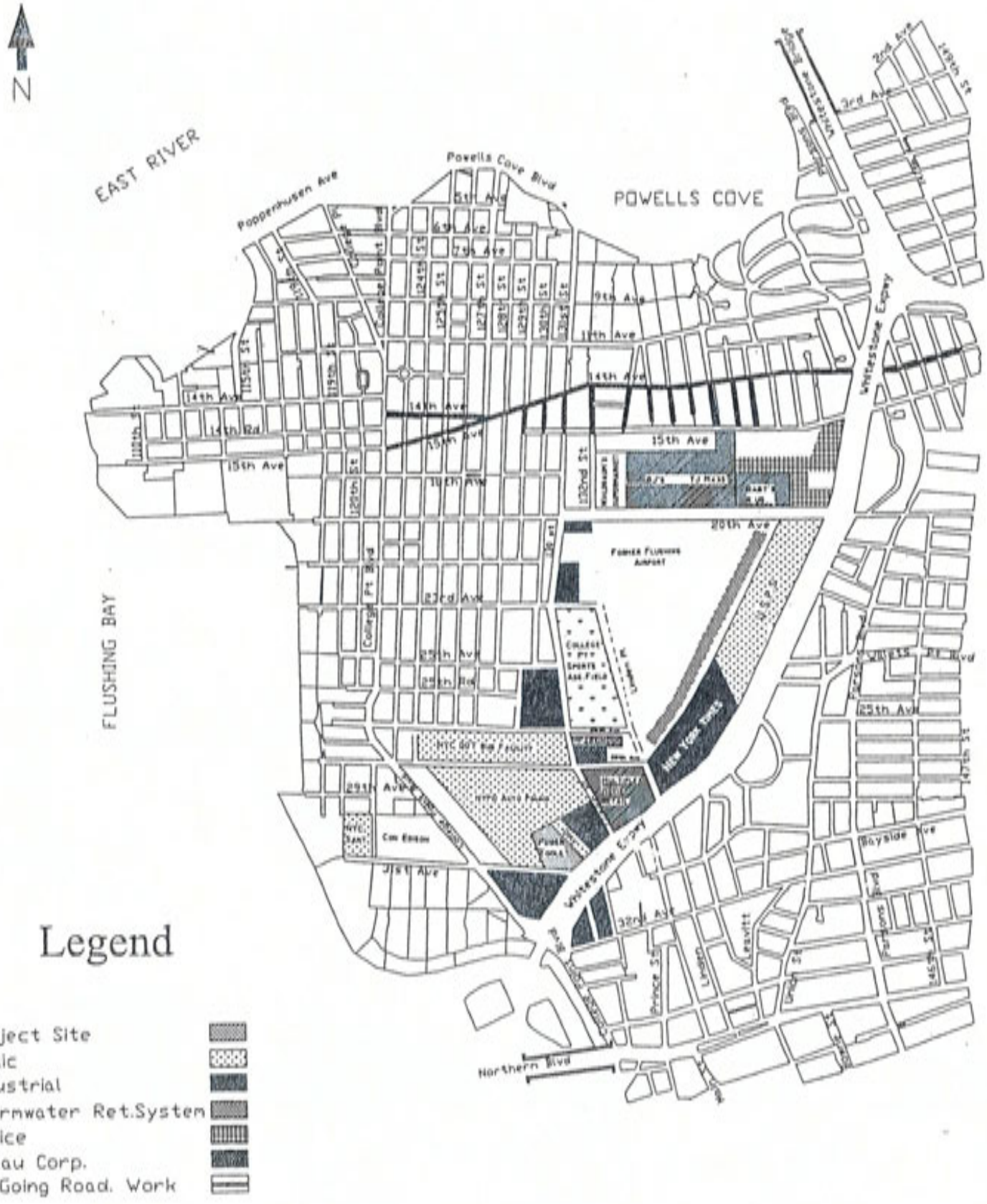
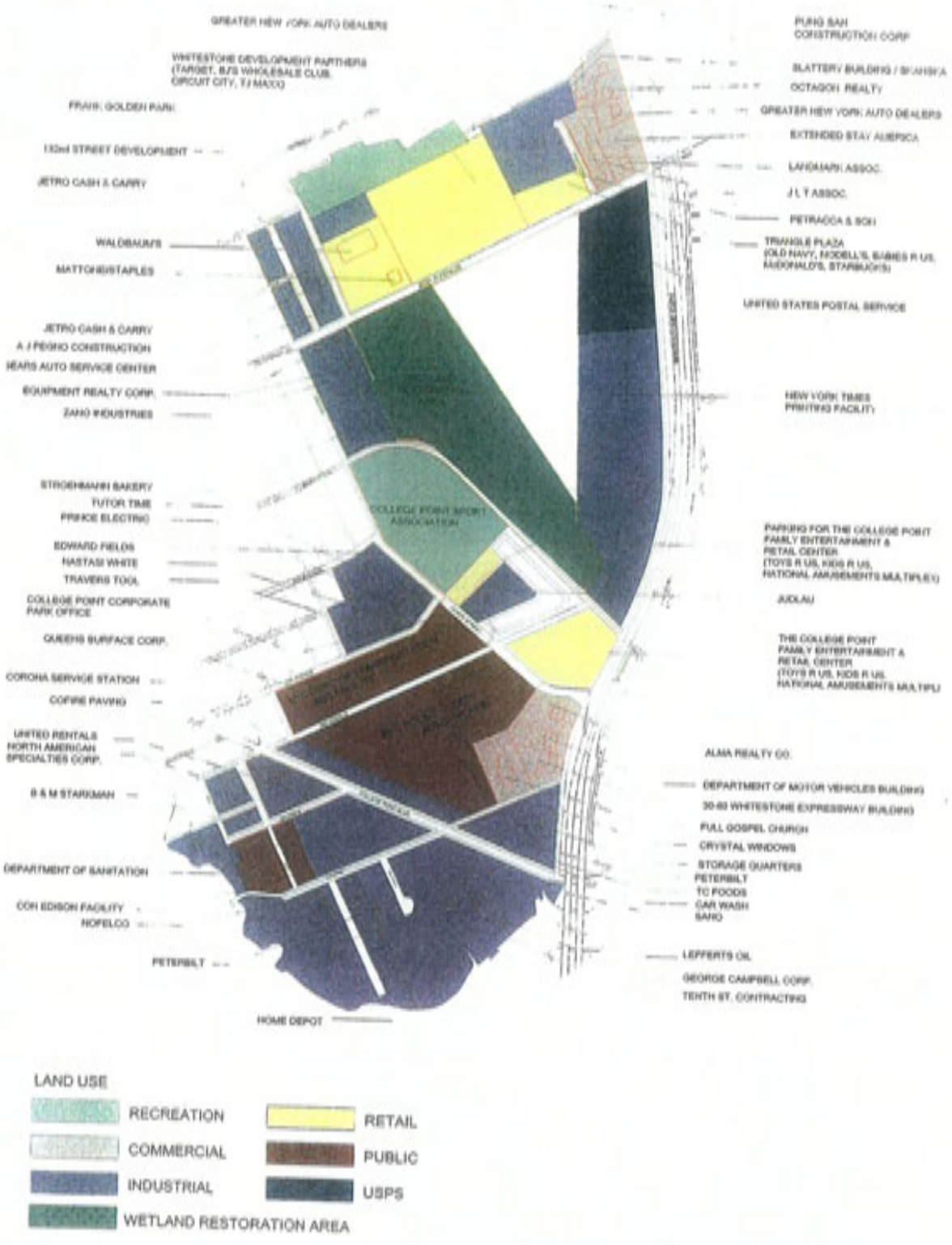


EXHIBIT 3-4
LAND USE 2004



Source: NYC EDC

4.0 TRAFFIC AND TRANSPORTATION

4.1 EXISTING CONDITIONS

The Study Area is bounded by the East River on the north, Northern Boulevard on the south, Flushing Bay on the west, and Parsons Boulevard on the east. It has a grid like arterial structure, with variations in parts due to topography and bays or coves. The Whitestone Expressway is a main north / south corridor passing through the Study Area, with 20th Avenue being the main east / west access.

4.2 STREET SYSTEM

The street system/network provides fairly adequate vehicular access to the Study Area. The Whitestone Expressway in the east provides direct connection to a number of regional transportation facilities. The Cross Island Parkway in the northeast provides access to Long Island and southeast Queens; the Bronx-Whitestone Bridge connects to the Hutchinson River Parkway and Cross Bronx Expressway; the Van Wyck Expressway connects to South Queens / John F. Kennedy International Airport; and the Grand Central Parkway connects to La Guardia A, Brooklyn, and Manhattan.

The major north/south corridors in the Study Area are the Whitestone Expressway and College Point Boulevard.

The *Whitestone Expressway* extends from the Van Wyck Expressway / Grand Central Parkway interchange to the south to the Hutchinson River Parkway in the Bronx to the north, which interchanges with the Bruckner and the Cross Bronx Expressways. The Whitestone Expressway within the limits of the Study Area has a main line with three effective moving lanes (EML) per direction and northbound and southbound service roads with two EML and no parking permitted.

College Point Boulevard extends from the Long Island Expressway (LIE) to the south to Poppenhusen Avenue to the north, this being almost the northern limit of the Study Area. The boulevard has two EML per direction for most of its length.

But within the Study Area from approximately 23rd Avenue to its northernmost limit it is reduced to one lane per direction with parking on both sides. This creates serious bottlenecks and impedes the industrial and commercial traffic.

The major east / west corridors are 14th Avenue in the north, 20th Avenue passing through the middle of the Study Area, and a part of Linden Place which runs diagonally.

Fourteenth Avenue extends from Utopia Parkway (below the Throgs Neck Bridge) to Powells Cove Boulevard, the western limit of College Point. The corridor from east to west runs parallel to and north of the Cross Island Parkway (CIP) before deviating south to cross the CIP and the Whitestone Expressway and then basically runs parallel to 20th Avenue. 14th Avenue generally has one lane per direction with parking permitted on both sides for most of its length.

Twentieth Avenue extends from Utopia Parkway crossing over the Whitestone Expressway and ends at 119th Street. It divides College Point into a northern and a southern half. The avenue is very wide, approximately 60'-0" between the Whitestone Expressway and 130th Street, accommodating two EML per direction. Major retail establishments and offices are located along this segment that access directly onto 20th Avenue. Outside of this segment the 20th Avenue corridor has basically one EML per direction with parking permitted in some sections.

4.3 ACTIVITY CENTERS & THE TRANSPORTATION NETWORK

Peak hour weekday vehicle trips in the area are mostly work oriented. The midday and weekend trips are primarily shopping and recreation oriented.

By virtue of the area's physical location it does not suffer from problems associated with through traffic. Almost all the trips in the area have a destination or origin within College Point.

Intra-area trip origins are generally widely distributed throughout the area, with residential or home trip ends concentrated in the north. Work and shopping trip destinations on the other hand are concentrated in three main locations. The locations are referred to as Activity Centers. The Activity Centers are as follows:

Activity Center # 1 - 20th Avenue between the Whitestone Expressway Southbound Service Road and 130th Street. Major commercial retail and office trips access the network in this area.

Activity Center # 2 - College Point Boulevard shopping district between 21st Avenue and 11th Avenue. A concentration of local retail can be found here with parking meters on both sides of the street.

Activity Center # 3 - The area bounded by 124th Street, 26th Avenue, Ulmer Street, and 28th Avenue influenced by the Bus Depot and the New York Police Department Tow Pound.

The majority of the trips generated by these activity centers enter and exit College Point by three of the four access points -- 20th Avenue @ Whitestone Expressway, Linden Place @ Whitestone Expressway, and College Point Boulevard @ Whitestone Expressway.

Exhibit 4-1 shows the access routes to College Point and the main corridors in the Study Area.

This study's traffic surveys and analyses are intended to provide the basis upon which another round of improvement measures will be developed.

EXHIBIT 4-1
MAIN ACCESS ROUTES TO COLLEGE POINT

4.4 DATA COLLECTION & TRAFFIC OPERATIONS

Existing traffic conditions were determined from extensive field surveys that were conducted and presented in the existing conditions analysis Technical Memorandum No. 1. Also limited counts were done in 2000 to re-evaluate some of the proposed capital improvements, specifically the free flow U-turn immediately south of Linden Place.

Due to major roadway construction (NYSDOT rehabilitation of the Whitestone Exp. Bridge over the Flushing River) and other local street network changes implemented as a result of the earlier phase of this study, the traffic pattern changed significantly requiring more recent counts to reflect the 2004 conditions.

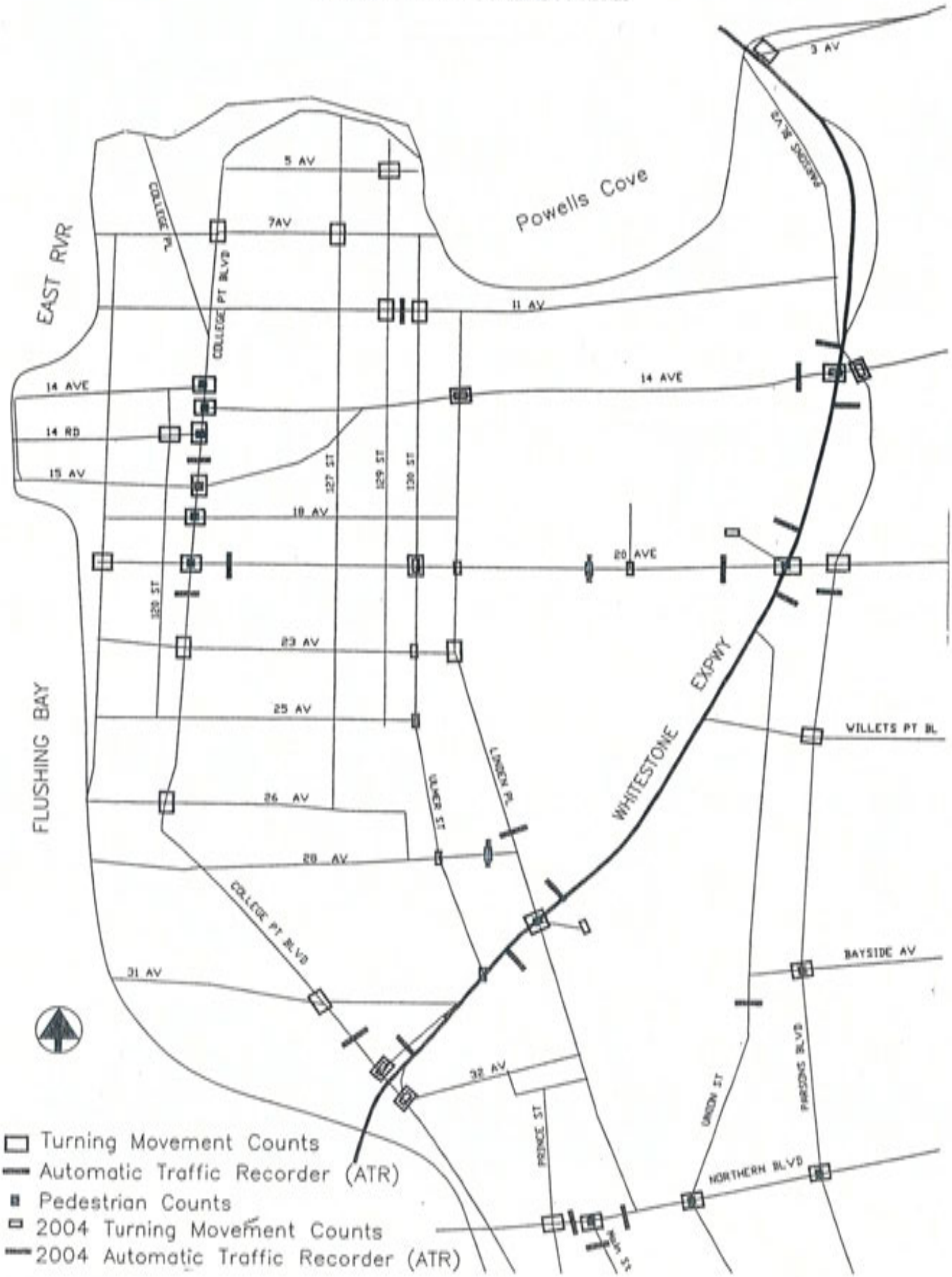
Under the original data gathering effort a detailed inventory was made of street and sidewalk widths, traffic flow directions, parking regulations, traffic controls, accident history, transit ridership, truck routes, and other required items for traffic analysis. Exhibit 4-2 shows the various data collection locations.

Traffic volume counts were conducted which included vehicle classification, turning movements and pedestrian counts for three midweek days (Tuesday, Wednesday, Thursday) during the AM, Midday, PM peak hours and Saturday. Automatic Traffic Recording (ATR) machines were installed at the following locations to collect daily volumes for seven days.

The ATR locations were as follows:

1. 11th Avenue between 129th and 130th Streets
2. College Point Boulevard between 14th and 15th Avenues
3. 15th Avenue between 123rd and 124th Streets
4. 14th Avenue between 143rd Street and 143rd Place
5. Parsons Boulevard south of 11th Avenue
6. Whitestone Expressway northbound service road between 14th and 15th Avenues

EXHIBIT 4-2
ATR & Manual Count Locations



7. Whitestone Expressway southbound service road (north of 20th Avenue)
8. 20th Avenue between Whitestone Expressway and 132nd Street
9. Whitestone Expressway northbound service road between 21st and 22nd Avenues
10. Parsons Boulevard between 21st and 22nd Avenue
11. Linden Place north of 28th Avenue
12. Whitestone Expressway southbound service road north of Linden Place
13. Whitestone Expressway northbound service road between Farrington and Ulmer Streets
14. College Point Boulevard between 31st Avenue and Whitestone Expressway Southbound Service Road
15. Whitestone Expressway southbound service road between 31st Avenue and College Point Boulevard
16. Northern Boulevard between Farrington Street and Linden Place
17. Main Street between Northern Boulevard and Congressman Rosenthal Place
18. Northern Boulevard between Prince and Main Streets
19. Union Street between 32nd and 33rd Avenues
20. 20th Avenue between College Point Boulevard and 123rd Street
21. College Point Boulevard between 21st and 22nd Avenues

The above data provided hourly summaries by direction of travel, peak hour factors AM, MD, PM, and Saturday peak hour volumes.

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

1. College Point Boulevard at 32nd Avenue / Whitestone Expressway Northbound Service Road
2. College Point Boulevard at Whitestone Expressway Southbound Service Road
3. College Point Boulevard at 31st Avenue
4. College Point Boulevard at 26th Avenue
5. College Point Boulevard at 23rd Avenue
6. College Point Boulevard at 20th Avenue
7. College Point Boulevard at 18th Avenue
8. College Point Boulevard at 15th Avenue
9. College Point Boulevard at 14th Avenue (north)
10. College Point Boulevard at 14th Avenue (south)
11. College Point Boulevard at 14th Road
12. College Point Boulevard at 7th Avenue
13. 14th Avenue at Whitestone Expressway Northbound Service Road
14. 14th Avenue at Whitestone Expressway Southbound Service Road
15. 20th Avenue at Whitestone Expressway Northbound Service Road
16. 20th Avenue at Whitestone Expressway Southbound Service Road
17. Linden Place at Whitestone Expressway Northbound Service Road
18. Linden Place at Whitestone Expressway Southbound Service Road
19. 130th Street at 20th Avenue

20. 119th Street at 20th Avenue

21. 127th Street at 7th Avenue

22. 129th Street at 5th Avenue

23. 3rd Avenue at Whitestone Expressway Northbound Service Road

24. 3rd Avenue at Whitestone Expressway Southbound Service Road

25. Linden Place at 23rd Avenue

26. Northern Boulevard at Prince Street

27. Northern Boulevard at Main Street

28. Northern Boulevard at Union Street

29. Parsons Boulevard at 20th Avenue

30. Parsons Boulevard at 14th Avenue

31. Parsons Boulevard at Willets Point Boulevard

32. Parsons Boulevard at Bayside Avenue

33. Parsons Boulevard at Northern Boulevard

34. 11th Avenue at 129th Street

35. 11th Avenue at 130th Street

36. 121st Street at 14th Road

37. 132nd Street at 14th Avenue

Pedestrian Data

The pedestrian counts were conducted concurrently with traffic volume data for each peak period for three consecutive weekdays at the following locations:

1. College Point Boulevard at 18th Avenue
2. College Point Boulevard at 15th Avenue
3. College Point Boulevard at 14th Avenue (north)
4. College Point Boulevard at 14th Avenue (south)
5. College Point Boulevard at 14th Road
6. College Point Boulevard at 20th Avenue
7. Whitestone Expressway Service Roads at Linden Place
8. Whitestone Expressway Service Roads at 20th Avenue
9. Northern Boulevard at Main Street
10. Northern Boulevard at Union Street
11. Northern Boulevard at Prince Street
12. Northern Boulevard at Parsons Boulevard
13. Parsons Boulevard at Bayside Avenue

To address the current conditions on the ground, the revised (2004 existing conditions) traffic network was developed through another count program focused to capture the effects of the major network changes. This count program was executed primarily for the proposed extension of Linden Place for EDC. It included manual intersection turning movement counts and Automatic Traffic Recorders (ATR's).

Under this effort peak period turning movement counts were conducted at the following intersections:

1. 14th Avenue at 132nd Street
2. 14th Avenue at Whitestone Expressway Service Road South
3. 14th Avenue at Whitestone Expressway Service Road North
4. 20th Avenue at 130th Street
5. 20th Avenue at 132nd Street
6. 20th Avenue at Mall Entrance
7. 20th Avenue at Whitestone Expressway Service Road South
8. 20th Avenue at Whitestone Expressway Service Road North
9. 23rd Avenue at 130th Street
10. 25th Street at 130th Street/Ulmer Street
11. 28th Avenue at Ulmer Street
12. 28th Avenue at Linden Place
13. Linden Place at Whitestone Expressway Service Road South
14. Linden Place at Whitestone Expressway Service Road North
15. College Point Boulevard at Whitestone Expressway Service Road South
16. College Point Boulevard at 32nd Avenue/ Whitestone Expressway Service Road North

The turning movement counts were conducted on Tuesday, October 25, 2004 between 7:00 AM to 9:00 AM in the morning and between 4:00 PM and 6:00 PM in the evening. Traffic volumes were recorded in 15-minutes intervals, by movement, categorized as auto, light trucks and heavy trucks. The Midday and Saturday peaks were derived by adjusting the original counts to confirm with the current ATR volumes.

The Automatic Traffic Recorders were installed concurrent with the manual turning movement counts at two locations, 20th Avenue, east of 132nd Street and28th Avenue, east of Ulmer Street. They remained in place for one week and recorded traffic volumes continuously, by direction, in 15-minute intervals. The collected data were utilized to establish peak traffic flow periods and to validate the manual intersection turning movement counts.

Accident Data

The study conducted an analysis of the history of accidents at selected intersections for the years 1995-2001 from NYSDOT and DMV/CDOT records to address high accident locations and any potential safety issues for motorists and pedestrians.

Speed Data

The study conducted travel time surveys using the "floating car" method for the following roadways:

- College Point Boulevard between the Whitestone Expressway and 9th Avenue
- 14th Avenue between 110th Street and the Whitestone Expressway
- 15th Avenue between 110th Street and College Point Boulevard
- 20th Avenue between 121st Street and the Whitestone Expressway
- Whitestone Expressway Service Roads (NB and SB) between College Point Boulevard and 14th Avenue
- Northern Boulevard between Prince Street and 146th Street
- Parsons Boulevard between 38th Avenue and 13th Avenue

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

4.5 NETWORK TRAFFIC VOLUMES

The traffic network was prepared using the ATRs and the manual turning movement counts to provide a balanced traffic network for the various peak periods. This information has been plotted on traffic flow maps for the AM (8:00 - 9:00), Midday (12:30 - 1:30), PM (4:00 - 5:00), and Saturday Midday peak hours (1:30 - 2:30). See Exhibits 4-3, 4-4, 4-5, and 4-6, respectively.

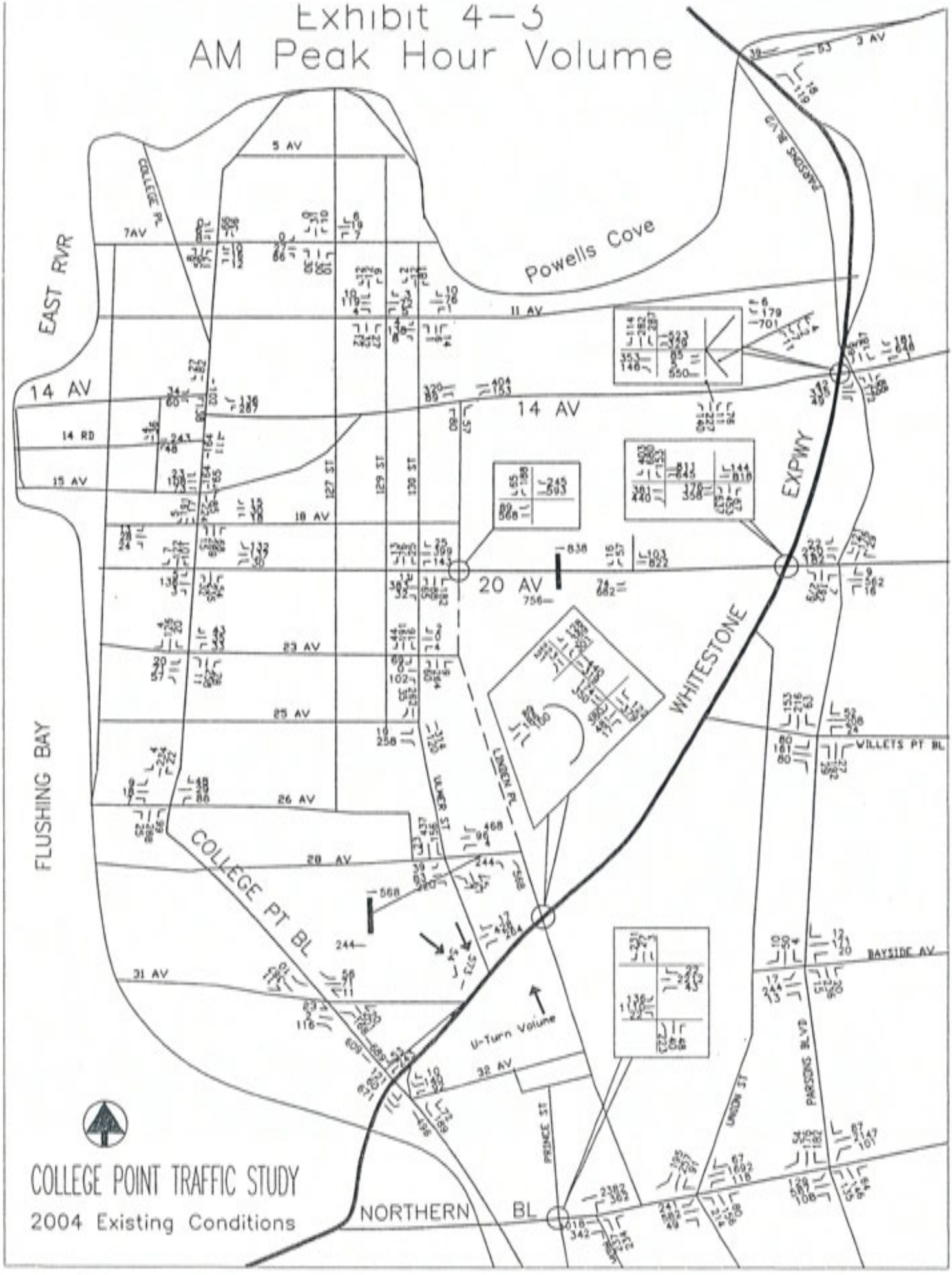
On the main north-south corridor (Whitestone Expressway Service Roads) traffic volumes are high with commuter work trips as well as service vehicles (delivery vans and trucks).

The Northbound Service Road before Linden Place processes about 1253, 1438, 1395, and 1138 during the AM, MD, PM, and SAT peak hours, respectively. At 20th Avenue, volumes are 1157, 1065, 1140, and 1432 for the respective peak hours and at 14th Avenue volumes drop to 454, 317, 550, and 281, respectively.

The Southbound Service Road at 14th Avenue processes about 683, 344, 400, and 696 during the AM, MD, PM, and SAT peak hours, respectively. At 20th Avenue, volumes are 1236, 905, 980 and 1047 for the respective peak hours. At Linden Place, volumes are 798, 703, 770, and 714 for the respective peak hours.

The other north-south corridor traversing the Study Area is *College Point Boulevard.* The two-way volumes on this corridor vary significantly by time of day and segments of the corridor. At 7th Avenue, the two-way volumes are 182, 98, and 140 for the AM, MD, and PM peak hours, respectively. At 14th Road, the volumes are 484, 293, 580, and 484 for the respective peak hours. At 20th Avenue, the volumes are 551, 580, 620, and 643 for the respective peak hours. At the Whitestone Expressway Service Roads, the volumes were observed to be 1348, 950, 980, and 901 for the respective peak hours.

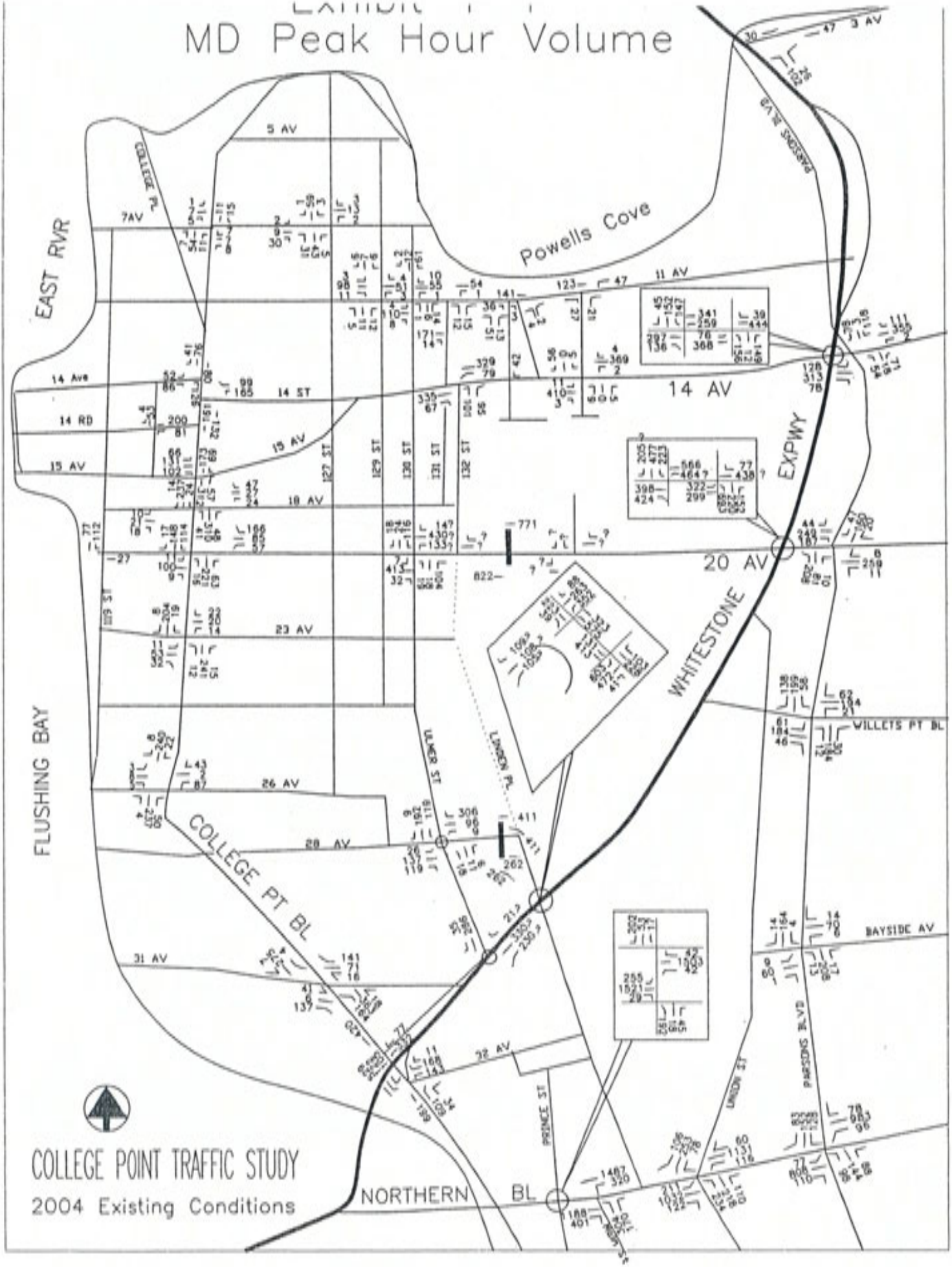
Exhibit 4-3
AM Peak Hour Volume



COLLEGE POINT TRAFFIC STUDY

2004 Existing Conditions

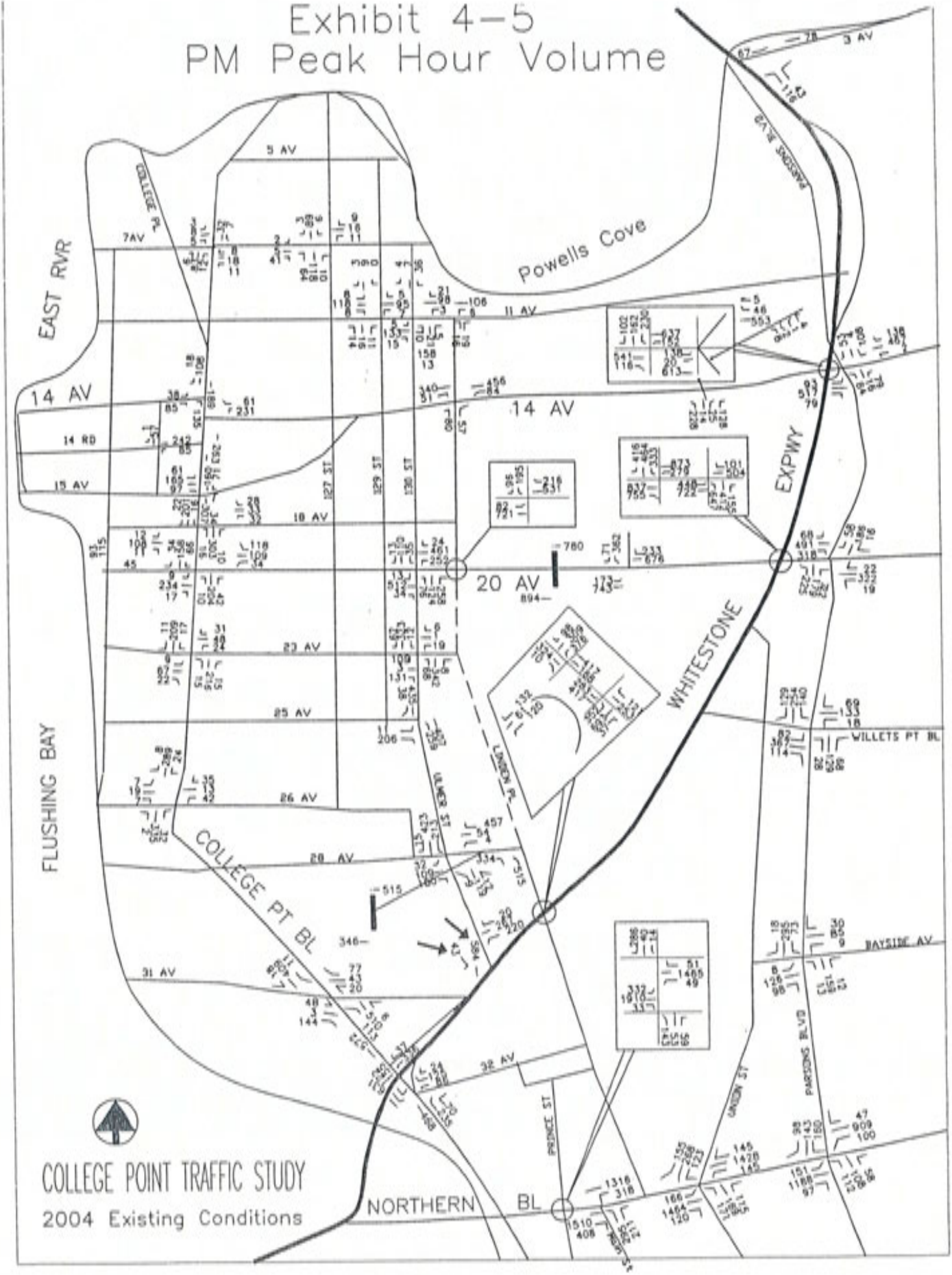
MD Peak Hour Volume



COLLEGE POINT TRAFFIC STUDY

2004 Existing Conditions

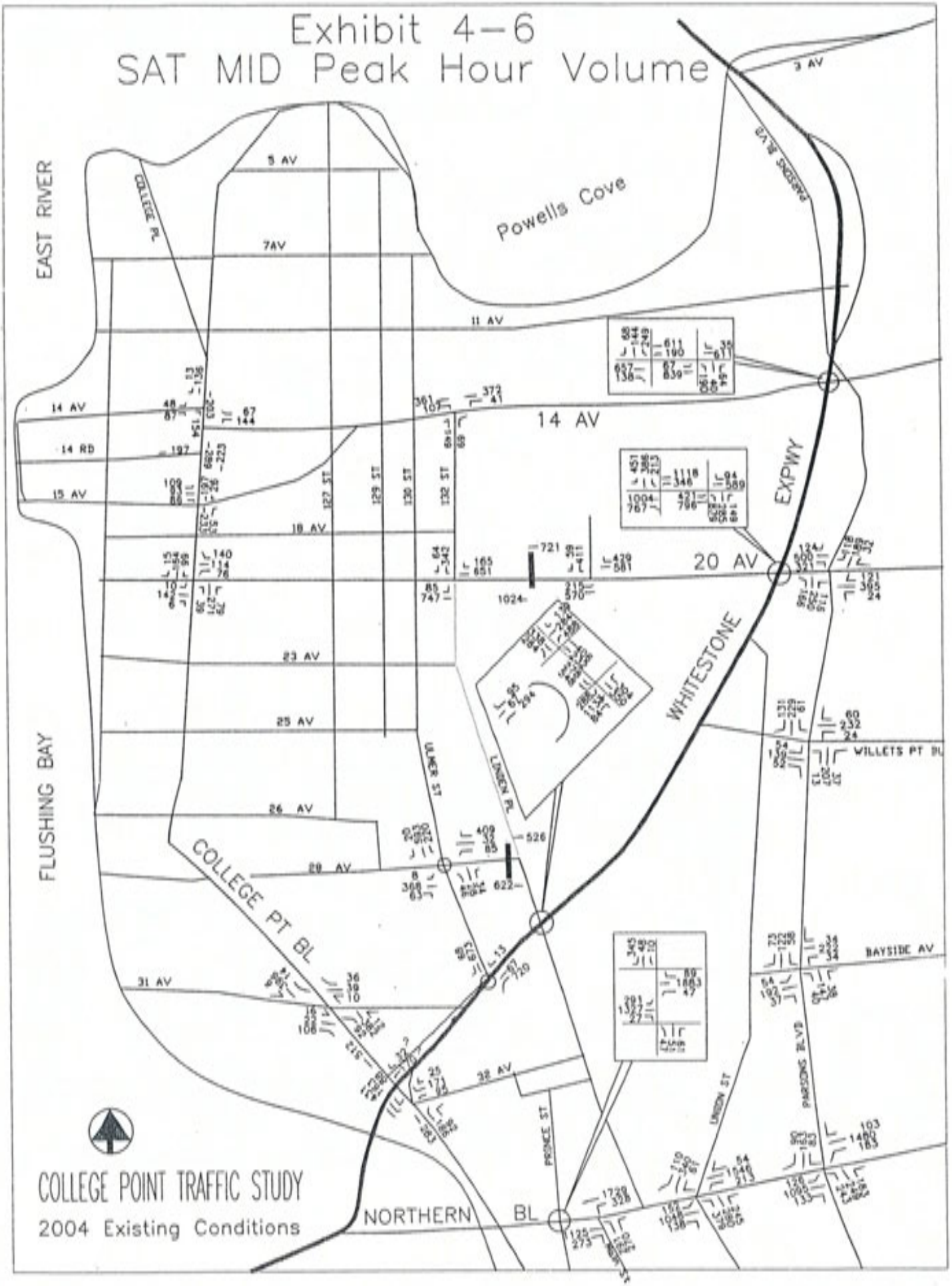
Exhibit 4-5
PM Peak Hour Volume



COLLEGE POINT TRAFFIC STUDY

2004 Existing Conditions

Exhibit 4-6
SAT MID Peak Hour Volume



COLLEGE POINT TRAFFIC STUDY

2004 Existing Conditions

It should be noted that College Point Boulevard between 26th and 32nd Avenues runs in a northeasterly direction serving as an east/west corridor. Linden Place has a similar diagonal configuration and processes between 1200 and 1500 vehicles per peak hour under the Whitestone Expressway and the newly constructed free-flow U-turn processing between 325 and 450 vehicles.

The other two main east/west corridors are 14th Avenue and 20th Avenue. On 14th Avenue at the Whitestone Expressway the corridor processes 1492, 1051, 1560 and 1517 total volumes for the AM, MD, PM, and SAT peak hours, respectively; and at 132nd Street it processes 877, 743, 880 and 774 total volumes for the AM, MD, PM, and SAT peak hours, respectively. At the intersection of Whitestone Expressway *20th Avenue* accommodates approximately 1990, 1750, 1890, and 2390 total volumes for the AM, MD, PM, and SAT peak hours, respectively. This flow reduces to 1290, 1030, 1225, and 1825 between 130th and 132nd Streets for the respective peak hours. On 20th Avenue at College Point Boulevard the volumes are as low as 490, 428, 575, and 463 for the respective peak hours.

4.6 STREET CAPACITY & LEVEL OF SERVICE (LOS)

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

The traffic flow characteristics are measured in terms of the volume-to-capacity (v/c) ratios and delays. The quality of the flow is expressed in terms of LOS, which is based on an average delay experienced by a vehicle. When the v/c ratio exceeds 1.0, a facility or intersection operates at or over capacity.

In this situation severe congestion occurs in traffic with stop-and-start conditions, and extensive vehicle queuing and delays. Volume-to-capacity ratios of less than 0.85 is considered to be reflective of acceptable traffic conditions, with average delays of 45 seconds or less. The following are level of service criteria as specified in the 2000 HCM Methodology.

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

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

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

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

4.7 TRAFFIC CONDITIONS

Table 4-1 presents AM, MD, PM, and Saturday peak hour v/c ratios, delays, level of service (LOS) for analyzed intersections in the Study Area under the 2004 Existing Conditions. As the analysis reveals, acceptable traffic conditions are found at most intersections within the Study Area, with LOS B or better during the AM, MD, PM, and Saturday peak periods. However, some intersections do experience LOS D, E, and F for some or all lane groups during some peak hours.

The intersections with approaches with LOS D or worse are:

- College Point Boulevard and 31st Avenue (AM & MD)
- Linden Place and Whitestone Expressway Service Road - South (AM, MD, PM, & SAT)
- Linden Place and Whitestone Expressway Service Road - North (AM, MD, PM, & SAT)
- 20th Avenue and Whitestone Expressway Service Road - South (AM, MD, PM, & SAT)
- 20th Avenue and Whitestone Expressway Service Road - North (AM, MD, PM, & SAT)
- Northern Boulevard and Union Street (AM, MD, PM, & SAT)
- Northern Boulevard and Main Street (AM, MD, PM, & SAT)
- Northern Boulevard and Prince Street (AM, MD, PM, & SAT)
- Northern Boulevard and Parsons Boulevard (AM, MD, PM, & SAT)
- Parsons Boulevard and 14th Avenue (AM, MD, PM, & SAT)

See Exhibits 4-7 through 4-10 for intersection LOS and Table 4-1 which shows the summary capacity analysis for the signalized and unsignalized intersections in the study area.

TABLE 4-1 (Page 1 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2004 EXISTING CONDITIONS

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	MID SAT V/C	MID SAT DELAY	MID SAT LOS
College Point Blvd & 31st Avenue	EB	LTR	0.52	31.40	C	0.49	31.10	C	0.64	35.30	D	0.42	29.40	C
	WB	LTR	0.30	27.30	C	0.47	29.90	C	0.35	28.10	C	0.17	25.60	C
	NB	TR	0.44	13.40	B	0.30	10.30	B	0.36	11.90	B	0.24	9..9	A
		L	0.27	8.50	A	0.14	7.60	A	0.21	8.00	A	0.15	7.70	A
	SB	TR	0.06	13.40	B	0.02	12.80	B	0.09	13.90	B	0.04	13.10	B
		L	0.24	14.50	B	0.22	14.30	B	0.25	14.70	B	0.26	14.70	B
College Point Blvd & 26th Avenue	EB	LTR	0.07	13.90	B	0.05	13.80	B	0.06	13.90	B			
	WB	DfL	0.27	16.50	B	0.27	16.40	B						
		TR	0.27	16.40	B	0.12	14.70	B						
		LTR							0.15	14.60	B		N/A	
	NB	L	0.07	7.20	A	0.01	6.70	A	0.02	6.70	A			
		LTR	0.35	8.90	A	0.28	8.30	A	0.40	9.30	A			
	SB	LTR	0.26	8.10	A	0.25	8.10	A	0.28	8.30	A			
College Point Blvd & 23rd Avenue	EB	LTR	0.49	22.30	C	0.31	19.00	B	0.37	19.90	B			
	WB	LTR	0.42	21.40	C	0.23	18.00	B	0.46	21.70	C		N/A	
	NB	LTR	0.47	9.30	A	0.41	8.60	A	0.35	7.90	A			
	SB	LTR	0.25	7.00	A	0.34	7.70	A	0.36	8.00	A			
College Point Blvd & 20th Avenue	EB	LTR	0.31	16.50	A	0.32	16.60	B	0.50	18.80	B	0.31	16.30	B
	WB	LTR	0.65	23.10	C	0.89	40.30	D	0.62	22.10	C	0.82	31.90	C
	NB	LTR	0.52	11.60	B	0.45	10.30	B	0.34	9.00	A	0.57	12.10	B
	SB	DfL	0.38	10.90	B	0.49	13.00	B				0.31	9.90	A
		TR	0.28	9.10	A	0.39	10.20	B				0.34	9.50	A
		LTR							0.26	8.20	A			
College Point Blvd & 18th Avenue	EB	LTR	0.14	14.80	B	0.11	14.50	B	0.27	16.10	B			
	WB	LTR	0.21	15.50	B	0.43	18.60	B	0.35	17.60	B		N/A	
	NB	LTR	0.46	10.60	B	0.63	13.80	B	0.45	10.40	B			
	SB	LTR	0.21	7.90	A	0.26	8.20	A	0.25	8.10	A			
College Point Blvd & 15th Avenue	EB	LTR	0.41	19.60	B	0.59	22.70	C	0.53	21.10	C	0.48	20.20	C
	NB	TR	0.69	14.30	B	0.56	11.00	B	0.49	9.30	A	0.39	8.10	A
	SB	LT	0.49	10.10	B	0.33	7.60	A	0.41	8.70	A	0.31	7.30	A
College Point Blvd & 14th Ave (East)	WB	L	0.62	21.90	C	0.31	16.20	B	0.45	18.30	B	0.27	15.80	B
		R	0.29	16.10	B	0.20	15.10	B	0.15	14.70	B	0.13	14.50	B
	NB	T	0.23	8.30	A	0.45	11.00	A	0.41	10.20	B	0.49	11.70	B
	SB	T	0.12	7.20	A	0.12	7.20	A	0.15	7.30	A	0.17	7.40	A
College Point Blvd & 14th Ave (West)	EB	L	0.07	13.90	B	0.11	14.30	B	0.08	14.00	B	0.11	14.20	B
		R	0.19	15.40	B	0.28	16.50	B	0.22	15.60	B	0.26	16.10	B
	NB	LT	0.40	9.90	A	0.68	15.10	B	0.48	10.90	B	0.56	12.40	B
	SB	T	0.13	7.30	A	0.11	7.20	A	0.15	7.50	A	0.20	7.80	A
	SB	R	0.05	6.90	A	0.07	7.00	A	0.03	6.70	A	0.02	6.70	A

TABLE 4-1 (Page 2 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2004 EXISTING CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM			MID SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LO
Whitestone Expwy	WB	L	0.46	18.60	A	0.63	22.20	C	0.64	22.50	C	0.32	16.60	B
Service Road-South		R	0.11	8.90	A	0.16	14.90	B	0.08	14.10	B	0.07	14.00	B
& College Point Blvd	NB	T	0.42	9.30	B	0.24	7.90	A	0.39	9.00	A	0.30	8.30	A
	SB	T	0.38	11.40	B	0.26	8.10	A	0.36	8.80	A	0.32	8.50	A
College Point Blvd	WB	L	0.21	15.40	B	0.33	16.80	B	0.20	15.20	B	0.22	15.50	B
& 32nd Avenue /		LR	0.56	22.70	C	0.67	26.80	C	0.56	22.60	C	0.73	30.00	C
Whitestone Expwy-	NB	T	0.96	42.20	D	0.43	18.10	B	0.98	47.40	D	0.65	20.80	C
Service Road-North		R	0.13	7.50	A	0.06	7.00	A	0.13	7.50	A	0.17	7.80	A
	SB	L	0.50	20.60	C	0.51	14.20	B	0.76	30.90	C	0.64	21.30	C
		T	0.51	10.40	B	0.40	9.30	A	0.48	10.00	B	0.33	8.60	A
Whitestone Expwy	EB	TR	0.32	26.10	C	0.33	26.20	C	0.41	27.20	C	0.34	26.20	C
Service Road-South	WB	L	0.44	12.70	B	0.86	31.20	C	0.23	8.10	A	0.28	8.10	A
& Linden Place		LT	0.49	11.40	B	0.48	11.60	B	0.51	9.40	A	0.43	8.30	A
	SB	L	0.90	54.40	D	0.94	63.20	E	1.05	93.90	F	1.05	95.70	F
		TR	0.81	38.30	D	0.50	29.50	C	0.72	38.90	D	0.58	34.70	C
Whitestone Expwy	EB	L	0.89	57.60	E	0.40	26.90	C	0.90	56.20	E	0.33	28.70	C
Service Road-North		LT	0.36	14.60	B	0.35	14.40	B	0.39	15.00	B	0.41	15.20	B
& Linden Place	WB	TR	1.05	84.80	F	0.89	53.50	D	1.01	78.30	E	1.05	87.50	F
	NB	L	0.85	41.20	D	1.05	75.50	E	0.78	34.40	C	0.67	28.90	C
		TR	0.59	24.00	C	0.49	22.20	C	0.66	25.30	C	0.50	22.30	C
	EB	T	0.43	38.30	D	0.35	25.30	C	0.73	40.30	D	0.37	32.80	C
Whitestone Expwy		R	0.71	46.60	D	0.61	30.60	C	1.05	86.90	F	0.90	62.90	E
Service Road-South	WB	L	0.94	51.90	D	0.63	19.70	B	0.61	35.40	D	0.80	22.10	C
& 20th Avenue		LT	0.66	18.40	B	0.34	8.70	A	0.64	16.50	B	0.53	8.00	A
	SB	LTR	1.05	82.40	F	1.05	80.10	F	1.05	86.20	F	1.05	86.10	F
	EB	L	0.93	100.30	F	0.65	28.50	C	1.05	98.50	F	0.82	48.90	D
Whitestone Expwy		LT	0.20	12.00	B	0.28	11.70	B	0.47	18.00	B	0.51	18.60	B
Service Road-North	WB	TR	0.87	40.70	D	0.46	22.30	C	0.76	38.20	D	0.57	32.80	C
& 20th Avenue	NB	L	1.05	89.70	F	1.05	78.20	E	1.05	84.20	F	1.00	65.70	E
		LTR	0.56	35.00	D	0.38	23.20	C	0.48	29.80	C	0.38	28.20	C
Whitestone Expwy	EB	T	0.86	40.70	D	0.57	26.90	C	1.05	76.40	E	0.91	46.60	D
		R	0.37	23.20	C	0.35	23.00	C	0.22	20.80	C	0.20	20.80	C
Service Road-South	WB	DfL	1.05	83.90	F	0.80	39.50	D	0.54	35.80	D	0.59	34.10	C
& 14th Avenue		T	0.93	40.50	D	0.44	14.50	B	0.69	19.60	B	0.70	20.40	C
	SB	L	0.59	28.70	C	0.33	23.10	C	0.47	25.40	C	0.42	24.60	C
		TR	0.48	24.50	C	0.23	21.20	C	0.26	21.40	C	0.46	24.10	C
Whitestone Expwy	EB	L	0.86	73.00	E	0.33	19.50	B	0.79	43.70	D	0.83	57.50	E
		T	0.95	46.70	D	0.66	24.60	C	1.05	71.00	E	1.05	69.20	E
Service Road-North	WB	TR	0.79	26.40	C	0.46	18.90	B	0.53	19.80	B	0.66	22.50	C
	NB	L	0.21	16.30	B	0.27	16.90	B	0.35	18.00	B	0.18	15.90	B
& 14th Avenue		TR	0.32	17.00	B	0.20	15.90	B	0.16	15.50	B	0.16	15.40	B

TABLE 4-1 (Page 3 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2004 EXISTING CONDITIONS

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	MID SAT V/C	MID SAT DELAY	MID SAT LOS
Northern Blvd & Union Street	EB	L	1.05	119.90	F	0.96	95.20	F	0.78	67.30	E	0.60	53.40	D
		TR	0.39	28.80	C	1.05	75.20	E	0.81	37.90	D	0.84	40.50	D
	WB	L	0.49	29.60	C	0.44	45.70	D	0.72	57.00	E	0.88	73.80	E
		TR	0.87	40.20	D	0.84	40.30	D	0.98	53.60	D	1.05	76.20	E
	NB	DfL	1.05	114.90	F	1.04	107.40	F	1.05	121.60	F	1.05	101.90	F
		TR	0.71	40.50	D	1.05	95.10	F	0.41	27.80	C	1.04	86.00	F
	SB	LTR	1.05	89.80	F	0.83	51.90	D	1.04	88.60	F	0.92	59.90	E
Northern Blvd & Main Street	EB	TR	0.67	26.20	C	0.87	38.50	D	0.69	22.00	C	0.65	28.70	C
	WB	L	0.49	25.00	C	0.44	31.50	C	0.51	26.40	C	0.39	26.40	C
		T	1.01	51.30	D	0.72	32.80	C	0.47	18.00	B	0.80	32.70	C
	NB	L	0.49	44.90	D	0.41	36.30	D	0.55	46.10	D	0.34	32.70	C
		R	0.81	50.50	D	0.55	28.10	C	1.01	98.40	F	0.63	30.90	C
Northern Blvd & Prince Street	EB	L	0.68	53.90	D	1.00	93.60	F	1.05	97.60	F	0.78	53.90	D
		TR	0.34	13.70	B	0.69	22.00	C	0.76	24.00	C	0.45	17.70	B
	WB	L	0.18	13.20	B	0.33	40.70	D	0.30	42.20	D	0.28	26.90	C
		TR	0.75	21.90	C	0.70	28.00	C	0.92	41.70	D	0.76	29.70	C
	NB	LTR	1.05	109.40	F	1.05	110.60	F	1.05	109.70	F	0.99	102.70	F
	SB	LTR	0.83	61.30	E	0.94	71.00	E	0.72	49.60	D	0.65	46.10	D
Northern Blvd & Parsons Blvd	EB	L	0.68	61.40	E	0.30	20.20	C	0.54	28.30	C	0.55	43.50	D
		TR	0.36	16.60	B	0.47	18.10	B	0.64	21.20	C	0.56	19.50	B
	WB	L	0.38	17.50	B	0.44	24.00	C	0.59	45.00	D	0.91	70.70	E
		TR	1.04	58.70	E	0.50	18.60	B	0.45	17.80	B	0.67	21.70	C
	NB	DfL	0.74	56.90	E				0.62	48.60	D			
		TR	0.71	48.20	D				0.59	42.70	D			
		LTR				0.80	50.60	D				1.05	86.90	F
	SB	DfL	1.00	102.00	F	1.03	122.90	F	0.80	62.40	E	1.04	146.00	F
		TR	0.58	42.40	D	0.61	43.70	D	0.64	44.70	D	0.61	43.60	D
Parsons Blvd & Bayside Avenue	EB	LTR	0.53	15.80	B	0.14	10.80	B	0.46	14.60	B	0.62	18.50	B
	WB	LTR	0.22	11.10	B	0.10	10.40	B	0.13	10.50	B	0.26	11.50	B
	NB	LTR	0.24	11.30	B	0.19	11.00	B	0.16	10.70	B	0.21	11.10	B
	SB	LTR	0.07	10.20	B	0.15	10.70	B	0.39	12.60	B	0.31	12.00	B
Parsons Blvd Willets Point Blvd	EB	LTR	0.36	12.50	B	0.37	12.6	B	0.85	23.80	C	0.32	12.10	B
	WB	LTR	0.28	11.70	B	0.3	11.80	B	0.23	11.30	B	0.34	12.20	B
	NB	LTR	0.25	11.50	B	0.25	11.40	B	0.27	11.60	B	0.28	11.70	B
	SB	LTR	0.45	13.4	B	0.51	14.20	B	0.77	20.6	C	0.55	14.80	B
Parsons Blvd 20th Avenue	EB	LTR	0.56	26.10	C	0.67	23.00	C	1.04	70.70	E	1.03	62.20	E
	WB	LTR	0.63	27.10	C	0.32	16.90	B	0.47	23.90	C	0.67	23.30	C
	NB	L	1.00	79.80	E	0.62	26.00	C	0.82	44.60	D	0.58	25.40	C
		TR	0.46	25.10	C	0.08	14.80	B	0.50	25.90	C	0.70	27.30	C
	SB	LTR	0.41	22.90	C	0.32	16.90	B	0.33	21.50	C	0.44	18.70	B

TABLE 4-1 (Page 4 of 4)

TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS

2004 EXISTING CONDITIONS

INTERSECTION	Lane Group		AM V/C	AM DELAY	AM LOS	MID V/C	MID DELAY	MID LOS	PM V/C	PM DELAY	PM LOS	MID SAT V/C	MID SAT DELAY	MID SAT LOS
Parsons Blvd & 14th Avenue	EB	LTR	0.60	16.50	B	0.80	23.80	C	0.91	31.20	C			
	WB	TR	1.04	56.10	E	0.87	30.40	C	0.94	37.20	D			
	NB	DfL	0.56	18.20	B				0.24	11.90	B			
		TR	0.34	13.80	B				0.25	12.20	B		N/A	
		LTR				0.27	11.80	B						
	SB	DfL	0.46	15.20	B	0.36	14.00	B	0.26	12.30	B			
		TR	0.19	11.50	B	0.22	11.80	B	0.15	11.10	B			
20th Avenue & 130th Street	EB	LTR	0.60	12.90	B	0.62	13.20	B	0.72	15.80	B			
	WB	L	0.53	14.20	B	0.51	14.00	B	0.87	37.30	D			
		TR	0.80	20.00	C	0.71	15.90	B	0.81	20.40	C		N/A	
	NB	LTR	0.68	22.10	C	0.27	15.70	B	0.99	50.60	D			
	SB	LTR	0.40	18.30	B	0.76	34.50	C	0.65	26.80	C			
14th Avenue & 132nd Street	EB	TR	0.51	11.20	B	0.52	11.30	B	0.45	10.30	B	0.57	12.10	B
	WB	L	0.59	16.50	B	0.29	9.90	A	0.29	9.50	A	0.17	8.40	A
		LT	0.67	15.90	B	0.54	12.10	B	0.71	16.30	B	0.56	12.40	B
	NB	L	0.19	15.20	B	0.26	16.00	B	0.17	15.00	B	0.32	16.60	B
	SB	R	0.17	15.30	B	0.33	17.20	B	0.14	14.80	B	0.17	15.10	B
Added Intersections in 2000														
28th Avenue & Ulmer Street	EB	LTR	0.53	14.10	B	0.39	12.10	B	0.44	12.80	B	0.52	13.50	B
	WB	LTR	0.49	11.10	B	0.36	9.90	A	0.45	10.70	B	0.55	12.10	B
	NB	DefL				0.04	9.60	A				0.29	14.90	B
		TR				0.02	9.30	A				0.09	9.80	A
		LTR	0.06	9.50	A				0.11	9.80	A			
	SB	LTR	0.57	14.30	B	0.29	11.20	B	0.63	15.50	B	0.77	18.60	B
Whitestone Expwy Service Road (SB) & Ulmer Street (near the Ramp)	WB	TR	0.55	28.70	C	0.46	27.30	C	0.40	26.60	C	0.47	27.50	C
	WB-UT	TR	0.33	25.80	C	0.29	25.40	C	0.30	25.50	C	0.19	24.40	C
	SB	R	0.90	46.80	D	0.46	28.20	C	0.90	46.20	D	0.44	27.90	C

N/A

Approache with LOS D >= 45 sec or Worse

Intersection was not analyzed for that peak hour

TABLE 4-1
TRAFFIC CAPACITY ANALYSIS FOR UNSIGNALIZED INTERSECTIONS
2004 EXISTING CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
20th Avenue & 119th Street (Two-Way Stop)	WB	L		4.60	A		5.40	B		5.00	B
	SB	TR									
		L		2.30	A		2.30	A		2.30	A
College Point Blvd & 14th Road (Two-Way Stop)	NB	T									
		L		4.80	A		3.90	A		3.90	A
	SB	T									
		R									
14th Road & 121st Street (Two-Way Stop)	WB	L		5.70	B		6.10	B		6.10	B
		T									
	SB	TR									
11th Avenue & 129th Street (All-Way Stop)	EB	LTR	0.40	4.60	A	0.18	2.00	A	0.23	2.40	A
	WB	LTR	0.13	1.60	A	0.11	1.50	A	0.19	2.10	A
	NB	LTR	0.32	3.40	A	0.18	2.00	A	0.30	3.20	A
	SB	LTR	0.14	1.70	A	0.09	1.40	A	0.16	1.80	A
11th Avenue & 130th Street (Two-Way Stop)	EB	LTR		2.40	A		2.30	A		2.40	A
	WB	LTR		3.10	A		2.40	A		2.50	A
	NB	LTR		4.40	A		4.30	A		5.00	A
	SB	LTR		7.40	B		4.70	A		5.80	B
College Point Blvd & 7th Avenue (Two-Way Stop)	EB	LTR		2.30	A		2.10	A		2.20	A
	WB	LTR		2.40	A		2.30	A		2.30	A
	NB	LTR		4.30	A		3.40	A		3.90	A
	SB	LTR		4.30	A		3.70	A		4.00	A
7th Avenue & 127th Street (Two-Way Stop)	EB	LTR		2.30	A		2.30	A		2.50	A
	WB	LTR		2.20	A		2.20	A		2.50	A
	NB	LTR		3.50	A		3.80	A		3.60	A
	SB	LTR		4.50	A		4.20	A		5.60	B
3rd Avenue & Whitestone Expwy - Service Road (Two-Way Stop)	NB	L		4.5	A		4.3	A		4.9	A
		R		2.8	A		2.8	A		2.9	A

Inresections are not analyzed for Sataurday Mid-day peak hour

EXHIBIT 4-7
Intersections with LOS D, E, and F
AM Peak Hour 2004

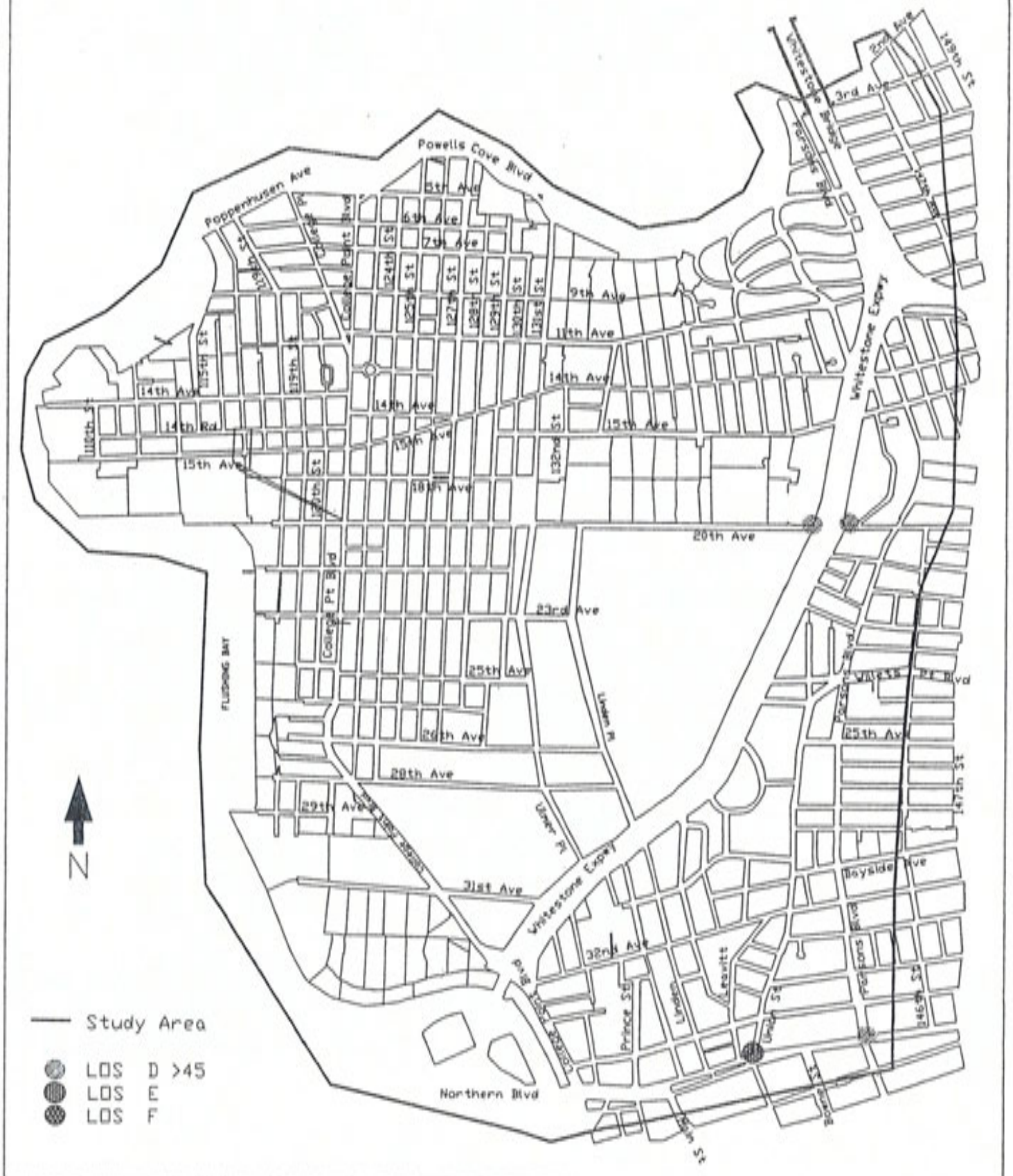


EXHIBIT 4-8
Intersections with LOS D, E, and F
MID Peak Hour 2004

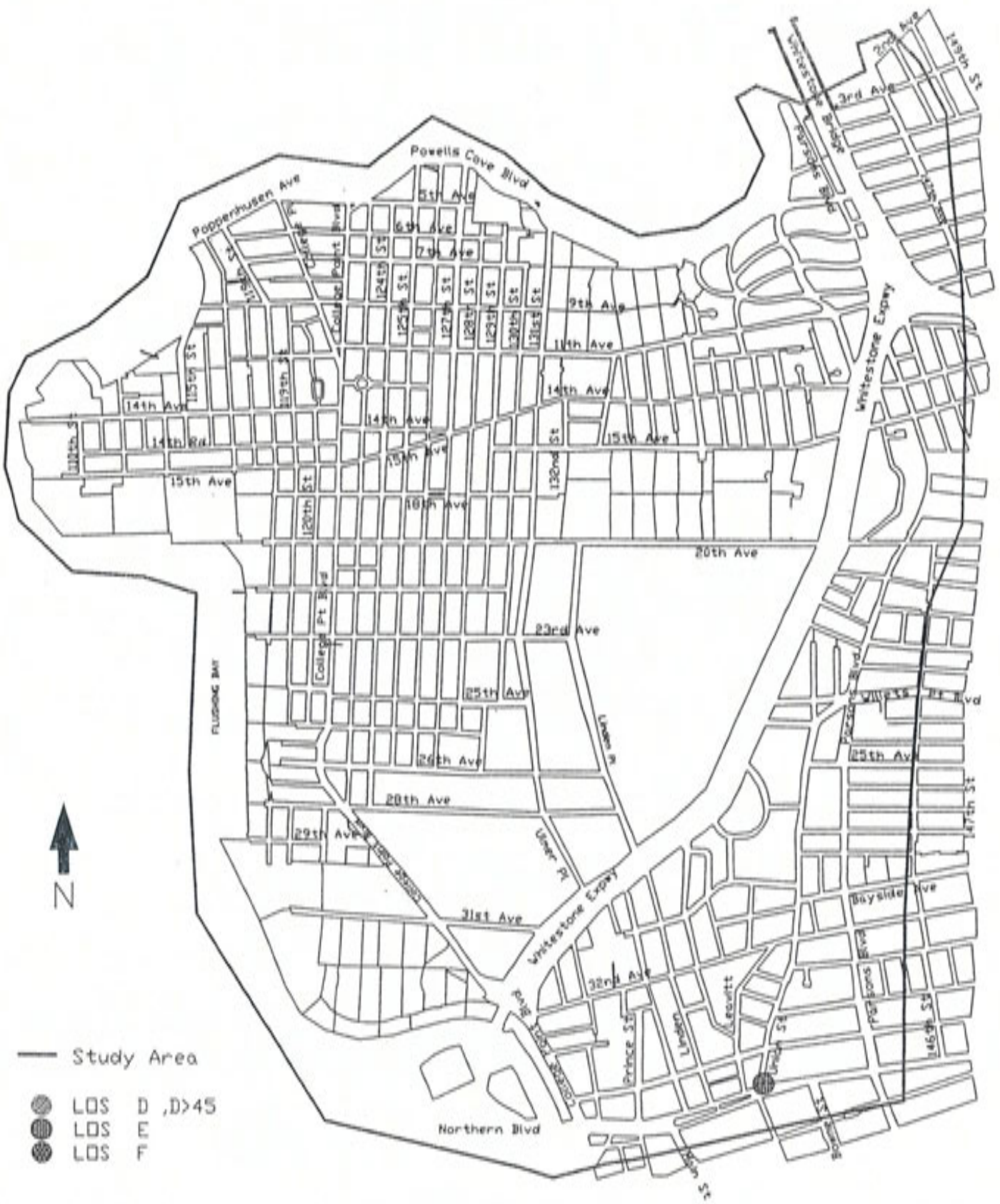
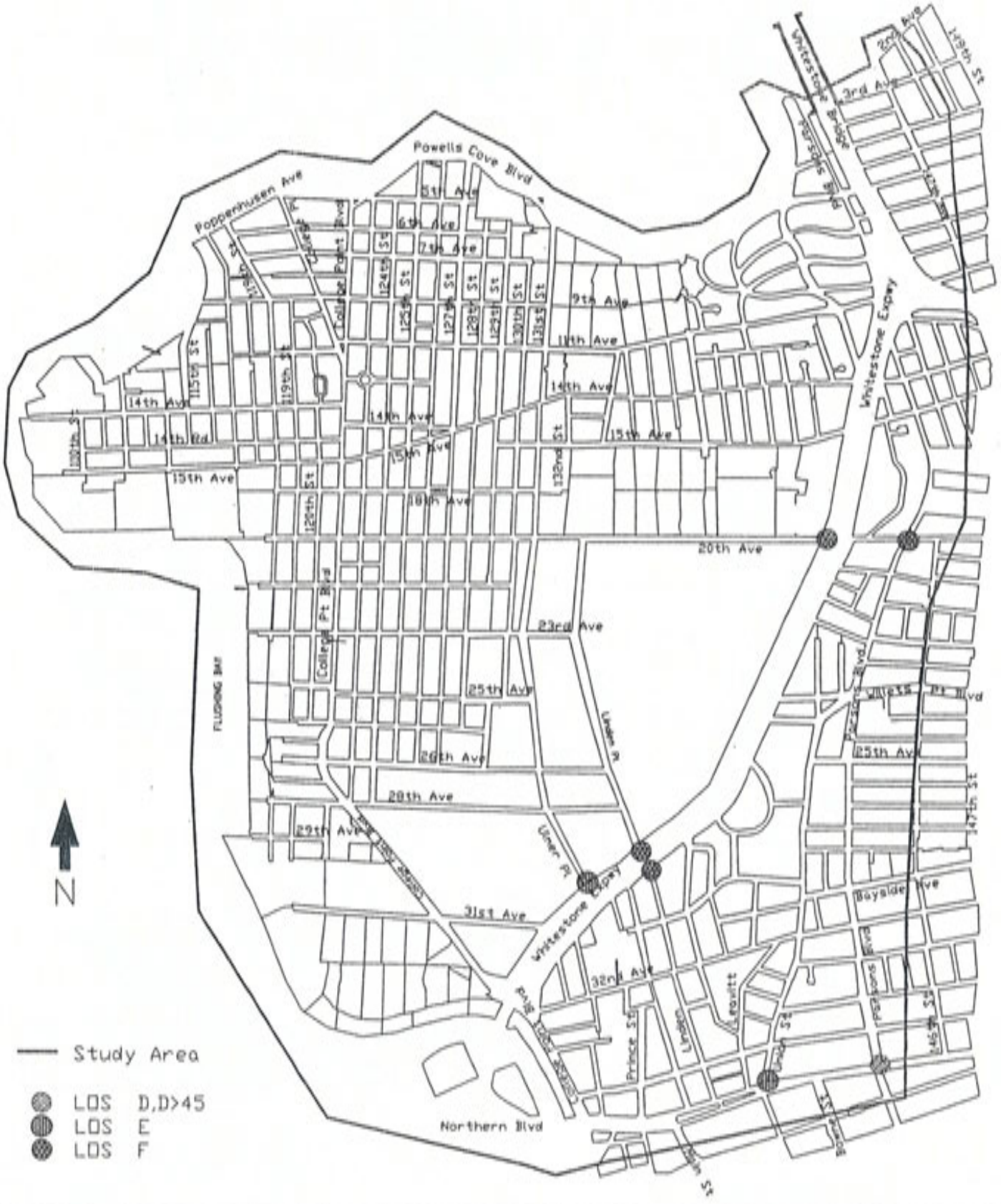


EXHIBIT 4-9
Intersections with LOS D, E, and F
PM Peak Hour 2004

EXHIBIT 4-10
Intersections with LOS D, E, and F
SAT MD Peak Hour 2004



4.8 VEHICLE SPEEDS

Congestion occurs on several roadways segments and intersections particularly during the peak hours at the four primary entrances and exit points to College Point. The conditions are attributed to several factors including high traffic volumes, bus / car / truck / pedestrian conflicts and illegal curbside and double parking and standing which reduce roadway capacity and result in delays and reduced travel speeds.

To measure peak hour travel time and vehicle speeds in the Study Area and identify locations of traffic delay, speed and delay runs were conducted. The "floating car" method (a technique whereby a field vehicle travels at speeds under prevailing traffic conditions) was used for obtaining peak hour travel speeds on the following corridors:

- 14th Avenue / 15th Avenue between 110th Street and the Whitestone Expressway
- 20th Avenue between 121st Street and the Whitestone Expressway
- Northern Boulevard between Prince and 146th Streets
- College Point Boulevard between the Whitestone Expressway and 9th Avenue
- Whitestone Expressway Service Roads (NB and SB) between College Point Boulevard and 14th Avenue
- Parsons Boulevard between 38th and 13th Avenues

Exhibit 4-11 presents speed run corridors and Table 4-2 displays average travel speeds. It should be noted that it was only on Northern Boulevard in the eastbound direction between Prince Street and Parsons Boulevard that speeds were in the single digit for all peak periods.

Exhibit 4-11
Speeds Run Corridors

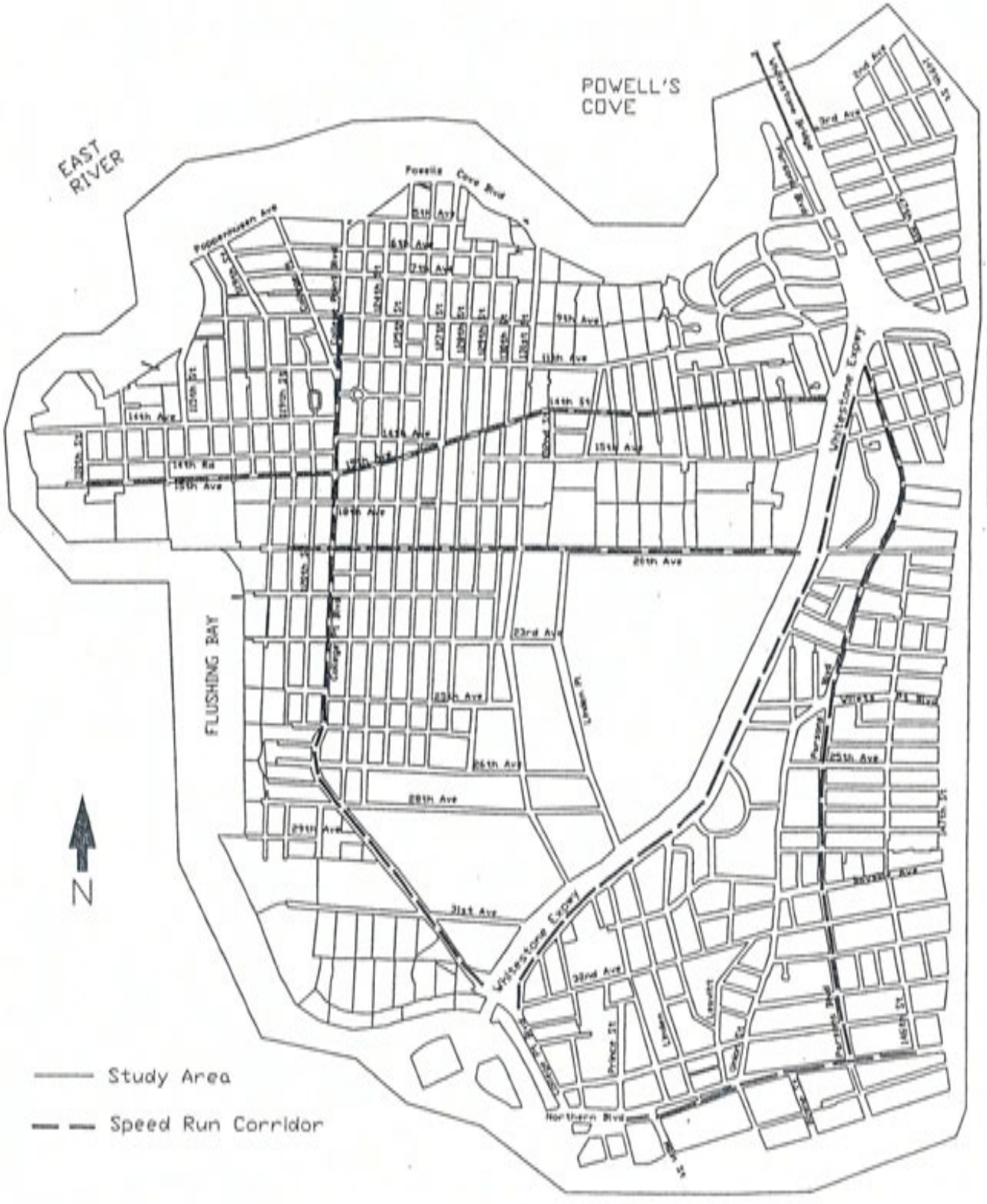


TABLE 4-2

CORRIDOR TRAVEL SPEEDS

No.	Corridors	Peak Hour	Direction	Existing Conditions
				Average Speed
1	14th / 15th Avenues between 110th Street & Whitestone Expressway	AM	EB	14.78
			WB	17.37
		MD	EB	18.28
			WB	17.32
		PM	EB	17.80
			WB	16.48
2	20th Avenue between 119th Street & Whitestone Expressway	AM	EB	15.02
			WB	11.80
		MD	EB	12.59
			WB	11.72
		PM	EB	12.89
			WB	12.01
3	Northern Boulevard between Prince Street & Parsons Avenue	AM	EB	7.31
			WB	11.07
		MD	EB	6.30
			WB	11.13
		PM	EB	8.20
			WB	11.28
4	College Point Boulevard between 9th Avenue & Whitestone Expressway	AM	NB	13.98
			SB	11.46
		MD	NB	12.67
			SB	10.24
		PM	NB	13.38
			SB	10.24
5	Whitestone Expressway between College Point Boulevard & 14th Avenue	AM	NB	16.82
			SB	21.20
		MD	NB	17.07
			SB	17.24
		PM	NB	19.50
			SB	16.14
6	Parsons Boulevard between 38th Avenue & 14th Avenue	AM	NB	16.11
			SB	14.41
		MD	NB	15.60
			SB	15.66
		PM	NB	16.55
			SB	14.68

4.9 TRUCKS AND GOODS MOVEMENT

The designated truck route network is shown in Exhibit 4-12. The network comprises two categories of routes:

(a) Routes for use by all trucks (through truck routes) and;

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

The through truck routes traversing the Study Area are: Northern Boulevard and the Whitestone Expressway. The local truck routes are: College Point Boulevard south of 14th Avenue; 14th Avenue and 15th Avenue between College Point Boulevard and 110th Street; and Linden Place between Northern Boulevard and the Whitestone Expressway.

NYCDOT 1990 College Point Study stated that the total truck traffic at the four primary access points shows morning and midday peaks, with a sharp drop in volume after 4PM. Inbound volumes are highest during the morning peak, while eastbound volumes are fairly steady throughout the day. Bus volumes into and out of College Point on the other hand are more balanced, although they are highest during the morning peak. A similar pattern is evident today but there is a higher percentage of heavy vehicles in the vehicle fleet of which buses are a significant part.

The presence of certain types of land uses such as, large scale retail stores (BJ's, Target), Queens Surface Transit Bus Garage, and the NYPD Automobile Tow Pound contribute to the growth in heavy vehicles. This has impacted intersection capacity at critical locations and has exacerbated traffic circulation. The effects are seen at the four primary entry points to College Point.

Truck activity has a significant effect on traffic flow and LOS. Consequently truck presence in the network was taken into account in the traffic capacity analyses.

EXHIBIT 4-12
Truck Routes

5.0 PEDESTRIAN ANALYSIS

The distribution of the various land use activities in the Study Area has a strong influence on pedestrian volumes and patterns. Generally, all person trips generated by land use within the Study Area contain a walking component, either at the beginning or at the end of each trip.

In the Study Area, significant pedestrian volumes were observed only along two main corridors -- Northern Boulevard in its entirety and College Point Boulevard between 14th and 23rd Avenues.

To evaluate the level of pedestrian activity and to determine pedestrian flow conditions, pedestrian counts were conducted during the AM (8:00 – 9:00), MD (12:30 – 1:30), PM (4:00 – 5:00), and SAT (1:30 – 2:30) peak hours. Exhibit 4-2 shows the 14 pedestrian count locations.

The heaviest pedestrian volumes at intersection crosswalks were observed at Northern Boulevard and Parsons Boulevard. The following are the five locations with the heaviest pedestrian volumes during the AM, MD, PM, and SAT peak hours:

1. Northern Boulevard and Parsons Boulevard (710, 650, 748, 910)
2. Northern Boulevard and Union Street (704, 461, 383, 452)
3. Northern Boulevard and Main Street (253, 400, 576, 455)
4. College Point Boulevard and 15th Avenue (340, 396, 240, 430)
5. College Point Boulevard and 14th Avenue (west) (297, 292, 261, 341)

Though pedestrian volumes are high at these locations, there is no scenario in which the sidewalk, crosswalk, or corner is LOS D or worse. Hence no further detailed pedestrian analysis was conducted although pedestrian volumes are factored into the traffic analysis.

Table 5-1 shows the peak hour pedestrian volumes at the crosswalks for the various intersections.

TABLE 5-1
Existing Pedestrian Volume

Code	Intersection Name	Time Period			
		AM	MD	PM	SAT
1	College Point & 20th Avenue	50	39	57	85
2	College Point & 18th Avenue	88	183	165	166
3	College Point &15th Avenue	219	396	240	430
4	College Point & 14th Road	133	157	169	187
5	College Point & 14th Avenue (North)	297	292	261	297
6	College Point & 14th Avenue (South)	101	127	112	184
7	Parsons Boulevard & Bayside Avenue	360	424	430	520
8	Parsons Boulevard & Northern Boulevard	710	649	748	910
9	Northern Boulevard & Union Street	704	461	483	602
10	Northern Boulevard & Main Street	253	400	576	525
11	Whitestone Expressway & 20th Avenue (West)	23	15	19	41
12	Whitestone Expressway & 20th Avenue (East)	59	25	45	82
13	Whitestone Expressway & Linden Place (North)	42	39	28	62
14	Whitestone Expressway & Linden Place (South)	38	51	46	114

6.0 ACCIDENTS / SAFETY ANALYSIS

6.1 Introduction

The loss of life and property damage due to traffic and other transportation related accidents bring safety issues into the center of the traffic and transportation planning debate.

The identification of safety issues and the development of measures to reduce traffic accidents require an understanding of the accident history in the study area. To examine the accident history of the study area data from seven year period, 1995 through 2001 was assembled and analyzed. These records were collected from the NYSDMV, NYSDOT and CDOT. This data provide accident information such as location, severity type, accident type, collision type, time of day and weather conditions among other criteria. The data was used to identify locations with high accident frequency and or severity in the study area.

After reviewing total accidents per year for 36 locations on the main corridors in the study area, intersections with 20 or more average annual accidents were subjected to a detailed analysis. There are ten locations that met the criteria and are listed in Table 6-1 and shown in Exhibit 6-1 Accident Locations.

The data showed that of the ten locations, six are along Northern Boulevard corridor and four along the Whitestone's Expressway service roads. The intersection of *20th Avenue/ Whitestone Expressway NBSR* had the highest frequency with an average of 36 accidents per year over the seven years. The locations with the second most frequent accident were *Union Street (N)/Northern Boulevard* and *Prince Street (N)/Northern Boulevard* with an average of 29 accidents each per year.

Overall Union Street/Northern Boulevard had the highest average of total accidents with fifty-one, followed by 20th Avenue/Whitestone's Expressway Avenue SR with forty-seven and Prince Street/Northern Boulevard with an average of 46 accidents per year.

Exhibit 6.1

Accident Locations

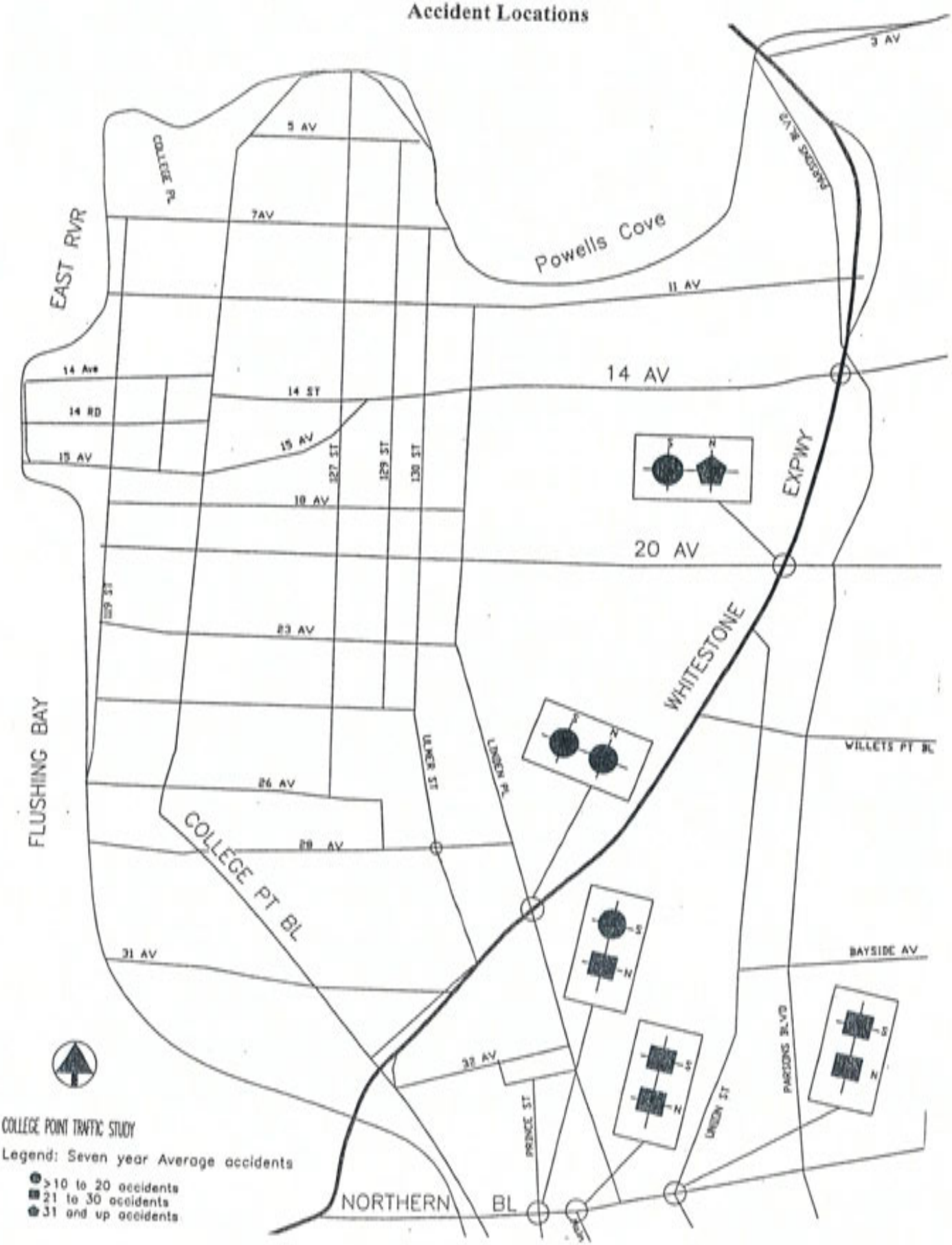


TABLE 6-1
Seven Year Accident History

Node #		Main St	Cross St	Acc 1995	Acc 1996	Acc 1997	Acc 1998	Acc 1999	Acc 2000	Acc 2001	Total Acc	Average /year	Total Average
1	15036	20TH AV	Whitestone Exp NB SR	43	33	39	57	46	14	19	251	36	47
2	15035	20TH AV	Whitestone Exp SB SR	2	0	1	1	10	33	34	81	12	
3	16067	LINDEN PL	Whitestone Exp NB SR	13	14	20	29	12	14	8	110	16	36
4	16053	LINDEN PL	Whitestone Exp SB SR	20	13	23	16	24	23	24	143	20	
5	13784	PRINCE ST(S)	NORTHERN BL	7	4	10	6	16	43	37	123	18	46
6	13794	PRINCE ST(N)	NORTHERN BL	31	24	48	35	41	16	5	200	29	
7	13783	MAIN ST(S)	NORTHERN BL	14	9	15	15	17	35	43	148	21	43
8	13795	MAIN ST(N)	NORTHERN BL	30	23	39	31	22	5	4	154	22	
9	13781	UNION ST(S)	NORTHERN BL	10	10	15	16	20	39	46	156	22	51
10	13799	UNION ST(N)	NORTHERN BL	33	40	37	31	28	22	11	202	29	
			Total	**203**	**170**	**247**	**237**	**236**	**244**	**231**	**1568**		

As shown in table 6-1, over the seven years period (1995-2001) a total of 1568 accidents occurred at the ten locations. The total accidents include both reportable (592) and non-reportable (976). The total reportable accidents resulted in 638 persons being injured and six fatalities. There were 64 pedestrians and 8 bicyclists involved in the accidents during the seven years period. The highest number of accidents involving pedestrians occurred at Union Street (N)/Northern Boulevard with a total of 21 accidents over the seven year period. Table 6-2 summaries the accident history by years for the study area.

- Please note injuries refers to the number of person injured

TABLE 6-2

Accident History by Years

Year	Total Acc	Reportable	Non-Reportable	Fatalities	Injuries*	Pedestrian	Bicyclist
1995	203	76	127	0	67	8	1
1996	170	48	122	0	81	5	0
1997	247	80	167	2	99	10	1
1998	237	91	146	1	101	12	2
1999	236	94	142	2	88	7	1
2000	244	103	141	1	95	8	1
2001	231	100	131	0	107	14	2
Total	**1568**	**592**	**976**	**6**	**638**	**64**	**8**

* Please note injuries refers to the number of person injured

6.2 Frequency and Severity of Accidents

Frequency and severity are two critical factors in the analysis of accidents. These two factors allow for a better understanding of the problems at the study locations. The NYCDOT Safety Division developed a set of equations to help determine the Severity and Frequency of accidents at a location.

Severity Factor

The severity factor (SF) indicates whether or not a location tends to have accident with significant levels of damage. A value can be assign between 0 and 10, ten being the highest level of severity and zero the lowest. Various levels of severity can be determined from the relative weight assigned to each accident class based on the accident cost.

Frequency Factor

The frequency at which accidents occur at a location (frequency factor (FF)) is an additional tool to help understand accidents at a location. The frequency factor is based in part on the accident records supplied by NYSDMV and NYSDOT Centralized Local Accident Surveillance System (CLASS).

The value assigned ranges from 0 to 10, with 10 representing the highest level of frequency for accidents at the intersection.

These critical factors (frequency and severity), based on Index Equations developed by the NYCDOT Safety Division, are helpful for determining the frequency or likelihood and severity of traffic accidents.

Composite Index

The composite index represents the ratio of the severity factor to the frequency factor *CI=SF/FF*. If the complexity index is greater than 1.0 then the location's accidents will be skewed toward severity; if the factor is less than 1.0 then accidents will be skewed toward frequency.

With a severity factor greater than 7.0, a frequency factor greater than 6.0, and a composite index greater than 1.0, accidents at these locations are likely to involve a fatality or Type A injuries.

Table 6-3 shows an interpretation summary of the severity factors, frequency factors, and composite index values that correspond to the type of injury and damage sustained in an accident.

TABLE 6-3
Interpretation of the Critical Factors in Accidents

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

6.3 Annual Accident Analysis

Year 1995

During 1995 there were a total of 203 accidents, of which 127 were non-reportable and 76 reportable. Of the 76 reportable accidents, two resulted in Class A injuries, six Class B injuries and fifty in Class C injuries. No fatalities were reported for this year. Table 6-4 shows the total number of accidents by location, fatalities and class with corresponding frequency and severity factors and composite index. Table 6-5 shows the break down of accidents by collision types with pedestrians and bicyclist involved.

The *20th Avenue/Whitestone Expressway NB SR* intersection had 43 accidents, the highest number for that year. There were 13 reportable accidents and 30 non-reportable. From the 13 reportable accidents three were class B injury, and seven class C injury. Twenty-one percent of the total annual accidents in the Study Area occurred at this intersection which also had the highest frequency factor (FF) of 7.52 for the year.

The intersection of *Union Street (N)/Northern Boulevard* was second for frequency of accident with 33 accidents accounting for approximately 16% of the annual accidents. This intersection had the highest number of injuries (16) and a severity factor (SF) of 7.74.
The third ranked location for frequency of accidents was *Prince Street (N)/Northern Boulevard* with 31 total accidents, of which 14 were reportable. Of the 14 reportable accidents one resulted in a class A injury and twelve class C injuries.

Table 6-4
1995 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composit Index
15036	20TH AV	Whitestone Exp NB SR	0	0	3	7	3	30	43	7.30	7.52	0.97
15035	20TH AV	Whitestone Exp SB SR	0	0	0	0	1	1	2	1.61	1.39	1.16
16067	LINDEN PL	Whitestone Exp NB SR	0	0	0	0	6	7	13	3.43	5.13	0.67
16053	LINDEN PL	Whitestone Exp SB SR	0	0	0	5	3	12	20	6.00	5.99	1.00
13784	PRINCE ST(S)	NORTHERN BL	0	0	0	0	0	7	7	1.95	3.89	0.50
13794	PRINCE ST(N)	NORTHERN BL	0	1	0	12	1	17	31	7.67	6.87	1.12
13783	MAIN ST(S)	NORTHERN BL	0	0	0	7	1	7	14	6.29	5.28	1.19
13795	MAIN ST(N)	NORTHERN BL	0	0	3	4	0	23	30	7.12	6.80	1.05
13781	UNION ST(S)	NORTHERN BL	0	0	0	1	2	7	10	4.51	4.61	0.98
13799	UNION ST(N)	NORTHERN BL	0	1	0	14	2	16	33	7.74	6.99	1.11

Table 6-5
1995 Traffic Accident History

Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	43	13	30	0	13	0	0	0	2	4	6	4	0	1	0	0	0	2
15035	20TH AV	Whitestone Exp SB SR	2	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
16067	LINDEN PL	Whitestone Exp NB SR	13	6	7	0	0	0	0	0	1	0	2	0	2	1	0	0	0	1
16053	LINDEN PL	Whitestone Exp SB SR	20	8	12	0	6	0	0	0	1	1	2	1	2	2	0	0	0	1
13784	PRINCE ST(S)	NORTHERN BL	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	31	14	17	0	14	1	0	0	3	5	2	4	1	4	1	0	1	1
13783	MAIN ST(S)	NORTHERN BL	14	7	7	0	10	2	0	0	2	1	1	2	0	1	1	0	0	2
13795	MAIN ST(N)	NORTHERN BL	30	7	23	0	7	2	0	0	1	1	1	3	1	0	0	0	0	2
13781	UNION ST(S)	NORTHERN BL	10	3	7	0	1	0	0	0	0	1	0	1	0	1	1	0	0	0
13799	UNION ST(N)	NORTHERN BL	33	17	16	0	16	3	1	0	3	6	4	4	2	1	1	0	0	5
TOTAL			203	76	127	0	67	8	1	0	13	19	18	20	8	11	4	0	1	14

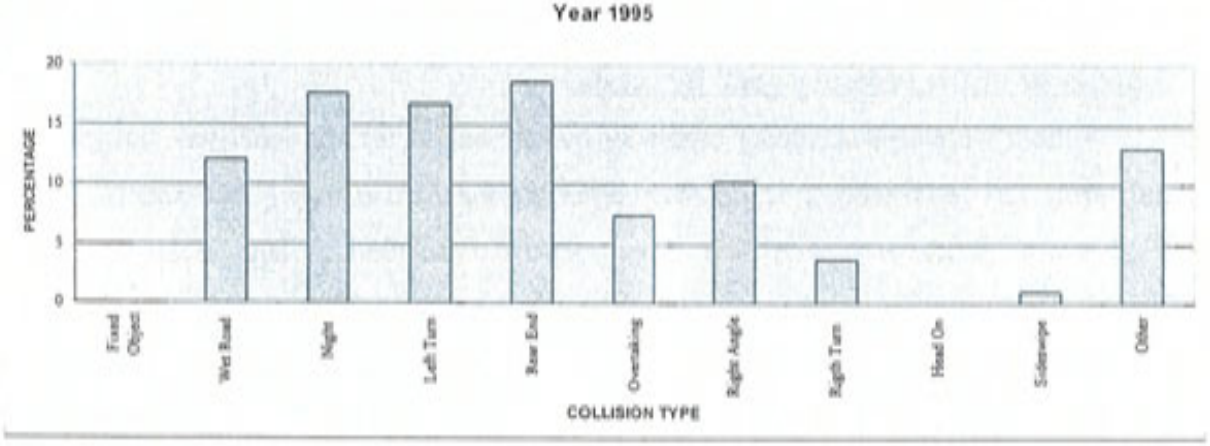
Accidents Involving Pedestrians and Bicyclists

For the ten locations analyzed in 1995 in the study area there were eight accidents involving pedestrians. The highest pedestrian accident location was *Union Street (N)/Northern Boulevard* where three occurred. There was only one accident involving bicyclists which occurred at Union Street (N)/Northern Boulevard.

Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-2, during 1995 18% of the accidents occurred during night time and 12% under wet roadway conditions. The distribution of accidents by collision type showed that 19% were rear end, 17% left turn and 10% right angle. Three locations experienced a frequency of four accidents with rear end collision representing 20% of the total in each case. The highest frequency of left turn collision was observed at *20th Avenue/Whitestone Expressway NBSR* representing 33% of the total while right angle collision was most frequent at *Prince Street (N) /Northern Boulevard* with four accidents. Exhibit 6-2 shows the distribution of reportable accidents in 1995 along with driving conditions.

Exhibit 6-2
1995 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 1995 of the ten locations studied, four had a severity factors greater than 7.0, and a frequency factor greater than 6.0. The composite index for five of the ten intersections was greater than 1.0. This indicates that the majority of accidents were skewed toward severity. Table 6-4 shows the severity factor, frequency factor and the composite index for all analyzed intersections in 1995.

Year 1996

During 1996 there were 170 accidents, of which 122 were non-reportable and 48 were reportable. Of the 48 reportable accidents, 4 resulted in Class A injuries, 4 in Class B injuries and 34 Class C injuries. No fatality was reported for this year. Table 6-6 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-7 shows the break down of accidents by collision types with pedestrians and bicyclist involved.

The intersection of *Union Street (N)/Northern Boulevard* had forty accidents the highest number for the year. There were 9 reportable accidents and 31 non-reportable. Of the 9 reportable accidents, one resulted in a class A injury and seven class C injuries. Twenty-four percent of the total annual accidents occurred at this intersection, with the highest frequency factor (FF) of 7.38 of all the locations in the study area.

The intersection of *20thAvenue/Whitestone Expressway NBSR* was ranked second in frequency with 33 accidents, being approximately 19% of the total. Of the 33 accidents, 10 were reportable with one class A injury and eight class C injuries. No fatalities were reported.

Accidents Involving Pedestrians and Bicyclists

In 1996 there were five accidents involving pedestrians at the ten locations analyzed in the study area. The intersections of *20thAvenue/Whitestone Expressway NBSR* and *Union Street (N)/Northern Boulevard* each had two pedestrian accidents. The location of *Union Street(S)/Northern Boulevard* followed with one pedestrian accident. There were no accidents involving bicyclists in the study area.

Table 6-6
1996 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composit Index
15036	20TH AV	Whitestone Exp NB SR	0	1	0	8	1	23	33	7.52	6.99	1.08
15035	20TH AV	Whitestone Exp SB SR	0	0	0	0	0	0	0	0.00	0.00	0.00
16067	LINDEN PL	Whitestone Exp NB SR	0	0	0	2	0	12	14	5.10	5.28	0.97
16053	LINDEN PL	Whitestone Exp SB SR	0	1	2	2	1	7	13	7.59	5.13	1.48
13784	PRINCE ST(S)	NORTHERN BL	0	1	0	1	1	1	4	7.17	2.77	2.59
13794	PRINCE ST(N)	NORTHERN BL	0	0	2	5	2	15	24	6.92	6.36	1.09
13783	MAIN ST(S)	NORTHERN BL	0	0	0	3	0	6	9	5.46	4.39	1.24
13795	MAIN ST(N)	NORTHERN BL	0	0	0	3	0	20	23	5.51	6.27	0.88
13781	UNION ST(S)	NORTHERN BL	0	0	0	3	0	7	10	5.46	4.61	1.18
13799	UNION ST(N)	NORTHERN BL	0	1	0	7	1	31	40	7.48	7.38	1.01

Table 6-7
1996 Traffic Accident History

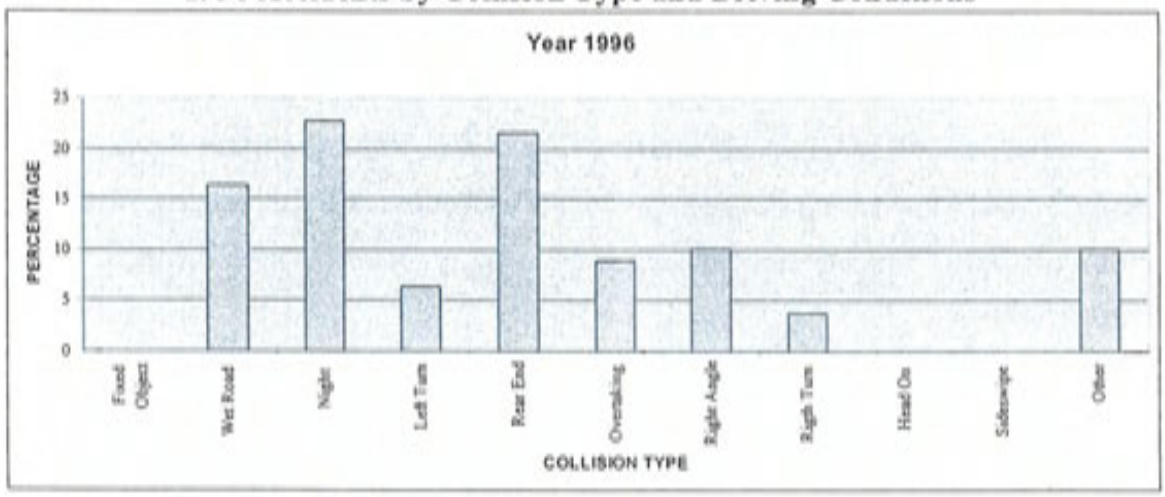
Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	33	10	23	0	10	2	0	0	1	1	0	6	2	0	0	0	0	2
15035	20TH AV	Whitestone Exp SB SR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16067	LINDEN PL	Whitestone Exp NB SR	14	2	12	0	27	0	0	0	1	0	1	1	0	0	0	0	0	0
16053	LINDEN PL	Whitestone Exp SB SR	13	6	7	0	7	0	0	0	3	1	0	0	2	1	1	0	0	2
13784	PRINCE ST(S)	NORTHERN BL	4	3	1	0	3	0	0	0	0	0	0	1	1	0	0	0	0	1
13794	PRINCE ST(N)	NORTHERN BL	24	9	15	0	10	0	0	0	4	7	2	1	1	3	2	0	0	0
13783	MAIN ST(S)	NORTHERN BL	9	3	6	0	5	0	0	0	1	1	0	2	0	1	0	0	0	0
13795	MAIN ST(N)	NORTHERN BL	23	3	20	0	5	0	0	0	0	1	0	1	1	1	0	0	0	0
13781	UNION ST(S)	NORTHERN BL	10	3	7	0	3	1	0	0	1	3	1	1	0	0	0	0	0	1
13799	UNION ST(N)	NORTHERN BL	40	9	31	0	11	2	0	0	2	4	1	4	0	2	0	0	0	2
TOTAL			170	48	122	0	81	5	0	0	13	18	5	17	7	8	3	0	0	8

Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-3 during 1996 23% of the accidents occurred during night time and 16% occurred under wet roadway conditions. The distribution of accidents by collision types showed that 22% were rear end, 10% right angle, and 9% overtaking. The highest frequency of rear end collisions occurred at 20thAvenue/Whitestone Expressway NBSR with six accidents representing 35% of the total.

The highest right angle collision type occurred at *Prince Street (N)/Northern Boulevard* with three accidents or 37% of the total. Overtaking collision type accidents were spread evenly throughout the area. Exhibit 6-3 shows the distribution of reportable accidents along with driving conditions for 1996.

Exhibit 6-3
1996 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 1996 of the ten locations studied four had a severity factor greater than 7.0, and frequency factor greater than 6.0. The composite indexes for seven locations were greater than 1.0. This means that the majority of the accidents at these locations were skewed toward severity. Table 6-6 shows the severity factor, frequency factor and the composite index for all analyzed intersections for 1996.

Year 1997

During 1997 there were a total of 247 accidents, of which 167 were non-reportable and 80 were reportable. Of the 80 reportable accidents, 2 resulted in Class A injuries, 14 in Class B injuries and 46 in Class C injuries. Two fatalities were reported for this year. Table 6-8 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-9 shows the break down of accidents by collision types along with pedestrians and bicyclist statistics.

The location of *Prince Street (N)/Northern Boulevard* had 48 accidents, the highest number for the year. There were 17 reportable accidents and 31 non-reportable. Of the 17 reportable accidents at this intersection, six resulted in class B injuries and five in class C injuries. Approximately 19% of the total annual accidents occurred at this intersection. This intersection had the highest frequency factor (FF) of 7.74 for the year.

The intersections of *20th Avenue/Whitestone Expressway NBSR* and *Main Street (N)/Northern Boulevard* ranked second for frequency with 39 accidents each, representing 16% of the total annual accidents. The intersections topped the severity factor (SF) scale with 8.81 and 8.17, respectively.

Accidents Involving Pedestrians and Bicyclists

In 1997 there were ten pedestrian accidents at various locations throughout the study area. The highest pedestrian accident location was *Union Street (N)/Northern Boulevard* with four accidents. *Main Street (N)/Northern Boulevard* followed with three pedestrian accidents. There was one accident involving bicyclists in the study area at *Main Street (N)/Northern Boulevard.*

Table 6-8
1997 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
15036	20TH AV	Whitestone Exp NB SR	1	2	2	12	2	21	39	8.81	7.33	1.20
15035	20TH AV	Whitestone Exp SB SR	0	0	0	0	0	0	1	0.00	0.00	0.00
16067	LINDEN PL	Whitestone Exp NB SR	0	0	0	5	3	12	20	6.00	5.99	1.00
16053	LINDEN PL	Whitestone Exp SB SR	0	0	1	6	0	16	23	6.65	6.27	1.06
13784	PRINCE ST(S)	NORTHERN BL	0	0	0	2	0	8	10	5.08	4.61	1.10
13794	PRINCE ST(N)	NORTHERN BL	0	0	6	5	6	31	48	7.72	7.74	1.00
13783	MAIN ST(S)	NORTHERN BL	0	0	0	3	0	12	15	5.48	5.42	1.01
13795	MAIN ST(N)	NORTHERN BL	1	0	2	2	3	31	39	8.17	7.33	1.11
13781	UNION ST(S)	NORTHERN BL	0	0	1	1	1	12	15	5.98	5.42	1.10
13799	UNION ST(N)	NORTHERN BL	0	0	2	10	1	24	37	7.24	7.22	1.00

Table 6-9
1997 Traffic Accident History

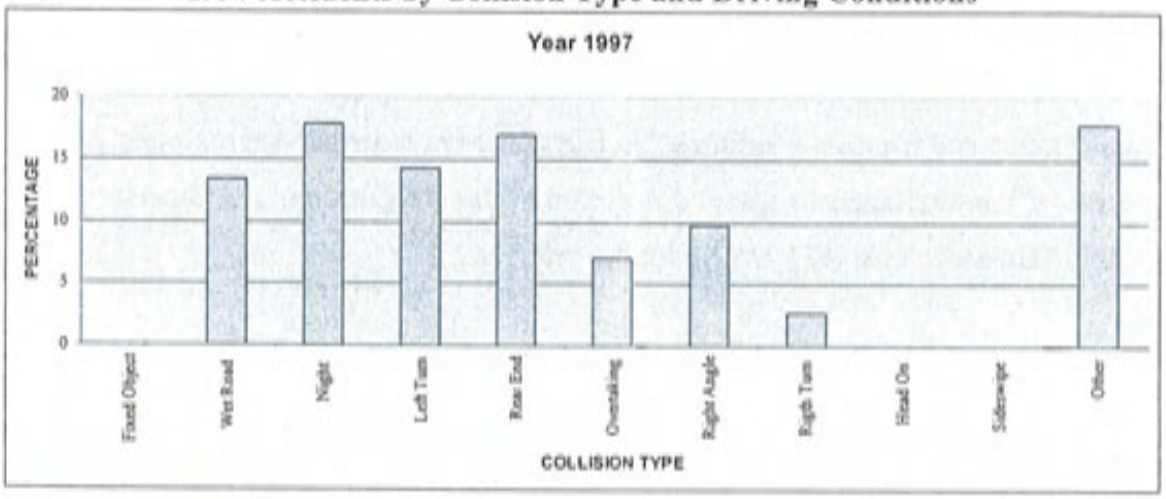
Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	39	18	21	1	31	1	0	0	2	2	2	4	3	2	1	0	0	6
15035	20TH AV	Whitestone Exp SB SR	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
16067	LINDEN PL	Whitestone Exp NB SR	20	8	12	0	6	0	0	0	1	3	2	1	2	1	0	0	0	1
16053	LINDEN PL	Whitestone Exp SB SR	23	7	16	0	10	0	0	0	1	1	3	2	0	0	0	0	0	1
13784	PRINCE ST(S)	NORTHERN BL	10	2	8	0	2	0	0	0	0	0	1	0	0	1	0	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	48	17	31	0	17	0	0	0	4	6	5	6	2	3	1	0	0	0
13783	MAIN ST(S)	NORTHERN BL	15	3	12	0	3	1	0	0	0	1	0	2	0	0	0	0	0	1
13795	MAIN ST(N)	NORTHERN BL	39	8	31	1	8	3	1	0	3	3	1	1	1	0	0	0	0	5
13781	UNION ST(S)	NORTHERN BL	15	3	12	0	2	0	0	0	1	1	0	1	0	1	1	0	0	0
13799	UNION ST(N)	NORTHERN BL	37	13	24	0	19	4	0	0	3	3	2	2	0	3	0	0	0	5
TOTAL			247	80	167	2	99	10	1	0	15	20	16	19	8	11	3	0	0	20

Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-4 during 1997 18% of the accidents occurred during night time and 13% occurred under wet roadway condition. The distribution of accidents by collision types showed that 17% were rear end, 14% left turn and 10% right angle. The location with the most frequent rear end, left turn and right angle collisions types was *Prince Street (N)/Northern Boulevard* with six, five and three accidents respectively.

Exhibit 6-4 shows the distribution of reportable accidents and driving conditions for 1997.

Exhibit 6-4
1997 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 1997, of the ten intersections studied four had a severity factor greater than 7.0, and five intersections had a frequency factor greater than 6.0. The composite index for six of the ten intersections was greater than 1.0. This indicates that the majority of the accidents at these locations were skewed toward severity. Table 6-8 shows the severity factor, frequency factor and the composite index for all analyzed intersections during 1997.

Year 1998

During 1998 there were 237 accidents, of which 146 were non-reportable and 91 were reportable. Of the 91 reportable accidents, four resulted in Class A injuries, 16 in Class B injuries and 66 in Class C injuries. One fatality was reported for this year. Table 6-10 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-11 shows the break down of accidents by collision types along with pedestrians and bicyclist information.

The location of *20th Avenue/Whitestone Expressway NBSR* had the highest number of accidents with 57 during the year. There were 18 reportable accidents and 39 non-reportable. From the 18 reportable accidents at this intersection, one resulted in a class A injury, one a class B injury and ten class C injuries. No fatalities were reported. Approximately twenty-four percent of the total annual accidents occurred at this intersection. This intersection had the highest frequency factor (FF) of 8.09 for the year.

The intersection of *Prince Street (N)/Northern Boulevard* ranked second for frequency with 35 accidents or 15% of the annual total accidents. The intersection of *Union Street(S)/Northern Boulevard* had the highest severity factor (SF) of 8.20 with one fatality, two class B injuries and four class C injuries for the year 1998.

Accidents Involving Pedestrians and Bicyclists

In 1998 there were twelve pedestrian accidents in which were distributed throughout the study area. Also there were two accidents involving bicyclists in the study area.

Table 6-10
1998 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
15036	20TH AV	Whitestone Exp NB SR	0	1	1	10	6	39	57	7.76	8.09	0.96
15035	20TH AV	Whitestone Exp SB SR	0	0	0	0	0	1	1	0.00	0.00	0.00
16067	LINDEN PL	Whitestone Exp NB SR	0	0	7	6	3	17	29	7.86	6.73	1.17
16053	LINDEN PL	Whitestone Exp SB SR	0	2	3	3	3	9	16	8.18	5.55	1.47
13784	PRINCE ST(S)	NORTHERN BL	0	0	0	0	1	5	6	2.20	3.58	0.61
13794	PRINCE ST(N)	NORTHERN BL	0	0	0	13	3	20	35	6.93	7.11	0.97
13783	MAIN ST(S)	NORTHERN BL	0	0	0	6	0	9	15	6.14	5.42	1.13
13795	MAIN ST(N)	NORTHERN BL	0	0	3	9	1	18	31	7.39	6.87	1.08
13781	UNION ST(S)	NORTHERN BL	1	0	2	4	0	10	16	8.20	5.55	1.48
13799	UNION ST(N)	NORTHERN BL	0	1	0	15	1	18	31	7.77	6.87	1.13

Table 6-11
1998 Traffic Accident History

Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	57	18	39	0	15	3	0	0	5	6	5	4	2	1	1	0	0	5
15035	20TH AV	Whitestone Exp SB SR	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16067	LINDEN PL	Whitestone Exp NB SR	29	12	17	0	17	0	1	0	2	6	0	3	0	6	0	0	0	3
16053	LINDEN PL	Whitestone Exp SB SR	16	7	9	0	9	0	0	0	2	1	0	3	1	2	0	0	0	1
13784	PRINCE ST(S)	NORTHERN BL	6	1	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	35	15	20	0	14	0	0	0	4	5	2	6	1	1	2	0	1	1
13783	MAIN ST(S)	NORTHERN BL	15	6	9	0	6	2	0	0	1	2	0	2	1	0	0	0	0	3
13795	MAIN ST(N)	NORTHERN BL	31	13	18	0	14	3	1	0	0	4	2	4	0	2	0	0	0	5
13781	UNION ST(S)	NORTHERN BL	16	6	10	1	7	1	0	0	1	4	1	3	0	0	0	1	0	1
13799	UNION ST(N)	NORTHERN BL	31	13	18	0	19	3	0	0	2	3	3	4	0	0	0	0	0	6
TOTAL			237	91	146	1	101	12	2	0	17	31	14	29	5	12	3	1	1	25

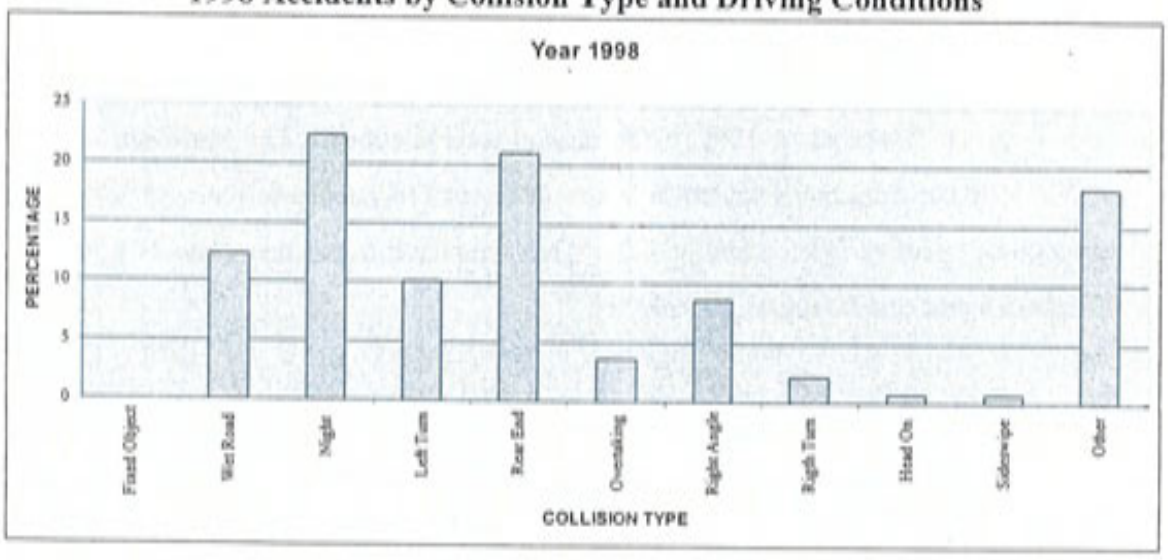
Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-5 during 1998, 22% of the accidents occurred during night time and 12% occurred under wet roadway condition. The distribution of accidents by collision types showed that 21% were rear end, 10% left turn and 9% right angle. The location with the most frequent rear end collision type was *Prince Street (N)/Northern Boulevard* with six accidents or 21% of the total.

The location of *20th Avenue/Whitestone Expressway NBSR* had the highest left turn accidents with five. Right angle collision was most frequent at *Linden PL/Whitestone Expressway NBSR* with six accidents.

Exhibit 6-5 shows the distribution of reportable accidents along with driving conditions for 1998.

Exhibit 6-5
1998 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 1998, of the ten locations studied six had a severity factor greater than 7.0, and five intersections had a frequency factor greater than 6.0. The composite index for six of the ten intersections analyzed was greater than 1.0. This indicates that the majority of the accidents at these locations were skewed toward severity. Table 6-10 shows the severity factor, frequency factor and the composite index for all analyzed intersection in 1998.

Year 1999

During 1999 there were 236 accidents, of which 142 were non-reportable and 94 reportable. Of the 94 reportable accidents, 3 resulted in Class A injuries, 6 resulted in Class B injuries and 77 resulted in Class C injuries. Two fatalities were reported for this year. Table 6-12 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-13 shows the break down of accidents by collision types with pedestrians and bicyclist involved.

The location of *20th Avenue/Whitestone Expressway NBSR* had the highest number of accidents with 46 during the year. There were 20 reportable accidents and 26 non-reportable; of the 20 reportable accidents resulted in class B injuries and eleven resulted in class C injuries. Approximately nineteen percent of the total annual accidents occurred at this intersection. It also had the highest frequency factor (FF) of 7.66 for the year.

The intersection of *Prince Street (N)/Northern Boulevard* ranked second for frequency of accidents with 41 accidents or 17% of the annual total accidents. The intersection of *Union Street (N)/Northern Boulevard* ranked third in frequency of accidents with 28 accidents, and had the highest severity factor (SF) of 8.27. This intersection had one class B injury, eleven class C injuries and one fatality for 1999.

Accidents Involving Pedestrians and Bicyclists

In 1999 there were seven accidents involving pedestrians within the study area. Pedestrian's accidents were concentrated mostly along Northern Boulevard at *Union Street/Northern Boulevard* and *Main Street/Northern Boulevard* with 2 and 1 accidents respectively. There was one accident involving bicyclists in the study area at *Main Street (N)/Northern Boulevard.*

Table 6-12
1999 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
15036	20TH AV	Whitestone Exp NB SR	0	0	2	11	11	26	46	7.32	7.66	0.96
15035	20TH AV	Whitestone Exp SB SR	0	0	0	5	1	7	10	5.96	4.61	1.29
16067	LINDEN PL	Whitestone Exp NB SR	0	0	0	5	1	7	12	5.97	4.97	1.20
16053	LINDEN PL	Whitestone Exp SB SR	0	1	0	8	2	16	24	7.52	6.36	1.18
13784	PRINCE ST(S)	NORTHERN BL	0	0	0	3	1	13	16	5.50	5.55	0.99
13794	PRINCE ST(N)	NORTHERN BL	0	1	1	16	11	17	41	7.93	7.43	1.07
13783	MAIN ST(S)	NORTHERN BL	0	1	0	5	0	13	17	7.38	5.67	1.30
13795	MAIN ST(N)	NORTHERN BL	1	0	1	6	1	14	22	8.16	6.18	1.32
13781	UNION ST(S)	NORTHERN BL	0	0	1	7	3	12	20	6.75	5.99	1.13
13799	UNION ST(N)	NORTHERN BL	1	0	1	11	1	17	28	8.27	6.66	1.24

Table 6-13
1999 Traffic Accident History

Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	46	20	26	0	13	0	0	0	1	2	2	2	7	4	2	0	0	1
15035	20TH AV	Whitestone Exp SB SR	10	3	7	0	5	0	0	0	1	1	0	3	0	0	0	0	0	0
16067	LINDEN PL	Whitestone Exp NB SR	12	5	7	0	5	0	0	0	0	1	1	1	2	0	0	0	0	1
16053	LINDEN PL	Whitestone Exp SB SR	24	8	16	0	11	0	0	0	0	4	1	1	2	3	0	0	0	1
13784	PRINCE ST(S)	NORTHERN BL	16	3	13	0	3	0	0	0	0	1	1	1	1	0	0	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	41	24	17	0	18	0	0	0	7	7	4	7	5	4	1	0	0	3
13783	MAIN ST(S)	NORTHERN BL	17	4	13	0	6	1	0	0	1	3	1	1	1	0	0	0	0	1
13795	MAIN ST(N)	NORTHERN BL	22	8	14	1	7	2	1	0	1	2	0	3	1	0	0	0	0	4
13781	UNION ST(S)	NORTHERN BL	20	8	12	0	8	2	0	0	1	4	1	0	3	1	0	0	0	3
13799	UNION ST(N)	NORTHERN BL	28	11	17	1	12	2	0	0	4	6	4	0	0	4	0	0	0	3
TOTAL			236	94	142	2	88	7	1	0	16	31	15	19	22	16	3	0	0	17

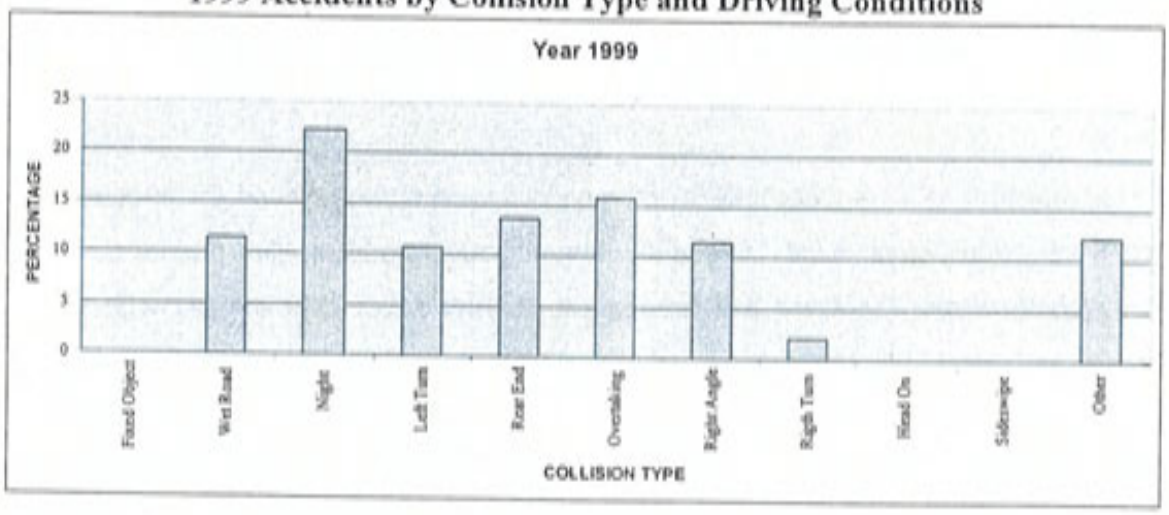
Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-6 during 1999, 22% of the accidents occurred during night time and 12% occurred under wet roadway condition. The distribution of accidents by collision types showed that 16% were overtaking, 14% rear end and 12% right angle. The location with the most frequent overtaking collision type was *20th Avenue/Whitestone Expressway NBSR* with seven or 32% of the total.

The intersection of *Prince Street (N)/Northern Boulevard* had the highest rear end collision type accident with seven. Five of the 10 locations experienced right angle collision type accidents with three locations having a frequency of four.

Exhibit 6-6 shows the distribution of reportable accidents and driving conditions for 1999.

Exhibit 6-6
1999 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 1999, six of the ten intersections studied had a severity factor greater than 7.0, and five intersections had a frequency factor greater than 6.0. The composite index for eight of the ten intersections analyzed was greater than 1.0. This indicates that the majority of the accidents at these locations were skewed toward severity. Table 6-12 shows the severity factor, frequency factor and the composite index for all analyzed intersections in 1999.

Year 2000

During 2000 there were 244 accidents, of which 141 were non-reportable and 103 reportable. Of the 103 reportable accidents, 1 resulted in a Class A injury, 15 in Class B injuries and 77 in Class C injuries. One fatality was reported for this year. Table 6-14 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-15 shows the break down of accidents by collision types with pedestrians and bicyclist involved.

The intersection of *Prince Street(S)/Northern Boulevard* had the highest number of accidents with 43 during the year. There were 6 reportable accidents and 37 non-reportable; of the 6 reportable accidents at this intersection, one resulted in a class A injury, and three class C injuries. No fatalities were reported. Approximately eighteen percent of the total annual accidents occurred at this intersection which had the highest frequency factor (FF) of 7.52 for the year.

The intersection of *Union Street(S)/Northern Boulevard* ranked second for frequency with 39 accidents, which represented 16% of the annual total accidents. The intersection of *Union Street(N)/Northern Boulevard* had the highest severity factor (SF) of 8.42 with ten class B injuries and twenty class C injuries type of accident for 2000.

Accidents Involving Pedestrians and Bicyclists

In 2000 there were eight pedestrian accidents at various locations throughout the study area. The highest pedestrian accident location was at *Union Street(N)/Northern Boulevard* with four accidents. There was one accident involving bicyclists in the study area at *Union Street(S)/Northern Boulevard*.

Table 6-14
2000 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
15036	20TH AV	Whitestone Exp NB SR	0	0	0	10	6	1	14	6.66	5.28	1.26
15035	20TH AV	Whitestone Exp SB SR	0	0	0	5	1	27	33	6.02	6.99	0.86
16067	LINDEN PL	Whitestone Exp NB SR	0	0	0	7	6	2	14	6.32	5.26	1.2
16053	LINDEN PL	Whitestone Exp SB SR	0	0	2	6	6	14	23	7	6.27	1.12
13784	PRINCE ST(S)	NORTHERN BL	0	1	0	3	2	37	43	7.3	7.52	0.97
13794	PRINCE ST(N)	NORTHERN BL	1	0	0	11	6	1	16	8.19	5..55	1.48
13783	MAIN ST(S)	NORTHERN BL	0	0	1	9	3	24	35	6.93	7.11	0.97
13795	MAIN ST(N)	NORTHERN BL	0	0	0	3	1	2	5	5.45	3.22	1.69
13781	UNION ST(S)	NORTHERN BL	0	0	2	3	2	32	39	6.77	7.33	0.92
13799	UNION ST(N)	NORTHERN BL	0	0	10	20	4	1	22	8.42	6.18	1.36

Table 6-15
2000 Traffic Accident History

Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	14	13	1	0	10	0	0	0	2	1	5	4	3	1	0	0	0	0
15035	20TH AV	Whitestone Exp SB SR	33	6	27	0	5	0	0	0	1	3	0	3	1	0	0	0	0	2
16067	LINDEN PL	Whitestone Exp NB SR	14	12	2	0	7	0	0	0	2	5	1	4	1	4	1	0	0	1
16053	LINDEN PL	Whitestone Exp SB SR	23	9	14	0	10	0	0	0	1	4	2	1	1	4	0	0	0	1
13784	PRINCE ST(S)	NORTHERN BL	43	6	37	0	4	0	0	0	2	2	2	0	2	0	1	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	16	15	1	1	11	1	0	0	1	4	0	4	2	4	0	0	0	2
13783	MAIN ST(S)	NORTHERN BL	35	11	24	0	10	1	0	0	1	3	0	7	2	0	1	0	0	1
13795	MAIN ST(N)	NORTHERN BL	5	3	2	0	3	0	0	0	0	1	0	2	1	0	0	0	0	0
13781	UNION ST(S)	NORTHERN BL	39	7	32	0	5	2	1	0	0	5	0	0	2	2	0	0	0	3
13799	UNION ST(N)	NORTHERN BL	22	21	1	0	30	4	0	0	3	4	3	6	3	3	1	1	0	4
TOTAL			244	103	141	1	95	8	1	0	13	32	13	31	18	18	4	1	0	14

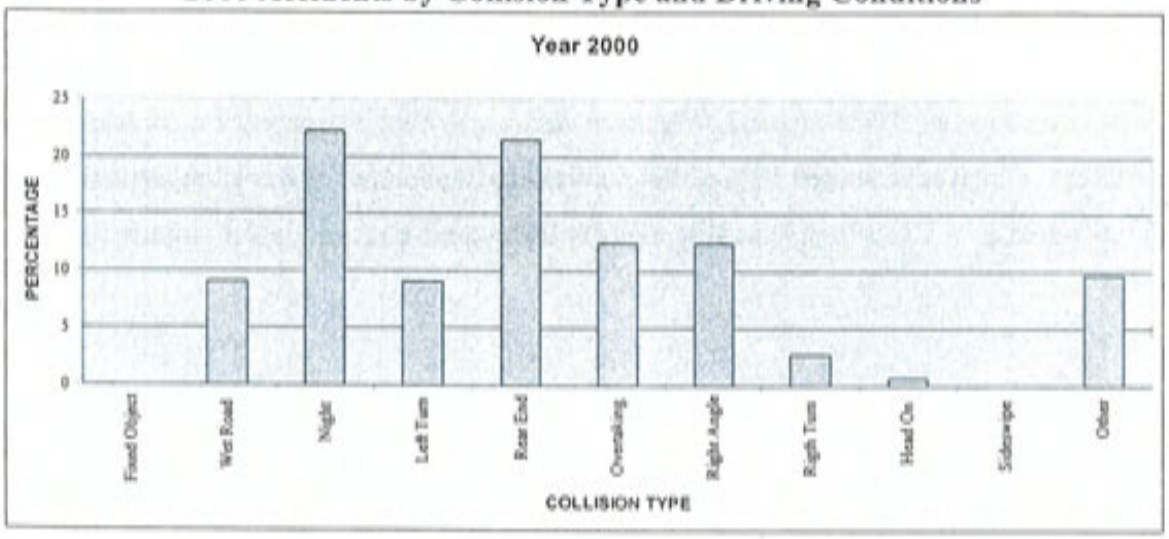
Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-7 during 2000, 22% of the accidents occurred during night time and 9% occurred under wet roadway condition. The distribution of accidents by collision types showed that 22% were rear end and 13% accounted for right angle and overtaking. The location with the most frequent rear end collision type was *Main Street(S)/Northern Boulevard* with seven accidents or 23% of the total.

The locations of *Union Street(N)/Northern Boulevard* and *20th Avenue/Whitestone Expressway NBSR* had the highest overtaking collision type accident with three. Right angle collision type were distributed through out the study area with the highest frequency of four accidents.

Exhibit 6-7 shows the distribution of reportable accidents along with driving conditions for 2000.

Exhibit 6-7
2000 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 2000, of the ten intersections studied four had a severity factor greater than 7.0, and six intersections had a frequency factor greater than 6.0. The composite index for six of the ten intersections analyzed was greater than 1.0. This indicates that the majority of the accidents that occurred at these locations were skewed toward severity.

Table 6-14 shows the severity factor, frequency factor and the composite index for all analyzed intersections in year 2000.

Year 2001

During 2001 there were 231 accidents in the study area, of which 131 were non-reportable and 100 reportable. Of the 100 reportable accidents, 5 resulted in Class A injuries, 6 Class B injuries and 95 Class C injuries. No fatalities were reported for this year. Table 6-16 shows the total number of accidents by location, fatalities and injury class with corresponding frequency factor, severity factor and composite index. Table 6-17 shows the break down of accidents by collision types with pedestrians and bicyclist involved.

The intersection of *Union Street(S)/Northern Boulevard* had the highest number of accidents with 46 during the year. There were 21 reportable accidents and 25 non-reportable; of the 21 reportable accidents at this intersection, one resulted in a class A injury, three class B injuries, and twenty-two class C injuries. No fatalities were reported. Approximately 20% of the total annual accidents occurred at this intersection which had the highest frequency factor (FF) of 7.66 and the highest severity factor (SF) of 8.25 for the year.

The intersection of *Main Street(S)/Northern Boulevard* ranked second for frequency with 43 accidents, which represented 18% of the annual total accidents; of the 19 reportable accidents, one resulted in a Class A injury, one class B injury and sixteen class C injuries for the year 2001.

Accidents Involving Pedestrians and Bicyclists

In 2001 there were fourteen pedestrian accidents at various locations throughout the study area. The highest pedestrian accident location was *Union Street(S)/Northern Boulevard* with eight accidents. There were two accidents involving bicyclists in the study area at *Union Street(S)/Northern Boulevard* and *Prince Street(N)/Northern Boulevard.*

Table 6-16
2001 Traffic Accident Analysis

Node #	Main St	Cross St	Fatal	Injury A	Injury B	Injury C	Property Damage	Non-Reportable	Total Accident	Severity Factor	Frequency Factor	Composite Index
15036	20TH AV	Whitestone Exp NB SR	0	0	0	6	6	10	19	6.19	5.89	1.05
15035	20TH AV	Whitestone Exp SB SR	0	2	1	13	2	23	34	8.23	7.05	1.17
16067	LINDEN PL	Whitestone Exp NB SR	0	0	1	3	3	2	8	6.3	4.16	1.51
16053	LINDEN PL	Whitestone Exp SB SR	0	0	0	13	3	14	24	6.92	6.36	1.09
13784	PRINCE ST(S)	NORTHERN BL	0	0	0	11	3	24	37	6.77	7.22	0.94
13794	PRINCE ST(N)	NORTHERN BL	0	0	0	4	0	2	5	5.72	3.22	1.78
13783	MAIN ST(S)	NORTHERN BL	0	1	1	16	4	24	43	7.93	7.52	1.05
13795	MAIN ST(N)	NORTHERN BL	0	0	0	4	0	2	4	5.72	2.77	2.06
13781	UNION ST(S)	NORTHERN BL	0	1	3	22	2	25	46	8.25	7.66	1.08
13799	UNION ST(N)	NORTHERN BL	0	1	0	3	2	5	11	7.28	4.8	1.52

Table 6-17
2001 Traffic Accident History

Node #	Main St	Cross St	Total Acc	Reportable	Non-Reportable	Fatal	Injury	Pedestrian	Bicyclist	Fixed Object	Wet Road	Night	Left Turn	Rear End	Overtaking	Right Angle	Right Turn	Head On	Sideswipe	Other
15036	20TH AV	Whitestone Exp NB SR	19	9	10	0	6	0	0	0	2	3	1	1	3	2	0	0	0	2
15035	20TH AV	Whitestone Exp SB SR	34	11	23	0	16	0	0	0	0	5	1	4	3	0	0	0	0	0
16067	LINDEN PL	Whitestone Exp NB SR	8	6	2	0	4	0	0	0	1	1	0	3	0	2	0	0	0	0
16053	LINDEN PL	Whitestone Exp SB SR	24	10	14	0	13	1	0	0	1	0	0	3	2	2	0	0	0	2
13784	PRINCE ST(S)	NORTHERN BL	37	13	24	0	11	0	0	0	2	3	2	5	3	3	0	0	0	0
13794	PRINCE ST(N)	NORTHERN BL	5	3	2	0	4	0	1	0	1	1	1	1	0	0	0	0	0	1
13783	MAIN ST(S)	NORTHERN BL	43	19	24	0	19	2	0	0	1	5	0	6	5	3	2	0	0	2
13795	MAIN ST(N)	NORTHERN BL	4	2	2	0	4	0	0	0	0	1	0	1	0	0	0	0	0	1
13781	UNION ST(S)	NORTHERN BL	46	21	25	0	26	8	1	0	2	7	0	6	0	1	1	0	2	10
13799	UNION ST(N)	NORTHERN BL	11	6	5	0	4	3	0	0	1	2	0	1	1	0	0	0	0	4
TOTAL			231	100	131	0	107	14	2	0	11	28	5	31	17	13	3	0	2	22

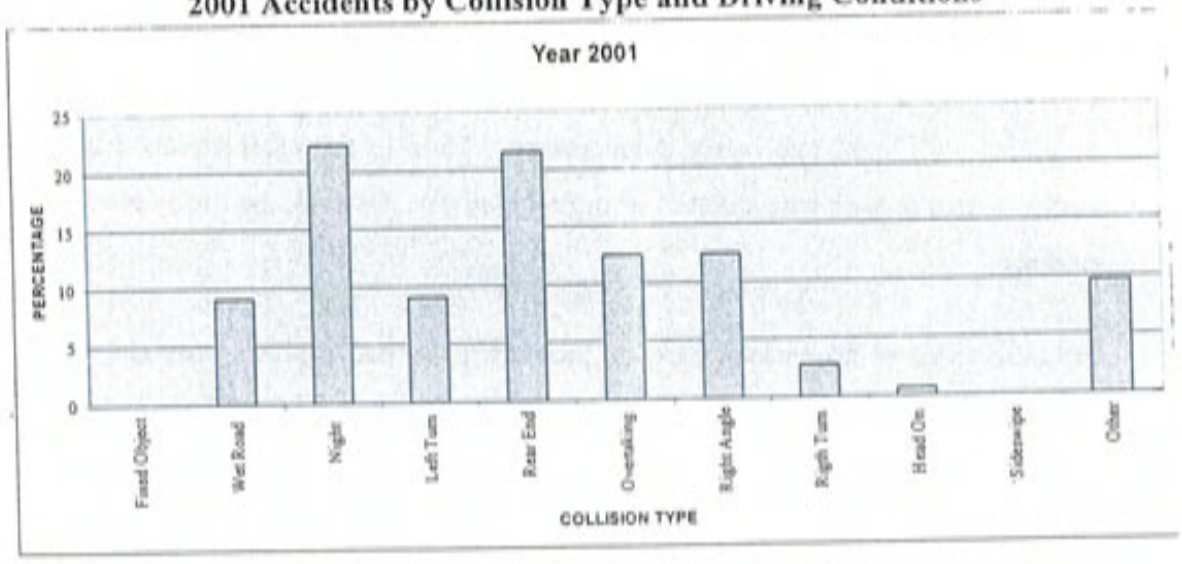
Accidents by Collision Type and driving Conditions

As shown in Exhibit 6-8, during 2001 21% of the accidents occurred during night time and 8% occurred under wet roadway condition. The distribution of accidents by collision types showed that 23% were rear end, 13% due to overtaking and 10% right angle. The locations with the most frequent rear-end collisions were *Main Street(S)/Northern Boulevard* and *Union Street(S)/Northern Boulevard* with six accidents or 19% of the total.

The locations of *Main Street(S)/Northern Boulevard* had the highest overtaking collision type accident with five. Right angle collision type accidents were distributed among locations in the study area with the highest frequency of three accidents.

Exhibit 6-8 shows the distribution of reportable accidents along with driving conditions for 2001.

Exhibit 6-8
2001 Accidents by Collision Type and Driving Conditions



Severity and Frequency of Accidents

During 2001, of the ten intersections studied four had a severity factor greater than 7.0, and five intersections had frequency factors greater than 6.0. The composite index for nine of the ten intersections was greater than 1.0. This indicates that the majority of the accidents at these locations were skewed toward severity. Table 6-16 shows the severity factor, frequency factor and the composite index for all analyzed intersections in 2001.

7.0 PARKING ANALYSIS

7.1 METHODOLOGY

Parking is a key element of any traffic and transportation system. Inadequate parking could lead to unnecessary circulation in search of parking spaces, or illegal and double parking, thus reducing roadway capacity. The purpose of this analysis is to:

- Determine the area's parking demand and supply and identify critical short falls;
- Examine ways to more efficiently utilize the area's existing on-street curbside and off-street parking facilities;
- Generate recommendations and possible solutions to address the area's parking needs.

The area has many off-street parking facilities corresponding to land use with high trip generating characteristics. On-street parking meters on the other hand are very limited and are confined to two general locations; College Point Boulevard between 14th and 20th Avenues and Northern Boulevard between Prince Street and Parsons Boulevard. These are locations with local retail strip development. Most of the other streets are residential in nature with alternate side street cleaning regulations. Overall, the Study Area has adequate parking.

Because there is no serious parking problem a limited parking analysis was conducted based on NYCDOT field survey. An inventory was made of all off-street parking facilities in the Study Area. Table 7-1 shows the location, type, capacity, and observed utilization rate of the various facilities.

The on-street parking inventory was limited to the critical area with high parking demand in relation to local retail.

7.2 OFF-STREET PARKING

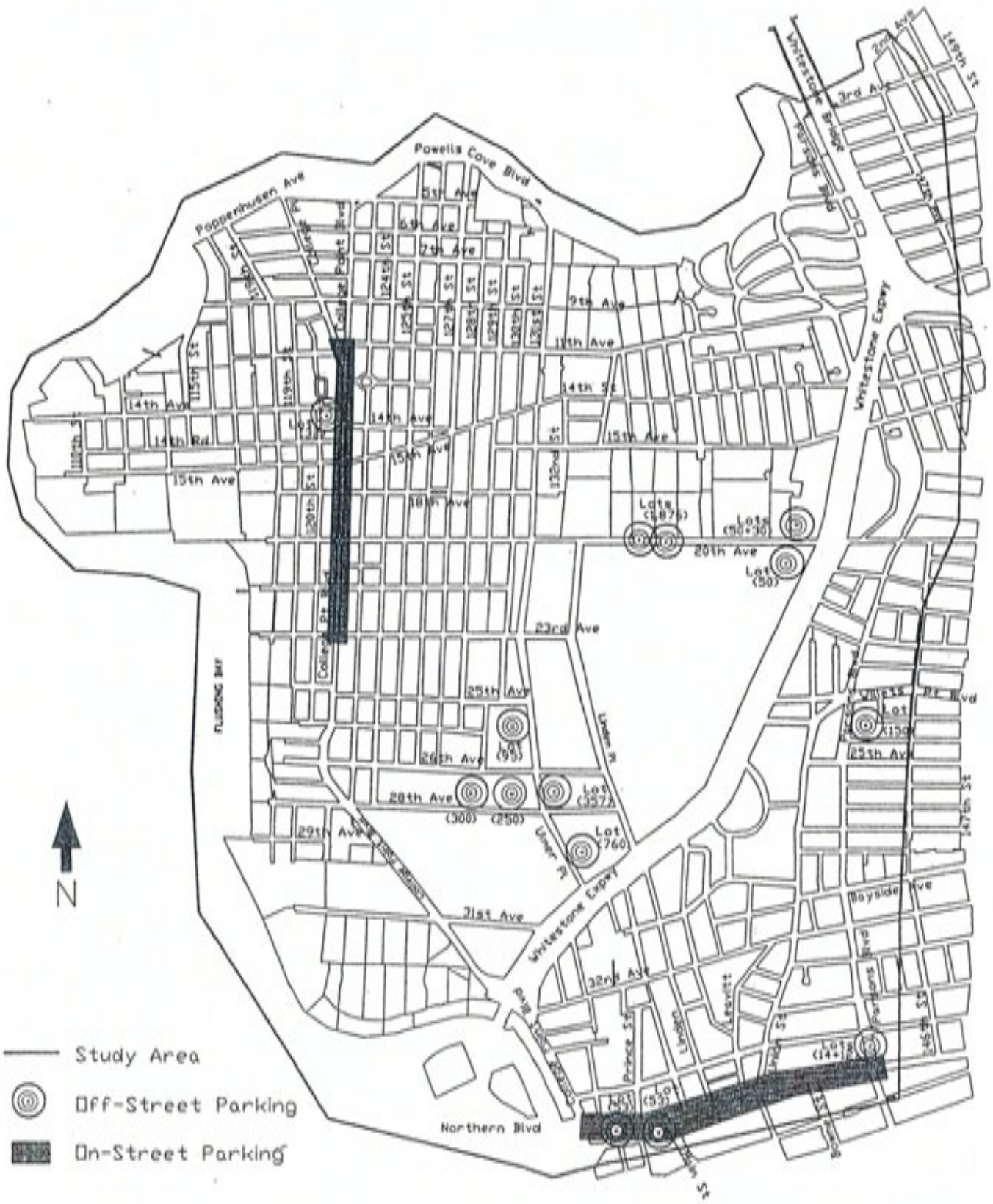
The inventory of off-street parking facilities identified 14 parking lots (no garages), with a total capacity of 4,051 spaces. An examination of the spatial distribution of the parking facilities revealed distinct patterns consistent with the spatial distribution of land uses. There are clear groups within and outside of the College Point Corporate Park.

TABLE 7-1
Off-Street Parking Facilities

Station	Location	Type	License Capacity	Utilization Rate (%)			
				AM	MD	PM	SAT
1	College Point Boulevard between 14th Avenue & 14th Road	Municipal Lot (Meters)	32	14	38	28	45
2	20th Avenue between 132nd Street & Whitestone Expressway	2 Lots (Shopping Mall)	1,876	25	32	35	37
3	20th Avenue between 132nd Street & Whitestone Expressway	2 Lots (World Plaza)	85	77	80	65	-
4	20th Avenue between 132nd Street & Whitestone Expressway	Private Lot (US Postal Office)	50	80	94	85	-
5	Parsons Boulevard between 25th Avenue & Willets Point Boulevard	Lot (Shopping Mall)	155	55	84	87	90
6	Parsons Boulevard between 35th Avenue & Northern Boulevard	Lot (Bank Customers)	14	71	86	93	93
7	Parsons Boulevard between 35th Avenue & Northern Boulevard	Lot Private	12	92	83	92	83
8	Northern Boulevard between Main Street & Prince Street	Municipal Lot (Meters)	17	0	82	94	88
9	Northern Boulevard Bridge between Prince Street & College Point Boulevard	Municipal Lot (Meters + Permits)	53	30	68	64	87
10	Ulmer Place between 28th Avenue & Whitestone Expressway	Private Lot (Site C-Proposed)	760	-	-	-	-
11	Ulmer Place between 28th Avenue & 26th Avenue	Private Lot (Site D-Proposed)	357	-	-	-	-
12	Ulmer Place between 28th Avenue & 26th Avenue	Private Lot / Garage Bus Depot (Q.S.C.)	300	67	86	70	-
13	Ulmer Place between 28th Avenue & 26th Avenue	Private Lot (DOT Maintenance)	250	39	85	68	-
14	Ulmer Place between 25th Avenue & 26th Avenue	Private Lot (Office)	95	45	63	45	-
	Total (#)		4,051	749	1,496	1,016	930
	Average Utilization Rate (%)			50	73	69	75

Exhibit 7-1 shows on-street curbside and off-street facilities that were inventoried.

EXHIBIT 7-1
ON- & OFF-STREET PARKING FACILITIES



In the Corporate Park there are two clusters of off-street parking facilities. One is along 20th Avenue nearer to the Whitestone Expressway that serve commercial activity (the shopping mall) and offices. These facilities provide 2,011 parking spaces.

The other cluster of parking facilities is located in the southern section of the Corporate Park. These are more consistent with M-1-1 zoning activities with office provisions as well. In this area are the Queens Surface Bus Depot, NYPD Tow Pound, and other developments (e.g., Multiplex Cinema, Toys-R-Us, Kids-R-Us) associated with sites C and D. The total number of parking spaces in this cluster is 1,762. More recently a Home Depot with approximately 350 parking spaces was opened, west of College Point Boulevard.

The parking facilities inside the Study Area that are outside the Corporate Park specifically serve local retail on the major corridors. Along Northern Boulevard in the south of the Study Area, are four facilities with a total of 96 parking spaces. At Parsons Boulevard and Willets Point Boulevard there are 150 parking spaces for a shopping mall. At the end of the local retail strip on College Point Boulevard in the north of the Study Area is a 32-space parking lot.

7.3 ON-STREET PARKING

In general, curbside parking activity has a significant effect on an area's traffic circulation. On-street parking in residential zones is for long term non-work hours parking demand. On-street parking in areas with local retail is mainly provided for short durations (1-4 hours) as opposed to long term parking for durations greater than four hours which is provided in off-street parking facilities.

On-street parking is permitted on most of the Study Area roadways with prohibition during specific periods to facilitate street cleaning. Alternate side street cleaning regulations apply to approximately 1/3 of the Study Area. In the remaining 2/3 no regulations exist. The two local retail strips in the Study Area have on-street parking that are regulated by parking meters.

In addition to the parking meters there are No Parking between 7:00 AM and 9:00 AM regulations on most intersection approaches to facilitate commuter rush traffic. No parking is permitted on the four primary access routes to College Point for two to four blocks west of the Whitestone Expressway.

7.4 PARKING DEMAND AND SUPPLY

The *off-street* parking supply for the Study Area as a whole, and for specific sites such as the new shopping mall with high trip generation and parking demand is adequate. This is evidence in Table 7-1 which shows a parking utilization rate for the various peak periods ranging between 50 and 75%. The one exception is the Queens Surface Transit Bus Depot which, in addition to utilizing its off-street parking, uses the extended block of 28th Avenue for on-street parking.

The *on-street* parking supply for the Study Area as a whole is more that adequate after taking into account the various restrictive parking regulations. However, the local retail strips along Northern Boulevard and College Point Boulevard are nearly at capacity during the Saturday peak hour. Exhibits 7-2 through 7-5 show the on-street parking activity on the two corridors for the respective peak hours. It can be seen that parking demand does not exceed capacity for the various peak hours, and during the Saturday peak hour the utilization rate exceeds 90%. Collectively the two retail strips on-street parking supply was found to be approximately 65%, 78%, 75%, and 85% utilized during the AM, MD, PM, and SAT peak hours, respectively.

Specifically, on College Point Boulevard 9, 17, 22, and 21 illegal and double parked vehicles were observed during the respective peak hours, even though there were vacant meters or other legal spaces. Hence this is not a problem of inadequate parking supply but one of enforcement. On Northern Boulevard the incidence of illegal or double parking was very low with the number of vehicles in the single digits for the various peak hours.

EXHIBIT 7-2
ON-STREET PARKING ACTIVITY (NORTHERN BLVD)

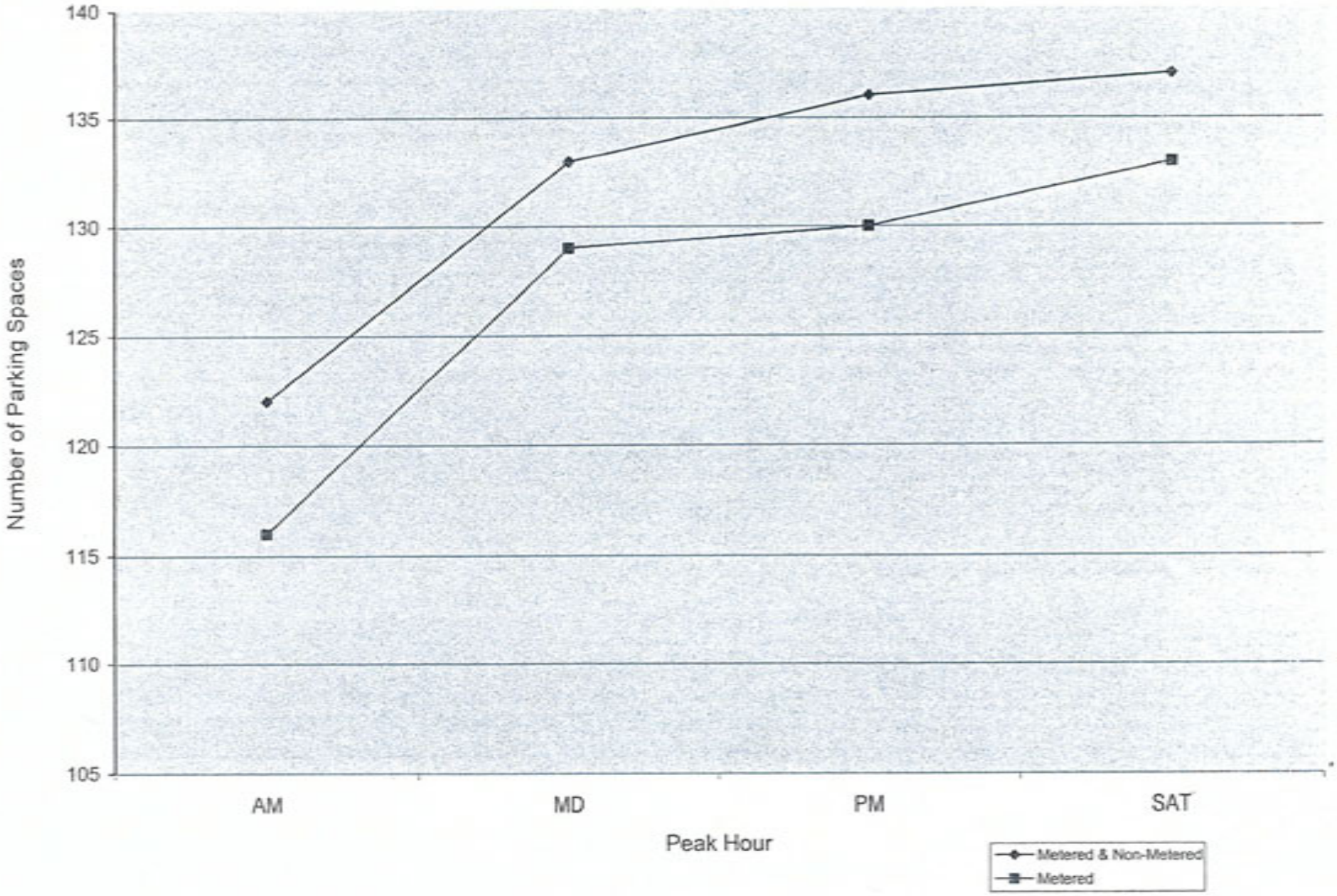


EXHIBIT 7-3
ON-STREET PARKING UTILIZATION (NORTHERN BLVD)

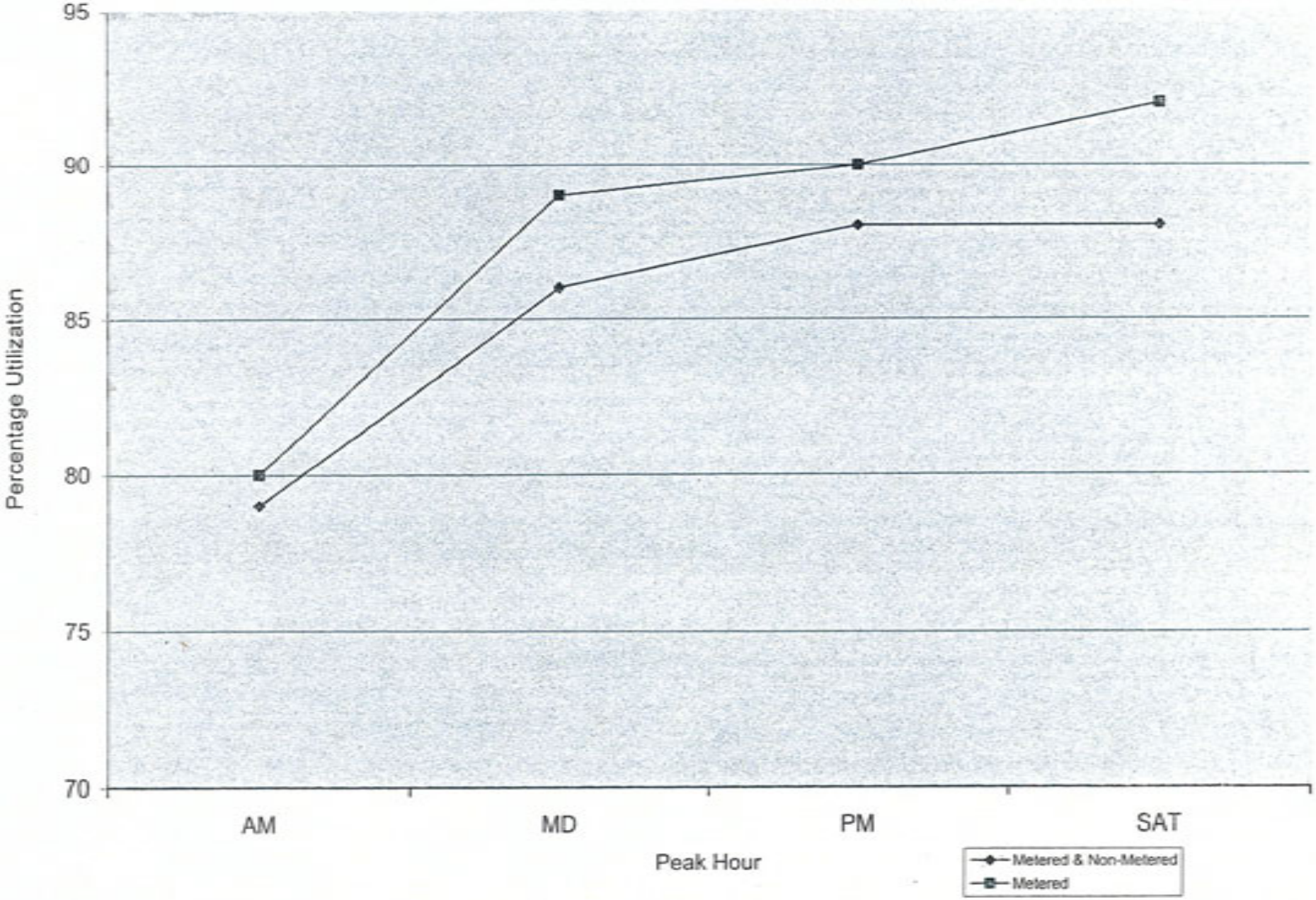


EXHIBIT 7-4
ON-STREET PARKING ACTIVITY (COLLEGE POINT BLVD)

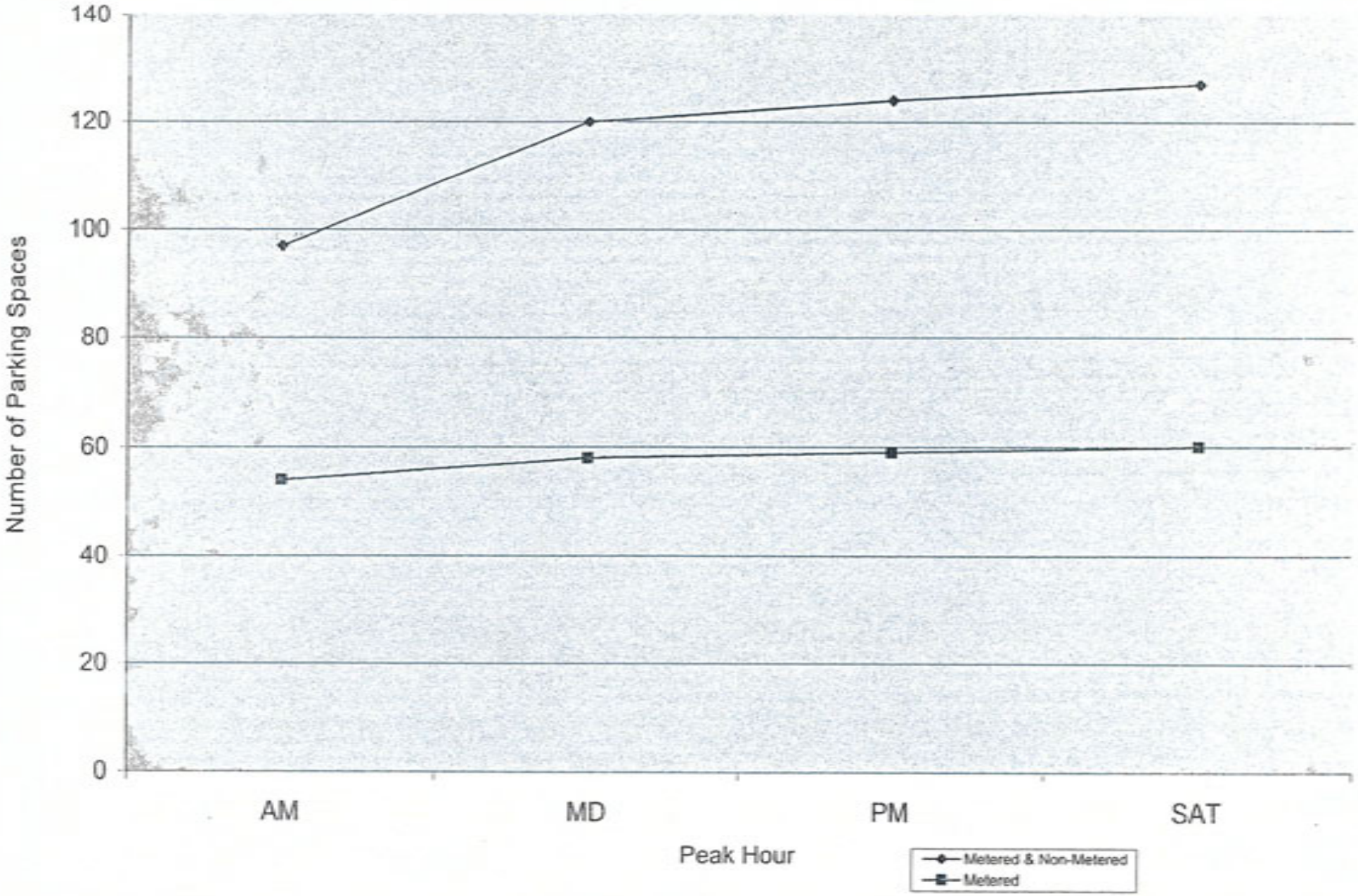
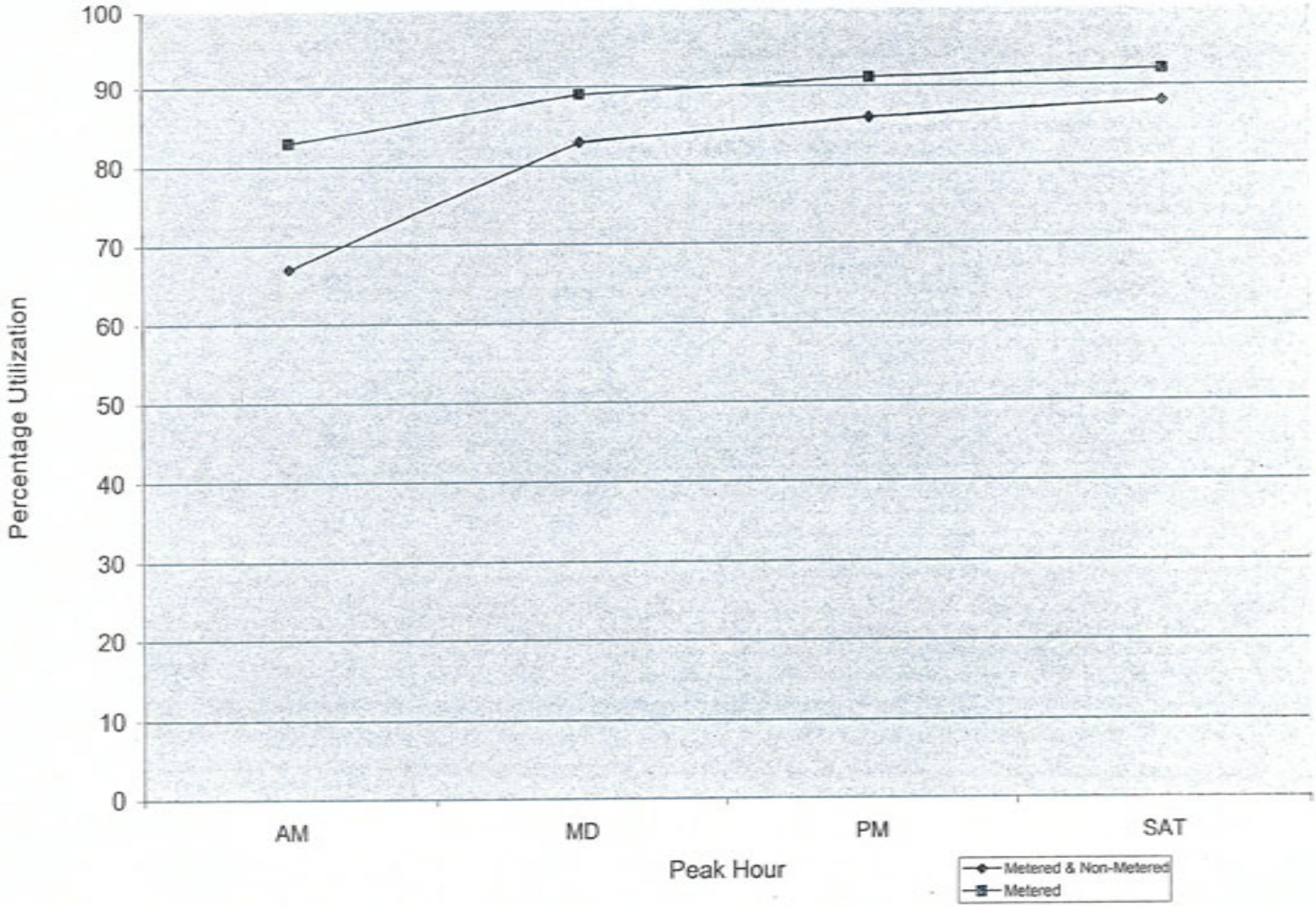


EXHIBIT 7-5
ON-STREET PARKING UTILIZATION (COLLEGE POINT BLVD)



8.0 PUBLIC TRANSPORTATION

Public Transit is a key component on any traffic and transportation system. Surface Transit (Buses, Vans, Livery/Taxis), Subway, and Commuter Rail comprise the Public Transit activity. The College Point Study Area is not served by any commuter rail neither does it have any subway lines or stops within its boundaries.

The Public Transportation that serves the College Point Study Area is principally New York City Transit (NYCT) and Queens Surface Corporation buses. Public transit could be considered to be less than adequate when compared to the Borough and City as a whole. The Public Transit in the Study Area recorded a modest loss of ridership in the last three decades (1980 and 2000). The transit share decreased from 44.7% to 37.9% between 1980 and 1990 (losing approximately 2,300 riders) and to 34.9% by 2000. The volume of bus ridership dropped by 2.4%, and subway ridership dropped by 5.3%, while taxi ridership was virtually unchanged, increasing 0.2% (DCP – Queens Community District No. 7, 1999).

8.1 BUS SERVICE

Currently, there are 13 bus lines (QBx1, X32, Q13, Q14, Q16, Q20, Q25, Q28, Q34, QM2, Q44, Q65, Q66) serving the Study Area. This service is provided by New York City Transit (NYCT), Queens Surface Corporation, Command Bus Line, and Green Bus Line. Exhibit 8-1 shows the bus lines/routes traversing the Study Area, and Table 8-1 shows peak hour frequencies. Presently, all lines operate with spare capacity ranging from 40 to 788 passengers per peak hour.

COLLEGE POINT

BUS AND SUBWAY LINES

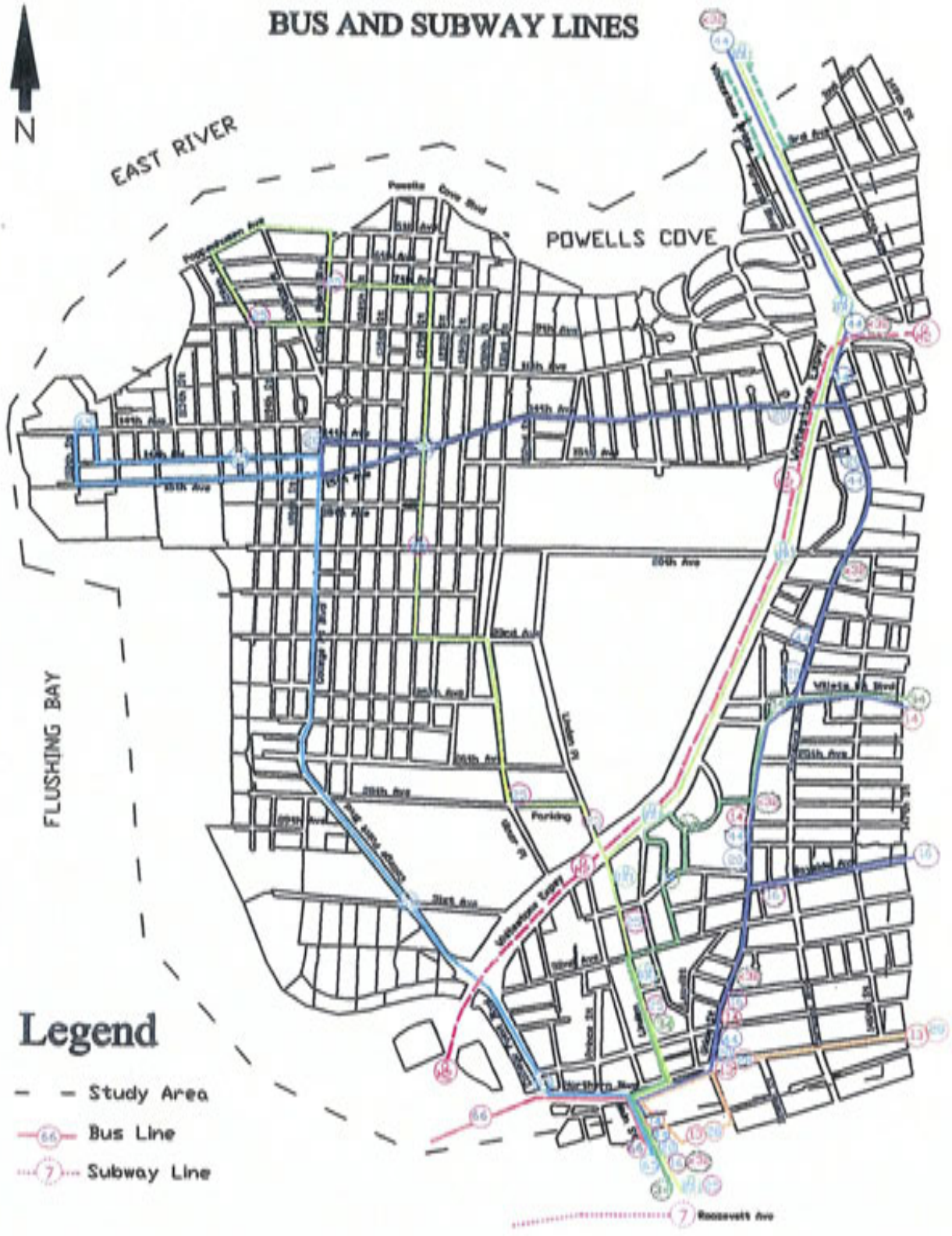


Table 8-1
Bus Lines and Frequency of Service

Bus Line	Destination	Headway In Minutes			
		AM	MD	PM	SAT MD
QBx1	Bronx, Co-op City	18	30	20	30
X32	Queens / Bronx Express	6:54*	-	3:30*	-
Q13	Fort Totten (Cross Island Parkway)	10	15	10	15
Q14	Whitestone / 7th Avenue	10	30	12	30
Q16	Fort Totten (Francis Lewis Boulevard)	6	20	8	20
Q20	College Point Boulevard / 15th Avenue	12	30	15	-
Q25	College Point Boulevard / 5th Avenue	10	20	12	30
Q28	Bay Terrace / 23rd Avenue	5	12	6	15
Q34	Willets Point Boulevard / 149th Street	12	20	12	30
Q44	Bronx Zoo / East 180th Street	10	15	7	8
Q65	College Point / 110th Street	5	12	7	15
Q66	Long Island City / 21st Street	15	24	15	30
	Woodside / 51st Street	5	12	8	15

* Bus X32 (Queens / Bronx Express – School Days Only) provides three services toward Paul Avenue (Bronx), Springfield Boulevard, 165th Street and Bell Boulevard in the morning (at 6:43, 6:45, and 7:00 AM) and in the afternoon (at 3:25 and 3:30 PM).

Of all the bus lines passing through the Study Area, three (QBx1, Q44, and X32) have destinations in the Bronx; four (Q25, Q34, Q65, and Q44) connect to Main Street in Downtown Flushing and continue to Jamaica Center; two connect to Downtown Flushing only, while the others simply pass through the southern tip of the Study Area along Northern Boulevard.

With the observed space capacity on the various bus lines and the demand anticipated from the new developments being mainly automobile oriented, it is concluded that there are no significant impacts on bus service.

8.2 SUBWAY SERVICE

The nearest subway station to the Study Area is the IRT No. 7 Flushing Line, Main Street Station. It is approximately one mile from College Point Corporate Park. Most College Point commuters using the subway must use another mode to connect to this service. The subway line extends through northern Queens communities (Corona, Jackson Heights, Woodside, and Long Island City) along Roosevelt Avenue and Queens Boulevard, and into Manhattan to its terminal at 42nd Street and Seventh Avenue. The demographic analysis showed that the transit share declined between 1980 and 2000. However, with the introduction of the single fare (free transfer) to this previously two fare zone, resulted in an increase in ridership.

9.0 FUTURE CONDITIONS & RECOMMENDATIONS

9.1 2014 FUTURE CONDITIONS

Future traffic growth is influenced primarily by three factors, namely demographics, land use/zoning and major planned developments.

Demographics:

By 2014, the horizon year for this project, the demographic changes are expected to be relatively small. Between 1970 and 2000 the population grew an average of 4.9% decennially. Projecting a moderate increase above this average rate and projecting to 2014 the study area population is expected to be approximately 49,935, an increase of 5087over the 2000 level. The following Table 9-1 presents the area's population for the various decades for purposes of comparison.

Table 9-1: Study Area Population by Decades

Actual				Projected	
1970	1980	1990	2000	2010*	2014*
38,905	36,943	39,431	44,848	48,481	49,935
	-5%	6.7%	13.7%	8.1%	3.0%

* projected population

The table shows that the 2014 population would be 5,087 persons above the 2000 population. Using NYC average household size of 2.6 and 60% car ownership rate, would result in approximately 1,957 additional households and 1,174 new automobiles by the year 2014 in the study area. As was stated in Technical Memorandum No.1, the high rate in vehicle ownership usually translates into a high automobile mode share. The car/van mode share was 46.7% in 1980 and 55.4% in 2000. This 55% average car/van mode share is expected to continue to 2014, which translates into more single occupant vehicles (automobiles) in the traffic stream. However, when this is distributed temporally and applied to the specific peak hours it is expected to translate into a moderate increase in the resident based auto trips.

Land Use and Zoning:

Significant land use and zoning changes are not expected to occur by the year 2014. Significant zoning changes occurred in the 1960s when a preliminary development plan was drafted to set guidelines for the future. When the College Point Industrial Park was planned and the area was designated for Urban Renewal in 1967, the then Public Development Corporation was responsible to charter its development. There were subsequent amendments to the Urban Renewal Area (URA) which allowed the development of more commercial retail. Approximately 80% of the developments were completed and operational in 2004. The vehicle trips from the new developments are reflected in the revised 2004 traffic network. See Land Use map (Figure 3-2.)

Traffic and Transportation

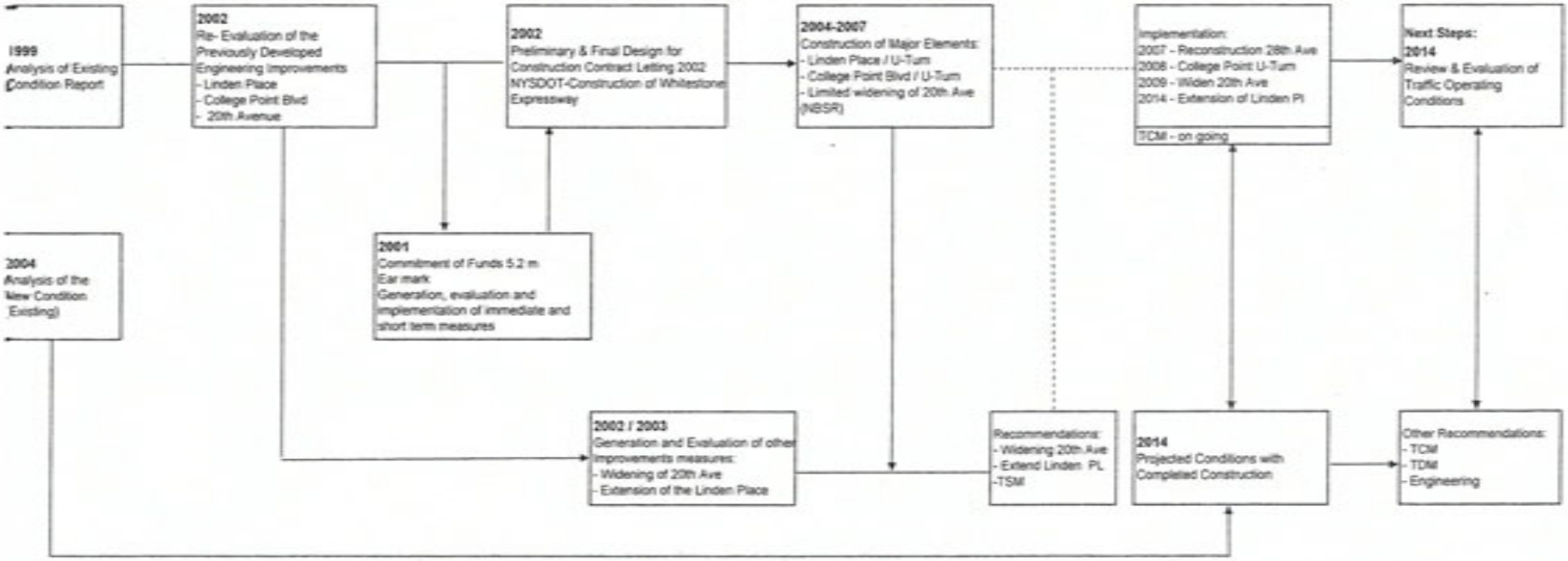
Future traffic conditions are usually derived from projecting a background growth to existing volumes then adding vehicle trips that will be generated from expected new developments by the proposed build year. With more than 80% of the development already accomplished a background growth rate of one and a half percent per year was applied to account for any development above the typical one percent background growth. The 2004 traffic network also takes account of street network changes and any approved mitigation measures that will be in place by 2014. In addition to signal timing and parking regulation changes, the extension on Linden Place to 20th Avenue and the College Point Boulevard U-turn are analyzed in the future traffic network.

9.2 TRAFFIC IMPROVEMENTS

Prior to the commencement of this study, issues of capacity constraint on the street network and congestion were identified and initiatives to improve traffic circulation were underway. The following chart "College Point Traffic Planning and Implementation Process" provides an insight into the process, issues and initiatives aimed at improving traffic flow and circulation.

COLLEGE POINT TRAFFIC PLANNING

& Implementation Process



The 1999 Existing Conditions analysis report triggered a comprehensive review of all previous recommendations and potential projects impacting the College Point peninsula from a traffic perspective. Secondly, the request of elected officials and community demands for immediate and short term relief led to some of the following measures being implemented as early action items.

IMMEDIATE AND SHORT TERM IMPROVRMENT MEASURES

Traffic Signals

- Traffic signals were installed at the following locations:
- 20th Avenue at the Old Navy/Babies 'R' Us entrance/exit.
- A left turn signal on eastbound 20th Avenue at the BJ's/Target entrance/exit.
- 20th Avenue and the entrance/exit of the Post Office, at Petracca Place.
- Intersection of 28th Avenue and Ulmer Street.
- A Leading Pedestrian Interval (LPI) to facilitate pedestrians crossing the Whitestone Expressway SB Service Road at 20th Avenue.
- 170E special traffic signal controllers were installed at the Whitestone Expressway NB and SB Service Roads at Linden Place, Whitestone Expressway NB and SB Service Roads at 20th Avenue, Parsons Boulevard at 20th Avenue, and 20th Avenue at the Babies 'R' Us/Target entrance/exit.

Roadway Widening/Pavement Markings

- Linden Place immediately east of the Whitestone Expressway NB Service Road was widened from one to two travel lanes in each direction.
- The Whitestone Expressway NB Service Road at 20th Avenue was widened from three 10-foot to three 13-foot travel lanes.
- 20th Avenue east of the Whitestone Expressway NB Service Road was widened from one to two lanes in the eastbound direction, and from two 10-foot to two 12-foot lanes in the westbound direction for approximately half of a block.
- 14th Avenue was completely reconstructed and repaved for its entire length.

Parking Regulations

"No Standing Anytime" signs were installed at the following locations:

20th Avenue, both curbs, between the Whitestone Expressway NB Service Road and 130th Street.

Whitestone Expressway NB Service Road, west curb, from 14th Avenue to College Point Boulevard.

Linden Place, both curbs, between the Whitestone Expressway NB Service Road and 28th Avenue.

28th Avenue, both curbs, between Linden Place and Ulmer Street.

College Point Boulevard, both curbs, between 28th Avenue and the Whitestone Expressway NB Service Road.

130th Street, east curb, from 23rd Avenue to 21st Avenue.

15th Avenue, south curb, from 130th Street to 132nd Street.

132nd Street, east curb, from 20th Avenue to 14th Road, and west curb, from 15th Avenue to 20th Avenue.

"No Standing Midnight – 7AM including Sunday" signs were installed on Ulmer Street, both curbs, between 25th and 28th Avenues

LONG TERM CAPITAL INTENSIVE IMPROVRMENT MEASURES

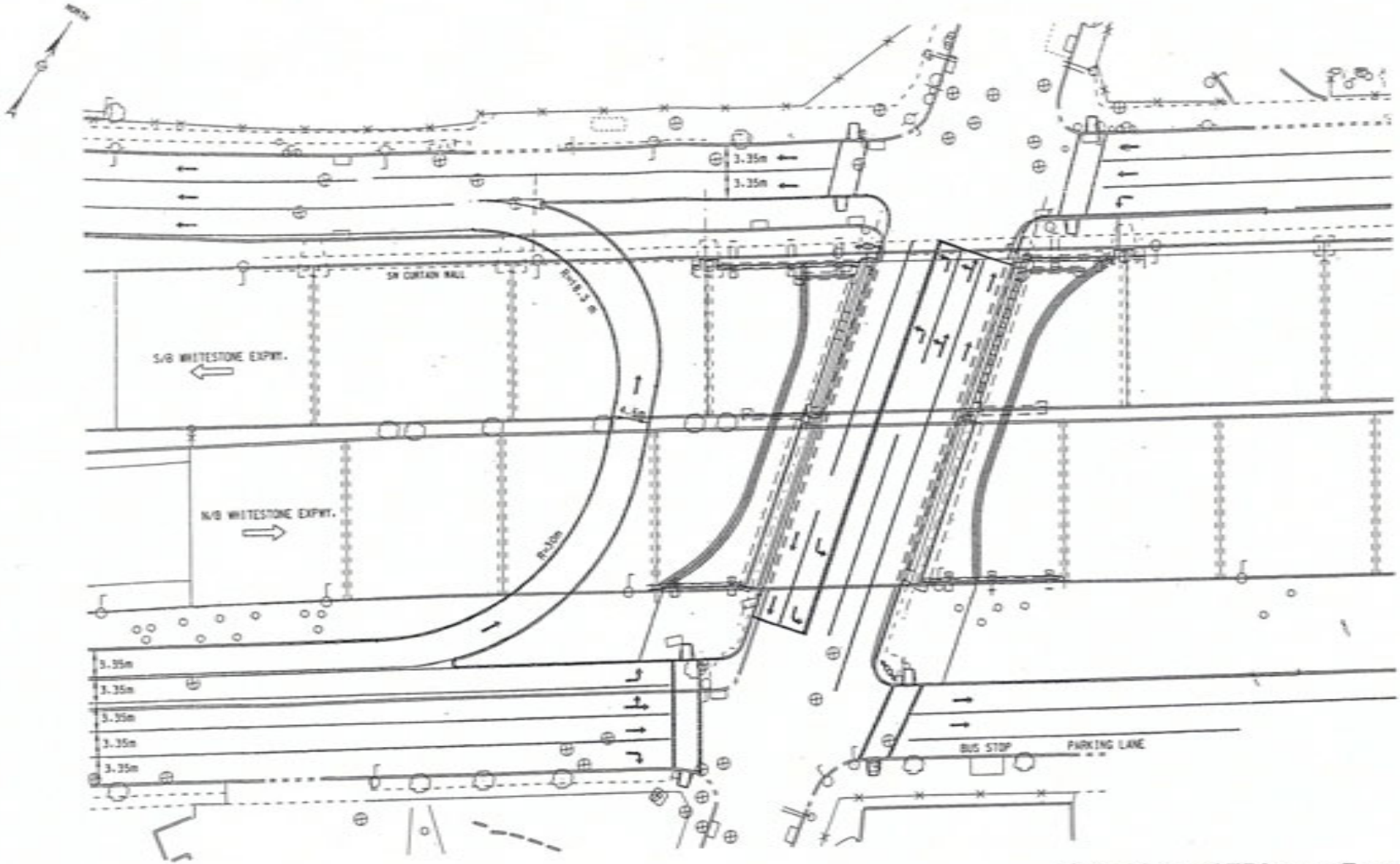
The analysis revealed that there are serious bottlenecks in the system, particularly the entrance / exits points to the peninsula and sections of 20th Avenue and College Point Boulevard.

The main congested locations in the traffic network from the analysis of existing and future projected conditions are:

- Linden Place and the Whitestone Expressway Service Roads
- 20th Avenue and the Whitestone Expressway Service Roads and
- College Point Boulevard between 14th and 23rd Avenues

The two most congested access points, the 20th Avenue overpass and the Linden Place underpass, are in the center of the study area. Both locations experience significant turning movements with heavy demand for left turns.

EXHIBIT 9-6



Linden Place and Whitestone Expressway

Source: NYSDOT

In an attempt to effectively address the traffic circulation and congestion problem, measures beyond Transportation System Management (TSM) and Travel Demand Management (TDM) had to be explored to improve intersection capacity and provide congestion relief. This process resulted in advancing and recommending the following capital improvements:

Widening Linden Place under the Whitestone Expressway

The existing clear distance between the two piers along Linden Place is approximately 60 feet, which consists of five 10-foot lanes and two 5-foot sidewalks. The underpass roadway width could be widened by eliminating the two 5 foot sidewalks and placing 2 foot wide traffic barriers in front of the piers. The modified underpass would provide five 11 foot lanes with no sidewalk. Pedestrian walk path could be constructed on one or either side of Linden Place under the existing viaduct.

Construct a Free Flow U-Turn for NB Expressway SR at Linden Place to SB SR

This option addresses traffic exiting the Expressway and making left turns onto the westbound Linden Place, to the southbound service road. The proposal was to construct a U-turn roadway south of the Linden Place by opening the Expressway viaduct curtain walls and lowering the roadway embankment for adequate vertical clearance under the viaduct. This would allow free flow movement from the northbound onto the southbound service road, and a three phase signal control at the U-turn exit, Ulmer Street and the Expressway southbound Service Road.

Construct Free Flow U-Turn for SB Expressway SR at College Point Blvd. to NB SR

This option addresses traffic traveling southbound on the Whitestone Expressway SR making left turns onto the College Point Boulevard to the northbound service road. This would allow free flow movement from the northbound onto the southbound service road.

Widen 20th Avenue between NB Expressway SR and Parsons Boulevard

Widen the south curb of 20th Avenue between the Whitestone Expressway northbound service road and Parsons Boulevard to provide an additional moving lane in the eastbound direction.

Linden Place Extension

Extend Linden Place northbound to 20th Avenue from 28th Avenue to 23rd Avenue in the first phase and from 23rd Avenue to 20th Avenue in the second phase. Phase I is scheduled for construction in 2007. The EDC-Linden Place extension project was estimated to cost approximately $7.9 million. Phase II the 132nd Street extension, i.e. from 23rd Avenue to 20th Avenue is expected to be completed in 2009.

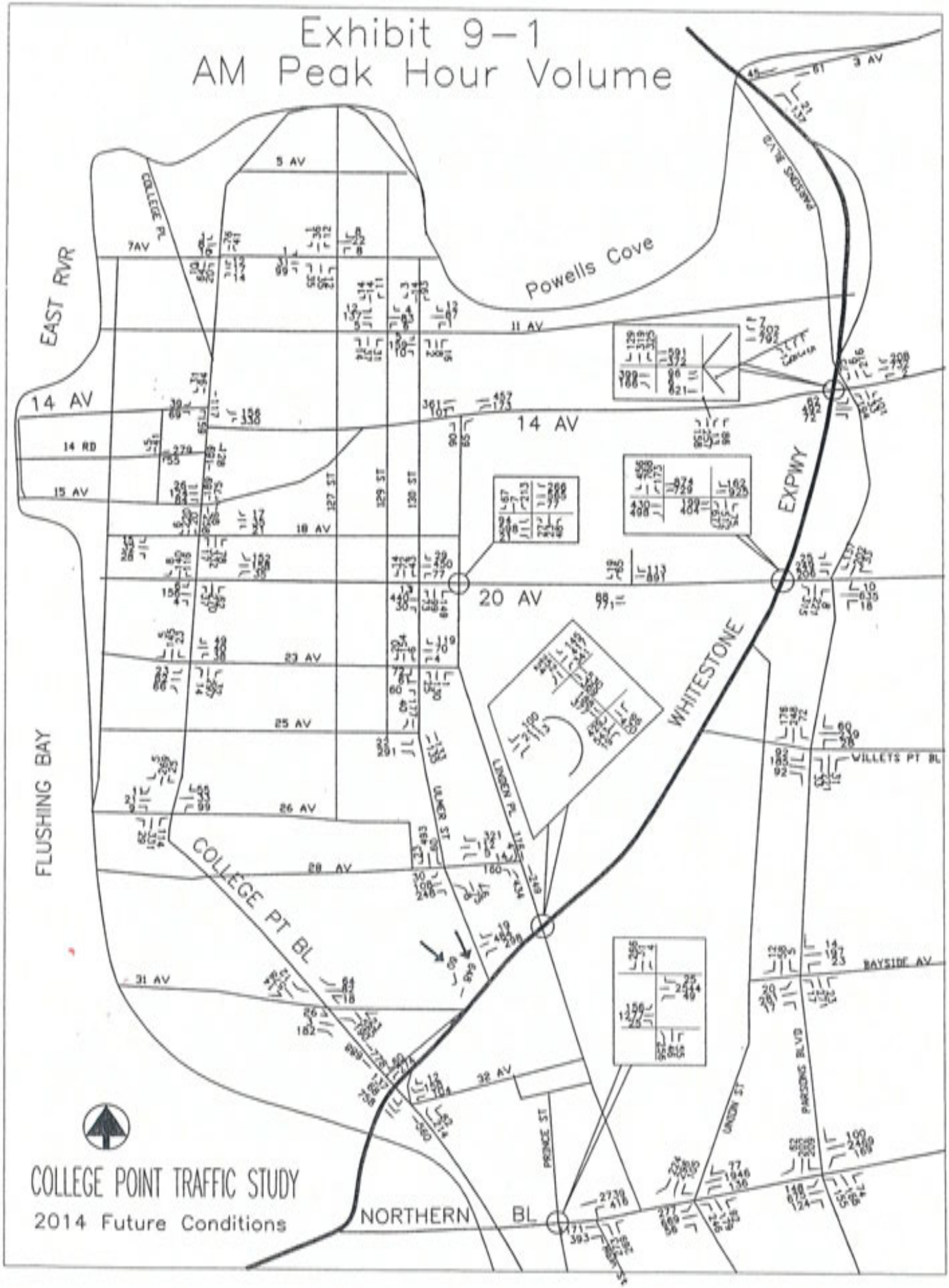
This project has wetland issues and EDC had commenced the Former Flushing Airport Wetlands Development Project to address the wetland issues thereby clearing the way to facilitate the full implementation of the project.

These measures acting together as a comprehensive improvement plan will not only improve intersections capacity but would redistribute traffic relieving pressure from 20th Avenue and the Whitestone Expressway Service Roads. For example the extension of Linden Place is projected to divert 175 to 200 vehicles from eastbound 20th Avenue to the new roadway thereby significantly improving the LOS at 20th Avenue and the Whitestone Expressway Service Roads.

Factoring in all completed and planned network improvements along with using the projected vehicular and pedestrian volumes, the 2014 future traffic network was developed and the levels of service (LOS) analysis conducted.

Exhibit 9-1 to 9-4 show the 2014 future AM, MD, PM, and SAT peak hour traffic volumes and the results of the capacity analysis are provided in Table 9-2.

Exhibit 9-1
AM Peak Hour Volume



COLLEGE POINT TRAFFIC STUDY

2014 Future Conditions

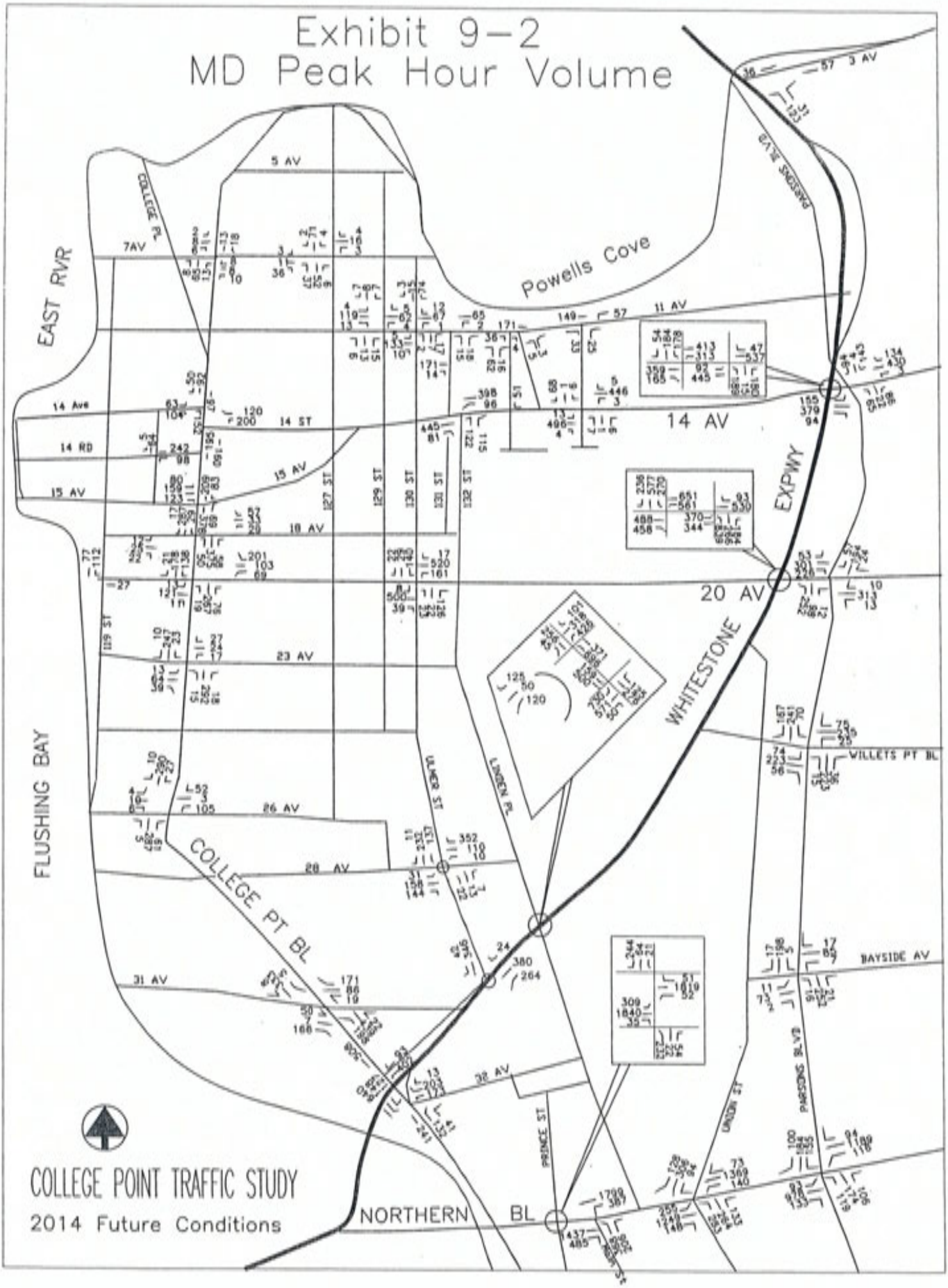


Exhibit 9-2
MD Peak Hour Volume
EAST RVR
FLUSHING BAY
Powells Cove
COLLEGE PT BL
WHITESTONE EXPWY
CLEARVIEW EXPWY
5 AV
7AV
11 AV
14 Ave
14 RD
14 ST
14 AV
15 AV
18 AV
20 AV
23 AV
26 AV
28 AV
31 AV
32 AV
119 ST
127 ST
129 ST
130 ST
131 ST
132 ST
LINDEN PL
ULMER ST
WILLETS PT BL
BAYSIDE AV
PARSONS BLVD
UNION ST
PRINCE ST
NORTHERN BL
COLLEGE POINT TRAFFIC STUDY
2014 Future Conditions

Exhibit 9-3
PM Peak Hour Volume

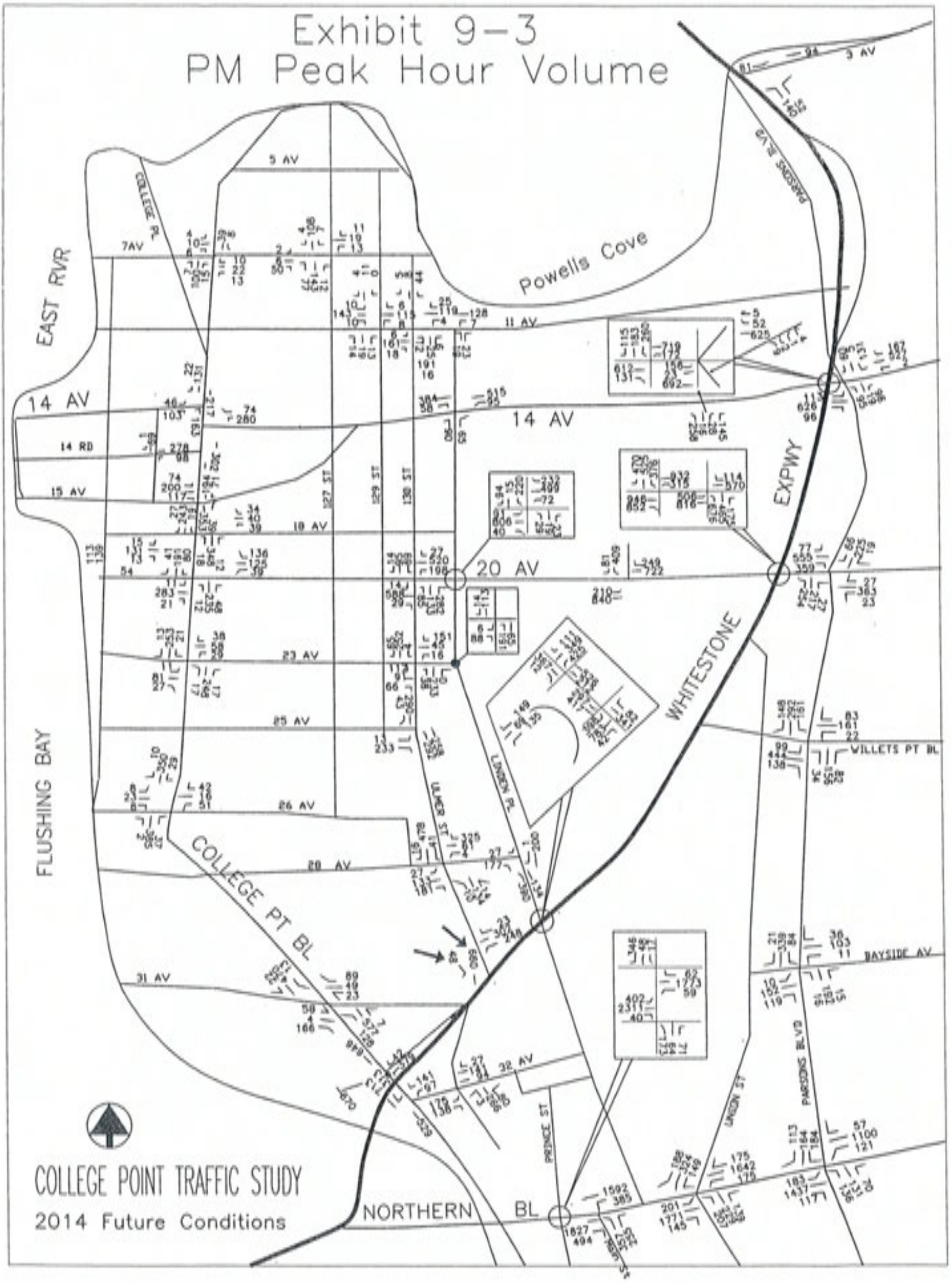


Exhibit 9-4
SAT MID Peak Hour Volume

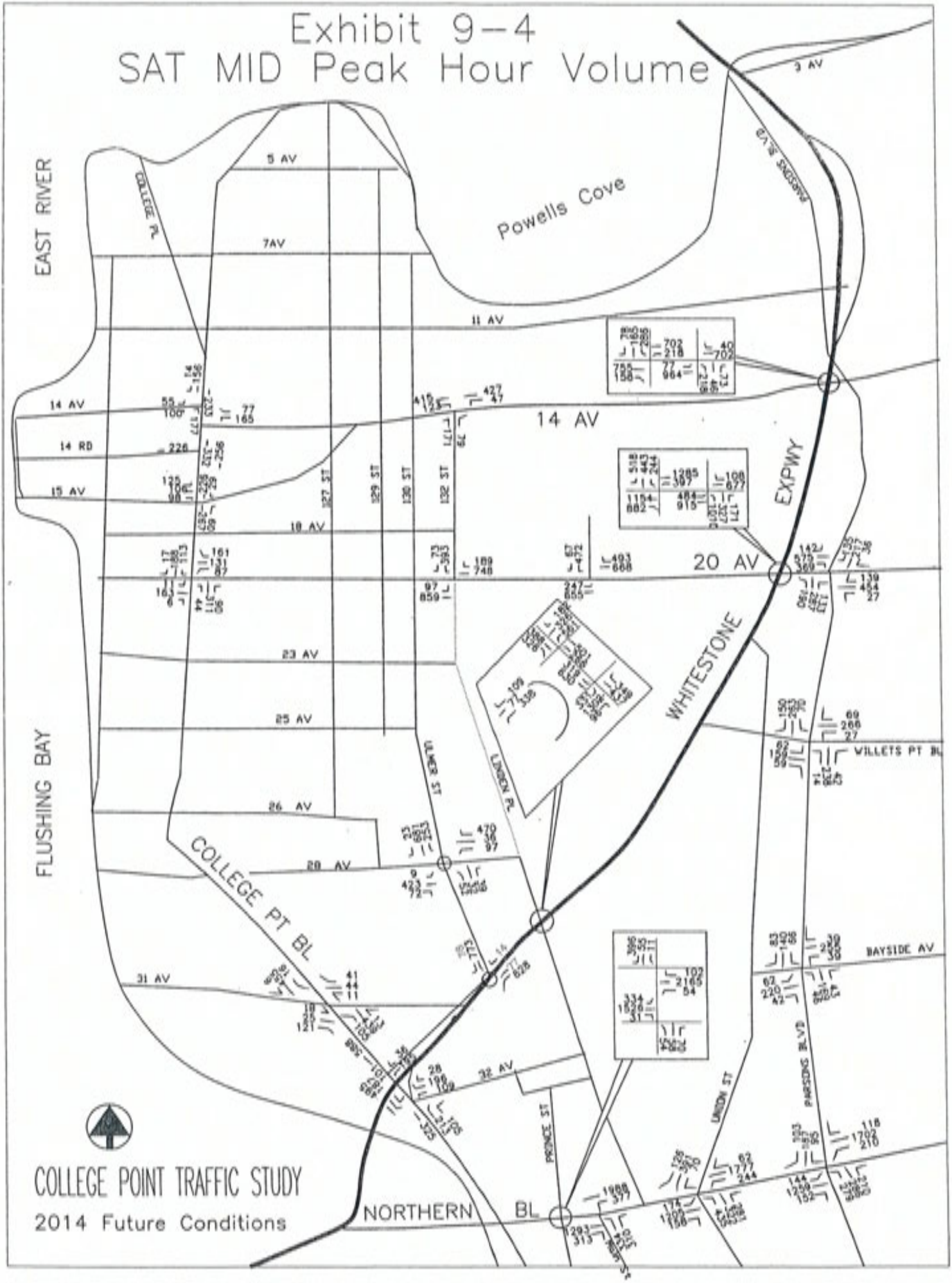


TABLE 9-2 (Page 1 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2014 FUTURE CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM			MID SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
College Point Blvd & 31st Avenue	EB	LTR	0.58	32.80	C	0.64	35.80	D	0.77	41.60	D	0.50	31.00	C
	WB	LTR	0.37	28.40	C	0.57	32.10	C	0.41	29.00	C	0.19	25.90	C
	NB	L	0.61	22.80	C	0.52	15.70	B	0.43	14.40	B	0.29	11.30	B
		TR	0.30	8.70	A	0.20	8.00	A	0.24	8.20	A	0.17	7.80	A
	SB	L	0.08	13.70	B	0.03	12.90	B	0.11	14.30	B	0.05	13.20	B
		TR	0.37	15.90	B	0.26	14.80	B	0.29	15.00	B	0.30	15.10	B
College Point Blvd & 26th Avenue	EB	LTR	0.08	14.00	B	0.06	13.80	B	0.07	14.00	B	N/A		
	WB	DfL	0.31	17.20	B	0.32	17.30	B						
		TR	0.31	17.00	B	0.15	15.00	B						
		LTR							0.19	14.90	B			
	NB	L	0.09	7.30	A	0.02	6.80	A	0.02	6.80	A			
		LTR	0.40	9.40	A	0.33	8.80	A	0.45	9.80	A			
	SB	LTR	0.30	8.50	A	0.31	8.50	A	0.34	8.70	A			
College Point Blvd & 23rd Avenue	EB	LTR	0.56	24.30	C	0.39	20.30	C	0.45	21.40	C	N/A		
	WB	LTR	0.48	22.80	C	0.30	18.80	B	0.57	24.30	C			
	NB	LTR	0.54	10.40	B	0.54	10.30	B	0.41	8.50	A			
	SB	LTR	0.29	7.30	A	0.45	9.00	A	0.44	8.90	A			
College Point Blvd & 20th Avenue	EB	LTR	0.36	17.10	B	0.19	15.20	B	0.61	21.00	C	0.35	16.80	B
	WB	LTR	0.76	27.40	C	1.03	70.40	E	0.72	26.00	C	0.96	50.70	D
	NB	LTR	0.60	13.10	B	0.54	11.70	B	0.39	9.60	A	0.65	13.80	B
	SB	DfL	0.47	12.80	B	0.66	19.10	B				0.39	11.30	B
		TR	0.33	9.60	A	0.44	11.00	B				0.39	10.10	B
		LTR							0.32	8.70	A			
College Point Blvd & 18th Avenue	EB	LTR	0.17	15.00	B	0.14	14.70	B	0.33	16.80	B	N/A		
	WB	LTR	0.25	15.90	B	0.52	20.60	C	0.43	19.10	B			
	NB	LTR	0.53	11.60	B	0.77	18.90	C	0.52	11.40	B			
	SB	LTR	0.25	8.10	A	0.31	8.60	A	0.30	8.60	A			
College Point Blvd & 15th Avenue	EB	LTR	0.47	20.50	C	0.71	26.30	D	0.64	23.40	C	0.41	19.50	B
	NB	TR	0.80	18.90	B	0.68	13.90	B	0.56	10.40	B	0.44	8.70	A
	SB	LT	0.60	12.50	B	0.41	8.50	A	0.46	9.40	A	0.36	7.80	A
College Point Blvd & 14th Ave (East)	WB	L	0.72	21.90	C	0.37	17.10	B	0.54	20.10	C	0.31	16.20	B
		R	0.33	16.10	B	0.24	15.60	B	0.18	15.00	B	0.15	14.70	B
	NB	T	0.27	8.30	A	0.49	11.60	B	0.47	11.10	B	0.57	13.10	B
	SB	T	0.14	7.20	A	0.15	7.30	A	0.18	7.50	A	0.19	7.60	A
College Point Blvd & 14th Ave (West)	EB	L	0.08	14.00	B	0.14	14.50	B	0.10	14.10	B	0.12	14.40	B
		R	0.21	15.70	B	0.34	17.40	B	0.27	16.20	B	0.30	16.70	B
	NB	LT	0.46	10.90	B	1.06	62.30	E	0.58	12.80	B	0.66	15.00	B
	SB	T	0.15	7.40	A	0.13	7.40	A	0.18	7.70	A	0.23	8.00	A
		R	0.06	6.90	A	0.09	7.10	A	0.04	6.80	A	0.02	6.70	A

TABLE 9-2 (Page 2 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2014 FUTURE CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM			MID SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Whitestone Expwy	WB	L	0.52	19.60	B	0.76	27.40	C	0.72	25.30	C	0.37	17.20	B
Service Road-South		R	0.13	14.60	B	0.30	15.30	B	0.09	14.20	B	0.08	14.10	B
& College Point Blvd	NB	T	0.48	9.80	A	0.30	8.30	A	0.45	9.40	A	0.31	8.40	A
	SB	T	0.43	9.40	A	0.32	8.50	A	0.40	9.10	A	0.36	8.70	A
College Point Blvd	WB	L	0.24	15.70	B	0.40	17.80	B	0.20	15.20	B	0.25	15.80	B
& 32nd Avenue /		LR	0.63	25.30	C	0.80	35.60	D	0.53	21.50	C	0.84	38.60	D
Whitestone Expwy-	NB	T	1.08	75.80	E	0.52	19.30	B	0.69	22.20	C	0.75	24.70	C
Service Road-North		R	0.15	7.60	A	0.08	7.10	A	0.12	15.40	B	0.19	8.00	A
	SB	L	0.56	22.80	C	0.53	19.80	B	1.58	306.20	F	0.77	29.70	C
		T	0.57	11.30	B	0.48	10.10	B	3.76	1277.00	F	0.37	9.00	A
Whitestone Expwy	EB	TR	0.37	26.70	C	0.38	26.90	C	0.47	28.10	C	0.93	48.00	D
Service Road-South	WB	L	0.52	15.30	B	1.07	76.40	E	0.26	9.20	A	0.45	19.90	B
& Linden Place		LT	0.59	13.40	B	0.56	13.10	B	0.66	12.20	B	0.65	12.90	B
	SB	L	1.02	80.00	E	1.14	0.28	F	1.29	183.60	F	1.71	366.70	F
		TR	0.91	46.90	D	0.60	31.50	C	0.79	42.40	D	0.82	43.80	D
Whitestone Expwy	EB	L	0.96	70.40	E	0.52	32.30	C	0.98	73.10	E	0.82	48.60	D
Service Road-North		LT	0.40	15.20	B	0.44	15.60	B	0.41	15.10	B	0.57	17.80	B
& Linden Place	WB	TR	1.17	125.90	F	1.08	97.90	F	1.13	115.40	F	1.73	368.30	F
	NB	L	0.96	57.90	E	1.27	160.20	F	0.88	43.30	D	0.63	27.70	C
		TR	0.66	25.70	C	0.59	24.00	C	0.74	27.70	C	1.20	124.60	F
	EB	T	0.48	39.20	D	0.40	25.90	C	1.19	136.50	F	1.20	139.50	F
Whitestone Expwy		R	0.80	51.40	D	0.70	33.10	C	2.22	598.20	F	2.09	538.80	F
Service Road-South	WB	L	1.09	94.40	F	0.79	27.80	C	0.70	41.20	D	0.78	29.80	C
& 20th Avenue		LT	0.71	20.00	C	0.40	9.20	A	0.78	21.10	C	0.88	18.20	B
	SB	LTR	1.19	135.20	F	1.26	161.50	F	2.12	551.80	F	1.22	151.70	F
	EB	L	1.06	131.40	F	0.82	41.80	D	1.53	298.10	F	0.94	65.40	E
Whitestone Expwy		LT	0.22	12.30	B	0.33	12.20	B	0.62	21.30	C	0.61	20.60	C
Service Road-North	WB	TR	0.99	56.70	E	0.55	23.80	C	0.94	53.50	D	0.65	34.80	C
& 20th Avenue	NB	L	1.12	112.20	F	1.28	164.50	F	1.60	316.70	F	1.15	115.40	F
		LTR	0.63	36.80	D	0.45	24.30	C	0.59	32.40	C	0.44	29.10	C
Whitestone Expwy	EB	T	0.97	57.20	E	0.69	30.70	C	1.19	127.20	F	1.25	152.30	F
		R	0.41	24.10	C	0.43	24.40	C	0.25	21.20	C	0.31	22.30	C
Service Road-South	WB	DfL	1.19	132.60	F	1.05	87.90	F	0.61	38.70	D	0.65	40.30	D
& 14th Avenue		T	1.05	69.80	E	0.53	16.00	B	0.78	22.90	C	1.71	351.10	F
	SB	L	0.67	31.40	C	0.40	24.30	C	0.53	26.80	C	0.54	27.10	C
		TR	0.55	25.60	C	0.27	21.70	C	0.29	21.80	C	0.25	21.40	C
	EB	L	1.38	252.50	F	0.48	24.50	C	1.05	102.90	F	0.52	28.50	C
Whitestone Expwy		T	1.07	79.30	E	0.79	30.60	C	1.20	126.30	F	1.54	272.90	F
Service Road-North	WB	TR	0.89	32.50	C	0.55	20.40	C	0.59	21.00	C	0.64	22.00	C
& 14th Avenue	NB	L	0.24	16.60	B	0.32	17.70	B	0.40	18.70	B	0.34	17.80	B
		TR	0.36	17.50	B	0.24	16.40	B	0.18	15.70	B	0.12	15.10	B

TABLE 9-2 (Page 3 of 4)
TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS
2014 FUTURE CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM			MID SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
Northern Blvd & Union Street	EB	L	1.21	174.40	F	1.16	154.40	F	0.94	92.50	F	0.72	61.30	E
		TR	0.45	29.70	C	1.27	164.40	F	0.98	53.60	D	0.98	56.00	E
	WB	L	0.60	37.80	D	0.54	50.90	D	0.87	72.10	E	1.01	104.00	F
		TR	1.00	56.30	E	1.02	65.40	E	1.14	107.50	F	1.21	138.30	F
	NB	DfL	1.18	155.80	F	1.25	182.10	F	1.52	308.30	F	1.26	176.40	F
		TR	0.81	48.30	D	1.27	176.10	F	0.50	29.50	C	2.81	860.30	F
	SB	LTR	1.21	148.60	F	1.04	88.10	F	1.38	225.30	F	1.13	120.50	F
Northern Blvd & Main Street	EB	TR	0.77	28.90	C	1.05	69.70	E	0.84	26.60	C	0.74	31.00	C
	WB	L	0.52	27.10	C	0.47	36.80	D	0.52	30.90	C	0.41	28.60	C
		T	1.16	107.80	F	0.87	38.40	D	0.57	19.50	B	0.92	39.40	D
	NB	L	0.56	46.70	D	0.49	37.80	D	0.67	49.60	D	0.39	33.50	C
		R	0.93	67.90	E	0.67	33.00	C	1.22	168.40	F	0.72	35.30	D
Northern Blvd & Prince Street	EB	L	0.79	63.40	E	1.21	164.10	F	1.32	204.80	F	0.95	76.80	E
		TR	0.39	14.30	B	0.83	26.50	C	0.92	32.10	C	0.55	19.20	B
	WB	L	0.23	16.30	B	0.41	47.40	D	0.36	48.80	D	0.40	40.70	D
		TR	0.86	25.60	C	0.84	32.70	C	1.11	93.50	F	0.93	38.00	D
	NB	LTR	1.20	163.20	F	1.27	188.90	F	3.13	1023.00	F	1.54	313.30	F
	SB	LTR	0.95	78.50	E	1.13	126.80	F	0.87	61.00	E	0.79	52.30	D
Northern Blvd & Parsons Blvd	EB	L	0.78	69.70	E	0.41	31.60	C	0.75	49.70	D	0.76	64.30	E
		TR	0.41	17.30	B	0.57	19.70	B	0.78	24.90	C	0.72	23.00	C
	WB	L	0.48	23.00	C	0.61	40.70	D	0.80	68.00	E	1.34	224.40	F
		TR	1.20	122.00	F	0.61	20.50	C	0.54	19.30	B	0.86	28.40	C
	NB	DfL	0.89	78.80	E				0.80	64.90	E			
		TR	0.82	56.20	E				0.71	48.20	D			
		LTR				1.01	83.40	F				1.68	369.70	F
	SB	DfL	1.25	189.00	F	1.59	343.70	F	1.00	102.80	F	1.27	224.10	F
		TR	0.67	45.70	D	0.74	49.90	D	0.73	49.60	D	0.76	50.80	D
Parsons Blvd & Bayside Avenue	EB	LTR	0.62	15.80	B	0.18	11.20	B	0.56	16.50	B	0.73	22.70	C
	WB	LTR	0.25	11.10	B	0.13	10.50	B	0.16	10.70	B	0.31	11.80	B
	NB	LTR	0.28	11.30	B	0.24	11.30	B	0.20	11.00	B	0.25	11.40	B
	SB	LTR	0.08	10.20	B	0.18	10.90	B	0.46	13.40	B	0.36	12.40	B
Parsons Blvd Willets Point Blvd	EB	LTR	0.43	13.30	B	0.46	13.7	B	1.05	58.90	E	0.37	12.70	B
	WB	LTR	0.32	12.10	B	0.37	12.50	B	0.29	11.80	B	0.39	12.70	B
	NB	LTR	0.29	11.80	B	0.3	11.90	B	0.34	12.30	B	0.32	12.00	B
	SB	LTR	0.53	14.5	B	0.62	16.10	B	0.91	30.3	C	0.64	16.50	B
Parsons Blvd 20th Avenue	EB	LTR	0.69	30.20	C	0.83	29.50	D	1.35	195.90	F	2.28	604.90	F
	WB	LTR	0.72	29.80	C	0.39	17.80	B	0.60	27.20	C	1.02	62.20	E
	NB	L	1.23	160.40	F	0.82	40.70	D	1.03	87.60	F	0.70	31.90	C
		TR	0.53	26.90	C	0.28	17.30	C	0.60	28.90	C	0.85	37.50	D
	SB	LTR	0.47	24.10	C	0.39	17.80	B	0.40	22.60	C	0.52	19.90	B

TABLE 9-2 (Page 4 of 4)

TRAFFIC CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS

2014 FUTURE CONDITIONS

INTERSECTION	Lane Group		AM			MID			PM			MID SAT		
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
	EB	LTR	1.09	80.30	F	1.07	70.40	E	1.19	116.90	F			
& Parsons Blvd	WB	TR	1.18	107.80	F	1.05	66.90	E	1.08	72.80	E			
& 14th Avenue	NB	DfL	0.64	20.80	C				0.27	12.30	B		N/A	
		TR	0.39	14.70	B				0.30	12.90	B			
		LTR				0.33	12.40	B						
	SB	DfL	0.53	16.90	B	0.46	15.90	B	0.32	13.10	B			
		TR	0.22	11.80	B	0.26	12.30	B	0.17	11.30	B			
	EB	LTR	0.69	15.00	B	0.75	17.00	B	0.81	19.60	B			
20th Avenue	WB	L	0.31	10.20	B	0.81	30.50	C	0.75	26.90	C			
& 130th Street		TR	0.91	28.90	C	0.85	23.60	C	0.91	29.40	C		N/A	
	NB	LTR	0.66	21.30	C	0.33	16.30	B	1.08	78.00	E			
	SB	LTR	0.54	22.40	C	1.00	73.00	E	1.22	157.70	F			
	EB	TR	0.57	12.30	B	0.68	14.50	B	0.51	11.10	B	0.66	13.80	B
14th Avenue	WB	L	0.73	23.90	C	0.45	13.60	B	0.36	10.70	B	0.23	9.30	A
& 132nd Street		LT	0.76	19.40	B	0.65	14.50	B	0.80	20.40	C	0.64	14.20	B
	NB	L	0.21	15.50	B	0.31	16.60	B	0.19	15.20	B	0.37	17.30	B
	SB	R	0.20	15.60	B	0.39	18.20	B	0.16	15.00	B	0.20	15.40	B
Added Intersections 2000														
	EB	LTR	0.57	14.60	B	0.46	13.00	B	0.48	13.20	B	0.60	14.60	B
	WB	LTR	0.38	10.00	B	0.41	10.30	B	0.34	9.70	A	0.67	14.30	B
	NB	DfL				0.06	9.70	A				0.44	22.50	C
28th Avenue		TR				0.03	9.40	A				0.10	9.90	A
& Ulmer Street		LTR	0.07	9.60	A				0.12	9.90	A			
	SB	DfL										0.24	11.20	B
		TR										0.88	24.70	C
		LTR	0.50	13.20	B	0.35	11.70	B	0.46	12.70	B			
Whitestone Expwy Service	WB	TR	0.37	26.20	C	0.52	28.20	C	0.45	27.20	C	0.71	31.80	C
Raod(SB) & Ulmer	WB-UT	TR	0.63	29.90	C	0.28	25.30	C	0.33	25.90	C	0.45	27.20	C
Street(near ramp)	SB	RT	1.01	68.00	E	0.56	30.00	C	1.01	68.00	E	1.22	141.50	F

N/A

Approache with LOS D >= 45 sec or Worse

Intersection was not analyzed for that peak hour

The capacity analysis shows that in 2014 there will be changes in the level of service (LOS) at many intersection approaches. The affected locations where one or more of the intersections approaches LOS are projected to be D, E or F; are listed below for the respective peak hours:

1. College Point Boulevard and 20th Avenue (MD and Sat. MD)
2. College Point Boulevard and 14th Avenue (MD)
3. Whitestone Expressway northbound service road and College Point Boulevard (AM and PM)
4. Whitestone Expressway southbound service road and Linden Place (AM, MD, PM and Sat. MD)
5. Whitestone Expressway northbound service road and Linden Place (AM, MD, PM and Sat. MD)
6. Whitestone Expressway southbound service road and 20th Avenue (AM, MD, PM and Sat. MD)
7. Whitestone Expressway northbound service road and 20th Avenue (AM, MD, PM and Sat. MD)
8. Whitestone Expressway southbound service road and 14th Avenue (AM, MD, PM and Sat. MD)
9. Whitestone Expressway northbound service road and 14th Avenue (AM, PM and Sat. MD)
10. Whitestone Expressway southbound service road and Ulmer Street (AM, PM and Sat. MD)
11. Northern Boulevard and Union Street (AM, MD, PM and Sat. MD)
12. Northern Boulevard and Main Street (AM, MD, and PM)
13. Northern Boulevard and Prince Street (AM, MD, PM and Sat. MD)
14. Northern Boulevard and Parsons Boulevard (AM, MD, PM and Sat. MD)
15. Parsons Boulevard and 20th Avenue (AM, MD, PM and Sat. MD)
16. Parsons Boulevard and 14th Avenue (AM, MD, and PM)
17. 20th Avenue and 130th Street (AM, MD, and PM)

IMPROVEMENT MEASURES

Minor Signal Timing Changes

Many locations can be improved in the 2014 future condition by minor signal timings changes and in some instance may require parking removal and re-striping. The following locations can be improved by shifting 1 or 2 seconds to the failing approach:

1. College Point Boulevard and 20th Avenue
2. College Point Boulevard and 14th Avenue
3. Whitestone Expressway southbound service road and Ulmer Street

Major Network Improvements

The other fourteen failing locations are concentrated along five corridors which are:

1. College Point Boulevard
2. Whitestone Expressway Northbound Service Road
3. Whitestone Expressway Southbound Service Roads
4. Northern Boulevard
5. Parsons Boulevard

Improving travel conditions on these corridors and intersections operations is dependent upon the implementation of all the recommended capital improvement measures.

Widening Linden Place under the Whitestone Expressway

Construct a Free Flow U-Turn for NB Expressway SR at Linden Place to SB SR

Construct Free Flow U-Turn for SB Expressway SR at College Point Blvd. to NB SR

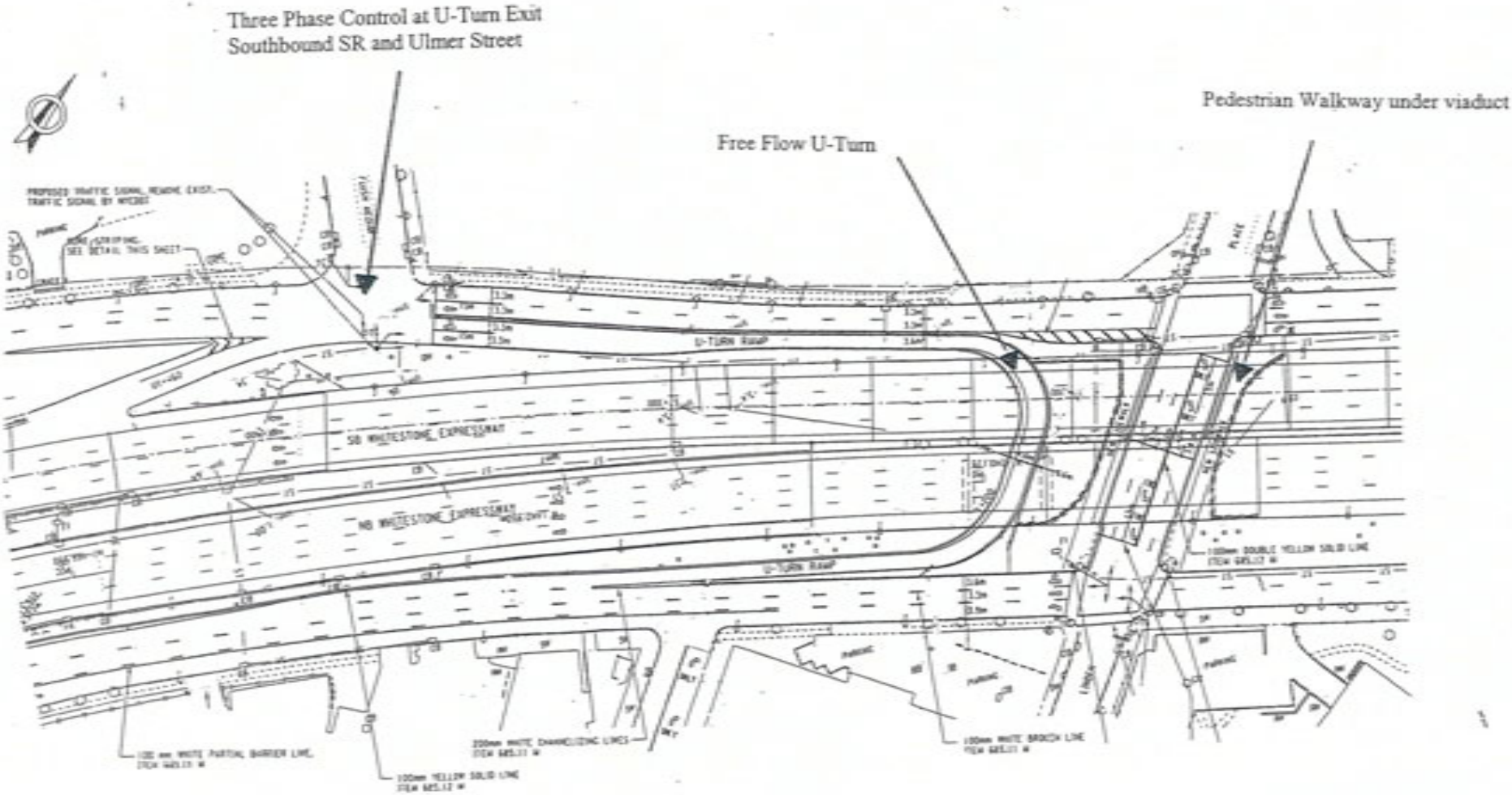
Widen 20th Avenue between NB Expressway SR and Parsons Boulevard

Extend linden Place from 28th Avenue to 23rd Avenue (Phase I)

Extend linden Place from 23rd Avenue to 20th Avenue (Phase II)

The following exhibits illustrate the capital improvement measures.

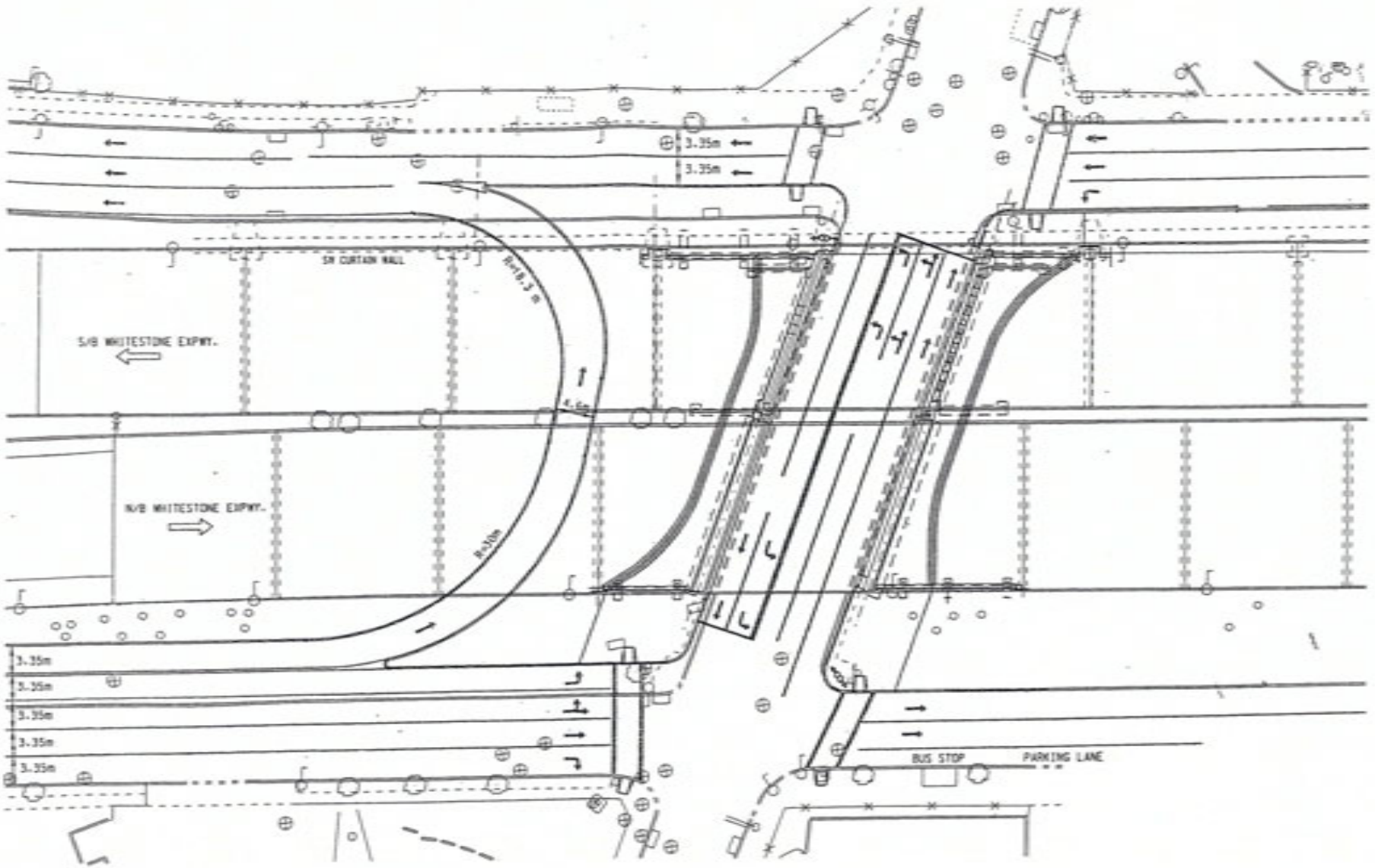
EXHIBIT 9-5



Linden Place and Whitestone Expressway

Source: NYSDOT

EXHIBIT 9-6

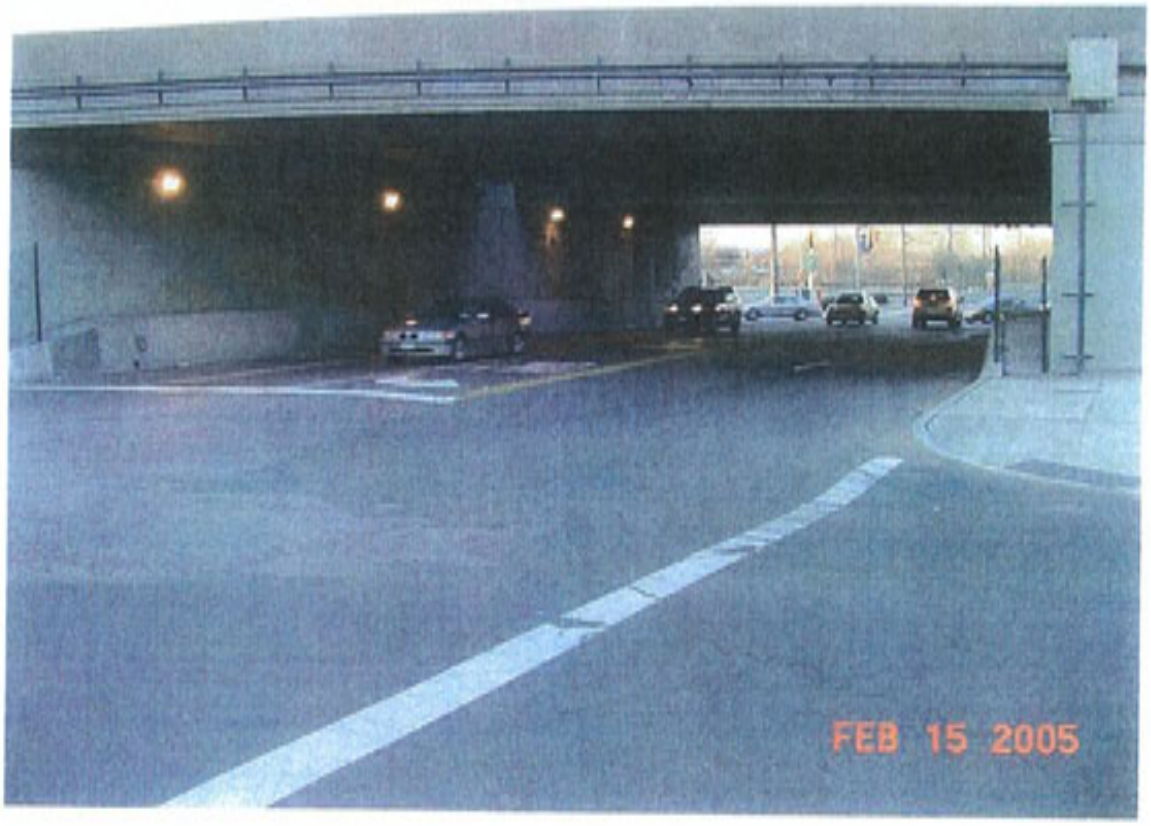


Linden Place and Whitestone Expressway

Source: NYSDOT

WIDENING OF LINDEN PLACE UNDER THE WHITESTONE EXPRESSWAY

Narrowing of sidewalks to provide an additional lane. New configuration 2 northbound and 3 southbound lanes



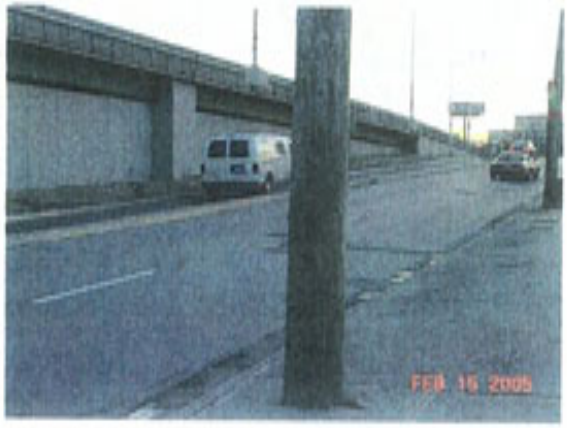
WIDENING OF LINDEN PLACE UNDER THE WHITESTONE EXPRESSWAY

Construction of safe pedestrian underpass separated from moving traffic

LINDEN PLACE AND WHITESTONE EXPRESSWAY
Free Flow U-Turn

Linden Place, coming out from the free U-turn under Whitestone Expressway

Linden Place going in to the U-turn from NB SR to SB SR under the Whitestone Expressway



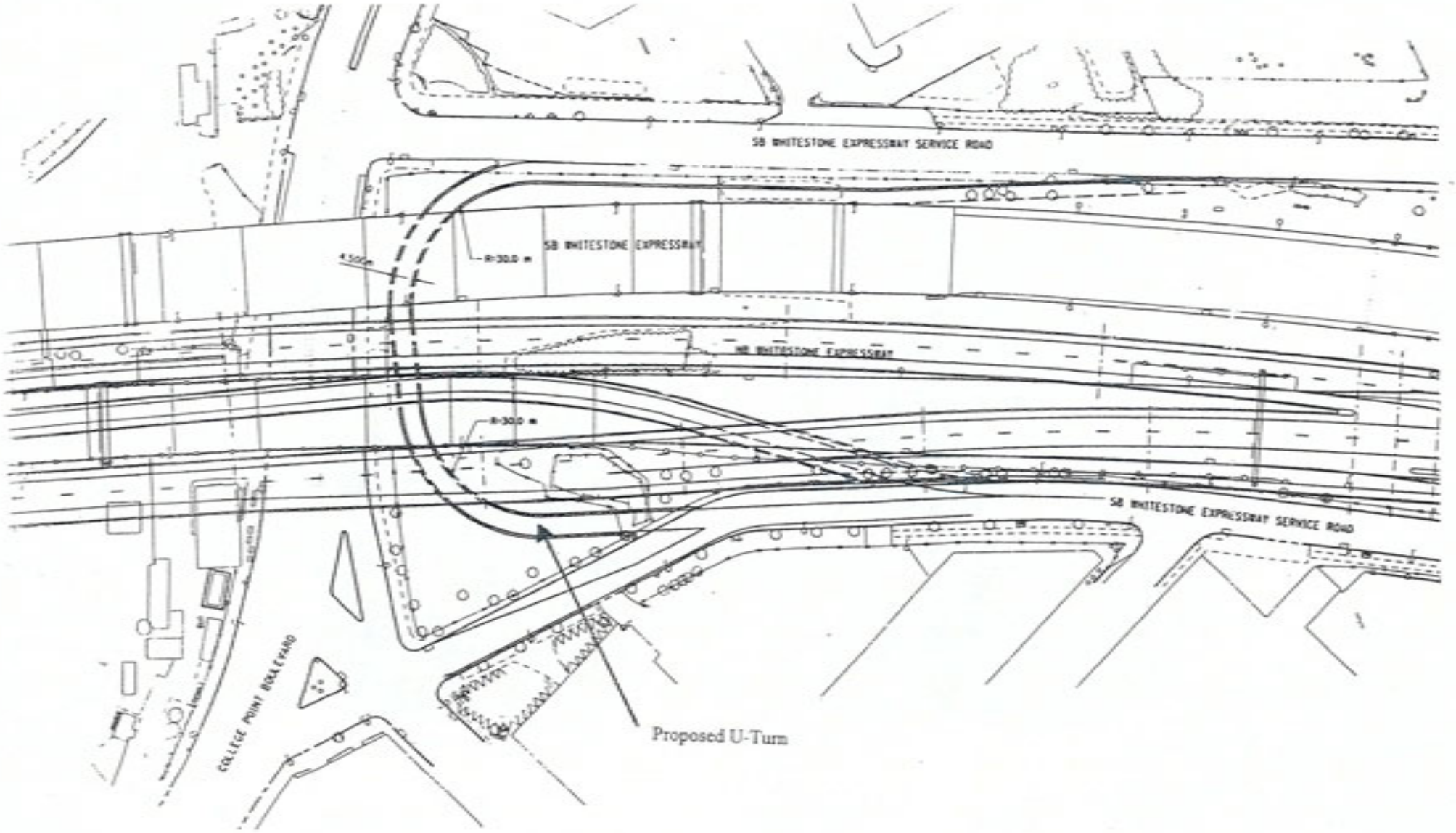
Linden Place free flow U-turn under the Whitestone Expressway and free flow U-turn separated by median on SB service road

WHITESTONE EXPRESSWAY, SB SERVICE ROAD & ULMER STREET

?

3 phase signal controlling intersection movements and entrance to expressway and SB service road at Ulmer Street

EXHIBIT 9-7



College Point Boulevard and Whitestone Expressway

Source: NYSDOT

COLLEGE POINT BLVD & WHITESTONE EXPRESSWAY SERVICE ROAD

Site of proposed U-turn from southbound SR to northbound SR

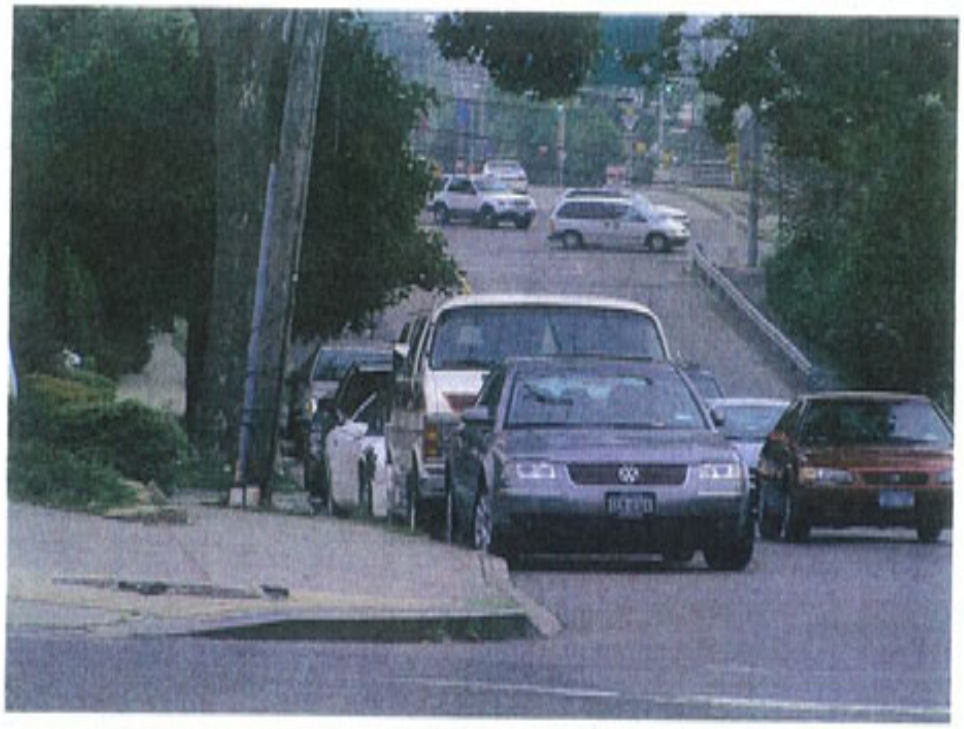
COLLEGE POINT BLVD & WHITESTONE EXPRESSWAY SERVICE ROAD

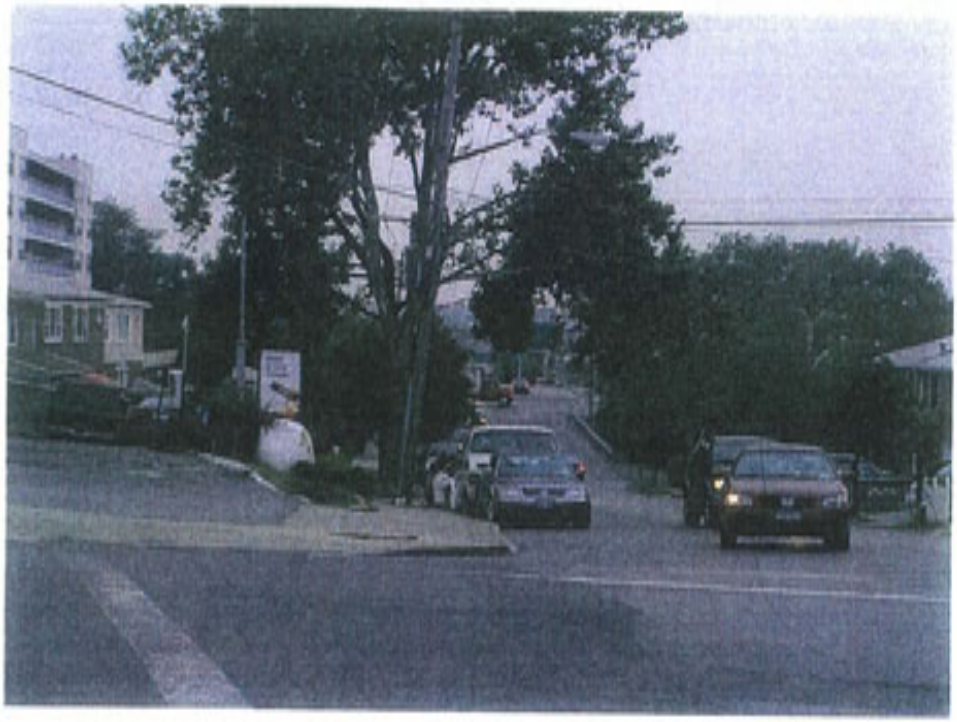
?

End of the proposed U-turn, traffic coming from southbound SR to northbound SR

End of the proposed U-turn, traffic from U-turn SB SR and from the expressway NB SR

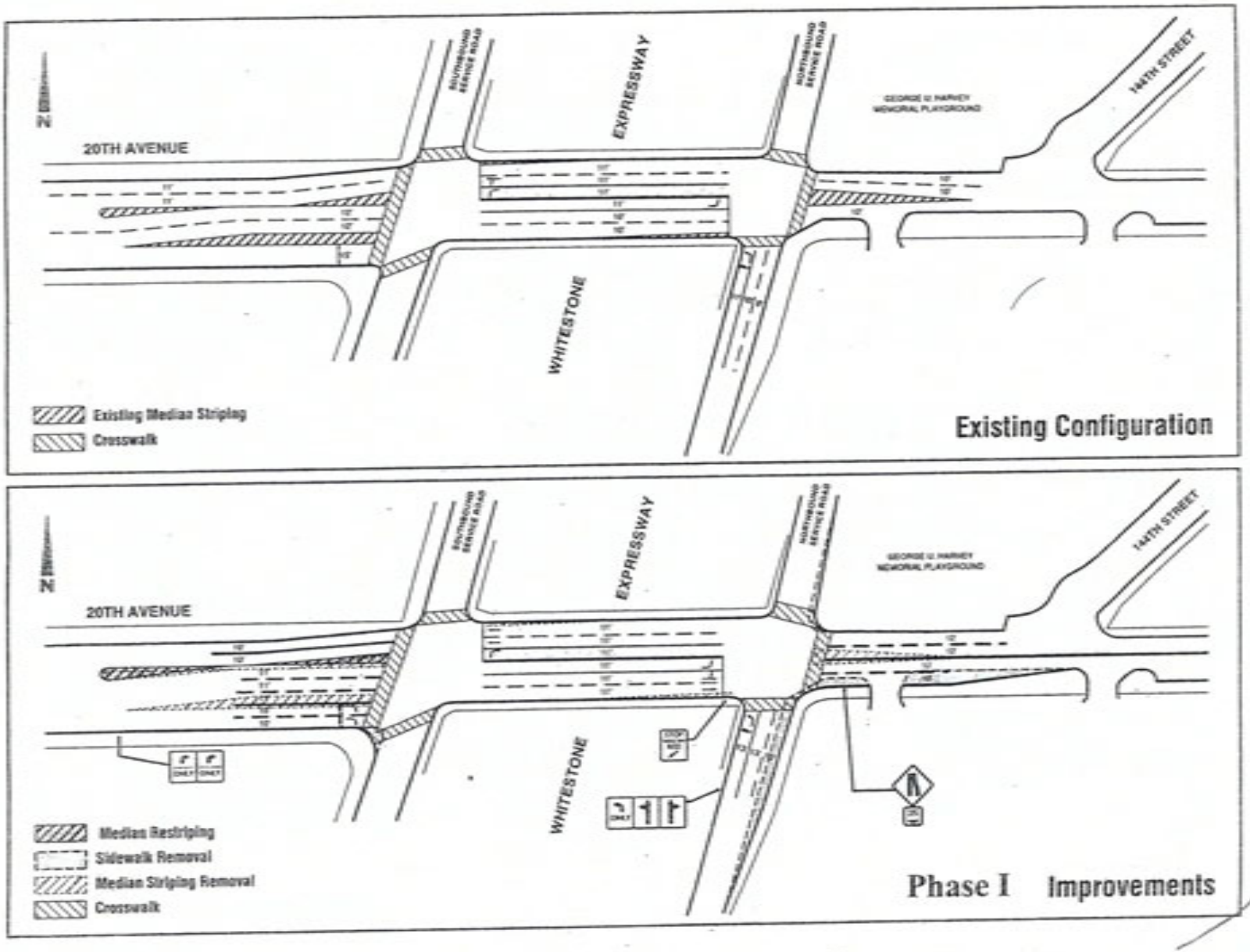
WIDENING 20TH AVENUE





Looking west on 20th Avenue & Parson Blvd

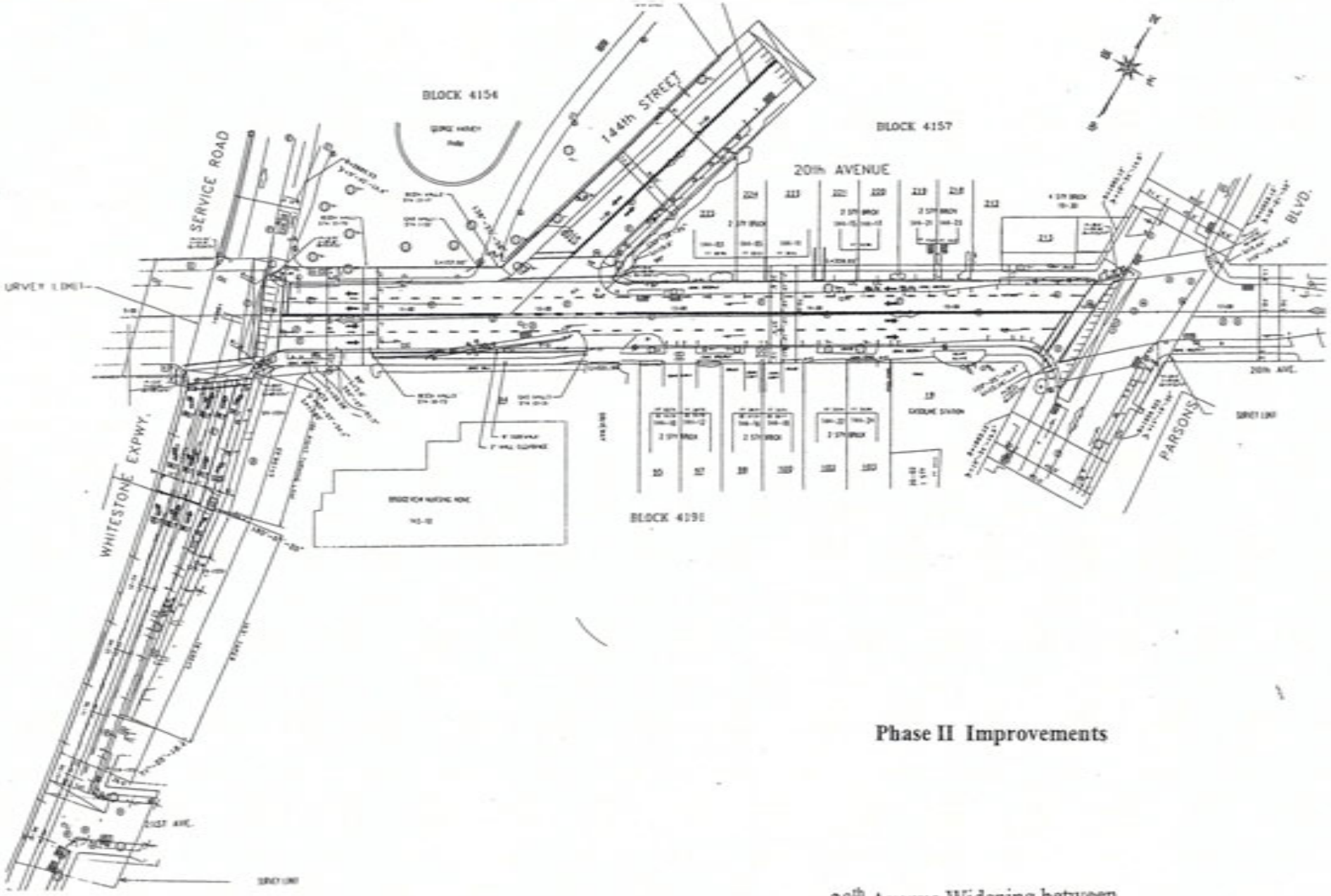
EXHIBIT 9-8



20th Avenue Widening between
Whitestone Expressway and Parsons Blvd.

Source: College Point Retail Project

EXHIBIT 9-9



Phase II Improvements

20th Avenue Widening between
Whitestone Expressway and Parsons Blvd.

Source: College Point Retail Project

WIDENING 20TH AVENUE

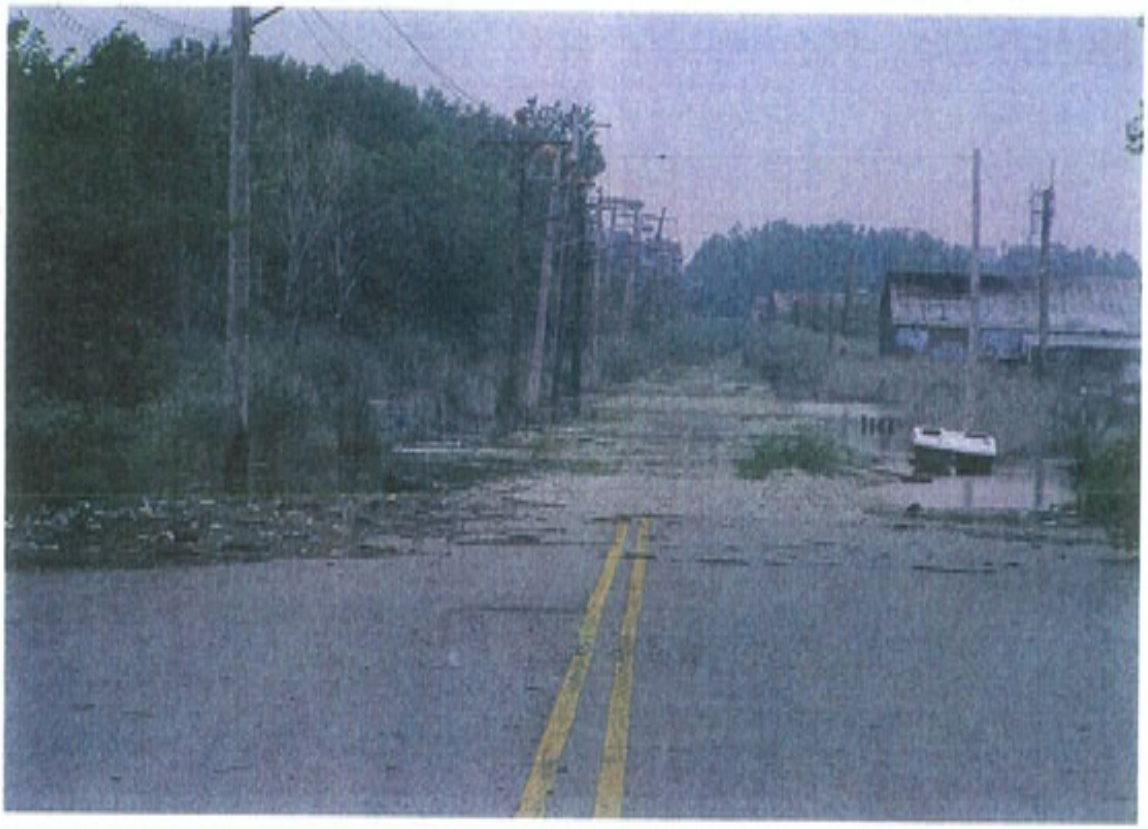
Looking west on 20th Avenue existing proposal to widen 20th Avenue between Whitestone Expressway NB SR and Parson Blvd to provide 2 moving lane eastbound

EXHIBIT 9-10

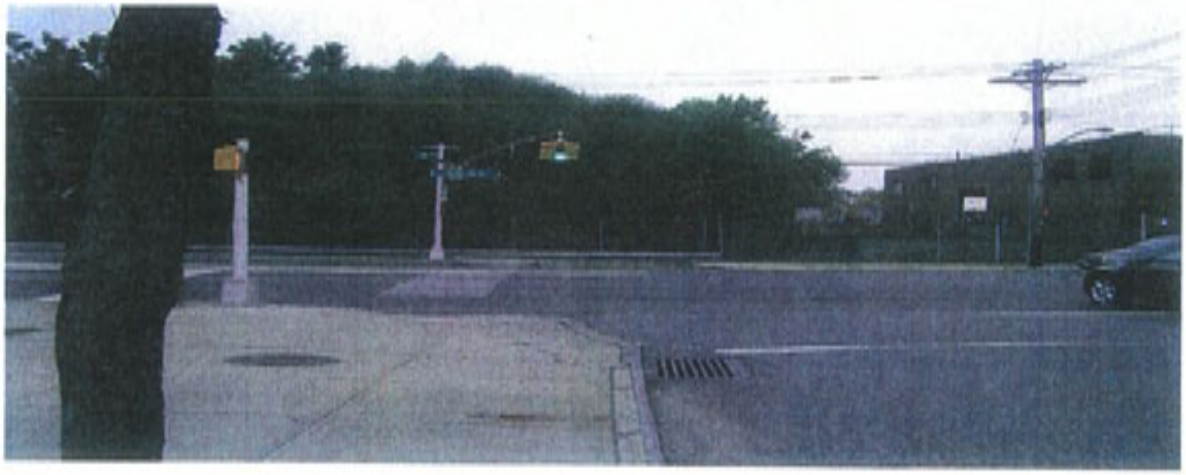

Extension of Linden Place
Powells Cove Blvd
Pepperhusen Ave
College Pt Blvd
Clearview Expwy
Whitestone Bridge
Whitestone Expwy
Francis Lewis Blvd
Utopia Pkwy
Linden Pl
Northern Blvd
Prince St
Linden
Leavitt
Union St
Bayside Ave
Willets Pt Blvd
FLUSHING BAY
1st Ave
2nd Ave
3rd Ave
6th Ave
7th Ave
9th Ave
11th Ave
14th Ave
14th Rd
15th Ave
18th Ave
20th Ave
23rd Ave
25th Ave
28th Ave
29th Ave
31st Ave
32nd Ave
114th St
115th St
117th St
119th St
120th St
124th St
125th St
127th St
128th St
129th St
130th St
131st St
132nd St
146th St
147th St
149th St
N
Legend
Phase I
Phase II

LINDEN PLACE EXTENSION

Looking north along the proposed extension of Linden Place to 23rd Avenue and to 20th Avenue. The road is low and partially under water in sections and had to be closed.



LINDEN PLACE EXTENSION @ 20th AVENUE



Possible alignments

These capital improvement measures will result in the redistribution of traffic. This will shift traffic from the congested locations to the locations where the delay is less. The conditions in the field in 2014 should be reevaluated and another round of TCMs generated. However some preliminary measures are outlined in Table 9-3.

TABLE 9-3
TRAFFIC CAPACITY ANALYSIS FOR THE IMPROVED INTERSECTIONS
2014 IMPROVEMENT MEASURES

INTERSECTION	Lane Group		AM			MID			PM			MID SAT			Improvements
			V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	
Whitestone Expwy	EB	TR	0.37	26.70	C	0.38	26.90	C	0.47	28.10	C	0.93	48.00	D	
Service Road-South	WB	L	0.52	15.50	B	1.07	76.40	E	0.29	12.10	B	0.45	19.90	B	
& Linden Place		LT	0.59	13.40	B	0.56	13.10	B	0.72	17.00	B	0.65	12.90	B	The WB only phase (-5 seconds PM)
	SB	L	1.02	80.00	B	1.14	0.28	F	1.03	82.60	F	1.71	366.70	F	The EB/WB phase (+5 seconds PM)
		TR	0.91	46.90	D	0.60	31.50	C	0.63	32.10	C	0.82	43.80	D	
Whitestone Expwy	EB	L	0.96	69.00	E	0.52	32.20	C	0.98	72.50	E	0.89	58.90	E	During SAT peak, Take 3.6 seconds from EB/WB SAT, take 1.8 seconds from the EB phase, add 5.4
Service Road-North		LT	0.37	13.70	B	0.44	15.60	B	0.41	15.10	B	0.62	22.20	C	seconds to the NB phase.
& Linden Place	WB	TR	1.05	82.40	F	0.89	50.40	D	0.99	56.70	E	1.06	84.00	F	
	NB	LTR	0.81	30.60	C	0.94	38.00	D	0.81	28.50	C	0.90	29.50	C	
															During AM peak hour, take 2 seconds from EB/WB phase, and add 2 seconds to NB/SB phase
Whitestone Expwy	EB	T	0.97	57.20	E	0.69	30.70	C	1.04	69.80	E	1.04	70.10	E	
		R	0.41	24.10	C	0.43	24.40	C	0.22	17.90	B	0.25	17.40	B	During AM add 1.8 seconds to the WB phase, and take 1.8 seconds out of the SB
Service Road-South	WB	DefL	1.05	82.00	F	1.05	87.90	F	0.61	37.50	D	0.58	32.80	C	During PM add 4.5 seconds to the EB/WB phase, and take 4.5 seconds out of the SB
& 14th Avenue		T	1.01	57.30	E	0.53	16.00	B	0.71	17.50	B	0.73	17.40	B	During SAT add 6.3 seconds to the EB/WB phase, and take 6.3 seconds out of the SB
	SB	L	0.72	34.80	C	0.40	24.30	C	0.62	33.00	C	0.69	37.40	D	
		TR	0.58	27.50	C	0.27	21.70	C	0.34	25.50	C	0.31	26.50	C	
Whitestone Expwy	EB	L	1.07	133.10	F	0.48	24.50	C	0.58	32.00	C	0.52	28.50	C	
		T	1.03	69.20	E	0.79	30.60	C	0.94	36.00	D	1.54	272.90	F	During AM add 1.8 seconds to the EB/WB phase, and take 1.8 seconds out of the NB/SB
Service Road-North	WB	TR	0.85	28.40	C	0.55	20.40	C	0.59	21.00	C	0.64	22.00	C	
	NB	L	0.26	17.80	B	0.32	17.70	B	0.46	23.40	C	0.34	17.80	B	During the PM peak hour, provide a new EB 5.4 seconds leading phase, by taking 5.4 seconds from the
& 14th Avenue		TR	0.38	18.80	B	0.24	16.40	B	0.22	19.30	B	0.12	15.10	B	NB phase
	EB	T	0.47	25.40	C	0.56	19.90	B	0.89	37.80	D	1.63	305.40	F	
		R													Restripe EB Approach to 2 lanes, one LT and one TR
Parsons Blvd	WB	LTR	0.76	33.40	C	0.39	17.80	B	0.53	25.40	C	1.02	62.20	E	During the AM peak hour, provide a new NB 6 seconds leading phase, by taking 3 seconds from the
20th Avenue	NB	L	0.97	74.10	E	0.82	40.70	D	1.03	87.60	F	0.86	53.10	D	NB/SB phase and 3 seconds from the EB/WB phase
		TR	0.46	20.30	C	0.28	17.30	B	0.60	28.90	C	0.98	64.80	E	During the SAT peak hour, provide a new EB 5.4 seconds leading phase, by taking 5.4 seconds from the
	SB	LTR	0.50	26.50	C	0.39	17.80	B	0.40	22.60	C	0.60	25.20	C	NB/SB phase
	EB	LTR	0.91	32.00	C	0.92	32.50	C	1.02	51.40	D				
& Parsons Blvd	WB	TR	1.08	66.50	E	0.96	41.10	D	0.98	43.90	D				Add 2.4 seconds to the EB/WB phase during the AM, MD and PM Peak hours, by taking 2.4 second
& 14th Avenue	NB	DefL	0.71	26.30	C	0.36	14.40	B	0.30	14.30	B		N/A		from the NB/SB phase
		TR	0.44	17.30	B				0.33	15.00	B				
	SB	DefL	0.59	20.40	C	0.51	18.90	B	0.36	15.30	B				
		TR	0.25	13.70	B	0.29	14.30	B	0.19	13.00	B				
	EB	LTR	0.69	15.00	B	0.75	17.00	B	0.88	26.70	C				
20th Avenue	WB	L	0.31	10.20	B	0.81	30.50	C	0.87	43.90	D				During the PM peak hour, add 2.4 seconds to the EB/WB phase by taking 2.4 second from the NB/SB
& 130th Street		TR	0.91	28.90	C	0.85	23.60	C	0.98	44.80	D		N/A		phase
	NB	LTR	0.66	21.30	C	0.33	16.30	B	0.96	41.00	D				
	SB	LTR	0.54	22.40	C	1.00	73.00	E	0.91	55.00	D				

N/A Intersection was not analyzed for that peak hour

10.0 CONCLUSION

The College Point Transportation Study, having examined demographics, land use/ zoning, traffic, parking, transit, pedestrian and accident/safety issues resulted in a number of immediate, short term and long term improvement measures being considered. Active community involvement contributed positively to the development, planning and implementation of the recommended improvement measures. The study spanned many years and deviated from the more traditional path as the opportunity to implement some major capital improvements became available very early in the study process. NYSDOT rehabilitation of the Whitestone Bridge over the Flushing River had its own design and construction schedule which was way advanced of any preliminary and final design that would facilitate construction as a result of this study. As a result the detour to advance preliminary and final design for capital construction elements yielded tremendous benefits as approximately 30% such improvements are already in place.

The project elements that are to be completed are:

- College Point U-Turn
- 20th Avenue Phase II widening and
- Linden Place Extension Phases I and II

Please refer to the process and implementation chart on page 106 for approximate completion dates. See also Table 9-3 for additional Traffic Control Measures (TCM).

On completion of the implementation of all these measures a review will be conducted so that other adjustments can be made, thus being consistent with planning be continuous .