

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



**School Safety Engineering Project**

**FINAL REPORT: M.S 143, The School for Performing and Fine Arts, Brooklyn**



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



**NOVEMBER 17, 2006**

**School Safety Engineering Project  
M.S. 143, Brooklyn**

**TABLE OF CONTENTS**

<b>1. INTRODUCTION .....</b>	<b>3</b>
1.1 PROJECT DESCRIPTION .....	3
<b>2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS.....</b>	<b>4</b>
<b>[REDACTED]</b>	
2.2 NEIGHBORHOOD DESCRIPTION .....	4
2.3 MEETING WITH SCHOOL REPRESENTATIVES .....	7
<b>[REDACTED]</b>	
2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL.....	7
2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS .....	8
<b>3. TRAFFIC OPERATIONS.....</b>	<b>10</b>
3.1 PARKING REGULATIONS .....	10
3.2 EXISTING SCHOOL SIGNS AND MARKINGS.....	10
3.3 ACCIDENT SUMMARY.....	12
3.4 TRAFFIC OPERATIONS AND ISSUES .....	14
3.5 SIGNAL TIMING: PEDESTRIAN PHASE .....	17
3.6 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS).....	17
<b>4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY .....</b>	<b>18</b>
4.1 SHORT-TERM MEASURES .....	18
4.2 LONG-TERM MEASURES .....	20

**EXHIBITS**

EXHIBIT 1 - AERIAL PHOTOGRAPH .....	5
EXHIBIT 2 - CATCHMENT AREA .....	6
EXHIBIT 3 - TRAFFIC SAFETY PLAN.....	9
EXHIBIT 4 - EXISTING PARKING REGULATIONS .....	11
EXHIBIT 5 - ACCIDENT SUMMARY.....	13
EXHIBIT 6 - PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY .....	21

**TABLES**

TABLE 1: DMV ACCIDENTS SUMMARY (1998-2000).....	12
TABLE 2: NYPD ACCIDENTS SUMMARY (2001-2004).....	12
TABLE 3: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS .....	17
TABLE 4: SPOT SPEED STUDY .....	19

**APPENDIX**

SPOT SPEED STUDY – MONROE STREET.....	A1
---------------------------------------	----

## **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). M.S.143 in Brooklyn is one of the 135 priority schools.

## 2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



### 2.2 NEIGHBORHOOD DESCRIPTION

Located at 800 Gates Avenue in Brooklyn, M.S. 143 occupies the city block bounded by Stuyvesant Avenue, Malcolm X Boulevard, Gates Avenue and Monroe Street, with the main entrance on Gates Avenue. The immediate neighborhood surrounding the school is generally a mix of residential and commercial with 3-4 story residential buildings. P.S. 308 is located immediately west of Stuyvesant Avenue between Gates Avenue and Quincy Street (See Exhibit 1 for Aerial Photograph).

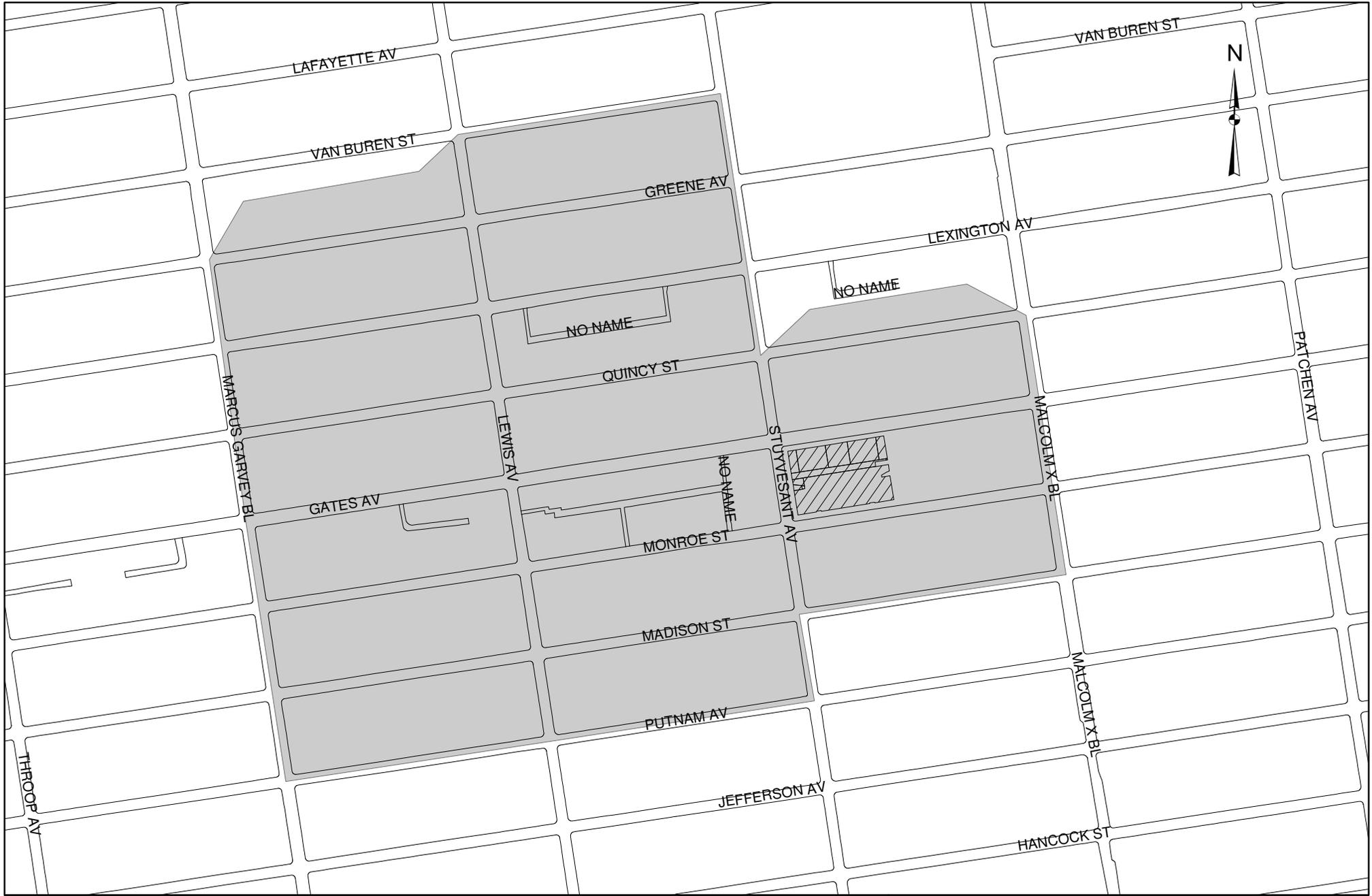


*Figure 1: looking east on Gates Avenue, in front of M.S. 143*



1 inch equals 175 feet

**EXHIBIT 1**  
**M.S. 143, BROOKLYN**  
**AERIAL PHOTOGRAPH**



1 inch equals 400 feet


**CATCHMENT AREA**

**EXHIBIT 2**

**M.S. 143, BROOKLYN**

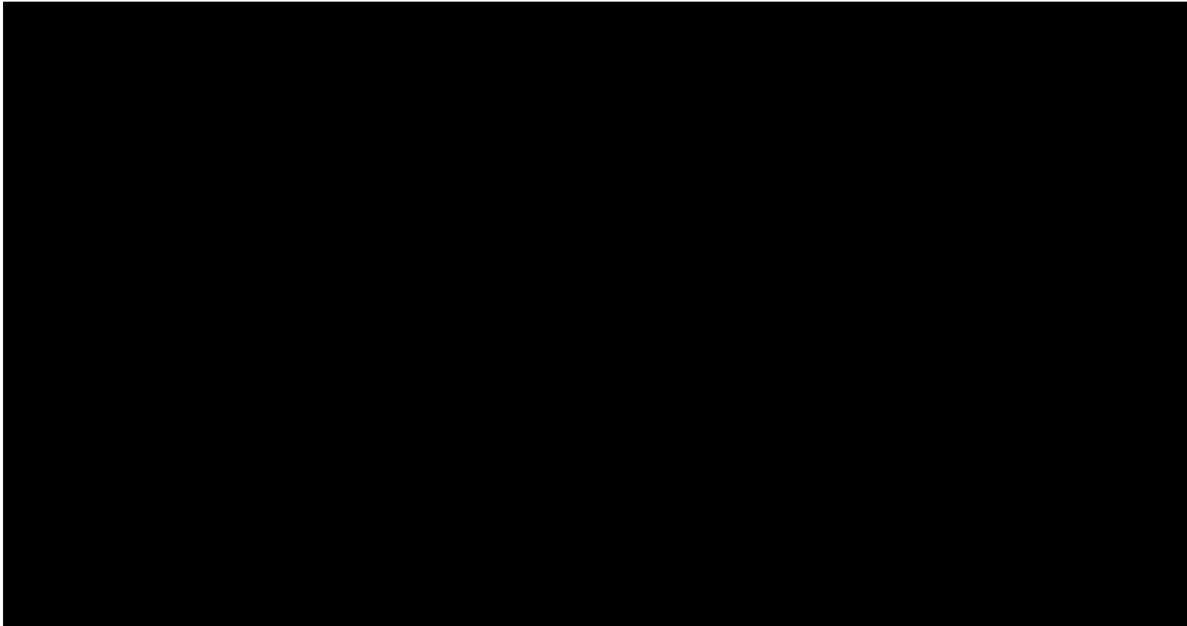
**CATCHMENT AREA**

### **2.3 MEETING WITH SCHOOL REPRESENTATIVES**

The consultant staff, the New York City DOT staff and representatives from M.S. 143 met at the school on the afternoon of November 8, 2006. Representatives from the school included the principal, school safety officer, and assistant principal for M.S. 267.

According to representatives of the school, the major problems presented for student pedestrians include the following:

- Intersection Malcolm X Boulevard and Gates Avenue is congested and many students use this intersection because the city bus stop for the 46 Bus.
- Intersection Stuyvesant Avenue and Gates Avenue is congested and many students use this intersection because the city bus stop for the 52 Bus.
- Speeding along Monroe Street



### **2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL**

The breakdown of the students by mode of transportation and by school sharing the building is listed in Table 1, Modes of Travel. School officials indicated that the majority of the students using MTA transportation actually use either the B52 or B46 city buses.

<b>TABLE 1: MODES OF TRAVEL</b>		
<b>(AS ESTIMATED BY SCHOOL OFFICIALS)</b>		
Description	M.S. 143 Percentage	M.S. 267 Percentage
Walk	47%	37%
Driven by parent or guardian	1%	1%
School bus	1%	1%
MTA bus or subway	50%	61%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>

### **2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS**

P.S. 308, Clara Cardwell School with approximately 900 students is located between Quincy Avenue and Gates 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 

**MS 143 Brooklyn**  
**SCHOOL OF PERFORMING & FINE ARTS**

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

Map created on 11/16/2006

**EXHIBIT 3**

1.5.1

COMM. BOARD: 303  
PRECINCT: 81

### 3. TRAFFIC OPERATIONS

#### 3.1 PARKING REGULATIONS

“NO PARKING, 7 AM - 4 PM, SCHOOL DAYS, EXCEPT BOARD OF EDUCATION” parking regulation signs are posted on the south side of Gates Avenue in front of the school’s main entrance.

“NO PARKING, 7 AM - 4 PM, SCHOOL DAYS” parking regulation signs are posted in front of the school on the north side of Monroe Street.

Alternate side of street parking regulations are in effect between 11:00 am and 12:30 pm on the roadways surrounding the school. See Exhibit 4 for the parking regulations.



*Figure 2: Parking regulations on Monroe Street*

#### 3.2 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 6.



NO PARKING  
11:00 am TO 12:30pm  
TUESDAY & FRIDAY

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

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

NO PARKING  
11:00 am TO 12:30pm  
TUESDAY & FRIDAY

NO PARKING  
11:00 am TO 12:30pm  
TUESDAY & FRIDAY

STUYVESANT

AVE

GATES AVE

M.S. 143

SCHOOL  
YARD

MONROE STREET

MALCOLM X

BLVD.

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

NO PARKING  
11:00 am TO 12:30pm  
TUESDAY & FRIDAY

NO PARKING  
11:00 am TO 12:30pm  
TUESDAY & FRIDAY

LEGEND

-  MAIN ENTRANCE
-  ENTRANCE
-  STREET SIGN

**EXHIBIT 4**

**M.S. 143, BROOKLYN**

**EXISTING PARKING REGULATIONS**

SCALE: 1" = 150'

### 3.3 ACCIDENT SUMMARY

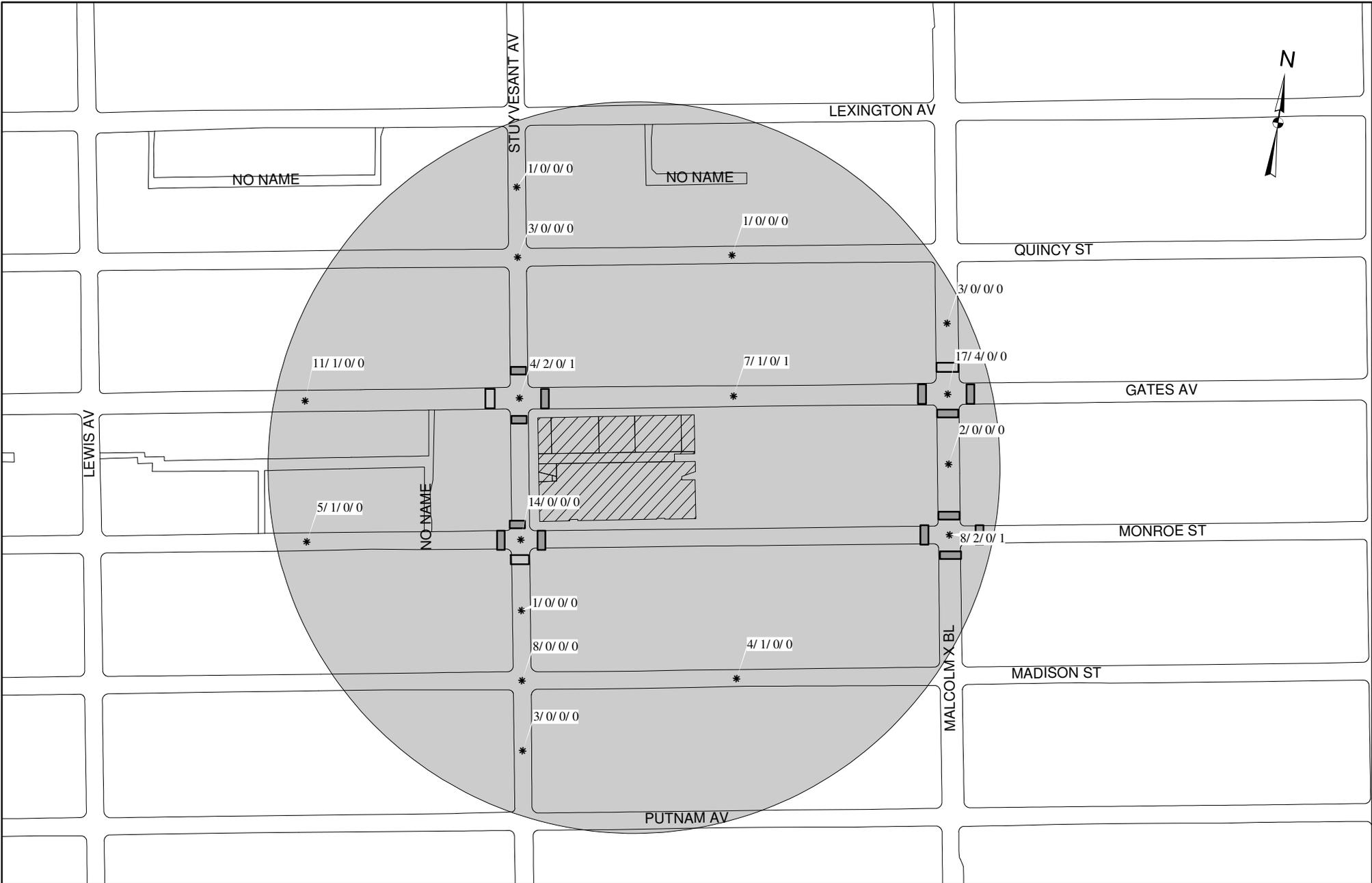
Exhibit 5 and Table 1 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of M.S. 143 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of the accident. Table 2 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 that did not have detailed data available at the time of this study will be addressed with DOT's School Safety Engineering Program's ongoing work. DMV accident data is discussed in Section 3.4, Traffic Operations and Issues.

<b>TABLE 1: DMV ACCIDENTS SUMMARY (1998-2000)</b>				
<b>INTERSECTION</b>	<b>TOTAL ACCIDENTS</b>	<b>PEDESTRIAN ACCIDENTS</b>	<b>PEDESTRIAN FATALITIES</b>	<b>SCHOOL-RELATED* ACCIDENTS</b>
Gates Ave and Stuyvesant Ave	4	2	0	1
Gates Ave and Malcolm X Blvd	17	4	0	0
Monroe St and Stuyvesant Ave	14	0	0	0
Monroe St and Malcolm X Blvd	8	2	0	1
<b>TOTAL</b>	<b>43</b>	<b>8</b>	<b>0</b>	<b>2</b>

<b>TABLE 2: NYPD ACCIDENTS SUMMARY (2001-2004)</b>				
<b>INTERSECTION</b>	<b>TOTAL ACCIDENTS</b>	<b>PEDESTRIAN ACCIDENTS</b>	<b>PEDESTRIAN FATALITIES</b>	<b>SCHOOL-RELATED* ACCIDENTS</b>
Gates Ave and Stuyvesant Ave	28	9	0	3
Gates Ave and Malcolm X Blvd	38	8	0	1
Monroe St and Stuyvesant Ave	15	3	0	1
Monroe St and Malcolm X Blvd	23	3	0	0
<b>TOTAL</b>	<b>104</b>	<b>23</b>	<b>0</b>	<b>5</b>

\* 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 M.S. 143

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 5**

**M.S. 143, BROOKLYN**

**ACCIDENT SUMMARY  
THREE YEAR PERIOD  
(1998-2000)**

### 3.4 TRAFFIC OPERATIONS AND ISSUES

The following describes traffic accidents and operational issues at intersections in the vicinity of P.S. 143.

#### 3.4.1 Gates Avenue and Stuyvesant Avenue

This is a signalized intersection with school crosswalks in place on the south, north and east legs. Stuyvesant Avenue is a 34-foot wide, one-way southbound street with two traffic lanes and parking on both sides of the street. Gates Avenue is a 40-foot wide, two-way street with one travel lane in each direction and parking on both sides of the street. Gates Avenue is a MTA bus route for the B52 line with bus stops at the southeast and northwest corners of this intersection.



*Figure 3: Stuyvesant Avenue and Gates Avenue, on Stuyvesant Avenue looking south*



*Figure 4: Stuyvesant Avenue and Gates Avenue, on Gates Avenue looking east*

Four accidents occurred at this intersection during the 1998-2000 study period. Two pedestrians were struck during this time, one of which was school related. According to accident records, a vehicle traveling south struck a ten-year-old child. There is no other detailed information for this accident. The other pedestrian was struck while crossing with the signal at a crosswalk. This accident was attributed to driver's error due to failing to yield to a pedestrian while making a left turn.

A 12-year-old student was stuck while crossing mid-block on Gates Avenue between Stuyvesant Avenue and Malcolm X Boulevard.

### 3.4.2 Monroe Street and Stuyvesant Avenue

Monroe Street and Stuyvesant Avenue is an unsignalized all-way stop intersection. Monroe Street is a 34-foot wide, one-way westbound street with parking on both sides. There are school crosswalks in place on the north, east and west legs (Figure 5).



*Figure 5: Stuyvesant Avenue and Monroe Street, on Monroe Street looking west*

Fourteen accidents occurred at this intersection during 1998-2000 study period, none of which were pedestrian accidents.

### 3.4.3 Gates Avenue and Malcolm X Boulevard Avenue

This is a signalized intersection with school crosswalks in place on the east, west and south legs (Figure 6). Malcolm X Boulevard is a 44-foot wide, two-way street with one travel lane and parking on both sides of the street. Malcolm X Boulevard is a bus route for the B46 line with bus stops just north of Gates Avenue.

There were 17 accidents at this intersection during the 1998-2000 study period. Four accidents involved pedestrians, none of which were school related. According to the accident data, three accidents were attributed to the driver's failure to yield to pedestrians while making a left turn. The fourth accident was due to driver's inattention.



*Figure 6: Malcolm X Boulevard and Gates Avenue, on Malcolm X Boulevard, looking south*

#### 3.4.4 Monroe Street and Malcolm X Boulevard

Monroe Street and Malcolm X Boulevard is a signalized intersection with school crosswalks on all four approaches (Figure 7).

Eight accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, one of which was school-related. A 13-year-old pedestrian was struck while crossing against the signal. The second pedestrian was crossing with the signal and struck by a left turning vehicle.



*Figure 7: Malcolm X Boulevard and Monroe Street, on Malcolm X Boulevard, looking south*

### 3.5 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all the signalized intersections in the vicinity of M.S. 143, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

<b>TABLE 3: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS</b>				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
<b>Stuyvesant Avenue and Gates Avenue</b>				
Crossing Stuyvesant Ave	34	58	15	NO
Crossing Gates Ave	40	42	17	NO
<b>Malcolm X Blvd and Gates Avenue</b>				
Crossing Malcolm X Blvd	44	35	18	NO
Crossing Gates Ave	40	55	17	NO
<b>Malcolm X Blvd and Monroe Street</b>				
Crossing Malcolm X Blvd	44	28	18	NO
Crossing Monroe Street	34	62	16	NO

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

### 3.6 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

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

#### **4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY**

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

##### **4.1 SHORT-TERM MEASURES**

- *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, the meaning of WALK - FLASHING DON'T WALK - DON'T WALK pedestrian signal sequence, and instructing students not to cross at mid-block locations.

- *Upgrade No Parking Zone to No Standing Zone*

Existing "NO PARKING 7:00 AM - 4:00 PM, SCHOOL DAYS" parking regulations on Monroe 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.

- *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*

The school identified the intersection of Malcolm X Boulevard and Gates Avenue as a congested intersection that is heavily utilized by students walking to school and those taking the city bus. It is recommended that a crossing guard be requested at this intersection to help student safely cross the intersection.

- Malcolm X Boulevard and Gates Avenue

- *Install a speed reducer (hump) on Monroe Street*

A spot speed study was conducted on Monroe Street between Stuyvesant Avenue and Malcolm X Boulevard on August 17, 2005 to determine if vehicles were speeding in the vicinity of school.

Spot speed studies showed that the 85th percentile speed was 32 mph, which exceeds the statutory speed limit of 30 mph. Therefore, to reduce speeding in the vicinity of the school, installation of a speed reducer (hump) is recommended on

Monroe Street. The location and number of speed reducers (hump) will be determined by NYCDOT. See Table 4 for a summary of the results and the Appendix for further detail.

<b>TABLE 4: SPOT SPEED STUDY</b>		
<b>LOCATION</b>	<b>MEDIAN SPEED (MPH)</b>	<b>85TH PERCENTILE SPEED (MPH)</b>
Monroe Street between Stuyvesant Avenue and Malcolm X Boulevard	28	32

## 4.2 LONG-TERM MEASURES

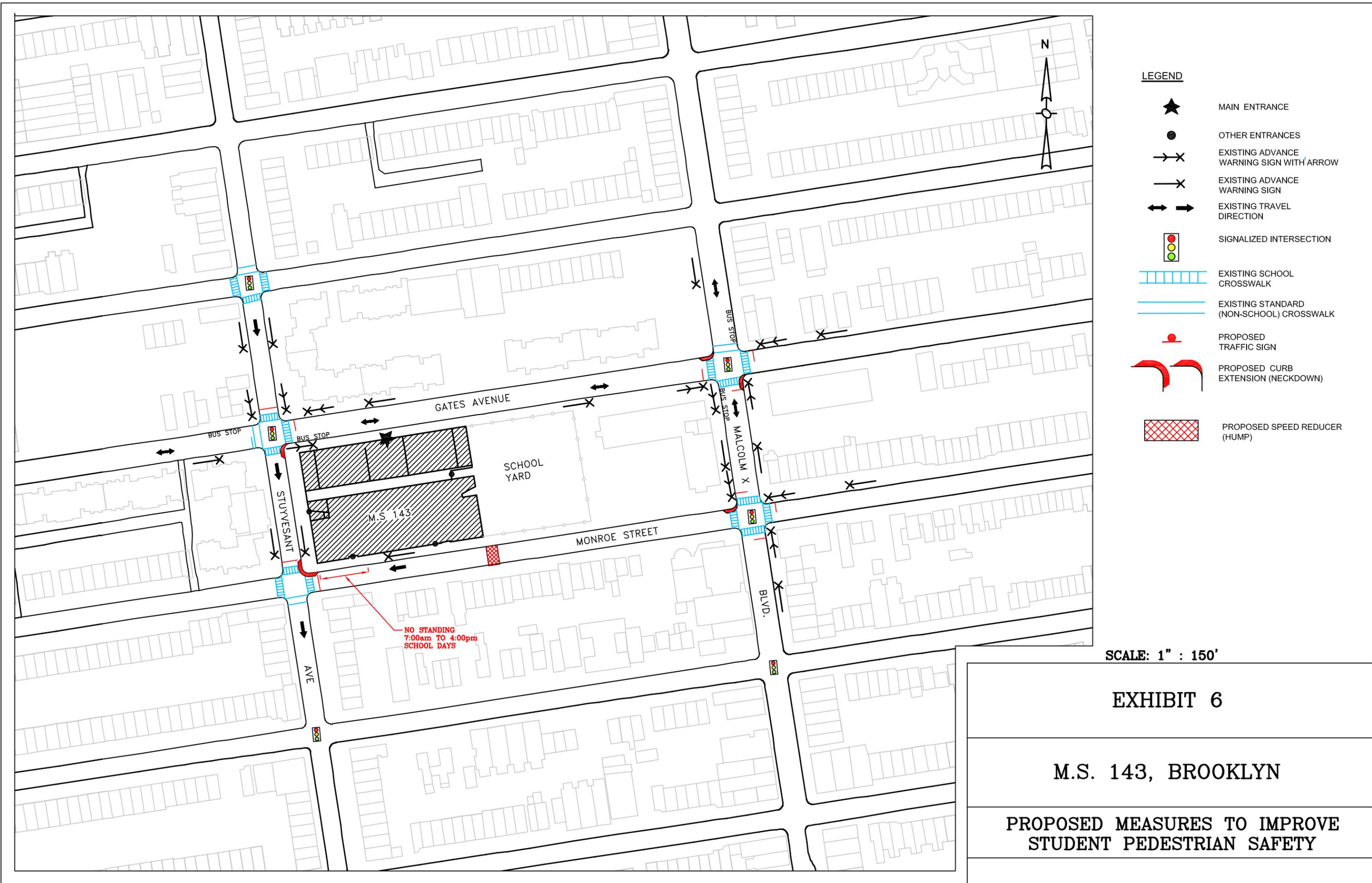
- Consider curb extensions at the following intersections:

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.

- Stuyvesant Avenue and Gates Avenue
- Stuyvesant Avenue and Monroe Street
- Malcolm X Boulevard and Monroe Street
- Malcom X Boulevard and Gates Avenue

Curb extensions should be installed at the corners as shown in Exhibit 6.

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.



SCALE: 1" : 150'

**EXHIBIT 6**

**M.S. 143, BROOKLYN**

**PROPOSED MEASURES TO IMPROVE  
STUDENT PEDESTRIAN SAFETY**

# APPENDIX

## SPOT SPEED STUDY

Date: **August 17, 2005**                      Time: **12:00 am - 1:00 pm**  
 Location: **Monroe Street btw. Stuyvesant Avenue & Malcolm X Blvd**  
 Surveyor: **The RBA Group**

School: **M.S. 143**  
 Direction: **East-West**  
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS <sup>2</sup>
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	0	0.0%	0.0%	0	0
21	0	0.0%	0.0%	0	0
22	9	8.3%	8.3%	198	4356
23	3	2.8%	11.1%	69	1587
24	4	3.7%	14.8%	96	2304
25	18	16.7%	31.5%	450	11250
26	12	11.1%	42.6%	312	8112
27	14	13.0%	55.6%	378	10206
28	9	8.3%	63.9%	252	7056
29	4	3.7%	67.6%	116	3364
30	9	8.3%	75.9%	270	8100
31	4	3.7%	79.6%	124	3844
32	4	3.7%	83.3%	128	4096
33	15	13.9%	97.2%	495	16335
34	0	0.0%	97.2%	0	0
35	0	0.0%	97.2%	0	0
36	0	0.0%	97.2%	0	0
37	0	0.0%	97.2%	0	0
38	2	1.9%	99.1%	76	2888
39	0	0.0%	99.1%	0	0
40	1	0.9%	100.0%	40	1600
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
	108	100.0%		3004	85098

Mean Speed = 27.8 mph                      Median Speed = 27.8 mph  
 Standard Deviation = 3.8 mph              15th Percentile Speed = 23.9 mph  
 Margin of Error (95% Confidence) = ± 0.7 mph      85th Percentile Speed = 31.7 mph

# SPOT SPEED STUDY

Date: August 17, 2005

Time: 12:00 am - 1:00 pm

School: M.S. 143

Location: Monroe Street btw. Stuyvesant Avenue & Malcolm X Blvd

Direction: East-West

Surveyor: The RBA Group

Comments:

Mean Speed = 27.8 mph  
Standard Deviation = 3.8 mph  
Margin of Error (95% Confidence) =  $\pm 0.7$  mph

Median Speed = 27.8 mph  
15th Percentile Speed = 23.9 mph  
85th Percentile Speed = 31.7 mph

