

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



School Safety Engineering Project

FINAL REPORT: P.S. 9 (Ryer Avenue Elementary School), Bronx



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



August 1, 2006

**School Safety Engineering Project
Final Report: P.S. 9, Bronx**

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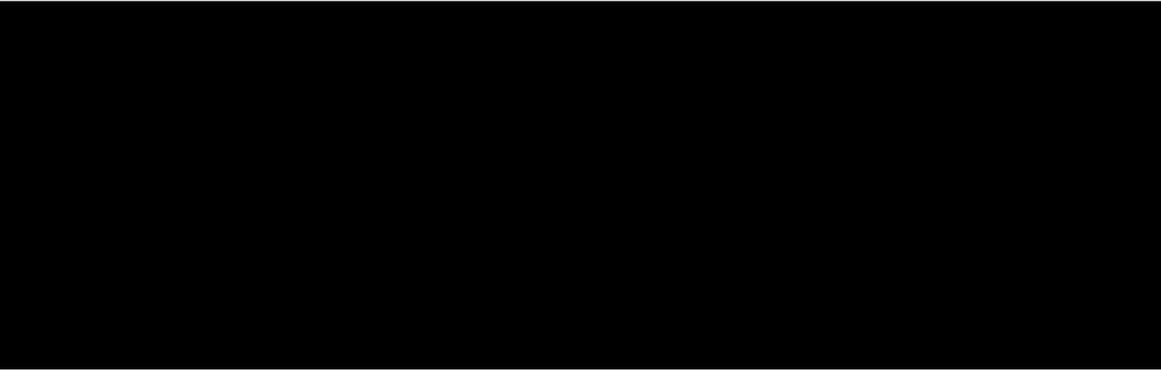
1. INTRODUCTION

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). P.S. 9 (Ryer Avenue Elementary 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



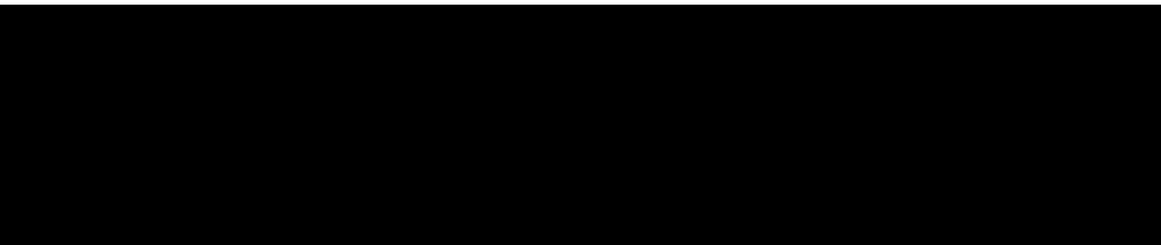
2.2 NEIGHBORHOOD DESCRIPTION

Exhibit 1 shows an aerial view of the neighborhood surrounding the school. P.S. 9 is bounded by East 183rd Street to the north, East 182nd Street to the south, Valentine Avenue to the east, and Ryer 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, a major commercial corridor with significant vehicle and pedestrian traffic, is located one block to the west of P.S. 9. Commercial activity is also found on East 184th Street, one block to the north of the school. Slattery Playground is situated on the north side of East 183rd Street between Ryer and Valentine Avenues. The 46th Precinct is located south of the school on Ryer Avenue between East 180th and East 181st Streets.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant staff and the principal of P.S. 9 met at the school on the morning of Tuesday, April 27, 2004. According to the school principal, some of the problems faced by P.S. 9 students and staff are as follows:

- Vehicles traveling at excessive speed, especially on East 183rd Street in front of the school
- Drivers ignoring stop signs and other traffic control devices, particularly at the intersection of East 183rd Street and Ryer Avenue
- Parking problems around the school, especially for school staff
- Students crossing at mid-block locations, especially on Valentine Avenue, due to the location of school entrance
- Significant traffic volumes on East 184th Street



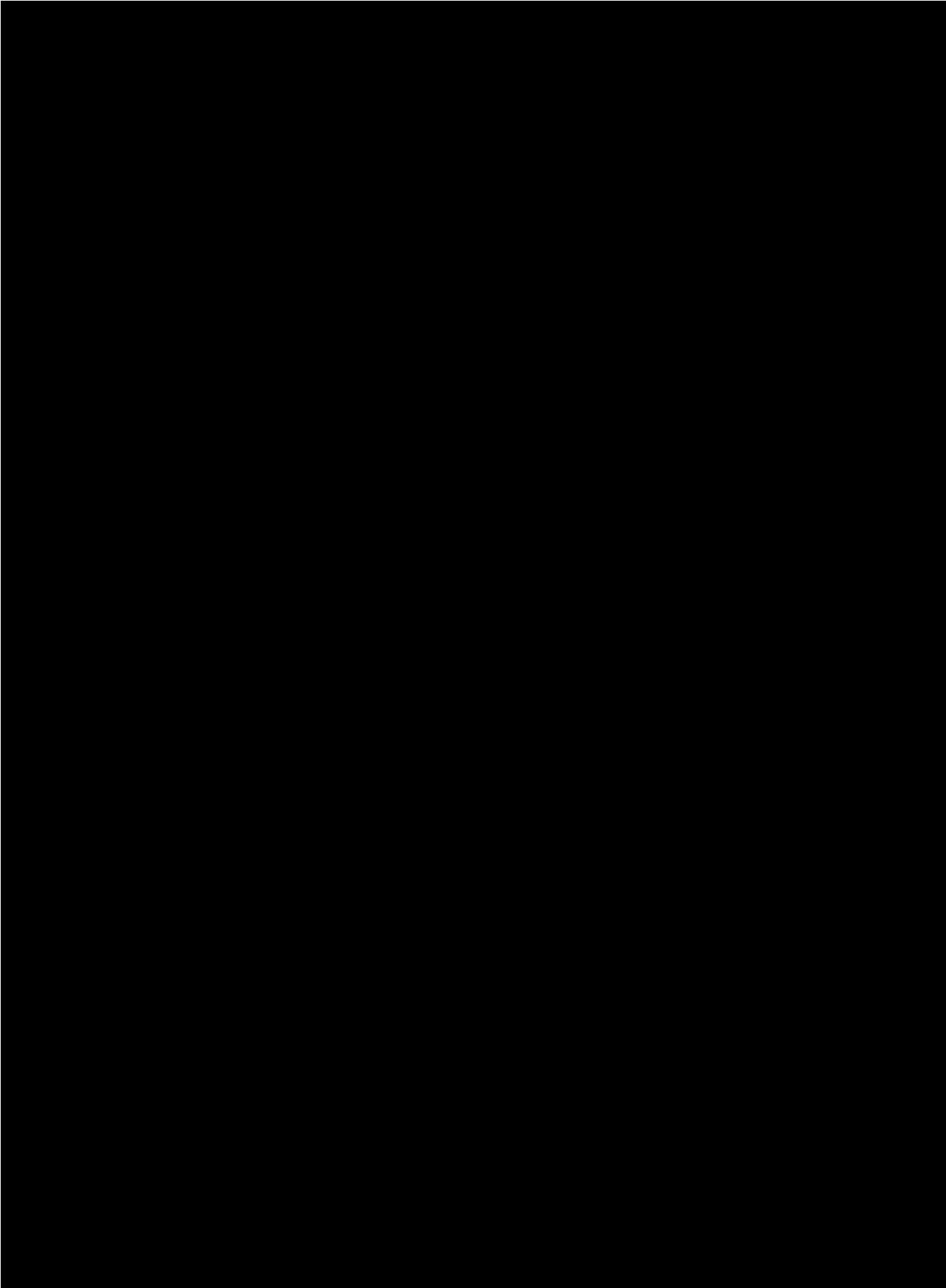




Figure 2: Pedestrians crossing mid-block on Valentine Avenue at arrival (school is on the left)

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

The school’s catchment area, as defined by the Department of Education (DOE), is shown in Exhibit 2. The school’s catchment area is defined generally by the following roadways: East 187th Street and East 183rd Street to the north, East Burnside Avenue and East 180th Street to the south, Anthony Avenue, Valentine Avenue and Ryer Avenue to the east and Grand Concourse to the west.

Table 1 presents the modes of travel for P.S. 9 as identified by school representatives and verified by the DOE website.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	90%
Driven By Car	5%
School Bus	1%
MTA Bus	2%
MTA Subway	2%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

A local delicatessen on the northwest corner of the East183rd Street and Ryer Avenue intersection, and several other stores and restaurants located along East 183rd Street and

the Grand Concourse, generate significant vehicle and pedestrian traffic around P.S. 9 (see Figure 3). The Slattery Playground situated on the north side of East 183rd Street also generates pedestrian traffic.



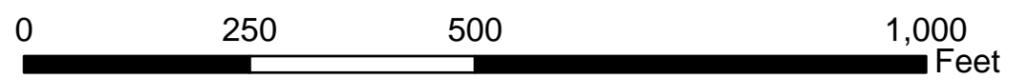
Figure 3: Looking west along East 183rd Street from Ryer Avenue to the Grand Concourse

2.8 CROSSING GUARD LOCATION

According to the school principal, a school crossing guard is assigned to the intersection of East 183rd Street and Valentine Avenue. The crossing guard location is shown in Exhibit 4.



EXHIBIT 1
P.S. 9 BRONX
RYER AVENUE ELEMENTARY SCHOOL
AERIAL PHOTOGRAPH





LEGEND:

CATCHMENT AREA, (DEPARTMENT OF EDUCATION DESIGNATED AREA FROM WITHIN WHICH STUDENTS ARE ENTITLED TO ATTEND P.S. 9)



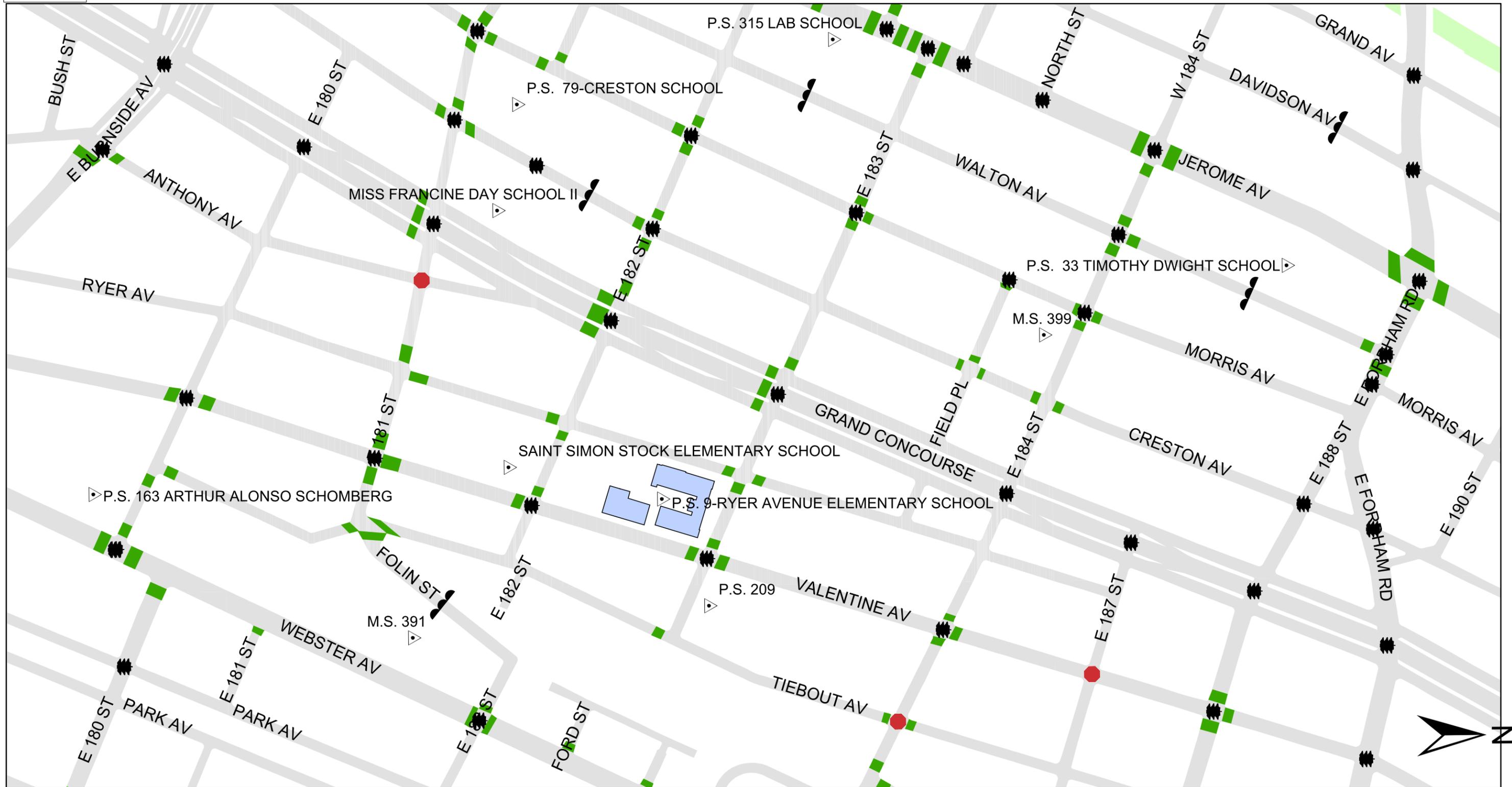
EXHIBIT 2

P.S. 9 BRONX

RYER AVENUE ELEMENTARY SCHOOL

CATCHMENT AREA





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	

PS 9 Bronx
RYER AVENUE ELEM SCHOOL

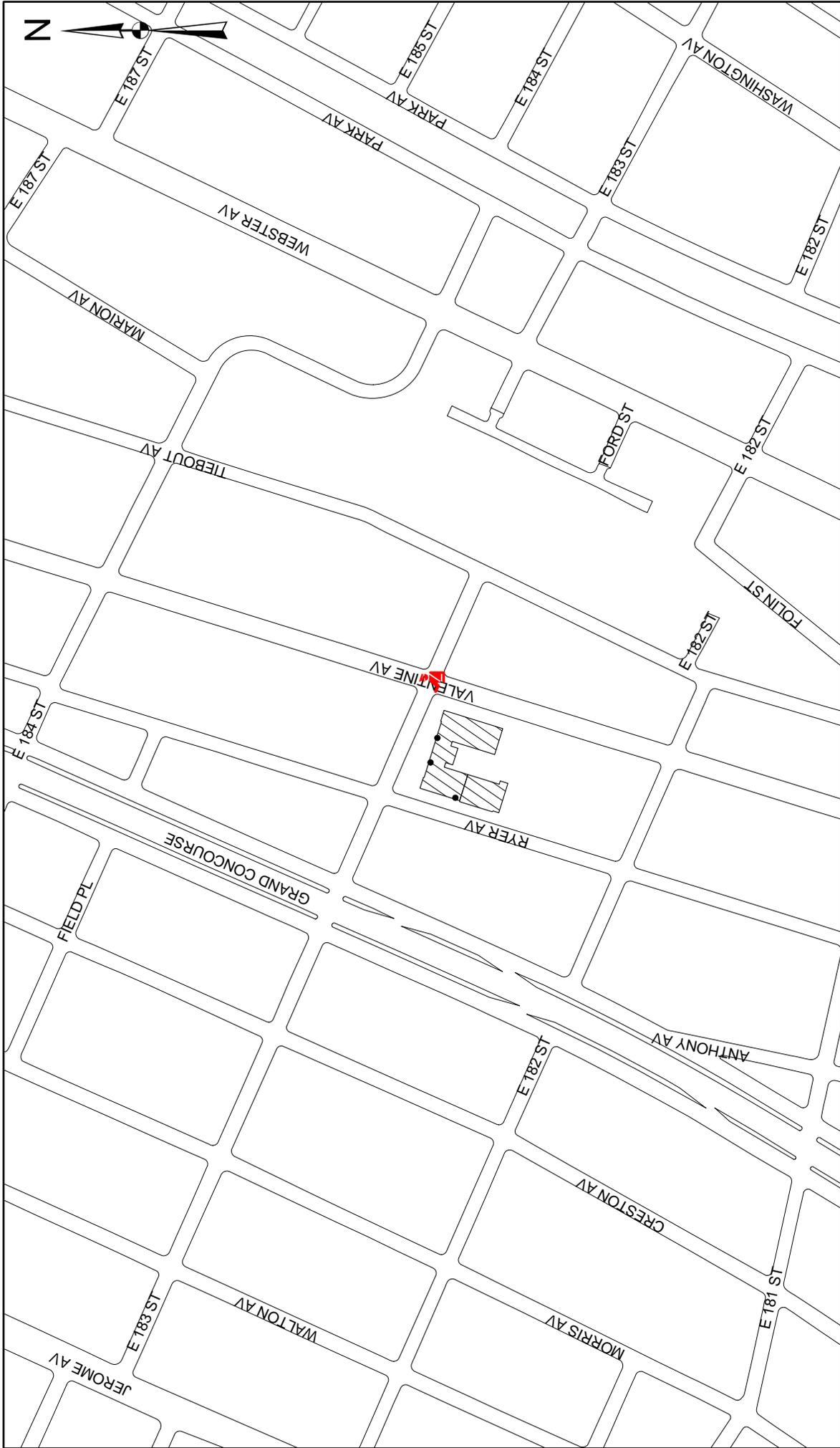
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinsahl, COMMISSIONER.

Map created on 11/16/2006

EXHIBIT 3

COMM. BOARD: 205
 PRECINCT: 46

1.5.1 10



LEGEND:



CROSSING GUARD LOCATION

EXHIBIT 4

P.S. 9 BRONX

RYER AVENUE ELEMENTARY SCHOOL

CROSSING GUARDS LOCATIONS



3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the school principal, there are approximately 20 students who ride an MTA bus to school, and approximately ten students who ride a yellow school bus to school. School bus transportation for the students consists of one standard bus and three special buses (two mini-wagons and one ramp wagon). School buses load and unload students on Valentine Avenue. Special Education students are dropped-off in front of the school on East 183rd Street. Observations indicated that there is sufficient block-face on Valentine Avenue for school bus operations.

3.2 PARENT DROP-OFF OPERATIONS

According to the school principal, parent drop off operations are not an issue at P.S. 9. According to Table 1 in Section 2, about five percent of the students are being dropped off, approximately 30 students.

3.3 PARKING REGULATIONS

Parking regulations around the school block-faces are shown in Exhibit 5.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 3 shows the existing school signals and pavement markings around P.S. 9. It should be noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual on Uniform Traffic Control Devices (MUTCD) standards of fluorescent yellow-green signs accompanied by downward pointing arrows. This will make the school crossing warning signs more visible to motorists. Signs scheduled to be installed under this program are shown as “existing” in Exhibit 8.

3.5 ACCIDENT SUMMARY

Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of P.S. 9 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*
E.183 rd St. and Grand Concourse	110	18	1	0
E.182 nd St. and Grand Concourse	22	4	0	0
E.183 rd St. and Creston Ave.	30	7	0	2
E.183 rd St. and Ryer Ave.	25	5	0	1
E.182 nd St. and Ryer Ave.	1	0	0	0
E.183 rd St. and Valentine Ave.	9	5	0	0
E.182 nd St. and Valentine Ave.	3	2	0	0
E.183 rd St. and Tiebout Ave.	10	0	0	0
TOTAL	210	41	1	3

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
E.183 rd St. and Grand Concourse	110	16	1	2
E.182 nd St. and Grand Concourse	49	10	1	2
E.183 rd St. and Creston Ave.	32	6	0	1
E.183 rd St. and Ryer Ave.	31	7	0	2
E.182 nd St. and Ryer Ave.	19	3	0	1
E.183 rd St. and Valentine Ave.	35	8	0	2
E.182 nd St. and Valentine Ave.	16	3	0	1
E.183 rd St. and Tiebout Ave.	14	5	0	1
TOTAL	306	58	2	12

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

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 P.S. 9.

3.6.1 East 183rd Street and Grand Concourse

This is a four-leg signalized intersection with school crosswalks located across the southern leg of Grand Concourse's mainline and service roads and west leg of East 183rd Street (see Figures 4 and 5). The Grand Concourse is a major, north-south, corridor in the Bronx, extending from Mosholu Parkway at its northern terminus to East 138th Street/Madison Avenue Bridge/Major Deegan Expressway at its southern terminus. In the vicinity of P.S. 9, 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. Exclusive left turn lanes are provided on both the northbound and southbound mainline approaches. The north and south service roads carry two travel lanes and one right-side parking lane. A raised concrete buffer separates the mainline and service roadways in both directions. Approaching East 183rd Street in the northbound direction, there are slip ramps to and from the Grand Concourse mainline and the service road. East 183rd Street is a two-way east-west street with one travel lane and an on-street parking lane on each side of the roadway. The intersection of Grand Concourse and East 183rd Street is within the "Special Grand Concourse Preservation District" designated by the Department of City Planning (DCP).

There were 110 accidents reported at this intersection between 1998 and 2000 (Table 2); 18 of which were pedestrian accidents. None of the eighteen pedestrian accidents were school-related. There was one pedestrian fatality reported at this intersection during the same three-year period. This fatal accident occurred on Wednesday, December 30, 1998 at 5:00 pm. The accident involved a pedestrian, whose age is not known, who was reported struck by a vehicle while crossing the Grand Concourse against the signal. The accident location was reported as a straight and level segment, and the roadway and weather conditions were dry and clear, respectively.



Figure 4: Looking northwest across the Grand Concourse at its intersection with East 183rd Street



Figure 5: Looking southwest across the Grand Concourse at its intersection with East 183rd Street

3.6.2 East 182nd Street and Grand Concourse

This is a four-leg signalized intersection with school crosswalks located across the south leg of the Grand Concourse mainline and service roads and west leg of East 182nd Street. At this location, the mainline section of the Grand Concourse carries two travel lanes in both the northbound and southbound directions, separated by an approximately ten feet wide painted striped median. The north and south service roads carry two travel lanes and one right-side parking lane. A raised concrete buffer separates the mainline and service roadways in both directions. There are slip ramps to and from the Grand Concourse mainline and the service road just north of East 182nd Street.

East 182nd Street is a one-way eastbound street with one travel lane and on-street parking on both sides of the roadway. East 182nd Street 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. East 182nd Street actually forms two T-intersections with the service roads, so all eastbound East 182nd Street vehicles must turn right to head southbound on the Grand Concourse service road, and no vehicles can turn to head eastbound on East 182nd Street from the Grand Concourse mainline roadway. The intersection of Grand Concourse and East 182nd Street is within the “Special Grand Concourse Preservation District” designated by the Department of City Planning (DCP).

There were 22 accidents reported at this intersection between 1998 and 2000 (Table 2); four of which were pedestrian accidents. None of the pedestrian accidents were school-related. There were no pedestrian fatalities reported at this intersection during the same three-year period.

3.6.3 East 183rd Street and Creston Avenue

This is a four-leg signalized intersection with no school crosswalk. East 183rd Street is a two-way east-west street with one travel lane and an on-street parking lane on each side of the roadway. Creston Avenue is a one-way southbound street with one travel lane and on-street parking on both sides of the roadway.

There were 30 accidents reported at this intersection between 1998 and 2000 (Table 2). There were seven pedestrian accidents reported during the same three-year period; two of the pedestrian accidents were school-related. The first school-related accident occurred at the intersection around 5:00 pm on Thursday, September 30, 1999. The accident involved an eight-year-old pedestrian who was reported struck by a vehicle as he/she was crossing the street with signal within a marked crosswalk. The extent of injuries was reported as “possible injury”. The accident occurred on a straight and level segment, and the roadway and weather conditions were dry and clear, respectively. The second school-related accident occurred at the intersection around 3:00 pm on Monday, May 22, 2000. This accident also involved an eight-year-old pedestrian who was reported struck by a vehicle as he/she was crossing a street with against there signal and in a marked crosswalk. The extent of injuries was reported as “possible injury”. The accident occurred on a straight and level segment, and the roadway survey condition was dry and the weather condition was clear. There were no pedestrian fatalities reported at this intersection.

3.6.4 East 183rd Street and Ryer Avenue

This is a four-leg unsignalized intersection with school crosswalks located across the north and south legs of Ryer Avenue and east leg of East 183rd Street. East 183rd Street is a two-way east-west street with one travel lane and an on-street parking lane on each side of the roadway. Ryer Avenue is a one-way, southbound street with one travel lane and on-street parking is permitted on both sides of the roadway. The southbound approach of Ryer Avenue is controlled by a stop sign.

A spot speed survey was conducted on East 183rd Street between Ryer and Valentine avenues to determine if there is a speeding problem near the school. The detailed results of the spot speed survey are shown in Appendix at the end of the document.

In summary, the eastbound vehicles on East 183rd Street between Ryer and Valentine Avenues were found to be traveling with an 85th percentile speed of 21 mph. The westbound vehicles on East 183rd Street between Ryer and Valentine Avenues were found to be traveling with an 85th percentile speed of 20 mph.

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

In addition, a traffic count was conducted at the intersection of East 183rd Street and Ryer Avenue from 7:30 to 9:00 am on Wednesday, June 1, 2005 in order to assess vehicle and pedestrian volumes in the vicinity of P.S. 9. The results of the vehicle and pedestrian counts are shown in Tables 4 and 5 and in Exhibit 7 at the end of this section.

TABLE 4: ONE-HOUR VEHICLE VOLUMES (7:30-8:30 AM)			
INTERSECTION	East 183RD STREET EASTBOUND	East 183RD STREET WESTBOUND	RYER AVENUE SOUTHBOUND
East 183 RD Street and Ryer Avenue	165	120	70

TABLE 5: ONE-HOUR PEDESTRIAN VOLUMES (7:30-8:30 AM)				
INTERSECTION	CROSSING East 183rd STREET EAST-LEG X-WALK	CROSSING East 183rd STREET WEST-LEG X-WALK	CROSSING RYER AVENUE NORTH-LEG X-WALK	CROSSING RYER AVENUE SOUTH-LEG X-WALK
East 183 RD Street and Ryer Avenue	120	90	215	165

A preliminary signal warrant analysis based on the pedestrian volumes at this intersection was performed to determine if there are sufficient gaps on East 183rd Street to allow pedestrians to safely cross the street. A summary of the signal warrant analysis is shown in Table 6:

TABLE 6: TRAFFIC SIGNAL WARRANT ANALYSIS (ONE HOUR PEDESTRIAN VOLUMES)

Intersection	Total Hourly Pedestrian Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 190 pedestrians / hour	
East 183 rd Street and Ryer Avenue	210	380	590	No	Yes	No

Note:
 1. The available gap is based on the time need for a pedestrian to walk across the street. The analysis assumed 14 seconds.

Based on the above preliminary analysis, a traffic signal is not warranted at the intersection of East 183rd Street and Ryer Avenue. However, additional in-depth studies may be needed to check the need for a traffic signal at this intersection

There were 25 accidents reported at this intersection between 1998 and 2000 (Table 2). Five accidents involved pedestrians; of which one was school-related. The school-related accident occurred at the intersection around 3:00 pm on Wednesday, March 11, 1998. The accident involved an eight-year-old pedestrian who was reported struck by a vehicle as he/she was crossing the street within a marked crosswalk at this unsignalized intersection. The crosswalk location was not reported. The extent of injuries was reported as “possible injury”. The accident occurred on a straight and level segment, and the roadway and weather conditions were dry and clear, respectively. There were no pedestrian fatalities reported at this intersection.

3.6.5 East 182nd Street and Ryer Avenue

This is a four-leg unsignalized intersection with school crosswalks located across the south leg of Ryer Avenue and the east leg of East 182nd Street. East 182nd Street is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of the roadway. Ryer Avenue is a one-way, southbound, street with one travel lane and on-street parking permitted on both sides of the roadway. The southbound approach of Ryer Avenue is controlled by a stop sign.

There was one accident reported at this intersection between 1998 and 2000 (Table 2). It did not involve a pedestrian. There were no pedestrian fatalities reported at this intersection.

3.6.6 East 183rd Street and Valentine Avenue

This is a four-leg signalized intersection with school crosswalks located across the north and south legs of Valentine Avenue, and west leg of East 183rd Street. East 183rd Street is a two-way east-west street with one travel lane and an on-street parking lane on each side of the roadway. Valentine Avenue is a two-way, north-south, street with one travel lane and an on-street parking lane on each side of the roadway.

Since school representatives reported mid-block crossing on Valentine Avenue, a spot speed survey was conducted on Valentine Avenue between East 182nd and East 183rd streets 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.

In summary, the northbound vehicles on Valentine Avenue, between East 182nd and East 183rd Streets were found to be traveling with an 85th percentile speed of 28 mph. The southbound vehicles on Valentine Avenue, between East 182nd and East 183rd Streets were found to be traveling with an 85th percentile speed was 30 mph.

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

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

There were six mid-block accidents reported on Valentine Avenue between East 182nd Street and East 183rd Street during the three-year period. There was one pedestrian accident which was also a school-related accident. The school-related accident occurred around 4:00 pm on Wednesday, May 12, 1999. The accident involved an 11-year-old pedestrian who was reported struck by a vehicle as he/she was crossing the street at no signal or crosswalk location. The extent of injuries was reported as “non-incapacitating injury”. The accident occurred on a straight and level segment, and the roadway and weather conditions were dry and clear, respectively.



Figure 6: Looking southeast across Valentine Avenue at its intersection with East 183rd Street

3.6.7 East 182nd Street and Valentine Avenue

This is a four-leg signalized intersection with school crosswalks located across the south leg of Valentine Avenue and the west leg of East 182nd Street. East 182nd Street is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of the roadway. Valentine Avenue is a two-way, north-south, street with one travel lane and a parking lane on both sides of the roadway.

There were three accidents reported at this intersection between 1998 and 2000 (Table 2); two were pedestrian accidents. None of the pedestrian accidents were school-related. There were no pedestrian fatalities reported at this intersection.

3.6.8 East 183rd Street and Tiebout Avenue

This is an unsignalized T-intersection with school crosswalks located across the south leg of Tiebout Avenue. East 183rd Street is a two-way east-west street with one travel lane and an on-street parking lane on each side of the roadway. Tiebout Avenue is a one-way southbound street with one travel lane and on-street parking permitted on both sides of the roadway.

There were ten accidents reported at this intersection between 1998 and 2000 (Table 2); none were pedestrian accidents. 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 P.S. 9. The signal timings are shown in Table 7.

As shown in Table 7, the pedestrian crossing times are sufficient at the intersections of East 183rd Street and Valentine Avenues. However, a child pedestrian at the intersection of Grand Concourse and East 183rd Street does not have sufficient time to completely cross the Grand Concourse in one pedestrian phase during both the morning and afternoon peak periods, based on the existing crossing times shown in Table 7. 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. 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 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.)

TABLE 7: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED⁽¹⁾ (SECONDS)	TIMING ADJUSTMENT REQUIRED?
East 183rd Street and Grand Concourse				
crossing Grand Concourse	140	47-AM / 49-PM ⁽²⁾	50	NO ⁽³⁾
crossing Grand Concourse East-West curb to Service Road median	90	47-AM / 49-PM ⁽²⁾	33	NO
crossing Grand Concourse West-East, curb to Service Road median	90	47-AM / 49-PM ⁽²⁾	33	NO
crossing East 183 rd Street	34	73-AM / 71-PM	15	NO
East 183rd Street and Valentine Avenue				
crossing East 183 rd Street	34	35	15	NO
crossing Valentine Avenue	44	23	18	NO
East 182nd Street and Valentine Avenue				
crossing East 182 nd Street	30	35	13	NO
crossing Valentine Avenue	44	23	18	NO

Note:

1. A rate of 3 ft/sec plus 3 seconds reaction time was utilized as the child pedestrian walking rate.
2. Actual pedestrian time reported includes the sum of Green (Walk), Flashing Don't Walk, and all-red vehicle clearance times.
3. A child pedestrian at the intersection of Grand Concourse and East 183rd Street does not have sufficient time to completely cross the Grand Concourse in one pedestrian phase during the morning, based on the existing crossing times shown in Table 7. However, the raised concrete buffers between the mainline and service roads, approximately eight to ten feet in width, provide refuge areas between pedestrian phases. 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.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways in the vicinity of P.S. 9 were observed to be in fair condition. Sidewalks are about 15 feet wide on the school block-faces. They are in fair condition.

3.8.2 Pedestrian Ramps

Overall, the pedestrian ramps in the vicinity of P.S. 9 were observed to be substandard in terms of grade, width, obstructions and absence from some street corners. This included:

- Missing pedestrian ramps on both sides of the crosswalk located on the eastern leg of East 183rd Street at Grand Concourse (see Figure 7).
- Light pole on the northeast corner of the East 183rd Street and Ryer Avenue intersection obstructs the crosswalk (see Figure 8).

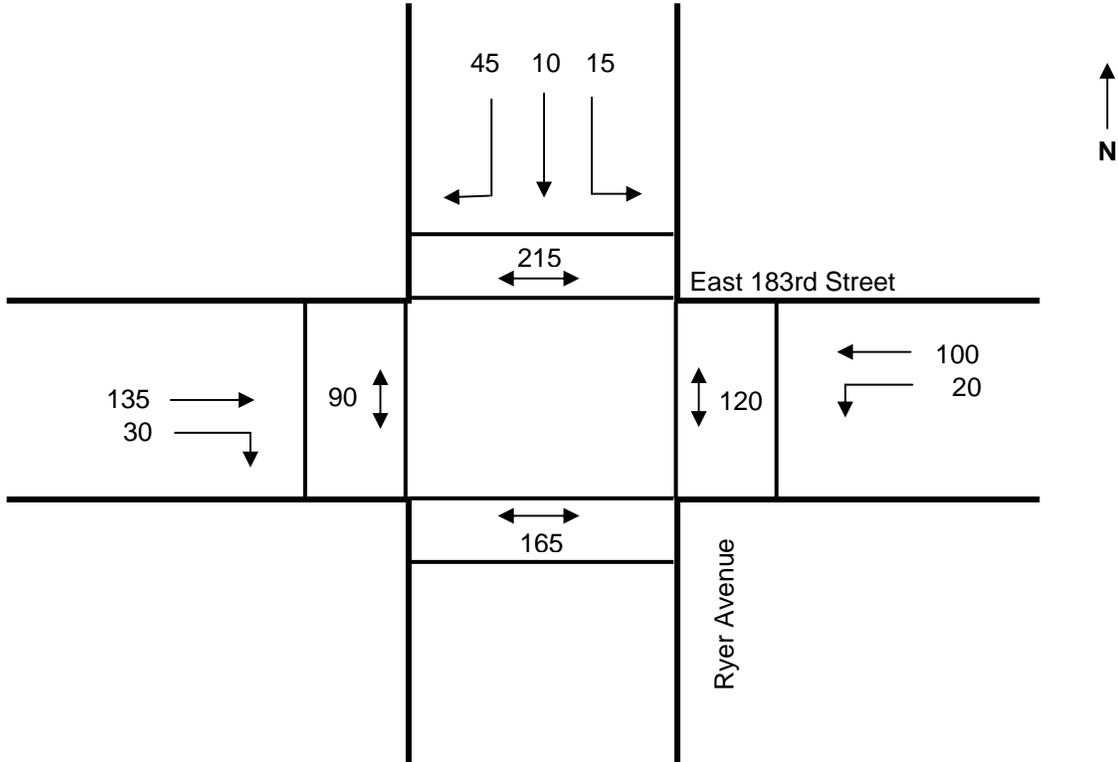


Figure 7: Looking west at crosswalk on east leg of East 183rd Street at the Grand Concourse (pedestrian ramps missing at both ends of crosswalk)



Figure 8: Light pole obstructing crosswalk on northeast corner of East 183rd Street/ Ryer Avenue intersection

One-Hour Traffic Count Summary
Wednesday, June 1, 2005 7:30am - 8:30am



Intersection of East 183rd Street and Ryer Avenue

LEGEND	
	Pedestrian Counts
	Vehicle Movement

EXHIBIT 7
P.S. 9 RYER AVENUE ELEMENTARY SCHOOL
TRAFFIC COUNT EAST 183rd STREET & RYDER AVENUE

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around P.S. 9. 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 P.S. 9 is discussed as follows, and is shown in more detail in Exhibit 8 at the end of this section. See section 4.3 for additional recommendations for this area from the report on Saint Simon Stock, a nearby priority school.

4.1 SHORT-TERM MEASURES

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

Install “NO STANDING 7AM-4PM SCHOOL DAYS” signs for a distance of thirty feet (30’) 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.)

➤ *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 intersections and mid-block crossings, the vehicle stop line can be moved farther back from the pedestrian crosswalk.

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

Ten foot advance stop bars before school are recommended on the following approaches of signalized intersections surrounding P.S. 9:

- Northbound mainline and service road approaches of the Grand Concourse at intersection with East 183rd Street
- Eastbound approach of East 183rd Street at the Grand Concourse
- Eastbound approach of East 183rd Street and northbound and southbound approaches of Valentine Avenue at their intersection.
- Westbound approach of East 183rd Street and southbound approach of Ryer Avenue at their intersection.
- Eastbound approach of East 182nd Street and northbound approach of Valentine Avenue at their intersection.

➤ *Traffic signal at the intersection East 183rd Street and Ryer Avenue*

The unsignalized intersection of East 183rd Street and Ryer Avenue has three school crosswalks located across the north, south and east, legs. There was one school-related accident reported at this intersection between 1998 and 2000. In

addition, the principal indicated during the school visit that speeding is a problem on East 183rd Street in front of the school (refer to Section 2.3 - Meeting with School Representatives). Based on a gap study performed, a signal is not warranted at the intersection of East 183rd Street and Ryer Avenue. It is therefore recommended to:

- Monitor the intersection for future need of a signal.
- *Pedestrian crosswalk at the intersection of East 183rd Street and Tiebout Avenue*

This is a three-leg unsignalized intersection with a stop sign located at the eastbound approach of East 183rd Street. This intersection experienced a school-related accident between 1998 and 2000. There is a school crosswalk located across the uncontrolled south leg of Tiebout Avenue, but there is no crosswalk across the stop-controlled leg of East 183rd Street. It is therefore recommended to:

- Provide pedestrian crosswalks across the west leg of East 183rd Street at Tiebout Avenue.

4.2 LONG-TERM MEASURES

- *Consider curb extensions at the following intersections:*

- Northeast and southeast corners of the East 182nd Street and Ryer Avenue intersection
- Northwest and southwest corners of the East 182nd Street and Valentine Avenue intersection
- All four corners of the Creston Avenue and East 183rd Street intersection
- Northeast and southeast corners of the Grand Concourse northbound service road at East 183rd Street
- Northwest and southwest corners of the Grand Concourse southbound service road at East 183rd Street
- Northeast and southeast corners of the East 183rd Street and Ryer Avenue intersection
- Northwest and southwest corners of the East 183rd Street and Valentine Avenue intersection
- Extend the east sidewalk by six feet in order to reduce the crossing distance at the school crosswalk located across the south leg of Tiebout Avenue

Curb extensions (neckdowns) should be installed at the corners as shown in Exhibit 6. The purpose of the curb extension is to provide additional refuge space for pedestrians, to shorten overall crossing distance for pedestrians, thereby enabling pedestrians to cross the entire roadway in one signal cycle, 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.

➤ Install and/or redesign pedestrian ramps at the following locations

- Install missing pedestrian ramps on the northeast and southeast corners of the east leg of East 183rd Street at its intersection with Grand Concourse.
- Redesign the pedestrian ramp at the northeast corner of the East 183rd Street and Ryer Avenue intersection where a utility pole is obstructing the pedestrian path.

4.3 ADDITIONAL RECOMMENDATIONS FROM PRIORITY SCHOOLS IN THE VICINITY OF P.S. 9

4.3.1 Recommendations for Saint Simon Stock School:

The following recommendations are proposed as part of the proposed measures to improve school pedestrian safety around Saint Simon Stock School, which is also a priority school.

➤ 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 intersections and mid-block crossings, the vehicle stop line can be moved farther back from the pedestrian crosswalk.

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

Ten foot advance stop bars before school crosswalks are recommended on the following approaches of signalized intersections surrounding St. Simon Stock School:

- Northbound approach of Grand Concourse mainline and service roadways at its intersection with East 182nd Street.
- Eastbound approach of East 182nd Street intersection at its intersection with the Grand Concourse.
- Northbound and southbound approaches of Valentine Avenue and westbound approach of East 181st Street at the intersection of East 181st Street and Valentine Avenue.
- Northbound approach of Valentine Avenue and eastbound approach of East 182nd Street at the intersection of East 182nd Street and Valentine Avenue.
- Northbound approach of Anthony Avenue at its intersection with East 181st Street.

- Southbound approach of Ryer Avenue at its intersection with East 181st Street.

➤ Crosswalks at the intersection of East 181st Street and Anthony Avenue

This is a four-leg all-way stop-controlled intersection. This intersection experienced a school-related accident between 1998 and 2000. However, there are no pedestrian or school crosswalks across any legs of the intersection. Therefore, it is recommended to:

- Provide a school crosswalk across the south leg of the intersection.
- Provide a pedestrian crosswalk across the east and north legs of the intersection.

➤ Consider refuge islands at the intersection of Grand Concourse and East 182nd Street

There were two school-related accidents and one pedestrian fatality reported at this intersection between January 1, 2001 and December 31, 2004. A ten-foot wide painted striped 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 details pertaining to proposed extended medians will be developed during Final Design.

➤ Consider curb extensions at the following intersections:

- Northeast and southeast corners of the Grand Concourse northbound service road at East 182nd Street
- Northwest and southwest corners of the Grand Concourse southbound service road at East 182nd Street
- All four corners of East 181st Street and Anthony Avenue intersection
- Northeast, southeast and southwest corners of East 181st Street and Ryer Avenue intersection
- Northwest, southwest and southeast corners of East 181st Street and Valentine Avenue intersection
- Northeast and southeast corners of the East 182nd Street and Ryer Avenue intersection
- Northwest and southwest corners of the East 182nd Street and Valentine Avenue intersection

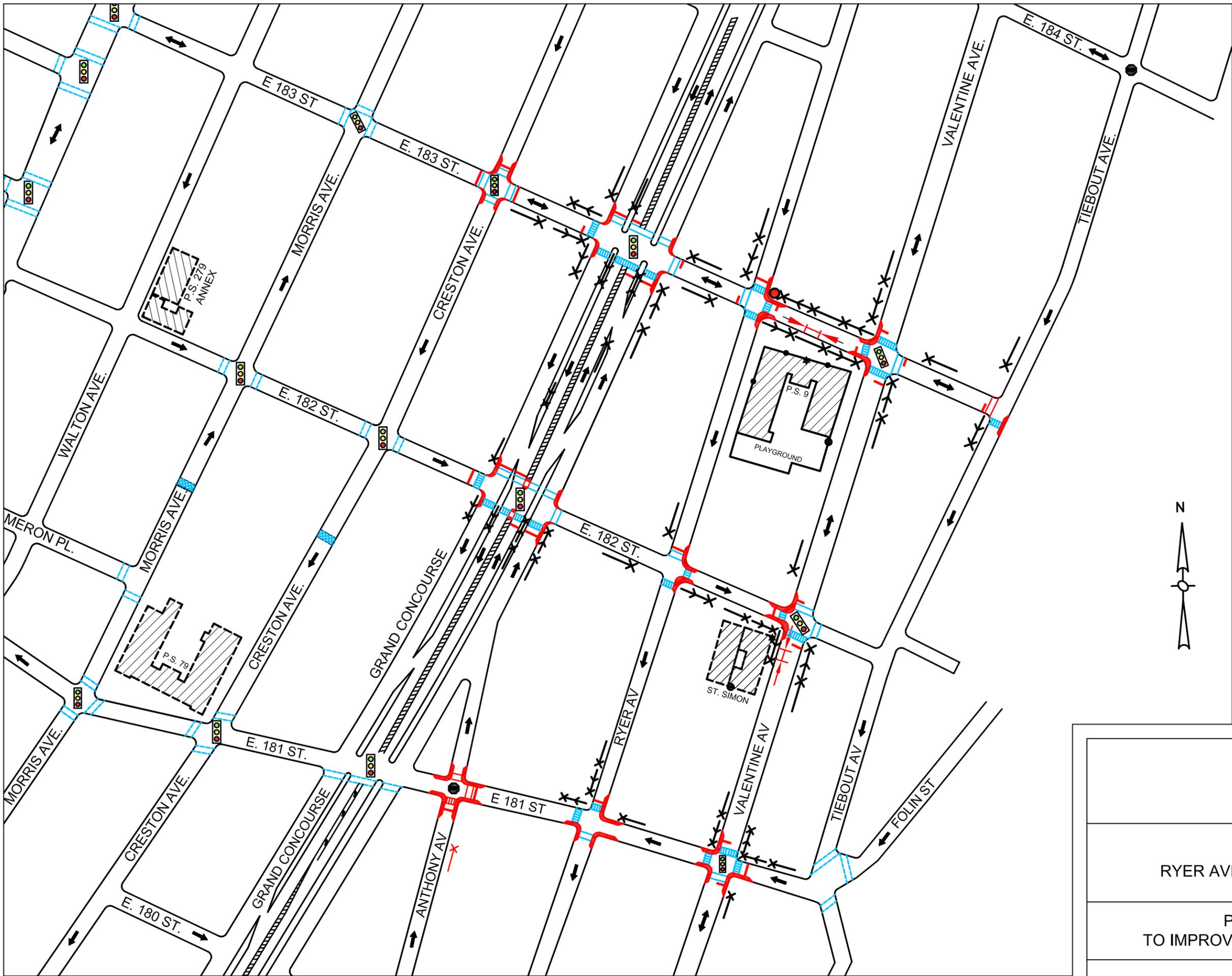
Curb extensions should be installed at the corners as shown in Exhibit 8. The purpose of a curb extension is to shorten the crossing distance for pedestrians, and to reduce the speed of vehicles approaching and turning on school crosswalks. A curb extension will not eliminate or reduce the width of any travel lanes. Curb extensions are not proposed where they would hinder the ability of a vehicle to turn.

➤ *Construct Pedestrian Ramp*

The ramp for the crosswalk located across the south leg of Valentine Avenue is missing at the southwest corner of Valentine Avenue and East 181st Street.

The following is therefore recommended:

Construct a pedestrian ramp at the southwest corner of the Valentine Avenue and East 181st Street intersection, for the crosswalk located across the south leg of Valentine Avenue.



- 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 TO BE ASSIGNED TO ANOTHER SCHOOL
 -  EXISTING SPEED REDUCER (HUMP)
 -  PROPOSED ADVANCE WARNING SIGN
 -  PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
 -  PROPOSED PEDESTRIAN CROSSWALK
 -  PROPOSED SCHOOL CROSSWALK
 -  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 -  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
 -  POLE TO BE RELOCATED
 -  PROPOSED CURB EXTENSION (NECKDOWN)
 -  PROPOSED CONCRETE REFUGE ISLAND



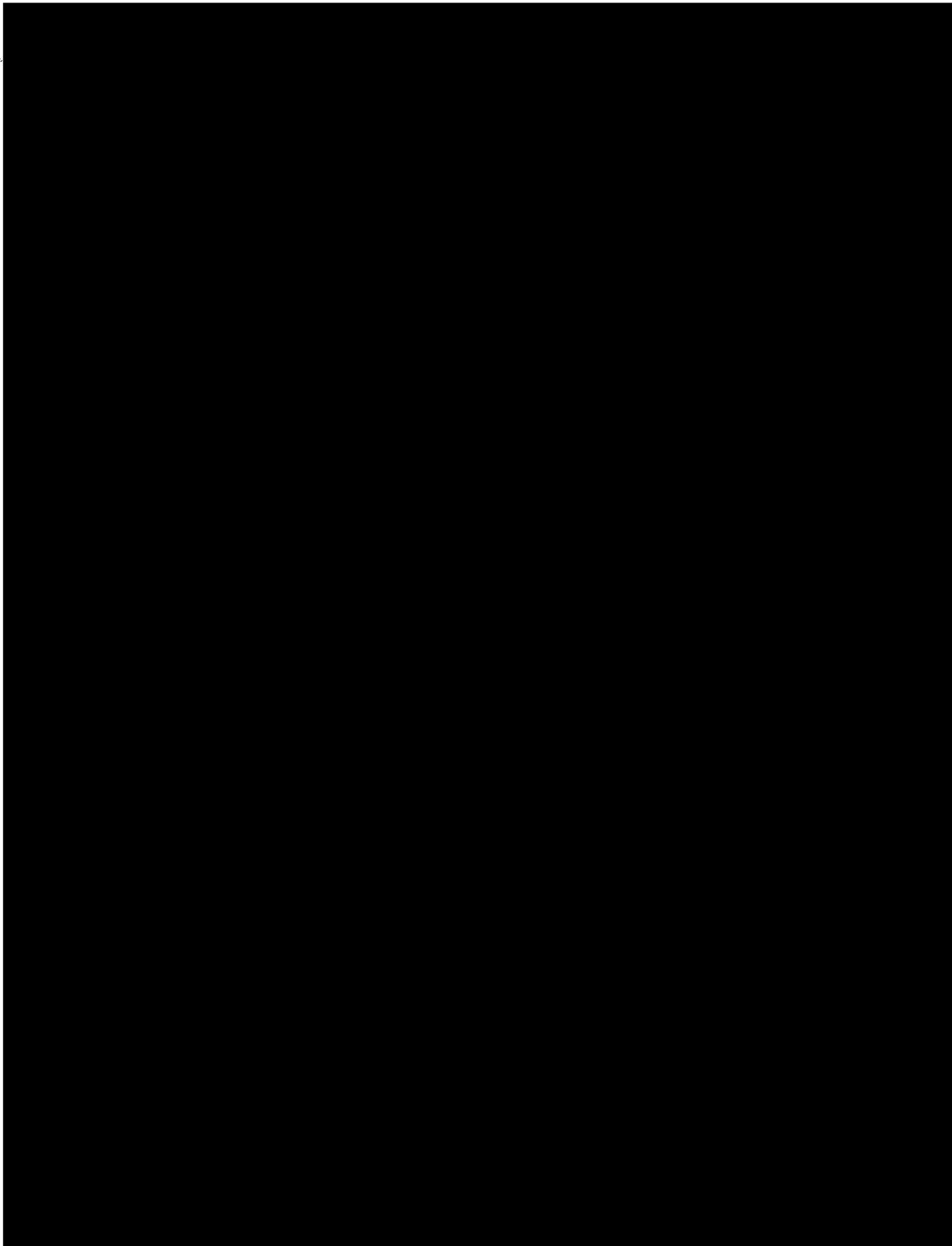
1" = 200'

EXHIBIT 8

P.S. 9 BRONX
RYER AVENUE ELEMENTARY SCHOOL

PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY

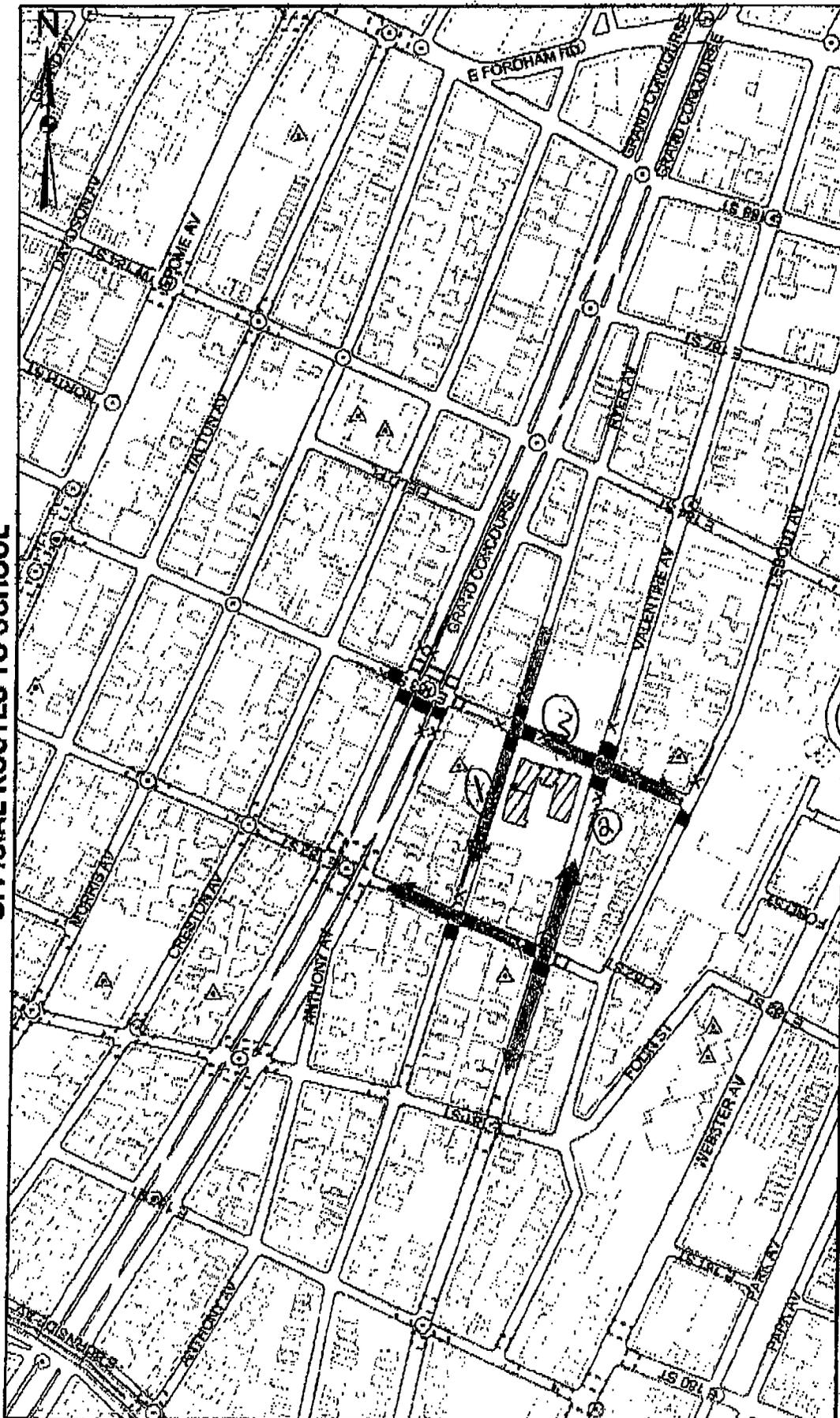
APPENDIX



NEW YORK CITY
DEPT. OF TRANSPORTATION

TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL

BUREAU OF TRAFFIC



LEGEND:

- TRAFFIC FLOW
- ROUTE TO SCHOOL
- 2-WAY STOP
- SCHOOL LOCATION
- WALK SCHOOL ENTRANCE
- OTHER SCHOOL ENTRANCES
- TRAFFIC SIGNAL
- SCHOOL ZONE
- PEDESTRIAN
- STOP LINE
- WALKWAYS ASSOCIATED WITH OTHER SCHOOLS
- SPEED LIMIT
- ALL-WAY STOP
- 2-WAY STOP

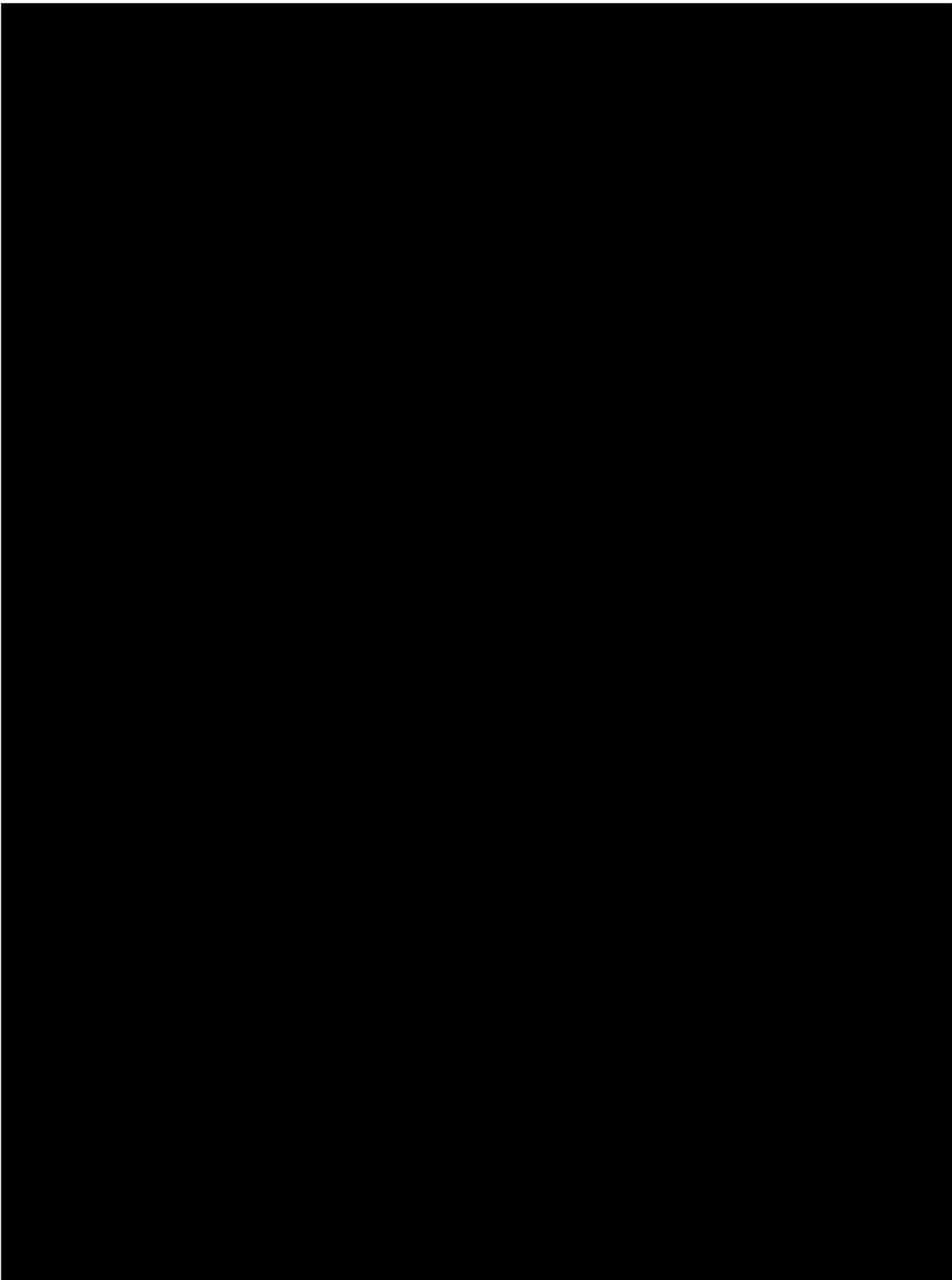
This Traffic Safety Plan (TSP) for the Grand Concourse was developed in accordance with the requirements of the Traffic Safety Plan Act of 1999. It is intended to provide a clear and concise description of the official routes to school for the Grand Concourse. It is required that all children follow the prescribed routes and use the designated sidewalks.

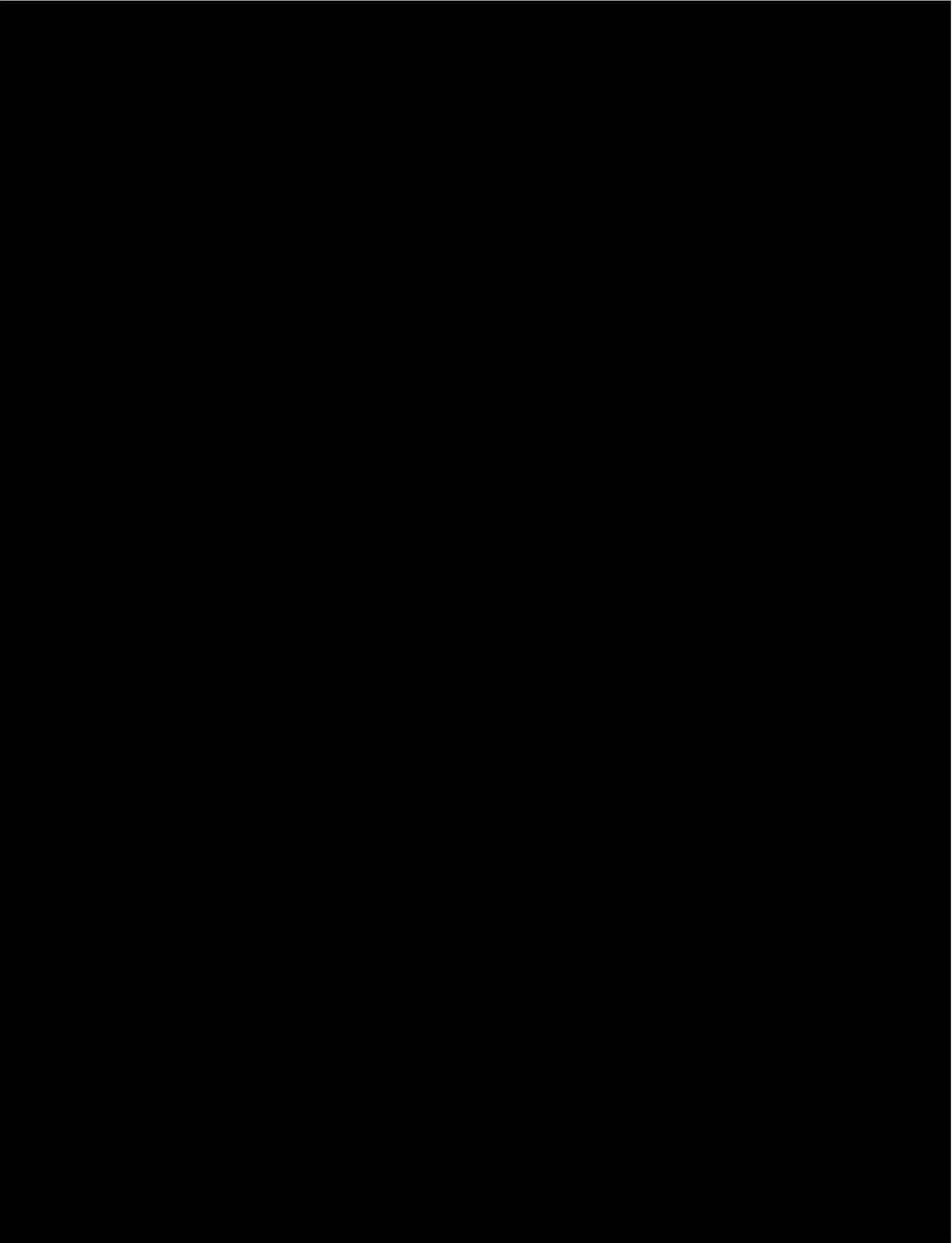
A-2

P.S. 9

Prepared by the New York City Department of Transportation, 120 West 42nd Street, 12th Floor, New York, NY 10018-0001, in cooperation with the School and Police Officials.

DATE: 02/20/04
 DRAWING NO.: 041202
 PREPARED BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]





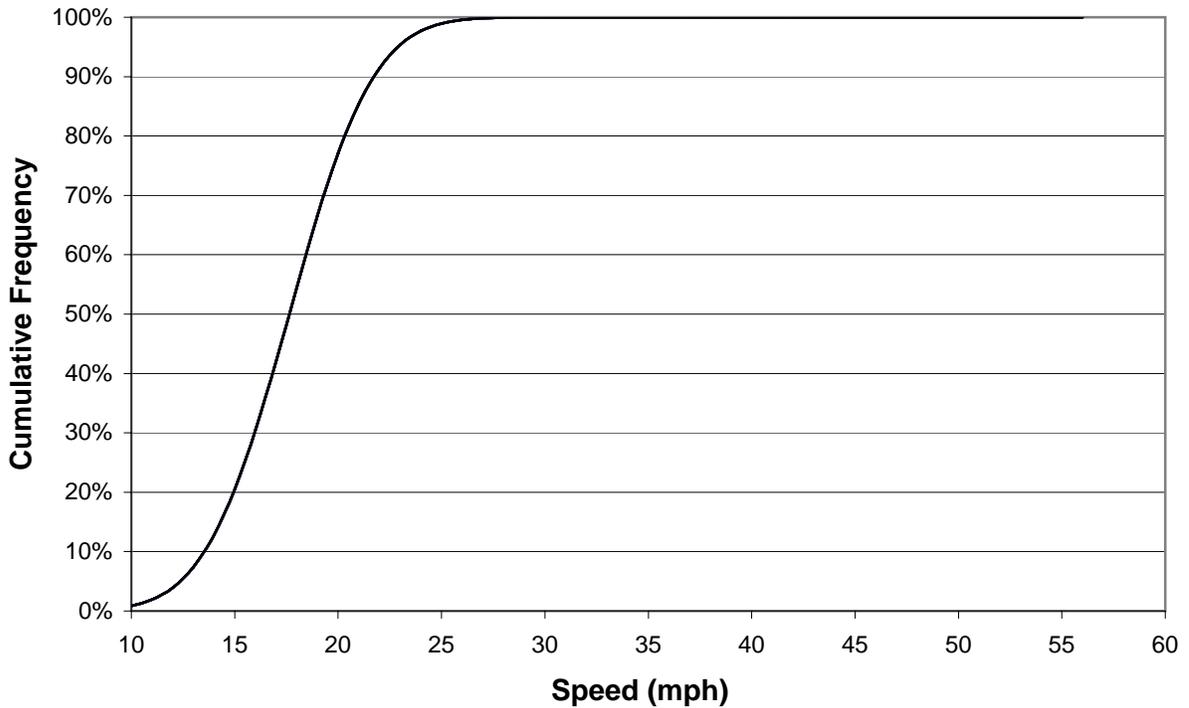
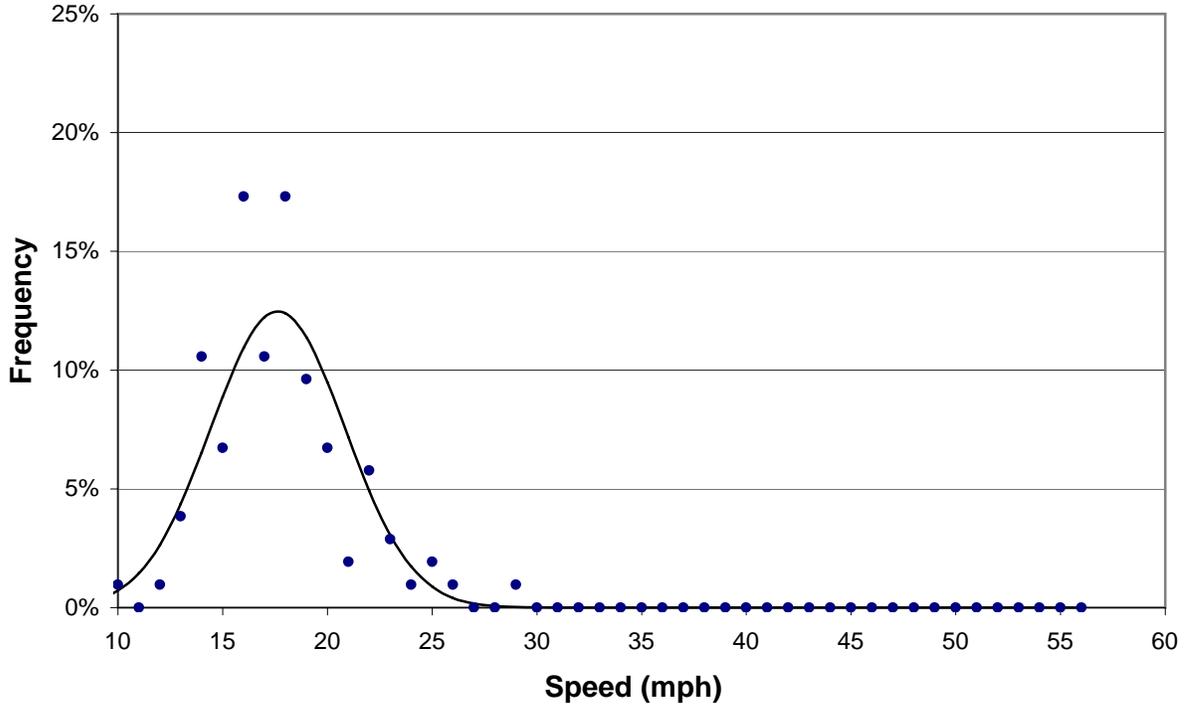
SPOT SPEED STUDY

Date: 8/11/05 Time: 11:35 AM
Location: E.183rd St Between Ryer Ave and Valentine Ave
Surveyor:

School: P.S. 9
Direction: EB
Comments:

Mean Speed = 17.6 mph
Standard Deviation = 3.2 mph
Margin of Error (95% Confidence) = ± 0.6 mph

Median Speed = 17.6 mph
15th Percentile Speed = 14.3 mph
85th Percentile Speed = 21.0 mph

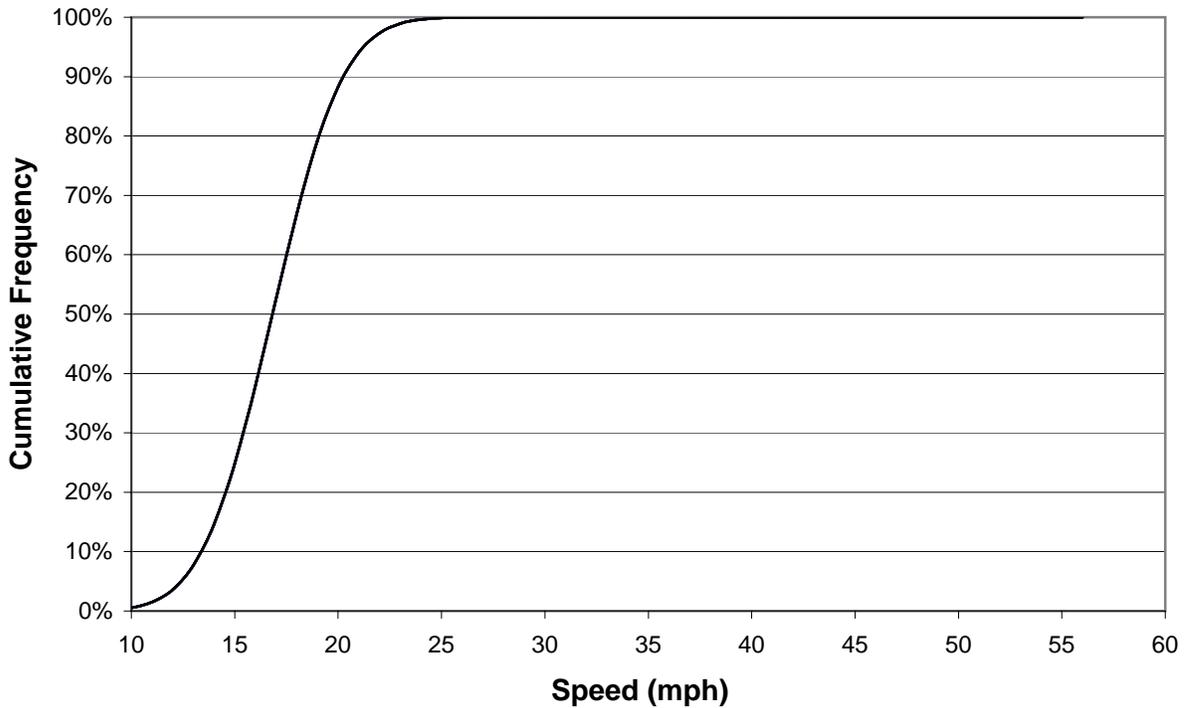
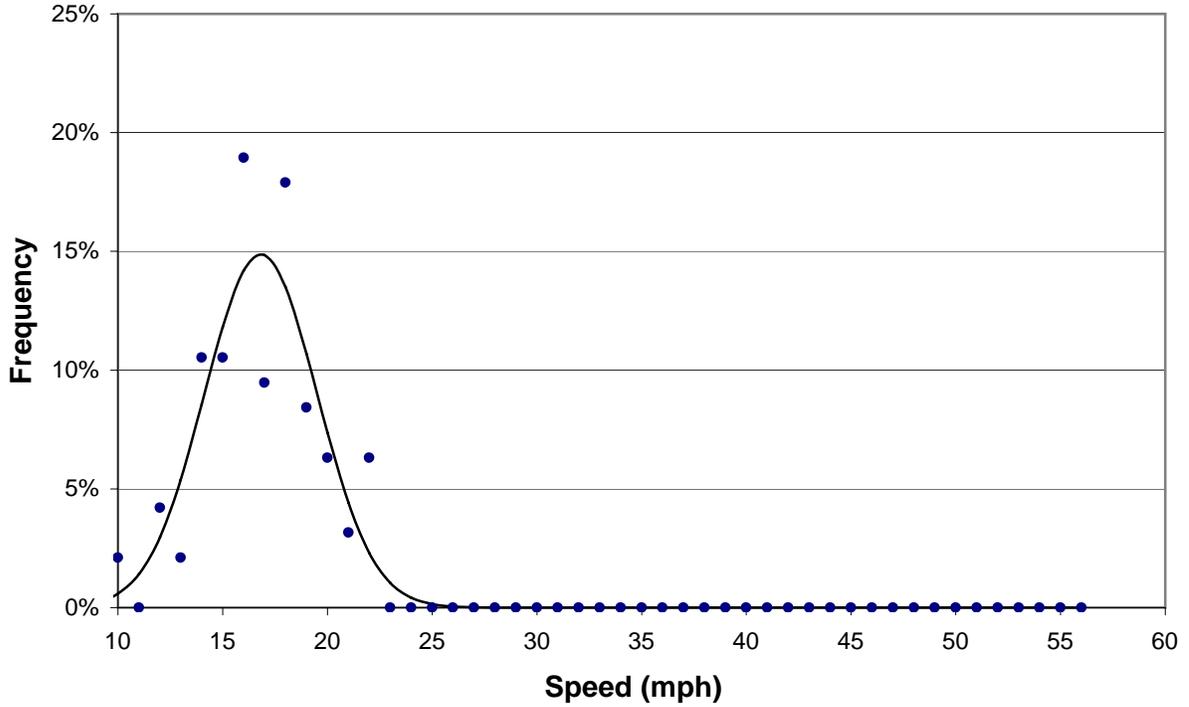


SPOT SPEED STUDY

Date: **8/11/05** Time: **11:35 AM**
 Location: **E.183rd St Between Ryer Ave and Valentine Ave**
 Surveyor:

School: **P.S. 9**
 Direction: **WB**
 Comments:

Mean Speed = 16.8 mph Median Speed = 16.8 mph
 Standard Deviation = 2.7 mph 15th Percentile Speed = 14.0 mph
 Margin of Error (95% Confidence) = ± 0.5 mph 85th Percentile Speed = 19.6 mph



SPOT SPEED STUDY

Date: **June 1, 2005** Time: **10:00 am**
 Location: **Valentine Avenue between 182nd Street & 183rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **P.S. 9**
 Direction: **Northbound**
 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	4	6.9%	6.9%	80	1600
21	2	3.4%	10.3%	42	882
22	5	8.6%	19.0%	110	2420
23	2	3.4%	22.4%	46	1058
24	8	13.8%	36.2%	192	4608
25	11	19.0%	55.2%	275	6875
26	10	17.2%	72.4%	260	6760
27	9	15.5%	87.9%	243	6561
28	2	3.4%	91.4%	56	1568
29	3	5.2%	96.6%	87	2523
30	0	0.0%	96.6%	0	0
31	0	0.0%	96.6%	0	0
32	2	3.4%	100.0%	64	2048
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
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
	58	100.0%		1455	36903

Mean Speed = 25.1 mph Median Speed = 25.1 mph
 Standard Deviation = 2.7 mph 15th Percentile Speed = 22.3 mph
 Margin of Error (95% Confidence) = ± 0.7 mph 85th Percentile Speed = 27.8 mph

SPOT SPEED STUDY

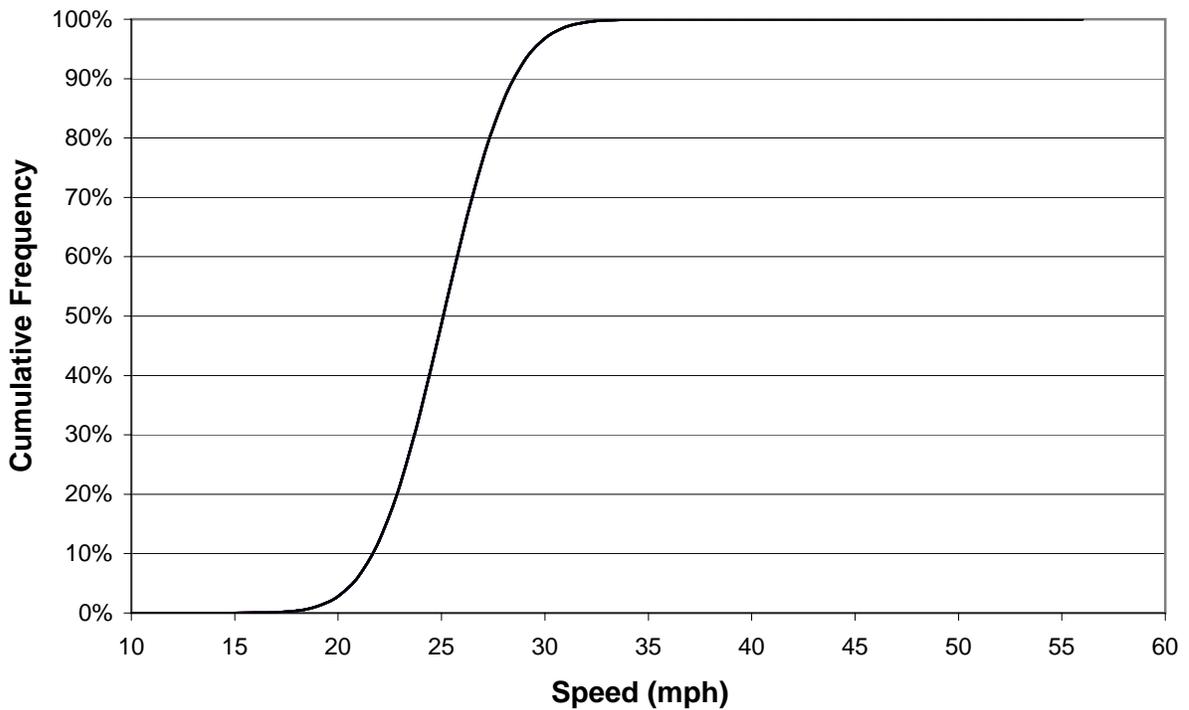
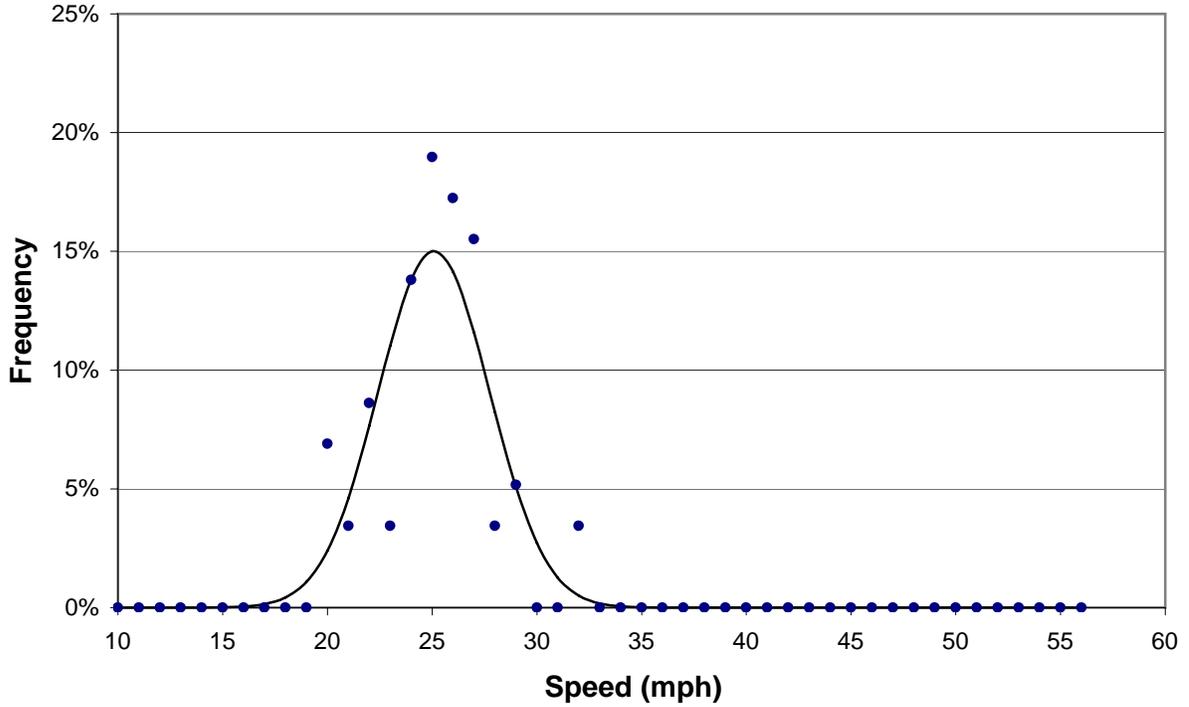
Date: **June 1, 2005**
Location: **Valentine Avenue between 182nd Street & 183rd Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **P.S. 9**
Direction: **Northbound**
Comments:

Mean Speed = 25.1 mph
Standard Deviation = 2.7 mph
Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 25.1 mph
15th Percentile Speed = 22.3 mph
85th Percentile Speed = 27.8 mph



SPOT SPEED STUDY

Date: **June 1, 2005**
 Location: **Valentine Avenue between 182nd Street & 183rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**
 School: **P.S. 9**
 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	1	1.7%	1.7%	16	256
17	0	0.0%	1.7%	0	0
18	0	0.0%	1.7%	0	0
19	0	0.0%	1.7%	0	0
20	2	3.4%	5.2%	40	800
21	1	1.7%	6.9%	21	441
22	3	5.2%	12.1%	66	1452
23	5	8.6%	20.7%	115	2645
24	8	13.8%	34.5%	192	4608
25	11	19.0%	53.4%	275	6875
26	5	8.6%	62.1%	130	3380
27	4	6.9%	69.0%	108	2916
28	6	10.3%	79.3%	168	4704
29	4	6.9%	86.2%	116	3364
30	0	0.0%	86.2%	0	0
31	1	1.7%	87.9%	31	961
32	3	5.2%	93.1%	96	3072
33	1	1.7%	94.8%	33	1089
34	1	1.7%	96.6%	34	1156
35	1	1.7%	98.3%	35	1225
36	0	0.0%	98.3%	0	0
37	0	0.0%	98.3%	0	0
38	0	0.0%	98.3%	0	0
39	1	1.7%	100.0%	39	1521
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
	58	100.0%		1515	40465

Mean Speed = 26.1 mph
 Standard Deviation = 4.0 mph
 Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 26.1 mph
 15th Percentile Speed = 22.0 mph
 85th Percentile Speed = 30.2 mph

SPOT SPEED STUDY

Date: **June 1, 2005**
Location: **Valentine Avenue between 182nd Street & 183rd Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **P.S. 9**
Direction: **Southbound**
Comments:

Mean Speed = 26.1 mph
Standard Deviation = 4.0 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 26.1 mph
15th Percentile Speed = 22.0 mph
85th Percentile Speed = 30.2 mph

