

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



School Safety Engineering Project

FINAL REPORT: St. Teresa School, Staten Island



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



October 18, 2006

**School Safety Engineering Project
Final Report: St. Teresa School, Staten Island**

TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 PROJECT DESCRIPTION	3
2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS	4
	
2.2 NEIGHBORHOOD DESCRIPTION	4
2.3 MEETING WITH SCHOOL REPRESENTATIVES	5
	
2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL	6
2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS	6
2.8 CROSSING GUARD LOCATIONS.....	7
3. TRAFFIC OPERATIONS	10
3.1 SCHOOL BUS OPERATIONS	11
3.2 PARENT DROP-OFF OPERATIONS	11
3.3 PARKING REGULATIONS.....	11
3.4 EXISTING SCHOOL SIGNS AND MARKINGS.....	11
3.5 ACCIDENT SUMMARY	13
3.6 TRAFFIC OPERATIONS AND ISSUES.....	15
3.6.1 WINDSOR ROAD AND TODT HILL ROAD	15
3.6.2 WINDSOR ROAD AND SLOSSON AVENUE.....	17
3.6.3 SLOSSON AVENUE AND REON AVENUE/STATEN ISLAND EXPRESSWAY WESTBOUND OFF-RAMP.....	18
3.6.4 SLOSSON AVENUE AND LORTEL AVENUE/STATEN ISLAND EXPRESSWAY EASTBOUND OFF-RAMP.....	20
3.6.5 VICTORY BOULEVARD. AND SLOSSON AVENUE	20
3.7 SIGNAL TIMINGS.....	21
3.8 PHYSICAL CONDITIONS.....	21
3.8.1 ROADWAYS AND SIDEWALKS.....	21
3.8.2 PEDESTRIAN RAMPS.....	21

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY..... 24

 4.1 SHORT-TERM MEASURES 24

 4.2 LONG-TERM MEASURES..... 25

EXHIBITS

EXHIBIT 1 - AERIAL PHOTOGRAPH 8

EXHIBIT 2 - SCHOOL TRAFFIC SAFETY MAP..... 9

EXHIBIT 3 – CROSSING GUARD LOCATIONS..... 10

EXHIBIT 4 - EXISTING PARKING REGULATIONS 12

EXHIBIT 5 - ACCIDENT SUMMARY (1998-2000)..... 13

EXHIBIT 6 - TRAFFIC COUNT AT WINDSOR ROAD AND TODT HILL ROAD 23

EXHIBIT 7 - POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY 27

TABLES

TABLE 1: MODES OF TRAVEL 7

TABLE 2: ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000) 13

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004) 13

TABLE 4: VEHICLE VOLUMES (7:30-8:30 AM) 16

TABLE 5: PEDESTRIAN VOLUMES (7:30-8:30 AM) 16

TABLE 6: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS..... 21

APPENDIX

SPEED SURVEY DATAA1-A4

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 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). St. Teresa School in Staten Island 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. Teresa School, which is generally residential in character. The school is bounded by Victory Boulevard to the north, Slosson Avenue to the east, Windsor Road to the south, and single-family residences and Todt Hill Road to the west. The Staten Island Expressway (I-278, also known as the POW-MIA Memorial Highway) is located approximately one block south of the school. The westbound Exit 12 on- and off-ramps for the Staten Island Expressway intersect with Slosson Avenue south of the intersection of Windsor Road and Slosson Avenue and carry high traffic volumes (see Figure 1). Victory Boulevard is a major east-west arterial in Staten Island. As a result, the intersection of Slosson Avenue and Victory Boulevard accommodates high traffic volumes (see Figure 2).



Figure 1: Looking south along Slosson Avenue towards the Staten Island Expressway from Victory Boulevard (St. Teresa School is to the right)

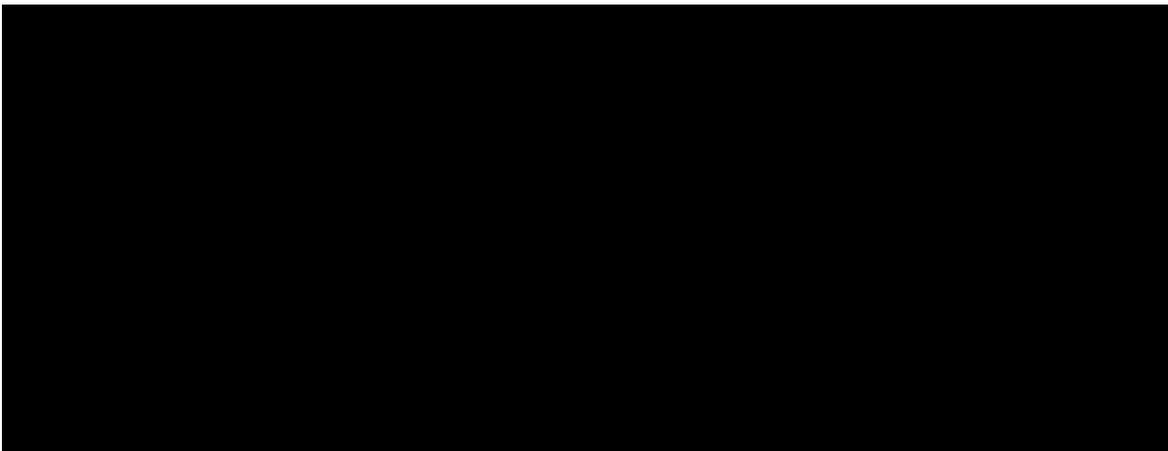


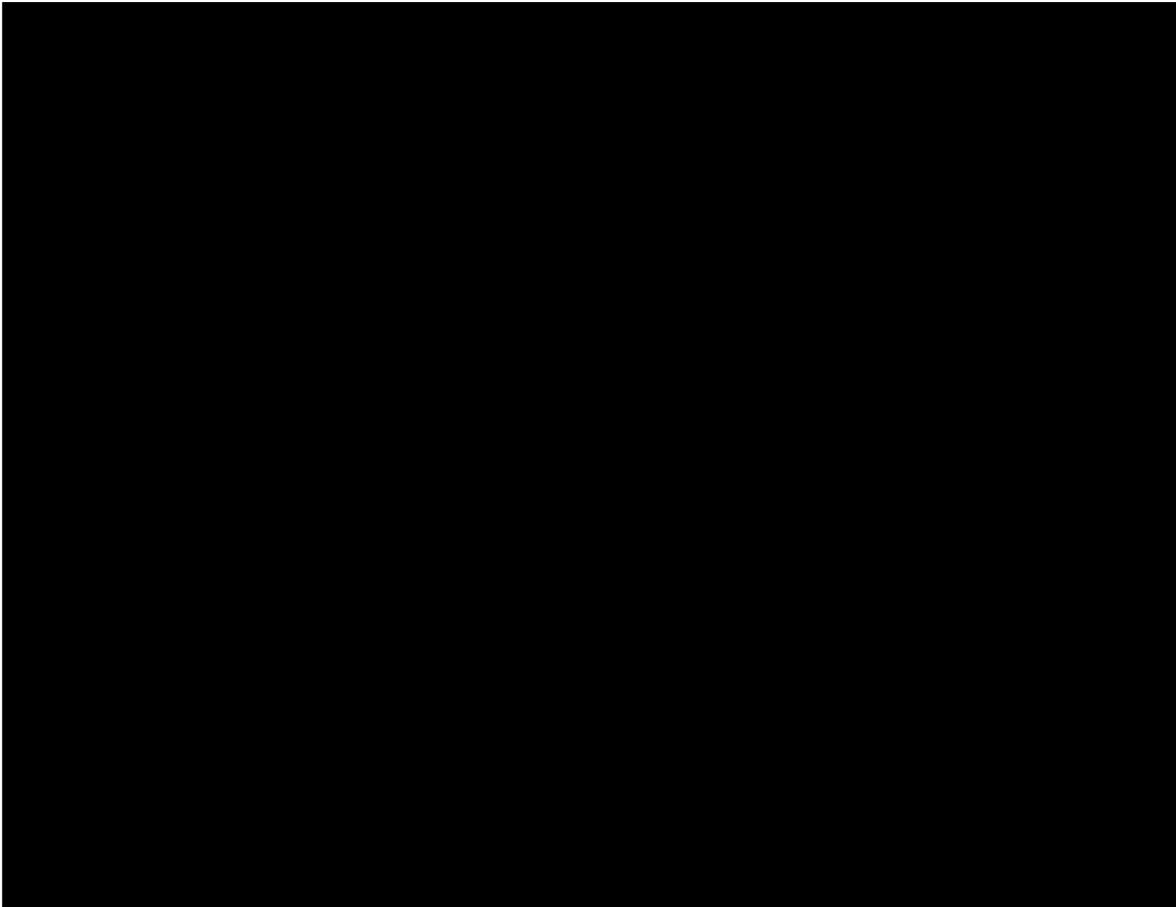
Figure 2: Looking northeast on Victory Boulevard at Slosson Avenue

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant team members were unable to arrange a meeting with school administrators at St. Teresa to identify problems and concerns related to improving school pedestrian safety. However, an independent field visit was conducted on June 17, 2004, without input from school administrators, to identify deficiencies in the vicinity of the school. In addition, the school's administrative assistant was contacted by phone on September 18, 2006. According to the administrative assistant, students at St. Teresa face the following problems:

- Parents double parking while dropping off students in front of the school on Slosson Avenue.
- Cars occasionally do not yield to parked school buses on Slosson Avenue.





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, because St. Teresa is a private school, the actual catchment area is dependent upon other factors determined by the school's administrators. No information concerning the catchment area is available for St. Teresa School.

According to the school's administrative assistant, approximately 27 percent of the students walk to school, 26 percent arrive by private vehicle, 40 percent arrive by yellow buses, and seven percent take public transportation.

Table 1 presents the modes of travel for St. Teresa School as identified by school officials.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	27%
Driven by car	26%
School bus	40%
Bus/Subway	7%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There were no significant student pedestrian generators observed in the immediate vicinity of the school.

2.8 CROSSING GUARD LOCATION

According to school officials, crossing guards are assigned to the following intersections:

- Two crossing guards at the intersection of Victory Boulevard and Slosson Avenue.
- One crossing guard at the intersection of Windsor Road and Slosson Avenue.

It should be noted that P.S. 29, a nearby school, also uses the school crossing guards assigned to the intersection of Victory Boulevard and Slosson Avenue.

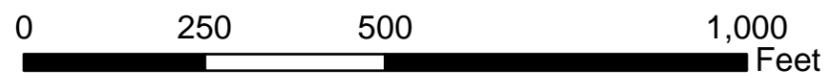
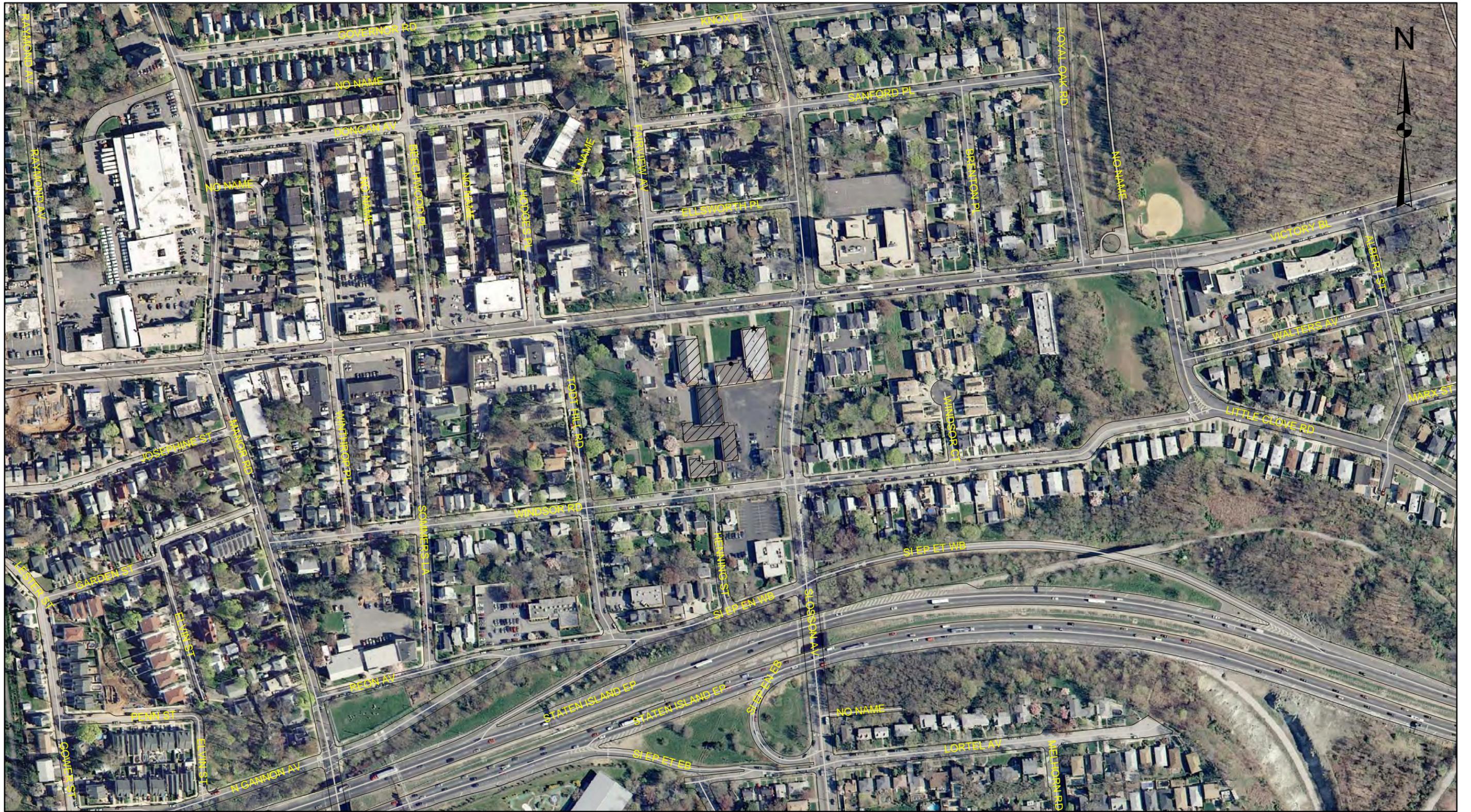
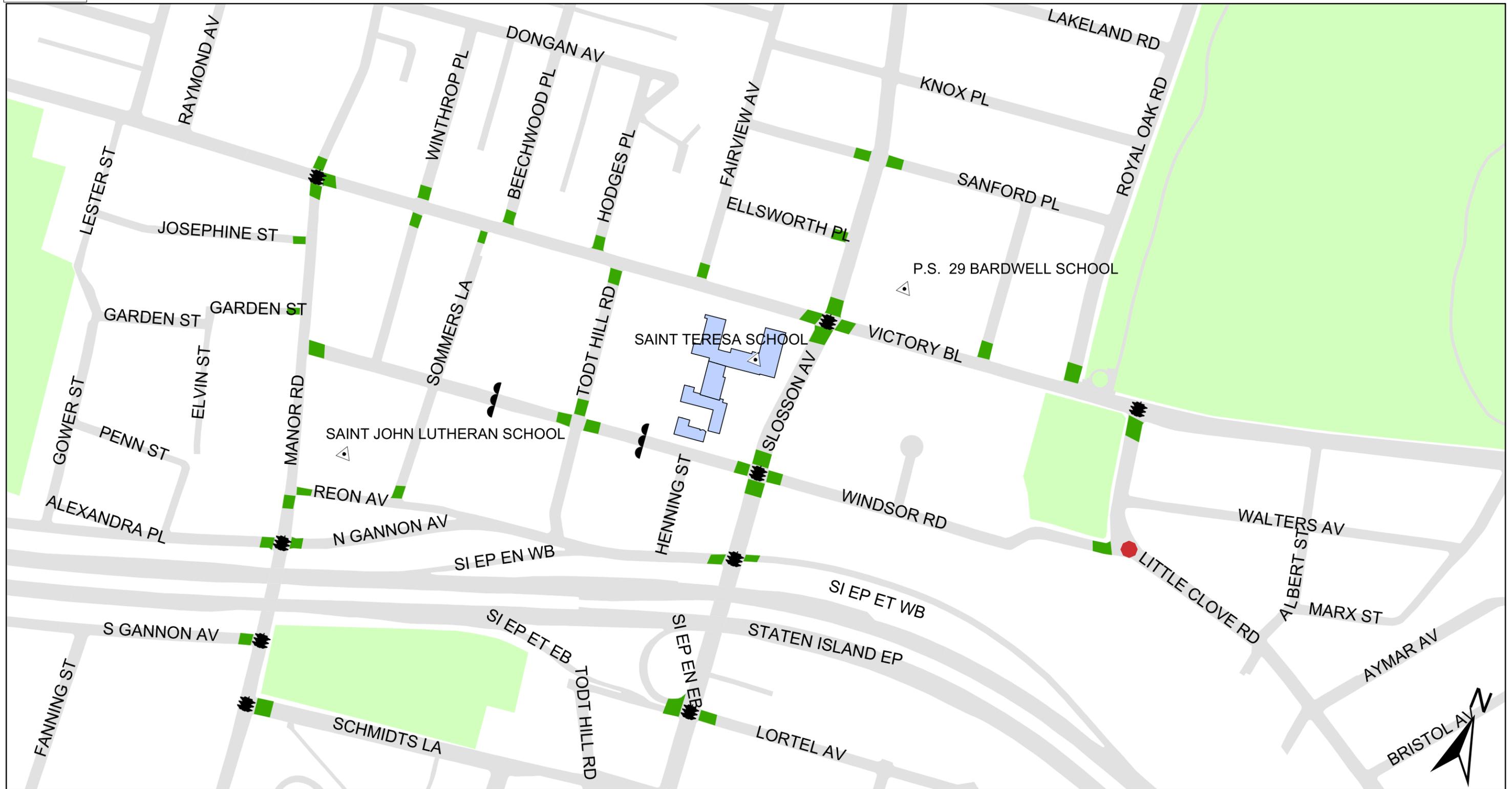


EXHIBIT 1
ST. TERESA SCHOOL
STATEN ISLAND
AERIAL PHOTOGRAPH



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

Staten Island
ST TERESA SCHOOL

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

Map created on 11/16/2006

EXHIBIT 2

COMM. BOARD: 501
 PRECINCT: 120

1.5.1

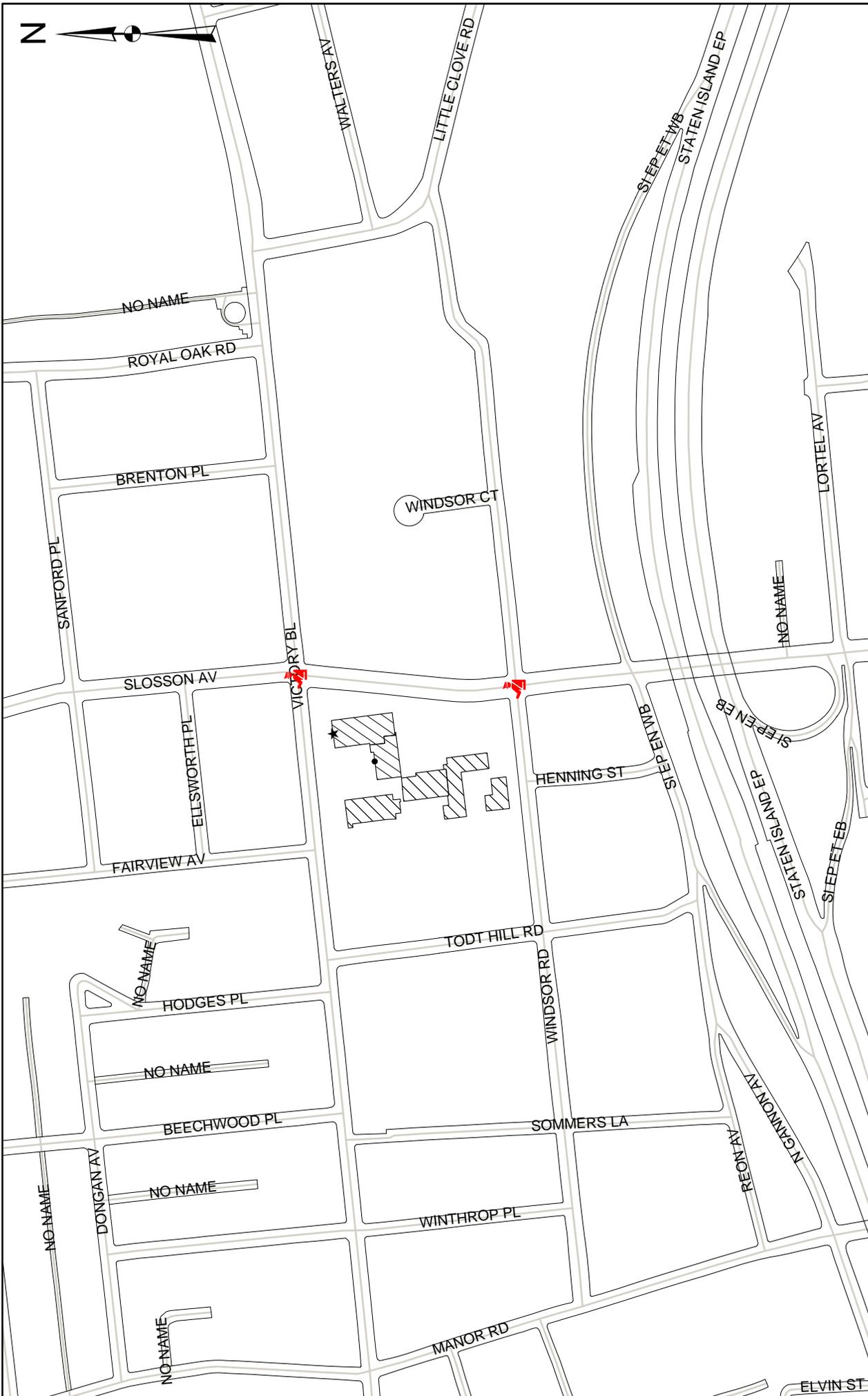


EXHIBIT 3

**ST. TERESA SCHOOL
STATEN ISLAND
CROSSING GUARD LOCATIONS**



LEGEND:

CROSSING GUARD LOCATION 

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the school's administrative assistant, approximately 38 students ride a city (MTA) bus or subway to school, and approximately 200 students ride one of eight yellow buses to school. The yellow buses drop off students in front of the school on Slosson Avenue.

3.2 PARENT DROP-OFF OPERATIONS

According to the school's administrative assistant, approximately 26 percent of the students are currently being dropped off. Parents typically drop off students on Slosson Avenue.

It should be noted that members of DOT's Staten Island Borough Commissioners Office recently met with representatives from St. Teresa to discuss issues surrounding the school. At that time, school bus and parent drop-off operations were discussed. The principal of St. Teresa's noted that the school would consider using the parking lot if necessary, to improve these operations during the school hours.

3.3 PARKING REGULATIONS

Parking regulations around the school are shown in Exhibit 4.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 2 shows existing traffic signals and pavement markings around St. Teresa School. It should be noted that a citywide signage program is currently underway to upgrade school signage to the current edition of the Federal Manual of 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 7.)

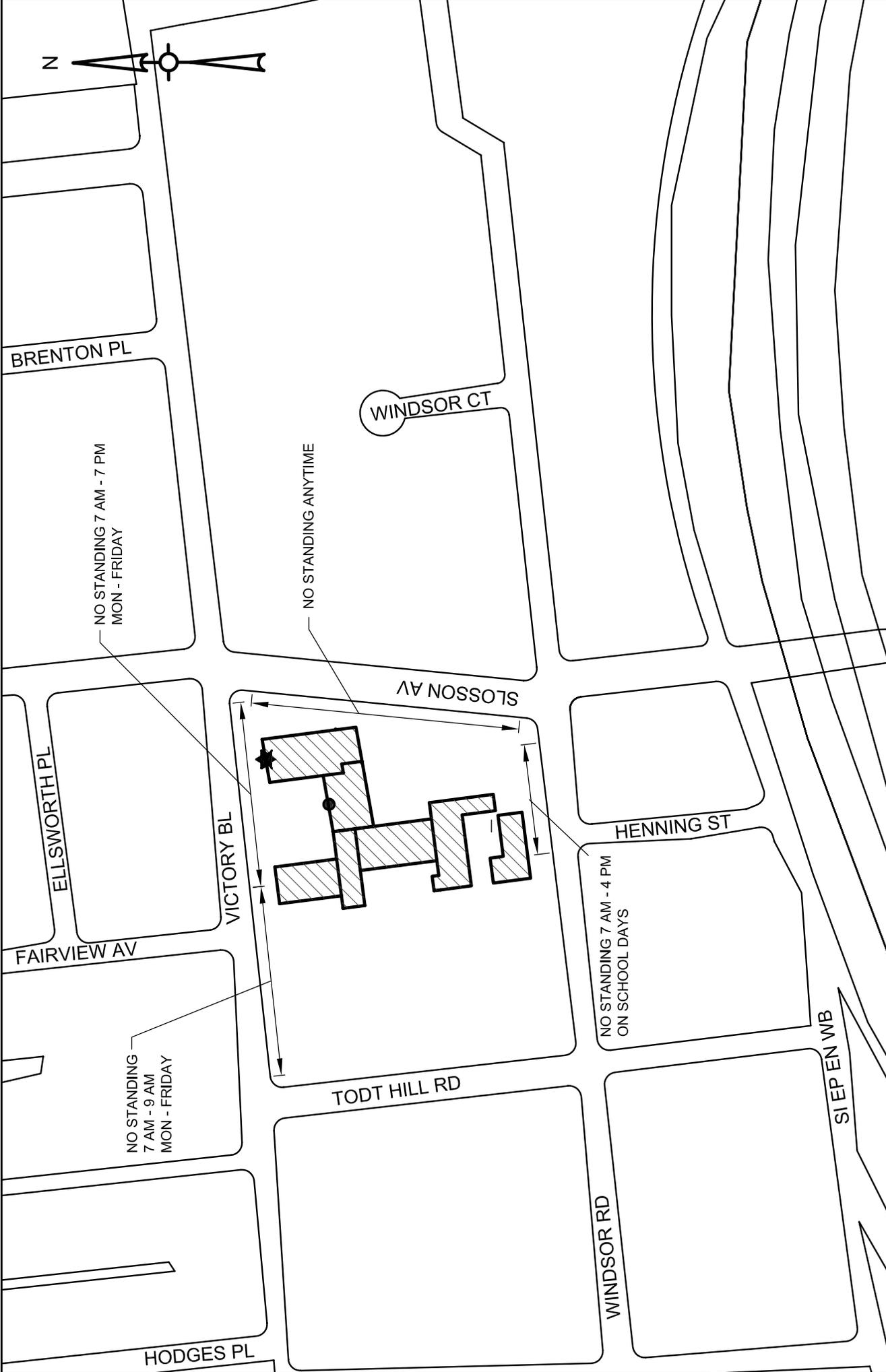


EXHIBIT 4

ST. TERESA SCHOOL
STATEN ISLAND

EXISTING PARKING REGULATIONS

LEGEND:

- ★ MAIN ENTRANCE
- ENTRANCE



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 Saint Teresa School for a three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of an 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.

TABLE 2: ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Victory Boulevard and Slosson Avenue	56	5	0	3
Windsor Road and Todt Hill Road	6	0	0	0
Windsor Road and Slosson Avenue	19	0	0	0
Slosson Avenue and Reon Avenue/Staten Island Expressway westbound off-ramp	4	0	0	0
Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound off-ramp	36	0	0	0
TOTAL	121	5	0	3

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Victory Boulevard and Slosson Avenue	67	3	0	0
Windsor Road and Todt Hill Road	5	0	0	0
Windsor Road and Slosson Avenue	41	2	0	0
Slosson Avenue and Reon Avenue/Staten Island Expressway westbound off-ramp	0	0	0	0
Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound off-ramp	37	1	0	0
TOTAL	150	6	0	0

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

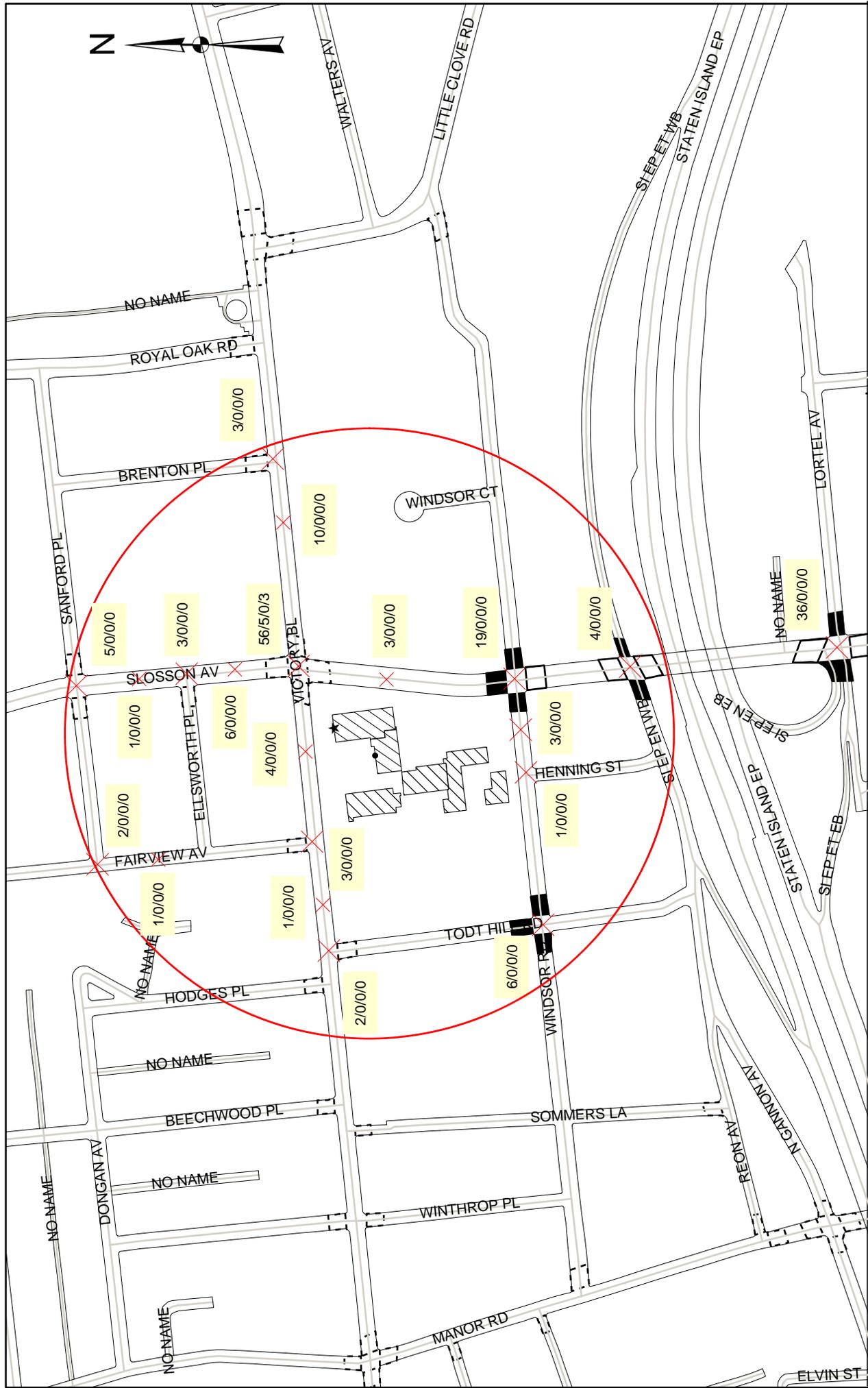


EXHIBIT 4
ST. TERESA SCHOOL
STATEN ISLAND
ACCIDENT SUMMARY (1998-2000)



LEGEND:

- ACCIDENT LOCATION: X
- SCHOOL CROSSWALK: [Thick black bar]
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL: [Dashed line]
- BORDER OF 700 FEET: [Red circle]
- TOTAL ACCD: [Vertical bar]
- PED ACCD: [Vertical bar]
- PED FATAL: [Vertical bar]
- SCHOOL_PED ACCD: [Vertical bar]
- X/X/X

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 pedestrians 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. Teresa School.

3.6.1 Windsor Road and Todt Hill Road

This is an unsignalized four-leg intersection with stop-control on the northbound Todt Hill Road approach. School crosswalks are located across all legs of the intersection (see Figure 4). Windsor Road is a one-way eastbound street with one travel lane and on-street parking on both sides of the roadway. Todt Hill Road is a one-way northbound street, with one travel lane and on-street parking on both sides of the roadway.

This intersection was the site of six accidents between 1998 and 2000 (Table 1), none of which involved pedestrians.

To assess vehicle and pedestrian volumes at the Windsor Road and Todt Hill Road intersection, a vehicular traffic count was conducted at this intersection from 7:30 to 9:00 am on Tuesday, October 18, 2005 and a pedestrian count was conducted on Wednesday, October 19, 2005. The results of the peak hour (7:30 to 8:30 am) counts are shown in Tables 3 and 4, and in Exhibit 5 at the end of this section.

The vehicular traffic count determined there were 421 vehicles eastbound on Windsor Road and 63 vehicles northbound on Todt Hill Road during the weekday morning peak hour (7:30 to 8:30 am). The pedestrian volume count determined there were six pedestrians (one adult and five students) utilizing the school crosswalk located across the west leg of Windsor Road, and seven pedestrians (two adults and five students) utilizing the pedestrian crosswalk located across the east leg of Windsor Road. This is a total of 13 pedestrians (three adults and ten students) crossing Windsor Road at the Todt Hill Road intersection during the weekday morning peak hour, which does not meet the warrant for an all way stop control at this time.

TABLE 4: VEHICLE VOLUMES (7:30-8:30 AM)		
INTERSECTION	WINDSOR ROAD EASTBOUND	TODT HILL ROAD NORTHBOUND
Windsor Road and Todt Hill Road	421	63

TABLE 5: PEDESTRIAN VOLUMES (7:30-8:30 AM)				
INTERSECTION	Crossing WINDSOR ROAD WEST-LEG CROSSWALK	Crossing WINDSOR ROAD EAST-LEG CROSSWALK	Crossing TODT HILL ROAD SOUTH-LEG CROSSWALK	Crossing TODT HILL ROAD NORTH-LEG CROSSWALK
Windsor Road and Todt Hill Road	6 (1 / 5) *	7 (2 / 5) *	0 (0 / 0) *	55 (24 / 31) *

* Numbers in parentheses indicate (adults / students).

To more fully assess safety and operational conditions in the vicinity of St. Teresa School, the consultant team searched NYCDOT records for any warrant studies that may have been performed at any of the study intersections. A warrant study was completed for the intersection of Windsor Road and Todt Hill Road to determine the need for an multi-way stop-control. The investigation was conducted in February of 2003 and included a full warrant analysis. The investigation determined that the multi-way stop-control was unwarranted at that time. This finding is consistent with the results of the analysis described above.

The original letter of request complained of speeding in the vicinity of the Windsor Road and Todt Hill Road intersection, so speed surveys were conducted in order to verify the existence of a speeding problem and to determine its extent. Eastbound vehicles on Windsor Road between Todt Hill Road and Sommers Lane were found to be traveling at an 85th percentile speed of 34 mph. Northbound vehicles on Todt Hill Road between Reon Avenue and Windsor Road were found to be traveling at an 85th percentile speed of 26 mph. The 85th percentile speed is considered to be the representative speed for the street segment. Speeds above a 30 mph threshold indicate a speeding problem that may require appropriate traffic calming measures.

The detailed results of the spot speed survey on Windsor Road and Todt Hill Road are shown in the Appendix at the end of this document.



Figure 4: Looking west along Windsor Road across the intersection with Todt Hill Road

3.6.2 Windsor Road and Slosson Avenue

This is a signalized four-leg intersection with school crosswalks located across the north, east and west legs (see Figure 5). Slosson Avenue is a two-way street with two travel lanes in each direction, an exclusive left-turn lane on the southbound approach to Windsor Road, and no on-street parking. A painted median is located along the center of Slosson Avenue between Windsor Road and Reon Avenue. West of Slosson Avenue, Windsor Road is a one-way eastbound street with one travel lane and on-street parking on both sides of the roadway. East of Slosson Avenue, Windsor Road is a two-way street with one travel lane and one on-street parking lane on each side of the roadway.

This intersection was the site of 19 accidents between 1998 and 2000 (Table 1), none of which involved pedestrians. There were no pedestrian fatalities during this time period.



Figure 5: Looking southeast along Slosson Avenue toward the intersection with Windsor Road (St. Teresa School is to the right)

3.6.3 Slosson Avenue and Reon Avenue/Staten Island Expressway westbound off-ramp

This is a signalized four-leg intersection with school crosswalks located across the east and west legs (i.e. the westbound exit ramp and Reon Avenue, respectively), and pedestrian crosswalks across the north and south legs. Slosson Avenue is a two-way street with two travel lanes in each direction, an exclusive northbound left-turn lane at the intersection with Reon Avenue/Staten Island Expressway westbound off-ramp, and no on-street parking. The westbound off-ramp for Exit 12 on the Staten Island Expressway intersects with Slosson Avenue from the east, and is one-way westbound (see Figure 6). Reon Avenue intersects Slosson Avenue on the west side and is also one-way westbound (see Figure 7). Reon Avenue is aligned between Slosson Avenue and Manor Road to the west. A westbound on-ramp to the Staten Island Expressway is located on the south side of Reon Avenue, just west of its intersection with Henning Street.

A total of four accidents occurred at this intersection between 1998 and 2000 (Table 1), but none involved pedestrians.



Figure 6: Looking southeast across Slosson Avenue at the westbound off-ramp from Exit 12 of the Staten Island Expressway



Figure 7: Looking south along the west side of Slosson Avenue toward the intersection with Reon Avenue

3.6.4 Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound off-ramp

This is a signalized four-leg intersection with school crosswalks located across the east, west, and south legs. Slosson Avenue is a two-way street with two travel lanes and exclusive northbound and southbound left-turn lanes at the intersection with Lortel Avenue/Staten Island Expressway eastbound off-ramp, and no on-street parking. West of the intersection, Lortel Avenue is a one-way eastbound street with two travel lanes and no on-street parking. East of the intersection, Lortel Avenue is a two-way street with one travel lane and one on-street parking lane on each side of the roadway. The eastbound off-ramp for Exit 12 of the Staten Island Expressway intersects with Slosson Avenue from the west. On the west side of Slosson Avenue, immediately north of the intersection with the eastbound off ramp, is an entrance loop ramp to the eastbound lanes of the Staten Island Expressway.

This intersection was the site of 36 accidents between 1998 and 2000 (Table 1), none of which involved pedestrians. There were no pedestrian fatalities during this time period.

3.6.5 Victory Boulevard and Slosson Avenue

This is a signalized four-leg intersection with school crosswalks located across all four legs. Victory Boulevard is a two-way street with one travel lane and one on-street parking lane in each direction. Slosson Avenue is a two-way roadway with two travel lanes in each direction and no on-street parking. The northbound approach of Slosson Avenue at Victory Boulevard has one exclusive left-turn lane, one exclusive through lane, and one exclusive right-turn lane.

This intersection was the site of 56 accidents between 1998 and 2000 (Table 1), including five pedestrian accidents, three of which were school-related. The first of these school-related pedestrian accidents occurred at approximately 3:00 pm on January 11, 1999, when a ten-year-old pedestrian was reported to have sustained a “possible injury” while crossing with the signal at the intersection. The road surface was dry and the weather was clear at the time of the accident, which occurred during daylight conditions. The second school-related pedestrian accident occurred at approximately 5:00 pm on October 25, 1999, when a ten-year-old pedestrian was reported to have been struck at the intersection. The extent of the pedestrian’s injuries was unreported. The pedestrian’s actions were reported as “Crossing, No Signal, Marked Crosswalk”. It is uncertain what is meant by this, because the intersection is signalized. The road surface was dry and the weather was clear at the time of the accident, which occurred during daylight conditions. There were no pedestrian fatalities during this time period.

3.7 SIGNAL TIMINGS

Pedestrian crossing times were field-verified for crosswalks at all signalized intersections in the vicinity of St. Teresa School, and were found to be adequate based upon a child pedestrian walking at the rate of three feet per second (see Table 5).

TABLE 6: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
Intersection	Crosswalk Length (Feet)	Pedestrian Time Actual (Seconds)	Pedestrian Time Required (Seconds)	Timing Adjustment Required?
Victory Boulevard and Slosson Avenue				
crossing Slosson Avenue	45	46	18	NO
crossing Victory Boulevard	38	29	15	NO
Slosson Avenue and Windsor Road				
crossing Slosson Avenue	52	37	21	NO
crossing Windsor Road	35	41	15	NO
Slosson Avenue and Reon Avenue				
crossing Reon Avenue	34	41	15	NO
Slosson Avenue and Lortel Avenue				
crossing Slosson Avenue	51	24	20	NO
crossing Lortel Avenue	37	38	16	NO
crossing ramps	64	38	25	NO

Note: A child pedestrian walking rate of 3 ft/sec, plus 3 seconds reaction time, was used to calculate the required pedestrian crossing time.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways in the vicinity of St. Teresa School were observed to be in good condition. Sidewalks are approximately four to eight feet wide on the block faces adjacent to the school and were observed to be in fair condition with the exception of the sidewalks on the southwest corner of the Slosson Avenue and Reon Avenue intersection (Figure 8). At this particular location, the sidewalk was observed to be broken and a pedestrian ramp was observed to be missing.

Pavement in poor condition was found in the vicinity of the school crosswalks located across Lortel Avenue at its intersection with Slosson Avenue.

3.8.2 Pedestrian Ramps

Pedestrian ramps in the vicinity of St. Teresa School were observed to be standard. However, deficiencies were noted at the following locations:

- On the northeast and southwest corners of the Slosson Avenue and Reon Avenue intersection, pedestrian ramps are missing and the sidewalk is broken (see Figures 6 and 8).

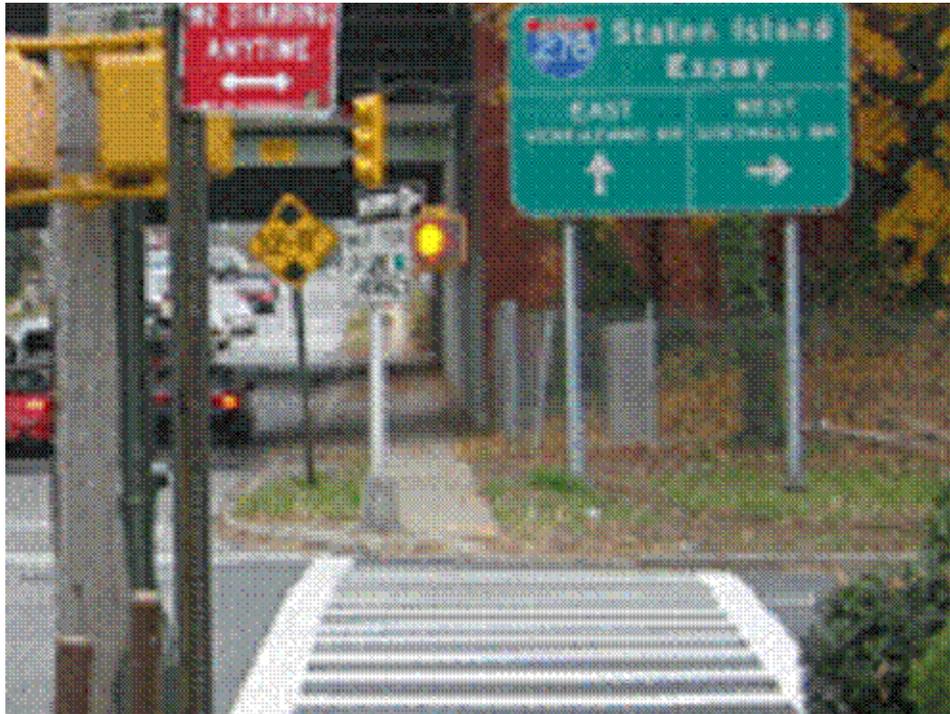
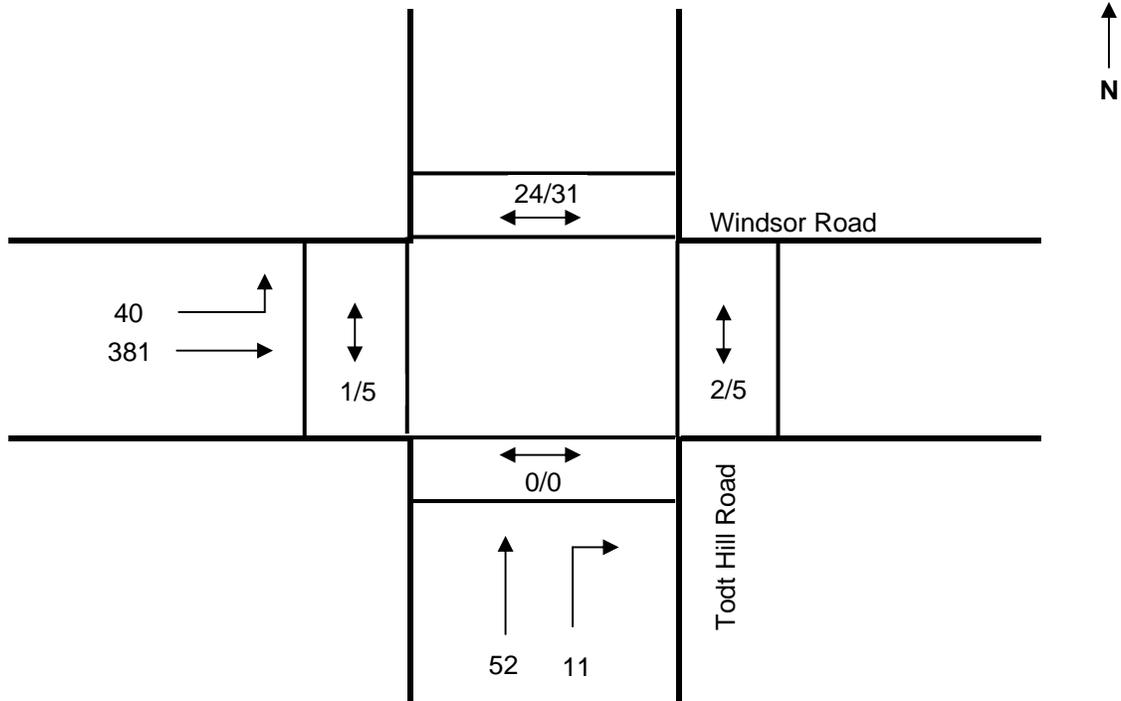


Figure 8: Looking south on Slosson Avenue to the southwest corner of the intersection with Reon Avenue

- Pedestrian ramps are missing on the northwest and southwest corners of the intersection of Slosson Avenue with Lortel Avenue/Staten Island Expressway eastbound ramps (i.e. for the westerly crosswalk).
- A pedestrian ramp is missing on the northeast corner of the Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound ramps intersection (i.e. for the easterly crosswalk).

One Hour Traffic Volumes
Wednesday, October 19th, 2005 7:30 am - 8:30 am



Intersection of Windsor Road and Todt Hill Road

Legend:	
XX / XX	Adult / Child
←→	Pedestrian Counts
→	Vehicle Movement

EXHIBIT 6
St. Teresa School Staten Island
TRAFFIC AND PEDESTRIAN COUNTS

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around St. Teresa 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. Teresa 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

➤ Place advance 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 (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.

➤ Assign Crossing Guard to Windsor Road/Todt Hill Road intersection

This intersection has school crosswalks across Windsor Road and Todt Hill Road. The traffic and pedestrian counts conducted during the weekday morning peak hour indicated that multi-way stop-control would not be appropriate at this intersection. An alternate measure to provide protection for these school crosswalks would be to assign a crossing guard to the intersection during the school's morning arrival and afternoon departure times to accommodate student pedestrian crossings of the intersection.

Therefore, it is recommended that:

- A crossing guard be assigned at the intersection of Windsor Road and Todt Hill Road during the morning arrival and afternoon departure times for St. Teresa School.
- Installation of Speed Reducers (Humps) on Windsor Road

Because there was a complaint of speeding in the vicinity of the Windsor Road and Todt Hill Road intersection (see Section 3.6.1), speed surveys were conducted on both roadways in order to verify the existence of a speeding problem and to determine its extent. Northbound vehicles on Todt Hill Road between Reon Avenue and Windsor Road were found to be traveling at an 85th percentile speed of 26 mph. However, eastbound vehicles on Windsor Road between Sommers Lane and Todt Hill Road were found to be traveling at an 85th percentile speed of 34 mph. Speeds exceeding a 30 mph threshold indicate the need for a speed reducer (humps) for this section of roadway.

Therefore, it is recommended that:

- Two speed reducers (humps) should be installed along Windsor Road, one between Sommers Lane and Todt Hill Road and the second between Todt Hill Road and Slosson Avenue, to effectively control speeding on this block adjacent to the school. The speed reducers should be marked and signed per NYCDOT standards.

Note: At time of report release NYCDOT had installed the recommended speed reducers.

4.2 LONG-TERM MEASURES

➤ *Install Pedestrian Ramps and Repair Sidewalk*

Pedestrian-related deficiencies were observed at the following locations in the vicinity of St. Teresa School:

- On the northeast and southwest corners of the Slosson Avenue and Reon Avenue intersection, pedestrian ramps are missing and the sidewalk is broken (see Figures 6 and 8).
- Pedestrian ramps are missing on the northwest and southwest corners of the intersection of Slosson Avenue with Lortel Avenue/Staten Island Expressway eastbound ramps (i.e. for the westerly crosswalk).
- A pedestrian ramp is missing on the northeast corner of the Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound ramps intersection (i.e. for the easterly crosswalk).

Therefore, it is recommended to:

- Install pedestrian ramps on the northeast and southwest corners of the Slosson Avenue and Reon Avenue intersection, and repair the broken sidewalk.
- Install pedestrian ramps on the northwest and southwest corners of the Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound intersection ramps intersection, for the westerly crosswalk.
- Install a pedestrian ramp on the northeast corner of the Slosson Avenue and Lortel Avenue/Staten Island Expressway eastbound ramps intersection, for the easterly crosswalk.

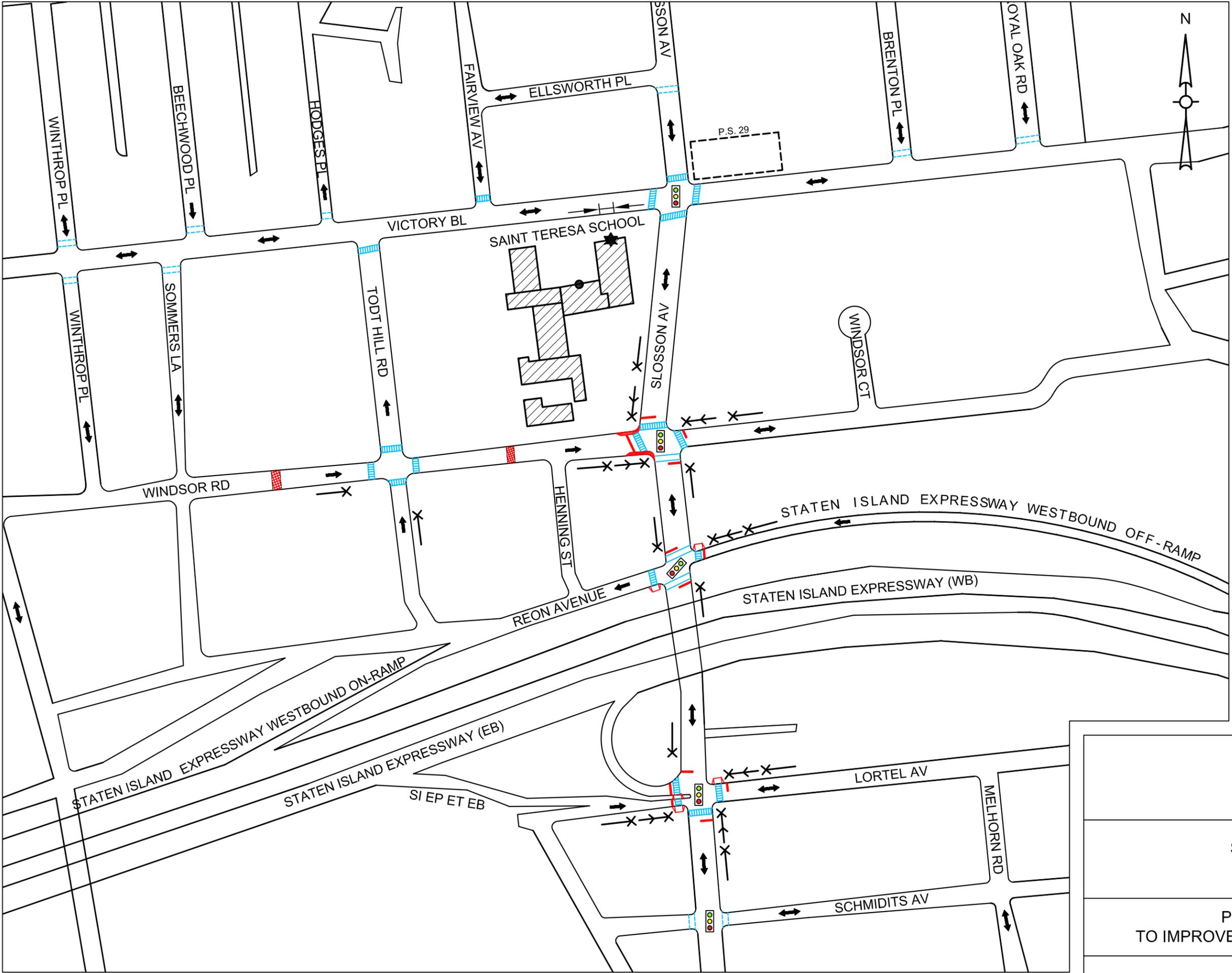
➤ *Consider installing curb extensions at the following locations:*

Consideration should be given to installing curb extensions at the following locations, provided that the Final Design confirms that construction of the recommended curb extensions would be feasible and not interfere with

traffic operations. Final details pertaining to the number, location and geometry of curb extensions will be developed during the Final Design/Contract Document preparation.

- The northwest and southwest corners of the Windsor Road and Slossen Avenue intersection for the crosswalk located across the west leg of the intersection.

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. These curb extensions would not eliminate or reduce the width of any moving lanes.



- LEGEND**
- MAIN ENTRANCE
 - OTHER ENTRANCES
 - 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 "NO STANDING 7:00AM - 4:00PM MONDAY-FRIDAY"
 - EXISTING SCHOOL CROSSWALK
 - EXISTING PEDESTRIAN CROSSWALK
 - EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
 - PROPOSED PEDESTRIAN RAMP
 - PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 - PROPOSED SPEED REDUCER
 - PROPOSED CURB EXTENSION (NECKDOWN)



1" = 200'

EXHIBIT 8

ST. TERESA SCHOOL
STATEN ISLAND

POTENTIAL MEASURES
TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX

SPOT SPEED STUDY

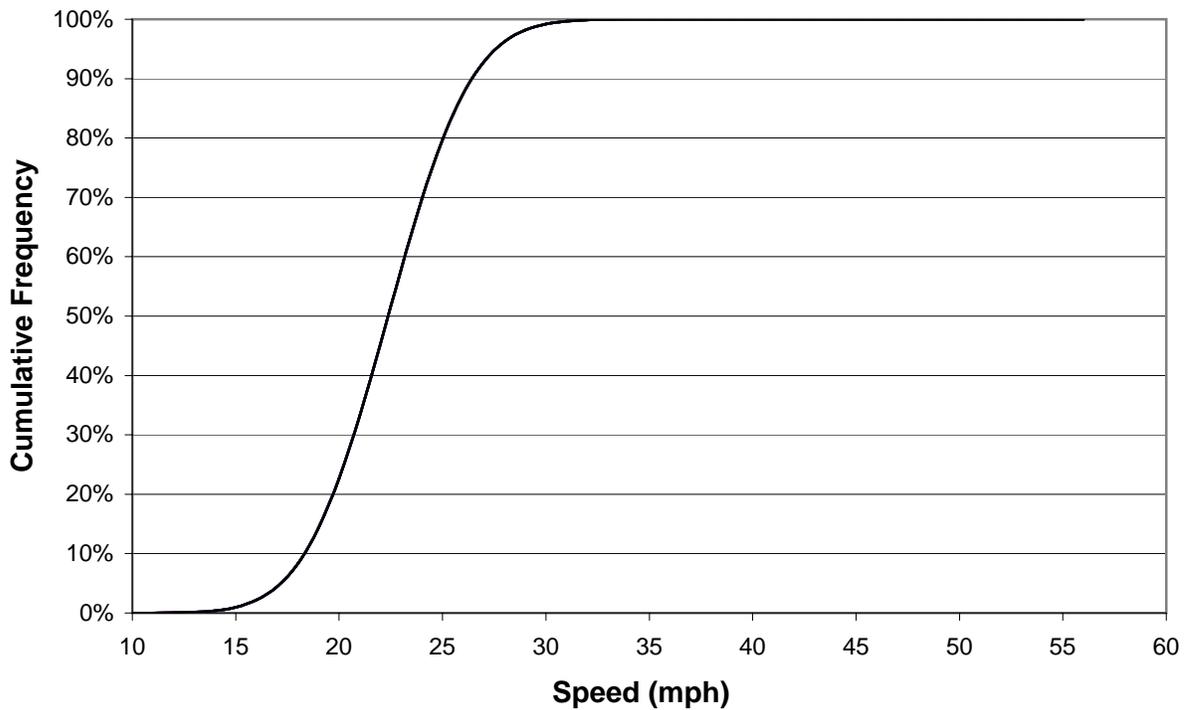
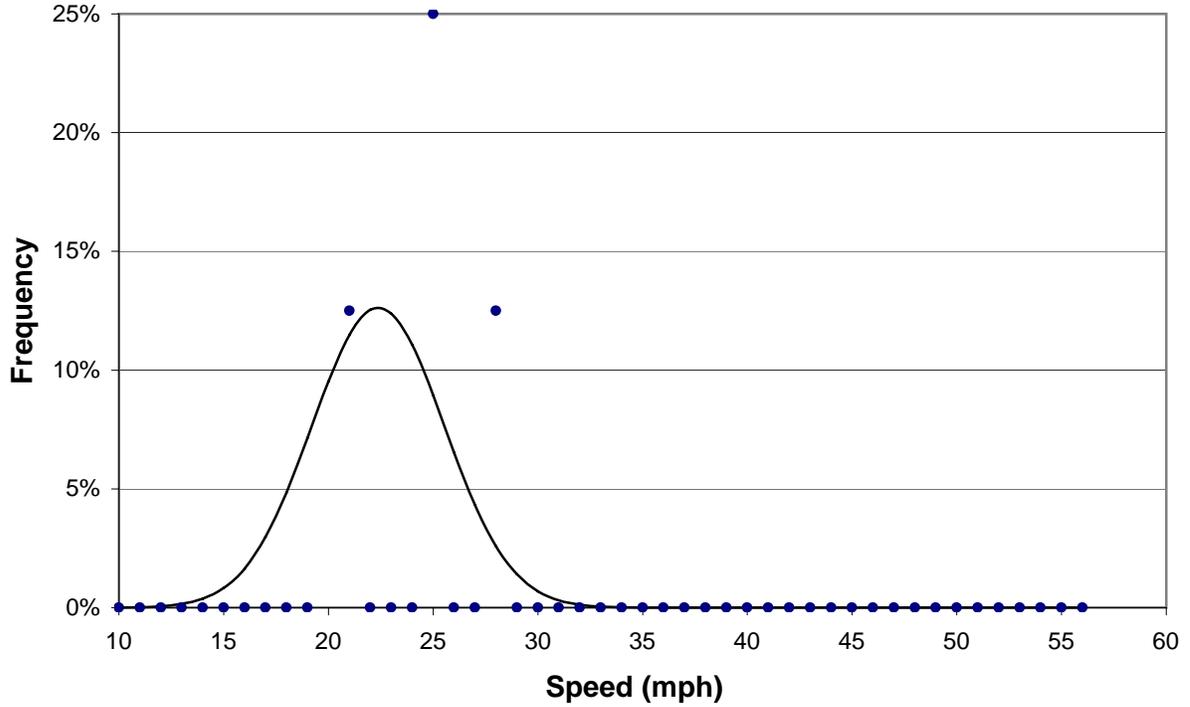
Date: 9-20-05
Location: Todt Hill Road between Reon Avenue & Windsor Road
Surveyor: R. Calvache/ H. Salinas

Time: 11:10 am

School:
Direction: NB
Comments:

Mean Speed = 22.4 mph
Standard Deviation = 3.2 mph
Margin of Error (95% Confidence) = ± 2.2 mph

Median Speed = 22.4 mph
15th Percentile Speed = 19.1 mph
85th Percentile Speed = 25.6 mph



SPOT SPEED STUDY

Date: 9-20-05
Location: Windsor Road between Todt Hill Road & Sommers La
Surveyor: R. Calvache/ H. Salinas

Time: 10:00 am

School:
Direction: WB
Comments:

Mean Speed = 29.8 mph
Standard Deviation = 4.4 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 29.8 mph
15th Percentile Speed = 25.2 mph
85th Percentile Speed = 34.3 mph

