

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



School Safety Engineering Project

FINAL REPORT: Christ the King, Bronx



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



July 14, 2006

**School Safety Engineering Project
Final Report: Christ the King School, Bronx**

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SPEED SURVEY DATAA7-A8

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). Christ the King School 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

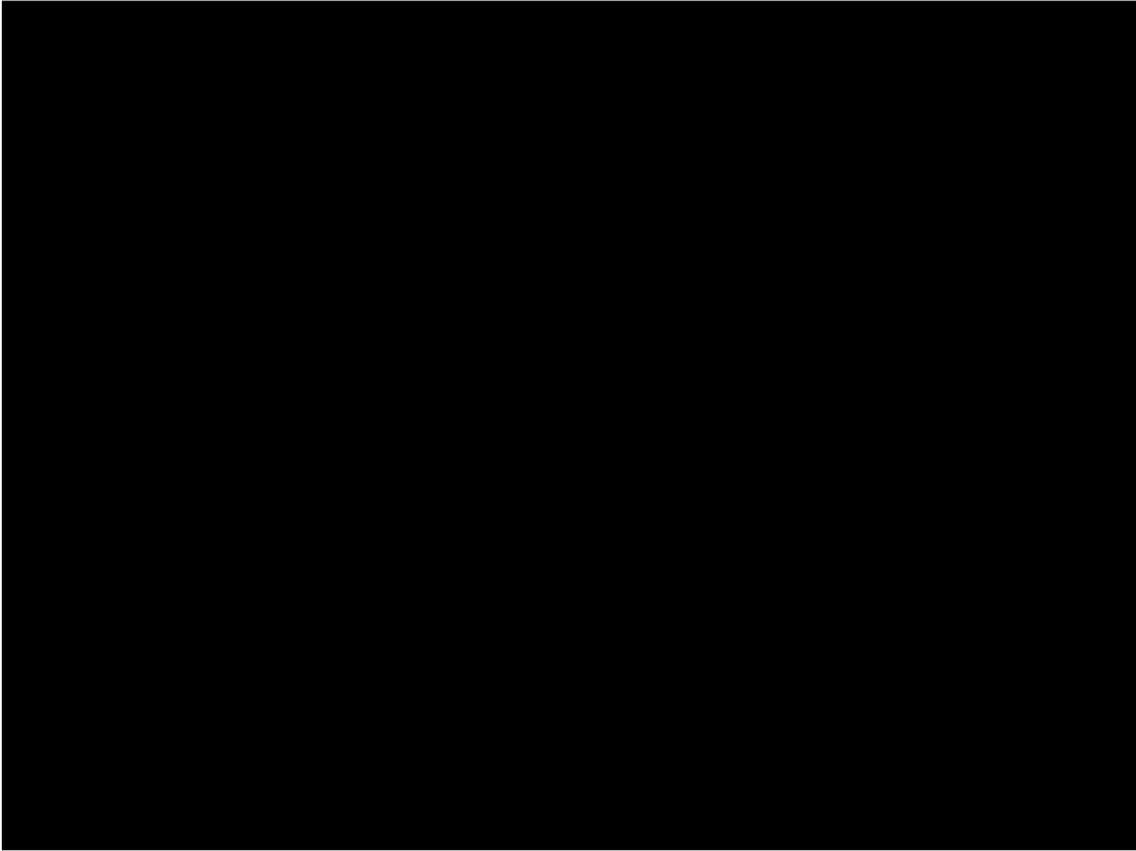
Exhibit 1 shows an aerial view of the neighborhood surrounding the school. Christ the King School is bounded by Marcy Place to the north, Clarke Place East to the south, Grand Concourse to the east, and Walton Avenue to the west. The area surrounding the school is generally residential in character with primarily high-density, multi-level, apartment buildings. The Grand Concourse is a major commercial corridor with significant vehicle and pedestrian traffic.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant staff, the Principal of Christ the King School, and the Chair of Community Board 4, Municipal Service Community met at the school on the morning of May 10, 2004. According to the school principal, the problems facing Christ the King School student pedestrians are the following:

- Speeding is experienced on the Grand Concourse.
- There is often double parking around the school during arrival and dismissal.
- Congestion typically occurs at times of arrival and dismissal.
- Parking is described as a problem on Marcy Place and on Grand Concourse.

(See the Appendix for a summary of school concerns, and the school's survey response.)



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. Since Christ the King is a private parochial school, the actual “catchment area” is dependent upon other factors, determined by the school administrators. No actual catchment area is therefore available for Christ the King School.

Table 1 presents the mode of travel for Christ the King School as estimated by school representatives.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	50%
Driven By Car	20%
School Bus	10%
MTA Bus/Subway	20%
Bicycle	0%
TOTAL	100%

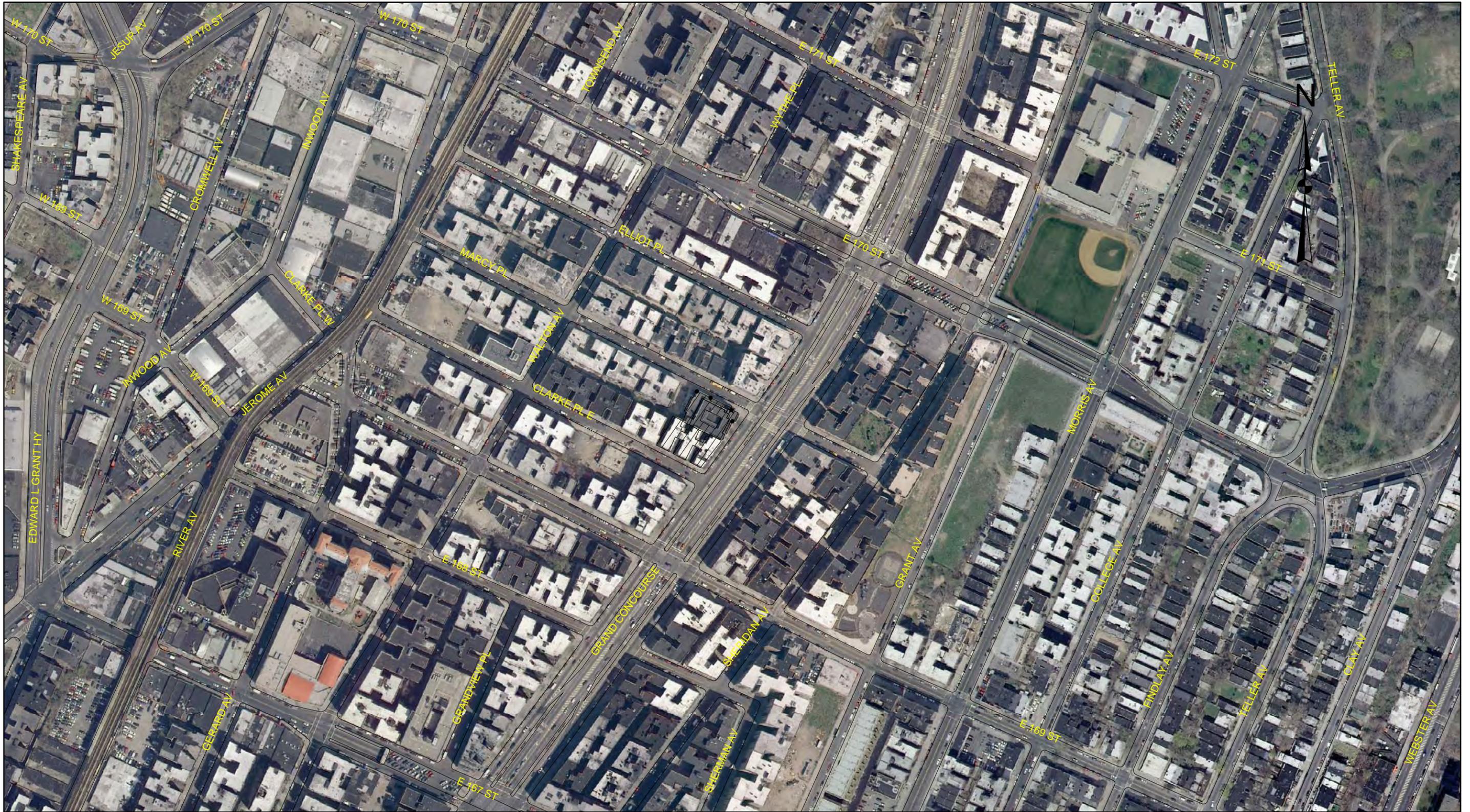
2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

Christ the King is situated on the Grand Concourse, a commercial corridor with many stores, delis, and restaurants that are attractions for student pedestrians.

2.8 CROSSING GUARD LOCATION

According to the school principal, one school crossing guard is assigned to the intersection of Marcy Place & the Grand Concourse.

The crossing guard location is shown in Exhibit 3 at the end of this section.

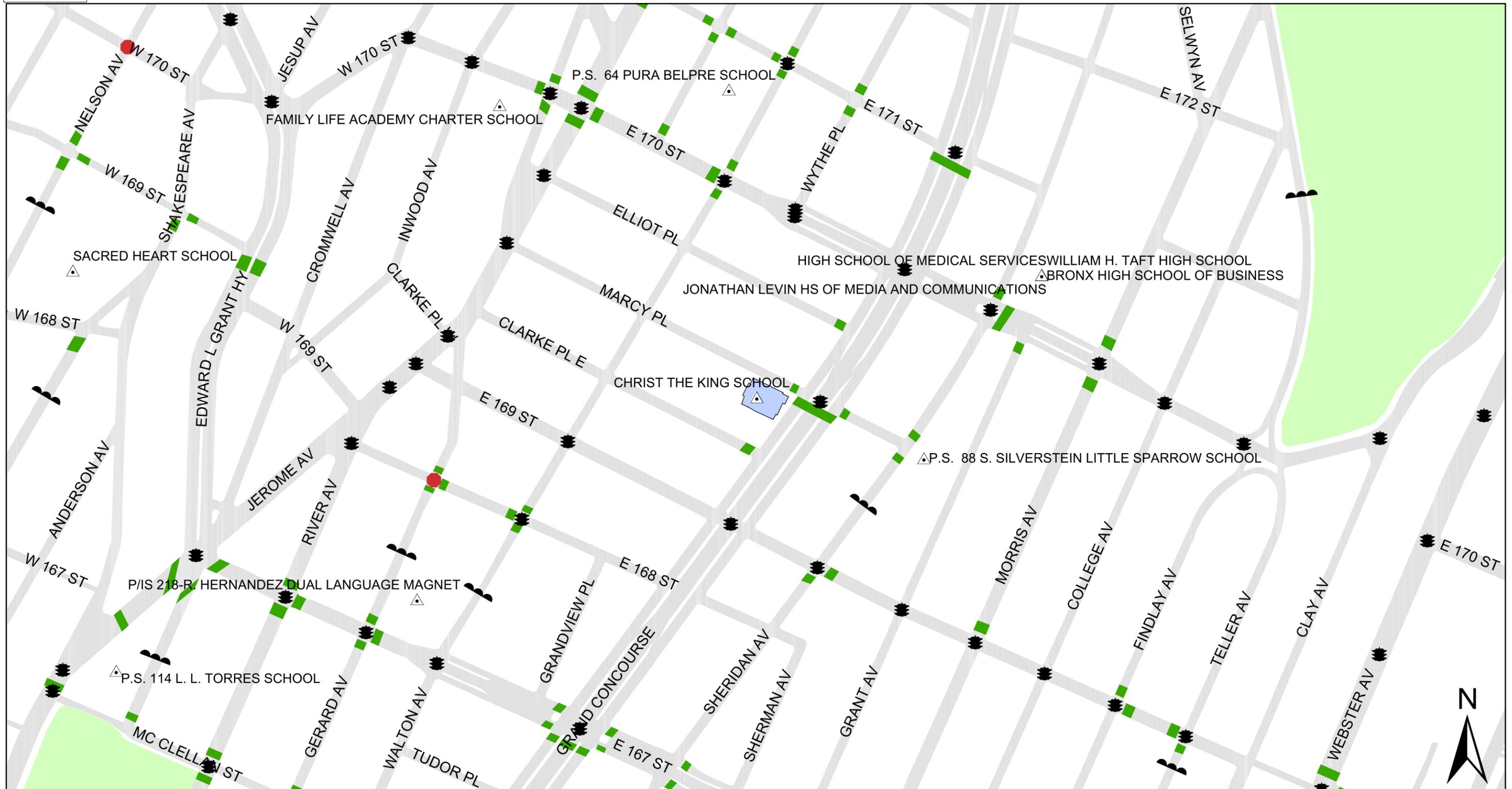


0 250 500 1,000 Feet

EXHIBIT 1

CHRIST THE KING 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
CHRIST THE KING SCHOOL

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

Map created on 11/16/2006

EXHIBIT 2

COMM. BOARD: 204
 PRECINCT: 44

1.5.1 6

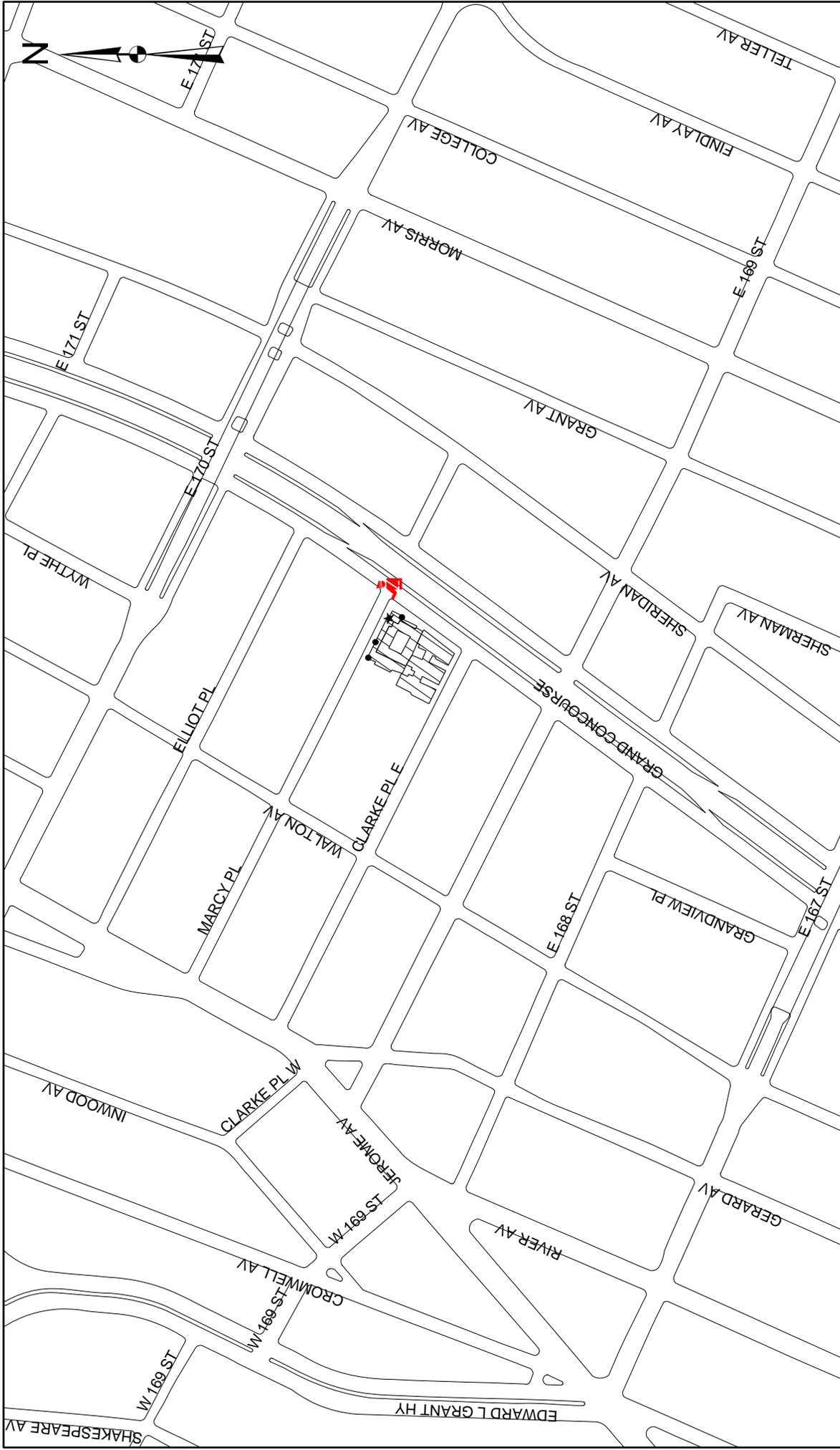


EXHIBIT 3
CHRIST THE KING SCHOOL BRONX
CROSSING GUARD LOCATION



LEGEND:
 CROSSING GUARD LOCATION

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

Christ the King has one school bus as of June 1, 2004, the date the school was visited. According to the school's principal, approximately twenty-percent of the students take public transportation (city bus and the subway) to and from the school.

3.2 PARENT DROP-OFF OPERATIONS

According to the school's principal, approximately twenty percent of the students are being dropped-off in the morning. Congestion is often experienced during both morning arrival and afternoon dismissal.

3.3 PARKING REGULATIONS

Parking regulations around the school block-faces are shown in Exhibit 4 in this section.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 2 shows the existing school signals and pavement markings around the Christ the King 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 accompanied by downward pointing arrows. (Signs scheduled to be installed under this program are shown as "existing" in Exhibit 6.)

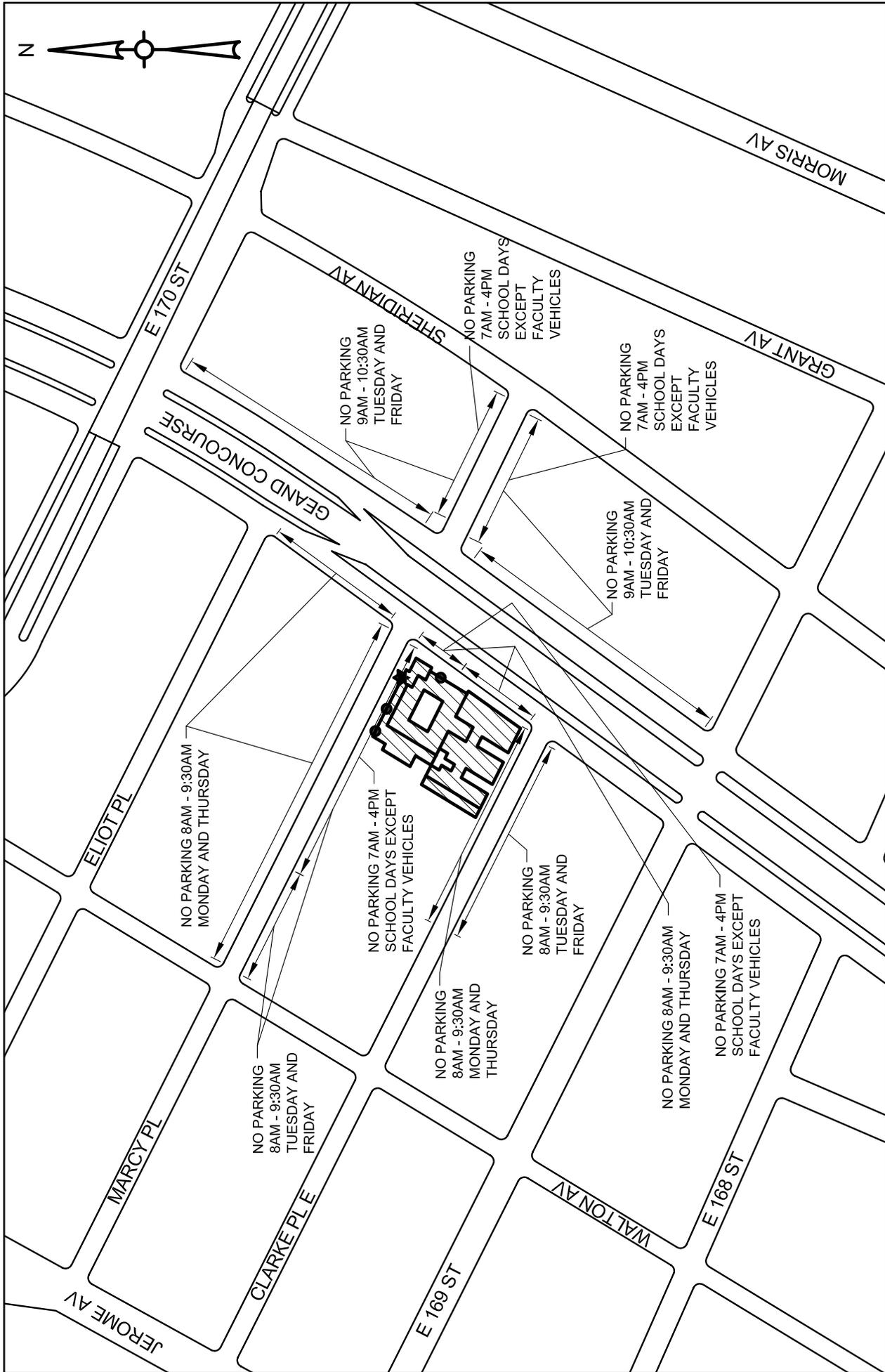


EXHIBIT 4

CHRIST THE KING SCHOOL BRONX

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 Christ the King 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. Further discussions on accidents are included 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*
Walton Ave and Elliot Pl	10	1	0	0
Walton Ave and Marcy Pl.	10	2	0	0
Walton Ave and Clarke Pl. E.	11	1	0	0
Grand Concourse and Marcy Pl.	26	9	2**	3
Grand Concourse and Clarke Pl. E	4	0	0	0
Grand Concourse and Elliot Pl.	12	0	0	0
Grand Concourse and East 169 th St	57	10	0	0
Grand Concourse and East 168 th St	13	1	0	1
Sheridan Ave and Marcy Pl.	3	1	0	0
Sheridan Ave and East 169 St	7	1	0	0
TOTAL	153	26	2	4

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

** One accident involving 2 pedestrian fatalities

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Walton Ave & Elliot Pl	19	7	0	3
Walton Ave & Marcy Pl.	25	2	0	1
Walton Ave & Clarke Pl. E.	10	0	0	0
Grand Concourse & Marcy Pl.	24	1	0	0
Grand Concourse & Clarke Pl. E	9	2	0	0
Grand Concourse & Elliot Pl.	12	3	0	0
Grand Concourse & East 169 th St	86	10	0	1
Grand Concourse & East 168 th St	28	5	0	1
TOTAL	213	36	0	6

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

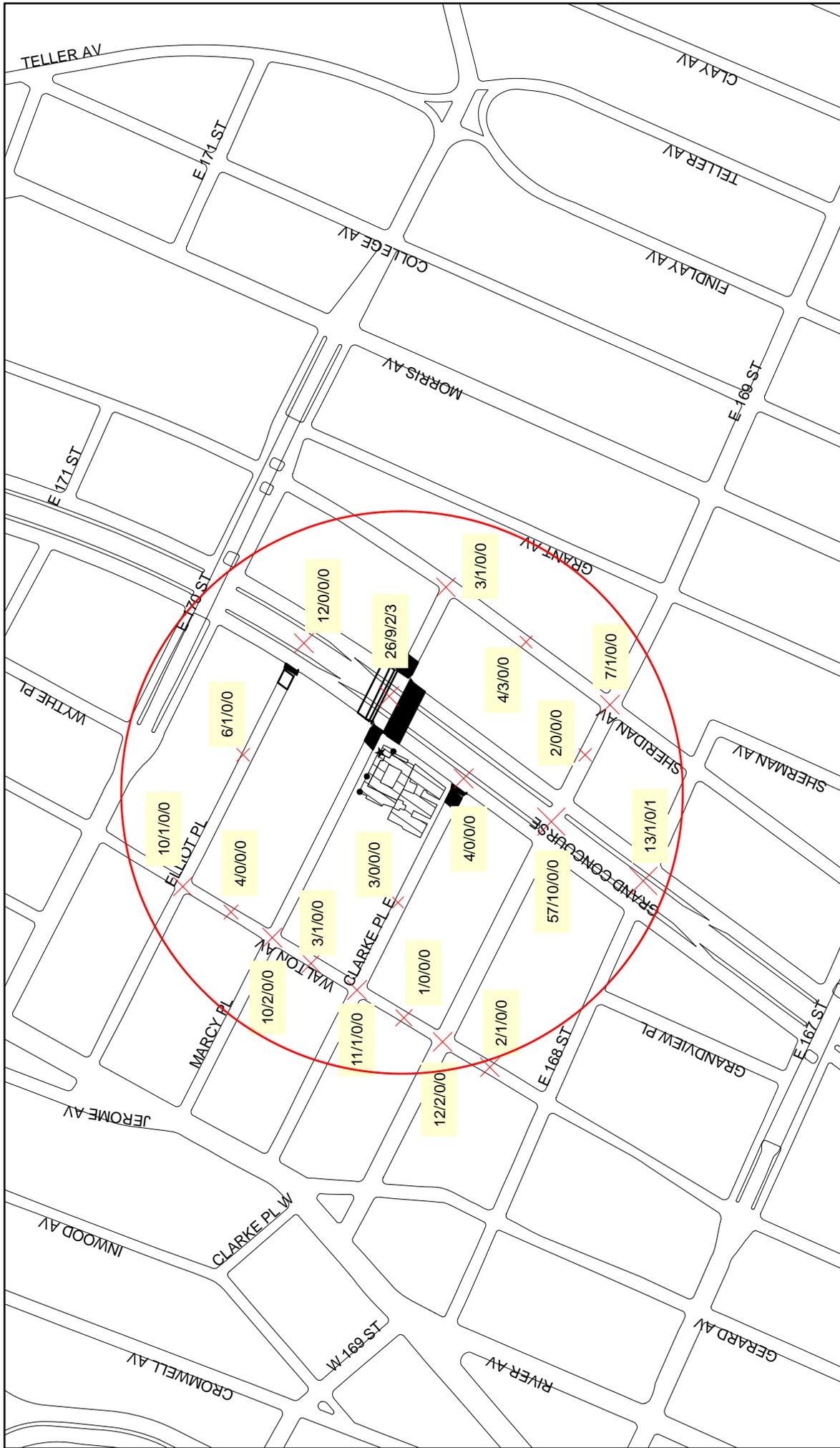


EXHIBIT 5

CHRIST THE KING SCHOOL BRONX

ACCIDENT SUMMARY (1998-2000)

LEGEND:

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

X/XX/XX TOTAL ACCD PED ACCD PED FATAL SCHOOL_PED ACCD 0 250 500 1,000 Feet

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 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 Christ the King.

3.6.1 Grand Concourse & Marcy Place

This is a non-typical four-leg signalized intersection with school crosswalks located across the south leg of Grand Concourse mainline and service roads, and pedestrian crosswalks across the north leg. There is a school crosswalk across both the west and east legs of Marcy Place.

Grand Concourse is a major, north-south, corridor in the Bronx, extending from East 138th Street/Madison Avenue Bridge/Major Deegan Expressway at its southern terminus to Mosholu Parkway at its northern terminus. In the vicinity of the Christ the King School, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions. A painted-striped median, approximately ten feet wide, separates the northbound and southbound roadways. Both the northbound and southbound service roads have one travel lane, a bike lane, and one right-side parking lane. 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 seven foot wide raised concrete median with occasional slip ramps connecting the two roadways that permit vehicles on one roadway to transition to the other roadway. Marcy Place is a one-way westbound street with one travel lane and parking on both sides of the roadway. Just to the north of Marcy Place on the Grand Concourse, in the southbound direction, there is a slip ramp from the service road to the mainline roadway, and in the northbound direction, there is a slip ramp from the mainline to the service road. The intersection of Grand Concourse and Marcy Place is within the "Special Grand Concourse Preservation District" designated by the Department of City Planning (DCP).

Marcy Place does not cross the Grand Concourse roadway, as in a typical four-leg intersection. There is no gap in the raised concrete median to allow vehicles to cross the Grand Concourse mainline roadways at this intersection. Marcy Place actually forms two T-intersections with the service roads, so all westbound Marcy Place vehicles must turn right to head northbound on the Grand Concourse service road, and no vehicles can turn to head westbound on Marcy Place from the Grand Concourse mainline roadway or northbound service roadway (see Figures 2 and 3).

There were 26 accidents reported at this intersection between 1998 and 2000 (Table 2); nine of these were pedestrian accidents, three of the pedestrian accidents were school-related which also included a school-related fatal accident. The school-related fatal accident, which occurred on Friday, June 4, 1999 at 3:00 pm, involved two fatalities including a seven-year-old pedestrian who was accompanied by a 60-year-old pedestrian. The pedestrian action was not reported. The accident occurred on a straight and level

roadway under daylight conditions. The roadway surface was dry and the weather was clear. In the second school-related accident a four-year-old pedestrian was involved in an accident on Thursday, March 16, 2000 at 9:00 am, but the pedestrian's actions, the extent of injuries, and any other details were not reported. In the third school-related accident, a 13-year-old pedestrian sustained a "non-incapacitating injury" on Friday, April 4, 1998 at 4:00 pm. The pedestrian action was not reported. The accident occurred on a straight and level roadway under daylight conditions. The roadway surface was dry and the weather was clear.

A pilot program for traffic calming devices was installed along the Grand Concourse Service Road in this area. The actual devices were concrete curb-stops placed along the right edge of the left lane, reducing the Service Roadway to one lane. Other streetscape type items, such as planters, were also then placed behind the concrete bumpers to enhance the visual aesthetic as well as make the closing of the left lane more apparent. The devices can be seen in Figures 3, 5, 7, and 8. The Service Roads originally had two traffic lanes and a parking lane in each direction, but the installation of these devices effectively transformed the Service Road to having one traffic lane, a bicycle lane, and a parking lane in each direction. The Community Board Chair explained the biggest problem they observed is that trash collects behind the concrete bumpers, and must be cleaned out.

A spot speed survey was conducted on the Grand Concourse southbound service road between Elliot Place and Marcy Place to determine if there is a speeding problem near the school. The detailed results of the spot speed survey are shown in the Appendix at the end of the document.

Vehicles on the Grand Concourse southbound service road between Elliot Place and Marcy Place were found to be traveling with an 85th percentile speed of 31 mph.

The 85th percentile speed is considered to be the representative speed for the street segment. Speeds above the 30 mph threshold would indicate a speed problem and may require appropriate traffic calming measures.



Figure 2: Looking west across the Grand Concourse East Service Road toward Christ the King School



Figure 3: As part of traffic calming measures, concrete curb-stops and planters are placed along the left lane of Grand Concourse West Service Road at Marcy Place

3.6.2 Grand Concourse & Clarke Place East

This is an unsignalized T-intersection with no crosswalks located across the Grand Concourse at this location. There is a school crosswalk located across the west leg of the intersection on Clarke Place East.

In the vicinity of Christ the King school, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions. A painted-striped median, approximately ten feet wide, separates the northbound and southbound roadways. Both the northbound and southbound service roads have one travel lane, a bike lane, and one right-side parking lane. 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 seven foot wide raised concrete median with occasional slip ramps connecting the two roadways that permit vehicles on one roadway to transition to the other roadway. Clarke Place East is a one-way eastbound street with one travel lane and parking on both sides of the roadway. The intersection of Grand Concourse and Clarke Place East is within the “Special Grand Concourse Preservation District” designated by the Department of City Planning (DCP).

Clarke Place East does not connect with the Grand Concourse mainline roadway, as in a typical T-type intersection. There is no gap in the raised concrete median to allow vehicles to cross the Grand Concourse service roadway in order to access the mainline roadways at this intersection location. All eastbound Clarke Place East vehicles must turn right to head southbound on the Grand Concourse service road (see Figures 4 and 5).

There were four accident reported at this intersection between 1998 and 2000 (Table 2), none of which were pedestrian accidents. There were no pedestrian fatalities reported at this intersection.



Figure 4: Looking west on Clarke Place East from the Grand Concourse West Service Road



Figure 5: The recently implemented traffic calming measures including curb-stops and planter along the left lane of Grand Concourse West Service Road across Clarke Place East intersection

3.6.3 Grand Concourse & Elliot Place

This is an unsignalized T-type intersection with no crosswalks located across the Grand Concourse at this location. There is a school crosswalk across the west leg of the intersection on Elliot Place.

In the vicinity of Christ the King School, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions. A painted-stripped median, approximately ten feet wide, separates the northbound and southbound roadways. Both the northbound and southbound service roads have one travel lane, a bike lane, and one right-side parking lane. 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 seven foot wide raised concrete median with occasional slip ramps connecting the two roadways that permit vehicles on one roadway to transition to the other roadway. Elliot Place is a one-way eastbound street with one travel lane and parking on both sides of the roadway. The intersection of Grand Concourse and Elliot Place is within the “Special Grand Concourse Preservation District” designated by the Department of City Planning (DCP).

Elliot Place does not connect with the Grand Concourse mainline roadway, as in a typical T-type intersection. There is no gap in the raised concrete median to allow vehicles to cross the Grand Concourse service roadway, in order to directly access the mainline roadways at this intersection location. All eastbound Clarke Place East vehicles must turn right to head southbound on the Grand Concourse service road. There is, however, a

slip ramp to enable drivers to transition from the service road to the mainline roadway just south of the Elliot Avenue intersection (see Figures 6, 7, and 8).

There were 12 accidents reported at this intersection between 1998 and 2000 (Table 2); none of which were pedestrian accidents.



Figure 6: Looking west on Elliot Place from the Grand Concourse Service Road



*Figure 7:
Looking north
along the Grand
Concourse
Service Road
toward Elliot
Place*



Figure 8: Looking south along the Grand Concourse West Service Road at slip ramp to mainline roadway (South of Elliot Pl and north of Marcy Place)

3.6.4 Walton Avenue & Marcy Place

This is a four-leg unsignalized intersection with no school crosswalks. Walton Avenue is a one-way southbound street with one travel lane and parking on both sides of the roadway. Marcy Place is a one-way westbound roadway with one travel lane and parking on both sides of the roadway.

There were ten accidents reported at this intersection between 1998 and 2000 (Table 2). There were two pedestrian accidents reported during the same three-year period; neither of the accidents was school-related. There were no pedestrian fatalities reported at this intersection.

3.6.5 Walton Avenue & Clarke Place East

This is a four-leg unsignalized intersection with no school crosswalks. Walton Avenue is a one-way southbound street with one travel lane and parking on both sides of the roadway. Clarke Place East is a one-way eastbound roadway with one travel lane and parking on both sides of the roadway.

There were 11 accidents reported at this intersection between 1998 and 2000 (Table 2), one of these was a pedestrian accident, which was not school-related.

3.6.6 Walton Avenue & Elliot Place

This is a four-leg unsignalized intersection with no school crosswalks. Walton Avenue is a one-way southbound street with one travel lane and parking on both sides of the

roadway. Elliot Place is a one-way eastbound roadway with one travel lane and parking on both sides of the roadway.

There were ten accidents reported at this intersection between 1998 and 2000 (Table 2). There was one pedestrian accident reported during the same three-year period; which was not a school-related accident. There were no pedestrian fatalities reported at this intersection.

3.6.7 Grand Concourse & East 169th Street

This is a signalized intersection with pedestrian crosswalks located across all four legs. At this location, the mainline section of the Grand Concourse carries two through lanes and one left-turn lane (pocket) in both the northbound and southbound directions. Both the northbound and southbound service roads have one travel lane, a bike lane, and one right-side parking lane. East 169th Street is a two-way street with one travel lane and a parking lane on both sides of the roadway.

There were 57 accidents reported at this intersection between 1998 and 2000 (Table 2). There were ten pedestrian accidents reported during the same three-year period; none were school-related. There were no pedestrian fatalities reported at this intersection.

3.6.8 Grand Concourse & East 168th Street

This is an unsignalized intersection with no crosswalk located across the Grand Concourse. Pedestrian crosswalks are located across both the east and west legs of East 168th Street. At this location, the mainline section of the Grand Concourse carries two through lanes in both the northbound and southbound directions. Both the northbound and southbound service roads have one travel lane, a bike lane, and one right-side parking lane. East 168th Street is a one-way eastbound street with one travel lane and parking on both sides of the roadway.

East 168th Street does not connect with the Grand Concourse mainline roadway, as in a typical T-type intersection. There is no gap in the raised concrete median to allow vehicles to cross the Grand Concourse service roadway, in order to directly access the mainline roadways at this intersection location. All eastbound East 168th Street vehicles must turn right to head southbound on the Grand Concourse service road.

There were 13 accidents reported at this intersection between 1998 and 2000 (Table 2). There was one pedestrian accident reported during the same three-year period; which was also a school-related accident. There were no pedestrian fatalities reported at this intersection.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of Christ the King School, and were found to be adequate based upon a child pedestrian walking at a rate of 3 feet per second. Signal timings are shown in Table 4.

As shown in Table 4, the pedestrian crossing times are sufficient at the intersection of Grand Concourse and Marcy Place. It is common practice to utilize relatively wide concrete medians as a pedestrian refuge for multi-roadway crossings. The raised

concrete buffers between the mainline and service roads, approximately eight to eleven feet (8-11') in width, provide refuge areas between pedestrian phases. (As discussed in Section 3.6.1, the north and south roadways of the Grand Concourse mainline are also separated by a painted-striped median, approximately ten feet wide.) There is sufficient crossing time to these areas from both sides of the Grand Concourse mainline. Since a child pedestrian at the intersection of Grand Concourse and Marcy Place does not have sufficient time to completely cross the Grand Concourse in one pedestrian phase, an additional nine seconds of crossing time would be needed in the AM, and an additional four seconds would be needed in the PM to make the entire crossing in one pedestrian phase. However, the existing crossing time for a child pedestrian is sufficient to cross the Grand Concourse to the far service road median in one pedestrian phase during both the morning and afternoon time periods.

TABLE 4: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED ⁽¹⁾ (SECONDS)	TIMING ADJUSTMENT REQUIRED?
Grand Concourse & Marcy Pl.				
crossing Grand Concourse	143	44-AM/45-PM ⁽²⁾	51	NO ⁽³⁾
crossing Grand Concourse E-W, curb to S.R. median	96	44-AM / 45-PM	35	NO
crossing Grand Concourse W-E, curb to S.R. median	98	44-AM / 45-PM	36	NO
crossing Marcy Place	32	72-AM/68-PM	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 Monday – Friday from 6:00 am – 10:30 am
The pm timing is Monday - Friday from 10:30 am - 3:30 pm and 7:30 pm - 6:00 am
3. Although the time required to cross the entire width of the Grand Concourse is 51 seconds, the time to reach the far concrete median is only 35 seconds. Since there are fifteen feet wide concrete medians between the inner and outer roadways, they act as pedestrian refuges for the crosswalks. The time could therefore be left as it is. Nine more seconds would have to be added to the morning timing, and four more seconds to the afternoon timing in order to accommodate the child pedestrian walking rate for the total crossing. It is common practice to utilize relatively wide concrete medians as a pedestrian refuge for multi-roadway crossings.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways in the vicinity of Christ the King were observed to be in generally fair condition. Sidewalks are about 15 to 20 feet wide on the school block-faces. They are generally in fair condition.

3.8.2 Pedestrian Ramps

Overall, the pedestrian ramps in the vicinity of Christ the King were observed to be standard with one exception. The pedestrian ramp on the southwest corner of Grand Concourse and Marcy Place has a drainage problem for the south crosswalk located across Grand Concourse.



Figure 9: Drainage problem for pedestrian ramp for south crosswalk across Grand Concourse West Service Road at Marcy Place

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around Christ the King. 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 Christ the King is discussed as follows, and is shown in more detail in Exhibit 6 at the end of this section.

4.1 SHORT-TERM MEASURES

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

Install “NO STANDING 7AM-4PM SCHOOL DAYS” signs for a distance of thirty feet in front of the school at 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.)

➤ *Place advanced stop bar before school crosswalk*

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 advanced stop bars before school crosswalks are recommended on the following approaches of signalized intersections surrounding the Christ the King School:

- Northbound approach of Grand Concourse mainline and Service Roads at Marcy Place.
- Westbound approach of Grand Concourse mainline and Service Roads at Marcy Place.

4.2 LONG-TERM MEASURES

➤ *Speed Reduction on the Grand Concourse*

The speed survey conducted in this area showed that the 85th percentile speed exceeded the threshold speed limit of 30 mph (see section 3.6.1 and Appendix). A speed hump cannot be installed at this location since it is a local bus route. Interim traffic-calming techniques have been introduced in this section of roadway, which have already reduced the width of the available roadway (see section 3.6.1). However, the proposed curb extensions (see Section 4.2 – Long-Term Measures) would further help reduce the travel speed. In addition, the

existing interim measures should be made permanent by widening the raised concrete medians.

The following is therefore recommended that:

- Consideration should be given to make the interim measures permanent by widening the raised concrete medians.

➤ Consider curb extension at the following locations

- Provide curb extension at the southwest corners of Elliot Place at its intersection with the Grand Concourse.
- Provide curb extensions at the southeast and southwest corners of the Grand Concourse and Marcy Place intersection.
- Provide curb extension at the southwest corners of Clarke Place East at its intersection with the Grand Concourse.
- Provide curb extensions at all four corners of the Grand Concourse and East 169th Street intersection.

Curb extensions should be installed at the corners as shown in Exhibit 6. The purpose of the curb extension is to shorten the crossing distance for pedestrians, and to reduce the speed of vehicles approaching and turning on school crosswalks. The 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.

➤ Consider refuge islands at the intersection of Grand Concourse and Marcy Place

There were three school-related accidents including one fatal accident between 1998 and 2000 at this intersection. An existing ten-foot wide striped center median separates the northbound and southbound mainline of the Grand Concourse. It is therefore recommended to:

- Provide a pedestrian refuge island at the north and south legs of the Grand Concourse with at least a five-foot at grade cut through section.

The refuge islands with extended medians will provide a refuge for pedestrians who do not complete the crossing during the flashing “Don’t Walk” indication. The proposed extended median should extend beyond the crosswalk, and should have at least 5-foot at grade cut through section. These medians are not proposed where they would hinder the ability of vehicles to turn. Final designs pertaining to proposed extended medians should be developed during Final Design for the next phase of the Grand Concourse Reconstruction Project for the segment north of East 166th Street.

➤ Fence (railing) along the Grand Concourse at East 168th Street

This is an unsignalized intersection with no pedestrian crosswalks across the Grand Concourse. However, this intersection experienced one pedestrian accident which was also a school related accident between 1998 and 2000, and

five pedestrian accidents including one school-related accident between 2001 and 2004. It is therefore recommended that:

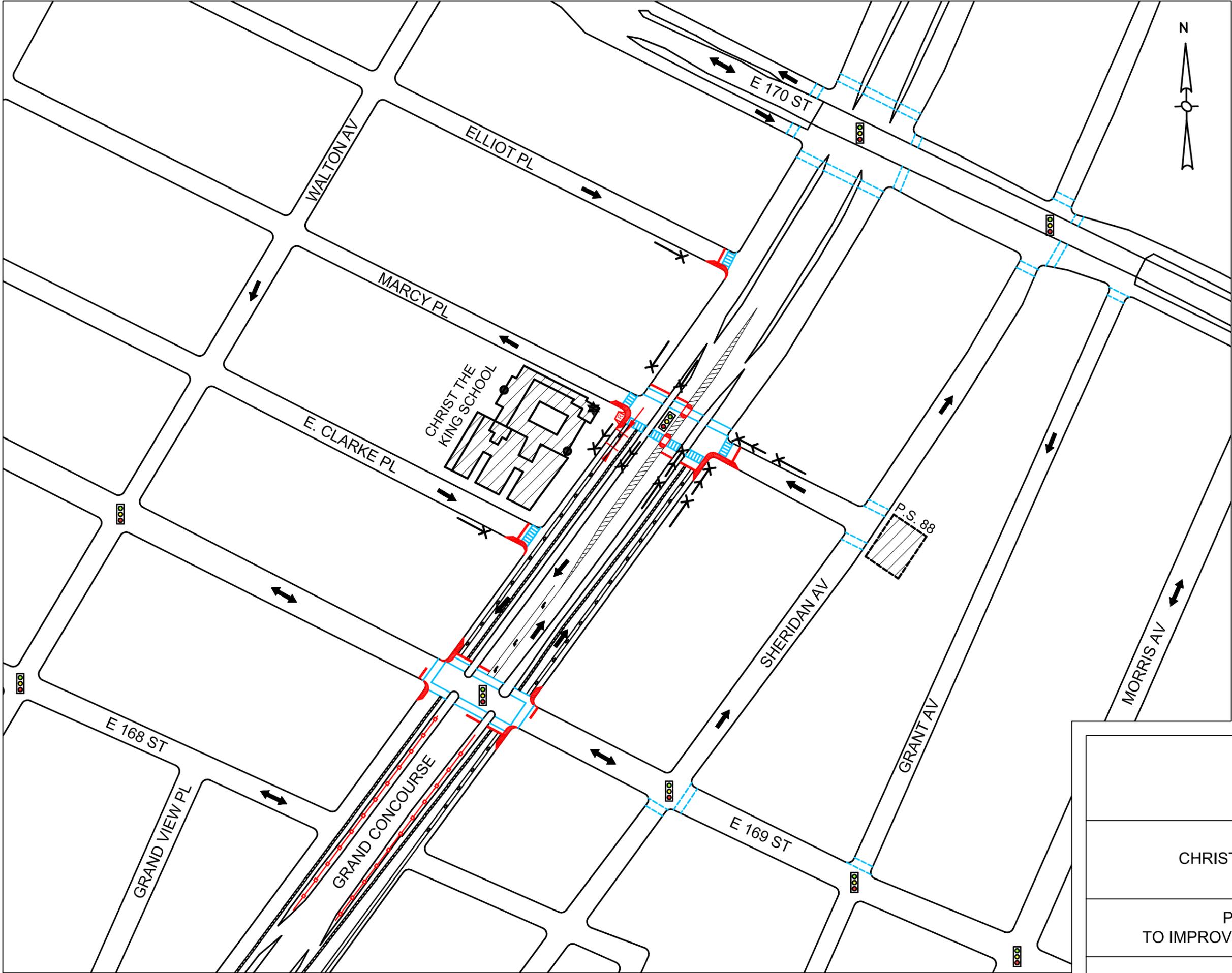
- Consideration should be given to provide fence (railing) along the seven foot wide concrete median which separates the mainline and service roadway of the Grand Concourse in both direction of travel between East 169th Street and East 167th Street.

➤ *Reconstruct Pedestrian Ramp*

The pedestrian ramp on the southwest corner of Grand Concourse and Marcy Place has a drainage problem for the south crosswalk located across Grand Concourse.

The following is therefore recommended to:

- Reconstruct the pedestrian ramp at the southwest corners of the Grand Concourse & Marcy Place intersection for the school crosswalk located across Grand Concourse to eliminate the drainage problem.



- 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 BIKE LANE
 -  EXISTING SIGNALIZED LOCATION
 -  EXISTING SCHOOL CROSSWALK
 -  EXISTING PEDESTRIAN CROSSWALK
 -  EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
 -  PROPOSED TRAFFIC SIGN
 -  RECONSTRUCT EXISTING PEDESTRIAN RAMP
 -  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 -  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
 -  PROPOSED CURB EXTENSION (NECKDOWN)
 -  PROPOSED FENCE
 -  PROPOSED CONCRETE REFUGE ISLAND

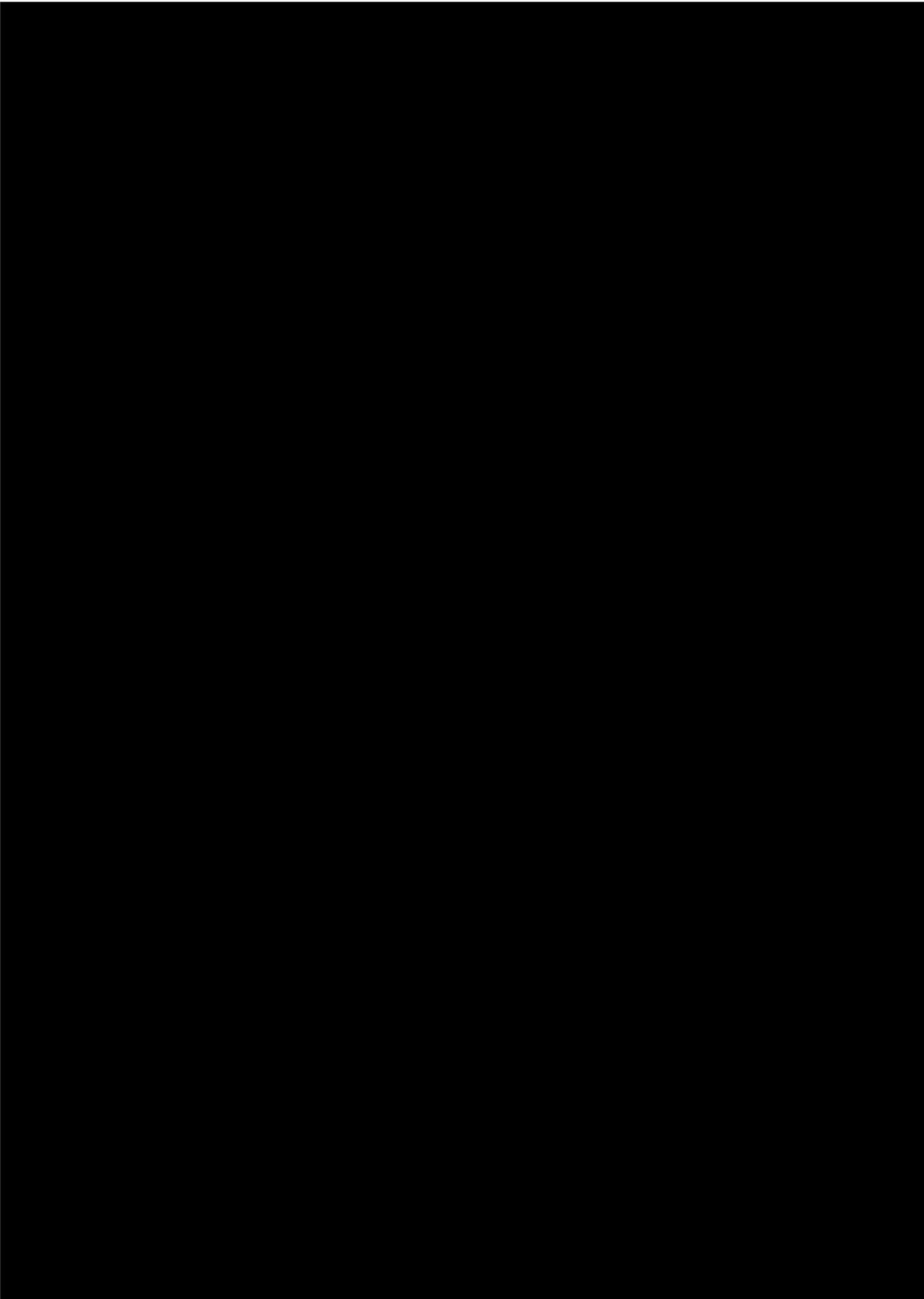
1" = 200'

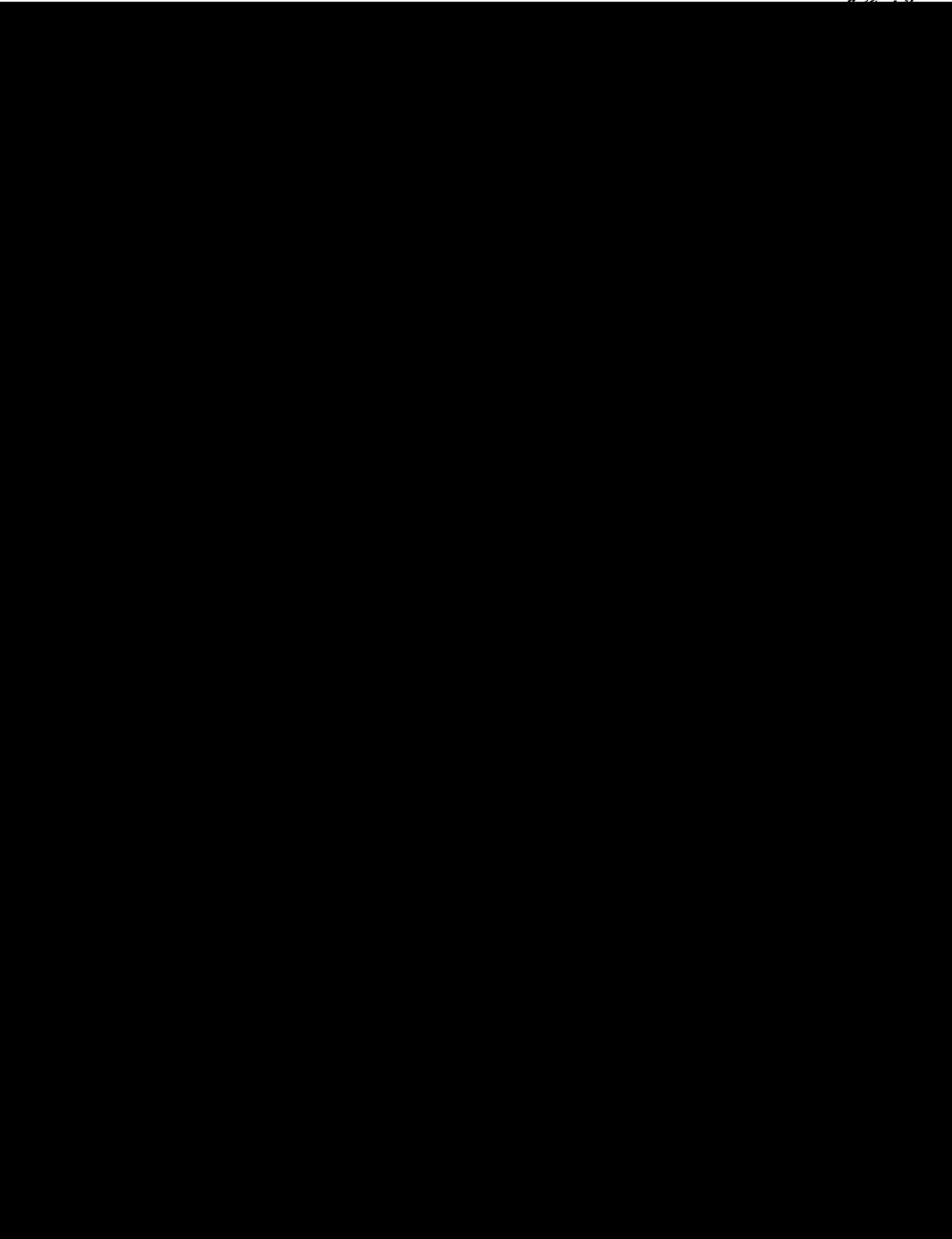
EXHIBIT 6

CHRIST THE KING SCHOOL BRONX

PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY

APPENDIX







The TRAFFIC SAFETY PLAN shown on this map was established to provide the maximum degree of safety for children going to and from school. It is required that all children follow the prescribed routes and use the designated crosswalks.

- LEGEND:**
- TRAFFIC FLOW
 - ROUTE TO SCHOOL
 - ADV. WARNING SIGN
 - SCHOOL LOCATION
 - MAIN SCHOOL ENTRANCE
 - OTHER SCHOOL ENTRANCES
 - SCHOOL X-WALK
 - PED. X-WALK
 - X-WALKS ASSOCIATED WITH OTHER SCHOOLS
 - SPEED HUMP
 - TRAFFIC SIGNAL
 - ALL-WAY STOP
 - 2-WAY STOP

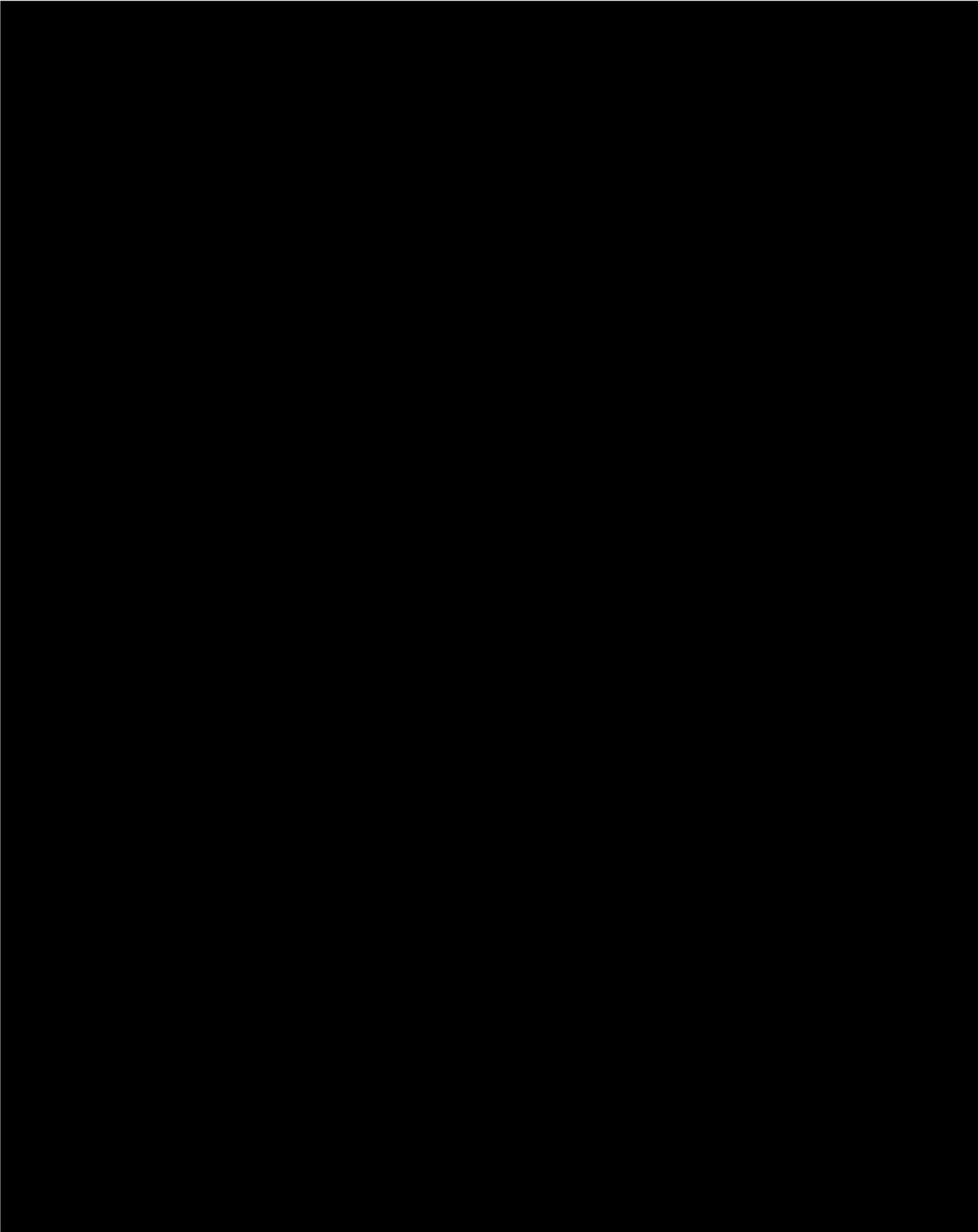
**CHRIST THE KING SCHOOL
C-80**

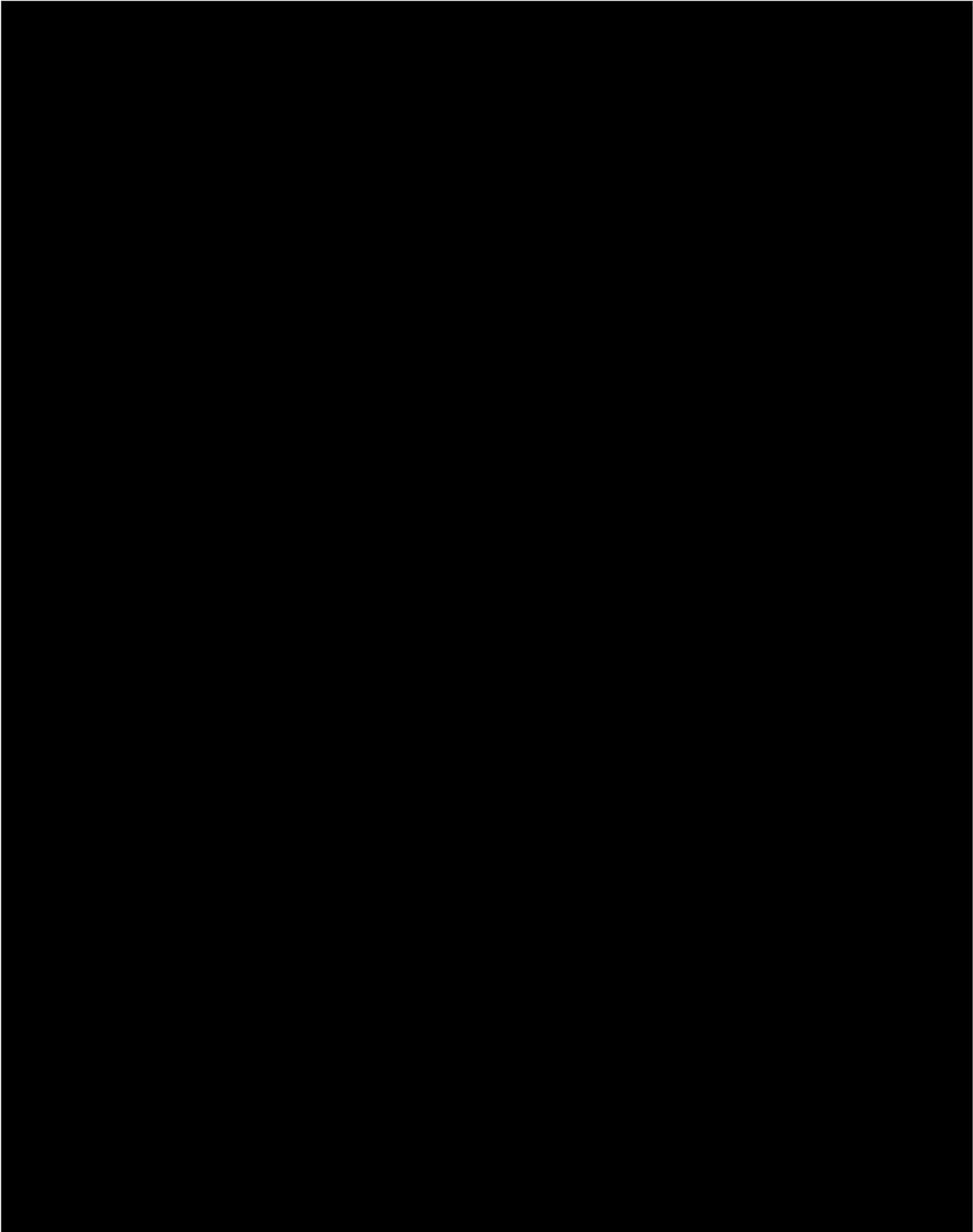
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION,
Ira Weinstahl, COMMISSIONER, in cooperation with SCHOOL, and
POLICE OFFICIALS.

ORIG. DATE: 7-10-74
GIS CONVRT: 04/2002
REVISIONS: 9-22-03

COMM. BOARD: 04
BOROUGH: BRONX
PRECINCT: 44

RE 2





SPOT SPEED STUDY

Date: **September 9, 2005** Time: **9:30 -10:30**
 Location: **Grand Concourse Service Road btwn Marcy Pl and Elliott Pl**
 Surveyor: **Richard Calvache**

School: **Christ the King**
 Direction: **Southbound**
 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	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	0	0.0%	0.0%	0	0
21	0	0.0%	0.0%	0	0
22	1	1.2%	1.2%	22	484
23	2	2.4%	3.6%	46	1058
24	8	9.5%	13.1%	192	4608
25	6	7.1%	20.2%	150	3750
26	11	13.1%	33.3%	286	7436
27	10	11.9%	45.2%	270	7290
28	14	16.7%	61.9%	392	10976
29	13	15.5%	77.4%	377	10933
30	6	7.1%	84.5%	180	5400
31	3	3.6%	88.1%	93	2883
32	5	6.0%	94.0%	160	5120
33	2	2.4%	96.4%	66	2178
34	0	0.0%	96.4%	0	0
35	3	3.6%	100.0%	105	3675
36	0	0.0%	100.0%	0	0
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
	84	100.0%		2339	65791

Mean Speed = 27.8 mph Median Speed = 27.8 mph
 Standard Deviation = 2.8 mph 15th Percentile Speed = 24.9 mph
 Margin of Error (95% Confidence) = ± 0.6 mph 85th Percentile Speed = 30.8 mph

SPOT SPEED STUDY

Date: **September 9, 2005**
Location: **Grand Concourse Service Road btwn Marcy PI and Elliott PI**
Surveyor: **Richard Calvache**

Time: **9:30 -10:30**

School: **Christ the King**
Direction: **Southbound**
Comments:

Mean Speed = 27.8 mph
Standard Deviation = 2.8 mph
Margin of Error (95% Confidence) = ± 0.6 mph

Median Speed = 27.8 mph
15th Percentile Speed = 24.9 mph
85th Percentile Speed = 30.8 mph

