

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



School Safety Engineering Project

FINAL REPORT: St. Ann, Bronx



**Prepared by
The RBA Group and URBITRAN Associates Inc.**



August 9, 2006

**School Safety Engineering Project
Final Report: St. Ann, Bronx**

TABLE OF CONTENTS

1. INTRODUCTION 3

 1.1 PROJECT DESCRIPTION 3

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS..... 4

 [REDACTED]

 2.2 NEIGHBORHOOD DESCRIPTION 4

 2.3 MEETING WITH SCHOOL REPRESENTATIVES 4

 [REDACTED]

 2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL 5

 2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS 6

 2.8 CROSSING GUARD LOCATION 7

3. TRAFFIC OPERATIONS 11

 3.1 SCHOOL BUS OPERATIONS 11

 3.2 PARENT DROP-OFF OPERATIONS 11

 3.3 PARKING REGULATIONS 12

 3.4 EXISTING SCHOOL SIGNS AND MARKINGS 13

 3.5 ACCIDENT SUMMARY 15

 3.6 TRAFFIC OPERATIONS AND ISSUES..... 18

 3.6.1 *East Gun Hill Road and Dekalb Avenue*..... 18

 3.6.2 *East Gun Hill Road and Rochambeau Avenue* 18

 3.6.3 *East Gun Hill Road and Bainbridge Avenue* 18

 3.6.4 *East Gun Hill Road and Wayne Avenue* 19

 3.6.5 *East Gun Hill Road and Tryon Avenue*..... 19

 3.6.6 *East 211th Street and Tryon Avenue*..... 20

 3.6.7 *East 211th Street and Wayne Avenue* 20

 3.6.8 *Bainbridge Avenue and East 211th Street* 20

 3.6.9 *Bainbridge Avenue and East 212th Street* 21

3.6.10 Rochambeau Avenue and East 212th Street 21

3.7 SIGNAL TIMING 21

3.8 PHYSICAL CONDITIONS 22

 3.8.1 Roadways and Sidewalks 22

 3.8.2 Pedestrian Ramps 23

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY..... 24

 4.1 SHORT-TERM MEASURES 24

 4.2 LONG-TERM MEASURES 26

LIST OF EXHIBITS

EXHIBIT 1 - AERIAL PHOTOGRAPH 8

EXHIBIT 2 - SCHOOL TRAFFIC SAFETY MAP 9

EXHIBIT 3 - CROSSING GUARD LOCATIONS 10

EXHIBIT 4 - EXISTING PARKING REGULATIONS 14

EXHIBIT 5 - ACCIDENT SUMMARY 17

EXHIBIT 6 - PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY 27

LIST OF TABLES

TABLE 1: MODES OF TRAVEL 6

TABLE 2: ACCIDENT SUMMARY (1998-2000)..... 15

TABLE 3: ACCIDENT SUMMARY (2001-2004)..... 16

TABLE 4: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS..... 22

APPENDIX



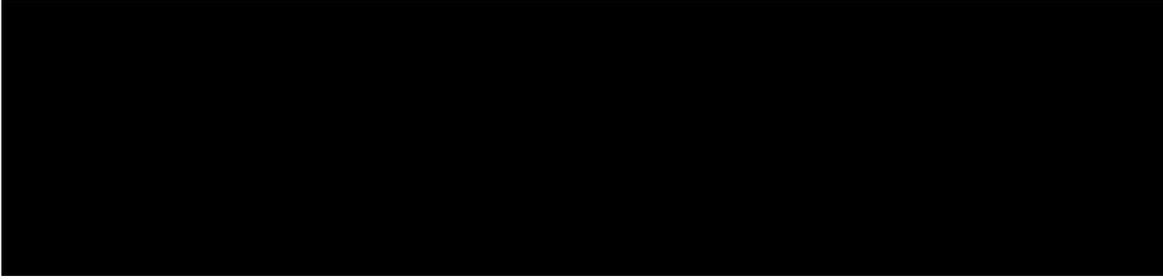
1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation (DOT) has developed school safety maps for 1,471 schools throughout the City. Schools currently in the program are primarily elementary and intermediate schools with an enrollment of at least 250 students. The safety plans include the designation of official school crosswalks, identified by prominent warning signs and roadway markings. DOT also designates curbside locations for school bus loading and unloading and other parking controls to improve conditions for students. In addition, nearly 350 speed reducers (humps) have been installed in the immediate vicinity of schools.

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

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



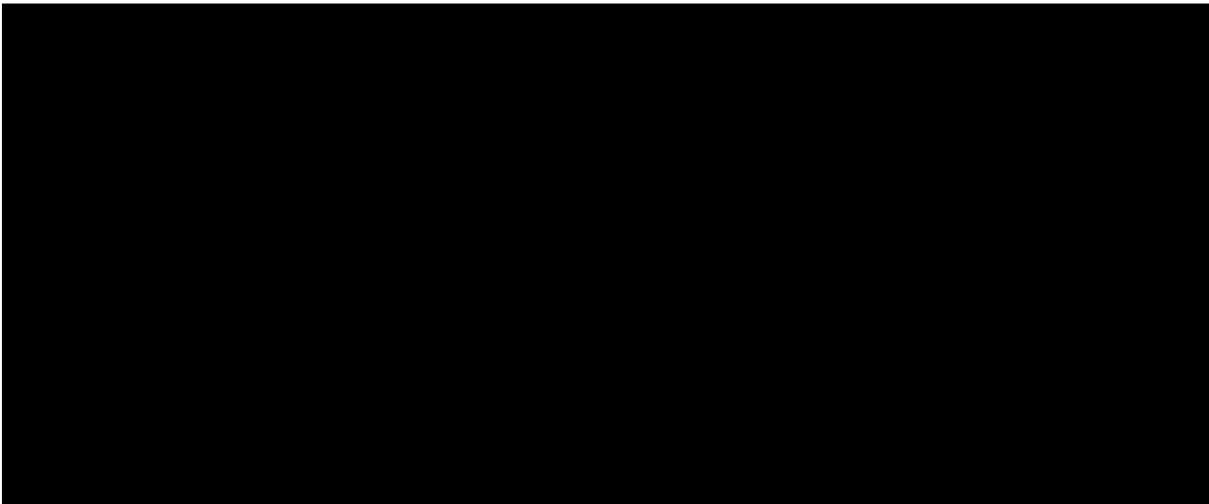
2.2 NEIGHBORHOOD DESCRIPTION

Exhibit 1 shows an aerial view of the neighborhood surrounding St. Ann School, which generally consists of high-density residential uses. St. Ann School is situated west of Bainbridge Avenue and north of Gun Hill Road. The school is also bounded by Rochambeau Avenue to the west, and is located west of the T-type intersection of Bainbridge Avenue and East 211th Street. Woodlawn Cemetery occupies the northeast corner of the Bainbridge Avenue and East 211th Street intersection, and extends northward along the east side of Bainbridge Avenue, and then along the east side of Jerome Avenue up to East 233rd Street. Montefiore Medical Center is located on the south side of East Gun Hill Road, with the hospital itself on the southwest corner of East Gun Hill Road and Bainbridge Avenue. The emergency entrance is just south of East Gun Hill Road on Bainbridge Avenue.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant staff and the principal from St. Ann School met at the school on May 13, 2004. According to the principal, St. Ann School students face the following problems:

- Rainy day congestion.
- The proximity of Montefiore Medical Center causes general speeding and congestion problems for the neighborhood.





2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

The school’s catchment area is typically defined by the Department of Education and normally shown in an exhibit at the end of this section. However, since St. Ann is a private parochial school, the actual “catchment area” is dependent upon other factors, that are determined by the school administrators. No actual catchment area is available for St. Ann School, although the school principal reports approximately seventy percent of the students reside within walking distance of the school.

Table 1 presents the modes of travel for students at St. Ann School, as estimated by school representatives.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	60%
Driven by car	15%
School bus	0%
MTA Bus/Subway	25%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There were very few additional student pedestrian traffic generators observed in the vicinity of the school. However, several sidewalk vendors were observed near the intersection of Bainbridge Avenue and East Gun Hill Road (see Figures 2 and 3). There is also a pizzeria located on the north side of Gun Hill Road between Bainbridge Avenue and Wayne Avenue.



Figure 2: Sidewalk vendor shown on west side of Bainbridge Avenue, near St. Ann School



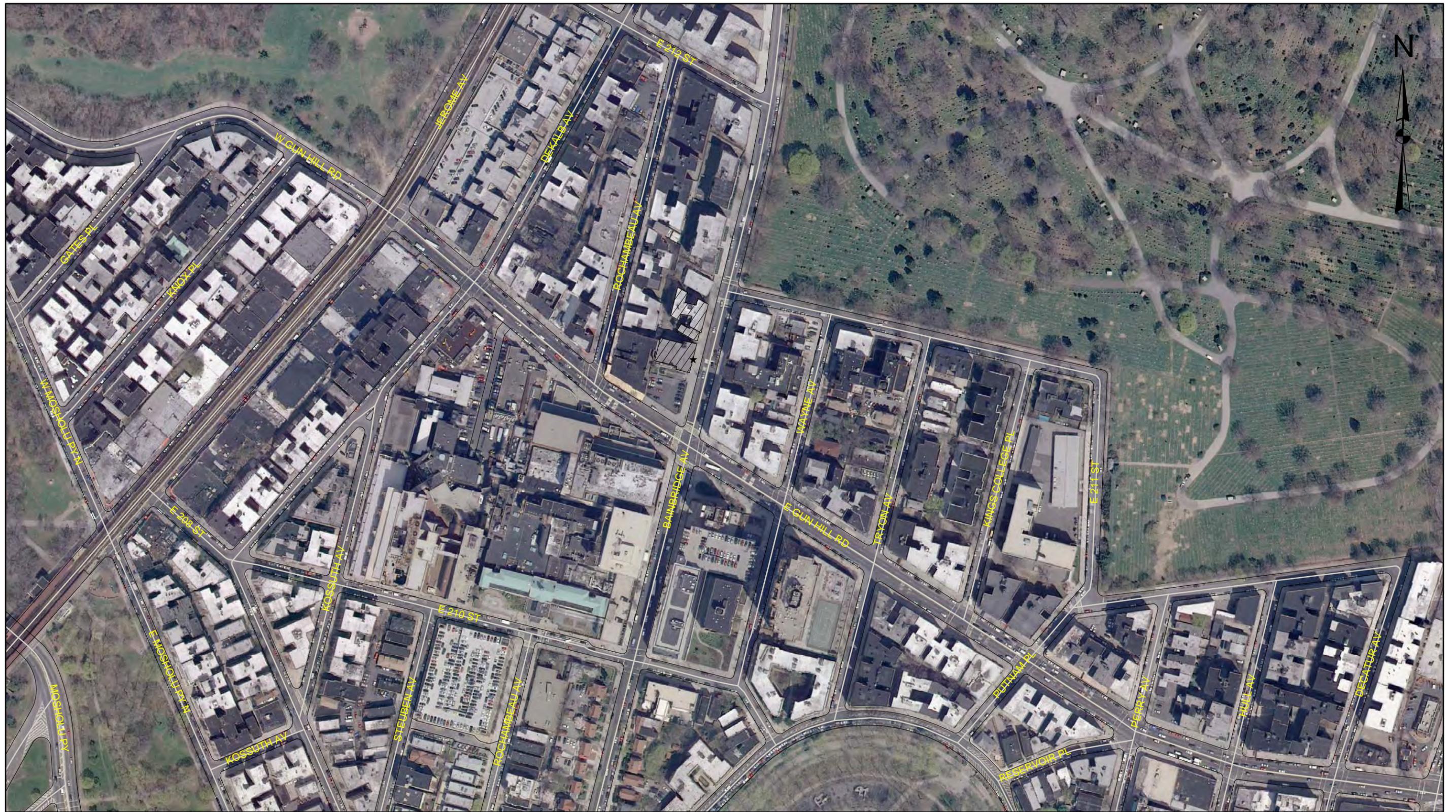
Figure 3: Sidewalk vendor shown on east side of Bainbridge Avenue, south of East Gun Hill Road

2.8 CROSSING GUARD LOCATION

School officials indicated that a school crossing guard is assigned to the intersection of Bainbridge Avenue and East Gun Hill Road (see Figure 4). The crossing guard location is shown in Exhibit 3 at the end of this section.



Figure 4: Looking west at the intersection of Bainbridge Avenue and East Gun Hill Road (note crossing guard)



0 250 500 1,000 Feet

EXHIBIT 1
ST. ANN ES BRONX
AERIAL PHOTOGRAPH



School Traffic Safety Map



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

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

LEGEND:

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

Bronx
ST ANN ES

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

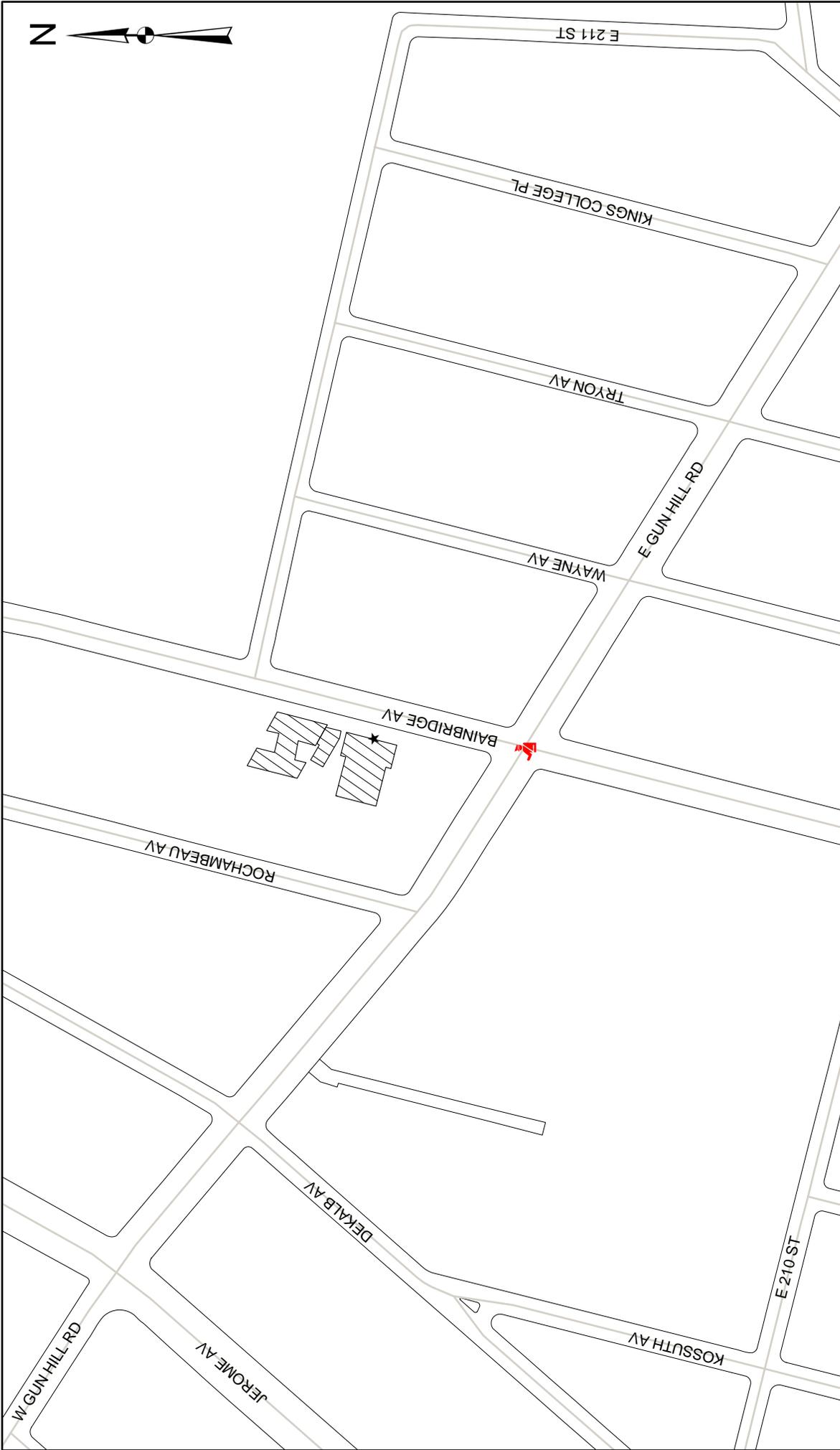
EXHIBIT 2

Map created on 11/16/2006

1.5.1

COMM. BOARD: <u>207</u>
PRECINCT: <u>52</u>

9



LEGEND:

CROSSING GUARD LOCATION



EXHIBIT 3

ST. ANN ES BRONX

10

0

250

500

1,000

Feet

CROSSING GUARDS LOCATION

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

No regular school bus service is provided to or from St. Ann School.

3.2 PARENT DROP-OFF OPERATIONS

Double parking was observed in front of the school on Bainbridge Avenue during afternoon dismissal (see Figures 5 and 6). The morning arrival period is also reported as congested, especially during inclement weather.



Figure 5: Double parking along Bainbridge Avenue, in front of St. Ann School, following afternoon dismissal



Figure 6: Mid-block congestion in front of St. Ann School following afternoon dismissal

3.3 PARKING REGULATIONS

Parking regulations around the school block are shown in Exhibit 4. Typical parking regulation signs are shown in Figure 7.



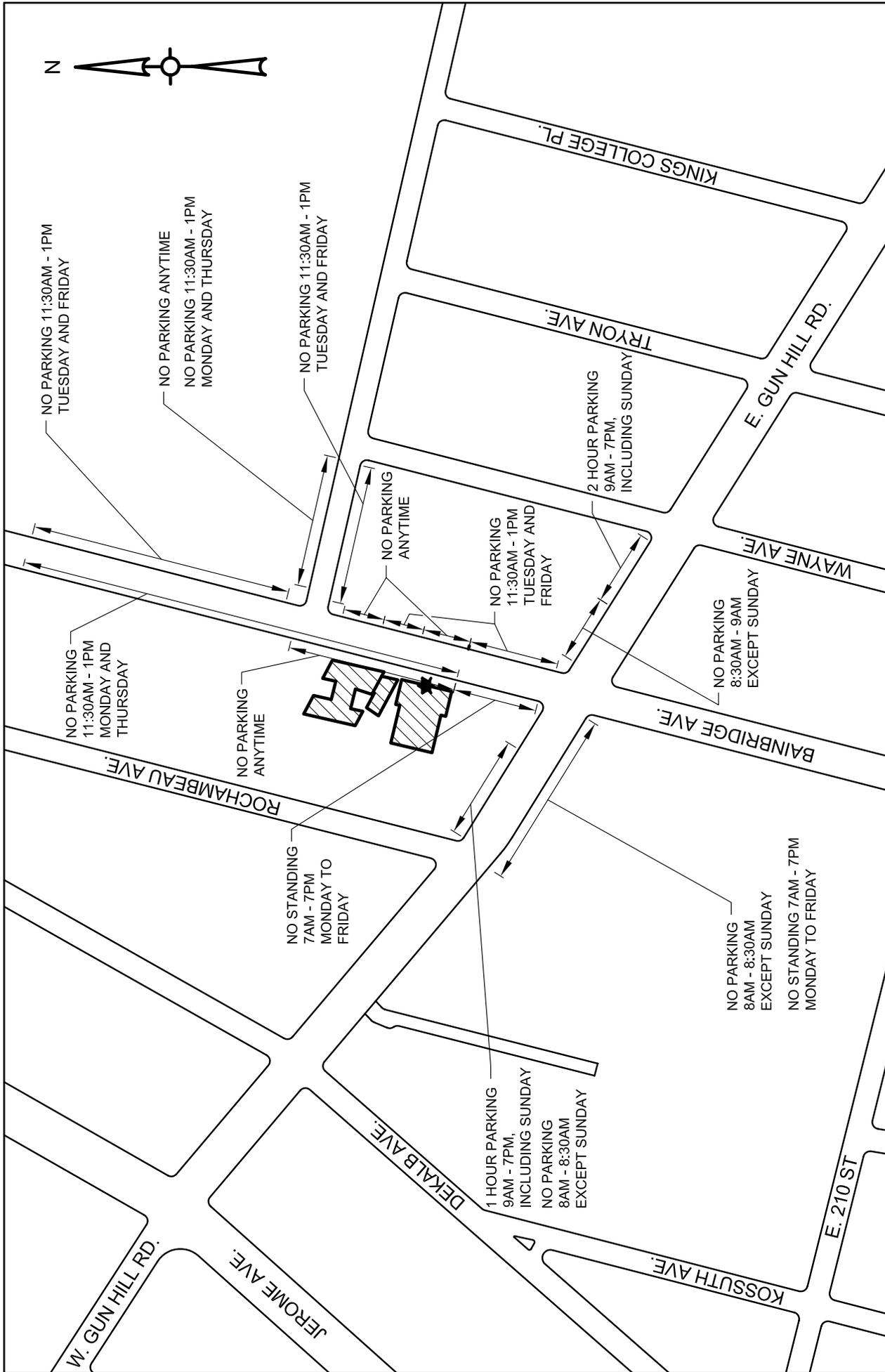
Figure 7: Parking regulation sign in front of St. Ann School

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 2 shows the existing school signals and pavement markings around P.S. 70. It should be noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual on Uniform Traffic Control Devices (MUTCD) standards of fluorescent yellow-green signs accompanied by downward pointing arrows. (Signs scheduled to be installed under this program are shown as “existing” in Exhibit 6.)



Figure 8: Typical advance school crossing pavement markings and signing



LEGEND:

★ **MAIN ENTRANCE**

EXHIBIT 4

ST. ANN E.S. BRONX

EXISTING PARKING REGULATIONS

0 200 400 FEET

3.5 ACCIDENT SUMMARY

Exhibit 5 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of St. Ann School 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 concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data was not available at the time of this study will be addressed with the ongoing work of DOT's School Safety Engineering Program. DMV accident data is discussed in Section 3.6, Traffic Operations and Issues.

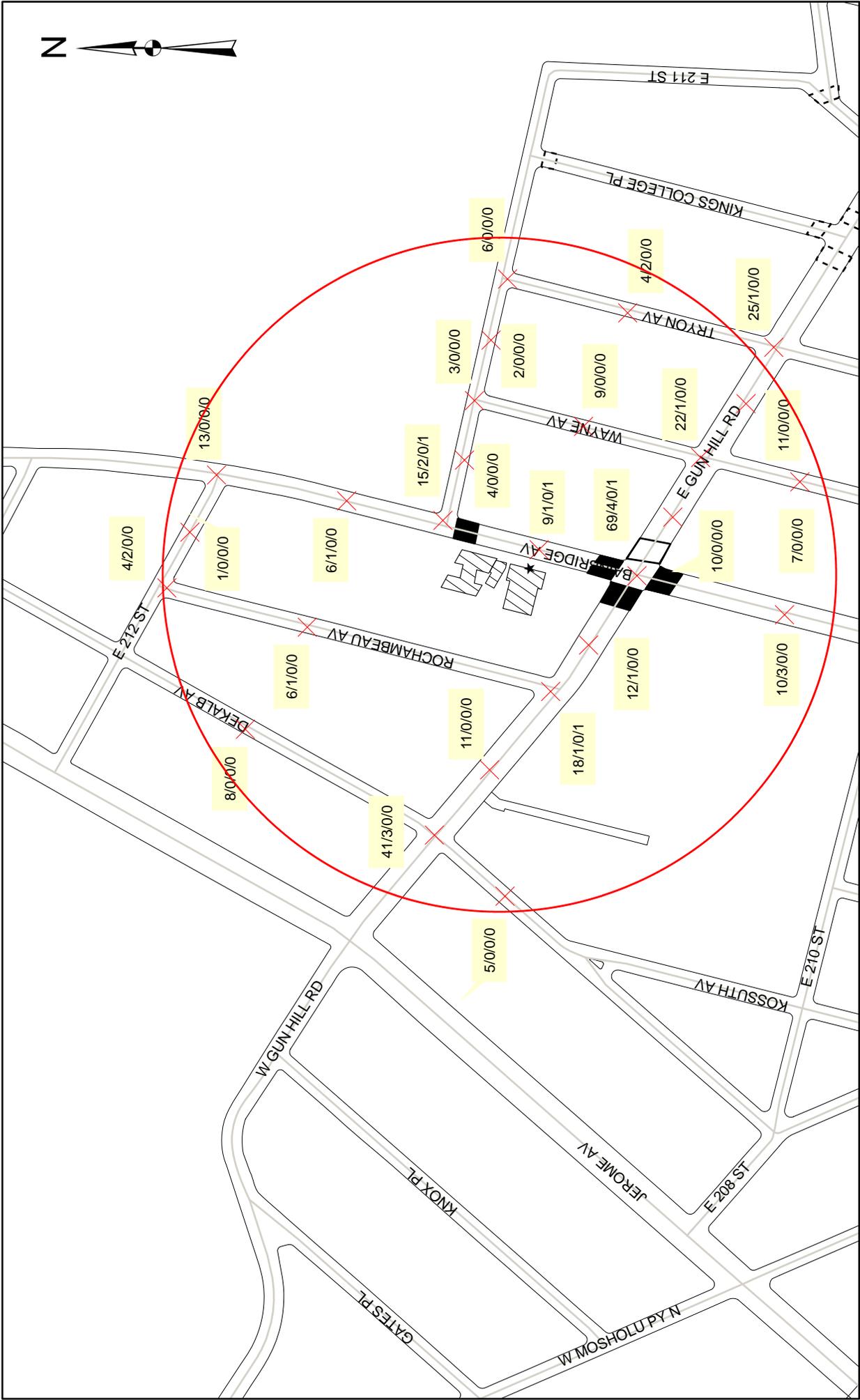
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East Gun Hill Rd. and Dekalb Ave.	41	3	0	0
East Gun Hill Rd. and Rochambeau Ave.	18	1	0	1
East Gun Hill Rd. and Bainbridge Ave.	69	4	0	1
East Gun Hill Rd. and Wayne Ave.	22	1	0	0
East Gun Hill Rd. and Tryon Ave.	25	1	0	0
East 211 St. and Tryon Ave.	6	0	0	0
East 211 St. and Wayne Ave.	3	0	0	0
Bainbridge Ave. and East 211 St.	15	2	0	1
Bainbridge Ave. and East 212 St.	13	0	0	0
Rochambeau Ave. and East 212 St.	4	2	0	0
TOTAL	216	14	0	2

* School-related accidents are defined as accidents involving school-age pedestrians (ages 4 to 14), occurring on weekdays during the school year.

TABLE 3: ACCIDENT SUMMARY (2001-2004)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East Gun Hill Rd. and Dekalb Ave.	72	10	0	1
East Gun Hill Rd. and Rochambeau Ave.	47	4	0	0
East Gun Hill Rd. and Bainbridge Ave.	115	16	0	2
East Gun Hill Rd. and Wayne Ave.	37	5	0	2
East Gun Hill Rd. and Tryon Ave.	46	3	0	1
East 211 St. and Tryon Ave.	12	0	0	0
East 211 St. and Wayne Ave.	9	0	0	0
Bainbridge Ave. and East 211 St.	19	0	0	0
Bainbridge Ave. and East 212 St.	23	1	0	0
Rochambeau Ave. and East 212 St.	8	1	0	1
TOTAL	388	40	0	7

* School-related accidents are defined as accidents involving school-age pedestrians (ages 4 to 14), occurring on weekdays during the school year.



- LEGEND:**
- ACCIDENT LOCATION
 - SCHOOL LOCATION
 - SCHOOL CROSSWALK
 - SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
 - BORDER OF 700 FEET
 - X/X/X/X
 - TOTAL ACCD / PED ACCD / PED ACCD / FATAL / SCHOOL_PED ACCD / FATAL / SCHOOL_PED ACCD

EXHIBIT 5

ST. ANN BRONX

ACCIDENT SUMMARY (1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The specific roadway-related physical conditions for each location within the school’s vicinity directly affect the safety and efficiency of operations for both pedestrian and vehicular traffic. These specific conditions are required information when analyzing a location, and are the starting point for any revisions that may be considered to improve safety and/or efficiency.

The following sub-sections outline the physical conditions and issues concerning traffic operations and accidents at the intersections in the vicinity of St. Ann School.

3.6.1 East Gun Hill Road and Dekalb Avenue

This is a four-leg, signalized intersection with pedestrian crosswalks located across all four legs of the intersection. East Gun Hill Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Dekalb Avenue is a two-way street, with one traffic lane and parking on each side of the roadway.

This intersection was the site of 41 accidents between 1998 and 2000 (Table 2), including three pedestrian accidents, none of which were school-related. There were no pedestrian fatalities during this time period.

3.6.2 East Gun Hill Road and Rochambeau Avenue

This is a signalized T-intersection with pedestrian crosswalks located across all three legs. East Gun Hill Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Rochambeau Avenue is a two-way street, with one traffic lane and parking on each side of the roadway.

This intersection was the site of 18 accidents between 1998 and 2000, one of which was a pedestrian accident that was also school-related (Table 2). In the school-related accident, a 12-year-old pedestrian sustained an “incapacitating injury” on November 1, 2000 at 8:00 am. The pedestrian’s actions were reported as “emerging from behind a parked vehicle.” At the time of the accident, the lighting condition was reported as daylight, the road was dry, and the weather was clear. There were no pedestrian fatalities during this time period.

3.6.3 East Gun Hill Road and Bainbridge Avenue

This is a signalized intersection with school crosswalks located across the west leg of East Gun Hill Road, and the north and south legs of Bainbridge Avenue. East Gun Hill Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Bainbridge Avenue is two-way street with one traffic lane and a parking lane on each side of the roadway (see Figure 9).

This intersection was the site of 69 accidents between 1998 and 2000, including four pedestrian accidents, one of which was school-related (Table 2). In the school-related accident, a 14-year-old pedestrian sustained a “possible injury” on January 4, 2000 at 2:00 pm. The pedestrian’s actions were reported as “crossing against the signal.” At the time of the accident, the lighting condition was reported as daylight, and the road was wet

due to rain. In addition, there were a total of nine mid-block accidents on Bainbridge Avenue between East Gun Hill Road and East 211th Street between 1998 and 2000. One of these was a pedestrian accident, which was also school-related. In this accident, a nine-year-old pedestrian sustained a “possible injury” while crossing mid-block at approximately 3:00 pm on Thursday, January 15, 1998. The accident occurred during daylight conditions in the rain.



Figure 9: Looking northwest across intersection of Gun Hill Road and Bainbridge Avenue

3.6.4 East Gun Hill Road and Wayne Avenue

This is a four-leg, signalized intersection with pedestrian crosswalks located across all legs. East Gun Hill Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Wayne Avenue is two-way street with one traffic lane and a parking lane on each side of the roadway.

This intersection was the site of 22 accidents between 1998 and 2000, including one pedestrian accident that was not school-related (Table 2). There were no pedestrian fatalities during this time period.

3.6.5 East Gun Hill Road and Tryon Avenue

This is a four-leg, two-way stop-controlled intersection with no crosswalk across any legs. East Gun Hill Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Wayne Avenue is two-way street with one traffic lane and a parking lane on each side of the roadway.

This intersection was the site of 25 accidents between 1998 and 2000, including one pedestrian accident that was not school-related (Table 2). There were no pedestrian fatalities during this time period.

3.6.6 East 211th Street and Tryon Avenue

This is a three-leg, T-type, stop-controlled intersection, with no school or pedestrian crosswalks located across any legs. East 211th Street is a two-way street with one traffic lane and a parking lane on each side of the roadway. Tryon Avenue is also a two-way street, with one traffic lane and parking on each side of the roadway. Tryon Avenue is stop-controlled at its intersection with East 211th Street.

This intersection was the site of six accidents between 1998 and 2000, but no pedestrian accidents (Table 2). There were no pedestrian fatalities during this time period.

3.6.7 East 211th Street and Wayne Avenue

This is a three-leg, T-type, stop-controlled intersection, with no school or pedestrian crosswalks located across any legs. East 211th Street is a two-way street with one traffic lane and a parking lane on each side of the roadway. Wayne Avenue is also a two-way street, with one traffic lane and parking on each side of the roadway. Wayne Avenue is stop-controlled at its intersection with East 211th Street.

This intersection was the site of three accidents between 1998 and 2000, but no pedestrian accidents (Table 2). There were no pedestrian fatalities during this time period.

3.6.8 Bainbridge Avenue and East 211th Street

This is a signalized intersection, with a school crosswalk located across the south leg of Bainbridge Avenue, and pedestrian crosswalks located across the north leg of Bainbridge Avenue and the east leg of East 211th Street. Bainbridge Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. East 211th Street is a two-way street, with one traffic lane and parking on each side of the roadway (see Figure 10).

This intersection was the site of 15 accidents between 1998 and 2000, including two pedestrian accidents, one of which was school-related (Table 2). In the school-related accident, a six-year-old pedestrian sustained a “non-incapacitating injury” on January 6, 1998 at 8:00 am. The pedestrian’s actions were reported as “emerging from behind a parked vehicle.” At the time of the accident, the lighting condition was reported as daylight, the road was wet, and the weather condition was reported as fog. There were no pedestrian fatalities during this time period.



Figure 10: Looking east on East 211th Street across Bainbridge Avenue

3.6.9 Bainbridge Avenue and East 212th Street

This is a three-leg, T-type, stop-controlled intersection, with no marked crosswalks. East 212th Street is stop-controlled at its intersection with Bainbridge Avenue. Bainbridge Avenue is two-way street with one traffic lane and a parking lane on each side of the roadway. East 212th Street is a one-way westbound street (away from Bainbridge Avenue) with one traffic lane and parking on each side of the roadway.

This intersection was the site of 13 total accidents between 1998 and 2000, none of which were pedestrian accidents (Table 2). There were no pedestrian fatalities during this time period.

3.6.10 Rochambeau Avenue and East 212th Street

This is a three-leg, T-type, stop-controlled intersection, with a pedestrian crosswalk located across the south leg of Rochambeau Avenue. Rochambeau Avenue is stop-controlled at its intersection with East 212th Street. Rochambeau Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. East 212th Street is a two-way street with one traffic lane and a parking lane on each side of the roadway.

This intersection was the site of four accidents between 1998 and 2000, including two pedestrian accidents, neither of which was school-related (Table 2). There were no pedestrian fatalities during this time period.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of St. Ann School, and were found to be adequate based upon a child pedestrian walking at the rate of 3 feet per second.

TABLE 4: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK WIDTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED ¹ (SECONDS)	TIMING ADJUSTMENT REQUIRED?
Gun Hill Rd. and Bainbridge Ave.				
crossing Gun Hill Rd	62	40 (am) ² 28 (pm-1) 43 (pm-2)	24	No
crossing Bainbridge Ave	49	76 (am) ² 58 (pm-1) 72 (pm-2)	20	No
Bainbridge Ave. and East 211th St.				
crossing Bainbridge Ave	44	23	18	No
crossing East 211 th St.	33	35	14	No

1. A rate of 3 ft/sec plus 3 seconds reaction time was utilized as the child pedestrian walking rate.
2. The am timing is in effect Monday – Friday from 7:00 a.m. – 10:00 a.m.
The pm-1 timing is in effect Monday - Friday from 10:00 a.m.- 3:30 p.m. and 7:00 p.m. – 7:00 a.m.
The pm-2 timing is in effect Monday - Friday from 3:30 p.m.- 7:00 p.m.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways and sidewalks in the vicinity of St. Ann School are generally 15 to 20 feet wide and in fair condition (see Figure 11).

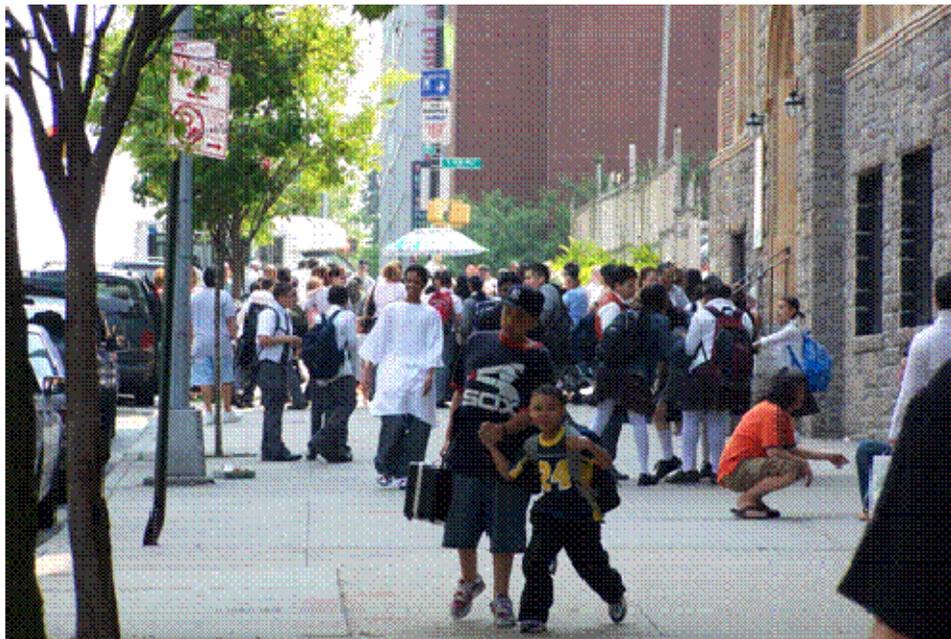


Figure 11: Looking south along sidewalk on east side of Bainbridge Avenue in front of St. Ann School

3.8.2 Pedestrian Ramps

Overall, pedestrian ramps in the vicinity of the school appear to be standard. However, one exception is at the T-intersection of Bainbridge Avenue and East 211th Street. The ramps on either side of the north leg of this intersection are missing. In addition, the ramp on the west side of Bainbridge Avenue for the school crosswalk located across the south leg of the intersection is also missing.

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve student pedestrian safety around St. Ann School. The proposed 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 involve capital improvements. Each of the short- and long-term measures recommended for St. Ann School is discussed as follows, and is shown in more detail in Exhibit 6 at the end of this section.

4.1 SHORT-TERM MEASURES

- Extend “NO STANDING 7AM - 7PM MONDAY THROUGH FRIDAY” signs

Extend the existing “NO STANDING 7AM – 7PM MONDAY THROUGH FRIDAY” parking regulation to include an area 30 feet in front of the main entrance to the school. (This is a typical requirement for all NYC schools in order to provide for emergency access to and from the school.)

- Install graphic “YIELD TO PEDESTRIAN” signs

Install “YIELD TO PEDESTRIAN” signs at intersection approaches with substantial vehicle–student pedestrian volumes at intersections assigned to this school. These are locations where drivers are not otherwise required to stop, and have no other warning of the possible conflict with student pedestrians walking within a school crosswalk. These signs may have a right or left arrow indicating the movement in question. These locations are generally “near side” situations where drivers may not have a clear view of pedestrians that may be in the crosswalk.

To forewarn these drivers and to remind them to yield to the crossing pedestrians, the “YIELD TO PEDESTRIAN” sign is recommended on the following approaches to intersections surrounding St. Ann School:

- Westbound approach of East Gun Hill Road and Dekalb Avenue (right arrow).
- Westbound approach of East Gun Hill Road and Rochambeau Avenue (right arrow).

- Convert Pedestrian Crosswalks to School Crosswalks

Field observations revealed a significant number of students using the north side of East Gun Hill Road, west of Bainbridge Avenue, to travel to and from the school. School officials report a significant number of students are coming from neighborhoods west of Jerome Avenue. There are two pedestrian crosswalks along this East Gun Hill Road between Bainbridge Avenue and Jerome Avenue, specifically on the north legs of the intersections with Dekalb Avenue and Rochambeau Avenue. Since students are currently using these crosswalks going to and from school, consideration should be given to converting these pedestrian crosswalks to school crosswalks.

The following is therefore recommended:

- Consider converting the existing pedestrian crosswalks located across the north legs of both the Dekalb Avenue and East Gun Hill Road intersection and the Rochambeau Avenue and East Gun Hill Road intersection to school crosswalks.
- Install all appropriate advance warning devices for these school crosswalks.
- Place advanced stop bars before 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 intersections and mid-block crossings, the vehicle stop line can be moved farther back from the pedestrian crosswalk.

For school crosswalks with significant potential for vehicular/pedestrian conflicts, it is recommended that the advance stop bar be placed ten feet in advance of the crosswalk to maximize the safety benefit for school-aged pedestrians. (This would improve visibility of pedestrians to motorists, and allow pedestrians to proceed in a crosswalk before motor vehicles turn.)

Ten foot advance stop bars are recommended in advance of all school crosswalks and mid-block crossings.

- Install pedestrian crosswalks

Pedestrian crosswalks are recommended across the stop-controlled legs of selected unsignalized intersections to maximize safety for pedestrians at locations with the potential for high numbers of pedestrian/vehicle conflicts. The East Gun Hill Road and Tryon Avenue intersection is an unsignalized intersection that currently has no pedestrian crosswalks across the stop-controlled north and south legs.

The following is therefore recommended:

- Install pedestrian crosswalks across the north and south legs of the unsignalized East Gun Hill Road and Tryon Avenue intersection.

4.2 LONG-TERM MEASURES

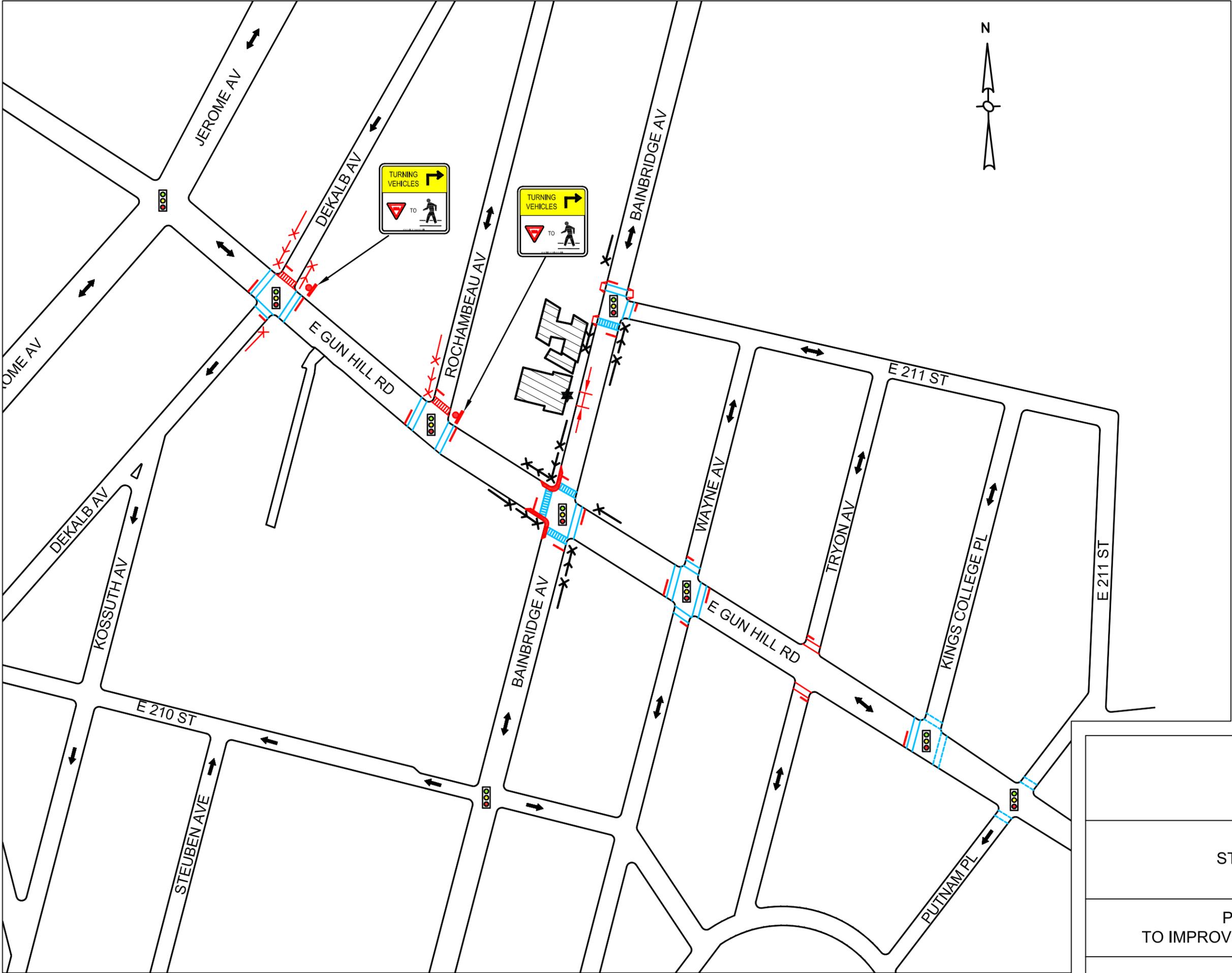
- *Install Pedestrian Ramps*

At the Bainbridge Avenue and East 211th Street intersection, the pedestrian ramp on the west side of Bainbridge Avenue for the school crosswalk across the south leg is missing. Both ramps for the pedestrian crosswalk located across the north leg of this intersection are also missing.

The following is therefore recommended:

- A pedestrian ramp should be installed on the west side of Bainbridge Avenue for the school crosswalk located across the south leg of the intersection.
- Pedestrian ramps should be installed on both sides of Bainbridge Avenue for the pedestrian crosswalk located across the north leg of the intersection.
- *Install curb extensions at the following intersections*
 - At the northwest and southwest corners of the East Gun Hill Road and Bainbridge Avenue intersection.

Curb extensions (neckdowns) should be installed at the corners shown in Exhibit 6. The purpose of a curb extension is to provide additional refuge space for pedestrians, to shorten the crossing distance for pedestrians, and to reduce the speed of vehicles approaching and turning on school crosswalks. A curb extension will not eliminate or reduce the width of any travel lanes. Curb extensions are not proposed where they would hinder the ability of a vehicle to turn.



LEGEND

-  MAIN ENTRANCE
-  EXISTING TRAVEL DIRECTION
-  EXISTING ADVANCE WARNING SIGN OR SCHEDULED TO BE INSTALLED
-  EXISTING SCHOOL CROSSWALK WARNING ASSEMBLY OR SCHEDULED TO BE INSTALLED
-  EXISTING SIGNALIZED LOCATION
-  EXISTING SCHOOL CROSSWALK
-  EXISTING PEDESTRIAN CROSSWALK
-  EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
-  PROPOSED ADVANCE WARNING SIGN
-  PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
-  PROPOSED PEDESTRIAN CROSSWALK
-  PROPOSED SCHOOL CROSSWALK
-  PROPOSED TRAFFIC SIGN
-  PROPOSED PEDESTRIAN RAMP
-  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
-  PROPOSED CURB EXTENSION (NECKDOWN)

1" = 200'

EXHIBIT 6

ST. ANN SCHOOL BRONX

PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY

APPENDIX

