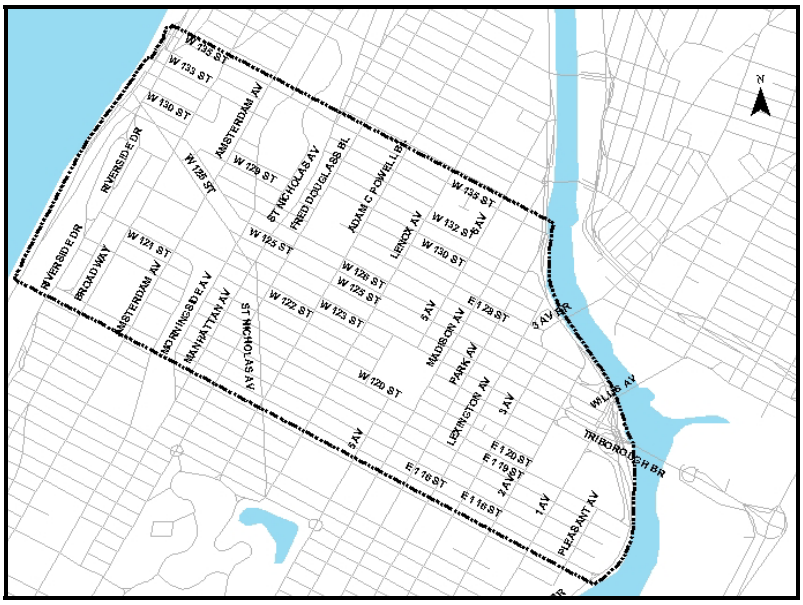
Harlem / Morningside Heights Transportation Study





2015 Future Conditions and Recommendations

Final Report

March 2012

Michael R. Bloomberg
Mayor

Janette Sadik-Khan
Commissioner

DEPARTMENT OF CITY PLANNING
CITY OF NEW YORK

A Member of the New York Metropolitan Transportation Council

Harlem/Morningside Heights Transportation Study

Final Report

2015 Future Conditions and Recommendations

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Prepared by:
New York City Department of Transportation
Janette Sadik-Khan, Commissioner
Lori Ardito, First Deputy Commissioner
Bruce Schaller, Deputy Commissioner
Ryan Russo, Assistant Commissioner
Margaret Forgione, Manhattan Borough Commissioner
Naim Rasheed, Project Director
Michael Griffith, Deputy Project Director
Eva Marin, Project Manager
Hau Cho Li, Project Manager

New York City Department of City Planning

Department of City Planning:

Amanda M Burden, FAICP, Director

Richard Barth, Executive Director

Sandy Hornick, Deputy Executive Director for Strategic Planning

Transportation Division:

Jack Schmidt, Director

Kevin Olinger, Deputy Director

Stratos Prassas, Team Leader

Lise Dorestant, Co-Project Manager

Alan Ripps, Co-Project Manager

Karen Blatt, City Planner

Jeffrey Leyco, Intern

Manhattan Borough Office:

Edwin Marshall, Associate City Planner/Team Leader

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EXECUTIVE SUMMARY

S.1 INTRODUCTION

The Harlem/Morningside Heights Transportation Study is a collaborative effort of the City Department of Transportation (DOT) and the Department of City Planning (DCP). The study was initiated in response to community concerns about development trends as well as increase in congestion and changes in neighborhood characteristics. The purpose of the study is to assess current and future land use development and transportation needs of the Harlem/Morningside Heights area. The study area is bounded by 135th Street to the north, 116th Street to the south, Hudson River to the west and Harlem River to the east.

Technical Memorandum No.1- Analyzed Existing Conditions with a detailed analysis of land use, zoning, demographics, parking and other factors that influence traffic and transportation.

Technical Memorandum No. 2- Analyzed the 2015 Future Conditions and recommends traffic improvement measures to alleviate congestion, and improve mobility, circulation and safety for all street users (motorists, cyclists, pedestrians and transit) in the study area.

S.2 FUTURE CONDITIONS ANALYSIS

S.2.1 Demographics

The Harlem Morningside study area cuts across three Community Districts: 9, 10 and 11 and consists of 40 Census Tracts.

The 2015 projected future population and other demographics for New York City, Manhattan, and the study area relied on the Department of City Planning (DCP) December 2006 report “New York City Population Projections by Age/Sex & Borough 2000-2030” as well as the 2005-2030 NYMTC Regional Transportation Plan Study, August 2005.

The residential population within New York City and the Borough of Manhattan is expected to increase approximately by 6.4% and 9.7%, respectively between 2000 and 2015, respectively.

An average of the Manhattan Borough and New York City population growth rates were used to calculate the future 2015 population for the study area. Also the proposed rezoning supporting higher density in the study area will provide the necessary floor space / units to accommodate the population.

The 1990 and 2000 journey-to-work data indicated that public transportation (bus, subway, and railroad) was the most utilized mode of transportation in the study area, Manhattan, and New York City. No significant changes in the public transit or other modes share is anticipated by 2015.

S.2.2 Land Use and Zoning

An existing condition land use and zoning analysis of the study area was presented in Technical Memorandum No.1. The future conditions analyses address the many rezoning actions approved within the Study Area that would change land use and increase development density. Some of the re-zoning actions are; the 125th Street Rezoning, Manhattanville/West Harlem Rezoning, the East 125th Street Development Rezoning, and the Frederick Douglass Rezoning.

S.2.3 Traffic and Transportation

The future 2015 conditions analyzed sixty-five signalized and three unsignalized intersections in the study area for the AM (7:45-8:45), Midday (12:00-1:00), PM (4:45-5:45), and Saturday (1:00-2:00) peak hours. The capacity and level of service analysis (LOS) at these locations under both existing and future conditions revealed that approximately 70% of the intersections operated at an acceptable overall level of service (mid LOS D with 45 seconds delays or less).

The analysis also examined future travel time and speed data along the major arterials in the study area. The corridor with the lowest travel speed is 125th Street ranging from 4 to 9 mph during the four peak hours. A set of improvement measures are recommended to enhance traffic operations and safety for motorists, pedestrians, and cyclists. Some of the

recommendations include improvements in roadway design, changes in signal timing, pavement marking and parking regulations.

S.2.4 Public Transportation

The 2015 future conditions analysis took account of background growth and new subway and bus trips generated by the proposed developments within the study area. This was done to determine whether the increase in volumes at individual subway fare control areas and stairs, on individual bus routes under future conditions could potentially result in changes in the level of service. The analysis reveals that, for the future conditions, all subway lines and station elements would operate at LOS C or better.

S.2.5 Parking

The area analyzed for on-street parking extends from 122nd Street to 128th Street and from the Hudson River to the East River. The existing condition analysis revealed that they are very few empty available parking spaces, and that metered parking spaces were continuously being filled up as soon as a vehicle leaves. Under the 2015 future conditions it is expected that demand for on street parking will generally exceed the parking supply.
The off-street public parking supply in the study area is adequate currently, satisfying the existing demand. Due to "Manhattanville Rezoning in West Harlem" and the "Academic Mixed-Use Development with a 2015 build year, five garages with a total capacity of 679 spaces will be displaced within a one mile radius. However, approximately 400 off-street parking spaces will be provided by this development.

S.2.6 Pedestrian and Bicycle

The 2015 future conditions pedestrian level of service (LOS) analysis for sidewalks, corners and crosswalks at thirteen selected locations for the three peak hours (AM, MD, PM) revealed that:

- All sidewalks analyzed would operate at LOS A during the three peak hours,
- All corners analyzed would operate at LOS B or better, and
- Most crosswalks would operate at LOS C or better.

An assessment of bicycle use and existing bicycle facilities reveal that there would be sufficient capacity on existing bicycle facilities to accommodate future demand during all peak hours.

S.2.7 Accidents and Safety

To identify any safety issues and address potential problems an examination of the most recent accident data was conducted for the study area. The accident and safety analyses focused on all locations in the study area between years 2007 and 2009. Over the three years, fourteen locations were identified as "High Accident Location" for having five or more pedestrian accidents at least once during the three years (2007 to 2009). These locations had a combined total reportable accident of 105, 168, and 169 in 2007, 2008, and 2009, respectively. The three years accident history includes seven fatalities, 512 injuries, and 170 involving pedestrians.

S.3 IMPROVEMENT MEASURES AND RECOMMENDATION

S.3.1 Traffic and Transportation

Based on the analysis a package of recommendations has been developed to improve traffic circulation and safety for all street users in the study area. These recommendations include mainly signal timing changes, roadway re-striping, new signage, bus stop relocations, and changes in parking regulations.

S.3.2 Public Transportation

Due to the future demand based on new person trips generated by proposed actions and developments in the study area, it is anticipated that several bus routes would operate above capacity during the various peak hours. To satisfy any increased demand on transit routes would require changes in service by increasing service frequency or the size of buses from standard to articulated. The new demand and potential changes will be addressed by NYC Transit as part of their regular operational planning.

S.3.3 Pedestrian and Bicycle

Bicycle lanes/routes and pedestrian enhancement in the study area were recommended by various studies such as Manhattanville Rezoning EIS, West Harlem Master Plan and related streetscape projects. The Bicycle Master Plan also has some proposed bicycle facilities. The proposed recommendations for pedestrian improvements includes installation of pedestrian countdown signals at some locations, installation of "Turning Vehicles Yield to Pedestrians" signs, and crosswalk restriping to clearly designate the proper path for pedestrians to safely cross the intersection.

S.3.4 Goods Movement

New York City Department of Transportation concluded the "*Truck Route Management and Community Impact Reduction Study",* that recommends measures to improve the overall management of the truck activity in the study area.

Some of the recommendations includes prohibit trucks from using 126th Street as an alternative route, posting signs such as " No Trucks Except Local Deliveries" on 126th street (WB) and at First, Second, Third, Park and Madison Avenues cross streets. Other actions are place or re-placement of "Local/Thru Truck Route" signs in the study area to ensure approaches are property signed, and enforcement of truck routes conducting random enforcements efforts.

S.4 CONCLUSION

The Harlem Morningside Heights Transportation Study, having examined demographics, land use/zoning, traffic, parking, transit, pedestrian/bicycle and accidents/safety recommends a number of improvement measures to alleviate congestion, improve traffic operations and safety for all street users in the study area. This includes signal timing changes, parking removal, and restriping amongst others.

The study also facilitated coordination with other studies and initiatives in the area, such as the 125th Street Rezoning, Manhattanville Rezoning and the West Harlem Master Plan.

1.0 INTRODUCTION

The Harlem/Morningside Heights Transportation Study is a collaborative effort of the Department of Transportation (DOT) and the Department of City Planning (DCP). The study was initiated in response to community concerns about development trends as well as increase in congestion and changes in neighborhood characteristics.

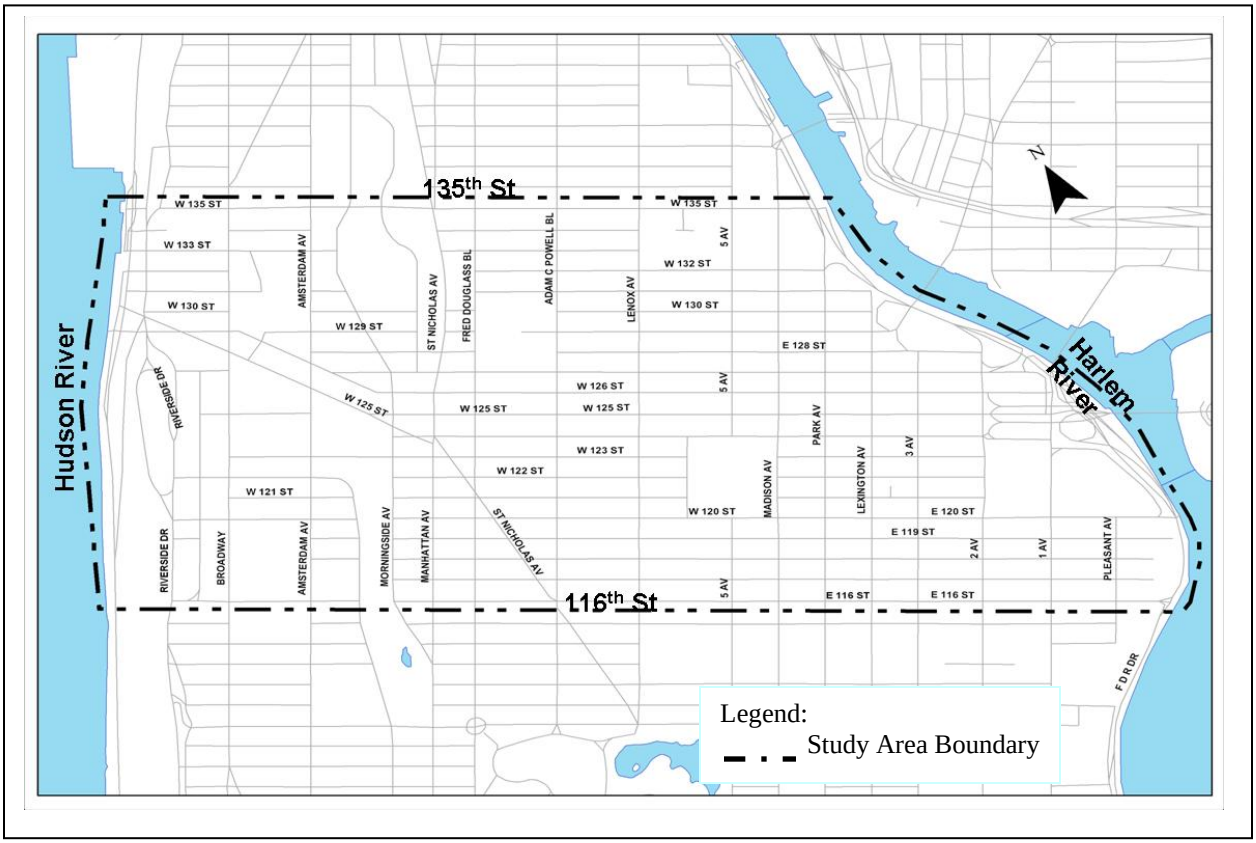
This Draft Final Report assesses the projected 2015 future traffic conditions in the study area, and recommends measures to alleviate traffic congestion, and improve safety for all road users (vehicles, pedestrian and bicycle) in the study area. This Memorandum builds on Technical Memorandum No. 1 that analyzed the existing conditions in the study area.

1.1 The Study Area

The study area which is bounded by 135th Street to the north, 116th Street to the south, Harlem River to the east, and Hudson River to the west cuts across three community districts 9,10 and 11. The street network is in the form of a regular grid. The main north/south corridors are Broadway, Amsterdam Avenue, Frederick Douglass Boulevard, Lenox Avenue, Park Avenue and 2nd Avenue, while 125th Street and 116th Street are the main east and west arteries that service Harlem/Morningside Heights. 125th Street runs through the area from river to river in an east/west direction, connecting the Triborough Bridge and the FDR Drive on the east section with the Henry Hudson Parkway on the west side section of the study area. Exhibit 1-1 shows the boundaries of the study area.

The study area is well-served by major highways and public transit. The major expressways in the immediate vicinity are the Harlem River Drive, FDR Drive and Henry Hudson Parkway. The major public transit operators providing service in the area are MTA's Metro-North and NYC Transit.

Exhibit 1.1: Study Area Boundaries



The Harlem/Morningside study area has experienced blight and decline during the decades of the 70s, 80s, and 90s; however, that trend has been reversing over the past decade. The population in the study area declined approximately 4.0% from 1980 to 1990, and recovered in 2000, when the population grew by almost 10.0%. As of 2005 the population in the study area had grown approximately 3% every year since year 2000. Today, the Harlem area is experiencing development pressure as is evidenced by development applications. Harlem has become a center of attention for developers, public agencies and other organizations in recognition of the potentials for new developments.

The pressure for development is also reflected in some of the EIS such as Columbia University expansion / Manhattanville Rezoning, 125th Street Rezoning, East 125th Street Development, West Harlem Master Plan and the 197-a Plan among others.

These proposed developments will generate significant vehicle trips that have to be managed on the local street network.

The Harlem Morningside Heights Transportation study undertook a comprehensive analysis of the existing and future traffic and transportation conditions and presents a series of improvement measures.

1.2 Goals and Objectives

The goals of the study were to assess the existing and future traffic and transportation conditions, identify any problems, generate recommendations and develop a package of improvement measures designed to safely accommodate future transportation needs. The study's main objectives are:

- To assess the existing transportation demand and needs of the study area;
- To pay special attention to the 125th Street Corridor;
- To project and assess the future (2015) conditions with respect to demographic, land use, traffic, transit, pedestrian and bicycle, parking, and good movement;
- To reduce vehicular congestion, improve safety for all users (vehicular and pedestrian); and
- To encourage the use of public transit / alternative modes.

To accomplish the goals and objectives a series of analyses were conducted. Proposals for addressing the problems will include both individual intersection treatments, and packages of traffic and transportation mitigation measures. The proposed measures will be implemented in the near future and/or over a longer period up to 2015, which is the horizon year for the study.

1.3 Project Organization and Methodology

The Study was organized in two distinct phases.

Phase I- Completed

Task 1 – Project Organization and Management

Task 2 – Literature Search

Task 3 – Data Collection and Identification of Issues

Task 4 – Analysis of Existing Conditions

Task 5 – Draft Report for Existing Conditions (Technical Memorandum No.1.)

Phase II-

Task 6 – Identification of Issues and Additional Data Collection

Task 7 – Analysis of Future Conditions

Task 8 – Recommendation and Development of Improvement Measures

Task 9 – Evaluation of Alternative Improvement Packages

Task 10 – Implementation Plan

Task 11 – Draft Final Report (Present 2015 Future Conditions and Recommendations)

Task 12 – Final Report

FUTURE CONDITIONS ANALYSIS

2.1 DEMOGRAPHICS

The future condition demographic analysis relied on many sources including the Department of City Planning-December 2006 "New York City Population Projections by Age/Sex & Borough 2000-2030" report, the 2030 Demographic and Socioeconomic Forecasts by NYMTC and the "Project 2015: New York State Population Characteristics by County". The Project 2015: New York State Population Characteristics by County is a compilation of tables by Robert Scardamalia of Empire State Development Corporation on state and county demographics and trends based on the Decennial Census data, U.S. Bureau of the Census, New York Statistical Information System population projections, and Cornell Institute for Social and Economic Research.

The 2015 population projections for New York City, and Manhattan from the above mentioned studies were used to derive projections for the Study Area along with an evaluation of future developments and likely land use changes.

POPULATION TRENDS

The residential population within New York City and the Borough of Manhattan is projected to increase approximately 6.4% and 9.7%, respectively between 2000 and 2015, according to the above studies. Based on these projections together with anticipated higher density developments due to approved rezoning in the Study Area (See section: "Land Use and Zoning"), it is expected that the residential population will grow in the future.

The average of Manhattan and New York City population growth rates was used to project the Study Area's 2010 and 2015 population shown in Table 2.1.1.

Table 2.1.1

POPULATION BY AREA

Census Year	New York City	% Change	Manhattan	% Change	Study Area	% Change
2000	8,008,278	-	1,537,195	-	118,374	-
2005	8,206,135	2.4	1,600,110	3.9	122,162	3.2
2010*	8,402,213	2.3	1,662,701	3.8	***125,827***	3.0
2015*	8,547,236	1.7	1,697,498	2.0	***128,092***	1.8

* 2000-2030 NYC Population Projections by Age/Sex & Borough - Department of City Planning

Table 2.1.2 shows population projection by age for New York City and Manhattan.

It is assumed that the average of Manhattan and New York City percentage age group distribution would be representative of the Study Area.

Table 2.1.2: Population by Area and Age group

Census Year & Age Group	NYC	% share	Manhattan	% Share	Study Area	% Share
2000						
0-4	540,878	7	76,048	5	7,848	6
5-9	561,115	7	73,358	5	8,982	8
10-14	530,816	7	69,288	5	8,290	7
15-19	520,641	7	75,186	5	9,192	8
20-64	4,916,971	60	1,056,539	68	70,933	60
65+	937,857	12	186,776	12	12,615	11
2000 Pop	8,008,278	100	1,537,195	100	118,374	100
2010						
0-4	527,354	6	80,484	5	6,994	6
5-9	508,693	6	73,262	4	6,581	5
10-14	537,532	6	70,872	4	6,707	5
15-19	599,903	7	86,655	5	7,771	6
20-64	5,297,082	63	1,148,327	69	83,114	66
65+	931,650	11	203,101	12	14,661	12
2010*Pop	8,402,213	100	1,662,701	100	125,827	100
2015						
0-4	536,810	6	80,092	5	7,045	6
5-9	508,003	6	72,706	4	6,405	5
10-14	516,532	6	72,835	4	6,405	5
15-19	559,104	7	81,887	5	7,686	6
20-64	5,444,390	64	1,171,487	69	85,181	66
65+	982,397	11	218,491	13	15,371	12
2015* Pop	8,547,236	100	1,697,498	100	128,092	100

* 2000-2030 NYC Population Projections by Age/Sex & Borough - Department of City Planning

LABOR FORCE

As expected, the labor force fluctuates with changes in both the composition of the population and in the rates of labor force participation across demographic groups. Table 2.1.3 shows the labor force distribution for 2000 and projections for 2010 and 2015 year for New York City, Manhattan and the Study Area.

In New York City, the civilian labor force is expected to grow by 2.5% between 2010 and 2015, consequently a similar rate is assumed for Manhattan and the Study Area.

Table 2.1.3: Labor Force Distribution

Labor Force	New York City	Manhattan	Study Area
(2000)Total Pop	8,008,278	1,537,195	118,374
Pop over 16 years	6,279,431	1,307,423	78,098
Civilian Labor Force	3,624,566	841,980	41,392
% of civilian labor force of total pop 16 years & over	58.0%	64.0%	53.0%
Employed	3,277,825	770,283	33,354
Unemployed	346,741	71,697	8,038
(2010)*Total Pop	8,402,213	1,662,701	125,827
Pop over 16 years	6,828,635	1,438,083	105,545
Civilian Labor Force	4,078,200	877,300	58,050
% of civilian labor force of total pop 16 years & over	59.7%	61.0%	55.0%
Employed	3,895,605	845,700	49,923
Unemployed	182,595	31,600	8,127
(2015)*Total Pop	8,547,236	1,697,498	128,092
Pop over 16 years	6,985,891	1,471,865	108,238
Civilian Labor Force	4,179,100	878,600	60,613
% of civilian labor force of total pop 16 years & over	59.8%	59.7%	56.0%
Employed	3,988,500	849,400	52,127
Unemployed	190,600	29,200	8,486

* 2035 Demographics and Socioeconomic Forecast Tables: NYMTC

NUMBER OF HOUSEHOLDS

From 1990 to 2000 the number of households in the Study Area, Manhattan and in New York City increased at a rate of 9%, 3% and 7%, respectively. The increasing trend is expected to continue based on the future projections in the Regional Transportation Plan Study–Appendix C. The number of households in New York City is expected to increase from approximately 3,021,588 in 2000 to 3,263,100 in 2015 representing an increase of approximately 8%. The number of households in Manhattan and the Study Area is assumed to grow at a similar rate based on the projected 2015 population.

Table 2.1.4 shows the projected household characteristics for New York City, Manhattan and the Study Area to 2015.

Table 2.1.4: Household Characteristics

Census Year	New York City	Manhattan	Study Area
2000 Population	8,008,278	1,537,195	118,374
# of Households	3,021,588	738,644	45,889
Average household Size	2.59	2.08	2.58
2010* Population	8,402,213	1,662,701	125,827
# of Households	3,163,200	768,190	47,725
Average household Size	2.66	2.14	2.40
2015* Population	8,547,236	1,697,498	128,092
# of Households	3,263,100	797,736	49,560
Average household Size	2.67	2.18	2.43

* 2035 Demographics and Socioeconomic Forecast Tables: NYMTC

MEDIAN HOUSEHOLD INCOME

The median household income from 1990 to 2000 increased by 14, 11, and 33 percent for New York City, Manhattan, and the Study Area.

The projected median household income for New York City, Manhattan, and the Study Area for year 2015 is expected to increase consistent with observed trends and anticipated economic growth in the future.

Table 2.1.5: Median Household Income by Area

Census Year	New York City	% Change	Manhattan	% Change	Study Area	% Change
1990	32,909	-	42,091	-	14,781	-
2000	38,293	14	47,030	11	22,122	33
2007	48,631	21	64,217	27	26,546	17
2015*	58,843	17	79,629	20	31,324	15

*Forecast expected following the personal income average annual rate per year of 3.3%

VEHICLE OWNERSHIP

Between 1990 and 2000, vehicle ownership in New York City, Manhattan and the Study Area remained relatively constant. In 2000 approximately 44% of New York City households own vehicles. This percentage is much lower in Manhattan (22%) and in the Study Area (17%) for the year 2000.

No significant changes in vehicle ownership in the Study Area is expected between 2010 to 2015, hence no significant increase in auto trips will be generated as a result of the increase in resident population.

JOURNEY TO WORK BY MODE OF TRANSPORTATION

The journey to work trends from previous decades 1990 and 2000 (See Table 2.1.6) show that in New York City, Manhattan and the Study Area the predominant mode used to get to work was public transportation. Public transportation represented more than 60% of the total trips (subway, buses and rail). In general, over the 20 year period, walking and automobile were the second most commonly used mode for journey to work in New York City, Manhattan and the Study Area.

The 2015 distribution of journey to work mode share for the Study Area is expected to be similar to previous years.

Table 2.1.6: 1990 Journey To Work By Mode

1990 Census Year	New York City	Mode Share %		Mode Share %	Study Area	Mode Share %
Car, Truck or Van						
Drove alone	765,151	24.6	59,097	8.3	2,827	8.6
Carpooled	271,503	8.7	28,415	4.0	1,070	3.3
Total	1,036,654	**33.3**	87,512	**12.3**	3,897	**11.9**
Public Transportation						
Bus	403,477	13.0	107,521	15.1	5,638	17.3
Subway	1,168,346	37.6	287,412	40.3	14,657	44.9
Railroad	54,716	1.8	8,336	1.2	402	1.2
Ferry	16,619	0.5	360	0.0	0	0.00
Taxicab	50,096	1.6	34,798	4.9	466	1.4
Total	1,693,254	**54.5**	438,427	**61.5**	21,163	**64.8**
Other modes						
Motorcycle	1,711	0.0	545	0.1	10	0.0
Bicycle	9,643	0.3	4,892	0.7	78	0.2
Walked	340,077	11.0	173,619	24.3	7,132	21.9
Other means	24,930	0.8	8,051	1.1	400	1.2
Total	376,361	**12.1**	187107	**26.2**	7,620	**23.3**
Total Trips	**3,106,269**	**100**	**713,046**	**100**	**32,680**	**100**

Table 2.1.6 (Cont): 2000 Journey To Work By Mode

2000 Census Year	New York City	Mode Share %	Manhattan	Mode Share %	Study Area	Mode Share %
Car, Truck or Van						
Drove alone	794,422	25.6	57,150	8.1	3,239	9.1
Carpooled	254,974	8.2	25,604	3.6	1,379	3.9
Total	1,049,396	**33.8**	82,754	**11.7**	4,618	**13.0**
Public Transportation						
Bus	364,408	11.8	75,859	10.7	4,030	11.3
Subway	1,199,226	38.7	328,426	46.3	18,412	51.8
Railroad	51,141	1.6	8,309	1.2	591	1.7
Ferry	11,193	0.4	411	0.1	3	0.00
Taxicab	53,781	1.7	35,187	4.9	632	1.8
Total	1,679,749	**54.2**	448,192	**63.2**	23,668	**66.6**
Other modes						
Motorcycle	1,488	0.0	437	0.1	80	0.2
Bicycle	15,024	0.5	6,410	0.9	269	0.8
Walked	332,264	10.7	164,934	23.3	6,713	18.9
Other means	21,998	0.7	6,714	0.9	220	0.6
Total	370,774	**11.9**	178495	**25.2**	7,282	**20.5**
Total Trips	**3,099,919**	**100**	**709441**	**100**	**35568**	**100**

2.2 LAND USE AND ZONING

The land use and zoning analysis of the study area for the existing conditions was presented in Technical Memorandum No.1. The future condition analysis focuses on eight rezoning actions that were approved in the Study Area that will facilitate increased development density by 2015

Rezoning Actions:

1) East Harlem Rezoning

In Spring 2003, the City Planning Commission and the City Council approved the East Harlem Rezoning, a comprehensive area-wide rezoning initiative. The rezoning area comprised 57 blocks generally bounded by East 122nd Street, Pleasant Avenue, First Avenue, East 99th Street, and a point 100 feet east of Lexington Avenue. The rezoned area that is part of the Harlem/Morningside Transportation Study lies between 116th and 122nd Streets. The approved rezoning was the result of a partnership between the Department of City Planning, Community Board 11, and CIVITAS, a community organization that is active in East Harlem and the Upper East Side.

The former zoning regulations had been in place since 1961 and did not adequately address the needs of this rapidly changing neighborhood. The East Harlem rezoning plan balances growth and preservation by fostering new opportunities for residential development; ensuring that future development is consistent with the neighborhood character and scale by mapping contextual zoning districts on avenues and mid-blocks, and encouraging ground floor retail and service uses by extending and modifying existing commercial overlays to support new small businesses and to provide greater flexibility for ground floor retail uses.

Over the 2003-2013 period, it is estimated that 383 more residential units would be created under the East Harlem rezoning plan than would be created under the former zoning for the area.

2) Frederick Douglass Boulevard Rezoning

In Fall 2003, the City Planning Commission and the City Council approved the Frederick Douglass Boulevard rezoning plan, a comprehensive area-wide rezoning initiative. The rezoning area comprised 44 blocks generally bounded by Central Park North, West 124th Street, Morningside Avenue and a point 100 feet west of Adam Clayton Powell Jr. Boulevard in Manhattan's Community Districts 9 and 10. The area that falls within the Harlem/Morningside Transportation Study area that is generally bounded by 116th Street, 124th Street, Morningside Avenue and Adam Clayton Powell Jr. Boulevard. The approved rezoning plan builds upon the planning work undertaken by the Manhattan Borough President's Office in collaboration with Columbia University's Urban Technical Assistance Project (UTAP).

The former zoning regulations had been in place since 1961. Like the East Harlem Rezoning plan, the Frederick Douglass Boulevard rezoning plan balances growth and preservation by fostering new opportunities for residential development, while ensuring that future development is consistent with the existing neighborhood character and scale by mapping contextual zoning districts on avenues and mid-blocks.

Over the 2003-2013 period, it was estimated that 565 residential units would be created under the approved rezoning plan than would have be created under the former zoning for the area. However, since adoption, the Frederick Douglass Boulevard Rezoning has facilitated the development of approximately 800 units and has spurred development on small infill sites.

3) Harlem Park/Vornado

In Summer 2004, the City Planning Commission and the City Council approved a zoning map amendment, from C4-4 to C4-7, to facilitate the former Harlem Park Hotel project. The hotel site is located on the west side of Park Avenue between East 124th and East 125th streets. As proposed, the project comprised a mixed-use development with commercial office, ground floor retail and residential space. The project also included 230 hotel rooms to be operated as a Marriott Courtyard Hotel. The hotel would have conference and

banquet space, a health club and spa. The project would have provided approximately 125,000 square feet of commercial office space that would be marketed to Class A tenants, and approximately 52,725 square feet of local retail space. Approximately 125,040 square feet of residential space (100 units) were proposed and the project would have a public parking garage with 369 parking spaces below-grade. In response to concerns regarding building scale, the building height was reduced from 550 feet to 518 feet (approximately 39 stories).

In 2006-2007, Vornado acquired the former Harlem Park site for redevelopment into commercial office space, with Major League Baseball as an anchor tenant. In 2008, as part of the 125th Street Rezoning, the Special 125th Street District regulations were modified to accommodate Vornado's proposal for the site. In late 2008, Vornado's plans to develop the site did not materialize. At present, Vornado does not have any plans to develop the site.

4) Columbia/Manhattanville Special Mixed Use District

In Fall 2007, the City Planning Commission and City Council approved Columbia University's proposal to create a new academic campus in Manhattanville – West Harlem. Required actions included the approval of a zoning map amendment to facilitate academic-related use and a zoning text amendment to create a new special purpose district – the Special Manhattanville Mixed Use District (Special MMU district).

The Special MMU district covers 35 acres within an area generally bounded by West 133rd and 135th streets to the north, West 125th street and St. Clair's place to the south, Broadway and Old Broadway to the east, and the Hudson River to the west, of which the proposed academic campus would comprise 17 acres. The aforementioned 35 acres are included in the Harlem-Morningside Transportation Study area. In addition to the zoning map and zoning text amendments, the project also required approval of an ESDC-sponsored General Project Plan (GPP). The GPP would allow condemnation of property to facilitate creation of a Manhattanville campus for Columbia, and would also impose additional use restrictions to ensure that the economic development goals for the plan are achieved.

As part of its approval, the Commission modified the Columbia plan, focusing on the Broadway corridor and on the open space. In order to promote a more vibrant Broadway with a greater mix of uses and building types, the Commission eliminated two academic research buildings on Broadway and replaced them with university housing and other academic facilities. It also reduced the heights of two of the northernmost buildings to provide a better transition to the adjoining residential areas. Modifications also improved the open spaces to be provided by Columbia to ensure they are inviting to the general public.

5) East River Plaza

East River Plaza is a multi-level retail center on a 6.5 acre site comprising the former Washburn Wire Factory and several adjoining properties, which was recently completed. Located within the Harlem-Morningside Transportation Study area, the East River Plaza site is located along the west side of the FDR Drive between East 116th and East 119th streets. As proposed, East River Plaza features Costco, Target, Marshall's and Best Buy as its major tenants. It has approximately 475,000 square feet of retail space, an office/ incubator building of approximately 33,000 square feet serving community-based non-profits and local entrepreneurs, and an accessory parking garage for 1,248 cars. This project was approved by the City Planning Commission and City Council in Summer/Fall 1999.

6) East 125th Street Development Project

The East 125th Street Development project area encompasses approximately 5.5 acres on three blocks generally bounded by East 125th and East 127th Streets, and Second and Third Avenues. The project would also develop the southeast corner of East 125th Street and Third Avenue. The project site includes Urban Renewal Sites 8A, 9, 12, and 13A in the Harlem-East Harlem Urban Renewal Plan. The project was approved by the City Planning Commission and City Council in Summer/Fall 2008.

The project would have up to 1.7 million square feet of new development. The total floor area and its distribution among the different program elements would be regulated by the

approved 15th Amendment to the Harlem-East Harlem Urban Renewal Plan. Overall, the project would include up to 1,000 units of low, moderate, and middle income housing. The project would also have approximately 770,000 square feet of commercial uses and approximately 30,000 square feet of community facility uses that include not-for-profit performing/media arts space. Additionally, the project would include a minimum of approximately 12,500 square feet of public open space, approximately 600 vehicular parking spaces on the two northerly blocks, and a 109,000-square foot, 80-space underground bus storage facility located on the northern block between East 126th and East 127th Streets.

To achieve the overall development objective, the East 125th Street Development Project required a zoning map amendment to rezone the development area from R7-2, C4-4 and M1-2 to C6-3. The rezoning area also included the lot on the southeast corner of East 125th Street and Third Avenue, to be rezoned from C4-4 to C6-3. The approved C6-3 zoning would allow commercial, residential and community facility use that would facilitate housing, office, and retail development. It increased the allowable residential, commercial and community facility density, and also allows residential development on a portion of the project site formerly zoned only for light manufacturing use. However, under the Harlem-East Harlem Urban Renewal Plan, the overall floor area would be limited to 7.2 FAR.

7) Special 125th Street District

In Spring 2008, the City Planning Commission and City Council approved the Special 125th Street District and related rezoning action. The Special 125th Street District includes 24 blocks in East, Central and West Harlem, within an area generally bounded by 124th Street, 126th Street, Broadway and Second Avenue. The special district is part of a city initiative to support the ongoing revitalization of 125th Street, Harlem's Main Street.

The zoning controls of the Special District reflect the varied character of different parts of the corridor. It includes controls that shape the form of new buildings to respond to the specific conditions along the corridor in a more fine-tuned approach than possible with regular zoning districts. It also includes a number of unique provisions that would enhance

the corridor as Harlem's main street. The special district includes a Core Subdistrict that extends from Frederick Douglass Boulevard to a point 565 feet east of Malcolm X Boulevard/Lenox Avenue and includes prominent arts institutions like the Apollo Theater and the Studio Museum in Harlem. Within the Core Subdistrict, new developments of 60,000 square feet or more would be required to dedicate a minimum of five percent of their floor space to arts and entertainment uses.

The special district also includes an innovative Arts Bonus, which was further modified to broaden its application in terms of use, with appropriate restrictions, and enforcement. The special district also restricted residential entrances on 125th Street frontage in the Core Subdistrict to further incentivize commercial and arts-related activity on the street.

On April 30, 2008, the City Council approved the Special 125th Street District and related rezoning action with a modification to the special district zoning text (C 080100(A) ZRM) that reduced the allowed residential density in the C6-3 district within the Core Subdistrict, and incorporated changes to the Arts Bonus to expand public participation opportunities in the selection of proposed operators for the bonused arts space.

In response to local concerns regarding building height in the Core Subdistrict, in a follow-up action, the Special 125th Street District regulations were modified to further reduce building height and density in the C4-7 zoned portion of the Core Subdistrict. The follow-up zoning text amendment was approved by the City Council on November 19, 2008.

Trips Generated by the Rezoning Actions:

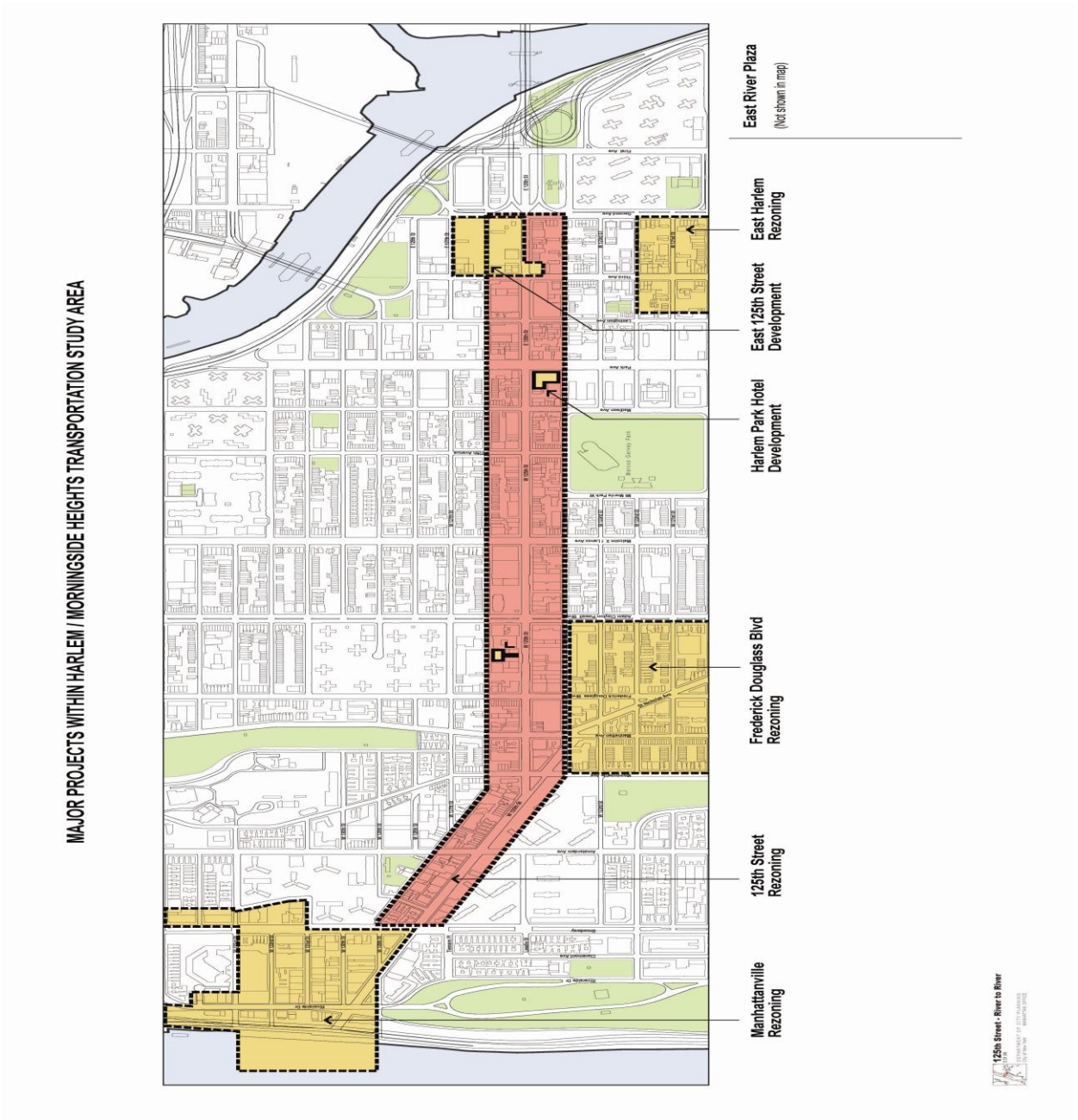
Exhibit 2.2.1 shows the various rezoning actions in the Study Area, and Table 2.2.1 presents the estimate total number of person trips by mode generated by the proposed actions.

Several sources were consulted including the ITE Trip Generation Manual to produce the estimated number of trips generated by the proposed actions.

The sources are:

- Residential Land Use: “2000 Census Data”
- Office Land Use: “2000 Census Data”
- Local Retail Land Use: “River Center EIS”
- Destination Retail Land Use: “Delancey Transportation Study”
- Community/Educational Land Use: “Delancey Transportation Study”
- Hotel Land Use: “Delancey Transportation Study”
- East Harlem Rezoning and related C4-4D Zoning Text Amendment EAS document, December 2002 (Site # 6)
- Frederick Douglass Boulevard Rezoning EAS, April 2003 (Site # 7)
- East River Plaza EIS, August 1999 (Site # 8)

Exhibit 2.2.1



* Source: City Planning (DCP)

Table 2.2.1: Person Trips Generated by Proposed Developments

Site No.	Project Name	Modal Split	AM		MD		PM	
			IN	OUT	IN	OUT	IN	OUT
		Auto/Taxi	87	222	610	553	824	803
		Bus	79	180	566	520	691	679
	125th Street	Subway	178	640	717	672	1,135	890
1	Rezoning	Walk/Foot	659	812	4,139	4,060	2,780	2,770
		Auto/Taxi	215	174	505	481	441	467
		Bus	130	116	386	368	338	351
	Manhattanville,	Subway	214	213	497	478	439	434
2	Phase1	Walk/Foot	595	548	2,296	2,267	1,395	1,395
		Auto/Taxi	196	129	816	735	1,017	1,183
		Bus	120	115	775	711	861	950
	E 125th Street	Subway	218	276	832	768	1,025	1,087
3	Development	Walk/Foot	947	939	6,040	5,941	3,783	3,933
		Auto/Taxi	65	43	87	72	62	91
		Bus	51	26	59	61	42	75
		Subway	171	75	229	211	143	256
4	Harlem Park Hotel	Walk/Foot	136	132	745	785	348	357
		Auto/Taxi	33	35	64	52	41	33
		Bus	14	13	30	29	17	15
		Subway	38	41	91	77	56	47
5	Victoria Theater	Walk/Foot	66	64	197	189	107	98
		Bus	9	40	38	38	43	24
	East Harlem	Subway	32	140	104	104	152	88
6	Rezoning	Walk/Foot	11	21	116	116	68	54
		Bus	30	84	0	0	107	76
	Frederick Douglass	Subway	100	188	0	0	216	172
7	Blvd	Walk/Foot	116	218	405	609	416	336
		Bus	0	0	291	268	264	279
		Subway	0	0	200	188	180	196
8	East River Plaza	Walk/Foot	N/A	N/A	246	236	222	245

2.3 TRAFFIC AND TRANSPORTATION

The 2015 future condition traffic network volumes were developed by applying a background growth rate of 0.5% per year to the 2006 traffic volume for a total of 4.5%, plus the trips generated from all proposed developments in the study area by 2015.
Table 2.3.1 shows the future developments and estimated vehicular trips generated (soft sites from EISs) in the study area by 2015 build year.

Because of the magnitude and impacts of the three major developments (125th Street Corridor Rezoning, East 125th Street Development and Columbia University expansion / Manhattanville Rezoning) to occur by 2015, the traffic network in the study area will experience several roadway and signal timing changes as part of these projects improvements or mitigation measures.

The following is a summary of the mitigation measures and improvements that will be incorporated into the study area street network by 2015.

MANHATTANVILLE WEST HARLEM REZONING

Originally the mitigation measures proposed from this EIS by 2015 involve signal timing changes, parking restrictions, restriping, and geometric changes, however the project is not on schedule. Improvement measures include one way conversions, installation of traffic signals and midblock pedestrian crossing.

1) Proposed roadway improvements are the following:

   - West 133rd Street between Broadway and Twelfth Avenue from two-way to one way westbound;
   - West 132nd Street between Broadway and Marginal Street from two-way to one way eastbound;
   - West 131st Street between Broadway and Twelfth Avenue from two-way to one way westbound;

- West 125th Street between Twelfth Avenue and Marginal Street from two-way to one way westbound; and

2) New traffic signal installation and pavement marking improvements by 2015 at the six following locations:

- West 131st and Twelfth Avenue
- Twelfth Avenue and St Clair Place / Riverside Dr
- West 125th St and St Clair / West 129th Street
- Marginal Street and West 133rd Street
- Marginal Street and West 132nd Street
- Marginal Street and St Clair Place

The 125th Streetscape improvement project complements some of the improvements outlined in the EIS.

EAST 125TH STREET DEVELOPMENT EIS

The mitigation measures for this project to be built by 2012 involves signal timing changes, parking restrictions, restriping, one way conversions and geometry changes.

125th STREET REZONING (Special 125th Street District)

The mitigation measures (by built year 2015) involve mainly prohibition of left turns on 125th Street from 3rd Avenue to Amsterdam Avenue (included). Others include signal timing changes, parking restrictions and restriping. For more details on the mitigation/improvement measures please refer to the respective EIS. The future 2015 traffic network incorporates all the mitigations and improvement measures mentioned above.

Table 2.3.1
Trips Generated By Proposed Future Developments

No build projects (Study Area)	Total No. of Vehicle Trips Generated			
Future Developments	**AM**	**MD**	**PM**	**SAT**
560 Riverside Drive	0	0	0	-
Harlem Piers	9	16	16	-
Striver's Garden	31	36	39	-
Citarella	32	35	31	-
Mink Building	70	47	56	-
West 127th St Cornerstone	30	32	35	-
Mart 125	27	21	22	-
Harlem Dowling	combined with site 9			-
United City Methodist Society	51	29	40	-
Harlem Park Hotel	97	157	125	-
Vincent Cyrus Plaza	10	4	12	-
East 125th Street Development (Draft April/2007)	**320**	**668**	**732**	**879**
Harlem Auto Mall	54	69	96	-
East River Plaza	-	1688	1621	-
Malcolm Shabazz Market	combined with site 16 and 17			-
Shabazz Garden	combined with site 15 and 17			-
The Kalahari	62	58	72	-
New Columbia Academic Building	57	28	56	-
New Columbia Academic Building-Research building	Assumed to be part of the background growth			
City College Dormitory	6	4	6	-
New Columbia Administrative Building	111	32	103	-
SME Secondary School	112	112	-	-
New Columbia office building	105	32	97	-
New Columbia office building	64	20	59	-
CUNY research buildings & Building conversions	125	48	124	-
Project Area Rezoning A	-	-	-	-
Project Area Rezoning B	-	-	-	-
Project Area Rezoning C	-	-	-	-
Project Area Rezoning D	-	-	-	-
Barnard Student Center	-	-	-	-
East Harlem Rezoning	245	130	271	-
Frederick Douglass Rezoning	126	181	184	-
125th Street rezoning - Generally from 124th to 126th Streets between Broadway and Second Avenues- (Extended Art Bonus Alternative)	**841**	**1675**	**2208**	**1973**

Table 2.3.1: Continuation				
No build projects (Study Area)	Total No. of Vehicle Trips Generated			
Future Developments	**AM**	**MD**	**PM**	**SAT**
Victoria Theater - 235-237 W 125th Street between Frederick Douglass Blvd and Adam Clayton Powell Jr Blvd.	-	-	-	-
Manhattanville, phase 1 - From Columbia University Components	**310**	**156**	**307**	-
Manhattanville, phase 1 - From Non-Columbia University Components	**196**	**302**	**355**	-
Total	**3091**	**5580**	**6667**	**2852**

Source:
Manhattanville, East 125th Street Development DEIS and 125th Street Corridor Rezoning from Department of City Planning

2015 Traffic Network:

The future 2015 conditions analyzed sixty-five signalized and three unsignalized intersections in the study area for the AM (7:45-8:45), Midday (12:00-1:00), PM (4:45-5:45), and Saturday (1:00-2:00) peak hour periods. This reflects twenty-nine more intersections than the existing condition analysis. This is due to the projected increased traffic and potential impacts resulting from the proposed development by 2015.

The following is a list of the additional new locations (from Manhattanville and 125th Street EISs) of which twenty-seven are signalized and two unsignalized. Exhibit 2.3.1 shows the total 68 intersections analyzed.

Signalized intersections:

1. 1st Avenue @ E 125th Street
2. 2nd Avenue @ E 126th Street
3. 3rd Avenue @ E 126th Street
4. Lexington Avenue @ E 126th Street

5. Madison Avenue @ E 135th Street
6. 5th Avenue @ 125th Street
7. Morningside Avenue @ W 126th Street
8. Amsterdam Avenue @ W 120th Street
9. Amsterdam Avenue @ W 135th Street
10. Broadway @ W 126th/W 129th Street
11. Broadway @ W 130th Street
12. Broadway @ W 131st Street
13. Broadway @ W 132nd Street
14. Broadway @ W 133rd Street
15. Broadway @ W 135th Street
16. Broadway @ W 138th Street
17. 125th Street @ W 129th Street/St Clair Place
18. Riverside Drive @ St Clair Place
19. Riverside Drive @ W 131st Street
20. Riverside Drive @ W 132nd Street
21. Riverside Drive @ W 133rd Street
22. Riverside Drive @ W 135th Street
23. 12th Avenue @ St Clair Place
24. Marginal Street @ St Clair Place
25. Marginal Street @ W 125th Street
26. Marginal Street @ W 132nd Street
27. Marginal Street @ W 133rd Street

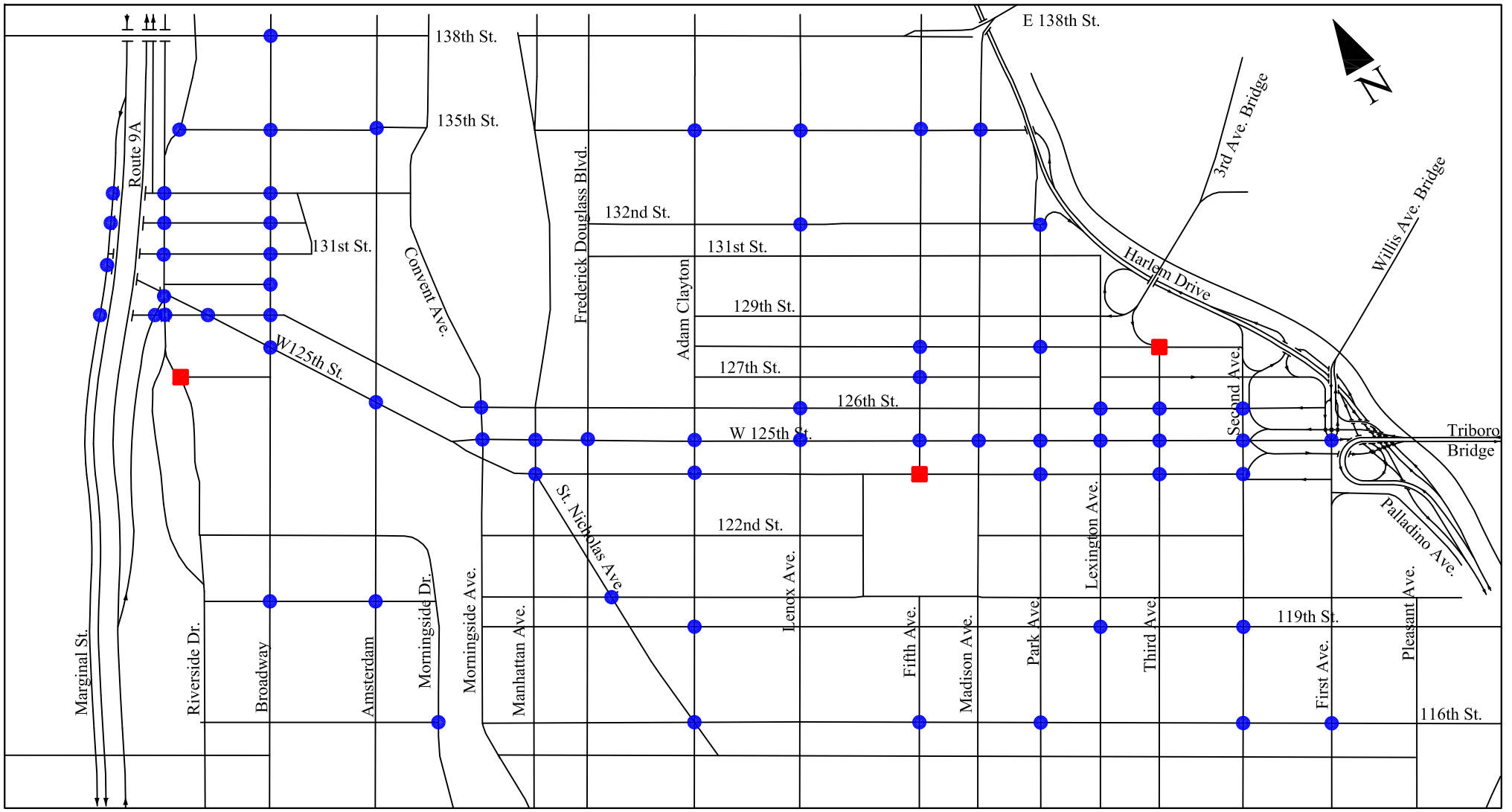
<u>Unsignalized intersections</u>:

1. 5th Avenue @ 124th Street
2. Riverside Drive @ Tiemann Place

Exhibits 2.3.2 to 2.3.5 show the 2015 traffic volumes for some locations on the main corridors in the study area. For complete traffic volume maps for the AM, MD, PM and Saturday Midday peak hours see Appendix A.

Exhibit 2.3.1

Intersections Analyzed for Future 2015 Conditions



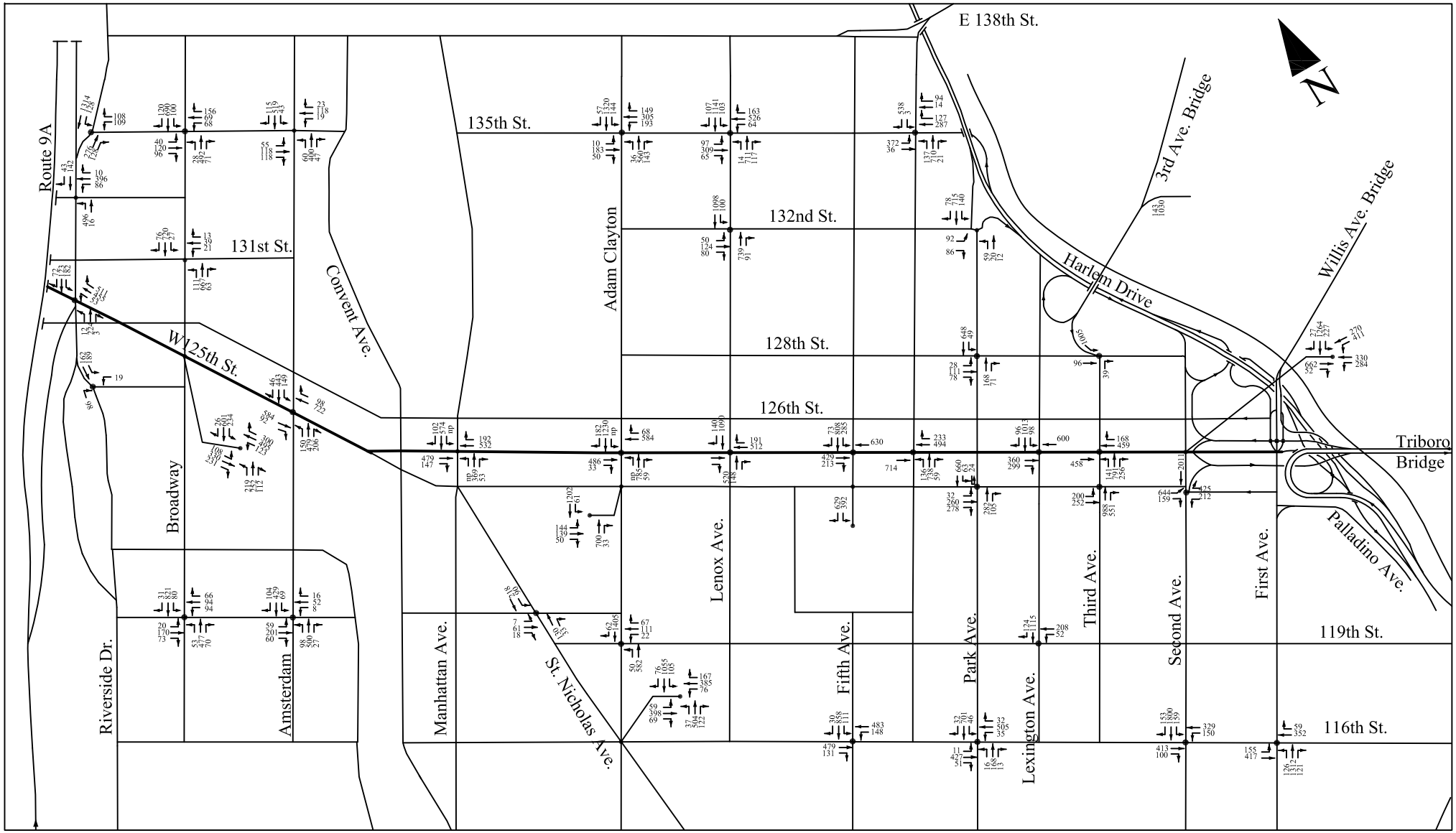
Legend

- Signalized intersections
- Unsignalized intersections

Intersections Analyzed for the Future 2015

Exhibit 2.3.2

2015 Future Traffic Volume - AM Peak Hour

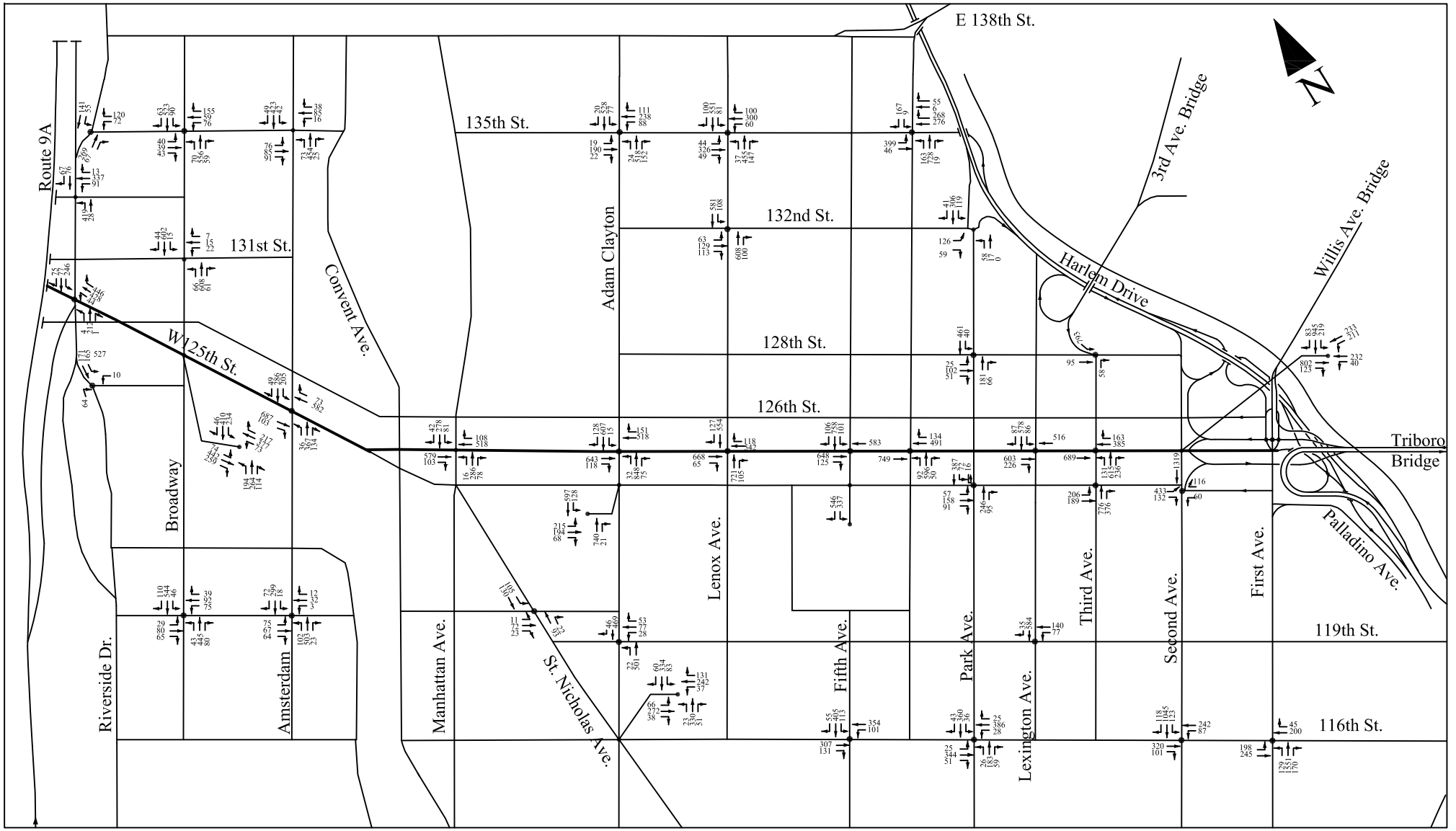


2015 AM PEAK
7:45am-8:45am

With Left Turn Prohibition on the 125th Street Corridor

Exhibit 2.3.3

2015 Future Traffic Volume - MD Peak Hour

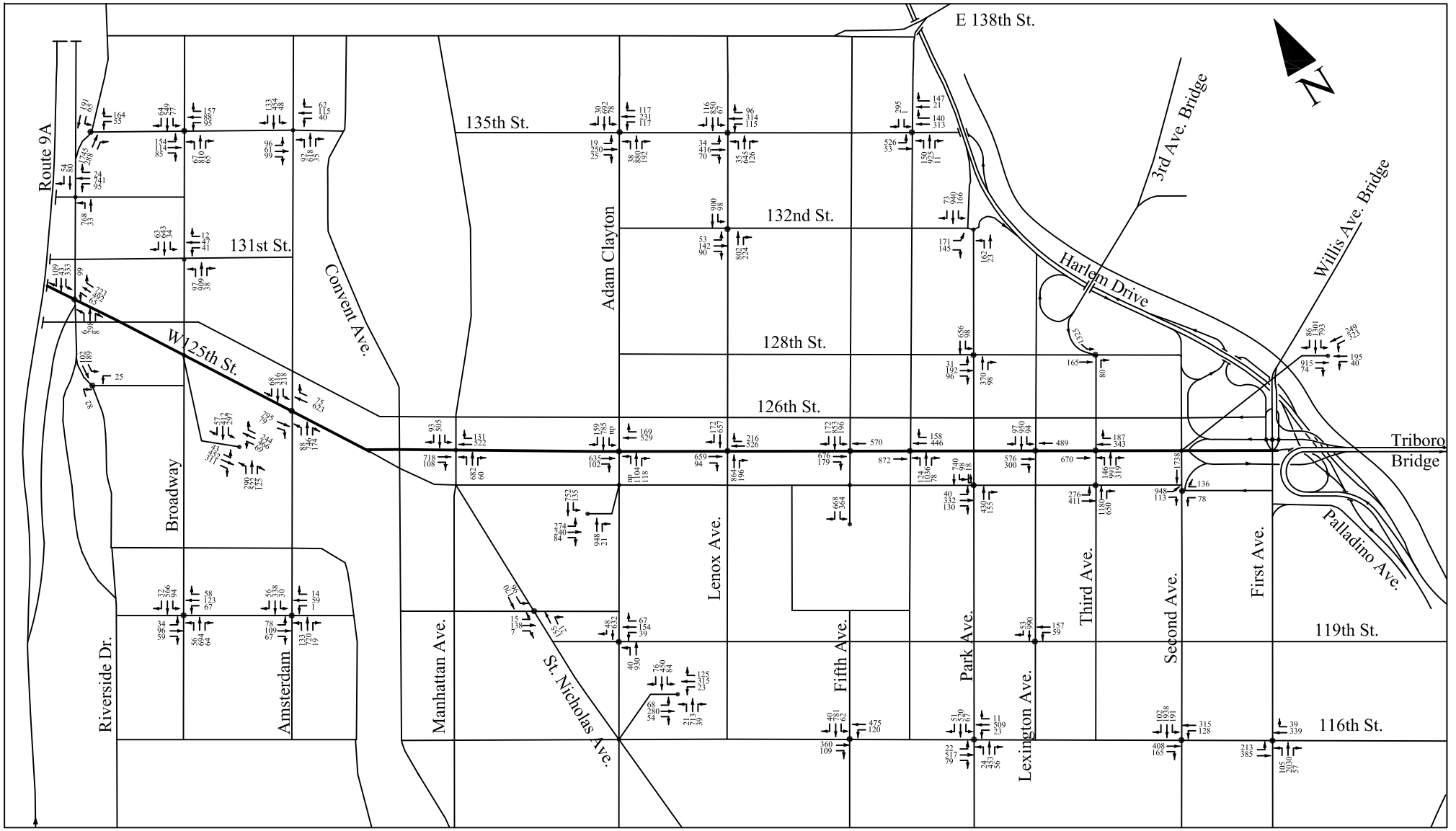


With Left Turn Prohibition on the 125th Street Corridor

2015 MD PEAK
12:15pm-1:15pm

Exhibit 2.3.4

2015 Future Traffic Volume - PM Peak Hour

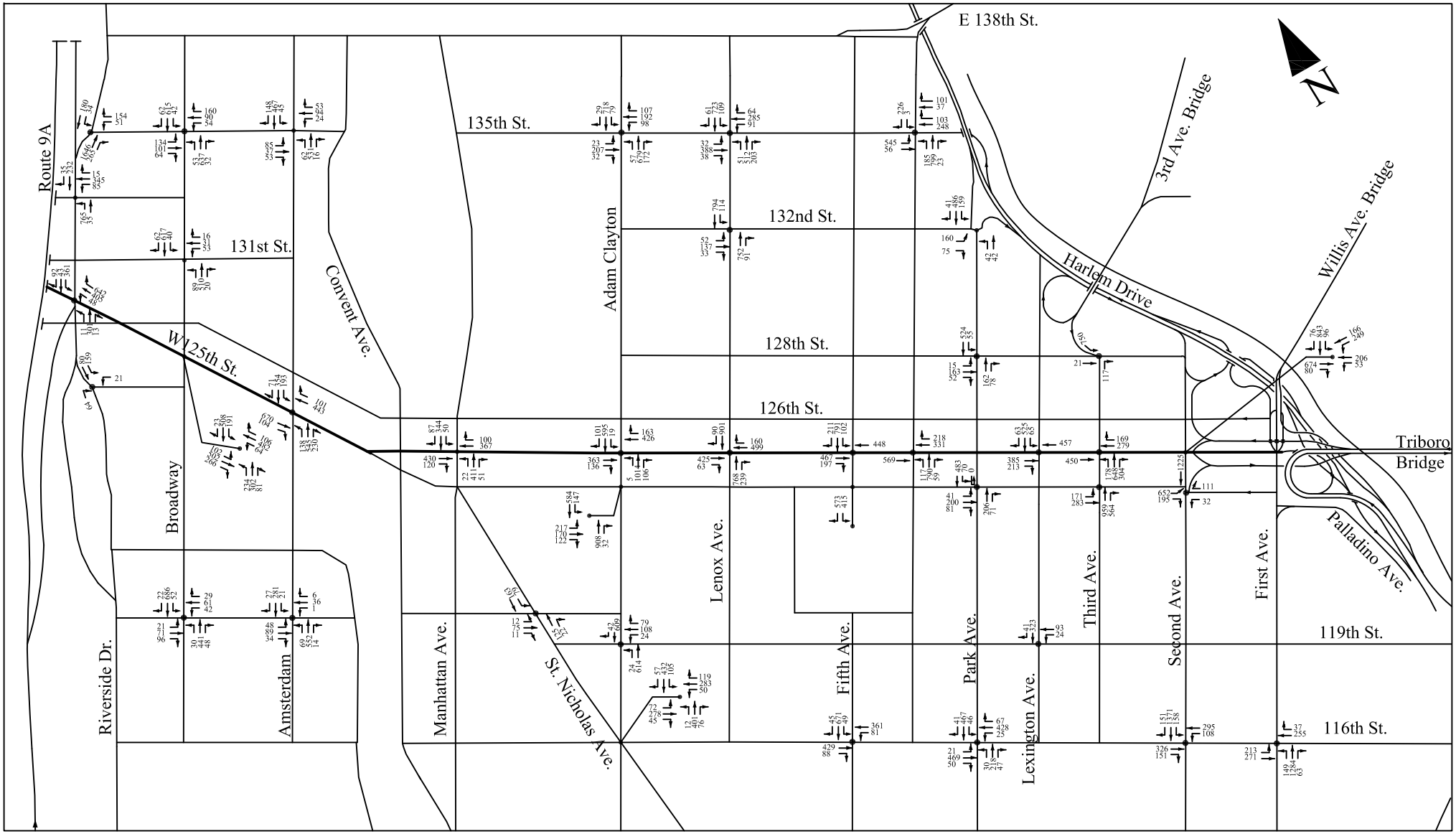


2015 PM PEAK
4:45pm-5:45pm

With Left Turn Prohibition on the 125th Street Corridor

Exhibit 2.3.5

2015 Future Traffic Volume - Saturday MD Peak Hour



2015 SAT PEAK
1:00pm-2:00pm

With Left Turn Prohibition on the 125th Street Corridor

2.3.1 Street Capacity and Level of Service (LOS)

The capacity and level of service (LOS) analysis were performed using the 2000 Highway Capacity Manual (HCM) methodology. Tables 2.3.2 and 2.3.3 show the level of service (LOS) criteria for unsignalized and signalized intersections.

Table 2.3.4 shows the 2015 Future Conditions, v/c ratios, delays, and level of service (LOS) for all the signalized and unsignalized intersections during AM, Midday, PM, and Saturday Midday peak hours. Exhibits 2.3.6, 2.3.7, 2.3.8, and 2.3.9 in Appendix A show the overall intersection LOS for all the locations analyzed for the AM, MD, PM and Saturday Midday peak hours.

Table 2.3.2: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (s/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	> 35-50
F	> 50
Sources: Highway Capacity Manual 2000, Transportation Research Board	
Note: Average Control delay is measured in terms of seconds per vehicle.	

Table 2.3.3: Level of Service Criteria for Signalized Intersections

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

Sources: Highway Capacity Manual, Transportation Research Board; National Research Council, Washington D.C., 2000;

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

Table 2.3.4: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1st Ave @ E 116th St	NB	LTR	0.61	15.0	B	0.76	18.2	B	0.86	21.6	C	0.57	14.5	B
	EB	DefL				0.91	66.7	E	1.10	122.5	F	0.97	80.2	F
		LT	1.08	89.7	F									
		T				0.62	31.4	C	0.91	53.4	D	0.63	31.4	C
	WB	TR	0.58	27.3	C	0.33	22.9	C	0.51	25.8	C	0.37	23.4	C
	Overall			34.1	C		23.7	C		32.9	C		23.9	C
1st Ave @ E 125th St	NB	L	0.52	17.7	B	0.18	10.0	B	0.16	12.7	B	0.22	13.3	B
		T	0.35	14.0	B	0.52	12.4	B	0.62	17.3	B	0.49	15.5	B
		R	0.23	13.6	B	0.26	11.0	B	0.46	17.1	B	0.04	11.6	B
	EB	LT	0.72	27.7	C	0.66	26.2	C	0.90	38	D	0.49	22.5	C
	Overall			19.1	B		16.4	B		23.5	C		17	B
2nd Ave @ 116th St	SB	LTR	0.84	20.7	C	0.55	14.2	B	0.85	20.8	C	0.64	15.5	B
	EB	TR	0.68	29.5	C	0.51	25.5	C	0.67	29.1	C	0.56	26.4	C
	WB	DefL	1.17	156.7	F				0.96	91.3	F			
		LT				0.68	31.4	C				0.75	34.2	C
		T	0.88	49.2	D				0.77	38.1	D			
	Overall			32.4	C	0.6	19.5	B		27.1	C		20.6	C
2nd Ave @ 119th St	SB	TR	1.01	40.5	D	0.6	14.8	B	0.86	21.2	C	0.67	16.1	B
	WB	LT	0.49	27.2	C	0.48	26.7	C	0.48	26.6	C	0.47	26.5	C
	Overall			39.5	D	0.55	16.3	B		21.7	C		17.2	B
2nd Ave @ 124th St	SB	T	0.75	17.7	B	0.51	13.6	B	0.62	15.2	B	0.44	12.8	B
	EB	L	0.78	33.5	C	0.56	26.7	C	1.11	95.9	F	0.79	33.8	C
		R	0.59	32.6	C	0.37	24.8	C	0.33	24.1	C	0.57	30.1	C
	WB	L	0.50	27.3	C	0.14	20.9	C	0.18	21.5	C	0.09	20.4	C
		R	0.33	12.0	B	0.09	10	B	0.11	10.1	B	0.09	9.9	A
	Overall			21.3	C	0.53	17.1	B		40.4	D		20.5	C
2nd Ave @ E 125th St	SB	LTR	0.73	25.5	C	0.79	32.3	C	1.22	135.7	F	0.47	23.2	C
	EB	T	0.84	39.3	D	1.06	80.3	F	0.71	30.8	C	0.83	41.4	D
		R	0.21	27.5	C	0.44	29.1	C	0.26	25.4	C	0.36	32.4	C
	WB	DefL	0.81	50.1	D									
		L												
		LT				0.56	30.2	C	0.41	26.5	C	0.67	38.9	D
		T	0.90	59.2	E									
	Overall			34.9	C		47.8	D		97.9	F		31.6	C

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
2nd Ave @ E 125th St (Bridge)	SB	TR	1.06	87.9	F	1.12	116.7	F	1.10	102.4	F	0.75	41.4	D
	EB	T	0.93	48.9	D	1.06	80.3	F	0.71	30.5	C	0.85	43.6	D
		R	0.22	27.9	C	0.44	29.1	C	0.26	25.4	C	0.35	32.2	C
	WB	DefL	0.91	64.7	E									
		L												
		LT				0.56	30.2	C	0.41	26.5	C	0.67	38.9	D
		T	1.00	82.5	F									
	Overall			69.4	E		78.2	E		53.3	D		41.4	D
2nd Ave @ E 126th St	NB	L	1.05	99.7	F	0.46	36.3	D	0.72	43.3	D	0.38	34.5	C
		T	0.55	9.5	A	0.46	8.4	A	0.58	9.5	A	0.55	9.5	A
	SB	TR	0.67	23.5	C	0.54	21.5	C	0.89	28.7	C	0.45	20.4	C
	WB	LTR	0.38	30.4	C	0.43	31.1	C	0.45	30.8	C	0.42	31	C
	Overall			27.4	C		19.3	B		24.3	C		18	B
3rd Ave @ E 124th St	NB	TR	0.53	13.8	B	0.43	12.6	B	0.59	14.6	B	0.5	13.3	B
	EB	LT	0.49	25.0	C	0.44	24.2	C	0.68	28.6	C	0.53	25.5	C
	Overall			16.4	B		15.6	B		18.6	B		16.5	B
3rd Ave @ E 125th St	NB	LTR	0.44	14.9	B	0.4	14.5	B	0.58	16.6	B	0.5	15.7	B
	EB	T	0.51	22.9	C	0.78	30	C	0.75	29.1	C	0.53	23.3	C
	WB	TR	0.79	31.5	C	0.73	28.7	C	0.70	27.8	C	0.66	26.8	C
	Overall			21.1	C		22.8	C		22	C		19.8	B
3rd Ave @ E 126th St	NB	LT	0.32	11.6	B	0.26	11.1	B	0.37	12	B	0.26	11.1	B
	WB	TR	0.44	23.9	C	0.31	22.3	C	0.31	22.2	C	0.25	21.6	C
	Overall		0.37	15.9	B		14.6	B		14.5	B		13.9	B
Lexington Ave @ E 119th St	SB	TR	1.05	58.9	E	0.49	14	B	0.81	21.9	C	0.29	11.6	B
	WB	LT	0.73	36.3	D	0.64	32.2	C	0.57	29.5	C	0.32	23.6	C
	Overall			54.7	D		19.1	B		23.3	C		14.6	B
Lexington Ave @ E 125th St	SB	LTR	1.06	66.3	E	0.67	19.8	B	0.93	33.9	C	0.57	17.5	B
	EB	TR	0.88	39.2	D	0.99	56.3	E	1.12	96.2	F	0.73	28.9	C
	WB	T	0.61	24.7	C	0.49	22.4	C	0.47	22	C	0.43	21.3	C
	Overall			48.9	D		34.7	C		54.3	D		22.5	C
Lexington Ave @ E 126th St	SB	TR	0.68	16.7	B	0.48	13.6	B	0.57	14.7	B	0.43	13	B
	WB	LT	0.95	48.9	D	0.72	30.9	C	0.80	33.7	C	0.66	29.2	C
	Overall			29.3	C		20.8	C		21.9	C		19.7	B

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Park Ave @ E 116th St	NB	LTR	0.36	15.2	B	0.5	17.8	B	0.83	30.1	C	0.54	18.6	B
	SB	LTR	1.15	109.7	F	0.73	24.7	C	1.04	69.2	E	0.89	36.6	D
	EB	LTR	0.61	25.2	C	0.59	24.8	C	0.71	27.4	C	0.69	27	C
	WB	LTR	0.73	29.0	C	0.55	23.7	C	0.61	24.9	C	0.66	26.2	C
	Overall			56.7	E		23.2	C		38.6	D		28.2	C
Park Ave @ E 124th St	NB	TR	0.34	14.2	B	0.49	16.8	B	0.48	16.1	B	0.39	15.3	B
	SB	LT	0.69	20.4	C	0.83	30.3	C	0.87	29.7	C	0.73	23.2	C
	EB	LTR	0.56	23.5	C	0.82	39.6	D	0.46	21.7	C	0.63	27.2	C
	Overall			20.0	C		28.6	C		23.2	C		22.4	C
Park Ave @ E 125th St	NB	TR	0.43	24.3	C	0.41	23.9	C	0.59	27	C	0.3	22.3	C
	SB	TR	0.69	29.5	C	0.63	27.9	C	0.83	35	D	0.65	28.1	C
	EB	TR	0.64	16.8	B	0.7	18.4	B	0.88	26.9	C	0.49	14	B
	WB	TR	0.56	15.3	B	0.53	14.7	B	0.47	13.8	B	0.39	12.7	B
	Overall			20.7	C		20.5	C		26.3	C		19	B
Park Ave @ E 128th St	NB	TR	0.33	10.4	B	0.33	10.4	B	0.51	12.7	B	0.3	10	B
	SB	LT	0.95	38.6	D	0.71	18.6	B	1.14	98.0	F	0.9	32.3	C
	EB	LTR	0.66	36.3	D	0.6	33.6	C	0.86	50.5	D	0.66	35.5	D
	Overall			31.3	C		19.3	B		60.9	E		27.7	C
Park Ave @ E 132nd St	NB	LR	0.48	19.2	B	0.33	11.9	B	1.08	108.5	F	0.33	12	B
	SB	LTR	0.64	14.3	B	0.62	15.4	B	0.78	17.8	B	1	47.8	D
	EB	TR	0.31	25.5	C	0.52	30.4	C	0.54	29	C	0.4	26.6	C
	Overall			16.6	B	0.59	19	B		29.6	C		39.8	D
Madison Ave @ E 125th St	NB	LTR	0.59	20.4	C	0.48	18.7	B	0.77	24.6	C	0.62	20.9	C
	EB	T	0.63	21.9	C	0.66	22.7	C	0.77	26.2	C	0.51	19.5	B
	WB	TR	0.79	27.2	C	0.67	23.1	C	0.63	22.1	C	0.61	21.7	C
	Overall			23.0	C		21.4	C		24.5	C		20.7	C
Madison Ave @ E 135th St (service road)	NB	L	0.36	29.2	C	0.45	31.3	C	0.37	29.2	C	0.5	31.8	C
		TR	1.00	63.5	E	0.98	60.1	E	1.10	94.4	F	1.06	77.1	E
	SB	R	0.89	48.4	D	0.28	27.2	C	0.49	30.4	C	0.37	28.5	C
	EB	L	1.12	119.5	F	1.22	156.6	F	1.12	112.7	F	1.21	147.8	F
		LT	0.12	28.5	C	0.13	28.7	C	0.16	29	C	0.16	29	C
	WB	TR	0.47	35.8	D	0.26	31	C	0.69	44	D	0.49	35.6	D
	Overall			64.3	E		75.2	E		78.5	E		81.3	F

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Madison Ave @ E 135th St (off-ramp)	NB	L	0.36	29.2	C	0.45	31.3	C	0.39	29.2	C	0.5	31.8	C
		TR	1.00	63.5	E	0.98	60.1	E	1.10	94.4	F	1.06	77.1	E
	SB	R	0.89	48.4	D	0.28	27.2	C	0.49	30.4	C	0.37	28.5	C
	WB	T	0.90	63.1	E	0.90	64.8	E	0.98	78.7	E	0.8	51.8	D
		R	0.51	38.8	D	0.90	65.6	E	0.57	40.7	D	0.43	36.3	D
	Overall			54.6	D		55.4	E		86.6	F		84.5	F
5th Ave @ E 116th St	SB	LTR	0.55	16.6	B	0.34	14	B	0.47	15.5	B	0.41	14.8	B
	EB	TR	0.69	27.2	C	0.47	22.2	C	0.46	22	C	0.59	24.2	C
	WB	LT	1.13	107.3	F	0.6	25.3	C	0.83	35.6	D	0.71	29.2	C
	Overall			45.4	D		20	C		23.2	C		21.5	C
5th Ave @ E 125th St	SB	LTR	0.73	24.5	C	0.61	21.8	C	1.12	90.6	F	1.01	55.7	E
	EB	TR	0.72	30.3	C	0.85	36.2	D	0.94	46.3	D	0.74	31	C
	WB	T	0.50	18.0	B	0.46	17.4	B	0.45	17.3	B	0.36	16.1	B
	Overall			24.4	C		25.5	C		60.5	E		40.2	D
5th Ave @ E 127th St	SB	TR	0.92	30.4	C	0.67	17.3	B	0.85	24	C	0.75	19.4	B
	WB	LT	0.49	26.4	C	0.46	26	C	0.47	25.9	C	0.2	21.6	C
	Overall			29.7	C		19	B		24.3	C		19.6	B
5th Ave @ E 128th St	SB	LT	0.86	24.2	C	0.61	15.9	B	0.87	25.4	C	0.69	17.7	B
	EB	TR	0.67	31.9	C	0.57	29.1	C	0.69	33.7	C	0.59	29.8	C
	Overall			25.7	C		19	B		27.1	C		20.3	C
5th Ave @ E 135th St	SB	LTR	1.13	92.6	F	0.73	24.9	C	1.14	98.6	F	0.83	28.9	C
	EB	LTR	0.91	43.2	D	0.73	26	C	0.68	23.7	C	0.92	41.1	D
	WB	LTR	1.10	85.1	F	0.94	44.9	D	1.04	68.9	E	0.8	28.9	C
	Overall			80.5	F		31.5	C		73..5	E		32.6	C
Lenox Ave @ W 125th St	NB	TR	0.70	24.1	C	0.86	31.8	C	1.08	78.8	E	1.1	83.8	F
	SB	TR	0.88	30.4	C	0.75	26.4	C	0.97	47.2	D	1.04	65.3	E
	EB	TR	0.50	19..3	B	0.74	25.2	C	0.80	28	C	0.5	19.6	C
	WB	TR	0.79	27.7	C	0.75	26.1	C	1.00	56.7	E	0.75	26.3	C
	Overall			26.5	C		27.6	C		54.7	D		55.6	E
Lenox Ave @ W 126th St	NB	L	1.17	156.1	F	0.7	40.7	D	1.18	155.7	F	0.95	99.7	F
		T	0.49	19.1	B	0.67	22.9	C	0.82	28.3	C	0.7	23.6	C
	SB	TR	1.05	65.0	E	0.62	21.6	C	0.78	26.2	C	0.83	28.6	C
	WB	LTR	0.61	21.6	C	0.28	16.2	B	0.41	18	B	0.33	16.8	B
	Overall			48.6	D		21.9	C		33.9	C		27.2	C

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Lenox Ave @ W 132nd St	NB	TR	0.70	15.8	B	0.52	12.4	B	0.72	16.1	B	0.6	13.4	B
	SB	L	0.56	21.4	C	0.5	17.2	B	0.72	34.8	C	0.66	27.5	C
		T	0.78	18.0	B	0.38	10.5	B	0.55	12.5	B	0.5	11.8	B
	EB	LTR	0.81	47.6	D	0.84	47.9	D	0.77	41.6	D	0.66	36.3	D
	Overall			20.6	C		18.5	B		19	B		16.4	B
Lenox Ave @ W 135th St	NB	L	0.20	15.7	B	0.2	12.2	B	0.29	15.5	B	0.27	13.9	B
		TR	0.65	16.9	B	0.48	13.8	B	0.55	14.9	B	0.58	15.4	B
	SB	L	0.59	26.2	C	0.41	16.7	B	0.38	16.6	B	0.53	21.8	C
		TR	0.91	28.5	C	0.55	14.8	B	0.70	17.8	B	0.57	15.2	B
	EB	LTR	1.06	87.4	F	0.71	32	C	0.69	30.3	C	0.62	28.1	C
	WB	LTR	1.11	95.8	F	0.77	34.4	C	0.95	55.4	E	0.79	36.6	D
	Overall			48.5	D		21.7	C		26.1	C		21.5	C
7th Ave/Adam Clayton @ W 116th St	NB	LTR	0.45	13.3	B	0.25	11.2	B	0.44	13	B	0.28	11.3	B
	SB	LTR	0.75	18.7	B	0.33	11.9	B	0.42	12.9	B	0.38	12.5	B
	EB	LTR	0.95	54.4	D	0.74	34.4	C	0.76	35.2	D	0.71	32.2	C
	WB	LTR	1.12	103.0	F	0.75	33.7	C	0.70	31	C	0.69	30.8	C
	Overall			40.8	D		22.4	C		20.8	C		20.5	C
7th Ave/Adam Clayton @ W 119th St	NB	LT	0.42	13.0	B	0.31	11.7	B	0.58	15	B	0.35	12.1	B
	SB	TR	0.71	17.3	B	0.25	11.1	B	0.33	11.8	B	0.32	11.7	B
	WB	LTR	0.62	32.4	C	0.53	28.9	C	0.76	39.5	D	0.68	34.7	C
	Overall			17.5	B		14.1	B		17.3	B		15.3	B
7th Ave/Adam Clayton @ W 124th St	NB	TR	0.41	14.8	B	0.39	12.4	B	0.52	15.7	B	0.45	13	B
	SB	LT	0.77	21.8	C	0.55	21.8	C	0.86	58.7	E	0.74	36	D
						0.44	13.2	B	0.59	17.2	B	0.4	12.7	B
	EB	LTR	0.59	25.9	C	1.03	75.9	E						
									1.16	120.2	F	0.76	78.9	E
	Overall			20.2	C		29.1	C		44.7	D		30.3	C
7th Ave/Adam Clayton @ W 125th St	NB	LTR				0.67	22.2	C				0.68	22.1	C
		TR	0.50	18.9	B				0.77	24.5	C			
	SB	LTR				0.5	19	B				0.46	18.4	B
		TR	0.82	26.3	C				0.57	20	C			
	EB	TR	0.47	18.9	B	0.8	28.3	C	0.77	26.4	C	0.5	19.5	B
	WB	TR	0.65	22.5	C	0.76	26.5	C	0.79	28	C	0.6	21.5	C
	Overall			22.6	C		23.9	C		24.4	C		20.6	C

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

Intersection	Approach	Lane Group	AM			MD			PM			Sat MD		
			V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
7th Ave/Adam Clayton @ W 135th St	NB	LTR	0.54	14.6	B	0.43	12.9	B	0.69	17.1	B	0.6	15.5	B
	SB	LTR	1.01	44.4	D	0.38	12.5	B	0.52	14.2	B	0.53	14.3	B
	EB	LTR	0.61	30.6	C	0.57	29.2	C	0.69	33.4	C	0.62	30.4	C
	WB	L	0.95	76.5	E	0.42	28.1	C	0.65	39.7	D	0.49	30.4	C
		TR	1.09	96.8	F	0.91	55.3	E	0.89	51.1	D	0.76	38.2	D
	Overall			45.7	D		22.9	C		23.6	C		20.2	C
St Nicholas Ave @ W 120th St	NB	TR	0.24	7.8	A	0.17	7.2	A	0.24	7.8	A	0.22	7.6	A
	SB	LT	0.47	10.7	B	0.4	9.9	A	0.45	10.6	B	0.4	9.6	A
	EB	LTR	0.35	30.5	C	0.44	32.5	C	0.53	34.5	C	0.39	31.2	C
	Overall			13.1	B		15.1	B		16	B		13.5	B
8th Ave/Frederick Douglas @ W 125th St	NB	LTR	0.47	19.0	B	0.74	32.4	C	0.68	23.3	C	0.6	27.1	C
		TR												
	SB	LTR	0.70	24.0	C	0.82	37.2	D	0.61	21.5	C	0.81	35.2	D
		TR												
	EB	TR	0.57	20.9	C	0.66	17.3	B	0.79	27.6	C	0.46	13.5	B
	WB	TR	0.89	35.4	D	0.64	17	B	0.68	23.5	C	0.42	13	B
	Overall			26.0	C		24.5	C		24.1	C		22.3	C
Manhattan Ave @ St Nicholas Ave/124 St	NB	LTR	0.36	18.1	B	0.35	18	B	0.60	23	C	0.43	19.3	B
	SB	LT	1.16	115.1	F	0.73	28.8	C	1.22	138.9	F	0.92	46.5	D
	EB	LTR	1.04	72.3	E	0.88	40.6	D	1.27	158.6	F	0.92	44.9	D
	Overall			84.4	F		31.5	C		124.9	F		40.1	D
Manhattan Ave @ W 125th St	NB	LTR				0.93	56.8	E				1.08	94	F
		TR	0.93	55.2	E				1.18	129.5	F			
	SB	LTR				1.19	137.0	F				1.17	126.7	F
		TR	1.19	125.8	F				1.08	84.5	F			
	EB	TR	0.56	15.2	B	0.58	15.6	B	0.65	16.8	B	0.42	13.1	B
	WB	TR	0.62	16.5	B	0.61	16.2	B	0.54	14.9	B	0.35	12.2	B
	Overall			52.0	D		45.5	D		59.8	E		61	E
Morningside Drive @ W 116th St	NB	LT	0.25	8.9	A	0.18	8.2	A	0.26	8.9	A	0.13	7.7	A
	SB	TR	0.53	12.5	B	0.2	8.3	A	0.34	9.7	A	0.26	8.8	A
	EB	LR	0.24	27.3	C	0.19	26.2	C	0.24	26.9	C	0.1	24.9	C
	Overall			13.1	B		11.2	B		11.7	B		9.8	A

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

			AM			MD			PM			Sat MD		
Intersection	**Approach**	**Lane Group**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
Morningside Ave @ W 125th St	NB	DefL	1.16	135.2	F	0.49	30.1	C	0.75	46.2	D	0.68	39.5	D
		TR	0.29	22.9	C	0.24	22.2	C	0.49	26.4	C	0.35	23.8	C
	SB	DefL												
		LTR	0.74	33.6	C	0.49	25.8	C	0.60	28.2	C	0.49	25.6	C
	EB	TR	0.63	16.6	B	0.57	15.3	B	0.80	21.5	C	0.51	14.2	B
	WB	TR	0.57	15.2	B	0.52	14.5	B	0.54	14.8	B	0.4	12.8	B
	Overall			34.7	C		18	B		22.7	C		19	B
Morningside Ave @ W 126th St	NB	DefL	0.31	10.6	B	0.16	8.7	A	0.33	9.8	A	0.25	9.7	A
		T	0.24	9.2	A	0.15	8.3					0.26	9.5	A
	SB	TR	0.19	8.4	A	0.17	8.3	A	0.23	8.7	A	0.19	8.4	A
	WB	LTR	1.17	130.1	F	1.04	92	F	1.28	145.5	F	1.13	118.1	F
	Overall			65.0	E		46.4	D		86.5	F		53.6	D
Amsterdam Ave @ W 120th St	NB	LTR	0.61	5.6	A	0.56	4.9	A	0.86	12.8	B	0.56	4.9	A
	SB	LTR	0.57	5.1	A	0.26	2.8	A	0.36	3.3	A	0.26	2.8	A
	EB	L	0.48	42.1	D	0.34	35.5	D	0.57	45.9	D	0.34	35.5	D
		TR	0.89	62.8	E	0.52	37.9	D	0.78	53.6	D	0.52	37.9	D
	WB	L	0.09	29.4	C	0.01	27.3	C	0.01	27.3	C	0.01	27.3	C
		TR	0.31	32.3	C	0.18	29.8	C	0.32	32.5	C	0.18	29.8	C
	Overall			17.1	B		9.9	A		17.3	B		9.9	A
Amsterdam Ave @ W 125th St	NB	L	0.42	21.5	C	0.09	12.5	B	0.25	16.3	B	0.40	21.4	C
		T	0.55	25.4	C	0.44	23.7	C	0.83	34.9	C	0.63	28.3	C
		R	0.75	41.1	D	0.54	30.7	C	0.60	32.4	C	0.83	49.9	D
	SB	L	0.52	25.9	C	0.65	28.5	C	0.77	48.1	D	0.61	33	C
		TR	0.54	25.3	C	0.41	23.3	C	0.46	24.6	C	0.52	26.4	C
	EB	TR	0.56	24.3	C	0.65	26.3	C	0.62	24.8	C	0.55	22.8	C
	WB	TR	0.68	26.8	C	0.56	24.4	C	0.52	23	C	0.41	20.8	C
	Overall			26.5	C		25.2	C		28.5	C		26.8	C
Amsterdam Ave @ W 135th St	NB	LTR	0.51	8.3	A	0.63	10.3	B	0.76	13.6	B	0.58	9.2	A
	SB	LTR	0.63	9.7	A	0.53	8.4	A	0.61	9.5	A	0.61	9.5	A
	EB	LT	0.49	30.0	C	0.25	25.5	C	0.65	38.7	D	0.48	31.5	C
		R	0.58	36.9	D	0.46	31.3	C	0.43	30.7	C	0.23	25.9	C
	WB	LTR	0.45	29.1	C	0.55	32.3	C	0.67	37	D	0.51	31	C
	Overall			15.2	B		14.6	B		18.1	B		14	B
Broadway @ W 120th St	NB	LTR	0.28	9.0	A	0.27	8.9	A	0.54	11.8	B	0.22	8.5	A
	SB	LTR	0.58	12.5	B	0.45	10.8	B	0.49	11.2	B	0.46	10.7	B
	EB	LTR	0.45	28.4	C	0.37	27.2	C	0.37	27.1	C	0.4	27.7	C
	WB	LTR	1.04	98.6	F	1.01	92.8	F	0.94	71.1	E	0.55	34.6	C
	Overall			24.1	C		22.6	C		20.3	C		14.1	B

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

			AM			MD			PM			Sat MD		
Intersection	**Approach**	**Lane Group**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
Broadway @ W 125th St	NB	L	0.47	36.3	D	0.47	38.3	D	0.61	39.5	D	0.38	29.9	C
		T	0.31	22.6	C	0.4	27.4	C	0.61	27	C	0.44	30.8	C
		R	0.50	30.2	C	0.68	46.4	D	0.54	31.3	C	0.44	35.5	D
	SB	L	0.49	36.5	D	0.59	41.1	D	0.54	37.2	D	0.32	29.1	C
		T	0.64	27.7	C	0.56	30	C	0.48	24.5	C	0.74	38.3	D
		R	0.16	22.4	C	0.23	26.9	C	0.29	24.5	C	0.12	27.6	C
	EB	L	0.86	75.8	E	0.37	24.3	C	0.37	32.3	C	0.62	39.7	D
		T	0.42	26.0	C	0.4	21	C	0.60	29.7	C	0.57	26.5	C
		R	0.56	18.4	B	0.59	15.9	B	0.75	27	C	0.41	9.5	A
	WB	L	0.82	63.2	E	0.41	26.7	C	0.64	49.8	D	0.4	29.1	C
		T	0.64	30.2	C	0.42	21.3	C	0.58	29.2	C	0.55	26.1	C
		R	0.76	27.5	C	0.79	41.8	D	0.64	21.8	C	0.17	7	A
	Overall			31.2	C		28.5	C		29.6	C		27.8	C
Broadway @ W 129th/126th St	NB	LT	0.59	20.9	C	0.49	19.1	B	0.84	29.8	C	0.51	19.6	B
	SB	TR	0.86	27.9	C	0.69	23.4	C	0.79	27.3	C	0.74	25.1	C
	WB	LT	0.44	19.5	B	0.42	18.9	B	0.60	22.8	C	0.46	19.7	B
		R	0.23	16.7	B	0.19	16.2	B	0.31	17.9	B	0.14	15.4	B
	Overall			23.6	C		20.8	C		26.9	C		22	C
Broadway @ W 130th St	NB	T	0.38	6.4	A	0.31	5.9	A	0.42	6.7	A	0.25	5.7	A
	SB	LT	0.50	7.6	A	0.42	6.9	A	0.48	7.4	A	0.47	7.3	A
	EB	L	0.22	24.4	C	0.24	24.6	C	0.27	25	C	0.16	23.6	C
		R	0.33	27.4	C	0.34	27.6	C	0.40	28.8	C	0.26	26.1	C
	Overall			9.6	A		9.6	A		10.1	B		8.9	A
Broadway NB @ W 131st St	NB	LTR	0.51	10.0	B	0.43	9.2	A	0.58	10.8	B	0.34	8.4	A
	EB	T	0.06	20.1	C	0.03	19.7	B	0.07	20.1	C	0.08	20.2	C
	WB	TR	0.10	20.2	C	0.08	20.1	C	0.13	20.6	C	0.13	20.6	C
	Overall			11.1	B		10.0	B		11.9	B		10.7	B
Broadway SB @ W 131st St	SB	LTR	0.63	12.1	B	0.51	10.2	B	0.56	10.8	B	0.55	10.6	B
	WB	LT	0.19	21.1	C	0.13	20.6	C	0.21	21.3	C	0.19	21.2	C
	Overall			13.7	B		11.7	B		12.9	B		12.7	B
Broadway NB @ W 132nd St	NB	TR	0.48	14.5	B	0.40	13.6	B	0.56	13.2	B	0.32	10.7	B
	EB	LT	0.88	43.1	D	0.60	22.7	C	0.82	40.8	D	0.77	34.6	C
	WB	TR	0.01	15.1	B	0.03	15.3	B	0.19	18.8	B	0.1	17.7	B
	Overall			25.1	C		16.5	B		20.1	C		20.3	C
Broadway SB @ W 132nd St	SB	LT	0.59	16.6	B	0.50	15.0	B	0.47	12.4	B	0.46	12.4	B
	EB	TR	0.50	20.9	C	0.28	17.6	B	0.31	19.8	B	0.35	20.3	C
		R	0.25	18.2	B	0.24	18.3	B	0.34	21.8	C	0.38	22.8	C
	WB	L	0.01	15.2	B	0.03	13.4	B	0.18	19.3	B	0.1	18.1	B
	Overall			18.3	B		16.0	B		15.9	B		16.3	B

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

			AM			MD			PM			Sat MD		
Intersection	**Approach**	**Lane Group**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
Broadway NB @ W 133rd St	NB	L	0.60	33.0	C	0.39	12.5	B	0.85	45	D	0.31	23.2	C
		T	0.38	2.4	A	0.47	12.5	B	0.57	5.5	A	0.41	4.3	A
		R	0.71	16.8	B	0.22	10.6	B	0.64	20.8	C	0.6	18	B
	WB	TR	0.42	34.0	C	0.48	23.6	C	0.82	43.3	D	0.43	30.8	C
	Overall			15.2	B		14.6	B		24	C		13.6	B
Broadway SB @ W 133rd St	SB	TR	0.76	29.6	C	0.58	24.9	C	0.87	41.4	D	0.82	37.8	D
	WB	L	0.04	9.7	A	0.07	9.9	A	0.06	7.2	A	0.02	6.9	A
		T	0.21	7.6	A	0.22	7.6	A	0.38	5.4	A	0.17	4.3	A
	Overall			23.3	C		18.6	B		23.9	C		27.9	C
Broadway NB @ W 135th St	NB	LTR	0.52	8.0	A	0.55	8.4	A	0.70	10.7	B	0.53	8	A
	EB	DefL							0.94	82.7	F	0.75	50	D
		LT	0.41	26.5	C	0.31	25.3	C						
		T							0.49	29.5	C	0.37	26.9	C
	WB	TR	0.52	29.2	C	0.53	29.4	C	0.58	30.5	C	0.51	29.1	C
	Overall			17.5	B		16.2	B		24	C		19.2	B
Broadway SB @ W 135th St	SB	L	0.15	5.4	A	0.14	5.4	A	0.12	5.3	A	0.07	4.9	A
		TR	0.66	10.0	B	0.50	7.9	A	0.50	7.8	A	0.55	8.3	A
	EB	TR	0.43	27.3	C	0.20	24.1	C	0.55	29.3	C	0.46	27.6	C
	WB	DefL							0.56	38.2	D			
		LT	0.32	25.5	C	0.38	26.3	C				0.34	25.7	C
		T							0.39	27.3	C			
	Overall			15.1	B		13.4	B		18.1	B		15.8	B
Broadway @ W 138th St	NB	LT	0.35	6.2	A	0.37	6.4	A	0.42	6.7	A	0.37	6.3	A
		R	0.04	4.9	A	0.02	4.7	A	0.04	4.8	A	0.11	5.5	A
	SB	LTR	0.62	8.9	A	0.50	7.5	A	0.46	7.2	A	0.47	7.4	A
	WB	LTR	0.17	24.3	C	0.11	23.4	C	0.18	24.4	C	0.2	24.7	C
	Overall			8.3	A		7.4	A		7.6	A		7.6	A
12th Ave @ W 125th St	NB	LTR	0.39	28.7	C	0.32	27.5	C	0.45	28.7	C	0.54	31.5	C
	SB	L	0.44	15.5	B	0.68	23.2	C	0.81	26.8	C	0.9	47.1	D
		TR	0.16	11.5	B	0.12	11.1	B	0.12	8.4	A	0.12	11.1	B
	WB	LT	0.53	24.4	C	0.5	23.8	C	0.72	33.5	C	0.46	23.2	C
		R	0.72	17.7	B	0.78	20.8	C	1.00	49.3	D	0.92	33.1	C
	Overall			20.4	C		22.0	C		35.3	D		31.6	C
12th Ave @ W 131th St	NB	LT	0.49	14.1	B	0.48	13.9	B	0.68	17.5	B	0.67	17.3	B
	SB	TR	0.32	11.9	B	0.27	11.4	B	0.32	11.9	B	0.33	11.9	B
	EB	LR	0.01	19.4	B	0.17	21.3	C	0.02	19.6	B	0.06	19.9	B
	WB	L	0.23	22.3	C	0.28	23.2	C	0.37	24.6	C	0.27	22.8	C
		LR	0.00	19.3	B	0.00	19.3	B	0.00	19.3	B	0	19.3	B
		R	0.11	20.6	C	0.11	20.6	C	0.33	24	C	0.22	22.3	C
	Overall			14.2	B		14.6	B		17	B		16.3	B

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

			AM			MD			PM			Sat MD		
Intersection	**Approach**	**Lane Group**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
12th Ave @ W 132nd St	NB	TR	0.50	14.1	B	0.40	12.8	B	0.66	16.9	B	0.67	17.2	B
	SB	LT	0.24	11.3	B	0.20	11.0	B	0.18	10.7	B	0.3	11.8	B
	EB	LTR	0.59	26.7	C	0.51	25.3	C	0.60	26.8	C	0.49	24.8	C
	Overall			18.7	B		17.3	B		19.7	B		18.4	B
12th Ave @ W 133rd St	NB	L	0.71	23.1	C	0.75	25.0	C	0.91	39.7	D	1.01	65.2	E
		LT	0.29	12.3	B	0.09	10.1	B	0.60	18.2	B	0.68	21.7	C
	SB	TR	0.15	10.4	B	0.11	10.1	B	0.10	10	B	0.19	10.7	B
	WB	L	0.21	21.9	C	0.23	22.3	C	0.23	22.2	C	0.21	21.8	C
		TR	0.49	25.1	C	0.44	24.2	C	0.89	40.1	D	0.42	24	C
	Overall			20.2	C		21.4	C		32.7	C		33.2	C
Riverside Dr @ W 135th St	NB	T	0.16	7.7	A	0.17	7.8	A	1.05	47.9	D	0.9	15	B
		R	0.20	8.4	A	0.11	7.6	A	0.49	14.8	B	0.41	10.8	B
	SB	DefL							0.50	32.9	C			
		LT	0.85	12.8	B	0.13	7.5	A				0.17	7.8	A
		T							0.18	6.4	A			
	WB	L	0.33	28.2	C	0.21	26.2	C	0.20	29.2	C	0.16	25.5	C
		R	0.44	32.0	C	0.46	32.2	C	0.56	31.6	C	0.63	39	D
	Overall			13.7	B		13.3	B		39	D		15.7	B
Marginal St @ W 125th St	SB	T	0.30	12.3	B	0.34	12.7	B	0.45	14	B	0.38	13.2	B
	WB	L	0.60	27.9	C	0.57	27.4	C	0.71	30.8	C	0.59	27.8	C
	Overall			21.0	C		20.3	C		22.3	C		20.4	C
12th Ave & St Clair Pl	NB	R	0.87	41.1	D	0.82	37.0	D	0.73	32.7	C	0.95	51.1	D
	SB	L	0.08	32.4	C	0.07	32.1	C	0.05	31.9	C	0.09	32.4	C
	EB	T	0.27	22.6	C	0.38	23.9	C	0.46	25	C	0.37	23.7	C
	Overall			34.9	C		31.7	C		28.9	C		40.5	D
125th St. & 129th/St. Clair	NB	T	0.81	33.0	C	0.66	27.9	C	0.89	38	D	0.79	31.5	C
	SB	T	0.20	20.5	C	0.23	20.8	C	0.35	21.6	C	0.38	21.9	C
	EB	R	0.96	63.4	E	0.76	35.6	D	1.00	74.4	E	1.04	83.1	F
	WB	R	0.48	31.6	C	0.44	27.1	C	0.83	45.3	D	0.64	36	D
	Overall			40.1	D		29.1	C		45.2	D		43.5	D
Riverside Dr & St. Clair	SB	LT	0.36	35.3	D	0.25	33.9	C	0.22	33.5	C	0.16	32.8	C
	EB	L	0.21	4.5	A	0.21	4.5	A	0.27	4.8	A	0.28	4.9	A
		TR	0.63	8.8	A	0.68	9.9	A	0.61	8.5	A	0.66	9.5	A
	Overall			11.7	B		11.1	B		9.7	A		9.6	A
Marginal St & St. Clair Place	SB	L	0.33	11.8	B	0.51	14.6	B	0.53	14.5	B	0.43	13	B
		T	0.69	18.2	B	0.40	12.1	B	0.83	24.3	C	0.72	18.9	B
	Overall			16.2	B		13.0	B		20.7	C		16.8	B

Table 2.3.4 Cont: Traffic Capacity Analysis for Signalized Intersections (2015 Future Conditions)

			AM			MD			PM			Sat MD		
Intersection	**Approach**	**Lane Group**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
W 132nd St. & Marginal St	SB	L	0.71	18.9	B	0.58	14.6	B	0.70	18.8	B	0.57	15.4	B
		T	0.29	11.1	B				0.41	12.3	B	0.42	12.4	B
	Overall			15.7	B		14.6	B		15.6	B		13.7	B
Marginal St & W 133rd St	SB	T	0.84	21.1	C	0.67	13.5	B	0.87	20.4	C	0.74	13.7	B
	WB	L	0.42	30.9	C	0.38	30.5	C	0.53	36.3	D	0.74	45.5	D
	Overall			22.6	C		16.1	B		22.7	C		20.7	C
Note:	Lane groups with delays greater than 45 sec													

Table 2.3.5: Traffic Capacity Analysis for Unsignalized Intersections

(2015 Future Conditions)

Intersection	Approach	AM				MD			
		Lane Group	V/C	Delay	LOS	Lane Group	V/C	Delay	LOS
3rd Ave @ E 128th St									
	NB	R	0.05	9.5	A	R	0.08	9.6	A
5th Ave @ E 124th St									
	SB	L	0.40	12.2	B	L	0.33	11.6	B
		R	0.87	32.0	D	R	0.75	22.4	C
Riverside Dr @ Tieman Pl									
	NB	R		7.3	A	R		7.1	A
	SB	L		10.1	B	L		9.5	A
		T		8.8	A	T		8.8	A
	WB	L		8.3	A	L		8.1	A
1st Ave @ 125th St									
	SB	R	0.54	21.5	C	R	0.20	10.1	B
Intersection	**Approach**	**PM**				**SAT MD**			
		Movement	**V/C**	**Delay**	**LOS**	**Movement**	**V/C**	**Delay**	**LOS**
3rd Ave @ E 128th St									
	NB	R	0.11	10.3	B	R	0.14	9.4	A
5th Ave @ E 124th St									
	SB	L	0.38	12.0	B	L	0.41	12.4	B
		R	0.93	40.4	E	R	0.78	23.9	C
Riverside Dr @ Tieman Pl									
	NB	R		7.2	A	R		7.1	A
	SB	L		10.1	B	L		9.5	A
		T		8.1	A	T		7.9	A
	WB	L		8.3	A	L		8.1	A
1st Ave @ 125th St									
(right turn)	**SB**	R	0.22	11.9	B	R	0.20	12.1	B

The 2015 future condition analysis show that most intersections operate at an acceptable level of service (LOS) C or better during the AM, Midday, PM, and Saturday Midday peak hours. However, some intersections experience LOS D, E, or F for some or all lane groups during some peak hours.

Table 2.3.6 shows a summary with the overall intersection LOS for the 68 locations by peak hour. From the total analyzed locations about 80% operate at LOS A, B or C.

Table 2.3.6: Summary of Overall Intersection Level of Service

Peak Hour	A	B	C	D	E	F
AM	3	18	29	11	5	2
MD	5	30	28	3	1	1
PM	3	14	34	9	5	3
SAT	7	23	28	7	2	1

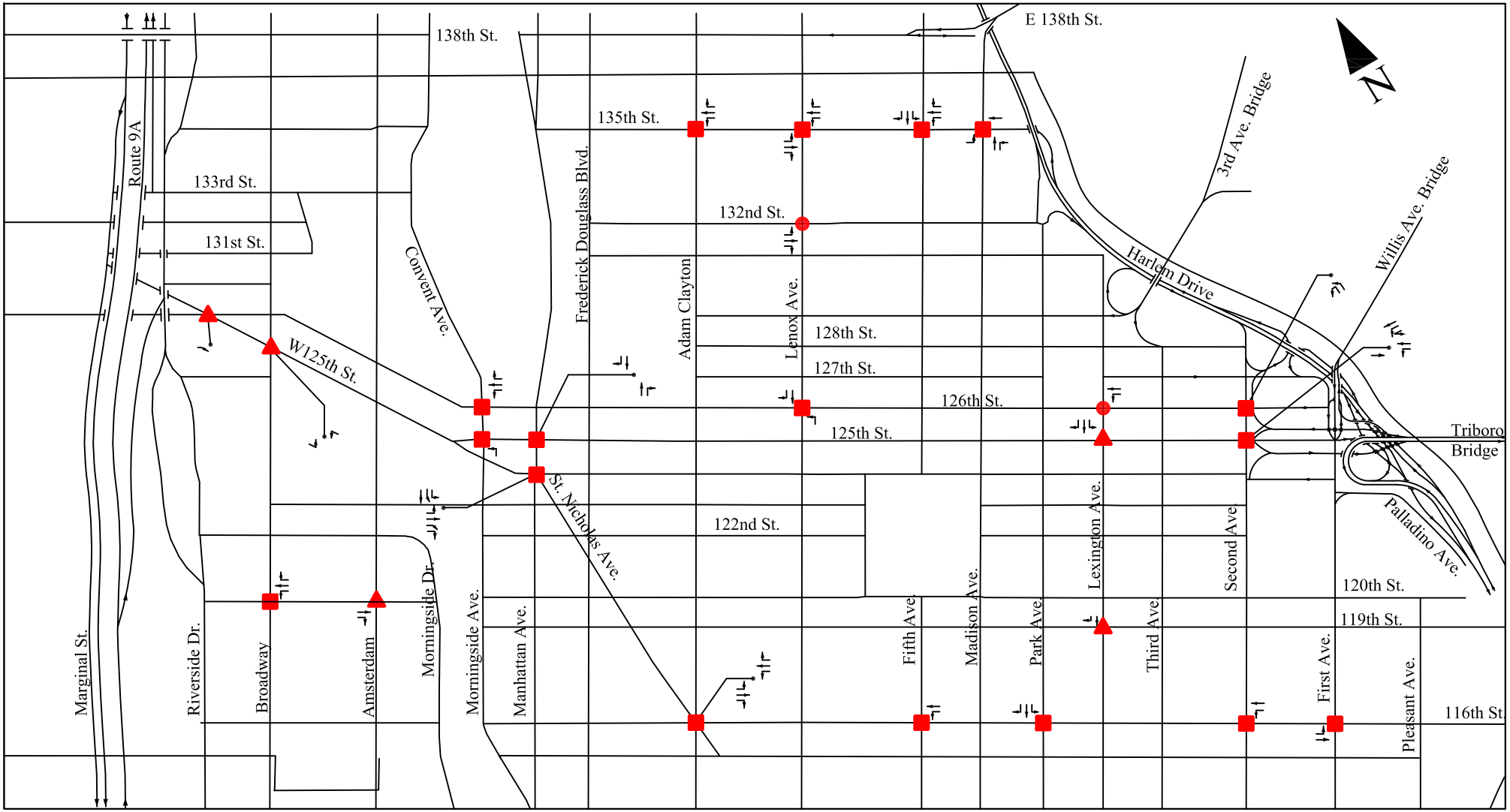
The intersections with approaches or lane groups with mid LOS D (equal to 45 sec/veh.) or worse are listed below, and Exhibits 2.3.10, 2.3.11, 2.3.12, and 2.3.13 identifies the failing lane groups shown by the symbol at the intersection.

- 1st Avenue @ E 116th St (AM, Midday, PM, and Sat. Midday);
- 2nd Avenue @ E 116th St (AM and PM);
- 2nd Avenue @ E 124th St (PM);
- 2nd Avenue @ E 125th St (AM, Midday, and PM);
- 2nd Avenue @ E 126th St (AM);
- Lexington Avenue @ E 119th St (AM)
- Lexington Avenue @ E 125th St (AM, Midday, and PM);
- Lexington Avenue @ E 126th St (AM);
- Park Avenue @ E 116th St (AM, and PM);
- Park Avenue @ E 128th St (PM);
- Park Avenue @ E 132nd St (PM and Sat. Midday);
- Madison Avenue @ E 135th St (AM, Midday, PM, and Sat. Midday);
- 5th Avenue @ 116th Street (AM);

- 5th Avenue @ 125th Street (PM, and Sat. Midday);
- 5th Avenue @ 135th Street (AM, and PM);
- Lenox Avenue @ W 125th St (PM and Sat. Midday);
- Lenox Avenue @ W 126th St (AM, PM, and Sat. Midday);
- Lenox Avenue @ W 135th St (AM, and PM);
- 7th Avenue/Adam Clayton Blvd @ W 116th St (AM);
- 7th Avenue/Adam Clayton Blvd @ W 124th St (Midday, PM, and Sat. Midday);
- 7th Avenue/Adam Clayton Blvd @ W 135th St (AM, Midday, and PM);
- Manhattan Avenue @ St Nicholas Avenue / 124th St (AM, and PM);
- Manhattan Avenue @ W 125th St (AM, Midday, PM, and Sat. Midday);
- Morningside Avenue @ W 125th St (AM);
- Morningside Avenue @ W 126th St (AM, Midday, PM, and Sat. Midday);
- Amsterdam Avenue @ W 120th St (AM, and PM);
- Amsterdam Avenue @ W 125th St (PM, and Sat. Midday);
- Broadway @ W 120th St (AM, Midday, and PM);
- Broadway @ W 125th St (AM, and PM);
- Broadway @ W 135th St (PM and Sat. Midday);
- 12th Avenue @ W 125th St (PM);
- 12th Avenue @ W 133rd St (Sat. Midday);
- 12th Avenue @ St Clair Place (Sat. Midday);
- 125th/129th Street @ St Clair Place (AM, PM, and Sat. Midday);

Exhibit 2.3.10

Lane groups with LOS D, E, and F - AM Peak Hour



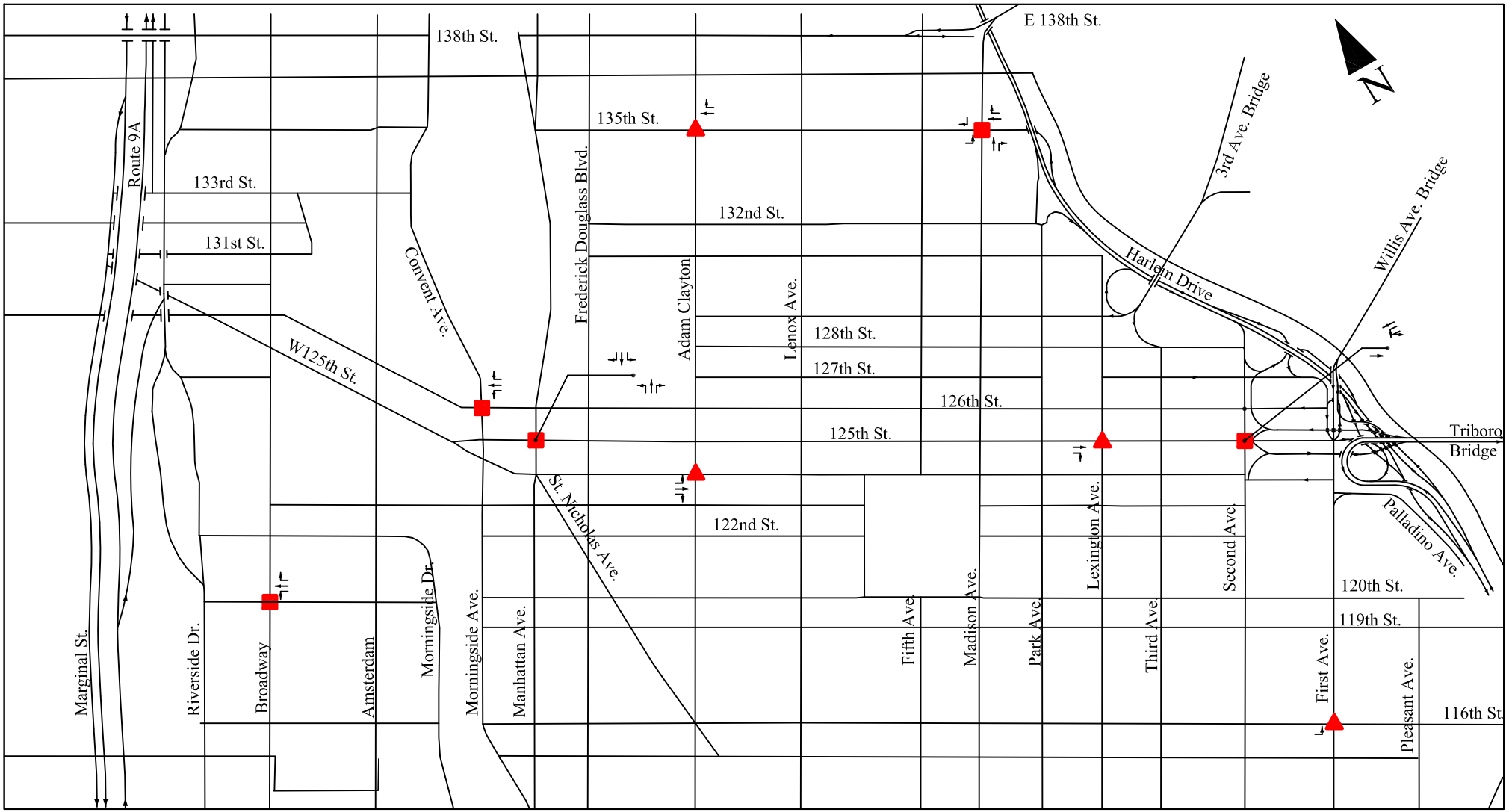
HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY

2015 WITH LEFT TURN PROHIBITION
AM PEAK 7:45am-8:45am

- LOS D (Delay > 45 sec)
- LOS E
- LOS F
- Lane group

Exhibit 2.3.11

Lane groups with LOS D, E, and F - Midday Peak Hour



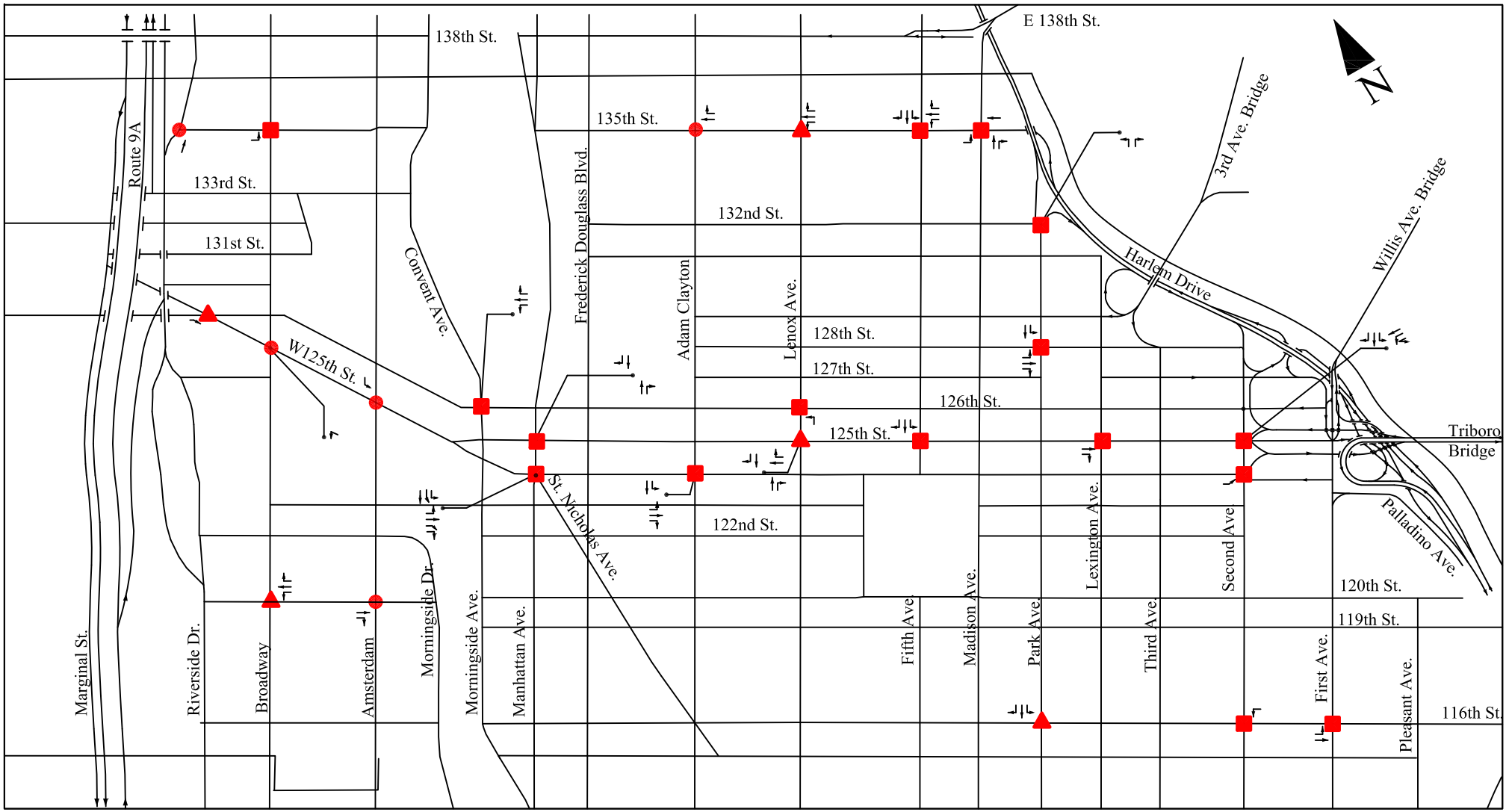
HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY

2015 WITH LEFT TURN PROHIBITION
MIDDAY PEAK 12:00 noon-1:00 pm

- LOS D (Delay > 45 sec)
- LOS E
- LOS F
- Lane group

Exhibit 2.3.12

Lane groups with LOS D, E, and F - PM Peak Hour



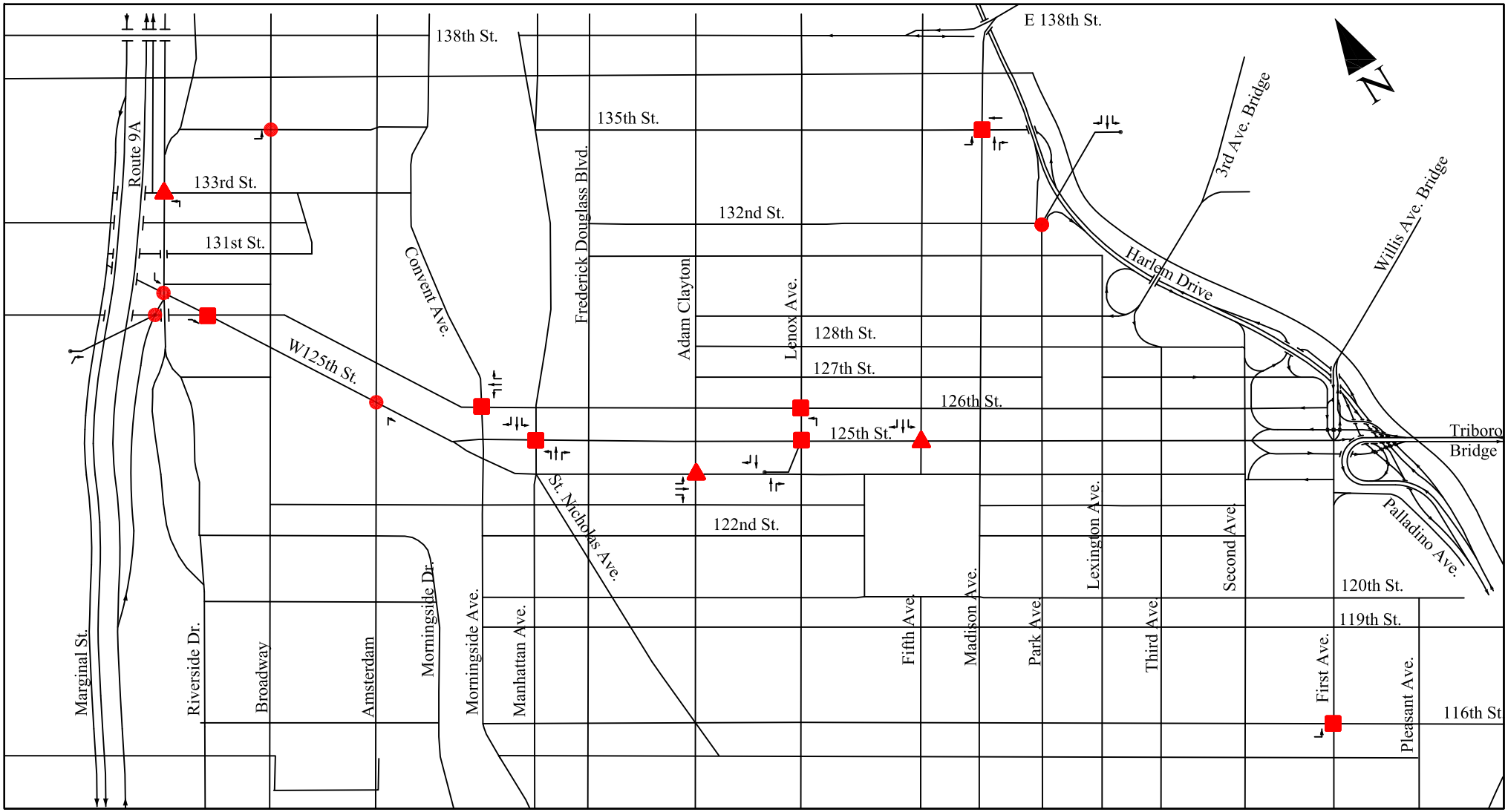
HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY

2015 WITH LEFT TURN PROHIBITION
PM PEAK 4:45pm-5:45pm

- LOS D (Delay > 45 sec)
- LOS E
- LOS F
- Lane group

Exhibit 2.3.13

Lane groups with LOS D, E, and F - Saturday MD Peak Hour



HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY

2015 WITH LEFT TURN PROHIBITION
SAT MD PEAK 1:00pm-2:00pm

- LOS D (Delay > 45 sec)
- LOS E
- LOS F
- Lane group

2.3.4 Future Travel Speeds

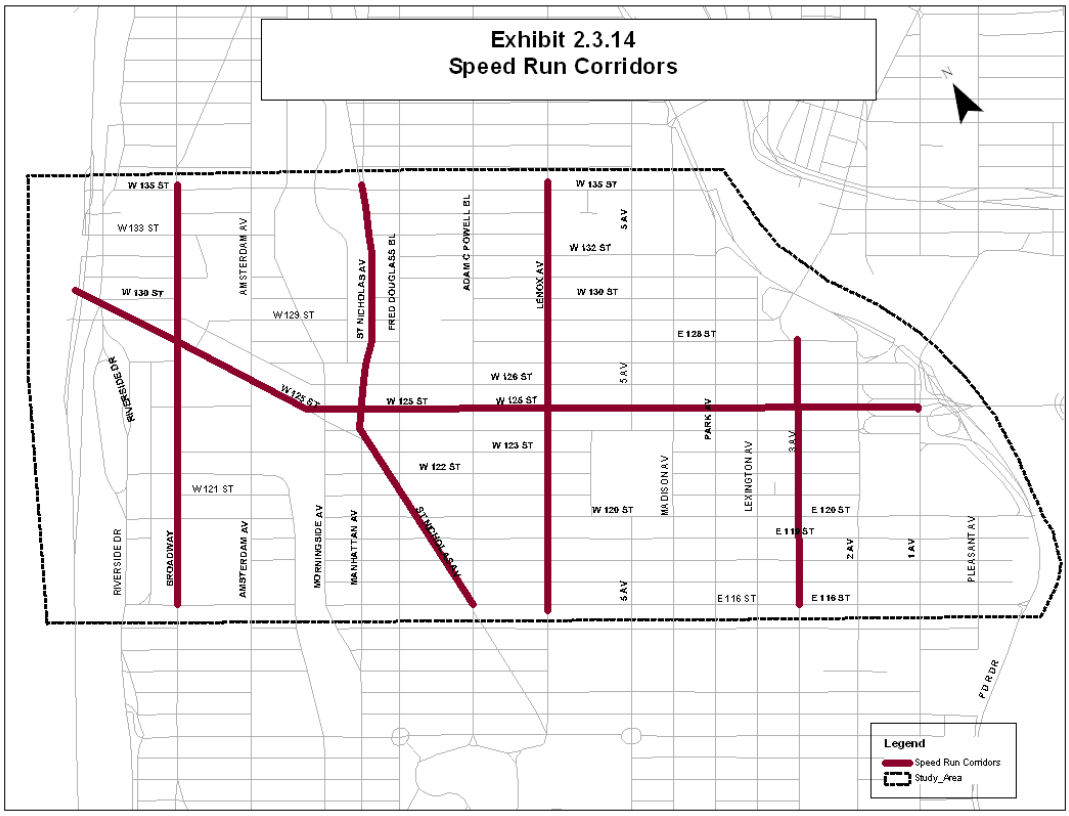
Future travel speeds and delays along major corridors within the study area were calculated for the AM, Midday, PM and Saturday Midday peak hours using measured speed, and the HCS LOS results. The existing travel time and delays and future delays were used to project future speed. The following five corridors were analyzed for travel time and delay under the future conditions. Exhibit 2.3.14 shows the speed run corridors

East-West Corridor

- 125th Street between 1st Avenue and Marginal Street

North-South Corridors

- 3rd Avenue between 116th Street and 128th Street
- Lenox Avenue between 116th Street and 135th Street
- St Nicholas Avenue/Manhattan Avenue between 117th Street and 135th Street
- Broadway between 116th Street and 135th Street



Under future conditions, travel speeds on the analyzed corridors in the study area for the various peak hours range from 8 mph to 23 mph approximately. The corridor with the lowest travel speed is 125th Street, ranging from 8 mph to 12 mph during the four peak hours. Table 2.3.7 and 2.3.8 display a summary of link and corridor average travel speeds.

Table 2.3.9 shows corridors average travel speed for existing and future condition.

Table 2.3.7: 125th Street – Corridor 1 (from Marginal Street to 1st Avenue)

Direction-Eastbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
Marginal Street to Riverside Drive	258	5	6	5	18
Riverside Dr to Broadway	1031	26	13	20	28
Broadway to Old Broadway	232	3	22	3	5
Old Broadway to Amsterdam Avenue	779	6	8	6	12
Amsterdam Avenue to Morningside Avenue	983	6	14	18	11
Morningside Avenue to St. Nicholas Avenue	450	4	7	7	11
St Nicholas Avenue to Fr. Douglass Blvd	450	3	4	3	3
Fr Douglass Blvd to Adam C. Powell	899	17	12	6	4
Adam C Powell to Lenox Avenue	901	13	8	9	5
Lenox Avenue to 5th Avenue	1019	8	6	6	3
5th Avenue to Madison Avenue	511	5	11	7	6
Madison Avenue to Park Avenue	510	14	22	9	18
Park Avenue to Lexington Avenue	512	8	3	5	9
Lexington Avenue to 3rd Avenue	507	7	17	7	20
3rd Avenue to 2nd Avenue	707	3	4	4	3
2nd Avenue to 1st Avenue	757	6	7	14	29
Tot Dist & Eastbound Average Travel Speed	**10,506**	**8**	**10**	**9**	**11**

Direction-Westbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
1st Avenue to 2nd Avenue	757	8	7	9	13
2nd Avenue to 3rd Avenue	707	5	17	19	7
3rd Avenue to Lexington Avenue	507	3	4	6	13
Lexington Avenue to Park Avenue	512	4	5	7	9
Park Avenue to Madison Avenue	510	6	14	5	10
Madison Avenue to 5th Avenue	511	7	7	6	4
5th Avenue to Lenox Avenue	1019	10	3	16	5
Lenox Avenue to Adam C. Powell	901	15	12	6	30
Adam C Powell to Fr. Douglass Blvd	899	10	8	4	11
Fr Douglass Blvd to St. Nicholas Avenue	450	6	7	3	6
St Nicholas Avenue to Morningside Avenue	450	8	11	14	19
Morningside Avenue to Amsterdam Avenue	983	13	11	12	9
Amsterdam Avenue to Old Broadway	779	4	13	12	14
Old Broadway to Broadway	232	2	19	4	13
Broadway to Riverside Rd	1031	26	34	9	20
Riverside Dr to Marginal Street	258	4	7	9	10
Tot Dist & Westbound Average Travel Speed	**10,506**	**8**	**11**	**8**	**12**

Table 2.3.7: Cont: 3rd Avenue - Corridor 2 (from E 116th St to E 128th St)

Direction-Northbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
E 116 ST to E 117 ST	262	13	6	9	6
E 117 ST to E 118 ST	262	17	16	18	18
E 118 ST to E 119 ST	262	34	22	28	20
E 119 ST to E 120 ST	262	16	19	13	23
E 120 ST to E 121 ST	262	13	21	13	25
E 121 ST to E 122 ST	262	20	25	9	17
E 122 ST to E 123 ST	262	17	27	11	26
E 123 ST to E 124 ST	262	15	27	15	20
E 124 ST to E 125 ST	282	14	24	22	24
E 125 ST to E 126 ST	280	20	23	23	26
E 126 ST to E 127 ST	260	9	21	28	20
E 127 ST to E 128 ST	260	15	20	28	20
Tot Dist & Northbound Average Travel Speed	**3,176**	**15**	**18**	**15**	**18**

Table 2.3.7: Cont: Lenox Avenue – Corridor 3 (from W 116th St to W 135th St)

Direction-Northbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 116 St to W 117 ST	262	16	15	15	18
W 117 ST to W 118 ST	262	19	25	27	24
W 118 ST to W 119 ST	262	29	26	31	26
W 119 ST to W 120 ST	262	32	15	30	26
W 120 ST to W 121 ST	262	30	25	28	32
W 121 ST to W 122 ST	262	13	28	32	24
W 122 ST to W 123 ST	262	23	31	12	29
W 123 ST to W 124 ST	262	25	18	21	15
W 124 ST to W 125 ST	282	16	5	4	6
W 125 ST to W 126 ST	280	8	22	6	8
W 126 ST to W 127 ST	260	21	21	15	19
W 127 ST to W 128 ST	260	18	14	19	24
W 128 ST to W 129 ST	260	33	33	25	25
W 129 ST to W 130 ST	260	32	17	18	34
W 130 ST to W 131 ST	260	34	28	22	23
W 131 ST to W 132 ST	260	22	28	15	22
W 132 ST to W 133 ST	260	31	33	17	24
W 133 ST to W 134 ST	260	20	33	27	12
W 134 ST to W 135 ST	260	15	12	16	14
Tot Dist & Northbound Average Travel Speed	**4,995**	**20**	**16**	**15**	**17**

Direction-Southbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 135 ST to W 134 ST	260	9	22	17	12
W 134 ST to W 133 ST	260	25	26	24	24
W 133 ST to W 132 ST	260	28	33	30	15
W 132 ST to W 131 ST	260	23	33	16	21
W 131 ST to W 130 ST	260	12	17	15	26
W 130 ST to W 129 ST	260	13	14	20	17
W 129 ST to W 128 ST	260	26	26	18	24
W 128 ST to W 127 ST	260	27	20	10	24
W 127 ST to W 126 ST	260	18	30	5	13
W 126 ST to W 125 ST	280	5	18	8	15
W 125 ST to W 124 ST	282	14	30	7	8
W 124 ST to W 123 ST	262	30	31	28	17
W 123 ST to W 122 ST	262	23	36	33	13
W 122 ST to W 121 ST	262	21	36	26	13
W 121 ST to W 120 ST	262	26	36	33	26
W 120 ST to W 119 ST	262	25	17	25	26
W 119 ST to W 118 ST	262	29	31	25	28
W 118 ST to W 117 ST	262	22	33	31	35
W 117 ST to W 116 ST	262	22	13	28	21
Tot Dist & Southbound Average Travel Speed	**4,995**	**17**	**24**	**15**	**17**

Table 2.3.7: Cont: St Nicholas Avenue – Corridor 4 (from W 116th St to W 135th St)

Direction-Northbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 117 ST to W 118 ST	262	11	14	8	10
W 118 ST to W 119 ST	262	22	22	17	22
W 119 ST to W 120 ST	262	22	23	22	21
W 120 ST to W 121 ST	262	10	12	9	18
W 121 ST to W 122 ST	262	10	22	16	21
W 122 ST to W 123 ST	262	19	21	15	23
W 123 ST to W 124 ST	262	11	5	6	5
W 124ST to W 125 ST	262	8	11	7	9
W 125 ST to W 126 ST	282	16	23	8	12
W 126 ST to W 127 ST	280	27	27	24	28
W 127 ST to W 128 ST	260	23	24	28	30
W 128 ST to W 129 ST	260	25	16	29	27
W 129 ST to W 130 ST	260	31	23	34	23
W 130 ST to W 133 ST	979	26	26	24	16
W 133 ST to W 134 ST	260	21	28	23	25
W 134 ST to W 135 ST	260	20	25	22	20
Tot Dist & Northbound Average Travel Speed	**4,935**	**18**	**19**	**17**	**19**

Direction-Southbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 135 ST to W 134 ST	260	10	13	6	8
W 134 ST to W 133 ST	260	21	25	23	23
W 133 ST to W 130 ST	979	33	32	31	33
W 130 ST to W 129 ST	260	33	34	30	29
W 129 ST to W 128 ST	260	22	32	26	33
W 128 ST to W 127 ST	260	12	25	17	25
W 127 ST to W 126 ST	260	13	7	10	7
W 126 ST to W 125 ST	260	18	19	16	12
W 125 ST to W 124 ST	280	18	22	19	21
W 124 ST to W 123 ST	282	4	20	6	4
W 123 ST to W 122 ST	262	5	22	5	21
W 122 ST to W 121 ST	262	5	2	4	11
W 121 ST to W 120 ST	262	7	10	9	17
W 120 ST to W 119 ST	262	17	13	18	25
W 119 ST to W 118 ST	262	18	21	19	20
W 118 ST to W 117 ST	262	23	15	23	18
W 117 ST to W 116 ST	262	15	9	11	12
Tot Dist & Southbound Average Travel Speed	**5,193**	**16**	**18**	**16**	**18**

Table 2.3.7: Cont: Broadway – Corridor 5 (from W 116th St to W 135th St)

Direction-Northbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 116 ST to W 117 ST	277	9	9	8	22
W 117 ST to W 118 ST	277	26	30	30	34
W 118 ST to W 119 ST	277	30	27	27	25
W 119 ST to W 120 ST	277	29	37	29	33
W 120 ST to W 121 ST	277	29	22	24	28
W 121 ST to W 122 ST	262	26	21	27	28
W 122 ST to Lasalle ST	806	10	13	11	24
Lasalle ST to Tiemann Pl	560	8	16	12	17
Tiemann Pl to W 125 ST	275	7	6	7	5
W 125 ST to W 126 ST	300	4	10	2	4
W 126 ST to W 130 ST	260	18	24	18	26
W 130 ST to W 131 ST	260	18	17	19	27
W 131 ST to W 132 ST	260	15	24	17	27
W 132 ST to W 133 ST	260	21	21	16	38
W 133 ST to W 135 ST	260	9	10	6	12
Tot Dist & Northbound Average Travel Speed	**5,186**	**17**	**19**	**17**	**23**

Direction-Southbound	Speed (MPH)				
Links	Dist. (ft.)	AM	MD	PM	Sat MD
W 135 ST to W 133 ST	260	10	10	5	7
W 133 ST to W 132 ST	260	7	24	5	5
W 132 ST to W 131 ST	260	16	23	21	25
W 131 ST to W 130 ST	260	17	12	17	21
W 130 ST to W 129 ST	260	4	5	8	3
W 129 ST to W 125 ST	300	9	6	6	13
W 125 ST to Tiemann Pl	275	5	20	10	10
Tiemann Pl to Lasalle ST	560	19	21	20	22
Lasalle ST to W 122 ST	806	13	8	9	17
W 122 ST to W 121 ST	262	13	20	23	17
W 121 ST to W 120 ST	277	21	22	19	25
W 120 ST to W 119 ST	277	34	25	29	37
W 119 ST to W 118 ST	277	25	23	20	36
W 118 ST to W 117 ST	277	27	34	34	37
W 117 ST to W 116 ST	277	21	9	4	30
Tot Dist & Southbound Average Travel Speed	**5,148**	**16**	**17**	**15**	**20**

Table 2.3.8: Corridor Travel Speed Summary - 2015 Future Conditions

No	Corridors	From	To	Time	Direction	2015 Build
						Average Speed (mph)
1	125th Street	Marginal Street	1st Avenue	AM	EB	8
					WB	8
				MD	EB	10
					WB	11
				PM	EB	9
					WB	8
				SAT MD	EB	11
					WB	12
2	3rd Avenue	E 116th Street	E 128th Street	AM	NB	15
				MD	NB	18
				PM	NB	15
				SAT MD	NB	18
3	Lenox Avenue	W 116th Street	W 135th Street	AM	NB	20
					SB	17
				MD	NB	16
					SB	24
				PM	NB	15
					SB	15
				SAT MD	NB	17
					SB	17
4	St Nicholas Avenue	W 117th Street	W 135th Street	AM	NB	18
					SB	16
				MD	NB	19
					SB	18
				PM	NB	17
					SB	16
				SAT MD	NB	19
					SB	18
5	Broadway	W 116th Street	W 135th Street	AM	NB	17
					SB	16
				MD	NB	19
					SB	17
				PM	NB	17
					SB	15
				SAT MD	NB	23
					SB	20

Table 2.3.9: Corridor Travel Speed Summary – Comparison

No	Corridors	From	To	Time	Direction	Existing Condition Average Speed (mph)	Future 2015 Average Speed (mph)	% Different
1	125th Street	Marginal Street	1st Avenue	AM	EB	10	8	-20%
					WB	13	8	-38%
				MD	EB	10	10	0%
					WB	11	11	0%
				PM	EB	11	9	-18%
					WB	14	8	-43%
				SAT MD	EB	13	11	-15%
					WB	12	12	0%
2	3rd Avenue	E 116th Street	E 128th Street	AM	NB	17	15	-12%
				MD	NB	21	18	-14%
				PM	NB	19	15	-21%
				SAT MD	NB	18	18	0%
3	Lenox Avenue	W 116th Street	W 135th Street	AM	NB	25	20	-20%
					SB	24	17	-29%
				MD	NB	22	16	-27%
					SB	27	24	-11%
				PM	NB	21	15	-29%
					SB	22	15	-32%
				SAT MD	NB	21	17	-19%
					SB	21	17	-19%
4	St Nicholas Avenue	W 117th Street	W 135th Street	AM	NB	19	18	-5%
					SB	18	16	-11%
				MD	NB	19	19	0%
					SB	19	18	-5%
				PM	NB	18	17	-6%
					SB	19	16	-16%
				SAT MD	NB	20	19	-5%
					SB	20	18	-10%
5	Broadway	W 116th Street	W 135th Street	AM	NB	18	17	-6%
					SB	21	16	-24%
				MD	NB	20	19	-5%
					SB	19	17	-11%
				PM	NB	18	17	-6%
					SB	19	15	-21%
				SAT MD	NB	18	23	28%
					SB	25	20	-20%

2.4 PUBLIC TRANSPORTATION

2.4.1 Subway Service

An analysis of the new subway trips generated by the proposed actions and developments was conducted in order to determine whether the incremental volumes at individual subway fare control areas and stairs could potentially result in impacts.

The subway person trips were estimated for the year 2015 using the area's general background growth factor of 0.5 percent per year resulting in a total of 6% for the 12 years. Using trip generation, temporal distribution and modal split information from several sources for residential, retail and community facilities, the total number of AM, MD, PM and Saturday peak hour subway person trips were estimated for the proposed rezoning actions and developments. Peak hour volumes were converted to 15-minute peak volumes for this analysis as shown in Table 2.4.1.

Table 2.4.1: 15-Minute Peak Subway Trip Generation

Developments and Rezoning	AM		MD		PM		Saturday	
	In	Out	In	Out	In	Out	In	Out
125th Street Rezoning	45	45	179	168	284	223	193	152
Manhattanville Phase 1	54	54	124	120	110	109	84	81
Uptown NY	55	69	208	192	256	272	174	184
Harlem Park Hotel	43	19	57	53	36	64	39	36
Victoria Theater	10	10	23	19	14	12	16	13
East Harlem Rezoning	8	35	26	26	38	22	26	15
F. Douglass Rezoning	25	47	0	0	54	43	36	29
East River Plaza	0	0	50	47	45	49	34	32

Sources: 2000 Census Data, River Center EIS, Delancey Transportation Study, East Harlem Rezoning EAS - Dec.2002, Frederick Douglass Blvd Rezoning EAS – Apr.2003, East River Plaza EIS – Aug.1999

Assignments of these trips are based on the available routes within the study area, transfer opportunities within the New York City Subway system and on the most direct routes to and from their origins and destinations. Trips were assigned to station stairways based on the most convenient paths of travel between station platform and the project sites.

Physical changes were made to the fare control elements at six of the subway stations within the study area since the existing conditions were analyzed.

These changes are:

- 116th Street (Broadway) Station; two additional high wheel exit turnstiles have been added: one in the main fare control area at 116th Street and the second at 115th Street uptown exit location.
- 125th Street (St. Nicholas Avenue) Station; one high wheel entrance/exit turnstile has been added to the secondary fare control area at 127th Street.
- 135th Street (St. Nicholas Avenue) Station; at the secondary fare control area at 137th Street for downtown subway service the three standard turnstiles and station booth have been removed. The existing two high wheel entrance/exit turnstiles been have supplemented with one high wheel exit turnstile. (Note: The fare control area for downtown service at the 135th Street fare control area continues to be staffed 24 hours a day.)
- 135th Street (Lenox Avenue) Station; this station was upgraded to meet American Disability Act (ADA) requirements by having elevators installed on both the uptown and downtown platforms and at the street level.
- 116th Street (Lexington Avenue) Station; two new high wheel exit turnstiles have been added to the uptown platform fare control array.
- 125th Street (Lexington Avenue) Station; one of the four stairways (S4 northeast corner) and one fare collection area were closed for reconstruction. The future fare control area will have four additional standard turnstiles and another high wheel exit turnstile.

The results of the future conditions analysis of station elements for the AM, MD, PM and Saturday 15-minute peak period are described below. As indicated in Tables 2.4.2 to 2.4.12, all elements operate at LOS C or better.

116th Street (Broadway) - Subway Station (1)

No new person trips were assigned to this station. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A or B (see Table 2.4.2).

125th Street (Broadway) - Subway Station (1)

It is expected that projected new person trips assigned to this station will be 108, 244, 219 and 165 during the AM, MD, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the fare control area; stairways and escalators operate at LOS A, B and C and are indicated in Table 2.4.3.

137th Street (Broadway) - Subway Station (1)

No new person trips were assigned to this station. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A or B and are summarized in Table 2.4.4.

116th Street (Fredrick Douglass Blvd) - Subway Station (B & C)

It is expected that projected new person trips assigned to this station will be 36, 45 and 33 during the AM, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A and are provided in Table 2.4.5.

125th Street (St Nicholas Avenue) - Subway Station (A, B, C & D)

It is expected that projected new person trips assigned to this station will be 100, 152, 207 and 138 during the AM, MD, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A or B and are summarized in Table 2.4.6. (To meet ADA requirements this subway station has an elevator from street level to the platforms.)

135th Street (St Nicholas Avenue) - Subway Station (B & C)

No new person trips were assigned to this station. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A and are indicated in Table 2.4.7.

116th Street (Lenox Avenue) - Subway Station (2 & 3)

No new person trips were assigned to this station. The future conditions for the pedestrian flow at the fare area controls and stairways operate at LOS A and are summarized in Table 2.4.8.

125th Street (Lenox Avenue) - Subway Station (2 & 3)

It is expected that projected new person trips assigned to this station will be 108, 244, 219 and 165 during the AM, MD, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the area of fare controls and stairways operate at LOS A and are specified in Table 2.4.9.

135th Street (Lenox Avenue) - Subway Station (2 & 3)

No new person trips were assigned to this station. The future conditions for the pedestrian flow at the fare control area and stairways operate at LOS A (refer to Table 2.4.10).

116th Street (Lexington Avenue) - Subway Station (6)

It is expected that projected new person trips assigned to this station will be 21, 123, 124 and 86 during the AM, MD, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the area of fare controls, stairways and escalators operate at LOS A, B and C and are provided in Table 2.4.11.

125th Street (Lexington Avenue) - Subway Station (4, 5 & 6)

It is expected that projected new person trips assigned to this station will be 258, 625, 802 and 548 during the AM, MD, PM and Saturday 15-minute peak period, respectively. The future conditions for the pedestrian flow at the fare control area, stairways and escalators

operate at LOS A, B and C and are indicated in Table 2.4.12. (To meet ADA requirements this subway station has an elevator from street level to the platforms.)

In conclusion, the new subway trips were assigned to six of the eleven subway stations within the area of study. The analysis of the subway stations' stairs, escalators and fare control areas showed that there will be no significant impact at any station.

Table 2.4.2
Future Conditions
116th Street Station and Broadway Subway Station (1)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: 116th Street and Broadway	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S1 (SW)	4.8	3.8	165	74	170	95	0.32	0.14	0.33	0.19	A	A	A	A
S3 (NW)	4.8	3.8	144	53	153	79	0.28	0.10	0.30	0.15	A	A	A	A
S2 (SE)	4.8	3.8	244	144	298	165	0.48	0.28	0.58	0.32	B	A	B	A
S4 (NE)	4.8	3.8	175	80	196	106	0.34	0.16	0.38	0.21	A	A	A	A
Fare Control Area: R173	Number	One/Two Way			In/Out Volumes									
Turnstile	6	2	489	229	589	323	0.19	0.09	0.23	0.12	A	A	A	A
Service Gate	1	2	53	48	42	21	0.08	0.07	0.06	0.03	A	A	A	A
High Wheel – Out	3	1	186	74	186	101	0.15	0.06	0.15	0.08	A	A	A	A
Stair Location: 115th Street and Broadway	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up Volumes									
S5 (NE)	4.8	3.8	85	53	69	48	0.17	0.10	0.13	0.09	A	A	A	A
Exit Only Control Area	Number	One/Two Way			Out Volumes									
High Wheel – Out	2	1	85	53	69	48	0.10	0.07	0.09	0.06	A	A	A	A

Table 2.4.3
Future Conditions
125th Subway Station and Broadway Subway Station (1)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location:	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S1 (SE)	4.8	3.8	117	74	132	90	0.23	0.14	0.26	0.18	A	A	A	A
M2 & M3	4.8	3.8	117	74	132	90	0.23	0.14	0.26	0.18	A	A	A	A
E101 (SW-Down)	2.0	2.0	144	159	227	153	0.56	0.62	0.89	0.60	A	A	C	A
E102 (NW-Up)	2.0	2.0	197	215	173	187	0.77	0.84	0.68	0.73	C	C	B	C
E103 (SE-Up)	2.0	2.0	106	48	64	80	0.42	0.19	0.25	0.31	A	A	A	A
Fare Control Area:	Number	One/Two Way	In/Out Volumes											
Turnstiles	5	1	559	493	596	505	0.26	0.23	0.28	0.23	A	A	A	A
Service Gate	1	2	5	0	0	5	0.01	0.00	0.00	0.01	A	A	A	A

Table 2.4.4
Future Conditions
137th Street/City College and Broadway Subway Station (1)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 137th St and Broadway	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S2 (SW)	5.5	4.5	318	43	106	212	0.52	0.07	0.17	0.35	B	A	A	A
M2	5.8	4.8	318	43	106	212	0.49	0.07	0.16	0.33	B	A	A	A
S1&M1 (NW)	5.5	4.5	228	126	149	154	0.38	0.21	0.25	0.25	A	A	A	A
Fare Control Area: R176	Number	One/Two Way			In/Out Volumes									
Turnstiles	5	2	546	154	255	363	0.25	0.07	0.12	0.17	A	A	A	A
Service Gate	1	2	0	5	0	0	0.00	0.01	0.00	0.00	A	A	A	A
Stair Location: Uptown 137th Street and Broadway	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S4&M4 (SE)	5.5	4.5	175	127	239	164	0.29	0.21	0.39	0.27	A	A	A	A
S3 (NE)	5.1	4.1	85	59	159	106	0.15	0.11	0.29	0.19	A	A	A	A
M3	5.3	4.3	85	59	159	106	0.15	0.10	0.27	0.18	A	A	A	A
Fare Control Area: R175	Number	One/Two Way			In/Out Volumes									
Turnstiles	5	2	260	181	335	228	0.12	0.08	0.16	0.11	A	A	A	A
Service Gate	1	2	0	5	63	42	0.00	0.01	0.09	0.06	A	A	A	A

Table 2.4.5
Future Conditions
116th Street and Frederick D. Boulevard Subway Station (B & C)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 116th St & F.Douglass Blvd	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
				Up/Down Volumes										
S1 (SW)	5.8	4.8	244	22	48	164	0.38	0.03	0.07	0.25	A	A	A	A
P1 AB	10.0	9.0	244	22	48	164	0.20	0.02	0.04	0.13	A	A	A	A
S2 (NW)	5.8	4.8	111	32	97	71	0.17	0.05	0.15	0.11	A	A	A	A
P2 AB	10.0	9.0	111	32	97	71	0.09	0.03	0.08	0.06	A	A	A	A
Fare Control Area: N30	Number	One/Two Way			In/Out Volumes									
Turnstiles	3	2	355	54	145	235	0.27	0.04	0.11	0.18	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
Stair Location: Uptown 116th St & F.Douglass Blvd	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
				Up/Down Volumes										
S6 (SE)	5.7	5.6	48	54	85	58	0.08	0.09	0.13	0.09	A	A	A	A
P6 AB	10.0	9.0	48	54	85	58	0.04	0.04	0.07	0.05	A	A	A	A
P7 AB	9.2	8.2	48	54	85	58	0.04	0.05	0.08	0.05	A	A	A	A
S5 (NE)	5.8	4.8	31	16	102	73	0.05	0.02	0.16	0.11	A	A	A	A
P5 AB	10.0	9.0	31	16	102	73	0.03	0.01	0.08	0.06	A	A	A	A
Fare Control Area: N29	Number	One/Two Way			In/Out Volumes									
Turnstiles	3	2	79	70	182	126	0.05	0.05	0.14	0.10	A	A	A	A
Service Gate	1	2	0	0	5	5	0.00	0.00	0.01	0.01	A	A	A	A

Table 2.4.6
Existing Conditions
125th Street and St Nicholas Avenue Subway Station (A, B C & D)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: 125th Street and St. Nicolas Avenue	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S9 (SW)	5.8	4.8	261	125	357	268	0.40	0.19	0.55	0.41	A	A	B	A
M10	6.8	5.8	261	125	357	268	0.33	0.16	0.46	0.34	A	A	B	A
S8 (NW)	5.8	4.8	259	130	336	252	0.40	0.20	0.52	0.39	A	A	B	A
M9 AB	10.2	9.2	259	130	336	252	0.21	0.10	0.27	0.20	A	A	A	A
S2 (SE)	5.8	4.8	352	257	382	289	0.54	0.40	0.59	0.45	B	A	B	A
M2	6.9	5.9	352	257	382	289	0.44	0.32	0.48	0.36	A	A	B	A
S3 (NE)	5.8	4.7	159	184	226	165	0.25	0.28	0.35	0.25	A	A	A	A
M2 AB	10.2	9.2	159	184	226	165	0.13	0.15	0.18	0.13	A	A	A	A
Fare Control Area: N26	Number	One/Two Way			In/Out Volumes									
Turnstiles	8	2	917	686	1238	921	0.27	0.20	0.36	0.27	A	A	A	A
Service Gate	1	2	74	10	63	53	0.11	0.01	0.09	0.08	A	A	A	A
Stair Location: 127th Street and St. Nicolas Avenue	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S6 (SW)	5.8	4.8	165	58	144	117	0.25	0.09	0.22	0.18	A	A	A	A
M7	8.6	7.6	165	58	144	117	0.16	0.06	0.14	0.11	A	A	A	A
S5 (SE)	4.9	3.9	101	58	63	69	0.19	0.11	0.12	0.13	A	A	A	A
M6	8.6	7.6	101	58	63	69	0.10	0.06	0.06	0.07	A	A	A	A
Fare Control Area: N25	Number	One/Two Way			In/Out Volumes									
Turnstiles	3	2	235	90	140	165	0.11	0.04	0.06	0.08	A	A	A	A
Service Gate	1	2	5	15	5	0	0.01	0.02	0.01	0.00	A	A	A	A
High Wheel – I/O	1	2												
High Wheel – Out	2	1	10	5	50	10	0.01	0.01	0.06	0.01	A	A	A	A

Table 2.4.7
Future Conditions
135th Street and St Nicholas Avenue Subway Station (B & C)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location:	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
Downtown 135th St and St Nicholas Ave				Up/Down Volumes										
S9 (SW)	13.1	12.1	191	47	58	96	0.12	0.03	0.04	0.06	A	A	A	A
Fare Control Area: N24	Number	One/Two Way		In/Out Volumes										
Turnstiles	3	2	191	47	58	96	0.15	0.04	0.04	0.07	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
Stair Location:	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
Downtown 137h St. and St. Nicolas Ave.				Up/Down Volumes										
S6 (SW)	13.5	12.5	84	16	22	10	0.05	0.01	0.01	0.01	A	A	A	A
Fare Control Area	Number	One/Two Way		In/Out Volumes										
High Wheel – I/O	2	2	42	15	11	5	0.08	0.03	0.02	0.01	A	A	A	A
High Wheel – Out	1	1	42	1	11	5	0.10	0.00	0.03	0.01	A	A	A	A
Stair Location:	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
Uptown 135th St. and St. Nicolas Ave.				Up/Down Volumes										
S7 (SE/S)	5.9	4.9	16	11	32	11	0.02	0.02	0.05	0.02	A	A	A	A
S6 (SE/E)	5.8	4.8	21	11	37	11	0.03	0.02	0.06	0.02	A	A	A	A
P5 AB	12.0	11.0	37	22	69	22	0.02	0.01	0.05	0.01	A	A	A	A
S5 (NE)	5.9	4.8	53	10	37	26	0.08	0.02	0.06	0.04	A	A	A	A
P4 AB	12.8	11.8	53	10	37	26	0.03	0.01	0.02	0.02	A	A	A	A
Fare Control Area: N23	Number	One/Two Way		In/Out Volumes										
Turnstiles	3	2	90	32	107	48	0.07	0.02	0.08	0.04	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
Stair Location:	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
Uptown 137th St. and St. Nicolas Ave.				Up/Down Volumes										
S4 (SE)	7.9	6.9	22	16	42	21	0.02	0.02	0.05	0.02	A	A	A	A
P3	7.7	6.6	22	16	42	21	0.02	0.02	0.05	0.02	A	A	A	A
Fare Control Area	Number	One/Two Way		In/Out Volumes										
High Wheel – I/O	1	2	11	1	5	0	0.04	0.00	0.02	0.00	A	A	A	A
High Wheel - Out	2	1	11	15	37	21	0.01	0.02	0.05	0.03	A	A	A	A

Table 2.4.8
Future Conditions
116th Street and Lenox Avenue Subway Station (2 & 3)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 116th St and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S1 (SW)	5.6	4.6	130	53	63	85	0.21	0.09	0.10	0.14	A	A	A	A
S3 (NW)	5.1	4.1	194	69	101	138	0.35	0.12	0.18	0.25	A	A	A	A
Fare Control Area: R302	Number	One/Two Way			In/Out Volumes									
Turnstiles	5	2	303	101	116	212	0.14	0.05	0.05	0.10	A	A	A	A
Service Gate	1	2	5	5	5	0	0.01	0.01	0.01	0.00	A	A	A	A
High Wheel – Out	3	1	16	16	43	11	0.01	0.01	0.04	0.01	A	A	A	A
Stair Location: Uptown 116th Street and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S2 (SE)	5.8	4.8	64	43	122	84	0.10	0.07	0.19	0.13	A	A	A	A
P2 ABC	11.8	10.8	64	43	122	84	0.04	0.03	0.08	0.06	A	A	A	A
S4 (NE)	5.8	4.8	90	48	138	101	0.14	0.07	0.21	0.16	A	A	A	A
P4 ABC	11.6	10.6	90	48	138	101	0.06	0.03	0.10	0.07	A	A	A	A
Fare Control Area: R303	Number	One/Two Way			In/Out Volumes									
Turnstiles	5	2	106	54	148	105	0.08	0.04	0.11	0.08	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
High Wheel – Out	3	1	48	37	112	80	0.06	0.04	0.14	0.10	A	A	A	A

Table 2.4.9
Future Conditions
125th Street and Lenox Avenue Subway Station (2 & 3)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 125th St and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S1 (SW)	6.0	5.0	190	126	178	160	0.28	0.19	0.26	0.24	A	A	A	A
S3 (NW)	6.0	5.0	258	161	219	204	0.38	0.24	0.32	0.30	A	A	A	A
Fare Control Area: R304	Number	One/Two Way	In/Out Volumes											
Turnstiles	3	2	320	227	323	251	0.15	0.11	0.15	0.12	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
High Wheel – Out	3	1	128	60	74	103	0.11	0.05	0.06	0.08	A	A	A	A
Stair Location: Uptown 125th Street and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S2 (SE)	5.8	4.8	105	85	120	80	0.16	0.13	0.19	0.12	A	A	A	A
P2 ABC	11.8	10.8	105	85	120	80	0.07	0.06	0.08	0.05	A	A	A	A
S4 (NE)	6.0	5.0	105	125	190	140	0.16	0.19	0.28	0.21	A	A	A	A
P4 ABC	12.0	11.0	105	125	190	140	0.07	0.08	0.13	0.09	A	A	A	A
Fare Control Area: R305	Number	One/Two Way	In/Out Volumes											
Turnstiles	3	2	178	180	286	205	0.14	0.14	0.22	0.16	A	A	A	A
Service Gate	1	2	0	0	11	5	0.00	0.00	0.02	0.01	A	A	A	A
High Wheel – Out	4	1	100	115	135	97	0.06	0.07	0.08	0.06	A	A	A	A

Table 2.4.10
Future Conditions
135th Street and Lenox Avenue Subway Station (2 & 3)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 135th St and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S1 (SW)	6.2	5.2	277	42	128	185	0.39	0.06	0.18	0.26	A	A	A	A
S3 (NW)	6.2	5.2	308	138	196	201	0.44	0.20	0.28	0.29	A	A	A	A
Fare Control Area: R306	Number	One/Two Way	In/Out Volumes											
Turnstiles	5	2	489	159	228	323	0.23	0.07	0.11	0.15	A	A	A	A
Service Gate	1	2	0	0	0	0	0.00	0.00	0.00	0.00	A	A	A	A
High Wheel – Out	3	1	96	21	96	63	0.08	0.02	0.08	0.05	A	A	A	A
Stair Location: Uptown 135th Street and Lenox Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S2 (SE)	6.0	5.0	79	74	127	84	0.12	0.11	0.19	0.12	A	A	A	A
P1 ABC	14.6	13.6	79	74	127	84	0.04	0.04	0.07	0.05	A	A	A	A
S4 (NE)	6.8	5.8	181	91	165	106	0.23	0.12	0.21	0.14	A	A	A	A
P2 ABC	14.6	13.6	181	91	165	106	0.10	0.05	0.09	0.06	A	A	A	A
Fare Control Area: R307	Number	One/Two Way	In/Out Volumes											
Turnstiles	3	2	122	91	154	100	0.09	0.07	0.12	0.08	A	A	A	A
Service Gate	1	2	0	0	5	0	0.00	0.00	0.01	0.00	A	A	A	A
High Wheel – Out	1	1	138	74	133	90	0.34	0.18	0.33	0.22	A	A	A	A

Table 2.4.11
Future Conditions
116th Street and Lexington Avenue Subway Station (6)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: Downtown 116th St and Lexington Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S1 (SW)	5.3	4.3	419	137	158	326	0.72	0.24	0.27	0.56	C	A	A	B
P1 AB	11.6	10.6	395	110	130	295	0.28	0.08	0.09	0.21	A	A	A	A
S3 (NW)	5.6	4.6	250	80	130	180	0.40	0.13	0.21	0.29	A	A	A	A
P3 AB	11.6	10.6	250	80	130	180	0.17	0.06	0.09	0.13	A	A	A	A
Fare Control Area: R256	Number	One/Two Way			In/Out Volumes									
Turnstiles	4	2	693	247	335	544	0.40	0.14	0.19	0.31	A	A	A	A
Service Gate	1	2	5	16	0	0	0.01	0.02	0.00	0.00	A	A	A	A
Stair Location: Uptown 116th St. and Lexington Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
					Up/Down Volumes									
S2 (SE)	5.3	4.3	122	107	190	148	0.21	0.18	0.33	0.25	A	A	A	A
P2 AB	11.3	10.3	122	107	190	148	0.08	0.07	0.12	0.10	A	A	A	A
S4 (NE)	5.3	4.3	119	140	263	184	0.20	0.24	0.45	0.32	A	A	B	A
P4 AB	11.3	10.3	119	140	263	184	0.09	0.10	0.19	0.13	A	A	A	A
Fare Control Area: R257	Number	One/Two Way			In/Out Volumes									
Turnstiles	4	2	135	148	278	179	0.08	0.09	0.16	0.10	A	A	A	A
Service Gate	1	2	0	0	10	10	0.00	0.00	0.01	0.01	A	A	A	A
High Wheel – Out	2	1	106	99	165	143	0.13	0.12	0.20	0.18	A	A	A	A

Table 2.4.12
Future Conditions
125th Street and Lexington Avenue Subway Station (4, 5 & 6)

SUBWAY STATION ELEMENTS			15- MINUTE PEDESTRIAN VOLUME				V/SCD RATIO				LEVEL OF SERVICE			
Stair Location: 125th Street and Lexington Ave.	Width	Eff. Width	AM	MD	PM	SAT	AM	MD	PM	SAT	AM	MD	PM	SAT
			Up/Down Volumes											
S1 (SW)	5.6	4.6	269	336	486	330	0.43	0.54	0.78	0.53	A	B	C	B
M1 AB	10.5	9.5	269	336	486	330	0.21	0.26	0.38	0.26	A	A	A	A
S3 (NW)	5.6	4.6	333	364	500	348	0.54	0.59	0.81	0.56	B	B	C	B
M3 AB	10.5	9.5	333	364	500	348	0.26	0.28	0.39	0.27	A	A	A	A
S2 (SE)	5.7	4.7	485	250	401	271	0.76	0.39	0.63	0.43	C	A	B	A
M2 AB	7.2	6.2	485	250	401	271	0.58	0.30	0.48	0.32	B	A	B	A
S4 (NE)	5.7	4.7	415	418	632	396	0.65	0.66	1.00	0.62	B	B	C	B
M4 AB	7.2	6.2	415	418	632	396	0.50	0.50	0.76	0.47	B	B	C	B
Fare Control Area: R258	Number	One/Two Way	In/Out Volumes											
Turnstiles	9	2	1028	1093	1490	958	0.26	0.28	0.38	0.25	A	A	A	A
Service Gate	1	2	327	164	356	228	0.48	0.24	0.53	0.34	B	A	B	A
High Wheel – Out	2	1	151	111	157	127	0.19	0.14	0.17	0.16	A	A	A	A

Notes: The Capacity for Stairs = 17 persons per minute per foot
The Capacity for Turnstiles = 32 persons per minute per foot
The Capacity for Service Gate = 50 persons per minute per foot
The Capacity for High Entrance/Exit Turnstile (I/O) = 20 persons per minute per foot
The Capacity for High Exit Turnstile (Out) = 30 persons per minute per foot

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

2.4.2 Bus Service

An analysis of the new bus trips generated by the proposed actions and developments was conducted in order to determine whether the incremental volumes on individual bus routes could potentially result in impacts.

The bus person trips were estimated for the year 2015 using the general background growth factor for Manhattan of 0.5 percent per year resulting in a total 6% for 12 years. Using the trip generation, temporal distribution and modal split information from a number of sources for residential, retail and community facilities, the total number of AM, MD, PM and Saturday peak hour bus trips were estimated for the proposed rezoning actions and developments.

Table 2.4.13: Peak Hour Bus Trip Generated

Developments and Rezoning	AM		MD		PM		Saturday	
	In	Out	In	Out	In	Out	In	Out
125th Rezoning	79	180	566	520	691	679	322	350
Manhattanville Phase 1	130	116	386	368	338	351	258	242
Uptown NY	120	115	775	711	861	950	448	413
Harlem Park Hotel	51	26	59	61	42	75	55	44
Victoria Theater	14	13	30	29	17	15	22	21
East Harlem Rezoning	9	40	38	38	43	24	24	39
F. Douglass Rezoning	30	84	0	0	107	76	0	0
East River Plaza	0	0	291	268	264	279	337	301
Sources: 2000 Census Data, River Center EIS, Delancey Transportation Study, East Harlem Rezoning EAS - Dec.2002, Frederick Douglass Blvd Rezoning EAS – Apr.2003, East River Plaza EIS – Aug.1999								

Assignments of these trips are based on the available routes within the study area, transfer opportunities within the New York City bus network system and on the most direct routes to and from their origins and destinations. Trips were assigned to routes based on the most convenient paths of travel between bus stops and the project sites.

Shown in Table 2.4.14-a, Table 2.4.14-b, Table 2.4.15-a, and Table 2.4.15-b are the results of the future conditions analysis of the bus routes during the weekday AM, MD, PM and Saturday MD peak period. In the morning peak period two bus routes (M100

southbound and Bx15 northbound) will operate over capacity. One bus route (Bx15 in both directions) will operate over capacity during the midday peak period. During the evening peak period four bus routes will be operating over capacity (M100 northbound and the M60, M116 and Bx15 in both directions) and during the Saturday peak period two routes (M116 eastbound and Bx15 southbound) will be over capacity.

Table 2.4.14-a: Future Bus Conditions (AM – MD)

Route/Direction		AM					MD				
		Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity	Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity
M1	SB	8	520	404	51	116	7	455	296	42	159
M1L	SB	7	455	288	41	167	--	--	--	--	--
M1	NB	5	325	193	39	132	7	455	288	41	167
M1L	NB	--	--	--	--	--	--	--	--	--	--
M2	SB	10	650	438	44	212	6	390	167	28	223
M2	NB	7	455	177	25	278	6	390	128	21	262
M3	SB	7	455	371	53	84	7	455	222	32	233
M3	NB	6	390	147	25	243	7	455	192	27	263
M4	SB	13	845	599	46	246	8	520	314	39	206
M4L	SB	5	325	206	41	119	--	--	--	--	--
M4	NB	13	845	428	33	417	8	520	249	31	271
M4L	NB	--	--	--	--	--	--	--	--	--	--
M5	SB	--	--	--	--	--	--	--	--	--	--
M5L	SB	11	715	576	52	139	6	390	217	36	173
M5	NB	--	--	--	--	--	--	--	--	--	--
M5L	NB	4	260	194	49	66	6	390	207	35	183
M7	SB	8	520	417	52	103	6	390	200	33	190
M7	NB	4	260	186	47	74	7	455	269	38	186
M10	SB	8	520	379	47	141	6	390	238	40	152
M10	NB	8	520	152	19	368	6	390	239	40	151
M11	SB	7	455	340	49	115	7	455	231	33	224
M11	NB	9	585	441	49	144	7	455	225	32	230
M15	SB	15	1395	648	43	747	10	930	395	40	535
M15L	SB	21	1953	1133	54	820	10	930	604	60	326

Notes: Peak hours; 8-9 AM, 12-1 MD, 5-6 PM & Hourly capacity guideline of 65 persons per bus and 93 persons per articulated bus.

Table 2.4.14-b: Future Bus Conditions (AM – MD - continued)

Route/Direction		AM					MD				
		Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity	Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity
M15	NB	14	1302	766	55	536	10	930	442	44	488
M15L	NB	17	1581	791	47	790	10	930	518	52	412
M18	SB	3	195	56	19	139	2	130	66	33	64
M18	NB	2	130	20	10	110	2	130	59	30	71
M60	EB	6	390	351	59	39	6	390	223	37	167
M60	WB	7	455	275	39	180	4	260	114	29	146
M98	SB	7	455	443	63	12	--	--	--	--	--
M98	NB	3	195	66	22	129	--	--	--	--	--
M100	SB	6	390	416	69	**-26**	7	455	294	42	161
M100	NB	7	455	369	53	86	6	390	295	49	95
M101	SB	11	1023	656	60	367	11	1023	606	55	417
M101	NB	10	930	686	69	244	10	930	544	54	386
M102	SB	6	558	309	52	249	5	465	224	45	241
M102	NB	6	558	243	41	315	5	465	214	43	251
M103	SB	6	558	266	49	292	6	558	277	46	281
M103	NB	6	558	234	39	324	5	465	325	65	140
M104	SB	17	1105	574	34	531	12	780	416	35	364
M104	NB	7	455	244	35	211	12	780	368	31	412
M116	EB	14	910	699	50	211	5	325	270	54	55
M116	WB	6	390	345	58	45	5	325	284	57	41
Bx15	SB	9	585	584	65	1	7	455	637	91	**-182**
Bx15	NB	7	455	503	72	**-48**	7	455	617	88	**-162**
Bx33	EB	4	260	101	25	154	6	390	46	8	344
Bx33	WB	6	390	163	28	225	6	390	59	10	331

Notes: Peak hours; 8-9 AM, 12-1 MD, 5-6 PM & Hourly capacity guideline of 65 persons per bus and 93 persons per articulated bus.

Table 2.4.15-a: Future Bus Conditions (PM – Saturday)

Route/Direction		PM					Saturday (Midday)				
		Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity	Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity
M1	SB	6	390	374	62	16	7	455	343	43	112
M1L	SB	--	--	--	--	--	--	--	--	--	--
M1	NB	8	520	426	53	94	6	390	183	23	207
M1L	NB	5	325	184	37	141	--	--	--	--	--
M2	SB	11	715	318	29	397	6	390	151	19	239
M2	NB	8	520	462	58	58	6	390	145	18	245
M3	SB	9	585	363	40	222	7	455	193	24	262
M3	NB	7	455	277	40	178	5	325	154	19	171
M4	SB	7	455	388	55	67	9	585	263	33	322
M4L	SB	--	--	--	--	--	--	--	--	--	--
M4	NB	8	520	427	53	93	8	520	275	34	245
M4L	NB	6	390	252	42	138	--	--	--	--	--
M5	SB	--	--	--	--	--	7	455	251	31	204
M5L	SB	7	455	251	36	204	--	--	--	--	--
M5	NB	--	--	--	--	--	6	390	221	28	169
M5L	NB	6	390	306	51	84	--	--	--	--	--
M7	SB	8	520	365	46	155	8	520	252	32	268
M7	NB	9	585	452	50	133	6	390	250	31	140
M10	SB	7	455	331	47	124	8	520	234	29	286
M10	NB	7	455	415	59	40	8	520	231	29	289
M11	SB	7	455	366	52	89	6	390	195	24	195
M11	NB	7	455	361	52	94	6	390	249	31	144
M15	SB	10	930	630	63	300	12	780	412	52	704
M15L	SB	13	1209	727	56	482	6	390	445	56	113

Notes: Peak hours; 8-9 AM, 12-1 MD, 5-6 PM & Hourly capacity guideline of 65 persons per bus and 93 persons per articulated bus.

Table 2.4.15-b: Future Bus Conditions (PM – Saturday - continued)

Route/Direction		PM					Saturday (Midday)				
		Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity	Buses per Hour	Hourly Capacity	Hourly Volume	Avg Vol per Bus	Available Capacity
M15	NB	14	910	747	53	163	12	1116	304	38	812
M15L	NB	15	975	728	49	247	5	465	351	44	144
M18	SB	3	195	122	41	73	2	130	53	7	77
M18	NB	2	130	93	47	37	2	130	54	7	76
M60	EB	5	325	487	97	**-162**	5	325	311	39	14
M60	WB	6	390	475	79	**-85**	5	325	239	30	86
M98	SB	2	130	33	17	97	--	--	--	--	--
M98	NB	8	520	357	45	163	--	--	--	--	--
M100	SB	8	520	315	39	205	6	390	214	27	176
M100	NB	6	390	459	77	**-69**	6	390	219	27	171
M101	SB	12	1116	783	65	333	7	651	475	59	176
M101	NB	12	1116	914	76	202	6	558	427	53	131
M102	SB	7	651	261	37	390	7	651	190	24	461
M102	NB	6	558	371	62	187	7	651	229	29	422
M103	SB	7	651	310	44	341	7	651	192	24	459
M103	NB	7	651	460	66	191	6	558	257	32	301
M104	SB	12	780	502	42	278	15	975	522	62	453
M104	NB	14	910	673	48	237	13	845	481	60	364
M116	EB	6	390	423	71	**-33**	4	260	262	66	**-2**
M116	WB	6	390	474	79	**-84**	4	260	252	63	8
Bx15	SB	7	455	664	95	**-209**	7	455	499	62	**-44**
Bx15	NB	7	455	771	110	**-316**	8	520	464	58	56
Bx33	EB	4	260	131	33	129	3	195	61	8	134
Bx33	WB	6	390	86	15	304	3	195	51	6	144

Notes: Peak hours; 8-9 AM, 12-1 MD, 5-6 PM & Hourly capacity guideline of 65 persons per bus and 93 persons per articulated bus.

2.5 PARKING

On-Street Parking Analysis

The area analyzed for on-street parking extends from 122nd Street to 128th Street and from the Hudson River to the East River. The future conditions analysis shows that parking demand generally will exceed capacity. No new additional parking spaces will be provided, however some improvement measures recommended will affect on-street parking resulting in the loss of approximately 15 parking spaces. The proposed measures to improve traffic operations are:

- At the intersection of Lenox Avenue and West 125th Street remove curbside parking on the westbound approach (150 feet from the intersection) and post a "No Standing Anytime - Monday to Friday-7AM to 7PM" sign.

- At the intersection of Morningside Avenue and West 126th Street remove curbside parking from the north side of the street on the west bound approach (150 feet from the intersection) and post a "No Standing Anytime - Except Sunday-7AM to 7PM" sign.

Off-Street Parking Analysis

The proposed "Manhattanville Rezoning in West Harlem" and the "Academic Mixed-Use Development FEIS for 2015 build" will result in the displacement of five garages with a capacity of 679 spaces. Based on the EIS during the AM, MD and PM periods there is a projected shortfall of available off-street parking (between 430 and 565) spaces within a quarter mile and a half mile radius.

However, for the one mile radius during the AM and MD periods a short fall of spaces between 235 and 264 is projected while during the PM peak 433 spaces are available.

The displaced garages are:

- MTP 3300 Broadway Corp.: 200 spaces;
- West 129th Street LLC: 134 spaces;
- Uni Facility Corp.: 100 spaces;
- Y&H Enterprises Inc.: 175 spaces; and
- Columbia Waterfront LLC: 70 spaces.

To address this shortfall Columbia University plans to provide additional public parking of approximately 400 parking spaces, on a site located under the Henry Hudson Parkway between 135th and 145th Streets.

2.6 PEDESTRIAN AND BICYCLE

2.6.1 Pedestrian Analysis

Pedestrian volumes in the Study Area is expected to increase as a result of the proposed developments. Pedestrian levels of service analysis for the 2015 future conditions were performed at 13 locations.

The future pedestrian volumes were estimated using a background growth factor of 0.5 percent per year, as well as person trips generated by the proposed developments. The projected future pedestrian volumes are summarized in Table 2.6.1.

Table 2.6.1 – 15 Min Pedestrian Trips Generated by Proposed Developments

Site No.	Project Name	AM		MD		PM	
		IN	OUT	IN	OUT	IN	OUT
1	125th Street Rezoning	165	203	1,035	1,015	695	693
2	Manhattanville, Phase1	149	137	574	567	349	349
3	Uptown NY	237	235	1,510	1,485	946	983
4	Harlem Park Hotel	34	33	186	196	348	89
5	Victoria Theater	17	64	49	47	27	25
6	East Harlem Rezoning	3	5	29	29	17	14
7	Frederick Douglass Blvd	29	55	101	152	104	84
8	East River Plaza	N/A	N/A	62	59	56	61

The pedestrian trips are assigned and distributed to sidewalks, corners and crosswalks of selected intersections depending on the most direct routes to the proposed developments, nearby bus stops and subway stations. Out of the thirteen pedestrian locations analyzed only seven locations are expected to attract new pedestrian trips generated by the developments. The intersections that would attract additional pedestrian volume are:

- 125th St. and St Nicholas Ave.
- 125th St. and Adam C. Powell Blvd.
- 125th St. and Lenox Ave.
- 125th St. and Park Ave
- 125th St. and Lexington Ave.

- 116th St. and Lexington Ave.
- 116th St. and Lenox Ave.

This is due to their proximity to the proposed developments/areas of rezoning and to the routes most likely to be taken by pedestrians to/from the development sites.

Level of Service Analysis and Methodology

The future conditions pedestrian level of service (LOS) analysis was done for three peak periods for sidewalks, corners and crosswalks for the following 13 locations and are summarized in Tables 2.6.2, 2.6.3 and 2.6.4.

- Amsterdam Avenue and 138th Street
- 135th Street and St Nicholas Avenue
- 135th Street and Adam C. Powell Boulevard
- 135th Street and Lenox Avenue
- 125th Street and St Nicholas Avenue
- 125th Street and Adam C. Powell Boulevard
- 125th Street and Lenox Avenue
- 125th Street and Park Avenue
- 125th Street and Lexington Avenue
- 116th Street and Broadway
- 116th Street and Amsterdam Avenue
- 116th Street and Lenox Avenue
- 116th Street and Lexington Avenue

Sidewalks Analysis

The future conditions sidewalk analysis indicates that pedestrian LOS at midblock would all operate at LOS A during the three peak periods. Table 2.6.2 presents a summary of the sidewalks' level of service analysis.

Table 2.6.2 - Sidewalks – Future Level of Service (1 of 4)

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
St Nicholas Avenue @ 135th Street	1	63	20	0.2	A	36	0.1	A	21	0.1	A
(T-Shape Intersection)	2	80	20	0.3	A	35	0.1	A	36	0.1	A
	3	82	20	0.3	A	28	0.1	A	20	0.1	A
	4	72	20	0.3	A	33	0.1	A	15	0.1	A
	5	212	20	0.7	A	99	0.3	A	140	0.5	A
AC Powell Boulevard @ 135th Street	1	43	25	0.1	A	43	0.1	A	21	0.1	A
	2	57	25	0.2	A	29	0.1	A	44	0.1	A
	3	93	20	0.3	A	56	0.2	A	16	0.1	A
	4	33	20	0.1	A	22	0.1	A	13	0	A
	5	72	25	0.2	A	73	0.2	A	54	0.1	A
	6	64	25	0.2	A	10	0	A	26	0.1	A
	7	25	20	0.1	A	30	0.1	A	30	0.1	A
	8	51	20	0.2	A	28	0.1	A	36	0.1	A
Lenox Avenue @ 135th Street	1	147	35	0.3	A	82	0.2	A	101	0.2	A
	2	221	35	0.4	A	357	0.7	A	342	0.7	A
	3	101	20	0.3	A	82	0.3	A	69	0.2	A
	4	154	20	0.5	A	122	0.4	A	141	0.5	A
	5	110	35	0.2	A	208	0.4	A	141	0.3	A
	6	166	35	0.3	A	120	0.2	A	76	0.1	A
	7	40	20	0.1	A	74	0.2	A	53	0.2	A
	8	73	20	0.2	A	35	0.1	A	55	0.2	A
Amsterdam Avenue @138th Street	1	40	20	0.1	A	27	0.1	A	62	0.2	A
(T-Shape Intersection)	2	80	13	0.4	A	166	0.9	A	152	0.8	A
	3	12	13	0.1	A	65	0.3	A	28	0.1	A
	4	98	20	0.3	A	75	0.3	A	71	0.2	A
	5	75	20	0.3	A	191	0.6	A	162	0.5	A

Table 2.6.2 - Sidewalks – Future Level of Service (2 of 4)

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
St Nicholas Avenue @ 125th Street	1	174	20	0.6	A	116	0.4	A	196	0.7	A
	2	171	20	0.6	A	233	0.8	A	369	1.2	A
	3	175	15	0.8	A	276	1.2	A	398	1.8	A
	4	196	15	0.9	A	378	1.7	A	465	2.1	A
	5	220	20	0.7	A	267	0.9	A	390	1.3	A
	6	161	20	0.5	A	176	0.6	A	223	0.7	A
	7	162	15	0.7	A	313	1.4	A	284	1.3	A
	8	195	15	0.9	A	298	1.3	A	297	1.3	A
AC Powell Boulevard @ 125th Street	1	85	25	0.2	A	138	0.4	A	141	0.4	A
	2	47	25	0.1	A	131	0.3	A	111	0.3	A
	3	109	15	0.5	A	357	1.6	A	343	1.6	A
	4	132	15	0.6	A	394	1.8	A	403	1.8	A
	5	103	25	0.3	A	167	0.4	A	88	0.4	A
	6	123	25	0.3	A	133	0.4	A	154	0.4	A
	7	123	15	0.5	A	359	1.6	A	297	1.6	A
	8	246	15	1.1	A	379	1.7	A	421	1.7	A
Lenox Avenue @ 125th Street	1	307	35	0.6	A	179	0.3	A	359	0.7	A
	2	198	35	0.4	A	362	0.7	A	356	0.7	A
	3	250	15	1.1	A	408	1.8	A	477	2.1	A
	4	208	15	0.9	A	488	2.2	A	362	1.6	A
	5	245	35	0.5	A	241	0.5	A	365	0.7	A
	6	58	35	0.1	A	302	0.6	A	269	0.5	A
	7	106	15	0.5	A	445	2	A	585	2.6	A
	8	253	15	1.1	A	480	2.1	A	535	2.4	A

Table 2.6.2 - Sidewalks – Future Level of Service (3 of 4)

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
Park Avenue @ 125th Street	1	49	12	0.3	A	130	0.7	A	84	0.5	A
	2	182	12	0.1	A	274	1.5	A	123	0.7	A
	3	345	20	1.2	A	462	1.5	A	383	1.3	A
	4	359	15	1.6	A	477	2.1	A	487	2.2	A
	5	37	12	0.2	A	115	0.6	A	79	0.4	A
	6	62	12	0.3	A	177	1	A	99	0.6	A
	7	225	20	0.8	A	472	1.6	A	409	1.4	A
	8	148	20	0.5	A	277	0.9	A	280	0.9	A
Lexington Avenue @ 125th Street	1	503	12.5	2.7	A	363	1.9	A	457	2.4	A
	2	330	12.5	1.8	A	407	2.2	A	527	2.8	A
	3	323	12	1.8	A	443	2.5	A	657	3.6	A
	4	390	20	1.3	A	605	2	A	829	2.8	A
	5	232	12.5	1.2	A	360	1.9	A	443	2.4	A
	6	429	12.5	2.3	A	531	2.8	A	655	3.5	A
	7	396	20	1.3	A	492	1.6	A	548	1.8	A
	8	447	20	1.5	A	571	1.9	A	502	1.7	A
Broadway @ 116th Street	1	323	24	0.9	A	374	1	A	392	1.1	A
(T-Shape Intersection)	2	51	20	0.2	A	116	0.4	A	94	0.3	A
	3	89	20	0.3	A	85	0.3	A	90	0.3	A
	4	367	24	1	A	295	0.8	A	339	0.9	A
	5	596	18	2.2	A	880	3.3	A	942	3.5	A
Amsterdam Avenue @ 116th Street	1	37	20	0.1	A	135	0.5	A	123	0.4	A
(T-Shape Intersection)	2	39	20	0.1	A	407	1.4	A	116	0.4	A
	3	52	20	0.2	A	67	0.2	A	49	0.2	A
	4	100	20	0.3	A	185	0.6	A	129	0.4	A
	5	311	20	1	A	514	1.7	A	513	1.7	A

Table 2.6.2 - Sidewalks – Future Level of Service (4 of 4)

Intersection	Walkway	AM				MD			PM		
		15 Min Vol. Two-Way	Effective Walkway Width	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate		15 Min Vol.	Pedestrian Flow Rate	
				p/m/f	LOS		p/m/f	LOS		p/m/f	LOS
Lexington Avenue @ 116th Street	1	237	18.5	0.9	A	99	0.4	A	129	0.5	A
	2	80	18.5	0.3	A	121	0.4	A	111	0.4	A
	3	175	15	0.8	A	167	0.7	A	341	1.5	A
	4	206	15	0.9	A	216	1	A	259	1.2	A
	5	146	18.5	0.5	A	110	0.4	A	169	0.6	A
	6	206	18.5	0.7	A	166	0.6	A	211	0.8	A
	7	106	15	0.5	A	136	0.6	A	162	0.7	A
	8	93	15	0.4	A	115	0.5	A	98	0.4	A
Lenox Avenue @ 116th Street	1	158	35	0.3	A	85	0.2	A	95	0.2	A
	2	171	35	0.3	A	136	0.3	A	207	0.4	A
	3	61	15	0.3	A	76	0.3	A	102	0.5	A
	4	62	15	0.3	A	81	0.4	A	130	0.6	A
	5	104	35	0.2	A	53	0.1	A	131	0.2	A
	6	92	35	0.2	A	58	0.1	A	124	0.2	A
	7	70	15	0.3	A	81	0.4	A	99	0.4	A
	8	94	15	0.4	A	106	0.5	A	137	0.6	A

Note: 1- Abbreviation: LOS – Level of Service: A<or = 5, B>5-7, C>7-10, D>10-15, E>15-23, and F>23.

Corner Analysis

The results of the future conditions corner analysis for the three peak periods reveal that all corners would operate at LOS A except for two corners at Lexington Avenue and 125th Street which would operate at LOS B during the MD and PM peaks. See Table 2.6.3 below for details.

Table 2.6.3 - Corners – Future Level of Service (1 of 2)

Intersection	Corner	AM		MD		PM	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
St Nicholas Avenue @ 135th Street	Northeast	445.4	A	976.4	A	789.2	A
(T-Shape Intersection)	Southeast	492.8	A	1353.2	A	1081.6	A
AC Powell Boulevard @ 135th Street	Northwest	639.2	A	1018.3	A	1721.2	A
	Northeast	491.2	A	1052.9	A	1077.2	A
	Southeast	480.9	A	1173.0	A	908.9	A
	Southwest	675.0	A	1571.9	A	1521.6	A
Lenox Avenue @ 135th Street	Northwest	1144.8	A	1141.7	A	1106.8	A
	Northeast	721.1	A	493.8	A	602.1	A
	Southeast	600.5	A	449.9	A	567.7	A
	Southwest	712.5	A	836.7	A	1004.5	A
Amsterdam Avenue @138th Street	Northwest	503.5	A	355.2	A	399.6	A
(T-Shape Intersection)	Southwest	312.1	A	246.2	A	233.6	A
St Nicholas Avenue @ 125th Street	Northwest	249.4	A	174.9	A	175.1	A
	Northeast	266.0	A	149.1	A	125.8	A
	Southeast	215.9	A	146.7	A	117.1	A
	Southwest	276.1	A	187.6	A	165.3	A
AC Powell Boulevard @ 125th Street	Northwest	238.4	A	158.4	A	172.4	A
	Northeast	327.5	A	165.4	A	173.7	A
	Southeast	468.3	A	142.1	A	145.7	A
	Southwest	405.0	A	146.5	A	168.7	A
Lenox Avenue @ 125th Street	Northwest	338.2	A	225.4	A	181.1	A
	Northeast	333.5	A	219.8	A	194.9	A
	Southeast	348.0	A	190.7	A	205.2	A
	Southwest	474.1	A	190.5	A	208.1	A
Park Avenue @ 125th Street	Northwest	135.8	A	79.8	A	105.9	A
	Northeast	99.9	A	66.4	A	98.8	A
	Southeast	123.2	A	63.5	A	67.2	A
	Southwest	133.6	A	63.9	A	65.0	A
Lexington Avenue @ 125th Street	Northwest	99.6	A	97.5	A	87.6	A
	Northeast	112.1	A	55.8	B	59.5	B
	Southeast	113.4	A	53.6	B	56.6	B
	Southwest	102.9	A	77.5	A	71.8	A

Table 2.6.3 - Corners – Future Level of Service (2 of 2)

Intersection	Corner	AM		MD		PM	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
Broadway @ 116th Street	Northwest	223.7	A	190.8	A	189.5	A
(T-Shape Intersection)	Southwest	217.5	A	145.7	A	165.1	A
Amsterdam Avenue @ 116th Street	Northeast	820.7	A	164.7	A	268.5	A
(T-Shape Intersection)	Southeast	731.5	A	205.5	A	387.1	A
Lexington Avenue @ 116th Street	Northwest	186.0	A	200.3	A	158.0	A
	Northeast	194.9	A	164.7	A	130.8	A
	Southeast	184.3	A	176.3	A	133.2	A
	Southwest	148.1	A	209.1	A	158.6	A
Lenox Avenue @116th Street	Northwest	891.3	A	822.5	A	586.8	A
	Northeast	761.8	A	694.8	A	490.0	A
	Southeast	827.7	A	790.8	A	535.5	A
	Southwest	971.3	A	861.5	A	638.8	A

Note: 1- Abbreviation: LOS – Level of Service: A>13, B>10-13, C>6-10, D>3-6, E>2-3, and F< or = 2.

Crosswalk Analysis

The future conditions crosswalk analysis indicates that most crosswalks would operate at (LOS) B or better. However, the crosswalks at two locations would operate at (LOS) C. These are Lexington Avenue at 125th Street and Park Avenue at 125th Street. See Table 2.6.4 below for details.

Table 2.6.4 - Crosswalks – Future Level of Service (1 of 2)

Intersection	Crosswalk	AM Crosswalk Space SF/P	AM LOS	MD Crosswalk Space SF/P	MD LOS	PM Crosswalk Space SF/P	PM LOS
St Nicholas Avenue @ 135th Street	North	124.4	A	292.4	A	203.8	A
(T-Shape Intersection)	East	882.7	A	273.2	A	236.3	A
	South	147.6	A	392.6	A	310.2	A
AC Powell Boulevard @ 135th Street	North	245.3	A	388.0	A	861.2	A
	East	306.2	A	879.3	A	829.6	A
	South	262.0	A	563.7	A	654.3	A
	West	415.6	A	997.0	A	497.2	A
Lenox Avenue @ 135th Street	North	230.4	A	478.9	A	240.6	A
	East	321.9	A	126.6	A	206.2	A
	South	132.5	A	286.0	A	225.4	A
	West	518.7	A	346.1	A	583.4	A
Amsterdam Avenue @138th Street	North	130.3	A	135.8	A	235.8	A
(T-Shape Intersection)	West	482.6	A	104.2	A	669.9	A
	South	190.9	A	83.4	A	100.6	A
St Nicholas Avenue @ 125th Street	North	195.4	A	72.4	A	102.2	A
	East	677.6	A	306.7	A	270.8	A
	South	177.3	A	94.0	A	95.4	A
	West	540.5	A	457.3	A	369.8	A
AC Powell Boulevard @ 125th Street	North	90.3	A	54.8	B	57.4	B
	East	509.1	A	372.8	A	355.4	A
	South	198.2	A	49.9	B	56.2	B
	West	345.7	A	226.0	A	258.6	A
Lenox Avenue @ 125th Street	North	122.4	A	60.0	B	47.0	B
	East	230.5	A	177.1	A	193.5	A
	South	130.1	A	48.5	B	59.2	B
	West	338.7	A	221.2	A	221.6	A
Park Avenue @ 125th Street	North	49.9	B	35.0	C	45.8	C
	East	246.7	A	111.7	A	142.5	A
	South	49.0	B	27.4	C	25.9	C
	West	316.5	A	100.2	A	135.3	A

Table 2.6.4 - Crosswalks – Future Level of Service (2 of 2)

Intersection	Crosswalk	AM Crosswalk Space		MD Crosswalk Space		PM Crosswalk Space	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
Lexington Avenue @ 125th Street	North	121.7	A	45.2	B	54.7	B
	East	112.3	A	63.3	A	77.8	A
	South	90.9	A	37.4	C	48.4	B
	West	195.5	A	285.7	A	169.7	A
Broadway @ 116th Street	North	291.7	A	133.1	A	135.4	A
(T-Shape Intersection)	West	120.3	A	119.2	A	116.9	A
	South	184.5	A	47.7	B	77.6	A
Amsterdam Avenue @ 116th Street	North	263.4	A	79.0	A	91.2	A
(T-Shape Intersection)	East	787.8	A	99.2	A	241.8	A
	South	212.6	A	163.5	A	166.1	A
Lexington Avenue @ 116th Street	North	133.5	A	114.3	A	157.5	A
	East	205.2	A	169.0	A	149.1	A
	South	101.6	A	128.2	A	83.0	A
	West	197.4	A	248.3	A	239.1	A
Lenox Avenue @116th Street	North	126.3	A	110.9	A	72.7	A
	East	376.5	A	400.8	A	248.6	A
	South	135.4	A	112.7	A	87.3	A
	West	498.8	A	558.7	A	364.8	A

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

In conclusion, based on the pedestrian level of service analysis the new trips generated within the Study Area by the proposed developments would not deteriorate operating conditions on the studied sidewalks, corners and crosswalks.

2.6.2 Bicycle Analysis

Bicycle Ridership

Existing bicycle volume counts were conducted in October 2003 for the locations identified below, and they were included in the existing conditions report.

The future bicycle volumes along bicycle lanes and greenway paths within the study area were estimated using the same 0.5 percent per year background growth factor that was used for the pedestrian analysis.

Table 2.6.5 below presents the future conditions bicycle volumes for the three peak periods at selected locations along the bicycle facilities. Based on these volumes there would be sufficient capacity to accommodate the future demand. The existing conditions trend of lower bicycle ridership in Upper Manhattan compared to Lower Manhattan was factored into the future conditions volume.

Table 2.6.5 - Future Bicycle Volumes

On-Street Locations	Total Cyclists 7:45 - 8:45 AM	Total Cyclists 12:15 - 1:15 PM	Total Cyclists 4:45 - 5:45 PM
First Avenue at 116th Street	16	29	38
St Nicholas Avenue at 135th Street	34	23	28
Frederick Douglass Blvd at 120th Street	28	20	31
119th Street at Madison Avenue	5	10	15
120th Street at Lexington Avenue	13	11	16

Greenway Locations	Total Cyclists 7:45 - 8:45 AM	Total Cyclists 12:15 - 1:15 PM	Total Cyclists 4:45 - 5:45 PM
East River Park at 116th Street	11	19	12
Route 9A at 125th Street	57	49	78

Potential Bicycle Lanes and Routes – Preliminary Analysis

Consistent with the city-wide bicycle master plan, on-street bicycle facilities are proposed for:

- 127th Street (from St Nicholas Avenue to Third Avenue)
- 124th Street (from Morningside Avenue to Second Avenue)

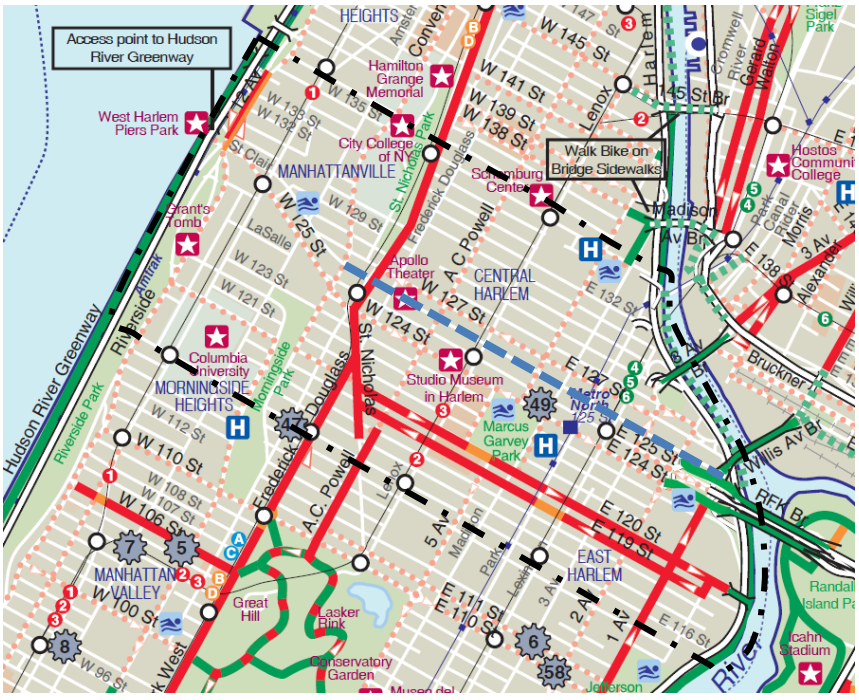
- Western portion of 125th Street (between Marginal St and Morningside Avenue)
- Riverside Drive (from 116th Street to 135th Street)
- Convent Avenue/Morningside Avenue (from 120th Street to 135th Street)
- Adam C. Powell Boulevard (from 118th Street to 135th Street)
- Fifth Avenue (from 116th Street to 135th Street)
- First and Second Avenues (from 116th Street to 127th Street-128th Street)
- 120th Street (from Riverside Drive to Morningside Drive and Morningside Avenue to Frederick Douglass Boulevard)
- Third Avenue (from 124th Street to 128th Street)
- 128th Street (from Third Avenue to Second Avenue)

In addition to the above the study recommends the following bike route:

- 126th Street (from Convent Avenue to First Avenue)

See Exhibit 2.6.1 for proposed bicycle routes. Further analysis and evaluation is required to determine the feasibility of implementing the proposed bicycle facilities.

Exhibit 2.6.1: Proposed Bicycle Routes



2.7 ACCIDENTS AND SAFETY

Introduction

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

In order to identify locations with potential accidents and safety issues in the study area, it was necessary to examine the accident history to see if any patterns can be established. Existing reportable accident data for the most recent three years (2007 to 2009) was assembled and analyzed. These records were collected from the New York City Department of Transportation (NYCDOT) accident database which includes New York State Department of Motor Vehicle (NYSDMV) and New York Police Department (NYPD) reported accidents. The data provides information on location, severity, collision type, time of accident, and other pertinent factors such as weather conditions that can be used to identify high accident locations, frequency and severity.

2007-2009

In 2001, NYSDMV stopped reporting "Non-Reportable accidents." In the absence of the "Non-Reportable Accidents", the total accidents criteria obviously change. Generally the ratio of "Non-Reportable" to "Reportable Accidents," is 1 to 1.13 or 53% "Non-Reportable" to 47% Reportable Accidents. Therefore, to identify "High Accident Locations" based on "Reportable Accidents" alone the ratio of 1:1.3 was applied, resulting in revised criteria of 23 or more "Reportable Accidents" or 5 preventable pedestrian crashes per year.

After reviewing all intersections in the study area for the most recent three years (2007-2009), 14 intersections were identified as "High Accident Locations" for having five or

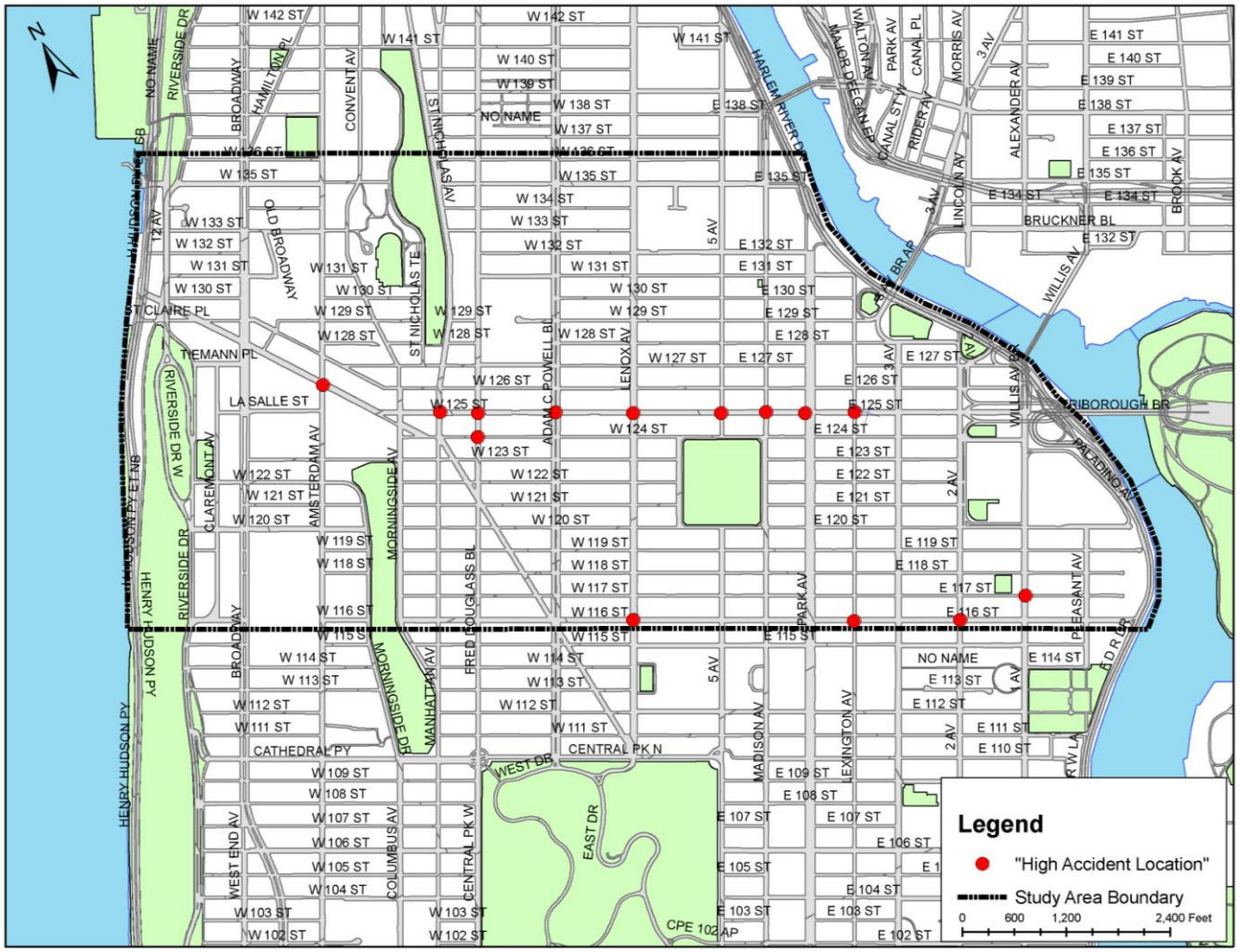
more pedestrian accidents at least once during the three-years (2007 to 2009). The intersection of East 125th Street and Lexington Avenue had five or more pedestrian crashes during each of the three years. Between 2007 and 2009, this intersection had 55 total accidents and 23 pedestrian accidents. The only other intersection in the study area with five or more pedestrian crashes each year during the three years is East 116th Street and Lexington Avenue. Thus the 14 locations were subjected to detailed analysis. Table 2.7.1 lists the 14 locations and the number of total accidents and pedestrian accidents from 2007 to 2009; while Exhibit 2.7.1 shows the locations on a study area map.

Table 2.7.1: Accident History (2007 – 2009)

No.	Intersection	2007		2008		2009		Total Accident	
		Total Accidents	Peds	Total Accidents	Peds	Total Accidents	Peds	Total Accidents	Peds
1	E. 125th Street/Lexington Avenue	16	5	16	7	23	11	55	23
2	W. 125th Street/7th Avenue	8	3	16	3	19	6	43	12
3	W. 125th Street/Amsterdam Avenue	9	4	16	7	15	4	40	15
4	W. 125th Street/Lenox Avenue	4	0	15	8	18	7	37	15
5	W. 125th Street/8th Avenue	11	7	14	1	11	3	36	11
6	W. 125th Street/St. Nicholas Avenue	12	7	6	0	17	6	35	13
7	E. 125th Street/Park Avenue SB	3	0	16	3	14	5	33	8
8	E. 116th Street/2nd Avenue	9	4	9	2	13	5	31	11
9	E. 125th Street/5th Avenue	8	4	14	5	7	2	29	11
10	W. 116th Street/Lenox Avenue	4	1	13	4	11	5	28	10
11	E. 116th Street/Lexington Avenue	8	5	8	5	10	6	26	16
12	E. 125th Street/Madison Avenue	8	2	11	6	5	2	24	10
13	W. 124th Street/8th Avenue	4	3	7	5	5	2	16	10
14	E. 117th Street/1st Avenue	1	0	7	5	1	0	9	5
	Total Accidents/Pedestrian Accidents	**105**	**45**	**168**	**61**	**169**	**64**	**442**	**170**

The data shows that most accidents are clustered along two main corridors, 116th Street and 125th Street. The combined accidents at the fourteen locations increased by 60% over the three years, and pedestrian accidents at these locations increased by 36% during the same period.

Exhibit 2.7.1: "High Accident Locations" (2007-2009)



Injuries

Between 2007 and 2009, 500 people were injured as a result of the total accidents, out of which 170 injuries were sustained by pedestrians. The highest numbers of injuries (60) were recorded at the intersection of E. 125th Street and Lexington Avenue. The injuries sustained ranged from severe (Type A) to minor injuries (Type C). Table 2.7.2 shows the total number of injuries and severity of the injuries sustained.

Table 2.7.2: Summary of Injuries

No.	Location	Total Injuries 2007-2009	Injury Type		
1.	E. 125th Street/Lexington Ave	60	9 Type A	3 Type B	48 Type C
2.	W. 125th Street/7th Avenue	54	2 Type A	7 Type B	45 Type C
3.	W. 125th Street/Amsterdam Ave	42	12 Type A	4 Type B	26 Type C
4.	W. 125th Street/Lenox Avenue	40	1 Type A	2 Type B	37 Type C
5.	W. 125th Street/8th Avenue	46	6 Type A	4 Type B	36 Type C
6.	W. 125th Street/St. Nicholas Ave	40	3 Type A	2 Type B	35 Type C
7.	E. 125th Street/Park Avenue SB	35	4 Type A	2 Type B	29 Type C
8.	E. 116th Street/2nd Avenue	44	3 Type A	4 Type B	37 Type C
9.	E. 125th Street/5th Avenue	28	1 Type A	1 Type B	26 Type C
10.	W. 116th Street/Lenox Avenue	35	5 Type A	2 Type B	28 Type C
11.	E. 116th Street/Lexington Avenue	18	0 Type A	2 Type B	16 Type C
12.	E. 125th Street/Madison Avenue	33	1 Type A	3 Type B	29 Type C
13.	W. 124th Street/8th Avenue	17	0 Type A	1 Type B	16 Type C
14.	E. 117th Street/1st Avenue	8	2 Type A	1 Type B	5 Type C
	Total	**500**	**49**	**38**	**413**

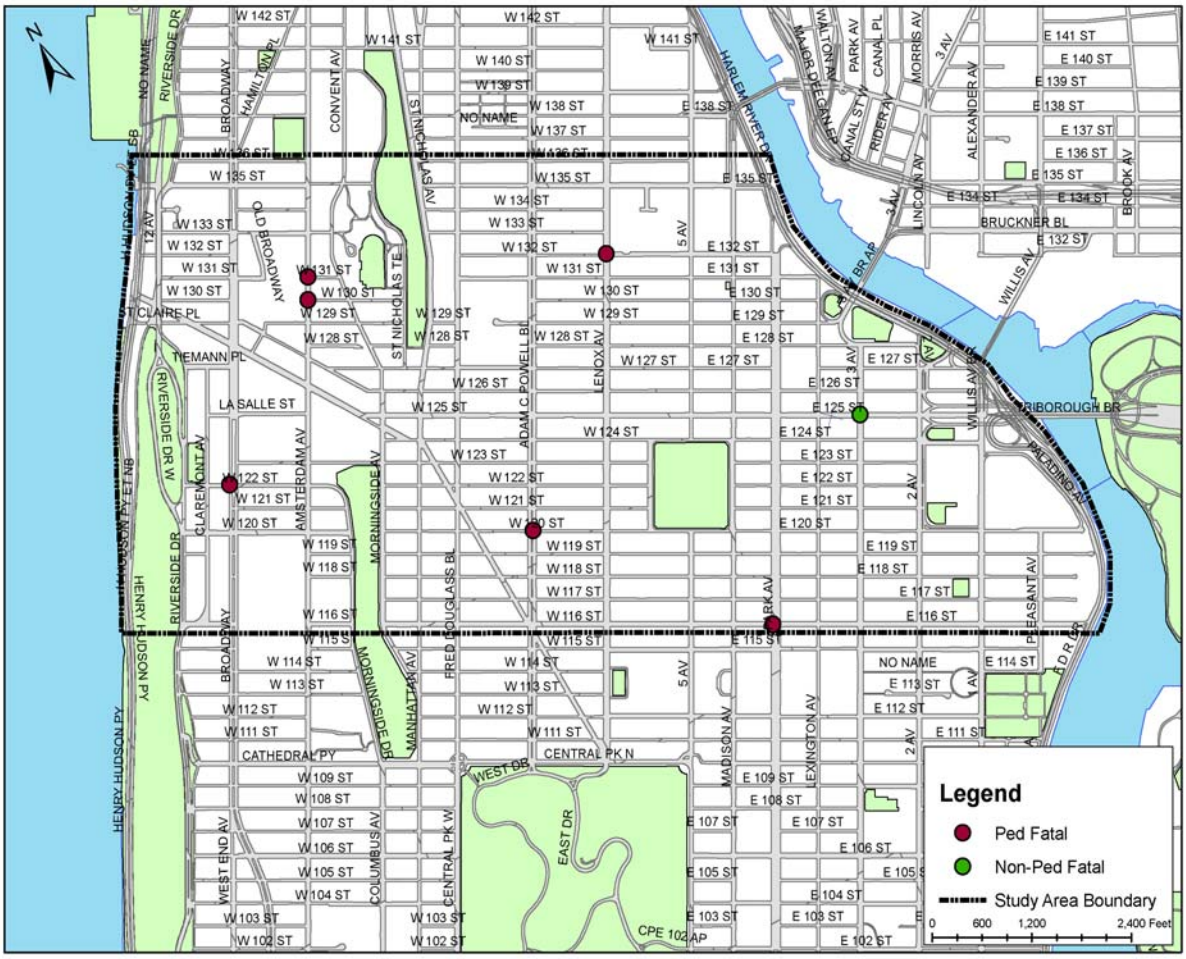
Fatalities

Between 2007 and 2009, there were 7 fatal crashes in the study area. However, none of the fatalities occurred on the 14 "High Accident Locations." Except for one, all fatal crashes involved a pedestrian. Out of 7 fatal crashes two occurred along Amsterdam Avenue at W. 130th Street and at W. 131st Street, both in 2009. Table 2.7.3 lists all the intersections where fatal crashes occurred in the study area and Exhibit 2.7.2 shows these intersections on a map.

Table 2.7.3: Summary of Fatalities (2007-2009)

No.	Location	Fatal Crashes	Total Accidents (2007-2009)
1	E. 116th Street/Park Avenue SB	1	11
2	W. 121st Street/7th Avenue	1	8
3	W. 122nd Street/Broadway SB	1	24
4	E. 125th Street/3rd Avenue	1	37
5	W. 130th Street/Amsterdam Avenue	1	9
6	W. 131st Street/Amsterdam Avenue	1	9
7	W. 132nd Street/Lenox Avenue	1	10
	Total Fatalities/Total Accidents	**7**	**108**

Exhibit 2.7.2: Fatal Crash Locations in the Study Area (2007-2009)



Accidents by Collision Type and Driving Conditions

An analysis of the contributing factors to the accidents at the 14 "High Accident Locations" revealed that 24% of the accidents occurred during night time and 16 % under wet roadway conditions. Twenty-two percent (22%) of the total accidents occurred between the hours 7-9AM (AM Peak), 38% during Midday Peak (12-2PM) and 40% during the PM Peak (4-6PM). The distribution of accident by collision types showed that 13% were rear end, 8% due to overtaking and 6% right angle. In an over whelming number of instances (52%) the collision type was not recorded, this translates into 231 out 442 accidents being rendered inconclusive for collision type statistics.

The highest numbers of rear end accidents were recorded at W. 125th Street and St. Nicholas Avenue, where 10 were recorded. At W. 125th Street and Amsterdam Avenue, two head-on collisions occurred in 2008. The highest number of right angle collisions was recorded at W. 125th Street and 5th Avenue, where 7 right angle accidents occurred. Below are the intersections where the highest number of rear end, overtaking, and right angle accidents occurred, Exhibit 2.7.3 shows the highest accident location by collision type.

- Rear End Accidents
  1. W. 125th Street/St. Nicholas Avenue (10)
  2. W. 125th Street/Amsterdam Avenue (6)
  3. W. 125th Street/7th Avenue (6)

- Accidents while Overtaking
  1. E. 125th Street/Lexington Avenue (5)
  2. E. 125th Street/Park Avenue SB (4)
  3. E. 125th Street/5th Avenue (4)

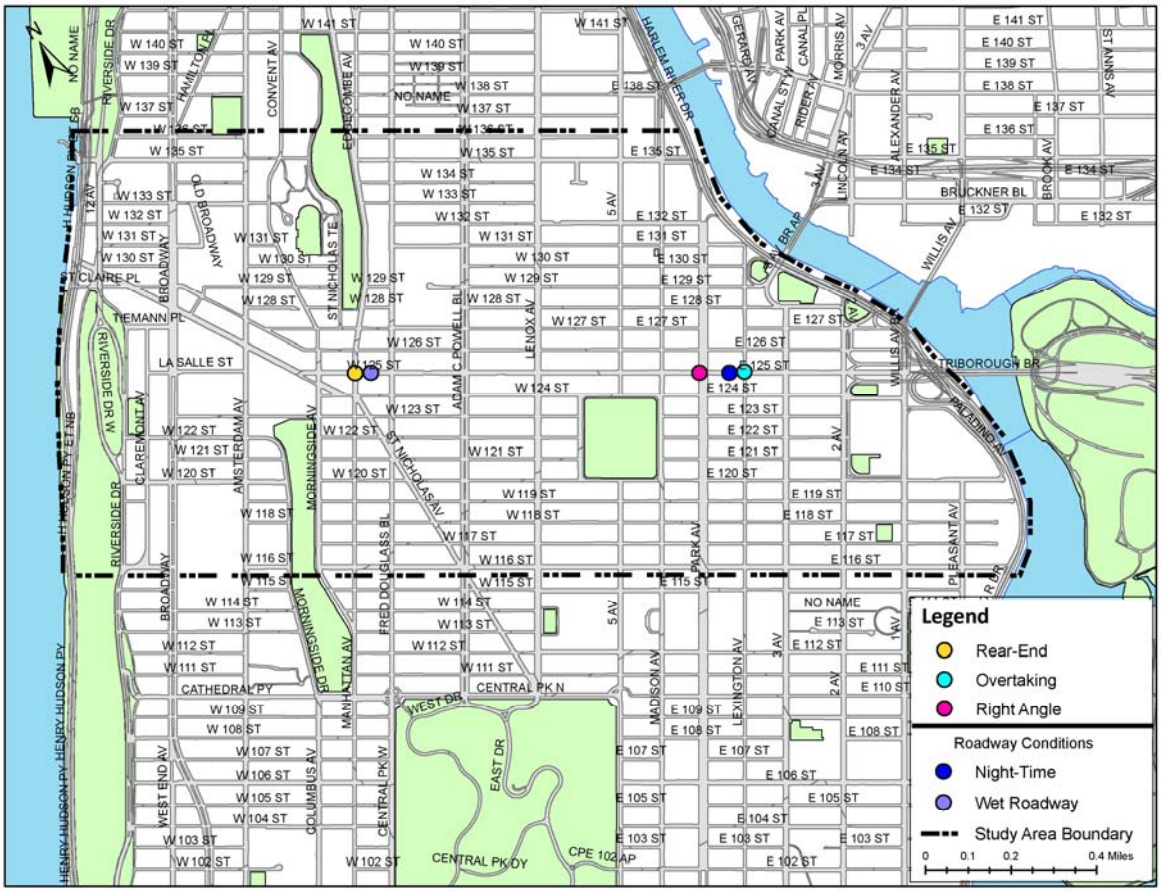
- Accidents while making a-Right Angle-turn
  1. E. 125th Street/Park Avenue SB (7)
  2. E. 116th Street/Lenox Avenue (4)
  3. W. 125th Street/St. Nicholas Avenue (3)

Below are the locations and number of accidents that occurred during night time and under wet roadway conditions:

- During Night Time
  1. E. 125th Street/Lexington Avenue (14)
  2. W. 125th Street/Amsterdam Avenue (12)
  3. W. 125th Street/St. Nicholas Avenue (11)

- Wet Roadway
  1. W. 125th Street/Amsterdam Avenue (11)
  2. W. 125th Street/7th Avenue (9)
  3. E. 125th Street/Lexington Avenue (8)

Exhibit 2.7.3: Accidents by Collision Type



Traffic accidents are random occurrences; however, certain counter-measures can be implemented in order to mitigate overall conditions that make an intersection less accident prone. Generally rear-end, left-turn, and right angle accidents can be reduced by enhancing sight distance, reducing intersection speed, and improving visibility by installing lager traffic signal lenses where appropriate.

The following locations will be evaluated and recommendations to improve safety conditions will be integrated into the traffic improvement measures.

1. W. 125th Street/St. Nicholas Avenue (10)
2. W. 125th Street/Amsterdam Avenue (6)
3. W. 125th Street/7th Avenue (6)
4. E. 125th Street/Park Avenue SB (7)
5. E. 116th Street/Lenox Avenue (4)

3.0 IMPROVEMENT MEASURES AND RECOMMENDATIONS

3.1 Traffic and Transportation

Based on the results of the existing condition analysis, a set of improvement measures are recommended to enhance traffic operations and safety for motorists, pedestrians and cyclists in the study area where traffic issues were identified.

These recommendations focus on improvements in roadway design, changes in signal timing, signal installation, pavement markings, and parking regulations. The intersections with approaches or lane groups with LOS mid level D (45 sec/veh.) or worse were identified for potential improvements.

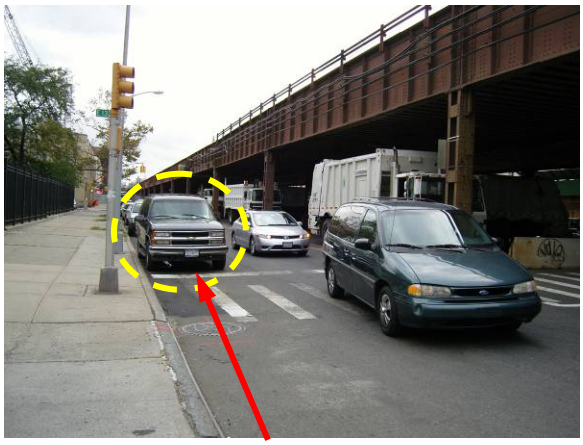
Description of Improvement Measures

1) Park Avenue and East 132nd Street

High vehicular volume to and from Harlem River Drive causes congestion and failing level of service at this location during the PM peak period, particularly the NB movement, which is the main feed to SB Harlem River Drive.

The following are the improvement measures recommended for this location:

- Prohibit parking during all peak periods on the NB approach for 100 feet from the intersection (remove 4 parking spaces), and install No Standing Anytime (7AM-7PM except Sunday) sign;
- Restripe the NB approach to provide 2 travel lanes of 11 feet each (LT-TR);
- Shift 3 seconds of green time from the EB to NB/SB phase during the PM peak period; and
- Shift 2 seconds of green time from the EB to NB/SB phase during Saturday Midday peak period.

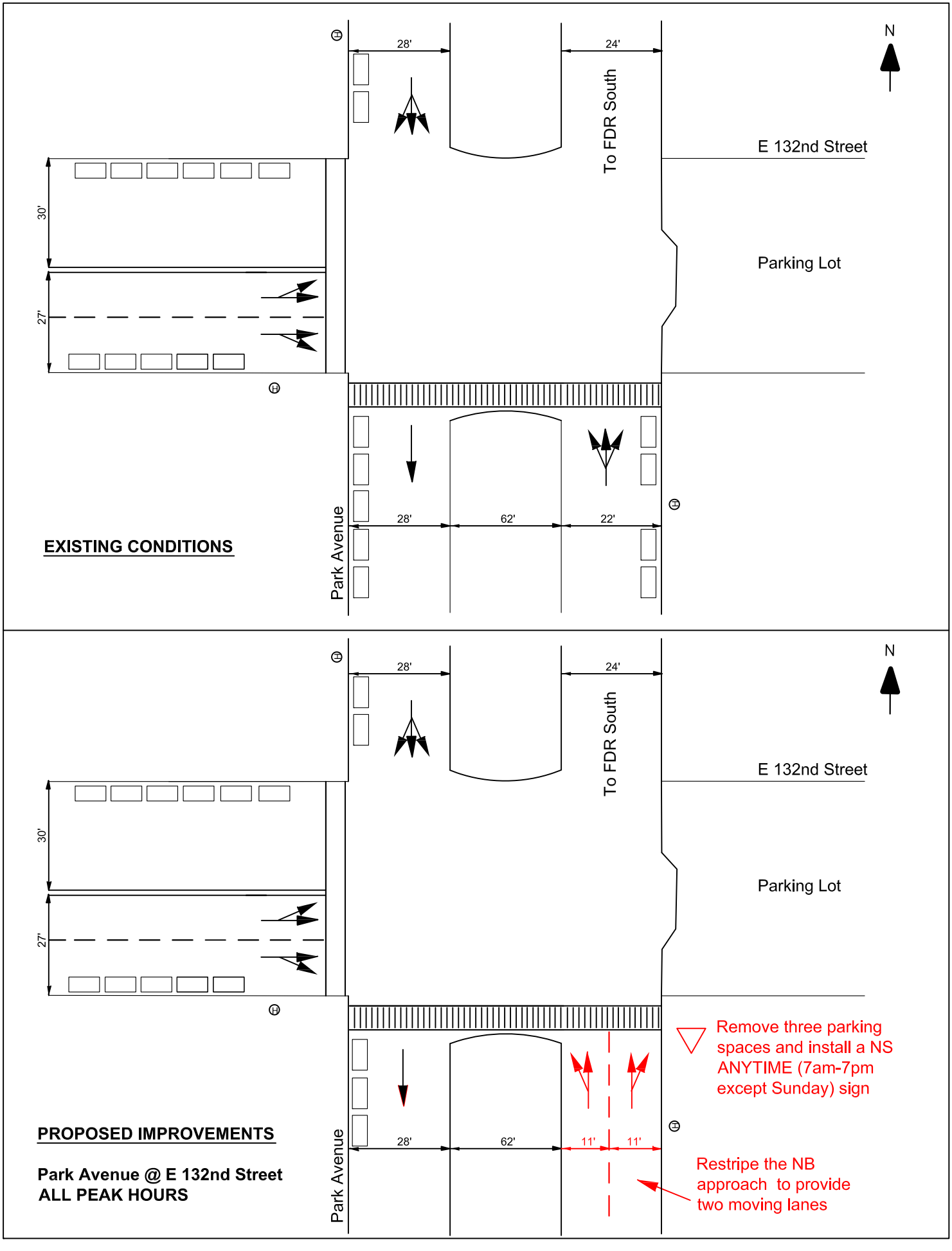


Park Avenue NB at E 132nd Street, looking south

Remove parking/Restripe NB approach

The pictures above shows the northbound approach for the intersection of Park Avenue and East 132nd Street, which is represented in Exhibit 3.1.1 on the following page with the proposed improvements for the intersection.

Exhibit 3.1.1


N
28'
24'
To FDR South
E 132nd Street
Parking Lot
30'
27'
Park Avenue
28'
62'
22'
EXISTING CONDITIONS
N
28'
24'
To FDR South
E 132nd Street
Parking Lot
30'
27'
Park Avenue
28'
62'
11'
11'
Remove three parking spaces and install a NS ANYTIME (7am-7pm except Sunday) sign
Restripe the NB approach to provide two moving lanes
PROPOSED IMPROVEMENTS
Park Avenue @ E 132nd Street
ALL PEAK HOURS

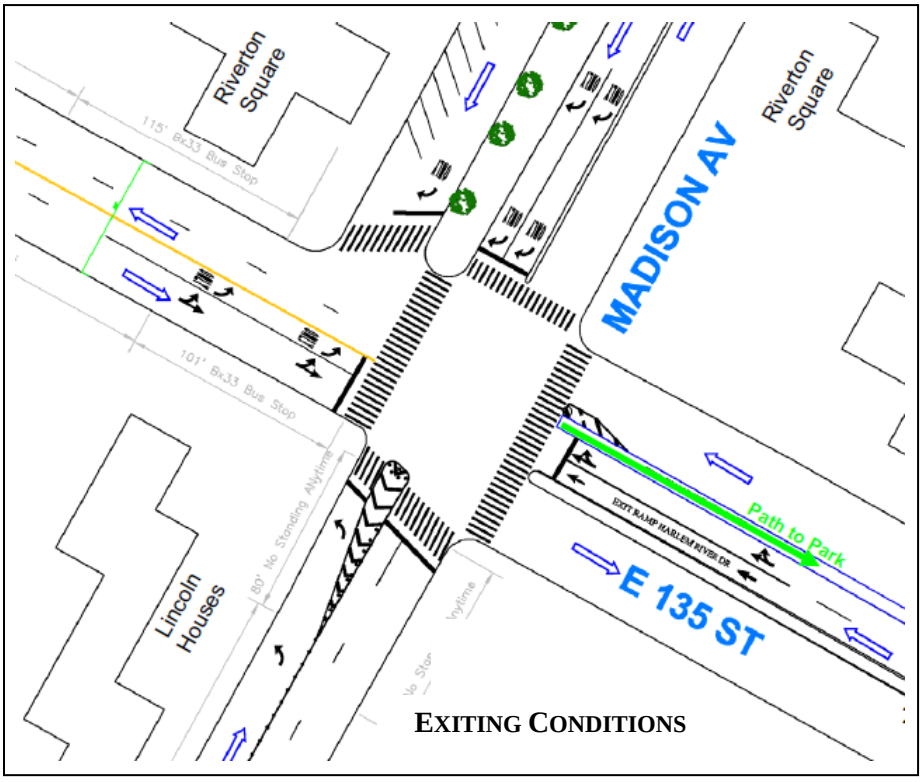
2) Madison Avenue and East 135th Street

This intersection is being reconfigured based on Pedestrian Project Group proposal. It includes the following changes:

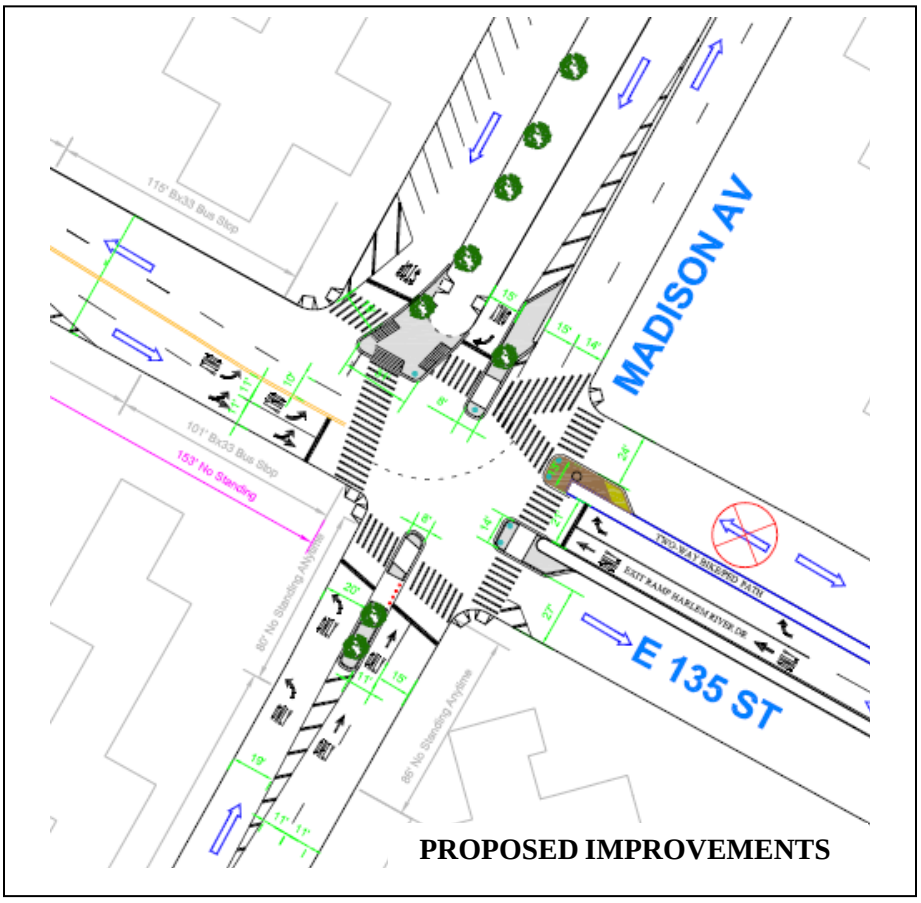
- Shorting crosswalks at the intersection;
- Reverse direction of service road parallel to 135th Street and north of Harlem River Drive exit from westbound to eastbound;
- Consolidate two bus stops on 135th Street between Fifth and Madison Avenues for the eastbound Bx33;
- Install concrete curb extension with bollards; and
- Create new pedestrian safety islands with plantings.

Exhibit 3.1.2 shows the exiting and proposed configuration for the location.

EXHIBIT 3.1.2



Source: DOT Pedestrian Project Group

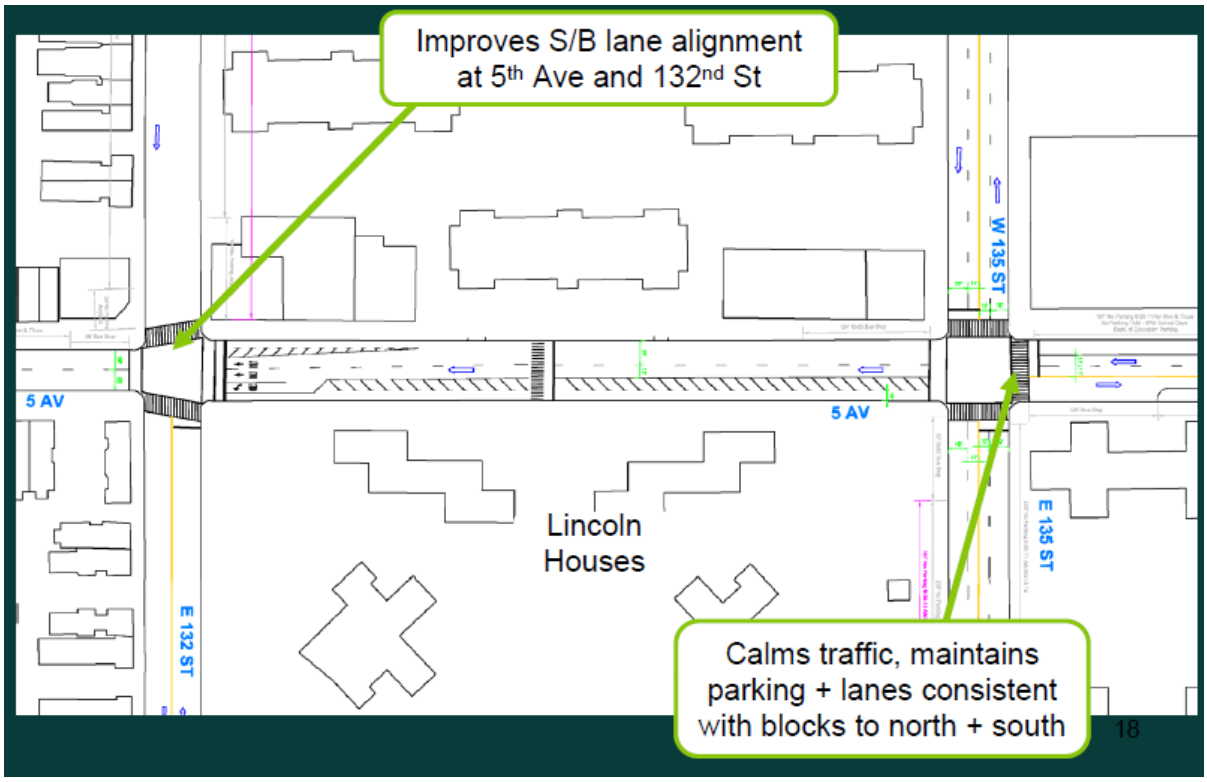


3) Fifth Avenue and 135th Street and Fifth Avenue and 132nd Street

The Pedestrian Project Group recommended changes to these intersections that include restriping approaches to maintain consistency with the number of lanes (parking and moving lanes) feeding into it, lessening pedestrian exposure to traffic.

Exhibit 3.1.3 shows the proposed changes at the intersections.

EXHIBIT 3.1.3



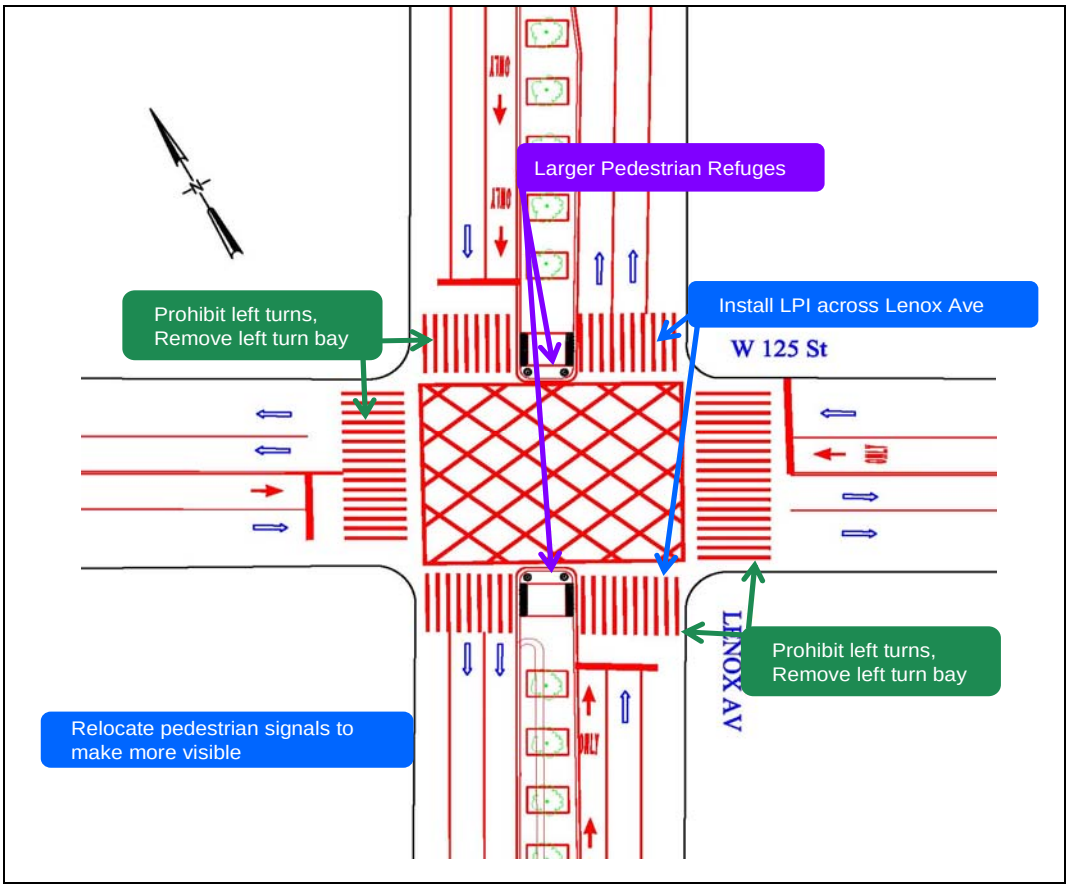
Source: DOT Pedestrian Project Group

4) Lenox Avenue and W 125th Street

This intersection is located in a busy retail corridor, with heavy pedestrian volumes and accommodates transit services such as buses and subways stops. This location was identified for early improvement to alleviate congestion and improve vehicular operation and pedestrian movements. The following measures have been implemented (Exhibit 3.1.4).

- Widening and extension of the median tip through crosswalk, creating a larger pedestrian refuge;
- Prohibit left turns at all times on all approaches to; and
- Installation of a LPI for Lenox Avenue and relocation of pedestrian signals for better visibility.

Exhibit 3.1.4

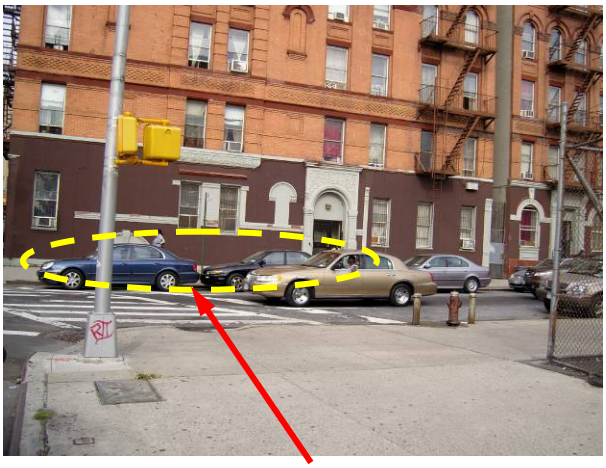


Source: NYCDOT - Office of Research, Implementation & Safety presentation April, 2010

5) Morningside Avenue and West 126th Street

At the intersection of Morningside Avenue and West 126th Street, a number of improvement measures are recommended to improve traffic operation and safety for all street users. They are listed below:

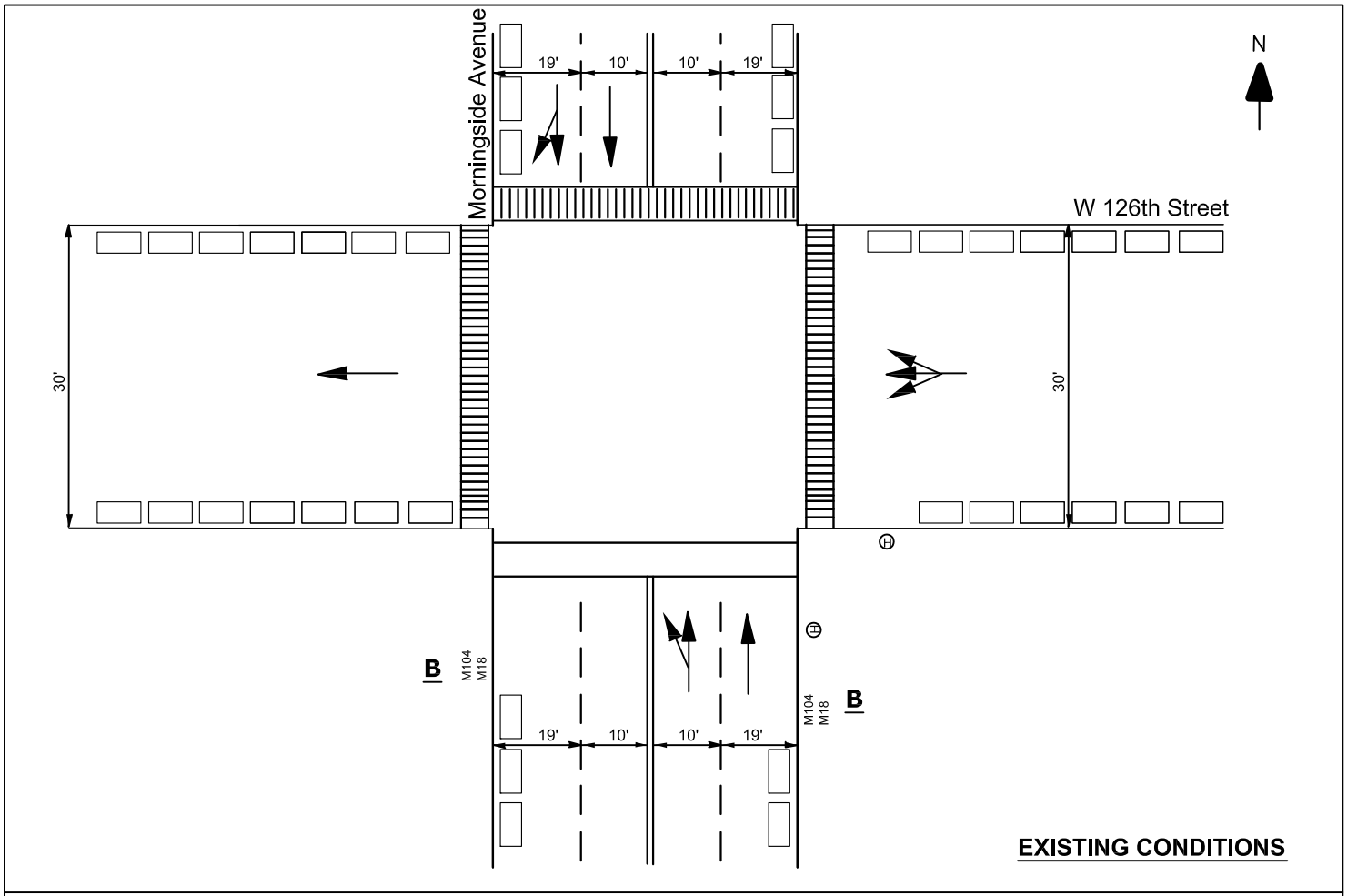
- Remove parking on the WB approach of the intersection and receiving lane for 100 feet from the intersection during all peak periods, and install a No Standing Anytime (7am to 7pm) except Sunday sign; and
- Restripe WB approach to provide two travel lanes of 11 feet each and one parking lane (south curb).

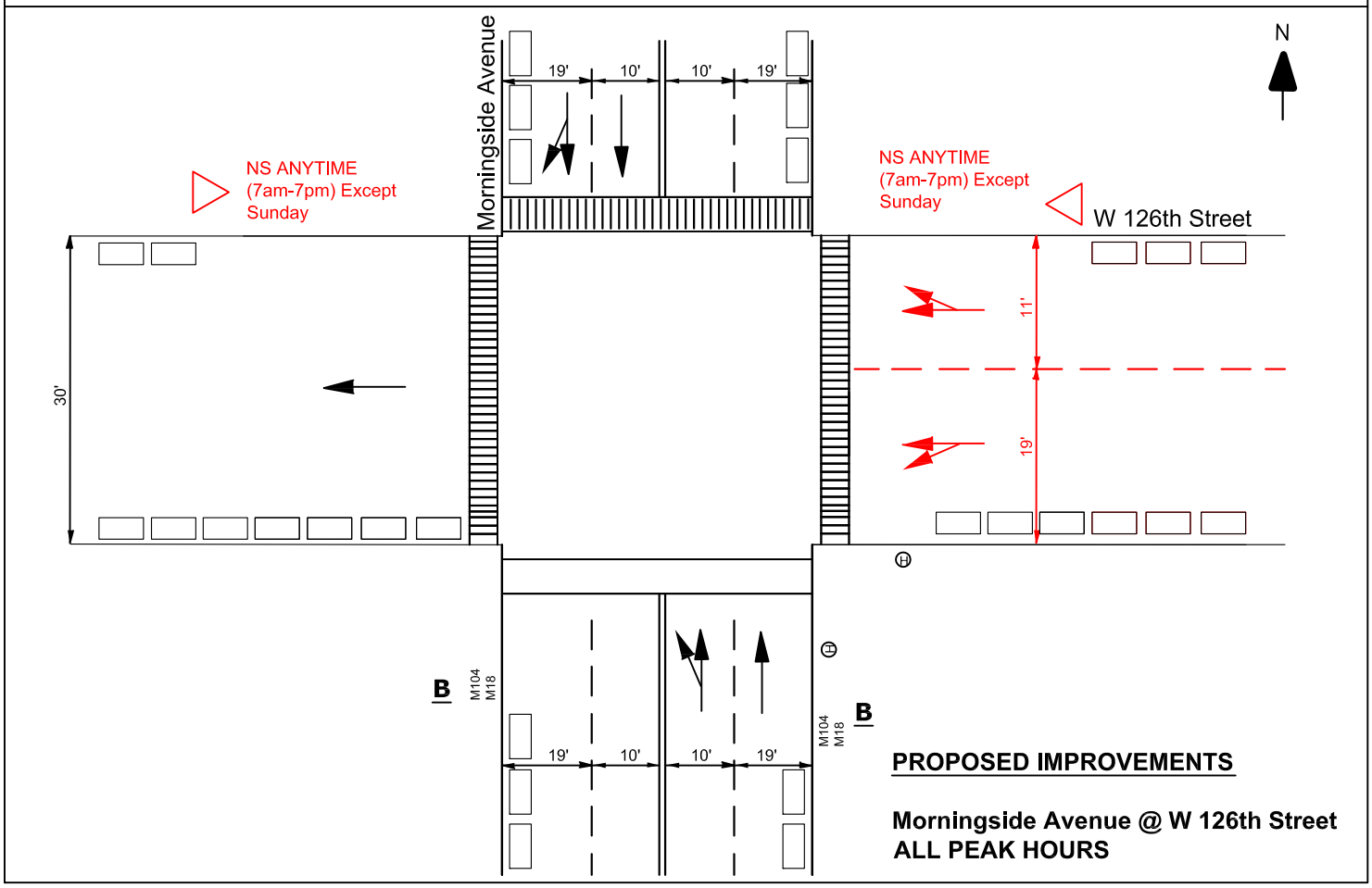


W 126th Street WB at Morningside Avenue, looking east
Remove north curb parking/Restripe WB approach

Exhibit 3.1.5 shows the proposed improvements for the intersection of Morningside Avenue/ W 126th Street.

Exhibit 3.1.5


Morningside Avenue
W 126th Street
N
19'
10'
10'
19'
30'
30'
B
M104
M18
EXISTING CONDITIONS


Morningside Avenue
W 126th Street
N
NS ANYTIME
(7am-7pm) Except
Sunday
NS ANYTIME
(7am-7pm) Except
Sunday
11'
19'
30'
B
M104
M18
PROPOSED IMPROVEMENTS
Morningside Avenue @ W 126th Street
ALL PEAK HOURS

6) First and Second Avenues

In order to improve mobility and safety for all street users and replace the current 8.5-mile M15 Limited bus route in Manhattan, on October 2010 the New York City Department of Transportation in cooperation with New York City Transit implemented a Bus Rapid Transit/Select Bus Service (SBS) on First and Second Avenues between 126th Street and the South Ferry Terminal. Sections south of Houston Street will have an SBS service which will operate in mixed traffic due to street width constraints. While intersections north of Houston Street will have a dedicated bus lane. Offset bus lanes will not conflict with parking, deliveries, or right turns.

The MTA/NYCT will implement approximately 40 SBS (20 SBS stations/corridor) stations. The proposed SBS service will operate seven days per week—between 5:00 AM and 11:00 PM on weekdays and between 6:00 AM and 10:00 PM on weekends—similar to the existing M15 Limited service. In 2011, DOT will install twelve (12) extended sidewalk bus bulbs (ten on First Avenue and two on Second Avenue) at select locations as well as bicycle lanes, dedicated left-turn pockets and green pedestrian refuge islands.

Exhibit 3.1.6 and 3.1.7 show a standard configuration of the BRT/SBS along First and Second Avenues.

Exhibit 3.1.6: First Avenue standard configuration

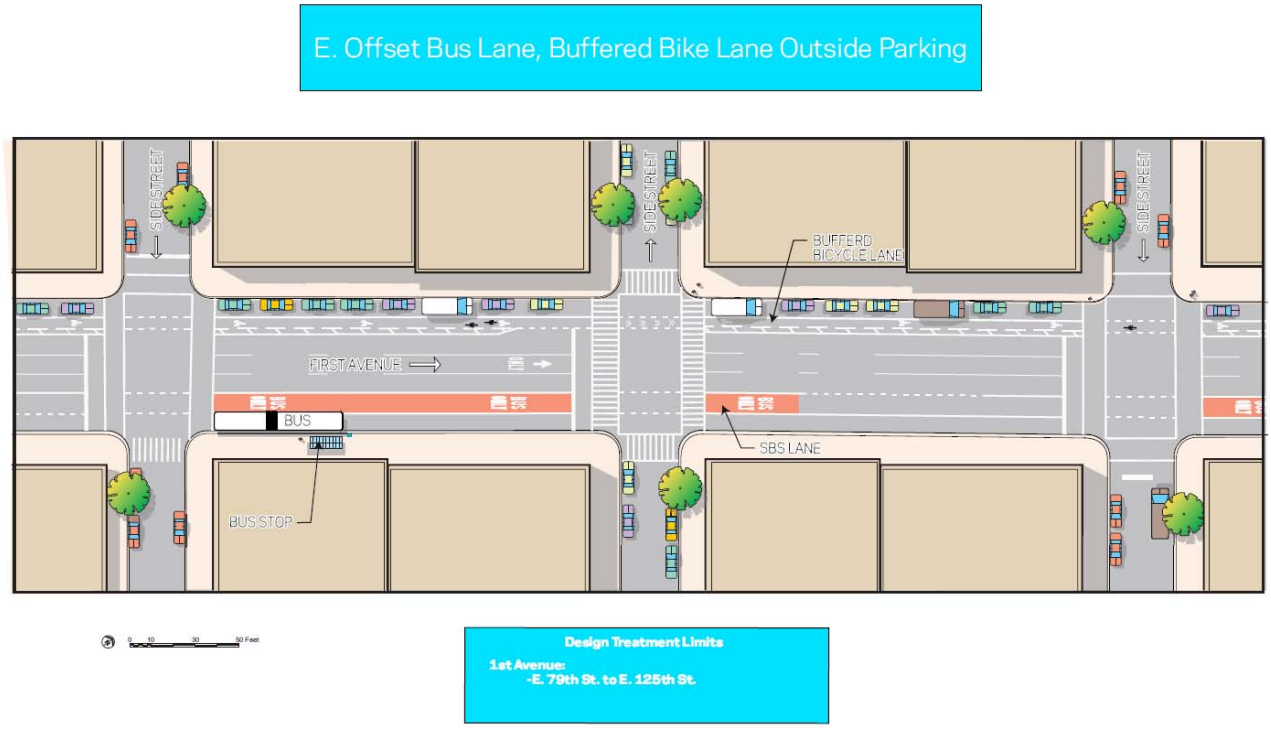
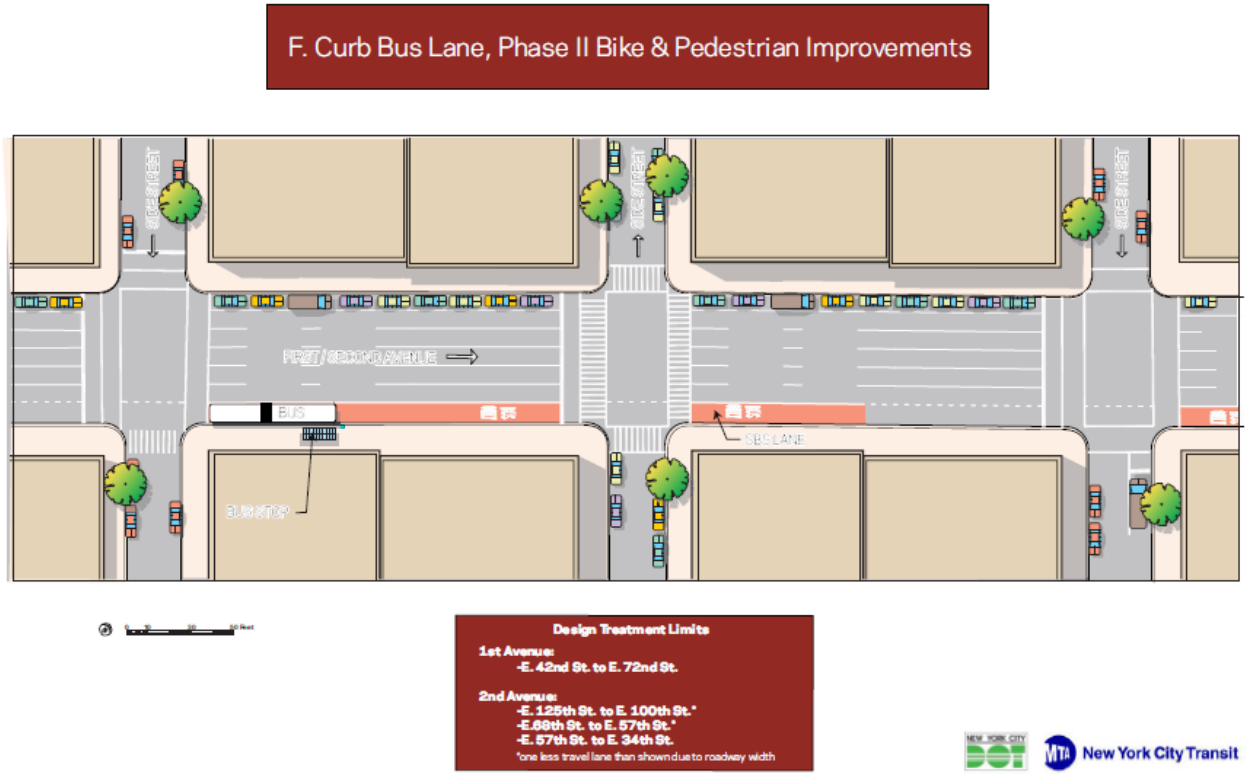


Exhibit 3.1.7: Second Avenue standard configuration



Source: First and Second Avenues SBS Draft document, 2010

7) Extension of W 129th Street from Seventh Avenue to Eight Avenue

The "***New Harlem Children's Zone Chapter School and New Affordable Housing at St Nicholas Housing, Manhattan"*** project to be built by 2011 includes a proposal to re-open West 129th Street, connecting 8th Avenue to Adam Clayton Powell Jr. Boulevard.

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This section of West 129th Street which is currently a private street that ends in a cul-de-sac, will operate as a one-way westbound between Adam Clayton Powell Jr. Boulevard and Frederick Douglass Boulevard. The proposed street extension will coincide with the opening of the proposed school.

The intersections of West 129th St @ Adam Clayton Powell Jr. Boulevard and West 129th Street @ Frederick Douglass Boulevard will be designed as standard intersection.

8) St Nicholas Avenue Corridor Improvements

St. Nicholas Avenue runs diagonally from Central Park North (110th Street) to West 125th Street, thus passing through a significant part of the study area. The Corridor in the last few years have been undergoing changes through a number of revitalization and streetscape improvement projects aimed at enhancing drivers, pedestrians, bicyclists, and residents experience.

The corridor is mainly residential in nature with some commercial activities, and a police station located between West 122nd and West 123rd Streets with angle parking. The corridor operates differently throughout its length, switching between one-way and two-way operation with different lane configurations. Between West 111th Street and West 115th Street it consists of two moving lanes and one parking lane in each direction. Between West 115th and West 116th Streets it operates one way northbound, and from West 117th to West 116th Street operates one way southbound, angle parking is provided on both segments of the street.

The section between West 117th and West 124th streets operates two-way with one moving lane, and one parking lane. From 118th Street to 125th Street a bike lane is added to the configuration in each direction.

The existing condition traffic analysis for the four intersections along this corridor shows that they operate at acceptable overall level of service (LOS) D or better. Because of its configuration and the fact that it connects Central Park to 125th Street, the 15 block segment has a great potential for streetscape enhancements. As such a plan is being developed to maximize the use of public space for parks while enhancing the walkability, pedestrian experience and livability for residents on St Nicholas Avenue. Preliminary design for streetscape improvements is currently being worked on.

The plan's main objectives are to:

- Improve safety by slowing traffic along the corridor,
- Reduce the volume of through-traffic along the corridor,
- Convert some segments of the street from two-way to one way operation,
- Add public spaces, simplify complex intersections, reduce number of lanes and / or widen sidewalks,
- Shorten crosswalks reducing pedestrian exposure to vehicular traffic,
- Landscape corridor,
- Provide and improve bicycle facilities to encourage additional ridership,
- Preserve as much on-street parking as possible, and
- Convert the north- and south-bound on-street bicycle lanes into a combined two-way bike path protected by parking.

9) West 125th Street Streetscaping

NYCEDC is undertaking streetscape and transportation improvements along West 125th Street including sidewalk widening; roadway alignment; and installing new street lights, trees, benches, trash receptacles, and bus stops. All of which will enhance the connections between Manhattanville and the new West Harlem Piers Park. The project will also include illuminating the underside of the Riverside Drive viaduct at the intersection of West 125th Street and 12th Ave, as well as the 1 train viaduct at the West 125th Street and Broadway intersection.

SIGNAL TIMING IMPROVEMENTS

To improve traffic operation signal timing changes are proposed for twelve locations, listed below.

1. **Park Avenue and East 116th Street**
    - Shift 4 seconds of green time from EB/WB to NB/SB phase during the AM peak period.

2. **Fifth Avenue and 116th Street**
    - Shift 4 seconds of green time from SB phase to EB/WB phase during the AM peak period.

3. **Lenox Avenue and West 126th Street**
    - Shift 3 seconds, and 2 seconds of green time from WB phase to NB/SB phase during the AM and Saturday Midday peak periods, respectively.

4. **Lenox Avenue and West 135th Street**
    - Shift 4 seconds of green time from NB/SB phase to EB/WB phase during the AM peak period.

5. **Seven Avenue and Adam Clayton/W 116th Street**
    - Shift 3 seconds of green time from NB/SB phase to EB/WB phase during the AM peak period.

6. **Seven Avenue and Adam Clayton/W 135th Street**
    - Shift 4 seconds, and 3 seconds of green time from NB/SB phase to EB/WB phase during the AM, and Midday peak periods, respectively.

7. **Manhattan Avenue and West 125th Street**
    - Shift 3 seconds of green time from EB/WB phase to NB/SB phase during the AM, Midday, PM, and Saturday Midday peak periods.

8. Amsterdam Avenue and West 120th Street

- Shift 3 seconds of green time from NB/SB phase to EB/WB phase during the AM and PM peak periods.

9. Broadway and West 120th Street

- Shift 4 seconds of green time from NB/SB to EB/WB phase during the AM, Midday, and PM peak periods.

10. Broadway and West 125th Street

- Take 2 seconds of green time from EB/WB, and 1 second of green time from SB phase and add 3 seconds to NB phase during the AM peak period,
- Shift 2 seconds of green time from EB/WB phase to the NB phase during the Midday peak period, and
- Take 1 seconds of green time from EB/WB phase, and 1 second of green time from SB phase to add 2 seconds to NB phase during the PM peak period.

11. Broadway (NB) and West 135th Street

- Shift 3 seconds and 2 seconds of green time from NB phase to the EB/WB during the PM and Saturday Midday peak periods, respectively.

12. Twelve Avenue and West 133rd Street

- Shift 2 seconds of green time from WB phase to NB/SB phase during the AM peak period.

Table 3.1.1 to 3.1.4 list the improvement measures proposed for each location and the HCS summary results for the various peak hours.

Table 3.1.1

Proposed Improvement Measures - AM PEAK

INTERSECTION	EXISTING CONDITIONS								
	Lane Group		Existing V/C	Existing DELAY	Existing LOS	Proposed Improvements	with improvements V/C	with improvements DELAY	with improvements LOS
Park Ave @ E 116th St	NB	LTR	0.32	14.7	B	1) Shift 4 sec of green time from EB/WB to NB/SB	0.30	12.2	B
	SB	LTR	1.04	68.1	E	phase	0.96	43.0	D
	EB	LTR	0.57	24.4	C	NB/SB-45 to 49	0.65	29.3	C
	WB	LTR	0.68	27.3	C	EB/WB-35 to 31	0.78	34.2	C
Intersection LOS				**40.1**	**D**			**33.8**	**C**
Park Ave @ E 132nd St	NB	LR	0.29	11.0	B	1) Remove parking on NB approach for 100 feet from the intersection, Install a "NS Anytime 7am-7pm except Sunday" sign	0.30	12.5	B
						2) Restripe NB approach to provide 2 lanes 11 feet	0.05	8.0	A
	SB	LTR	0.63	14.2	B	wide (LT/TR)	0.65	14.8	B
	EB	TR	0.30	25.3	C		0.30	25.3	C
Intersection LOS				**15.9**	**B**			**16.2**	**B**
5th Ave @ E 116th St	SB	LTR	0.49	15.9	B	1) Shift 4 sec of green time from SB to EB/WB phase	0.54	19.0	B
	EB	TR	0.65	26.0	C		0.58	21.7	C
	WB	LT	1.04	75.8	E	SB-45 to 41, EB/WB-35 to 39	0.92	43.8	D
Intersection LOS				**36.1**	**D**			**26.9**	**C**
Lenox Ave @ W 126th St	NB	L	1.01	84.9	F	1) Shift 5 sec of green time from WB to NB/SB phase	0.74	51.3	D
		T	0.42	18.1	B		0.37	14.6	B
	SB	TR	0.90	34.3	C	WB-40 to 35	0.80	23.8	C
	WB	LTR	0.57	20.6	C	NS/SB-40 to 45	0.66	25.9	C
Intersection LOS				**30.3**	**C**			**23.4**	**C**
Lenox Ave @ W 135th St	NB	L	0.14	12.8	B	1) Shift 4 sec of green time from NB/SB phaseto	0.18	16.5	B
		TR	0.59	15.7	B	EB/WB phase	0.65	19.2	B
	SB	L	0.49	20.5	C	EB/WB-31 to 35	0.56	27.3	C
		TR	0.82	22.3	C	NS/SB-49 to 45	0.90	30.1	C
	EB	LTR	0.95	58.8	E		0.80	35.6	D
	WB	LTR	1.04	75.2	E		0.92	43.7	D
Intersection LOS				**37.8**	**D**			**31.2**	**C**
7th Ave/Adam Clayton @ W 116th St	NB	LTR	0.41	12.8	B	1) Shift 3 sec of green time from NB/SB phase to	0.44	14.8	B
	SB	LTR	0.67	16.6	B	EB/WB phase	0.71	19.5	B
	EB	LTR	0.86	41.8	D	EB/WB-31 to 34	0.76	31.9	C
	WB	LTR	1.02	69.9	E	NB/SB-49 to 46	0.90	43.2	D
Intersection LOS			**0.80**	**31.3**	**C**			**25.6**	**C**
7th Ave/Adam Clayton @ W 135th St	NB	LTR	0.48	13.7	B	1) Shift 4 sec of green time from NB/SB phase to	0.50	15.6	B
	SB	LTR	0.90	26.4	C	EB/WB phase	0.96	35.6	D
	EB	LTR	0.56	28.9	C	EB/WB-31 to 35	0.32	24.7	C
	WB	L	0.90	67.3	E	NB/SB-49 to 45	0.76	42.6	D
		TR	1.02	78.0	E		0.81	34.3	C
Intersection LOS				**33.8**	**C**			**30.3**	**C**
St Nicholas Avenue @ W 125th St	NB	LTR				1) Shift 3 sec of green time from EB/WB phase to			
		TR	0.52	27.5	C	NB/SB phase	0.48	24.2	C
	SB	LTR				EB/WB-49 to 46			
		TR	1.00	59.8	E	NB/SB-31 to 34	0.91	41.0	D
	EB	LTR	0.72	20.1	C		0.78	24.7	C
	WB	L							
		LTR	0.52	14.8	B		0.56	17.3	B
		TR							
Intersection LOS				**30.6**	**C**			**27.1**	**C**
Morningside Ave @ W 126th St	NB	LT	0.16	8.2	A	1) Remove parking on north curb WB approach and WB receiving lanes 100 feet from the intersection-Post NS Anytime 7-7pm except Sunday sign	0.16	8.2	A
	SB	TR	0.16	8.2	A		0.16	8.2	A
	WB	LTR	1.02	86.1	F	2) Restripe WB approach to provide 2 moving lanes	0.50	29.1	C
Intersection LOS				**43.1**	**D**	(LT-TR) + 1 parking lane (south curb)		**17.6**	**B**
Amsterdam Ave @ W 120th St	NB	LTR	0.55	4.9	A	1) Shift 3 sec of green time from NB/SB phase to	0.58	6.9	A
	SB	LTR	0.52	4.6	A	EB/WB phase	0.55	6.4	A
	EB	L	0.34	35.6	D	EB/WB-20 to 23	0.29	31.0	C
		TR	0.77	50.8	D	NB/SB-60 to 57	0.67	40.0	D
	WB	L	0.07	28.6	C		0.05	25.9	C
		TR	0.33	32.8	C		0.28	29.3	C
Intersection LOS				**13.7**	**B**			**13.3**	**B**

Table 3.1.1

Proposed Improvement Measures - AM PEAK

INTERSECTION	EXISTING CONDITIONS									
	Lane Group		Existing V/C	Existing DELAY	Existing LOS	Proposed Improvements	with improvements V/C	with improvements DELAY	with improvements LOS
Broadway @ W 120th St	NB	LTR	0.29	9.1	A	1) Shift 5 sec of green time from NB/SB to EB/WB phase	0.32	11.8	B
	SB	LTR	0.44	10.5	B		0.48	13.7	B
	EB	LTR	0.34	26.6	C	EB/WB-26 to 31	0.28	22.3	C
	WB	LTR	1.05	102.1	F	NB/SB-54 to 49	0.87	55.5	E
Intersection LOS				**25.4**	**C**			**20.3**	**C**
Broadway @ W 125th St	NB	L	0.43	32.0	C	1) Take 2 sec of green time from EB/WB phase and 1 sec from SB only phase and add 3 sec to the NB only phase	0.38	28.6	C
		LT	0.49	31.8	C		0.43	28.5	C
		R	0.90	74.6	E	EB/WB- 31 to 29 sec	0.78	52.5	D
	SB	L	0.32	29.9	C	SB only 22 to 21 sec	0.34	31.0	C
		LTR	0.80	40.9	D	NB only 22 to 25 sec	0.84	44.5	D
	EB	L	0.41	28.7	C		0.45	32.4	C
		TR	0.58	27.0	C		0.62	29.4	C
	WB	L	0.60	39.1	D		0.66	46.6	D
		TR	0.62	27.8	C		0.66	30.4	C
Intersection LOS				**35.2**	**D**			**35.3**	**D**
12th Ave @ W 133rd St	NB	L	0.96	50.0	D	1) Shift 2 sec of green time from WB to NB/SB phase	0.92	39.7	D
		LTR	0.19	10.9	B		0.18	9.9	A
	SB	LTR	0.30	12.2	B	EB/WB-31 to 29	0.29	11.0	B
	WB	LTR	0.48	26.8	C	NB/SB-49 to 51	0.52	29.2	C
Intersection LOS				**32.4**	**C**			**27.7**	**C**

Note:

Lane group with delay greater than 45 second

Table 3.1.2

Proposed Improvement Measures - MD PEAK

INTERSECTION	EXISTING CONDITIONS								
	Lane Group		Existing V/C	Existing DELAY	Existing LOS	Proposed Improvements	with improvements V/C	with improvements DELAY	with improvements LOS
Park Ave @ E 132nd St	NB	LR	0.27	10.5	B	1) Remove parking on NB approach for 100 feet from the intersection, Install "NS Anytime 7-7pm except Sunday" sign	0.21	9.9	A
						2) Restripe NB approach to provide 2 lanes 11 feet wide (LT/TR)	0.05	7.9	A
	SB	LTR	0.66	16.6	B		0.59	16.2	B
	EB	TR	0.50	29.7	C		0.50	29.7	C
Intersection LOS				**19.2**	**B**			**18.7**	**B**
7th Ave/Adam Clayton @ W 135th St	NB	LTR	0.4	12.7	B	1) Shift 3 sec of green time from NB/SB phase to EB/WB phase	0.43	14.6	B
	SB	LTR	0.36	12.2	B		0.39	14.1	B
	EB	LTR	0.55	28.4	C	EB/WB-31 to 34	0.50	24.9	C
	WB	L	0.39	27.1	C	NB/SB-49 to 46	0.34	23.4	C
		TR	0.87	48.9	D		0.79	38.0	D
Intersection LOS				**21.4**	**C**			**20.2**	**C**
St Nicholas Avenue @ W 125th St	NB	LTR	0.66	32.7	C	1) Shift 3 sec of green time from EB/WB phase to NB/SB phase	0.60	28.1	C
		TR							
	SB	LTR	0.9	54.2	D	EB/WB-49 to 46	0.81	40.1	D
		TR				NB/SB-31 to 34			
	EB	LTR	0.73	20.7	C		0.80	26.1	C
	WB	L	0.14	11.2	B		0.15	13.0	B
		LTR							
		TR	0.76	24.3	C		0.81	29.9	C
Intersection LOS				**29.9**	**C**			**29.9**	**C**
Morningside Ave @ W 126th St	NB	LT	0.12	8.0	A	1) Remove parking on north curb WB approach and WB receiving lanes 100 feet from the intersection-Post NS Anytime 7-7pm except Sunday sign	0.12	7.9	A
	SB	TR	0.15	8.1	A		0.15	8.1	A
	WB	LTR	0.82	49.4	D	2) Restripe WB approach to provide 2 moving lanes (LT-TR) + 1 parking lane (south curb)	0.40	27.4	C
Intersection LOS				26.2	C			**16.6**	**B**
Broadway @ W 120th St	NB	LTR	0.26	8.8	A	1) Shift 5 sec of green time from NB/SB phase to EB/WB phase	0.29	11.4	B
	SB	LTR	0.36	9.8	A		0.40	12.7	B
	EB	LTR	0.25	25.4	C	EB/WB-26 to 31	0.21	21.4	C
	WB	LTR	0.87	61.3	E	NB/SB-54 to 49	0.71	38.5	D
Intersection LOS				**18**	**B**			**16.6**	**B**
Broadway @ W 125th St	NB	L	0.48	33.3	C	1) Shift 2 sec of green time from EB/WB phase to the NB only phase	0.44	30.7	C
		LT	0.84	45.1	D		0.77	38.5	D
		R	0.71	49.7	D	EB/WB- 31 to 29 sec	0.63	41.3	D
	SB	L	0.35	30.4	C	SB only 22	0.35	30.4	C
		LTR	0.59	33.7	C	NB only 22 to 24 sec	0.59	33.7	C
	EB	L	0.38	27.4	C		0.42	30.4	C
		TR	0.56	26.5	C		0.60	28.9	C
	WB	L	0.29	25.8	C		0.32	28.6	C
		TR	0.56	26.5	C		0.59	28.8	C
Intersection LOS				33.7	C			**32.7**	**C**

Note:

Lane group with delay greater than 45 second

Table 3.1.3
Proposed Improvement Measures - PM PEAK

INTERSECTION	EXISTING CONDITIONS									
	Lane Group		Existing V/C	Existing DELAY	Existing LOS	Proposed Improvements	with improvements V/C	with improvements DELAY	with improvements LOS
Park Ave @ E 132nd St	NB	LR	1.03	92.8	F	1) Remove parking on NB approach for 100 feet from the intersection, Install a "NS Anytime 7-7pm except Sunday" sign	0.81	43.0	D
						2) Restripe NB approaches to provide 2 lanes of 11 feet wide (LT/TR)	0.15	8.7	A
	SB	LTR	0.77	17.9	B		0.75	15.3	B
	EB	TR	0.51	28.5	C	3) Shift 3 sec of green time from EB phase to NB/SB phase EB-27 to 24, NB/SB-53 to 56	0.57	32.1	C
Intersection LOS				**28.3**	**C**			**21.5**	**C**
Manhattan Ave @ W 125th St	NB	LTR				1) Shift 3 sec of green time from EB/WB to NB/SB phase			
		TR	0.75	35.1	D		0.68	29.6	C
	SB	LTR				EB/WB-49 to 46			
		TR	0.97	53.6	D	NB/SB-31 to 34	0.88	38.2	D
	EB	LTR	0.80	23.6	C		0.86	29.8	C
	WB	L							
		LTR	0.46	13.8	B		0.50	16.0	B
		TR							
Intersection LOS				**30.4**	**C**			**28.4**	**C**
Morningside Ave @ W 126th St	NB	LT	0.23	8.8	A	1) Remove parking on north curb WB approach and WB receiving lanes 100 feet from the intersection- Post NS Anytime 7-7pm except Sunday sign	0.23	8.8	A
	SB	TR	0.19	8.4	A		0.19	8.4	A
	WB	LTR	1.03	86.3	F	2) Restripe WB approach to provide 2 moving lanes (LT-TR) + 1 parking lane (south curb)	0.50	29.0	C
Intersection LOS				**40.3**	**D**			**16.9**	**B**
Amsterdam Ave @ W 120th St	NB	LTR	0.55	4.9	A	1) Shift 3 sec of green time from NB/SB to EB/WB phase	0.82	13.3	B
	SB	LTR	0.52	4.6	A		0.33	4.4	A
	EB	L	0.34	35.6	D	EB/WB-20 to 23	0.52	39.3	D
		TR	0.77	50.8	D	NB/SB-60 to 57	0.43	32.0	C
	WB	L	0.07	28.6	C		0.00	25.0	C
		TR	0.33	32.8	C		0.23	28.3	C
Intersection LOS				**13.7**	**B**			**14.9**	**B**
Broadway @ W 120th St	NB	LTR	0.46	10.8	B	1) Shift 4 sec of green time from NB/SB phase to EB/WB phase	0.50	13.4	B
	SB	LTR	0.41	10.3	B		0.44	12.7	B
	EB	LTR	0.37	27.1	C	EB/WB-26 to 30	0.32	23.5	C
	WB	LTR	0.98	82.3	F	NB/SB-54 to 50	0.78	44.4	D
Intersection LOS				**21.6**	**C**			**18.3**	**B**
Broadway @ W 125th St	NB	L	0.84	51.3	D	1) Take 1 sec of green time from EB/WB phase and 1 sec from SB only phase and add 2 sec to the NB only phase	0.77	43.0	D
		LT	0.67	35.7	D		0.62	32.5	C
		R	0.62	42.9	D	EB/WB- 31 to 30 sec	0.56	37.6	D
	SB	L	0.54	34.5	C	SB only 22 to 21 sec	0.57	36.2	D
		LTR	0.60	34.0	C	NB only 22 to 24 sec	0.63	35.6	D
	EB	L	0.42	30.1	C		0.44	32.1	C
		TR	0.70	30.3	C		0.73	32.0	C
	WB	L	0.40	30.1	C		0.43	32.3	C
		TR	0.66	29.2	C		0.69	30.7	C
Intersection LOS				**34.9**	**C**			**34.2**	**C**
Broadway NB @ W 135th St	NB	LTR	0.56	8.4	A	1) Shift 3 sec of green time from NB phase to the EB/WB phase	0.60	10.8	B
	EB	DefL	0.82	58.1	E		0.72	43.1	D
		LT				NB -53 to 50			
		T	0.35	26.5	C	EB/WB -27 to 30	0.32	23.1	C
	WB	TR	0.48	28.7	C		0.43	25.5	C
Intersection LOS				20.2	C			**18.8**	**B**

Note:

Lane qroup with delay greater than 45 second

Table 3.1.4
Proposed Improvement Measures - Sat MD PEAK

INTERSECTION	EXISTING CONDITIONS								
	Lane Group		Existing V/C	Existing DELAY	Existing LOS	Proposed Improvements	with improvements V/C	with improvements DELAY	with improvements LOS
Park Ave @ E 132nd St	NB	LR	0.20	9.5	A	1) Remove parking on NB approach for 100 feet from the intersection, Install a "NS Anytime 7-7pm except Sunday" sign	0.16	8.6	A
						2) Restripe NB approaches to provide 2 lanes of 11 feet wide (LT/TR)	0.06	7.2	A
	SB	LTR	1.02	55.6	E		0.97	40.3	D
	EB	TR	0.38	26.3	C	3) Shift 2 sec of green time from EB to NB/SB phase EB-27 to 25, NB/SB-53 to 55	0.41	28.3	C
Intersection LOS				**44.7**	**D**			**34.7**	**C**
Lenox Ave @ W 126th St	NB	L	0.74	52.5	D	1) Shift 2 sec of green time from WB phase to NB/SB phase	0.67	41.5	D
		T	0.65	22.3	C		0.62	20.3	C
	SB	TR	0.75	25.1	C	WB- 40 to 38	0.71	22.6	C
	WB	LTR	0.23	15.8	B	NB/SB- 40 to 42	0.24	17.1	B
Intersection LOS				**23.6**	**C**			**21.6**	**C**
St Nicholas Avenue @ W 125th St	NB	LTR TR	0.70	33.9	C	1) Shift 3 sec of green time from EB/WB phase to NB/SB phase	0.64	28.8	C
	SB	LTR TR	1.00	72.0	E	EB/WB-49 to 46 NB/SB-31 to 34	0.89	46.8	D
	EB	LTR	0.64	17.4	B		0.70	21.0	C
	WB	L LTR	0.17	11.5	B		0.19	13.4	B
		TR	0.68	20.2	C		0.73	24.1	C
Intersection LOS				**32.9**	**C**			**28.6**	**C**
Morningside Ave @ W 126th St	NB	LT	0.18	8.4	A	1) Remove parking on north curb WB approach and WB receiving lanes 100 feet from the intersection- Post NS Anytime 7-7pm except Sunday sign	0.17	8.3	A
	SB	TR	0.18	8.3	A		0.18	8.3	A
	WB	LTR	0.88	55.6	E	2) Restripe WB approach to provide 2 moving lanes (LT-TR) + 1 parking lane (south curb)	0.14	27.8	C
Intersection LOS				**27.5**	**C**			**16.2**	**B**
Broadway NB @ W 135th St	NB	LTR	0.52	7.9	A	1) Shift 2 sec of green time from NB phase to the EB/WB phase NB -53 to 51 EB/WB -27 to 29	0.54	9.3	A
	EB	DefL LT	0.69	45.3	D		0.64	38.7	D
		T	0.34	26.4	C		0.32	24.1	C
	WB	TR	0.49	28.7	C		0.45	26.5	C
Intersection LOS				18.4	B			**17.8**	**B**

Note:

Lane group with delay greater than 45 second

Accidents and Safety

Based on the accident analysis in the earlier part of the report and field observations at the fourteen locations that were identified, the following safety improvement measures are recommended:

1) Installation of pedestrian countdown signals;
2) Installation of "Turning Vehicles Yield to Pedestrians" signs;
3) Installation of "Cross only during Walk Signal" on each corner to discourage pedestrians from crossing without the walk symbol; and
4) Restripe crosswalks on all approaches to clearly designate the proper path for pedestrians to safely cross the intersection.

Locations:

1 E. 125th Street/Lexington Avenue
2 W. 125th Street/7th Avenue
3 W. 125th Street/Amsterdam Avenue
4 W. 125th Street/Lenox Avenue
5 W. 125th Street/8th Avenue
6 W. 125th Street/St. Nicholas Avenue
7 E. 125th Street/Park Avenue SB
8 E. 116th Street/2nd Avenue
9 E. 125th Street/5th Avenue
10 W. 116th Street/Lenox Avenue
11 E. 116th Street/Lexington Avenue
12 E. 125th Street/Madison Avenue
13 W. 124th Street/8th Avenue
14 E. 117th Street/1st Avenue

3.2 Public Transportation – Subway and Buses

From the analysis presented earlier in the report with respect to subway all station elements will operate at LOS C or better during all peak periods under future conditions.
In the case of buses, the analysis using a standard bus indicated that several bus routes will operate above capacity during the various peak hours. This is due to the future demand based on new person trips generated by proposed actions and developments. The following are the peak periods and bus routes that will operate above capacity:

- Two routes during the AM Peak Period: (M100 southbound and Bx15 northbound);
- One route during the Midday Peak Period: (Bx15 north and southbound);
- Four routes during the PM Peak Period: (M60 east and westbound, M100 northbound, M116 east and westbound and Bx15 north and southbound); and
- Two routes during the Saturday Peak Period: (M116 eastbound and Bx15 southbound).

To satisfy the increased demand on these routes would require changes in service by increasing the frequency along the route or increase the size of the bus from a standard 65 persons capacity to an articulated of 93 persons capacity.

NYC Transit policy is to regularly monitor bus transit ridership and modify service, to reflect ridership changes and to maintain service standards within their fiscal and operating constraints. Hence NYC Transit will develop an appropriate response to the future demand.

3.3 Pedestrian and Bicycle

3.3.1 Pedestrians

The future conditions pedestrian level of service (LOS) analysis revealed acceptable LOS for sidewalks. However, a number of pedestrian improvement initiatives are advanced by other studies and actions in the Study Area (Manhattanville Rezoning, 125th St Streetscape, West Harlem Master Plan).

a) 125th Street and Broadway

- Install neckdowns to reduce crossing width,
- Widen sidewalks and crosswalk,
- Install a leading pedestrian interval (LPI) to give pedestrians a head start as they cross Broadway, and
- Extend the center median on Broadway.

b) 125th Street and St Nicholas Avenue

The completion of the MTA subway station's elevator relieved congestion at this location where a bottleneck was created on the south sidewalk of 125th Street.

Quality of Pedestrian Environment

Use of Sidewalks – Street Vendors

As described in the existing conditions report, street vendors are an integral part of street life and the 125th Street experience. They are often located adjacent to the curb where a 5 foot strip of street furniture is present. However, several vendors setup in front of buildings reducing the effective width of the sidewalk to 10 feet. It is recommended that the 5 feet wide amenity strip for street furniture along the curb and away from the corners be used for the display of street vendors' items on the sidewalks of 125th Street as a short term solution. Limiting the display of items to the amenity strip would help to open up more sidewalk space

for pedestrians, but also the area immediately in front of the buildings and storefronts would remain unobstructed by street vendors.

In the long term Community Boards, street vendors, elected officials, city agencies, residents, local businesses and other civic organizations should come together in selecting sites for street vending activities. They should decide as a group where and how to manage this activity.

Example of street vendors occupying the amenity strip

Use of Corners - Cluttered Corners

The issue of cluttered corners with newspaper boxes and other street furniture at the intersections of 135th Street and Lenox Avenue, 125th Street and Broadway, 125th Street and St Nicholas Avenue, 125th Street and Amsterdam Avenue, 125th Street and Frederick D. Boulevard etc. should be addressed by enforcing "Executive Order No. 22, Sidewalk Corner Clearances" of April 13, 1995, Title 4, Chapter 7 of the Rules of the City of New York. In general this order states that structures and objects should not be placed in the corner and the corner quadrant of the sidewalks.

135th Street and Fifth Avenue

125th Street and Third Avenue

Examples of newspaper boxes within the 10 feet corner quadrant of the sidewalk corner

In addition, install "consolidated newspaper boxes" that are to be used by publishers who place newspaper boxes on New York City's streets. These newspaper boxes can be similar in size and form to the ones installed by the Grand Central Partnership, but with design features that are unique to 125th Street. This would require coordination with local business improvement districts (BID) and community boards.

Example of a "Consolidated Newspaper Box"
Installed by the Grand Central Partnership in Midtown Manhattan

Pedestrian Street Lighting

Pedestrian scale lighting can enhance and animate the 125th Street commercial streetscape and create a pleasant walking experience for pedestrians at night. This should be advanced through the BID to address operating and maintenance costs.

3.3.2 Bicycles

A- Potential Bicycle Lanes and Routes

Based on the NYC Bicycle Master Plan, the configuration of the traffic network and the traffic analysis the following bicycle lanes and routes will be evaluated for feasibility.

126th Street (from Convent Avenue to First Avenue)

With 126th Street westbound generally being 30 feet wide with parking lanes, but 35 feet between Adam C. Powell Boulevard and Lexington Avenue, the proposal is to stripe a 5-foot wide bicycle lane on the south side of the street similar to that on 119th and 120th Streets. This would require giving up a moving lane or a parking lane. This bicycle facility would take cyclists from the east side to the west side of Manhattan and connect the proposed facilities on both Convent Avenue and First Avenue.

124th Street (from Morningside Avenue to Second Avenue)

124th Street is 30 feet wide and operates one-way eastbound between Morningside Avenue and Second Avenue, except between Lenox and Fifth Avenues where traffic operates westbound. The corridor has a parking lane on both sides and process an average of 200, 140, and 315 vehicles during the AM, MD, and PM peak hours, respectively.

The proposal is to install a 5-foot bicycle lane from Morningside Avenue to Second Avenue comparable to those implemented on 119th and 120th Streets which are also 30 feet wide. The facility will be adjacent to the north parking lane. This bicycle facility would take cyclists from the east side to the west side of Manhattan, it would also connect with the exiting bicycle lane on St Nicholas Avenue.

Between Lenox and Fifth Avenues install guide signs for cyclists to get around the perimeter of Marcus Garvey Park.

125th Street (between Marginal St and Morningside Avenue)

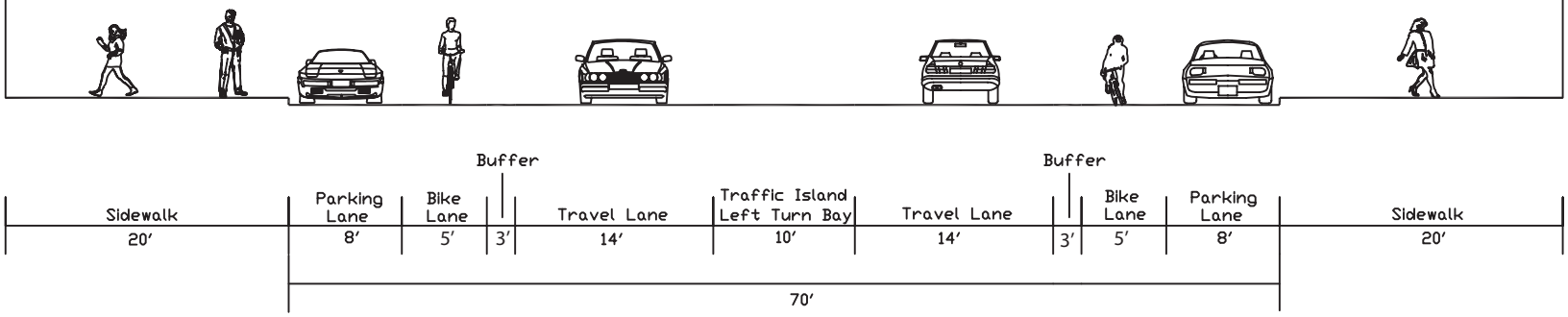
West of Morningside Avenue, 125th Street is 70 feet wide with left turn bays, two travel lanes and one parking lane in each direction. The 10 feet left turn bays on the intersection approaches are separated by traffic islands.

The proposal is to provide a shared lane on 125th Street west of Morningside Avenue connecting to the West Harlem waterfront. A route is also recommended for Hancock Place to link 125th Street to 124th Street.

An alternative proposal is a striped 5-foot bicycle lane with a 3-foot buffer on 125th Street between Marginal Street and Morningside Avenue as illustrated in Exhibit 3.3.1. This would require removing a travel lane per direction.

125th Street
(between Marginal St and Morningside Ave)

Facing West



Typical Cross Section

Bicycle Facility (Alternative Proposal)
Harlem/ Morningside Transportation Study

Exhibit 3.3.1

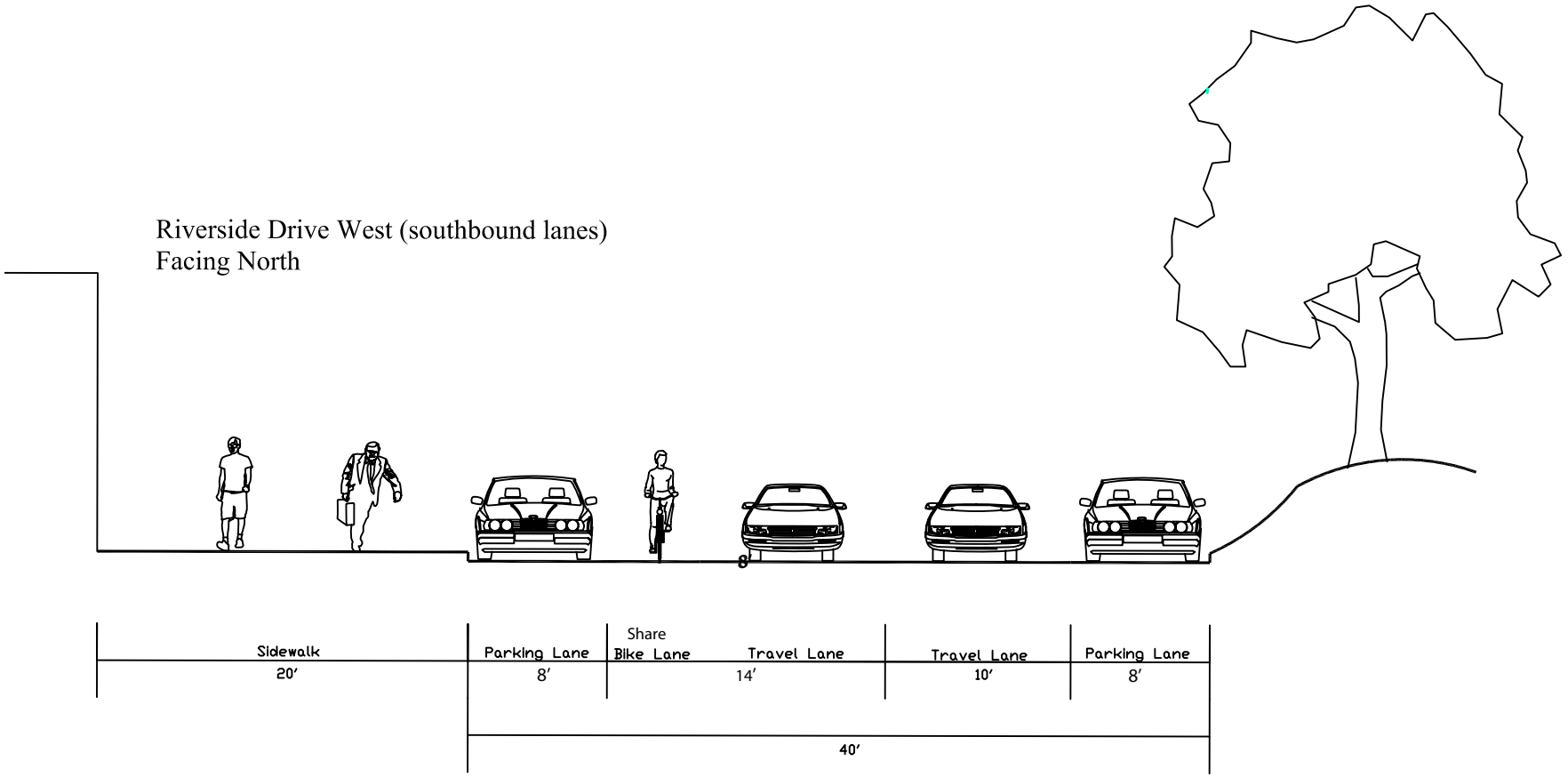
Riverside Drive (from 116th Street to 135th Street)

Riverside Drive from 116th Street to 120th Street (Reinhold Niebuhr) is 65 feet wide with two travel lanes, a parking lane in each direction and a 9 foot wide planted center median.

Riverside Drive north of 122nd street splits into Riverside Dr West (Southbound) and Riverside Dr East (Northbound) and creates an open space around Grant's Tomb National Monument. Each drive is between 40-50 feet wide with two travel lanes (12-17 feet) and two parking lanes. North of Tiemann Place, Riverside Drive merges into one street of 60 feet wide, with two travel lanes and a parking lane in each direction.

A shared bicycle lane is recommended from 116th Street to 135th Street on Riverside Drive depending on the street configuration, see Exhibit 3.3.2. The bicycle facility can be extended beyond the study area north of 135th Street and south of 116th Street to connect to other existing bike routes and the Hudson River Greenway.

Riverside Drive West (southbound lanes)
Facing North



Typical Cross Section

Bicycle Facility
Harlem/ Morningside Transportation Study

Exhibit 3.3.2

Convent Avenue/Morningside Avenue (from 120th Street to 135th Street)

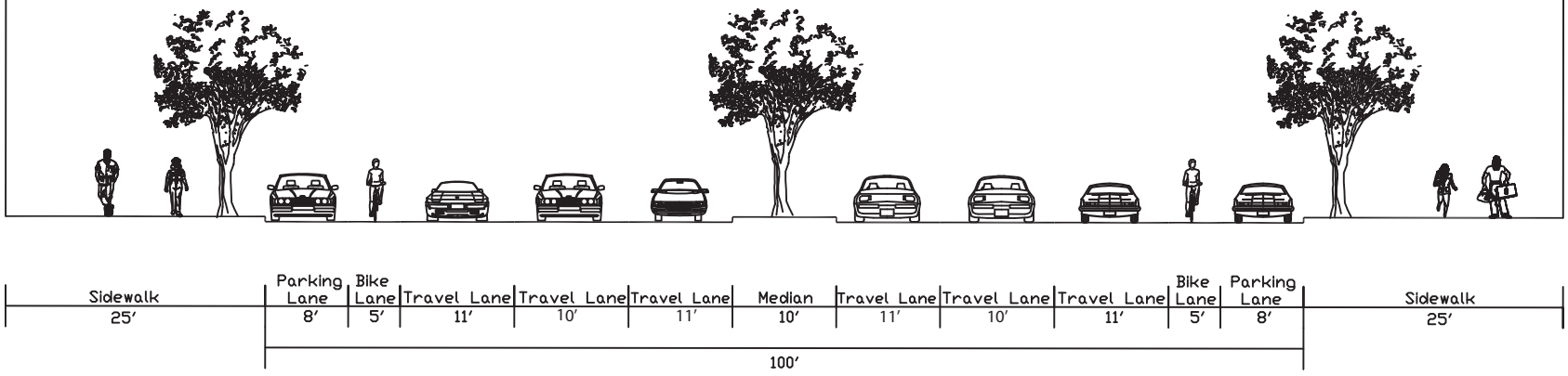
Convent Avenue passes through the CUNY, City College campus from 140th Street to 130th Street and is closed to vehicular traffic while allowing MTA buses. This daytime auto-free section of Convent Avenue provides primarily auto-free traffic for cyclists. At night the street is open to all traffic and on-street parking is permitted, however traffic volumes are light and observed auto speeds are low compared to other local streets. Convent Avenue is 40 feet wide with a travel lane and a parking lane in each direction.

It is recommended that on Convent /Morningside Avenue from 145th Street to 120th Street a share bicycle lane be installed. It will connect the Hamilton Heights neighborhood and students/faculty from City College to 125th Street and to St Nicholas Avenue existing bike lane. Guide signs would be installed on Convent Avenue through the campus indicating the share lane.

Adam C. Powell Boulevard (from 118th Street to 135th Street)

Adam Clayton Powell Boulevard is 100 feet wide with a 10 feet wide center median. It has three travel lanes and a parking lane in each direction. Currently two 5' foot wide striped bicycle lanes exist on this corridor south of 118th Street. The proposal is to extend the bike lane from 118th Street north to Macombs Dam Bridge thereby providing a direct connection from Central Park to The Bronx. See typical cross section in Exhibit 3.3.3.

Adam C. Powell Boulevard
Facing North



Typical Cross Section

Bicycle Facility
Harlem/ Morningside Transportation Study

Exhibit 3.3.3

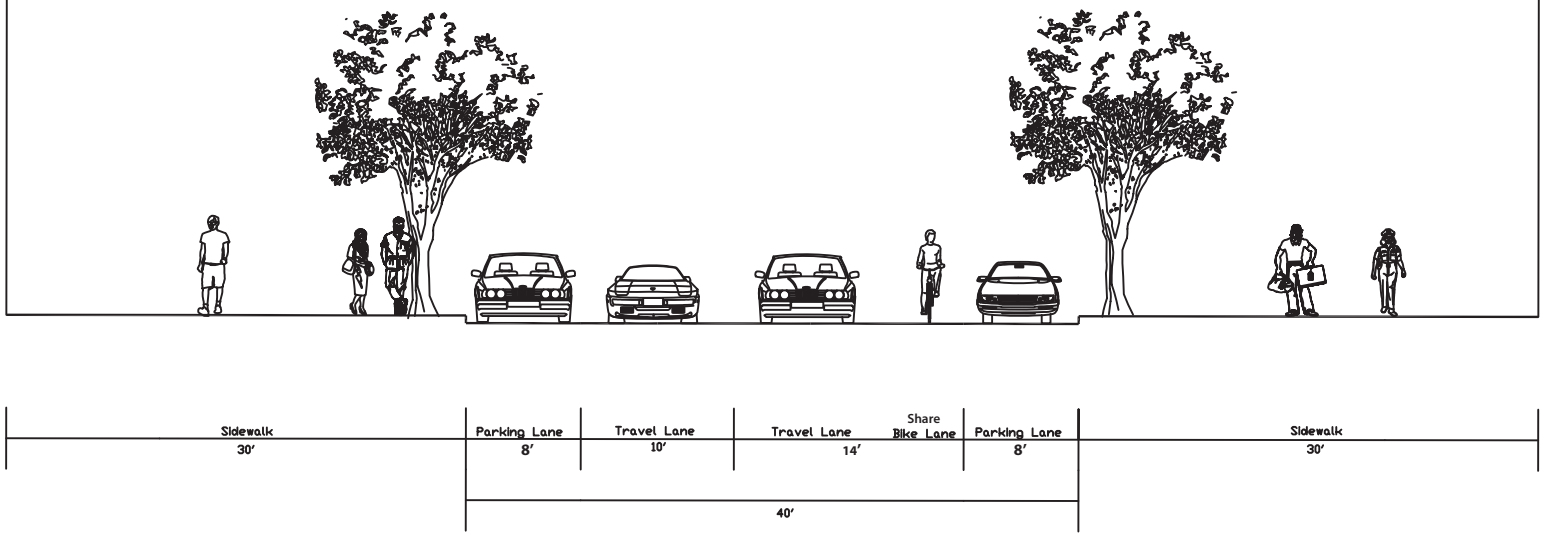
Fifth Avenue (from 116th Street to 135th Street)

Fifth Avenue which operates one-way southbound is 40 feet wide from 124th Street to 132nd Street with two travel lanes and a parking lane on both sides. North of 132nd Street to 135th Street the roadway widens to 60 feet and has three travel lanes. The center lane is 12 feet wide and the other two are 16 feet wide. The parking lanes are 8 feet wide. It is recommended to install a shared bike lane on Fifth Avenue, see Exhibit 3.3.4. A buffer can be added to the proposed bicycle lane from 132nd to 135th Streets. This proposal will allow connection to the Madison Avenue Bridge and the Bronx.

First and Second Avenues

The ***"Complete Street BRT/SBS Redesign (Street Improvements Projects-2010)"*** proposes a bicycle path and/or a shared bike lane along these two corridors to improve access, circulation and safety for cyclists. See First and Second Avenues standard configuration for proposed bike lane on the traffic recommendation section of this chapter (See page 3-11).

Fifth Avenue
Facing North



Typical Cross Section

Bicycle Facility
Harlem/ Morningside Transportation Study

Exhibit 3.3.4

B – Bicycle access on Bridges

Several bridges within the area of study (Madison Avenue Bridge, Third Avenue Bridge, Robert F. Kennedy, and Willis Avenue Bridge) can benefit from better and safer connections for cyclists and pedestrians. The main recommendations are the following:

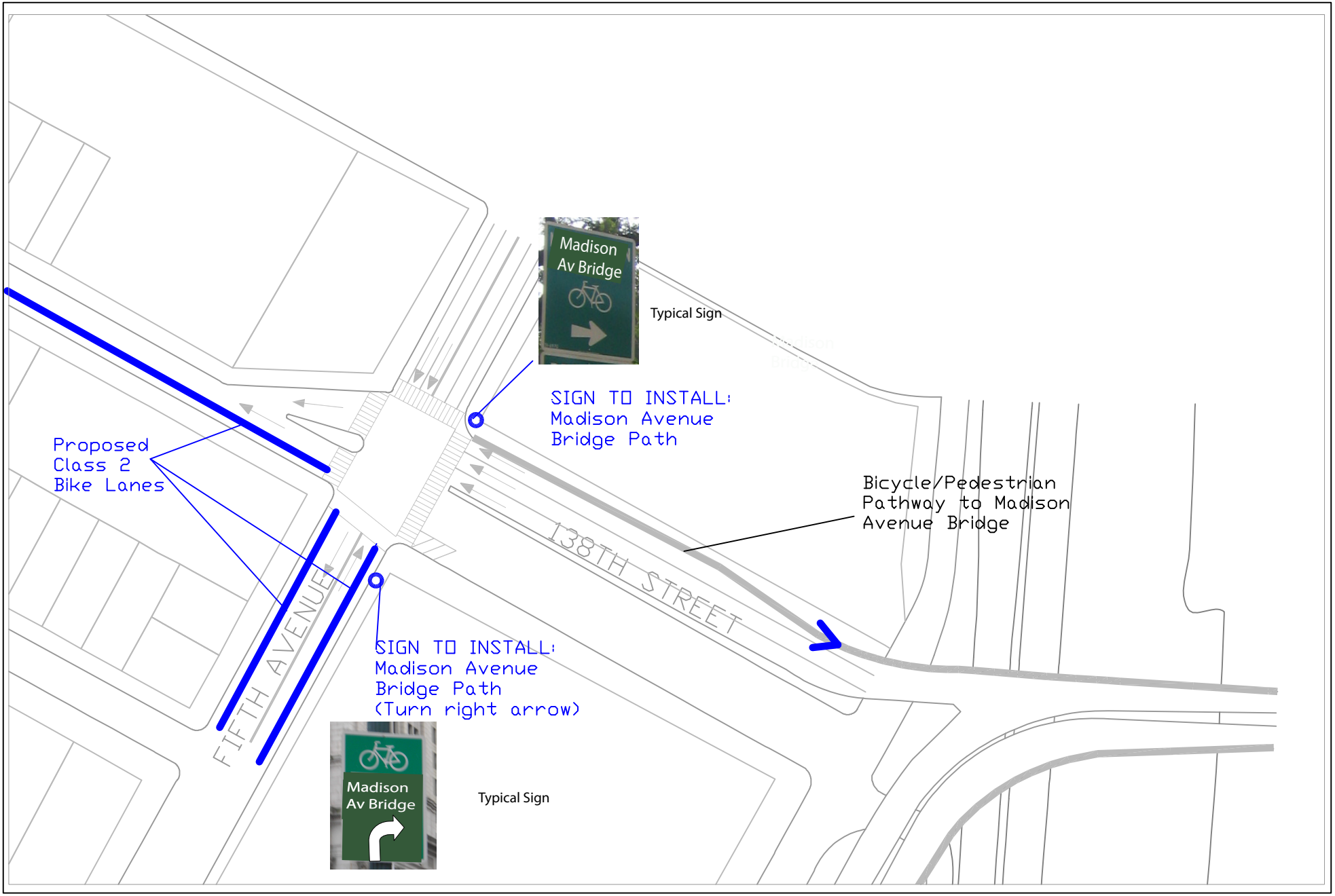
Madison Avenue Bridge

Access from 138th Street and Fifth Avenue (See Exhibit 3.3.5)

- Add a striped bicycle lane on Fifth Avenue that connects to Marcus Garvey Park (as recommended in the "Potential Bicycle Lanes and Routes" section of the report) and on 138th Street that links to the existing St Nicholas Avenue bicycle lanes,
- Place bicycle route guide signs at the approach of the bicycle path entrance of the Madison Avenue Bridge.

Access from East 135th Street and Madison Avenue (provides access to Harlem River Park and Madison Avenue Bridge paths (See Exhibit 3.3.6)

- Place a shared lane sign on East 135th Street between Madison Avenue and Fifth Avenue linking cyclists to Fifth Avenue,
- Install informational bike route signs to the approach of the intersection to inform cyclists and pedestrians of the location of the two paths ahead,
- Install a "bike box" on East 135th Street to allow eastbound cyclists to move ahead of traffic safely as they get on the bridge and the Harlem River Park Path.



Location: Madison Avenue Bridge (138th Street/Fifth Avenue)
Recommendations

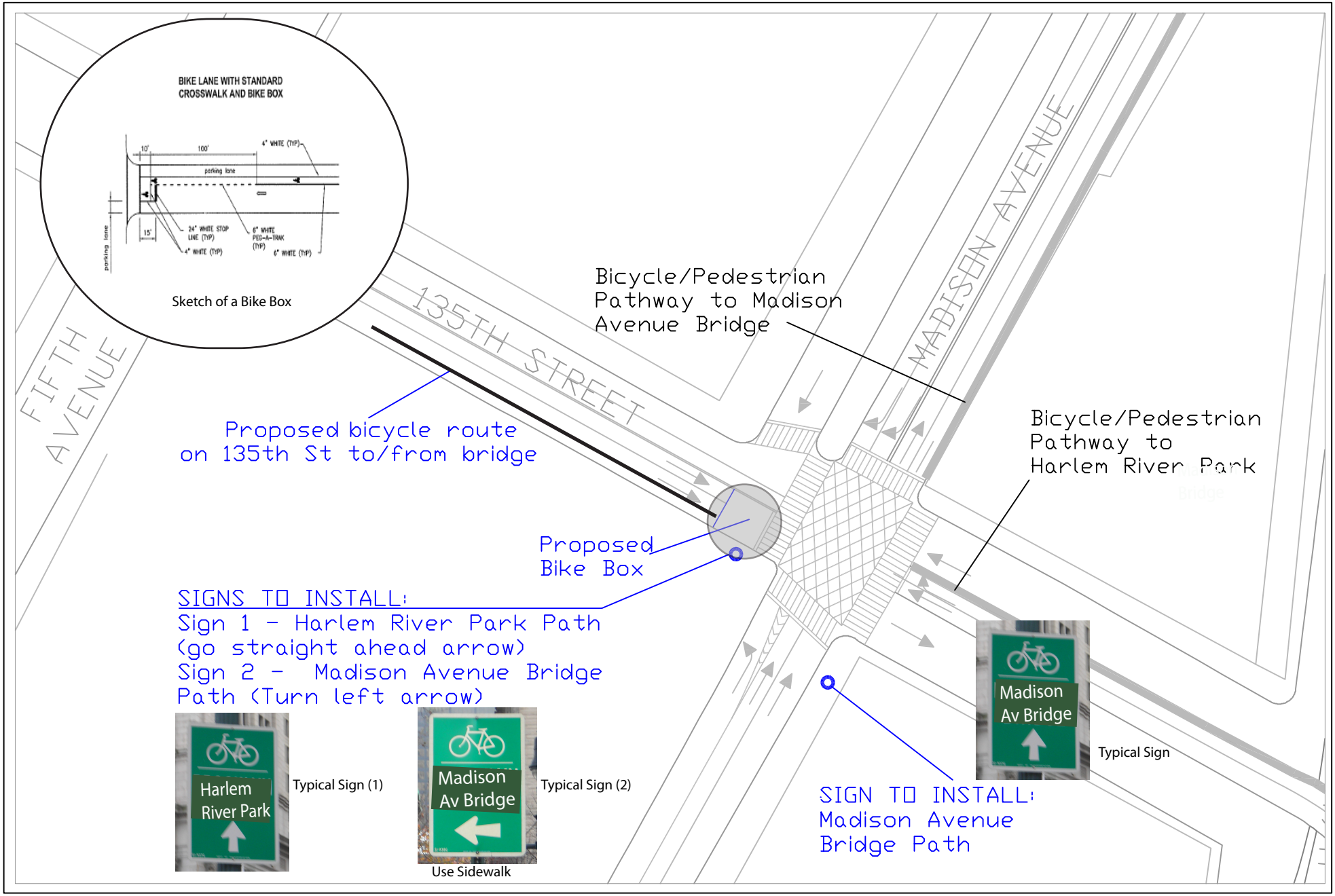
Harlem/Morningside Transportation Study

NYC Department of City Planning/NYC Department of Transportation

N

Exhibit 3.3.5

Note: NOT TO SCALE



Location: Madison Avenue Bridge (135th Street/Madison Avenue)
Recommendations

Harlem/Morningside Transportation Study

NYC Department of City Planning/NYC Department of Transportation

N

Exhibit 3.3.6

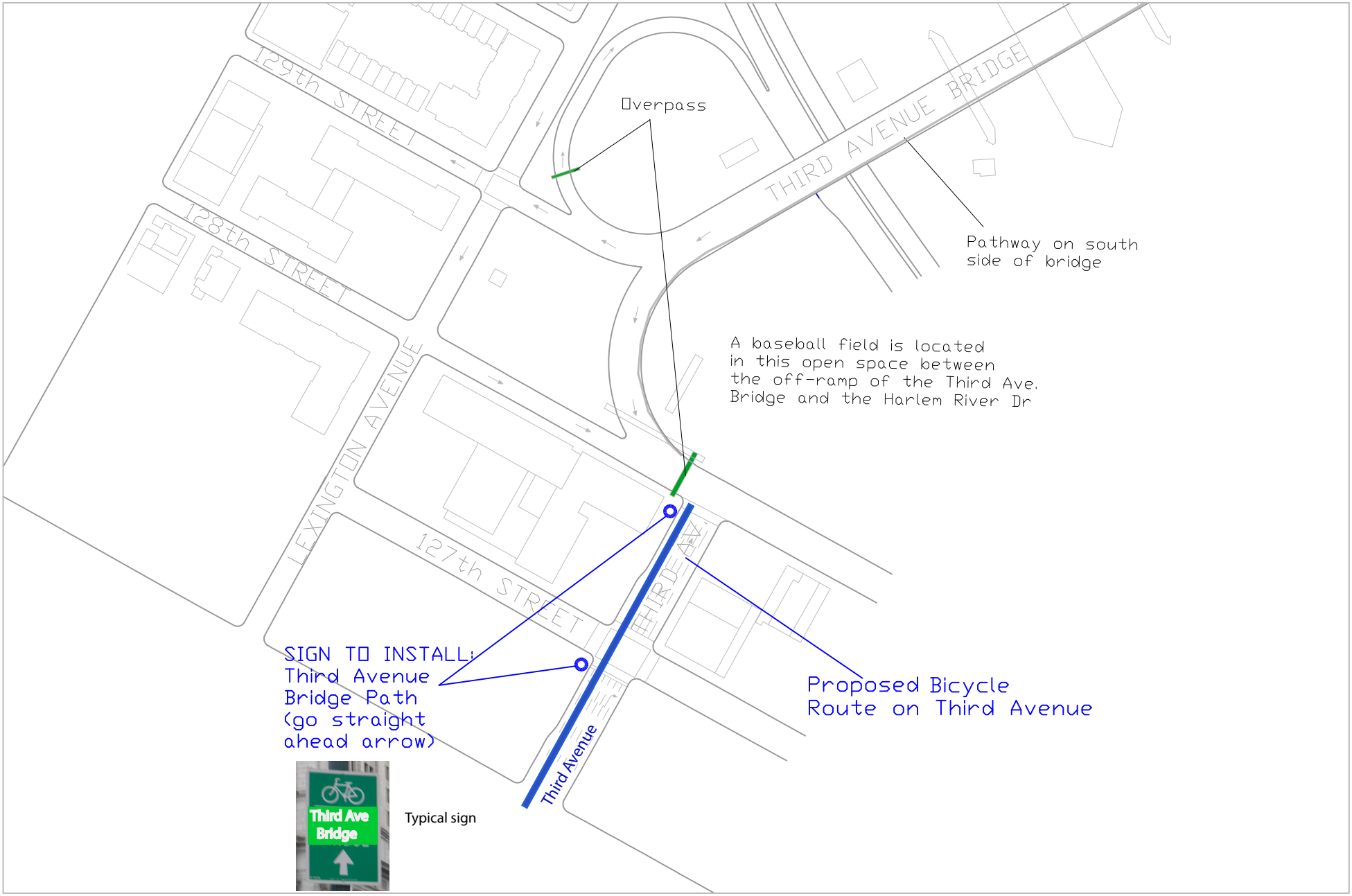
Note: NOT TO SCALE

Third Avenue Bridge – Access from East 128th Street and Third Avenue (refer to Exhibit 3.3.7)

- Install bike route guide signs at the intersection approach of East 127th Street/ Third Avenue and at the bridge entrance to guide all users,
- Install a shared bicycle route on Third Avenue to connect to the proposed bicycle lane on 126th Street.

Robert F. Kennedy Bridge (formerly known as the Triborough Bridge) – East 125th Street and Second Avenue (See Exhibit 3.3.8)

- Add a crosswalk to improve pedestrian safety at the intersection of East 124th Street and the entrance to the bridge's on- ramp as indicated on the map,
- Install a "bike box" on East 124th Street at the intersection approach of East 124th Street and Second Avenue to allow eastbound cyclists to move ahead of traffic safely as they travel towards the bridge to get on the path,
- Install bike route guide signs at the intersection approaches of East 124th Street/ Second Avenue and the bridge on-ramp to indicate the entrance to the path; an additional sign can be added at the bridge's exit ramp to direct cyclists to the nearest bicycle facility as they travel into Manhattan,
- Place bicycle route guide signs on East 125th Street and First Avenue to direct cyclists and pedestrians to the Robert F. Kennedy Bridge path entrance at Second Avenue.



Location: Third Avenue Bridge (128th St and Third Ave)
Recommendations

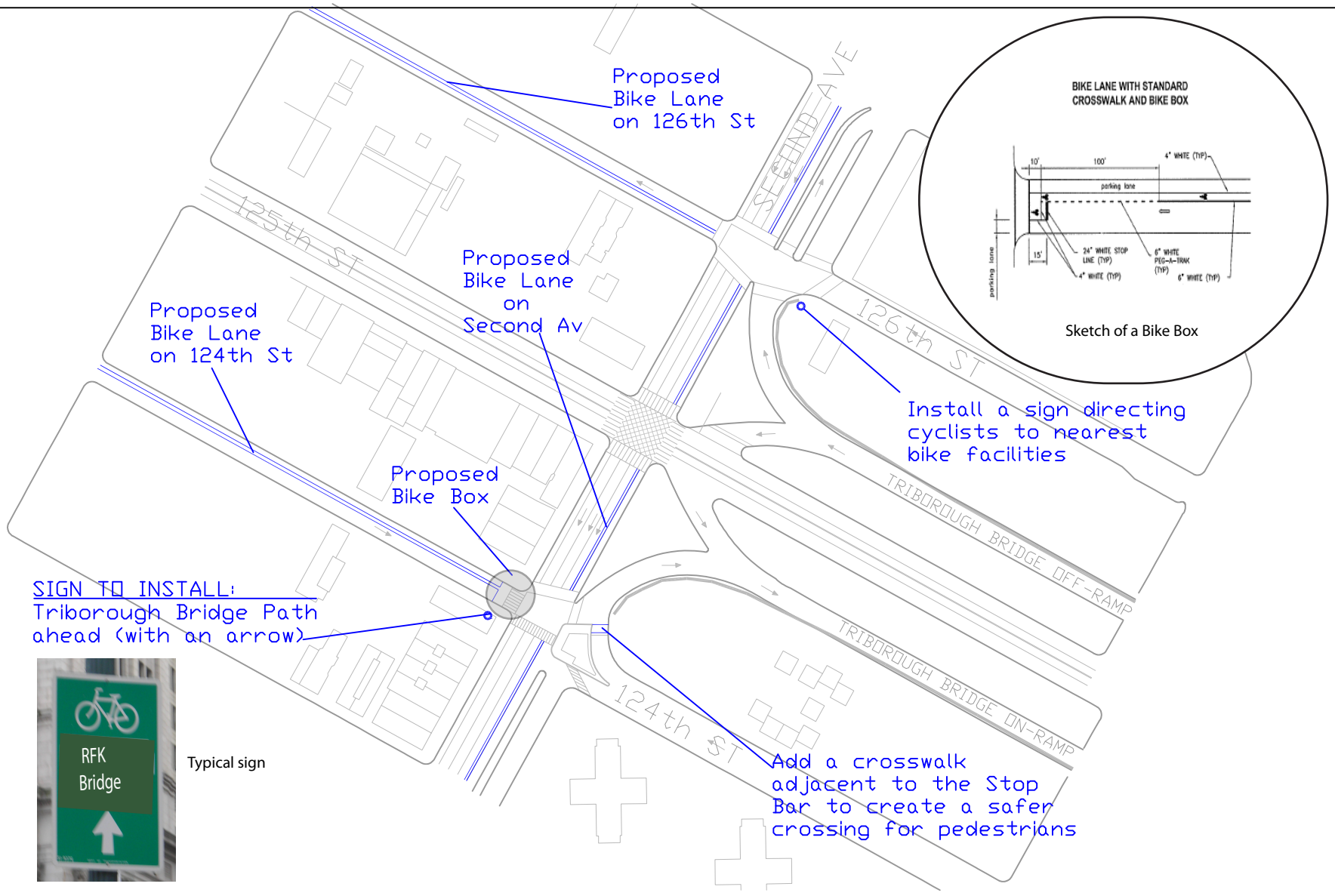
Harlem/Morningside Transportation Study

NYC Department of City Planning/NYC Department of Transportation

N

Exhibit 3.3.7

Note: NOT TO SCALE



Location: Triborough Bridge (Robert F Kennedy Bridge) 125th St/2nd Ave
Recommendations
Harlem/Morningside Transportation Study
NYC Department of City Planning/NYC Department of Transportation

Exhibit 3.3.8

N

Note: NOT TO SCALE

3.4 Goods Movement

In the study area goods and truck movements are generally confined to the main truck routes listed below: See Exhibit 3.4.1.

North-South local truck routes:

- Amsterdam Avenue from W116th Street to W 135th Street
- Broadway from W116th Street to W 135th Street
- Madison Avenue from E 125th Street to E 135th Street
- Lexington Avenue from E 116th Street to E 125th Street
- Adam C. Powell Boulevard from W 116th Street to W 135th Street
- 1st Avenue from E116th Street to E 126th Street/Willis Ave Bridge
- 2nd Avenue from E116th Street to E 128th Street
- 3rd Avenue from E116th Street to E 125th Street
- 5th Avenue from W125th Street to W 135th Street

West-East local truck routes:

- 125th Street from Broadway to 1st Avenue
- W 116th Street from Adam C. Powell to 1st Avenue
- East 128th Street from 2nd Avenue to 3rd Avenue Bridge

In an effort to manage truck activity NYCDOT released the "*Citywide Truck Route Management and Community Impact Reduction Study*" – Final Technical Memorandum No 2 in 2007.

In the Study Area the study identified and recommended the following:

1) By 2025 four local truck routes are expected to experience severe traffic congestion. They are as follows:

- 125th Street from Fifth Avenue to Triborough Bridge
- 116th Street at Seventh Avenue
- Lexington Avenue from 125th Street to about 116th Street
- Second Avenue from 125th Street to about 116th Street

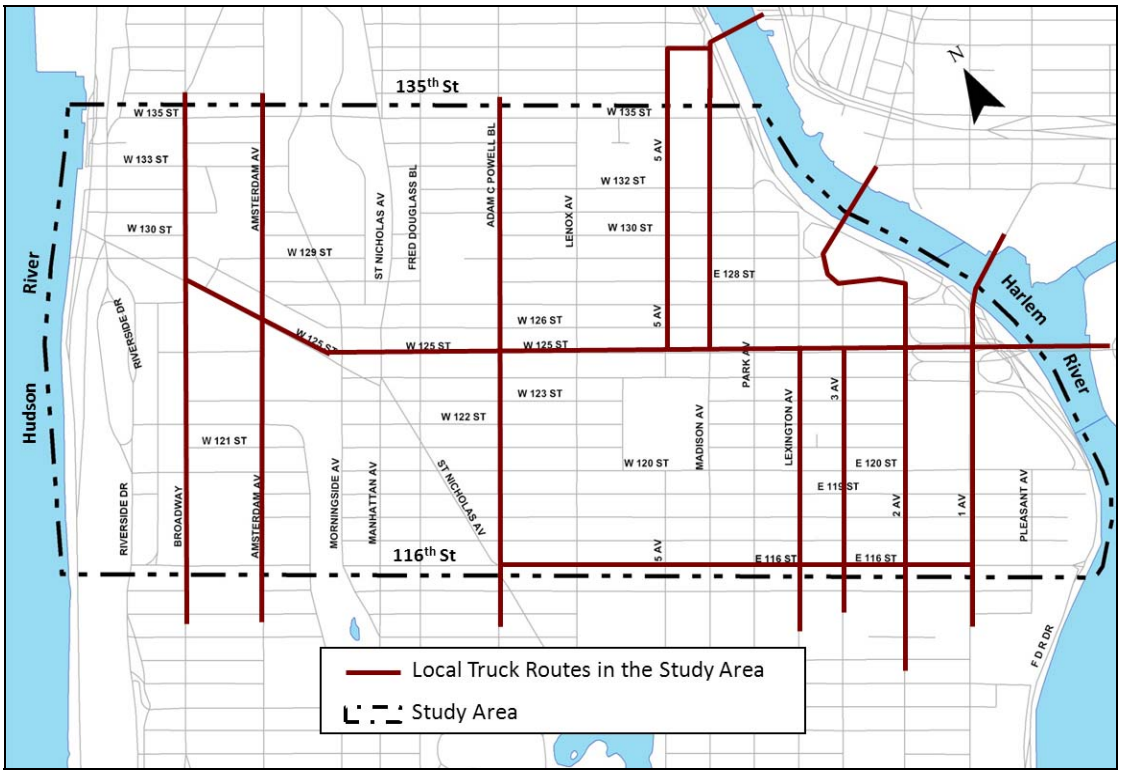
2) Second Avenue and 128th Street had the most reported truck accidents with 29 over three year study period (99-01).

3) Traffic congestion on 125th Street encourages truck drives to use West 126th St as an alternative route. The traffic congestion is due mainly to commercial retail activity (curbside parking and deliveries) on both sides of 125th Street. Also pedestrian volumes at the signalized intersections impede vehicular turning movements.

4) In general Local Truck Route signs are missing and there are no way finding signs to direct trucks in the study area.

5) Adam Clayton Powell Boulevard a local truck route within the study area from 116th Street to 135th Street is mainly residential and has two moving lanes and a parking lane in each direction (North-South). The community had requested that NYCDOT remove this street from the Local Truck Route network.

Exhibit 3.4.1



Concurrent with the completion of the ***Truck Route Management and Community Impact Reduction Study***, the NYCDOT had worked to advance several of the primary recommendations put forth by the consultant. This includes initiatives within DOT, as well as partnerships and programs with other city, state and federal agencies and various stakeholders.

The measures aim to improve the overall management of the Truck Route Network, initiate steps that will reduce unnecessary and illegal truck traffic in communities and provide a comprehensive update to the policies and regulations that govern truck movement in New York City.

Here are the study main recommendations:

1) At Second Avenue and E 128th Street, some possible short term improvements are being analyzed, including establishing wide-turn zones, traffic signal timing changes, and providing additional signage if necessary. In addition the consultant will develop a safety improvement plan for this location and DOT has undertaken some measures to improve conditions for all users. More recent accident data shows that between 2006 and 2008, there was a total of 15 reportable accidents, representing about 45% less than the initial three years period of analysis.

2) Prohibit trucks from using Lexington Avenue including the section within the study area from 116th Street to 125th Street. Parallel local truck routes are expected to accommodate the additional truck activity.

3) By default 126th Street has become an alternate westbound "Truck Route" to discontinue this practice the following are recommended:
    - Post Local Truck Route signs along 125th Street and 138th Street between First Avenue and Broadway.
    - Post wayfinding signs to the local truck routes along 124th, 126th, 128th, and 129th Streets.

- Post “NO TRUCKS EXCEPT LOCAL DELIVERIES” signs on the westbound approach of 126th Street at the following cross streets: First, Second, Third, Park and Madison Avenues.
- Provide material with truck route information to local businesses. Truck companies and drivers should be advised and required to keep trucks on designated truck routes and follow NYC traffic rules and regulations governing pick up and deliveries.

4) Adam Clayton Powell Boulevard is a designated two-way Local Truck Route between 110th Street and 155th Street, which links to the Macombs Dam Bridge. The corridor has four-lanes with parking on both sides. The corridor is residential in nature and the community has requested that NYCDOT consider removing Adam Clayton Powell Boulevard from the Local Truck Route network, which is not a viable proposition.

General Recommendations:

5) Enforcement of Truck Routes: Conduct random enforcement efforts.
6) Review and update of Truck Regulations and Policies examining curbside regulations to improve opportunities for commercial deliveries and decrease congestion and traffic.
7) Truck signages will be placed at different locations in the study area to ensure approaches are properly signed with posting of “LOCAL/THRU TRUCK ROUTE signs.
8) Development and Deployment of Educational Materials and Improved Public Outreach to inform commercial businesses as well as truck companies about NYC Traffic Regulations.

4.0 CONCLUSION

The Harlem Morningside Heights Transportation Study was a collaborative effort of the city Department of Transportation (DOT) and the Department of City Planning (DCP) to respond to community concerns about developments trends, increased congestion and changes in neighborhood characteristics.

This Final Report assesses the projected 2015 future traffic conditions and presents many traffic improvements measures. These are geared to alleviate traffic congestion, improve traffic operation and enhance safety for all street users within the study area. The recommendations were based on surveys, study of field conditions, engineering analysis, meetings with community groups from the study area, as well as working through a Technical Advisory Committee comprising of elected officials and other agencies.

Some of the recommendations proposed in this report do not fall under the jurisdiction of NYCDOT or NYCDCP therefore will require coordination with other agencies, such as NYC Transit (Metropolitan Transportation Authority), and the New York City Police Department when it comes to enforcement.

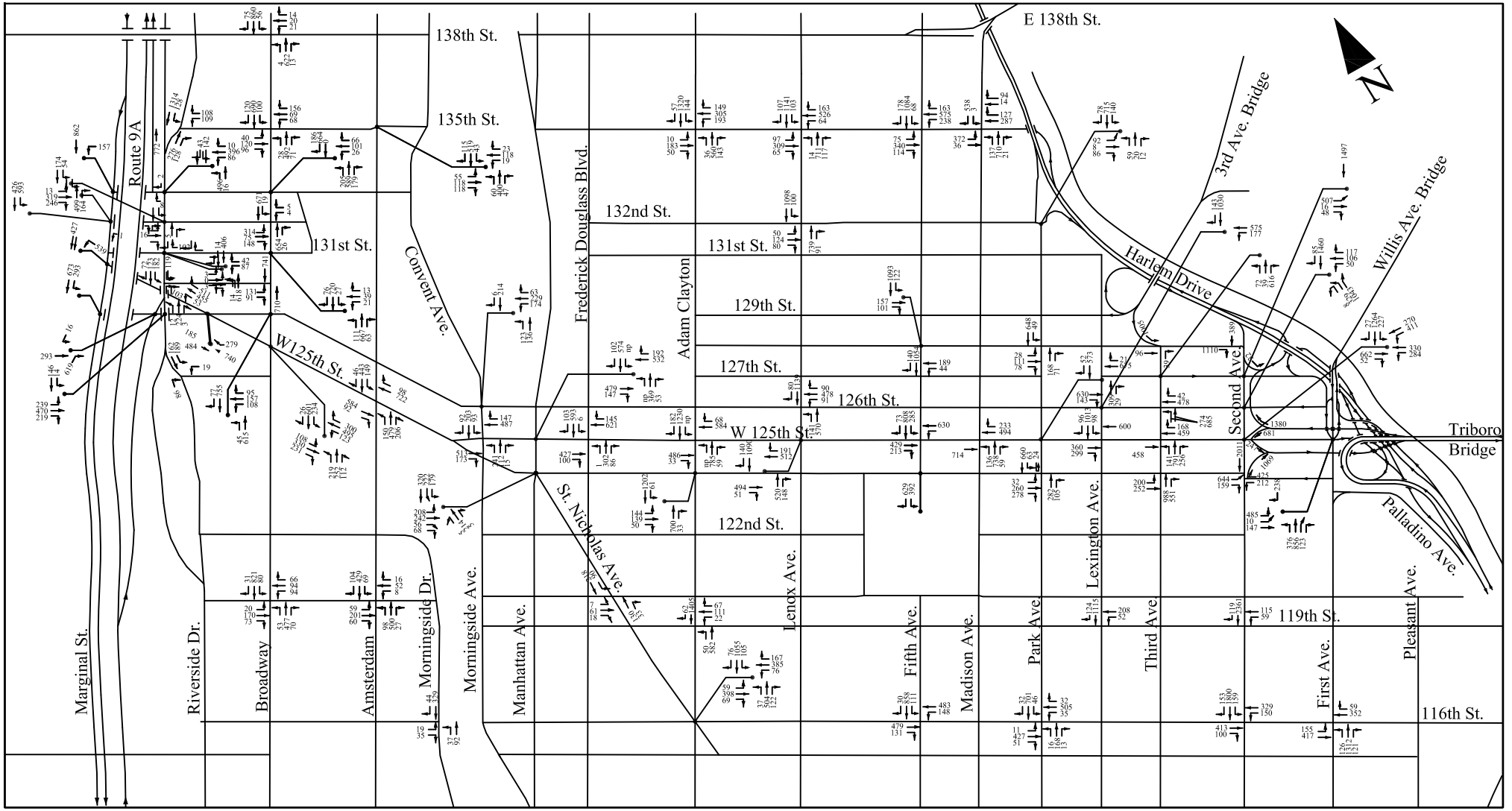
The implementation plan developed from the recommendations will evaluate feasibility of the various proposals which could result in changes and modifications.

APPENDIX A

2015 Volume Maps and Overall Intersection LOS

Appendix A-1

2015 Future Traffic Volume - AM Peak Hour

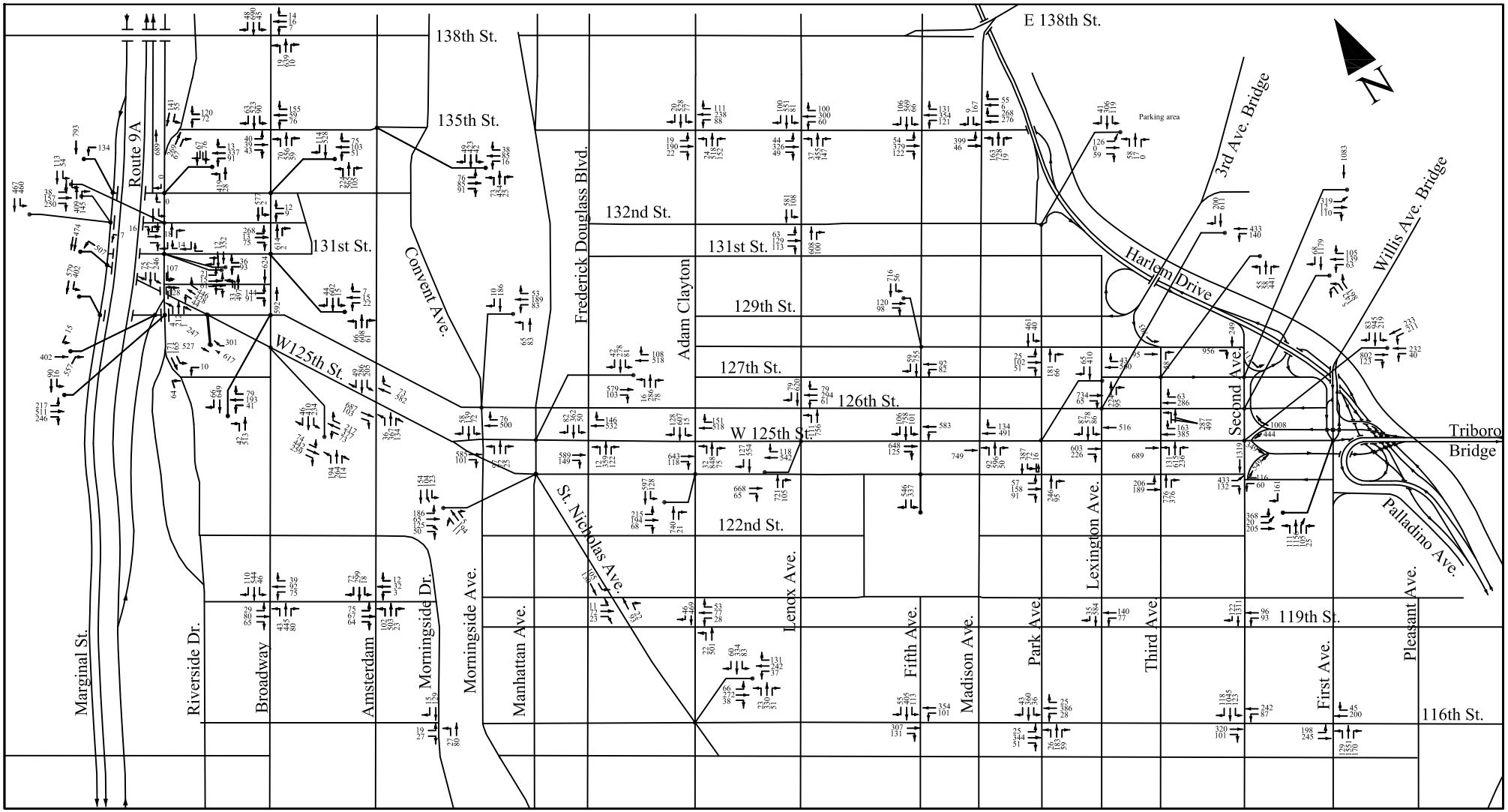


With Left Turn Prohibition on the 125th Street Corridor

2015 AM PEAK
7:45am-8:45am

Appendix A-2

2015 Future Traffic Volume - MD Peak Hour

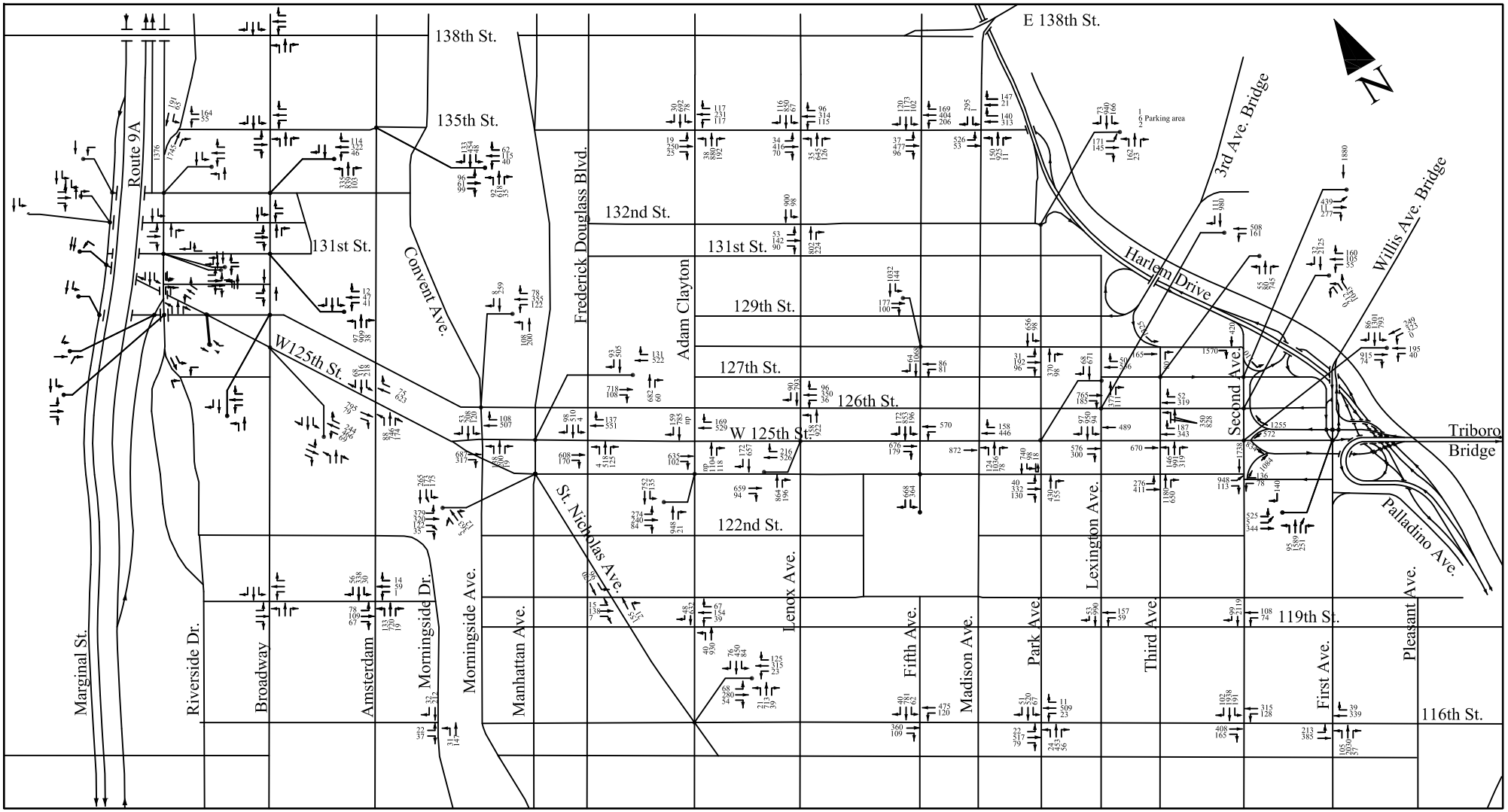


2015 MD PEAK
12:15pm-1:15pm

With Left Turn Prohibition on the 125th Street Corridor

Appendix A-3

2015 Future Traffic Volume - PM Peak Hour

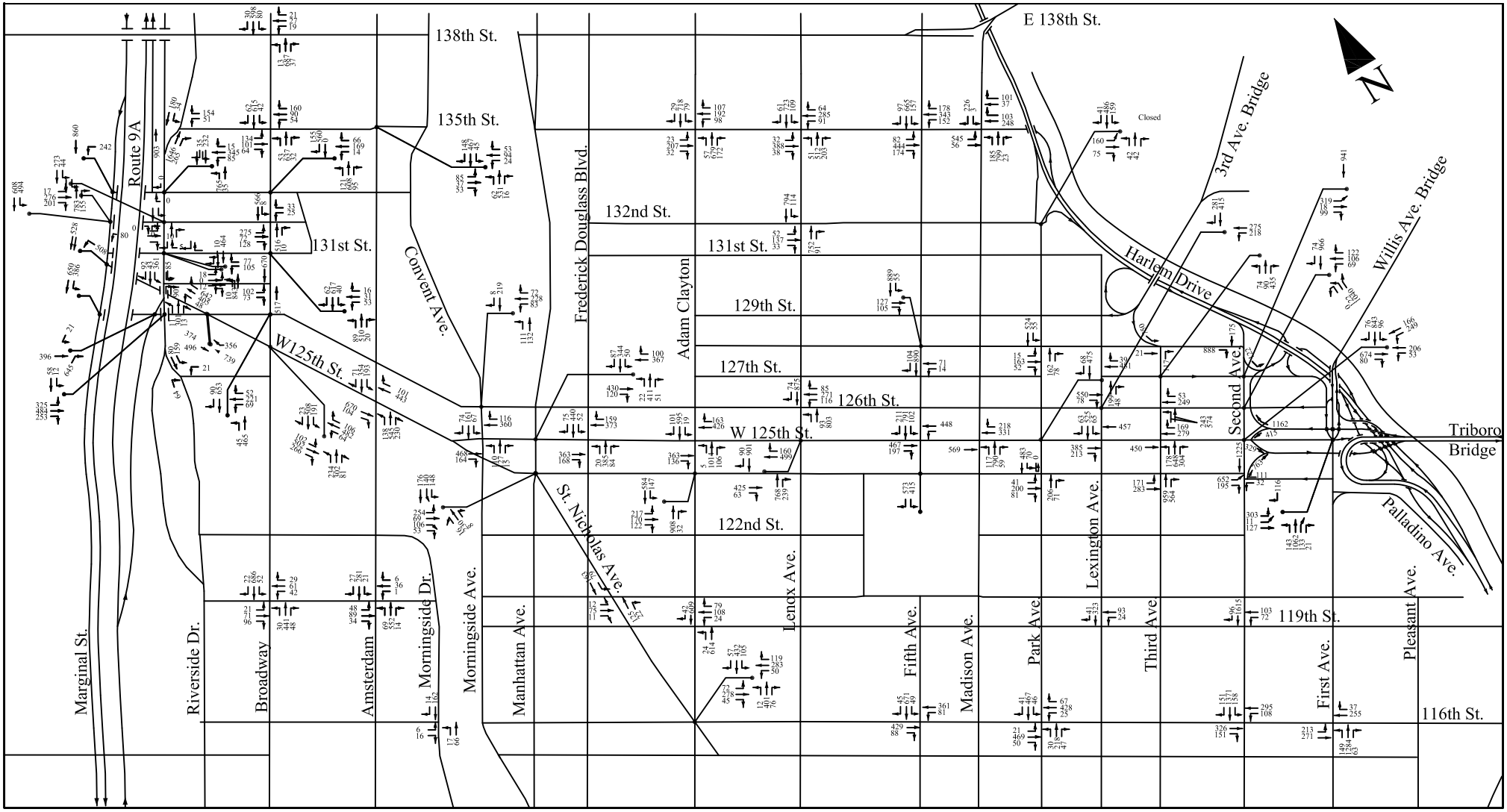


2015 PM PEAK
4:45pm-5:45pm

With Left Turn Prohibition on the 125th Street Corridor

Appendix A-4

2015 Future Traffic Volume - Saturday MD Peak Hour

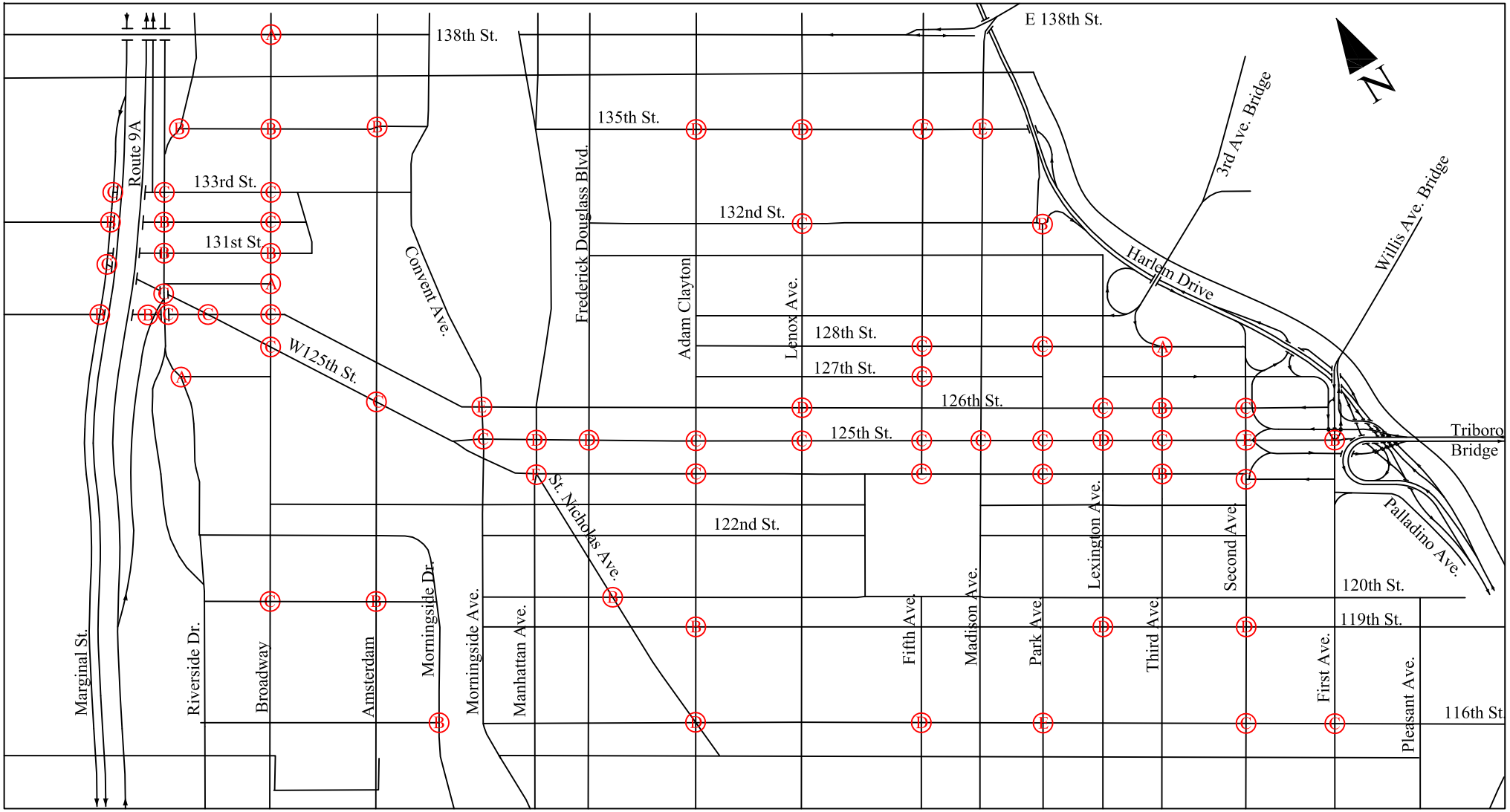


With Left Turn Prohibition on the 125th Street Corridor

2015 SAT PEAK
1:00pm-2:00pm

Appendix A-5

2015 Future - Overall Intersection Level of Service (LOS) - AM Peak Hour

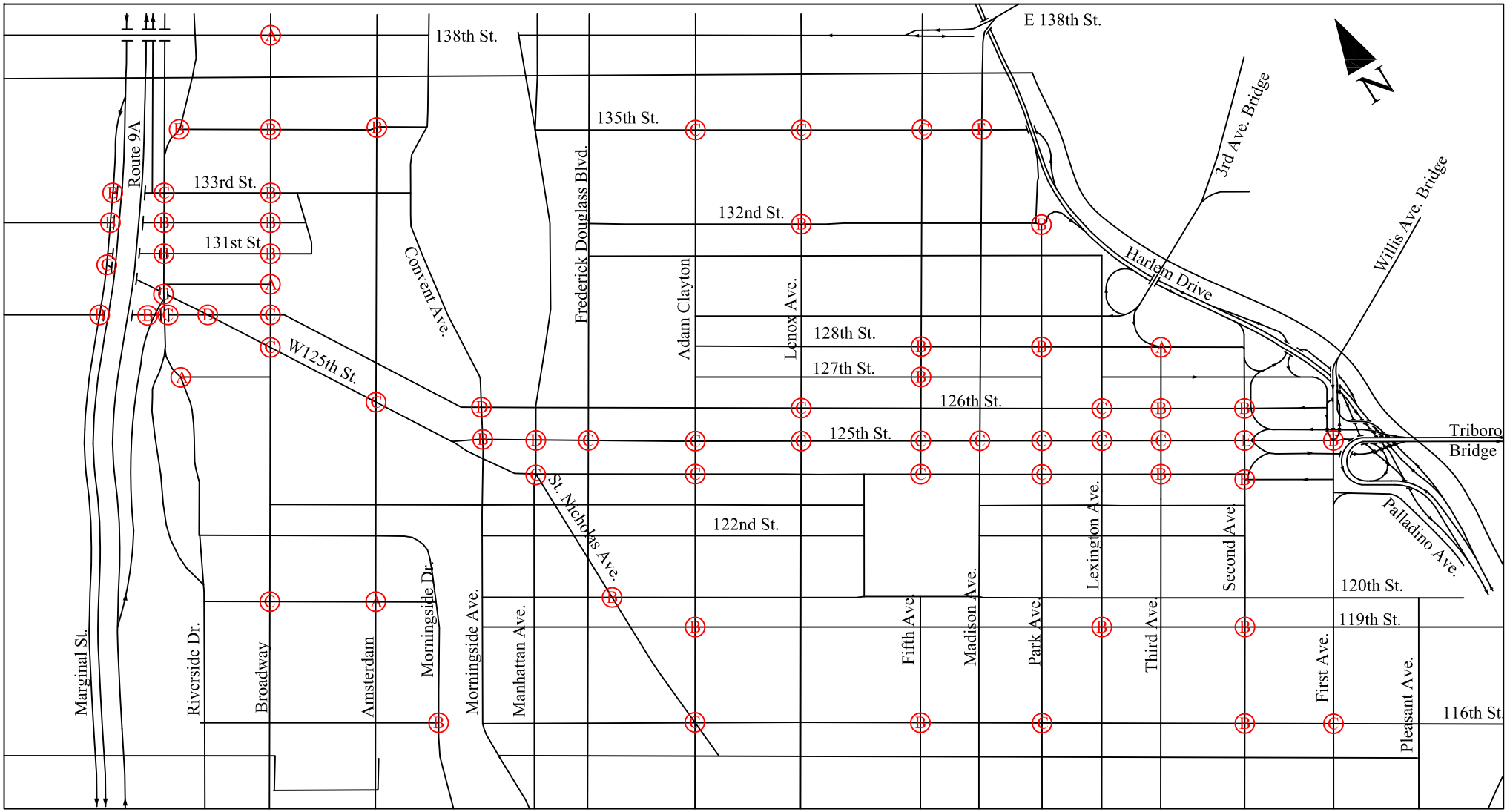


HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY
EXHIBIT 2.3.6

LOS SUMMARY
2015 WITH LEFT TURN PROHIBITION
AM PEAK 7:45am-8:45am

Appendix A-6

2015 Future - Overall Intersection Level of Service (LOS) - Midday Peak Hour

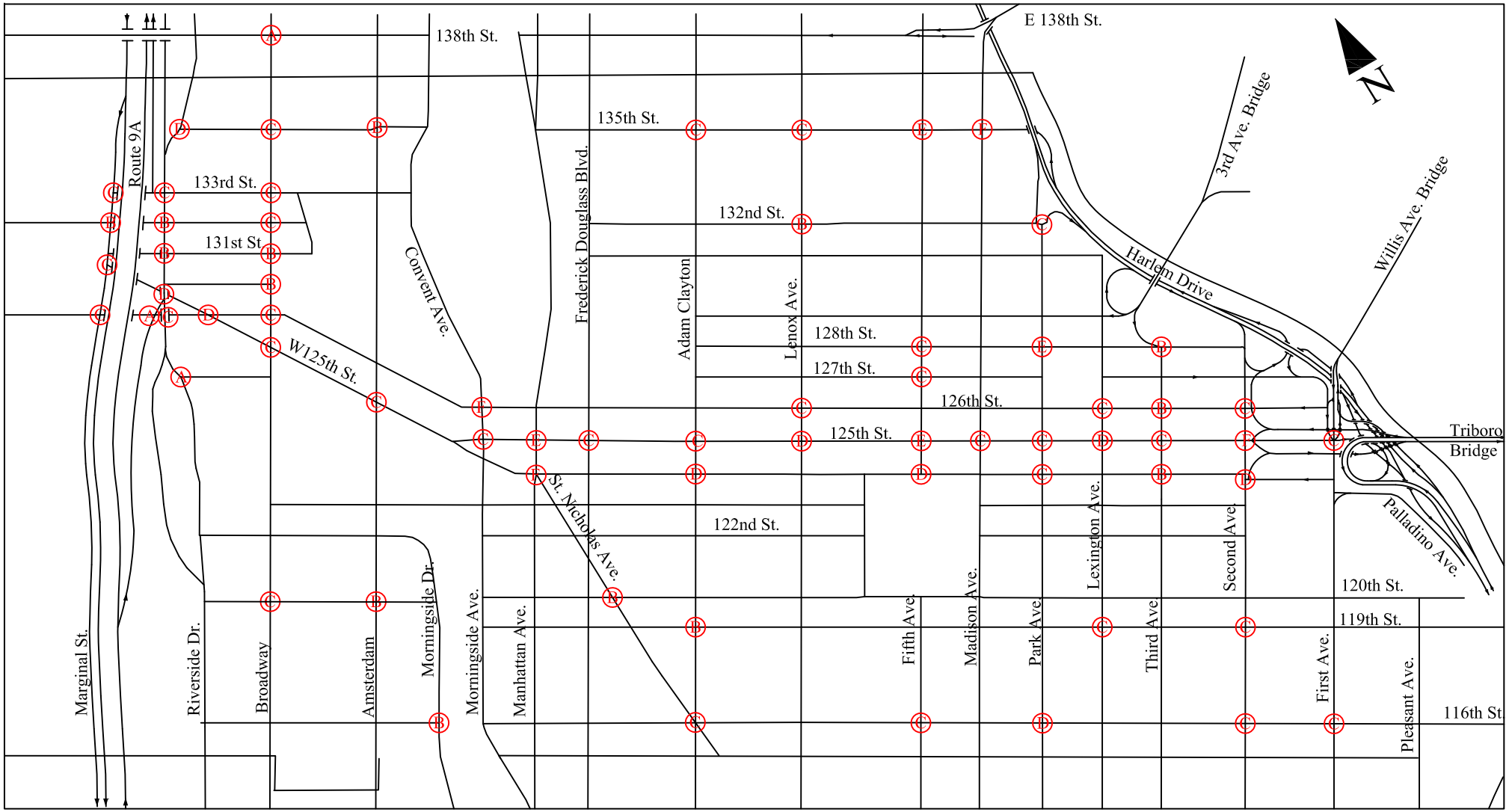


HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY
EXHIBIT 2.3.7

LOS SUMMARY
2015 WITH LEFT TURN PROHIBITION
MIDDAY PEAK 12:00noon-1:00pm

Appendix A-7

2015 Future - Overall Intersection Level of Service (LOS) - PM Peak Hour

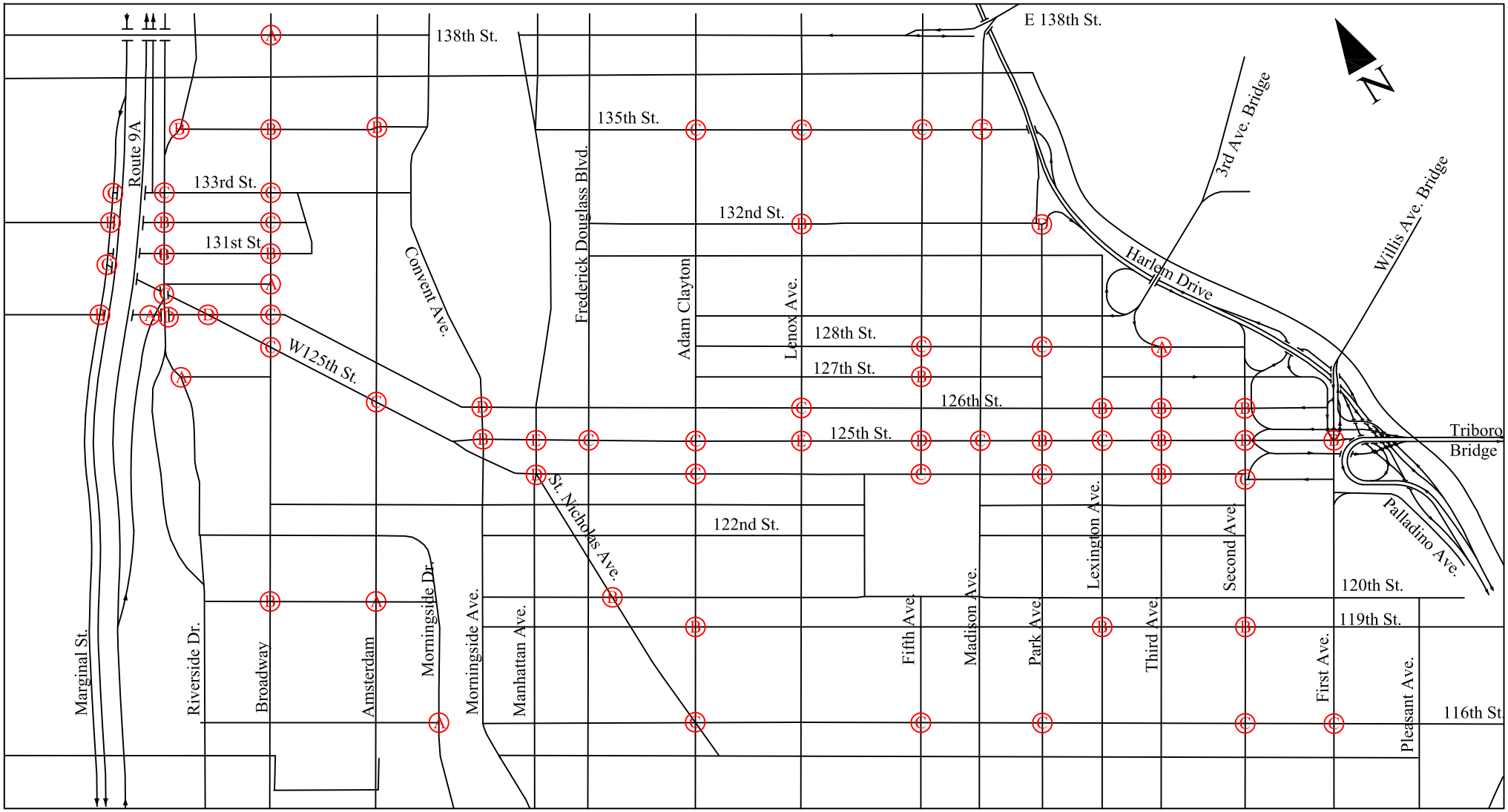


HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY
EXHIBIT 2.3.8

LOS SUMMARY
2015 WITH LEFT TURN PROHIBITION
PM PEAK 4:45pm-5:45pm

Appendix A-8

2015 Future - Averall Intersection Level of Service (LOS) - Saturday MD Peak Hour



HARLEM MORNINGSIDE HEIGHTS TRANSPORTATION STUDY
EXHIBIT 2.3.9

LOS SUMMARY
2015 WITH LEFT TURN PROHIBITION
SAT MD PEAK 1:00pm-2:00pm

APPENDIX B

Accident Analysis (2007-2009)

APPENDIX B

Three-Year Accident Analysis

2007-2009

The intersection of Rockaway Avenue and Atlantic Avenue had the highest number of accidents, which were 41, resulting in 57 injuries. It included two class A injury, 7 class B injuries, 57 class C injuries and 5 Property Damage Only (PDO). This intersection had the highest Frequency Index (FI) of 7.28 and a Severity Index (SI) of 9.09 during the analysis period.

The second highest accident location was Stone Avenue (Mother Gaston Boulevard) and Eastern Parkway Extension. This intersection had 34 accidents, resulting in 39 injuries. This intersection had Frequency Index (FI) of 5.99 Severity Index of (SI) of 8.26.

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

Frequency Factor

The frequency at which accidents occur at a location (frequency factor (FF) is a tool to help understand accidents at a location.

The frequency factor is based in part on the accident records supplied by New York State Department of Motor Vehicles and NYSDOT Centralized Local Accident Surveillance System (CLASS).

The CLASS system evolved from a ten-year (1983-1992) study that identified the 10 locations with the highest number of accidents in the state, city, or geographical region. Locations with an average of 152 accidents were assigned a value of 10. For the final equation the frequency factor was also expressed as a natural logarithm and assigned a value between 0 and 10, with 10 representing the highest level of frequency of accidents at the intersection. The mathematical equation used is:

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

For example, the frequency factor at Rockaway Avenue and Atlantic Avenue intersection in 2009 is calculated as follows:

$$FF = 2 * Ln(number\ of\ accidents) = 2*Ln(11) = 5.74 \text{ or}$$

$$FF = Ln(number\ of\ accidents)^2 = Ln(11)^2 = 5.74$$

Severity Factor

Accidents are classified into two categories: reportable and non-reportable. According to New York State Vehicle and Traffic Law, all accidents involving death, injury or resulting in property damage in excess of $1,000 must be reported to the NYS Department of Motor Vehicle (DMV) by police agencies, hence they are reportable accidents. Non-reportable accidents are defined as any accident that costs under $1,000 in property damage. For personal injury, there are three classifications: Type A, Type B, and Type C; Type A being the most severe and Type C being the least severe form of injury. An accident is considered fatal when someone dies as a result of injuries sustained in the accident. Property damage is considered only when public or private properties such as buildings, houses, business stores or other assets are damaged due to the accident, while damages to the cars or injuries to the pedestrian or bicyclists involved in the accident are not included in property damage.

The severity factor (SF) was developed from accident cost research. It describes the cost associated with an accident based on its classification among the six different accidents classes utilized by New York State and shown in Table B-1. Various levels of severity can be determined from the relative weight assigned to each accident class.

Table B-1: Average Cost and Relative Weight of Accidents by Class

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

In the mathematical expression for the calculation of the severity factor, the relative weight of each accident class is multiplied by the number of accidents and summed. Later the natural logarithm of the sum is taken. The value can be assigned between 0 and 10 with 10 being the highest level of severity and 0 the lowest level. The equation used to calculate the severity factor is as follows:

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

Following the example above, Table B-2 illustrates the calculation of the severity factor for accidents that occurred at Rockaway Avenue and Atlantic Avenue intersection in 2009. The severity factor of 8.23 indicates that this location tends to have accidents with significant damage.

Table B-2: Calculation of Severity Factor at Rockaway Ave. and Ave. (2009)

Accidents Class	Relative Weight	Frequency (2008)	Total Relative Weight
Property Damage (PD)	4	1	4
Injury-Class C (IC)	96	15	1,440
Injury-Class B (IB)	385	0	0
Injury-Class A (IA)	1,548	1	1,584
Fatal accidents (FA)	3,468	0	0
		Total	3,028
		SF = Ln(Total)	**8.01**

Composite Index

The Composite Index (CI) is defined as the ratio of the severity factor to the frequency factor: *CI = SF / FF*. This index represents the distribution characteristics of a location's accidents with respect to the expected norm -1.0. If this index is greater than 1.0, then the location's accidents is skewed toward severity; if the index is less than 1.0 then accidents will be skewed toward frequency. Table B-3 shows a summary of sample severity factors, frequency factors, and composite index values that correspond to the type of injury and damage that is sustained in an accident.

Table B-3: Interpreting Critical Factors in Accident Reports

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 damage.		
Severity Factor	Frequency Factor	Composite Index
7 - 10	7 - 10	= 1.0
This scenario indicates 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.		

Using the example of the West 57th Street / Eighth Avenue intersection, the Composite Index for year 2008 was:

$$CI = SF / FF = 8.32 / 5.42 = 1.54$$

Locations with a severity factor greater than 7.0, a frequency factor greater than 7.0, and a composite index greater than 1.0 are likely to experience severe accidents.

APPENDIX C

Study Area: Waterfront Access

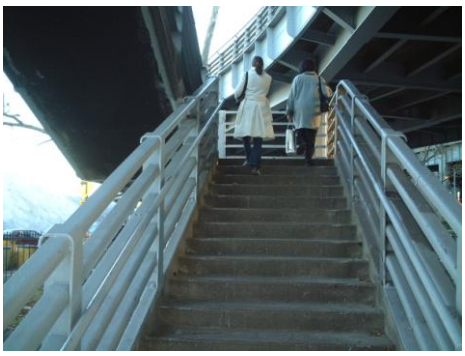
APPENDIX C

Study Area: Waterfront Access

Bicycle and pedestrian access to the waterfront area at the eastern and western end of 125th Street is important to enhancing the bike and pedestrian experience in the area.

East River Waterfront Area (East Side)

Access to the Harlem River waterfront is limited and difficult at 125th Street with the presence of the "spaghetti" of ramps leading to the Robert F. Kennedy (formerly Triborough) and Willis Avenue Bridges, the FDR Drive and the Harlem River Drive. There is a stairway that provides access to the waterfront area adjacent to the Willis Avenue Bridge ramp, located on the east side of the approach. It leads to a pedestrian pathway to the waterfront. However it is in disrepair and is currently closed to the public due to the presence of salt piles that are stored on the waterfront, as well as bridge reconstruction activity underway by the New York City Department of Transportation.

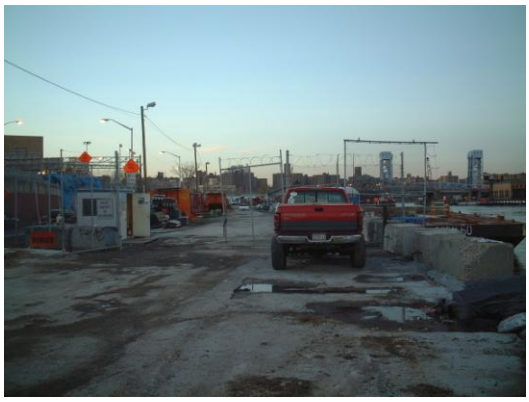


Stairs to pathway along Willis Ave bridge

Stairs at end of pathway - closed off

The waterfront area north of 125th Street will be closed and used for construction staging until 2012 to facilitate the Harlem River Bridges repair and reconstruction effort by NYCDOT. Community Board 11 expressed a desire to have some kind of interim waterfront access during the construction period, but this is not feasible. Upon completion of the reconstruction project NYCDOT will turn over the closed off area to

the New York City Department of Parks and Recreation to plan and manage the area for recreational purposes.

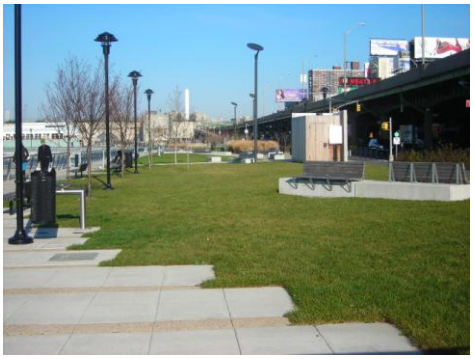


Construction staging area at waterfront

Hudson River Waterfront Area (West Side)

To the west, access to Hudson River waterfront at 125th Street also needs radical improvements.

The New York City Economic Development Corporation "West Harlem Master Plan" recommended a set of proposals to improve and transform the West Harlem Piers/Waterfront. The proposal is to convert the area into a park and recreational space which includes a fishing pier, a plaza, restaurants, market square etc. The waterfront park was recently completed and opened to the public in May 2009. The park connects to the Hudson River Greenway and the new bicycle and pedestrian path completing the western stretch of the Manhattan Waterfront Greenway.



Pedestrian mobility and circulation from 125th Street, St Clair Place, and Marginal Street to the waterfront area was limited due to the lack of sidewalks and curb cuts, and poor conditions of the crosswalks amongst other factors. These issues are described in the existing conditions report (Section 7.11).

With the construction of the West Harlem waterfront park several streetscape improvements have been made to Marginal Street. New crosswalks and signage have been installed on Marginal Street at St Clair Place. Additional crosswalks have been built along Marginal Street at 125th Street and at 132nd Street. These new crosswalks provide more visible pedestrian crossings to motorists. A pedestrian traffic light was also installed at 125th Street/ Marginal Street.

Marginal St and St Clair Pl – Poor condition

Marginal St and St Clair Pl – With improvements

Marginal St and 125th St: With new pedestrian traffic signal, crosswalk and curb cut

Beside these improvements implemented above, several others streetscape recommendations will take place in the Study Area under the Manhattanvile project and the Economic Development Corporation (EDC) Plan for the West Harlem Pier development and its immediate area in the future years.

APPENDIX D

Harlem Morningside Heights Transportation Study

Recommendations: Tracking Sheet

Appendix D

Harlem Morningside Heights Transportation Study
Recommendations Tracking Sheet

#	Intersection/Area	Peak Period	Improvements	Division	Status
1	**Willis Avenue Bridge – 125th Street and First Avenue (See Exhibits from BRT Project)**	All Time Periods	● As part of the ***Complete Street/BRT*** on First Avenue 1) a buffered bike lane outside the parking on the west curb and 2) a Bus Only lane will be installed on the corridor ● The First Avenue corridor from 116th Street to 125th St will be re-configured and restriped for the ***Complet Street/BRT*** to be implemented in 2011 ● Signal timing changes to be determinate by the Complete Street/BRT project	Signs and Markings, Bike, Signals, Highway Design (Add BRT agency)	
2	**2nd Avenue/E 125th Street (See Exhibit BRT Project)**	All Time Periods	● Second Avenue from 116th Street to 125th St will be re-configured and restriped as part of the implementation plan for the ***Complete Streets/ BRT project*** to be conclude in 2011 ● Signal timing changes to be determined by the Complete Street/BRT project	Highway Design, Parking, Signs and Markings, Borough Engineering, Signals (add BRT agency)	
3	**From 124th St to 126th St on Second Avenue: Access to Tribor ough Bridge (See Exhibit BRT Project)**	All Time Periods	● Improvements at these locations will be determined by the Complete Streets/BRT project	Highway Design, Parking, Signs and Markings, Borough Engineering, Signals, Bikes	
4	**Park Avenue/E 132nd Street (See Exhibit 3.1.1)**	All Time Periods	● Remove curbside parking on NB approach for 100 feet from the intersection and Post No Standing (NS) Anytime (7-7pm except Sunday) sign ● Restripe NB approach to provide two 11 foot travel lanes	Signals, Highway Design, Parking, Borough Engineering	
		PM	● Shift 3 second of green time from the EB to NB/SB phase		
		Sat MD	● Shift 2 second of green time from the EB to NB/SB phase		
5	**Madison Avenue /135th Street (See Exhibit 3.1.2)**	All Time Periods	DOT Pedestrian Project Group under the Harlem River Park Gateway project proposed the following at this location: ● Shorten crosswalks at the intersection ● Reverse service road north of Harlem River Drive exit from westbound to eastbound ● Consolidate two bus stops on the block for Bx33 eastbound between Fifth Avenue and Madison Avenue ● Install concrete curb extension with bollards ● New pedestrian islands for safety crossing and plantings	Highway Design, Signs and Markings, Borough Engineering, Parking , and Signals	

Appendix D

Harlem Morningside Heights Transportation Study
Recommendations Tracking Sheet

#	Intersection/Area	Peak Period	Improvements	Division	Status
6	**5th Avenue/135th Street (See Exhibit 3.1.3)**	All Time Periods	DOT Pedestrian Project Group under the Harlem River Park Gateway project proposed the following at this location: ● Restripe approaches to maintain consistency with the number of lanes (parking and moving lanes) feeding into it, lessening pedestrian exposure to traffic	Highway Design, Signs and Markings, Borough Engineering, Parking , and Signals	
7	**Propose bike route to access Madison Avenue Bridge (from 138th Street and Fifth Avenue) (See Exhibit 3.3.5)**	All Time Periods	● Add a Class II bicycle lane on Fifth Avenue from 138th St to to Marcus Garvey Park and on 138th Street from Madison Bridge to St Nicholas Avenue bicycle lane (class II) ● Install guide signs at the intersection to the entrance of Madison Avenue Bridge for pedestrians and cyclists	Highway Design, Signs and Markings, Bikesand Signals	
8	**Lenox Avenue/W 125th Street (See Street Improvement Projects - Work Plan 2010)**	All Time Periods	● As part of the ***Street Improvement Projetcs (DOT Work Plan 2010)*** for this intersection the following was done: 1) Wide and extend median tip through crosswalk and create large pedestrian refuge (Eliminate left turn lane on Lenox Avenue NB and SB approach) 2) Eliminate the left turn at all times in all the approaches at the intersection 3) Install LPI for Lenox Avenue and relocate pedestrian signal	Parking, signals, and Highway Design	
9	**Morningside Avenue/W 126th Street (See Exhibit 3.1.5)**	All Time Periods	● Remove parking on north curb WB approach and the receiving lane 100 feet from the intersection and post NS Anytime 7-7PM except Sunday ● Restripe WB approach to provide 2 travel lanes (11 feet) and 1 parking lane (south curb) of 8 feet.	Parking and Highway Design	
10	**Third Avenue Bike Bridge – Access from 128th Street and Third Avenue (See Exhibit 3.3.7)**	All Time Periods	● Install signs at the intersection approaches of 127th Street amd 128th Street on Third Avenue to guide pedestrians and cyclists to the path entering the bridge, ● Add a Class 3 bicycle route on Third Avenue between 126th and 128th Streets (this will connect to the proposed bicycle lane on 126th Street) ● Add one crosswalk to improve pedestrian safety at the intersection of 124th Street and the entrance to the bridge's on- ramp ● Restripe pavement markings that are in poor condition	Highway Design, Signs and Markings, Parking, Bikes, Signals, Borough Engineering	
11	**1st Avenue/E 116th Street (See Complete Streets/BRT Project)**		● This location will be subject to the Complete Streets/BRT project proposal		
12	**2nd Avenue/E 116th Street**		● This location will be subject to the Complete Streets/BRT project proposal		
13	**2nd Avenue/E 126th Street**		● This location will be subject to the Complete Streets/BRT project proposal		
14	**Park Avenue/E 116th Street**	AM	● Shift 4 seconds of green time from EB/WB to NB/SB phase		

Appendix D

Harlem Morningside Heights Transportation Study
Recommendations Tracking Sheet

#	Intersection/Area	Peak Period	Improvements	Division	Status
15	**5th Avenue/116th Street**	AM	● Shift 4 seconds of green time from SB to EB/WB phase	Signals	
16	**Lenox Avenue/W 126th Street**	AM	● Shift 5 seconds of green time from WB to NB/SB phase	Signals	
		Sat MD	● Shift 2 seconds of green time from WB to NB/SB phase	Signals	
17	**Lenox Avenue/W 135th Street**	AM	● Shift 4 seconds of green time from NB/SB to EB/WB phase	Signals	
18	**7th Avenue/Adam Clayton/W 116th Street**	AM	● Shift 3 seconds of green time from NB/SB to EB/WB phase	Signals	
19	**7th Avenue/Adam Clayton/W 135th Street**	AM	● Shift 4 seconds of green time from NB/SB to EB/WB phase	Signals	
		Midday	● Shift 3 seconds of green time from NB/SB to EB/WB phase		
20	**Manhattan Avenue/W 125th Street**	All Time Periods	● Shift 3 seconds of green time from EB/WB to NB/SB phase	Signals	
	Amsterdam Avenue/W 120th Street	AM, PM	● Shift 3 seconds of green time from NB/SB to EB/WB phase	Signals	
21	**Amsterdam Avenue/W 125th Street**	AM	● Shift 2 seconds of green time from NB/SB, and 1 second of green time from NB left/SB left to EB/WB	Signals	
		Midday	● Shift 2 seconds of green time from NB/SB to the EB/WB phase	Signals	
		PM, Sat MD	● Shift 3 seconds of green time from NB/SB, and 1 second of green time from NB left/SB left to EB/WB phase	Signals	
22	**Broadway/W 120th Street**	AM, Midday	● Shift 5 seconds of green time from NB/SB to EB/WB phase during	Signals	
		PM	● Shift 4 seconds of green time from NB/SB to EB/WB phase	Signals	
23	**Broadway/W 125th Street**	AM	● Shift 2 seconds of green time from EB/WB, and 1 second of green time from SB to NB phase	Signals	
		Midday	● Shift 2 seconds of green time from EB/WB to the NB phase	Signals	
		PM	● Shift 1 seconds of green time from EB/WB, and 1 second of green time from SB to NB phase	Signals	
24	**Broadway (NB)/W 135th Street**	PM	● Shift 3 seconds of green time from NB phase to the EB/WB	Signals	
		Sat MD	● Shift 2 seconds of green time from NB phase to the EB/WB	Signals	
25	**12th Avenue/W 133rd Street**	AM	● Shift 2 seconds of green time from WB to NB/SB phase	Signals	

Appendix D

Harlem Morningside Heights Transportation Study
Recommendations Tracking Sheet

#	Intersection/Area	Peak Period	Improvements	Division	Status
26	**Public Transportation Recommendations**		1) It is proposed to increases frequency along routes or increase bus capacity by changing type of bus from standard to articulates buses at the folowinf routes to meet future demands trips: 1. Bus M100 SB and Bx15 NB during the AM peak period, 2. Bus Bx15 NB/SB Midday peak period, 3. Buses M60 EB/WB, M100 NB, M116 EB/WB and Bx15 NB/SB during PM peak period and 4. Buses M116 EB and Bx15 SB during Saturday Midday peak period.	NTCT/MTA	
27	**Complete Street BRT Along First and Second Avenues**		1) The BRT study area is along First and Second Avenue from E Houston Street to E 125th Street. The main improvements recommended under this project are: 1) Install an exclusive bus lane (BRT), 2) Install separated bicycle path or share bike lane, and 3) Install green pedestrian refuge islands. The project is in progress, expected to be fully implemented on 2011. Lead division Capital Project Management	NYC DOT (CPM)	
28	**New Harlem Children's Zone Chapter School and New Affordable Housing (Build Year 2011)**		1) This project includes opening a section of West 129th Street, which currently ends in a cul-de-sac near the center of the housing development. The street would extend through the housing complex and operate as a one-way westbound street between Adam Clayton Powell Jr. Boulevard and Frederick Douglass Boulevard.	New York City Housing Authority	
29	**General Recommendations**		1) Supplement existing lighting with pedestrian scale lighting under elevated structures along Broadway and Park Avenue and towards the end of 125th Street (to be negociated with the BID) 2) The issue of cluttered corners with newspaper boxes and other street furniture at the intersec tions required the enforcement by the appropriate agency for sidewalk Corner Clearances 3) It is proposes that the community boards meet and coordinate with street vendors, elected officials, relevant city agencies, residents, local businesses and organizations in selecting sites for street vending activities. They would decide as a group where and how to develop this activity.	Enforcement Agencies	