

Safe Streets for Seniors

East Flatbush, Brooklyn

FINAL REPORT

August 2012



Janette Sadik-Khan, Commissioner



Safe Streets for Seniors
EAST FLATBUSH
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PROJECT DESCRIPTION

1. PROJECT DESCRIPTION

Since 1990 the number of pedestrian fatalities in New York City has decreased by 56%. Moreover, prior to 1950, pedestrians accounted for three-fourths of all traffic fatalities and since then, that percentage has decreased to account for about one-half of all traffic fatalities. Despite these statistical improvements, pedestrians continue to be the largest at risk mode – with older adults more likely to suffer serious injuries or fatalities from traffic crashes than other pedestrians. The rate of pedestrian fatalities for every 100,000 persons in the City has decreased by nearly half since 1991 – to 2.0 from 3.8 – while the rate of senior pedestrian fatalities per 100,000 seniors has decreased even more sharply – to 6.6 from 13.1. Nevertheless, while seniors make up only 12% of the population in New York City, they still comprise 39% of pedestrian fatalities. The recognition of the disproportional representation of the senior population among severe pedestrian injuries and fatalities led to the development of the Department of Transportation’s Safe Streets for Seniors (SSS) Program.

The purpose of this project is to address senior pedestrian safety issues at 25 Senior Pedestrian Focus Areas (SPFAs) in the five boroughs of New York City and to develop and implement mitigation measures to improve the safety of seniors and other pedestrians within the 25 SPFAs. DOT identified SPFAs to include the top senior pedestrian crash (severe injury and fatality) areas within each borough. Four of the SPFAs are located in the Bronx, seven in Brooklyn, five in Queens, eight in Manhattan and one in Staten Island. The SPFAs have been selected based on the density of senior pedestrian crashes resulting in fatalities or severe injuries in a five-year period. DOT conducted in-house studies for five pilot SPFAs and is utilizing consultant services to perform a comprehensive study of pedestrian safety conditions at intersections and along corridors within 20 selected SPFAs.

The project evaluates the crash history and existing traffic conditions and controls (e.g., roadway geometry, signal timing) at selected intersections and corridors within each SPFA in order to develop short- and long-term measures to reduce pedestrian crashes specifically for seniors, and improve safety and traffic operations for all users. The DOT makes specific safety recommendations consisting of low-cost as well as capital engineering and design improvements for these 20 areas. In addition, the DOT conducts data analysis as needed, prepares engineering and design schematics and related services, as necessary, for capital improvements.

In this report, the East Flatbush SPFA located in Brooklyn has been studied and improvements have been recommended.

2. BACKGROUND

Land-use in the East Flatbush Study Area is a mix of commercial and residential buildings. There are a few senior centers located near the study area, including: Christopher C. Blenman Senior Center at 720 East New York Avenue, and Shalom Senior Center at 483 Albany Avenue. Both are located between Albany and Troy Avenues.

There are four medical centers located within or near the study area, including: SUNY Downstate Medical Center at 450 Clarkson Avenue; Kings County Hospital at 451 Clarkson Avenue; Kingsboro Psychiatric Center at 681 Clarkson Avenue; and Kingsbrook Jewish Medical Center at 585 Schenectady Avenue.

There are eight schools located within the study area (list of school names and addresses shown in Exhibit 5).

Bicycle Facilities

The 2010 NYC Bike Map shows “existing” and “planned/proposed” bicycle facilities throughout the city. In the vicinity of the East Flatbush Study Area, there are existing Class 1, Class 2 and Class 3 bike routes. There is also a planned/proposed bike route to be striped along Winthrop Street within the study area. Refer to Exhibit 2 for details.

Truck Routes

There are several local truck routes within the study area including those along Utica Avenue, Linden Boulevard, Empire Boulevard, East New York Avenue (up to Troy Avenue), and Troy Avenue (between East New York Avenue and Empire Boulevard). The local truck routes along Church Avenue, Rogers Avenue and Nostrand Avenue are in close proximity to the study area (Exhibit 3).

Bus Lines and Subway

Four bus lines operate within the study area including (Exhibit 4):

- B12: Lefferts Garden – East New York Avenue, operates along East New York Avenue
- B14: Crown Heights – Spring Creek, operates along a portion of East New York Avenue
- B17: Canarsie – Crown Heights, operates along Remsen Avenue and portions of Utica Avenue and Troy Avenue
- B46: Kings Plaza – Williamsburg, operates along Utica Avenue

The subway lines **3** and **4** run along Eastern Parkway in the vicinity of the study area (Exhibit 4). Subway stations for the **3** and **4** lines are located at the following intersection:

- Utica Avenue and Eastern Parkway

Subway stations for the **3** line are also located at the following stations near the study area:

- Eastern Parkway and Kingston Avenue
- Eastern Parkway and Sutter Avenue - Rutland Road

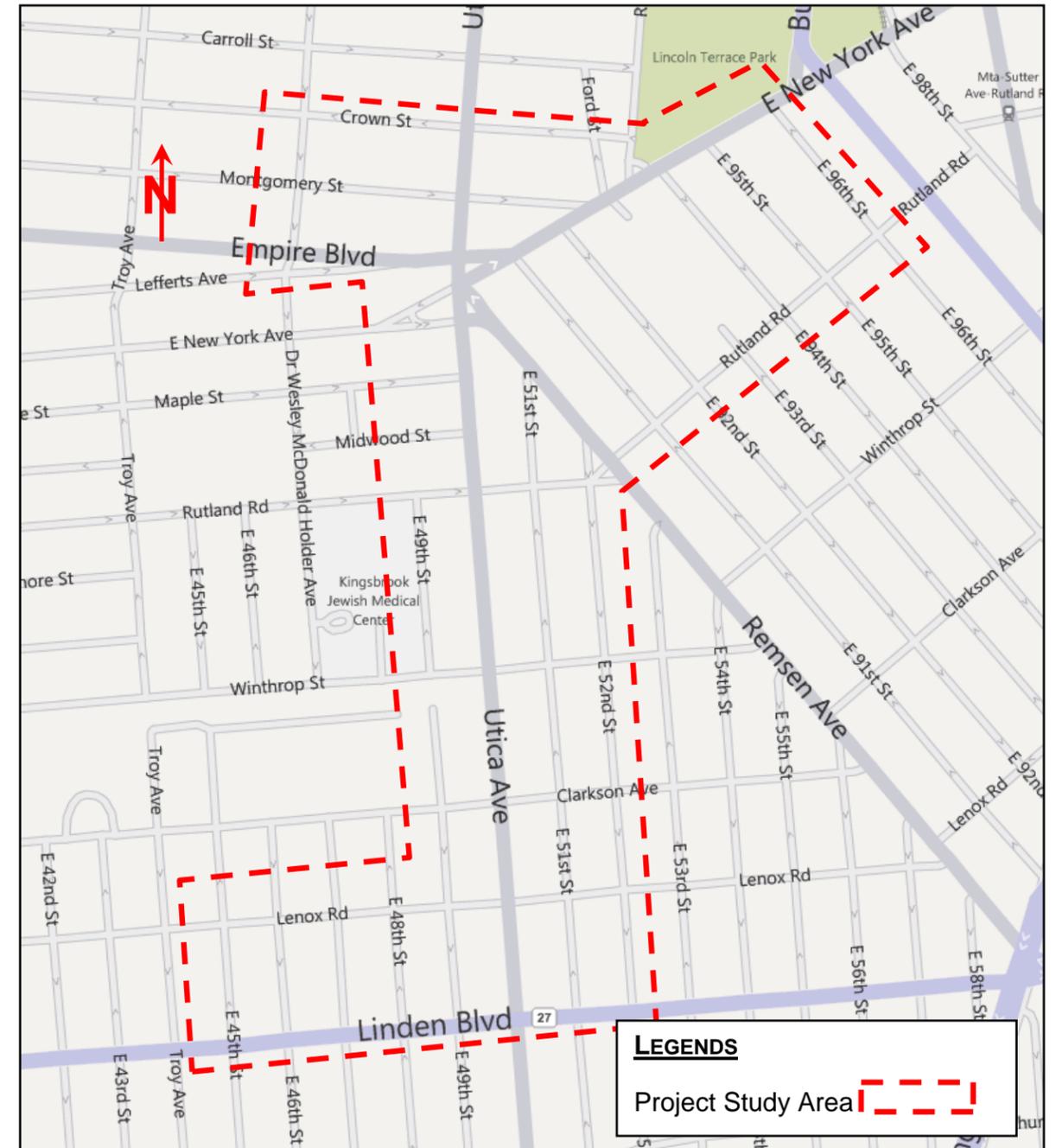


EXHIBIT 1 – AREA MAP

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BACKGROUND

EXHIBIT 2 – BIKE MAP

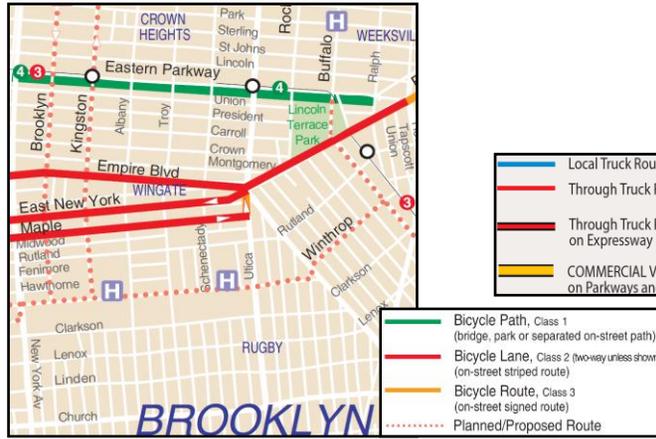


EXHIBIT 3 – TRUCK MAP

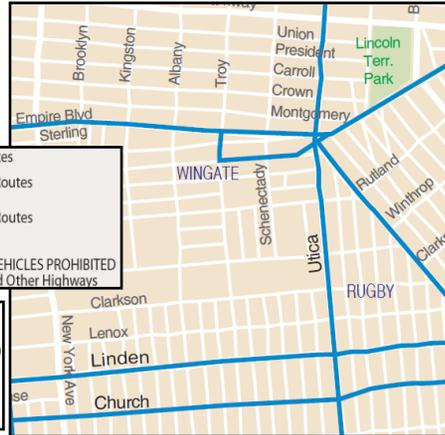


EXHIBIT 4 – TRANSIT MAP



EXHIBIT 5 – LIST OF SCHOOLS IN THE STUDY AREA

SCHOOL NAME	ADDRESS
P.S. 189 Lincoln Terrace School	1100 East New York Avenue, Brooklyn, NY 11212-3754
P.S. 398 Walter Weaver School	60 East 94th Street, Brooklyn, NY 11212-2349
Montgomery Academy	414 Utica Avenue, Brooklyn, NY 11213-5903
Winthrop Intermediate No. 232	905 Winthrop Street, Brooklyn, NY 11203-2417
P.S. 135 Sheldon A. Brookner School	684 Linden Boulevard, Brooklyn, NY 11203-3298
Get Set Kindergarten School	623 Linden Boulevard, Brooklyn, NY 11203-3139
P.S. 268	133 East 53rd Street, Brooklyn, NY 11203-2599
P.S. 221	791 Empire Boulevard, Brooklyn, NY 11213

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EXISTING CONDITIONS

3. EXISTING CONDITIONS

3.1 ABOUT THE STUDY AREA

The East Flatbush Study Area consists of two major north-south corridors: Remsen Avenue and Utica Avenue (Photo No. 1) and three major west-east corridors: E. New York Avenue, Lenox Road and Linden Boulevard. All of the major corridors carry truck routes (Exhibit 3). All the major corridors with the exception of Lenox Road and Linden Boulevard carry at least one NYCT route (Exhibit 4). Many of the senior residents interviewed showed concern about Utica Avenue. The combination of heavy traffic volumes, operational factors and geometric factors make this corridor difficult for senior pedestrians to safely cross.



Photo No. 1 : Utica Avenue and Empire Boulevard

3.2 FIELD OBSERVATIONS AND SENIOR PEDESTRIANS' CONCERNS

There were numerous issues that were repeatedly observed during the field visits and/or conveyed by senior pedestrians during interviews. Those issues are listed here:

- Insufficient pedestrian crossing time
- Speeding vehicles
- Missing crosswalk markings
- Missing or non-standard ADA pedestrian ramps
- Intersection of Utica Avenue and East New York Avenue/Remsen Avenue: complicated intersection with heavy vehicular and pedestrian traffic

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TRAFFIC OPERATIONS

4. TRAFFIC OPERATIONS

4.1 CRASH SUMMARY

Crash data was obtained from the New York City Department of Transportation (NYCDOT) for the East Flatbush study area from 2001 through 2006. This data provides some details relating the circumstances and cause of each crash. Table 1 and Exhibit 6 show a summary of crashes.

TABLE 1: DMV SIX YEAR CRASH SUMMARY (2001-2006)

INTERSECTION		SENIOR PEDESTRIAN CRASHES	SENIOR PEDESTRIAN FATALITIES
Lenox Road	E 45 th Street	1	0
Lenox Road	Utica Avenue	2	0
Linden Boulevard	E 52 nd Street	1	0
Winthrop Street	Utica Avenue	1	0
Rutland Road	Remsen Avenue/ E 52 nd Street	1	0
Rutland Road	E 95 th Street	1	0
Crown Street	Schenectady Avenue	1	0
Montgomery Street	Utica Avenue	1	0
East New York Avenue	E 95 th Street	1	0
Clarkson Avenue	E 54 th Street	1	0
Clarkson Avenue	Utica Avenue	1	1
TOTAL		12	1

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TRAFFIC OPERATIONS



EXHIBIT 6 – PEDESTRIAN CRASH STATISTICS (2001-2006)

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TRAFFIC OPERATIONS

4.2 TRAFFIC VOLUMES

In order to analyze conditions for vehicles and pedestrians, traffic volume data was collected at key locations (see Table 2).

The results of the ATR, TMC and pedestrian counts are included in Appendices A, B, and C and the Technical Supplement.

TABLE 2: TRAFFIC VOLUME DATA

LOCATION	ATR ¹	TMC ²	PED COUNTS
Utica Avenue & Linden Boulevard		x	x
Utica Avenue & Clarkson Avenue		x	x
Utica Avenue & Winthrop Street		x	x
Utica Avenue & E New York Avenue (South)		x	
Utica Avenue & E New York Av./Remsen Av.		x	x
Utica Avenue & Empire Blvd. (northbound)	x		
Utica Avenue & Empire Blvd. (southbound)	x		
Utica Avenue & Empire Boulevard		x	x

Notes:

1. Twenty-four hour Automatic Traffic Recorder (ATR)
2. Turning Movement Counts (TMC's)

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TRAFFIC OPERATIONS

4.3 EXISTING LEVEL OF SERVICE

The common practices used to evaluate intersections are level-of-service (LOS), delay, and volume-to-capacity ratio (v/c). At some of the signalized intersections, improvements were proposed which would potentially impact the intersection capacity. It was determined that these intersections would be evaluated for the effects of these modifications by analyzing the intersection LOS, delay and v/c. The baseline conditions at a specific intersection are measured in the amount of time (delay) that a vehicle has to wait at that intersection. This is measured in seconds per vehicle (sec/veh) during the busiest one hour (peak hour) in both the morning (AM) and evening (PM), and is referred to as total delay. Total delay is adjusted for additional accrued time due to traffic controls and queuing conditions. A volume-to-capacity ratio indicates the amount of congestion that occurs at a particular location. An intersection with a v/c that is greater than or equal to 1 proves that the traffic conditions are above or at capacity (heavy congestion); whereas an intersection with a v/c less than 1 indicates that traffic operations are below capacity.

The existing condition capacity analysis results for the select intersections are presented in Table 3. The backup summary of the analysis is presented in Appendix E.

TABLE 3: EXISTING (2010) INTERSECTION LEVEL OF SERVICE AND DELAYS (SEC)

Intersection	AM Peak hour	PM Peak Hour
	LOS*	LOS*
Empire Boulevard and Utica Avenue	F	F
East New York Avenue (North) & Utica Avenue	F	F
East New York Avenue (South) & Utica Avenue	F	D

* Highway Capacity Manual 2000 Level of Service Criteria in terms of vehicular delay at signalized intersection is presented in the following table:

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

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TRAFFIC OPERATIONS

4.4 SIGNAL TIMING: PEDESTRIAN INTERVAL

According to MUTCD 2009 (Manual on Uniform Traffic Control Devices) Section 4E.06, a minimum of seven (7) seconds is allocated for a walk interval, in addition to a pedestrian clearance time based on a walking speed of 3.5 feet per second. All signalized intersections within the study area were modified to provide a clearance interval of 3 feet per second to accommodate the slower walking speeds of seniors.

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ILLUSTRATING THE SOLUTION

5. ILLUSTRATING THE SOLUTION

5.1 EXECUTIVE SUMMARY AND GENERAL RECOMMENDATIONS

TABLE 4: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	Install Pedestrian Head	Install Pedestrian Countdown Signal	Street Closure	Change street direction	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility / School Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Median	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization	Daylighting	Use Crosswalk / Yield to Peds Sign	Speed Reducer	Left turn Prohibition	Do Not Block Intersection	Leading Pedestrian Interval (LPI)
Linden Boulevard & E 45 th Street					x ¹		x ²				x ²			x ¹					
Linden Boulevard & E 46 th Street		x ¹					x ²				x ²			x ¹					
Linden Blvd. & Schenectady Ave.					x ¹					x ¹	x ²				x ¹				
Linden Boulevard & E 48 th Street					x ¹						x ²			x ¹	x ¹				
Linden Boulevard & E 49 th Street		x ¹					x ²				x ²			x ¹	x ¹			x ¹	
Linden Boulevard & Utica Avenue		x ¹									x ²			x ¹					x ¹
Linden Boulevard & E 51 st Street						x	x ²				x ²								
Linden Boulevard & E 52 nd Street						x	x ²				x ²								
Lenox Road & E 45 th Street							x		x					x					
Lenox Road & E 46 th Street						x													
Lenox Road & Schenectady Ave.	x																		
Lenox Road & E 48 th Street									x										
Lenox Road & Utica Avenue						x	x		x										
Clarkson Avenue & E 49 th Street										x	x								
Clarkson Avenue & Utica Avenue							x		x	x	x								
Clarkson Avenue & E 51 st Street							x												
Winthrop Street & E 49 th Street								x											
Winthrop Street & E 51 st Street						x			x										
Rutland Road & E 49 th Street									x										
Rutland Road & Utica Avenue							x												
Rutland Road & E 52 nd Street								x	x	x	x								
Rutland Road & Remsen Avenue										x	x								
Rutland Road & E 91 st Street										x	x								

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ILLUSTRATING THE SOLUTION

TABLE 4: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	Install Pedestrian Head	Install Pedestrian Countdown Signal	Street Closure	Change street direction	Curb Extension \ Neckdown	Add Pedestrian Ramp	High-visibility / School Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Median	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization	Daylighting	Use Crosswalk / Yield to Peds Sign	Speed Reducer	Left turn Prohibition	Do Not Block Intersection	Leading Pedestrian Interval (LPI)
Rutland Road & E 92 nd Street										x ¹	x ¹								
Rutland Road & E 93 rd Street										x ¹	x ¹								
Rutland Road & E 94 th Street					x ¹			x		x ¹	x ¹		x	x ¹					
Rutland Road & E 95 th Street					x ¹		x			x ¹	x ¹		x	x ¹					
Rutland Road & E 96 th Street										x ¹	x ¹								
Utica Avenue & Maple Street						x	x												
Remsen Avenue & E 51 st Street							x								x				
Remsen Avenue & E 52 nd Street							x				x				x				
Remsen Ave. & Rutland Rd. (South)							x	x			x								
Utica Avenue & E New York Avenue (South)				x			x	x			x						x		
Utica Avenue & E New York Avenue (North)			x				x				x	x							
Lefferts Avenue & Schenectady Ave.											x								
Utica Avenue & Empire Boulevard							x												
E New York Avenue & E 91 st Street			x					x											
E New York Avenue & E 92 nd Street		x ¹																	
E New York Ave. & Montgomery St.		x ¹			x ¹	x		x ¹	x		x ¹								
E New York Avenue & Ford Street/E 93 rd Street								x	x										
E New York Ave. & Rochester Ave.		x ¹			x ¹		x ¹												
E New York Avenue & E 94 th Street					x ¹			x ¹											
E New York Avenue & E 95 th Street		x ¹									x ¹								
E New York Avenue & E 96 th Street											x ¹								
Montgomery St. & Schenectady Ave.											x								
Montgomery Street & Utica Avenue							x		x		x ¹								
Crown Street & Schenectady Avenue						x	x		x										

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ILLUSTRATING THE SOLUTION

TABLE 4: SUMMARY OF SPECIFIC RECOMMENDATIONS

Locations	Install Pedestrian Head	Install Pedestrian Countdown Signal	Street Closure	Change street direction	Curb Extension / Neckdown	Add Pedestrian Ramp	High-visibility / School Crosswalk	Standard Crosswalk	Stripe Stop Bar	Stripe Median	Stripe Parking Lane / Buffer	Stripe Angle Parking	Stripe Channelization	Daylighting	Use Crosswalk / Yield to Peds Sign	Speed Reducer	Left turn Prohibition	Do Not Block Intersection	Leading Pedestrian Interval (LPI)
Crown Street & Utica Avenue							x		x										
On E 94 th Street between Rutland Road and East New York Avenue																x ¹			
On E 95 th Street between Rutland Road and East New York Avenue																x ¹			
On Montgomery Street between Schenectady Avenue & Utica Avenue																x			

Notes:

x - Recommendations proposed by study of Safe Street for Seniors - East Flatbush

x¹ – Recommendations proposed under School Safety projects

x² – Recommendations proposed under Linden Boulevard Pavement Marking Plans by NYCDOT

General Recommendations

- Place stop bars ten feet in advance of all crosswalks
The NYCDOT standard for placement of a stop bar is ten feet in advance of any marked pedestrian crosswalk, including school and high-visibility crosswalks. This positioning helps to maximize pedestrian visibility and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all crosswalks.

- Provide additional crossing time where feasible
A number of senior residents interviewed indicated that there was not enough time to cross many of the streets. Therefore, all of the signals, where possible, will be retimed to allow more crossing time for pedestrians.

- Green projects where feasible
All medians, pedestrian plazas and curb extensions will be part of the Greenstreets program, where feasible. The Greenstreets program is a citywide program to convert paved vacant traffic islands and medians into green spaces filled with shade trees, flowering trees, shrubs and groundcover.

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ILLUSTRATING THE SOLUTION

5.2 LINDEN BOULEVARD



Photo No. 2: Linden Boulevard and Schenectady Avenue (looking east)

Within the study area, Linden Boulevard is an east-west, two-way arterial that extends from E 45th Street to E 52nd Street (Photo No. 2 and 3). Linden Boulevard is a 50-foot wide street with one moving lane in each direction, parking on both sides of the street and left-turn bays at various intersections. In order to shorten the crossing distance and to provide better visibility for senior pedestrians crossing Linden Boulevard at various locations, curb extensions are recommended. It should be noted that P.S. 135 is located on Linden Boulevard between Schenectady Avenue and E 48th Street. Proposed recommendations for this project concur with School Safety recommendations.

Neck-downs are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Southwest corner of Linden Boulevard and E 45th Street (School Safety Project)
- Southwest and southeast corners of Linden Boulevard and Schenectady Avenue (School Safety Project)
- Southwest corner of Linden Boulevard and E 48th Street (School Safety Project)

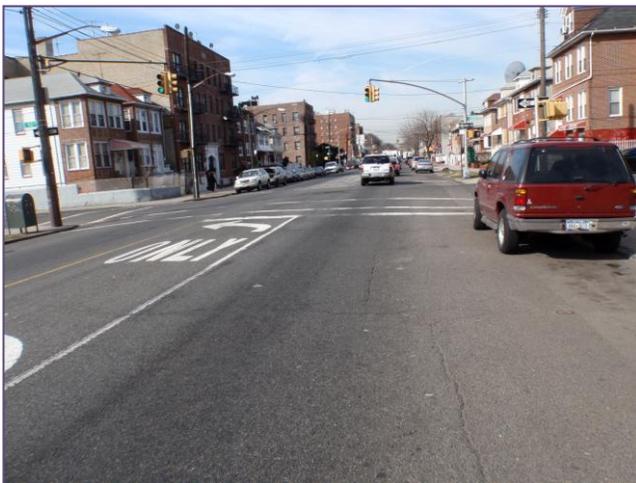


Photo No. 3: Linden Boulevard and E 52nd Street (looking west)

Daylighting is recommended at the following locations to improve visibility for senior pedestrians:

- Southwest and southeast corners of Linden Boulevard and E 45th Street (School Safety Project)
- Northeast corner of Linden Boulevard and E 46th Street (School Safety Project)
- Southeast corner of Linden Boulevard and E 48th Street (School Safety Project)
- Northwest corner of Linden Boulevard and E 49th Street (School Safety Project)
- Southwest corner of Linden Boulevard and Utica Avenue (School Safety Project)

Pedestrian countdown signals are recommended at the following intersections to provide senior pedestrians with more information about when the traffic light will change, allowing for safer crossings:

- Linden Boulevard and E 46th Street (School Safety Project)

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ILLUSTRATING THE SOLUTION

- Linden Boulevard and E 49th Street (School Safety Project)
- Linden Boulevard and Utica Avenue (School Safety Project)

Provide new pedestrian ramps at the following intersections:

- Linden Boulevard and E 51st Street
- Linden Boulevard and E 52nd Street

Turning movement counts for the AM and PM peak hours were performed at Linden Boulevard and Utica Avenue. The vehicle-pedestrian conflict at the east crosswalk was significant at this intersection. Therefore, installation of Leading Pedestrian Interval – LPI is recommended (School Safety) (see Appendix B).

At the intersection of Linden Boulevard and E 49th Street, an “Attention Drivers – Yield to Pedestrian” sign should be provided for southbound right-turning vehicles (School Safety Project). In order to discourage school children and senior pedestrians from crossing the street at midblock, ‘Use Crosswalk’ signs should be provided at various locations near P.S.135 (School Safety Project). It is recommended that ‘Do Not Block Intersection’ signs be provided at the intersection of Linden Boulevard and E 49th Street (School Safety Project). It is recommended that various intersections of Linden Boulevard, standard crosswalks be replaced with high visibility crosswalks (NYCDOT Improvements). It is further recommended that on Schenectady Avenue between Church Avenue and Linden Boulevard, a 6-foot wide striped median island be provided. It is also recommended that parking lanes be striped on both sides of Linden Boulevard from E 45th Street to E 52nd Street (School Safety Project).

All improvements proposed along Linden Boulevard are shown in Exhibit 9.

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ILLUSTRATING THE SOLUTION

5.3 LENOX ROAD



Photo No. 4: Lenox Road and Utica Avenue (looking east)

Within the study area, Lenox Road is an east-west, two-way local street that extends from E 45th Street to E 52nd Street (Photo No. 4). Lenox Road is a 35-foot wide street with one moving lane in each direction and parking on both sides of the roadway.

It is recommended that at the intersections of Lenox Road and E 45th Street and Lenox Road and Utica Avenue standard crosswalks be replaced by high visibility crosswalks. New stop bars should be provided at the intersections of Lenox Road and E 45th Street, Lenox Road and E 48th Street, and Lenox Road and Utica Avenue.

During field visits, it was observed that at the intersection of Lenox Road and Schenectady Avenue, pedestrian signal heads with typical “WALK” and “DON’T WALK” indications were missing. It is recommended that pedestrian signal heads be provided at all four (4) crosswalks for pedestrian safety reasons (Photo No. 5).

Daylighting is recommended at the following location to improve visibility for senior pedestrians:

- Southwest corner of Lenox Road and E 45th Street

Provide new pedestrian ramps at the following intersections:

- Lenox Road and E 46th Street
- Lenox Road and Utica Avenue

All improvements proposed along Lenox Road are shown in Exhibit 10.



Photo No. 5: Lenox Road and Schenectady Avenue (looking south)

5

ILLUSTRATING THE SOLUTION

5.4 CLARKSON AVENUE

Within the study area, Clarkson Avenue is an east-west, two-way local street extending from E 49th Street to E 52nd Street (Photo No. 6). Clarkson Avenue is 52-foot wide west of Utica Avenue and 36-foot wide east of Utica Avenue, with one moving lane in each direction and parking on both sides of the roadway.

It is recommended that the existing standard crosswalks at the intersections of Clarkson Avenue and Utica Avenue and Clarkson Avenue and E 51st Street be replaced by high visibility crosswalks. New stop bars should also be provided at the intersection of Clarkson Avenue and Utica Avenue.

It is further recommended that a 10-foot wide striped median island be provided on Clarkson Avenue from New York Avenue to Utica Avenue. It is also recommended that parking lanes be striped on both sides of Clarkson Avenue from New York Avenue to Utica Avenue (Photo No. 7).

Turning movement counts for the AM and PM peak hours were performed at Clarkson Avenue and Utica Avenue. The vehicle-pedestrian conflicts at this intersection were not found to be significant to require installation of Leading Pedestrian Interval – LPI (see Appendix B).

All improvements proposed along Clarkson Avenue are shown in Exhibit 11.



Photo No. 6: Clarkson Avenue and E 51st Street (looking east)



Photo No. 7: Clarkson Avenue and E 49th Street (looking east)

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ILLUSTRATING THE SOLUTION

5.5 WINTHROP STREET

Within the study area, Winthrop Street is an east-west, two-way local street extending from E 49th Street to E 52nd Street (Photo No. 8). Winthrop Street is a 36-foot wide roadway with one moving lane in each direction and parking on both sides of the street.

It is recommended that at the intersection of Winthrop Street and E 49th Street a standard crosswalk be installed on the north leg. New stop bars should be provided at the intersection of Winthrop Street and E 51st Street. It is also recommended to provide new pedestrian ramp at the intersection of Winthrop Street and E 51st Street.

Turning movement counts for the AM and PM peak hours were performed at Winthrop Street and Utica Avenue. The vehicle-pedestrian conflicts at this intersection were not found to be significant to require installation of Leading Pedestrian Interval – LPI (see Appendix B).

All improvements proposed along Winthrop Street are shown in Exhibit 12.



*Photo No. 8: Winthrop Street and E 51st Street
(looking east)*

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ILLUSTRATING THE SOLUTION

5.6 RUTLAND ROAD

Within the study area, Rutland Road is an east-west, two-way local street from Utica Avenue to E 96th Street, and a one-way eastbound local street from Utica Avenue to E 49th Street (Photo No. 9). Rutland Road is a 32-foot wide roadway west of E 52nd Street and a 44-foot wide roadway east of E 52nd Street with one moving lane in each direction and parking on both sides of the street.



Photo No. 9: Rutland Road and E 52nd Street (looking east)

It is recommended that the existing standard crosswalks at the intersections of Rutland Road and Utica Avenue and Rutland Road and E 95th Street be replaced with high visibility crosswalks. New high visibility crosswalks are also proposed at Remsen Avenue and E 52nd Street and Remsen Avenue and Rutland Road (south). New standard crosswalk is proposed at Rutland Road and E 52nd Street. New stop bars should be provided at the intersections of Rutland Road and E 49th Street, Remsen Avenue and Rutland Road (south), Rutland Road and E 94th Street and Rutland Road and E 52nd Street.

It should be noted that P.S. 189 Lincoln Terrace School and P.S. 398 Walter Weaver School are located along the Rutland Road corridor. Proposed recommendations for this project concur with School Safety recommendations.

Neck-downs are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Northwest and southwest corners of Rutland Road and E 94th Street (School Safety)
- Northeast and southeast corners of Rutland Road and E 95th Street (School Safety)

Daylighting is recommended at the following locations to improve visibility for senior pedestrians:

- Northeast and southeast corners of Rutland Road and E 94th Street (School Safety Project)
- Northwest and southwest corners of Rutland Road and E 95th Street (School Safety Project)



Photo No. 10: Rutland Road and E 95th Street (looking west)

It is recommended that an 8-foot wide striped median island be provided along Rutland Road from E 91st Street to E 96th Street (School Safety Project) (Photo No. 10). Under this project, it is further recommended that an 8-foot wide striped median island be striped along Rutland

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ILLUSTRATING THE SOLUTION

Road from E 91st Street to E 52nd Street. It is also recommended that channelization be provided at the intersections of Rutland Road and E 94th Street, and Rutland Road and E 95th Street. Shoulder striping is also proposed along the north leg (on the east side) at the intersection of Rutland Road and E 52nd Street. At the intersection of Remsen Avenue and E 52nd Street, an “Attention Drivers – Yield to Pedestrian” sign should be provided for eastbound right turning vehicles.

Installation of parking lane striping is recommended at following locations:

- Both sides Rutland Road from E 91st Street to E 96th Street (School Safety Project)
- Both sides Rutland Road from Remsen Avenue to E 91st Street
- Both sides Rutland Road South from E 52nd Street to Remsen Avenue
- West side of E 52nd Street from Remsen Avenue to Rutland Road

A spot speed study was conducted on E 95th Street between Rutland Road and E New York Avenue during off-peak traffic hours on a typical weekday. The study indicated that the 85th percentile speed on E 95th Street was 32.0 mph, which is above the statutory speed limit of 30 mph. (See Table 5 for a summary of the results.) The detailed spot speed survey data are presented in Appendix D – Spot Speed Study.

TABLE 5: SPOT SPEED SURVEY

Location	Direction	Average Speed (mph)	85th Percentile Speed (mpg)
NB E 95 th Street between Rutland Road and East New York Avenue	Northbound	25.5	32.0

Due to the close proximity of P.S. 398 Walter Weaver School, this spot speed survey location confirmed the feasibility of installing speed humps and parking lane striping along E 95th Street between Rutland Road and East New York Avenue. These recommendations, as proposed under the School Safety Project, will help to reduce the average travel speed along this long block, and thus help to improve pedestrian safety.

All improvements proposed along Rutland Road are shown in Exhibits 13 and 16.

5.7 EAST NEW YORK AVENUE (FROM E 91ST STREET TO E 96TH STREET)



Photo No. 11: E New York Avenue and E 94th Street (looking west)

Within the study area, E New York Avenue is an east-west, two-way arterial extending from Utica Avenue to E 96th Street (Photo No. 11). E New York Avenue is a 50-foot wide roadway with one moving lane in each direction and parking on both sides of the street. Within the study area, the B12 bus line runs along the arterial of E New York Avenue.

New school crosswalks are proposed at E New York Avenue and Rochester Avenue (School Safety Project). New standard crosswalks are proposed at E New York Avenue and Montgomery Street (School Safety Project) and E New York Avenue and Ford Street. New stop bars should be provided at the intersection of E New York

Avenue and Utica Avenue (south), E New York Avenue and E 91st Street, E New York Avenue and Montgomery Street (School Safety Project), and E New York Avenue and E 93rd Street. New pedestrian ramps are proposed at southeast corner of E New York Avenue and Montgomery Street.

It should be noted that P.S. 189 Lincoln Terrace School and P.S. 398 Walter Weaver School are located along the E New York Avenue corridor. Proposed recommendations for this project concur with School Safety recommendations.

Neck-downs are recommended at the following locations to shorten the crossing distance and slow turning traffic:

- Northeast corner of E New York Avenue and Montgomery Street (School Safety Project)
- Northeast corner of E New York Avenue and Rochester Avenue (School Safety Project)
- Northeast corner of E New York Avenue and E 94th Street (School Safety Project)

Pedestrian countdown signals are recommended at the following intersections to provide senior pedestrians with more information about when the traffic light will change, allowing for safer crossings:

- E New York Avenue and E 92nd Street (School Safety Project)
- E New York Avenue and Montgomery Street (School Safety Project)
- E New York Avenue and Rochester Avenue (School Safety Project)
- E New York Avenue and E 95th Street (School Safety Project)

Installation of parking lane striping is recommended at following locations:

- Both sides of E 95st Street from Rutland Avenue and East New York Avenue (School Safety Project)
- Both sides of E 96st Street from Rutland Avenue and East New York Avenue (School Safety Project)

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- Both sides of Montgomery Street from East New York Avenue to Utica Avenue (School Safety Project)

It is recommended to provide new pedestrian ramp at the intersection of East New York Avenue and Montgomery Street.

All improvements proposed along East New York Avenue are shown in Exhibits 14 and 17.

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5.8 SCHENECTADY AVENUE



Photo No. 12: Schenectady Avenue and Lefferts Avenue (looking north)

Within the study area, Schenectady Avenue is a one-way southbound local street extending from Crown Street to Lefferts Avenue (Photo No. 12). Schenectady Avenue is a 35-foot wide roadway with two moving lanes in the southbound direction and parking on both sides of the roadway. It should be noted that P.S. 221 is located in the vicinity of Schenectady Avenue.

It is recommended that the existing standard crosswalks located at the intersection of Schenectady Avenue and Crown Street be replaced with high visibility crosswalks. A new stop bar should also be provided on the southbound approach to this intersection, as well as a new pedestrian ramp on the southwest corner.

Installation of parking lane striping is recommended at following locations:

- Both sides of Montgomery Street from Schenectady Avenue to Utica Avenue
- North side of Lefferts Avenue from Troy Avenue to Schenectady Avenue

All improvements proposed along Schenectady Avenue are shown in Exhibit 15.

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ILLUSTRATING THE SOLUTION

5.9 UTICA AVENUE (INCLUDING UTICA AVENUE / LEFFERTS AVENUE / E NEW YORK AVENUE / REMSEN AVENUE COMPLEX INTERSECTION)



Photo No. 13: Utica Avenue and Empire Boulevard (looking north)

Within the study area, Utica Avenue is a north-south, two-way arterial which bisects the study area, extending from Crown Street to Linden Boulevard (Photo No. 13). It is a 64-foot wide roadway with two moving lanes in each direction and parking on both sides of the roadway. There are two bus lines (B46 and B17) that serve this section of Utica Avenue.

It is important to note that most of the major intersections that exist within the project area are located along the Utica Avenue corridor. Safety improvements at some of these major intersections along Utica Avenue between Linden Boulevard and Rutland Road have been discussed and presented previously in this report under the

appropriate intersecting corridors (Sections 5.2 thru 5.7). This section describes the recommendations proposed for the segment of Utica Avenue between Crown Street and Maple Street.

Field observations have indicated that significant traffic congestion and operational constraints exist on Utica Avenue between Empire Boulevard and E New York Avenue (south). These observations were further confirmed by the peak hour capacity analysis results shown in Table 3. Thus, major geometrical and operational modifications are proposed for the signalized intersections of E New York Avenue (north), Remsen Avenue and E New York Avenue (south) which are located in very close proximity along Utica Avenue. These improvements are discussed below:

- Utica Avenue and E New York Avenue (north):** The east leg of E New York Avenue is a small segment of roadway between Utica Avenue and E 91st Street which presently provides one-way eastbound movement at its intersection with Utica Avenue (Photo No. 14). It is recommended that this roadway segment be closed to traffic, and the existing eastbound traffic destined for E New York Avenue be routed through Empire Boulevard which becomes E New York Avenue just east of E 91st Street. It is important to note that the closure of the above noted roadway segment will be limited to vehicular



Photo No. 14: Utica Avenue and E New York Avenue (north) (looking east)

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ILLUSTRATING THE SOLUTION

traffic only, and that the existing bicycle lane will be maintained as per existing conditions. The other geometrical change includes the installation of approximately 20 additional 45 degree “back-in” angle parking spaces along the south curbside of west leg of E New York Avenue (north). As a result, the slip ramp between E New York Avenue (north) and E New York Avenue (south) will be eliminated. The need for this slip ramp will diminish due to the new traffic pattern changes noted below.

- **Utica Avenue and Remsen Avenue (north):** The north leg of Remsen Avenue is a small segment of roadway between Utica Avenue and E New York Avenue (south) which presently provides one-way northbound movement at its intersection with Utica Avenue. It is recommended that this roadway segment be closed to traffic, and the existing northbound traffic destined for Utica Avenue be routed to E New York Avenue (south), which intersects Utica Avenue. The closure of Remsen Avenue (north) will eliminate the need for a traffic signal at this location.
- **Utica Avenue and E New York Avenue (south)/Remsen Avenue (south):** The east and west legs of this intersection with Utica Avenue (i.e., E New York Avenue (south) and Remsen Avenue (south)) will be made two-way instead of the present one-way eastbound operation (Photo No. 15). This will help to facilitate the traffic operations resulting from the above noted roadway segment closures. It is important to note that the eastbound left-turns from E New York Avenue will remain prohibited under this new traffic scheme. The existing bus stop which is located on the west leg of E New York Avenue (north) will be relocated to the south leg of Remsen Avenue and East New York Avenue (south) intersection in order to provide services for the B17 bus line. The westbound approach of this intersection will be provided with an exclusive right turn lane in addition to the through and left turn shared lane.



Photo No. 15: Utica Avenue and E New York Avenue (south) (looking southeast)

Thus, the above noted measures will require traffic pattern changes especially at E New York Avenue (south) and Remsen Avenue (south) as they intersect Utica Avenue. The proposed two-way traffic operation resulting from the closure of Remsen Avenue northbound will eliminate the need for the existing signalized intersection at Utica Avenue and E New York Avenue (north). In addition, pedestrian-vehicular conflicts will be reduced due to the closure of the east leg of E New York Avenue (north) and the north leg of Remsen Avenue. These modifications will result in significant reductions in overall travel delays (see Table 6 below) when compared to the existing conditions (see Table 3).

The backup data for the capacity analysis is presented in the Technical Supplement. The results of the existing and build conditions Synchro analyses for the Utica Avenue corridor are provided in Appendix E.

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ILLUSTRATING THE SOLUTION

TABLE 6: BUILD (2010) INTERSECTION LEVEL OF SERVICE AND DELAYS (SEC)

Intersection	AM Peak hour	PM Peak Hour
	LOS*	LOS*
Empire Boulevard and Utica Avenue	F	F
East New York Avenue (South) & Utica Avenue	D	D

* Highway Capacity Manual 2000 Level of Service Criteria in terms of vehicular delay at signalized intersection is presented in section 4.3 of this report.

Turning movement counts for the AM and PM peak hours were performed at Empire Boulevard and Utica Avenue. The vehicle-pedestrian conflicts at this intersection were not found to be significant to require installation of Leading Pedestrian Interval – LPI (see Appendix B).

Replace existing standard crosswalks with high visibility crosswalks at following intersections:

- Utica Avenue and Crown Street (with new stop bars)
- Utica Avenue and Montgomery Street (with new stop bars)
- Utica Avenue and E New York Avenue (south) (with new stop bars)
- Utica Avenue and Empire Boulevard
- Utica Avenue and E New York Avenue (north)
- Utica Avenue and Maple Street

It is recommended to provide new pedestrian ramps at the intersection of Utica Avenue and Maple Street. It is further recommended that a speed reducer be installed on Montgomery Street between Utica Avenue and Schenectady Avenue in order to reduce travel speed on this segment of roadway.

All improvements proposed along Utica Avenue are shown in Exhibits 9 through 14.

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ILLUSTRATING THE SOLUTION

5.10 REMSEN AVENUE & E 51ST STREET



Photo No. 16: Remsen Avenue and E 51st Street (looking south)

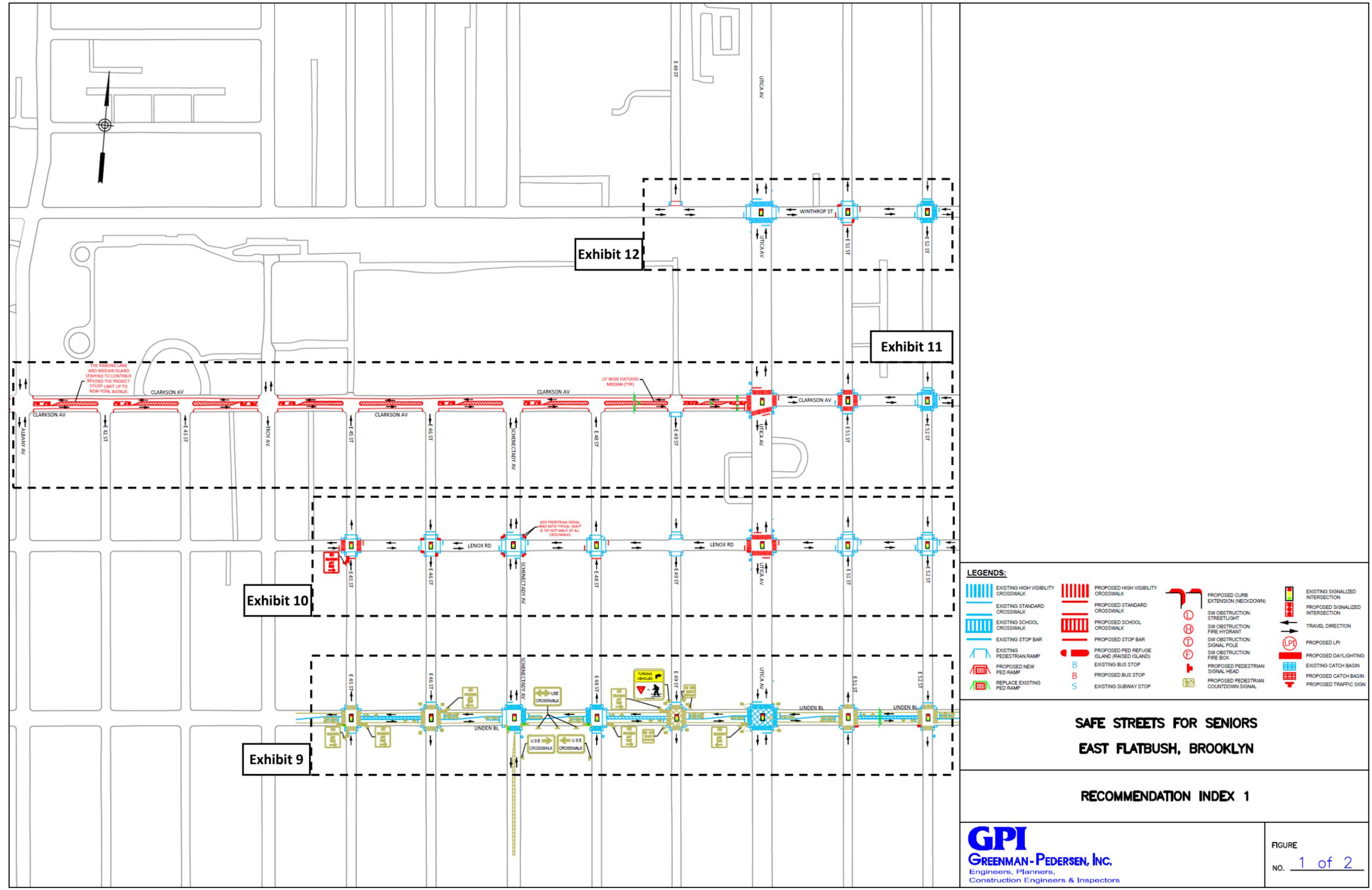
Exhibit 13.

Within the study area, Remsen Avenue is a north-south two-way local street. At this intersection, Remsen Avenue is 60 feet wide, with two moving lanes in each direction and parking on both sides of the street (Photo No. 16). It should be noted that the B17 bus runs along this section of Remsen Avenue.

It is recommended that the existing standard crosswalk at the intersection of Remsen Avenue and E 51st Street be replaced by a high visibility crosswalk. In addition, a “Turning Vehicles – Yield to Pedestrian” sign should be provided for eastbound right turning vehicles.

All improvements proposed at Remsen Avenue and E 51st Street are shown in

EXHIBIT 7 – RECOMMENDATION INDEX 1

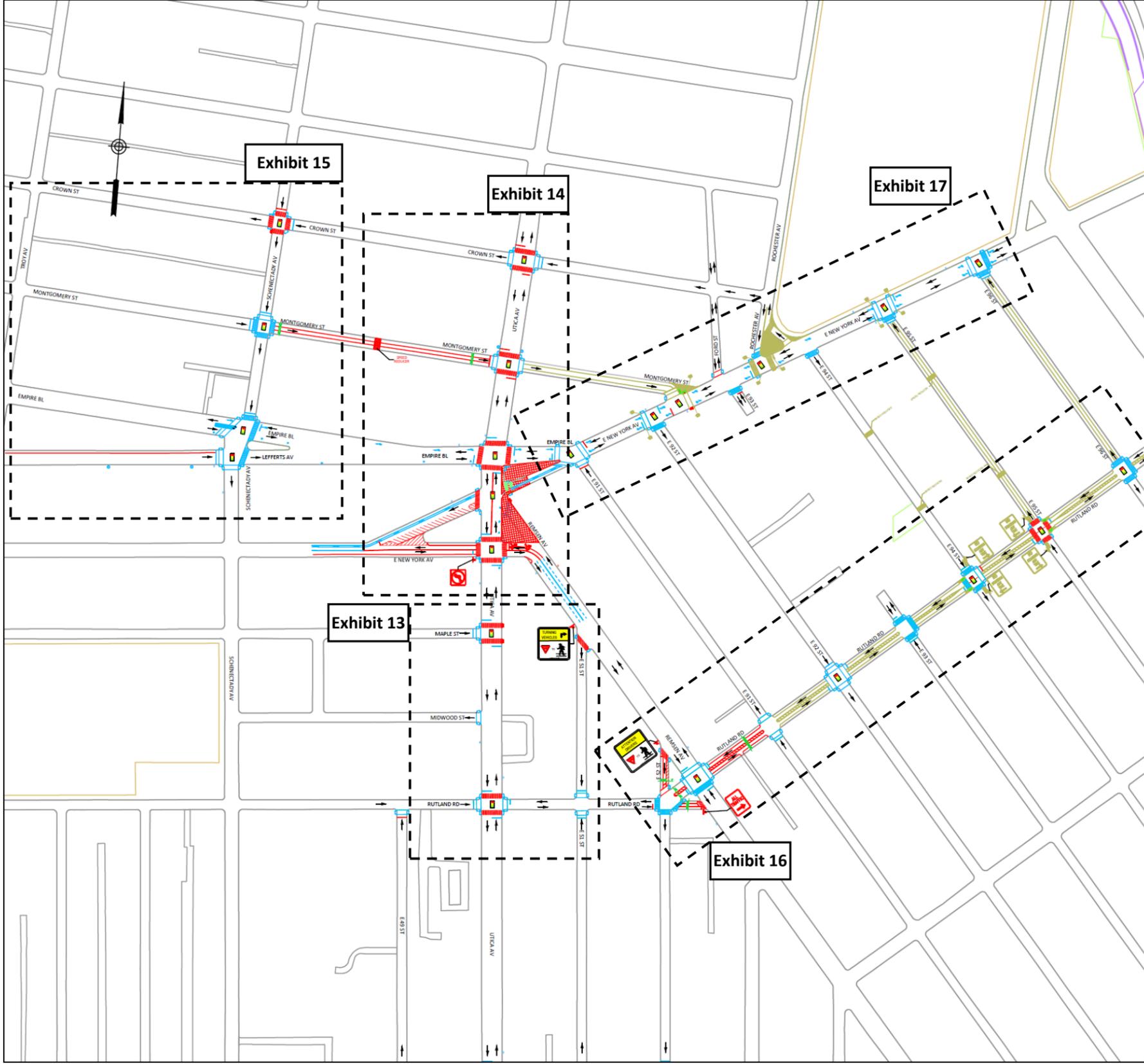


**SAFE STREETS FOR SENIORS
EAST FLATBUSH, BROOKLYN**

RECOMMENDATION INDEX 1

GPI
GREENMAN-PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 1 of 2



LEGENDS:

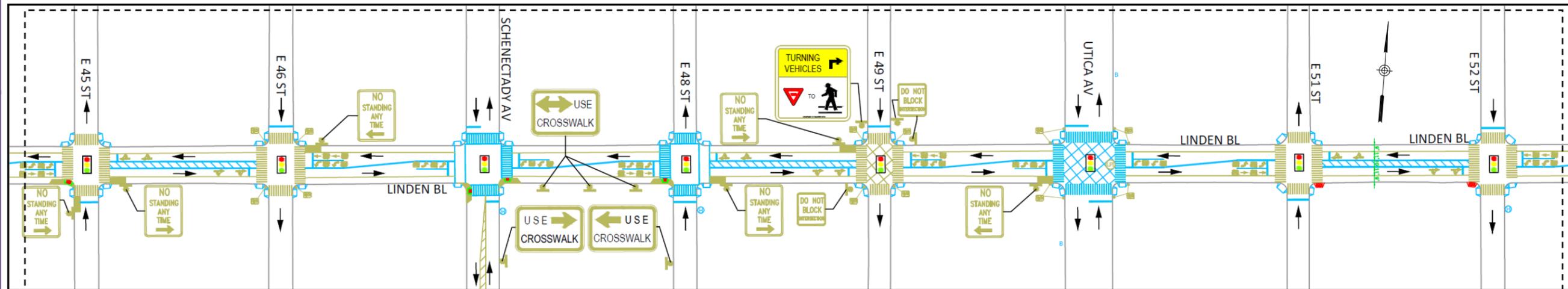
EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	EXISTING DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

**SAFE STREETS FOR SENIORS
EAST FLATBUSH, BROOKLYN**

RECOMMENDATION INDEX 2

GPI
GREENMAN - PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 2 of 2



DAYLIGHTING, PEDESTRIAN COUNTDOWN SIGNALS AND OTHER IMPROVEMENTS UNDER P.S. 135 SCHOOL SAFETY PROJECT AND LINDEN BOULEVARD PAVEMENT MARKING PLANS (SHOWN IN ■ COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

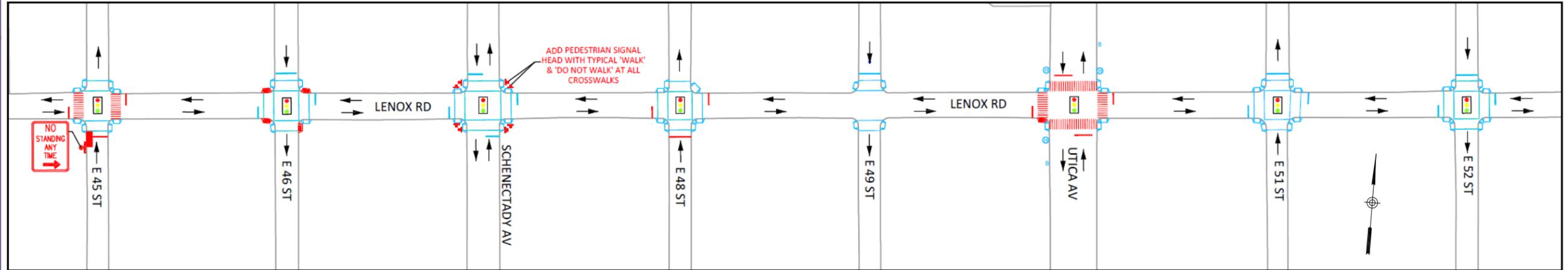
- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on March 10th, March 19th and August 2nd, 2010

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration (NYCDOT Improvements)
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new pedestrian countdown signals (School Safety Project)
 - Install new "Use Crosswalk" (with appropriate arrow) signs (School Safety Project)
 - Install new "Yield to Pedestrian" sign at the intersection shown in the illustration (School Safety Project)
 - Install new "Do Not Block Intersection" signs at the intersection shown in the illustration (School Safety Project)
 - Provide daylighting at several intersections (all under School Safety Project):
 - Install neck-downs or curb extensions (School Safety Project)
 - Install new parking lanes on both sides of Linden Boulevard as shown in the illustration (NYCDOT Improvements)
 - Install a new 8-foot wide striped median island

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at:
 - Utica Ave & Linden Blvd
- Turning movement and pedestrian counts summaries are shown in Appendices B and C

EXHIBIT 10 – LENOX ROAD



LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks as shown in the illustration
- Install new advanced stop bars as shown in the illustration
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Provide daylighting at one intersection
- Install new pedestrian signal heads with typical "WALK" and "DON'T WALK" indications at all crosswalk approaches

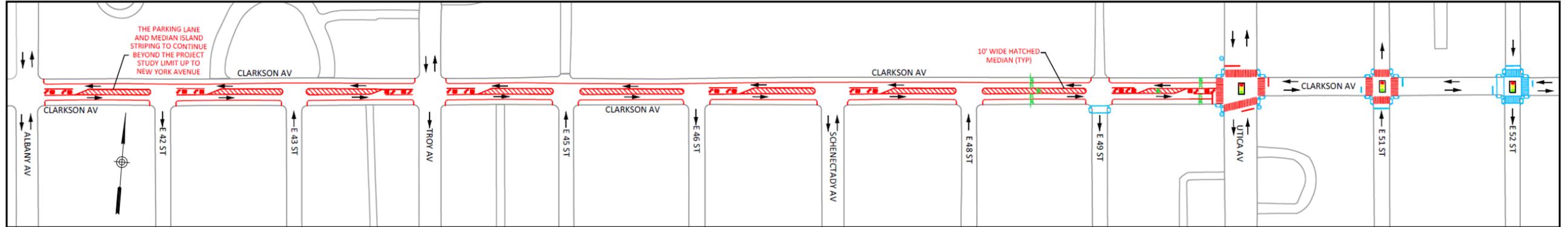
Pedestrian concerns in this area:

- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on March 10th, March 19th and August 2nd, 2010
- Parking regulations for the project area have been collected and are shown in Appendix G

EXHIBIT 11 – CLARKSON AVENUE



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

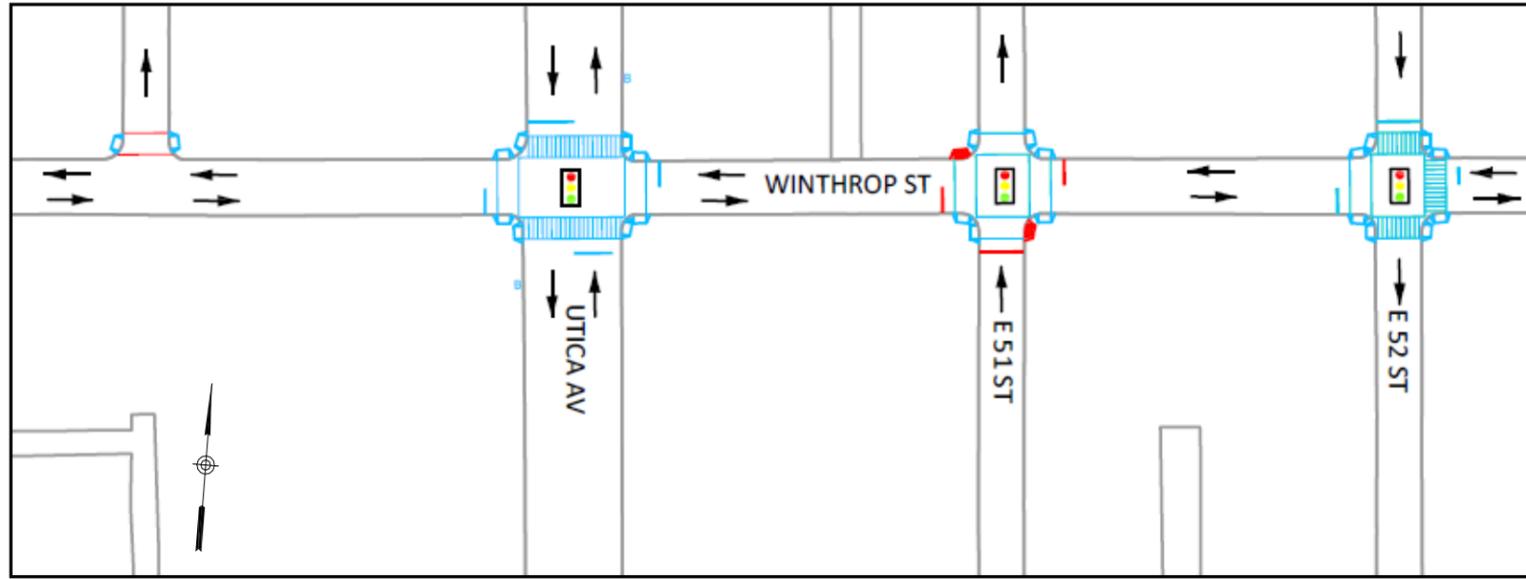
- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new advanced stop bars as shown in the illustration
 - Install a new 10-foot wide striped median island
 - Install new parking lanes on both sides of Clarkson Avenue as shown in the illustration

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on March 10th, March 19th and August 2nd, 2010
 - Parking regulations for the project area have been collected and are shown in Appendix H

- Traffic Analysis**
- Turning movement and pedestrian counts were analyzed at:
 - Utica Ave & Clarkson Ave
- Turning movement and pedestrian counts summaries are shown in Appendices B and C

EXHIBIT 12 – WINTHROP STREET



LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new advanced stop bars as shown in the illustration
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks

Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

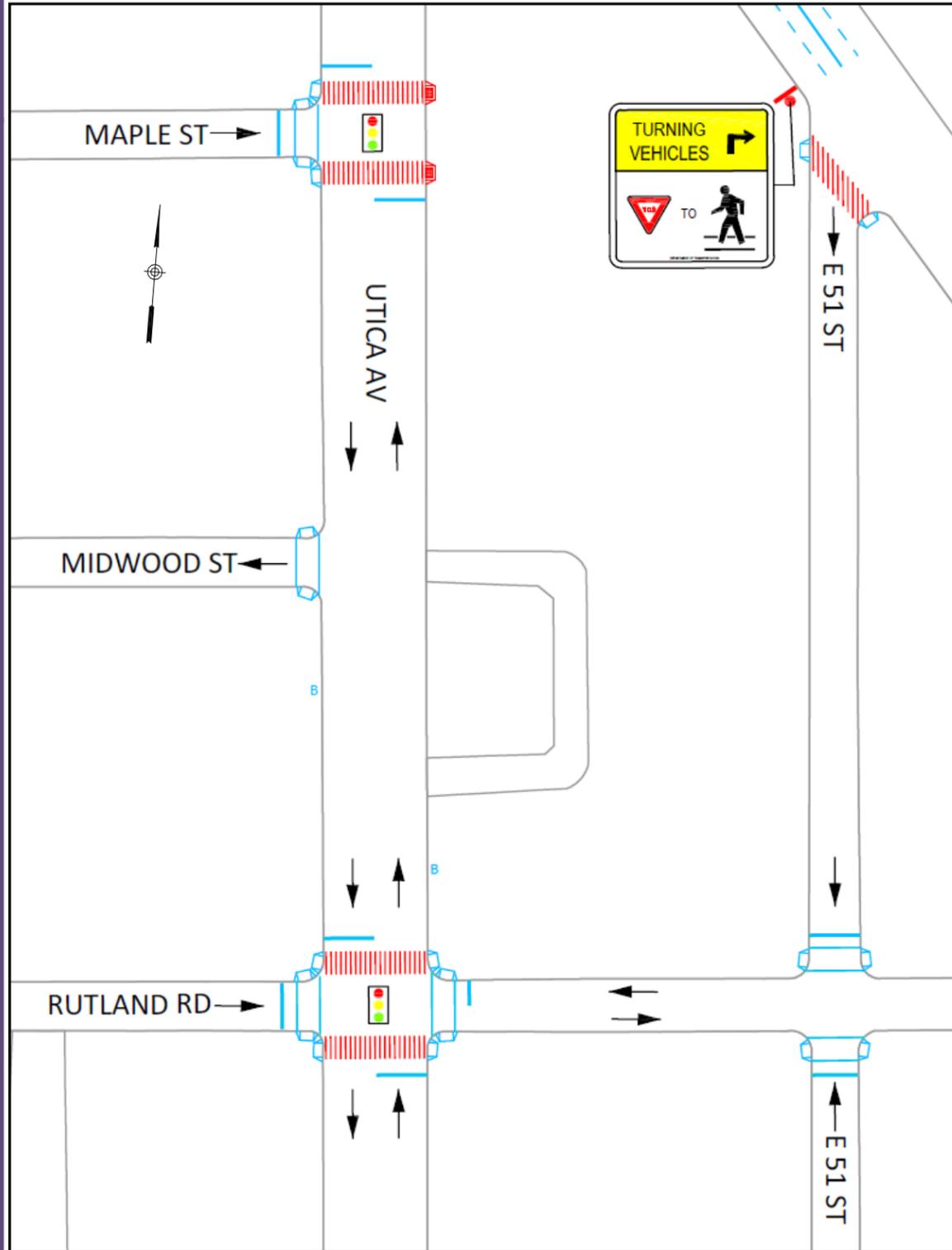
Traffic Analysis

- Turning movement and pedestrian counts were analyzed at:
 - Utica Ave & Winthrop Street

Turning movement and pedestrian counts summaries are shown in Appendices B and C

Additional Information

- This study area was visited on March 10th, March 19th and August 2nd, 2010
- Parking regulations for the project area have been collected and are shown in Appendix G



Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks as shown in the illustration
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new "Turning Vehicles - Yield to Pedestrian" sign

LEGENDS:

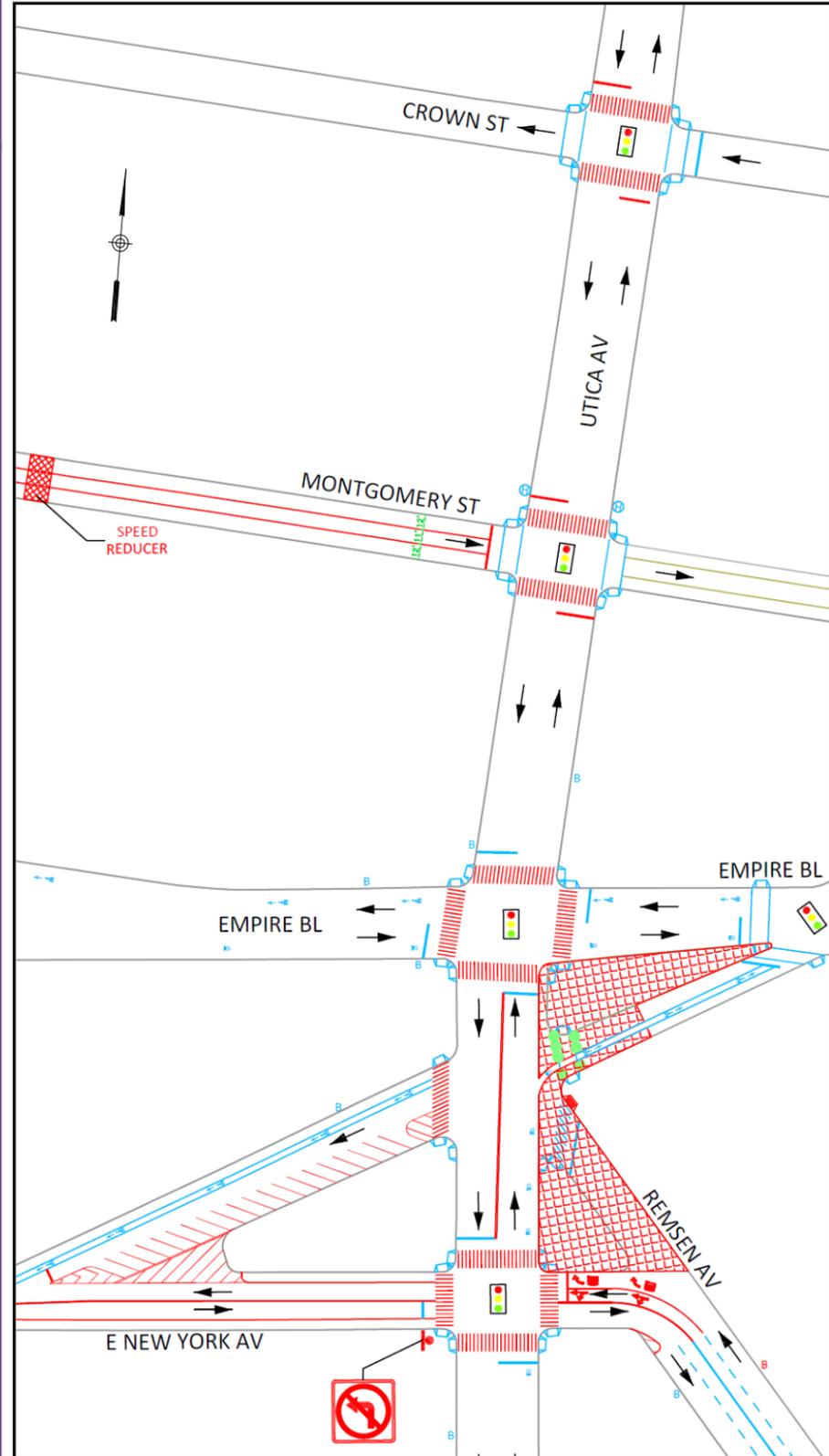
	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

Pedestrian concerns in this area:

- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on March 10th, March 19th and August 2nd, 2010
- Parking regulations for the project area have been collected and are shown in Appendix G



Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks as shown in the illustration
- Install new advanced stop bars as shown in the illustration
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install new parking lanes on both sides of the roadway as shown in the illustration
- Install new “back-in” angle parking spaces
- Provide street closures
- Change traffic patterns as shown in the illustration
- Prohibit one eastbound left turn
- Install speed reducer as shown in the illustration
- Relocate bus stop on Remsen Avenue as shown in the illustration

LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN

Pedestrian concerns in this area:

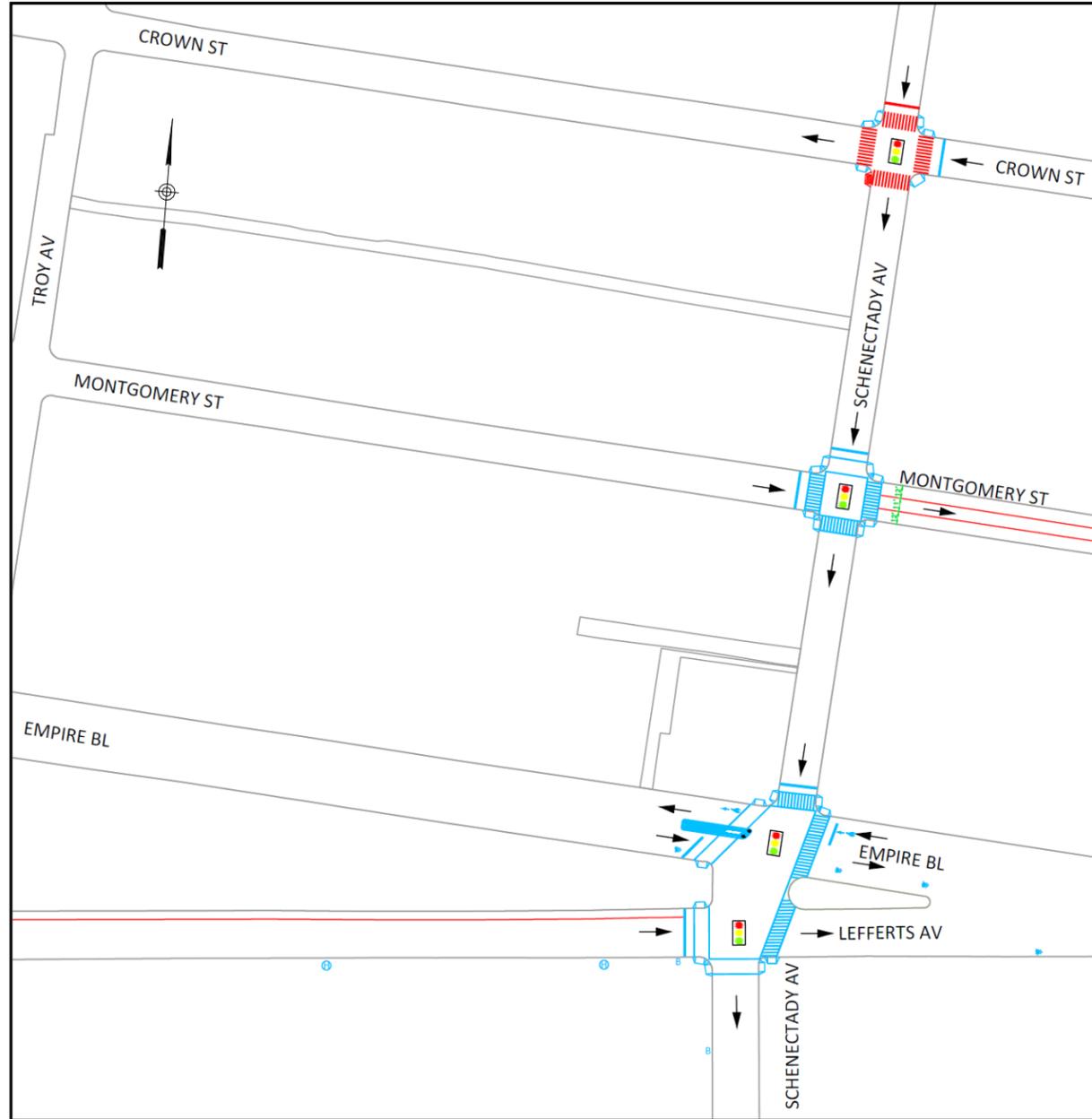
- Non-standard pedestrian ramps
- Turning vehicles not yielding to pedestrians
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on March 10th, March 19th and August 2nd, 2010
- Parking regulations for the project area have been collected and are shown in Appendix G

Traffic Analysis

- ATR counts were analyzed at:
 - Utica Ave & Empire Blvd
 ATR Summary is shown in Appendix A
- Turning movement and pedestrian counts were analyzed at:
 - Empire Blvd & Utica Ave
 - Utica Ave & E New York Ave (North and South)
 - E New York Ave (North) & E New York Ave (South)
 Turning movements and pedestrian counts summaries are shown in Appendices B and C



Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new high visibility crosswalks as shown in the illustration
- Install a new advanced stop bar
- Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
- Install parking lane stripes as shown in the illustration

Pedestrian concerns in this area:

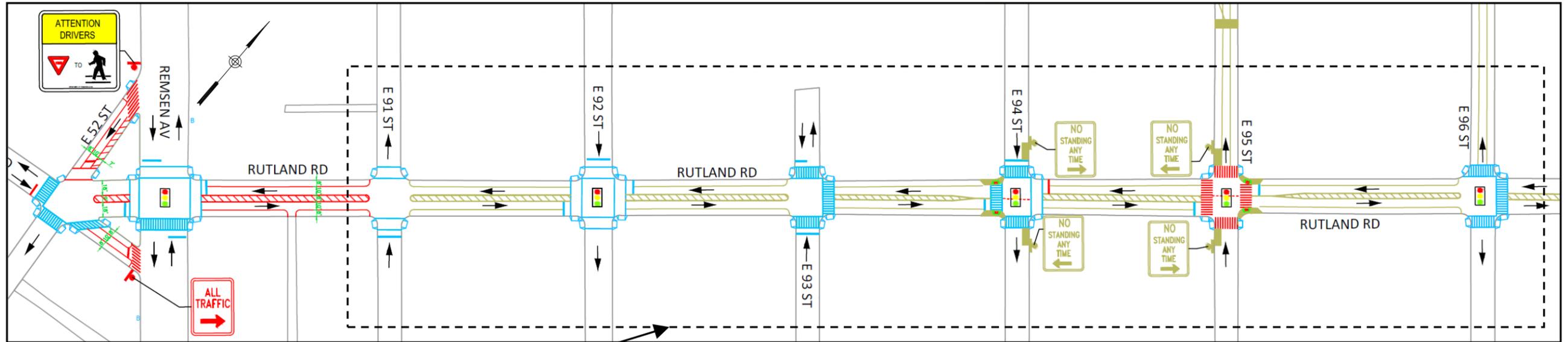
- Non-standard pedestrian ramps
- Signal timing (insufficient crossing time)

Additional Information

- This study area was visited on March 10th, March 19th and August 2nd, 2010
- Parking regulations for the project area have been collected and are shown in Appendix G

LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREETLIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED CATCH BASIN
			EXISTING SUBWAY STOP				PROPOSED TRAFFIC SIGN



HATCHED MEDIAN ISLAND, CURB EXTENSION AND DAYLIGHTING IMPROVEMENTS UNDER P.S. 398 SCHOOL SAFETY PROJECT (SHOWN IN ■ COLOR)

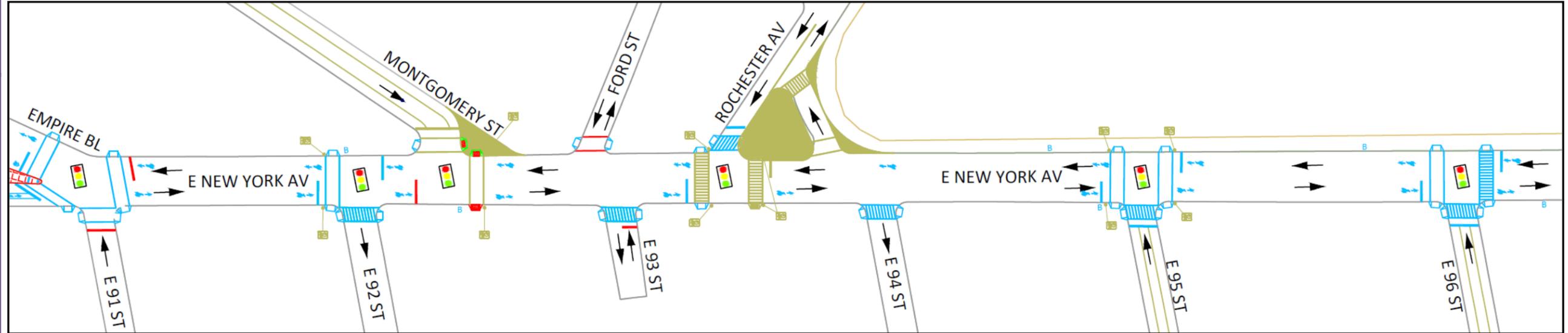
- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new high visibility crosswalks as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Provide daylighting (School Safety Project)
 - Install neck-downs or curb extensions (School Safety Project)
 - Install a new 8-foot wide striped median island
 - Install new parking lanes on both sides of the roadway
 - Install new "Turning Vehicles - Yield to Pedestrian" sign

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on March 10th, March 19th and August 2nd, 2010
 - Parking regulations for the project area have been collected and are shown in Appendix G



MEDIAN ISLAND, CURB EXTENSION AND PEDESTRIAN COUNTDOWN SIGNALS IMPROVEMENTS UNDER P.S. 398 SCHOOL SAFETY PROJECT (SHOWN IN ■ COLOR)

LEGENDS:

EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	PROPOSED BUS STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
	EXISTING SUBWAY STOP		PROPOSED TRAFFIC SIGN

- Recommended improvements include:**
- Time all signals for seniors and where feasible, the crossing time will be extended
 - Install new school and standard crosswalks as shown in the illustration (School Safety Project)
 - Install new advanced stop bars as shown in the illustration
 - Install new pedestrian ramps. Where proposed, align the ramps with the crosswalks
 - Install new pedestrian countdown signals as shown in the illustration (School Safety Project)
 - Install new pedestrian refuge island extension
 - Install neck-downs or curb extensions (School Safety Project)

- Traffic Analysis**
- Spot Speed Study was conducted at:
 - E 95th Street between Rutland Road and East New York Avenue
- Spot Speed survey data is shown in Appendix D

- Pedestrian concerns in this area:**
- Non-standard pedestrian ramps
 - Turning vehicles not yielding to pedestrians
 - Signal timing (insufficient crossing time)

- Additional Information**
- This study area was visited on March 10th, March 19th and August 2nd, 2010
 - Parking regulations for the project area have been collected and are shown in Appendix G

Safe Streets for Seniors

East Flatbush, Brooklyn

APPENDIX

August 2012



Janette Sadik-Khan, Commissioner



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APPENDIX – A

AUTOMATIC TRAFFIC RECORDER COUNTS (ATR)

Twenty-four hour Automatic Traffic Recorder (ATR) counts were collected in July of 2010. The results are shown in Table 1. Detailed ATR data are presented in the Technical Supplement.

TABLE 1: EXISTING ATR TRAFFIC VOLUMES (2010)		
Locations	Direction	ADT* (veh/day)
Utica Avenue and Empire Boulevard	Northbound	11624
Utica Avenue and Empire Boulevard	Southbound	9509

*Note: ADT is Average Daily Traffic

APPENDIX – B

TURNING MOVEMENT COUNTS (TMC)

Turning Movement Counts (TMC's) in 15-minute increments were collected in April, September, November and December of 2010 during the morning (7:30 am to 9:30 am) and evening (4:00 pm to 6:00 pm) peak periods. The results of the turning movement counts for both the AM and PM peak hours are shown in Table 2. Detailed TMC data are presented in the Technical Supplement.

TABLE 2: TURNING MOVEMENT COUNTS														
Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Utica Avenue and Clarkson Avenue	AM	Auto	55	717	34	14	674	141	106	181	55	41	380	42
		Truck	2	23	1	0	14	0	1	2	4	0	1	1
		Bus	2	58	0	1	46	2	3	4	0	1	5	0
		Total	59	798	35	15	734	143	110	187	59	42	386	43
	PM	Auto	34	589	37	39	757	156	118	288	55	35	205	34
		Truck	1	12	1	0	11	0	3	4	0	0	1	0
		Bus	0	37	0	3	32	2	4	14	0	0	4	1
		Total	35	638	38	42	800	158	125	306	55	35	210	35
Utica Avenue and Linden Boulevard	AM	Auto	42	735	20	32	689	45	34	330	39	23	488	21
		Truck	2	24	2	2	15	3	3	55	3	2	46	6
		Bus	2	56	2	2	55	1	2	14	6	2	18	1
		Total	46	815	24	36	759	49	39	399	48	27	552	28
	PM	Auto	32	627	42	61	743	74	33	297	31	25	379	23
		Truck	0	8	0	2	8	1	0	27	0	1	23	0
		Bus	0	32	0	0	27	1	2	20	1	0	24	1
		Total	32	667	42	63	778	76	35	344	32	26	426	24
Utica Avenue and Winthrop Street	AM	Auto	148	728	27	17	636	117	79	160	163	33	461	25
		Truck	6	17	0	0	4	5	2	2	4	0	7	3
		Bus	7	52	2	0	36	7	0	0	6	3	13	0
		Total	161	797	29	17	676	129	81	162	173	36	481	28
	PM	Auto	95	648	31	27	778	103	34	246	180	21	294	23
		Truck	0	6	0	0	10	2	1	3	3	2	1	0
		Bus	7	27	1	1	35	1	0	3	2	2	1	0
		Total	102	681	32	28	823	106	35	252	185	25	296	23

Intersection	Time	Class	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Utica Avenue and Empire Boulevard	AM	Auto	1	811	49	0	479	43	6	207	89	70	398	78
		Truck	0	27	1	1	18	4	0	16	9	3	30	3
		Bus	0	49	0	0	51	2	1	26	12	3	32	5
		Total	1	887	50	1	548	49	7	249	110	76	460	86
	PM	Auto	13	615	19	13	440	26	11	286	125	87	267	17
		Truck	1	36	1	0	38	0	0	17	2	1	9	0
		Bus	1	9	0	0	9	0	0	13	8	3	2	0
		Total	15	660	20	13	487	26	11	316	135	91	278	17
Utica Avenue and Remsen Avenue/E New York Avenue (North)	AM	Auto	68	405	40	0	537	19	-	-	-	244	178	10
		Truck	4	22	1	0	36	1	-	-	-	17	8	0
		Bus	1	32	4	0	58	0	-	-	-	20	6	0
		Total	73	459	45	0	631	20	-	-	-	281	192	10
	PM	Auto	106	177	140	2	633	20	-	-	-	333	195	46
		Truck	0	34	2	0	43	0	-	-	-	11	5	3
		Bus	0	7	0	0	18	0	-	-	-	1	2	1
		Total	106	218	142	2	694	20	-	-	-	345	202	50
Utica Avenue and E New York Avenue (South)	AM	Auto	-	622	17	138	504	-	23	157	31	-	-	-
		Truck	-	24	1	11	12	-	4	3	0	-	-	-
		Bus	-	43	1	19	43	-	2	8	1	-	-	-
		Total	-	689	19	168	559	-	29	168	32	-	-	-
	PM	Auto	-	423	51	187	446	-	31	304	31	-	-	-
		Truck	-	36	0	13	30	-	0	0	2	-	-	-
		Bus	-	7	0	4	14	-	2	1	1	-	-	-
		Total	-	466	51	204	490	-	33	305	34	-	-	-
E New York Avenue (North) and E New York Avenue (South)	AM	Auto	-	-	-	-	2	341	-	-	-	-	-	-
		Truck	-	-	-	-	0	19	-	-	-	-	-	-
		Bus	-	-	-	-	0	19	-	-	-	-	-	-
		Total	-	-	-	-	2	379	-	-	-	-	-	-
	PM	Auto	-	-	-	-	13	500	-	-	-	-	-	-
		Truck	-	-	-	-	0	8	-	-	-	-	-	-
		Bus	-	-	-	-	0	11	-	-	-	-	-	-
		Total	-	-	-	-	13	519	-	-	-	-	-	-

Based on these manual counts, the AM and PM peak hours were determined to be:

8:00 am – 9:00 am (AM peak hour) and 4:45 pm – 5:45 pm (PM peak hour)

- Utica Avenue and Linden Boulevard

7:45 am – 8:45 am (AM peak hour) and 4:15 pm – 5:15 pm (PM peak hour)

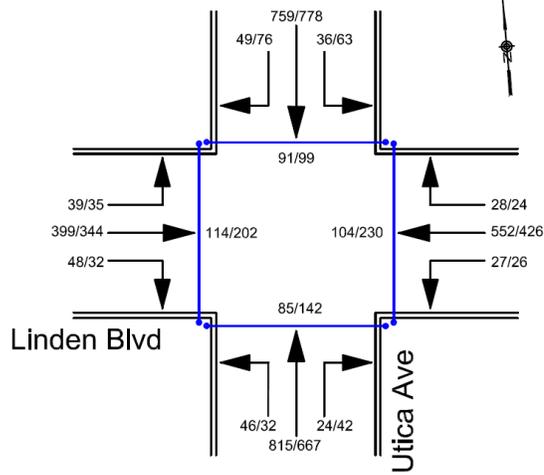
- Utica Avenue and Clarkson Avenue

7:30 am – 8:30 am (AM peak hour) and 5:00 pm – 6:00 pm (PM peak hour)

- Utica Avenue and Winthrop Avenue

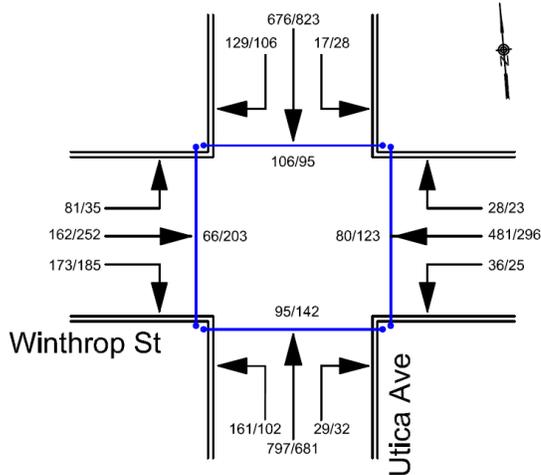
8:00 am – 9:00 am (AM peak hour) and 5:00 pm – 6:00 pm (PM peak hour)

- Utica Avenue and East New York Avenue (South)
- Utica Avenue and East New York Avenue/Remsen Avenue
- Utica Avenue and Empire Boulevard



Intersection of Utica Avenue and Linden Boulevard

Note: Counts conducted on Tuesday, 04/27/2010.

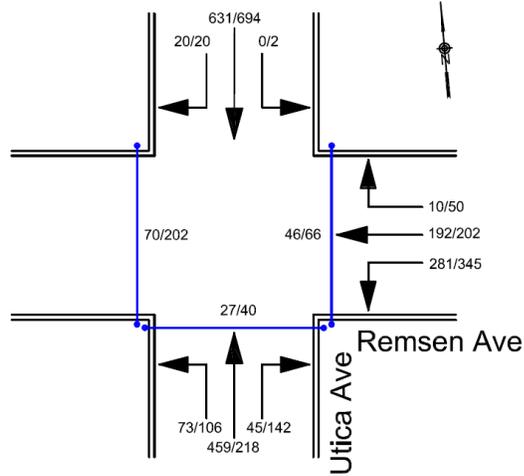


Intersection of Utica Avenue and Winthrop Street

Note: Counts conducted on Tuesday, 04/27/2010.

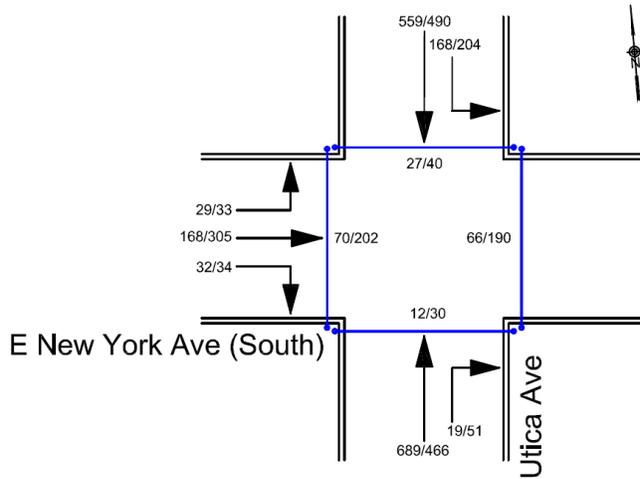
- LEGENDS:**
- 161/224 AM/PM
 - 25/53 Conflicting Pedestrians
 - 36/66 Turning Movement

APPENDIX - B
EAST FLATBUSH, BROOKLYN
PEAK HOUR TRAFFIC COUNTS



Intersection of Utica Avenue and Remsen Avenue

Note: Counts conducted on Thursday, 11/11/2010.

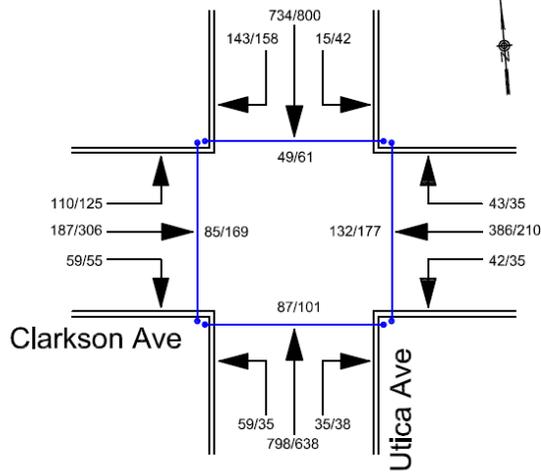


Intersection of Utica Avenue and E New York Avenue (South)

Note: Counts conducted on Wednesday, 09/22/2010.

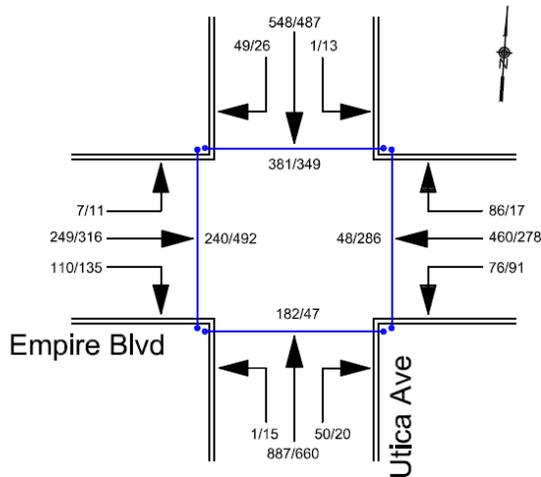
- LEGENDS:**
- 161/224 AM/PM
 - 25/53 Conflicting Pedestrians
 - 36/66 Turning Movement

APPENDIX - B
EAST FLATBUSH, BROOKLYN
PEAK HOUR TRAFFIC COUNTS



Intersection of Utica Avenue and Clarkson Avenue

Note: Counts conducted on Tuesday, 04/27/2010.



Intersection of Utica Avenue and Empire Boulevard

Note: Counts conducted on Tuesday, 04/27/2010.

- LEGENDS:**
- 161/224 AM/PM
 - 25/53 Conflicting Pedestrians
 - 36/66 Turning Movement

APPENDIX - B
EAST FLATBUSH, BROOKLYN
PEAK HOUR TRAFFIC COUNTS

APPENDIX – C

PEDESTRIAN COUNTS

Pedestrian counts in 15-minute increments were collected in April, September, November and December of 2010 during the morning (7:30 am to 9:30 am) and evening (4:00 pm to 6:00 pm) peak periods. The results of the pedestrian counts for both the AM and PM peak hours are shown in Table 3. Detailed pedestrian count data are presented in the Technical Supplement.

TABLE 3: PEDESTRIAN COUNTS						
Intersection	Time	Crosswalks (Legs)				Totals
		N	S	E	W	
Utica Avenue and Clarkson Avenue	AM	49	87	132	85	353
	PM	61	101	177	169	508
Utica Avenue and Empire Boulevard	AM	381	182	48	240	851
	PM	349	47	286	492	1174
Utica Avenue and Linden Boulevard	AM	91	85	104	114	394
	PM	99	142	230	202	673
Utica Avenue and Winthrop Street	AM	106	95	80	66	347
	PM	95	142	123	203	563
Utica Avenue and Remsen Avenue	AM	-	-	46	-	46
	PM	-	-	66	-	66
Utica Avenue and E New York Avenue	AM	27	12	66	70	175
	PM	40	30	190	202	462

All signal timings in the study area were found to be adequate in all directions and approaches except at the intersection of Utica Avenue and Clarkson Avenue crossing Utica Avenue as shown in the following table:

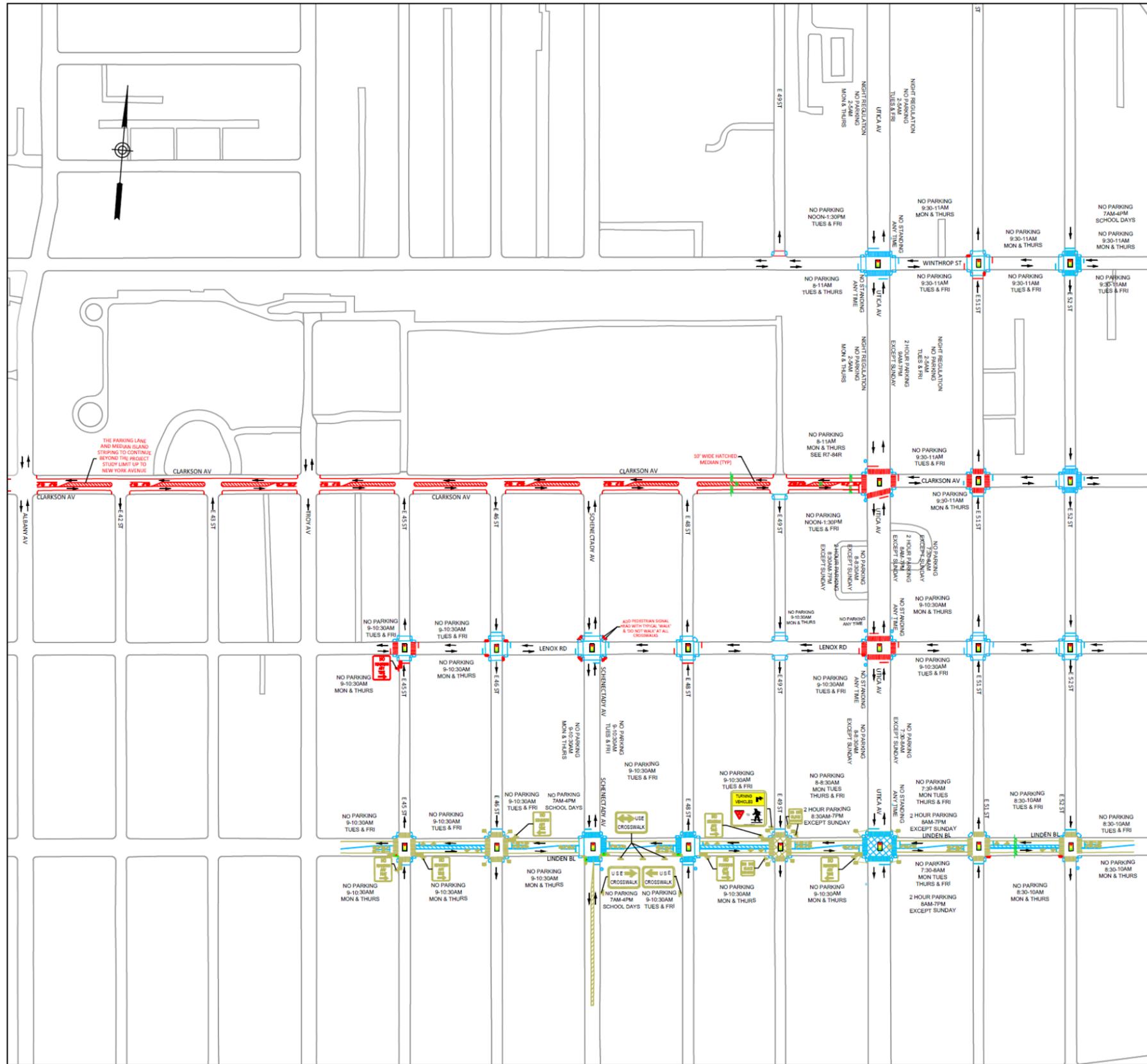
TABLE 4: PEDESTRIAN CROSSING INTERVAL AT SIGNALIZED INTERSECTIONS						
Intersection Name	Crosswalk Width (Feet)	Pedestrian Interval Actual ¹ (Seconds)	Ped. Interval Req'd (Seconds) ¹			Timing Adjustment? (Yes/No)
			Clearance Time ³ (A)	Walk Interval ² (B)	Pedestrian Interval (A)+(B)	
Utica Avenue and Linden Boulevard						
Crossing Utica Avenue	65	60	7	22	29	NO
Crossing Linden Boulevard	52	60	7	18	25	NO
Utica Avenue and Clarkson Avenue						
Crossing Utica Avenue	66	24	7	22	29	YES
Crossing Clarkson Avenue	52	36	7	18	25	NO
Utica Avenue and Winthrop Avenue						
Crossing Utica Avenue	64	30	7	22	29	NO
Crossing Winthrop Street	36	30	7	12	19	NO
Utica Avenue and Empire Boulevard						
Crossing Utica Avenue	72	55.2	7	24	31	NO
Crossing Empire Boulevard	59	64.8	7	20	27	NO

Notes:

1. The pedestrian interval consists of the pedestrian walk interval plus the pedestrian clearance time. Yellow change interval and red clearance interval are included in pedestrian clearance time.
2. The walk interval should be at least 7 seconds in length to provide pedestrians adequate opportunity to leave the curb or shoulder before the pedestrian clearance time begins.
3. A rate of 3 ft/sec was utilized as the senior pedestrian walking rate to evaluate pedestrian clearance time.

APPENDIX – D

PARKING REGULATIONS



LEGENDS:

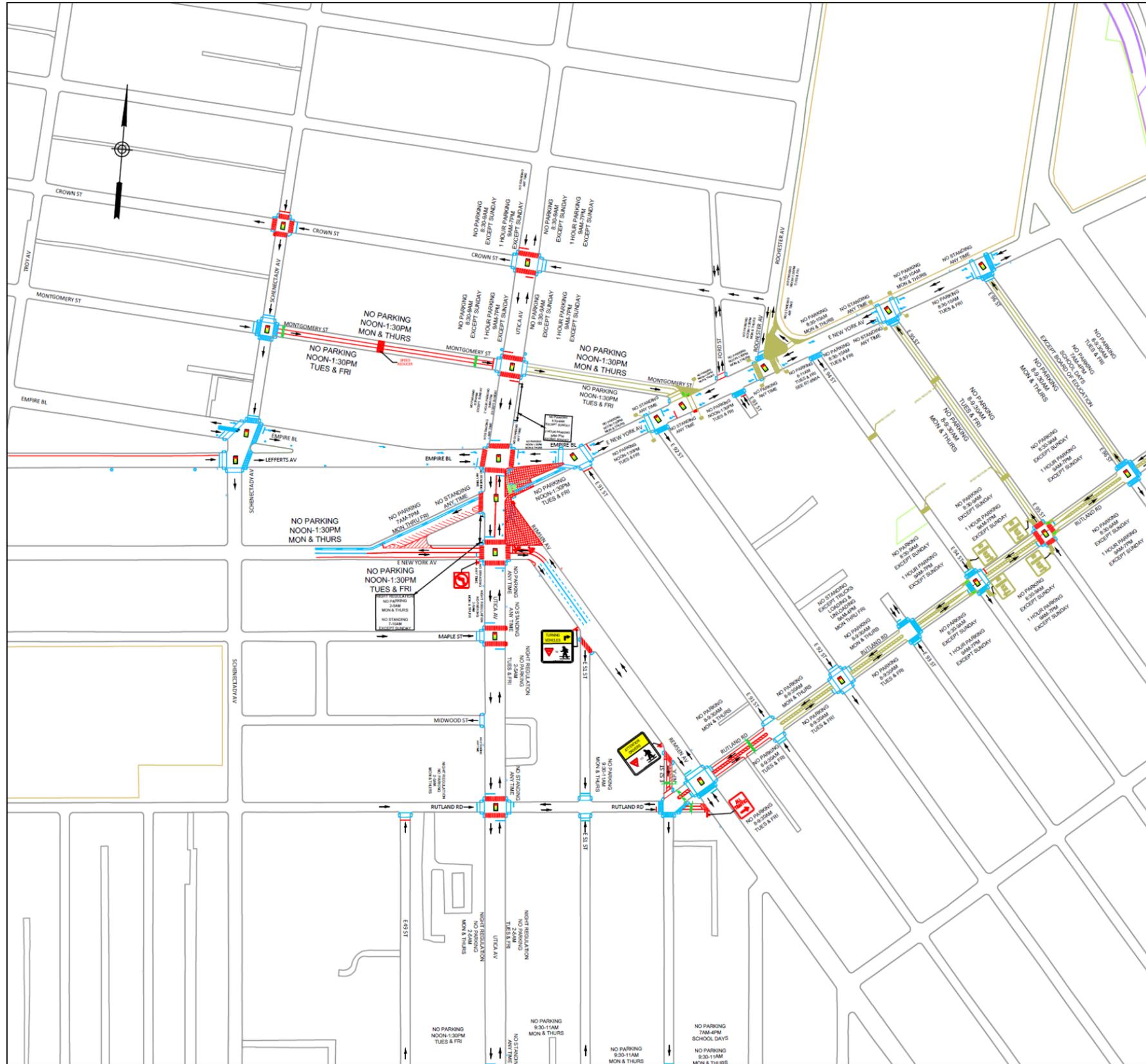
EXISTING HIGH VISIBILITY CROSSWALK	PROPOSED HIGH VISIBILITY CROSSWALK	PROPOSED CURB EXTENSION (NECKDOWN)	EXISTING SIGNALIZED INTERSECTION
EXISTING STANDARD CROSSWALK	PROPOSED STANDARD CROSSWALK	SW OBSTRUCTION: STREETLIGHT	PROPOSED SIGNALIZED INTERSECTION
EXISTING SCHOOL CROSSWALK	PROPOSED SCHOOL CROSSWALK	SW OBSTRUCTION: FIRE HYDRANT	TRAVEL DIRECTION
EXISTING STOP BAR	PROPOSED STOP BAR	SW OBSTRUCTION: SIGNAL POLE	PROPOSED LPI
EXISTING PEDESTRIAN RAMP	PROPOSED PED REFUGE ISLAND (RAISED ISLAND)	SW OBSTRUCTION: FIRE BOX	PROPOSED DAYLIGHTING
PROPOSED NEW PED RAMP	EXISTING BUS STOP	PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING CATCH BASIN
REPLACE EXISTING PED RAMP	EXISTING SUBWAY STOP	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL	PROPOSED CATCH BASIN
			PROPOSED TRAFFIC SIGN

**SAFE STREETS FOR SENIORS
EAST FLATBUSH, BROOKLYN**

**PROPOSED MEASURES TO IMPROVE SAFETY
(PARKING REGULATIONS)**

GPI
GREENMAN-PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 1 of 2



LEGENDS:

	EXISTING HIGH VISIBILITY CROSSWALK		PROPOSED HIGH VISIBILITY CROSSWALK		PROPOSED CURB EXTENSION (NECKDOWN)		EXISTING SIGNALIZED INTERSECTION
	EXISTING STANDARD CROSSWALK		PROPOSED STANDARD CROSSWALK		SW OBSTRUCTION: STREET LIGHT		PROPOSED SIGNALIZED INTERSECTION
	EXISTING SCHOOL CROSSWALK		PROPOSED SCHOOL CROSSWALK		SW OBSTRUCTION: FIRE HYDRANT		TRAVEL DIRECTION
	EXISTING STOP BAR		PROPOSED STOP BAR		SW OBSTRUCTION: SIGNAL POLE		PROPOSED LPI
	EXISTING PEDESTRIAN RAMP		PROPOSED PED REFUGE ISLAND (RAISED ISLAND)		SW OBSTRUCTION: FIRE BOX		PROPOSED DAYLIGHTING
	PROPOSED NEW PED RAMP		EXISTING BUS STOP		PROPOSED PEDESTRIAN SIGNAL HEAD		EXISTING CATCH BASIN
	REPLACE EXISTING PED RAMP		PROPOSED BUS STOP		PROPOSED PEDESTRIAN COUNTDOWN SIGNAL		PROPOSED TRAFFIC SIGN
	EXISTING SUBWAY STOP						

**SAFE STREETS FOR SENIORS
EAST FLATBUSH, BROOKLYN**

**PROPOSED MEASURES TO IMPROVE SAFETY
(PARKING REGULATIONS)**

GPI
GREENMAN-PEDERSEN, INC.
Engineers, Planners,
Construction Engineers & Inspectors

FIGURE
NO. 2 of 2

APPENDIX – E

ADDITIONAL TRAFFIC DATA & ANALYSIS

SPOT SPEED ANALYSIS

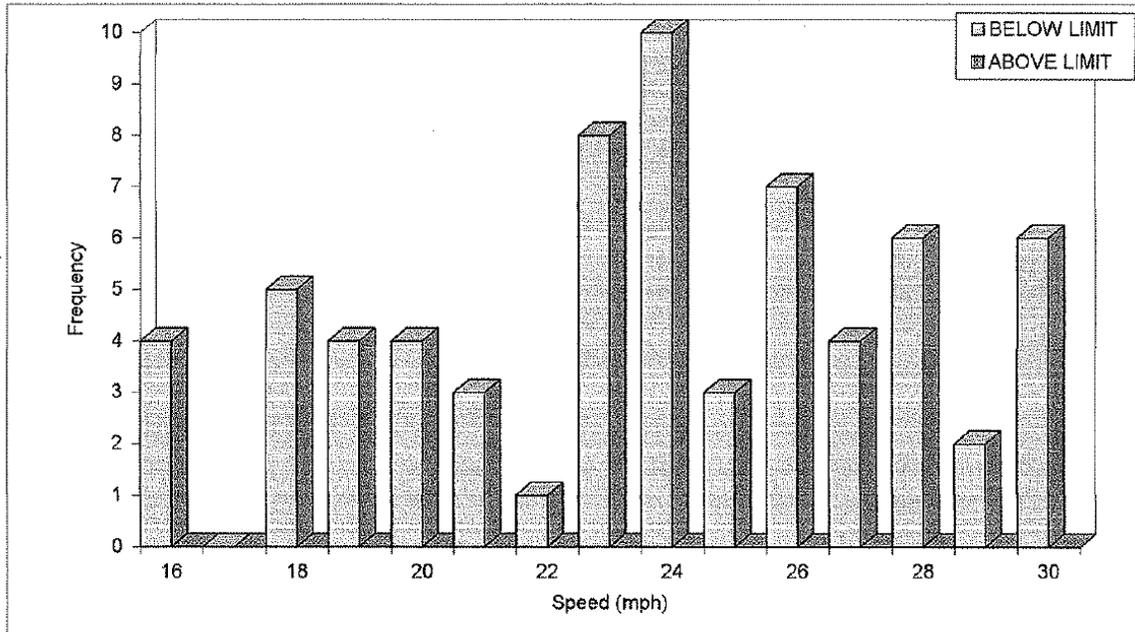
RADAR SPEED SURVEY

Arterial: E 95 ST N/B

From: RUTLAND RD

To: E NEW YORK AV

Boro:	BK	Average Speed:	25.5 mph
Date:	04/08/10	15th Percentile:	19.0 mph
Day:	Thu.	50th Percentile:	25.0 mph
Weather:	Clear	85th Percentile:	32.0 mph
Time:	11:40AM- 12:40PM		
Speed Limit:	30 mph	Above Speed Limit:	17.3 %
Sample Size:	81	Minimum Speed	16.0 mph
		Maximum Speed	40.0 mph
Type of Roadway:	One-way	Pace:	18.0 - 28.0 mph
Width of Road by Direction:	29'	In Pace:	67.9 %
Number of Moving Lanes:	1	Below Pace:	4.9 %
Number of Parking Lanes:	2	Above Pace:	27.2 %
Observer:	T.LYDE	Standard Deviation:	5.4 mph



SYNCHRO ANALYSIS

The results of existing and build condition Synchro Analysis for the studied corridor of Utica Avenue during both AM (8:00 am to 9:00 am) and PM (5:00 pm to 6:00 pm) peak hours are indicated in Table 4 and Table 5. Detailed existing level of service analysis is presented in the Technical Supplement.

TABLE 4: EXISTING (2010) INTERSECTION LEVEL OF SERVICE AND DELAYS (SEC)						
Movement	AM Peak Hour			PM Peak Hour		
	v/c	Delay (sec/veh)	LOS	v/c	Delay (sec/veh)	LOS
Signalized intersections						
Empire Boulevard and Utica Avenue						
EB LTR	0.48	31.4	C	0.53	37.3	D
WB LTR	1.98	705.0	F	1.32	718.9	F
NB LTR	0.76	296.2	F	0.60	284.8	F
SB LTR	0.85	41.6	D	0.67	33.3	C
Overall Intersection	-	298.3	F	-	244.6	F
East New York Avenue (North) & Utica Avenue						
NB LTR	1.36	187.3	F	1.32	170.7	F
SB LTR	0.62	38.6	D	0.54	22.9	C
NW TR	0.42	28.6	C	0.42	27.9	C
NW R	0.49	704.5	F	0.63	710.0	F
Overall Intersection	-	146.3	F	-	141.6	F
East New York Avenue (South) & Utica Avenue						
EB LTR	0.39	37.4	D	0.5	59.3	E
NB LTR	0.78	137.7	F	0.69	67.3	E
SB LTR	0.96dl	88.5	F	0.92dl	32.8	C
Overall Intersection	-	102.6	F	-	52.8	D

Notes:

1. Intersection approaches are NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, NW = Northwestbound.
2. Intersection movement groups are L = Left, T= Through, R = Right
3. dl = defacto left lane

TABLE 5: BUILD (2010) INTERSECTION LEVEL OF SERVICE AND DELAYS (SEC)

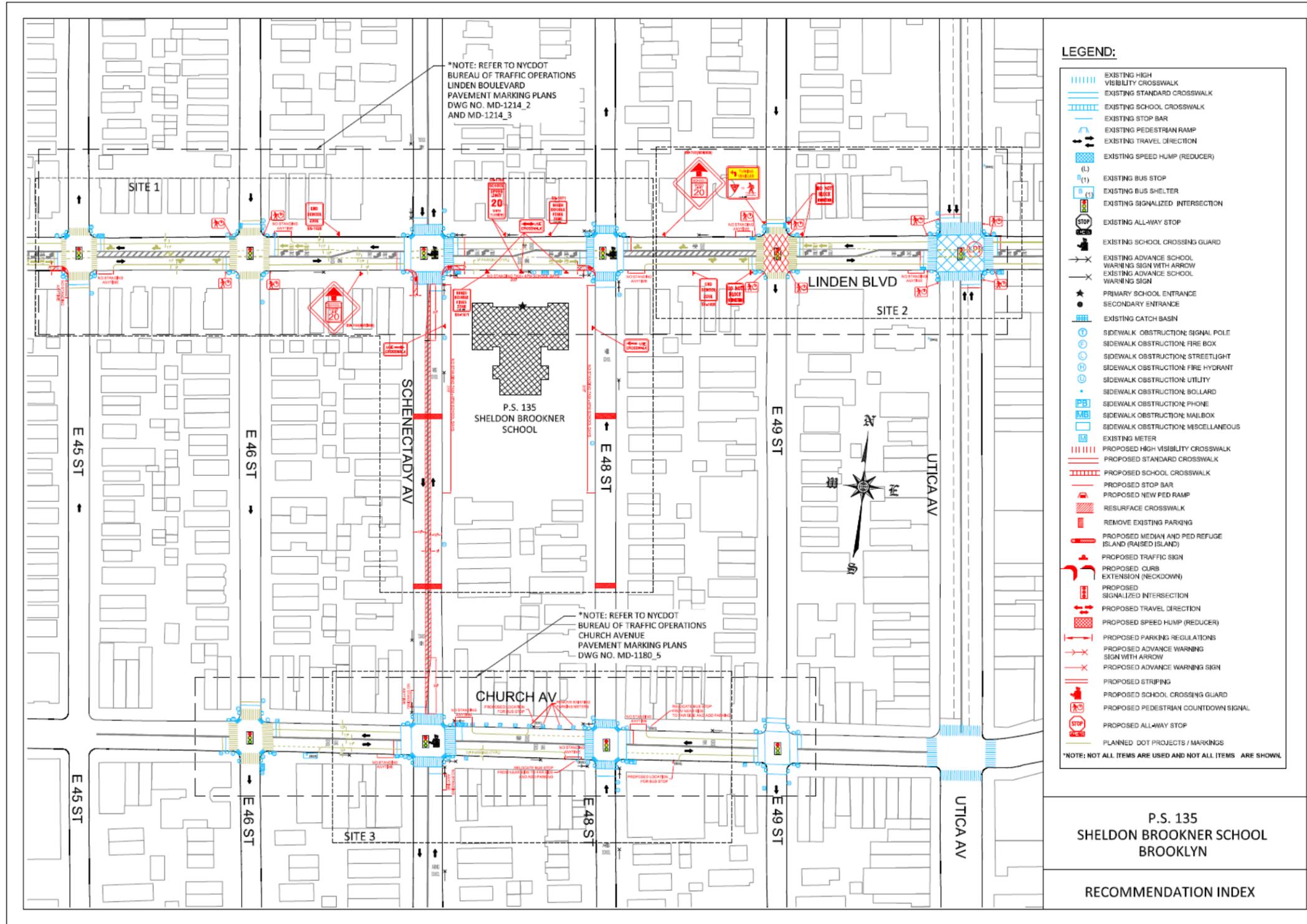
Movement	AM Peak Hour			PM Peak Hour		
	v/c	Delay (sec/veh)	LOS	v/c	Delay (sec/veh)	LOS
Signalized intersections						
Empire Boulevard and Utica Avenue						
EB LTR	0.77	39.4	D	0.67	32.8	C
WB LTR	2.14	542.6	F	1.45	248.0	F
NB LTR	0.79	50.5	D	0.85	82.3	F
SB LTR	0.68	26.2	C	0.53	22.6	C
Overall Intersection	-	168.3	F	-	85.2	F
East New York Avenue (South) & Remsen Avenue / Utica Avenue						
EB TR	0.68	45.3	D	0.95	73.2	E
WB LT	0.92	67.5	E	0.84	55.0	D
WB R	0.68	46.2	D	0.73	51.3	D
NB LTR	0.84	45.5	D	0.82	45.3	D
SB LT	0.98	32.3	C	0.87	32.2	C
Overall Intersection	-	44.3	D	-	47.6	D

Notes:

1. Intersection approaches are NB = northbound, SB = Southbound, EB = Eastbound, WB = Westbound
2. Intersection movement groups are L = Left, T= Through, R = Right

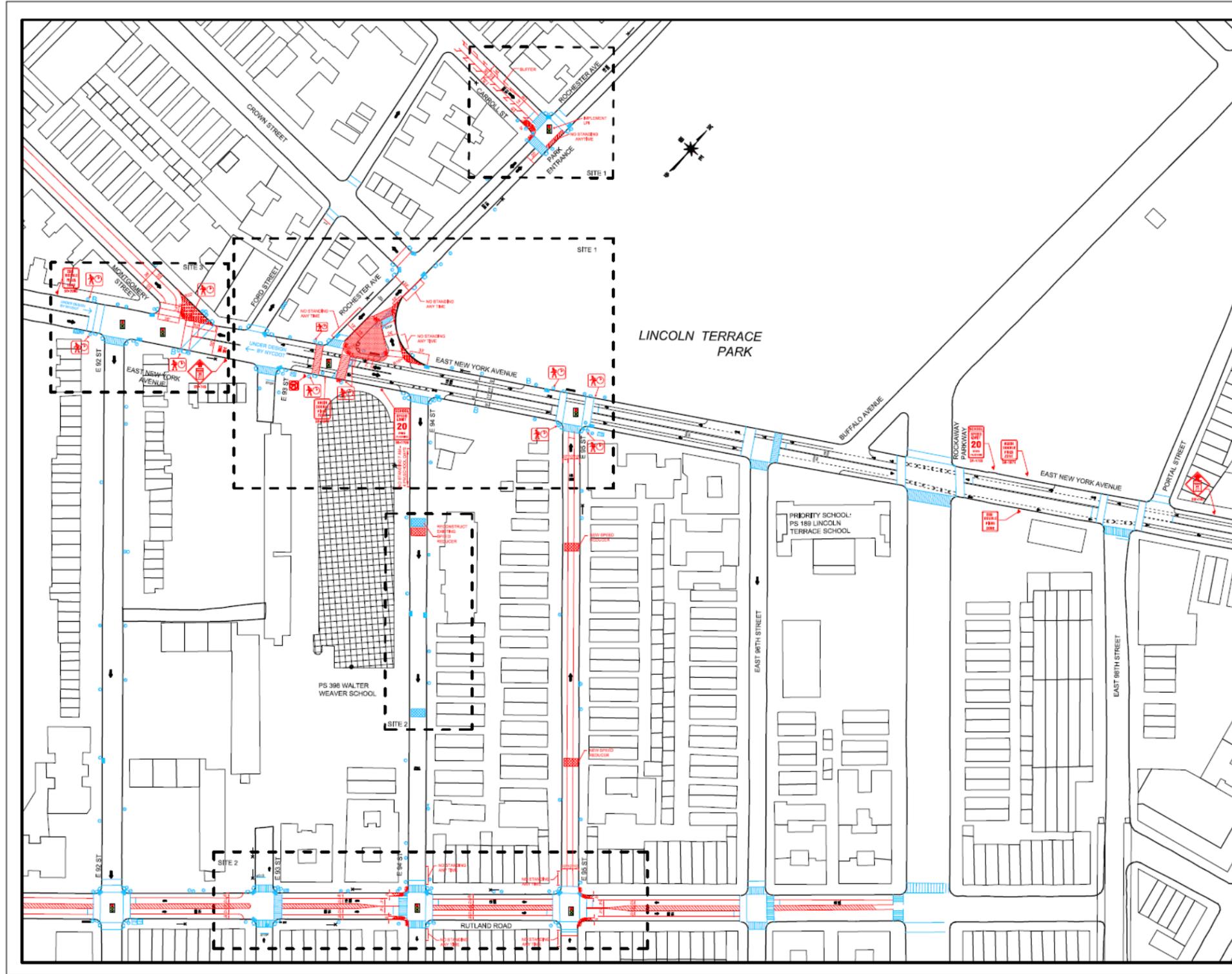
APPENDIX – F
RECOMMENDATIONS BY SCHOOL SAFETY AND NYCDOT

EXHIBIT 12 - RECOMMENDATION INDEX



P.S. 135, Sheldon Brookner School
Priority Schools, Group II
Pre-Final Report
Page 37

EXHIBIT 12 - RECOMMENDATION INDEX



LEGEND:

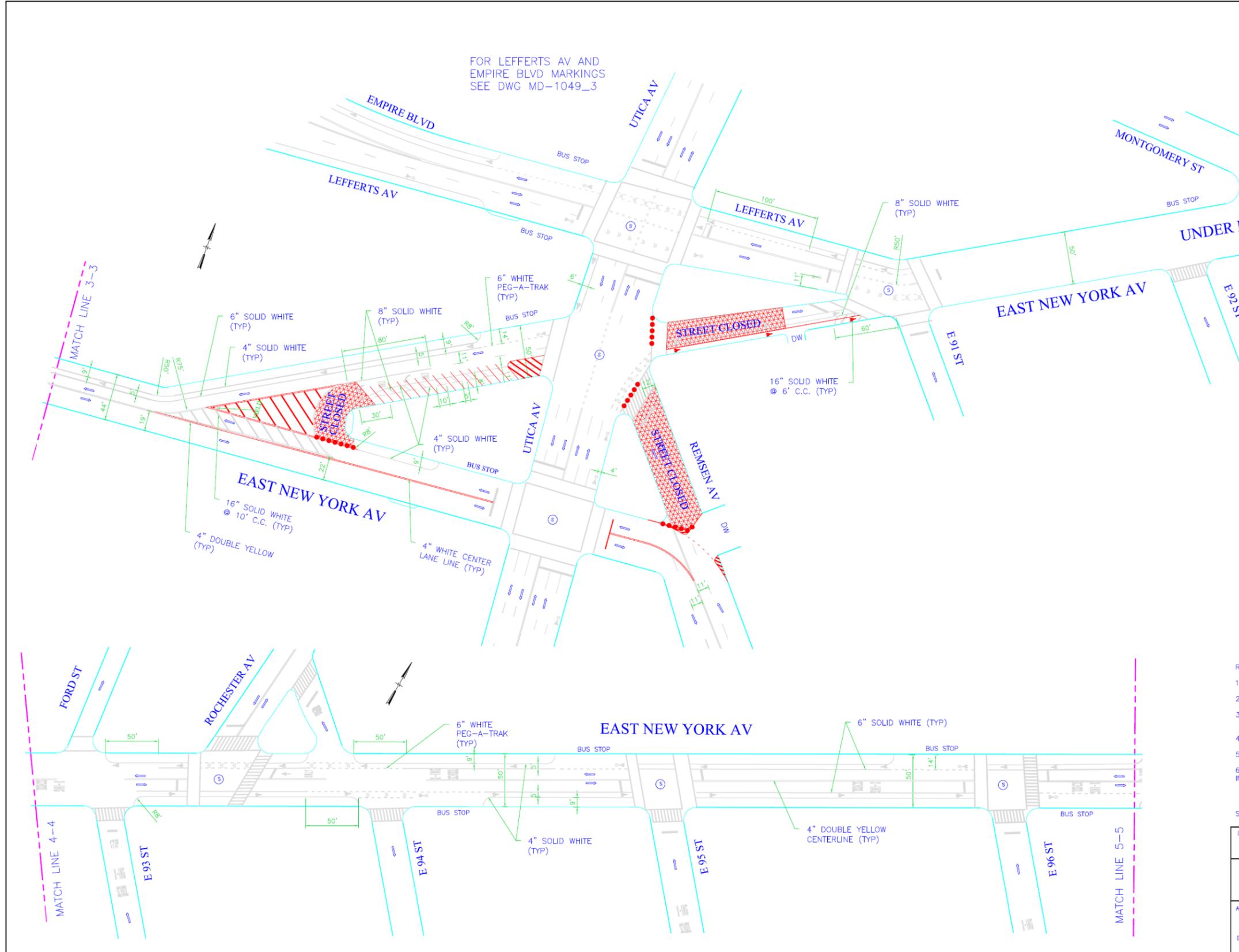
	EXISTING HIGH VISIBILITY CROSSWALK
	EXISTING STANDARD CROSSWALK
	EXISTING SCHOOL CROSSWALK
	EXISTING STOP BAR
	EXISTING PEDESTRIAN RAMP
	EXISTING TRAVEL DIRECTION
	EXISTING SPEED HUMP (REDUCER)
	EXISTING SUBWAY STOP
	EXISTING BUS STOP
	EXISTING BUS SHELTER
	EXISTING SIGNALIZED INTERSECTION
	EXISTING ALL-WAY STOP
	EXISTING SCHOOL CROSSING GUARD
	EXISTING ADVANCE SCHOOL WARNING SIGN WITH ARROW
	EXISTING ADVANCE SCHOOL WARNING SIGN
	PRIMARY SCHOOL ENTRANCE
	SECONDARY ENTRANCE
	EXISTING CATCH BASIN
	SIDEWALK OBSTRUCTION: SIGNAL POLE
	SIDEWALK OBSTRUCTION: FIRE BOX
	SIDEWALK OBSTRUCTION: STREETLIGHT
	SIDEWALK OBSTRUCTION: FIRE HYDRANT
	SIDEWALK OBSTRUCTION: UTILITY
	SIDEWALK OBSTRUCTION: BOLLARD
	SIDEWALK OBSTRUCTION: PHONE
	SIDEWALK OBSTRUCTION: MAILBOX
	SIDEWALK OBSTRUCTION: MISCELLANEOUS
	EXISTING METER
	PROPOSED HIGH VISIBILITY CROSSWALK
	PROPOSED STANDARD CROSSWALK
	PROPOSED SCHOOL CROSSWALK
	PROPOSED STOP BAR
	PROPOSED NEW PED RAMP
	RESURFACE CROSSWALK
	REMOVE EXISTING PARKING
	PROPOSED MEDIAN AND PED REFUGE ISLAND (RAISED ISLAND)
	PROPOSED TRAFFIC SIGN
	PROPOSED CURB EXTENSION (NECKDOWN)
	PROPOSED SIGNALIZED INTERSECTION
	PROPOSED TRAVEL DIRECTION
	PROPOSED SPEED HUMP (REDUCER)
	PROPOSED PARKING REGULATIONS
	PROPOSED ADVANCE WARNING SIGN WITH ARROW
	PROPOSED ADVANCE WARNING SIGN
	PROPOSED STRIPING
	PROPOSED SCHOOL CROSSING GUARD
	PROPOSED PEDESTRIAN COUNTDOWN SIGNAL
	PROPOSED ALL-WAY STOP
	PLANNED DOT PROJECTS / MARKINGS

*NOTE: NOT ALL ITEMS ARE USED AND NOT ALL ITEMS ARE SHOWN.

P.S. 398 -WALTER WEAVER SCHOOL
BROOKLYN

RECOMMENDATION INDEX

REVISIONS		
DATE	APPD	DESCRIPTION



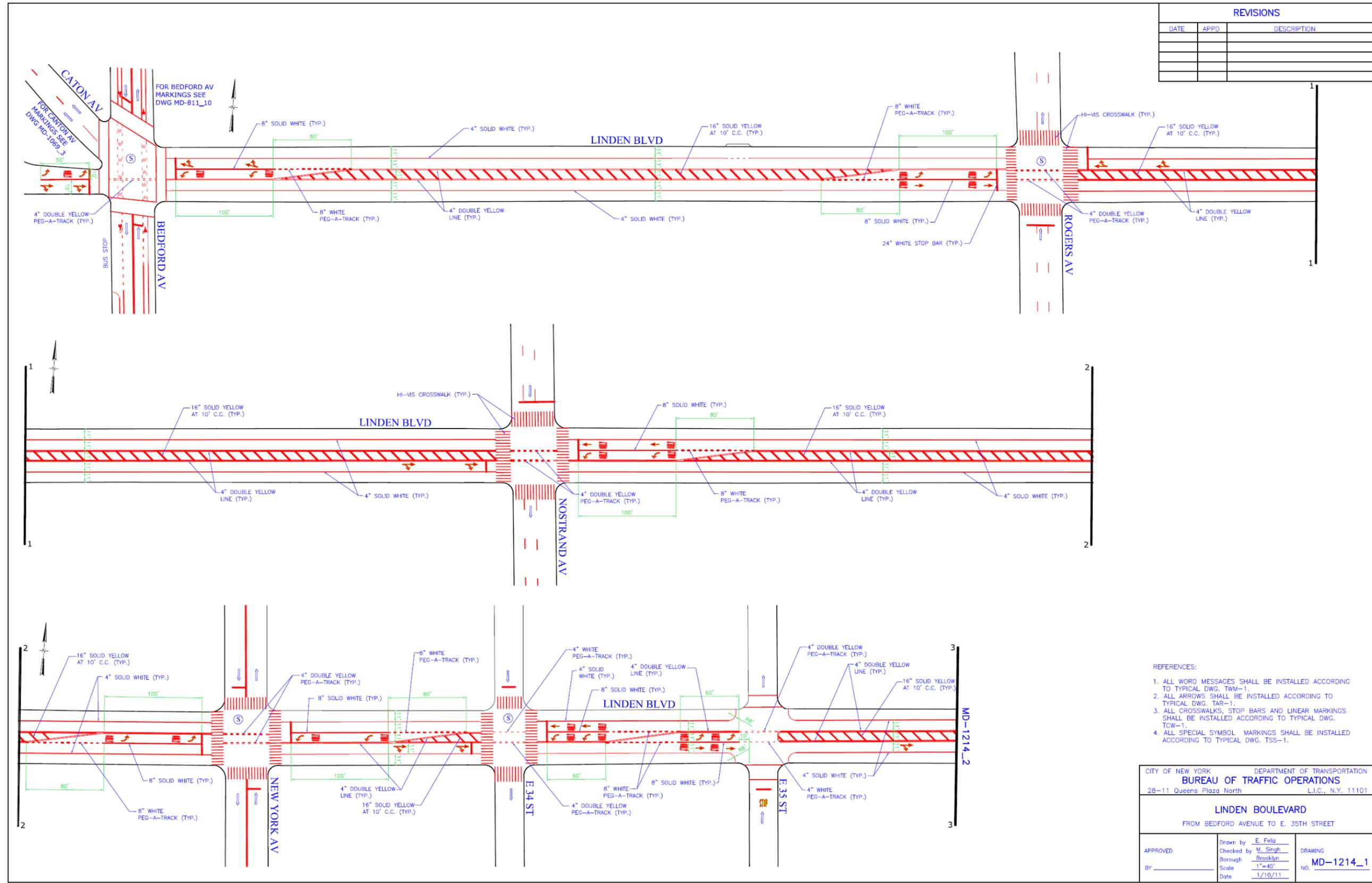
- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TWM-1.
 2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
 3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TOW-1.
 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.
 5. ALL BICYCLE LANE MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBB-1.
 6. ALL BIKE INTERSECTIONS MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TBI-1.

SHEET 2 OF 4

CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
 BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

EAST NEW YORK AVENUE
 FROM SCHENECTADY AV TO E 96 STREET

APPROVED	Drawn by <u>D. AMIN</u>	DRAWING NO. <u>MD-1090_2</u>
BY _____	Checked by <u>M. FRIDMAN</u>	
F. AZER, P.E.	Borough <u>BROOKLYN</u>	
	Scale <u>1"=40'</u>	
	Date <u>07/20/09</u>	



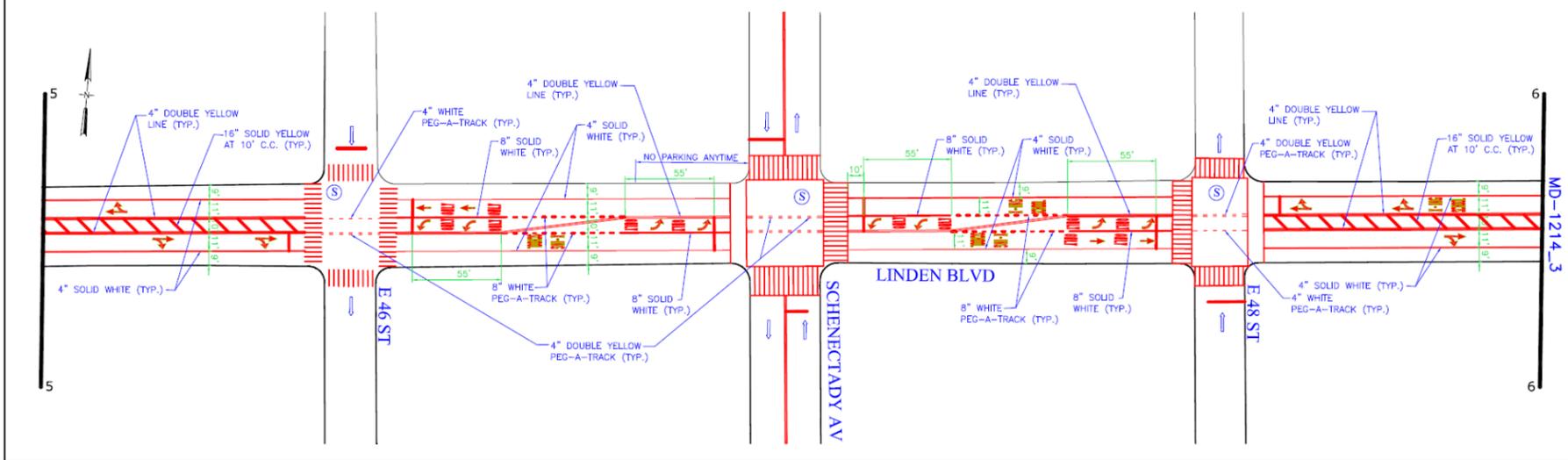
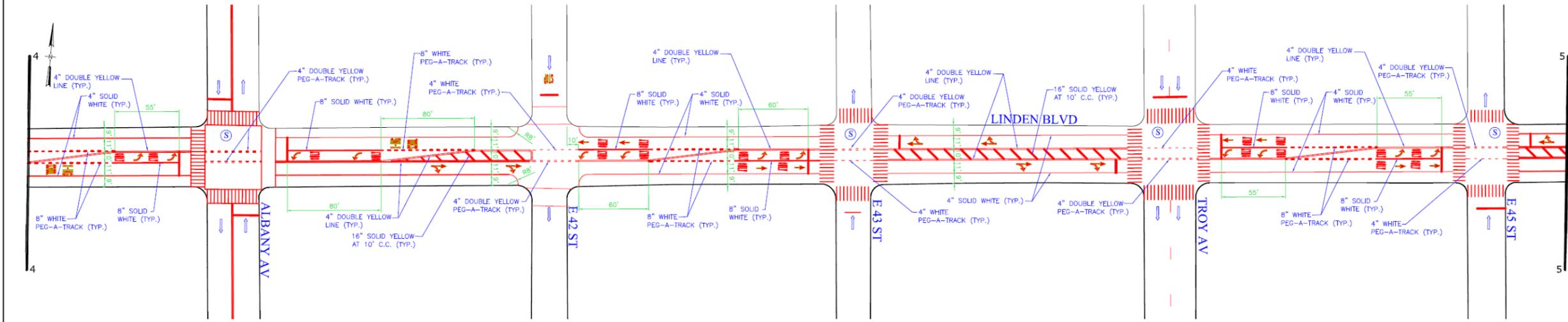
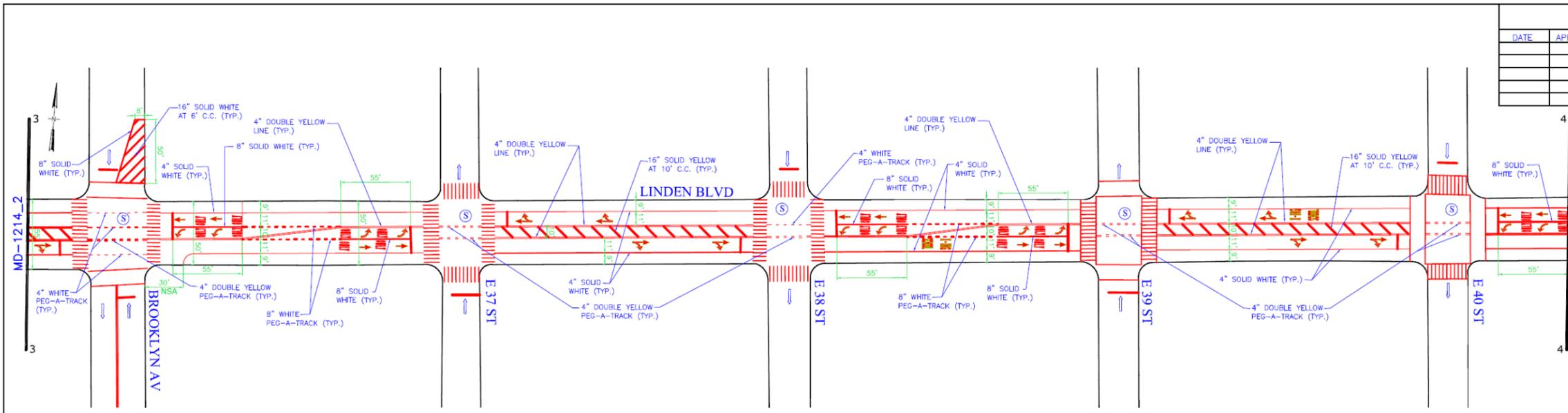
REVISIONS		
DATE	APPD	DESCRIPTION

- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TWM-1.
 2. ALL ARROWS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TAR-1.
 3. ALL CROSSWALKS, STOP BARS AND LINEAR MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TCW-1.
 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.

CITY OF NEW YORK		DEPARTMENT OF TRANSPORTATION
28-11 Queens Plaza North		L.I.C., N.Y. 11101
BUREAU OF TRAFFIC OPERATIONS		
LINDEN BOULEVARD		
FROM BEDFORD AVENUE TO E. 35TH STREET		
APPROVED	Drawn by <u>E. Feliz</u> Checked by <u>M. Singh</u> Borough <u>Brooklyn</u> Scale <u>1"=40'</u> Date <u>1/10/11</u>	DRAWING NO. <u>MD-1214_1</u>

REVISIONS

DATE	APPD	DESCRIPTION

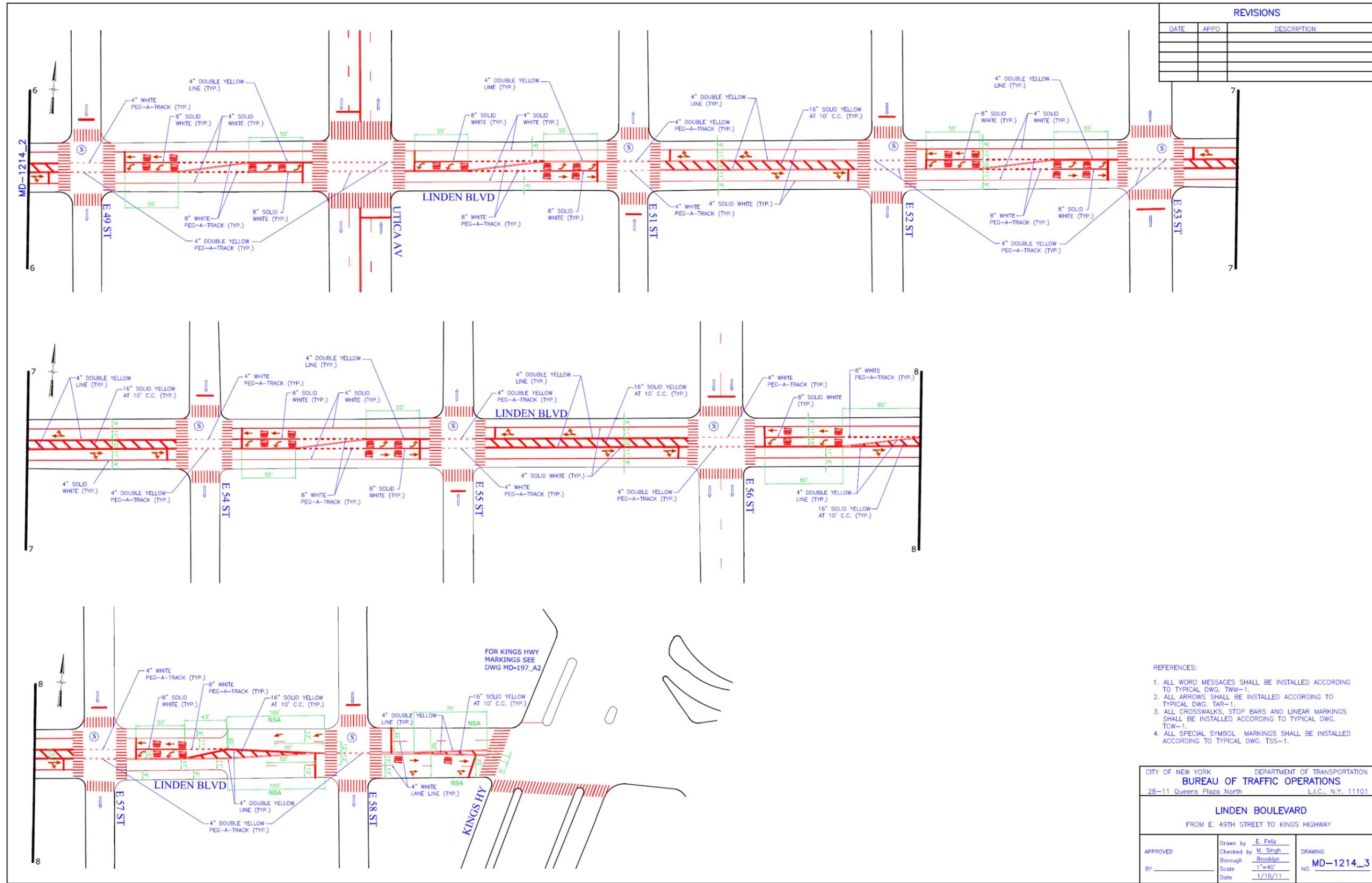


- REFERENCES:
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 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.

CITY OF NEW YORK DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC OPERATIONS
 28-11 Queens Plaza North L.I.C., N.Y. 11101

LINDEN BOULEVARD
 FROM BROOKLYN AVENUE TO E. 48TH STREET

APPROVED	Drawn by E. Feliz	DRAWING NO. MD-1214_2
By _____	Checked by M. Singh	
	Borough Brooklyn	
	Scale 1"=40'	
	Date 1/10/11	



REVISIONS		
DATE	APPD	DESCRIPTION

- REFERENCES:
1. ALL WORD MESSAGES SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TWM-1.
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 4. ALL SPECIAL SYMBOL MARKINGS SHALL BE INSTALLED ACCORDING TO TYPICAL DWG. TSS-1.

CITY OF NEW YORK		DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC OPERATIONS		L.I.C., N.Y. 11101
LINDEN BOULEVARD		
FROM E. 49TH STREET TO KINGS HIGHWAY		
APPROVED	Drawn by <u>E. Feliz</u>	DRAWING
BY _____	Checked by <u>M. Singh</u>	No. <u>MD-1214_3</u>
	Borough <u>Brooklyn</u>	
	Scale <u>1"=40'</u>	
	Date <u>1/10/11</u>	

Safe Streets for Seniors

East Flatbush, Brooklyn

TECHNICAL SUPPLEMENT

August 2012



Janette Sadik-Khan, Commissioner



AUTOMATIC TRAFFIC RECORDER COUNTS (ATR)

UTICA AVENUE AND EMPIRE BOULEVARD (NB)											
Time	THURSDAY 07/08/10	FRIDAY 07/09/10	SATURDAY 07/10/10	SUNDAY 07/11/10	MONDAY 07/12/10	TUESDAY 07/13/10	WEDNESDAY 07/14/10	THURSDAY 07/15/10	FRIDAY 07/16/10	SATURDAY 07/17/10	SUNDAY 07/18/10
0:00	94	104	139	162	94	93	68	84	89	140	119
0:15	75	89	128	122	75	63	73	66	85	119	148
0:30	86	90	127	127	82	58	72	61	91	131	130
0:45	50	67	95	120	68	75	35	54	77	113	125
1:00	53	68	95	116	59	61	56	47	80	98	124
1:15	47	57	96	87	44	48	47	38	58	93	116
1:30	62	57	97	102	48	44	48	37	58	80	105
1:45	44	45	71	93	41	24	35	29	43	80	100
2:00	38	44	72	103	43	33	27	41	37	75	114
2:15	25	30	82	91	32	39	28	23	40	74	94
2:30	27	40	75	88	47	31	26	24	41	74	99
2:45	31	30	65	79	35	36	35	17	38	64	91
3:00	25	41	62	78	31	26	30	28	39	60	85
3:15	20	30	40	81	28	29	28	19	30	53	85
3:30	24	46	78	73	24	24	39	28	32	65	75
3:45	38	33	51	67	26	25	29	22	27	58	73
4:00	20	38	70	70	21	25	22	28	39	67	74
4:15	20	30	75	56	22	21	25	26	25	49	58
4:30	29	34	68	83	34	32	21	32	45	71	97
4:45	24	34	75	81	53	37	30	25	41	74	87
5:00	40	50	61	80	54	38	39	36	38	66	99
5:15	46	52	58	66	59	46	49	42	45	63	82
5:30	72	68	62	54	69	58	62	69	61	56	77
5:45	83	69	65	51	71	78	62	75	64	53	57
6:00	95	88	65	51	79	99	78	77	84	55	58
6:15	101	100	51	54	85	76	86	88	88	45	44
6:30	97	109	82	65	98	110	111	93	95	60	53
6:45	109	104	72	58	121	122	108	111	98	79	50
7:00	128	127	91	51	143	142	126	138	138	82	49
7:15	150	121	89	69	140	145	152	154	137	80	61
7:30	171	200	107	76	187	181	175	181	175	93	63
7:45	157	136	80	61	152	177	176	144	164	96	70
8:00	175	168	141	83	179	192	187	187	175	96	71
8:15	169	167	132	78	160	156	152	163	161	105	69
8:30	182	205	151	101	163	183	177	163	168	124	82
8:45	170	175	118	86	155	175	164	173	169	114	74
9:00	186	176	149	97	178	188	156	179	166	134	94
9:15	140	141	127	85	122	154	149	160	160	109	79
9:30	159	175	174	121	157	166	152	183	137	131	97
9:45	131	151	140	116	129	133	137	159	148	140	110
10:00	165	138	138	136	162	144	144	142	141	142	115
10:15	134	125	115	141	124	127	129	116	151	124	110
10:30	146	143	149	143	144	135	117	136	141	123	123
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11:00	144	149	148	151	147	134	126	138	128	142	132
11:15	128	133	136	126	124	147	134	128	126	115	125
11:30	168	164	165	128	139	137	141	142	149	153	134
11:45	135	162	143	107	147	139	141	139	128	145	119
12:00	161	166	144	151	158	149	134	140	152	143	126
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12:30	170	178	148	139	156	161	148	160	145	137	108
12:45	154	143	141	133	165	142	160	135	152	130	128
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13:15	155	149	147	137	148	154	130	164	156	118	119
13:30	176	178	146	148	143	158	147	173	159	147	132
13:45	162	155	143	141	149	161	142	129	166	153	123
14:00	164	172	180	171	173	181	175	195	166	150	142
14:15	165	154	133	151	172	139	156	157	144	142	142
14:30	172	163	177	163	153	166	166	167	167	162	141
14:45	165	158	150	152	158	156	167	150	138	163	145
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15:30	185	164	150	149	165	158	153	160	172	155	135
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19:30	176	185	163	163	172	167	153	159	162	169	150
19:45	166	146	147	132	140	147	159	130	172	144	141
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20:15	140	155	139	148	163	157	139	157	162	166	141
20:30	165	169	166	139	159	160	138	181	172	173	153
20:45	143	169	163	135	143	128	127	175	175	151	149
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21:15	142	150	152	146	116	123	145	131	136	171	122
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22:45	124	137	147	121	140	98	101	132	132	162	122
23:00	112	126	155	125	115	110	96	118	143	161	128
23:15	91	128	148	119	102	89	90	103	127	173	110
23:30	107	126	148	116	117	79	98	104	140	144	106
23:45	84	121	155	106	99	79	85	94	135	141	81

UTICA AVENUE AND EMPIRE BOULEVARD (SB)												
Time	THURSDAY 07/08/10	FRIDAY 07/09/10	SATURDAY 07/10/10	SUNDAY 07/11/10	MONDAY 07/12/10	TUESDAY 07/13/10	WEDNESDAY 07/14/10	THURSDAY 07/15/10	FRIDAY 07/16/10	SATURDAY 07/17/10	SUNDAY 07/18/10	
0:00	82	76	126	118	72	72	56	82	79	117	118	
0:15	78	92	103	123	81	84	76	75	91	89	139	
0:30	81	88	99	116	97	61	73	67	87	95	115	
0:45	79	61	114	101	66	76	60	73	75	106	116	
1:00	56	67	99	90	54	60	51	45	68	100	99	
1:15	57	42	89	115	62	44	42	55	61	77	108	
1:30	48	44	84	109	59	49	42	41	54	99	107	
1:45	39	55	86	71	63	43	42	38	64	75	105	
2:00	32	56	73	83	36	27	22	30	47	82	94	
2:15	41	38	73	74	37	37	19	28	42	78	82	
2:30	20	41	61	78	31	41	42	24	33	69	87	
2:45	27	35	68	94	41	26	24	25	38	56	64	
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8:45	152	157	104	72	162	175	167	144	160	104	80	
9:00	152	155	32	91	139	148	145	149	139	115	73	
9:15	144	126	136	84	154	153	147	168	129	106	87	
9:30	125	131	110	88	112	131	128	131	115	84	93	
9:45	122	113	135	99	130	127	134	140	141	114	81	
10:00	105	92	120	89	108	109	122	115	122	89	100	
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10:30	99	124	100	81	121	93	100	112	117	99	89	
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12:00	122	118	17	98	130	113	123	117	105	102	118	
12:15	102	113	0	115	110	121	93	120	139	164	123	
12:30	112	106	58	105	91	114	108	98	111	24	100	
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17:00	130	159	137	110	154	142	145	119	164	136	108	
17:15	166	175	153	126	149	130	139	172	163	143	109	
17:30	140	163	137	94	144	142	163	140	142	126	106	
17:45	162	166	152	118	150	162	160	162	162	127	120	
18:00	144	136	145	135	145	145	152	134	111	98	67	
18:15	138	160	162	119	134	131	168	172	73	111	95	
18:30	147	142	163	124	74	137	137	139	88	140	93	
18:45	140	154	181	126	125	126	149	155	159	131	109	
19:00	120	145	127	117	132	135	128	141	125	159	104	
19:15	138	158	136	130	156	122	148	134	115	132	105	
19:30	107	149	118	101	118	109	144	145	142	148	112	
19:45	127	131	130	149	119	133	116	121	139	143	149	
20:00	134	145	109	84	114	134	103	111	151	121	121	
20:15	143	169	123	112	147	112	96	118	134	137	99	
20:30	110	131	101	97	120	109	111	113	133	121	112	
20:45	155	129	124	116	123	109	120	114	131	128	144	
21:00	113	111	131	102	103	117	106	109	116	111	118	
21:15	103	124	108	113	100	90	129	132	134	135	104	
21:30	119	110	119	119	117	109	101	118	136	126	128	
21:45	110	114	140	135	114	123	129	103	119	125	121	
22:00	106	111	116	100	95	84	105	96	124	106	104	
22:15	123	128	119	105	120	89	121	121	129	157	101	
22:30	102	121	103	85	94	92	96	100	99	129	112	
22:45	99	117	124	91	96	90	91	125	138	135	103	
23:00	93	116	128	78	104	75	92	105	129	127	103	
23:15	115	122	122	96	87	89	76	101	117	121	100	
23:30	98	113	115	115	85	82	83	85	130	125	91	
23:45	107	103	126	73	76	88	75	102	111	118	89	

TURNING MOVEMENT COUNTS (TMC)

TURNING MOVEMENT/CLASSIFICATION COUNTS

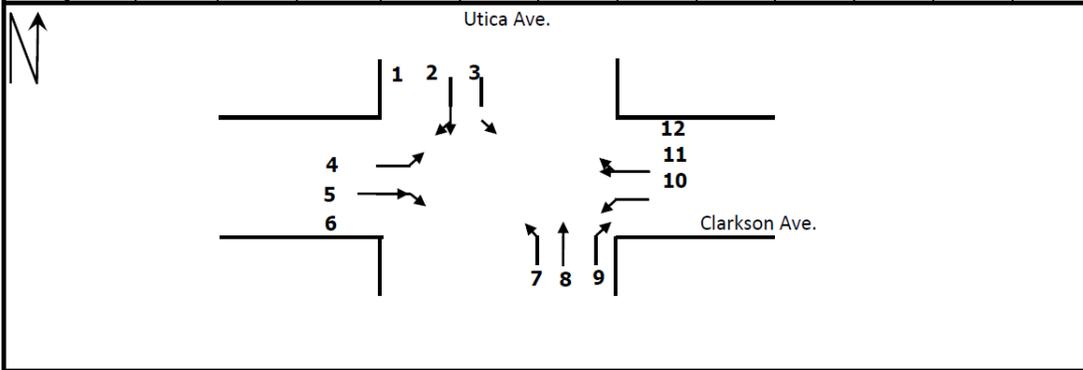
(NYCDOT;ATI #10129)

Location: #2) Clarkson Ave. and Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

pg 1

Time End	Class	Movement Number											
		1	2	3	4	5	6	7	8	9	10	11	12
7:45 AM	Auto	27	149	5	19	39	8	15	223	13	3	70	6
	Truck	0	0	0	1	0	1	0	4	0	0	1	0
	Bus	1	12	0	1	0	1	1	13	0	0	6	0
	Bike	0	0	1	0	0	0	0	1	0	1	0	0
8:00 AM	Auto	34	165	5	17	36	12	9	198	10	11	99	12
	Truck	0	3	0	0	1	1	0	5	0	0	1	1
	Bus	1	7	1	1	1	0	2	15	0	1	2	0
	Bike	0	2	0	0	0	0	0	1	0	0	0	0
8:15 AM	Auto	34	168	2	36	59	12	23	155	4	10	108	12
	Truck	0	3	0	1	0	2	1	6	0	0	0	0
	Bus	0	9	0	0	2	0	0	18	0	0	2	0
	Bike	0	1	0	0	0	0	0	2	1	0	0	0
8:30 AM	Auto	38	173	1	30	46	17	10	187	9	11	93	8
	Truck	0	2	0	0	1	0	0	5	1	0	0	0
	Bus	0	14	0	2	1	0	0	12	0	0	1	0
	Bike	0	0	0	0	0	0	0	3	0	2	0	1



Location: #2) Clarkson Ave. and Utica Ave.

Day / Date: 4/27/2010

Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
8:45 PM	Auto	35	168	6	23	40	14	13	177	11	9	80	10
	Truck	0	6	0	0	0	1	1	7	0	0	0	0
	Bus	1	16	0	0	0	0	0	13	0	0	0	0
	Bike	1	0	0	1	0	0	0	3	0	1	0	1
9:00 PM	Auto	26	170	2	19	36	13	19	176	4	10	102	5
	Truck	0	9	0	0	0	0	0	14	0	0	2	0
	Bus	1	13	0	1	3	1	4	12	0	0	2	0
	Bike	0	0	0	0	0	0	0	2	1	0	0	1
9:15 PM	Auto	39	161	5	29	42	22	15	183	9	8	82	14
	Truck	0	4	1	0	0	0	0	5	0	0	0	0
	Bus	0	13	0	0	1	1	0	8	0	0	1	0
	Bike	1	0	0	0	0	0	0	0	0	0	0	1
9:30 PM	Auto	33	152	4	20	36	12	16	144	10	3	64	9
	Truck	1	9	0	0	0	0	0	5	0	2	1	0
	Bus	1	8	1	0	0	0	1	4	1	0	0	0
	Bike	0	0	0	0	0	0	0	1	0	1	0	0
4:15 PM	Auto	36	168	6	34	76	15	6	125	10	2	49	8
	Bus	0	2	1	0	3	0	1	4	0	1	1	0
	Truck	0	10	0	1	1	0	2	7	0	0	1	0
	Bike	1	0	0	0	1	0	0	2	0	0	0	1
4:30 PM	Auto	48	187	9	26	69	17	11	151	8	7	52	11
	Bus	0	4	0	1	2	0	0	3	1	0	0	0
	Truck	0	10	3	1	8	0	0	10	0	0	2	1
	Bike	0	2	0	0	0	0	0	4	0	0	0	3
4:45 PM	Auto	29	178	13	38	85	17	6	134	10	11	46	7
	Bus	0	4	0	0	2	0	0	6	0	0	0	0
	Truck	1	12	0	1	1	0	0	8	0	0	0	0
	Bike	0	2	0	0	0	1	0	3	0	0	0	1
5:00 PM	Auto	39	198	5	30	78	9	6	147	11	13	45	10
	Bus	0	1	0	0	0	0	0	2	0	0	0	0
	Truck	0	4	0	2	3	0	0	8	0	0	1	0
	Bike	0	0	0	2	0	0	0	1	0	0	0	4

Location: #2) Clarkson Ave. and Utica Ave.

Day / Date:

4/27/2010

Time End	Class	Movement Number											
		1	2	3	4	5	6	7	8	9	10	11	12
5:15 PM	Auto	40	194	12	24	56	12	11	157	8	4	62	6
	Truck	0	2	0	2	0	0	1	1	0	0	1	0
	Bus	1	6	0	0	2	0	0	11	0	0	1	0
	Bike	0	0	0	0	1	0	0	1	2	0	0	3
5:30 PM	Auto	4	214	13	36	65	16	11	154	12	6	52	10
	Truck	0	4	0	0	0	0	1	0	0	0	0	0
	Bus	0	9	0	0	0	0	0	9	0	0	0	0
	Bike	0	1	1	0	0	0	0	1	3	0	0	2
5:45 PM	Auto	36	17	15	37	66	14	9	173	16	8	48	14
	Truck	0	2	0	0	0	0	0	3	1	0	0	0
	Bus	0	8	0	0	1	0	0	8	0	0	2	0
	Bike	0	2	0	0	0	0	0	4	2	0	0	2
6:00 PM	Auto	38	194	6	35	63	13	11	122	11	6	52	6
	Truck	0	2	0	0	0	1	0	1	0	0	0	0
	Bus	1	11	0	0	0	0	0	6	0	0	0	0
	Bike	0	1	0	0	0	0	0	2	1	0	0	1

TURNING MOVEMENT/CLASSIFICATION COUNTS

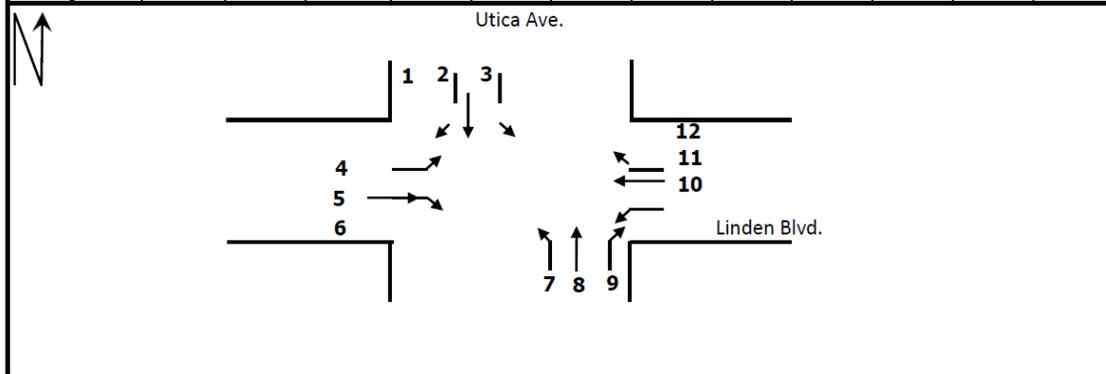
(NYCDOT;ATI #10129)

Location: #1) Linden Blvd and Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

pg 1

Time End	Class	Movement Number											
		1	2	3	4	5	6	7	8	9	10	11	12
7:45 AM	Auto	13	149	5	6	56	3	13	224	8	6	116	8
	Truck	0	2	0	0	8	0	3	3	1	0	9	1
	Bus	2	11	0	0	6	1	1	12	1	0	4	1
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	Auto	7	171	7	4	98	5	13	199	1	5	135	5
	Truck	1	3	0	0	8	2	1	4	0	1	13	0
	Bus	2	7	0	1	6	4	0	12	0	0	5	0
	Bike	0	1	0	0	1	0	0	0	0	0	2	1
8:15 AM	Auto	13	168	10	6	80	11	10	172	1	9	140	6
	Truck	1	3	2	0	12	2	0	7	0	1	13	0
	Bus	0	9	0	0	2	4	0	18	0	1	4	0
	Bike	0	0	0	0	1	0	0	2	0	0	0	0
8:30 AM	Auto	12	180	8	10	117	17	11	184	9	7	116	5
	Truck	1	1	0	0	11	0	1	5	0	0	10	0
	Bus	1	12	2	1	3	0	0	10	0	0	4	1
	Bike	0	0	0	0	0	0	0	0	0	0	1	0



Location: #1) Linden Blvd and Utica Ave.

Day / Date:

4/27/2010

Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
8:45 PM	Auto	9	172	9	7	81	6	14	190	4	2	94	5
	Truck	1	7	0	1	13	0	0	6	1	1	13	1
	Bus	0	16	0	1	5	0	1	12	1	1	7	0
	Bike	1	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	Auto	11	169	5	11	52	5	7	189	6	5	138	5
	Truck	0	4	0	2	19	1	1	6	1	0	10	5
	Bus	0	18	0	0	4	2	1	16	1	0	3	0
	Bike	0	0	0	0	0	0	1	1	1	1	0	0
9:15 PM	Auto	10	168	9	4	77	8	14	187	7	5	100	9
	Truck	0	6	0	1	11	1	1	3	1	1	16	1
	Bus	0	13	0	0	8	0	0	8	0	0	2	0
	Bike	0	0	0	0	1	0	0	0	0	0	1	0
9:30 PM	Auto	12	155	7	9	75	3	8	152	5	5	91	7
	Truck	1	8	1	0	10	5	2	5	1	2	22	1
	Bus	2	7	0	0	4	0	0	3	0	0	2	0
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	Auto	18	17	10	5	83	2	9	134	5	7	78	2
	Bus	0	2	0	1	10	0	0	4	0	0	6	0
	Truck	0	12	0	3	10	1	1	6	1	0	3	0
	Bike	0	4	0	1	0	0	0	1	1	0	1	0
4:30 PM	Auto	24	183	12	5	95	4	3	148	9	4	89	7
	Bus	1	4	0	0	8	0	0	5	0	0	3	0
	Truck	3	9	0	1	8	0	4	8	1	0	9	0
	Bike	0	1	0	1	0	0	0	2	0	0	1	0
4:45 PM	Auto	13	182	13	12	65	6	7	136	11	8	94	7
	Bus	0	4	0	0	7	0	0	8	0	0	4	1
	Truck	3	9	0	0	6	0	2	6	0	0	12	1
	Bike	0	1	0	0	0	0	0	1	0	0	0	0
5:00 PM	Auto	14	194	12	6	79	9	7	147	4	5	92	9
	Bus	0	1	1	0	5	0	0	2	0	0	5	0
	Truck	0	4	0	0	6	0	0	8	0	0	12	1
	Bike	0	0	0	0	0	0	1	2	0	0	1	0

Location: #1) Linden Blvd and Utica Ave.

Day / Date:

4/27/2010

Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
5:15 PM	Auto	16	178	20	12	79	7	7	145	11	5	80	9
	Truck	0	1	1	0	9	0	0	2	0	1	3	0
	Bus	0	6	0	0	5	0	0	9	0	0	3	0
	Bike	0	0	0	0	2	0	0	4	0	0	0	1
5:30 PM	Auto	25	186	13	4	61	8	13	163	15	5	103	5
	Truck	1	4	0	0	5	0	0	1	0	0	7	0
	Bus	0	8	0	0	3	1	0	9	0	0	5	0
	Bike	0	0	0	0	1	0	0	2	0	0	1	0
5:45 PM	Auto	19	185	16	11	78	7	5	172	12	10	104	0
	Truck	0	2	0	0	8	0	0	3	0	0	8	0
	Bus	1	9	0	2	6	0	0	6	0	0	4	0
	Bike	0	1	0	0	1	0	0	1	0	0	3	0
6:00 PM	Auto	13	186	19	6	73	10	1	128	11	8	90	6
	Truck	0	1	0	0	3	1	0	1	0	0	1	0
	Bus	0	12	0	0	0	1	0	6	0	0	5	0
	Bike	0	0	0	0	1	0	0	0	1	0	1	0

TURNING MOVEMENT/CLASSIFICATION COUNTS

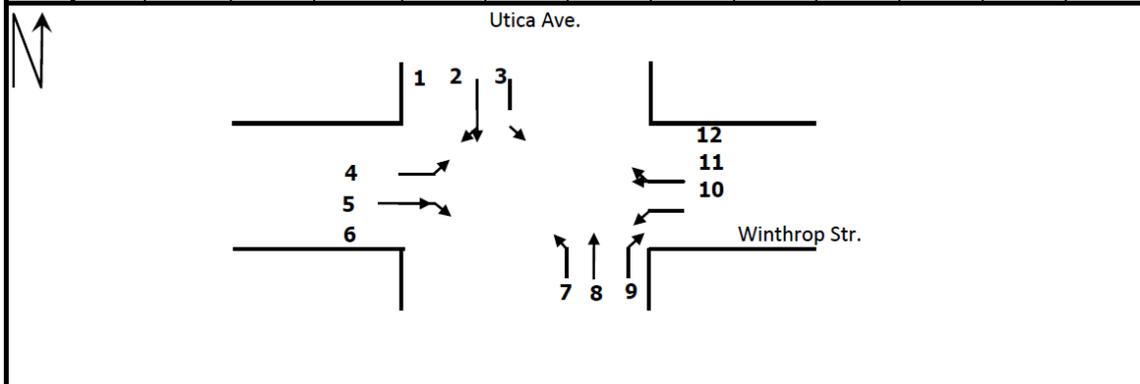
(NYCDOT;ATI #10129)

Location: #3) Winthrop Str. & Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

pg 1

Time	End	Class	Movement Number											
			1	2	3	4	5	6	7	8	9	10	11	12
7:45 AM	Auto	17	164	8	43	51	41	34	202	12	1	119	3	
	Truck	0	0	0	0	0	0	0	5	0	0	2	0	
	Bus	1	12	0	0	0	1	2	14	0	0	4	0	
	Bike	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	Auto	34	156	3	10	32	38	46	175	6	10	123	7	
	Truck	2	2	0	0	0	1	4	4	0	0	2	3	
	Bus	1	6	0	0	0	0	1	14	2	0	5	0	
	Bike	3	3	0	0	0	0	0	0	0	0	0	0	
8:15 AM	Auto	43	153	2	7	48	44	37	161	5	11	110	6	
	Truck	3	2	0	1	2	1	2	3	0	0	0	0	
	Bus	2	8	0	0	0	1	1	13	0	3	0	0	
	Bike	0	0	0	0	0	0	1	4	0	0	0	0	
8:30 AM	Auto	23	163	4	19	29	40	31	190	4	11	109	9	
	Truck	0	0	0	1	0	2	0	5	0	0	3	0	
	Bus	3	10	0	0	0	4	3	11	0	0	4	0	
	Bike	0	1	0	0	0	0	0	0	0	0	1	0	



Location: #3) Winthrop Str. & Utica Ave.

Day / Date: 4/27/2010

Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
8:45 PM	Auto	19	182	2	7	28	24	30	176	4	7	109	4
	Truck	0	4	0	0	1	2	1	6	0	0	2	0
	Bus	0	20	0	0	3	1	3	10	0	0	2	0
	Bike	0	1	0	0	1	1	0	1	0	0	7	0
9:00 PM	Auto	26	149	3	10	39	39	35	157	6	7	98	5
	Truck	0	4	0	0	1	0	3	10	1	0	1	0
	Bus	0	18	0	0	1	1	4	9	0	0	2	0
	Bike	0	0	0	0	0	0	0	0	0	0	1	0
9:15 PM	Auto	27	152	6	3	25	18	34	188	4	12	90	5
	Truck	2	5	0	0	2	0	1	7	0	0	3	0
	Bus	1	12	1	0	0	0	1	7	0	0	2	0
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	Auto	27	169	4	4	21	27	18	148	7	6	66	8
	Truck	1	8	0	0	0	2	0	6	1	0	2	0
	Bus	0	8	0	0	1	1	0	5	0	0	1	0
	Bike	0	0	0	0	0	0	0	1	0	0	0	0
4:15 PM	Auto	17	156	7	10	53	49	21	142	4	6	60	5
	Bus	0	3	0	0	1	0	0	3	0	0	0	0
	Truck	1	10	0	0	1	0	1	8	0	3	0	0
	Bike	0	0	0	0	0	0	1	0	0	0	0	0
4:30 PM	Auto	28	178	5	4	64	45	17	171	6	12	59	13
	Bus	0	4	0	0	0	0	0	5	0	0	0	0
	Truck	0	10	0	0	1	3	0	10	3	0	0	0
	Bike	0	0	0	0	0	1	0	2	0	0	0	0
4:45 PM	Auto	28	171	13	12	65	46	13	159	7	9	63	14
	Bus	0	2	0	0	0	0	0	6	0	2	0	0
	Truck	0	13	1	0	0	1	3	6	0	1	0	0
	Bike	0	0	1	0	1	0	0	3	0	0	2	0
5:00 PM	Auto	23	179	5	3	56	52	25	159	3	11	47	4
	Bus	0	1	0	0	1	0	1	1	0	0	0	0
	Truck	0	1	0	0	1	0	2	8	0	1	0	0
	Bike	0	0	0	0	0	0	0	1	0	0	0	0

Location: #3) Winthrop Str. & Utica Ave.

Day / Date: 4/27/2010

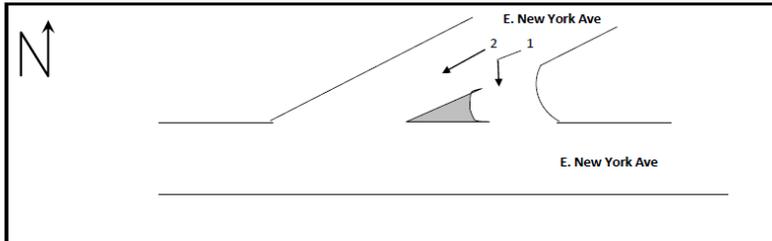
Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
5:15 PM	Auto	36	198	15	4	66	46	21	159	7	2	69	7
	Truck	1	1	0	0	0	1	0	3	0	1	1	0
	Bus	0	9	1	0	2	0	0	9	1	0	1	0
	Bike	0	0	0	0	0	0	0	5	0	0	0	0
5:30 PM	Auto	26	209	3	18	48	43	18	177	5	5	70	0
	Truck	0	4	0	0	2	2	0	0	0	0	0	0
	Bus	1	7	0	0	0	2	7	3	0	0	0	0
	Bike	0	0	0	0	1	1	1	1	0	0	0	0
5:45 PM	Auto	19	188	5	8	70	45	31	184	9	5	75	9
	Truck	0	1	0	1	0	0	0	2	0	1	0	0
	Bus	0	7	0	0	0	0	0	8	0	2	0	0
	Bike	0	0	0	0	1	0	0	0	2	0	3	0
6:00 PM	Auto	22	183	4	4	62	46	25	128	10	9	80	7
	Truck	1	4	0	0	1	0	0	1	0	0	0	0
	Bus	0	12	0	0	1	0	0	7	0	0	0	0
	Bike	0	1	0	0	1	0	0	0	1	0	0	0

TURNING MOVEMENT/CLASSIFICATION COUNTS

(NYCDOT, ATI #10354)

Location: **3) E. New York Ave & E. New York Ave**
 Surveyors: _____ Day/Date: 11/11/2010

pg 1



Time End	Class	Movement Number												
		1	2	3	4	5	6	7	8	9	10	11	12	
8:15 AM	Auto	0	75											
	Truck	0	10											
	Bus	0	4											
	Bike	0	0											
8:30 AM	Auto	0	76											
	Truck	0	0											
	Bus	0	4											
	Bike	0	0											
8:45 AM	Auto	1	103											
	Truck	0	3											
	Bus	0	6											
	Bike	0	0											
9:00 AM	Auto	1	87											
	Truck	0	6											
	Bus	0	5											
	Bike	0	0											

Location: **3) E. New York Ave & E. New York Ave**
 Surveyors: _____ Day/Date: 11/11/2010

(NYCDOT, ATI #10354)

pg 2

Time End	Class	Movement Number												
		1	2	3	4	5	6	7	8	9	10	11	12	
5:15 PM	Auto	5	115											
	Truck	0	1											
	Bus	0	1											
	Bike	0	1											
5:30 PM	Auto	5	130											
	Truck	0	2											
	Bus	0	3											
	Bike	0	1											
5:45 PM	Auto	3	137											
	Truck	0	5											
	Bus	0	4											
	Bike	0	3											
6:00 PM	Auto	0	118											
	Truck	0	0											
	Bus	0	3											
	Bike	1	0											

TURNING MOVEMENT/CLASSIFICATION COUNTS

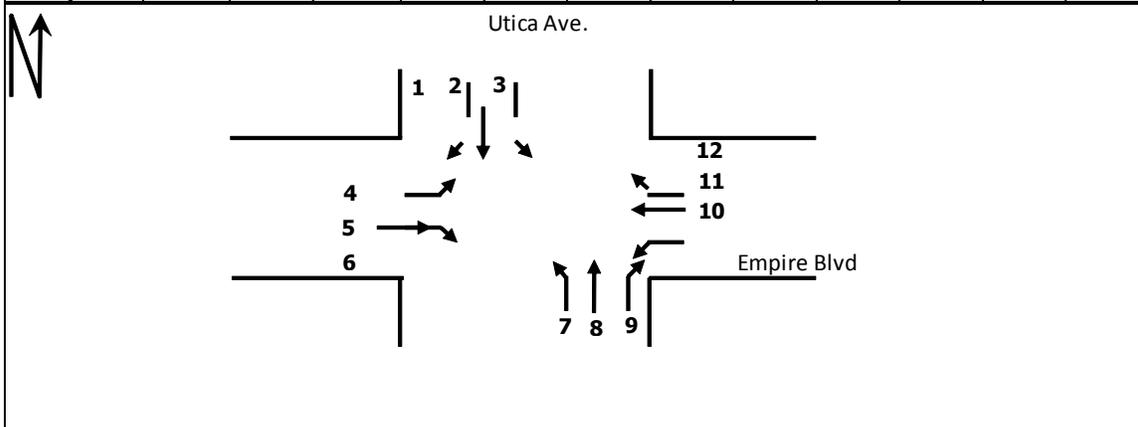
(NYCDOT;ATI #10129)

Location: #4) Empire Blvd. & Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

pg 1

Time End	Class	Movement Number											
		1	2	3	4	5	6	7	8	9	10	11	12
7:45 AM	Auto	10	108	0	0	47	13	0	237	11	26	69	19
	Truck	2	3	0	0	6	1	0	7	0	1	2	1
	Bus	0	14	0	1	8	2	0	13	0	2	7	0
	Bike	0	0	0	0	1	0	0	0	0	0	0	0
8:00 AM	Auto	11	129	1	1	69	15	0	205	9	19	89	13
	Truck	0	3	0	0	3	1	0	6	0	1	4	0
	Bus	2	10	0	0	8	2	0	13	0	0	3	0
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	Auto	9	103	0	0	43	29	0	187	13	18	92	15
	Truck	2	5	0	0	5	4	0	4	0	0	5	0
	Bus	1	10	0	0	4	1	0	13	0	0	6	0
	Bike	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	Auto	8	138	0	3	62	21	1	213	8	15	126	8
	Truck	1	5	0	0	3	1	0	8	0	0	7	0
	Bus	0	12	0	0	7	5	0	13	0	1	11	1
	Bike	0	0	0	0	1	0	0	0	0	0	0	0



Location: #4) Empire Blvd. & Utica Ave.

Day / Date:

4/27/2010

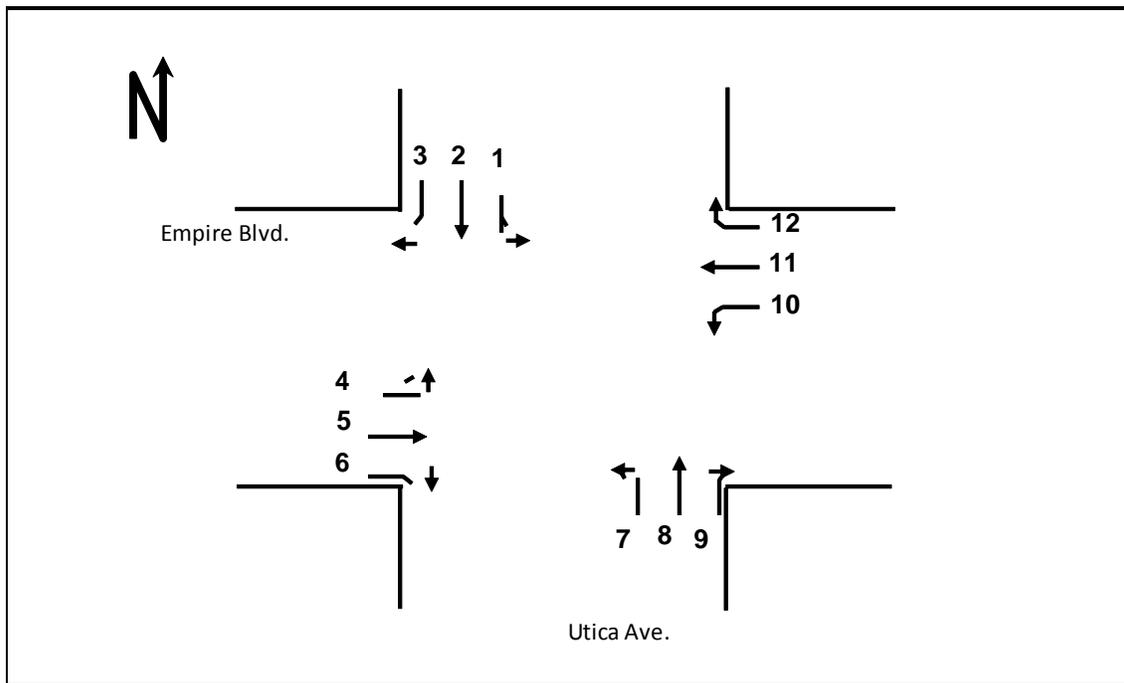
Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
8:45 PM	Auto	14	146	0	2	47	26	0	206	16	23	78	31
	Truck	1	4	1	0	4	2	0	7	0	1	10	2
	Bus	1	12	0	0	9	2	0	13	0	2	6	1
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	Auto	12	92	0	1	55	13	0	205	12	14	102	24
	Truck	0	4	0	0	4	2	0	8	1	2	8	1
	Bus	0	17	0	1	6	4	0	10	0	0	9	3
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
9:15 PM	Auto	12	102	2	4	51	11	0	159	28	26	74	31
	Truck	4	1	0	1	4	2	0	5	2	1	9	2
	Bus	0	15	0	1	6	1	0	8	0	1	4	0
	Bike	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	Auto	16	122	2	5	61	14	0	152	17	18	91	25
	Truck	2	4	0	0	5	2	0	11	0	3	12	4
	Bus	0	13	0	0	8	1	0	6	1	2	7	3
	Bike	0	0	0	0	0	0	0	0	0	0	0	0

TURNING MOVEMENT/CLASSIFICATION COUNTS (NYCDOT;ATI #10263)

Location: **#9) Utica Ave. & Empire Blvd.**

Surveyors: _____ Day:Date: **9/22/2010**

Time End	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
5:15 PM	Auto	3	113	2	4	68	33	2	149	6	16	68	5
	Bus	0	11	0	0	6	1	1	15	1	0	2	0
	Truck	0	2	0	0	4	1	0	3	0	1	0	0
	Bike	1	1	0	0	1	0	0	0	0	2	2	0
5:30 PM	Auto	3	118	3	4	72	32	5	159	4	20	69	7
	Bus	0	8	0	0	3	0	0	9	0	1	3	0
	Truck	0	3	0	0	2	2	0	4	0	0	0	0
	Bike	0	3	1	0	1	1	0	4	0	0	1	0
5:45 PM	Auto	3	102	10	1	81	31	2	151	6	21	69	3
	Bus	0	12	0	0	4	1	0	8	0	0	2	0
	Truck	0	2	0	0	4	4	1	2	0	1	1	0
	Bike	4	2	0	0	2	1	0	4	0	0	0	0
6:00 PM	Auto	4	107	11	2	65	29	4	156	3	30	61	2
	Bus	0	7	0	0	4	0	0	4	0	0	2	0
	Truck	0	2	0	0	3	1	0	0	0	1	1	0
	Bike	0	2	0	0	3	1	0	2	0	0	0	1



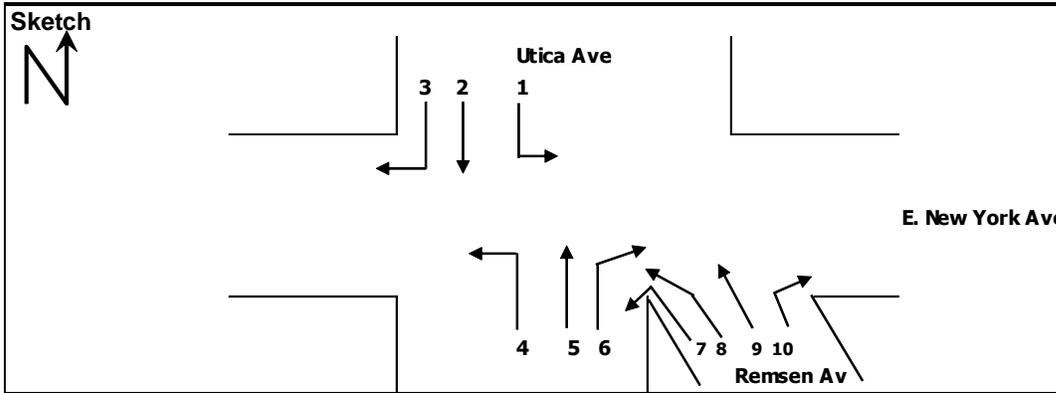
TURNING MOVEMENT/CLASSIFICATION COUNTS

(NYCDOT; ATI #10354)

Location: 1) Utica Ave & E. New York Ave/Renssen Ave

Surveyors: _____ Day/Date: 11/11/10

pg 1

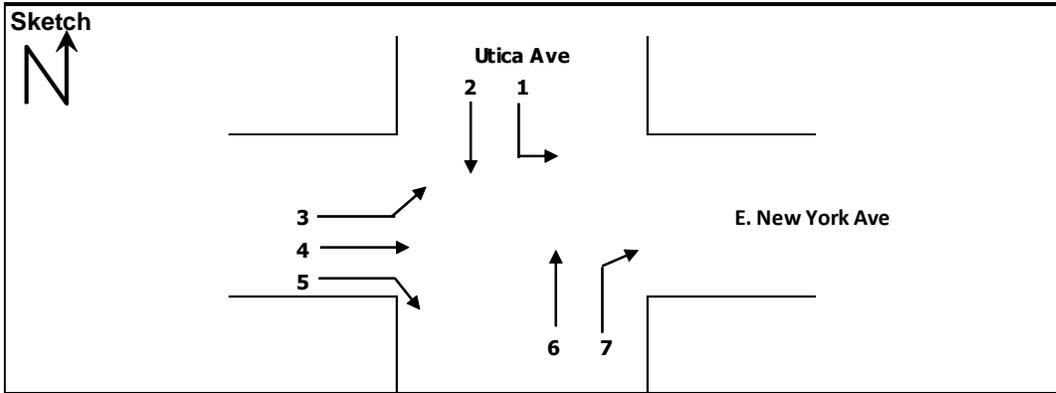


Time	End	Class	Movement Number											
			1	2	3	4	5	6	7	8	9	10	11	12
8:15 AM	Auto	0	128	5	11	103	14	0	52	55	4			
	Truck	0	11	0	4	6	1	0	5	1	0			
	Bus	0	10	0	0	13	0	0	7	1	0			
	Bike	0	1	0	0	0	0	0	0	2	1			
8:30 AM	Auto	0	131	0	13	98	7	0	55	39	3			
	Truck	0	12	0	0	4	0	0	2	1	0			
	Bus	0	13	0	1	10	1	0	2	3	0			
	Bike	0	0	0	0	1	0	0	1	1	0			
8:45 AM	Auto	0	148	8	21	103	6	0	76	43	2			
	Truck	0	8	0	0	6	0	0	4	2	0			
	Bus	0	17	0	0	5	2	0	8	2	0			
	Bike	0	1	0	0	0	0	0	2	2	0			
9:00 AM	Auto	0	130	6	23	101	13	0	61	41	1			
	Truck	0	5	1	0	6	0	0	6	4	0			
	Bus	0	18	0	0	4	1	0	3	0	0			
	Bike	0	1	0	0	0	0	0	1	0	0			

TURNING MOVEMENT/CLASSIFICATION COUNTS

(NYCDOT; ATI #10354 B)

Location: Utica Ave & E. New York Ave
 Surveyors: _____ Day/Date: 12/23/10



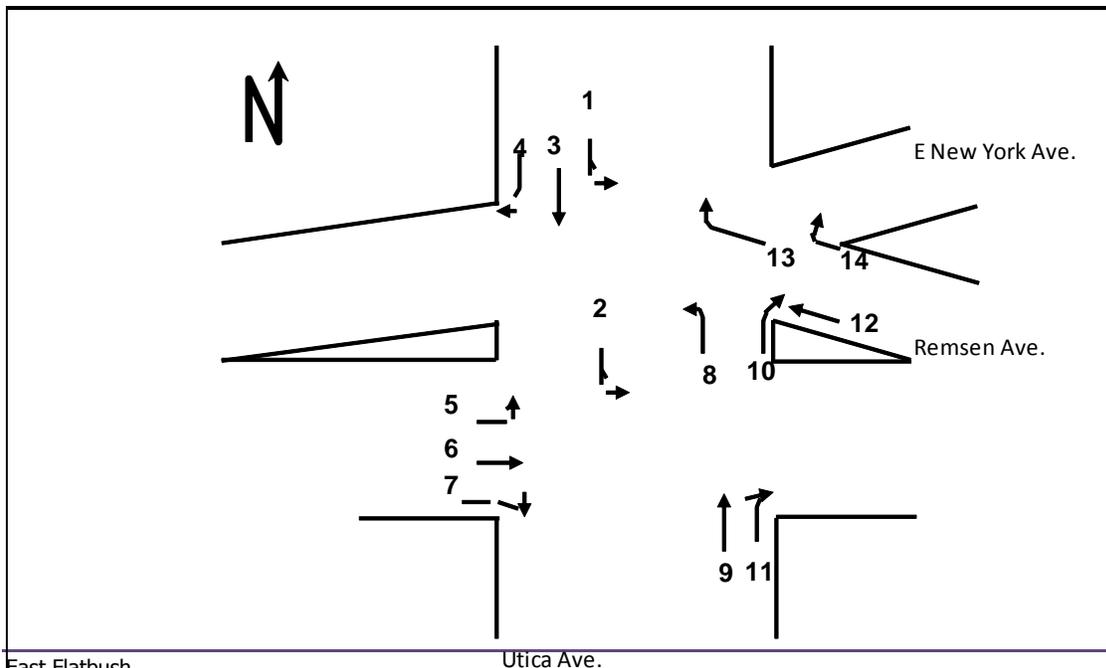
Time	Movement Number												
	Class	1	2	3	4	5	6	7	8	9	10	11	12
8:15 AM	Auto	36	135	5	27	3	181	5					
	Truck	3	2	0	1	0	7	1					
	Bus	4	10	0	0	0	17	0					
	Bike	0	1	0	0	0	0	0					
8:30 AM	Auto	32	119	4	52	11	139	2					
	Truck	1	3	0	0	0	5	0					
	Bus	5	8	1	3	0	10	0					
	Bike	0	0	0	0	0	0	0					
8:45 AM	Auto	43	145	6	45	5	159	5					
	Truck	2	3	3	1	0	7	0					
	Bus	7	13	1	2	0	12	1					
	Bike	0	1	0	0	0	0	0					
9:00 AM	Auto	27	105	8	33	12	143	5					
	Truck	5	4	1	1	0	5	0					
	Bus	3	12	0	3	1	4	0					
	Bike	0	1	0	1	0	0	0					

TURNING MOVEMENT/CLASSIFICATION COUNTS

Location: **#8) Utica Ave. & E. New York Ave.**

Surveyors: _____ Day:Date: **9/22/2010**

Time End	Class	Movement Number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
5:15 PM	Auto	0	39	153	9	7	76	4	20	97	28	9	76	45	14
	Bus	0	3	13	0	0	0	0	0	15	0	0	1	4	1
	Truck	0	1	4	0	1	0	0	0	1	0	0	0	0	0
	Bike	0	0	1	0	0	0	1	0	0	0	0	0	0	0
5:30 PM	Auto	1	48	165	4	6	84	5	19	117	27	16	99	48	7
	Bus	0	4	10	0	0	0	0	0	8	0	0	1	1	1
	Truck	0	0	2	0	0	0	0	0	4	0	0	0	0	1
	Bike	0	0	0	1	1	0	0	0	4	0	0	0	3	0
5:45 PM	Auto	1	52	151	3	7	80	6	40	103	47	12	71	53	11
	Bus	0	3	13	0	0	0	2	0	8	0	0	0	0	1
	Truck	0	1	8	0	1	1	0	0	2	0	0	0	2	0
	Bike	1	1	4	0	0	0	0	0	1	0	0	0	2	1
6:00 PM	Auto	0	48	164	4	11	64	16	27	106	38	14	87	49	14
	Bus	0	3	7	0	0	0	0	0	5	2	0	9	0	0
	Truck	0	2	4	0	0	0	1	0	0	0	0	1	0	0
	Bike	0	0	1	0	0	0	0	0	0	0	0	0	2	0



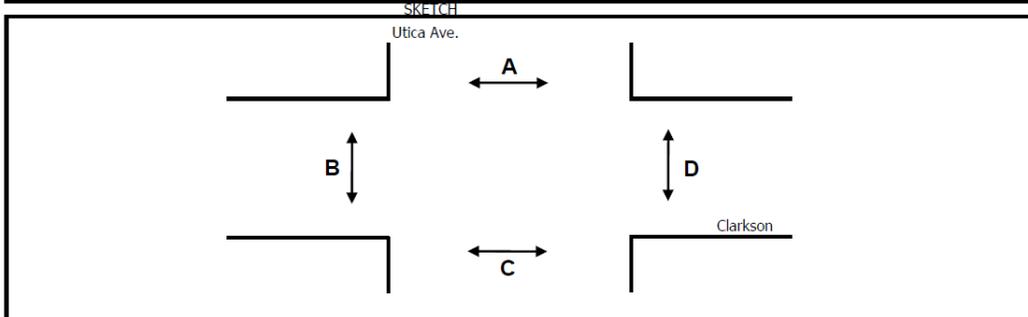
PEDESTRIAN COUNTS

PEDESTRIAN CROSSWALK COUNTS

Location: #2) Clarkson Ave. and Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

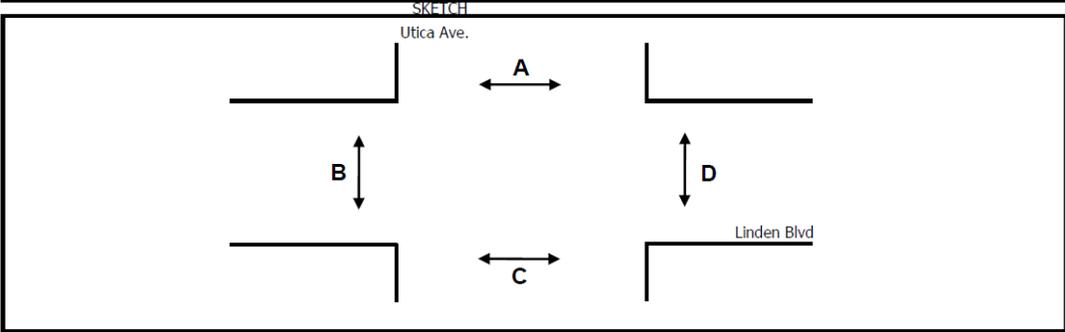
Time	Movement Number											
	A	B	C	D	E	F	G	H	I	J	K	L
7:45	18	17	20	29								
8:00	18	16	24	33								
8:15	15	23	30	38								
8:30	8	24	15	29								
8:45	8	22	18	32								
9:00	10	21	20	23								
9:15	5	24	18	21								
9:30	13	17	24	28								
4:15	14	46	25	34								
4:30	15	40	23	32								
4:45	13	32	26	50								
5:00	23	54	27	41								
5:15	10	43	25	54								
5:30	12	47	17	39								
5:45	21	50	32	57								
6:00	13	44	19	52								



PEDESTRIAN CROSSWALK COUNTS

Location: #1) Linden Blvd and Utica Ave.
Surveyors: _____ Day / Date: 4/27/2010

Time	Movement Number											
	A	B	C	D	E	F	G	H	I	J	K	L
7:45	18	31	19	20								
8:00	31	29	15	22								
8:15	22	37	31	27								
8:30	34	23	22	33								
8:45	20	26	20	20								
9:00	15	28	12	24								
9:15	19	30	17	25								
9:30	16	20	10	15								
<hr/>												
4:15	29	33	30	53								
4:30	26	56	29	74								
4:45	22	45	39	56								
5:00	24	45	38	41								
5:15	25	51	30	68								
5:30	32	47	40	56								
5:45	18	59	34	65								
6:00	23	34	45	48								

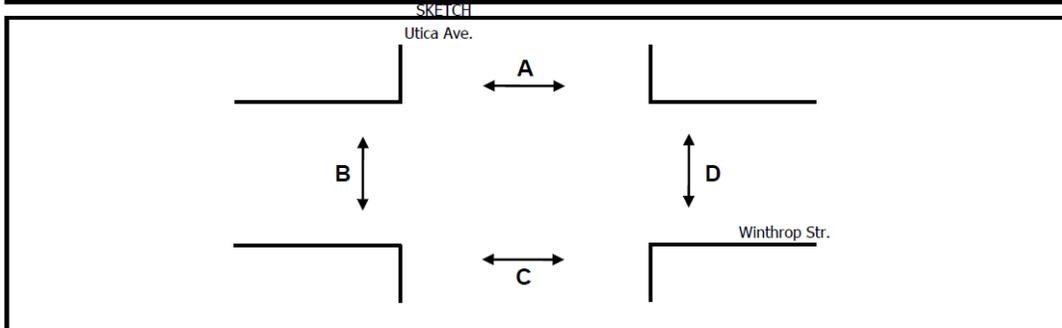


PEDESTRIAN CROSSWALK COUNTS

Location: #3) Winthrop Str. & Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

Time	Movement Number											
	A	B	C	D	E	F	G	H	I	J	K	L
7:45	34	23	15	14								
8:00	22	10	31	21								
8:15	31	17	24	22								
8:30	19	16	25	23								
8:45	28	19	31	15								
9:00	17	25	28	12								
9:15	23	16	23	18								
9:30	14	16	21	16								
4:15	17	31	17	27								
4:30	39	33	24	26								
4:45	22	30	29	22								
5:00	20	40	20	32								
5:15	35	60	37	31								
5:30	20	49	31	29								
5:45	23	53	37	34								
6:00	17	41	37	29								

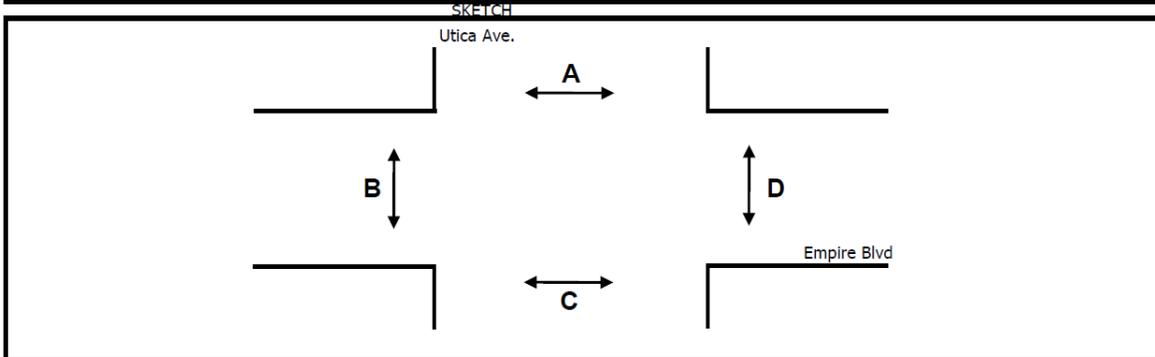


PEDESTRIAN CROSSWALK COUNTS

Location: #4) Empire Blvd. & Utica Ave.

Surveyors: _____ Day / Date: 4/27/2010

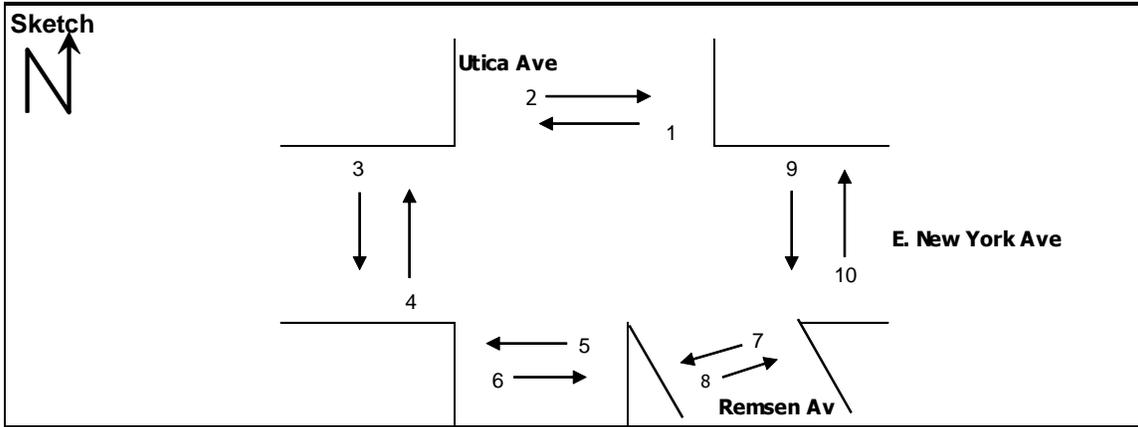
Time	Movement Number											
	A	B	C	D	E	F	G	H	I	J	K	L
7:45	61	33	18	26								
8:00	81	48	29	13								
8:15	83	43	45	8								
8:30	115	69	56	12								
8:45	105	62	48	18								
9:00	78	66	33	10								
9:15	65	57	27	8								
9:30	62	51	18	6								
<hr/>												
4:15	80	98	17	55								
4:30	77	113	15	64								
4:45	67	116	18	63								
5:00	61	110	16	61								
5:15	86	115	12	68								
5:30	90	129	10	78								
5:45	85	135	11	76								
6:00	88	113	14	64								



PEDESTRIAN CROSSWALK COUNTS

Location: 1) Utica Ave & E.New York Ave/Renssen Ave

Surveyors: _____ Day/Date: 11/11/10



AM		Movement Number											
Time end	1	2	3	4	5	6	7	8	9	10	11	12	
8:15	0	1	5	5	0	2	7	7	4	5			
8:30	7	5	16	13	0	3	4	11	7	16			
8:45	3	6	10	3	1	0	6	3	7	8			
9:00	1	4	9	9	3	3	5	3	9	10			

PM		Movement Number											
Time end	1	2	3	4	5	6	7	8	9	10	11	12	
5:15	5	5	23	28	4	2	11	5	20	24			
5:30	0	3	31	30	4	7	9	11	21	28			
5:45	11	4	24	23	6	4	6	8	26	29			
6:00	4	8	30	13	2	1	7	9	24	18			

SYNCHRO ANALYSIS

Existing Condition (2010)

2: Empire Blvd & Utica Ave

AM PEAK HOUR (8:00 - 9:00 AM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Volume (vph)	7	249	110	76	460	86	1	887	50	1	647	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	14	12	12	12	12	12	11	12
Satd. Flow (prot)	0	2374	0	0	1202	0	0	2754	0	0	2539	0
Flt Permitted		0.930			0.827			0.952			0.946	
Satd. Flow (perm)	0	2207	0	0	992	0	0	2621	0	0	2402	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		252			190			113			257	
Travel Time (s)		5.7			4.3			2.6			5.8	
Confl. Peds. (#/hr)	381		182	182		381	240		48	48		240
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.58	0.86	0.81	0.73	0.80	0.63	0.25	0.95	0.78	0.25	0.85	0.77
Heavy Vehicles (%)	14%	17%	19%	8%	13%	9%	0%	9%	2%	100%	13%	12%
Bus Blockages (#/hr)	0	12	12	16	16	16	0	34	34	0	25	25
Parking (#/hr)				10	10	10						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	438	0	0	816	0	0	1002	0	0	829	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	65.0	65.0	0.0	65.0	65.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	45.8%	45.8%	0.0%	54.2%	54.2%	0.0%	54.2%	54.2%	0.0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		13.0	13.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	16.0	16.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		50.0			50.0			60.0			49.0	
Actuated g/C Ratio		0.42			0.42			0.50			0.41	
v/c Ratio		0.48			1.98			0.76			0.85	
Control Delay		27.6			471.7			13.2			41.6	
Queue Delay		3.7			233.3			282.9			0.0	
Total Delay		31.4			705.0			296.2			41.6	
LOS		C			F			F			D	
Approach Delay		31.4			705.0			296.2			41.6	
Approach LOS		C			F			F			D	
Stops (vph)		260			409			630			606	
Fuel Used(gal)		4			63			7			11	
CO Emissions (g/hr)		295			4398			478			745	
NOx Emissions (g/hr)		57			856			93			145	
VOC Emissions (g/hr)		68			1019			111			173	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		127			~982			162			301	
Queue Length 95th (ft)		166			#1050			m96			357	

JP/TA
GPI

Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

2: Empire Blvd & Utica Ave

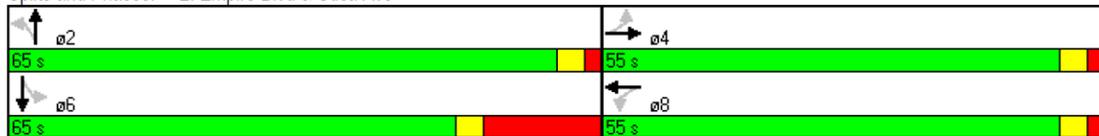


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		172			110			33			177	
Turn Bay Length (ft)												
Base Capacity (vph)		920			413			1311			981	
Starvation Cap Reductn		0			0			695			0	
Spillback Cap Reductn		384			345			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.82			12.00			1.63			0.85	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	140
Control Type:	Pretimed
Maximum v/c Ratio:	1.98
Intersection Signal Delay:	298.3
Intersection LOS:	F
Intersection Capacity Utilization	145.8%
ICU Level of Service	H
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Empire Blvd & Utica Ave



Existing Condition (2010)

AM PEAK HOUR (8:00 - 9:00 AM)

3: E New York Ave (North) & Utica Ave



Lane Group	NBL	NBT	NBR	SBT	SBR	NWL	NWR	NWR2
Lane Configurations		↕↕		↕↕		↕↕	↕	↕
Volume (vph)	78	732	50	812	21	318	206	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	14	12	10	10	10
Satd. Flow (prot)	0	2849	0	2998	0	2574	1160	0
Flt Permitted		0.594				0.958		
Satd. Flow (perm)	0	1699	0	2998	0	2574	1001	0
Right Turn on Red					No			No
Satd. Flow (RTOR)								
Link Speed (mph)		30		30		30		
Link Distance (ft)		168		113		206		
Travel Time (s)		3.8		2.6		4.7		
Confl. Peds. (#/hr)	70		66		70		27	66
Confl. Bikes (#/hr)			5		3		4	5
Peak Hour Factor	0.79	0.94	0.75	0.91	0.62	0.80	0.84	0.62
Heavy Vehicles (%)	7%	12%	11%	15%	5%	13%	7%	0%
Shared Lane Traffic (%)							23%	
Lane Group Flow (vph)	0	945	0	926	0	454	205	0
Turn Type	Perm						Perm	
Protected Phases		2		6		8		
Permitted Phases	2						8	
Minimum Split (s)	65.0	65.0		65.0		55.0	55.0	
Total Split (s)	65.0	65.0	0.0	65.0	0.0	55.0	55.0	0.0
Total Split (%)	54.2%	54.2%	0.0%	54.2%	0.0%	45.8%	45.8%	0.0%
Yellow Time (s)	3.0	3.0		3.0		3.0	3.0	
All-Red Time (s)	13.0	13.0		2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	16.0	16.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag								
Lead-Lag Optimize?								
Act Effct Green (s)		49.0		60.0		50.0	50.0	
Actuated g/C Ratio		0.41		0.50		0.42	0.42	
v/c Ratio		1.36		0.62		0.42	0.49	
Control Delay		186.4		10.9		26.3	30.7	
Queue Delay		0.9		27.7		2.3	673.8	
Total Delay		187.3		38.6		28.6	704.5	
LOS		F		D		C	F	
Approach Delay		187.3		38.6		238.9		
Approach LOS		F		D		F		
Stops (vph)		604		435		252	123	
Fuel Used(gal)		37		5		4	2	
CO Emissions (g/hr)		2596		349		275	140	
NOx Emissions (g/hr)		505		68		54	27	
VOC Emissions (g/hr)		602		81		64	33	
Dilemma Vehicles (#)		0		0		0	0	
Queue Length 50th (ft)		~512		104		126	126	
Queue Length 95th (ft)		#625		m130		147	191	
Internal Link Dist (ft)		88		33		126		
Turn Bay Length (ft)								

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GPI

Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

3: E New York Ave (North) & Utica Ave

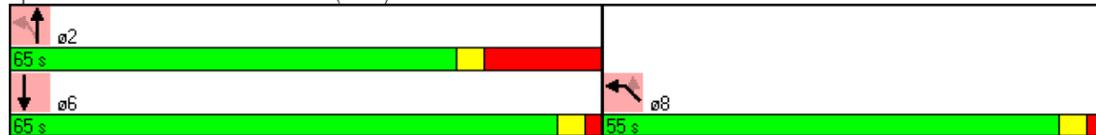


Lane Group	NBL	NBT	NBR	SBT	SBR	NWL	NWR	NWR2
Base Capacity (vph)		694		1499		1073	417	
Starvation Cap Reductn		0		609		0	0	
Spillback Cap Reductn		1		335		469	365	
Storage Cap Reductn		0		0		0	0	
Reduced v/c Ratio		1.36		1.04		0.75	3.94	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	140
Control Type:	Pretimed
Maximum v/c Ratio:	1.36
Intersection Signal Delay:	146.3
Intersection LOS:	F
Intersection Capacity Utilization:	151.4%
ICU Level of Service:	H
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: E New York Ave (North) & Utica Ave



Existing Condition (2010)

4: E New York Ave (South) & Utica Avenue

AM PEAK HOUR (8:00 - 9:00 AM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕			↕↕	
Volume (vph)	35	179	33	0	0	0	0	825	21	198	614	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	13	12
Satd. Flow (prot)	0	2746	0	0	0	0	0	2814	0	0	2845	0
Flt Permitted		0.993									0.517	
Satd. Flow (perm)	0	2736	0	0	0	0	0	2814	0	0	1487	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		171			134			210			168	
Travel Time (s)		3.9			3.0			4.8			3.8	
Confl. Peds. (#/hr)	27		12	12		27	70		56	56		70
Confl. Bikes (#/hr)			1									3
Peak Hour Factor	0.73	0.76	0.62	0.92	0.92	0.92	0.92	0.84	0.79	0.81	0.87	0.92
Heavy Vehicles (%)	21%	7%	3%	2%	2%	2%	2%	10%	11%	18%	10%	2%
Bus Blockages (#/hr)	0	6	6	0	0	0	0	21	21	0	19	19
Parking (#/hr)	20	20	20									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	337	0	0	0	0	0	1009	0	0	950	0
Turn Type	Perm									pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Minimum Split (s)	43.0	43.0						60.0		17.0	77.0	
Total Split (s)	43.0	43.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	17.0	77.0	0.0
Total Split (%)	35.8%	35.8%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	14.2%	64.2%	0.0%
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		38.0						55.0			72.0	
Actuated g/C Ratio		0.32						0.46			0.60	
v/c Ratio		0.39						0.78			0.96dl	
Control Delay		33.6						32.8			29.4	
Queue Delay		3.8						105.0			59.1	
Total Delay		37.4						137.7			88.5	
LOS		D						F			F	
Approach Delay		37.4						137.7			88.5	
Approach LOS		D						F			F	
Stops (vph)		188						698			499	
Fuel Used(gal)		3						11			9	
CO Emissions (g/hr)		214						761			607	
NOx Emissions (g/hr)		42						148			118	
VOC Emissions (g/hr)		50						176			141	
Dilemma Vehicles (#)		0						0			0	
Queue Length 50th (ft)		106						339			251	
Queue Length 95th (ft)		123						382			#292	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

4: E New York Ave (South) & Utica Avenue

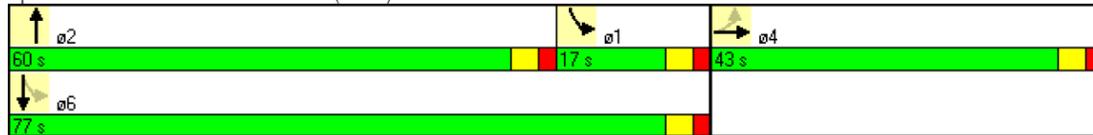


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		91			54			130			88	
Turn Bay Length (ft)												
Base Capacity (vph)		866						1290			1028	
Starvation Cap Reductn		0						0			189	
Spillback Cap Reductn		433						469			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.78						1.23			1.13	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	102.6
Intersection LOS:	F
Intersection Capacity Utilization:	150.0%
ICU Level of Service:	H
Analysis Period (min):	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
dl	Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 4: E New York Ave (South) & Utica Avenue



Existing Condition (2010)

PM PEAK HOUR (5:00 - 6:00 PM)

2: Empire Blvd & Utica Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Volume (vph)	11	346	145	95	289	17	17	705	21	13	537	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	14	12	12	12	12	12	11	12
Satd. Flow (prot)	0	2689	0	0	1392	0	0	2844	0	0	2572	0
Flt Permitted		0.936			0.594			0.922			0.896	
Satd. Flow (perm)	0	2511	0	0	835	0	0	2608	0	0	2304	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		252			190			113			257	
Travel Time (s)		5.7			4.3			2.6			5.8	
Confl. Peds. (#/hr)	349		47	47		349	492		286	286		492
Confl. Bikes (#/hr)			7			3			10			8
Peak Hour Factor	0.69	0.89	0.94	0.73	0.96	0.61	0.75	0.96	0.71	0.81	0.94	0.59
Heavy Vehicles (%)	0%	9%	7%	4%	4%	0%	13%	7%	5%	0%	10%	0%
Bus Blockages (#/hr)	0	10	10	8	8	8	0	24	24	0	31	31
Parking (#/hr)				10	10	10						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	559	0	0	459	0	0	787	0	0	631	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	65.0	65.0	0.0	65.0	65.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	45.8%	45.8%	0.0%	54.2%	54.2%	0.0%	54.2%	54.2%	0.0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		13.0	13.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	16.0	16.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		50.0			50.0			60.0			49.0	
Actuated g/C Ratio		0.42			0.42			0.50			0.41	
v/c Ratio		0.53			1.32			0.60			0.67	
Control Delay		28.6			193.6			12.7			33.3	
Queue Delay		8.7			525.3			272.1			0.0	
Total Delay		37.3			718.9			284.8			33.3	
LOS		D			F			F			C	
Approach Delay		37.3			718.9			284.8			33.3	
Approach LOS		D			F			F			C	
Stops (vph)		365			307			370			460	
Fuel Used(gal)		6			18			5			8	
CO Emissions (g/hr)		414			1265			323			531	
NOx Emissions (g/hr)		81			246			63			103	
VOC Emissions (g/hr)		96			293			75			123	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		168			~459			114			206	
Queue Length 95th (ft)		221			#666			m88			275	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

2: Empire Blvd & Utica Ave

Existing Condition (2010)
PM PEAK HOUR (5:00 - 6:00 PM)

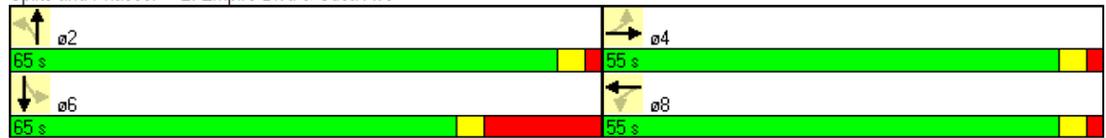


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		172			110			33			177	
Turn Bay Length (ft)												
Base Capacity (vph)		1046			348			1304			941	
Starvation Cap Reductn		0			0			812			0	
Spillback Cap Reductn		445			296			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.93			8.83			1.60			0.67	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	140
Control Type:	Pretimed
Maximum v/c Ratio:	1.32
Intersection Signal Delay:	244.6
Intersection LOS:	F
Intersection Capacity Utilization	145.8%
ICU Level of Service	H
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Empire Blvd & Utica Ave



Existing Condition (2010)

3: E New York Ave (North) & Utica Ave

PM PEAK HOUR (5:00 - 6:00 PM)



Lane Group	NBL	NBT	NBR	SBL2	SBT	SBR	NWL	NWR	NWR2
Lane Configurations		↕↕			↕↕		↕↕	↕	↕
Volume (vph)	106	534	144	2	755	20	357	209	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	14	12	10	10	10
Satd. Flow (prot)	0	2920	0	0	3148	0	2791	1182	0
Flt Permitted		0.592			0.951		0.959		
Satd. Flow (perm)	0	1732	0	0	2993	0	2791	833	0
Right Turn on Red						No			No
Satd. Flow (RTOR)									
Link Speed (mph)		30			30		30		
Link Distance (ft)		168			113		206		
Travel Time (s)		3.8			2.6		4.7		
Confl. Peds. (#/hr)	202		190			202		40	190
Confl. Bikes (#/hr)			7			6			7
Peak Hour Factor	0.66	0.92	0.76	0.50	0.98	0.56	0.86	0.92	0.83
Heavy Vehicles (%)	0%	2%	1%	0%	9%	0%	3%	3%	8%
Shared Lane Traffic (%)								32%	
Lane Group Flow (vph)	0	930	0	0	810	0	488	219	0
Turn Type	Perm			Perm				Perm	
Protected Phases		2			6		8		
Permitted Phases	2			6			8		
Minimum Split (s)	65.0	65.0		65.0	65.0		55.0	55.0	
Total Split (s)	65.0	65.0	0.0	65.0	65.0	0.0	55.0	55.0	0.0
Total Split (%)	54.2%	54.2%	0.0%	54.2%	54.2%	0.0%	45.8%	45.8%	0.0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	13.0	13.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	16.0	16.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag									
Lead-Lag Optimize?									
Act Effct Green (s)		49.0			60.0		50.0	50.0	
Actuated g/C Ratio		0.41			0.50		0.42	0.42	
v/c Ratio		1.32			0.54		0.42	0.63	
Control Delay		168.2			15.5		26.1	37.6	
Queue Delay		2.5			7.4		1.8	672.4	
Total Delay		170.7			22.9		27.9	710.0	
LOS		F			C		C	F	
Approach Delay		170.7			22.9		239.2		
Approach LOS		F			C		F		
Stops (vph)		557			555		290	158	
Fuel Used(gal)		31			6		5	3	
CO Emissions (g/hr)		2164			434		317	188	
NOx Emissions (g/hr)		421			84		62	37	
VOC Emissions (g/hr)		501			101		74	44	
Dilemma Vehicles (#)		0			0		0	0	
Queue Length 50th (ft)		~492			165		135	145	
Queue Length 95th (ft)		#625			m184		171	250	
Internal Link Dist (ft)		88			33		126		
Turn Bay Length (ft)									

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

3: E New York Ave (North) & Utica Ave



Lane Group	NBL	NBT	NBR	SBL2	SBT	SBR	NWL	NWR	NWR2
Base Capacity (vph)		707			1497		1163	347	
Starvation Cap Reductn		0			637		0	0	
Spillback Cap Reductn		3			369		492	293	
Storage Cap Reductn		0			0		0	0	
Reduced v/c Ratio		1.32			0.94		0.73	4.06	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	140
Control Type:	Pretimed
Maximum v/c Ratio:	1.32
Intersection Signal Delay:	141.6
Intersection LOS:	F
Intersection Capacity Utilization:	154.2%
ICU Level of Service:	H
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: E New York Ave (North) & Utica Ave



Existing Condition (2010)

PM PEAK HOUR (5:00 - 6:00 PM)

4: E New York Ave (South) & Utica Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔						↕↔			↕↔	
Volume (vph)	35	306	37	0	0	0	0	749	51	221	534	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	13	12
Satd. Flow (prot)	0	2877	0	0	0	0	0	2839	0	0	2707	0
Fit Permitted		0.995									0.530	
Satd. Flow (perm)	0	2866	0	0	0	0	0	2839	0	0	1448	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		171			134			210			168	
Travel Time (s)		3.9			3.0			4.8			3.8	
Confl. Peds. (#/hr)	40		30	30		40	202		128	128		202
Confl. Bikes (#/hr)									5			6
Peak Hour Factor	0.75	0.91	0.50	0.92	0.92	0.92	0.92	0.90	0.80	0.91	0.96	0.92
Heavy Vehicles (%)	6%	0%	9%	2%	2%	2%	2%	9%	0%	8%	9%	2%
Bus Blockages (#/hr)	0	12	12	0	0	0	0	18	18	0	19	19
Parking (#/hr)	20	20	20								10	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	457	0	0	0	0	0	896	0	0	799	0
Turn Type	Perm									pm+pt		
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Minimum Split (s)	43.0	43.0						60.0		17.0	77.0	
Total Split (s)	43.0	43.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	17.0	77.0	0.0
Total Split (%)	35.8%	35.8%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	14.2%	64.2%	0.0%
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		38.0						55.0			72.0	
Actuated g/C Ratio		0.32						0.46			0.60	
v/c Ratio		0.50						0.69			0.92dl	
Control Delay		35.2						29.2			21.0	
Queue Delay		24.1						38.2			11.8	
Total Delay		59.3						67.3			32.8	
LOS		E						E			C	
Approach Delay		59.3						67.3			32.8	
Approach LOS		E						E			C	
Stops (vph)		299						615			417	
Fuel Used(gal)		5						9			7	
CO Emissions (g/hr)		340						661			456	
NOx Emissions (g/hr)		66						129			89	
VOC Emissions (g/hr)		79						153			106	
Dilemma Vehicles (#)		0						0			0	
Queue Length 50th (ft)		150						282			175	
Queue Length 95th (ft)		203						358			230	

JP/TA
GPI

Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

4: E New York Ave (South) & Utica Avenue

Existing Condition (2010)
PM PEAK HOUR (5:00 - 6:00 PM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		91			54			130			88	
Turn Bay Length (ft)												
Base Capacity (vph)		908						1301			995	
Starvation Cap Reductn		0						0			183	
Spillback Cap Reductn		454						463			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		1.01						1.07			0.98	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	52.8
Intersection LOS:	D
Intersection Capacity Utilization:	150.0%
ICU Level of Service:	H
Analysis Period (min):	15
dl	Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 4: E New York Ave (South) & Utica Avenue



Build Condition (2010) - NYCDOT Recommendation

2: Empire Blvd & Utica Ave

AM PEAK HOUR (8:00 -9:00 AM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Volume (vph)	41	249	110	76	460	86	1	861	110	1	647	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12	12	12	12	11	12
Satd. Flow (prot)	0	2396	0	0	1165	0	0	2806	0	0	2571	0
Flt Permitted		0.650			0.788			0.953			0.951	
Satd. Flow (perm)	0	1555	0	0	916	0	0	2673	0	0	2445	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		252			125			113			257	
Travel Time (s)		5.7			2.8			2.6			5.8	
Confl. Peds. (#/hr)	381		182	182		381	240		48	48		240
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.58	0.86	0.81	0.73	0.80	0.63	0.25	0.95	0.78	0.25	0.85	0.77
Heavy Vehicles (%)	14%	17%	19%	8%	13%	9%	0%	9%	2%	100%	13%	12%
Bus Blockages (#/hr)	0	12	12	16	16	16	0	21	21	0	19	19
Parking (#/hr)				10	10	10						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	497	0	0	816	0	0	1051	0	0	829	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		54.0	54.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	65.0	65.0	0.0	65.0	65.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	45.8%	45.8%	0.0%	54.2%	54.2%	0.0%	54.2%	54.2%	0.0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		50.0			50.0			60.0			60.0	
Actuated g/C Ratio		0.42			0.42			0.50			0.50	
v/c Ratio		0.77			2.14			0.79			0.68	
Control Delay		39.4			542.6			20.8			26.2	
Queue Delay		0.0			0.0			29.7			0.0	
Total Delay		39.4			542.6			50.5			26.2	
LOS		D			F			D			C	
Approach Delay		39.4			542.6			50.5			26.2	
Approach LOS		D			F			D			C	
Stops (vph)		340			403			692			513	
Fuel Used(gal)		6			72			9			8	
CO Emissions (g/hr)		411			5047			615			556	
NOx Emissions (g/hr)		80			982			120			108	
VOC Emissions (g/hr)		95			1170			142			129	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		171			~1008			261			247	
Queue Length 95th (ft)		228			#1075			367			294	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

Build Condition (2010) - NYCDOT Recommendation

2: Empire Blvd & Utica Ave

AM PEAK HOUR (8:00 -9:00 AM)

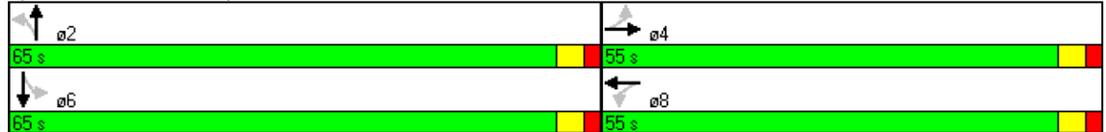


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		172			45			33			177	
Turn Bay Length (ft)												
Base Capacity (vph)		648			382			1337			1223	
Starvation Cap Reductn		0			0			337			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.77			2.14			1.05			0.68	

Intersection Summary

Area Type: CBD
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 62 (52%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 150
 Control Type: Pretimed
 Maximum v/c Ratio: 2.14
 Intersection Signal Delay: 168.2 Intersection LOS: F
 Intersection Capacity Utilization 145.8% ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Empire Blvd & Utica Ave



Build Condition (2010) - NYCDOT Recommendation
 4: E New York Ave (South)/ Remsen Ave & Utica Avenue AM PEAK HOUR (8:00 -9:00 AM)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	179	33	5	318	216	78	756	21	198	614	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	11	12	12	12	12	12	11	12
Satd. Flow (prot)	0	1339	0	0	1387	1288	0	2805	0	0	2661	0
Fit Permitted					0.996			0.728			0.573	
Satd. Flow (perm)	0	1339	0	0	1383	1196	0	2048	0	0	1539	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		171			134			210			168	
Travel Time (s)		3.9			3.0			4.8			3.8	
Confl. Peds. (#/hr)	27		12	12		27	70		56	56		70
Confl. Bikes (#/hr)			1									3
Peak Hour Factor	0.73	0.76	0.62	0.92	0.80	0.84	0.79	0.84	0.79	0.81	0.87	0.92
Heavy Vehicles (%)	21%	7%	3%	2%	13%	7%	7%	10%	11%	18%	10%	2%
Bus Blockages (#/hr)	6	6	6	0	13	13	0	21	21	0	19	19
Parking (#/hr)	10	10	10									
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	289	0	0	403	257	0	1026	0	0	950	0
Turn Type				Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases				8		8	2			6		
Minimum Split (s)		43.0		43.0	43.0	43.0	17.0	60.0		17.0	60.0	
Total Split (s)	0.0	43.0	0.0	43.0	43.0	43.0	17.0	60.0	0.0	17.0	60.0	0.0
Total Split (%)	0.0%	35.8%	0.0%	35.8%	35.8%	35.8%	14.2%	50.0%	0.0%	14.2%	50.0%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		38.0			38.0	38.0		67.0			67.0	
Actuated g/C Ratio		0.32			0.32	0.32		0.56			0.56	
v/c Ratio		0.68			0.92	0.68		0.84			0.98	
Control Delay		45.3			67.5	46.2		27.0			32.3	
Queue Delay		0.0			0.0	0.0		18.5			0.0	
Total Delay		45.3			67.5	46.2		45.5			32.3	
LOS		D			E	D		D			C	
Approach Delay		45.3			59.2			45.5			32.3	
Approach LOS		D			E			D			C	
Stops (vph)		185			283	188		691			436	
Fuel Used(gal)		4			7	4		10			9	
CO Emissions (g/hr)		251			474	251		694			616	
NOx Emissions (g/hr)		49			92	49		135			120	
VOC Emissions (g/hr)		58			110	58		161			143	
Dilemma Vehicles (#)		0			0	0		0			0	
Queue Length 50th (ft)		195			300	173		248			103	
Queue Length 95th (ft)		237			#400	248		280			m#127	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

Build Condition (2010) - NYCDOT Recommendation
 4: E New York Ave (South)/ Remsen Ave & Utica Avenue AM PEAK HOUR (8:00 -9:00 AM)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		91			54			130			88	
Turn Bay Length (ft)												
Base Capacity (vph)		424			438	379		1219			971	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		213			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.68			0.92	0.68		1.02			0.98	

Intersection Summary

Area Type: CBD

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 72 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Pretimed

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 44.3 Intersection LOS: D

Intersection Capacity Utilization 135.8% ICU Level of Service H

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E New York Ave (South)/ Remsen Ave & Utica Avenue

17 s	60 s	43 s
17 s	60 s	43 s

Build Condition (2010) - NYCDOT Recommendation

2: Empire Blvd & Utica Ave

PM Peak Hour 5:00 - 6:00 PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕↔			↕↔			↕↔	
Volume (vph)	46	346	145	95	289	17	17	670	219	15	539	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	12	13	12	12	12	12	12	11	12
Satd. Flow (prot)	0	2707	0	0	1349	0	0	2619	0	0	2640	0
Fit Permitted		0.813			0.558			0.929			0.903	
Satd. Flow (perm)	0	2185	0	0	761	0	0	2425	0	0	2384	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		252			135			113			257	
Travel Time (s)		5.7			3.1			2.6			5.8	
Confl. Peds. (#/hr)	349		47	47		349	492		286	286		492
Confl. Bikes (#/hr)			7			3			10			8
Peak Hour Factor	0.69	0.89	0.94	0.73	0.96	0.61	0.75	0.96	0.71	0.81	0.94	0.59
Heavy Vehicles (%)	0%	9%	7%	4%	4%	0%	13%	7%	5%	0%	10%	0%
Bus Blockages (#/hr)	0	10	10	8	8	8	0	18	18	0	19	19
Parking (#/hr)				10	10	10						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	610	0	0	459	0	0	1029	0	0	636	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		54.0	54.0	
Total Split (s)	55.0	55.0	0.0	55.0	55.0	0.0	65.0	65.0	0.0	65.0	65.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	45.8%	45.8%	0.0%	54.2%	54.2%	0.0%	54.2%	54.2%	0.0%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		50.0			50.0			60.0			60.0	
Actuated g/C Ratio		0.42			0.42			0.50			0.50	
v/c Ratio		0.67			1.45			0.85			0.53	
Control Delay		32.8			248.0			26.9			22.5	
Queue Delay		0.0			0.0			55.5			0.1	
Total Delay		32.8			248.0			82.3			22.6	
LOS		C			F			F			C	
Approach Delay		32.8			248.0			82.3			22.6	
Approach LOS		C			F			F			C	
Stops (vph)		426			297			723			383	
Fuel Used(gal)		7			23			10			6	
CO Emissions (g/hr)		489			1599			681			415	
NOx Emissions (g/hr)		95			311			133			81	
VOC Emissions (g/hr)		113			370			158			96	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		197			~484			304			171	
Queue Length 95th (ft)		262			#691			435			227	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

Build Condition (2010) - NYCDOT Recommendation

2: Empire Blvd & Utica Ave

PM Peak Hour 5:00 - 6:00 PM

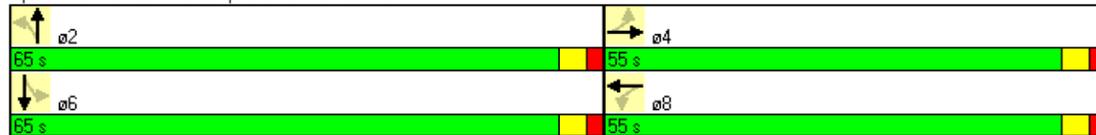


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		172			55			33			177	
Turn Bay Length (ft)												
Base Capacity (vph)		910			317			1213			1192	
Starvation Cap Reductn		0			0			292			0	
Spillback Cap Reductn		0			0			0			42	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.67			1.45			1.12			0.55	

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	87 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	130
Control Type:	Pretimed
Maximum v/c Ratio:	1.45
Intersection Signal Delay:	85.2
Intersection LOS:	F
Intersection Capacity Utilization:	145.8%
ICU Level of Service:	H
Analysis Period (min):	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Splits and Phases: 2: Empire Blvd & Utica Ave



Build Condition (2010) - NYCDOT Recommendation
 4: E New York Ave (South)/ Remsen Ave & Utica Avenue PM Peak Hour 5:00 - 6:00 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔↔			↔↔	
Volume (vph)	0	306	37	5	357	263	106	643	51	221	538	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	11	12	12	12	12	12	11	12
Satd. Flow (prot)	0	1363	0	0	1565	1377	0	2845	0	0	2533	0
Flt Permitted					0.995			0.667			0.575	
Satd. Flow (perm)	0	1363	0	0	1558	1239	0	1891	0	0	1461	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		171			134			210			168	
Travel Time (s)		3.9			3.0			4.8			3.8	
Confl. Peds. (#/hr)	40		30	30		40	202		128	128		202
Confl. Bikes (#/hr)									5			6
Peak Hour Factor	0.75	0.91	0.50	0.92	0.87	0.92	0.66	0.90	0.80	0.91	0.96	0.92
Heavy Vehicles (%)	6%	0%	9%	2%	3%	3%	0%	9%	0%	8%	9%	2%
Bus Blockages (#/hr)	12	12	12	0	6	6	0	18	18	0	19	19
Parking (#/hr)	10	10	10								10	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	0	415	286	0	939	0	0	803	0
Turn Type				Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases				8		8	2			6		
Minimum Split (s)		43.0		43.0	43.0	43.0	17.0	60.0		17.0	60.0	
Total Split (s)	0.0	43.0	0.0	43.0	43.0	43.0	17.0	60.0	0.0	17.0	60.0	0.0
Total Split (%)	0.0%	35.8%	0.0%	35.8%	35.8%	35.8%	14.2%	50.0%	0.0%	14.2%	50.0%	0.0%
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)		2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		38.0			38.0	38.0		67.0			67.0	
Actuated g/C Ratio		0.32			0.32	0.32		0.56			0.56	
v/c Ratio		0.95			0.84	0.73		0.82			0.87	
Control Delay		73.2			55.0	48.9		25.0			28.7	
Queue Delay		0.0			0.0	2.4		20.4			3.5	
Total Delay		73.2			55.0	51.3		45.3			32.2	
LOS		E			D	D		D			C	
Approach Delay		73.2			53.5			45.3			32.2	
Approach LOS		E			D			D			C	
Stops (vph)		298			318	230		601			763	
Fuel Used(gal)		8			7	5		9			10	
CO Emissions (g/hr)		541			467	316		608			674	
NOx Emissions (g/hr)		105			91	62		118			131	
VOC Emissions (g/hr)		125			108	73		141			156	
Dilemma Vehicles (#)		0			0	0		0			0	
Queue Length 50th (ft)		309			299	196		215			163	
Queue Length 95th (ft)		#511			#442	#307		273			m163	

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Senior Pedestrian Safety Study - SPFA East Flatbush Area
3/7/2011

Build Condition (2010) - NYCDOT Recommendation

4: E New York Ave (South)/ Remsen Ave & Utica Avenue

PM Peak Hour 5:00 - 6:00 PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		91			54			130				88
Turn Bay Length (ft)												
Base Capacity (vph)		432			493	392		1151				923
Starvation Cap Reductn		0			0	0		0				63
Spillback Cap Reductn		0			0	38		233				0
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.95			0.84	0.81		1.02				0.93

Intersection Summary

Area Type: CBD
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 104 (87%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 120
 Control Type: Pretimed
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 47.6 Intersection LOS: D
 Intersection Capacity Utilization 135.8% ICU Level of Service H
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: E New York Ave (South)/ Remsen Ave & Utica Avenue

