

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



School Safety Engineering Project

FINAL REPORT: ST. MARGARET MARY, Bronx



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



September 19, 2006

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

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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. Margaret Mary 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

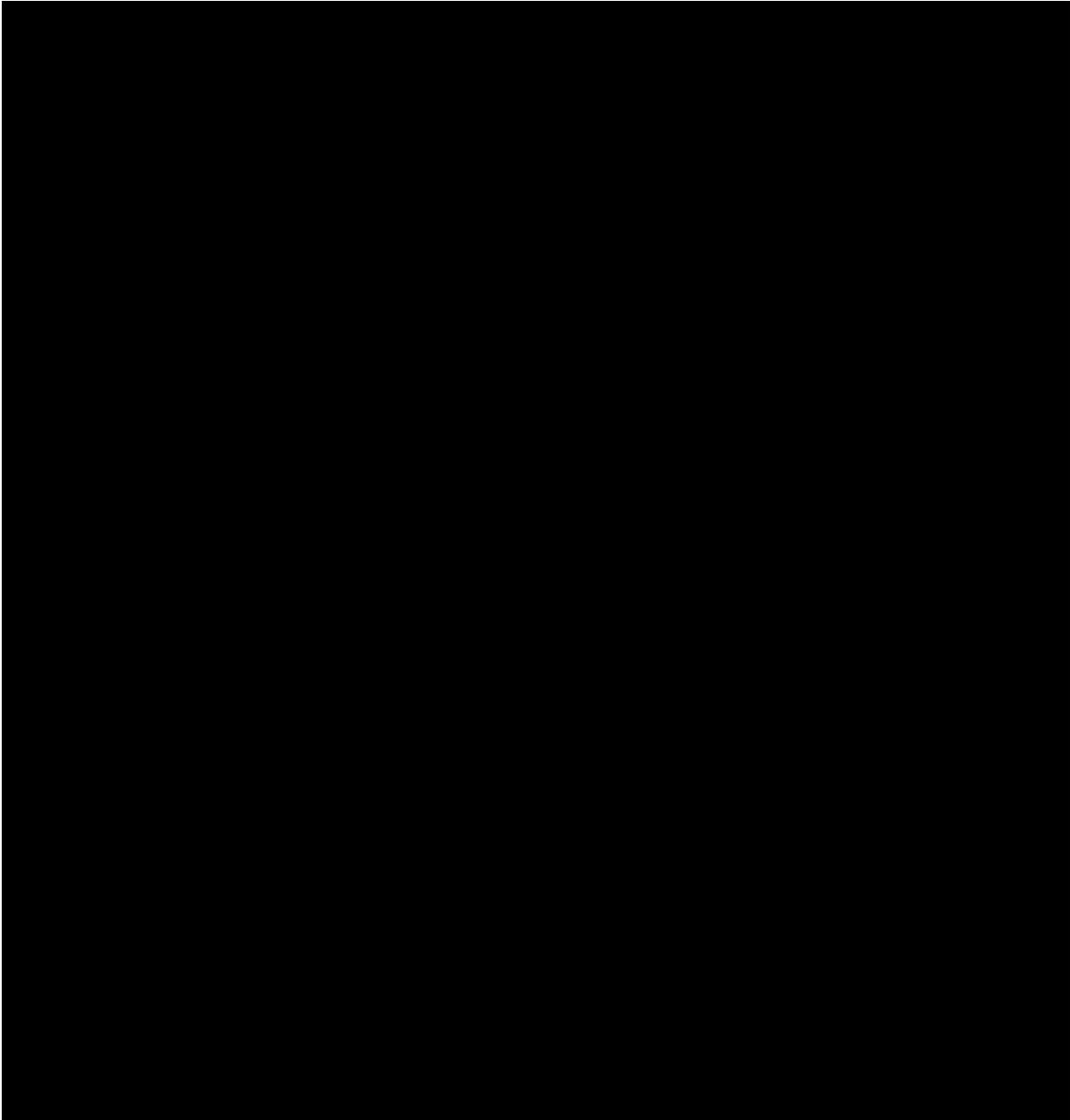
2.2 NEIGHBORHOOD DESCRIPTION

Exhibit 1 shows an aerial view of the neighborhood surrounding St. Margaret Mary School, which generally consists of high-density residential uses. St. Margaret Mary is situated on the north side of East 177th Street, east of Morris Avenue, and west of the Grand Concourse. East Tremont Avenue also bounds the school to the northeast.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant team staff met with the principal of St. Margaret Mary at the school on the morning of April 20, 2004. According to the principal, the students at St. Margaret Mary face the following problems:

- High traffic volumes on East Tremont Avenue, as well as speeding and high traffic volumes exiting the tunnel underpass under the Grand Concourse.
- Insufficient crossing time for children crossing from Creston Avenue due to speeding vehicles coming out of the tunnel (westbound). Additionally, not all drivers may readily see school children in the crosswalk
- The advance school signs for westbound Tremont Avenue (coming out of the tunnel) need to make a greater impact on drivers.
- There is a need for turn lanes on the Grand Concourse.
- Making a left-turn from East Tremont into the school's parking lot is prohibited, making it more difficult to access school grounds.
- The principal would like to see parking regulations implemented that would leave curbside space on Tremont Avenue adjacent to the school available for parents dropping off and picking up children, rather than the double-parking situation that is often encountered.
- The principal would like to see a “NO PARKING SCHOOL DAYS, EXCEPT FOR FACULTY” regulation implemented in front of the school. Teachers often find it difficult to find an available parking space, and often get parking tickets as a result of taking an available “space” in their effort to get to class on time.
- Soft ice cream vendors (e.g. Mr. Softee) stop at the school gate at dismissal time, which generates concerns over the safety of children leaving the school at 2:30 pm. The principal has suggested that the vendors stop closer to the corner where conditions would be safer for students leaving school.



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. Because St. Margaret Mary is a private parochial school, the actual “catchment area” is dependent upon other factors, determined by the school administrators. No actual catchment area is available for St. Margaret Mary, although the school principal reports that approximately 85 percent of the students reside within walking distance of the school. There is no school bus transportation provided to this school.

According to school officials, approximately 85% of the students walk to school, 10% arrive by private vehicles and 5% use public transportation.

Table 1 presents the modes of travel for St. Margaret Mary as estimated by school representatives.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	85%
Driven by car	10%
School bus	0%
MTA Bus/Subway	5%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are few commercial uses in the immediate neighborhood that serve to attract students attending St. Margaret Mary. There are commercial uses along the Grand Concourse and along Tremont Avenue. There is another school (I.S. 117 Joseph H Wade) located a short distance away at 1865 Morris Avenue (one and half blocks to the south of St. Margaret Mary) that also serves to generate student and vehicular traffic through the neighborhood.

2.8 CROSSING GUARD LOCATION

School officials indicated that no school crossing guard is assigned to St. Margaret Mary.

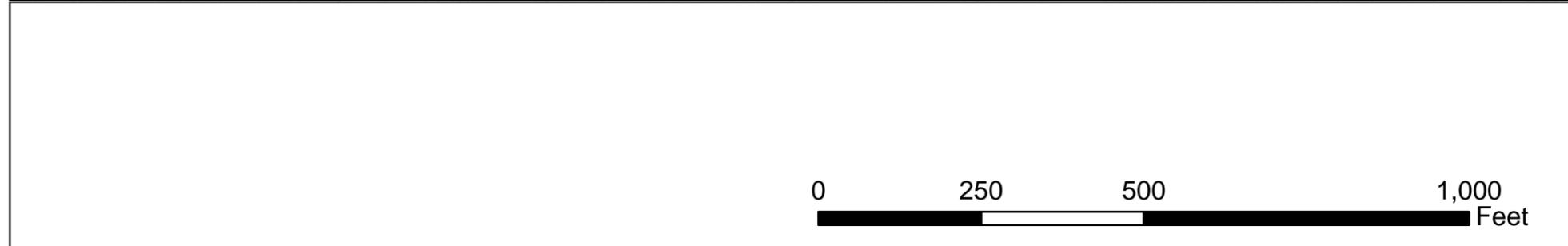
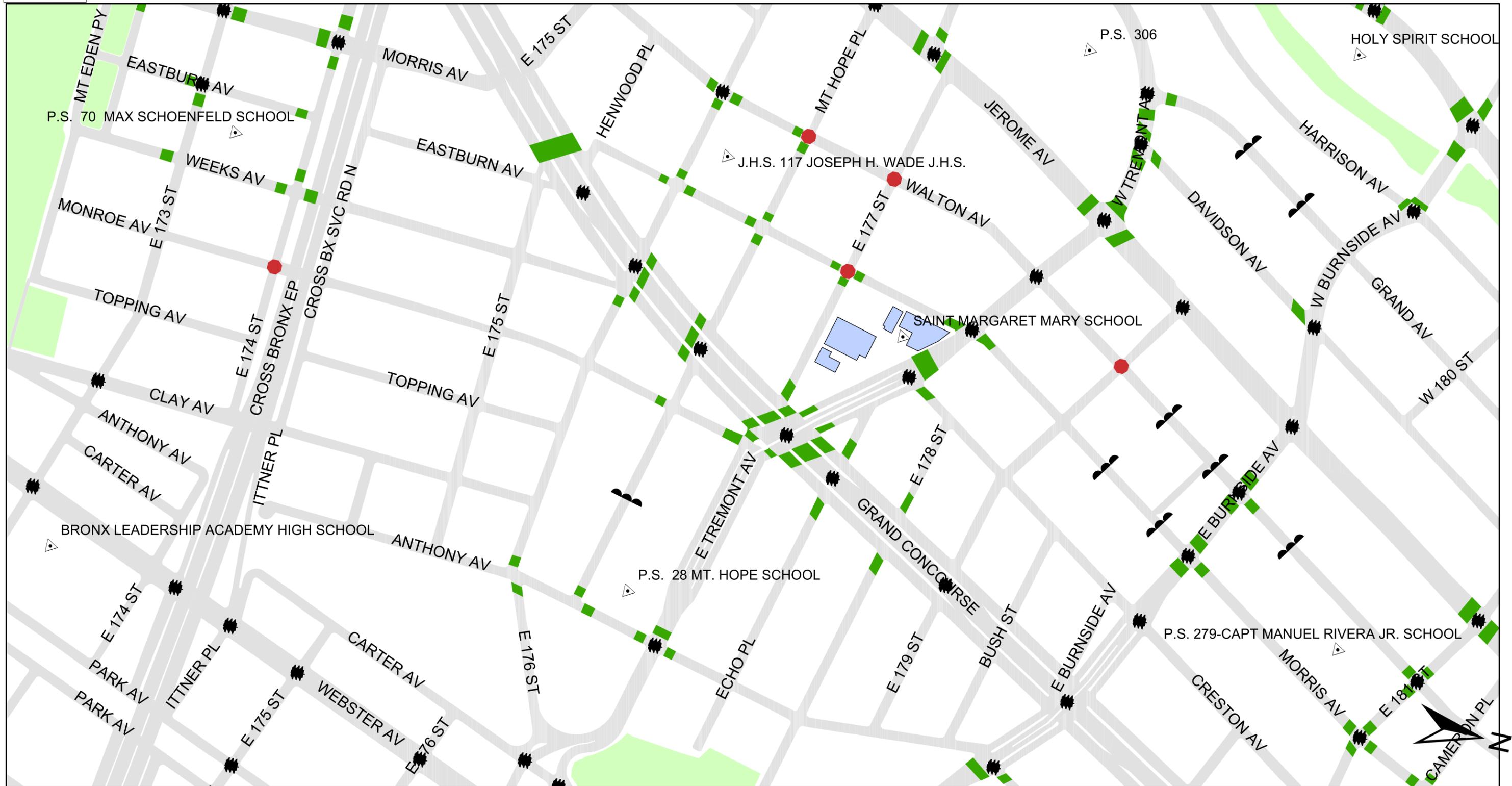


EXHIBIT 1
ST. MARGARET MARY SCHOOL BRONX
AERIAL PHOTOGRAPH



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 MARGARET MARY SCHOOL

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

Map created on 11/16/2006

EXHIBIT 2

COMM. BOARD: 205
PRECINCT: 46

1.5.1 8

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, there are approximately 20 students who ride an MTA bus to school. There is no yellow bus service at St. Margaret Mary.

3.2 PARENT DROP-OFF OPERATIONS

Approximately ten percent of the students are dropped off. Double parking often occurs at arrival and dismissal times (see Figure 2). The school does not allow parents to drive into the parking lot in the back for the safety of the children (see Figure 3). The school would like to see parking regulations that make the curbside space on East Tremont Avenue adjacent to the school available for dropping off and picking up children, rather than for double parking.



Figure 2: Looking east at congestion and double parking at arrival time along East Tremont Avenue in front of the schoolyard for St. Margaret Mary



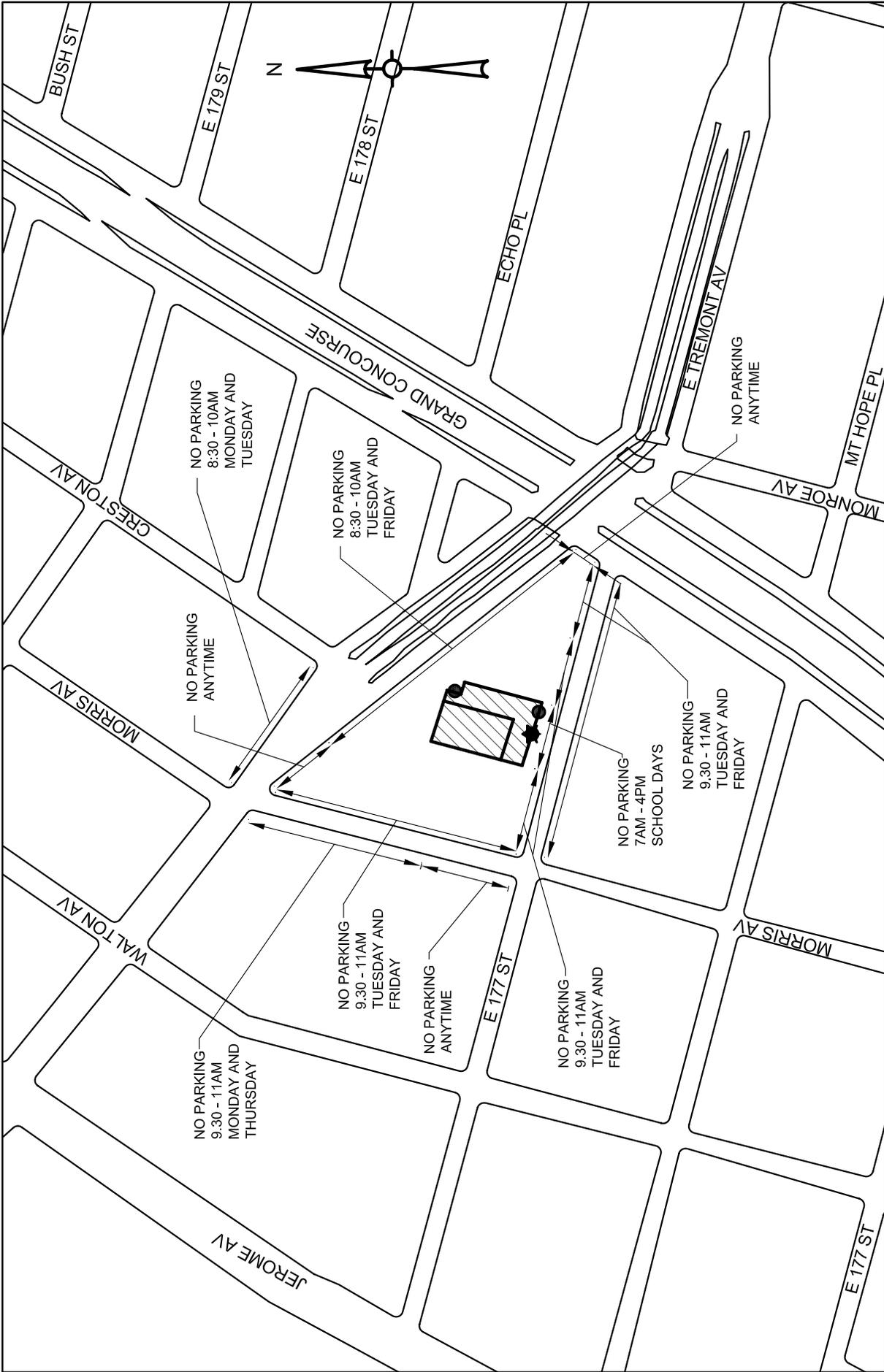
Figure 3: Looking south from East Tremont Avenue at the schoolyard/driveway for St. Margaret Mary

3.3 PARKING REGULATIONS

Parking regulations around the school block are shown in Exhibit 3.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 2 shows the existing school signals and pavement markings around St. Margaret Mary. 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 5.



LEGEND:

- ★ MAIN ENTRANCE
- ENTRANCE

EXHIBIT 3

ST. MARGARET MARY SCHOOL BRONX

EXISTING PARKING REGULATIONS

3.5 ACCIDENT SUMMARY

Exhibit 4 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. Margaret Mary 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.

TABLE 2: ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East 178 th Street and Creston Avenue	9	1	0	1
East 178 th Street and Grand Concourse	10	3	0	0
East Tremont Avenue and Walton Avenue	25	8	0	1
East Tremont Avenue and Morris Avenue	22	1	0	1
East Tremont Avenue and Creston Avenue	18	2	0	0
East Tremont Avenue and Grand Concourse	54	2	0	0
Echo Place and Grand Concourse	13	1	0	0
East 177 th Street and Grand Concourse	96	6	0	1
Grand Concourse/ East Tremont Avenue and Monroe Avenue	3	0	0	0
Mt. Hope Place and Morris Avenue	8	2	0	1
TOTAL	258	26	0	5

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

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East 178 th Street and Creston Avenue	8	2	0	0
East 178 th Street and Grand Concourse	13	2	0	0
East Tremont Avenue and Walton Avenue	41	3	0	0
East Tremont Avenue and Morris Avenue	27	4	0	0
East Tremont Avenue and Creston Avenue	28	3	0	1
East Tremont Avenue and Grand Concourse	103	15	0	2
Echo Place and Grand Concourse	12	2	0	0
East 177 th Street and Grand Concourse	26	5	0	1
Grand Concourse/ East Tremont Avenue and Monroe Avenue	0	0	0	0
Mt. Hope Place and Morris Avenue	9	1	0	0
TOTAL	267	37	0	4

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

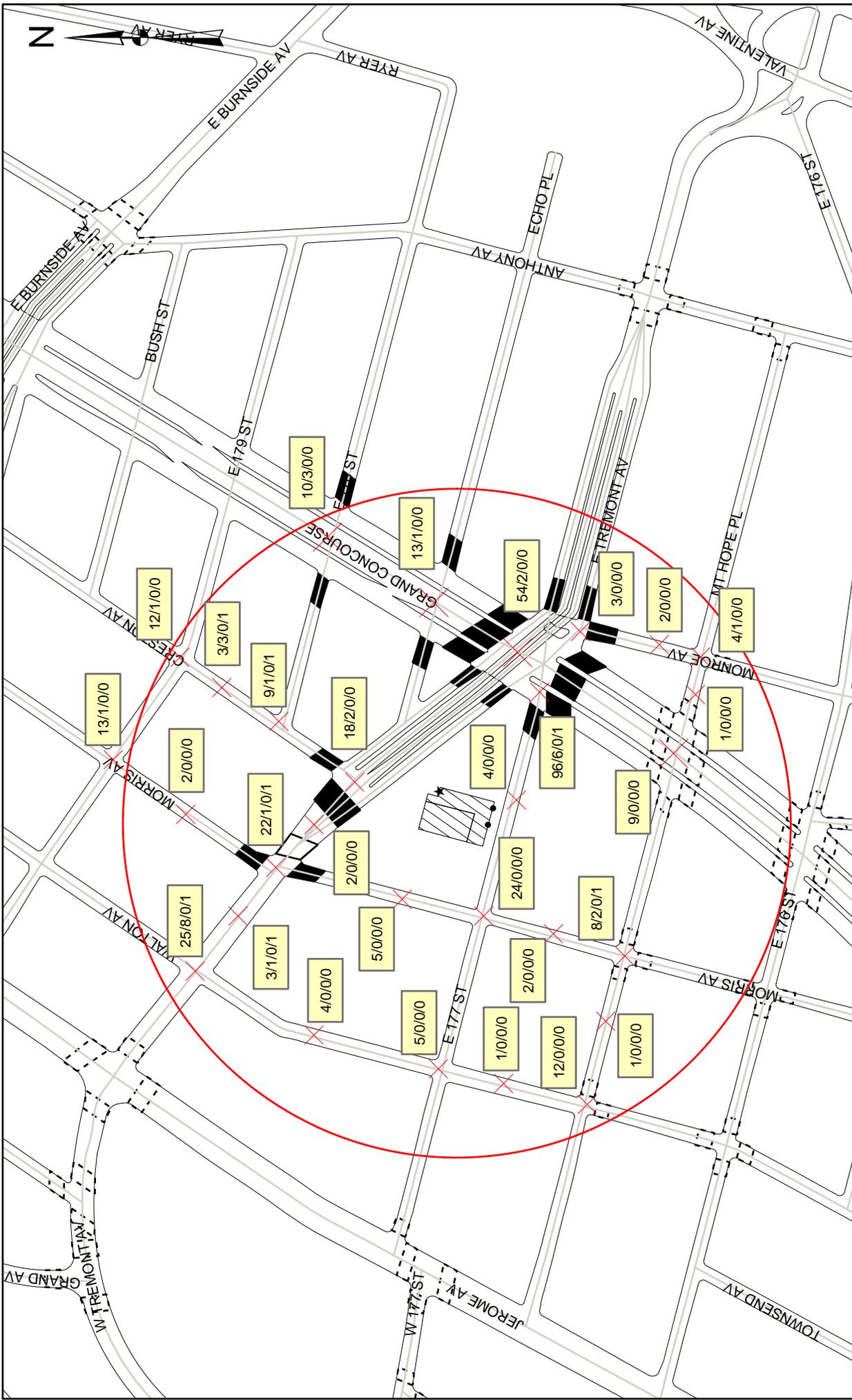


EXHIBIT 4

**ST. MARGARET MARY SCHOOL BRONX
ACCIDENT SUMMARY (1998 - 2000)**



LEGEND:

- ACCIDENT LOCATION
- SCHOOL CROSSWALK
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
- BORDER OF 700 FEET

X/X/X/X	TOTAL ACCD	PED ACCD	PED FATAL	SCHOOL_PED ACCD
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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. Margaret Mary.

3.6.1 East 177th Street and Grand Concourse

This is an unsignalized, T-type intersection with a school crosswalk located across the west leg of East 177th Street. Grand Concourse is a major north-south corridor in the Bronx, extending from the East 138th Street/Madison Avenue Bridge/Major Deegan Expressway junction at its southern terminus to Mosholu Parkway at its northern terminus. In the vicinity of St. Margaret Mary, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions. A painted median, approximately ten feet wide, separates the northbound and southbound travel lanes. The Grand Concourse also has northbound and southbound service roads that have two travel lanes and one right-side parking lane in each direction. The outer roadways serve as local (service) roadways, and the inner roadways serve as mainline (through) roadways. Separating each mainline and service roadway is a raised concrete median approximately seven feet wide, with occasional slip ramps that permit vehicles to transition from the mainline to service lanes and vice versa.

East 177th Street is a one-way eastbound street with one travel lane and on-street parking on both sides of the roadway (see Figure 4). East Tremont Avenue intersects the Grand Concourse at a signalized intersection located immediately north of the intersection of East 177th Street and the Grand Concourse. Due to the raised concrete median on the Grand Concourse, all traffic from East 177th Street must turn right to travel south on the Grand Concourse service road. There is no gap in the raised concrete median to allow vehicles to access the Grand Concourse mainline roadways at this intersection. The intersection of Grand Concourse and East 178th Street is within the "Special Grand Concourse Preservation District" designated by the Department of City Planning (DCP).

This intersection was the site of 96 accidents between 1998 and 2000 (Table 2), including six pedestrian accidents, one of which was school-related. This particular accident occurred at approximately 2:00 pm on June 11, 1998 when a 12-year-old pedestrian sustained an incapacitating injury when crossing at the intersection. The pedestrian's actions were reported in the accident record as "crossing against signal". Because the intersection of East 177th Street and Grand Concourse is unsignalized, it is likely that this particular accident was either coded incorrectly in the database, or possibly associated with the nearby signalized intersection of East Tremont Avenue and Grand Concourse. The road surface was dry, the weather was cloudy, and the accident occurred during daylight conditions.



Figure 4: Looking west along East 177th Street from the southbound Grand Concourse service road

3.6.2 East Tremont Avenue and Walton Avenue

This is a four-leg signalized intersection with pedestrian crosswalks located across all legs. At the intersection with Walton Avenue, East Tremont Avenue is a two-way street with one travel lane and a parking lane on each side of the roadway. Walton Avenue is a one-way southbound street, with one travel lane and parking on both sides of the roadway.

This intersection was the site of 25 accidents between 1998 and 2000 (Table 2), including eight pedestrian accidents, one of which was school-related. The school-related accident occurred at approximately 5:00 pm on Wednesday, June 9, 1999 when a 12-year-old pedestrian sustained a “possible injury” while crossing against the traffic signal at the intersection. The road was dry, the weather was clear, and the accident occurred during daylight conditions.

3.6.3 East Tremont Avenue and Morris Avenue

This is a signalized intersection with school crosswalks located across the north and south legs of Morris Avenue, and pedestrian crosswalks located across the east and west legs of East Tremont Avenue. St. Margaret Mary Church is located on the southeast corner of the intersection.

West of Morris Avenue, East Tremont Avenue is a two-way street with one travel lane and one on-street parking lane on each side of the roadway. East of Morris Avenue, East Tremont Avenue transitions to two travel lanes and one on-street parking lane on each side of the roadway. Land uses along East Tremont Avenue are mostly commercial, with

some residential uses. Morris Avenue is a one-way northbound street, with one travel lane and parking on both sides of the roadway. Land uses along Morris Avenue are primarily residential (see Figures 5 and 6).

This intersection was the site of 22 accidents between 1998 and 2000 (Table 2) including one pedestrian accident that was also school-related. The school-related accident occurred at approximately 4:00 pm on February 11, 2000 when an eight-year-old pedestrian sustained a “non-incapacitating injury” while crossing at the intersection. The weather was clear, the road was dry, and the accident occurred under daylight conditions. The accident records report that the pedestrian’s actions were “crossing, no signal or crosswalk” although the intersection is signalized and has crosswalks across all legs. It is surmised that the pedestrian may have crossed against the traffic signal or was outside one of the designated crosswalks at the time of the accident.

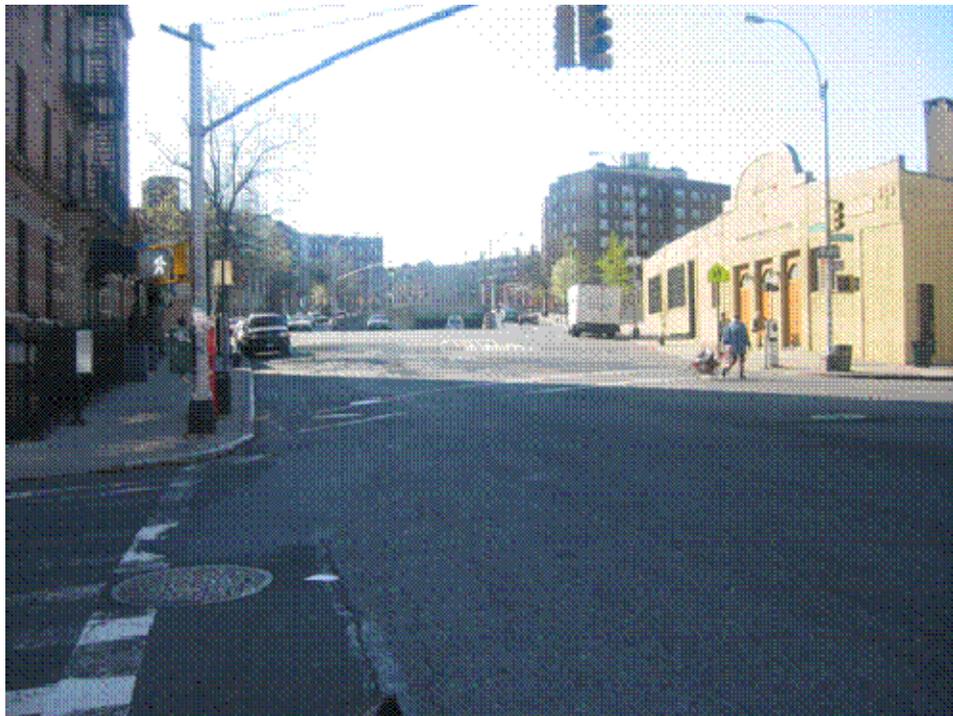


Figure 5: Looking east on East Tremont Avenue across the intersection with Morris Avenue



Figure 6: Looking northwest across the intersection of East Tremont Avenue and Morris Avenue

3.6.4 East Tremont Avenue and Creston Avenue

This is a signalized T-intersection, with school crosswalks located across the west leg of East Tremont Avenue and the north leg of Creston Avenue. The schoolyard entrance to St. Margaret Mary is on the south side of East Tremont Avenue, opposite the Creston Avenue approach.

West of the intersection with Creston Avenue, East Tremont Avenue is a two-way street with two travel lanes and a parking lane on each side of the roadway. On the east side of this intersection, East Tremont Avenue splits: the mainline continues as a two-way roadway under the Grand Concourse through an underpass (tunnel), with one travel lane in each direction separated by a concrete divider, and no on-street parking. In addition, eastbound and westbound service roads are located on either side of the mainline roadway and rise to intersect with the Grand Concourse at-grade. Each of the service roads has one travel lane and one on-street parking lane along the right side of the traveled way. Land uses along East Tremont Avenue are primarily commercial, with some residential uses. Creston Avenue is a one-way southbound street, with one travel lane and one on-street parking lane on both sides of the roadway. Land uses along Creston Avenue are primarily residential (see Figures 7, 8, and 9).

This intersection was the site of 18 accidents between 1998 and 2000 (Table 2), including two pedestrian accidents, neither of which was school-related. There were no pedestrian fatalities at this intersection.



Figure 7: Looking west on the south side of East Tremont Avenue from the eastbound service road towards the Creston Avenue intersection



Figure 8: Looking east along East Tremont Avenue across the intersection with Creston Avenue



Figure 9: Looking north along Creston Avenue across the intersection with East Tremont Avenue

School representatives reported a problem with vehicles speeding on Tremont Avenue in the westbound direction between the Grand Concourse underpass and Creston Avenue. In order to verify the existence of a speeding problem and to determine its extent, a spot speed survey was conducted on this segment of Tremont Avenue in the westbound direction.

In the analysis of vehicle speeds, the 85th percentile speed is considered to be the representative speed for a specified street segment. By definition, this is the speed at which 85 percent of the surveyed vehicles are traveling below and 15 percent of the surveyed vehicles are traveling above. An 85th percentile speed exceeding a 30 mph threshold indicates a potential speeding problem that may require appropriate traffic calming measures.

The results of the spot speed survey indicated that westbound vehicles on Tremont Avenue were traveling at an 85th percentile speed of 30 mph. Because Tremont Avenue is a bus route, speed reducers on Tremont Avenue are not recommended in this section.

3.6.5 East Tremont Avenue and Grand Concourse

This is a signalized intersection, with school crosswalks located across all legs. The Grand Concourse is a major north-south corridor in the Bronx, extending from the East 138th Street/Madison Avenue Bridge/Major Deegan Expressway junction at its southern terminus to Mosholu Parkway at its northern terminus. In the vicinity of St. Margaret Mary, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions. A painted median, approximately ten feet wide,

separates the northbound and southbound travel lanes. The Grand Concourse also has northbound and southbound service roads that have two travel lanes and one right-side parking lane in each direction. The outer roadways serve as local (service) roadways, and the inner roadways serve as mainline (through) roadways. Separating each mainline and service roadway is a raised concrete median approximately seven feet wide, with occasional slip ramps that permit vehicles to transition from the mainline to service lanes and vice versa.

On the both sides of the Grand Concourse, East Tremont Avenue splits: the mainline continues as a two-way roadway under the Grand Concourse through an underpass (tunnel), with one travel lane in each direction separated by a concrete divider, and no on-street parking. In addition, eastbound and westbound service roads are located on either side of the mainline roadway and rise to intersect with the Grand Concourse at-grade. Each of the service roads has one travel lane and one on-street parking lane along the right side of the traveled way. The eastbound and westbound service roads intersect with the Grand Concourse approximately 50 feet apart, due to the underpass structure carrying the mainline East Tremont Avenue traffic underneath the Grand Concourse. East of the Grand Concourse, East Tremont Avenue curves approximately 30 degrees to the east. Land uses along East Tremont Avenue are primarily commercial, but include some residential uses (see Figures 10 and 11).

This intersection was the site of 54 accidents between 1998 and 2000 (Table 2), including two pedestrian accidents, neither of which were school-related. There were no pedestrian fatalities at this intersection.



Figure 10: Looking northwest along East Tremont Avenue at the south crosswalk across the Grand Concourse



Figure 11: Looking north on the Grand Concourse across the intersection with East Tremont Avenue

3.6.6 Grand Concourse/East Tremont Avenue and Monroe Avenue

This is a signalized intersection with a school crosswalk located across the south leg of Monroe Avenue. East of the Grand Concourse, East Tremont Avenue splits: the mainline continues as a two-way roadway under the Grand Concourse through an underpass (tunnel), with one travel lane in each direction separated by a concrete divider, and no on-street parking. In addition, eastbound and westbound service roads are located on either side of the mainline roadway and rise to intersect with the Grand Concourse at-grade. Each of the service roads has one travel lane and one on-street parking lane along the right side of the traveled way. The eastbound and westbound service roads intersect with the Grand Concourse approximately 50 feet apart, due to the underpass structure carrying the mainline East Tremont Avenue traffic underneath the Grand Concourse. East of the Grand Concourse, East Tremont Avenue curves approximately 30 degrees to the east. Land uses along East Tremont Avenue are primarily commercial, but include some residential uses. Monroe Avenue intersects with the eastbound East Tremont Avenue service road, approximately 30 feet east of the Grand Concourse. Monroe Avenue is a one-way southbound street with one travel lane and on-street parking on both sides of the roadway.

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



Figure 12: Looking south along Monroe Avenue from the eastbound service road on East Tremont Avenue

3.6.7 East 178th Street and Grand Concourse

The intersection of East 178th Street with the Grand Concourse is actually two separate unsignalized intersections, as East 178th Street intersects with the Grand Concourse on both the east and west sides, but does not continue across it. School crosswalks are located across both the east and west legs of East 178th Street.

On both sides of the Grand Concourse, East 178th Street is a one-way westbound street with one travel lane and on-street parking on both sides of the roadway. On the west side of the Grand Concourse, immediately south of East 178th Street, there is a slip ramp from the southbound Grand Concourse service road to the mainline roadway. The intersection of Grand Concourse and East 178th Street is within the “Special Grand Concourse Preservation District” designated by the Department of City Planning (DCP).

As stated previously, vehicles traveling westbound along East 178th Street cannot cross the Grand Concourse, as in a typical four-leg intersection because of the raised concrete medians separating the mainline and service roads along the Grand Concourse. Therefore, East 178th Street actually forms two separate T-intersections with the Grand Concourse service roads. As a result, all vehicles traveling westbound on East 178th Street, east of the Grand Concourse must turn right and travel northbound on the Grand Concourse service road. In addition, vehicles are prohibited from turning left from the northbound Grand Concourse lanes (both mainline and service roads) to travel westbound on East 178th Street. Similarly, only vehicles on the southbound Grand Concourse service road can turn right onto westbound East 178th Street.

These intersections were the site of ten accidents between 1998 and 2000 (Table 2), including three pedestrian accidents, none of which were school-related. There were no pedestrian fatalities at this intersection.

3.6.8 East 178th Street and Creston Avenue

This is an unsignalized T-intersection with no school or pedestrian crosswalks across any legs. East 178th Street is a one-way westbound street with one travel lane and on-street parking along both sides of the roadway, and is stop-controlled at its intersection with Creston Avenue. Creston Avenue is a one-way southbound street, with one travel lane and one on-street parking lane on both sides of the roadway. Land uses along both East 178th Street and Creston Avenue are primarily residential.

This intersection was the site of nine accidents between 1998 and 2000 (Table 2), including one pedestrian accident which was also school-related. This particular accident occurred at approximately 6:00 pm on June 4, 1999 when a five-year-old pedestrian was reported to be injured while crossing at the intersection. The road was dry, the weather was clear, and the accident occurred during daylight conditions. No information concerning the extent of the pedestrian's injuries was reported. There were no pedestrian fatalities at this intersection.

3.6.9 Echo Place and Grand Concourse

The intersection of Echo Place with the Grand Concourse is actually two separate unsignalized intersections, as Echo Place intersects with the Grand Concourse on both the east and west sides, but does not continue across it. School crosswalks are located across both the east and west legs of Echo Place.

On both sides of the Grand Concourse, Echo Place is a one-way eastbound street with one travel lane and on-street parking on both sides of the roadway. The intersection of Grand Concourse and Echo Place is within the "Special Grand Concourse Preservation District" designated by the Department of City Planning (DCP).

As stated previously, vehicles traveling eastbound along Echo Place cannot cross the Grand Concourse, as in a typical four-leg intersection, because of the raised concrete medians separating the mainline and service roads along the Grand Concourse. Therefore, Echo Place actually forms two separate T-intersections with the Grand Concourse service roads. As a result, all vehicles traveling eastbound on Echo Place, west of the Grand Concourse must turn right and travel southbound on the Grand Concourse service road. In addition, vehicles are prohibited from turning left from the southbound Grand Concourse lanes (both mainline and service roads) to travel eastbound on Echo Place. Similarly, only vehicles on the northbound Grand Concourse service road can turn right onto eastbound East 178th Street.

This intersection was the site of 13 accidents between 1998 and 2000 (Table 2), including one pedestrian accident that was not school-related. There were no pedestrian fatalities at this intersection.

3.6.10 Mt. Hope Place and Morris Avenue

This is a four-leg unsignalized intersection with school crosswalks located across the south, east, and west legs. Mt. Hope Place is a one-way westbound street with one travel lane and on-street parking along both sides of the roadway, and is stop-controlled at its intersection with Morris Avenue. Morris Avenue is a one-way northbound street, with one travel lane and one on-street parking lane on both sides of the roadway. Land uses along both Mt. Hope Place and Morris Avenue are primarily residential, although another school is located on the southwest corner of the intersection.

This intersection was the site of eight accidents between 1998 and 2000 (Table 2), including two pedestrian accidents, one of which was also school-related. This particular accident occurred at approximately 3:00 pm on May 25, 2000 when a 13-year-old pedestrian sustained a “possibly injury” at the intersection. The road was dry, the weather was clear, and the accident occurred during daylight conditions. The accident records report only that the pedestrian was performing “other actions in the roadway.” There were no pedestrian fatalities at this intersection.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of St. Margaret Mary, and were found to be adequate based upon a child pedestrian walking at a rate of three feet per second (see Table 4).

TABLE 4: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
E. Tremont Avenue and Morris Avenue				
crossing E. Tremont Avenue	59	34	24	NO
crossing Morris Avenue	38	82	17	NO
E. Tremont Ave. and Creston Avenue				
crossing E. Tremont Avenue	90	34	34	NO
crossing Creston Avenue	39	82	17	NO
Grand Concourse and E. Tremont Ave				
crossing Grand Concourse	152	64 (timing 1) ¹ 61 (timing 2)	55	NO
crossing E. Tremont Avenue	107	88 (timing 1) ¹ 66 (timing 2)	40	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.

- 1. *Timing 1 is in effect Monday – Friday from 6:00 am – 10:30 am and from 3:30 pm – 7:30 pm*
Timing 2 is in effect Monday - Friday from 10:30 am - 3:30 pm and from 7:30 pm – 6:00 am

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways and sidewalks in the vicinity of St. Margaret Mary were observed to be in fair condition (see Figure 13) and are generally 10 to 12 feet wide.



Figure 13: Looking west at sidewalk along East 177th Street in the vicinity of St. Margaret Mary school

3.8.2 Pedestrian Ramps

Pedestrian ramps in the vicinity of St. Margaret Mary were observed to be standard.

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes the proposed measures to improve student pedestrian safety around St. Margaret Mary 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. Margaret Mary School is discussed as follows, and is shown in more detail in Exhibit 5 at the end of this section.

4.1 SHORT-TERM MEASURES

➤ Install “NO STANDING 7AM-4PM SCHOOL DAYS” signs

Replace the existing “NO PARKING 7AM – 4PM SCHOOL DAYS” signs with “NO STANDING 7AM - 4PM SCHOOL DAYS” signs for 30 feet in front of the main entrance of 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. “YIELD TO PEDESTRIAN” signs are recommended at the following locations:

- Northbound approach of the Grand Concourse service road and Echo Place intersection.
- Southbound approach of the Grand Concourse service road and East 178th Street intersection.

These signs are recommended to improve driver awareness and the visibility and safety of student-pedestrians.

➤ Designate pedestrian and school crosswalks

Field observations revealed student pedestrians crossing at intersections where no crosswalks exist. Therefore, it is therefore recommended that:

- School crosswalks be designated across the north, south and east legs of East 177th Street and Morris Avenue intersection.
- Pedestrian crosswalk be designated across the west leg of East 177th Street and Morris Avenue intersection.

➤ 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.

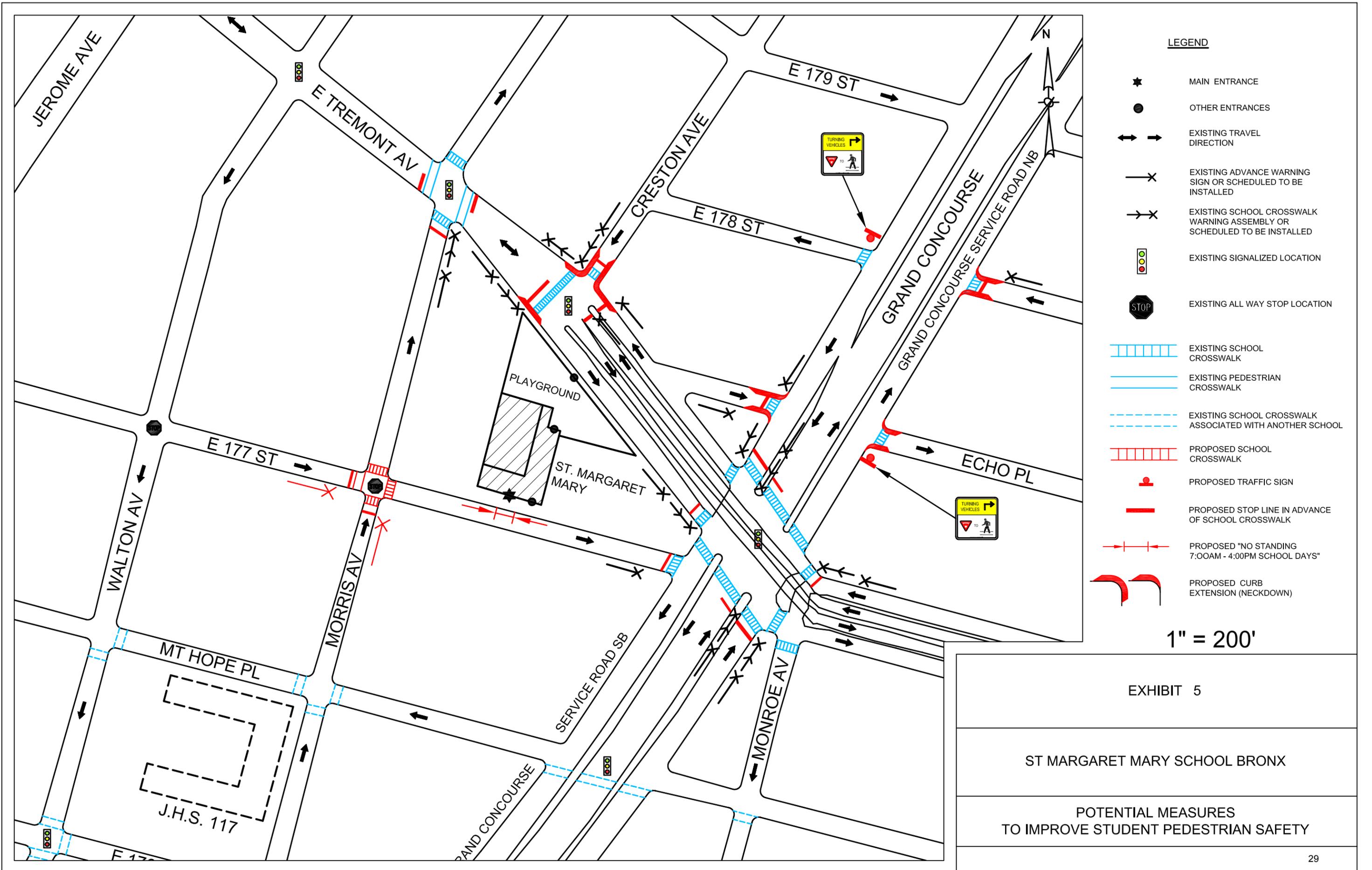
4.2 LONG-TERM MEASURES

➤ 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.

- East Tremont Avenue and Creston Avenue – Provide curb extensions on the northeast and northwest corners. In addition, extend the sidewalk along the south side of East Tremont Avenue, in the vicinity of the crosswalk across Creston Avenue, by six feet in order to reduce the crossing distance.
- Grand Concourse service roads and Echo Place – Provide curb extensions on both the north and south sides of Echo Place for the crosswalks spanning the east and west legs of these intersections.
- Grand Concourse northbound service road and East 178th Street – Provide curb extensions on the north and south sides of East 178th Street for the crosswalk spanning the east 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 ALL WAY STOP LOCATION
-  EXISTING SCHOOL CROSSWALK
-  EXISTING PEDESTRIAN CROSSWALK
-  EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
-  PROPOSED SCHOOL CROSSWALK
-  PROPOSED TRAFFIC SIGN
-  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
-  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
-  PROPOSED CURB EXTENSION (NECKDOWN)

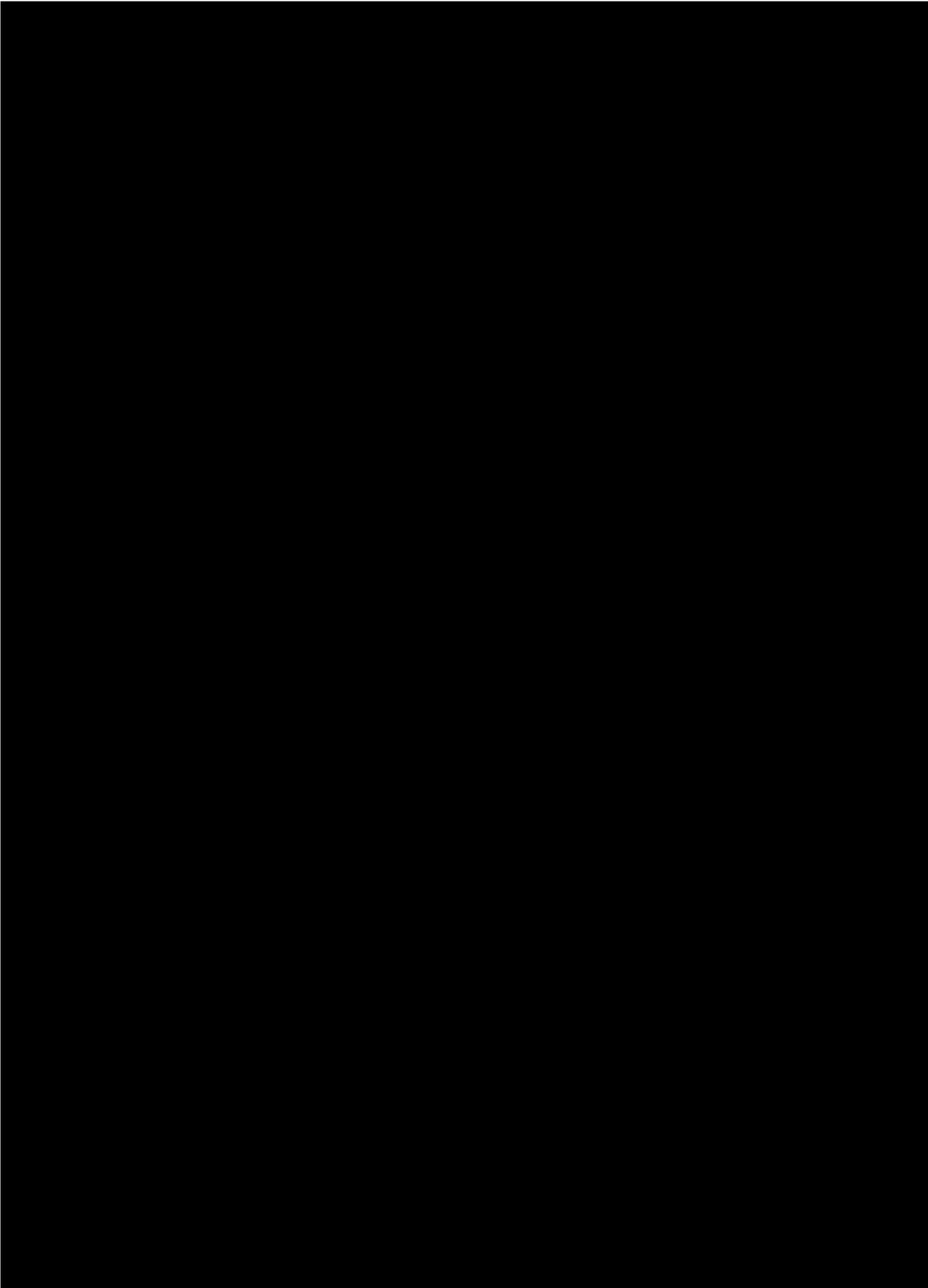
1" = 200'

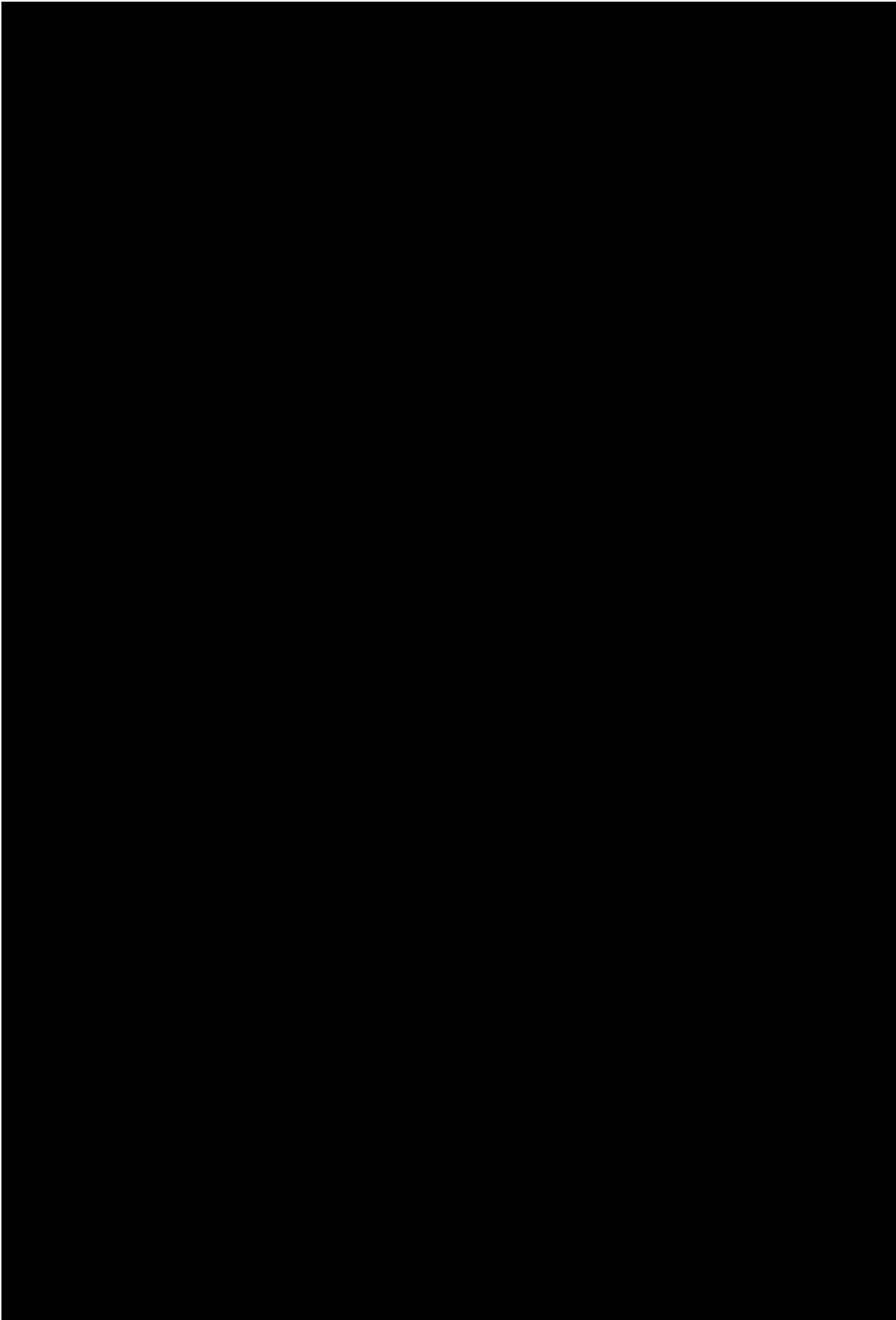
EXHIBIT 5

ST MARGARET MARY SCHOOL BRONX

POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX





SPOT SPEED STUDY

Date: **August 17, 2006**
 Location: **Tremont Avenue**
 Surveyor: **Richard Calvache**

Time: **9:30 AM**

School: **St. Magaret Mary**
 Direction: **Westbound**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	2	2.0%	2.0%	36	648
19	2	2.0%	4.0%	38	722
20	1	1.0%	5.0%	20	400
21	4	4.0%	9.0%	84	1764
22	5	5.0%	14.0%	110	2420
23	6	6.0%	20.0%	138	3174
24	8	8.0%	28.0%	192	4608
25	15	15.0%	43.0%	375	9375
26	13	13.0%	56.0%	338	8788
27	11	11.0%	67.0%	297	8019
28	9	9.0%	76.0%	252	7056
29	6	6.0%	82.0%	174	5046
30	6	6.0%	88.0%	180	5400
31	2	2.0%	90.0%	62	1922
32	3	3.0%	93.0%	96	3072
33	3	3.0%	96.0%	99	3267
34	1	1.0%	97.0%	34	1156
35	1	1.0%	98.0%	35	1225
36	2	2.0%	100.0%	72	2592
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	100	100.0%		2632	70654

Mean Speed = 26.3 mph
 Standard Deviation = 3.7 mph
 Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 26.3 mph
 15th Percentile Speed = 22.5 mph
 85th Percentile Speed = 30.2 mph

SPOT SPEED STUDY

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Location: **Tremont Avenue**
Surveyor: **Richard Calvache**

Time: **9:30 AM**

School: **St. Magaret Mary**
Direction: **Westbound**
Comments:

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Margin of Error (95% Confidence) = ± 0.7 mph

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