Safe Streets for Seniors

Pelham Gardens, Bronx

FINAL REPORT

September 7, 2010

NEW YORK CITY DOT

Janette Sadik-Khan, Commissioner

The RBA Group

Safe Streets for Seniors
Pelham Gardens, Bronx

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PROJECT DESCRIPTION

Since 1990 the number of pedestrian fatalities in New York City has decreased by 56%. Moreover, prior to 1950, pedestrians accounted for ¾ of all traffic fatalities and since then, that percentage has decreased to account for about ½ 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's Safe Streets for Seniors (SSS) Program.

The purpose of this project is to address senior pedestrian safety issues at twenty-five 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 twenty 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 consultant makes specific safety recommendations consisting of low-cost as well as capital engineering and design improvements for these twenty areas. In addition, the consultant conducts data analysis as needed, prepares engineering and design schematics and related services, as necessary, for capital improvements.

Background

BACKGROUND

The Pelham Gardens Study area is predominantly residential with a commercial district along both sides of Eastchester Road. A senior center, Aging in America, is located at 1500 Pelham Parkway South, near the intersection with Eastchester Road and approximately two city blocks south of the study area.

Jacobi Medical Center, a major medical facility is located just south of Pelham Parkway. Pelham Parkway's official name is Bronx and Pelham Park, a NYC Parks Department park that connects Bronx Park to Pelham Bay Park. This tree-lined corridor is utilized by many senior citizens in the neighborhood.

There are several bus lines operating in the vicinity of the Pelham Gardens Study Area: BxM10 and Bx31 operate along Eastchester Road, and the Bx25 and Bx26 along Allerton Avenue. The Bx12, a select bus service route, operates along Pelham Parkway. There is no subway service in the immediate vicinity of the study area. The nearest subway line is the No. 5 running to the west of study area along the Esplanade.

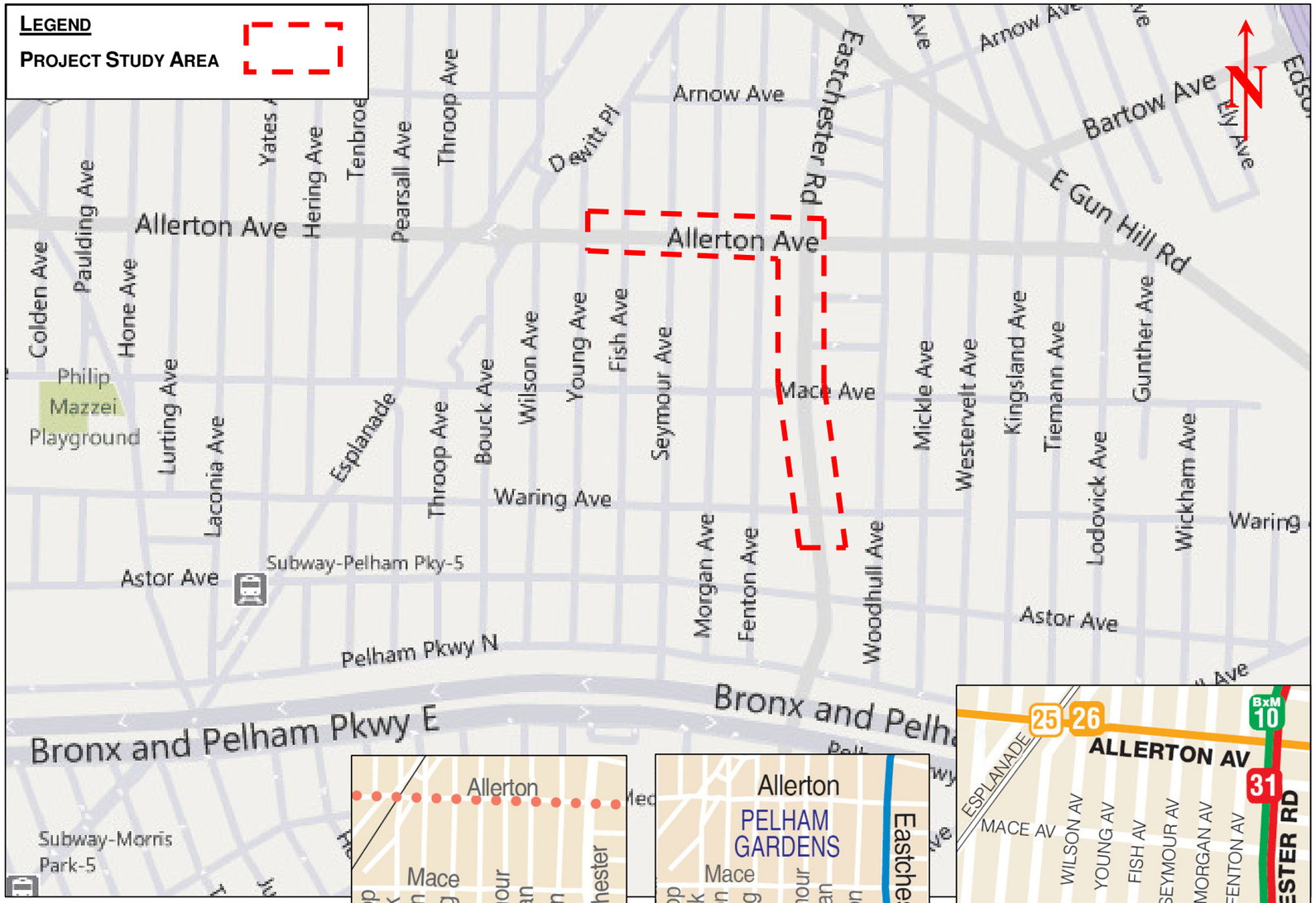
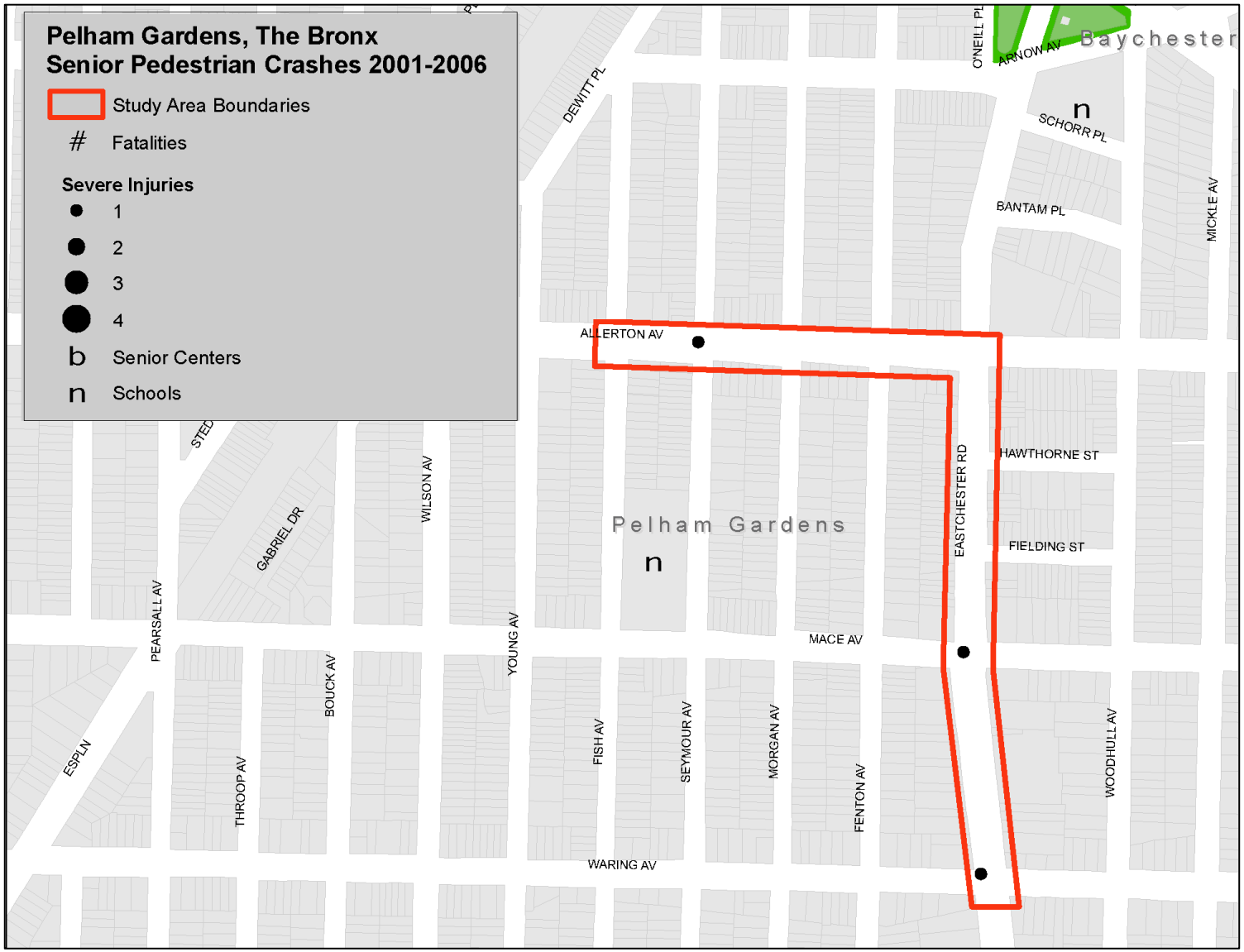


EXHIBIT 2 – BIKE MAP

EXHIBIT 3 – TRUCK MAP

EXHIBIT 4 – TRANSIT MAP

EXHIBIT 5 – PEDESTRIAN CRASH STATISTICS (2001-2005)



EXISTING CONDITIONS

The Pelham Garden Area consists of one major East-West corridor along Allerton Avenue and one major North-South corridor along Eastchester Road. There are three signalized intersections on Eastchester Road within the study area limits: Waring Avenue, Mace Avenue and Allerton Avenue.

Eastchester Road is a NYCDOT designated local truck route (Exhibit 3). Both Eastchester Road and Allerton Avenue carry two NYCT bus routes (Exhibit 4).

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

- Missing or non-standard ADA pedestrian ramps
- Insufficient crossing time
- Missing crosswalk striping
- Sidewalk obstructions

Eastchester Road

Eastchester Road is a 60-foot wide roadway with two travel lanes in each direction and parking on both sides.

Photo No. 1
Eastchester Road
(looking north)

At the intersection of Eastchester Road and Waring Avenue, the crosswalks at all four legs have standard striping (Photo No. 1). To increase visibility of crosswalks on the major street, it is recommended that high visibility crosswalks be installed on the north and south legs of Eastchester Road. A neckdown is recommended for the southeast corner along Eastchester Road to slow turning vehicles and shorten the pedestrian crossing distance and 13-feet south of the neckdown should have the parking regulations reinstated. A “Stop Here on Red” sign is also recommended 40-feet from the crosswalk for the westbound traffic along Waring Avenue.

At the intersection of Mace Avenue and Eastchester Road low to moderate pedestrian and vehicular volumes were observed. A neckdown is recommended for the southeast corner. This is to shorten the crossing distance for senior pedestrians.

Fielding Street terminates at the un-signalized T-intersection with Eastchester Road. Fielding Street is a one-way (westbound) 30-foot wide residential roadway with one travel lane and parking on both sides. Currently, there is no crosswalk on Fielding Street and an existing pedestrian ramp along Fielding Street on the

southeast corner is substandard. It is recommended that the pedestrian ramp be placed with a new NYCDOT standard pedestrian ramp configuration and ADA safety surface along with a new high visibility crosswalk.

Hawthorne Street begins at the un-signalized T-intersection with Eastchester Road. Hawthorne Street is a one-way (eastbound) 30-foot wide roadway with one travel lane and parking on both sides. The pedestrian ramps on both, the north and south side of Hawthorne Street are in poor condition. It is recommended that both pedestrian ramps be replaced with new ADA standard pedestrian ramps along with a new high visibility crosswalk.

The intersection of Eastchester Road and Allerton Avenue is a large intersection of two urban collector roadways. Traffic and pedestrian volumes were moderate in all directions. This was confirmed with a traffic count completed on Wednesday, July 30, 2008 in both the AM and PM. Results of the study can be found in Appendix C. A pedestrian ramp along Eastchester Road on the northeast corner is substandard and needs to be replaced with a new standard ramp with safety surface (Photo No. 2). A raised median that extends through the crosswalk is recommended for the west leg of the intersection. The raised medians should be sufficiently wide to offer a minimal pedestrian refuge area. The median should be constructed with an at-grade cut through within the striped crosswalk. The medians will help to slow down vehicles turning from Eastchester Road onto Allerton Avenue and effectively shorten the crossing distance by allowing pedestrians to cross in two cycles. Construction details have been provided in Appendix E.

During the data collection and field observations, it was noted that vehicles traveling along Eastchester Road were perceived to be traveling at higher than the posted speed limit of 30 mph. To determine the operating speeds, a speed study was performed on Eastchester Road between Waring Avenue and Allerton Avenue on 08/07/08. The study showed that the 85th percentile speed was between 34 mph and 39 mph in all directions. Complete results are located in Appendix D. The results indicate the 85th percentile speeds exceeds the 30 mph speed threshold during both AM and PM Peaks in both the southbound and northbound directions. It is recommended that signal progression along Eastchester Road be adjusted so, the 85th percentile speeds along Eastchester Road are reduced.

Photo No. 3
Allerton Ave & Fenton Avenue
(looking south)

Allerton Avenue

Allerton Avenue is a 60-foot wide two-way roadway with two travel lanes in each direction and parking on both sides. NYCDOT is currently installing bike lanes and a striped or concrete median along Allerton Avenue from Boston Road to Lodovick Avenue. The effect of this work narrows Allerton Avenue to one moving lane with left turn bays at many of the intersections. The project limits of this study only include Eastchester Road to Fish Avenue.

Traffic traveling along Allerton Avenue is uncontrolled from Eastchester Road to Seymour Avenue. Between these two intersections, Allerton Avenue intersects with Fenton Avenue and Morgan Avenue. Both Fenton Avenue (Photo No. 3) and Morgan Avenue (Photo No. 4) are 35-foot wide two-way roadways and both are stop controlled on the minor approaches. Most existing pedestrian ramps at both Fenton Avenue and Morgan Avenue are substandard and do not comply with ADA standards. It is recommended that these pedestrian ramps be replaced with to standard ADA pedestrian ramps.

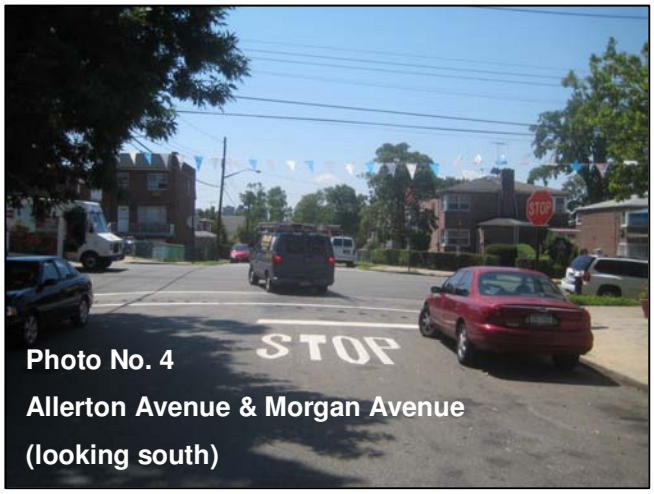


Photo No. 4
Allerton Avenue & Morgan Avenue
(looking south)

The intersection of Allerton Avenue and Seymour Avenue is signalized and has crosswalks on all four legs, of which three are school crosswalks. The northwest (Photo No. 5), southwest and southeast corners of the intersection have substandard pedestrian ramps. It is recommended that these pedestrian ramps be replaced with standard ADA pedestrian ramps with safety surface. Raised medians are recommended for the west and east legs of Allerton Avenue and Seymour Avenue (Photo No. 6). The median should be constructed with an at-grade cut through within the striped crosswalk. The medians will help to slow down vehicles turning from Seymour Avenue onto Allerton Avenue and effectively shorten the crossing distance by allowing pedestrians to cross in two cycles. Construction details have been provided in Appendix E.

Photo No. 5
Allerton Avenue & Seymour Avenue
(northwest corner)

Photo No. 6
Allerton Avenue & Seymour Avenue
(looking south)

The intersection of Allerton Avenue and Fish Avenue is a signalized intersection with crosswalks on all four legs. Three of the legs have school crosswalks. The northeast corner of the intersection has a substandard pedestrian ramp and should be upgraded to standard ADA compliant pedestrian ramps with safety surface along Fish Avenue and a new ramp is recommended along Allerton Avenue. The exception is the southwest corner, which has new standard ramps. P.S. 97 is located one city block to the south.

Illustrating the Solution

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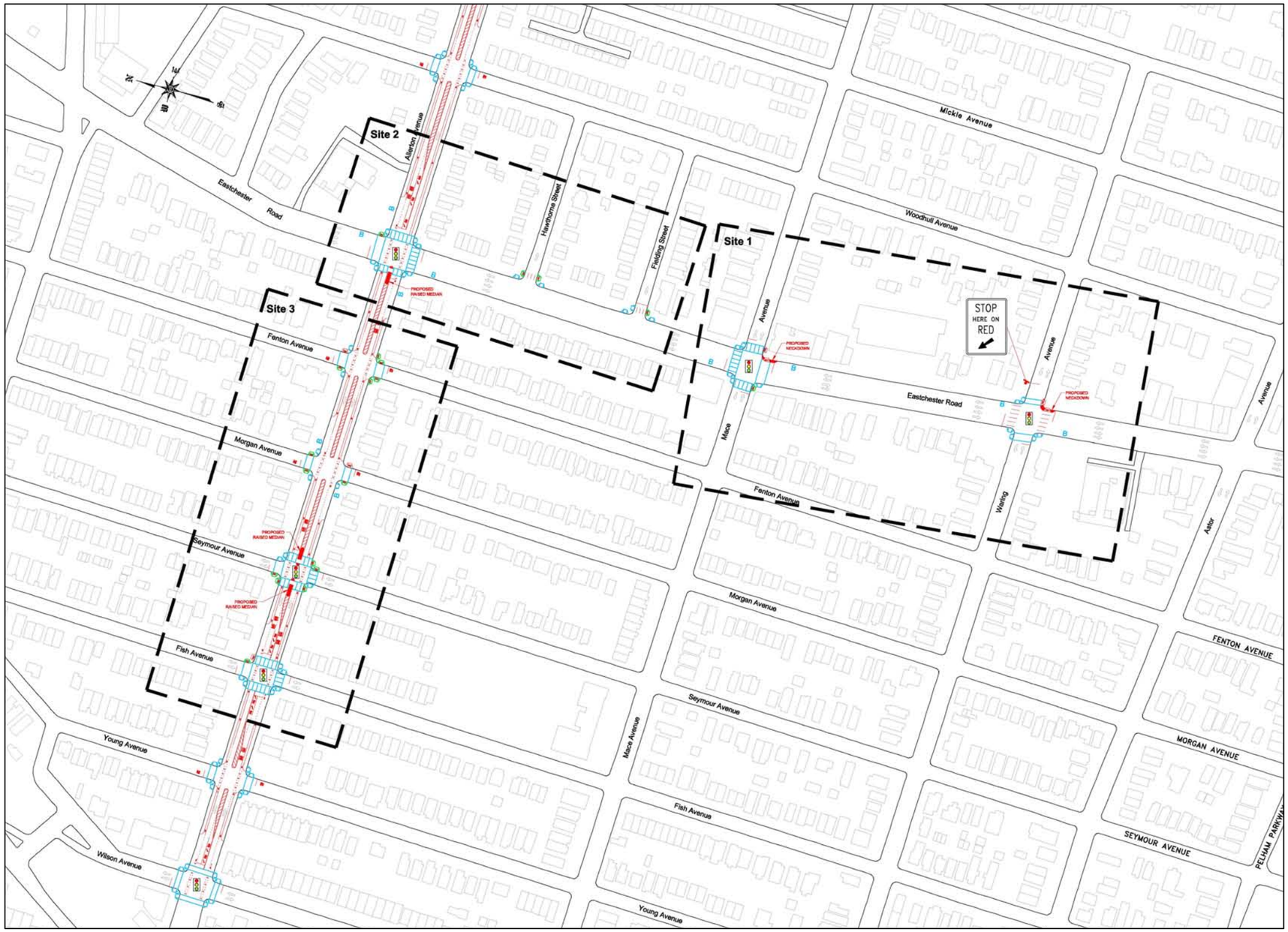
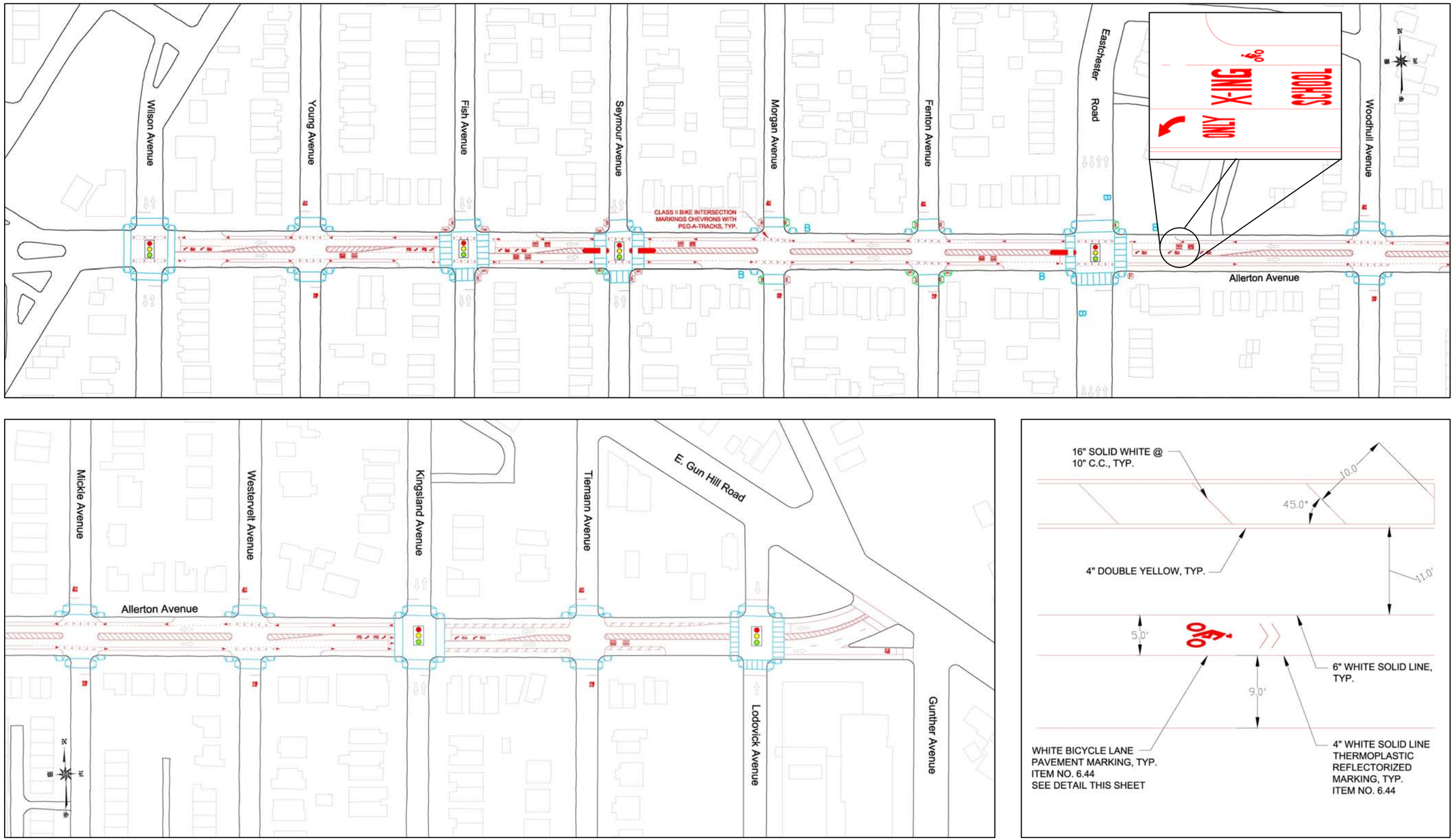


LEGEND

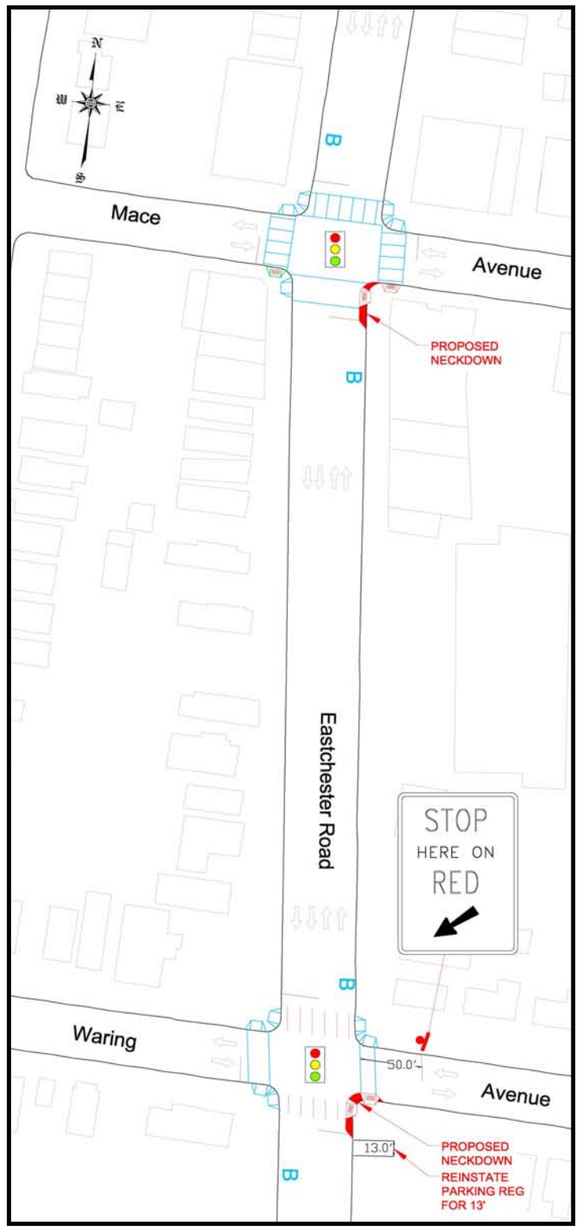
- EXISTING TRAVEL DIRECTION
- EXISTING SIGNALIZED INTERSECTION
- EXISTING SCHOOL CROSSWALK
- EXISTING HIGH VISIBILITY CROSSWALK
- EXISTING STANDARD CROSSWALK
- EXISTING PEDESTRIAN RAMP
- EXISTING CATCH BASIN
- EXISTING TRAFFIC SIGN
- S SUBWAY STOP
- B BUS STOP
- PROPOSED STOP BAR
- PROPOSED SCHOOL CROSSWALK
- PROPOSED HIGH VISIBILITY CROSSWALK
- PROPOSED STANDARD CROSSWALK
- PROPOSED NEW PEDESTRIAN RAMP
- REPLACE EXISTING PEDESTRIAN RAMP
- PROPOSED CATCH BASIN
- PROPOSED TRAFFIC SIGN
- PROPOSED CURB EXTENSION (NECKDOWN)
- PROPOSED SIGNALIZED INTERSECTION
- LPI PROPOSED LPI
- T SW OBSTRUCTION: SIGNAL POLE
- L SW OBSTRUCTION: STREET LIGHT

ALLERTON AVENUE (FROM WILSON AVENUE TO E. GUN HILL ROAD)



Illustrating the Solution

SITE 1: EASTCHESTER ROAD (MACE AVENUE AND WARING AVENUE)



Pedestrian concerns in this area:

- Signal timing (insufficient crossing time)
- Traffic failing to yield to pedestrians

Traffic Analysis:

Speed study on Eastchester Road (Thursday August 7, 08)

(between Allerton Avenue & Waring Avenue)

- 85th Percentile = 34.0 - 39.0 mph

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new advanced stop bars
- Install new sign
  -stop here on red sign on Waring Ave. & Eastchester Rd.
- Install a neckdown
  -on the southeast corner of Mace Ave. & Eastchester Rd.
  -on the southeast corner of Waring Ave. & Eastchester Rd.
- Stripe new high visibility crosswalk
  -on the north & south leg of Waring Avenue
- Reinstate parking regulation for 13' south of the proposed neckdown on Waring Ave. & Eastchester Rd.

Additional Information:

- Parking regulations for the project area have been collected and are shown in Appendix B
- This study area was visited on July 15th, 2008, September 25th, 2008 and July 6th, 2009

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

Illustrating the Solution

SITE 2: EASTCHESTER ROAD (FROM ALLERTON AVENUE TO FIELDING STREET)

Pedestrian concerns in this area are:

- Speeding vehicles
- Missing crosswalks
- Signal timing (insufficient crossing time)
- Missing or inadequate pedestrian ramps

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- New raised median
  -on the west leg of Allerton Ave. & Eastchester Rd.
- Stripe new high visibility crosswalk
  -on the east leg of Hawthorne Street & Fielding Street
- Install new advanced stop bars

Traffic Analysis:

Speed study on Eastchester Road (Thursday August 7, 08)

(between Allerton Avenue & Waring Avenue)

- 85th Percentile = 34.0 - 39.0 mph

Eastchester Road and Allerton Avenue

- TMC (full intersection) Wednesday July 30, 2008
  -AM peak: 28 pedestrians crossing Allerton Ave. conflict with 40 vehicles turning per hr
  -PM peak: 31 pedestrians crossing Eastchester Rd. conflict with 63 vehicles turning per hr
- Peak Hour Signal Timings

Additional Information:

- There are no posted parking regulations
- This study area was visited on July 15th, 2008, September 25th, 2008 and July 6th, 2009
- Complete turning movement results are available in Appendix C

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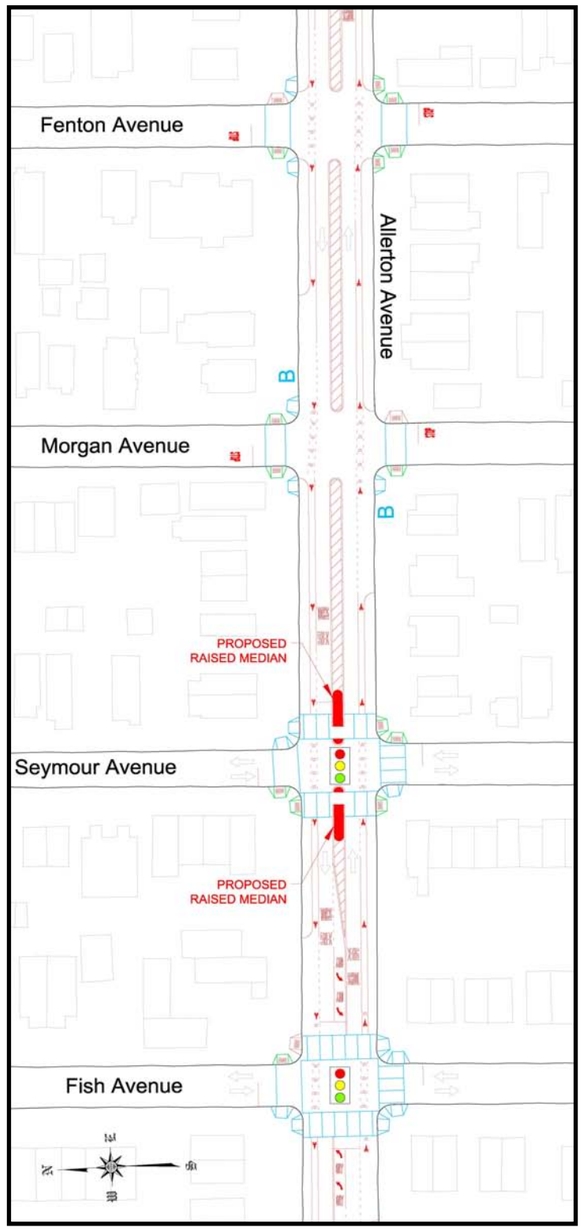
PROPOSED SCHOOL CROSSWALK
PROPOSED STOP BAR
PROPOSED PED REFUGE ISLAND (RAISED ISLAND)
B EXISTING BUS STOP
S EXISTING SUBWAY STOP
PROPOSED CURB EXTENSION (NECKDOWN)
SW OBSTRUCTION: STREETLIGHT
SW OBSTRUCTION: FIRE HYDRANT
SW OBSTRUCTION: SIGNAL POLE
SW OBSTRUCTION: FIRE BOX
EXISTING SIGNALIZED INTERSECTION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

Illustrating the Solution

SITE 3: ALLERTON AVENUE (FROM FENTON AVENUE TO FISH AVENUE)



Pedestrian concerns in this area are:

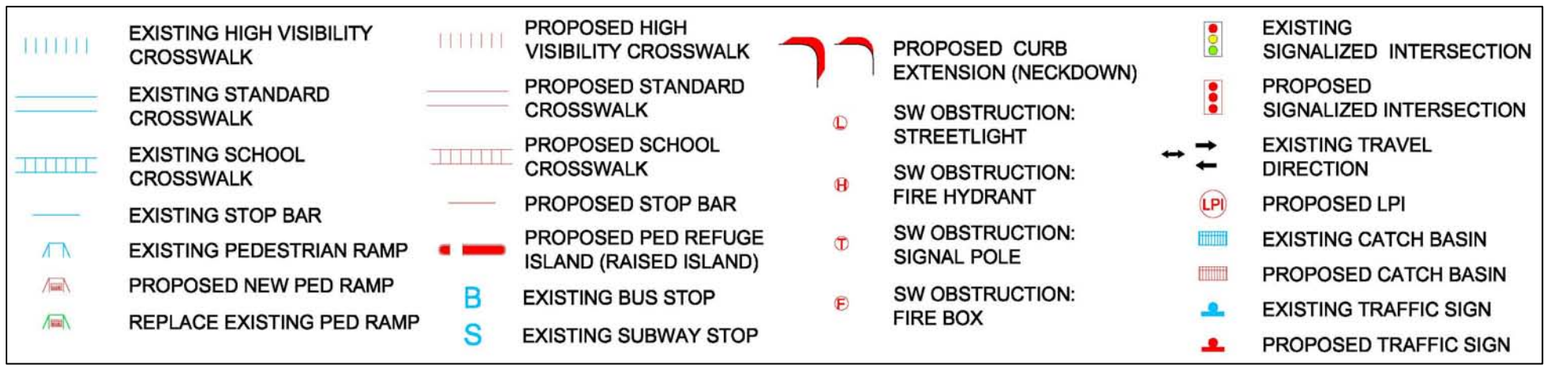
- Signal timing (insufficient crossing time)
- Missing or inadequate pedestrian ramps

Additional Information:

- There are no posted parking regulations in this part of the study area
- Details of median construction are shown in Appendix E
- This study area was visited on July 15th, 2008, September 25th, 2008 and July 6th, 2009

Recommended improvements include:

- Time all signals for seniors and where feasible, the crossing time will be extended
- Install new advanced stop bars
- New raised median
  -on the west & east legs of Allerton Ave. & Seymour Ave.



APPENDIX A:
PHOTO LOG
(SEPARATE COVER)

APPENDIX B:
MAP OF PROPOSED CHANGES

LEGEND

- EXISTING TRAVEL DIRECTION
- EXISTING SIGNALIZED INTERSECTION
- EXISTING SCHOOL CROSSWALK
- EXISTING HIGH VISIBILITY CROSSWALK
- EXISTING STANDARD CROSSWALK
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- PROPOSED SIGNALIZED INTERSECTION
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- T SW OBSTRUCTION: SIGNAL POLE
- L SW OBSTRUCTION: STREET LIGHT

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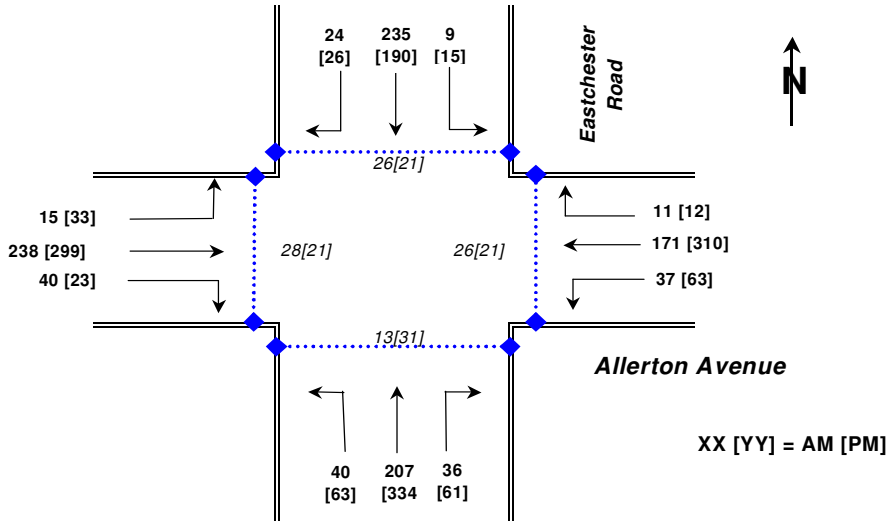
SENIOR PEDESTRIAN SAFETY AREA
PELHAM GARDENS
PROPOSED MEASURES TO IMPROVE SAFETY

Site Visited On: 07/15/08

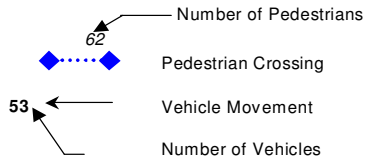
APPENDIX C:
TRAFFIC COUNTS

APPENDIX C – TRAFFIC COUNT

One Hour Traffic Count Volumes



Intersection of Eastchester Road and Allerton Avenue (07/30/08)



APPENDIX D
PELHAM GARDENS BRONX
TRAFFIC COUNTS

APPENDIX D:
SPEED STUDY

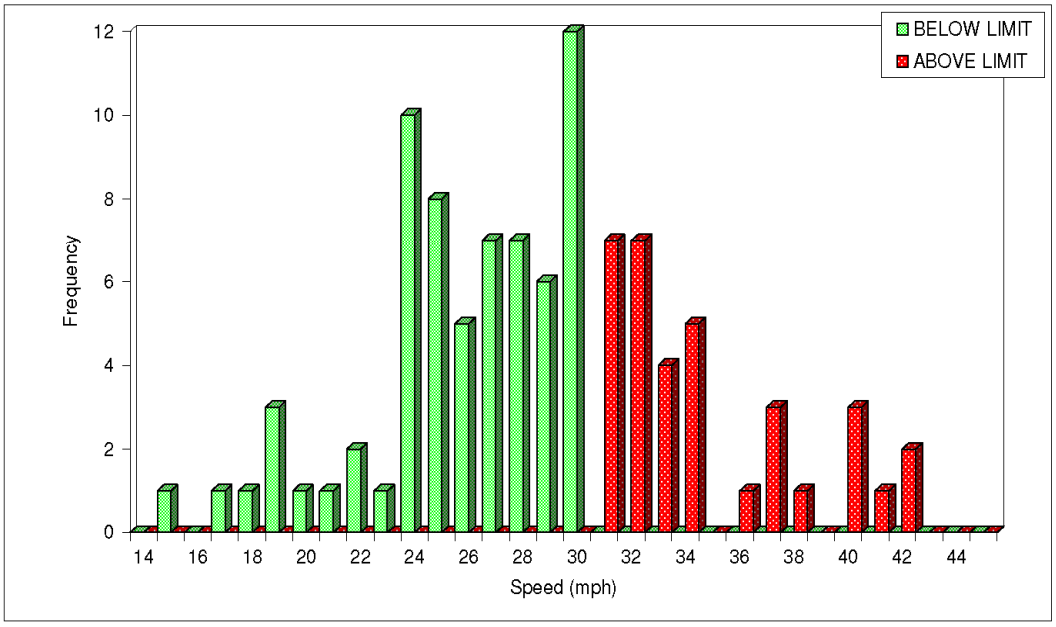
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE

RADAR SPEED SURVEY

Arterial: Eastcherster Rd N/B From: Allerton Ave To: Waring Ave

Boro:	Bronx	Average Speed:	28.8 mph
Date:	08/07/08		
Day:	Thu.	15th Percentile:	24.0 mph
Weather:	Clear	50th Percentile:	29.0 mph
Time:	9:00am-930am	85th Percentile:	34.0 mph
Speed Limit:	30 mph	Above Speed Limit:	34.0 %
Sample Size:	100	Minimum Speed	15.0 mph
		Maximum Speed	42.0 mph
Type of Roadway:	Two Way	Pace:	24.0 - 34.0 mph
Width of Road by Direction:	50	In Pace:	78.0 %
Number of Moving Lanes:	1	Below Pace:	11.0 %
Number of Parking Lanes:	1	Above Pace:	11.0 %
Observer:	T.Lyde	Standard Deviation:	5.5 mph



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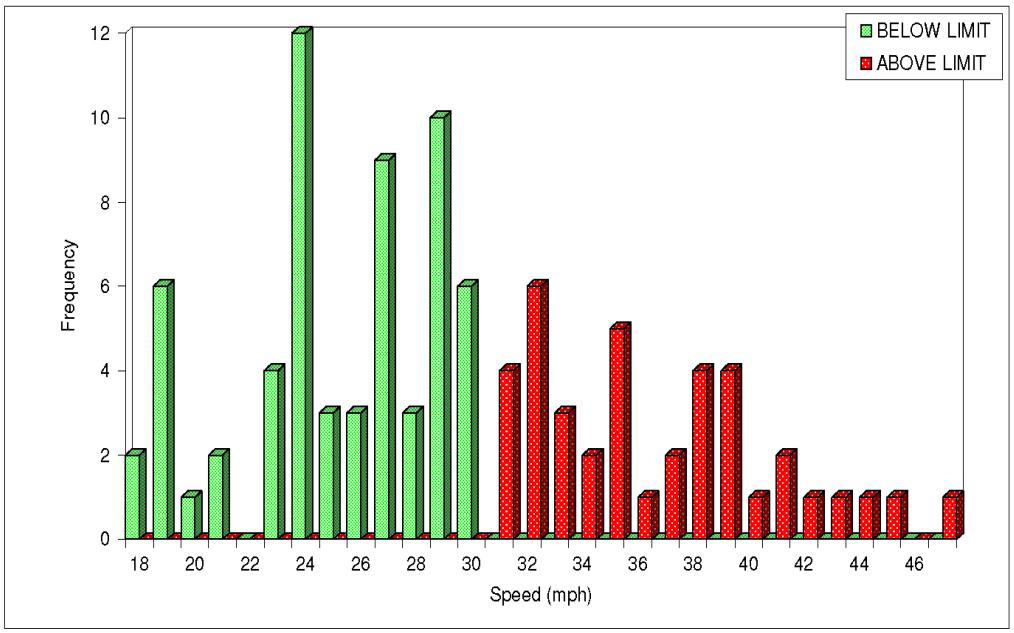
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE (CONT.)

RADAR SPEED SURVEY

Arterial: Eastcherster Rd S/B From: Waring Ave. To: Allerton Ave

Boro:	Bronx		Average Speed:	29.6 mph
Date:	08/07/08			
Day:	Thu.		15th Percentile:	23.9 mph
Weather:	Clear		50th Percentile:	29.0 mph
Time:	9:31am-9:48am		85th Percentile:	38.0 mph
Speed Limit:	30	mph	Above Speed Limit:	39.0 %
Sample Size:	100		Minimum Speed	18.0 mph
			Maximum Speed	47.0 mph
Type of Roadway:	Two Way		Pace:	23.0 - 33.0 mph
Width of Road by Direction:	50		In Pace:	63.0 %
Number of Moving Lanes:	1		Below Pace:	11.0 %
Number of Parking Lanes:	1		Above Pace:	26.0 %
Observer:	T.Lyde		Standard Deviation:	6.7 mph



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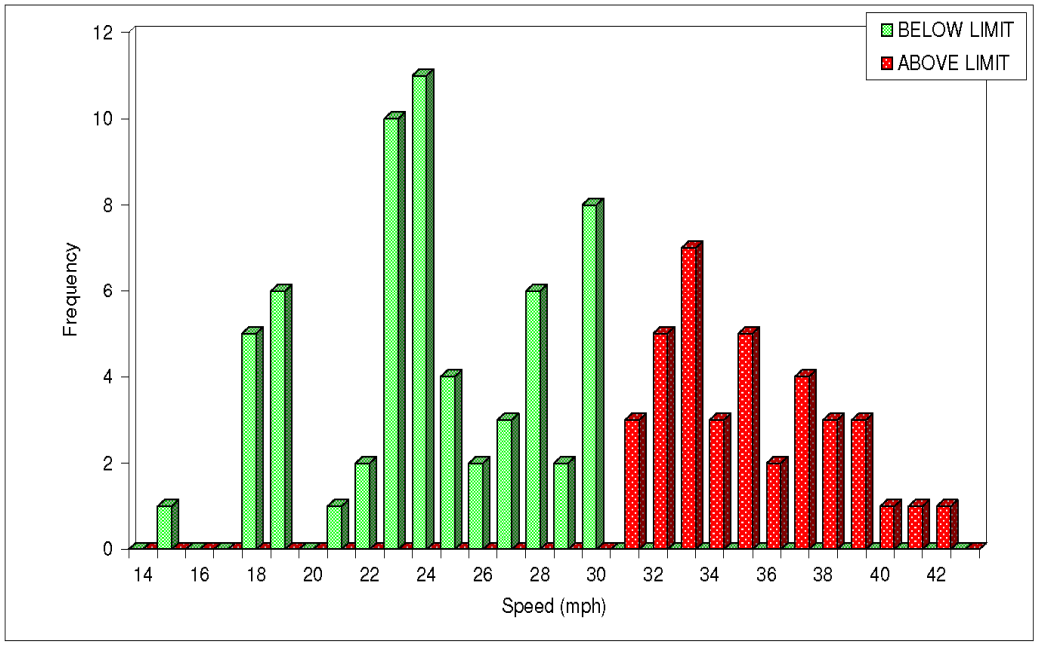
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE (CONT.)

RADAR SPEED SURVEY

Arterial: Eastcherster Rd N/B From: Waring Ave. To: Allerton Ave.

Boro:	Bronx	Average Speed:	28.6 mph
Date:	08/07/08		
Day:	Thu.	15th Percentile:	22.9 mph
Weather:	Clear	50th Percentile:	28.0 mph
Time:	11:00am-11:38am	85th Percentile:	36.0 mph
Speed Limit:	30 mph	Above Speed Limit:	39.0 %
Sample Size:	100	Minimum Speed	15.0 mph
		Maximum Speed	46.0 mph
Type of Roadway:	Two Way	Pace:	23.0 - 33.0 mph
Width of Road by Direction:	50	In Pace:	61.0 %
Number of Moving Lanes:	2	Below Pace:	15.0 %
Number of Parking Lanes:	1	Above Pace:	24.0 %
Observer:	T.Lyde	Standard Deviation:	6.6 mph



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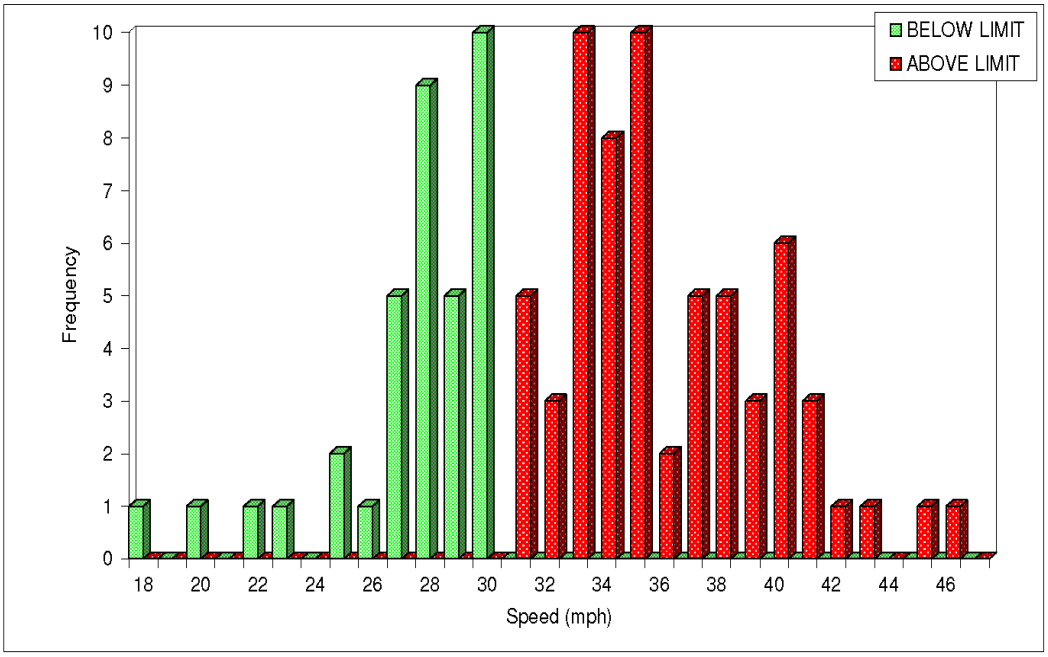
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE (CONT.)

RADAR SPEED SURVEY

Arterial: Eastchester RD N/B From: Waring Ave To: Allerton Ave.

Boro:	Bronx	Average Speed:	33.0 mph
Date:	08/07/08		
Day:	Thu.	15th Percentile:	28.0 mph
Weather:	Clear	50th Percentile:	33.0 mph
Time:	1:00PM-1:55PM	85th Percentile:	39.0 mph
Speed Limit:	30 mph	Above Speed Limit:	64.0 %
Sample Size:	100	Minimum Speed	18.0 mph
		Maximum Speed	46.0 mph
Type of Roadway:	Two Way	Pace:	27.0 - 37.0 mph
Width of Road by Direction:	50	In Pace:	72.0 %
Number of Moving Lanes:	2	Below Pace:	7.0 %
Number of Parking Lanes:	1	Above Pace:	21.0 %
Observer:	T.Lyde	Standard Deviation:	5.3 mph



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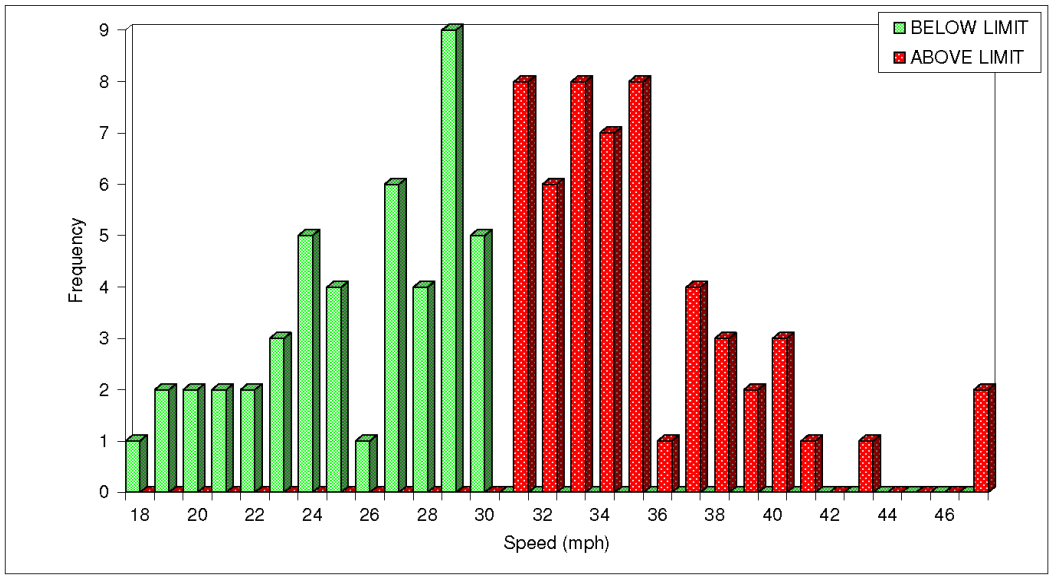
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE (CONT.)

RADAR SPEED SURVEY

Arterial: Eastcherster Rd S/B From: Allerton Ave. To: Waring Ave.

Boro:	Bronx	Average Speed:	30.8	mph
Date:	08/07/08			
Day:	Thu.	15th Percentile:	24.0	mph
Weather:	Clear	50th Percentile:	31.0	mph
Time:	11:38am-12:00pm	85th Percentile:	37.0	mph
Speed Limit:	30 mph	Above Speed Limit:	54.0	%
Sample Size:	100	Minimum Speed	18.0	mph
		Maximum Speed	47.0	mph
Type of Roadway:	Two Way	Pace:	25.0 - 35.0	mph
Width of Road by Direction:	50	In Pace:	66.0	%
Number of Moving Lanes:	2	Below Pace:	17.0	%
Number of Parking Lanes:	1	Above Pace:	17.0	%
Observer:	T.Lyde	Standard Deviation:	6.0	mph



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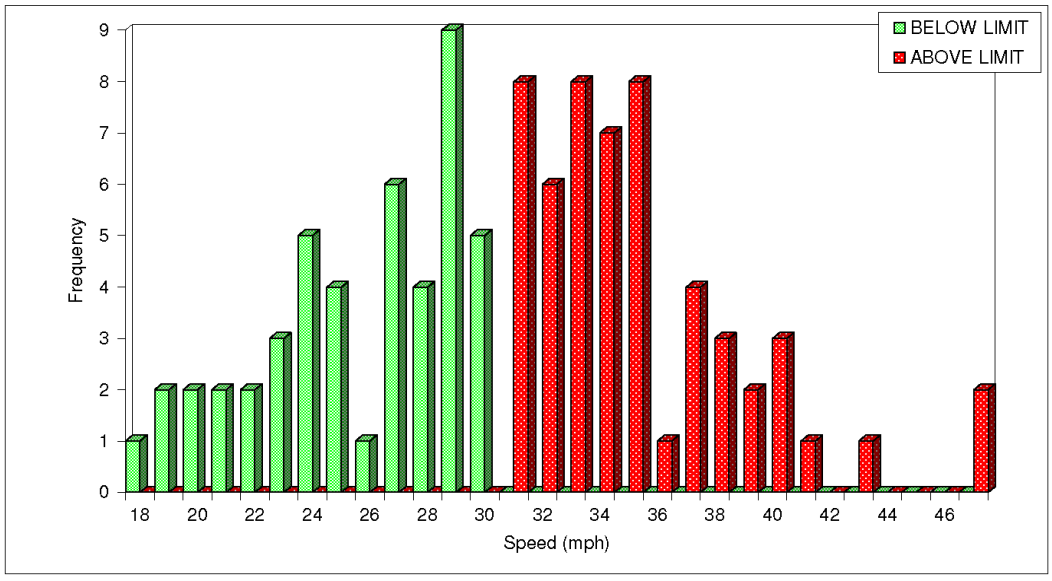
APPENDIX D – SPEED STUDY

EASTCHESTER ROAD BETWEEN ALLERTON AVENUE & WARING AVENUE (CONT.)

RADAR SPEED SURVEY

Arterial: Eastcherster Rd S/B From: Allerton Ave. To: Waring Ave.

Boro:	Bronx	Average Speed:	30.8	mph
Date:	08/07/08			
Day:	Thu.	15th Percentile:	24.0	mph
Weather:	Clear	50th Percentile:	31.0	mph
Time:	11:38am-12:00pm	85th Percentile:	37.0	mph
Speed Limit:	30 mph	Above Speed Limit:	54.0	%
Sample Size:	100	Minimum Speed	18.0	mph
		Maximum Speed	47.0	mph
Type of Roadway:	Two Way	Pace:	25.0 - 35.0	mph
Width of Road by Direction:	50	In Pace:	66.0	%
Number of Moving Lanes:	2	Below Pace:	17.0	%
Number of Parking Lanes:	1	Above Pace:	17.0	%
Observer:	T.Lyde	Standard Deviation:	6.0	mph



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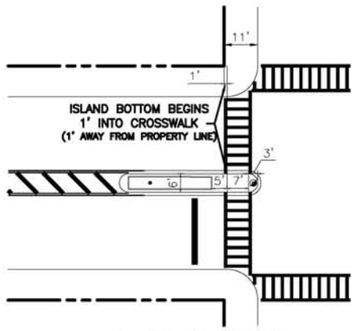
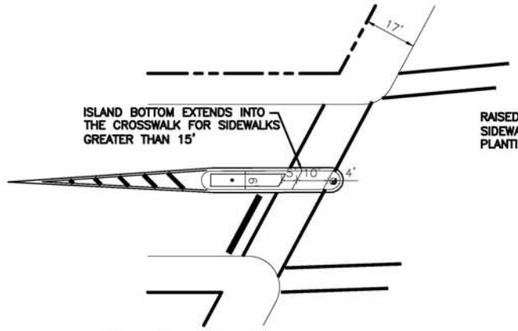
APPENDIX E:
CONSTRUCTION DETAIL

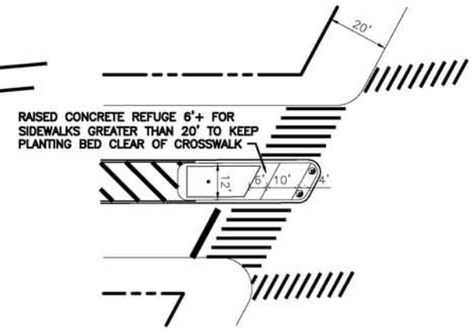
APPENDIX E – CONSTRUCTION DETAIL – MEDIAN



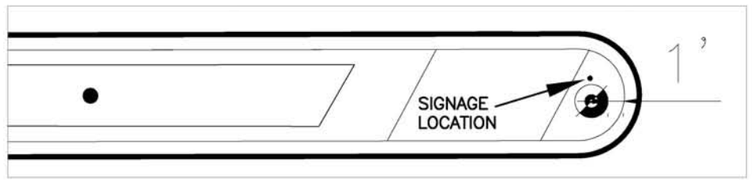
SCHOOL CROSSWALK
11' SIDEWALK, 6' WIDE MEDIAN

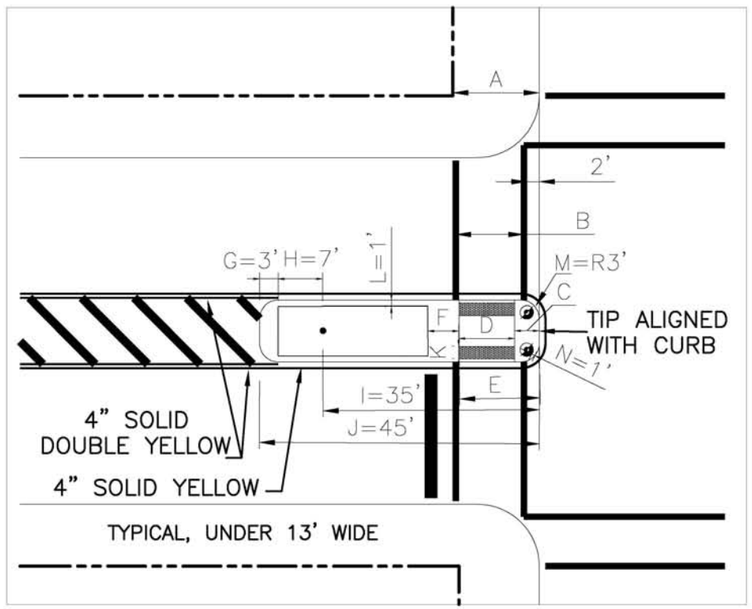


REGULAR CROSSWALK
17' SIDEWALK, 6' WIDE MEDIAN

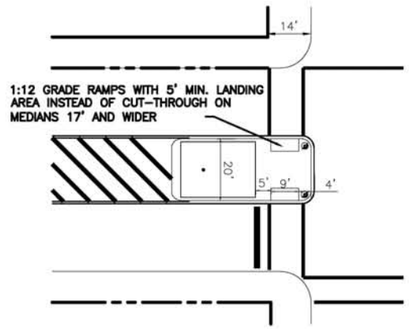


HIGH VISIBILITY CROSSWALK
20' SIDEWALK, 12' WIDE MEDIAN



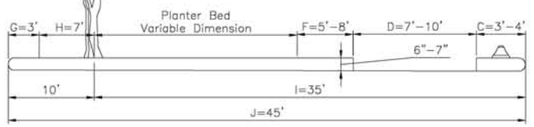


TYPICAL, UNDER 13' WIDE



REGULAR CROSSWALK
14' SIDEWALK, 20' WIDE MEDIAN

ELEVATION



LOCATIONS IN WASHINGTON HEIGHTS	LENGTH	WIDTH
WEST CROSSWALK ON ALLERTON AVE. & SEYMOUR AVE.	45.0'	8.0'
EAST CROSSWALK ON ALLERTON AVE. & SEYMOUR AVE.	45.0'	8.0'

REVISIONS		
DATE	BY	DESCRIPTION
3/12/08	TI	
3/17/08	TI	
3/24/08	TI	
4/7/08	TI	Added 17'+ median design.

Green Refuge Island Design Guidelines

Island Top (C) - The raised portion of the island at the intersection end.
- Ideal length four feet. Three feet is acceptable if needed to achieve the minimum cut-through width.
- Align with the curbs of the sidewalk to either side.
- **Radius** (M): Should be 3' at corners unless adjustments are needed for turning vehicles.
- **Bell Bollards** (N): One bell bollard (optional) when the median width is 7' or less, and two bell bollards for medians 8' and wider. No bollards should be added to the Raised Concrete Refuge or the Island Bottoms. Bell bollards should be placed 1 foot from the Island Top curb. When only one bell bollard is used, any necessary signage should be located to the side of the bollard, behind its center line.

Cut-Through (D) - The at-grade section of the island, slightly crowned for drainage, crossing area.
- Ideal width ten feet for sidewalks 15' wide or greater. (See table.)
- Minimum width seven feet if sidewalks/crosswalks are narrow.
- Cut-Throughs should begin one-foot towards the intersection from the projection of the property line. However, with wider crosswalks, the Raised Concrete Refuge will extend further into the Cut-Through than one foot.
- Medians that are 17 feet or wider should have 1:12 grade pedestrian ramps on either side with a landing area between them at the same level as the Raised Concrete Refuge and the Island Top. The landing area should be a minimum of five feet. The pedestrian ramps should be the same width as a Cut-Through would be, using the sidewalk width formula, and should not have side flares.
- All Cut-Throughs should slope to the road for drainage.

Raised Concrete Refuge (F) - The raised portion of the island between the Cut-Through and the Planting Bed.
- Minimum length five feet, parallel to the Cut-Through, one foot into the Cut-Through from the projection of the property line.
- Planting beds should not extend into the crosswalk zone, therefore the Raised Concrete Refuge will be greater than 5', extending further into the Cut-Through than one foot, for sidewalks 20' wide or greater (see table).

Island Bottom (G) - The raised concrete portion of the island below the planting bed.
- Must extend 3 feet from the Back of Bed in order to maintain the structural integrity of the concrete refuge island and accommodate a standardized Planting Bed with right angles.

Planting Beds - The landscaped portion of the refuge island.
- **Tree Location** (I): At least 35' from the intersection.
- **Back of Bed** (H): Planting Beds must extend 7' back from the tree in order to provide adequate area for root growth.
- **Concrete Sides** (L): Planting Beds should have 1' of concrete protection along the sides and 6"-12' of cobble stone within the edges of the planter bed.

Typical Refuge Island (J) -
- The total length of the refuge island should be minimum of 45 feet if it is to have a tree: 35' Tree Location (I) +7' Back of Bed (H)+3' Island Bottom (G).
- The minimum width of a green refuge island is 6 feet, to adequately accommodate landscaping.
- Islands should be marked with a 4" edgeline (yellow on two way streets) that surrounds the entire island, including through the crosswalk.

Detectable Warning (K) - Transition areas on either side of the Cut-Through that warn pedestrians that they are stepping off of the refuge island into the roadbed.
- Per NYS DOT standard sheet M608-13, Detectable Warning areas should be set back from the roadbed 6 inches (the width of the curb).
- Per NYS DOT standard sheet M608-13, Detectable Warning areas should be the width of the Cut-Through, 2 feet deep, with at least a 2-foot landing area between the two Detectable Warning areas.
- On 6 foot medians, the depth of the Detectable Warning areas should be reduced to 1 foot each in order to maintain the necessary landing area.

Green Refuge Island Design Guidelines Applied to Various Sidewalk Widths														
A	Sidewalk Width	10	11	12	13	14	15	16	17	18	19	20	21	22
B	Crosswalk Width	8	9	10	11	12	13	14	15	16	17	18	19	20
C	Island Top	3	3	3	4	4	4	4	4	4	4	4	4	4
D	Cut Through	7	7	8	8	9	10	10	10	10	10	10	10	10
E	Top + Cut Through	10	10	11	12	13	14	14	14	14	14	14	14	14
F	Raised Concrete Refuge	5	5	5	5	5	5	5	5	5	5	6	7	8

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

TYPICAL GREEN REFUGE ISLANDS

APPROVED
BY _____
F. AZER, P.E.

Drawn by KMW
Checked by T. ISHEE
Borough ALL
Scale N.T.S.
Date 3/11/2008

DRAWING NO. TRF–1