

**New York City Department of Transportation
Office of School Safety Engineering**



School Safety Engineering Project

FINAL REPORT: J.H.S. 117 (Joseph H. Wade Junior High School), The Bronx



**Prepared by
The RBA Group/Urbitrans Associates**



NOVEMBER 3, 2006



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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation has developed school safety maps for 1,471 schools throughout the City. Schools currently in the program are primarily elementary and intermediate schools with an enrollment of at least 250 students. The safety plans include the designation of official school crosswalks, identified by prominent warning signs and roadway markings. DOT also designates curbside locations for school bus loading and unloading and other parking controls to improve conditions for students. In addition, nearly 600 speed reducers (humps) have been installed in the immediate vicinity of schools.

Under this consultant study, the School Safety Engineering Project, accident data in the vicinity of all program schools was reviewed. As a result, schools were ranked in terms of pedestrian safety, and 135 “priority” schools were identified Citywide. At each of these priority schools safety improvements are being recommended (e.g., new school crosswalks, new traffic signals and signal timing modifications, new speed reducers). In addition, 32 of these schools will receive further investigation to design physical improvements (e.g., raised center medians, widened sidewalks, “neckdowns” or “bulbouts” at intersections). JHS 117, Joseph H.Wade Junior High School is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

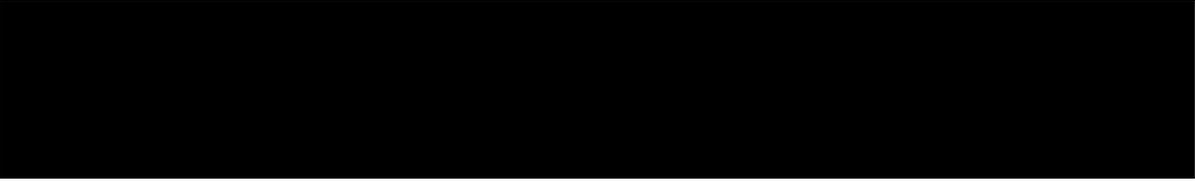


Figure 1: Looking north on Morris Avenue in front of J.H.S. 217

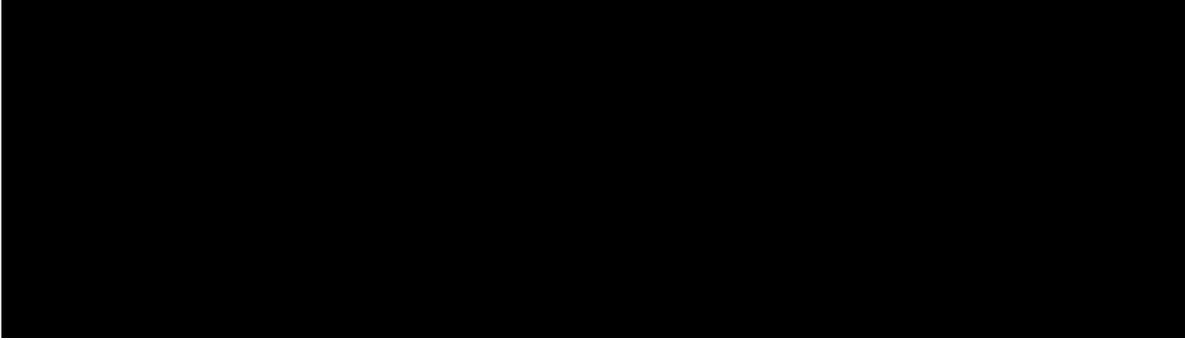
2.2 NEIGHBORHOOD DESCRIPTION

Located at 1865 Morris Avenue in The Bronx, J.H.S 117 occupies the city block between Morris Avenue, Walton Avenue, East 176th Street and Mount Hope Place. The surrounding area around J.H.S. 117 is residential, with private homes and 5-6 story residential buildings (See Exhibit 1 for Aerial photograph).

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant staff and the school principal from J.H.S. 117, met at the school on the afternoon of June 18, 2004 (see the Appendix for a list of attendees). According to the school principal, the identifiable problems that student pedestrians encounter on a regular basis include the following:

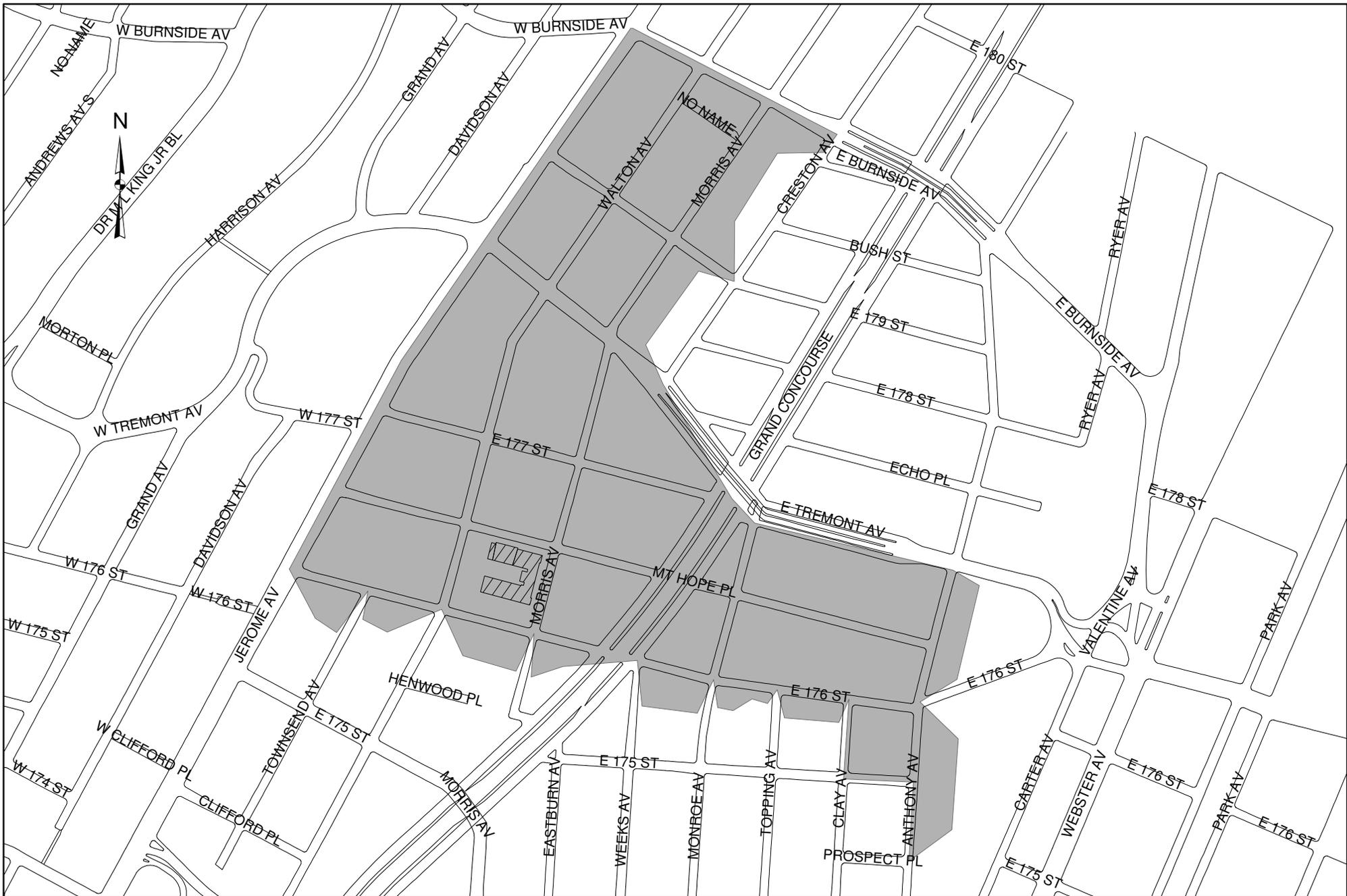
- Vehicles speeding on Morris Avenue;
- Vehicles speeding on East 176th Street;
- Not enough time for pedestrians to cross the Grand Concourse at the intersections with Mt. Hope Place and East 176th Street;
- Need for traffic control at the Morris Avenue and East 176th Street intersection.





1 inch equals 200 feet

EXHIBIT 1
JOSEPH H. WADE JHS
J.H.S. 117, THE BRONX
AERIAL PHOTOGRAPH



■ CATCHMENT AREA

1 inch equals 450 feet

EXHIBIT 2
J.H.S. 117, THE BRONX
JOSEPH H. WADE JHS
CATCHMENT AREA

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to the school principal, approximately 90% of JHS 117 students walk to school, 4% arrive via public transportation, 1% are driven by a parent or guardian and the remaining 5% are transported by school buses. See Table 1 for the school's estimate of the modes of travel.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	
Description	Percentage
Walk	90%
Driven by a parent or guardian	1%
School bus	5%
MTA bus or subway	4%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

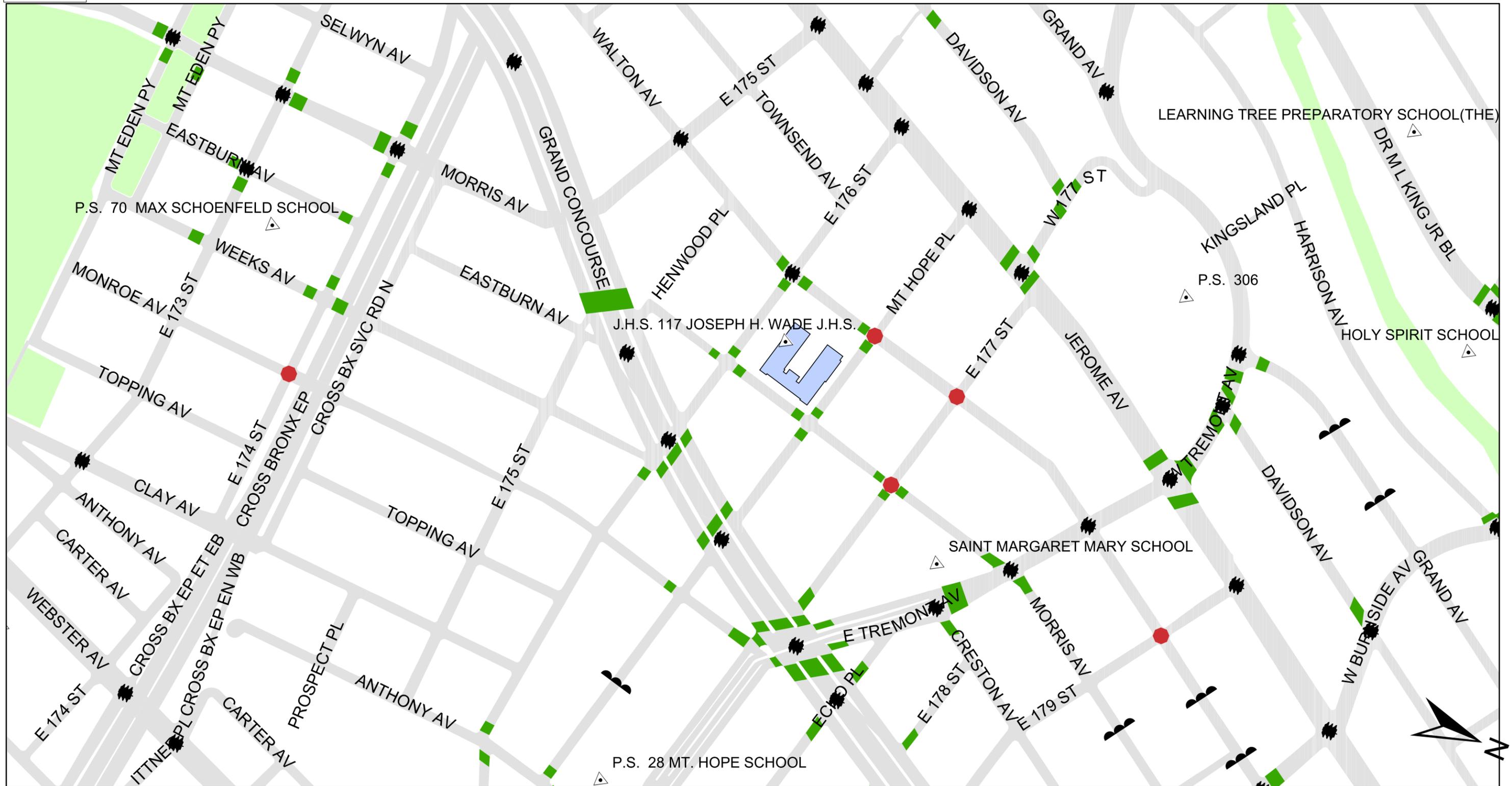
C.S.173 is located on Walton Avenue directly across the street from J.H.S 117. Saint Margaret Mary School is located on East 177th Street. No other major pedestrian traffic generators were identified in the area around the school.

2.8 CROSSING GUARD LOCATIONS

There are no crossing guards assigned to J.H.S. 117. However, according to the school principal, a crossing guard from P.S. 173 is assigned to the intersection of Mount Hope Place and Walton Avenue.

See Exhibit 4 for a map of crossing guard locations.

School Traffic Safety Map



The School Traffic Safety Map was established to help provide the maximum degree of safety for children going to and from school - by indicating the location of speed reducers, school crosswalks and some traffic control devices. (While virtually all intersections in NYC benefit from traffic control devices - such as stop signs, traffic signals, yield signs, and all way stop signs - this map shows only traffic signals and all way stop signs.) The school crosswalks that are shown are ladder striped and make the crosswalk more visible to drivers and help make the intersection safer. These crosswalks are where school children are recommended to cross.

Note: Every attempt has been made to provide complete and accurate information that is updated regularly. The City's streets are constantly changing and it is not always possible to present information without error.

LEGEND:

SCHOOL LOCATION	TRAFFIC SIGNAL
SCHOOL CROSSWALK	ALL - WAY STOP
	SPEED REDUCER

Bronx
[J.H.S. 117]

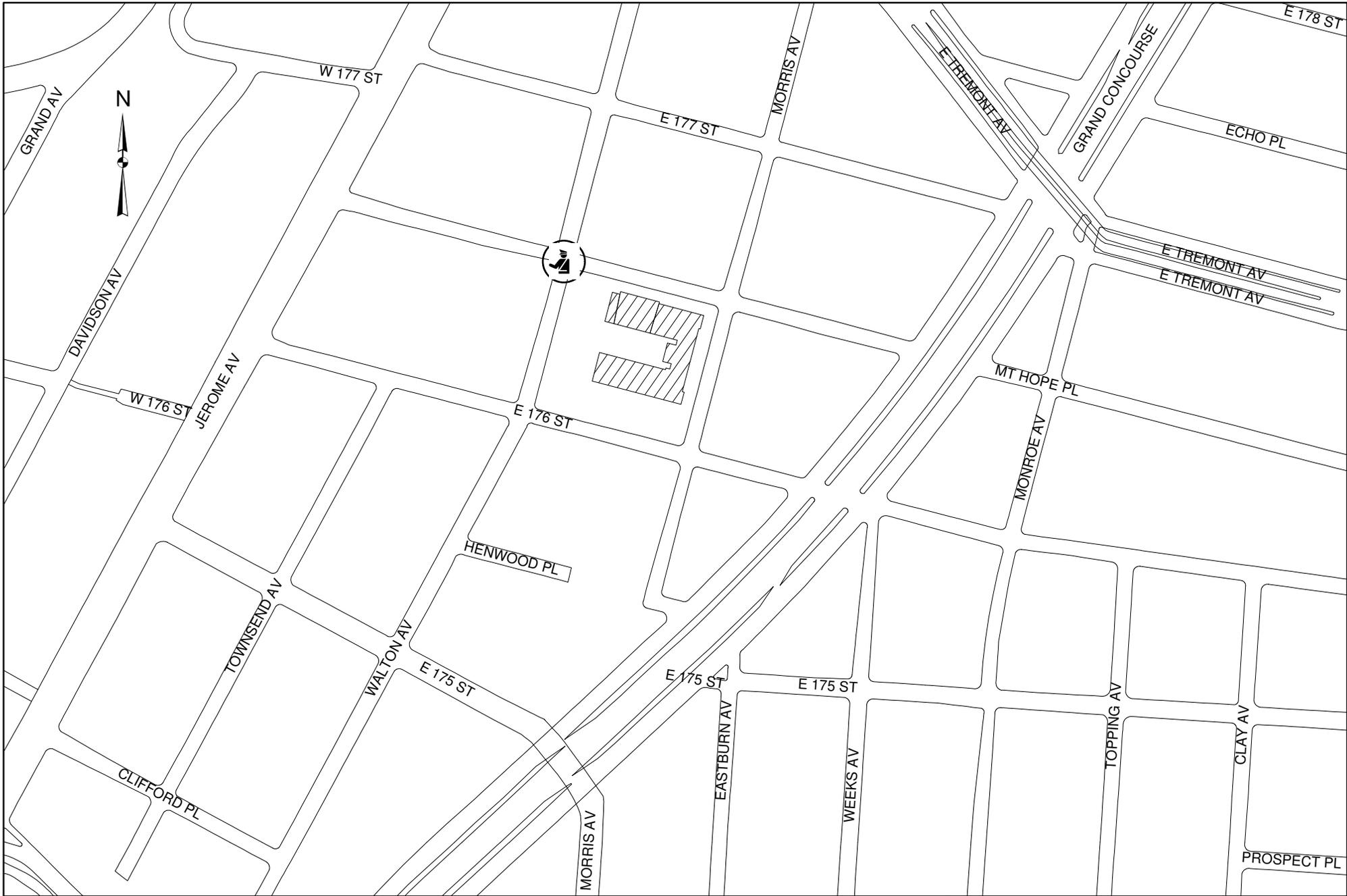
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinsall, COMMISSIONER.

Map created on 11/16/2006

EXHIBIT 3

COMM. BOARD: 205
 PRECINCT: 46

1.5.1



CROSSING GUARD ASSIGNED TO ANOTHER SCHOOL

1 inch equals 250 feet

EXHIBIT 4
J.H.S. 117, THE BRONX
JOSEPH H. WADE JHS

CROSSING GUARD

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the school principal, three school buses transport J.H.S. 117 students to and from school. All three school buses pick-up and drop-off students on Mt. Hope Place.

3.2 PARENT DROP-OFF OPERATIONS

School officials have indicated that approximately 1% of J.H.S. 117 students are driven to and from school by parents or guardians. Field observations indicated that parents primarily use Morris Avenue as the student pick up and drop off point.

3.3 PARKING REGULATIONS

“NO PARKING, SCHOOL DAYS, 7 AM - 4 PM, EXCEPT BOARD OF EDUCATION” parking regulations are posted on Morris Avenue in front of the school. Parking is prohibited on alternating sides of the roadways between 9:30 am and 11:00 am.

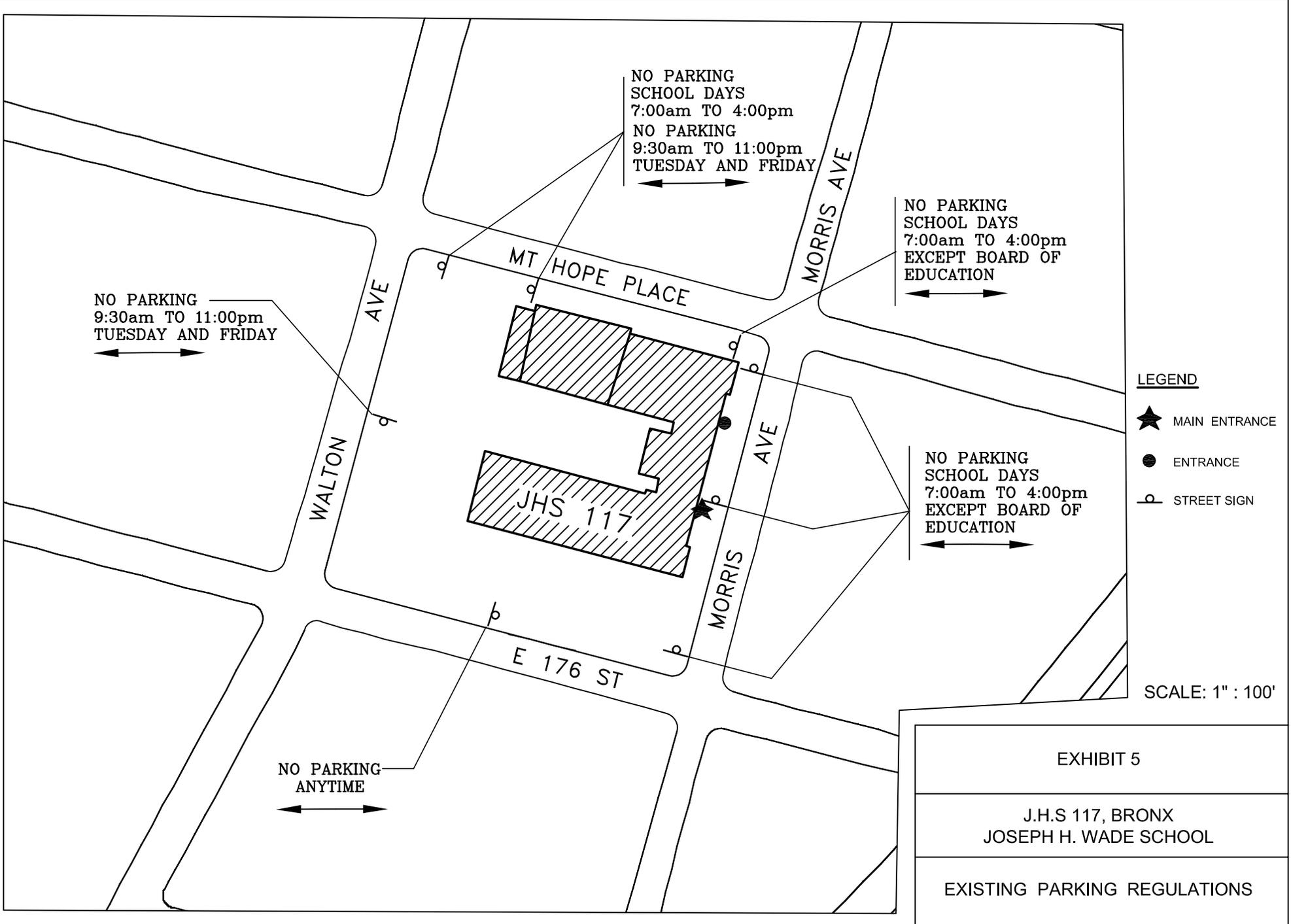
See Exhibit 5 for a display of parking regulations in the vicinity of J.H.S. 117.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 3, shows existing crosswalk pavement markings in the vicinity of the school. It is noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual of Uniform Traffic Control (MUTCD) standards of fluorescent yellow-green signs accompanied by downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing" on Exhibit 8.



Figure 2: School signs at East 176th Street and Morris Avenue



NO PARKING
SCHOOL DAYS
7:00am TO 4:00pm
NO PARKING
9:30am TO 11:00pm
TUESDAY AND FRIDAY

NO PARKING
SCHOOL DAYS
7:00am TO 4:00pm
EXCEPT BOARD OF
EDUCATION

NO PARKING
9:30am TO 11:00pm
TUESDAY AND FRIDAY

NO PARKING
SCHOOL DAYS
7:00am TO 4:00pm
EXCEPT BOARD OF
EDUCATION

NO PARKING
ANYTIME

LEGEND

- ★ MAIN ENTRANCE
- ENTRANCE
- STREET SIGN

SCALE: 1" : 100'

EXHIBIT 5
J.H.S 117, BRONX JOSEPH H. WADE SCHOOL
EXISTING PARKING REGULATIONS

3.5 ACCIDENT SUMMARY

Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of J.H.S. 117 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of the accidents. Table 3 is a summary of more recent accident data obtained from the NYC Police Department (NYPD). Though current through 2004, the NYPD data does not provide the same level of detail as the DMV data.

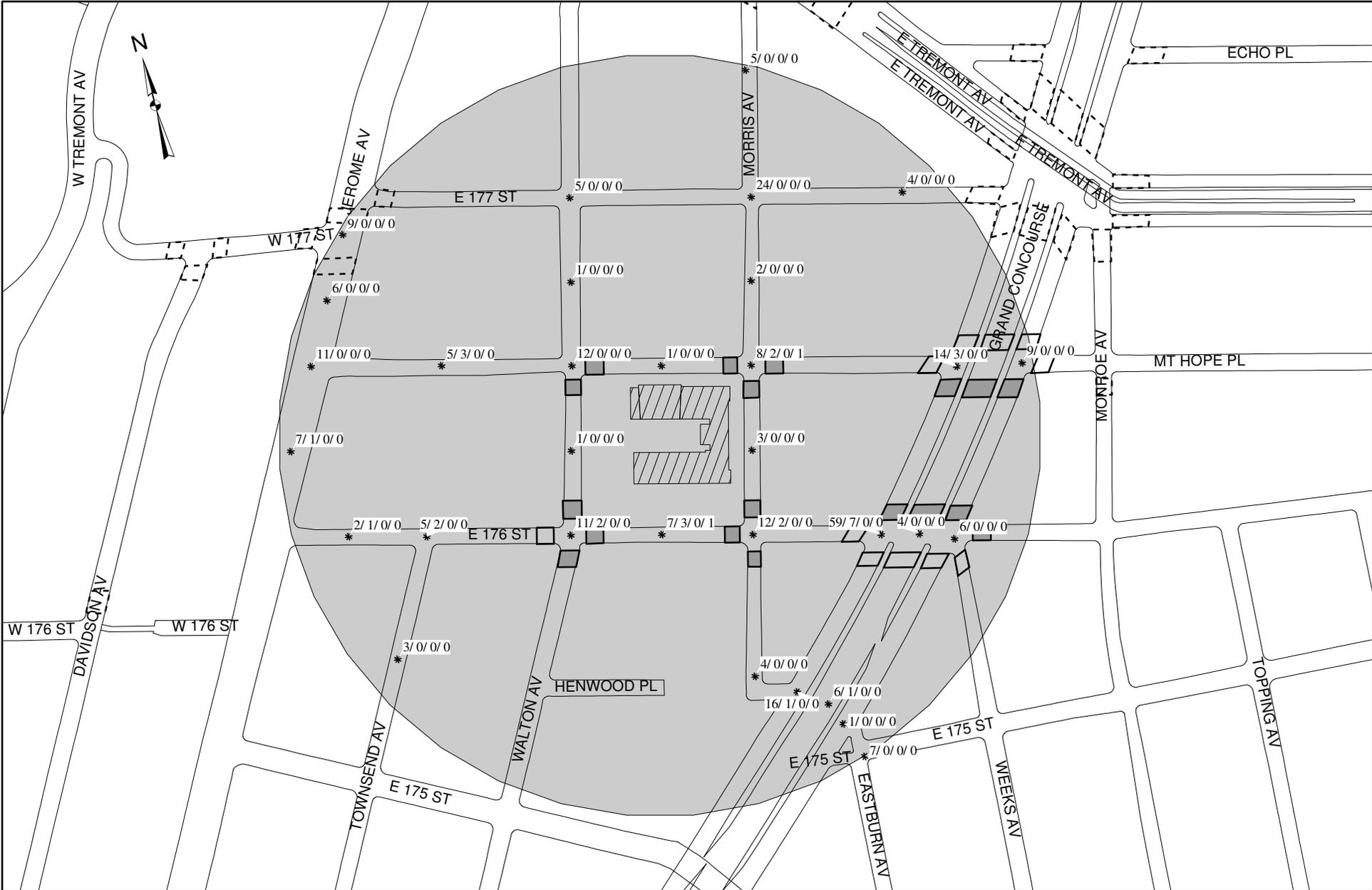
This report targets intersections closest to the school where the highest concentrations of student pedestrians occur. Intersections that are farther from the school, which did not have detailed data available at the time of this study, will be addressed with DOT's School Safety Engineering Program's ongoing work. DMV accident data is discussed in Section 3.6, Traffic Operations and Issues.

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Grand Concourse Ave and East 176th St **	69	7	0	0
Grand Concourse Av and Mt Hope Place **	23	3	0	0
Morris Ave and Mt Hope Place	8	2	0	1
Morris Ave and East 176th Street	12	2	0	0
Walton Avenue and Mt Hope Place	12	0	0	0
Walton Avenue and East 176th Street	11	2	0	0
TOTAL	135	16	0	1

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Grand Concourse Ave and East 176th St**	59	7	0	1
Grand Concourse Av and Mt Hope Place**	24	3	0	1
Morris Ave and Mt Hope Place	9	1	0	0
Morris Ave and East 176th Street	19	2	0	0
Walton Avenue and Mt Hope Place	12	1	0	0
Walton Avenue and East 176th Street	23	5	0	1
TOTAL	146	19	0	3

* *School-Related Accidents are defined as accidents involving school-age pedestrians (age 4 – 14), occurring weekdays during the school year.*

** *Accidents are summarized for mainline and service roads*



ACCIDENT LOCATION * 1 inch equals 250 feet

SCHOOL CROSSWALK ASSIGNED TO J.H.S. 117 [Hatched Box]

SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL [Dashed Box]

CROSSWALK [Solid Box]

X/X/X/X

TOTAL ACCIDENTS	PED ACCIDENTS	PED FATAL	SCHOOL PED ACCIDENTS
X	X	X	X

EXHIBIT 6
J.H.S. 117, THE BRONX
JOSEPH H. WADE JHS
ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The following describes traffic accidents and operational issues at intersections in the vicinity of J.H.S 117.

3.6.1 Grand Concourse and East 176th Street

Grand Concourse Avenue is a 140-foot wide (curb-to-curb) two-way (north-south) roadway. The center section (between two medians) of the street is a 50-foot wide roadway with two moving lanes in each direction. This section of the roadway is separated by two 12-foot wide raised medians from the southbound and northbound service roads. Both service roads are 33 feet wide with two-travel lanes and parking along the outer curbs. East 176th Street is a 30-foot wide two-way (east-west) street with one travel lane in each direction and parking on the north side. This intersection is controlled by a two-phase signal. There are school crosswalks on the east and north legs.

Pedestrians crossing in the east-west direction have 45 seconds of crossing time per signal phase, which is not sufficient for student pedestrians at a speed of 3 feet per second to cross the full length of crosswalk (155 feet) on Grand Concourse Avenue. Pedestrians are expected to utilize the medians as “Refuge Islands” and to cross Grand Concourse in two pedestrian phases. It was observed during a field visit that some pedestrians attempt to cross Grand Concourse Avenue in one pedestrian phase.

A total of 69 accidents occurred at this intersection during the 1998-2000 study period. Seven accidents involved pedestrians. None involved school children. According to the accident data, three pedestrian accidents occurred as a result of pedestrians crossing against the signal. Three pedestrians were struck while crossing with the signal at the marked crosswalks. All three of these accidents were attributed to driver error. No details are available for the seventh accident.



Figure 3: Grand Concourse and East 176th Street (looking west)



Figure 4: Traffic sign at Grand Concourse and East 176th Street, alerting motorists to the presence of crossing pedestrians



Figure 5: Median cut at Grand Concourse and East 176th Street



*Figure 6: Grand Concourse
(looking south)*

3.6.2 Grand Concourse Avenue and Mount Hope Place

This intersection has similar geometry to the Grand Concourse and East 176th Street intersection. Grand Concourse Avenue continues to be a 140-foot wide (curb-to-curb) two-way (north-south) street with two medians and service roads. Mount Hope Place is a 30-foot wide one-way (westbound) roadway with one travel lane and parking along both curbs. The intersection is controlled by a two-phase signal. There is a school crosswalk on the south leg of the intersection.



*Figure 7: Grand Concourse
Avenue and Mt. Hope Place
(looking west)*

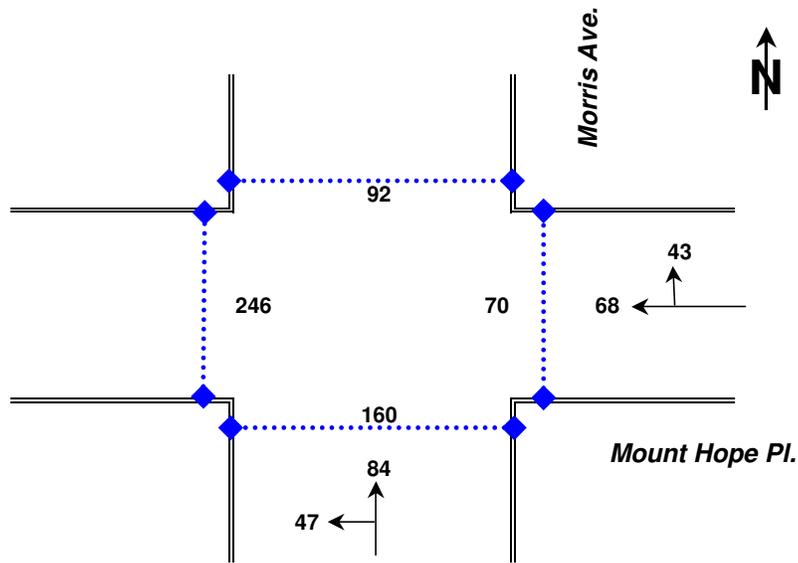


Figure 8: Pedestrian fence blocking pedestrian crossing at Grand Concourse and Mt. Hope Place

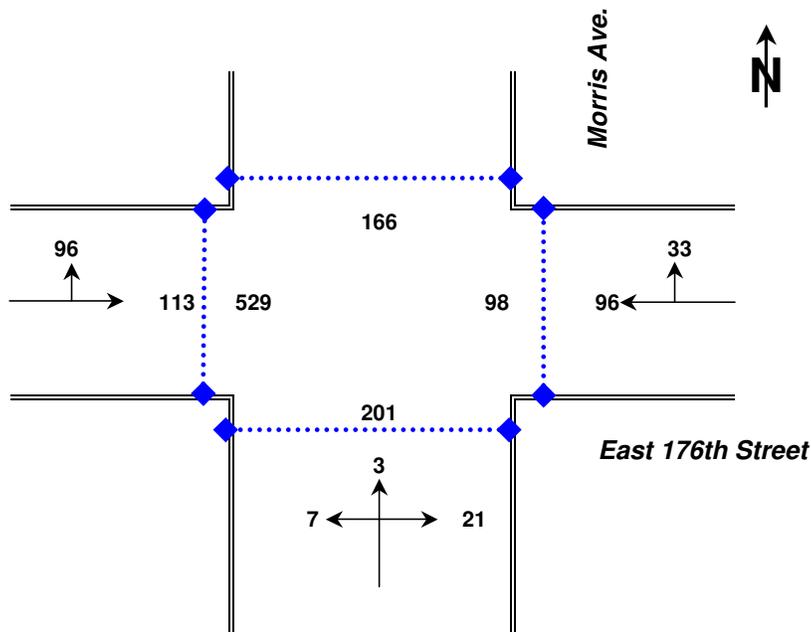
A fence was installed across the northern crosswalk (see Figure 8) in order to channel pedestrians to one crosswalk (in this case the south crosswalk).

There were 23 accidents at this intersection during the 1998-2000 study period. Three accidents involved pedestrians. One pedestrian was struck while working in the roadway. The second pedestrian was struck by a southbound traveling vehicle while crossing against the signal. There is no information on the third pedestrian accident.

One Hour Traffic Count Volumes



Intersection of Mount Hope Avenue and Morris Avenue
(2:30 PM - 3:30 PM November 2, 2005)



Intersection of Morris Avenue and East 176th Street
(7:30 AM - 8:30 AM November 2, 2005)

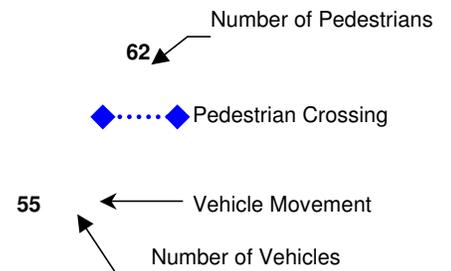


EXHIBIT 7
J.H.S. 117, The Bronx Joseph H. Wade School
TRAFFIC COUNTS

3.6.3 Morris Avenue and Mount Hope Place

Morris Avenue is a 28-foot wide one-way (northbound) street with one travel lane and parking on both sides. Mount Hope Place is a 28-foot wide one-way (westbound) street with one travel lane and parking on both sides. Mount Hope Place is controlled by a stop sign. There is an uncontrolled school crosswalk on the south leg where students cross Morris Avenue en route to school. There are school crosswalks on the east, west and south legs. All four corners of the intersection have substandard pedestrian ramps.

Eight accidents occurred at this intersection, during the 1998-2000 study period. Two accidents involved pedestrians. According to the accident data, both accidents were attributed to pedestrian error as the pedestrians were crossing without a crosswalk.



Figure 9: Morris Avenue and Mt Hope Place (looking west on Mt. Hope Place)

3.6.4 Mount Hope Place and Walton Avenue

The intersection of Walton Avenue and Mount Hope Place is an all-way stop controlled intersection. Walton Avenue is a 34-foot wide one-way (southbound) street north of Mount Hope Place with one travel lane and parking on both sides, and a 28-foot roadway south of Mount Hope Place with one travel lane and parking on both sides. All four pedestrian ramps are substandard.

There were 12 accidents at this intersection during the 1998-200 study period. None of these accidents involved pedestrians.



Figure 10: Walton Avenue and Mt Hope Place (on Walton Avenue looking north)

3.6.5 Walton Avenue and East 176th Street

East 176th Street is a 30-foot wide, two-way (east-west) street with one travel lane in each direction and parking allowed along the south curb line. The intersection of Walton Avenue and East 176th Street is controlled by a two-phase signal. School crosswalks are striped across the south, north and east legs of the intersection.

Eleven accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians who were struck while crossing without a crosswalk. There were no school related accidents or fatalities.



Figure 11: Walton Avenue and East 176th Street (looking east on East 176th Street)

3.6.6 Morris Avenue and East 176th Street

Morris Avenue is stop controlled at this intersection. There is an uncontrolled school crosswalk on the west leg where students cross East 176th Street en route to school. There are school crosswalks on the west, north and south legs of the intersection.



Figure 12: Morris Avenue and East 176th Street (looking north on Morris Avenue)

East 176th Street has a steep down grade from Grand Concourse to Morris Avenue where it flattens, and then continues to slope down to Walton Avenue. This configuration creates vertical sight distance issues for both eastbound and westbound traffic on East 176th Street. Also, vehicles tend to speed downhill in the westbound direction along East 176th Street.

There were twelve accidents at this location during the 1998-2000 study period, including two pedestrian accidents. According to the accident data, one pedestrian who was playing in the street was struck by a northbound vehicle. The other pedestrian was struck by a westbound vehicle.

In addition, seven accidents, including three pedestrian accidents one of which was school related, occurred on East 176th Street between Walton Avenue and Morris Avenue. According to the accident records all three accidents are classified as mid-block accidents with pedestrians emerging from behind parked vehicles.

This unsignalized intersection was considered one of the major pedestrian safety concerns of school officials. To investigate the possibility of signalizing this intersection, and to assess if signal warrant criteria are met, a one-hour traffic count, including pedestrian counts was conducted on Wednesday November 2, 2005 between 7:30 am and 8:30 am.

Based on MUTCD Section 4C.05 Signal Warrant 4 (Pedestrian Volume) the need for a traffic signal at an intersection shall be considered if an engineering study finds that the pedestrian volume crossing the major street is 190 or more during any one hour. In addition, there must be fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during a one-hour period.

The number of pedestrians crossing East 176th Street was 627 (529+98) pedestrians/hour satisfying the MUTCD volume criteria of 190 pedestrians/hour.

To determine the number of gaps between vehicles for pedestrians to cross the street a one-hour gap study was conducted at the same location on Thursday afternoon of April 13, 2006 between 3:30 pm - 4:30 pm. Pedestrians require 13 seconds to cross East 176th Street. According to the collected gap data, there were a total of 132 gaps of 13 seconds or more at this location during the 3:30 pm - 4:30 pm study period.

Since this location does not meet the school pedestrian signal warrant, no additional traffic control is recommended at this time.



Figure 13: East 176th Street between Walton Avenue and Morris Avenue (looking east)



Figure 14: East 176th Street between Morris Avenue and Grand Concourse (looking east)

3.6.7 Speeds on East 176th Street, Mount Hope Place and Morris Avenue

Spot speed studies were conducted on October 31, 2005 on the streets surrounding the school. The objective of the study was to determine if there is speeding on these sections of East 176th Street, Mount Hope Place, and Morris Avenue in the vicinity of the school.

The speed study results are shown Table in 4 and in the Appendix. The 85th percentile speed on East 176th Street is 23 mph, and 21 mph on Mount Hope Place, and 25 mph on Morris Avenue. Since the 85th percentile speed does not indicate that vehicles are exceeding the speed limit, speed reducing measures are not recommended at this time.

TABLE 4: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
East 176th Street between Morris Avenue and Walton Avenue	20	23
Mount Hope Place between Morris Avenue and Walton Avenue	19	21
Morris Avenue between East 176th Street and Mt. Hope Place	23	25

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of J.H.S. 117, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches (see Table 5).

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Length (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd * (Seconds)	Timing Adjustment? (Yes/No)
Grand Concourse and East 176th Street				
Crossing Grand Concourse **	33/50/33	45	14/20/14	NO*
Crossing East 176th Street	32	65	14	NO
Grand Concourse and Mt. Hope Pl.				
Crossing Grand Concourse **	33/50/33	45	33/50/33	NO*
Crossing Mt. Hope Place	33	65	14	NO
Walton Avenue and East 176th Street				
Crossing Walton Avenue	32	20	14	NO
Crossing East 176th Street	28	30	13	NO

Note – A rate of 3 ft/sec plus 3 seconds reaction time was utilized as the child pedestrian walking rate

** Pedestrians are expected to use the medians and cross Grand Concourse in two phases*

3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

Generally, the roadways and sidewalks in the vicinity of the school were observed to be in good condition.



Figure 16: Sidewalk on Morris Avenue in front of J.H.S. 117

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes potential countermeasures. Recommendations are divided into short-term and long-term measures. Short-term measures are those that potentially can be performed in-house, long term measures are capital improvements.

4.1 SHORT-TERM MEASURES

- *No-Standing Zone on Morris Avenue*

It is recommended that a “NO STANDING 7AM-4 PM, SCHOOL DAYS” parking regulation be installed in front of the J.H.S. 117 main entrance on Morris Avenue for a length of approximately 30 feet. Teacher parking that may be displaced will be relocated.
- *Install pedestrian information sign that explains the signal phases*

The safety of pedestrians at the wide intersections of Grand Concourse Avenue at East 176th Street and Grand Concourse Avenue at Mount Hope Place was cited as a safety concern for school students crossing at these intersections. Installation of a pedestrian information sign adjacent to each school crosswalk that explains the signal phases is recommended. During a consultant field visit, it was noted that students and other pedestrians attempted to cross Grand Concourse in one pedestrian signal phase. The pedestrians should be informed to wait at the medians between signal cycles.
- *Place stop bars ten feet in advance of school crosswalks.*

The MUTCD and New York City DOT standard for placement of a stop bar is four feet in advance of a marked crosswalk. At signalized (or stop controlled) crosswalks, the vehicle stop line can be placed farther back from the crosswalk in order to maximize visibility of pedestrians and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all school crosswalks.
- *Administer student pedestrian safety education program*

It is recommended that the NYCDOT Safety Education Program work with the school to educate the students on pedestrian safety, including crossing the street with the WALK phase, and the meaning of the WALK - FLASHING DON'T WALK - DON'T WALK pedestrian signal sequence. It is also recommended that students be educated not to cross at mid-block locations.
- *Submit Request to Police Department for two Crossing Guards*

As noted in Section 3.6, The intersection of Morris Avenue and East 176th Street, and Mount Hope Place and Morris Avenue are not signalized and have uncontrolled school crossings. One-hour vehicle and pedestrian volumes indicated that signal warrants are not met for either intersection. To mitigate pedestrian safety conditions for students at these two intersections, it is recommended that a crossing guard be requested at each intersection, to assist the students who will be without the supervision of a parent.

- Install/replace pedestrian ramps

Consideration should be given to the installation and/or replacement of pedestrian ramps per NYCDOT standards at the following locations:

- Mount Hope Place and Walton Avenue – all four corners
- Mount Hope Place and Morris Avenue – all four corners

4.2 LONG-TERM MEASURES

- Consider curb extensions at the following intersections:

Consideration should be given to installing curb extensions at the following locations, provided that the Final Design confirms that construction of the recommended curb extension would be feasible and would not interfere with traffic operations. Final details pertaining to the number, location and geometry of curb extensions will be developed during the Final Design/Contract Document preparation.

- Morris Avenue and Mount Hope Place
- Morris Avenue and East 176th Street
- Walton Avenue and Mount Hope Place
- Walton Avenue and East 176th Street

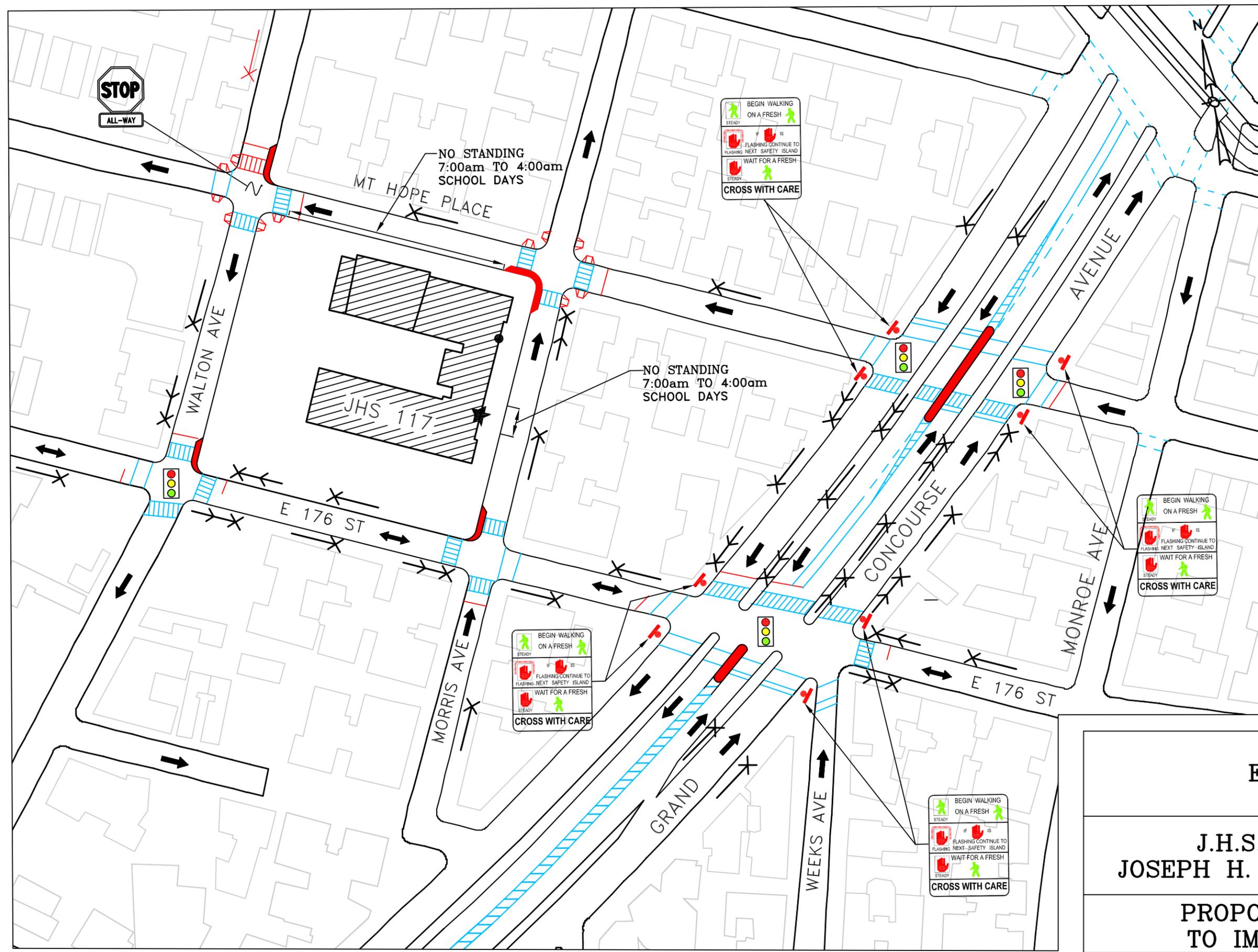
Curb extensions should be considered at the corners as shown in Exhibit 8.

The purpose of the curb extensions is to shorten the crossing distance for pedestrians, and to reduce speeds of vehicles approaching and turning at these heavily utilized school crosswalks (or intersections). These curb extensions would not eliminate or reduce the width of any moving lanes.

- Install raised concrete medians at the following locations:

- South side of the intersection of Grand Concourse Avenue and East 176th Street (separating mainline northbound and southbound traffic)
- Grand Concourse Avenue and Mount Hope Place

The proposed raised medians will replace existing striped medians and extend through the crosswalk to provide refuge for pedestrians (See Exhibit 8). The median should have an ADA compliant at-grade cut-through.



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES
- X EXISTING (OR SCHEDULED TO BE INSTALLED BY DOT) ADVANCE WARNING SIGN WITH ARROW
- X EXISTING ADVANCE WARNING SIGN
- ↔ EXISTING TRAVEL DIRECTION
- 🚦 SIGNALIZED INTERSECTION
- 🛑 EXISTING ALL-WAY STOP INTERSECTION
- ▬▬▬ EXISTING SCHOOL CROSSWALK
- ▬▬▬ EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- - - - EXISTING SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
- X PROPOSED ADVANCE WARNING SIGN WITH ARROW
- X PROPOSED ADVANCE WARNING SIGN
- PROPOSED STOP LINE
- ▬▬▬ PROPOSED SCHOOL CROSSWALK
- PROPOSED TRAFFIC SIGN
- ⤵ PROPOSED CURB EXTENSION (NECKDOWN)
- ▬▬▬ PROPOSED MEDIAN EXTENSION
- ↔ PROPOSED PARKING REGULATIONS
- ⤴ PROPOSED PEDESTRIAN RAMP

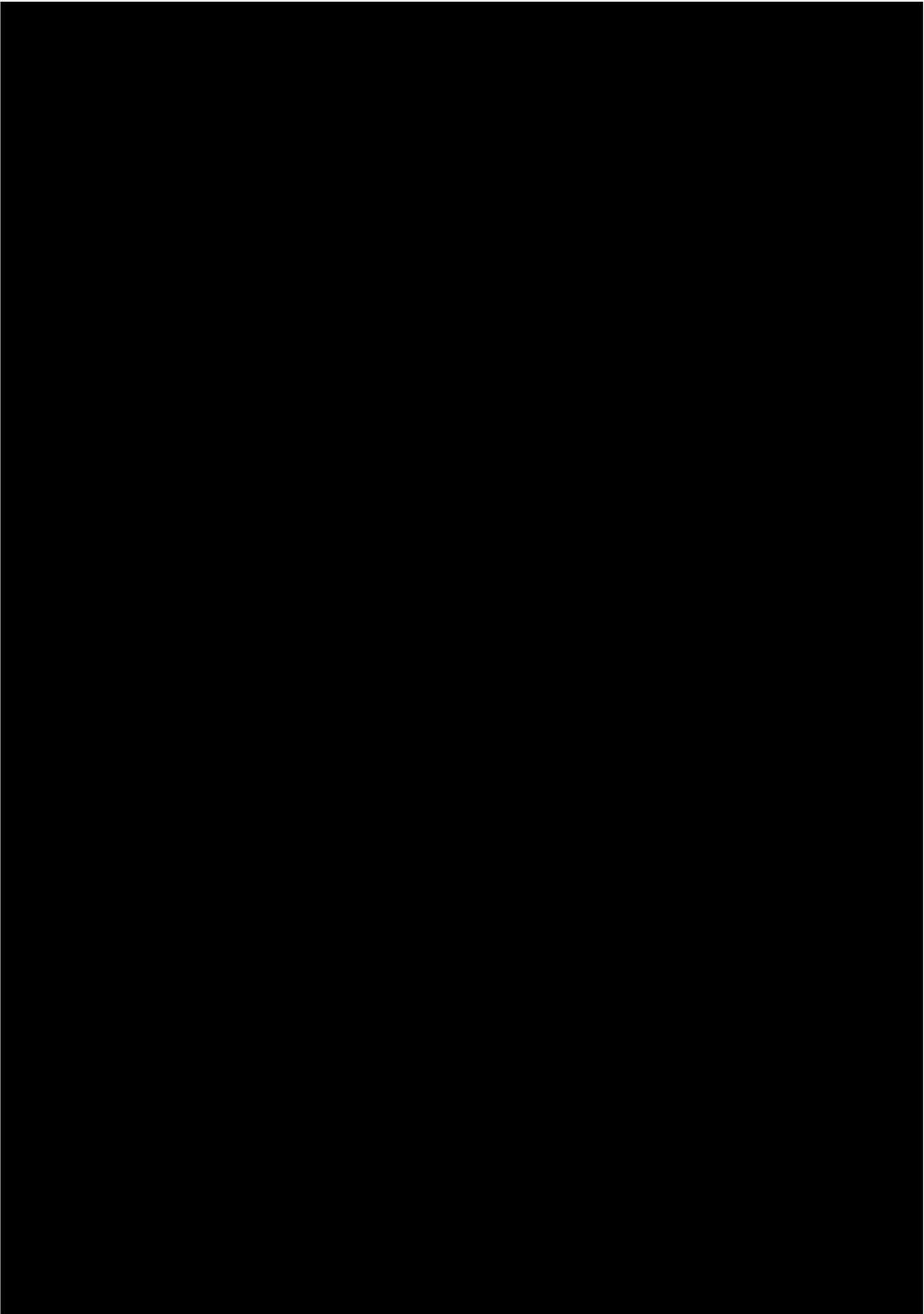
SCALE: 1" : 100'

EXHIBIT 8

**J.H.S. 117, BRONX
JOSEPH H. WADE J.H. SCHOOL**

**PROPOSED MEASURES
TO IMPROVE SAFETY**

APPENDIX



SPOT SPEED STUDY

Date: **October 31, 2005** Time: **4:30 PM To 5:30 PM**
 Location: **Morris Avenue btw. 176th Street and Mount Hope**
 Surveyor: **Eyad Yousef**

School: **JHS 117**
 Direction: **NB**
 Comments: **Sunny and Dry**

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	2	2.6%	2.6%	36	648
19	3	3.9%	6.6%	57	1083
20	7	9.2%	15.8%	140	2800
21	7	9.2%	25.0%	147	3087
22	13	17.1%	42.1%	286	6292
23	24	31.6%	73.7%	552	12696
24	12	15.8%	89.5%	288	6912
25	4	5.3%	94.7%	100	2500
26	1	1.3%	96.1%	26	676
27	0	0.0%	96.1%	0	0
28	0	0.0%	96.1%	0	0
29	1	1.3%	97.4%	29	841
30	2	2.6%	100.0%	60	1800
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	76	100.0%		1721	39335

Mean Speed = 22.6 mph Median Speed = 22.6 mph
 Standard Deviation = 2.2 mph 15th Percentile Speed = 20.4 mph
 Margin of Error (95% Confidence) = ± 0.5 mph 85th Percentile Speed = 24.9 mph

SPOT SPEED STUDY

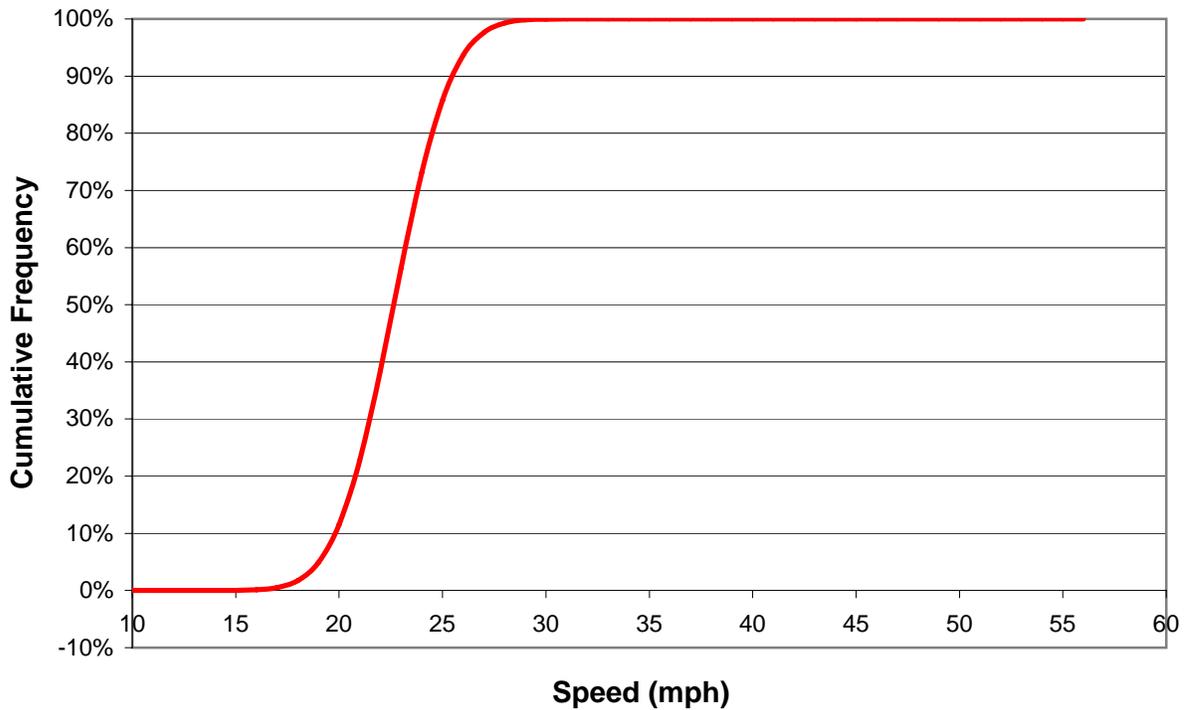
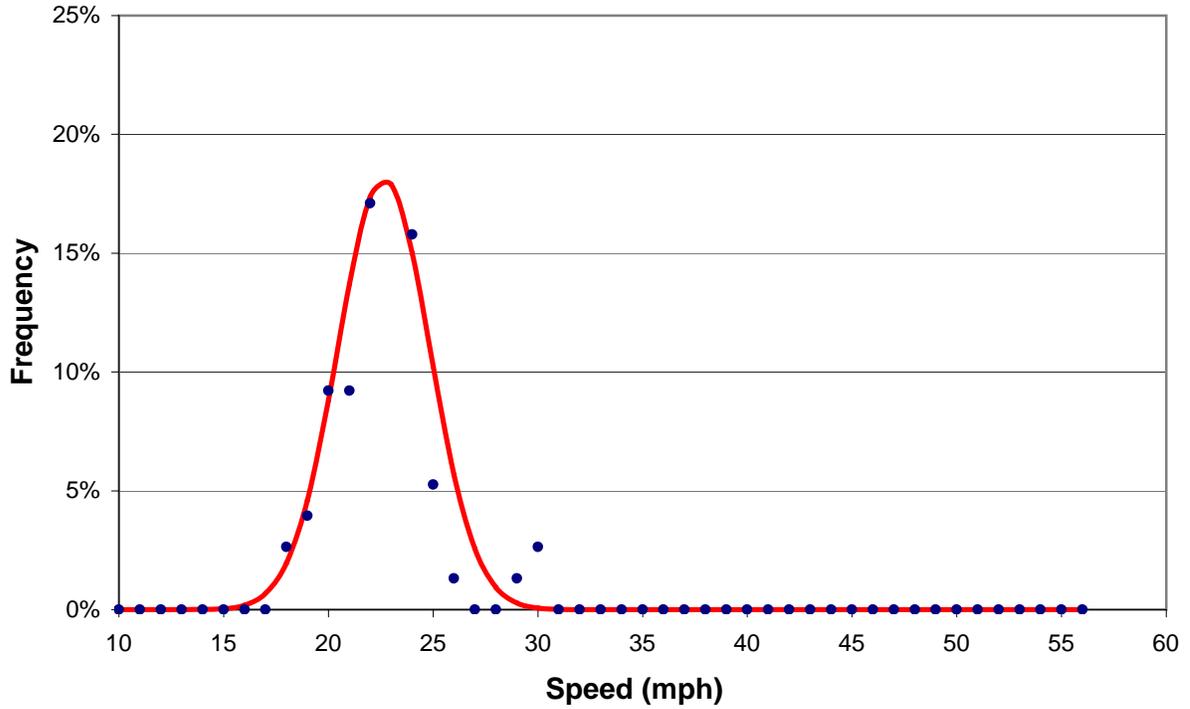
Date: **October 31, 2005**
Location: **Morris Avenue btw. 176th Street and Mount Hope**
Surveyor: **Eyad Yousef**

Time: **4:30 PM To 5:30 PM**

School: **JHS 117**
Direction: **NB**
Comments: **Sunny and Dry**

Mean Speed = 22.6 mph
Standard Deviation = 2.2 mph
Margin of Error (95% Confidence) = ± 0.5 mph

Median Speed = 22.6 mph
15th Percentile Speed = 20.4 mph
85th Percentile Speed = 24.9 mph



SPOT SPEED STUDY

Date: **October 31, 2005** Time: **5:30 PM To 6:30 PM**
 Location: **Mount Hope btw. Morris Avenue and Walton Avenue**
 Surveyor: **Eyad Yousef**

School: **JHS 117**
 Direction: **EW**
 Comments: **Sunny and Dry**

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	1	2.3%	2.3%	16	256
17	0	0.0%	2.3%	0	0
18	3	7.0%	9.3%	54	972
19	12	27.9%	37.2%	228	4332
20	16	37.2%	74.4%	320	6400
21	6	14.0%	88.4%	126	2646
22	4	9.3%	97.7%	88	1936
23	1	2.3%	100.0%	23	529
24	0	0.0%	100.0%	0	0
25	0	0.0%	100.0%	0	0
26	0	0.0%	100.0%	0	0
27	0	0.0%	100.0%	0	0
28	0	0.0%	100.0%	0	0
29	0	0.0%	100.0%	0	0
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	43	100.0%		855	17071

Mean Speed = 19.9 mph Median Speed = 19.9 mph
 Standard Deviation = 1.3 mph 15th Percentile Speed = 18.5 mph
 Margin of Error (95% Confidence) = ± 0.4 mph 85th Percentile Speed = 21.2 mph

SPOT SPEED STUDY

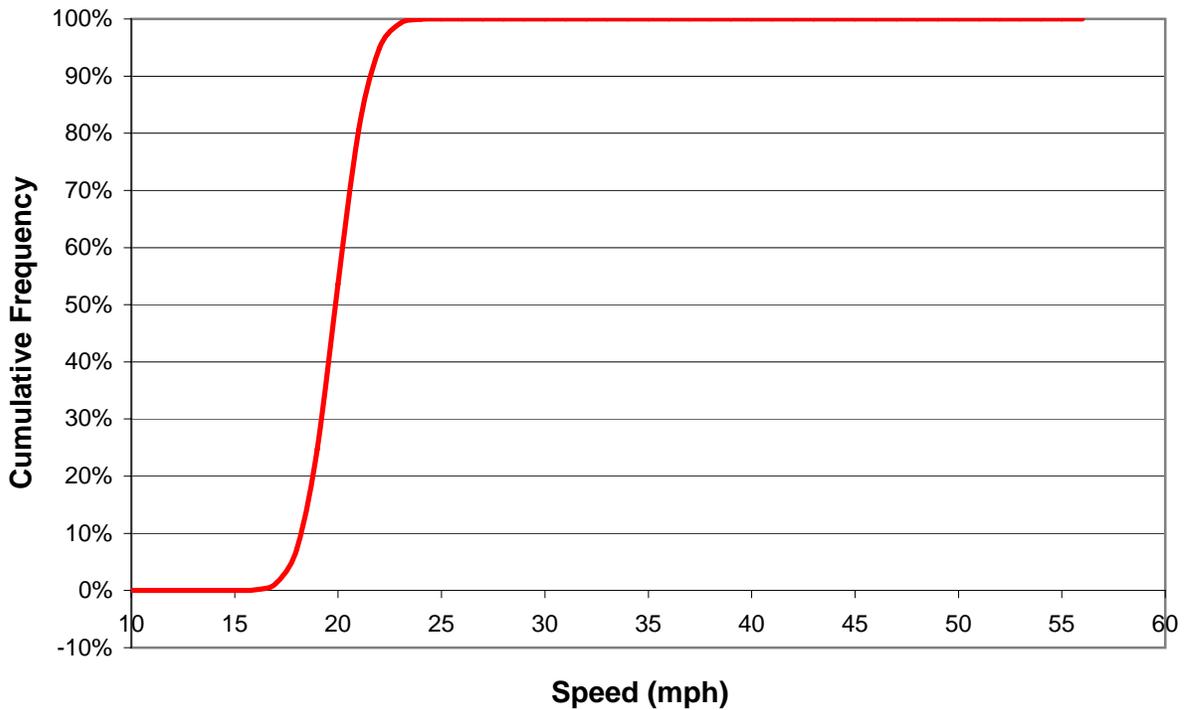
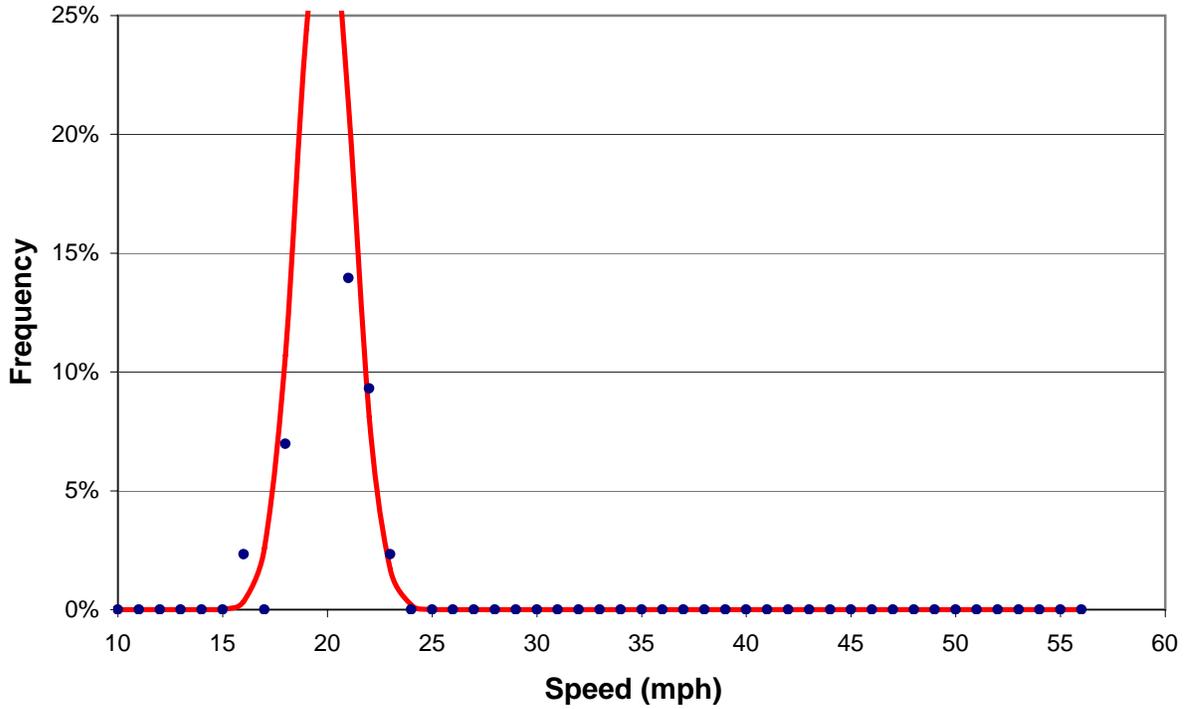
Date: **October 31, 2005**
Location: **Mount Hope btw. Morris Avenue and Walton Avenue**
Surveyor: **Eyad Yousef**

Time: **5:30 PM To 6:30 PM**

School: **JHS 117**
Direction: **EW**
Comments: **Sunny and Dry**

Mean Speed = 19.9 mph
Standard Deviation = 1.3 mph
Margin of Error (95% Confidence) = ± 0.4 mph

Median Speed = 19.9 mph
15th Percentile Speed = 18.5 mph
85th Percentile Speed = 21.2 mph



SPOT SPEED STUDY

Date: **October 31, 2005** Time: **6:30 PM To 7:30 PM**
 Location: **West 176th Street btw. Morris Avenue and Walton Avenue**
 Surveyor: **Eyad Yousef**

School: **JHS 117**
 Direction: **EW**
 Comments: **Sunny and Dry**

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	6	6.0%	6.0%	90	1350
16	6	6.0%	12.0%	96	1536
17	7	7.0%	19.0%	119	2023
18	3	3.0%	22.0%	54	972
19	7	7.0%	29.0%	133	2527
20	14	14.0%	43.0%	280	5600
21	24	24.0%	67.0%	504	10584
22	18	18.0%	85.0%	396	8712
23	3	3.0%	88.0%	69	1587
24	5	5.0%	93.0%	120	2880
25	2	2.0%	95.0%	50	1250
26	3	3.0%	98.0%	78	2028
27	2	2.0%	100.0%	54	1458
28	0	0.0%	100.0%	0	0
29	0	0.0%	100.0%	0	0
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	100	100.0%		2043	42507

Mean Speed = 20.4 mph Median Speed = 20.4 mph
 Standard Deviation = 2.8 mph 15th Percentile Speed = 17.5 mph
 Margin of Error (95% Confidence) = ± 0.5 mph 85th Percentile Speed = 23.3 mph

SPOT SPEED STUDY

Date: **October 31, 2005**

Time: **6:30 PM To 7:30 PM**

School: **JHS 117**

Location: **West 176th Street btw. Morris Avenue and Walton Avenue**

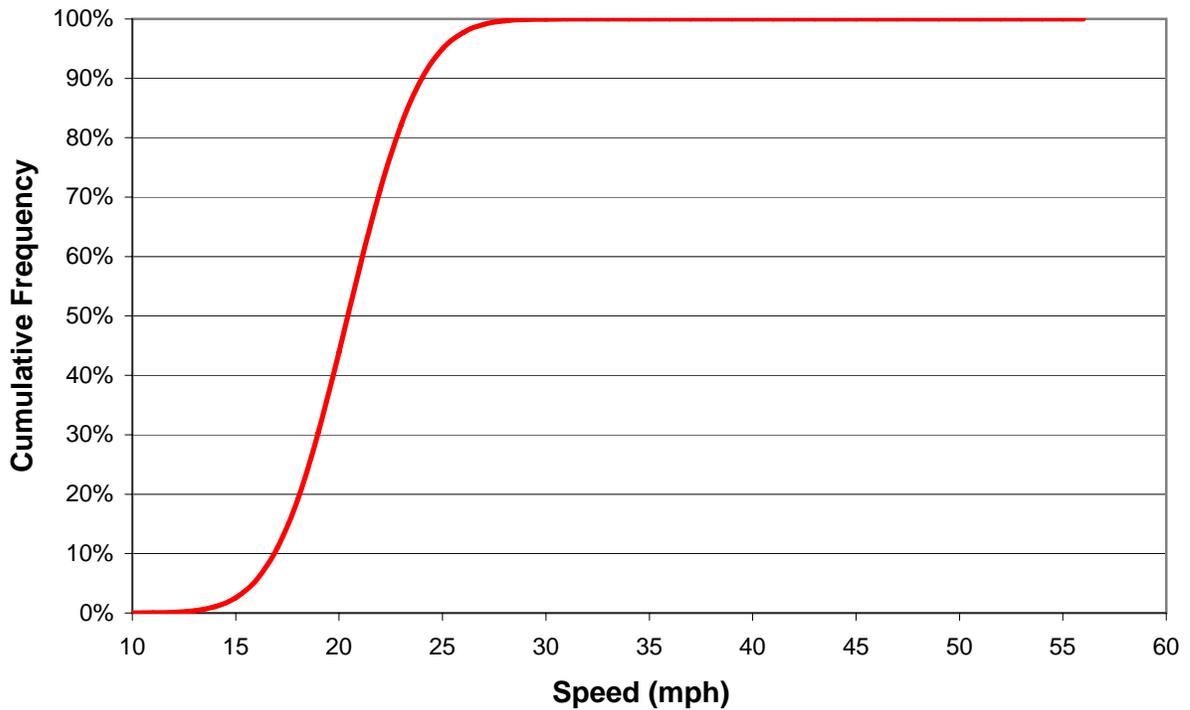
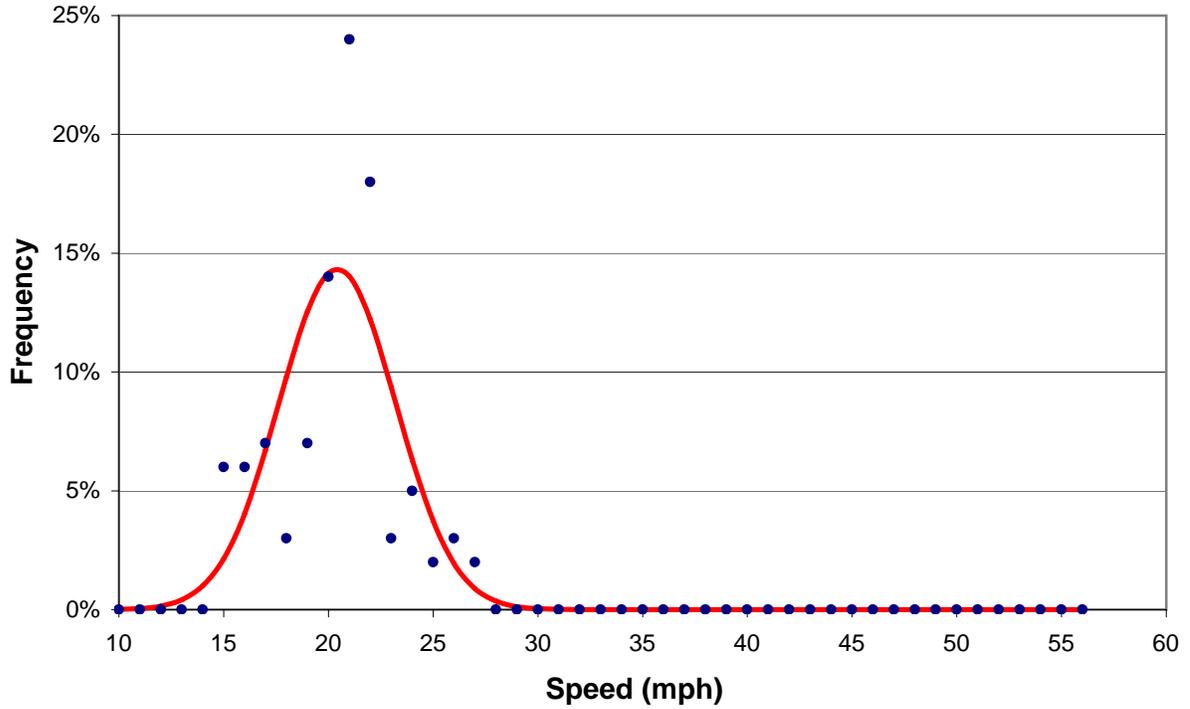
Direction: **EW**

Surveyor: **Eyad Yousef**

Comments: **Sunny and Dry**

Mean Speed = 20.4 mph
Standard Deviation = 2.8 mph
Margin of Error (95% Confidence) = ± 0.5 mph

Median Speed = 20.4 mph
15th Percentile Speed = 17.5 mph
85th Percentile Speed = 23.3 mph



JHS 117

November 2, 2005
2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
Title2 : BOROUGH OF MANHATTAN
Title3 : NYC-DOT

Site:
Date: 11/02/05

Combined

*Peds not included in table data

Begin Time	Total	MORRIS AVENUE			MOUNT HOPE PL			MORRIS AVENUE			MOUNT HOPE PL			
		W-R	W-T		W-R	W-T		N-T	N-L		N-T	N-L		
14:25:00	27	0	0	0	9	7	0	0	0	9	2	0	0	0
14:30:00	58	0	0	0	14	13	0	0	0	15	16	0	0	0
14:45:00	50	0	0	0	9	18	0	0	0	18	5	0	0	0
15:00:00	59	0	0	0	6	15	0	0	0	23	15	0	0	0
15:15:00	48	0	0	0	5	15	0	0	0	19	9	0	0	0
242		0	0	0	43	68	0	0	0	84	47	0	0	0

Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	135
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	215

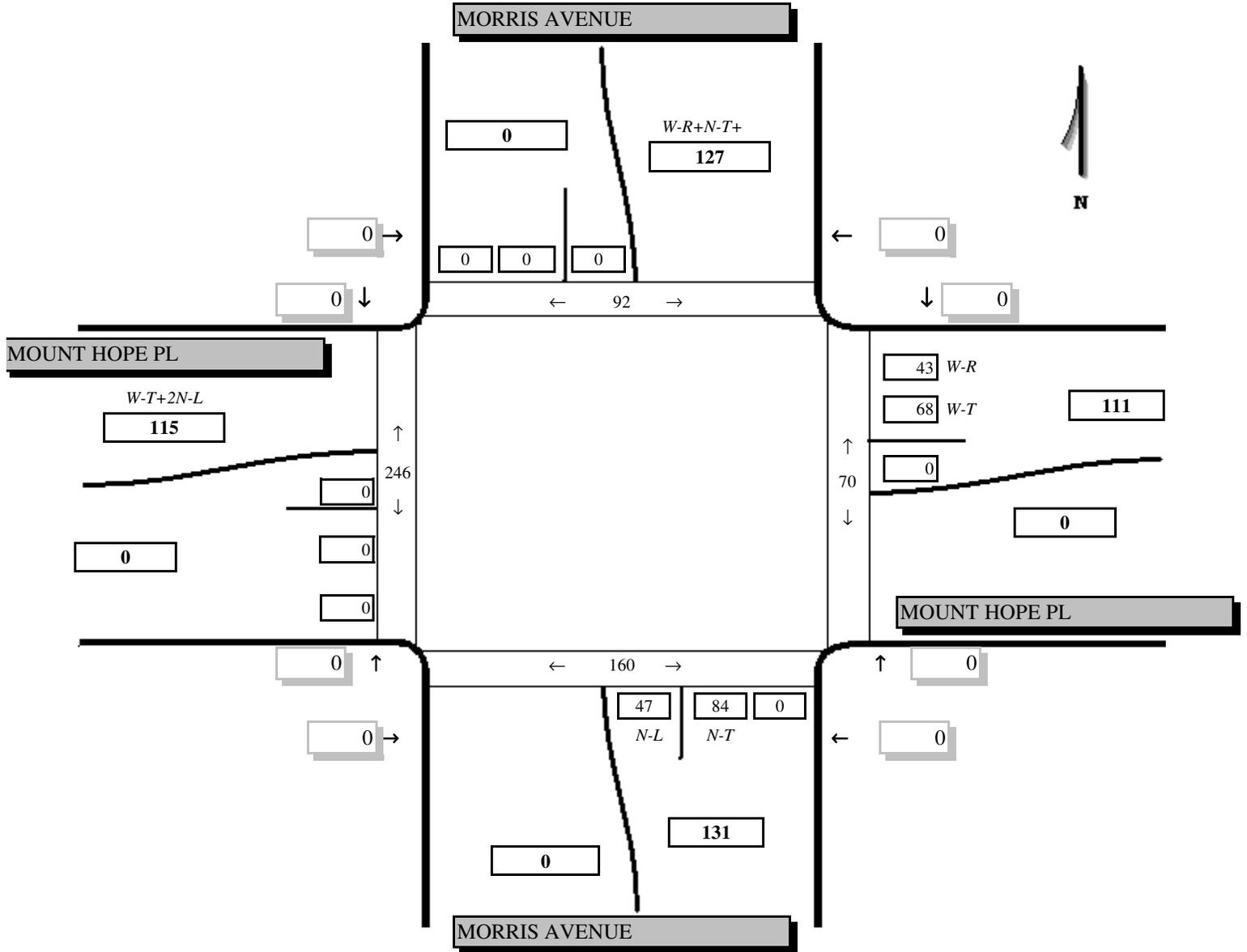
JHS 117

November 2, 2005
2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
Title2 : BOROUGH OF MANHATTAN
Title3 : NYC-DOT

Site:
Date: 11/02/05

Combined
*Peds not included in table data



JHS 117

November 2, 2005
7:30 am - 8:30 am

Title1 : SCHOOL SAFETY ENGINEERING
Title2 : BOROUGH OF MANHATTAN
Title3 : NYC-DOT

Site:
Date: 11/02/05

Combined

**Peds not included in table data*

Begin Time	Total	MORRIS AVENUE			176 STREET		MORRIS AVENUE			176 STREET			
		W-R	W-T		W-R	W-T	N-R	N-T	N-L	E-T	E-L		
08:32:00	67	0	0	0	4	23	0	5	0	1	0	18	16
08:45:00	95	0	0	0	10	21	0	6	1	2	0	35	20
09:00:00	108	0	0	0	12	16	0	8	0	1	0	25	46
09:15:00	99	0	0	0	7	36	0	2	2	3	0	35	14
369		0	0	0	33	96	0	21	3	7	0	113	96

Peak Volume Periods <i>(1 hour Res:15 min.)</i>					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	08:30:00	To 09:30:00	369
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

