

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



School Safety Engineering Project

FINAL REPORT: I.S. 383, Philippa Schuyler School, Brooklyn



Prepared by
The RBA Group/Urbitrans Associates



SEPTEMBER 29, 2006

**School Safety Engineering Project
Philippa Schuyler (I.S. 383), Brooklyn**

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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 350 speed reducers (humps) have been installed in the immediate vicinity of schools.

Under this consultant study, the School Safety Engineering Project, crash 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). I.S. 383 in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



Figure 1 – Looking north on Greene Avenue, Brooklyn, I.S. 383 is on the right

2.2 NEIGHBORHOOD DESCRIPTION

I.S. 383 is located at 1300 Greene Avenue in Brooklyn, on the border of a residential/commercial area. Greene Avenue, Bleecker Street, Knickerbocker Avenue and Wilson Avenue are all mixed-use roadways, lined by commercial storefronts such as Delis, grocery stores, pharmacies, and 2-3 story apartment buildings. On the southeast corner of Knickerbocker Avenue and Bleecker Street is the 83rd Precinct of the NYPD. Myrtle Avenue is a commercial street, and is the border of the Bushwick shopping district. Also, adjacent to I.S. 383 at the corner of Knickerbocker Avenue and Myrtle Avenue is a Burger King and a sporting goods store (See Exhibit 1 for Aerial Photograph and Exhibit 2 for the Catchment Area).

There are two bus routes on Myrtle Avenue and Wilson Avenue. The B54 bus line runs on Myrtle Avenue and has a bus stop at Myrtle Avenue and Knickerbocker Avenue. The B60 bus line runs on Wilson Avenue and has a bus stop at Wilson Avenue and Bleecker Street.

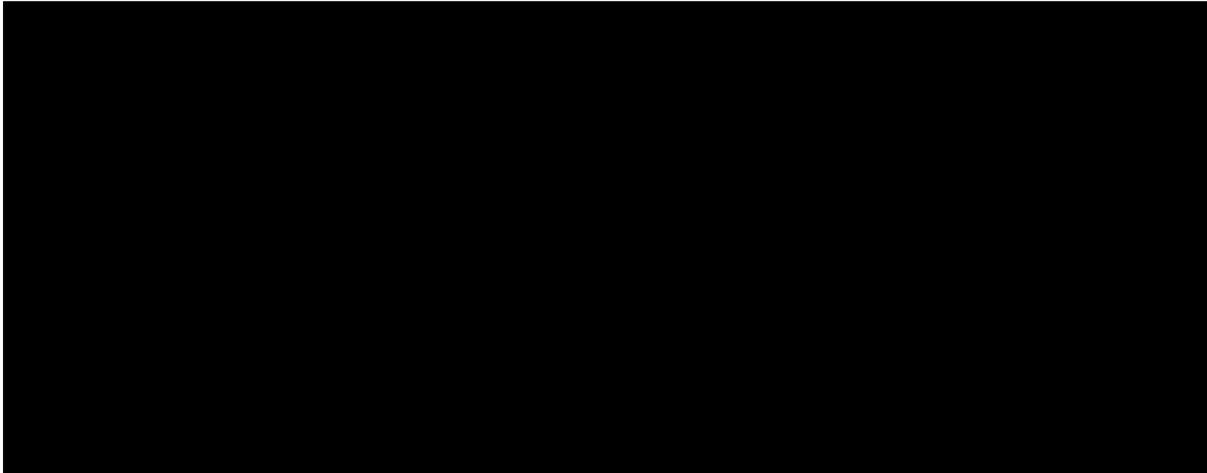
2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from I.S. 383, New York City Department of Education, The 83rd Precinct of the NYPD, and the consultant team met at the school on the afternoon of April 19th, 2004.

According to the representatives of the school, the identifiable problems that student pedestrians encounter on a regular basis include the following:

- Vehicles speeding on Greene Avenue between Wilson Avenue and Myrtle Avenue
- Vehicles speeding on Knickerbocker Avenue between Harman Street and Bleecker Street
- Traffic congestion at Wilson Avenue and Greene Avenue
- Traffic on Wilson Avenue at Bleecker Street is not stop controlled
- Lack of curb space for school buses to load and unload students during arrival and dismissal on Bleecker Street
- Double-parked vehicles blocking moving traffic surrounding the school
- No crossing guard at Wilson Avenue and Greene Avenue
- No crossing guard Myrtle Avenue and Knickerbocker Avenue
- Students crossing uncontrolled Myrtle Avenue at Greene Avenue
- Inadequate time for student pedestrians to cross Knickerbocker Avenue at Greene Avenue, Myrtle Avenue, and Bleecker Street

See the appendix for the school's survey response.



2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to the survey completed by the school, 15% of students walk to I.S. 383, 33% arrive by private vehicles, 12% ride school buses, and the remaining 40% of students utilize MTA buses or subway service. 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	15%
Driven by parent of guardian	33%
School bus	12%
MTA bus	20%
MTA subway	20%
TOTAL	100%

MTA buses transport approximately twenty percent of I.S. 383 students. During the morning arrival, the buses arrive at a staggered schedule, stopping on either side of Wilson Avenue, directly in front of the school.

During dismissal, it was observed that seven B60 buses (specifically for I.S. 383) wait on the south side of Wilson Avenue (See Figure 2). The buses line up on Wilson Avenue, from Bleecker Street through the Greene Avenue intersection. Students cross Wilson Avenue to get to the waiting buses.



Figure 2 – MTA buses line up on Wilson Avenue during dismissal



1 inch equals 200 feet

EXHIBIT 1
I.S. 383, BROOKLYN
PHILIPPA SCHUYLER SCHOOL
AERIAL PHOTOGRAPH

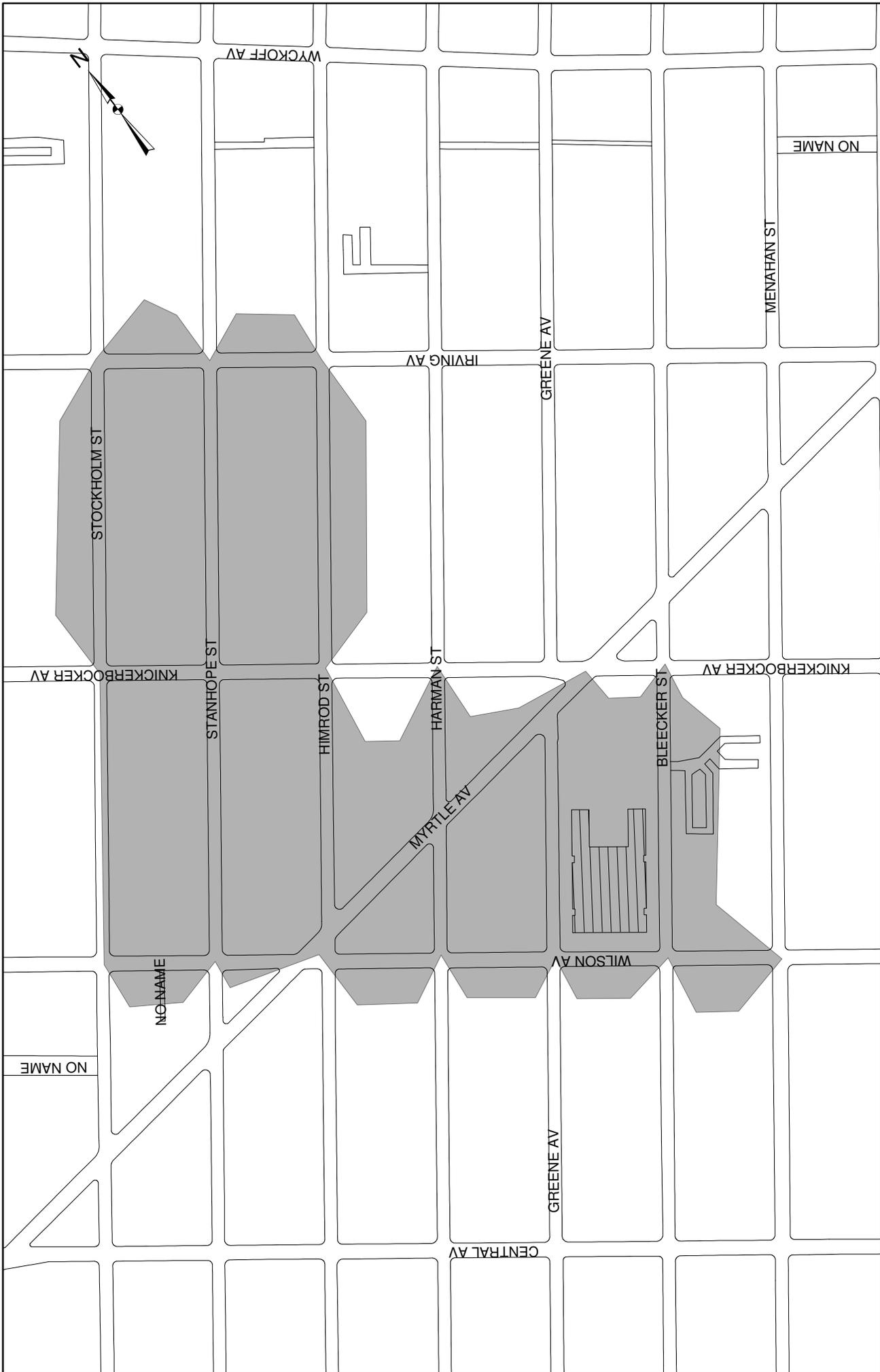


EXHIBIT 2
I.S. 383, BROOKLYN
PHILIPPA SCHUYLER SCHOOL
CATCHMENT AREA

1 inch equals 300 feet

CATCHMENT AREA





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

IS 383 Brooklyn
PHILIPPA SCHUYLER SCHOOL

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

Map created on 11/16/2006

EXHIBIT 3

COMM. BOARD: 304
 PRECINCT: 83

1.5.1

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are several local businesses including fast food restaurants on Myrtle Avenue. A grocery store on Myrtle Avenue and Wilson Avenue, and other shops on Myrtle Avenue are popular destinations for the students.

Bushwick High School, P.S. 377, P.S.116, P.S. 376, P.S. 86, and J.H.S. 291 are located within a few city blocks from I.S. 383. Approximately 5200 students attend these schools. P.S. 116, P.S. 86, P.S. 106, and J.H.S. 291 are also priority schools.

2.8 CROSSING GUARD LOCATIONS

There are two crossing guards assigned to I.S. 383. They are stationed at the following intersections:

- Greene Avenue and Wilson Avenue
- Greene Avenue and Myrtle Avenue

However, according to the school officials and as confirmed by field observations, crossing guards are not regularly on-duty at these intersections.

See Exhibit 4 for a map of crossing guard locations.

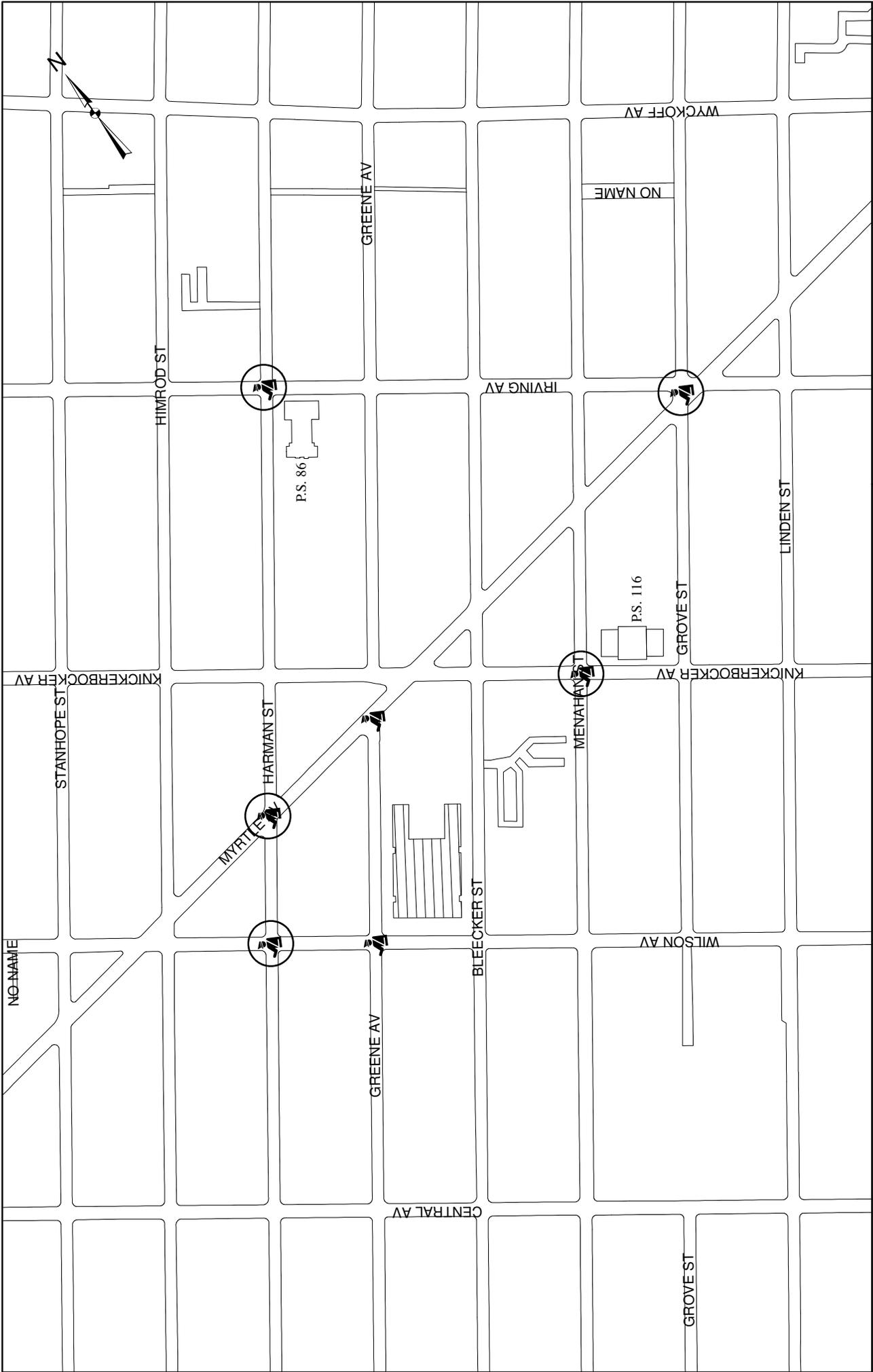


EXHIBIT 4
I.S. 383, BROOKLYN
PHILIPPA SCHUYLER SCHOOL
CROSSING GUARDS

1 inch equals 325 feet

 Crossing guard assigned to I.S. 383

 Crossing guard assigned to another school

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, five school buses transport twelve percent of I.S. 383 students to and from school. Due to the lack of available curbside space, all school buses double-park on Bleecker Street and block moving traffic while loading and unloading students.

It was observed that students are forced to navigate between parked vehicles in order to reach the school entrance (See Figure 3).



Figure 3 – Parked vehicles prevent school buses from unloading students at curb on Bleecker Street

3.2 PARENT DROP-OFF OPERATIONS

According to school officials, approximately 33% of I.S. 383 students are driven to and from school by parents or guardians. Field observations indicated that parents double-parked, or parked in bus stops, crosswalks and spaces for fire hydrants. Due to the large number of students being dropped off and picked up, traffic congestion was severe on Bleecker Street, Wilson Avenue, and Greene Avenue.

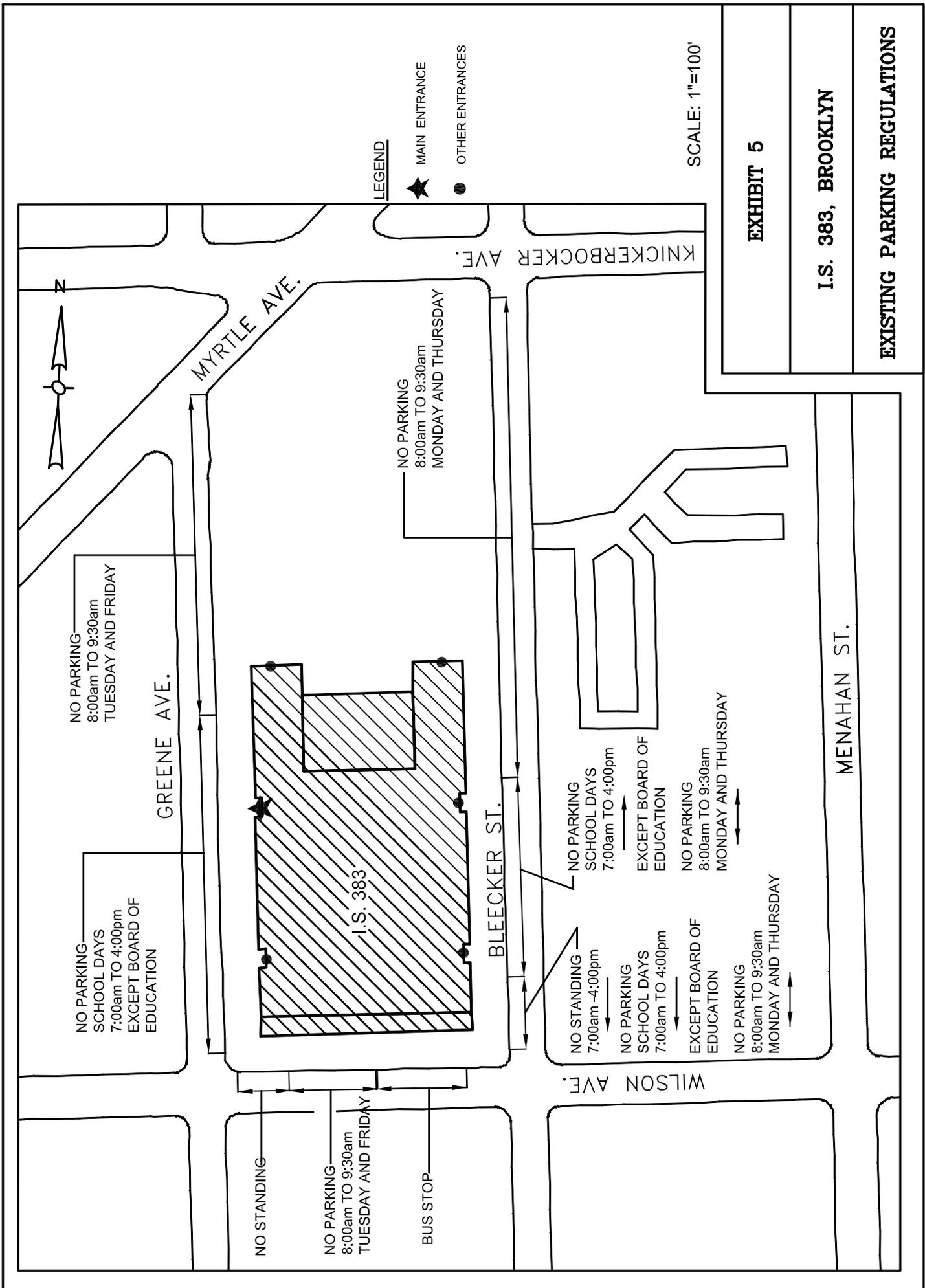
3.3 EXISTING PARKING REGULATIONS

“NO PARKING 7 AM – 4 PM SCHOOL DAYS EXCEPT BOARD OF EDUCATION” parking regulations are posted in front of the school on Greene Avenue and Bleecker Street. Alternate parking regulations are in effect 8:00 am – 9:30 am.

Exhibit 5 displays the parking regulations on the roadways surrounding the school.

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. All crosswalks in Community Board 4 were upgraded and refurbished in August 2005.



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES

SCALE: 1"=100'

EXHIBIT 5

I.S. 383, BROOKLYN

EXISTING PARKING REGULATIONS



NO PARKING
8:00am TO 9:30am
TUESDAY AND FRIDAY

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

GREENE AVE.

MYRTLE AVE.

NO STANDING

NO PARKING
8:00am TO 9:30am
TUESDAY AND FRIDAY

BUS STOP

I.S. 383

BLEECKER ST.

NO STANDING
7:00am -4:00pm

NO PARKING
SCHOOL DAYS
7:00am TO 4:00pm

EXCEPT BOARD OF
EDUCATION

NO PARKING
8:00am TO 9:30am
MONDAY AND THURSDAY

NO PARKING
SCHOOL DAYS
7:00am TO 4:00pm

EXCEPT BOARD OF
EDUCATION

NO PARKING
8:00am TO 9:30am
MONDAY AND THURSDAY

KNICKERBOCKER AVE.

NO PARKING
8:00am TO 9:30am
MONDAY AND THURSDAY

MENAHAN ST.

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 I.S. 383 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 accident. 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 detailed data was not 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*
Wilson Ave. and Greene Ave.	6	0	0	0
Wilson Ave. and Bleecker St.	29	5	0	2
Myrtle Ave. and Greene Ave.	20	2	0	1
Myrtle Ave. and Knickerbocker Ave.	44	9	0	2
Myrtle Ave. and Bleecker St.	21	1	0	0
Knickerbocker Ave. and Bleecker St.	8	1	0	0
Knickerbocker Ave. and Greene Ave.	9	2	0	0
Myrtle Avenue and Harman Street	10	2	0	1
TOTAL	147	22	0	6

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Wilson Ave. and Greene Ave.	19	3	0	0
Wilson Ave. and Bleecker St.	28	1	0	0
Myrtle Ave. and Greene Ave.	21	5	0	2
Myrtle Ave. and Knickerbocker Ave.	55	5	0	1
Myrtle Ave. and Bleecker St.	41	3	0	1
Knickerbocker Ave. and Bleecker St.	23	1	0	0
Knickerbocker Ave. and Greene Ave.	20	7	0	2
Myrtle Avenue and Harman Street	18	4	0	2
TOTAL	225	29	0	8

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

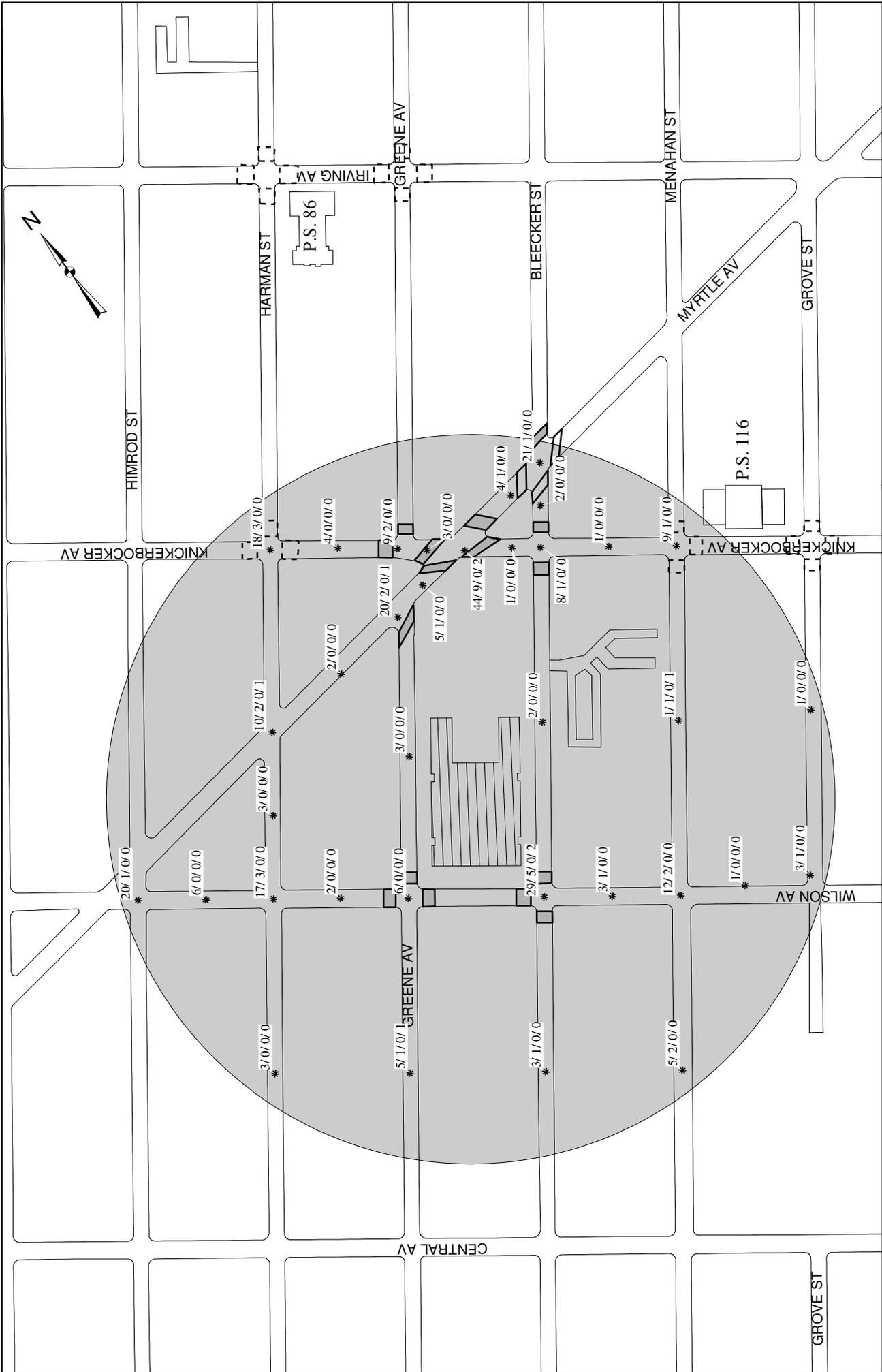


EXHIBIT 6
I.S. 383, BROOKLYN
PHILIPPA SCHUYLER SCHOOL
ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)

1 inch equals 250 feet

*
 [Solid Line] SCHOOL CROSSWALK ASSIGNED TO I.S. 383
 [Dashed Line] SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
 [Box] CROSSWALK

ACCIDENT LOCATION
 SCHOOL CROSSWALK ASSIGNED TO I.S. 383
 SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
 CROSSWALK

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

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accident and operational issues in the vicinity of I.S. 383.

3.6.1 Wilson Avenue and Greene Avenue

Wilson Avenue is a two-way street with one moving lane in each direction and parking on both sides. Greene Avenue is a one-way northbound street with parking on both sides of the roadway. This is an all-way stop controlled intersection. School crosswalks are in place on the north, east, and west legs. The pedestrian ramps at southwest corner are substandard due to utility interference.

During dismissal, a large number of students crossed Wilson Avenue and effectively blocked vehicular traffic at this intersection (Figure 4). For approximately 20 minutes after general dismissal, students continue to cross Wilson Avenue to board MTA buses, livery cabs, vans or other waiting vehicles. Vehicles were also observed parking in the intersection while picking up students, which also blocked moving traffic and pedestrians.

Traffic count was performed on May 17, 2005 from 7:30 am to 8:30 am to better understand the pedestrian and vehicle conflicts at the intersection (Exhibit 7A). The results indicated that over 700 pedestrians used this intersection during the study hour. It also showed that 142 pedestrians cross the south leg of Greene Avenue, which does not have a school crosswalk.

There were six accidents at this intersection during the 1998-2000 study period, none of which involved pedestrians.



Figure 4 –Wilson Avenue and Greene Avenue during dismissal

3.6.2 Wilson Avenue and Bleecker Street

Bleecker Street is a one-way southbound street with parking permitted on both sides. School crosswalks are on the north, west, and south legs. This intersection is stop controlled with a stop sign on Bleecker Street and uncontrolled traffic on Wilson Avenue. Therefore, the school crosswalk at the west leg is uncontrolled.



Figure 5 –Wilson Avenue and Bleecker Street, looking east

A one-hour traffic count was performed on May 17, 2005 from 7:30 am to 8:30 am (Exhibit 7A). A total of 1311 vehicles and 606 pedestrians utilized this un-signalized intersection during this hour. The results also show that 255 pedestrians crossed Wilson Avenue without controlled crosswalks. The number of pedestrians per hour crossing Wilson Avenue exceeds the required MUTCD Warrant 4 – Pedestrian Volume requirement of a minimum of 190 pedestrians of any given hour. However, the gap study performed on July 27, 2006 from 9:30 am to 10:30 am shows that more than 60 gaps of 14 seconds (the time required to cross a 33-foot wide street at three feet per second plus three seconds of reaction time) were available for pedestrians to cross Wilson Avenue. Therefore, the intersection does not meet the warrants for a traffic signal.

There were twenty-nine accidents at this intersection during the 1998-2000 study period. Five accidents involved pedestrians, two of which were school related. Four pedestrians, including two school age students, were struck when crossing without a controlled crosswalk. The last accident was attributed to driver's failure to yield.

3.6.3 Myrtle Avenue and Greene Avenue

Myrtle Avenue and Greene Avenue is a stop controlled T-intersection, with a stop sign on Greene Avenue. There is a school crosswalk on the south leg.

Pedestrian counts were performed at this intersection on June 21, 2005 from 7:30 am to 8:30 am (Exhibit 7B) and show that although there are no crosswalks on Myrtle Avenue, 173 pedestrians crossed at this mid-block location.

There were twenty accidents at this intersection during the 1998-2000 study period. Two accidents involved pedestrians and one accident was school related. An 11-year-old child and a six-year-old child were struck when crossing Myrtle Avenue. No further details were reported for these two accidents.

3.6.4 Myrtle Avenue and Knickerbocker Avenue

Myrtle Avenue is a highly commercialized roadway and is the southern border of the Bushwick Shopping District. It is a two-way street with one travel lane in each direction and parking on both sides. The M train is elevated through this section of Brooklyn and runs directly above Myrtle Avenue. Columns for the overhead structure are located on raised islands in the center of the street. The center islands have at-grade cut-throughs for pedestrians. There is only one pedestrian ramp at northeast, northwest, and southwest corners of the intersection due to the obstruction of various utilities and subway supports.



Figure 6: On Myrtle Avenue looking northeast at the raised island at the intersection with Knickerbocker Avenue

There were 47 accidents at this signalized intersection during the 1998-2000 study period (including all sides of the intersection). Nine accidents involved pedestrians, two of which were school related. An eight-year-old student was crossing with the signal when struck by a vehicle attempting to make a left turn. Another 12-year-old student was struck due to a driver's failure to yield. Two pedestrians were struck while crossing against the signal or crossing outside of the crosswalks. Four other accidents were attributed to drivers' failure to yield or inattention. The last pedestrian was struck while getting out of a vehicle.

3.6.5 Myrtle Avenue and Bleecker Street

The intersection of Myrtle Avenue and Bleecker Street is controlled by a two-phase signal. A school crosswalk is in place on the north leg. There is only one pedestrian ramp per corner quadrant due to various utilities and the overhead subway structure.

There were twenty-one accidents at this intersection during the 1998-2000 study period, one of which involved a pedestrian. There were no details for this accident.

3.6.6 Knickerbocker Avenue and Bleecker Street

Knickerbocker Avenue and Bleecker Street is an un-signalized intersection with stop control on Bleecker Street. School crosswalks are in place on the north and south legs.



Figure 7: At the intersection of Knickerbocker Avenue and Bleecker Street looking west at Myrtle Avenue

A one-hour traffic count was performed at this intersection on May 12, 2005 from 7:30 am to 8:30 am (Exhibit 7B). The results show that the majority of pedestrians cross Bleecker Street within the school crosswalks, 440 pedestrians in total. However, 65 pedestrians and 20 pedestrians crossed Knickerbocker Avenue, on the east and west legs respectively, during the one-hour traffic count. Neither of these legs have a crosswalk. Knickerbocker Avenue is uncontrolled and does not have school crosswalks.

Eight accidents occurred at this intersection during the 1998-2000 study period, one of which was a non-school related pedestrian accident. A driver struck a pedestrian while attempting to make a left turn.

3.6.7 Knickerbocker Avenue and Greene Avenue

Knickerbocker Avenue and Greene Avenue is a T-intersection with stop control on Greene Avenue. This intersection is located in close proximity to the larger intersection of Myrtle Avenue and Knickerbocker Avenue. School crosswalks are on the north and west legs. Therefore, the school crosswalk at the west leg of the intersection is uncontrolled.

Nine accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, none of which were school related. One pedestrian was struck when crossing without a crosswalk. The other pedestrian was struck due to the driver’s unsafe speed.

3.6.8 Myrtle Avenue and Harman Street

The intersection of Harman Street and Myrtle Avenue is controlled by a two phase signal. Harman Street is 30-foot wide, one-way southbound roadway with one travel lane and parking on the both sides. There are school crosswalks on the east, west and south legs of this intersection.

Ten accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, one of which was school related. A 12-year old student was struck while emerged between parked vehicles. There was no detailed information for the second accident.

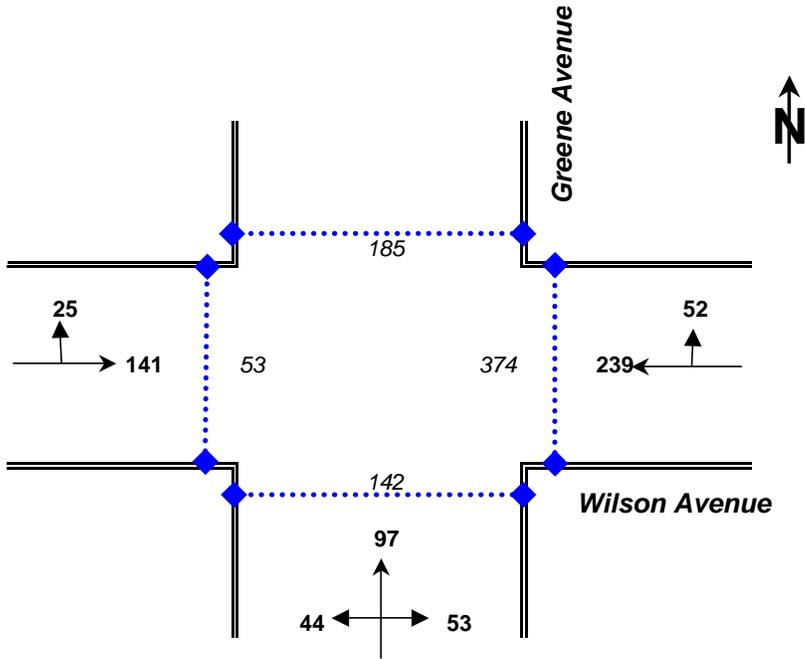
3.6.9 Speeds on Greene Avenue and Knickerbocker Avenue

According to school officials, vehicles speed on Greene Avenue and Knickerbocker Avenue in the vicinity of I.S. 383.

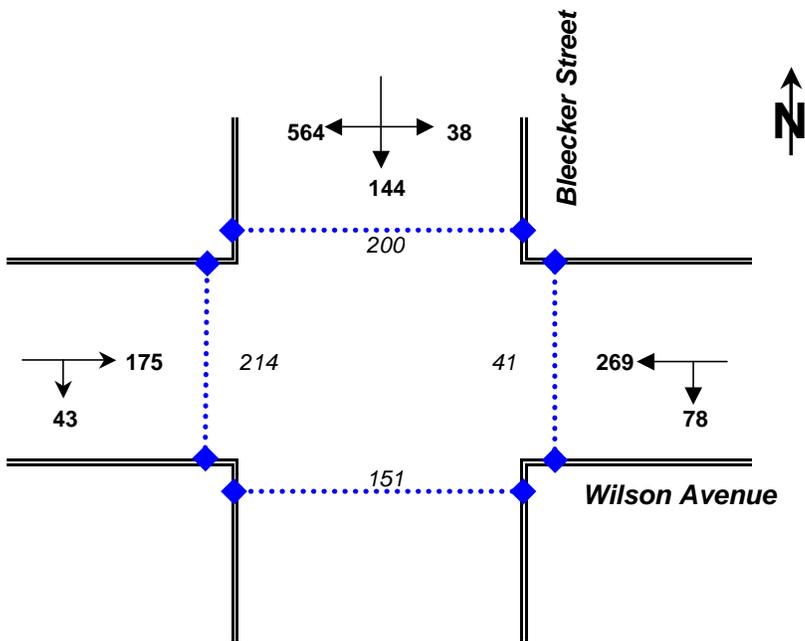
Spot speed studies were conducted on Wednesday September 7, 2005, between 2:30 pm and 3:30 pm. The results indicate that the 85th percentile does not exceed the statutory speed limit of 30 mph. See Table 4 for a summary of the results and the appendix for further discussion.

TABLE 4: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Greene Avenue between Wilson Avenue and Knickerbocker St.	21	24
Knickerbocker Avenue between Harman St. and Greene Ave.	24	27

One Hour Traffic Count Volumes
 (7:30 AM - 8:30 AM May 17, 2005)



Wilson Avenue and Greene Avenue



Blecker Street and Wilson Avenue

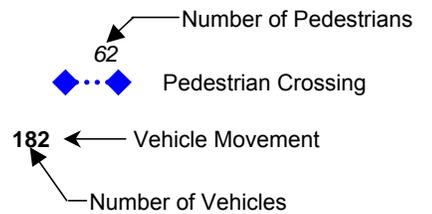
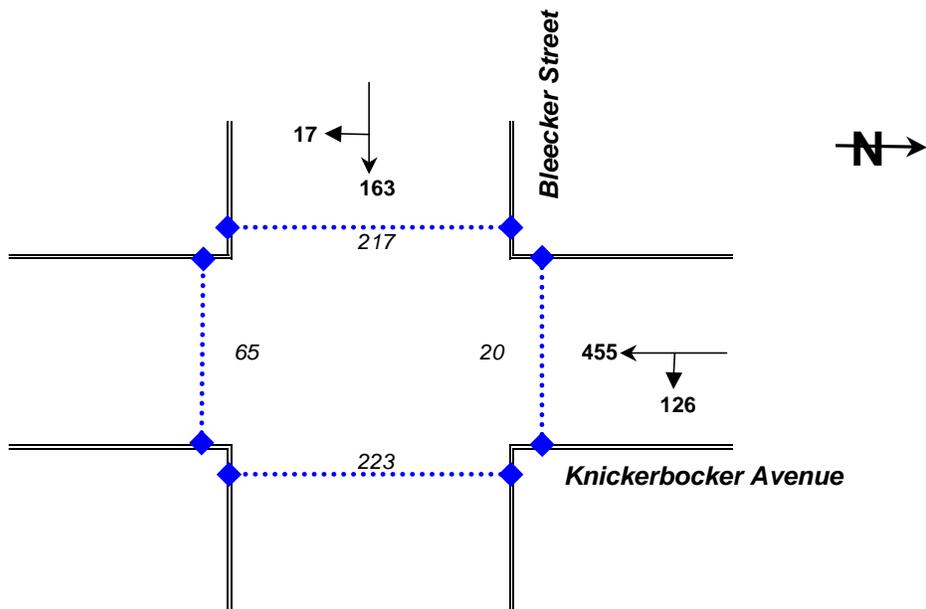
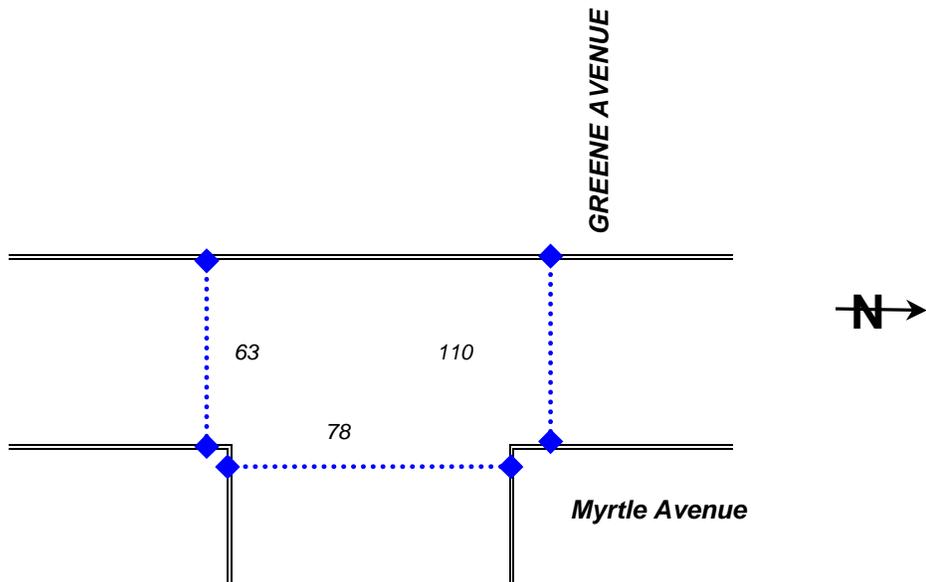


EXHIBIT 7A
I.S. 383
TRAFFIC COUNTS

One Hour Traffic Count Volumes



Bleeker Street and Knickerbocker Avenue
 (7:30 AM - 8:30 AM May 12, 2005)



Greene Avenue and Myrtle Avenue
 (7:30 AM - 8:30 AM June 21, 2005)

- Number of Pedestrians
- 62 Pedestrian Crossing
- 182 Vehicle Movement
- Number of Vehicles

EXHIBIT 7B
I.S. 383
TRAFFIC COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of I.S. 383, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTRSECTIONS				
Intersection Name	Crosswalk Length (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)*	Timing Adjustment? (Yes/No)
Myrtle Avenue at Harman Street				
Myrtle Avenue	48	43	19	NO
Harman Street	45	67	18	NO
Myrtle Avenue at Knickerbocker Avenue				
Myrtle Avenue	52	31	21	NO
Knickerbocker Avenue	55	48	22	NO
Myrtle Avenue at Bleecker Street				
Myrtle Avenue	52	43	21	NO
Bleecker Street	40	48	17	NO

Note – A rate of three feet per second plus three seconds reaction time was utilized as the child pedestrian walking rate

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways in the vicinity of the school were generally observed to be in good condition.

Many of the intersections studied in the vicinity of I.S. 383 have only one pedestrian ramp per corner quadrant or misaligned pedestrian ramps due to conflicts with utilities and the overhead subway structures along Myrtle Avenue.

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes potential countermeasures. These countermeasures 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 proposed capital improvements.

4.1 SHORT-TERM MEASURES

- No-Standing Zones

It is recommended that “NO STANDING 7 AM – 4 PM, SCHOOL DAYS” parking regulations be posted in front of I.S. 383 for a length of 60 feet on Bleecker Street. This will allow school buses a place to drop-off and pick-up students at the curb and also improve visibility of students arriving to and leaving the school. The lost teacher parking could be extended further east on Bleecker Street.

- Administer student pedestrian safety education program

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

- 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.

- Submit a request to the NYPD to assign crossing guards at the following intersections:

- Myrtle Avenue and Knickerbocker Avenue
- Myrtle Avenue and Greene Avenue*
- Wilson Avenue and Greene Avenue*
- Wilson Avenue and Bleecker Street

* Crossing guards are currently assigned to these two intersections but were not present during field observations. It is recommended that one crossing guard be reinstated at each of these intersections.

- Install new school crosswalk at Myrtle Avenue and Greene Avenue

According to the principal, a crossing guard is assigned here, and students utilize this intersection en route to I.S. 383. Providing a new school crosswalk at this

intersection will complete a network of contiguous school crosswalks in the immediate school vicinity. Therefore, it is recommended that a school crosswalk be installed at this intersection.

4.2 LONG-TERM MEASURES

- Install pedestrian ramps

Due to existing conflicts with utility and overhead subway structures, the following pedestrian ramps are considered complex. Considerations should be given to the installation of pedestrian ramps per NYCDOT standards.

- Myrtle Avenue and Knickerbocker Avenue – northeast, northwest, and southwest corners
- Myrtle Avenue and Bleecker Street – all four corners
- Wilson Avenue and Greene Avenue – southwest corner

- Install a curb extension at the intersection of Myrtle Avenue and Greene Avenue

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

Consideration should be given to installing a curb extension 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.

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.

- Widen curbed medians at the intersection of Knickerbocker Avenue and Myrtle Avenue

The curbed medians protecting the supports for the overhead subway should be widened by one foot on each side and also lengthened to increase the standing room for pedestrians (exact details will be determined during design). Bollards should also be placed on these medians.

- Improve lighting beneath the elevated railroad on Myrtle Avenue at Greene Avenue and Knickerbocker Avenue

Additional lighting should be considered beneath the elevated railroad at Myrtle Avenue, Greene Avenue and Knickerbocker Avenue. Enhancing the lighting of the crosswalk areas will improve visibility for pedestrians, and make them more visible to motorists.

4.3 ADDITIONAL RECOMMENDATIONS FOR PRIORITY SCHOOL IN THE VICINITY I.S. 383

4.3.1 RECOMMENDATIONS FOR P.S. 116

The following actions are recommended as part of proposed measures to improve student pedestrian safety around P.S. 116, which is a nearby Priority School.

- Install new school crosswalks at the following intersections:

- Irving Avenue and Grove Street – west and north legs
- Myrtle Avenue and Grove Street – west and south legs
- Menahan Street and Myrtle Avenue – south leg

Providing a school crosswalk at these locations will complete a network of contiguous school crosswalks in the immediate vicinity of the school.

- Submit a request to the police department for a crossing guard

It is recommended that a crossing guard be requested for the intersection of Knickerbocker Avenue and Grove Street.

- Install pedestrian ramp

Considerations shall be given to the installation of pedestrian ramps per NYCDOT standards at the following locations:

- Knickerbocker Avenue and Grove Street - northwest corner
- Knickerbocker Avenue and Menahan Street - southwest corner

- Resurface Grove Street, west of Knickerbocker Avenue

It is recommended to resurface and re-grade pavement on Grove Street just west of Knickerbocker Avenue to correct ponding.

- Improve lighting beneath the elevated railroad at Myrtle Avenue, Grove Street and Irving Avenue

Additional lighting should be considered beneath the elevated railroad at Myrtle Avenue, Grove Street and Irving Avenue. This is a complex three-leg intersection with multiple crossings. Enhancing the lighting of the crosswalk areas will improve visibility for pedestrians, and make them more visible to motorists.

- Consider curb extensions at the following intersections

Consideration should be given to installing a curb extension 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.

- Knickerbocker Avenue and Grove Street

- Knickerbocker Avenue and Menahan Street
- Myrtle Avenue and Grove Street
- Myrtle Avenue and Menahan 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.

4.3.2 RECOMMENDATIONS FOR P.S. 86

The following actions are recommended as part of proposed measures to improve student pedestrian safety around P.S. 86, which is a nearby Priority School.

- Submit Request to Police Department for Crossing Guard

There were eighteen accidents at the intersection of Irving Avenue and Greene Avenue during the 1998-2000 study period, three of which were pedestrian accidents. It is recommended that a crossing guard be requested for the intersection of Irving Avenue and Greene Avenue.

- Install new school crosswalks at the following locations:

- Irving Avenue and Himrod Street – south leg
- Irving Avenue and Bleecker Street – south leg
- Irving Avenue and Menahan Street – south leg

The installation of new school crosswalks at these locations will facilitate students walking to P.S. 86 (see Exhibit 8). These intersections are signal controlled.

- Irving Avenue and Harman Street

School officials noted a concern with the high number of trucks turning left from Irving Avenue onto Harman Street. It is therefore recommended that NYCDOT reach out to nearby truck generators to request that their truck drivers be especially careful at school crosswalks and yield to students and other pedestrians. The truck drivers should also be reminded to follow all posted truck routes to the extent required

- Install curb extensions at the following intersections

Consideration should be given to installing a curb extension 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.

- Irving Avenue and Harman Street – southwest corner
- Irving Avenue and Greene Avenue – northwest corner

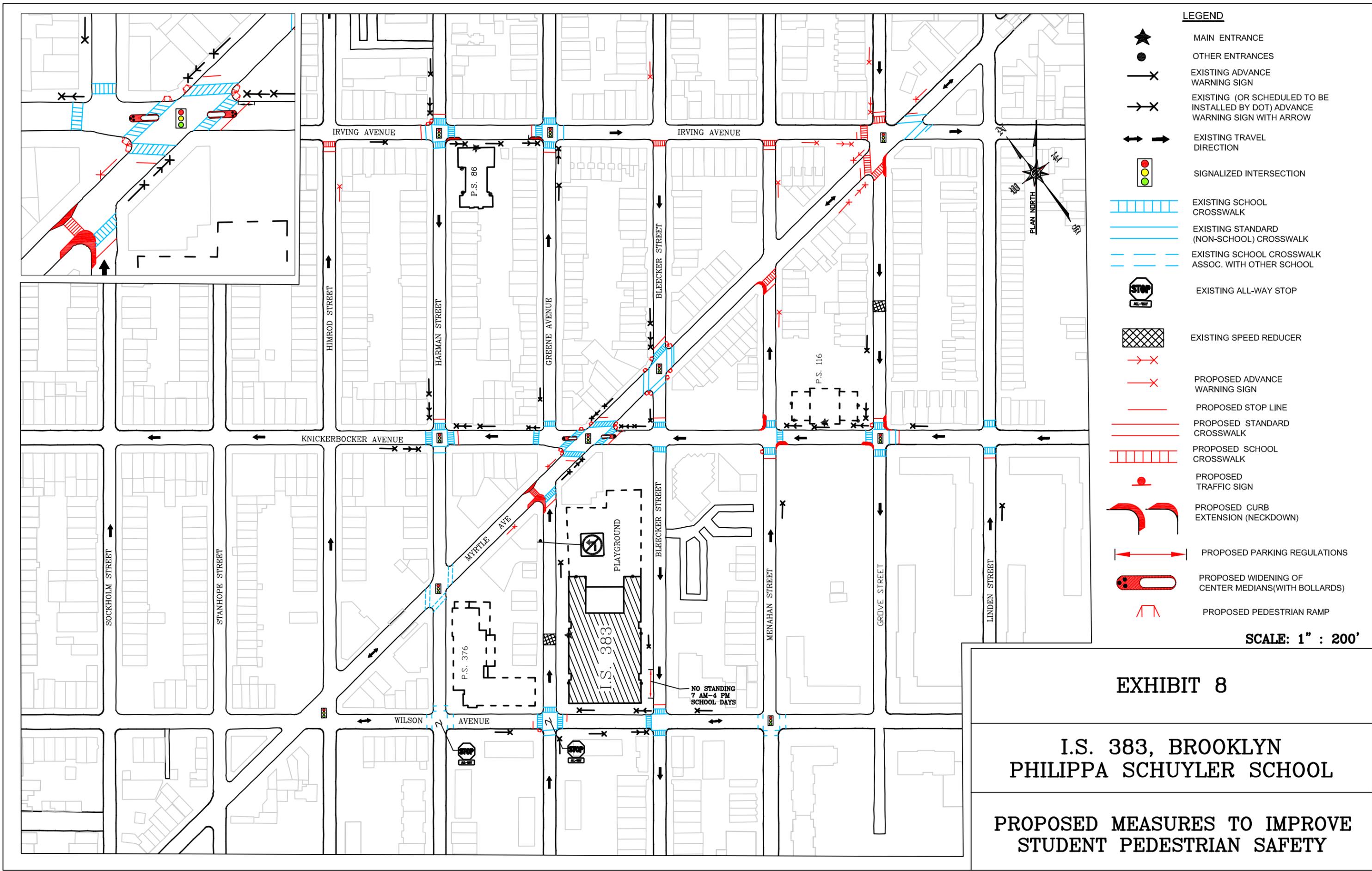
Curb extensions should be installed at the corners as shown in Exhibit 8.

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.

- Installation/replacement of complex pedestrian ramps

Due to the presence of existing traffic signal pole, the installation of pedestrian amps on the northwest corner of Irving Avenue and Harman Street is considered complex. Consideration should be given to the installation of pedestrian ramps per NYCDOT standards at this location.



- LEGEND**
- ★ MAIN ENTRANCE
 - OTHER ENTRANCES
 - X— EXISTING ADVANCE WARNING SIGN
 - X EXISTING (OR SCHEDULED TO BE INSTALLED BY DOT) ADVANCE WARNING SIGN WITH ARROW
 - ↔ EXISTING TRAVEL DIRECTION
 - 🚦 SIGNALIZED INTERSECTION
 - ▬ EXISTING SCHOOL CROSSWALK
 - ▬ EXISTING STANDARD (NON-SCHOOL) CROSSWALK
 - ▬ EXISTING SCHOOL CROSSWALK ASSOC. WITH OTHER SCHOOL
 - 🛑 EXISTING ALL-WAY STOP
 - ▩ EXISTING SPEED REDUCER
 - X PROPOSED ADVANCE WARNING SIGN
 - PROPOSED STOP LINE
 - ▬ PROPOSED STANDARD CROSSWALK
 - ▬ PROPOSED SCHOOL CROSSWALK
 - PROPOSED TRAFFIC SIGN
 - 👉 PROPOSED CURB EXTENSION (NECKDOWN)
 - ↔ PROPOSED PARKING REGULATIONS
 - 🚶 PROPOSED WIDENING OF CENTER MEDIANS(WITH BOLLARDS)
 - ↗ PROPOSED PEDESTRIAN RAMP

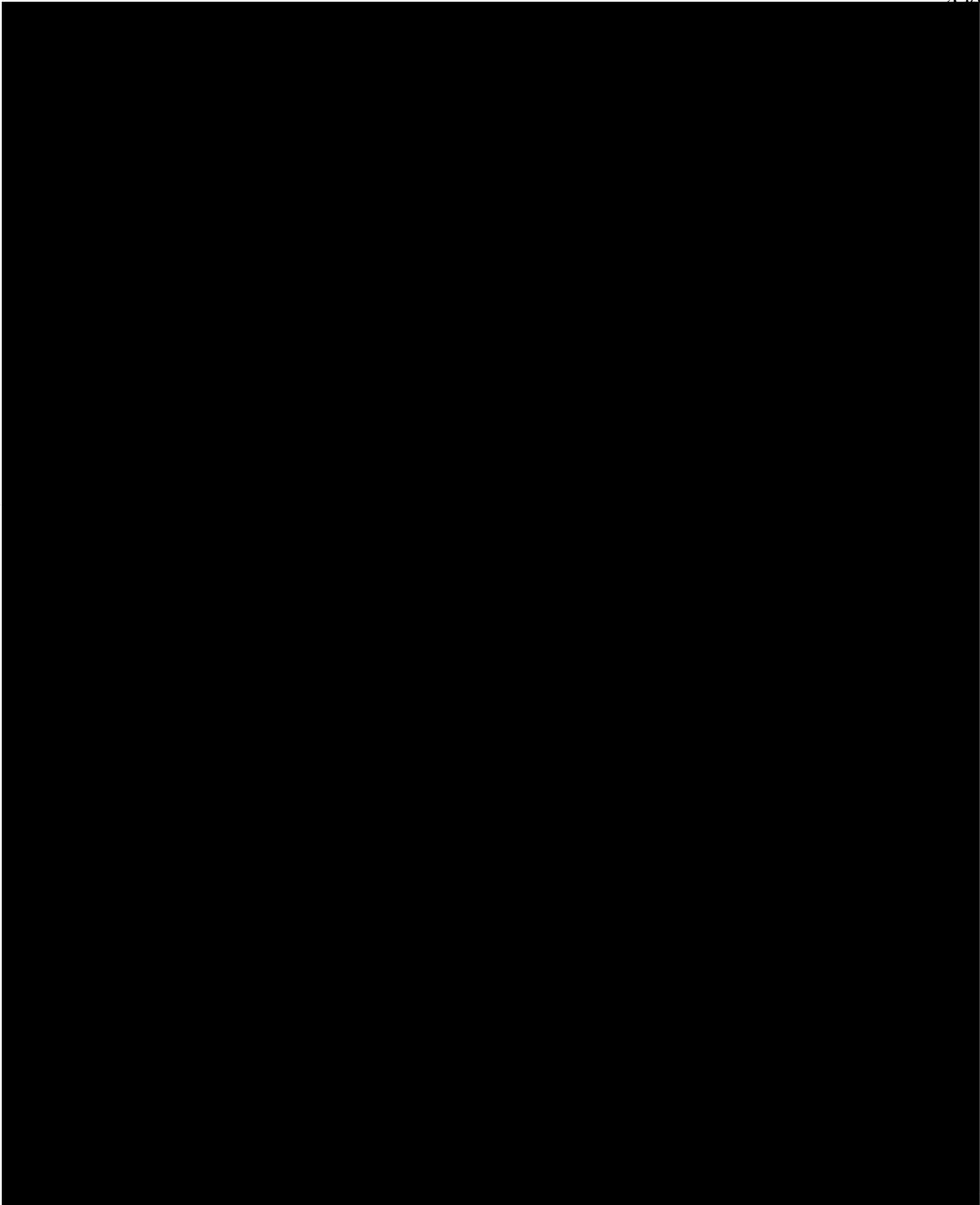
SCALE: 1" : 200'

EXHIBIT 8

**I.S. 383, BROOKLYN
PHILIPPA SCHUYLER SCHOOL**

**PROPOSED MEASURES TO IMPROVE
STUDENT PEDESTRIAN SAFETY**

APPENDIX

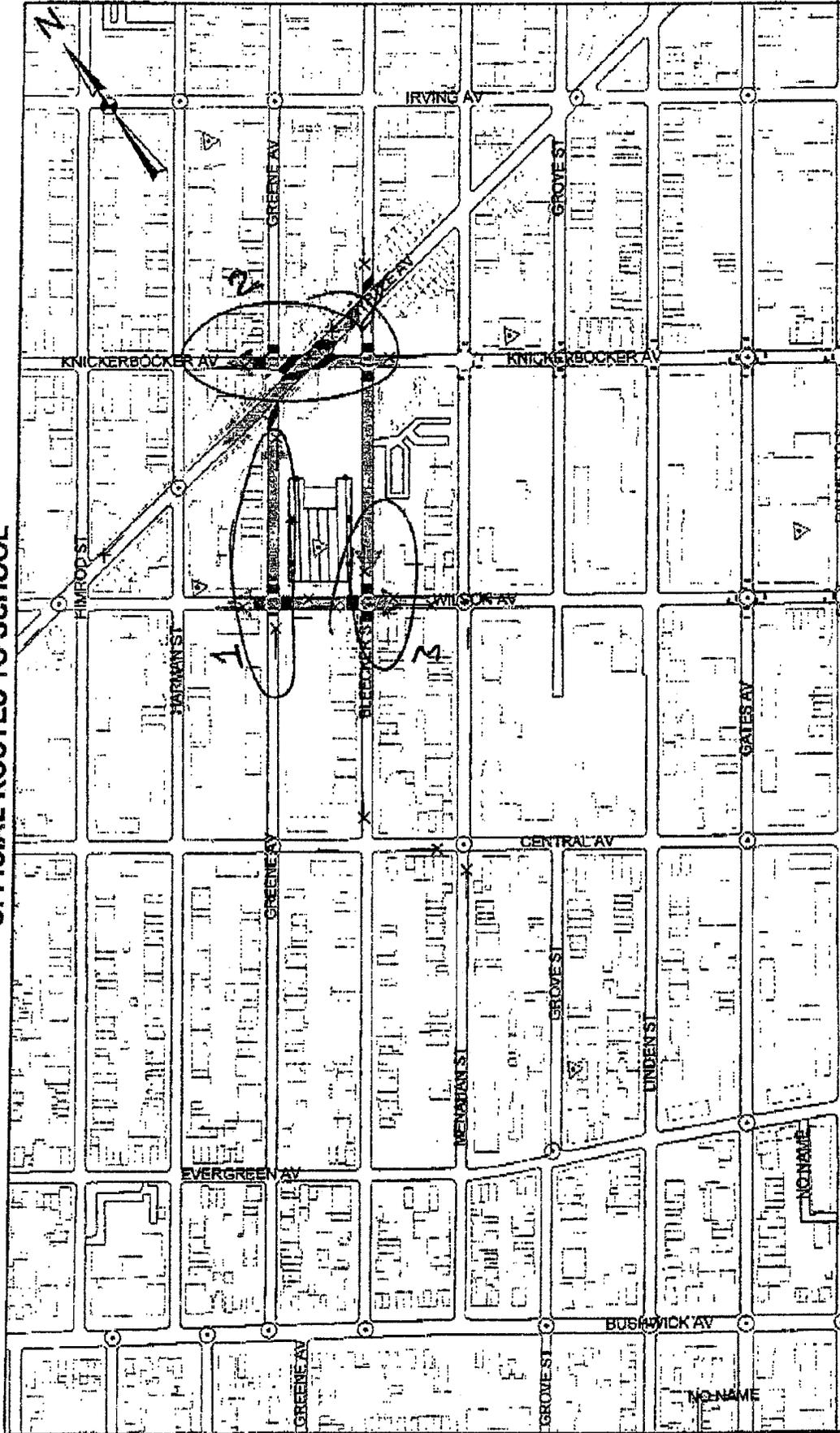


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NEW YORK CITY
DEPT. OF TRANSPORTATION

**TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL**

BUREAU OF TRAFFIC



PHILIPPA SCHUYLER SCHOOL

I.S. 383

Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION,
The Welfare, Commissioner, in cooperation with SCHOOL and
POLICE OFFICIALS.

CRIG. DATE: 1988/1988
DIS. DATE: 01/2002
REVISIONS: MS-0108
DRAWING NO. 4
COM. BOARD: BROOKLYN
BOROUGH: 1
PRECINCT: 83

- LEGEND:**
- TRAFFIC FLOW: [Symbol] TRAFFIC SIGNAL: [Symbol]
 - ROUTE TO SCHOOL: [Symbol] ALL-WAY STOP: [Symbol]
 - ADV. WARNING SIGN: [Symbol] 2-WAY STOP: [Symbol]
 - SCHOOL LOCATION: [Symbol]
 - MAIN SCHOOL ENTRANCE: [Symbol]
 - OTHER SCHOOL ENTRANCES: [Symbol]
 - SCHOOL X-WALK: [Symbol]
 - PEDESTRIAN X-WALK: [Symbol]
 - STOP LINE: [Symbol]
 - X-WALKS ASSOCIATED WITH OTHER SCHOOLS: [Symbol]
 - SPEED HUMP: [Symbol]

The TRAFFIC SAFETY PLAN shown on this map was established to provide the maximum degree of safety for children going to and from school. It is required that all children follow the prescribed routes and use the designated crosswalks.

SPOT SPEED STUDY

Date: **September 07, 2005** Time: **2:30 PM to 3:30 PM**
 Location: **Greene Avenue between Wilson Avenue and Knickerbocker Avenue**
 Surveyor: **Eyad Yousef**

School: **I.S. 383**
 Direction:
 Comments:

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	3	8.6%	8.6%	51	867
18	2	5.7%	14.3%	36	648
19	8	22.9%	37.1%	152	2888
20	3	8.6%	45.7%	60	1200
21	8	22.9%	68.6%	168	3528
22	2	5.7%	74.3%	44	968
23	2	5.7%	80.0%	46	1058
24	4	11.4%	91.4%	96	2304
25	2	5.7%	97.1%	50	1250
26	0	0.0%	97.1%	0	0
27	0	0.0%	97.1%	0	0
28	0	0.0%	97.1%	0	0
29	1	2.9%	100.0%	29	841
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
	35	100.0%		732	15552

Mean Speed = 20.9 mph Median Speed = 20.9 mph
 Standard Deviation = 2.7 mph 15th Percentile Speed = 18.1 mph
 Margin of Error (95% Confidence) = ± 0.9 mph 85th Percentile Speed = 23.7 mph

SPOT SPEED STUDY

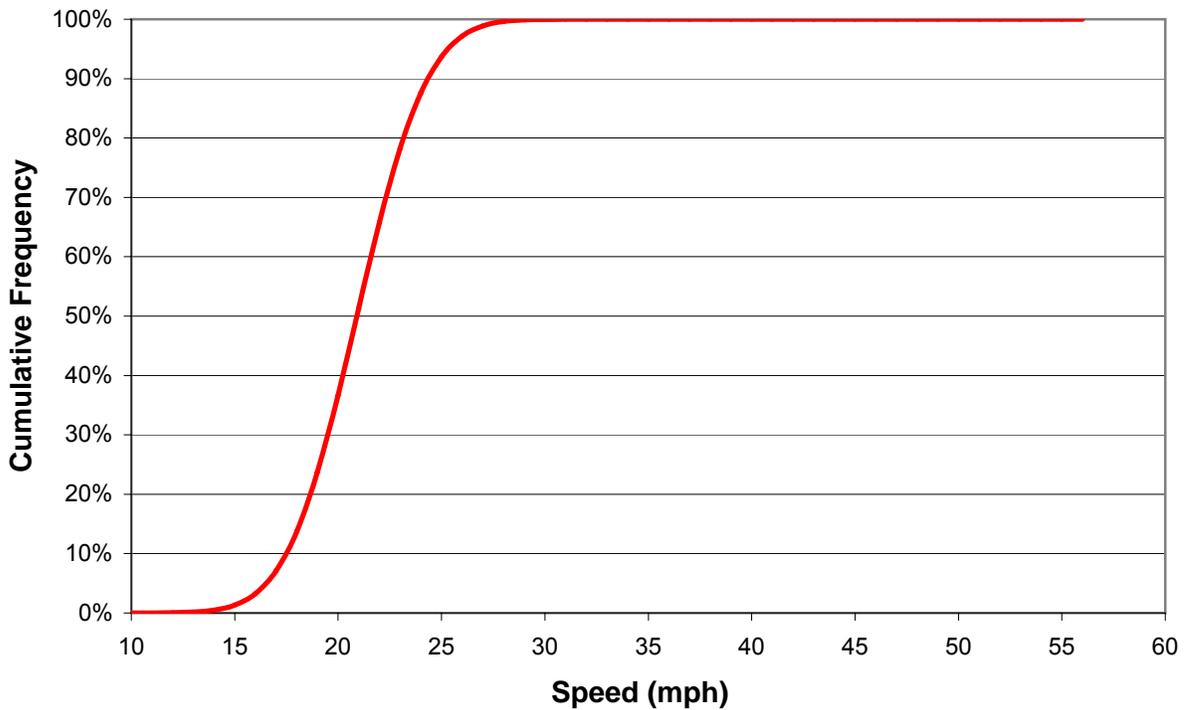
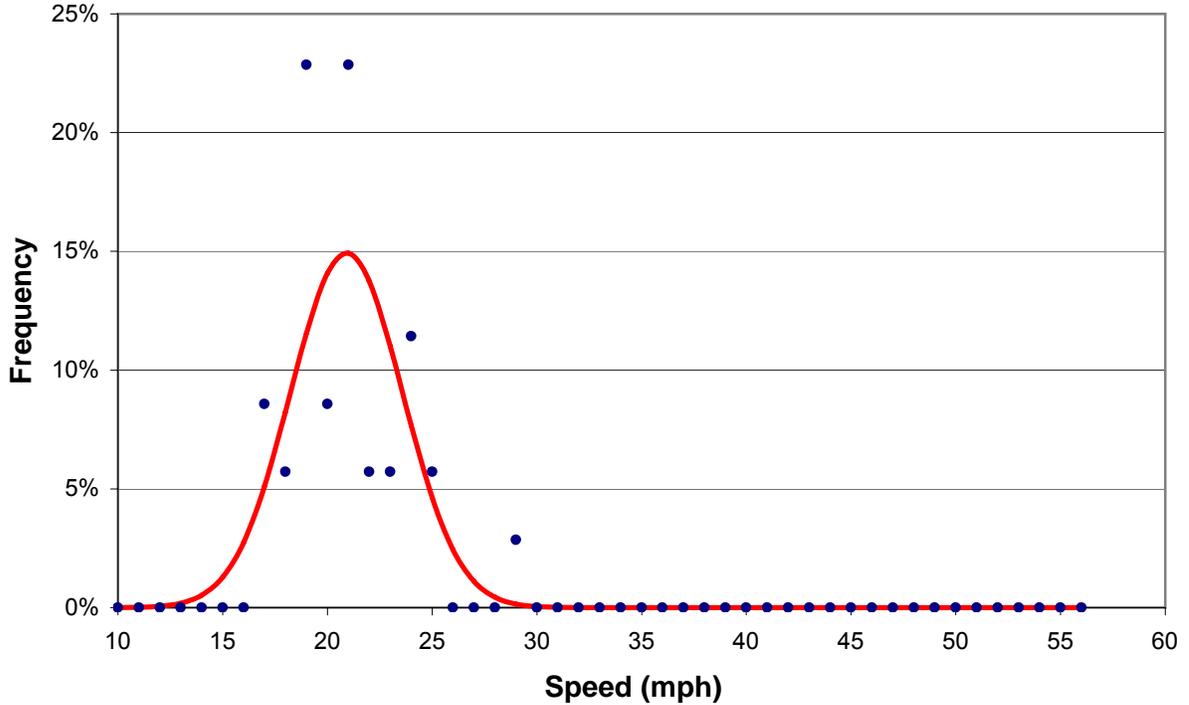
Date: **September 07, 2005**
Location: **Greene Avenue between Wilson Avenue and Knickerbocker Avenue**
Surveyor: **Eyad Yousef**

Time: **2:30 PM to 3:30 PM**

School: **I.S. 383**
Direction:
Comments:

Mean Speed = 20.9 mph
Standard Deviation = 2.7 mph
Margin of Error (95% Confidence) = ± 0.9 mph

Median Speed = 20.9 mph
15th Percentile Speed = 18.1 mph
85th Percentile Speed = 23.7 mph



SPOT SPEED STUDY

Date: **September 07, 2005** Time: **2:30 PM to 3:30 PM**
 Location: **Knickerbocker Avenue between Harman Street and Greene Avenue**
 Surveyor: **Eyad Yousef**

School: **I.S. 383**
 Direction:
 Comments:

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	1	1.5%	1.5%	17	289
18	0	0.0%	1.5%	0	0
19	2	3.1%	4.6%	38	722
20	2	3.1%	7.7%	40	800
21	10	15.4%	23.1%	210	4410
22	6	9.2%	32.3%	132	2904
23	23	35.4%	67.7%	529	12167
24	4	6.2%	73.8%	96	2304
25	6	9.2%	83.1%	150	3750
26	2	3.1%	86.2%	52	1352
27	3	4.6%	90.8%	81	2187
28	1	1.5%	92.3%	28	784
29	0	0.0%	92.3%	0	0
30	1	1.5%	93.8%	30	900
31	0	0.0%	93.8%	0	0
32	3	4.6%	98.5%	96	3072
33	0	0.0%	98.5%	0	0
34	1	1.5%	100.0%	34	1156
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
	65	100.0%		1533	36797

Mean Speed = 23.6 mph Median Speed = 23.6 mph
 Standard Deviation = 3.2 mph 15th Percentile Speed = 20.3 mph
 Margin of Error (95% Confidence) = ± 0.8 mph 85th Percentile Speed = 26.9 mph

SPOT SPEED STUDY

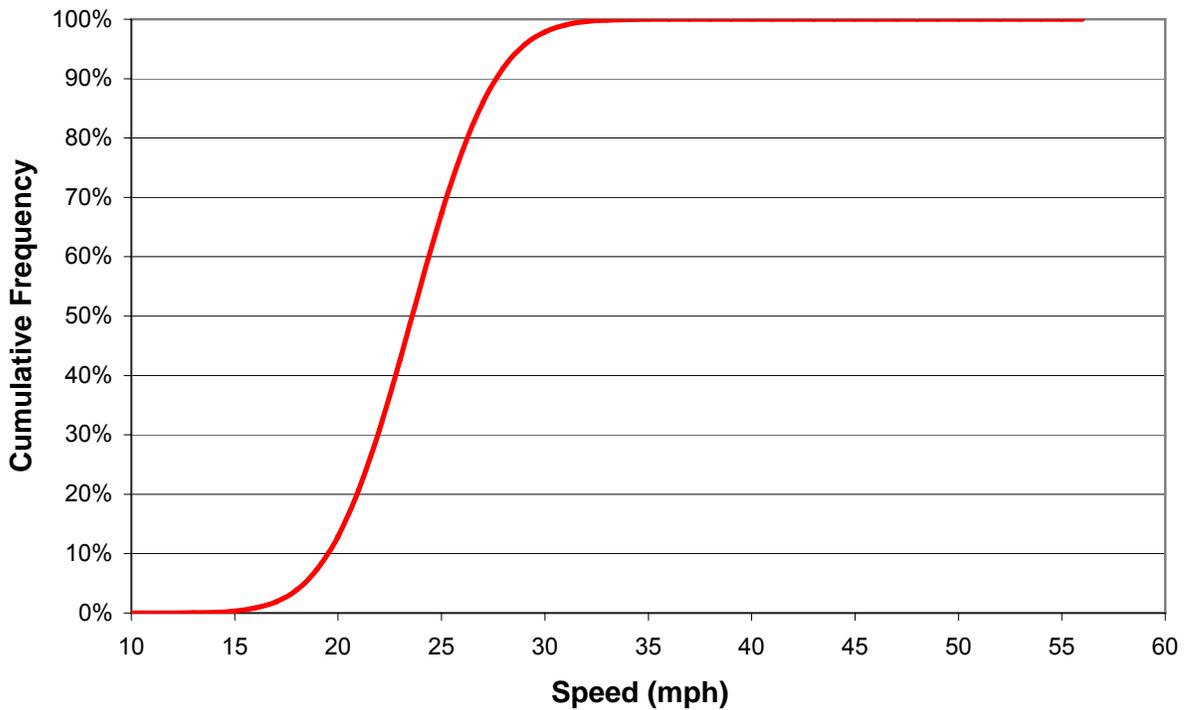
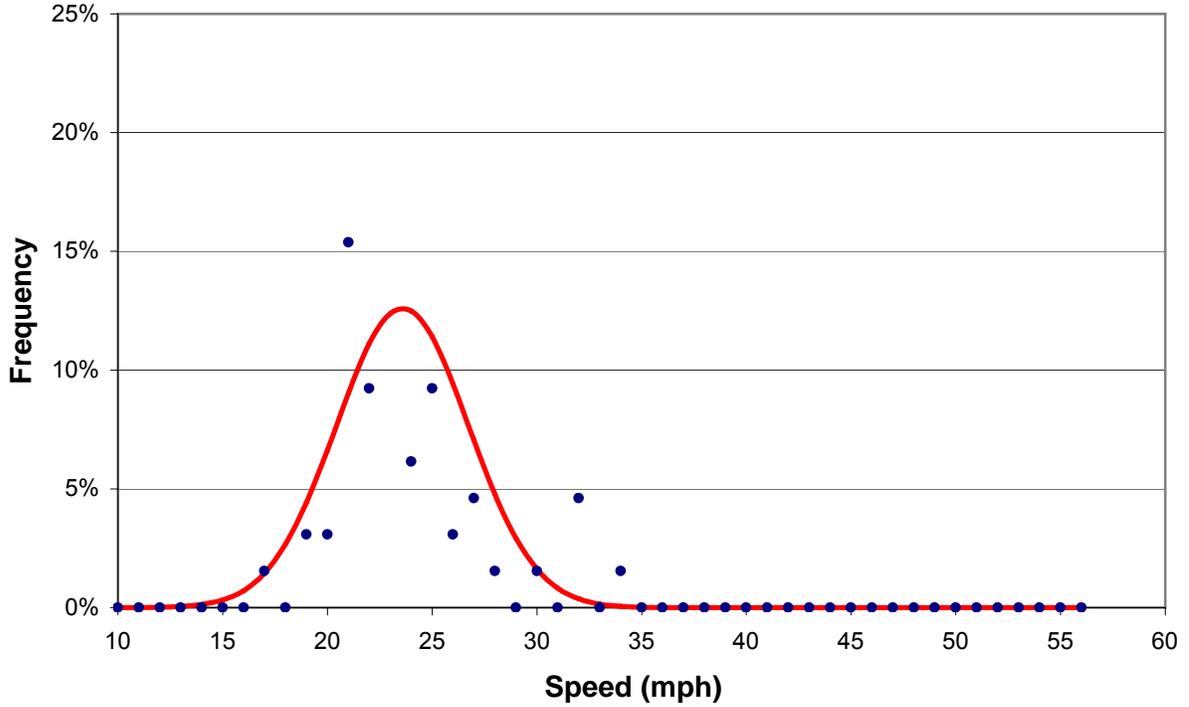
Date: **September 07, 2005**
Location: **Knickerbocker Avenue between Harman Street and Greene Avenue**
Surveyor: **Eyad Yousef**

Time: **2:30 PM to 3:30 PM**

School: **I.S. 383**
Direction:
Comments:

Mean Speed = 23.6 mph
Standard Deviation = 3.2 mph
Margin of Error (95% Confidence) = ± 0.8 mph

Median Speed = 23.6 mph
15th Percentile Speed = 20.3 mph
85th Percentile Speed = 26.9 mph



14'

14'

SCHOOL SAFETY ENGINEERING PROJECT

School: _____
Location: Bleeker St (Nelson Ave)

Date: 7/27/06
Time: 9:30 AM - 10:30 AM

	Gap Time	Veh #		Gap Time	Veh #		Gap Time	Veh #
1			41					
2			42					81
3			43		1x2			82
4			44		1x3			83
5					1x3			84
6			45					85
7			46					86
8			47					87
9			48					88
10			49					89
11			50					90
12			51		1x3			91
13			52					92
14		3	53					93
15		4	54		1x3			94
16		4	55		1x3			95
17		5	56		1x3			96
18		2	57					97
19		3	58		1x4			98
20		2	59					99
21		2	60		1x4			100
22		2	61					101
23		1	62					102
24		2	63		1x4			103
25			64		2x4			104
26			65		1x4			105
27		1	66					106
28		2	67					107
29		2	68		1x4			108
30		1x2=2	69					109
31		1x2=2	70					110
32		2x2=4	71					111
33			72					112
34		1x2=2	73					113
35			74					114
36			75		1x5			115
37		1x2=2	76					116
38			77					117
39		1x2=2	78					118
40		1x2=2	79					119
			80		1x5			120

(45)

(54) 140-1
135-1

10