New York City Department of Transportation
Office of School Safety Engineering

School Safety Engineering Project

FINAL REPORT: P.S./I.S. 323, Brooklyn

Prepared by
The RBA Group/Urbitran Associates

SEPTEMBER 27, 2006

School Safety Engineering Project
P.S. / I.S. 323

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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, 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./I.S. 323 in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

[redacted]

2.2 NEIGHBORHOOD DESCRIPTION

P.S./I.S. 323 occupies most of the city block bordered by Bristol Street, Chester Street, Blake Avenue and Sutter Avenue. The surrounding area is a mix of commercial and residential properties, with three to four-story residential units, and small first floor commercial properties (See Exhibit 1 for Aerial Photograph).

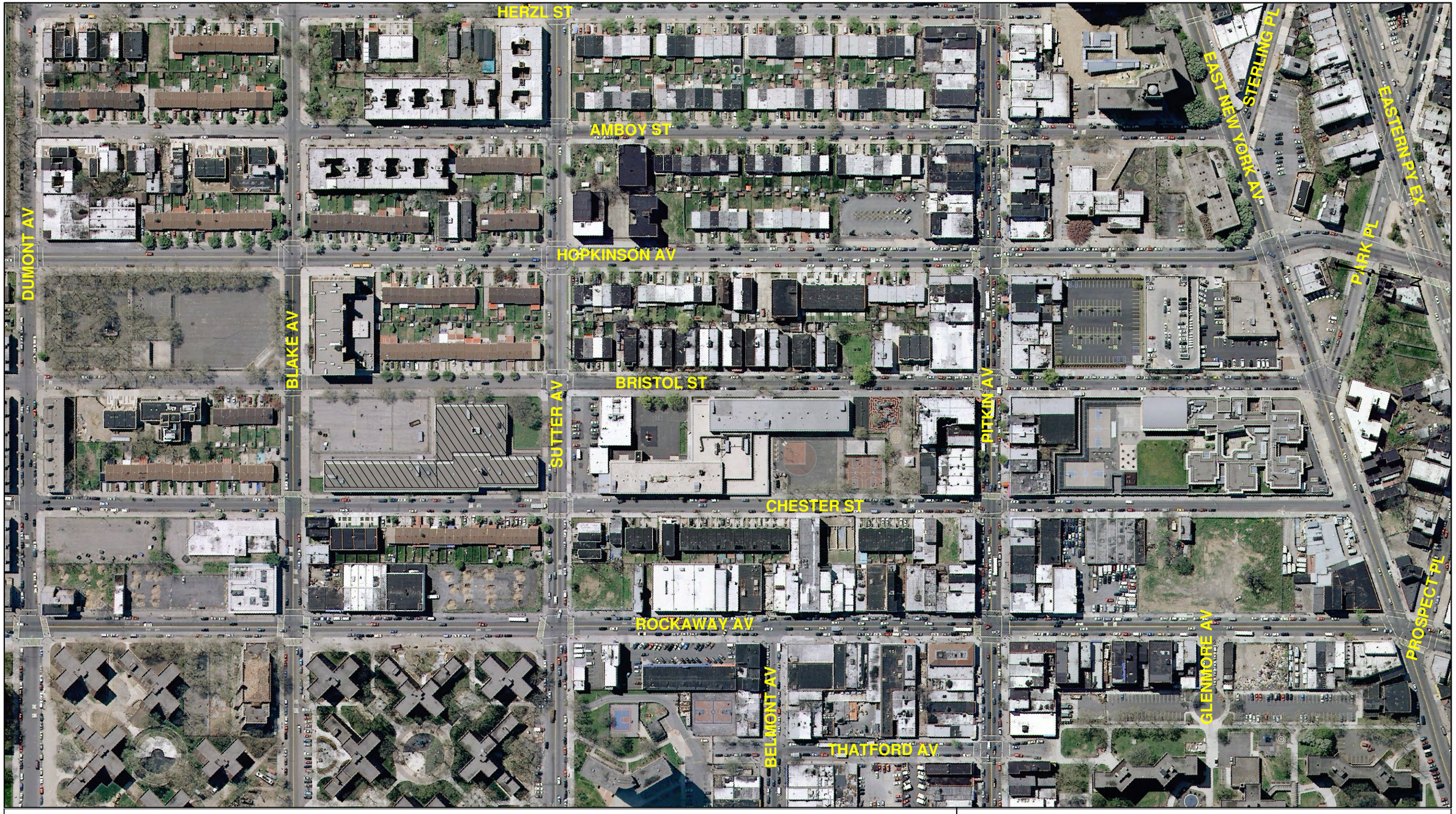
Figure 1 – Looking north on Chester Street, south of Blake Avenue

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from the New York City Department of Transportation, Brooklyn Borough Commissioner's Office, the principal of P.S./I.S. 323, members of Community Board 16 and the consultant team met at the school during the morning of June 4, 2004.

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

- Heavy vehicles traveling on roadways adjacent to P.S./I.S. 323
- Students crossing mid-block on Blake Avenue, between Bristol Street and Chester Street
- No curbside locations for buses to load or unload students
- The west leg of Blake Avenue and Chester Street is an uncontrolled crossing.



1 inch equals 200 feet

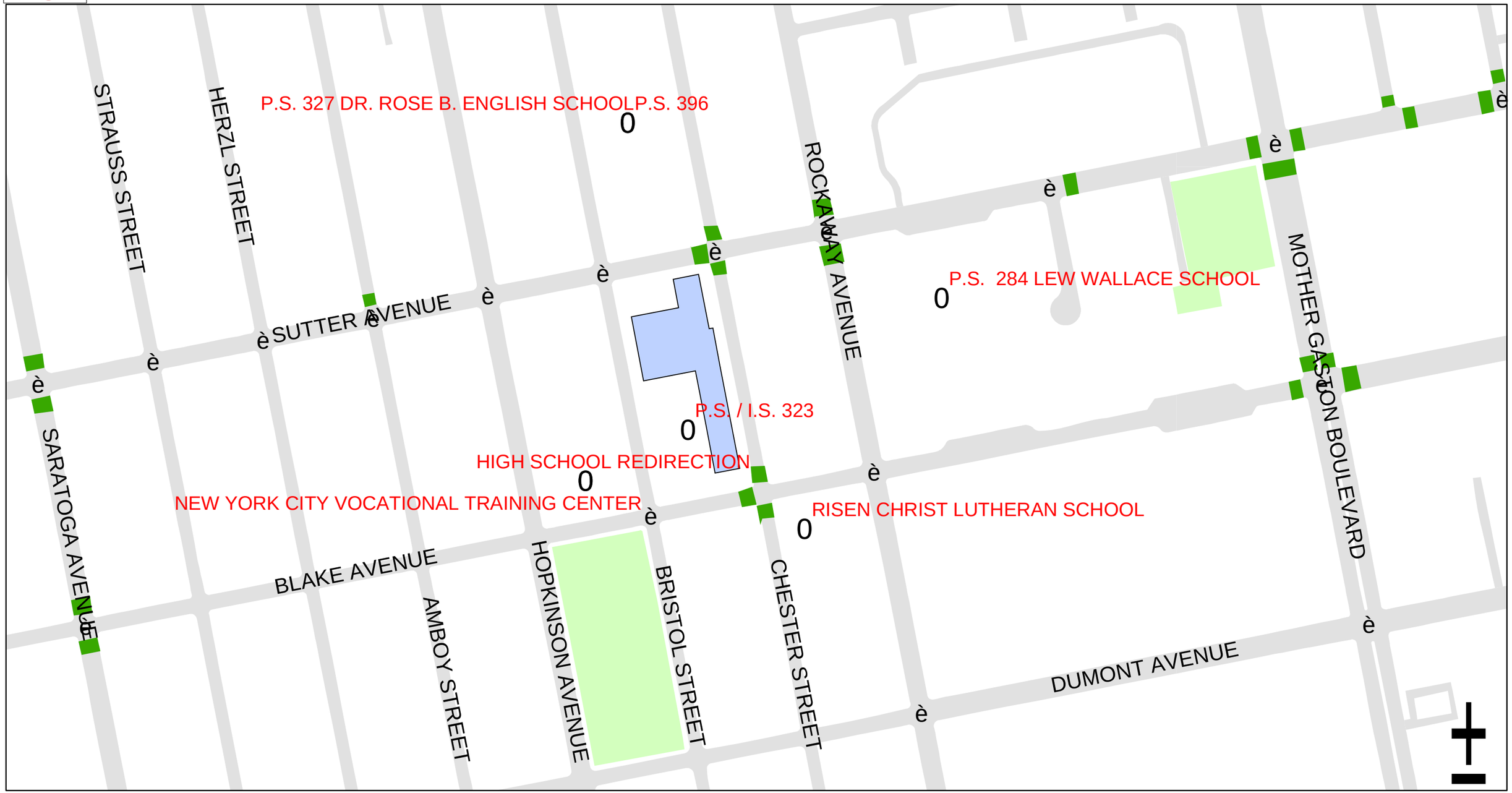
EXHIBIT 1
P.S./I.S. 323, BROOKLYN

AERIAL PHOTOGRAPH

New York City
Department of Transportation

School Traffic Safety Map

Traffic Operations Division



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 advance warning signs, 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 only shows 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
- SCHOOL CROSSWALK
- TRAFFIC SIGNAL
- ALL - WAY STOP
- SPEED REDUCER

PS 323 Brooklyn

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

Map created on 8/1/2006

EXHIBIT 2

COMM. BOARD: 316
PRECINCT: 73

1.3.1

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to the school principal, 88% of students walk to school, 3% are driven by parents or guardians, 3% ride school buses and the remaining 6% of students arrive via public transportation. See Table 1 for the school's estimates of the modes of travel.

The school's catchment area is shown in Exhibit 3. However, according to the principal, students from the Brownsville Housing Complex on the southwest corner of Sutter Avenue and Rockaway Avenue and the Van Dyke Housing Complex on Mother Gaston Boulevard also attend the school. In addition, the principal indicated that because of the "No Child Left behind" program, there are students who attend P.S./I.S. 323 from all parts of New York City.

TABLE 1: MODES OF TRAVEL
(AS ESTIMATED BY SCHOOL OFFICIALS)

Description	Percentage
Walk	88%
Driven by car	3%
School bus	3%
MTA bus	5%
MTA subway	1%
TOTAL	100%

2.7 OTHER STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are two other schools in the vicinity of P.S. 323. P.S. 327 is located between Bristol Street and Chester Street, one block north of P.S. 323. P.S./I.S. 284 is located between Sutter Avenue and Blake Avenue, east of Rockaway Avenue. P.S. 327 is also a priority school.

A grocery store located at the northeast corner of Blake Avenue and Chester Street and various stores on Rockaway Avenue are popular with the students of P.S./I.S. 323. Sutter Avenue is also a gathering point for students from P.S./I.S. 323 and P.S. 327.

2.8 CROSSING GUARD LOCATIONS

According to the school principal and the representative from Community Board 16, there are no crossing guards assigned to P.S./I.S. 323. However, the school has previously submitted a request to the Police Department for a crossing guard at Blake Avenue and Chester Street.

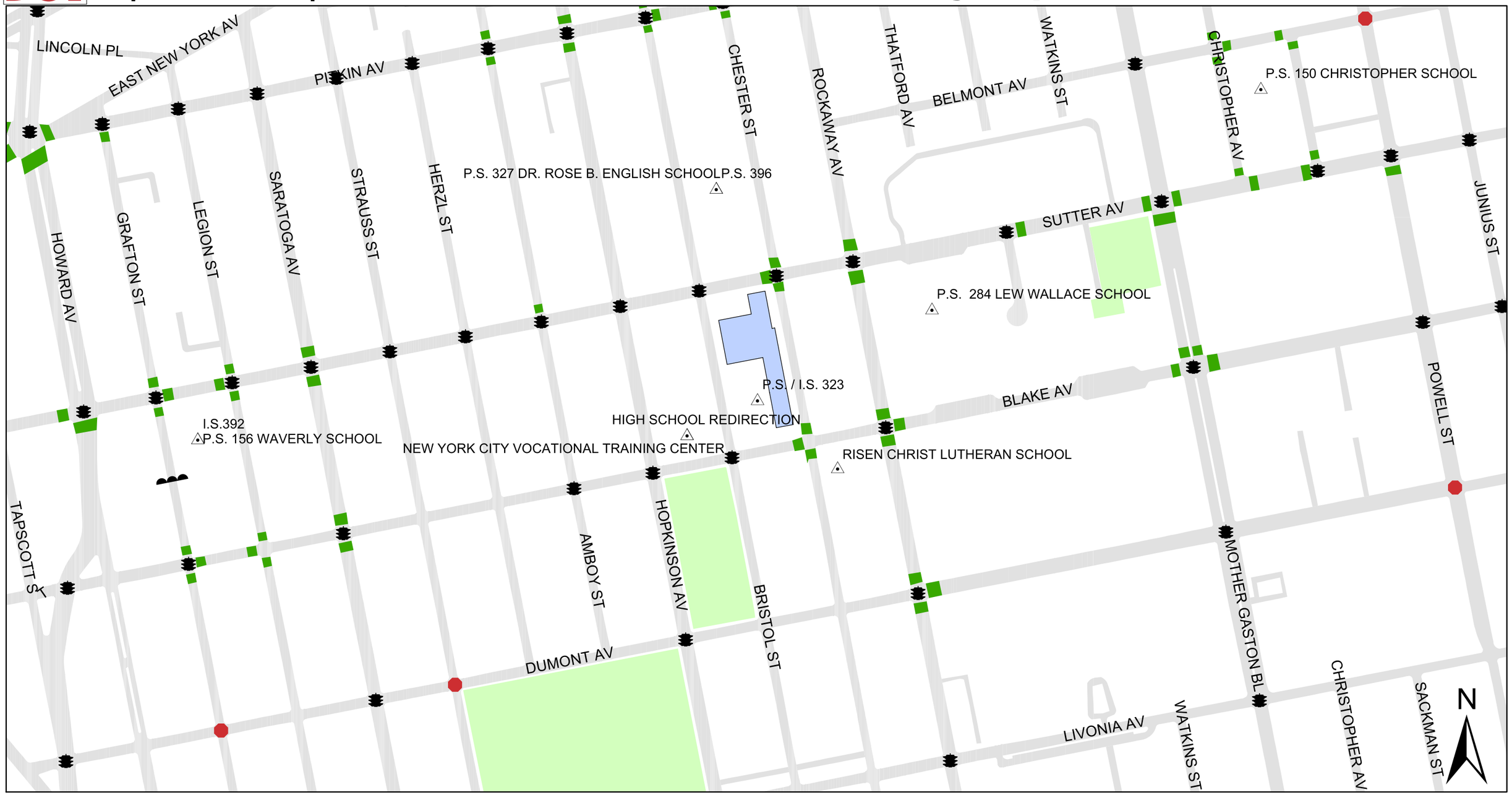
See Exhibit 4 for a map of the crossing guards observed in the field, which are assigned to P.S. 327, a nearby priority school.

NEW YORK CITY DOT

New York City
Department of Transportation

School Traffic Safety Map

Traffic Operations Division



0 290 580 1,160 Feet

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

PS 323 Brooklyn

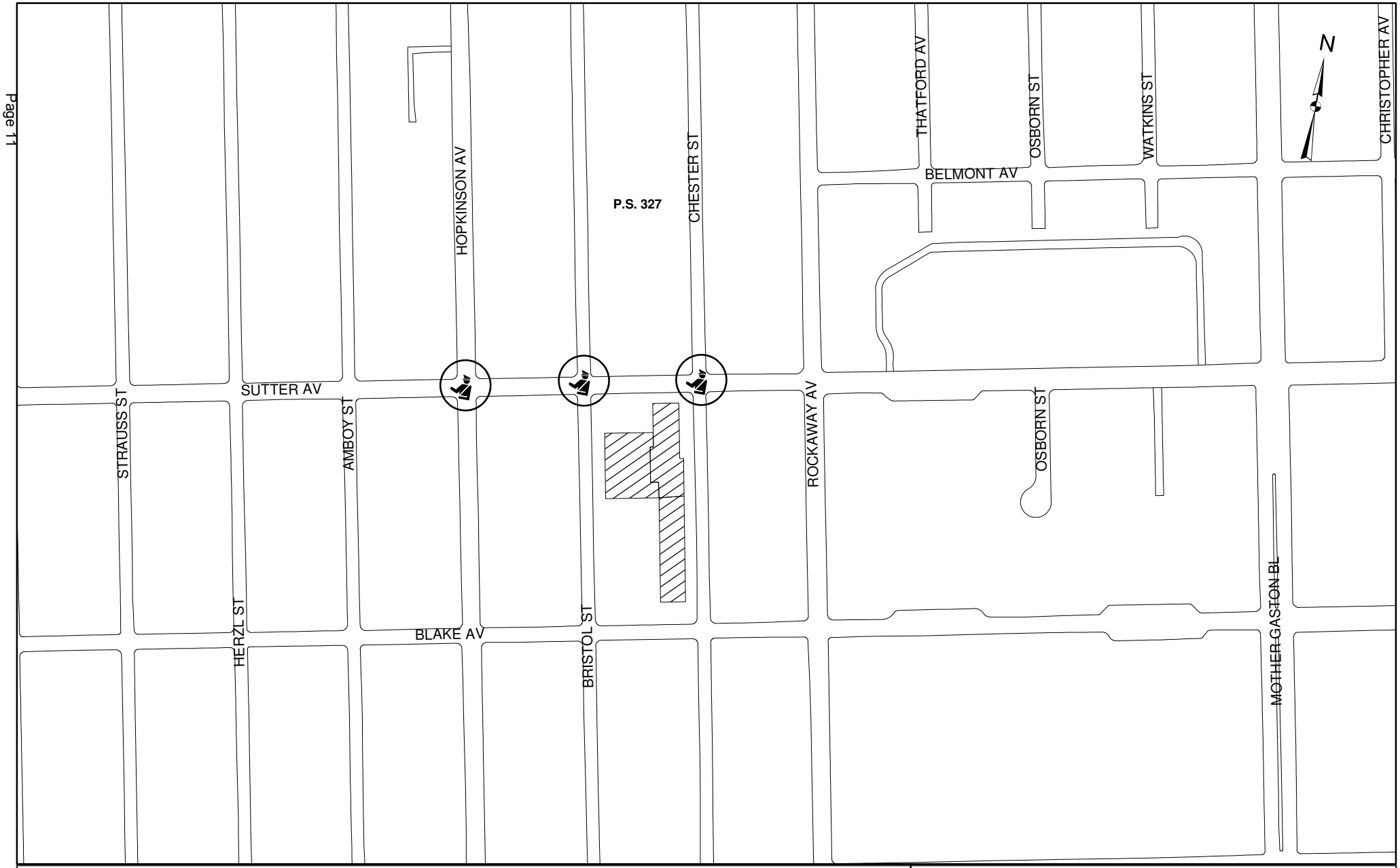
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinshall, COMMISSIONER.

EXHIBIT 3

Map created on 11/16/2006

COMM. BOARD: 316
PRECINCT: 73

1.5.1



1 inch equals 300 feet

Crossing guard assigned to P.S. 327

EXHIBIT 4

P.S./I.S. 323, BROOKLYN

CROSSING GUARDS

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, 3% of students from P.S./I.S. 323 ride a school bus to school. There are generally three school buses for students that attend P.S./I.S. 323.

During arrival time, school buses were observed to park or double-park on Chester Street when unloading students in front of the school's main entrance. School buses arriving before 8:00 am line up on Chester Street and wait until 8:00 am to unload students. If a bus does not have a left side door, the driver walked the students to the curb.

Figure 2 – School buses dropping off students on Chester Street, at the main entrance to P.S./I.S. 323

3.2 PARENT DROP-OFF OPERATIONS

School officials have indicated that, approximately 3% of P.S./I.S. 323 students are driven to and from school by parents or guardians. Parents normally drop off students in front of the school on Chester Street, Blake Street and Sutter Avenue. They were observed double-parking or parking in no-parking zones.

Figure 3 – Student exiting a vehicle on Chester Street

3.3 PARKING REGULATIONS

"NO PARKING 7 AM – 4 PM SCHOOL DAYS" parking regulations are posted on Chester Street in front of the school's main entrance. "NO PARKING 7 AM – 4 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" regulations are posted farther east.

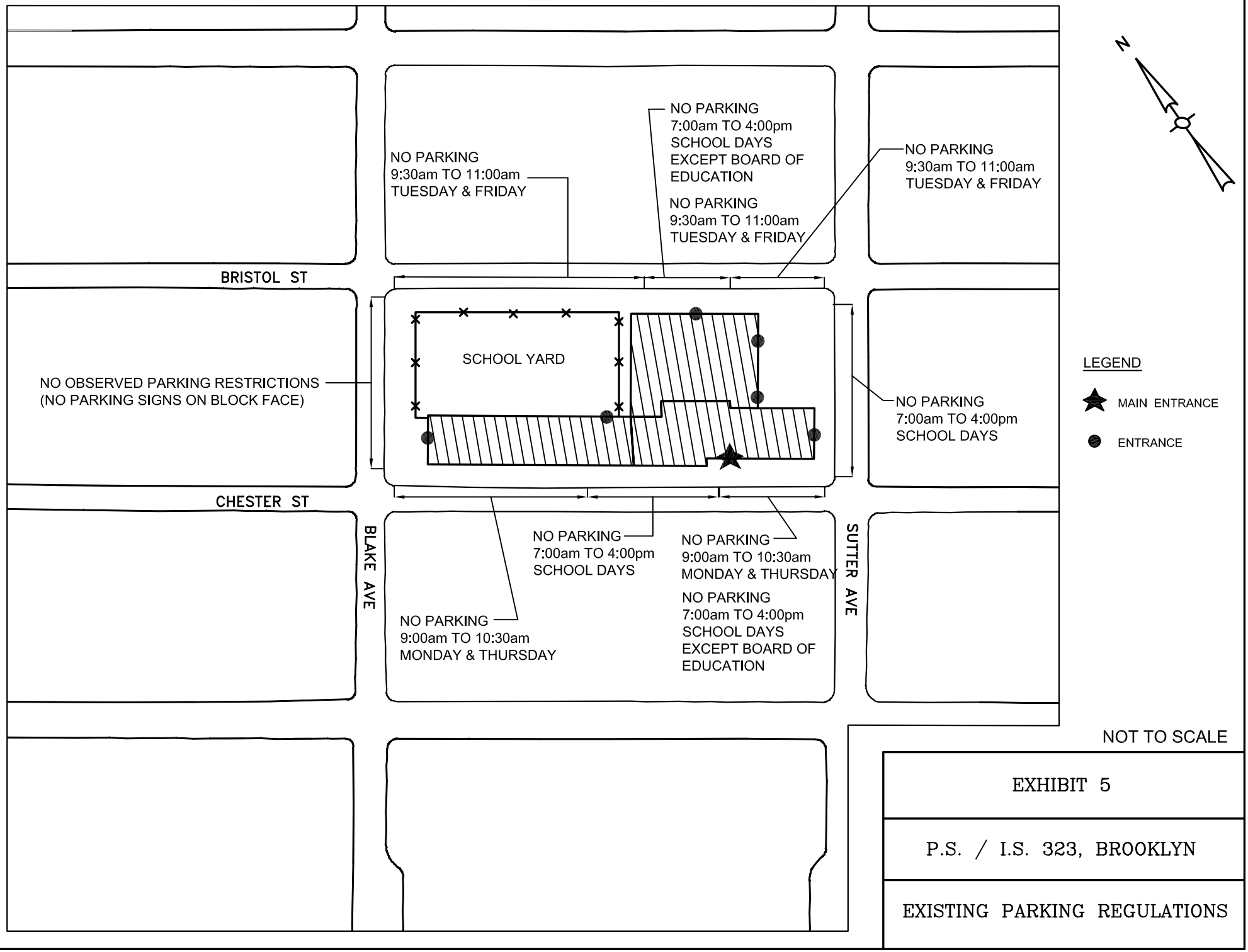
"NO PARKING 7 AM – 4 PM SCHOOL DAYS" parking regulations are posted for the full length of Sutter Avenue.

On Bristol Street, "NO PARKING 7 AM – 4 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" parking regulations are posted in front of the school's entrance.

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

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 2, shows existing crosswalk pavement markings as of June 2004. 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 with downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing" on Exhibit 8.



NOT TO SCALE

EXHIBIT 5

P.S. / I.S. 323, BROOKLYN

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 P.S./I.S. 323 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 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.

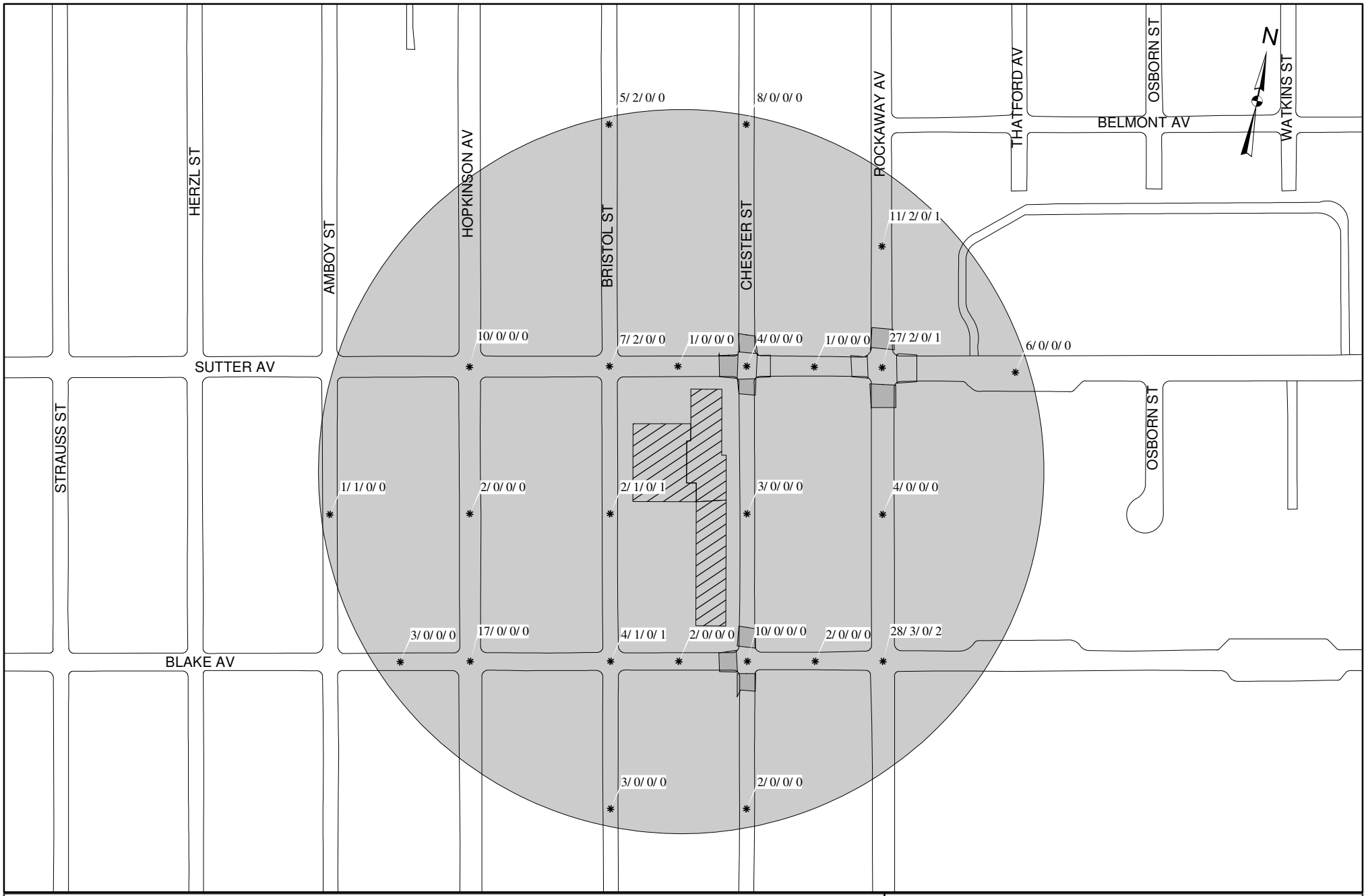
TABLE 2: DMV ACCIDENT SUMMARY (1998-2000)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Blake Avenue and Chester Street	10	0	0	0
Sutter Avenue and Chester Street	4	0	0	0
Sutter Avenue and Rockaway Avenue	27	2	0	1
Sutter Avenue and Bristol Street	7	2	0	0
Blake Avenue and Bristol Street	4	1	0	1
Blake Avenue and Rockaway Avenue	28	3	0	2
TOTAL	**80**	**8**	**0**	**4**

TABLE 3: NYPD ACCIDENT SUMMARY (2001-2004)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Blake Avenue and Chester Street	11	1	0	0
Sutter Avenue and Chester Street	12	3	0	2
Sutter Avenue and Rockaway Avenue	54	14	0	4
Sutter Avenue and Bristol Street	18	4	0	1
Blake Avenue and Bristol Street	10	0	0	0
Blake Avenue and Rockaway Avenue	50	9	0	1
TOTAL	155	31	0	8

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



ACCIDENT LOCATION *

SCHOOL CROSSWALK ASSIGNED TO P.S. 323

SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL

CROSSWALK

X/X/X/X — **TOTAL ACCIDENTS / PED ACCIDENTS / PED FATAL / SCHOOL_PED ACCIDENTS**

1 inch equals 250 feet

EXHIBIT 6

P.S. /I.S. 323, BROOKLYN

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./I.S. 323:

3.6.1 Blake Avenue and Chester Street

Blake Avenue is a two-way street with one moving lane in each direction and parking on both sides of the roadway. Chester Street is a one-way northbound street with parking on both sides. This is an un-signalized intersection with a stop sign on Chester Street for northbound traffic. There are school crosswalks on the north, south, and west legs. Since Blake Avenue is uncontrolled at this intersection, the west school crosswalk is an uncontrolled school crossing (see Figure 4).

Figure 4 – Looking west at the uncontrolled crossing at the intersection of Blake Avenue at Chester Street

Parents were observed stopping across the north school crosswalk to unload students, blocking the crosswalk and preventing traffic from proceeding north on Chester Street.

Traffic counts were performed on Wednesday May 25, 2005 between 7:30 am and 8:30am to better understand the pedestrian and vehicle conflicts at this intersection. The results indicate that 136 pedestrians crossed the eastern leg with no school crosswalk and 10 pedestrians crossed the western leg with an uncontrolled school crosswalk during the study hour. Based on MUTCD Section 4C.05 Signal Warrant 4 (Pedestrian Volume) the need for a traffic control 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. Existing conditions do not meet the criteria for signalizing the intersection.

The intersection has been the site of a total of ten accidents during the 1998 – 2000 study period. None of the accidents involved pedestrians or school children.

3.6.2 Sutter Avenue and Chester Street

Sutter Avenue and Chester Street is a signalized intersection. Sutter Avenue is a two-way street with one moving lane in each direction and parking on both sides of the roadway. There are school crosswalks in place on all four approaches. At the northwest corner of the intersection is the entrance for a United States Post Office; automobiles, small trucks and box trucks utilize this entrance throughout the day.

There were four accidents at this intersection during the 1998-2000 study period. None of the accidents involved pedestrians or school children.

3.6.3 Sutter Avenue and Rockaway Avenue

Sutter Avenue and Rockaway Avenue is a signalized intersection. Rockaway Avenue is a two-way street with one moving lane in each direction and parking on both sides. There are school crosswalks on the north and south legs of this intersection.

At the southwest corner of Sutter Avenue and Rockaway Avenue, construction is planned for the Heritage Houses, a complex of 21 two-story buildings and parking lots.

Twenty-seven accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, one of which was school related. Both pedestrians, including a nine-year-old student, were struck when emerging from parked vehicles.

A ten-year-old student was struck when crossing mid-block on Rockaway Avenue between Sutter Avenue and Belmont Avenue.

Figure 5 – Looking south on Rockaway Avenue at Sutter Avenue

3.6.4 Sutter Avenue and Bristol Street

Sutter Avenue and Bristol Street is a signalized intersection. Bristol Street is a one-way southbound street south of Sutter Avenue and one-way northbound street north of Sutter

Avenue. Parking is allowed on both sides of Bristol Street. There are pedestrian crosswalks on all four approaches, but none of them are school crosswalks.

There were seven accidents at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, none of which were school related. A right turning driver stuck a pedestrian who was crossing with the signal. The second driver struck a pedestrian while backing up his vehicle unsafely.

3.6.5 Blake Avenue and Bristol Street

Blake Avenue and Bristol Street is a signalized intersection. There are pedestrian crosswalks on all four approaches, but none of them are school crosswalks.

There were four accidents at this intersection during the 1998-2000 study period. One accident was a school related pedestrian accident. The accident was due to driver inattention. A left turning driver struck two school children crossing with the signal. In addition, a student was struck when crossing mid-block on Bristol Street between Sutter Avenue and Blake Avenue.

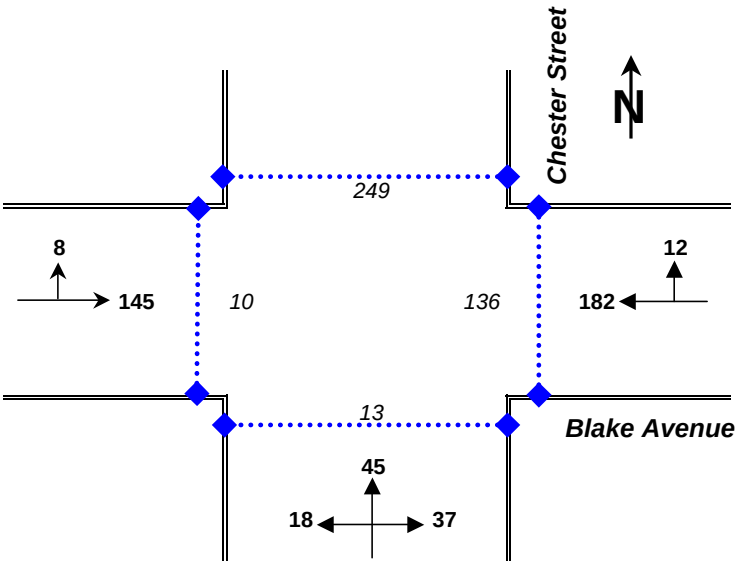
3.6.6 Blake Avenue and Rockaway Avenue

Blake Avenue and Rockaway Avenue is a signalized intersection. There are school crosswalks in place on the north, south, and east legs of this intersection.

There were twenty-eight accidents at this intersection during the 1998-2000 study period. Three accidents involved pedestrians, two of which were school related. All three pedestrians, including two school students, were stuck while crossing against the signal or crossing outside of crosswalks.

One Hour Traffic Count Volumes

(7:30 AM - 8:30 AM May 25, 2005)



Blake Avenue and Chester Street

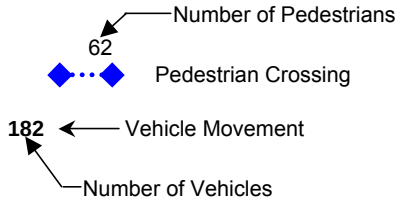


EXHIBIT 7
P.S. / I.S. 323
TRAFFIC COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S./I.S. 323, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

TABLE 4: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS

Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
Sutter Avenue and Chester Street				
Sutter Avenue	40	28	14	NO
Chester Street	30	50	10	NO
Sutter Avenue and Rockaway Avenue				
Sutter Avenue	40	64	14	NO
Rockaway Avenue	45	42	15	NO

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

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways and sidewalks in the vicinity of the school were observed to be in generally good condition. However, the sidewalks at the following locations were observed to be in poor condition.

- On the south side of Sutter Avenue, between Chester Street and Rockaway Avenue, a 60-foot section of sidewalk is cracked and broken;
- On the south side of Sutter Avenue, between Bristol Street and Chester Street, there is a cracked and uneven sidewalk and there are empty tree pits throughout the block;
- On Bristol Street, at the rear of the school, there are areas of sidewalk that are cracked, broken and uneven. (See Figure 6);
- On Chester Street, there are four empty tree pits and there is a cracked sidewalk in front of the school.

Figure 6 – Broken sidewalk around fire hydrant on Bristol Street, near schoolyard to P.S./I.S. 323

4. POTENTIAL MEASURE TO IMPROVE STUDENT PEDESTRIAN SAFETY

4.1 SHORT-TERM MEASURES

- *Upgrade No Parking Zones to No Standing Zones*

  "NO PARKING 7 AM – 4 PM, SCHOOL DAYS" parking regulations should be upgraded to "NO STANDING 7 AM – 4 PM, SCHOOL DAYS" in the following locations:

  - Chester Street in front of the school
  - Sutter Avenue in front of the school entrance
  - Blake Avenue in front of the school entrance.

  This will provide a place for school buses to drop off and pick up students at the curb, and also improve visibility of students arriving to 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 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 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 Request to Police Department for Crossing Guard*

  As noted in section 3.6.1, the intersection of Blake Avenue and Chester Street is not signalized and has an uncontrolled school crossing. According to school officials, some students cross the uncontrolled school crosswalk at the western leg en route to P.S. /I.S. 323. Traffic counts performed on Wednesday May 25, 2005 indicated that the existing traffic and pedestrian volumes do not meet the criteria for signalizing the intersection or installing an all-way stop control. Therefore, it is recommended that a crossing guard be requested at this intersection.

- *Install new school crosswalks*

  According to school officials, a large number of students come from west of the school. Providing school crosswalks at the following two intersections will facilitate students walking to P.S./I.S. 323. Therefore, it is recommended that school crosswalks be installed at the following intersections:

  - Sutter Avenue and Bristol Street – east, north and south legs
  - Blake Avenue and Bristol Street – east, west, and north legs

- *Install new sidewalks at the following locations:*

  - Sutter Avenue on the south side, in front of and east of P.S. /I.S. 323
  - Bristol Street and Chester Street in front of the school

  It is recommended to install new sidewalk and street trees at these locations to correct the broken and heaved sidewalks and to replace missing trees. Existing tree pits are empty.

- *Utilization of buses equipped with left side exit doors*

  Currently buses unload P.S. /I.S. 323 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. /I.S. 323.

  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.

- *Install/replace pedestrian ramps*

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

  - Blake Avenue and Chester Street – southeast corner
  - Sutter Avenue and Chester Street – southeast and southwest corners
  - Sutter Avenue and Rockaway Avenue – northwest corner

4.2 LONG-TERM MEASURES

- *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.

  - Blake Avenue and Bristol Street
  - Sutter Avenue and Bristol Street
  - Blake Avenue and Rockaway Avenue
  - Sutter Avenue and Rockaway Avenue

  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 ADDITIONAL MEASURES FOR PRIORITY SCHOOLS IN THE VICINITY OF P.S. 327

The following recommendations are part of the proposed measures to improve student pedestrian safety around P.S. 327, which is also a priority school. (All references in Section 4.3 refer to the P.S. 327 Priority School Report)

- *Install new school crosswalks*

  It is recommended that new school crosswalks be installed at the following intersections to complete a network of contiguous school crosswalks in the immediate school vicinity. :

  - Sutter Avenue and Thomas S Boyland Street – north leg
  - Bristol Street and East New York Avenue – south leg

- *Install a speed reducer (hump) on Bristol Street between Pitkin Avenue and Sutter Avenue*

  According to school officials, vehicles speed on Bristol Street in the vicinity of P.S. 327. A spot speed study was conducted on Bristol Street between Pitkin Avenue and Sutter Avenue on August 9, 2005.

  Spot speed study results are shown in Table 6 and in the Appendix. The 85th percentile speed on Bristol Avenue is 31 mph, which exceeds the legal speed limit of 30 mph. Therefore, to reduce speeding in the vicinity of P.S. 327, a speed hump (reducer) is recommended on Bristol Street between Pitkin Avenue and Sutter Avenue. The location of speed reducer (hump) will be determined by NYCDOT.

TABLE 5: SPOT SPEED STUDIES (BRISTOL STREET)

LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Bristol Street between Pitkin Avenue and Sutter Avenue	27	31

- *Consider curb extensions at the following intersections*

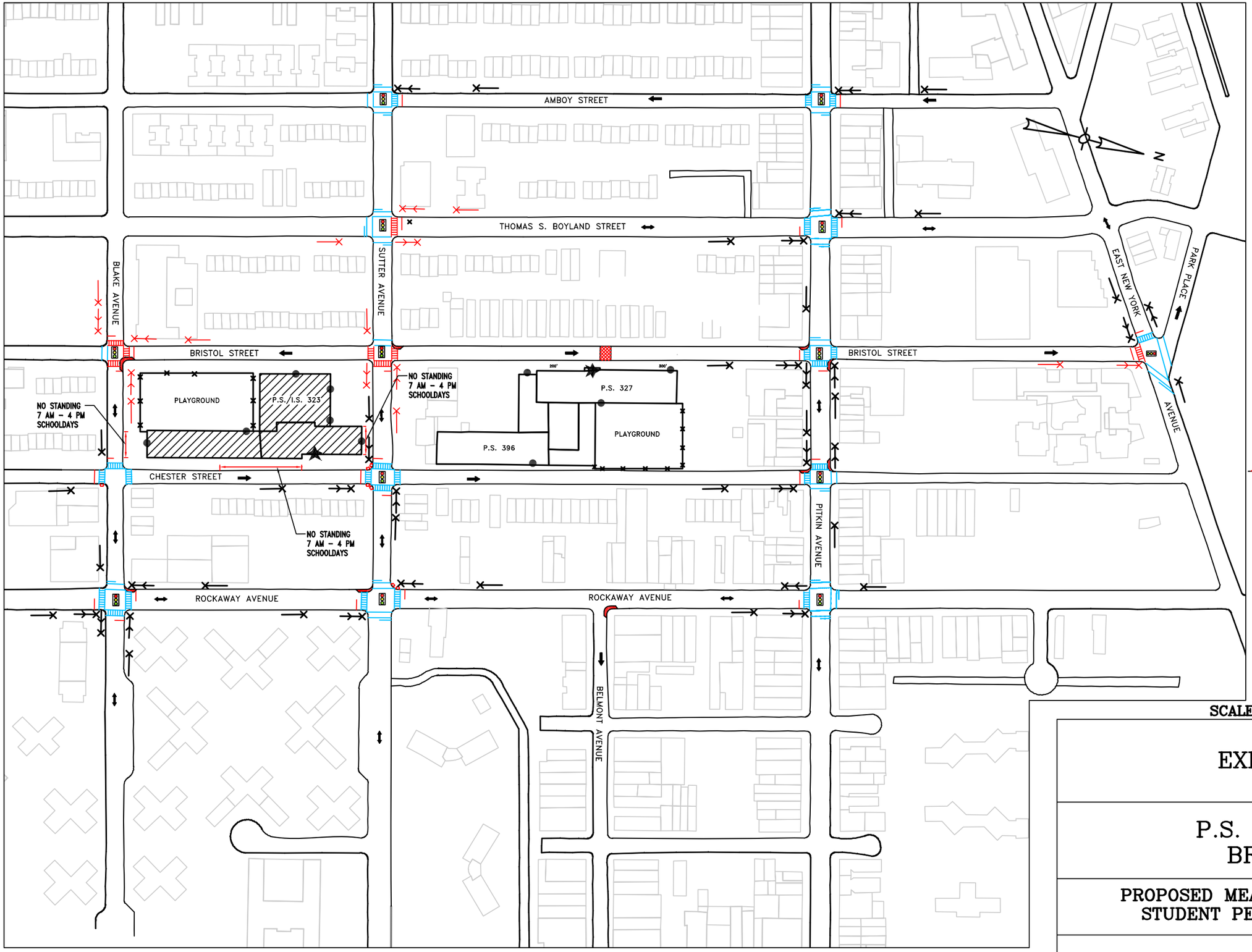
  Consideration should be given to installing a curb extension at the following locations, provided that the Final Design confirms that construction of the recommended curb extension would be feasible and would not interfere with traffic operations. Final details pertaining to the number, location and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

  - Bristol Street and Pitkin Avenue
  - Chester Street and Pitkin Avenue

- Belmont Avenue and Rockaway Avenue

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.



LEGEND

- MAIN ENTRANCE
- OTHER ENTRANCES
- EXISTING ADVANCE WARNING SIGN WITH ARROW
- EXISTING ADVANCE WARNING SIGN
- EXISTING TRAVEL DIRECTION
- EXISTING SCHOOL CROSSWALK
- EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- PROPOSED SCHOOL CROSSWALK
- PROPOSED ADVANCE WARNING SIGN WITH ARROW
- PROPOSED ADVANCE WARNING SIGN
- PROPOSED TRAFFIC SIGN
- PROPOSED CURB EXTENSION (NECKDOWN)
- SIGNALIZED INTERSECTION
- PROPOSED SPEED REDUCER (HUMP)
- PROPOSED PARKING REGULATIONS

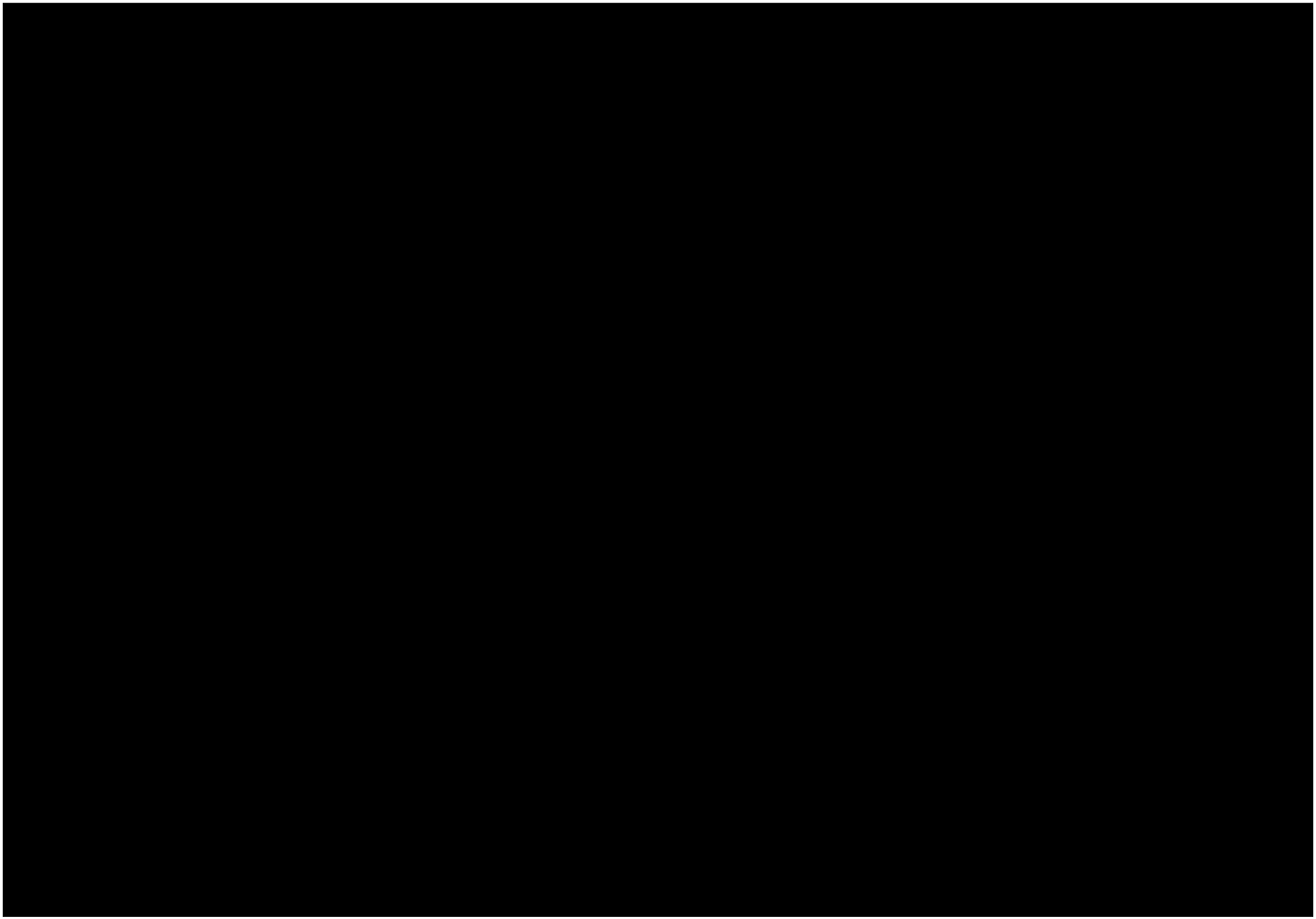
SCALE: 1" : 200'

EXHIBIT 8

P.S. / I.S. 323
BROOKLYN

PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX



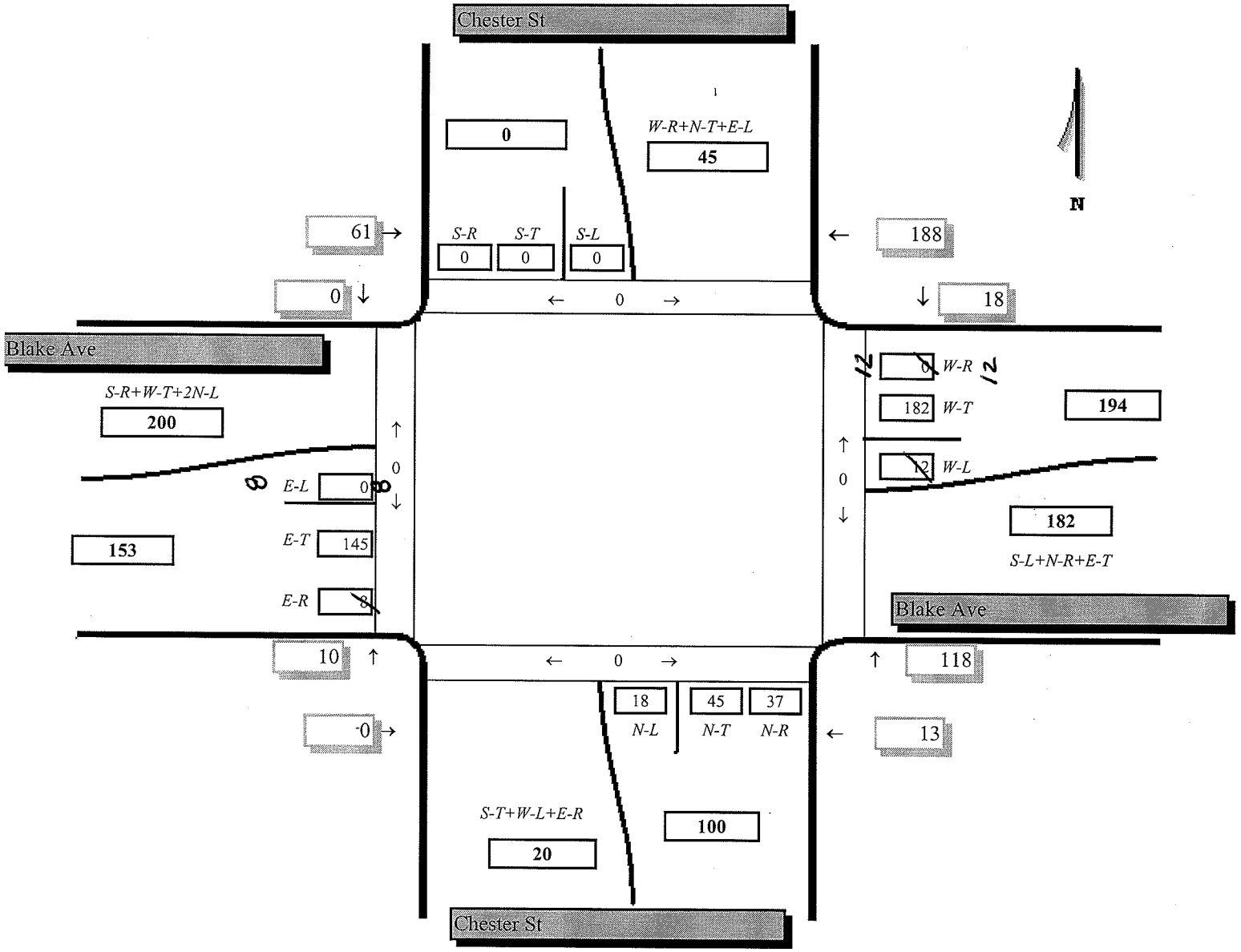
P.S. 323

MAY 25, 2005
7:30 am - 8:30 am

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

Site:
Date: 05/25/05

Combined
**Peds not included in table data*



SPOT SPEED STUDY

Date: **August 9, 2005** Time: **3:00 pm - 4:00 pm** School: **PS 327**
Location: **Bristol between Sutter and Pitkin** Direction:
Surveyor: **Eyad Yousef** Comments: **Clear 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	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	4	5.2%	5.2%	80	1600
21	2	2.6%	7.8%	42	882
22	1	1.3%	9.1%	22	484
23	8	10.4%	19.5%	184	4232
24	12	15.6%	35.1%	288	6912
25	17	22.1%	57.1%	425	10625
26	3	3.9%	61.0%	78	2028
27	2	2.6%	63.6%	54	1458
28	4	5.2%	68.8%	112	3136
29	12	15.6%	84.4%	348	10092
30	2	2.6%	87.0%	60	1800
31	2	2.6%	89.6%	62	1922
32	2	2.6%	92.2%	64	2048
33	1	1.3%	93.5%	33	1089
34	0	0.0%	93.5%	0	0
35	0	0.0%	93.5%	0	0
36	2	2.6%	96.1%	72	2592
37	0	0.0%	96.1%	0	0
38	3	3.9%	100.0%	114	4332
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
	77	100.0%		2038	55232

Mean Speed = 26.5 mph
Standard Deviation = 4.1 mph
Margin of Error (95% Confidence) = ± 0.9 mph

Median Speed = 26.5 mph
15th Percentile Speed = 22.2 mph
85th Percentile Speed = 30.7 mph

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