

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



**School Safety Engineering Project
FINAL: P.S 299 (Thomas Warren Field School), Brooklyn**



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



OCTOBER 27, 2006



School Safety Engineering Project
P.S. 299, Thomas Warren Field School, 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 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. P.S. 299, Thomas Warren Field School in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

2.2 NEIGHBORHOOD DESCRIPTION

P.S. 299 is located at 88 Woodbine Street, occupying a half city block between Evergreen Avenue and Bushwick Avenue (Exhibit 1, Aerial Photograph and Exhibit 2, Catchment Area). The school's main entrance is on Evergreen Avenue.

The immediate neighborhood surrounding the school is residential with mixed use commercial. Grocery stores, churches and many multi-floor apartment buildings are located in the vicinity of P.S. 299. Woodbine Street, Evergreen Avenue and Madison Street are primarily residential roadways (Figure 1). Bushwick Avenue is a mixed-use commercial and residential. Broadway is a dense commercial roadway, with elevated subway tracks.

There are two bus routes operating in the vicinity of the school, the Q24 along Broadway and the B52 along Gates Avenue. In addition, there is a subway station located on Broadway at Gates Avenue, four blocks away from P.S. 299.



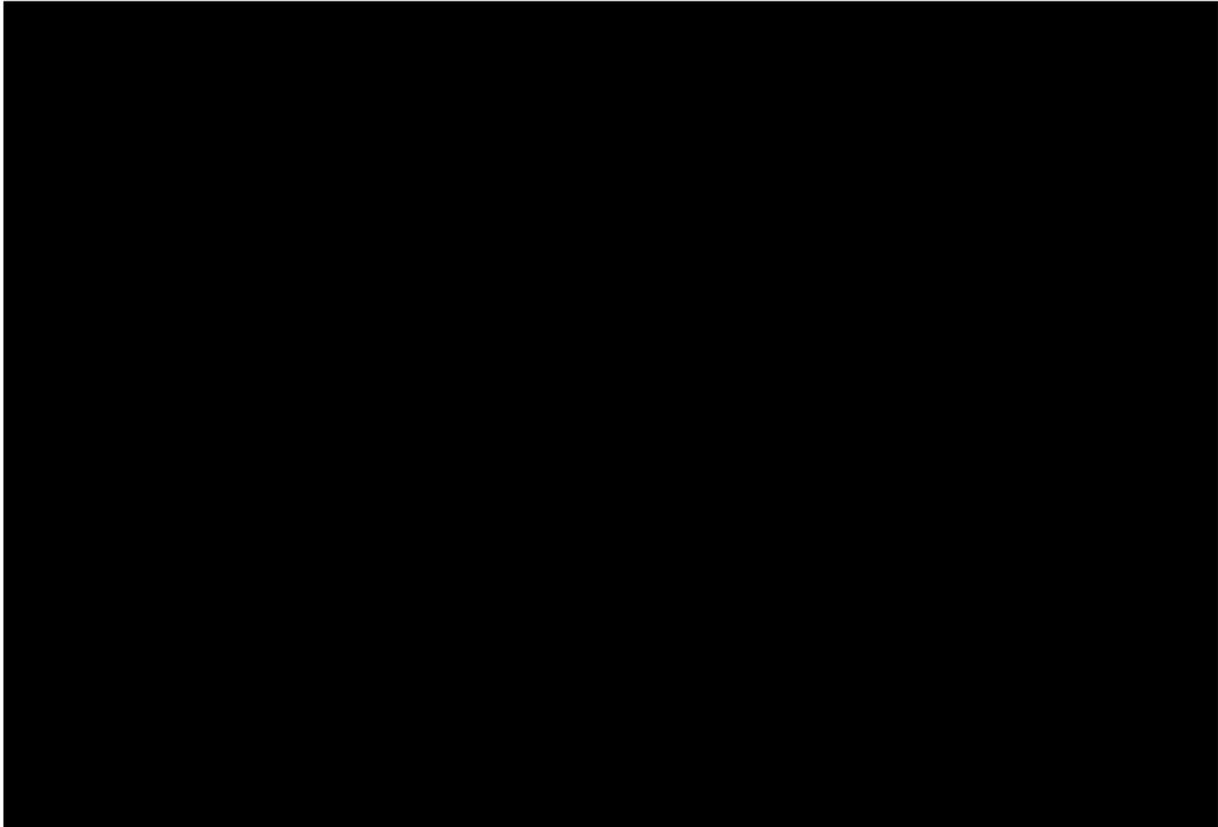
Figure 1: Looking south on Evergreen Avenue from Woodbine Street, Brooklyn

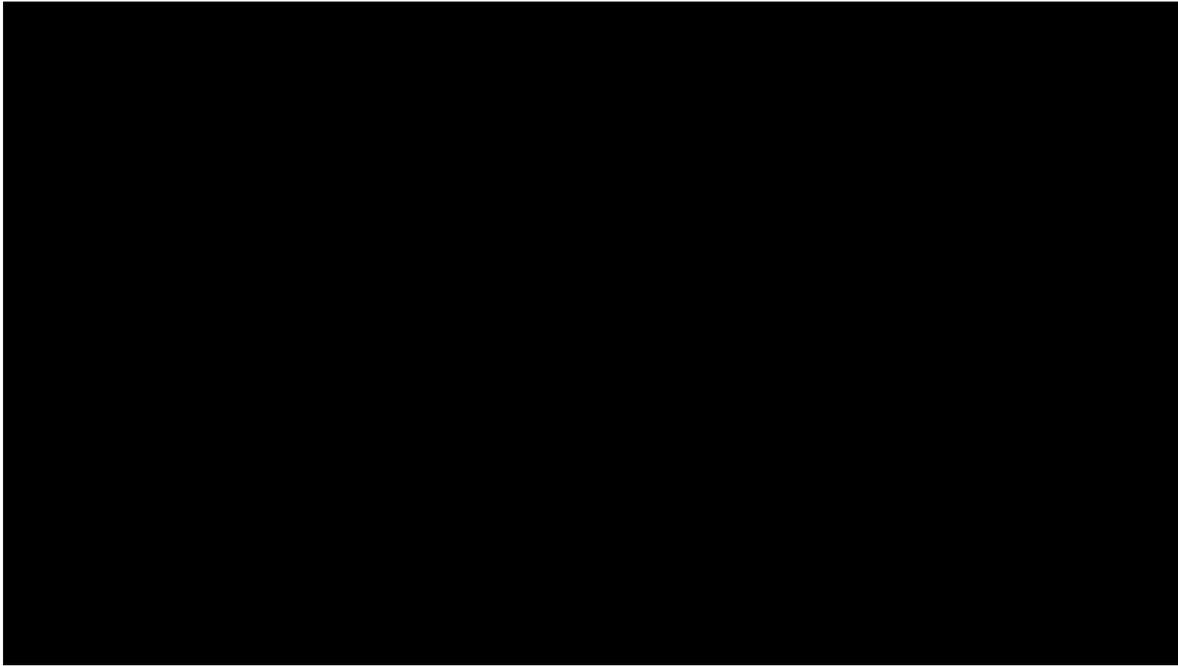
2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant team, parent coordinator, assistant principal and the principal of P.S. 299 met at the school on the morning of June 11th, 2004 (see the Appendix for a list of attendees).

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

- An uncontrolled school crosswalk at Evergreen Avenue and Woodbine Street
- Need for crossing guard at Evergreen Avenue and Woodbine Street
- Vehicles speeding on Woodbine Street
- Students crossing mid-block on Evergreen Avenue
- Need for school buses equipped with left hand side exit door

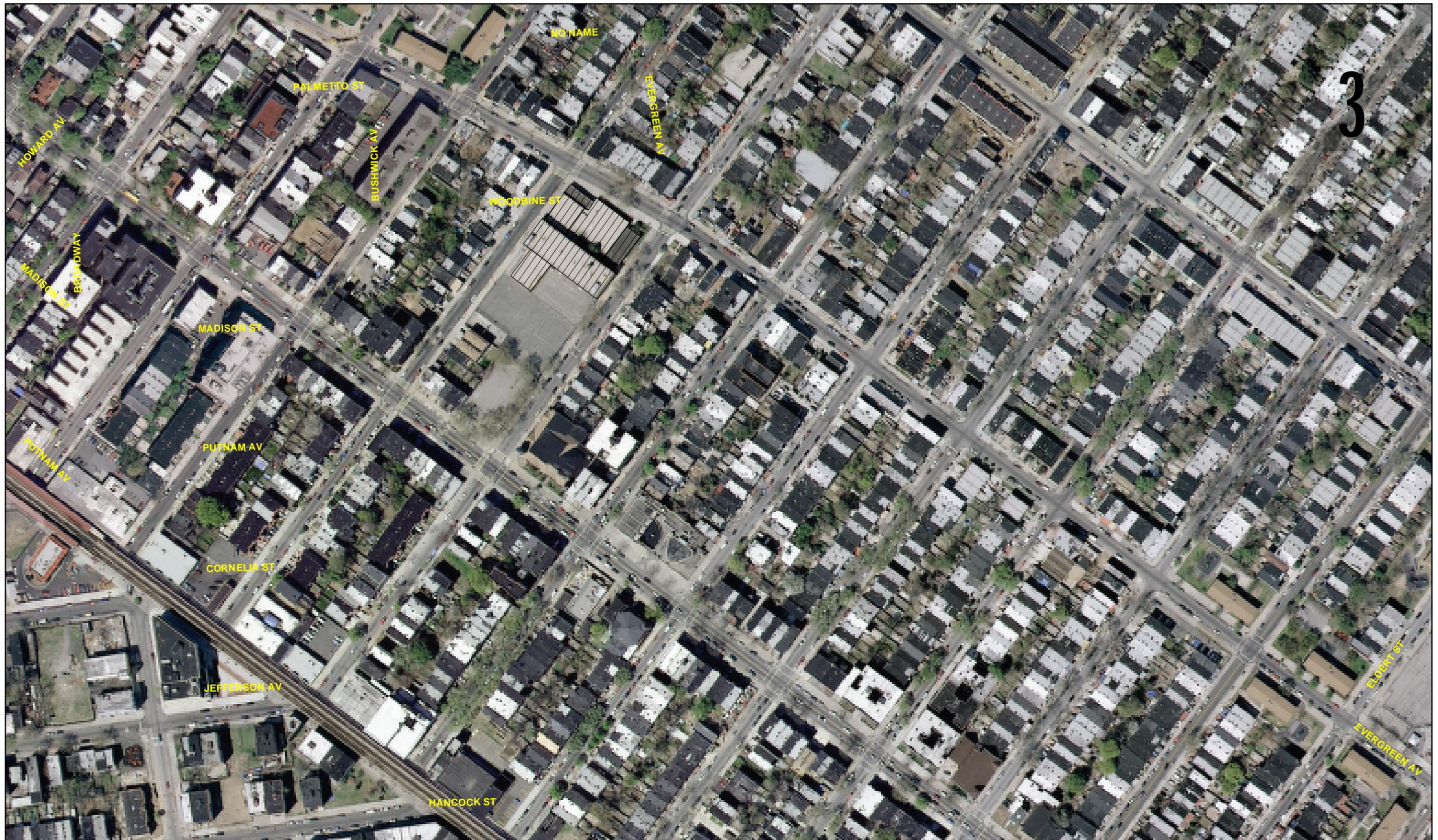




2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to the principal, approximately 74% of students walk to P.S. 299, 10% are driven by a parent or a guardian, 8% utilize public transportation and the remaining 8% of students arrive by school bus. 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	74%
Driven by parents or guardians	10%
School bus	8%
MTA bus or subway	8%
TOTAL	100%



1 inch equals 200 feet

EXHIBIT 1
THOMAS W. FIELD SCHOOL
P.S. 299, BROOKLYN
AERIAL PHOTOGRAPH



1 inch equals 400 feet

 CATCHMENT AREA

EXHIBIT 2
THOMAS W. FIELD SCHOOL
P.S. 299, BROOKLYN
CATCHMENT AREA

2.7 ADDITIOANL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are three public schools located in the vicinity of P.S. 299. P.S. 106 is situated on Putnam Avenue between Knickerbocker Avenue and Wilson Avenue, three blocks away from P.S. 299. P.S. 377 is one block northeast of P.S. 299. J.H.S. 291 is three blocks northeast of P.S. 299. P.S.106 and J.H.S. 291 are also priority schools.

The grocery store at Evergreen Avenue and Madison Street is popular with the students of P.S. 299. A subway station servicing the J and Z lines is located at Broadway and Gates Avenue, three blocks away from the school. In addition, the Q24 bus line operates along Broadway, and the B52 bus line operates along Gates Avenue.

2.8 CROSSING GUARD LOCATIONS

According to field observations, there are two crossing guards assigned to P.S. 299. They are stationed at the following intersections:

- Evergreen Avenue and Madison Street
- Bushwick Avenue and Madison Street

According to discussions with the crossing guards, another crossing guard is sometimes present at Bushwick Avenue and Woodbine Street. See Exhibit 4 for a map of crossing guard locations.



Figure 3: School crossing guard at Madison Street and Evergreen Avenue



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	

**PS 299 Brooklyn
THOMAS W. FIELD SCHOOL**

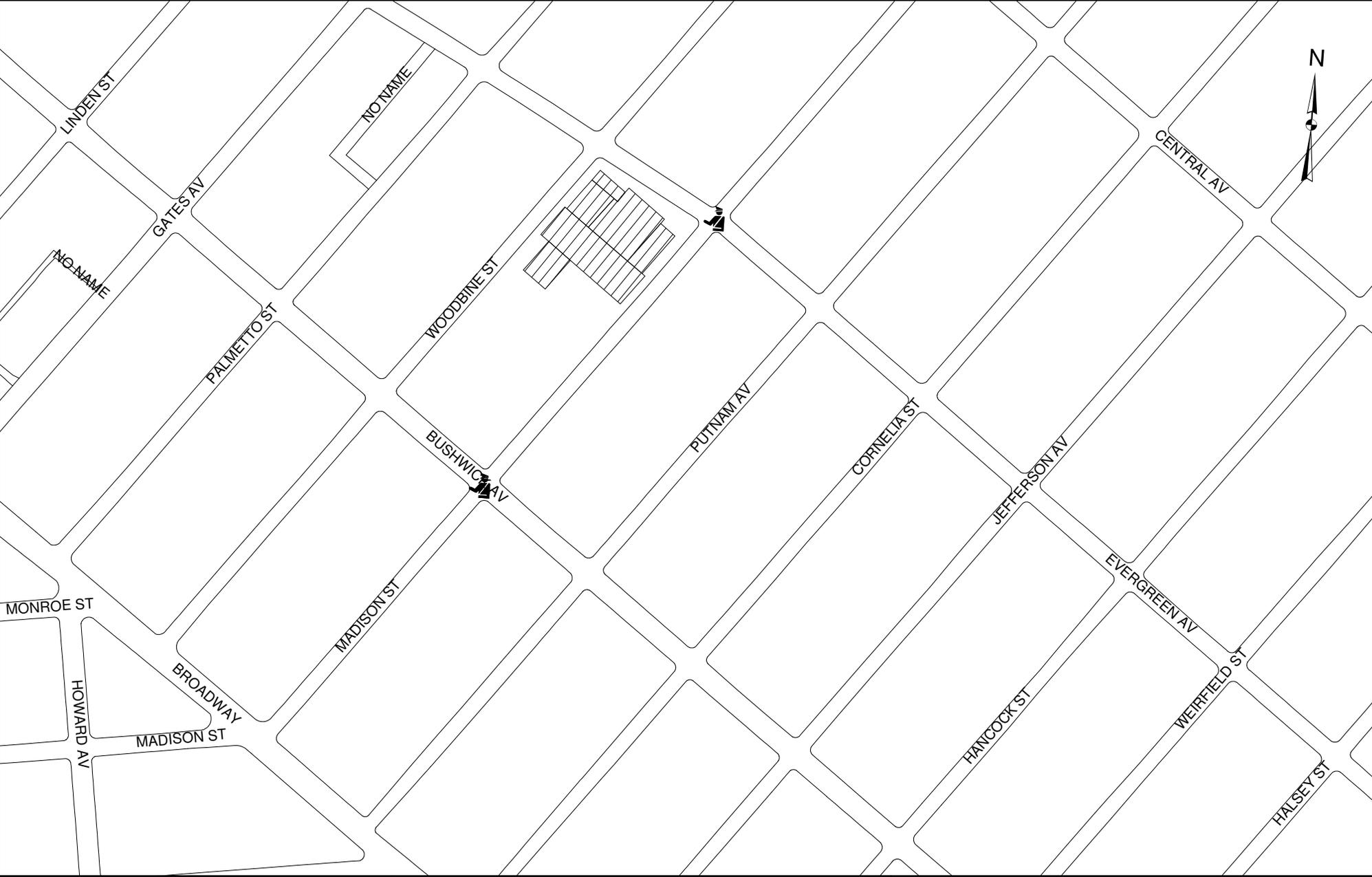
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinshall, COMMISSIONER.

Map created on 11/16/2006

EXHIBIT 3

1.5.1

COMM. BOARD:	304
PRECINCT:	83



1 inch equals 250 feet



CROSSING GUARD ASSIGNED TO P.S. 299

EXHIBIT 4

**THOMAS W. FIELD SCHOOL
P.S. 299, BROOKLYN**

CROSSING GUARD

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the principal, six school buses transport approximately 40 special education students to and from school. At arrival time, school buses were observed unloading students on Evergreen Avenue, within the No Parking Zone in front of the school. Buses were also observed unloading students on Woodbine Street and parking within the school crosswalk due to lack of curbside parking space (Figure 4).

At dismissal time, buses pick up schoolchildren on Evergreen Avenue in front of the school's main entrance. Students are dismissed 10 minutes early and are lined up at the curb prior to the bus arrival.

According to observations taken at the school, students generally were dropped off at the curb. However, it was observed that there were buses without a door on the left side, requiring students to exit the bus into the moving lane of traffic on Evergreen Avenue or Woodbine Street. Students always exited the bus with adult supervision.



Figure 4: School bus stopping within crosswalk on Woodbine Street, during arrival time

3.2 PARENT DROP-OFF OPERATIONS

The principal indicated that approximately ten percent of P.S. 299 students are driven to and from school by parents or guardians. Field observations verified that approximately 50 vehicles dropped off students at P.S. 299 during arrival time.

Most parents were observed parking on Evergreen Avenue and walking their child into the school. Parents park or double-park, depending on traffic conditions.

Parents were also observed dropping off students on Woodbine Avenue. Due to the narrow width of Woodbine Avenue which has parking on both sides, parents who stop to allow students to exit a vehicle block moving traffic. The queue formed sometimes extends back to the intersection of Evergreen Avenue and Woodbine Street (Figure 5).



Figure 5: Parents drop off students on Woodbine Street

3.3 PARKING REGULATIONS

“NO PARKING 7:00 AM – 4:00 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION” parking regulations are posted on Woodbine Street.

“NO PARKING SCHOOL DAYS 7:00 AM – 4:00 PM” parking regulations are posted in front of the school on Evergreen Avenue and Madison Street (Figure 6).

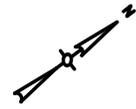
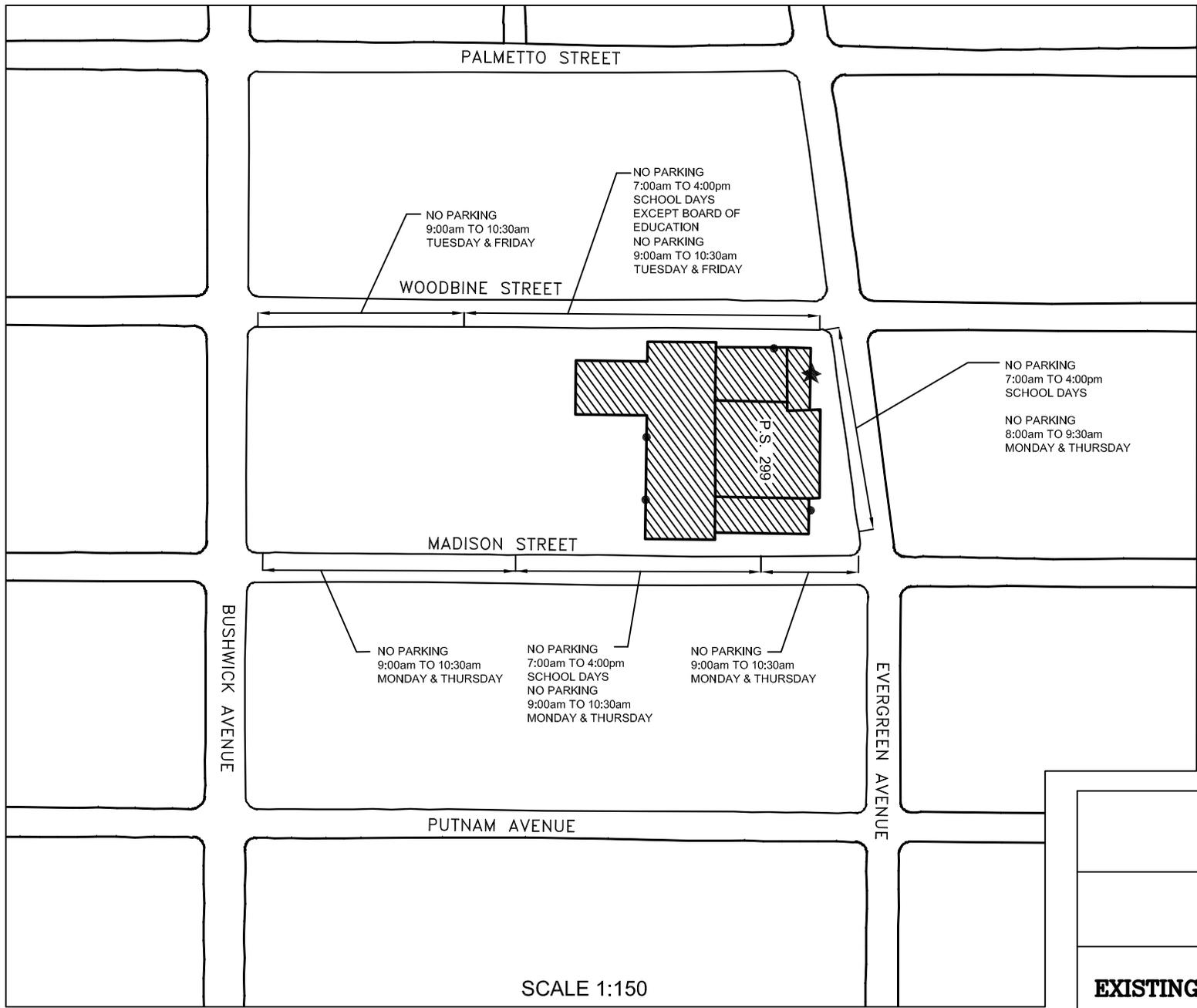
Alternate side street parking regulations are in effect 8:00 am – 9:30 am or 9:00 am – 10:30 am on the roadways surrounding the school. See Exhibit 5 for existing parking regulations.



Figure 6: Parking regulations on Evergreen Avenue in front of P.S. 299

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 3, shows existing signals and school crosswalk pavement markings. 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.



LEGEND

- ★ MAIN ENTRANCE
- ENTRANCE

EXHIBIT 5

P.S. 299

EXISTING PARKING REGULATIONS

SCALE 1:150

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 P.S. 299 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.

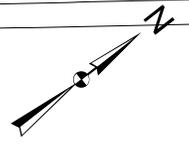
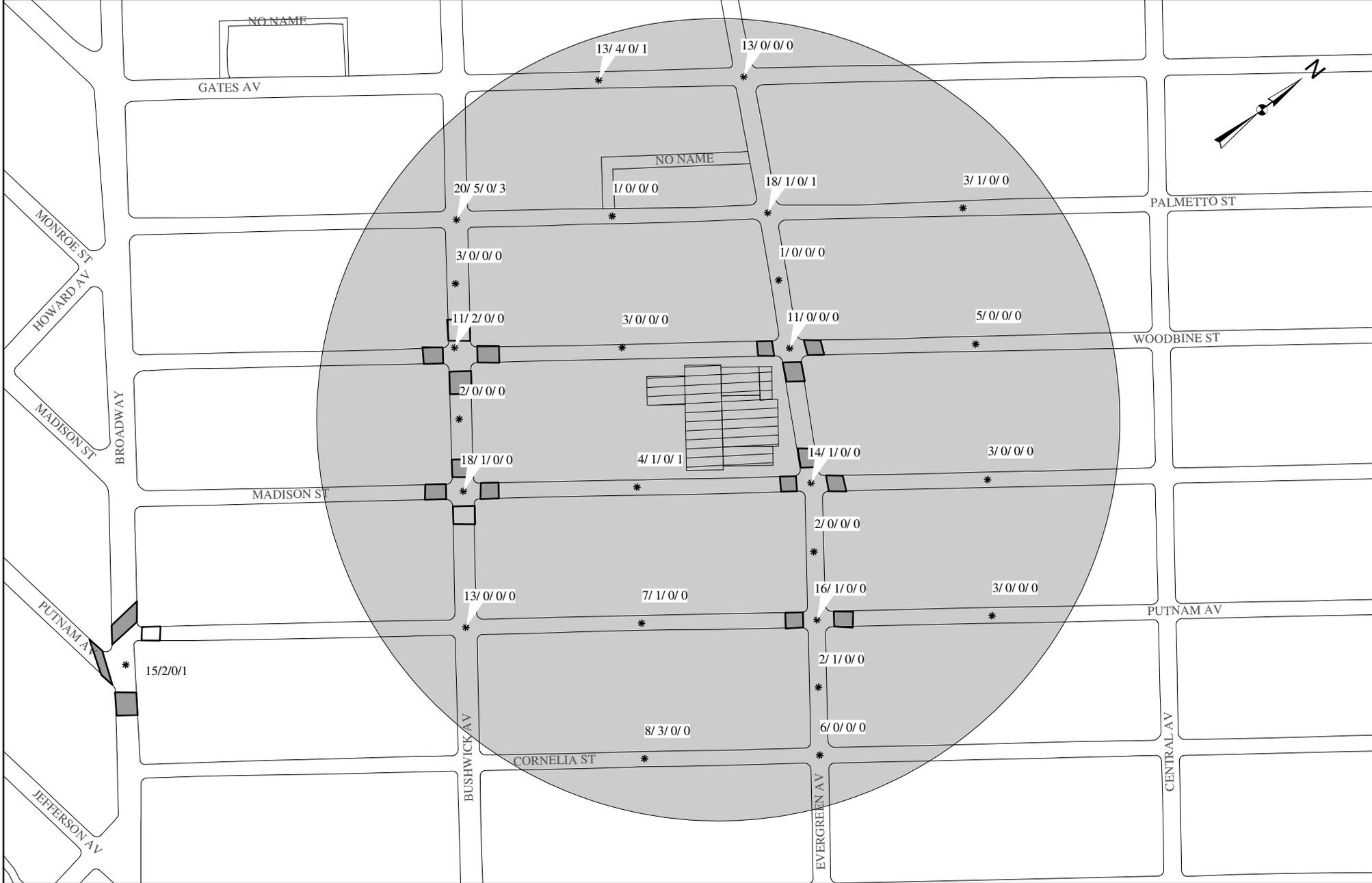
This report targets intersections closest to the school where the highest concentrations of student pedestrians occur. Intersections that are farther from the school and locations for which detailed data was not available at the time of this study will be addressed with DOT's School Safety Engineering 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*
Evergreen Avenue and Madison Street	14	1	0	0
Bushwick Avenue and Madison Street	18	1	0	0
Evergreen Avenue and Woodbine Street	11	0	0	0
Bushwick Avenue and Woodbine Street	11	2	0	0
Evergreen Avenue and Putnam Avenue	16	1	0	0
Broadway and Putnam Avenue	15	2	0	1
Evergreen Avenue and Palmetto Street	18	1	0	1
Bushwick Avenue and Palmetto Street	20	5	0	3
TOTAL	123	13	0	5

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Evergreen Avenue and Madison Street	14	2	0	0
Bushwick Avenue and Madison Street	21	1	0	0
Evergreen Avenue and Woodbine Street	12	3	0	2
Bushwick Avenue and Woodbine Street	30	2	0	0
Evergreen Avenue and Putnam Avenue	8	0	0	0
Broadway and Putnam Avenue	26	3	0	1
Evergreen Avenue and Palmetto Street	20	3	0	0
Bushwick Avenue and Palmetto Street **	34	5	0	N/A**
TOTAL	165	19	0	3

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

** NYPD data did not provide pedestrian age or accident time



ACCIDENT LOCATION *
 SCHOOL CROSSWALK ASSIGNED TO P.S. 299
 SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
 CROSSWALK

1 inch equals 250 feet

X/X/X/X

TOTAL ACCIDENTS	PED ACCIDENTS	PED FATAL	SCHOOL_PED ACCIDENTS
X	X	X	X

EXHIBIT 6
P.S. 299, BROOKLYN
THOMAS W. FIELD SCHOOL
ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accident and operational issues in the vicinity of P.S. 299:

3.6.1 Evergreen Avenue and Madison Street

Evergreen Avenue is a 34-foot wide, one-way northbound street with one moving lane and parking on both sides of the roadway. Madison Street is a 30-foot wide, one-way eastbound street with one moving lane and parking on both sides of the roadway (Figure 7). Evergreen Avenue and Madison Street is a signalized intersection with school crosswalks in place on the north, east and west legs.

A speed reducer (hump) is installed on Madison Street between Evergreen Avenue and Bushwick Avenue, adjacent to the schoolyard (Figure 8).



Figure 7: looking west on Madison Street, at Madison Street and Evergreen Avenue

The safety on Evergreen Avenue in front of the school's main entrance is one major concern of the school. The principal also noted that parents and students cross at mid-block locations on Evergreen Avenue.

A spot speed study was conducted on Evergreen Avenue between Woodbine Street and Madison Street on Thursday, June 30, 2005 between 3:45 pm – 4:45 pm. Spot speed studies indicated that the 85th percentile speed is approximately equal to the statutory speed limit of 30 mph. See Table 4 for a summary of the results and the Appendix for further detail.

Installation of a speed reducer (hump) was considered on Evergreen Avenue. However, Evergreen Avenue between Woodbine Street and Madison Street is only 200 feet long, and therefore does not meet NYCDOT criteria for installation of a speed reducer (hump). Alternative measures to improve student pedestrian safety are discussed in Section 4.



Figure 8: looking east on Madison Street, a speed reducer (hump)

There were fourteen accidents at this intersection during the 1998-2000 study period. One accident involved a non-school age pedestrian. A 36-year old pedestrian was crossing outside of the crosswalk when struck.

A six-year-old student was struck while crossing mid-block on Madison Street between Evergreen Avenue and Bushwick Avenue.

TABLE 4: SPOT SPEED STUDY		
(Thursday, June 30, 2005)		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Evergreen Avenue between Woodbine Street and Madison Avenue	27	30

3.6.2 Bushwick Avenue and Madison Street

Bushwick Avenue is a 40-foot wide, two-way street with one moving lane in each direction and parking on both sides (Figure 9). Parking lanes on both sides are utilized as moving lanes at morning rush hours (7 am - 10 am). Bushwick Avenue and Madison Street is a signalized intersection with school crosswalks in place on the north, east and west legs.

There were eighteen accidents at this intersection during the 1998-2000 study period. One accident involved a 10-year-old pedestrian, who was crossing the street against the signal when struck. This pedestrian accident was not classified as school related, since it occurred out of school time.



Figure 9: looking north on Bushwick Avenue, at Madison Street and Bushwick Avenue

There are substandard pedestrian ramps at the northwest and southwest corners. The crossing guard indicated that vehicles do not yield to pedestrians and student pedestrians have difficulty crossing at this intersection.

3.6.3 Evergreen Avenue and Woodbine Street

Evergreen Avenue and Woodbine Street is un-signalized intersection with stop controls on Woodbine Street for westbound traffic. Woodbine Street is a 30-foot wide, one-way westbound street with one moving lane and parking on both sides of the street (Figure 10). There are school crosswalks on the east, west and south legs. The school crosswalk on the south leg is uncontrolled.



Figure 10: looking west on Woodbine Street, at Woodbine Street and Evergreen Avenue

A one-hour traffic count was performed on Tuesday, June 7, 2005 from 7:30 am to 8:30 am to determine traffic conditions at this intersection (Exhibit 7). The results indicated that approximately 75 pedestrians crossed the south leg, which is currently an uncontrolled school crosswalk. In addition, 41 pedestrians crossed the north leg, where no crosswalk is installed. 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 at an intersection during an average day is 190 or more during any one hour. Therefore existing conditions do not meet the criteria for signaling the intersection at this time.

The school principal indicated that vehicles were speeding on Woodbine Street in the vicinity of the school. A spot speed study was conducted on Woodbine Street between Bushwick Avenue and Evergreen Avenue on Tuesday, June 30, 2005 between 3:45 pm – 4:45 pm. Spot speed studies showed that the 85th percentile speed was 26 mph, which is below the statutory speed limit of 30 mph. See Table 5 for a summary of the results and the Appendix for further detail.

TABLE 5: SPOT SPEED STUDY		
(Thursday, June 30, 2005)		
LOCATION	MEDIAN SPEED (MPH)	85 TH PERCENTILE SPEED (MPH)
Woodbine Street between Bushwick Avenue and Evergreen Avenue	24	26

There were eleven accidents at this location during the 1998-2000 study period. None of them were pedestrian accidents or school related accidents.

3.6.4 Bushwick Avenue and Woodbine Street

Bushwick Avenue and Woodbine Street is a signalized intersection with school crosswalks on the east, west and south legs.

The pedestrian ramp at the northeast corner does not line up with the pedestrian crosswalk due to the presence of a signal pole (Figure 11). The crossing guard indicated that vehicles do not yield to pedestrians and that student pedestrians have difficulty crossing at this intersection.



Figure 11: looking east on Woodbine Street, at Woodbine Street and Bushwick Avenue

There were eleven accidents at this location during the 1998-2000 study period. Two accidents involved pedestrians, none of which were school-related. A pedestrian was struck while getting out of a vehicle. This accident was attributed to driver inattention. The second pedestrian was struck while crossing against the signal.

3.6.5 Evergreen Avenue and Putnam Avenue

Evergreen Avenue and Putnam Avenue is an all-way stop controlled intersection. Putnam Avenue is a 30-foot wide, one-way westbound street with one moving lane and parking on both sides. There are school crosswalks on the east and west legs of the intersection (Figure 12).

There were sixteen accidents at this location during the 1998-2000 study period. One accident involved a non-school related pedestrian, who was struck by a vehicle making a left turn.



Figure 12: looking west on Putnam Avenue, at Evergreen Avenue and Putnam Avenue

3.6.6 Broadway and Putnam Avenue

Broadway and Putnam Avenue is a signalized intersection. Broadway is a 48-foot wide, two-way roadway with one moving lane in each direction and parking on both sides of the street. There are overhead subway tracks along Broadway. Columns for the overhead structure are located on the sidewalks. There are school crosswalks on the north, south and west legs of the intersection. There are no pedestrian ramps at the south leg to cross Broadway (Figure 13 and 14).

This intersection had fifteen accidents during the 1998-2000 study period. Two accidents involved pedestrians, one of which was school-related. A ten-year-old student was struck while crossing outside of the crosswalk. The other pedestrian was struck while crossing against the signal.



Figure 13: looking west on Broadway, at Broadway and Putnam Avenue



Figure 14: looking north on Broadway, at Broadway and Putnam Avenue

3.6.7 Evergreen Avenue and Palmetto Street

Evergreen Avenue and Palmetto Street is an all-way stop controlled intersection. Palmetto Street is a 30-foot wide, one-way eastbound street with one moving lane and parking on both sides. There are pedestrian crosswalks on all four legs of the intersection, none of which are school crosswalks.

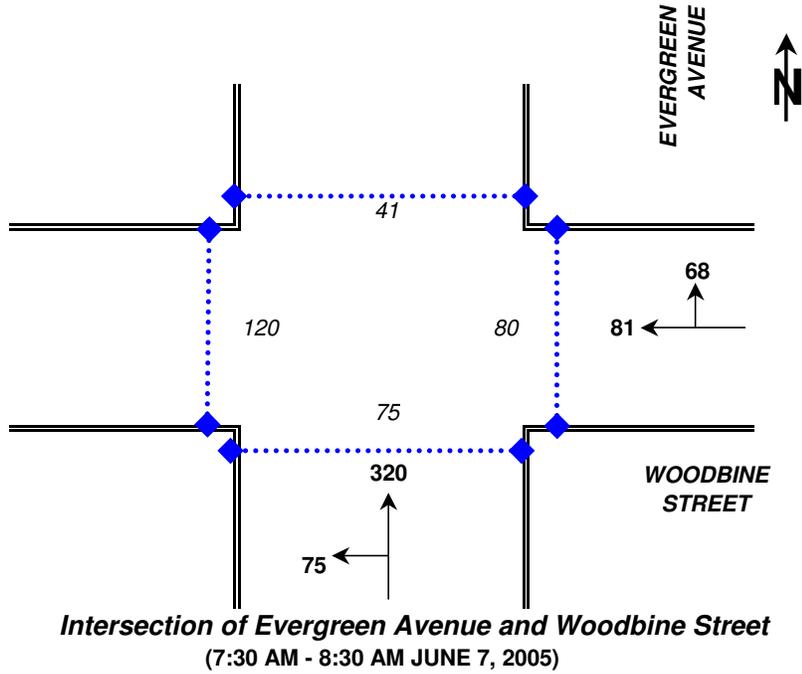
This intersection had eighteen accidents during the 1998-2000 study period, one of which was a school-related pedestrian accident. A five-year-old student was struck while crossing outside of the crosswalk. The accident was attributed to the driver's failure to yield to a pedestrian.

3.6.8 Bushwick Avenue and Palmetto Street

Bushwick Avenue and Palmetto Street is a signalized intersection. There are pedestrian crosswalks on all four legs, none of which are school crosswalks.

This intersection had twenty accidents during the 1998-2000 study period. Five accidents involved pedestrians, three of which were school-related. Four accidents, including three school-related accidents, were attributed to driver inattention or failure to yield to pedestrians. The last accident involved a pedestrian crossing against the signal.

One Hour Traffic Count Volumes



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

EXHIBIT 7
P.S 299 , BROOKLYN
TRAFFIC COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S. 299 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 INTERSECTIONS				
Intersection Name	Crosswalk Length (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)*	Timing Adjustment? (Yes/No)
Evergreen Avenue and Madison Street				
Crossing Evergreen Avenue	40	24	17	NO
Crossing Madison Street	30	36	13	NO
Bushwick Avenue and Madison Street				
Crossing Bushwick Avenue	40	34	17	NO
Crossing Madison Street	30	86	13	NO
Bushwick Avenue and Woodbine Street				
Crossing Bushwick Avenue	40	34	17	NO
Crossing Woodbine Street	30	86	13	NO
Broadway and Putnam Avenue				
Crossing Broadway	42	40	17	NO
Crossing Putnam Avenue	30	60	13	NO

Note:

** A rate of 3 feet per second plus 3 seconds reaction time was utilized as the child pedestrian walking rate*

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways were found to generally be in good condition, with the exception of the following:

- On Madison Street, between Bushwick Avenue and Evergreen Avenue, there are two areas where improper backfill of a sewer trench is causing a depression in the center of the roadway (Figure 15).

The sidewalks were found to generally be in fair condition. During observations, areas in the vicinity of the school were found to have poor sidewalk conditions.

These areas included:

- Broadway, east side, between Madison Street and Putnam Avenue
- Madison Street, south side, between Broadway and Bushwick Avenue
- Madison Street, both sides, between Evergreen Avenue and Central Avenue (near Central Avenue)
- Evergreen Avenue, west side, between Putnam Avenue and Jefferson Avenue and between Woodbine Street and Palmetto Street
- Madison Street, north side, adjacent to the schoolyard

Pedestrian ramps that are missing or not positioned correctly have been noted in Section 3.6.



Figure 15: Uneven roadway surface on Madison Street, west of Evergreen 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 Zone*

“NO STANDING 7:00 AM – 4:00 PM, SCHOOL DAYS” parking regulations should be considered in front of the school’s entrance for a length of 60 feet on Woodbine Street. The teacher parking should be relocated further west on Woodbine Street.

“NO PARKING 7:00 AM - 4:00 PM SCHOOL DAYS” parking regulations on Evergreen Avenue and Madison Street should be upgraded to “NO STANDING 7:00 AM - 4:00 PM SCHOOL DAYS”.

This will allow school buses and parents a place to load and unload students at the curb, and will also improve visibility of those students arriving and leaving the school.

- *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 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.

- *Install new school crosswalks at the following intersections:*

- Bushwick Avenue and Putnam Avenue - west leg
- Bushwick Avenue and Palmetto Street – east, west and south legs
- Evergreen Avenue and Palmetto Street – west leg

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

- Submit Request to Police Department for Crossing Guard

There are uncontrolled school crosswalks on Evergreen Avenue at Woodbine Street. Spot studies also confirmed that vehicles were traveling at 30 mph on Evergreen Avenue in the vicinity of the school. It is recommended that crossing guards be requested at the following intersections:

- Evergreen Avenue and Woodbine Street
- Bushwick Avenue and Woodbine Street

- Narrow Evergreen Avenue using a bike lane

The principal indicated that vehicles are speeding on Evergreen Avenue in the vicinity of school. A spot speed study conducted on Evergreen Avenue between Woodbine Street and Madison Street on June 30, 2005 confirmed that the 85th percentile speed on Evergreen Avenue was 30 mph, which is equal to the statutory speed limit of 30 mph. See Table 4 for a summary of the results and the Appendix for further detail. However Evergreen Avenue between Woodbine Street and Madison Street is only 200 feet long and therefore does not comply with DOT criteria for speed reducers (humps).

It is recommended that DOT install proposed a 5-foot bike lane along Central Avenue. DOT has recommended this street for a bike lane as part of it's master plan of bike routes. The proposed bike lane would narrow the effective width of the roadway and should help to reduce the effects of speeds.

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.

- Woodbine Street and Bushwick Avenue
- Madison Street and Bushwick Avenue
- Palmetto Street and Bushwick Avenue
- Putnam Avenue and Bushwick Avenue
- Woodbine Street and Evergreen Avenue
- Madison Street and Evergreen Avenue
- Palmetto Street and Evergreen Avenue
- Putnam Avenue and Evergreen Avenue
- Broadway and Putnam Avenue

Curb extensions should be installed 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 new sidewalks at the following locations:

- Broadway between Madison Street and Putnam Avenue – east side
- Madison Street between Broadway and Bushwick Avenue – south side
- Madison Street between Bushwick Avenue and Evergreen Avenue – north side
- Madison Street between Evergreen Avenue and Central Avenue – north and south sides
- Evergreen Avenue between Putnam Avenue and Madison Avenue – west side
- Evergreen Avenue between Woodbine Street and Palmetto Street – west side

It is recommended to install new sidewalks of these locations to correct poor sidewalk conditions.

▪ Installation/replacement of Complex pedestrian ramps

Due to existing utility conflicts, the following pedestrian ramps are considered complex and require relocation of utility poles or drainage structures. Consideration should be given to the installation of pedestrian ramps per NYCDOT standards at the following locations:

- Evergreen Avenue and Madison Street – southwest corner
- Bushwick Avenue and Madison Street – northwest and southwest corners
- Bushwick Avenue and Woodbine Street – northeast corner
- Broadway and Putnam Avenue – south leg

▪ Utilization of buses equipped with left side exit doors

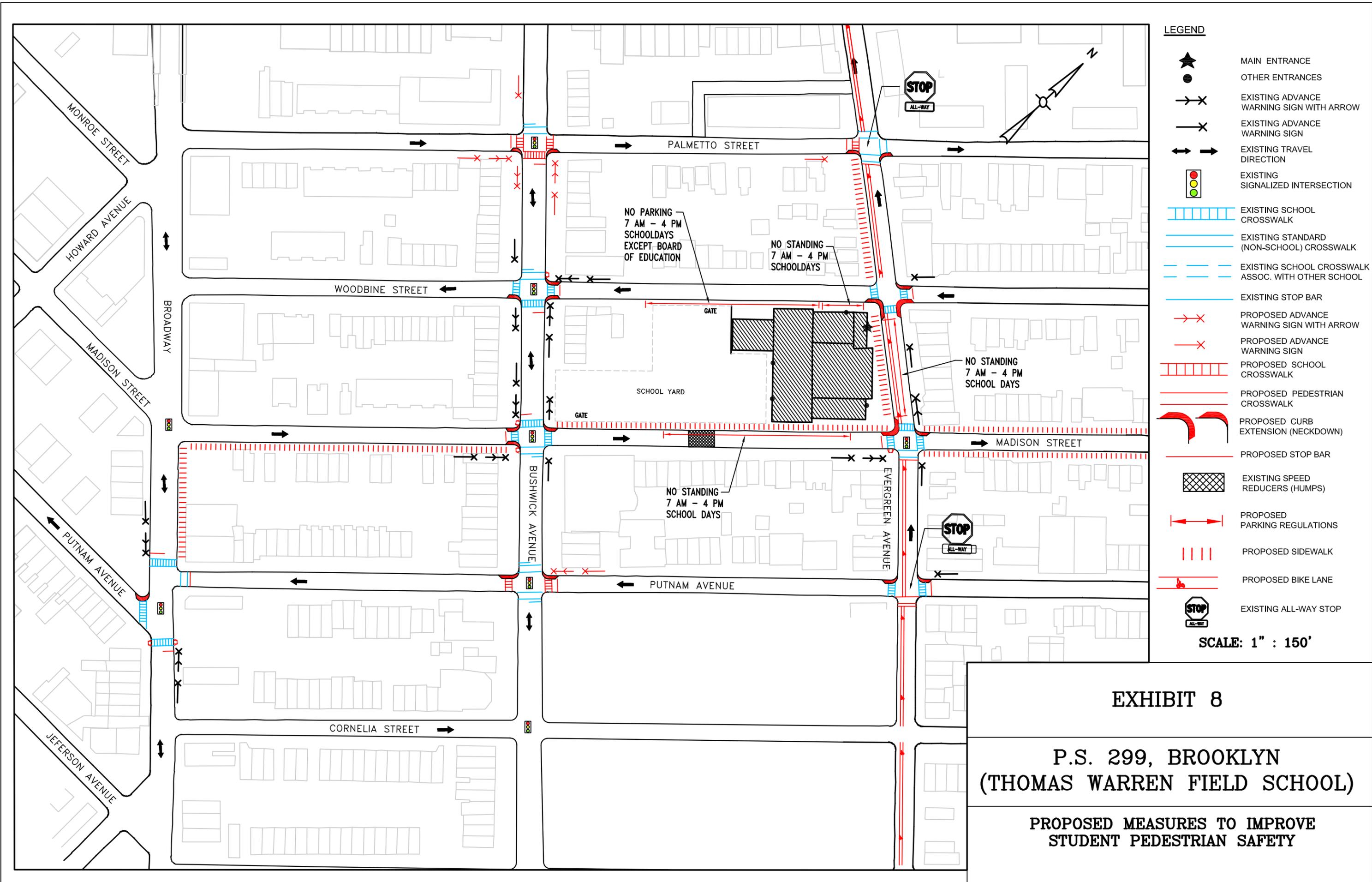
Currently some school buses unload P.S. 299 students through right side doors, though the school entrance is on the left side of the bus. The Department of Education bus fleet includes buses with left side doors. Therefore, it is recommended that buses with left side doors be used to transport students to and from P.S. 299 when the bus will be unloading and loading students on Woodbine Street and Evergreen Avenue.

This measure in conjunction with “no standing 7 am - 4 pm” in front of the school entrance would allow students to load and unload from the bus, at the curbside, directly in front of the school.

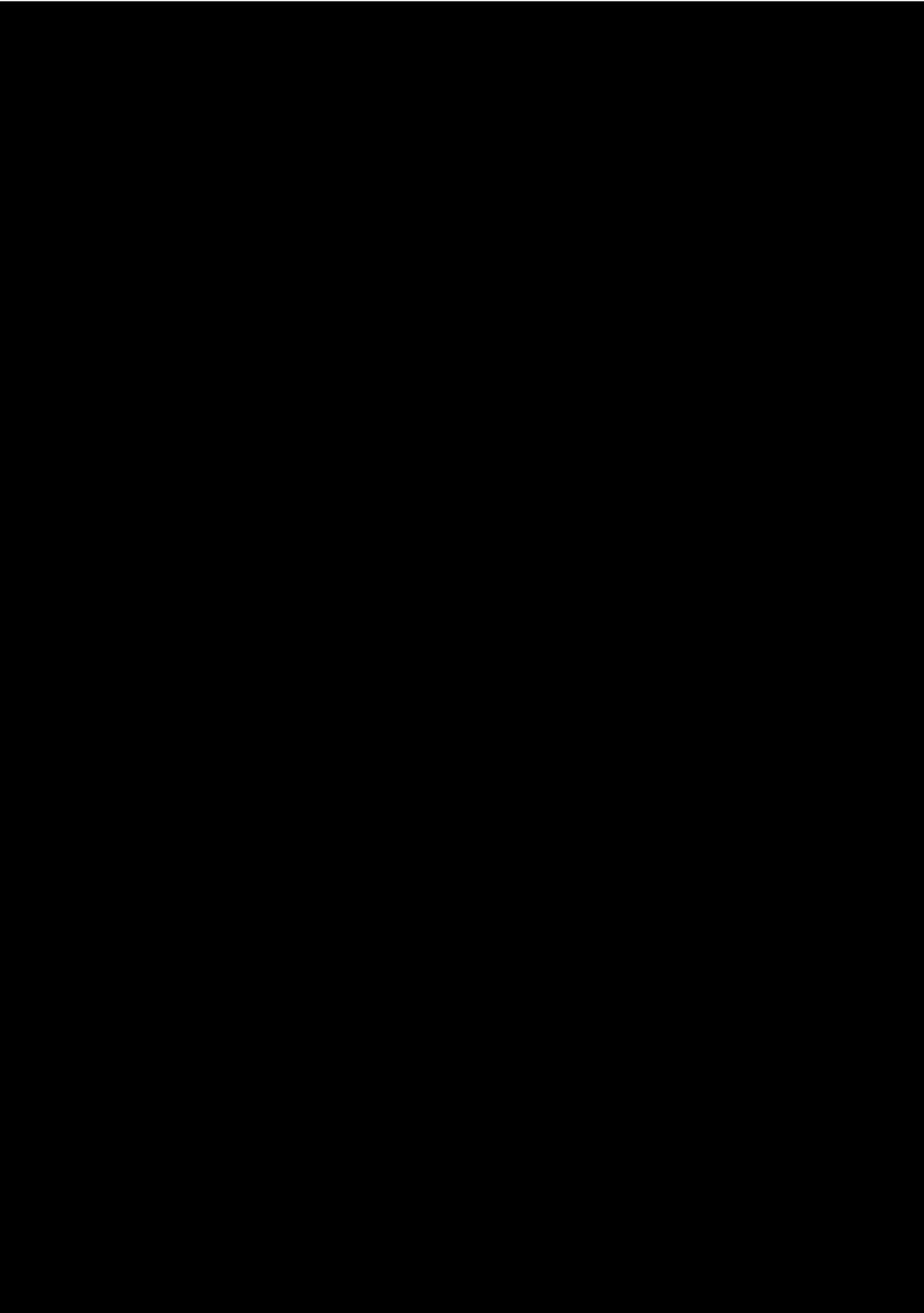
▪ Engineered resurfacing of the roadway at the following location:

- Madison Street between Bushwick Avenue and Evergreen Avenue

Engineered resurfacing of Madison Street between Bushwick Avenue and Evergreen Avenue is recommended to correct roadway depressions.



APPENDIX



P.S. 299
 June 6, 2005
 7:30 am - 8:30 am

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

Site:
 Date: 06/07/05

Combined
**Peds not included in table data*

Begin Time	Total	Woodbine Street			Evergreen Avenue		Woodbine Street			Evergreen Avenue			
		S-R	S-T		W-T	W-L							
07:30:00	108	13	16	0	0	65	14	0	0	0	0	0	0
07:45:00	125	12	21	0	0	72	20	0	0	0	0	0	0
08:00:00	159	19	22	0	0	96	22	0	0	0	0	0	0
08:15:00	152	24	22	0	0	87	19	0	0	0	0	0	0
544		68	81	0	0	320	75	0	0	0	0	0	0

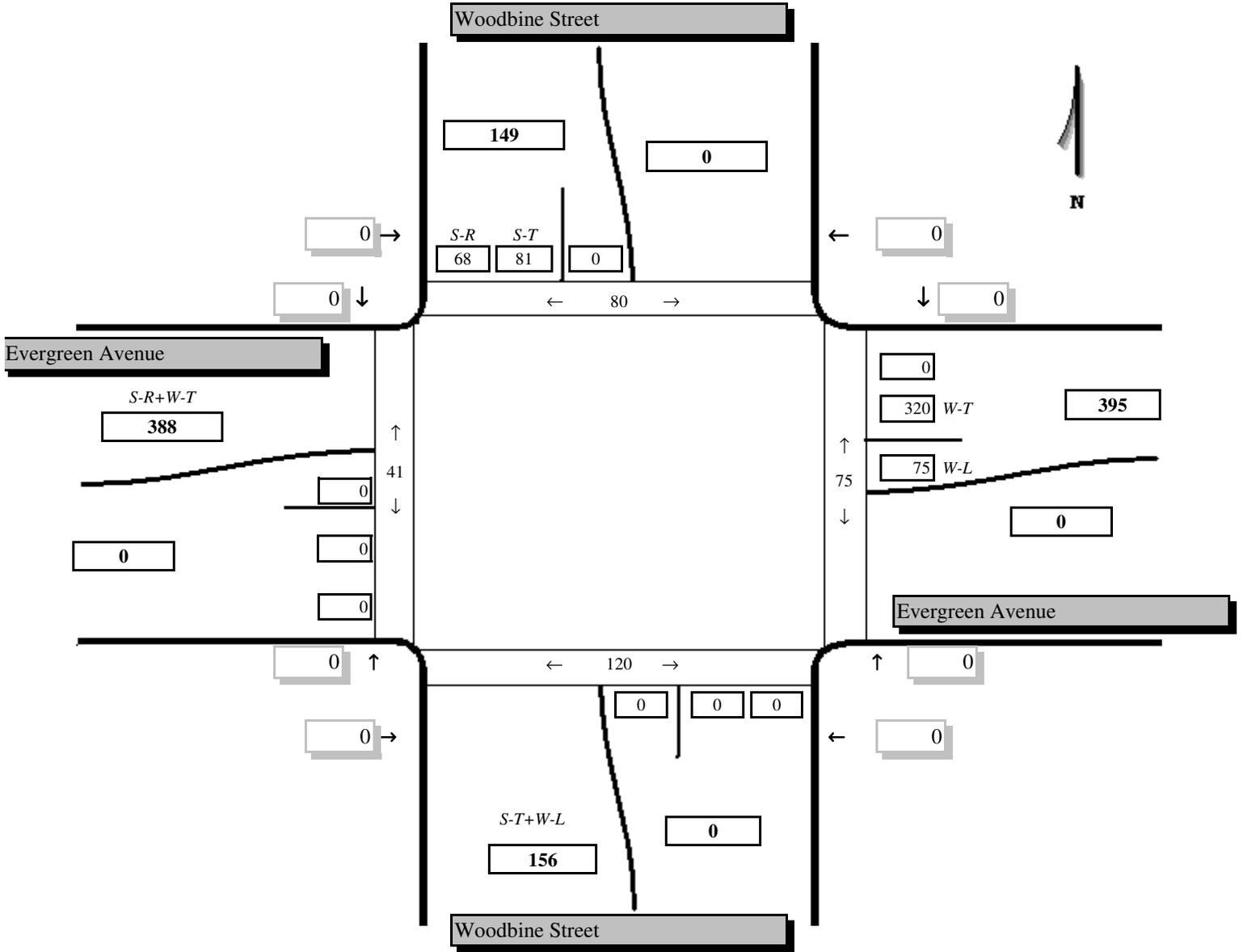
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	07:30:00	To 08:30:00	544
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

P.S. 299
 June 6, 2005
 7:30 am - 8:30 am

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

Site:
 Date: 06/07/05

Combined
 *Peds not included in table data



SPOT SPEED STUDY

Date: **June 30, 2005** Time: **2:45 PM To 3:45 PM**
 Location: **Evergreen Avenue Between Woodbine Street and Madison Street**
 Surveyor: **Eyad Yousef**

School:
 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	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	2	2.4%	2.4%	40	800
21	2	2.4%	4.8%	42	882
22	6	7.1%	11.9%	132	2904
23	7	8.3%	20.2%	161	3703
24	9	10.7%	31.0%	216	5184
25	10	11.9%	42.9%	250	6250
26	8	9.5%	52.4%	208	5408
27	8	9.5%	61.9%	216	5832
28	9	10.7%	72.6%	252	7056
29	8	9.5%	82.1%	232	6728
30	4	4.8%	86.9%	120	3600
31	5	6.0%	92.9%	155	4805
32	2	2.4%	95.2%	64	2048
33	2	2.4%	97.6%	66	2178
34	1	1.2%	98.8%	34	1156
35	1	1.2%	100.0%	35	1225
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
	84	100.0%		2223	59759

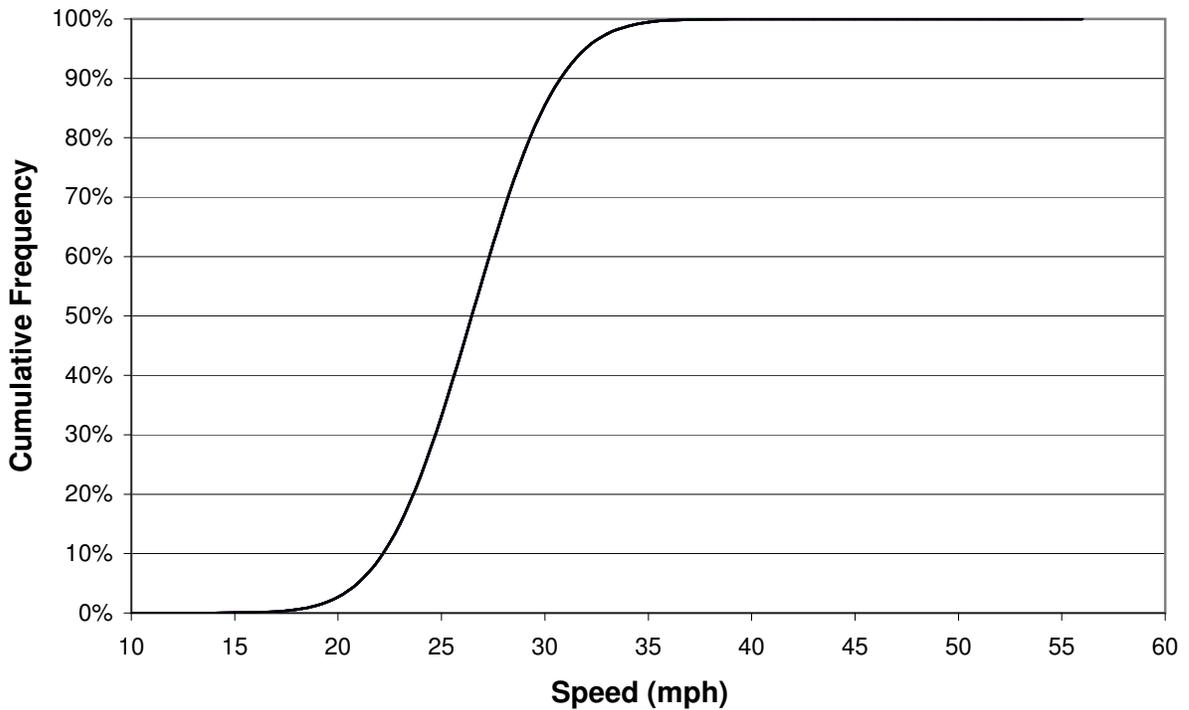
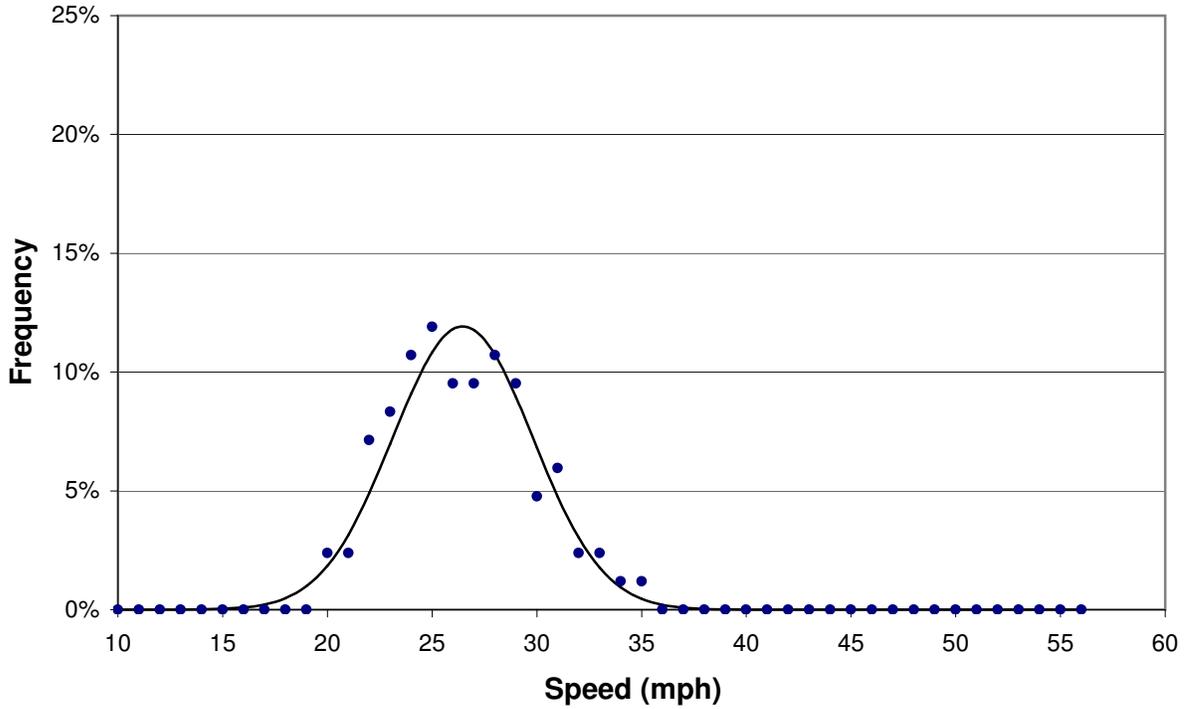
Mean Speed = 26.5 mph Median Speed = 26.5 mph
 Standard Deviation = 3.3 mph 15th Percentile Speed = 23.0 mph
 Margin of Error (95% Confidence) = ± 0.7 mph 85th Percentile Speed = 29.9 mph

SPOT SPEED STUDY

Date: **June 30, 2005** Time: **2:45 PM To 3:45 PM**
Location: **Evergreen Avenue Between Woodbine Street and Madison Street**
Surveyor: **Eyad Yousef**

School:
Direction:
Comments:

Mean Speed = 26.5 mph Median Speed = 26.5 mph
Standard Deviation = 3.3 mph 15th Percentile Speed = 23.0 mph
Margin of Error (95% Confidence) = ± 0.7 mph 85th Percentile Speed = 29.9 mph



SPOT SPEED STUDY

Date: **June 30, 2005** Time: **3:45 PM To 4:45 PM**
 Location: **Woodbine Street Between Evergreen Street and Bushwick Avenue**
 Surveyor: **Eyad Yousef**

School:
 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	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	2	5.3%	5.3%	40	800
21	3	7.9%	13.2%	63	1323
22	6	15.8%	28.9%	132	2904
23	7	18.4%	47.4%	161	3703
24	7	18.4%	65.8%	168	4032
25	7	18.4%	84.2%	175	4375
26	2	5.3%	89.5%	52	1352
27	2	5.3%	94.7%	54	1458
28	1	2.6%	97.4%	28	784
29	1	2.6%	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
	38	100.0%		902	21572

Mean Speed = 23.7 mph Median Speed = 23.7 mph
 Standard Deviation = 2.1 mph 15th Percentile Speed = 21.6 mph
 Margin of Error (95% Confidence) = ± 0.7 mph 85th Percentile Speed = 25.9 mph

SPOT SPEED STUDY

Date: **June 30, 2005** Time: **3:45 PM To 4:45 PM**
 Location: **Woodbine Street Between Evergreen Street and Bushwick Avenue**
 Surveyor: **Eyad Yousef**

School:
 Direction:
 Comments:

Mean Speed = 23.7 mph Median Speed = 23.7 mph
 Standard Deviation = 2.1 mph 15th Percentile Speed = 21.6 mph
 Margin of Error (95% Confidence) = ± 0.7 mph 85th Percentile Speed = 25.9 mph

