

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



School Safety Engineering Project

FINAL REPORT: I.S. 216/217, Bronx



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



July 10, 2006

**School Safety Engineering Project
Final Report: I.S. 216/I.S. 217, Bronx**

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SPEED SURVEY DATAA7-A16

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). I.S. 216 (Business School for Entrepreneurial Studies) and I.S. 217 (Rafael Hernandez Intermediate School, known as the School of the Performing Arts) in the Bronx are combined as 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

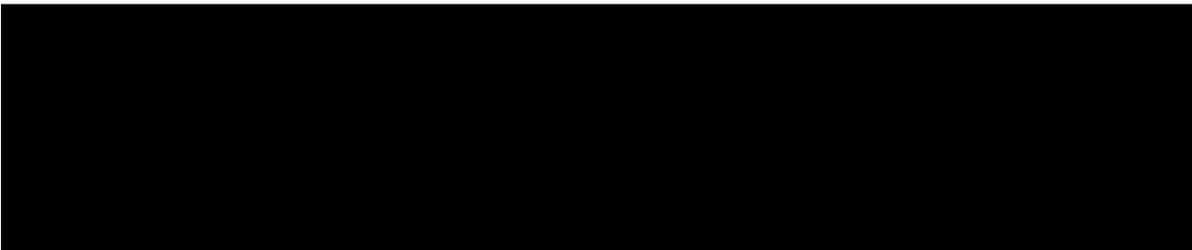
Exhibit 1, at the end of this section, shows an aerial view of the neighborhood surrounding the school. I.S. 216/217 is bounded by Fox Street to the east, East 163rd Street to the south, Tiffany Street to the west, and Westchester Avenue to the north. The area surrounding the school is generally mixed residential and commercial in character.

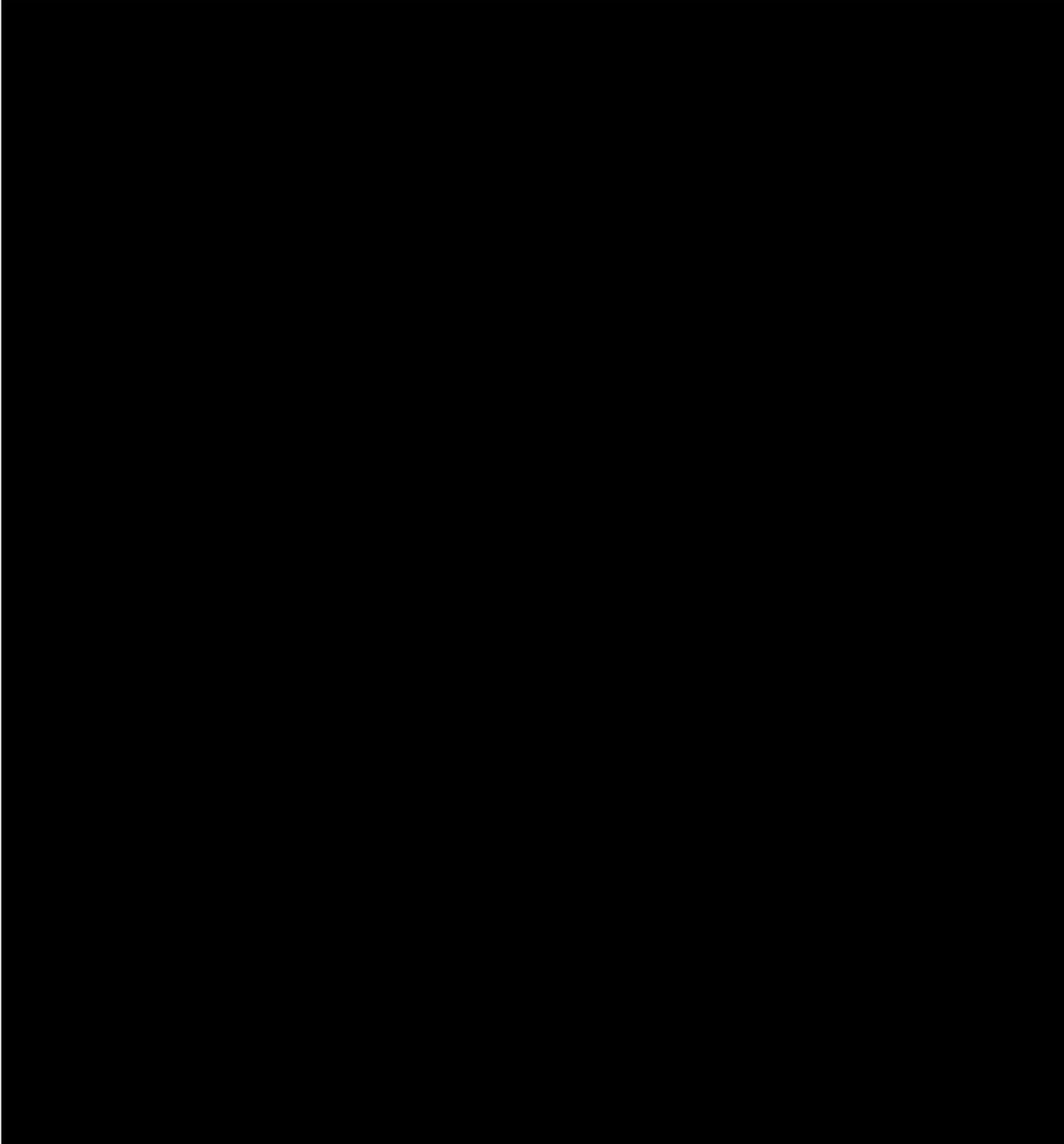
2.3 MEETING WITH SCHOOL REPRESENTATIVES

The Assistant Principal from I.S. 217, the Principal from I.S. 216, the Consulting Principal from I.S. 216/217, and the Coordinator of School Safety from the New York City Board of Education met with members of the consultant team at the school on the afternoon of June 8, 2004. According to representatives of the school, the problems facing I.S. 216/217 student pedestrians are the following:

- Speeding vehicles are commonly observed on the outside lanes of Westchester Avenue between Fox Street and East 163rd Street.
- On Westchester Avenue, under the elevated train, buses stop in the center of the road.
- Speed reducers (humps) should be installed on either Tiffany Street or Fox Street.
- There is often double parking around the school during arrival and dismissal.
- Congestion typically occurs at times of arrival and dismissal.
- Parking is somewhat difficult for staff and some use a nearby parking lot.

(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” as defined by the Department of Education is shown in Exhibit 2 at the end of this section. The school’s catchment area is roughly bounded as follows: the western boundary is along Tiffany Street (and Kelly Street between Westchester Avenue and East 167th Street); the northern boundary is along Home Street from Tiffany Street to Southern Boulevard; the easterly border is along Southern Boulevard (and Hoe Avenue between Westchester Avenue and East 167th Street); and the southerly boundary is along East 163rd Street between Southern Boulevard and Tiffany Street.

Table 1 presents the modes of travel for I.S. 216/217 as identified by school representatives.

TABLE 1: MODE OF TRAVEL	STUDENTS (Percentage)
Walk	15%
Driven by car	5%
School bus	20%
MTA Bus/Subway	60%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There is a sandwich shop/candy store on Tiffany Street north of the school near Westchester Avenue. Additionally, there are many commercial businesses, including restaurants and delis, along both Westchester Avenue and East 163rd Street that are an attraction for I.S. 216/217 students.

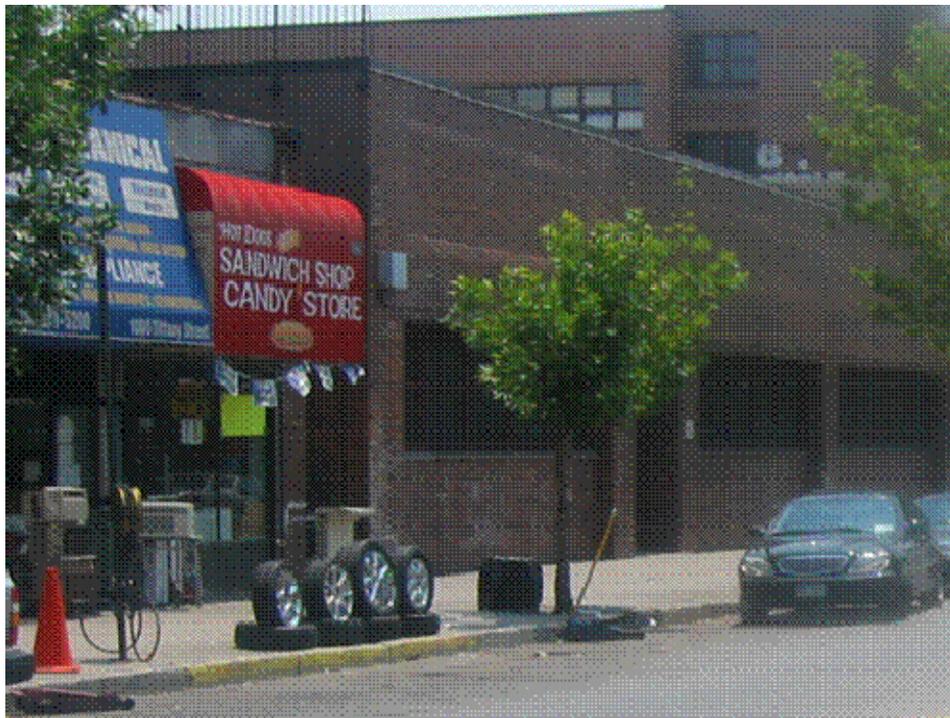


Figure 2: Looking southeast at sandwich shop/candy store north of school on Tiffany Street

2.8 CROSSING GUARD LOCATIONS

According to the school officials, there are no crossing guards assigned to I.S. 216/217.

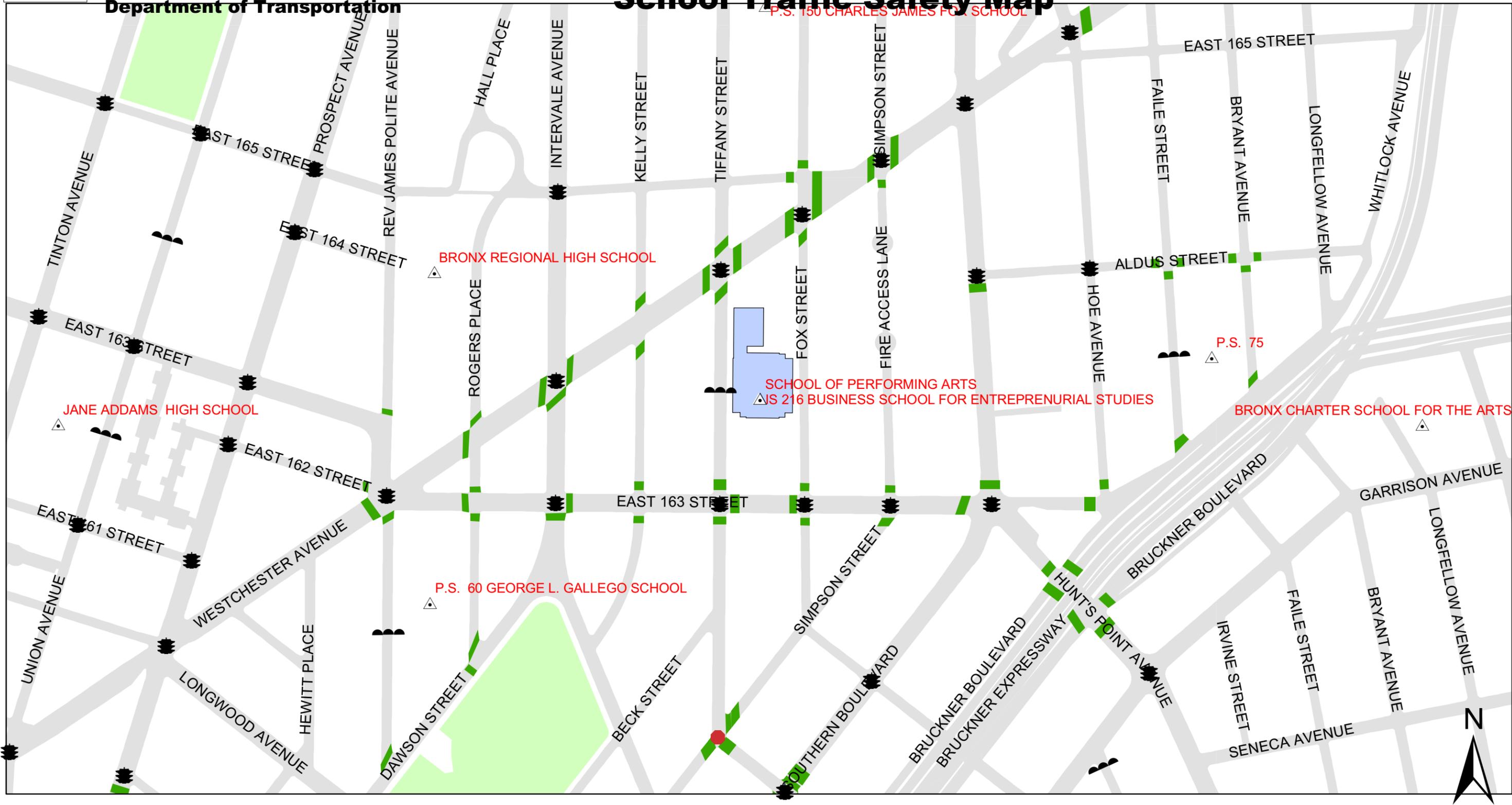


0 250 500 1,000 Feet

EXHIBIT 1
I.S. 216/217 BRONX
AERIAL PHOTOGRAPH



School Traffic Safety Map



The School Traffic Safety Map was established to help provide the maximum degree of safety for children going to and from school - by indicating the location of advance warning signs, 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 only shows traffic signals and all way stop signs.) The school crosswalks that are shown are ladder striped and make the crosswalk more visible to drivers and help make the intersection safer. These crosswalks are where school children are recommended to cross.

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

LEGEND:

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

**IS 216 Bronx
BUSINESS SCHOOL FOR ENTREPRENEURIAL STUDIES**

Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinsahl, COMMISSIONER.
Map created on 6/8/2006
COMM. BOARD: 202
PRECINCT: 41

EXHIBIT 3

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, there are approximately 690 students who ride an MTA bus to school, and approximately 230 who ride a yellow school bus to school. Bus transportation for the students consists of three yellow buses and four special education buses. There are also two special No. 4 MTA buses that stop in front of the school to pick up students at dismissal.

Officials report that buses sometimes back up to Westchester Avenue. Buses pick-up students on Fox Street at 2:25 pm for both I.S. 216 and I.S. 217, and for the Charter School at 2:40 pm.

3.2 PARENT DROP-OFF OPERATIONS

According to school representatives, 5% of the students are being dropped off. There is often double parking around the school during arrival and dismissal, and congestion typically occurs at times of arrival and dismissal.

3.3 PARKING REGULATIONS

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

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 3, at the end of Section 2, shows the existing school signs, signals, and pavement markings around I.S. 216/217. 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.)



Figure 3: Looking south along Fox Street showing existing school advance sign and markings (schoolyard is to right)

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 I.S. 216/217 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.

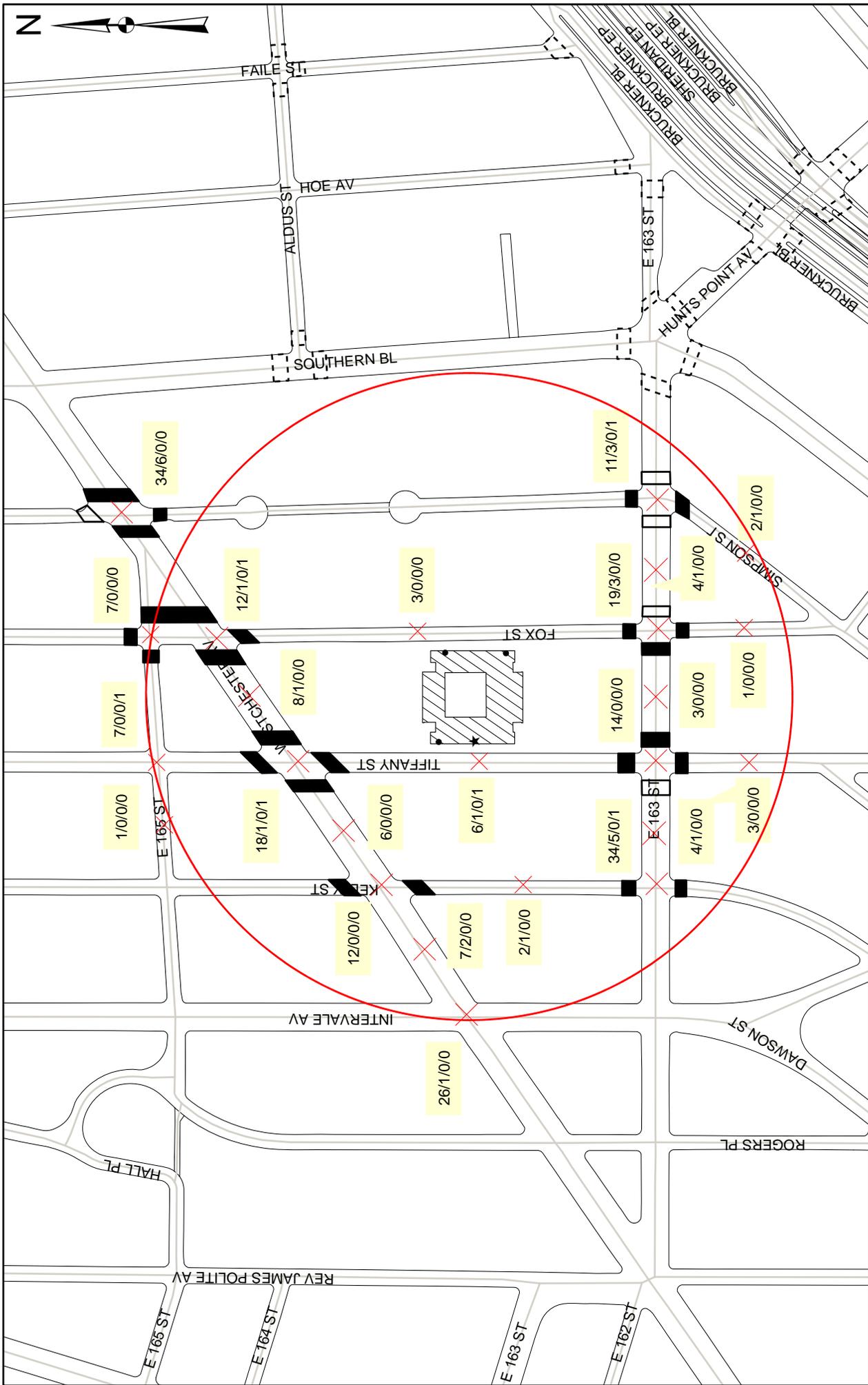
This report targets intersections closest to the school where the highest concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data was not available at the time of this study will be addressed with the ongoing work of DOT's School Safety 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*
Westchester Ave and Intervale Ave	26	1	0	0
Westchester Ave and Kelly St	12	0	0	0
Westchester Ave and Tiffany St	18	1	0	1
Westchester Ave and Fox St	12	1	0	1
Westchester Ave and Simpson St	34	6	0	0
East 165 th St and Fox St	7	0	0	0
East 165 th St and Tiffany St	7	1	0	1
East 163 rd St and Kelly St	34	5	0	1
East 163 rd St and Tiffany St	14	0	0	0
East 163 rd St and Fox St	19	3	0	0
East 163 rd St and Simpson St	11	3	0	1
TOTAL	194	21	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*
Westchester Ave and Intervale Ave	46	6	0	1
Westchester Ave and Kelly St	22	3	0	0
Westchester Ave and Tiffany St	25	3	0	2
Westchester Ave and Fox St	24	1	0	0
Westchester Ave and Simpson St	40	7	0	1
East 165 th St and Fox St	11	1	0	0
East 165 th St and Tiffany St	13	2	0	0
East 163 rd St and Kelly St	23	4	0	0
East 163 rd St and Tiffany St	18	3	0	0
East 163 rd St and Fox St	15	3	0	0
East 163 rd St and Simpson St	25	1	0	0
TOTAL	262	34	0	4

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



LEGEND:

- ACCIDENT LOCATION
- SCHOOL CROSSWALK
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
- BORDER OF 700 FEET
- XX/XX
- TOTAL ACCD / PED ACCD / FATAL / SCHOOL_PED ACCD



EXHIBIT 5

I.S. 216/217 BRONX

ACCIDENT SUMMARY (1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The specific roadway-related physical conditions for each location within the school's vicinity directly affect the safety and efficiency of operations for both pedestrian and vehicular traffic. These 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 I.S. 216/217. Details on specific intersections or roadway segments are given in the following sections.

3.6.1 Westchester Avenue and Intervale Avenue

This is a signalized intersection with school crosswalks located across the east, west and south legs, and a pedestrian crosswalk across the north leg. Westchester Avenue is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Westchester Avenue also has an elevated train running over the center of the roadway. The supports for the train are located so that they provide an inner and an outer lane for each direction of travel (see Figures 4 and 5). Intervale Avenue is a two-way street with two travel lanes plus an on-street parking lane in each direction north of Westchester Avenue, and one travel lane plus an on-street parking lane in each direction south of Westchester Avenue.

There were 26 accidents reported at this intersection between 1998 and 2000, including one pedestrian accident which was not school-related (Table 2). NYPD accident data (Table 3) shows a total of 46 accidents at this intersection between 2001 and 2004, six of which were pedestrian accidents. One of these pedestrian accidents was school related; however, no further information about this accident is available. No fatalities were reported at this intersection between 2001 and 2004.

3.6.2 Westchester Avenue and Kelly Street

This is an unsignalized intersection with school crosswalks located across the north and south legs. Westchester Avenue is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Westchester Avenue also has an elevated train running over the center of the roadway. The supports for the train are located so that they provide an inner and an outer lane for each direction of travel (see Figures 4 and 5). Kelly Street is a one-way northbound street, with one travel lane and an on-street parking lane on both sides of the street.

There were 12 accidents reported at this intersection between 1998 and 2000, but none of these involved fatalities or were pedestrian-related (Table 2). NYPD accident data (Table 3) shows a total of 22 accidents between 2001 and 2004. Three of these were pedestrian accidents, but none were school-related. There were also no fatalities reported at this intersection between 2001 and 2004.

3.6.3 Westchester Avenue and Tiffany Street

This is a signalized intersection with school crosswalks located across all four legs. Westchester Avenue is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. Westchester Avenue also has an elevated train running over the center of the roadway. The supports for the train are located so that they provide an inner and an outer lane for each direction of travel (see Figures 4 and 5). Tiffany Street is a two-way street with one traffic lane and a parking lane on each side of the roadway. Higher volumes of traffic are experienced on Westchester Avenue. School officials report speeding on the outside lanes of Westchester Avenue.

There were 18 accidents reported at this intersection between 1998 and 2000: one of these accidents was a pedestrian accident, which was school-related (Table 2). In the school-related accident, a ten-year old pedestrian sustained a “possible injury” on October 6, 1998 at 3:00 p.m. while performing “other actions in the roadway,” at the intersection. The road was dry and the weather was clear. NYPD accident data (Table 3) shows three pedestrian accidents with no fatalities reported at this intersection between 2001 and 2004; two of the accidents were school-related. No further information about these accidents is available.

The school officials reported a speeding problem on Westchester Avenue. Therefore, a speed survey was conducted on Westchester Avenue between Fox Street and Tiffany Street, in front of the school, in order to verify the existence of a speeding problem and to determine its extent.

The eastbound vehicles on Westchester Avenue between Fox Street and Tiffany Street were found to be traveling with an 85th percentile speed of 26 mph. The westbound vehicles on Westchester Avenue between Fox Street and Tiffany Street were found to be traveling with an 85th percentile speed of 27 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 speeding problem and may require appropriate traffic calming measures.

The detailed results of the spot speed survey on Westchester Avenue between Fox Street and Tiffany Street are shown in the Appendix at the end of the document.



Figure 4: Looking east along Westchester Avenue across Tiffany Street

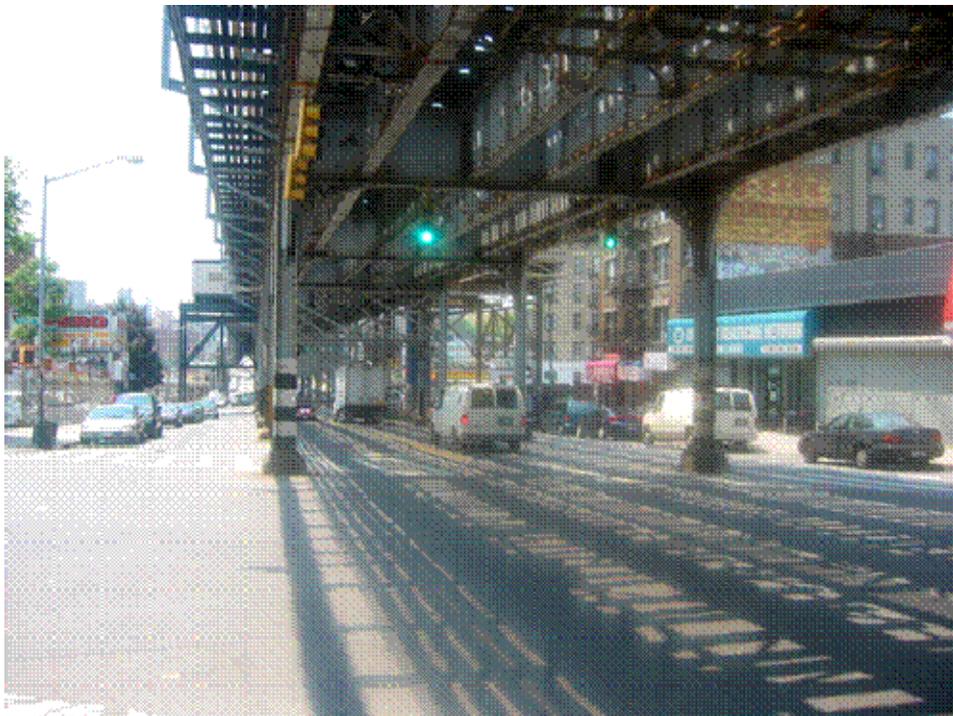


Figure 5: Looking west along Westchester Avenue across Tiffany Street

3.6.4 Westchester Avenue and Fox Street

This is a signalized intersection with school crosswalks located across all four legs. Westchester Avenue is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. Westchester Avenue also has an elevated train running over the center of the roadway. The supports for the train are located so that they provide an inner and an outer lane for each direction of travel (see Figures 4 and 5).

Fox Street is a one-way southbound street with one travel lane and an on-street parking lane on both sides of the street. East 165th Street intersects with Fox Street just north of the Fox Street and Westchester Avenue intersection, and also intersects with Westchester Avenue just east of this intersection. This configuration forms a short block on the east side of Fox Street between Westchester Avenue and East 165th Street, and a wider expanse of pavement on the west side of Fox Street. East of Fox Street, there is a painted triangular island also bounded by Westchester Avenue and East 165th Street where a pedestrian signal is situated. East 165th Street is a one-way westbound street with one travel lane and on-street parking on both sides of the street. Since Fox Street is one-way southbound and East 165th Street is one-way westbound, the traffic signals at Westchester Avenue and Simpson Street and at Westchester Avenue and Fox Street appear to adequately control the area.

This intersection has been the site of 12 accidents between 1998 and 2000, one of which was a pedestrian accident which was also school-related (Table 2). This particular accident occurred at approximately 3:00 pm on Monday, March 27, 2000 when a 13-year old pedestrian suffered a “non-incapacitating injury” when emerging from behind a parked vehicle at the intersection. The road surface was dry and the accident occurred under clear, daylight weather conditions. NYPD accident data (Table 3) shows a total of 24 accidents at this intersection between 2001 and 2004, one of which was a pedestrian accident, but was not school-related. No further information about these accidents is available. There were no pedestrian fatalities during either time period.

The school officials reported a speeding problem on Fox Street. Therefore, a speed survey was conducted on Fox Street between Westchester Avenue and East 163rd Street in order to verify the existence of a speeding problem and to determine its extent.

The southbound vehicles on Fox Street between Westchester Avenue and East 163rd Street were found to be traveling with an 85th percentile speed of 29 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 speeding problem and may require appropriate traffic calming measures.

The detailed results of the spot speed survey on Fox Street between Westchester Avenue and East 163rd Street are shown in the Appendix at the end of the document.



Figure 6: Looking north along Fox Street across Westchester Avenue



Figure 7: Looking west along Westchester Avenue across Fox Street

3.6.5 Westchester Avenue and Simpson Street

This is a signalized intersection with school crosswalks located across the east, west and south legs of the intersection. Westchester Avenue is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. Westchester Avenue also has an elevated train running over the center of the roadway. The supports for the train are located so that they provide an inner and an outer lane for each direction of travel (see Figures 4 and 5). A train station is located on Westchester Avenue at Simpson Street. North of Westchester Avenue, Simpson Street is a one-way northbound street with one travel lane and on-street parking on both sides of the roadway. South of Westchester Avenue, Simpson Street is a two-way street with two travel lanes and one on-street parking lane on each side of the roadway, terminating in a cul-de-sac approximately two hundred-fifty feet south of Westchester Avenue. Higher volumes of traffic are experienced on Westchester Avenue.

This intersection has been the site of 34 accidents between 1998 and 2000; six of these were pedestrian accidents, none of which were school-related (Table 2). NYPD accident data (Table 3) shows a total of 40 accidents at this intersection between 2001 and 2004. Of these, seven were pedestrian accidents, and one was school-related. There were no pedestrian fatalities during this time period. No further information about the school-related accident is available.

3.6.6 East 165th Street and Fox Street

This is a stop-controlled intersection with school crosswalks located across the north, east, and west legs. East 165th Street is a one-way westbound street with one travel lane and on-street parking along both sides. East 165th Street is stop-controlled at its intersection with Fox Street. Fox Street is a one-way southbound street with one travel lane and an on-street parking lane on both sides of the street.

This intersection has been the site of seven accidents between 1998 and 2000; none of which were pedestrian related (Table 2). NYPD accident data (Table 3) shows a total of 11 accidents between 2001 and 2004, one of which was a pedestrian accident but was not school-related. There were no pedestrian fatalities during either time period.

3.6.7 East 165th Street and Tiffany Street

This is an unsignalized intersection with no crosswalks across any of the four legs. East 165th Street is a one-way westbound street with one travel lane and on-street parking along both sides. Tiffany Street is a two-way street with one travel lane and an on-street parking lane in either direction.

This intersection has been the site of seven accidents between 1998 and 2000, one of which was a pedestrian accident and was also school-related (Table 2). This particular accident occurred at approximately 3:00 pm on Tuesday, December 22, 1998 when a nine-year old pedestrian suffered a “possible injury” while “performing other actions” in the roadway at the intersection. The road surface was dry and the accident occurred under cloudy, daylight weather conditions. NYPD accident data (Table 3) shows a total

of 13 accidents between 2001 and 2004, including two pedestrian accidents that were not school-related. There were no pedestrian fatalities during either time period.

3.6.8 East 163rd Street and Kelly Street

This is an unsignalized intersection with school crosswalks across the north and south legs. East 165th Street is a one-way westbound street with one travel lane and on-street parking along both sides. Kelly Street is a one-way northbound street with one travel lane and on-street parking on both sides.

This intersection has been the site of 34 accidents between 1998 and 2000, five of which were pedestrian accidents (Table 2). Of these five, one was school-related. This particular accident occurred at approximately 6:00 pm on Monday, January 18, 1999 when two pedestrians, ages 12 and 14, both suffered “possible injuries” when crossing where there was “no signal or crosswalk” at the intersection. The accident occurred under rainy weather conditions, and the lighting conditions were reported as dark with the roadway lighted. NYPD accident data (Table 3) shows a total of 23 accidents between 2001 and 2004, including four pedestrian accidents that were not school-related. There were no pedestrian fatalities during either time period.

3.6.9 East 163rd Street and Tiffany Street

This is a signalized intersection with school crosswalks located across the north, south, and east legs. East 163rd Street is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. Tiffany Street is a two-way street with one travel lane and an on-street parking lane on each side of the roadway. Higher volumes of traffic are experienced on East 163rd Street.

This intersection has been the site of 14 accidents between 1998 and 2000; none of these were pedestrian accidents (Table 2). In addition, there has been a total of six accidents mid-block on Tiffany Street between East 163rd Street and Westchester Avenue during this same period. One of these was a school-related pedestrian accident. This particular accident occurred at approximately 3:00 pm on Friday, April 16, 1999 when an 11-year-old pedestrian suffered a “possible injury” when emerging from behind a parked vehicle. The road surface was dry and the accident occurred under cloudy, daylight weather conditions. NYPD accident data (Table 3) shows a total of 18 accidents between 2001 and 2004, three of which were pedestrian accidents but were not school-related. There were no fatalities during either time period.

The school officials reported a speeding problem on Tiffany Street. Therefore, a speed survey was conducted on Tiffany Street between Westchester Avenue and East 163rd Street in order to verify the existence of a speeding problem and to determine its extent.

The southbound vehicles on Tiffany Street between Westchester Avenue and East 163rd Street were found to be traveling with an 85th percentile speed of 31 mph.

The northbound vehicles on Tiffany Street between Westchester Avenue and East 163rd Street were found to be traveling with an 85th percentile speed of 29 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 speeding problem and may require appropriate traffic calming measures.

The detailed results of the spot speed survey on Tiffany Street between Westchester Avenue and East 163rd Street are shown in the Appendix at the end of the document.

3.6.10 East 163rd Street and Fox Street

This is a signalized intersection with school crosswalks located across the north, south and west legs of the intersection. East 163rd Street is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. Fox Street is a one-way southbound street with one travel lane and on-street parking on both sides of the roadway. Higher volumes of traffic are experienced on East 163rd Street.

This intersection has been the site of 19 accidents between 1998 and 2000; three of these were pedestrian accidents, but none were school-related (Table 2). NYPD accident data (Table 3) shows a total of 15 accidents, including three pedestrian accidents, between 2001 and 2004. None of the pedestrian accidents were school-related. There were no fatalities during either period.



Figure 8: Looking east along East 163rd Street toward the Fox Street intersection

3.6.11 East 163rd Street and Simpson Street

This is a signalized intersection with school crosswalks located across the north and south legs, and pedestrian crosswalks located across the east and west legs. East 163rd Street is a two-way street with two travel lanes and an on-street parking lane on each side of the roadway. South of East 163rd Street, Simpson Street is a one-way northbound street with one traffic lane and parking on both sides of the roadway. North of East 163rd Street,

Simpson Street is a two-way street, with one travel lane and an on-street parking lane on each side of the roadway, which terminates in a cul-de-sac approximately five-hundred feet (500') north of East 163rd Street. Higher volumes of traffic are experienced on East 163rd Street.

This intersection has been the site of 11 total accidents between 1998 and 2000. Of these, three were pedestrian accidents, and one of these was school-related (Table 2). This particular accident occurred at approximately 5:00 pm on Tuesday, June 2, 1998 when a 12-year-old pedestrian suffered a "possible injury" at the intersection. The pedestrian's actions were unreported. The road surface was dry and the accident occurred under clear, daylight weather conditions. In the school-related accident, a 12-year old pedestrian sustained a "possible injury" on June 2, 1998 at 5:00 p.m. at the intersection, although the pedestrian's actual actions were not reported. The road was dry and the weather was clear. NYPD accident data (Table 3) shows a total of 25 accidents between 2001 and 2004. Of these, one was a pedestrian accident, but it was not school-related. There were no pedestrian fatalities during either time period.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of I.S. 216/217, and were found to be adequate in all directions and approaches based upon a child pedestrian walking at the rate of 3 feet per second. Signal timings are shown in Table 4.

TABLE 4: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK WIDTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
Westchester Ave and Tiffany St				
crossing Westchester Ave	73	30	28	NO
crossing Tiffany St	42	55	17	NO
Westchester Ave and Fox St				
crossing Westchester Ave	73	40	28	NO
crossing Fox St	42	76	17	NO
East 163rd St and Tiffany St				
crossing East 163 rd St	60	46	23	NO
crossing Tiffany St	46	70	19	NO
East 163rd St and Fox St				
crossing East 163 rd St	60	46	23	NO
crossing Fox St	32	70	14	NO
Westchester Ave and Simpson St				
crossing Westchester Ave	73	39	28	NO
crossing Simpson St	25	48	12	NO
East 163rd St and Simpson St				
crossing East 163 rd St	60	46	23	NO
crossing Simpson St	30	70	13	NO

Note – A rate of 3 ft/sec plus 3 seconds reaction time was utilized as the child pedestrian walking rate

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways in the vicinity of I.S. 216/217 are generally in fair condition. On the school block face, sidewalks are 10 to 15 feet wide, and are in fair condition and of adequate width.

3.8.3 Pedestrian Ramps

Overall, pedestrian ramps in the vicinity of the school appear to be standard except for the northeast corner of the East 165th Street and Fox Street intersection where the pedestrian ramp for the crosswalk located across the east leg of East 165th Street is missing.

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around I.S. 216/217. 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 I.S. 216/217 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” signs*

Install “No Standing 7AM - 4PM School Days” signs for a distance of 60 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.)

➤ *Install graphic “Yield to Pedestrian” signs*

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

To forewarn these drivers and to remind them to yield to the crossing pedestrians, the “YIELD TO PEDESTRIAN” signs are recommended on the following approaches to intersections surrounding I.S. 216/217:

- Eastbound approach of East163rd Street at Tiffany Avenue (right arrow).
- Westbound approach of East163rd Street at Simpson Street (right arrow).
- Westbound approach of Westchester Avenue at Kelly Street (right arrow).

➤ *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 intersection approaches in the vicinity of I.S. 216/217:

- Westchester Avenue and Tiffany Street – All approaches.
- Westchester Avenue and Fox Street – All approaches.
- Westchester Avenue and Simpson Street – All approaches.
- East 163rd Street and Tiffany Street – Northbound, southbound, and westbound approaches.
- East 163rd Street and Fox Street – Southbound and eastbound approaches.
- East 163rd Street and Simpson Street – Northbound and southbound approaches.

➤ Vehicle Speed on Westchester Avenue

Westchester Avenue is a two-way street. The school reported speeding as a safety problem along Westchester Avenue. The speed survey conducted on Westchester Avenue between Tiffany Street and Fox Street showed that the 85th percentile speed did not exceed the speed limit for either direction of traffic flow (see section 3.6.1 and Appendix). Since the 85th percentile speed did not exceed the speed limit for either direction of traffic flow, no speed reduction measures are recommended at this time.

➤ Speeding on Fox Street

Fox Street is a one-way southbound street, adjacent to the school. The school reported speeding as a safety problem along Fox Street. The speed survey conducted on Fox Street between Westchester Avenue and East 163rd Street showed that the 85th percentile speed was 29 mph. Since the 85th percentile speed did not exceed the threshold speed limit of 30 mph, a speed reducer is not proposed to be installed on Fox Street between Westchester Avenue and East 163rd Street.

➤ Vehicle Speed on Tiffany Street

Tiffany Street is a two-way street adjacent to the school. The school reported speeding as a safety problem along Tiffany Street. The speed survey conducted on Tiffany Street between Westchester Avenue and East 163rd Street showed that the 85th percentile speed exceeded the speed limit for the southbound direction of travel (see section 3.6.3 and Appendix). However, a speed reducer already exists on Tiffany Street between Westchester Avenue and East 163rd Street. It is not feasible to install a second one because it does not meet the criteria due to too many driveways.

4.2 LONG-TERM MEASURES

➤ Consider curb extensions at the following locations:

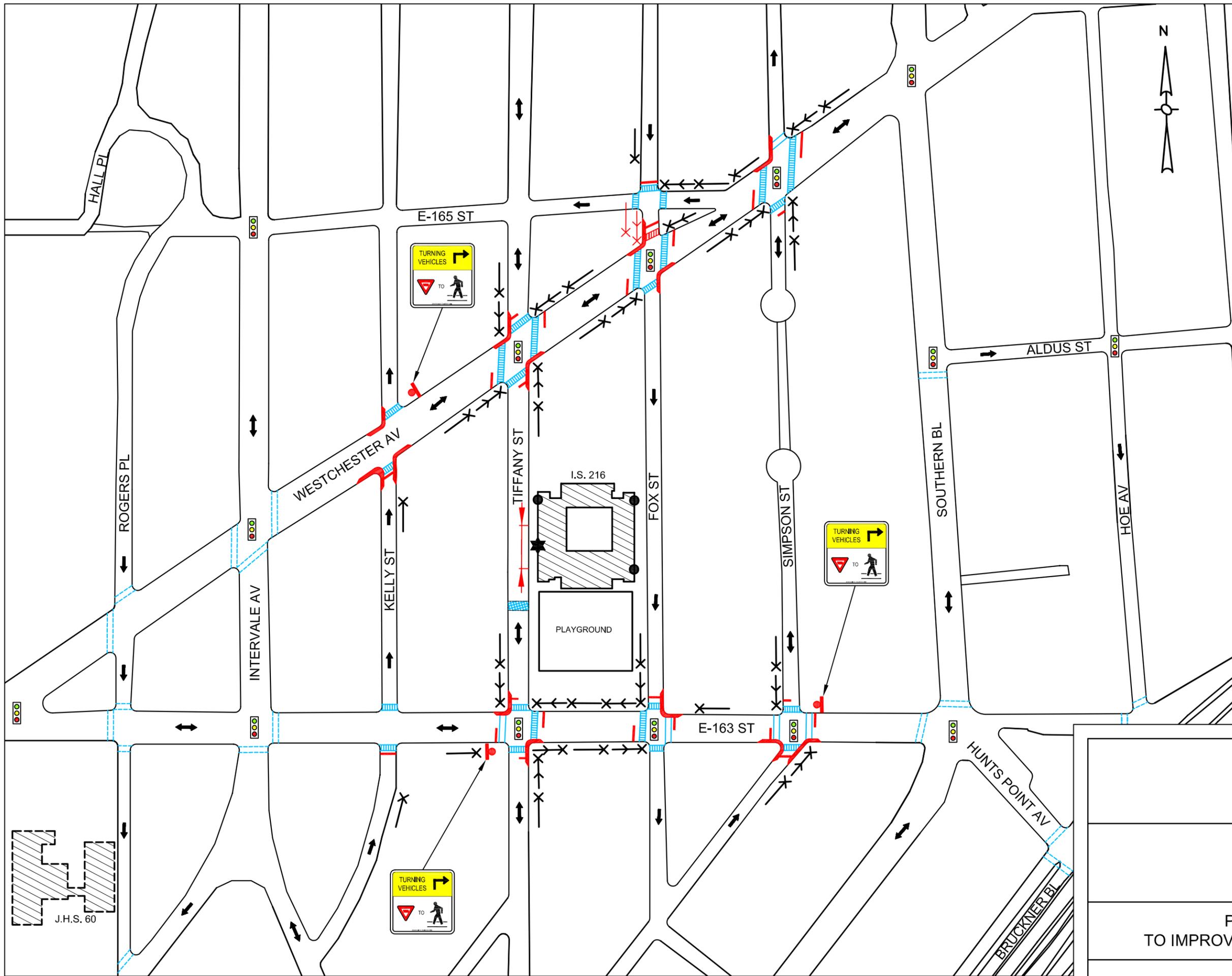
- Westchester Avenue and Kelly Street – northwest, southwest, and southeast corners
- Westchester Avenue and Tiffany Street – northwest and southeast corners
- Westchester Avenue and Fox Street – northwest and southeast corners
- Westchester Avenue and Simpson Street – northwest corner
- East 163rd Street and Tiffany Street – northwest and southeast corners
- East 163rd Street and Fox Street – northeast corner
- East 163rd Street and Simpson Street – southwest and southeast corners

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

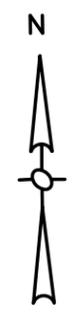
➤ Construct Pedestrian Ramps

A pedestrian ramp is missing on the northeast corner of the East 165th Street and Fox Street intersection. The following is therefore recommended:

- Construct a pedestrian ramp on the north side of East 165th Street for the crosswalk located across the east leg of the intersection with Fox Street.



- LEGEND**
- ★ MAIN ENTRANCE
 - OTHER ENTRANCES
 - ↔ EXISTING TRAVEL DIRECTION
 - ⊥ X EXISTING ADVANCE WARNING SIGN OR SCHEDULED TO BE INSTALLED
 - ⊥ X EXISTING SCHOOL CROSSWALK WARNING ASSEMBLY OR SCHEDULED TO BE INSTALLED
 - 🚦 EXISTING SIGNALIZED LOCATION
 - ▬▬▬ EXISTING SCHOOL CROSSWALK
 - ▬▬▬ EXISTING PEDESTRIAN CROSSWALK
 - - - - EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
 - ▨ EXISTING SPEED REDUCER
 - ⊥ X PROPOSED ADVANCE WARNING SIGN
 - ⊥ X PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
 - PROPOSED TRAFFIC SIGN
 - ▬ PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 - ⊥ PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
 - ⤴ PROPOSED CURB EXTENSION (NECKDOWN)



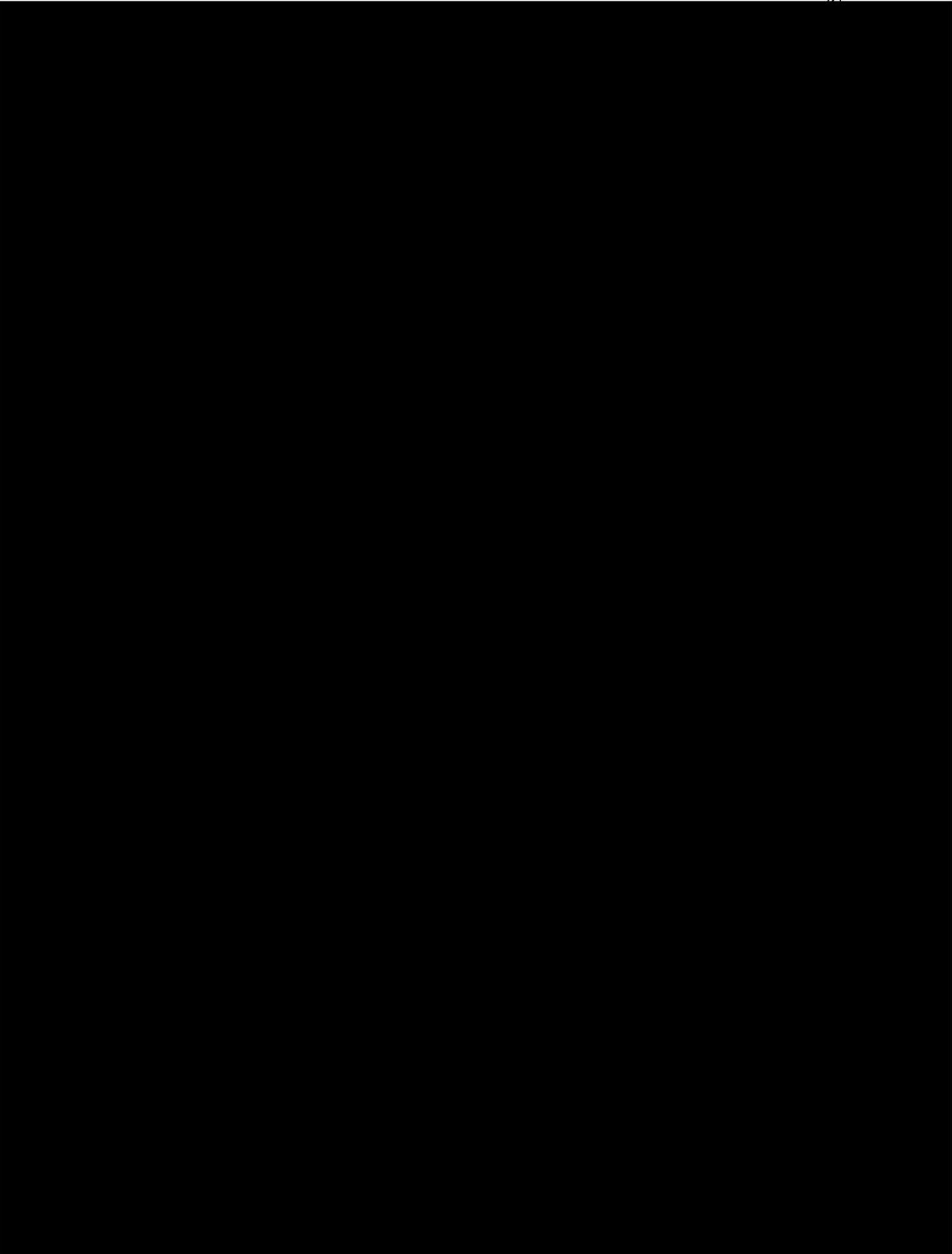
1" = 200'

EXHIBIT 6

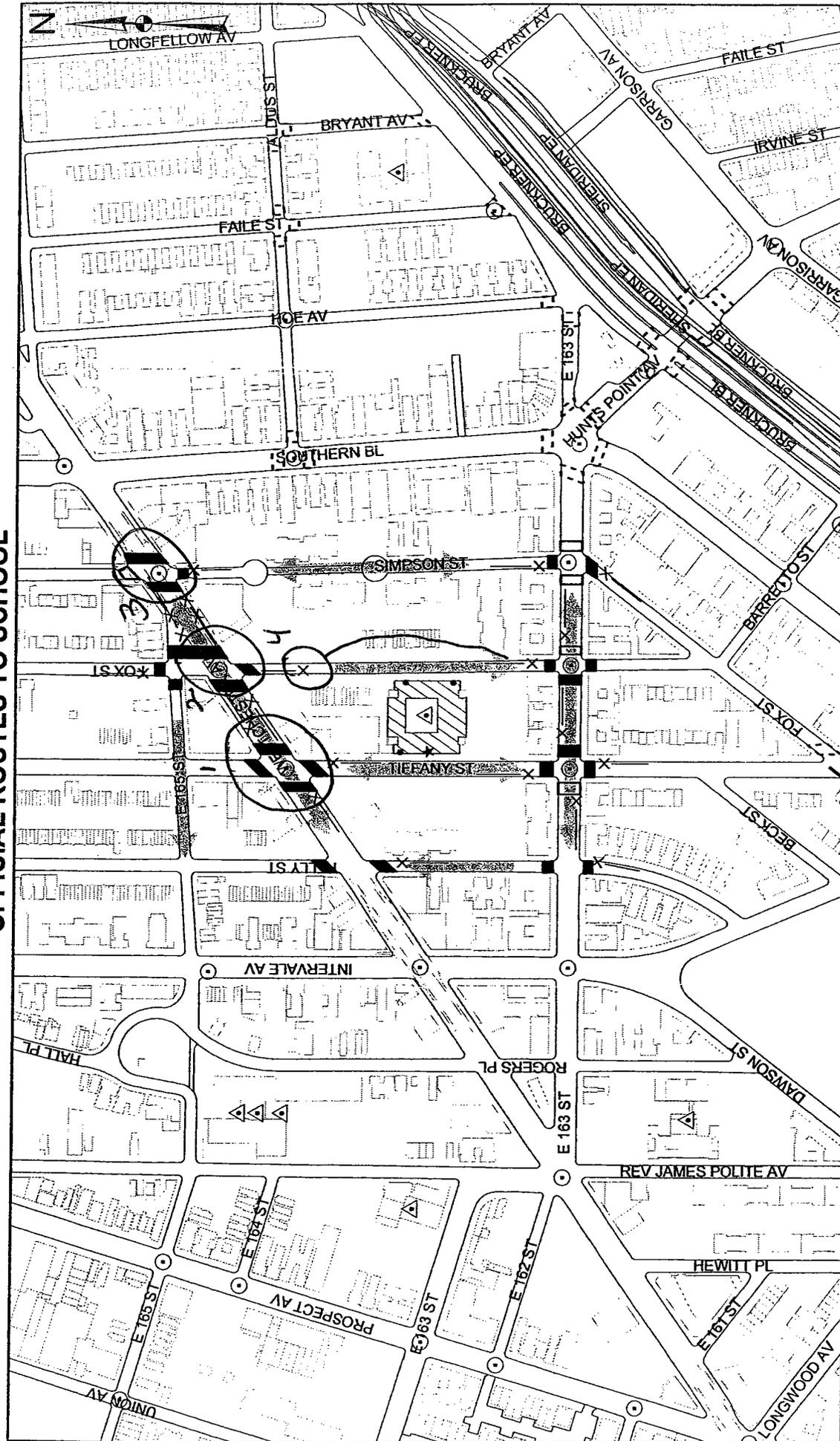
I.S. 216 / 217 BRONX

PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY

APPENDIX



**TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL**



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
 - PEDESTRIAN X-WALK
 - STOP LINE
 - X-WALKS ASSOCIATED WITH OTHER SCHOOLS
 - SPEED HUMP
 - TRAFFIC SIGNAL
 - ALL-WAY STOP
 - 2-WAY STOP

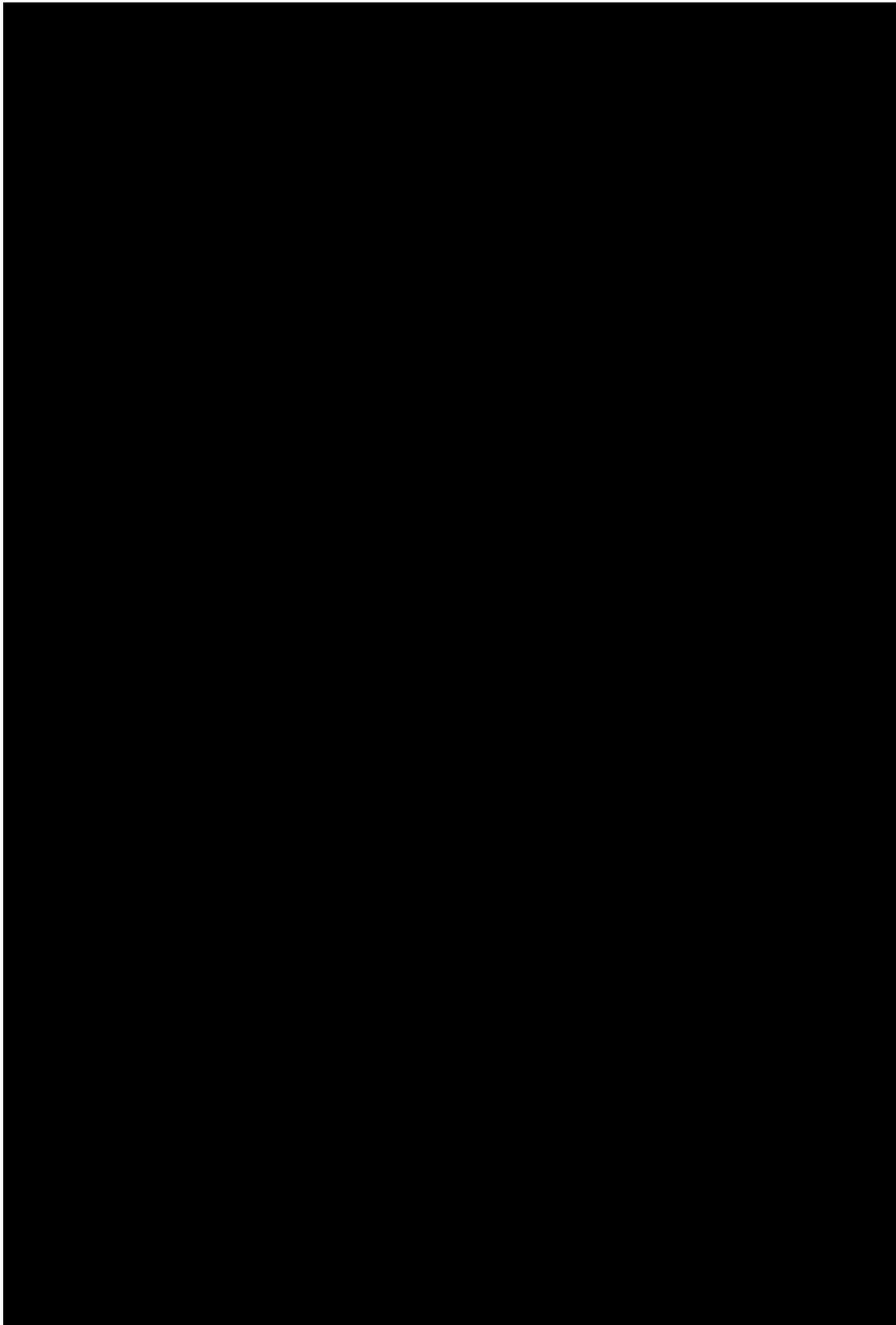
**RAFAEL HERNANDEZ SCHOOL
I.S. 116**

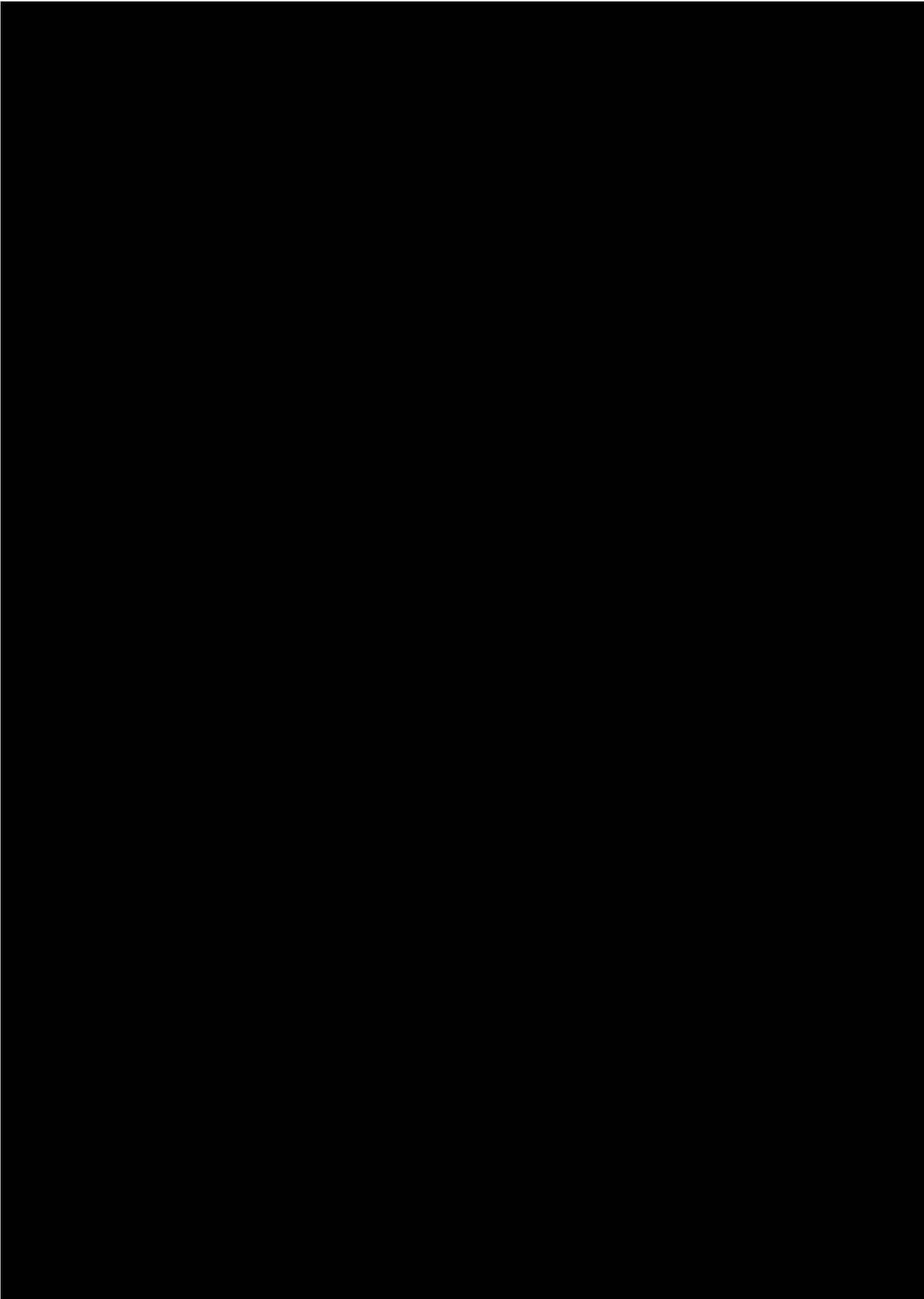
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION,
Iris Weinstahl, COMMISSIONER, in cooperation with SCHOOL, and
POLICE OFFICIALS.

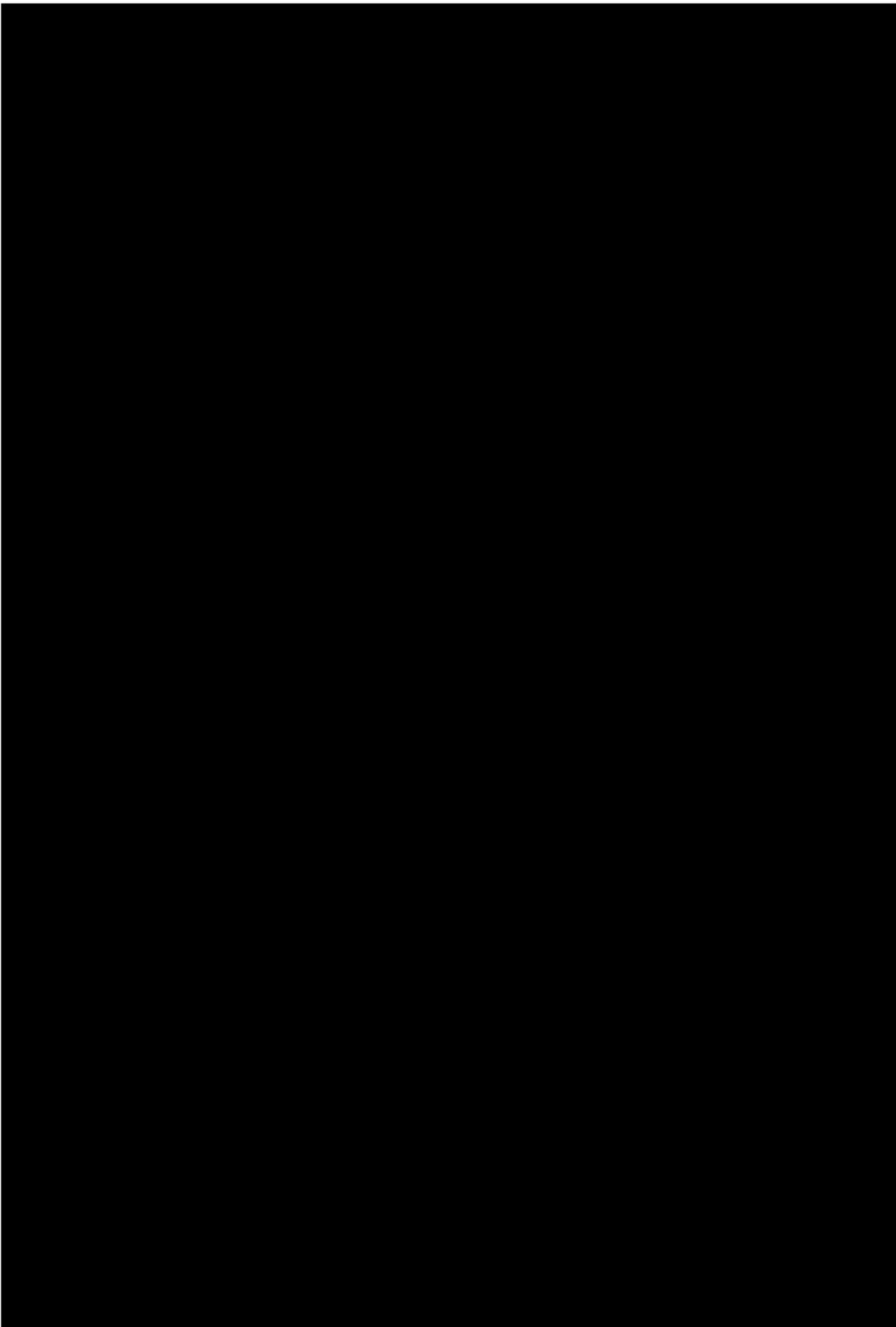
ORIG. DATE: 9/4/1975
GIS CONVERT: 04/2002
REVISONS:

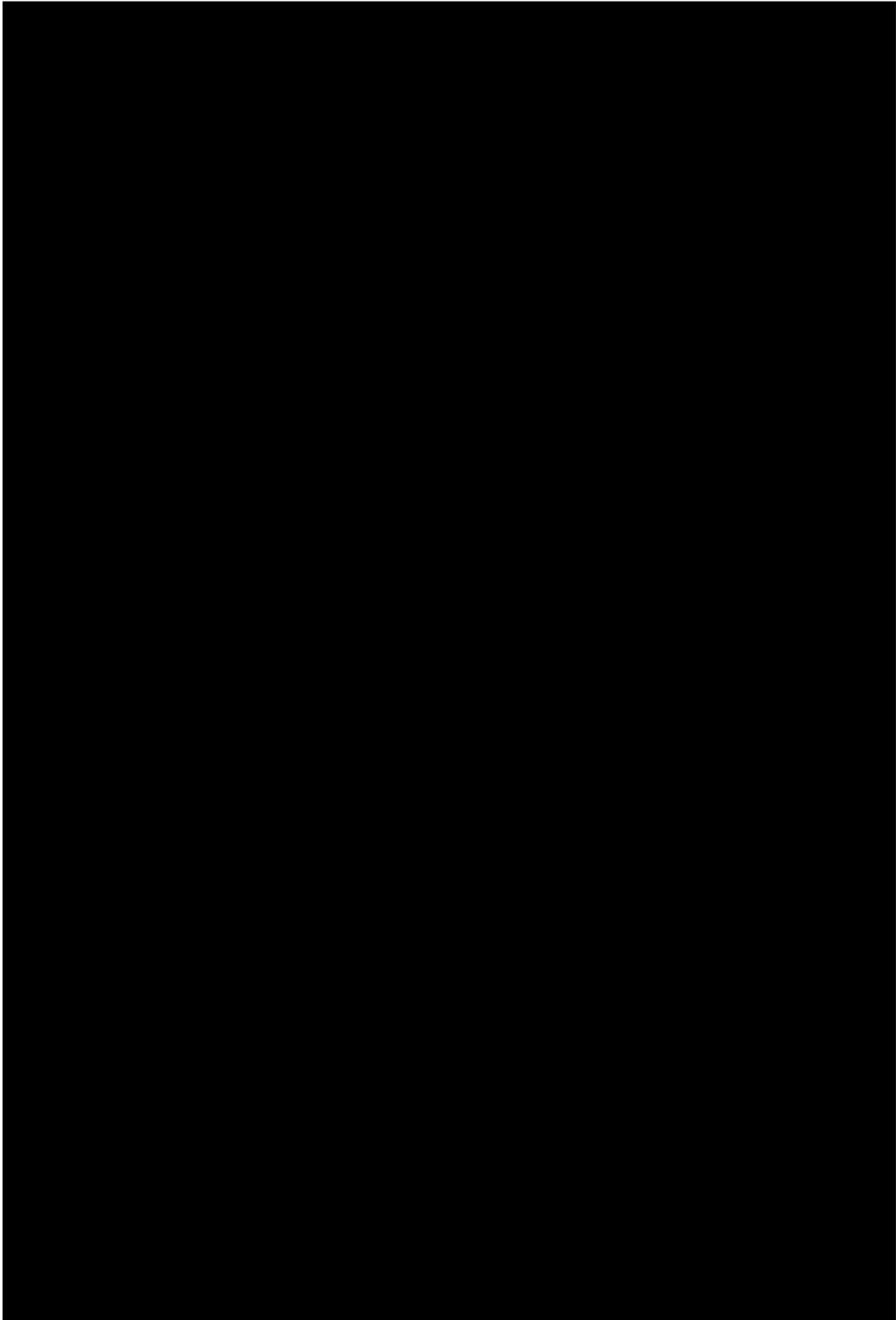
DRAWING NO. CC-105
MS-3126

COMM. BOARD: 2
BOROUGH: BRONX
PRECINCT: 41









SPOT SPEED STUDY

Date: **June 8, 2005** Time: **12:30 pm**
 Location: **Fox Street between Westchester Avenue & 163rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 216 217**
 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	6	8.7%	8.7%	120	2400
21	6	8.7%	17.4%	126	2646
22	6	8.7%	26.1%	132	2904
23	7	10.1%	36.2%	161	3703
24	4	5.8%	42.0%	96	2304
25	5	7.2%	49.3%	125	3125
26	4	5.8%	55.1%	104	2704
27	11	15.9%	71.0%	297	8019
28	12	17.4%	88.4%	336	9408
29	1	1.4%	89.9%	29	841
30	0	0.0%	89.9%	0	0
31	0	0.0%	89.9%	0	0
32	4	5.8%	95.7%	128	4096
33	3	4.3%	100.0%	99	3267
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
	69	100.0%		1753	45417

Mean Speed = 25.4 mph
 Standard Deviation = 3.6 mph
 Margin of Error (95% Confidence) = ± 0.8 mph

Median Speed = 25.4 mph
 15th Percentile Speed = 21.7 mph
 85th Percentile Speed = 29.1 mph

SPOT SPEED STUDY

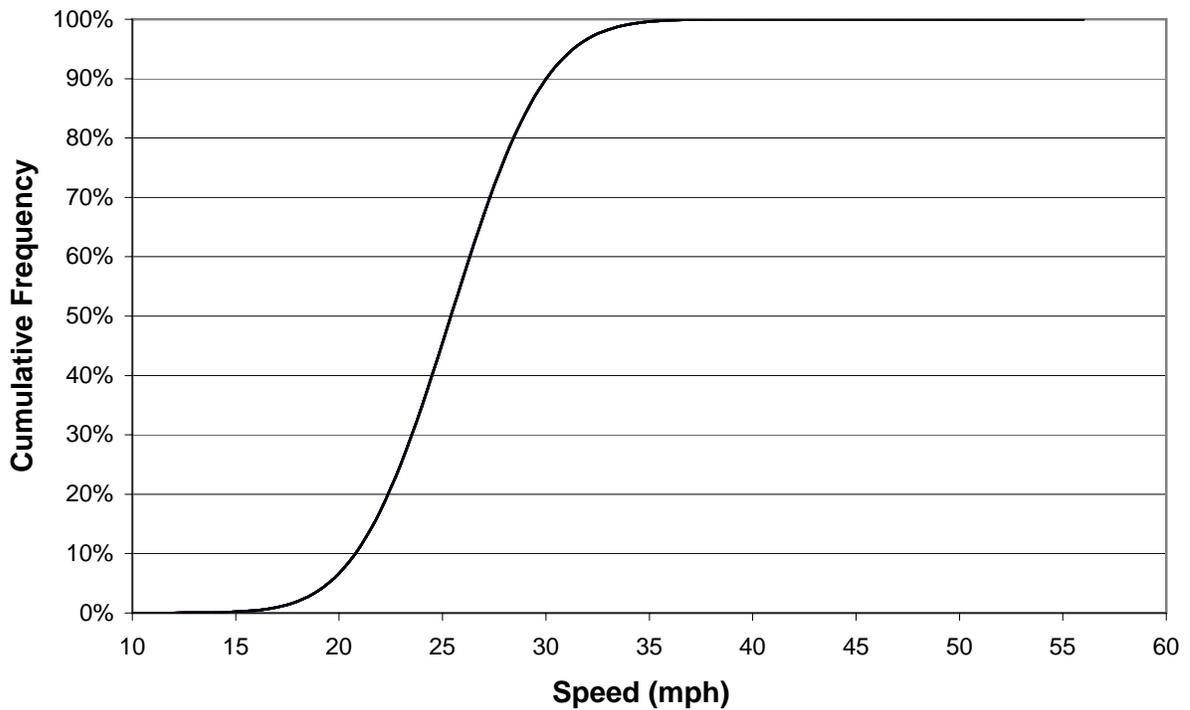
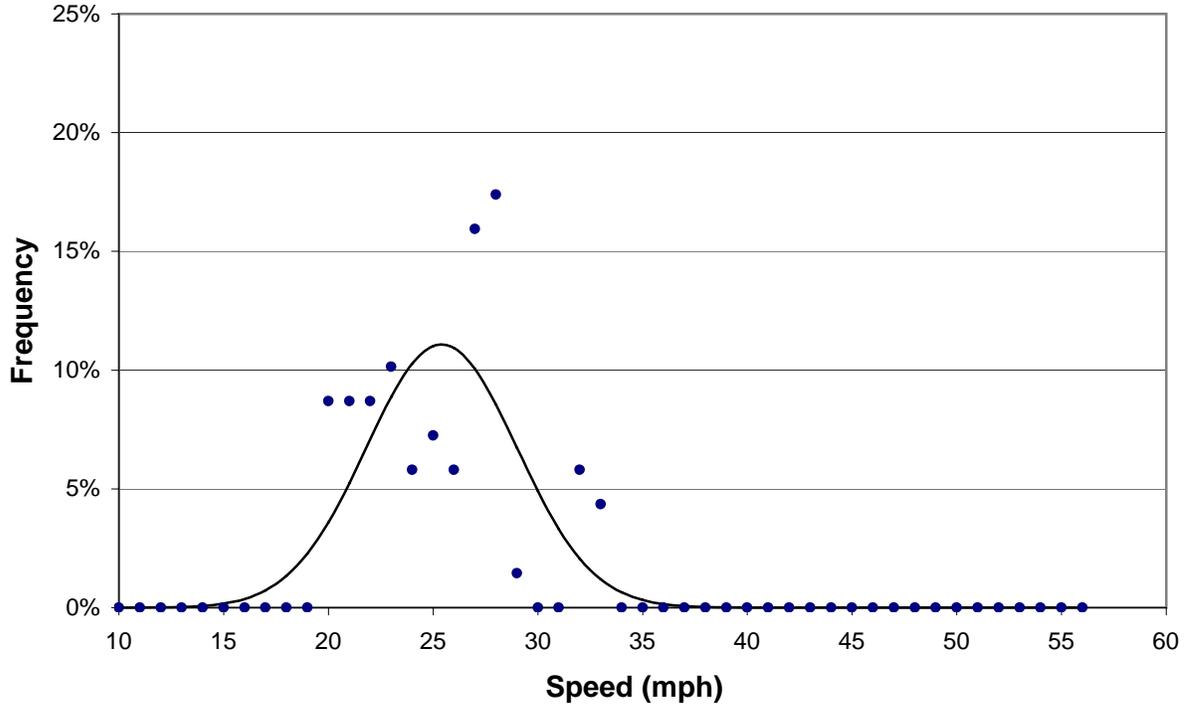
Date: **June 8, 2005**
Location: **Fox Street between Westchester Avenue & 163rd Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **12:30 pm**

School: **I.S. 216 217**
Direction: **Southbound**
Comments:

Mean Speed = 25.4 mph
Standard Deviation = 3.6 mph
Margin of Error (95% Confidence) = ± 0.8 mph

Median Speed = 25.4 mph
15th Percentile Speed = 21.7 mph
85th Percentile Speed = 29.1 mph



SPOT SPEED STUDY

Date: **June 8, 2005** Time: **10:00 am**
 Location: **Tiffany Street between Westchester Avenue & 163rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 216 / 217**
 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	1	2.3%	2.3%	19	361
20	2	4.5%	6.8%	40	800
21	1	2.3%	9.1%	21	441
22	8	18.2%	27.3%	176	3872
23	3	6.8%	34.1%	69	1587
24	3	6.8%	40.9%	72	1728
25	3	6.8%	47.7%	75	1875
26	6	13.6%	61.4%	156	4056
27	3	6.8%	68.2%	81	2187
28	7	15.9%	84.1%	196	5488
29	1	2.3%	86.4%	29	841
30	2	4.5%	90.9%	60	1800
31	2	4.5%	95.5%	62	1922
32	1	2.3%	97.7%	32	1024
33	1	2.3%	100.0%	33	1089
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
	44	100.0%		1121	29071

Mean Speed = 25.5 mph Median Speed = 25.5 mph
 Standard Deviation = 3.4 mph 15th Percentile Speed = 21.9 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 29.1 mph

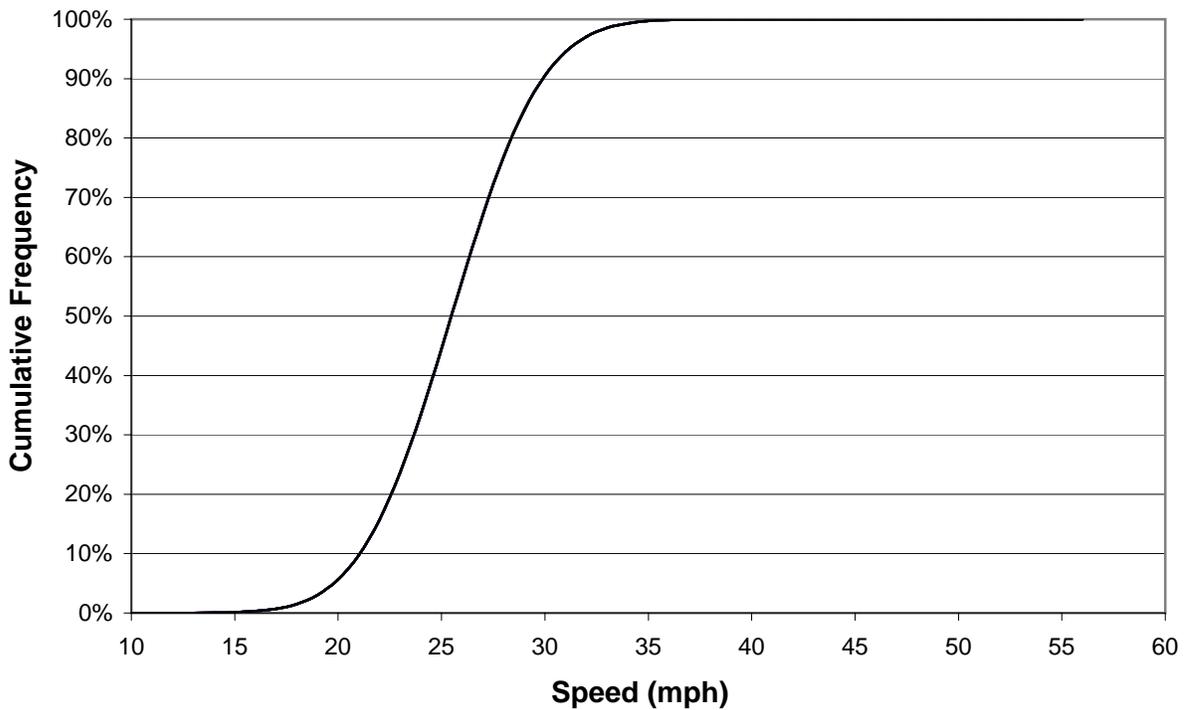
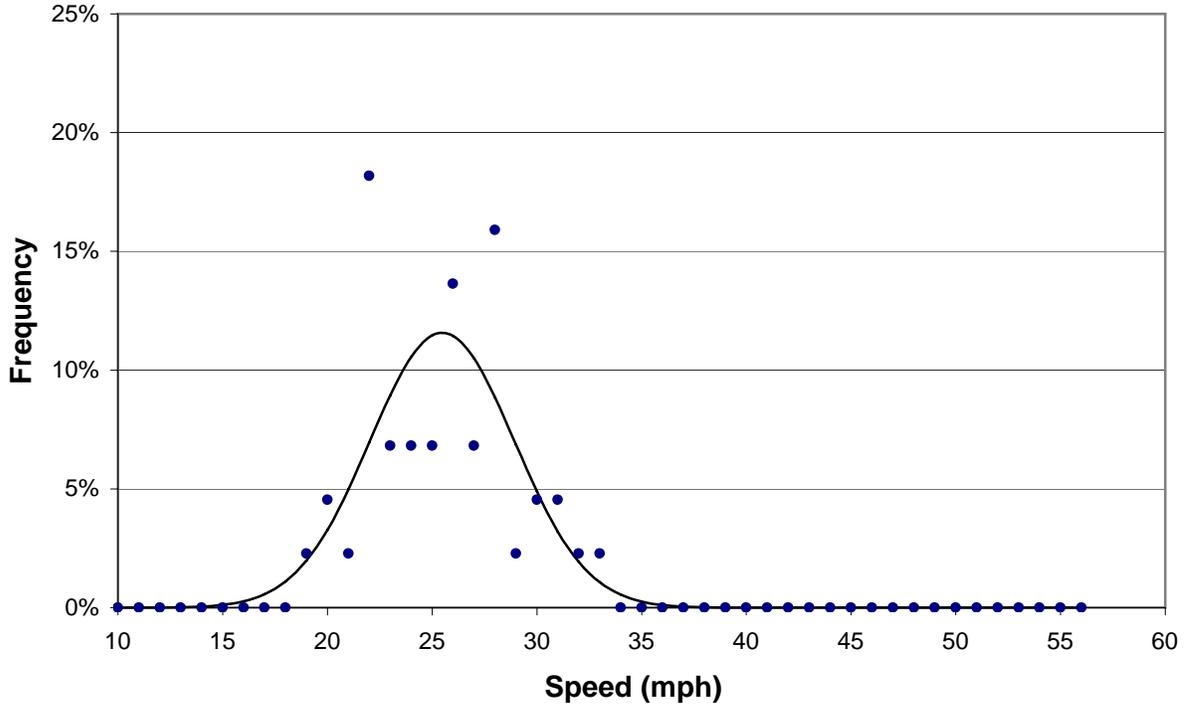
SPOT SPEED STUDY

Date: **June 8, 2005**
 Location: **Tiffany Street between Westchester Avenue & 163rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**
 School: **I.S. 216 / 217**
 Direction: **Northbound**
 Comments:

Mean Speed = 25.5 mph
 Standard Deviation = 3.4 mph
 Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 25.5 mph
 15th Percentile Speed = 21.9 mph
 85th Percentile Speed = 29.1 mph



SPOT SPEED STUDY

Date: **June 8, 2005** Time: **10:00 am**
 Location: **Tiffany Street between Westchester Avenue & 163rd Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 216 / 217**
 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	1	1.9%	1.9%	17	289
18	1	1.9%	3.8%	18	324
19	0	0.0%	3.8%	0	0
20	1	1.9%	5.8%	20	400
21	0	0.0%	5.8%	0	0
22	1	1.9%	7.7%	22	484
23	6	11.5%	19.2%	138	3174
24	4	7.7%	26.9%	96	2304
25	2	3.8%	30.8%	50	1250
26	6	11.5%	42.3%	156	4056
27	5	9.6%	51.9%	135	3645
28	6	11.5%	63.5%	168	4704
29	1	1.9%	65.4%	29	841
30	5	9.6%	75.0%	150	4500
31	7	13.5%	88.5%	217	6727
32	2	3.8%	92.3%	64	2048
33	1	1.9%	94.2%	33	1089
34	2	3.8%	98.1%	68	2312
35	1	1.9%	100.0%	35	1225
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
	52	100.0%		1416	39372

Mean Speed = 27.2 mph
 Standard Deviation = 4.0 mph
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 27.2 mph
 15th Percentile Speed = 23.1 mph
 85th Percentile Speed = 31.4 mph

SPOT SPEED STUDY

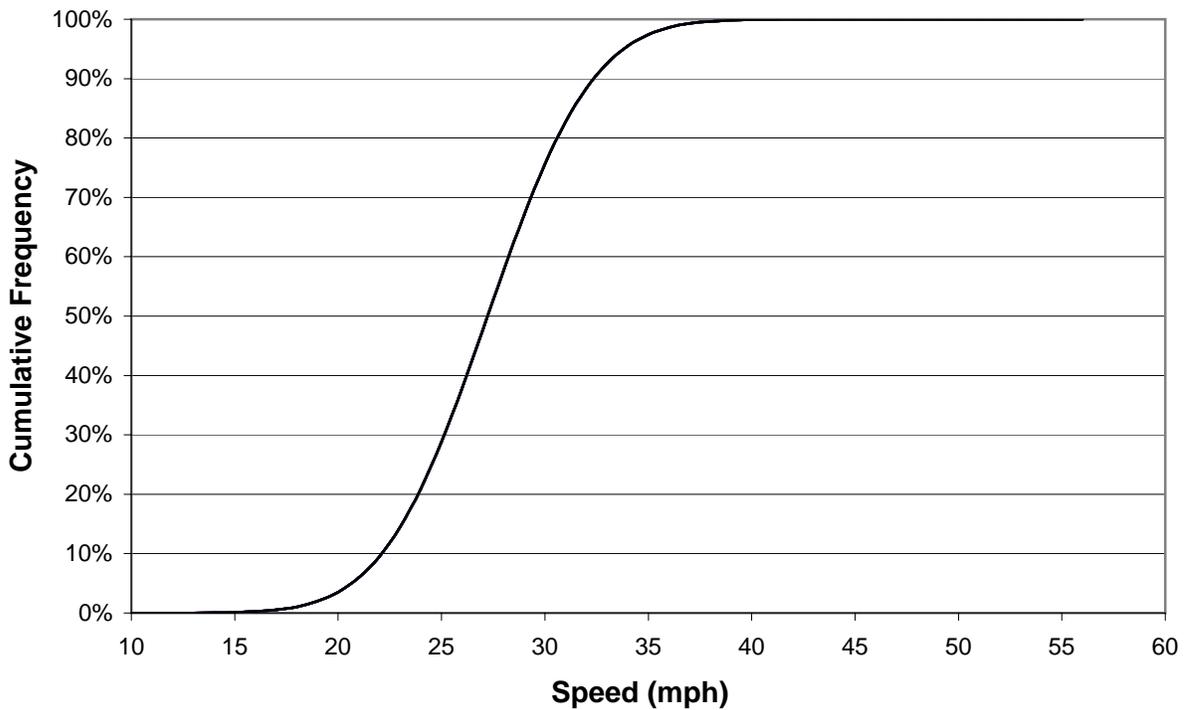
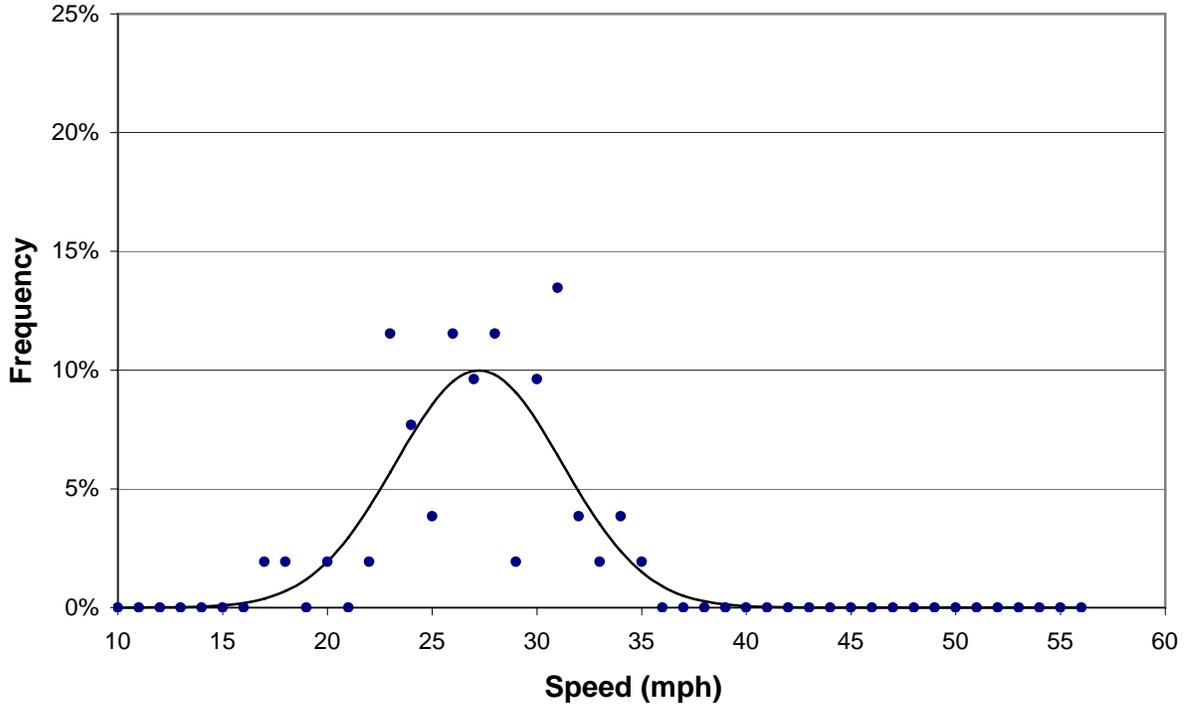
Date: **June 8, 2005**
Location: **Tiffany Street between Westchester Avenue & 163rd Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **I.S. 216 / 217**
Direction: **Southbound**
Comments:

Mean Speed = 27.2 mph
Standard Deviation = 4.0 mph
Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 27.2 mph
15th Percentile Speed = 23.1 mph
85th Percentile Speed = 31.4 mph



SPOT SPEED STUDY

Date: **June 8, 2005**
 Location: **Westchester Avenue between Fox Street & Tiffany Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **11:20 am**

School: **I.S. 216 / 217**
 Direction: **Eastbound**
 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	4	11.1%	11.1%	64	1024
17	0	0.0%	11.1%	0	0
18	0	0.0%	11.1%	0	0
19	0	0.0%	11.1%	0	0
20	9	25.0%	36.1%	180	3600
21	1	2.8%	38.9%	21	441
22	8	22.2%	61.1%	176	3872
23	0	0.0%	61.1%	0	0
24	0	0.0%	61.1%	0	0
25	7	19.4%	80.6%	175	4375
26	7	19.4%	100.0%	182	4732
27	0	0.0%	100.0%	0	0
28	0	0.0%	100.0%	0	0
29	0	0.0%	100.0%	0	0
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
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
	36	100.0%		798	18044

Mean Speed = 22.2 mph
 Standard Deviation = 3.2 mph
 Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 22.2 mph
 15th Percentile Speed = 18.9 mph
 85th Percentile Speed = 25.5 mph

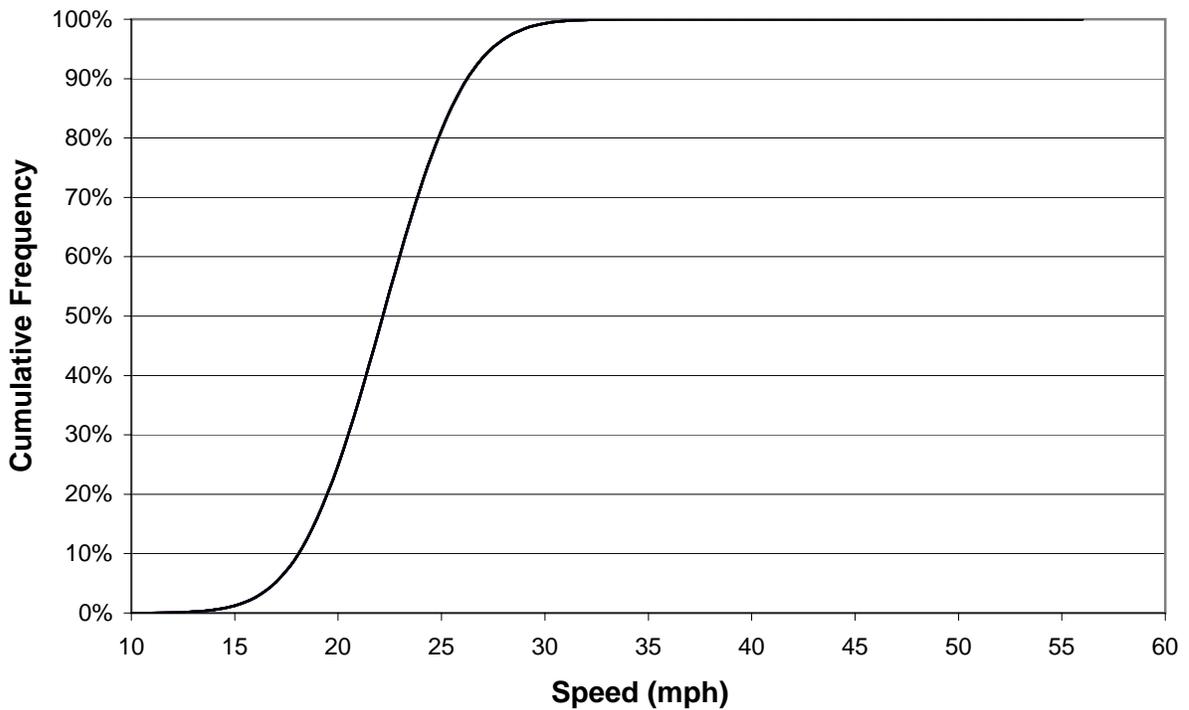
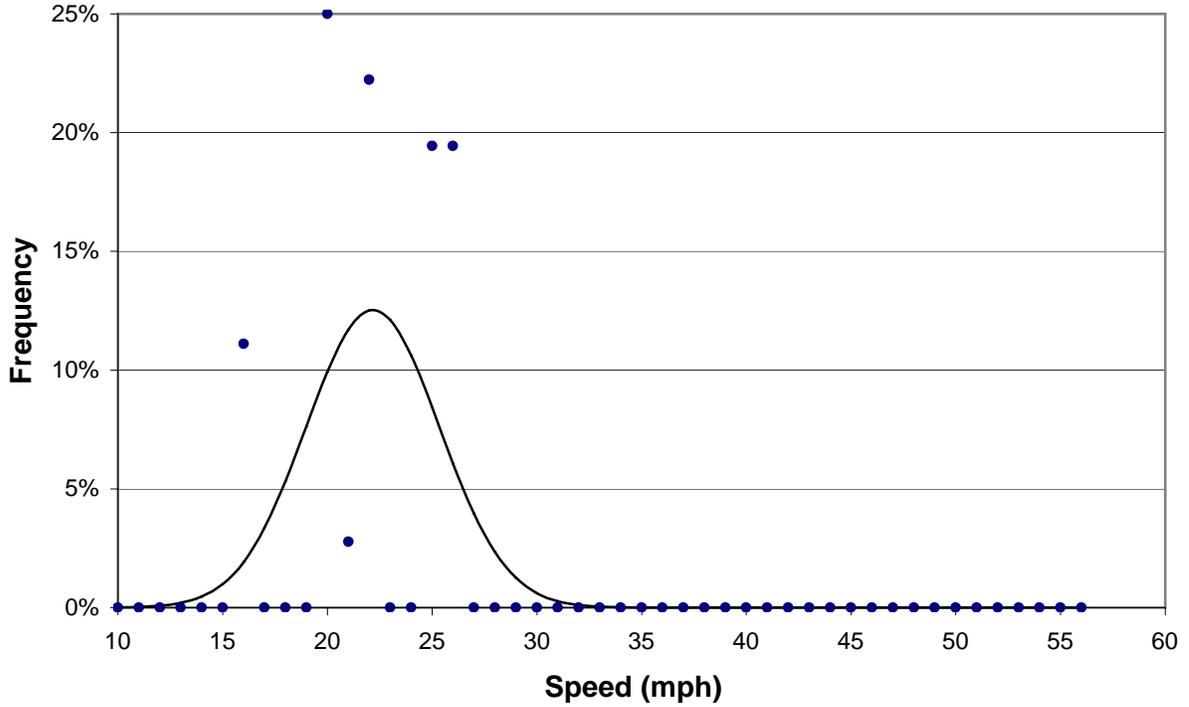
SPOT SPEED STUDY

Date: **June 8, 2005** Time: **11:20 am**
 Location: **Westchester Avenue between Fox Street & Tiffany Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 216 / 217**
 Direction: **Eastbound**
 Comments:

Mean Speed = 22.2 mph
 Standard Deviation = 3.2 mph
 Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 22.2 mph
 15th Percentile Speed = 18.9 mph
 85th Percentile Speed = 25.5 mph



SPOT SPEED STUDY

Date: **June 8, 2005**
 Location: **Westchester Avenue between Fox Street & Tiffany Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **11:20 am**
 School: **I.S. 216 / 217**
 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	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	4	13.3%	13.3%	80	1600
21	0	0.0%	13.3%	0	0
22	7	23.3%	36.7%	154	3388
23	5	16.7%	53.3%	115	2645
24	2	6.7%	60.0%	48	1152
25	4	13.3%	73.3%	100	2500
26	3	10.0%	83.3%	78	2028
27	0	0.0%	83.3%	0	0
28	3	10.0%	93.3%	84	2352
29	2	6.7%	100.0%	58	1682
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
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
	30	100.0%		717	17347

Mean Speed = 23.9 mph
 Standard Deviation = 2.7 mph
 Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 23.9 mph
 15th Percentile Speed = 21.1 mph
 85th Percentile Speed = 26.7 mph

SPOT SPEED STUDY

Date: **June 8, 2005**
Location: **Westchester Avenue between Fox Street & Tiffany Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **11:20 am**

School: **I.S. 216 / 217**
Direction: **Westbound**
Comments:

Mean Speed = 23.9 mph
Standard Deviation = 2.7 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 23.9 mph
15th Percentile Speed = 21.1 mph
85th Percentile Speed = 26.7 mph

