

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



School Safety Engineering Project

FINAL REPORT: I.S. 131 (Albert Einstein School), Bronx



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



February 15, 2006

**School Safety Engineering Project
Final Report: I.S. 131, Bronx**

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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. 131 (Albert Einstein 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

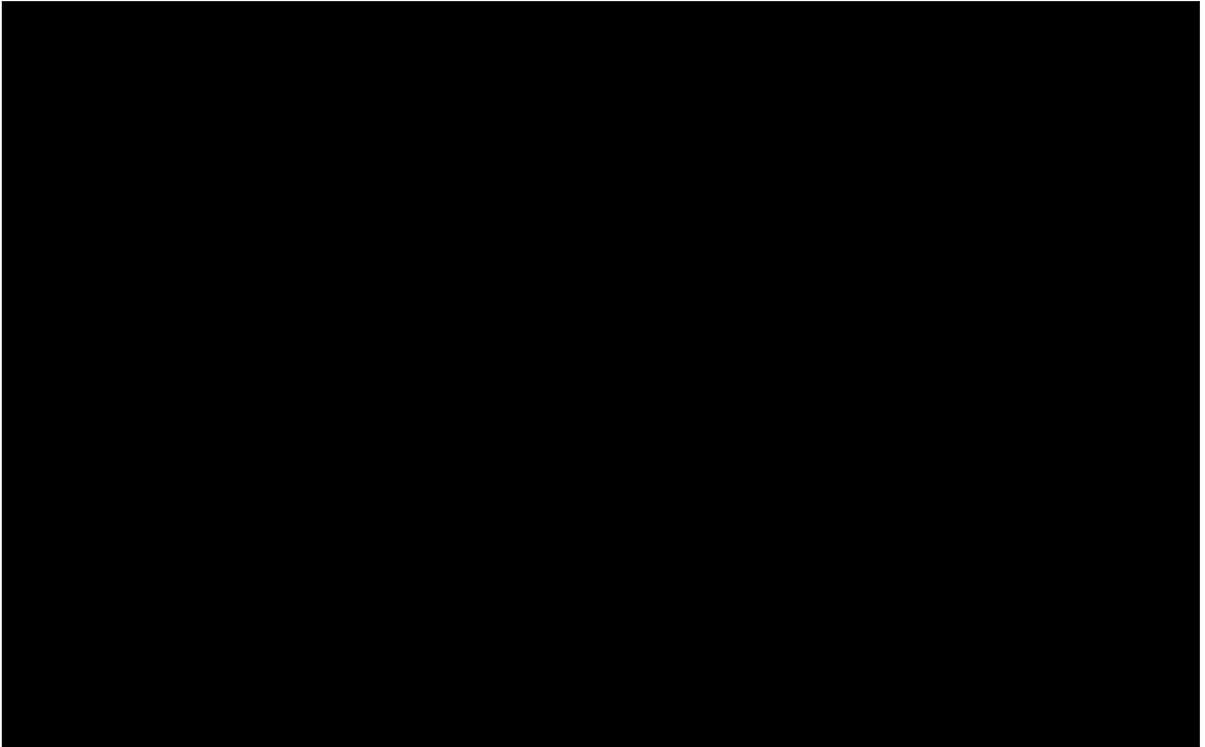
2.2 NEIGHBORHOOD DESCRIPTION

Exhibit 1, at the end of this section, shows an aerial view of the neighborhood surrounding the school. I.S. 131 is bounded by Bolton Avenue to the east, Lafayette Avenue to the south, Underhill Avenue to the west, and Story Avenue to the north (as seen in Exhibit 1). The area surrounding the school is generally residential in character.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Consultant staff and the Assistant Principal from I.S. 131 met at the school on the morning of March 25, 2004. According to representatives of the school, the problems presented for student pedestrians are:

- High School students waiting on Bolton Avenue due to cutting class, early dismissal, etc. which can create problems when I.S. 131 students emerge from school.
- Congestion during arrival and dismissal. Arrival is the worse condition, with double and triple parking.
- Some speeding of traffic on Bolton Avenue and Underhill Avenue. The new traffic signal has helped, but some will speed to make the green signal.
- Additional parking for faculty, although there is some “No Parking Except For Board of Education” in the vicinity of the school.
- Parents double-parking while dropping-off and/or picking-up students.



2.6 PRIMARY MODE 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. Based upon information gathered from school officials, the catchment area shown in Exhibit 2 was verified as accurate for I.S. 131.

The school's catchment area, verified by the school assistant principal, is roughly outlined by the Bruckner Expressway to the north; Zerega Avenue to the east; Seward Avenue to the South; and Rosedale Avenue to the west.

Table 1 presents the mode of travel for I.S. 131 as identified by school representatives.

TABLE 1: MODE OF TRAVEL	STUDENTS (Percentage)
Walk	55%
Driven by car	5%
School bus	5%
MTA Bus/Subway	35%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There is a Deli across the street to the northwest of the school, which is located in a line of stores. On the block to the west of the school is a large parking deck with stores along the street level, fronting on White Plains Road. There are also several other shopping centers and fast food restaurants along this section of White Plains Road.



Figure 2: Looking northeast at Deli and other stores across the street and east of I.S. 131

2.8 CROSSING GUARD LOCATIONS

There are no crossing guards assigned to I.S. 131.

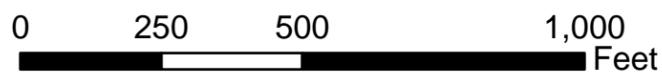
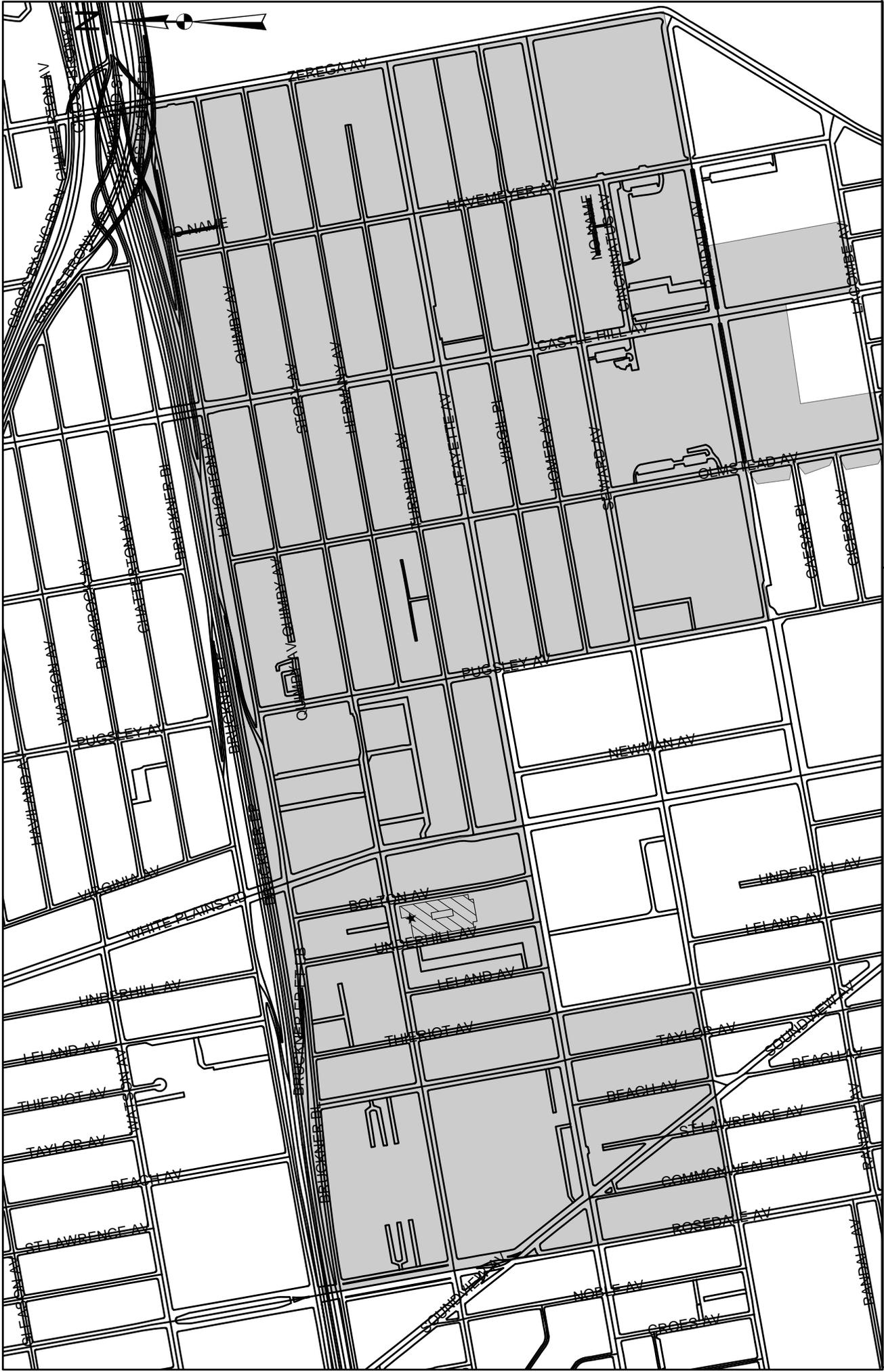


EXHIBIT 1
I.S. 131 BRONX
ALBERT EINSTEIN SCHOOL
AERIAL PHOTOGRAPH



LEGEND:

CATCHMENT AREA, (DEPARTMENT OF EDUCATION DESIGNATED AREA WITHIN WHICH STUDENTS ARE ENTITLED TO ATTEND I.S. 131)



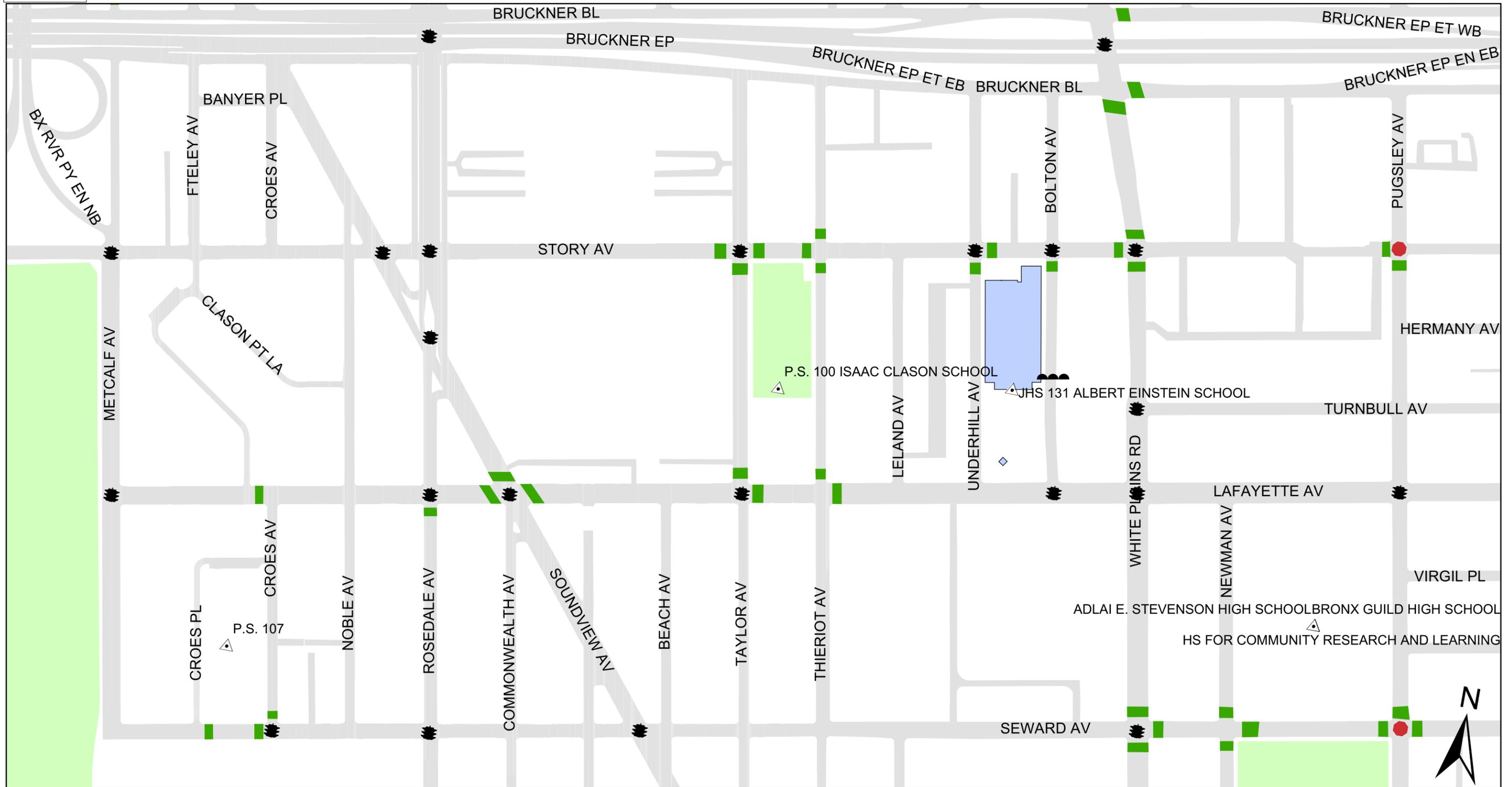
EXHIBIT 2

I.S. 131 BRONX
ALBERT EINSTEIN SCHOOL

CATCHMENT AREA



School Traffic Safety Map



The School Traffic Safety Map was established to help provide the maximum degree of safety for children going to and from school - by indicating the location of speed reducers, school crosswalks and some traffic control devices. (While virtually all intersections in NYC benefit from traffic control devices - such as stop signs, traffic signals, yield signs, and all way stop signs - this map shows only traffic signals and all way stop signs.) The school crosswalks that are shown are ladder striped and make the crosswalk more visible to drivers and help make the intersection safer. These crosswalks are where school children are recommended to cross.

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

LEGEND:

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

IS 131 Bronx
ALBERT EINSTEIN SCHOOL

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

Map created on 11/16/2006

EXHIBIT 3

COMM. BOARD: 209
 PRECINCT: 43

1.5.1 7

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representative, there are approximately four hundred fifty (450) students who ride an MTA bus to school, and approximately fifty-five (55) who ride a yellow school bus to school. Bus transportation for the students consists of three (3) special buses. Early arrival buses park along the easterly side of the building on Bolton Avenue.

Consultant observations concur that there is sufficient block face footage for school bus operations.

3.2 PARENT DROP-OFF OPERATIONS

According to school representatives, five percent (5%) of the students are being dropped off. Parent vehicles typically double-park and triple-park around the school while dropping-off students in the morning or awaiting the afternoon student dismissal. This causes congestion problems around the school.

3.3 PARKING REGULATIONS

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

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 3, at the end of Section 2, shows the existing signals, school signs, and pavement markings assigned to Immaculate Conception School as of June 2004. 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 7.



Figure 3: Looking west along Story Ave showing existing advance sign and markings (school is on left)

3.5 ACCIDENT SUMMARY

The number and severity of accidents at a location are typical indicators used to help determine the existence and severity of any potentially safety-related situations. Such situations are then examined for possible solutions and/or remedies.

Exhibit 6, at end of this section, and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (NYS DMV) in the vicinity of I.S. 131 for a three-year period from January 1, 1998 to December 1, 2000. The NYS DMV data provides some detail relating to the cause of the accident. Table 3 is a summary of more recent accident data obtained from the New York City Police Department (NYPD). Though current through 2004, the NYPD data does not provide the same level of detail as the NYS DMV data.

In the vicinity of I.S. 131 (within a 700-foot radius around the school), there were one hundred two (102) accidents reported between 1998 and 2000 (Table 2); ten (10) were pedestrian accidents, two of which were school-related accidents that occurred at the intersection of Story Avenue & Bolton Avenue. A school-related accident is defined as an accident involving a school-age pedestrian (age 4 through 14), occurring on a weekday during the school year. There were no pedestrian fatalities during this period. The NYPD accident data (Table 3) shows there were one hundred thirty-seven (137) accidents between 2001 and 2004; eighteen (18) were pedestrian accidents. Of these, there were four school-related accidents. There were no pedestrian fatalities during this period. Two school-related accidents occurred at Story Avenue & Bolton Avenue; one occurred at Story Avenue & Underhill Avenue; and one occurred at Lafayette Avenue & Bolton Avenue.

Further discussions on accidents are included in Section 3.6, Traffic Operations and Issues.

TABLE 2: ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Story Ave. & Underhill Ave.	6	0	0	0
Story Ave. & Bolton Ave.	16	2	0	2
Story Ave. & White Plains Rd.	71	7	0	0
Story Ave. & Pugsley Ave.	14	1	0	0
Lafayette Ave. & Underhill Ave.	8	1	0	0
Lafayette Ave. & Bolton Ave.	1	0	0	0
TOTAL	116	11	0	2

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Story Ave. & Underhill Ave.	14	2	0	1
Story Ave. & Bolton Ave.	20	5	0	2
Story Ave. & White Plains Rd.	92	10	0	0
Story Ave. & Pugsley Ave.	24	2	0	1
Lafayette Ave. & Underhill Ave.	6	0	0	0
Lafayette Ave. & Bolton Ave.	5	1	0	1
TOTAL	161	20	0	5

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. 131. Details on specific intersections or roadway segments are given in the following Sections.

3.6.1 Story Avenue & Underhill Avenue

This is a signalized intersection with school crosswalks located across the east and south legs. Story Avenue and Underhill Avenues are both two-way streets with one traffic lane and a parking lane on each side of the roadway. Higher volumes of traffic are experienced on Story Avenue. The school official reports there is poor drainage on Underhill and ice often forms in winter. Although the school official recalled there was a

fatality at Underhill Avenue and Story Avenue in 1999, it must not have involved a pedestrian, since it did not appear in the accident data records. Some speeding was reported on both Bolton Avenue and Underhill Avenue. The school official questioned the possibility of speed tables on Bolton Avenue and Underhill Avenue.

There were six (6) accidents reported at this intersection between 1998 and 2000: none of the accidents were pedestrian accidents (Table 2). The NYPD accident data (Table 3) shows two pedestrian accidents with no fatalities reported at this intersection between 2001 and 2004; one of the accidents was school-related. No further information about the accident is available.

The school principal reported a speeding problem on Underhill Avenue. Therefore, a speed survey was conducted on Underhill Avenue between Story Avenue and Lafayette Avenue in order to verify the existence of a speeding problem and to determine its extent.

The 85th percentile speed for southbound vehicles on Underhill Avenue between Story Avenue and Lafayette Avenue was found to be 26.1 mile per hour (mph). The 85th percentile speed for northbound vehicles on Underhill Avenue between Lafayette Avenue and Story Avenue was found to be 25.9 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 Underhill Avenue between Story Avenue and Lafayette Avenue are shown in the Appendix at the end of the document.

To further assess the situation for the area in the neighborhood of I.S. 131, the consultant performed a search of the NYC DOT records for any signal warrant studies that may have been performed at any of the intersections. A signal warrant study was performed for the intersection of Story Avenue and Underhill Avenue to determine the need for a traffic signal, which was subsequently approved under warrant 1b, an accident reduction. The signal was installed in 2003.



Figure 4: Looking south along Underhill Avenue across Story Avenue (school is on the left)

3.6.2 Story Avenue & Bolton Avenue

This is an unsignalized intersection with a school crosswalk located across the south leg. Story Avenue and Bolton Avenues are both two-way streets with one traffic lane and a parking lane on each side of the roadway.

This intersection has been the site of sixteen (16) accidents between 1998 and 2000; two of these were pedestrian accidents, both of which were school-related. In the first school-related accident, an eleven-year old pedestrian sustained a “non-incapacitating injury” on February 15, 2000 at 9:00 a.m. while crossing the roadway, with no crosswalk. The road was dry and the weather was clear. In the second school-related accident, an eleven-year old pedestrian sustained a “possible injury” on April 5, 2000 at 8:00 a.m., while performing “other actions in the roadway,” which would eliminate playing in, or crossing the roadway. The road was dry and the weather was cloudy. The NYPD accident data (Table 3) shows five pedestrian accidents, with no fatalities, between 2001 and 2004; two of the accidents were school-related.

The school principal reported a speeding problem on Bolton Avenue. Therefore, a speed survey was conducted on Bolton Avenue between Story Avenue and Lafayette Avenue in order to verify the existence of a speeding problem and to determine its extent.

The 85th percentile speed for southbound vehicles on Bolton Avenue between Story Avenue and Lafayette Avenue was found to be 30.7 mph. The 85th percentile speed for northbound vehicles on Bolton Avenue between Lafayette Avenue and Story Avenue was found to be 28.2 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 Bolton Avenue between Story Avenue and Lafayette Avenue are shown in the Appendix at the end of the document.

This unsignalized intersection experienced four (4) school-related accidents during a seven-year period between 1998 and 2004. To assess vehicle and pedestrian volumes on Story Avenue at its intersection with Bolton Avenue, a traffic count was conducted from 7:30 to 9:00 am on Tuesday, February 8, 2006. The results of the peak hour (7:30 to 8:30) count are shown in Tables 4 and 5 and in Exhibit 6A at the end of this section. In addition, a traffic signal warrant analysis was performed to determine the need of a traffic signal control at this intersection. The results of the preliminary assessment based on traffic signal warrant 4 (Pedestrian Volumes) and warrant 5 (School Crossing) of the Federal MUTCD are presented in Tables 6 and 7, respectively. Based on this assessment, a new signal is warranted.

TABLE 4: VEHICLE VOLUMES (7:30-8:30 AM)												
INTERSECTION	BOLTON AVENUE NORTHBOUND			BOLTON AVENUE SOUTHBOUND			STORY AVENUE EASTBOUND			STORY AVENUE WESTBOUND		
	L	T	R	L	T	R	L	T	R	L	T	R
STORY AVE. & BOLTON AVE.	17	10	25	15	52	49	39	382	9	13	193	27
TOTAL	52			116			430			233		

TABLE 5: PEDESTRIAN VOLUMES (7:30-8:30 AM)				
INTERSECTION	CROSSING BOLTON AVENUE NORTH-LEG CROSSWALK	CROSSING BOLTON AVENUE SOUTH-LEG CROSSWALK	CROSSING STORY AVENUE EAST-LEG CROSSWALK	CROSSING STORY AVENUE WEST-LEG CROSSWALK
STORY AVE. & BOLTON AVE.	192	233	153	99

TABLE 6: TRAFFIC SIGNAL WARRANT 4 ANALYSIS (PEDESTRIAN VOLUME)						
Intersection	Total Hourly (7:30-8:30 AM) 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	
Story Ave. & Bolton Ave.	252	425	677	Yes	Yes	Yes

1. The available gap is based on the time need for a pedestrian to walk across the major street. The analysis assumed 20 seconds.

TABLE 7: TRAFFIC SIGNAL WARRANT 5 ANALYSIS (SCHOOL CROSSING)						
Intersection	Total Hourly (7:30-8:30) Student Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 20 Students / hour	
Story Ave. & Bolton Ave.	194	276	470	Yes	Yes	Yes

1. The available gap is based on the time need for a pedestrian to walk across the major street. The analysis assumed 20 seconds.



Figure 5: Looking south along Bolton avenue across Story Avenue (school is on the right)

3.6.3 Story Avenue & White Plains Road

This is a signalized intersection with school crosswalks located across the north, south, and west legs. Story Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. White Plains Road is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Higher volumes of traffic are experienced on White Plains Road. This intersection has been the site of seventy-one (71) accidents between 1998 and 2000; seven of these were pedestrian accidents, none of which were school-related. The NYPD accident data (Table 3) shows ten pedestrian accidents with no fatalities between 2001 and 2004; none of these were school-related accidents.

3.6.4 Story Avenue & Pugsley Avenue

This is an unsignalized four-legged intersection with a school crosswalk located across the south leg of Pugsley Avenue. Pugsley Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. Story Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway.

This intersection has been the site of fourteen (14) accidents between 1998 and 2000; one (1) of these was a pedestrian accident, which was not school-related. The NYPD accident data (Table 3) indicates that there were twenty-four (24) accidents at this intersection between 2001 and 2004. There were two (2) pedestrian accidents during the same four-year period including one school-related accident. However, no additional information about the school-related accident is available.

3.6.5 Lafayette Avenue & Underhill Avenue

This is an unsignalized T intersection with a pedestrian crosswalk located across the north leg of Underhill Avenue. Underhill Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. Lafayette Avenue is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Higher volumes of traffic are experienced on Lafayette Avenue.

This intersection has been the site of eight (8) accidents between 1998 and 2000; one of these was a pedestrian accident, which was not school-related. The NYPD accident data (Table 3) shows no pedestrian accidents.

To assess vehicle and pedestrian volumes on Underhill Avenue in the vicinity of I.S. 131, a traffic count was conducted at the intersection of Underhill Avenue and Lafayette Avenue from 7:30 to 9:00 am on Tuesday, June 14, 2005. The results of the peak hour (7:30 to 8:30) count are shown in Tables 8 and 9 and in Exhibit 6B at the end of this section. In addition, a traffic signal warrant analysis was performed to determine the need of a traffic signal control at this intersection. The results of the preliminary assessment based on traffic signal warrant 4 (Pedestrian Volumes) and warrant 5 (School Crossing) of the Federal MUTCD are presented in Tables 10 and 11, respectively. Based on this assessment, no new signals are warranted.

TABLE 8: VEHICLE VOLUMES (7:30-8:30 AM)						
INTERSECTION	Underhill Avenue SOUTHBOUND		Lafayette Avenue EASTBOUND		Lafayette Avenue WESTBOUND	
	Left	Right	Left	Straight	Straight	Right
Lafayette Ave. & Underhill Ave.	22	26	23	217	394	40
TOTAL	48		240		434	

TABLE 9: PEDESTRIAN VOLUMES (7:30-8:30 AM)			
INTERSECTION	Crossing Underhill Avenue NORTH-LEG CROSSWALK	Crossing Lafayette Avenue WEST-LEG CROSSWALK	Crossing Lafayette Avenue EAST-LEG CROSSWALK
Lafayette Ave. & Underhill Ave.	165	16	18

TABLE 10: TRAFFIC SIGNAL WARRANT 4 ANALYSIS (PEDESTRIAN VOLUME)						
Intersection	Total Hourly (7:30-8:30 AM) 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	
Lafayette Ave. & Underhill Ave.	34	165	199	Yes	No	No

2. The available gap is based on the time need for a pedestrian to walk across the major street. The analysis assumed 20 seconds.

TABLE 11: TRAFFIC SIGNAL WARRANT 5 ANALYSIS (SCHOOL CROSSING)						
Intersection	Total Hourly (7:30-8:30) Student Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 20 Students / hour	
Lafayette Ave. & Underhill Ave.	8	80	88	Yes	No	No

2. The available gap is based on the time need for a pedestrian to walk across the major street. The analysis assumed 20 seconds.



Figure 6: Looking west along Lafayette Avenue across Underhill Avenue

3.6.6 Lafayette Avenue & Bolton Avenue

This is an unsignalized T-intersection with a pedestrian crosswalk located across the north leg of Bolton Avenue. Bolton Avenue is a two-way street with one traffic lane and a parking lane on each side of the roadway. Lafayette Avenue is a two-way street with two traffic lanes and a parking lane on each side of the roadway. Higher volumes of traffic are experienced on Lafayette Avenue.

This intersection has been the site of one (1) accident between 1998 and 2000, which was not a pedestrian accident. The NYPD accident data (Table 3) shows one pedestrian accident, which was school related. No further information about the accident is available.

To assess vehicle and pedestrian volumes on Bolton Avenue in the vicinity of I.S. 131, a traffic count was conducted at the intersection of Bolton Avenue and Lafayette Avenue from 7:30 to 9:00 am on Wednesday, June 15, 2005. The results of the peak hour (7:30 to 8:30) count are shown in Tables 12 and 13 and in Exhibit 6C at the end of this section.

In addition, a traffic signal warrant analysis was performed to determine the need of a traffic signal control at this intersection. The results of the preliminary assessment based on traffic signal warrant 4 (Pedestrian Volumes) and warrant 5 (School Crossing) of the Federal MUTCD are presented in Tables 14 and 15, respectively. Based on this assessment (warrant 5 – School Crossing), a new traffic signal appears to be warranted at the intersection of Lafayette Avenue and Bolton Avenue.

TABLE 12: VEHICLE VOLUMES (7:30-8:30 AM)						
INTERSECTION	Bolton Avenue SOUTHBOUND		Lafayette Avenue EASTBOUND		Lafayette Avenue WESTBOUND	
Lafayette Ave. & Bolton Ave.	Left	Right	Left	Straight	Straight	Right
		40	45	25	203	327
TOTAL	85		228		365	

TABLE 13: PEDESTRIAN VOLUMES (7:30-8:30 AM)			
INTERSECTION	Crossing Bolton Avenue NORTH-LEG CROSSWALK	Crossing Lafayette Avenue WEST-LEG CROSSWALK	Crossing Lafayette Avenue EAST-LEG CROSSWALK
Lafayette Ave. & Bolton Ave.	170	51	85

TABLE 14: TRAFFIC SIGNAL WARRANT 4 ANALYSIS (PEDESTRIAN VOLUME)						
Intersection	Total Hourly (7:30-8:30 AM) 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	
Lafayette Ave. & Bolton Ave.	136	170	306	Yes	No	No

1. The available gap is based on the time need for a pedestrian to walk across the street. The analysis assumed 20 seconds.

TABLE 15: TRAFFIC SIGNAL WARRANT 5 ANALYSIS (SCHOOL CROSSING)						
Intersection	Total Hourly (7:30-8:30) Student Volumes			Criteria		Multi-way Stop Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 20 Students / hour	
Lafayette Ave. & Bolton Ave.	85	83	168	Yes	Yes	Yes

1. The available gap is based on the time need for a pedestrian to walk across the street. The analysis assumed 20 seconds.

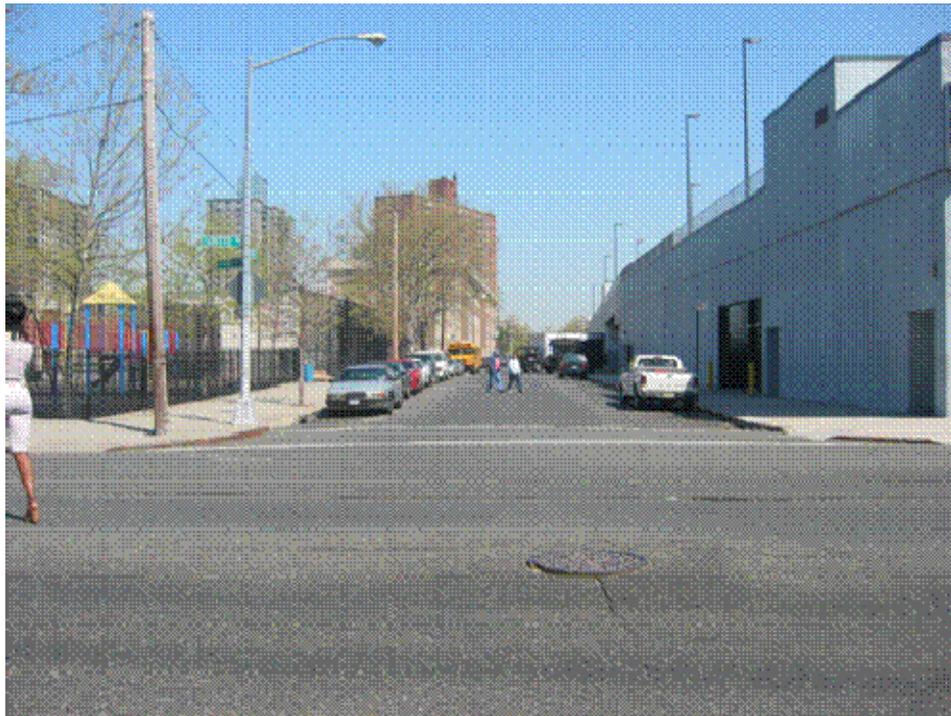


Figure 7: Looking north along Bolton Avenue across Lafayette Avenue (school is up the street on left)



Figure 8: Looking east on Lafayette Avenue across Bolton Avenue (students crossing without crosswalk)

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of I.S. 131, and found to be adequate (for a child pedestrian walking rate of 3 ft/sec) in all directions and approaches (see Table 16).

TABLE 16: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
Story Ave. & Underhill Ave.				
crossing Story Ave.	50	22	20	NO
crossing Underhill Ave..	38	32	16	NO
Story Ave. & White Plains Rd.				
crossing Story Ave.	50	29	20	NO
crossing White Plains Rd.	60	29	23	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. 131 are generally in fair condition. Sidewalks are 10 to 15 feet wide on the school block face, and are in fair condition and of adequate width.

3.8.3 Pedestrian Ramps

Overall, Pedestrian ramps in the area of the school appear to be standard except for the northwest corner of Bolton Avenue & Lafayette Avenue where the pedestrian ramp for the crosswalk located across the north leg of Bolton Avenue is situated outside of the crosswalk path, between a drainage inlet and a light pole.



Figure 9: Looking north at misaligned pedestrian ramp to north of crosswalk located across north leg of Bolton Avenue at Lafayette Avenue and utility pole obstructing the path for the same crosswalk

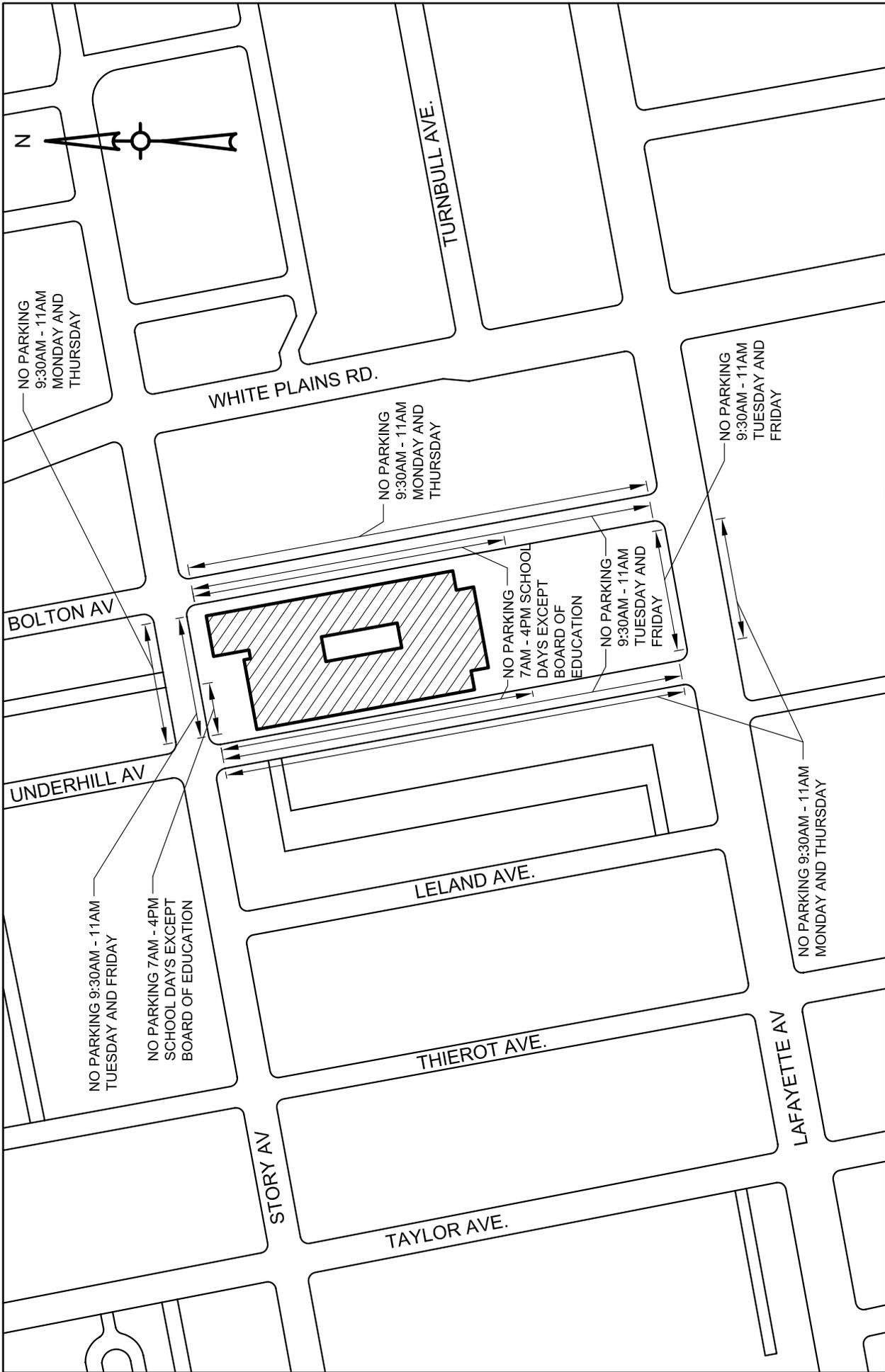
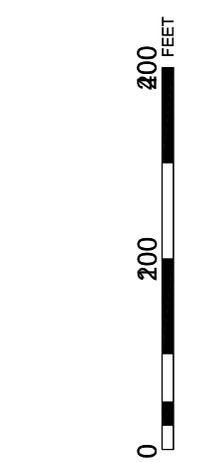


EXHIBIT 4
 I.S. 131 BRONX
 ALBERT EINSTEIN SCHOOL
 EXISTING PARKING REGULATIONS



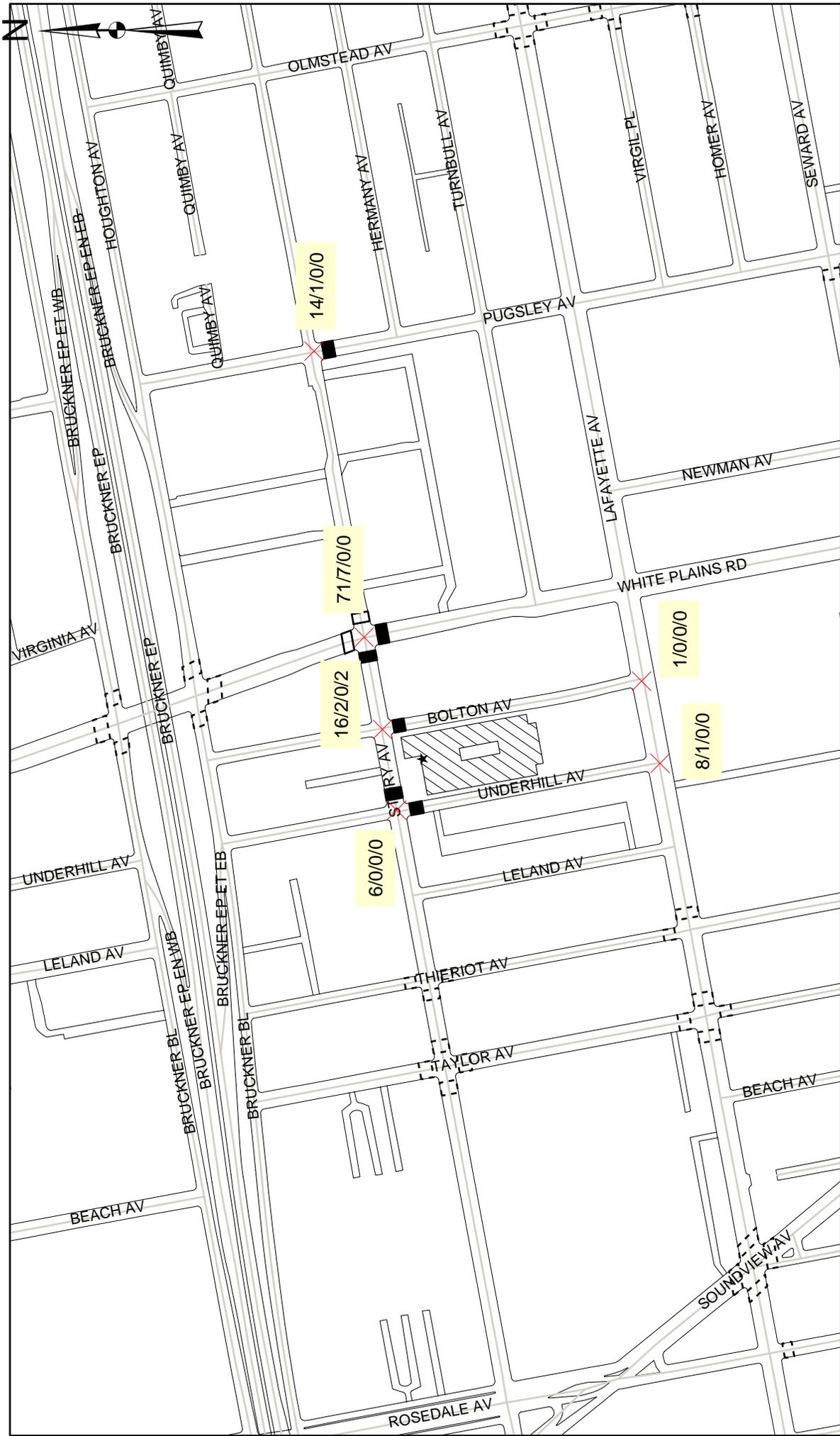


EXHIBIT 5
I.S. 131 BRONX
ALBERT EINSTEIN SCHOOL
ACCIDENT SUMMARY (1998-2000)

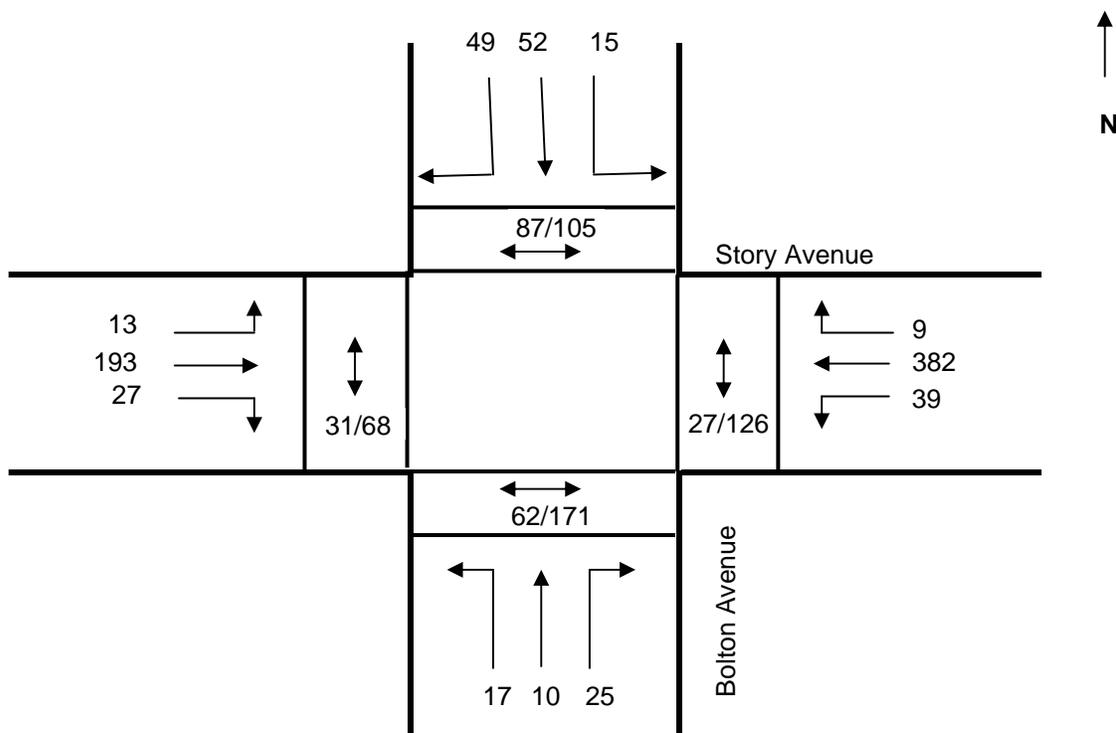
LEGEND:

- × ACCIDENT LOCATION
- █ SCHOOL CROSSWALK
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL

TOTAL ACCD	PED ACCD	PED FATAL	SCHOOL_PED ACCD	SCHOOL_PED FATAL
X/X	X	X	X	X

0 250 500 1,000 Feet

One Hour Traffic Volumes
Tuesday, Feb 08, 2006 7:30 am - 8:30 am

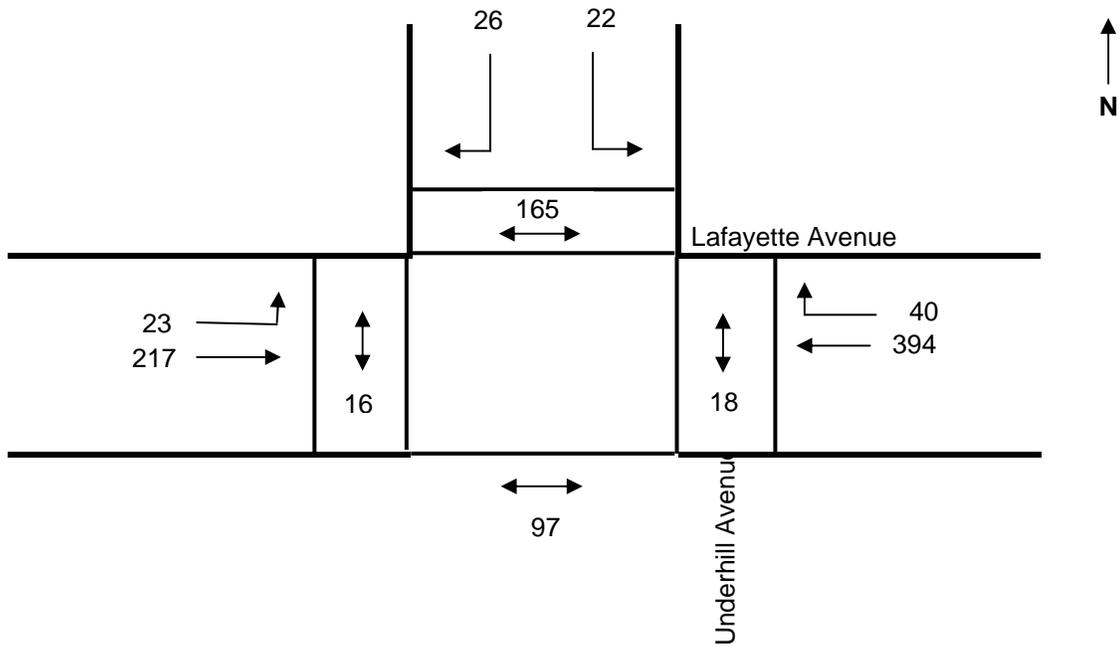


Intersection of Story Avenue and Bolton Avenue

Legend	
XX / XX	(Adult / Child)
←→	Pedestrian Counts
—↑	Vehicle Movement

EXHIBIT 6A
I.S. 131 BRONX
ALBERT EINSTEIN SCHOOL
TRAFFIC AND PEDESTRIAN COUNTS

One Hour Traffic Volumes
Tuesday, June 14th, 2005 7:30am - 8:30am

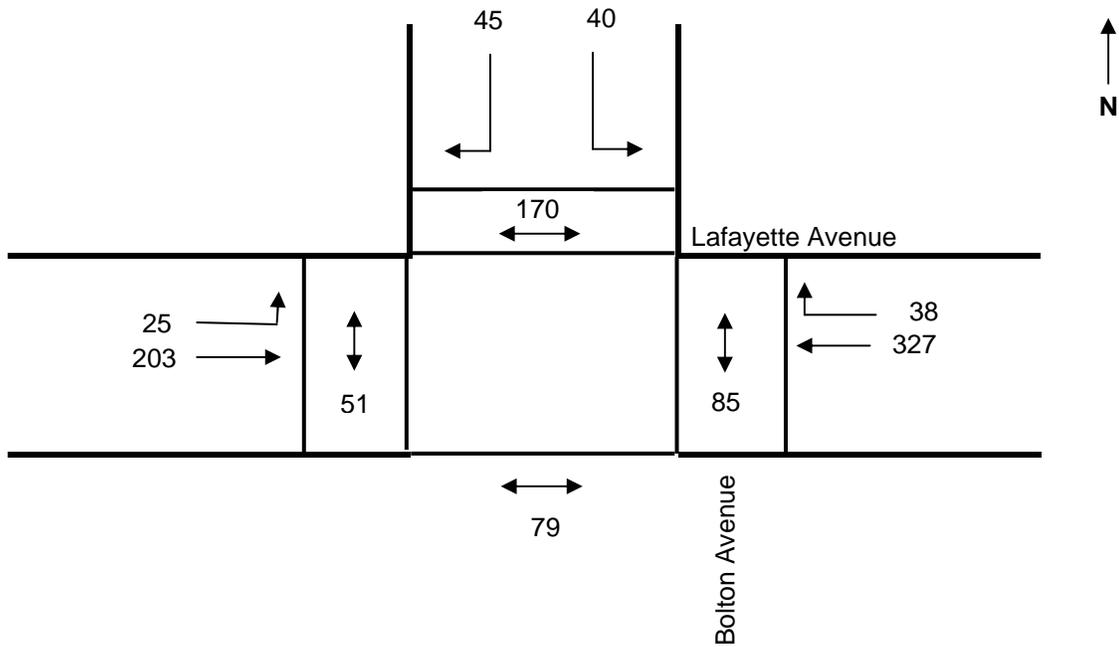


Intersection of Lafayette Avenue and Underhill Avenue

Table of Content:	
←→	Pedestrian Counts
—↑	Vehicle Movement

EXHIBIT 6B
I.S. 131 BRONX ALBERT EINSTEIN SCHOOL
TRAFFIC AND PEDESTRIAN COUNTS

One Hour Traffic Volumes
Wednesday, June 15th, 2005 7:30am - 8:30am



Intersection of Lafayette Avenue and Bolton Avenue

Table of Content:	
←→	Pedestrian Counts
—↑	Vehicle Movement

EXHIBIT 6C
I.S. 131 BRONX ALBERT EINSTEIN SCHOOL
TRAFFIC AND PEDESTRIAN COUNTS

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around I.S. 131. 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. 131 is discussed as follows, and is shown in more detail in Exhibit 7 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 thirty feet (30’) in front of the school at the main entrance of the school.

➤ Place advanced stop bar before school crosswalk

The MUTCD and New York City DOT standard for placement of a stop bar is four feet (4’) 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 (10’) 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 feet (10’) advanced stop bars before school crosswalks are recommended on the following approaches of signalized intersections surrounding I.S. 131:

- The westbound and northbound approaches at the intersection Story Avenue and Underhill Avenue
- The northbound, southbound, and eastbound approaches at the intersection of White Plains Road and Story Avenue
- The eastbound and westbound approaches at the intersection of Lafayette Avenue and Bolton Avenue
- The eastbound and westbound approaches at the intersection of Story Avenue and Bolton Avenue

➤ School crosswalk at the intersection of Lafayette Avenue & Underhill Avenue

The existing pedestrian crosswalk across Underhill Avenue on the north side of Lafayette Avenue should be converted to a school crosswalk. Students are crossing at this location at the present time, and the school is located on the east side of Underhill Avenue. In addition, the school response to the questionnaire listed the need to install a school crosswalk at this location.

The following is therefore recommended:

- Convert the existing pedestrian crosswalk on Underhill Avenue on the north side of Lafayette Avenue to a school crosswalk and install all appropriate advance-warning devices.

➤ School crosswalk at the intersection of Lafayette Avenue & Bolton Avenue

The existing pedestrian crosswalk across Bolton Avenue on the north side of Lafayette Avenue should be converted to a school crosswalk. Students are crossing at this location at the present time, and the school is located on the west side of Bolton Avenue. In addition, the school response to the questionnaire listed the need to install a school crosswalk at this location.

The following is therefore recommended:

- Convert the existing pedestrian crosswalk on Bolton Avenue on the north side of Lafayette Avenue to a school crosswalk and install all appropriate advance-warning devices.

➤ Relocate Pedestrian Ramp

The pedestrian ramp on the northwest corner, of Bolton Avenue at Lafayette Avenue for the crosswalk located across the north leg of Bolton Avenue is misaligned.

The same corner has a utility pole obstructing the path for this same crosswalk (see Figure 9).

The following is therefore recommended:

- The pedestrian ramp be re-installed on the northwest corner of Bolton Avenue at Lafayette Avenue for the crosswalk located across the north leg of Bolton Avenue
- Relocate the utility pole situated on the northwest corner of Bolton Avenue & Lafayette Avenue out of the paths for the crosswalks.

➤ Consider Traffic Signal at the intersection of Story Avenue and Bolton Avenue

There is a pedestrian crosswalk located across the south leg of Bolton Avenue at Story Avenue, but no crosswalks located across Story Avenue. I.S. 131 students were observed crossing Story Avenue at Bolton Avenue. Therefore, it is recommended to provide a school crosswalk at the east and west legs of the intersection. In order to provide a school crosswalk, a preliminary traffic signal warrant assessment was performed to identify the traffic situation and determine what type of traffic control devices would be appropriate. The traffic data collected to assess a need of a traffic signal included pedestrian and vehicle counts and a pedestrian gap study. The results of the preliminary assessment based on traffic signal warrants 4 (pedestrian volumes) and 5 (school crossing) of the Federal MUTCD indicated the installation of a traffic signal might be warranted. The results of the warrant analysis are shown in Tables 4, 5, 6, and 7 and in Exhibit 6A. The intersection seems to meet the warrant for a signal, and we therefore recommend the following:

- Consider a traffic signal installation for the intersection of Story Avenue & Bolton Avenue; and
- Provide school crosswalks at the east and west legs and pedestrian crosswalk at the north leg of the intersection.

Additional in-depth studies may be needed, however, to confirm the need for a traffic signal at this intersection.

➤ Consider Traffic Signal at the intersection of Lafayette Avenue and Bolton Avenue

There is a pedestrian crosswalk located across the north leg of Bolton Avenue at Lafayette Avenue, but no crosswalks located across Lafayette Avenue. I.S. 131 students were observed crossing Lafayette Avenue at Bolton Avenue. Therefore it is recommended to provide a school crosswalk at the west leg of the intersection. In order to provide a school crosswalk, a preliminary traffic signal warrant assessment was performed to identify the traffic situation and determine what type of traffic control devices would be appropriate. The traffic data collected to assess a need of a traffic signal included pedestrian and vehicle counts and a pedestrian gap study. The results of the preliminary assessment based on traffic signal warrants 4 (pedestrian volumes) and 5 (school crossing) of the Federal MUTCD indicated the installation of a traffic signal might be warranted. The results of the warrant analysis are shown in Tables 12, 13, 14, and 15 and in Exhibit 6C. The intersection seems to meet the warrant for a signal, and we therefore recommend the following:

- Consider a traffic signal installation for the intersection of Lafayette Avenue & Bolton Avenue; and
- Provide school crosswalks at the east and west legs of the intersection.

Additional in-depth studies may be needed, however, to confirm the need for a traffic signal at this intersection.

➤ Consider speed reducer (hump) on Bolton Avenue between Lafayette Avenue and Story Avenue

The school principal reported a speeding problem on Bolton Avenue between Lafayette Avenue and Story Avenue. Based on the spot speed survey, the 85th percentile speed for southbound vehicles on Bolton Avenue was found to be 31 mph.

- It is therefore recommended to install a speed reducer (hump) on Bolton Avenue between Lafayette and Story Avenues.

4.2 LONG-TERM MEASURES

➤ Consider curb extension at the following intersection:

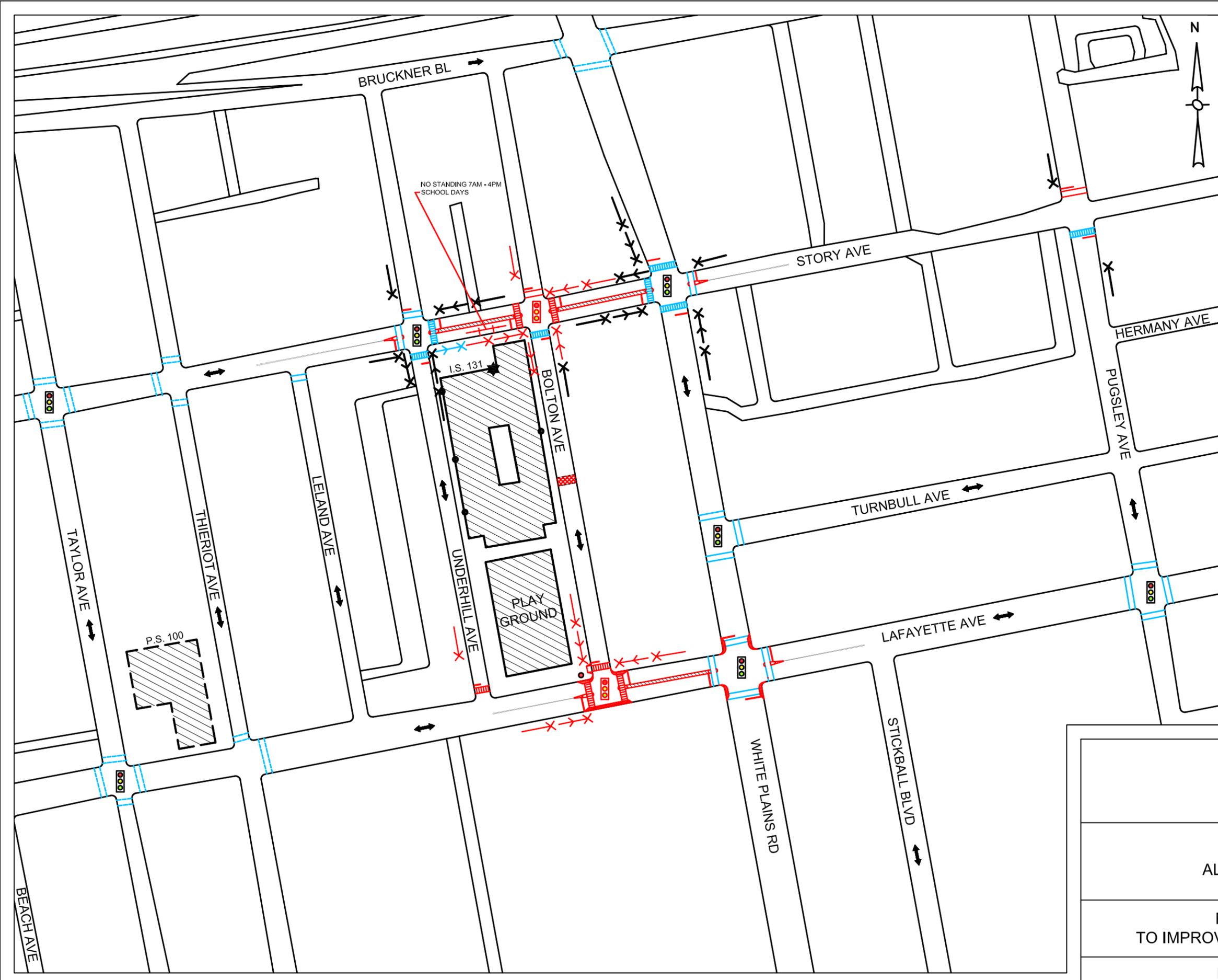
- Provide curb extensions at the northeast and northwest corners of Lafayette Avenue at its intersection with Bolton Avenue. In addition, consider extending the south sidewalk by six (6) feet in order to reduce the crossing distance.
- Provide curb extensions (neckdowns) at all four corners of White Plains Road and Lafayette Avenue intersection.

Curb extensions (neckdowns) should be installed at the corners as shown in Exhibit 7. The purpose of the curb extension is to provide additional reservoir space for pedestrian, to shorten the crossing distance for pedestrians, and to reduce the speed of vehicles approaching and turning on school crosswalks. The curb extension will not eliminate or reduce the width of any travel lanes. Curb extensions are not proposed where they would hinder the ability of a vehicle to turn.

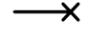
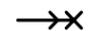
➤ Consider refuge islands and/or striped medians at the following locations as shown in Exhibit 7:

- Provide refuge islands at the east and west legs of Lafayette Avenue at its intersections with Bolton Avenue and White Plains Road in conjunction with a flush striped median between Bolton Avenue and White Plains Road.
- Provide refuge islands at the east and west legs of Story Avenue at its intersections with Bolton Avenue and White Plains Road in conjunction with a flush striped median between Bolton Avenue and White Plains Road.

The refuge islands with extended medians will provide a refuge for pedestrians who do not make the crossing in one cycle. The proposed median should be at least 5-foot wide, should extend beyond the crosswalk, and should have at least 5-feet 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 refuge islands, curb extensions, and striped medians will be developed during Final Design.



LEGEND

-  MAIN ENTRANCE
-  OTHER ENTRANCES
-  EXISTING TRAVEL DIRECTION
-  EXISTING ADVANCE WARNING SIGN
-  EXISTING SCHOOL CROSSWALK WARNING ASSEMBLY
-  EXISTING SIGNALIZED LOCATION
-  EXISTING SCHOOL CROSSWALK ASSOCIATED WITH ANOTHER SCHOOL
-  EXISTING SCHOOL CROSSWALK
-  EXISTING PEDESTRIAN CROSSWALK
-  PROPOSED PEDESTRIAN CROSSWALK
-  PROPOSED SIGNALIZED LOCATION
-  PROPOSED SCHOOL CROSSWALK
-  PROPOSED PEDESTRIAN RAMP
-  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
-  PROPOSED CURB EXTENSION (NECKDOWN)
-  PROPOSED "NO STANDING 7AM - 4PM SCHOOL DAYS"
-  POLE TO BE RELOCATED
-  PROPOSED MEDIAN
-  PROPOSED ADVANCE WARNING SIGN
-  PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
-  PROPOSED SPEED REDUCER (HUMP)

1" = 200'

EXHIBIT 7

I.S. 131 BRONX
ALBERT EINSTEIN SCHOOL

PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY

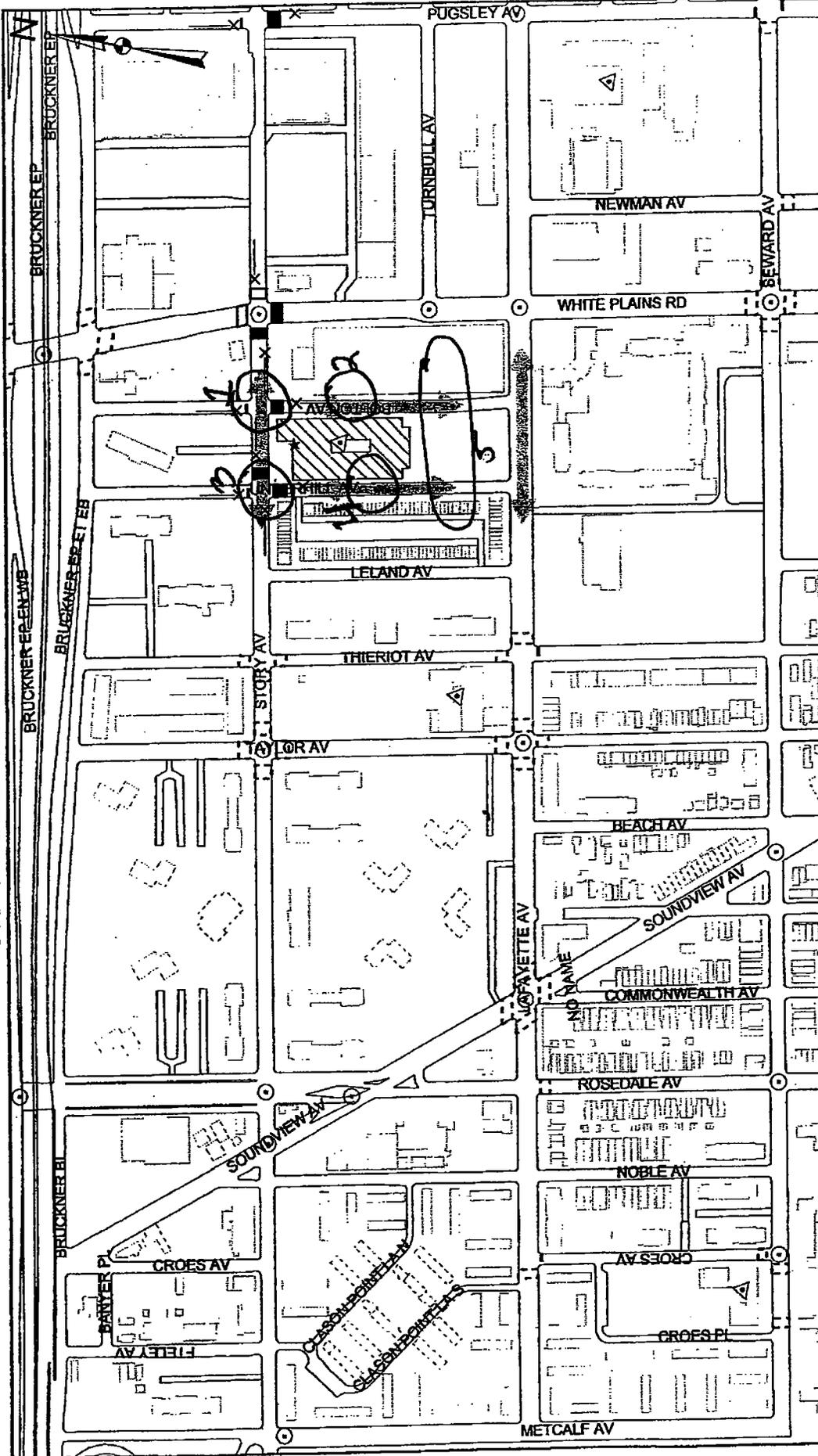
DATE: FEBRUARY, 2006

APPENDIX

NEW YORK CITY
DEPT. OF TRANSPORTATION

TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL

BUREAU OF TRAFFIC



ALBERT EINSTEIN SCHOOL

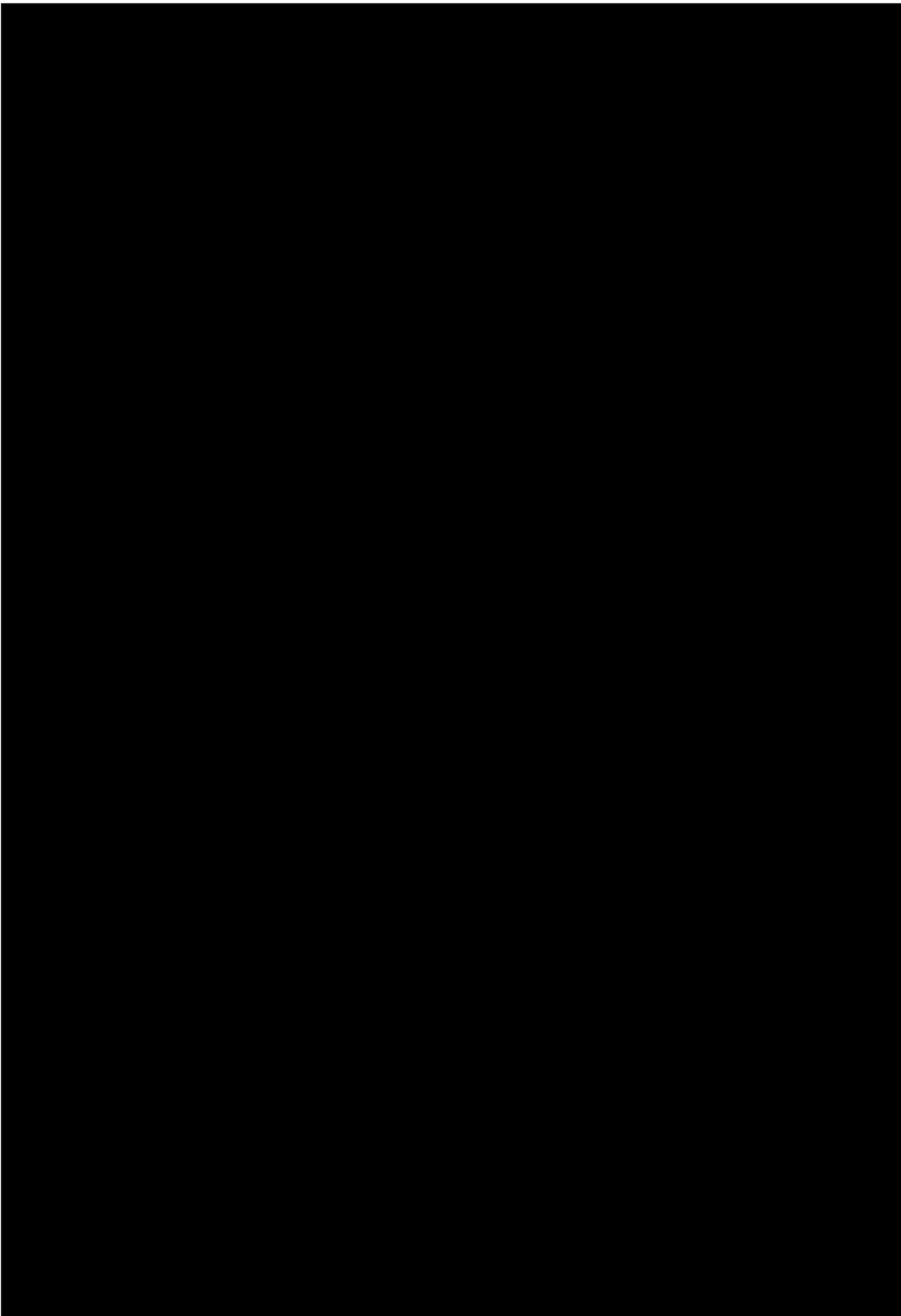
I.S. 131

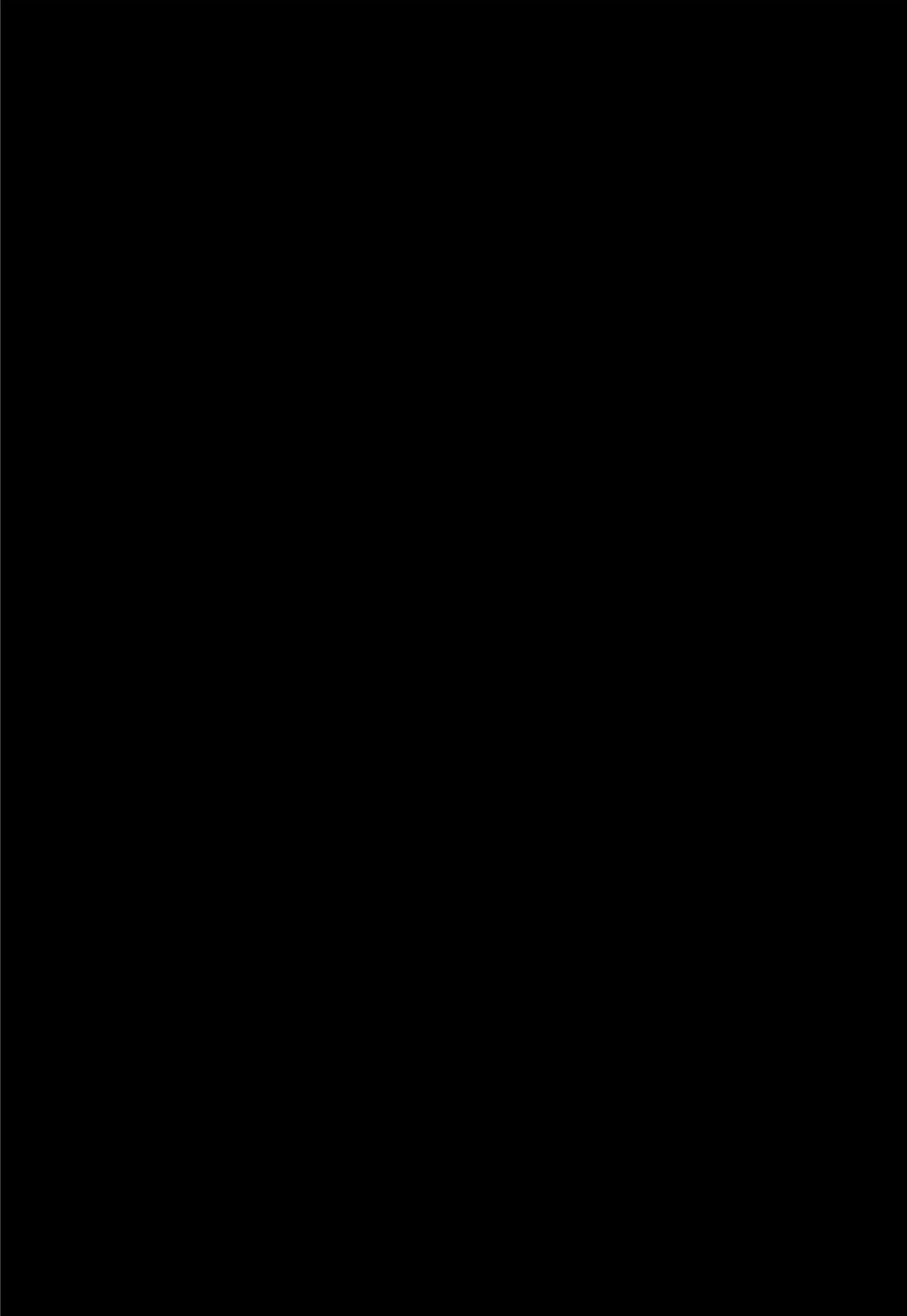
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION,
the Village of BRONX, in cooperation with SCHOOL, and
POLICE OFFICIALS.

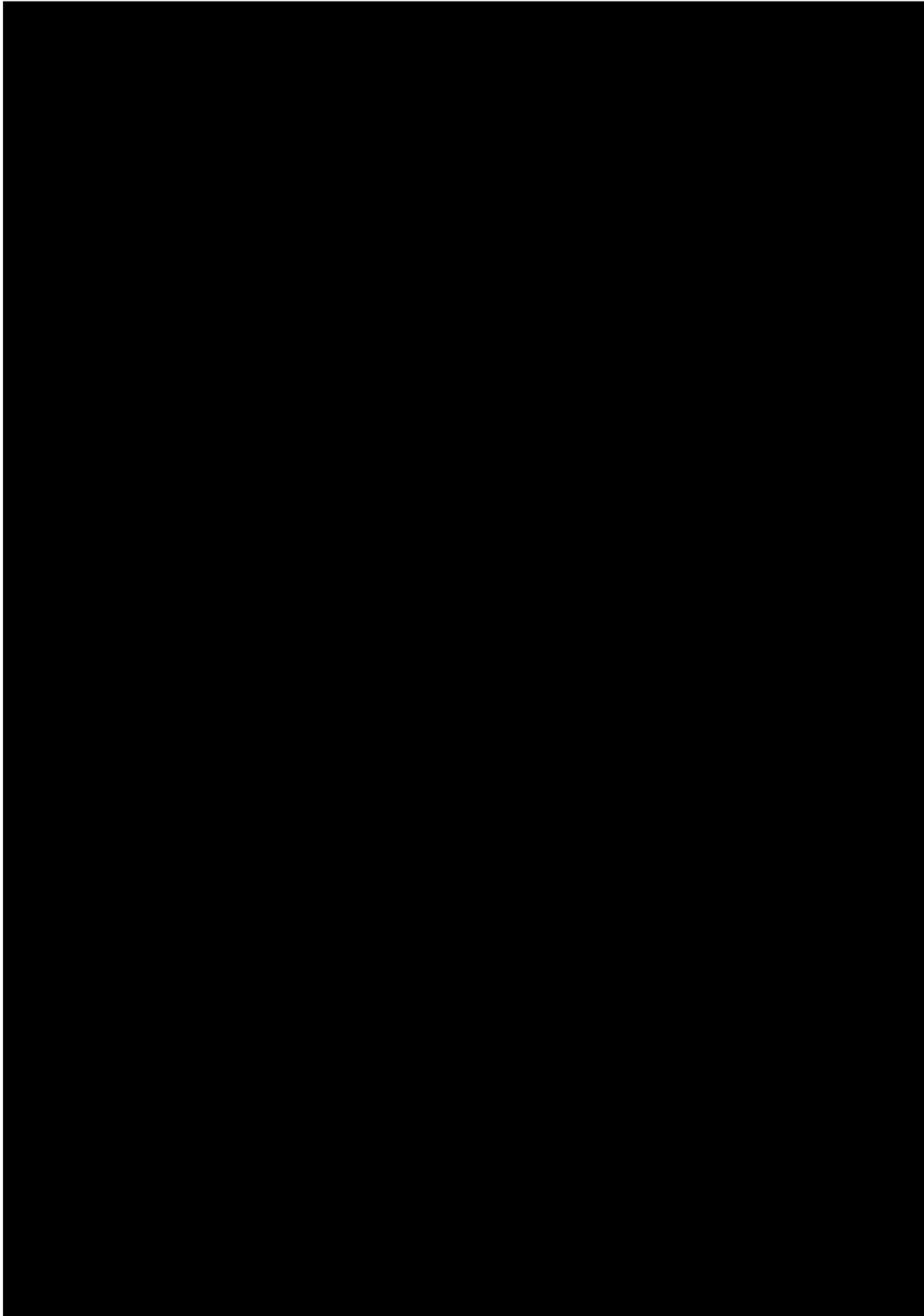
ORIG. DATE:	3/18/1987	COMM. BOARD:	9
GIS CONVRT:	04/7/2002	BOROUGH:	BRONX
REVISIONS:	1/28/2000	MS-4520	43

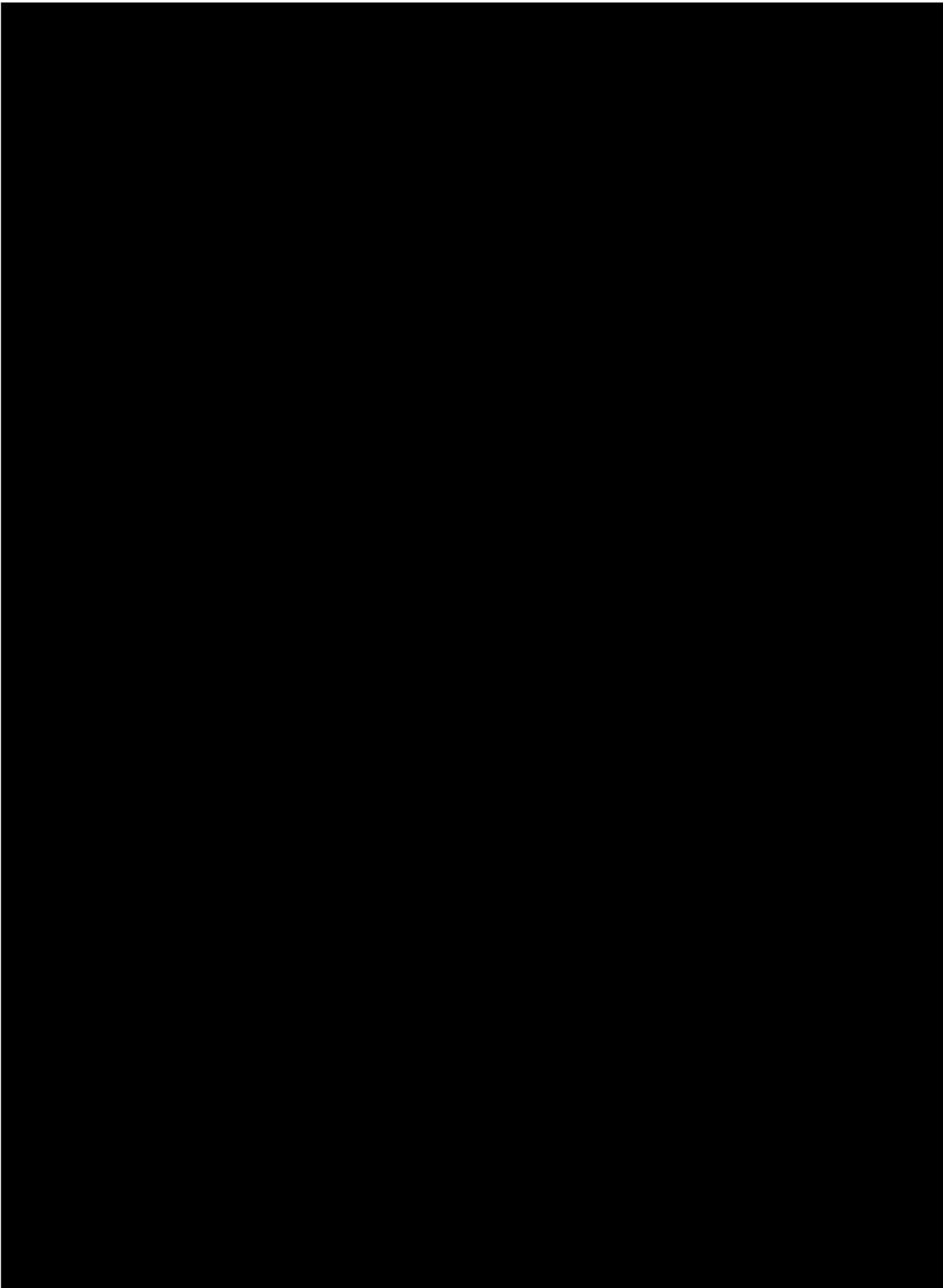
- LEGEND:**
- TRAFFIC FLOW
 - ROUTE TO SCHOOL
 - ADV. WARNING SIGN
 - SCHOOL LOCATION
 - MAIN SCHOOL ENTRANCE
 - OTHER SCHOOL ENTRANCES
 - SCHOOL X-WALK
 - PED. X-WALK
 - STOP LINE
 - X-WALKS ASSOCIATED WITH OTHER SCHOOLS
 - SPEED HUMP
 - TRAFFIC SIGNAL
 - ALL-WAY STOP
 - 2-WAY STOP

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.









SPOT SPEED STUDY

Date: **June 15, 2005**
 Location: **Bolton Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:15am**
 School: **I.S. 131**
 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	2	8.7%	8.7%	32	512
17	0	0.0%	8.7%	0	0
18	0	0.0%	8.7%	0	0
19	0	0.0%	8.7%	0	0
20	2	8.7%	17.4%	40	800
21	4	17.4%	34.8%	84	1764
22	3	13.0%	47.8%	66	1452
23	1	4.3%	52.2%	23	529
24	0	0.0%	52.2%	0	0
25	2	8.7%	60.9%	50	1250
26	2	8.7%	69.6%	52	1352
27	3	13.0%	82.6%	81	2187
28	0	0.0%	82.6%	0	0
29	0	0.0%	82.6%	0	0
30	4	17.4%	100.0%	120	3600
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
	23	100.0%		548	13446

Mean Speed = 23.8 mph
 Standard Deviation = 4.2 mph
 Margin of Error (95% Confidence) = ± 1.7 mph

Median Speed = 23.8 mph
 15th Percentile Speed = 19.5 mph
 85th Percentile Speed = 28.2 mph

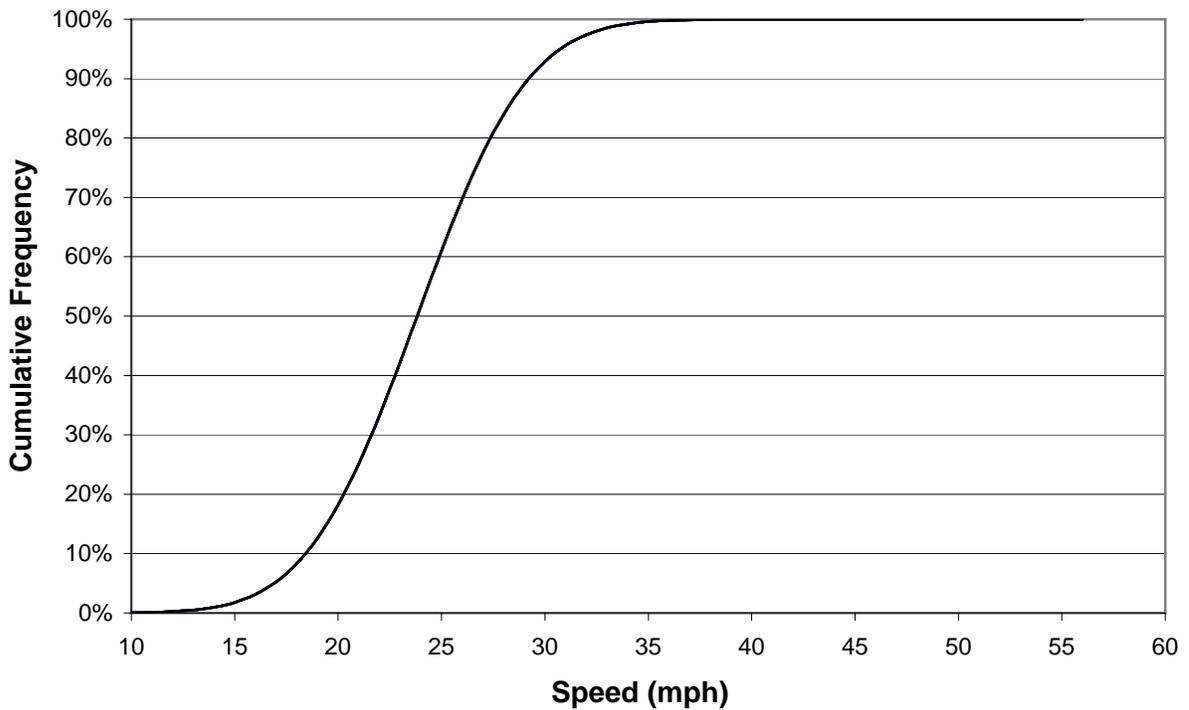
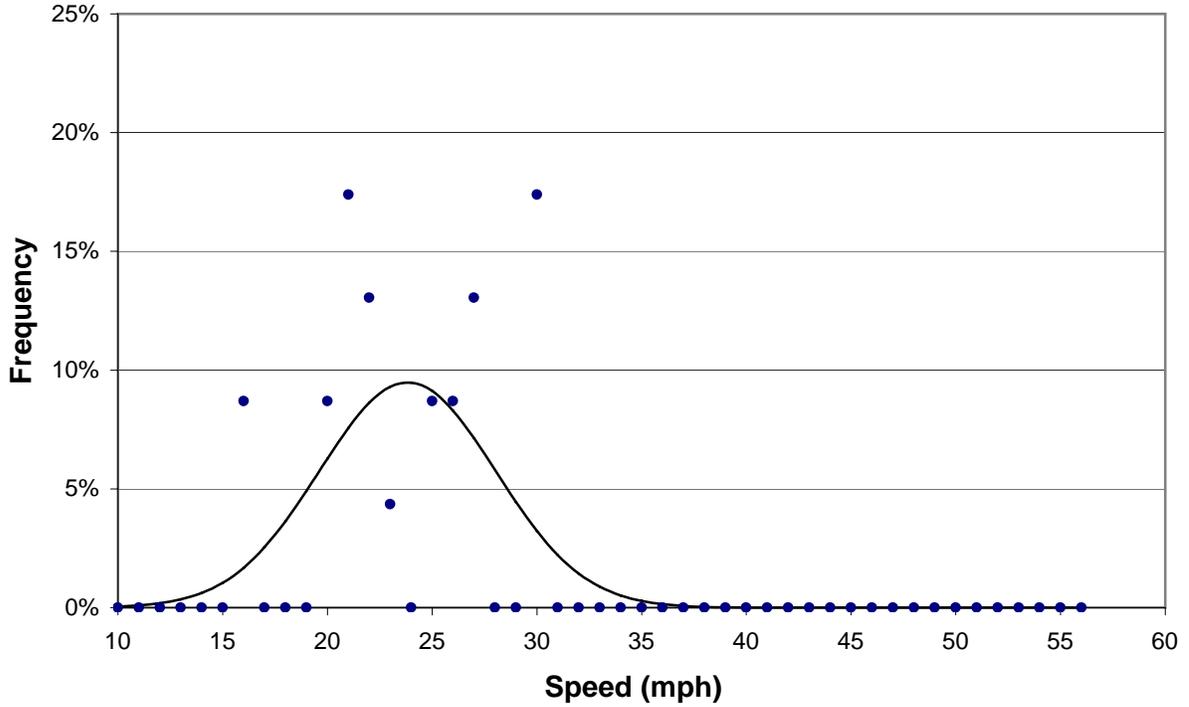
SPOT SPEED STUDY

Date: **June 15, 2005**
 Location: **Bolton Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:15am**
 School: **I.S. 131**
 Direction: **Northbound**
 Comments:

Mean Speed = 23.8 mph
 Standard Deviation = 4.2 mph
 Margin of Error (95% Confidence) = ± 1.7 mph

Median Speed = 23.8 mph
 15th Percentile Speed = 19.5 mph
 85th Percentile Speed = 28.2 mph



SPOT SPEED STUDY

Date: **June 15, 2005** Time: **10:15am**
 Location: **Bolton Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 131**
 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	1	2.5%	2.5%	18	324
19	0	0.0%	2.5%	0	0
20	0	0.0%	2.5%	0	0
21	2	5.0%	7.5%	42	882
22	3	7.5%	15.0%	66	1452
23	5	12.5%	27.5%	115	2645
24	5	12.5%	40.0%	120	2880
25	3	7.5%	47.5%	75	1875
26	2	5.0%	52.5%	52	1352
27	3	7.5%	60.0%	81	2187
28	8	20.0%	80.0%	224	6272
29	0	0.0%	80.0%	0	0
30	1	2.5%	82.5%	30	900
31	0	0.0%	82.5%	0	0
32	3	7.5%	90.0%	96	3072
33	1	2.5%	92.5%	33	1089
34	0	0.0%	92.5%	0	0
35	3	7.5%	100.0%	105	3675
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	40	100.0%		1057	28605

Mean Speed = 26.4 mph
 Standard Deviation = 4.2 mph
 Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.4 mph
 15th Percentile Speed = 22.1 mph
 85th Percentile Speed = 30.7 mph

SPOT SPEED STUDY

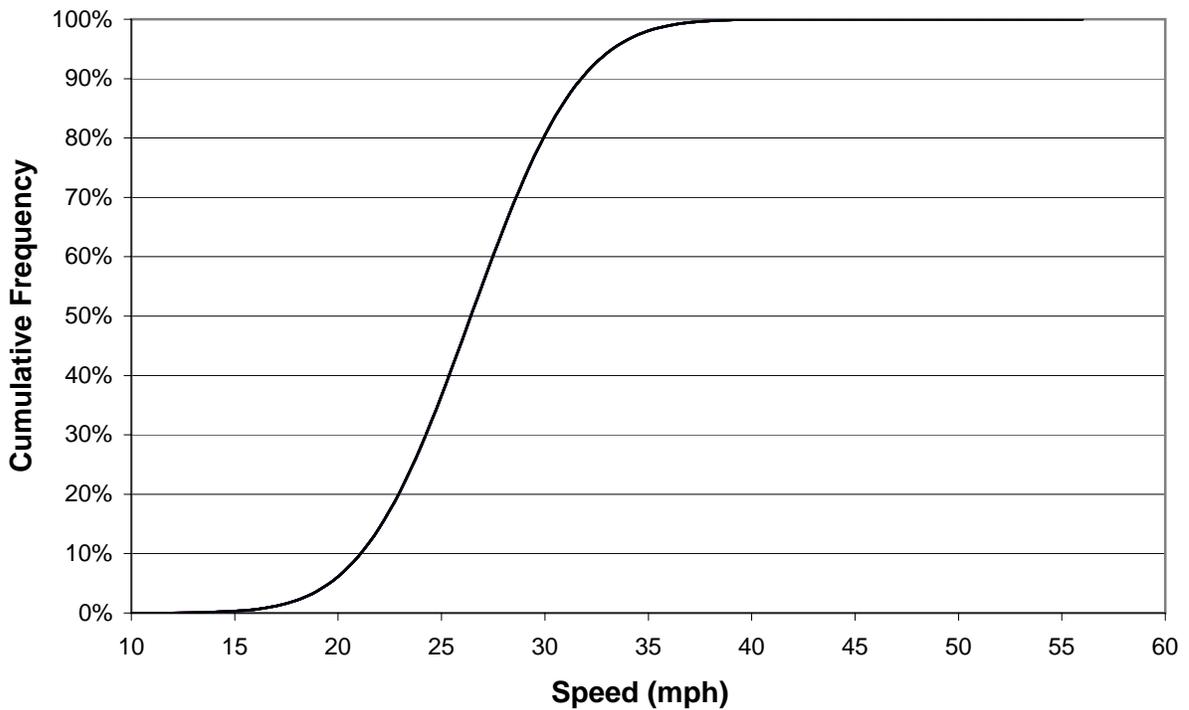
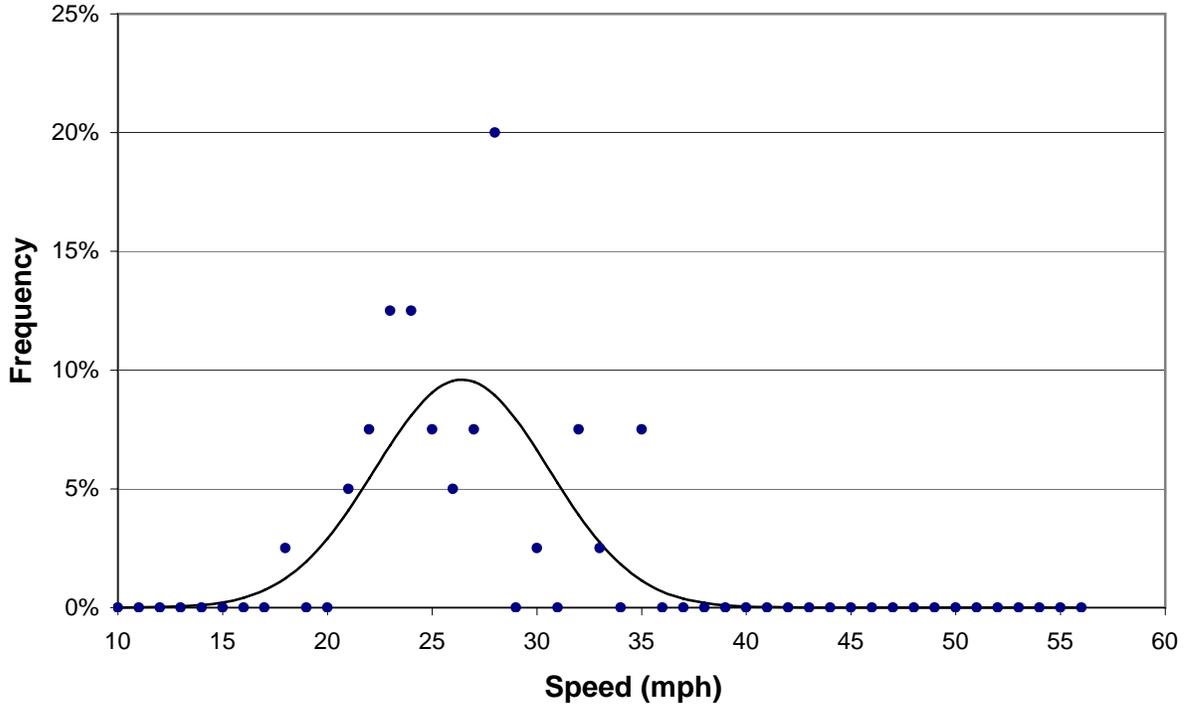
Date: **June 15, 2005**
 Location: **Bolton Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:15am**

School: **I.S. 131**
 Direction: **Southbound**
 Comments:

Mean Speed = 26.4 mph
 Standard Deviation = 4.2 mph
 Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.4 mph
 15th Percentile Speed = 22.1 mph
 85th Percentile Speed = 30.7 mph



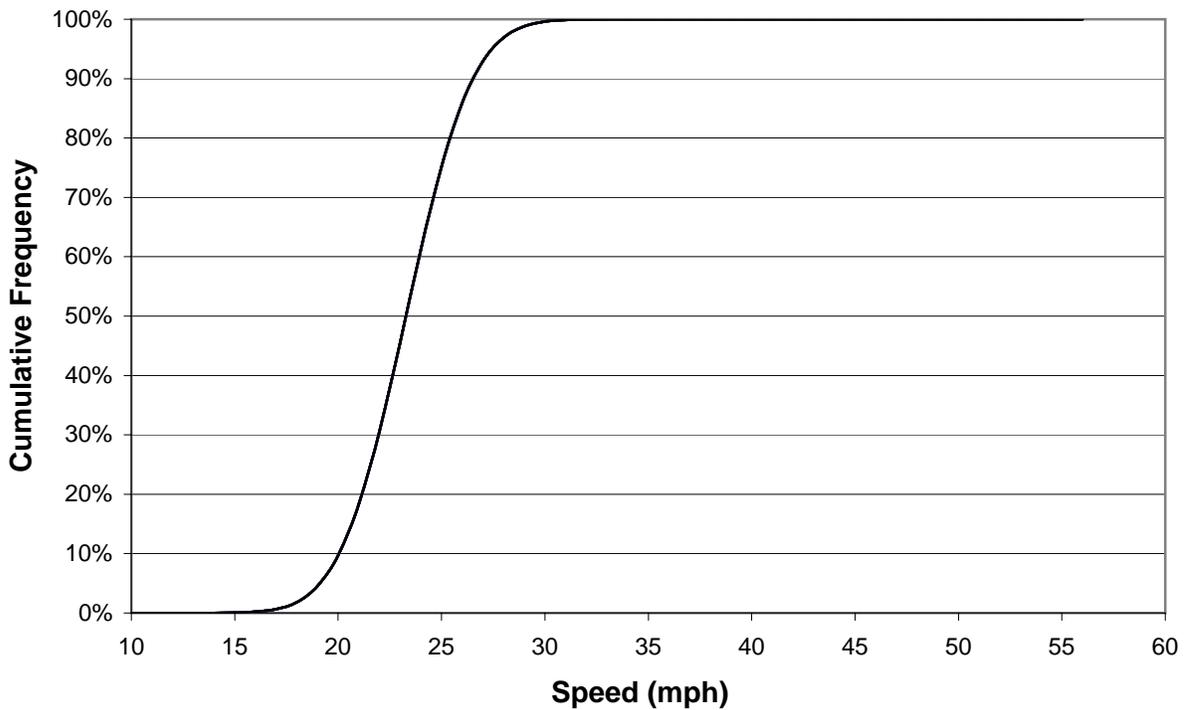
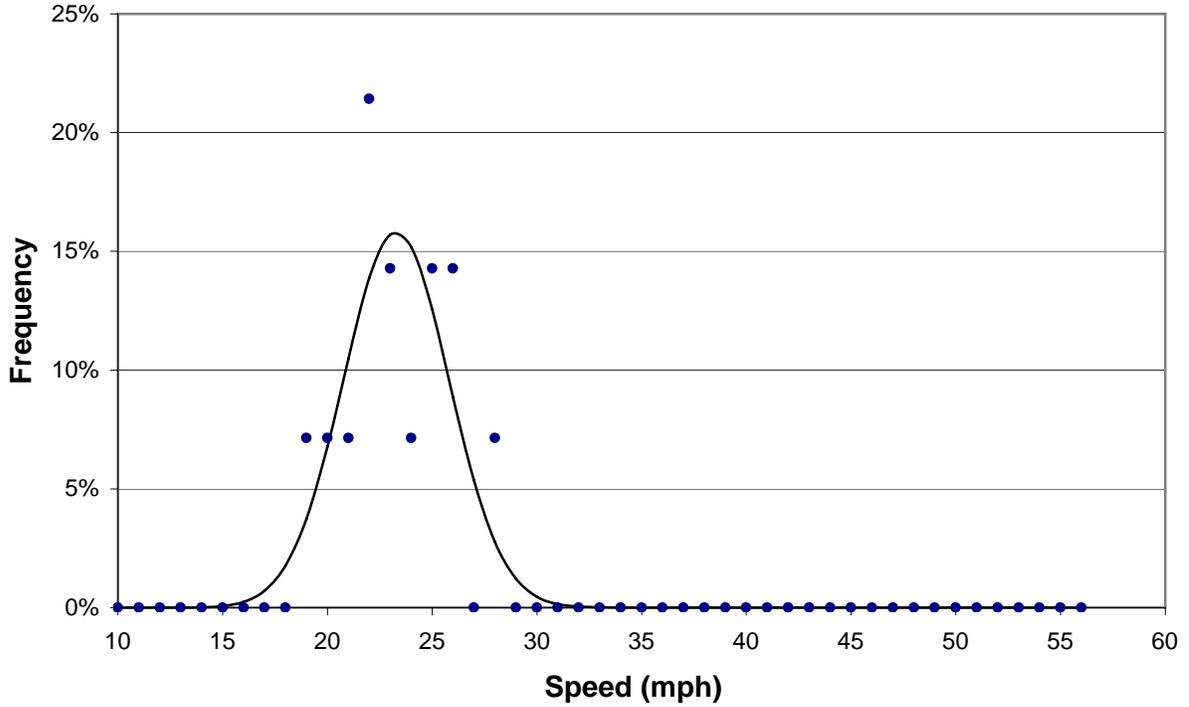
SPOT SPEED STUDY

Date: **6-15-05** Time: **11:30am**
 Location: **Underhill Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 131**
 Direction: **Northbound**
 Comments:

Mean Speed = 23.3 mph
 Standard Deviation = 2.5 mph
 Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 23.3 mph
 15th Percentile Speed = 20.7 mph
 85th Percentile Speed = 25.9 mph

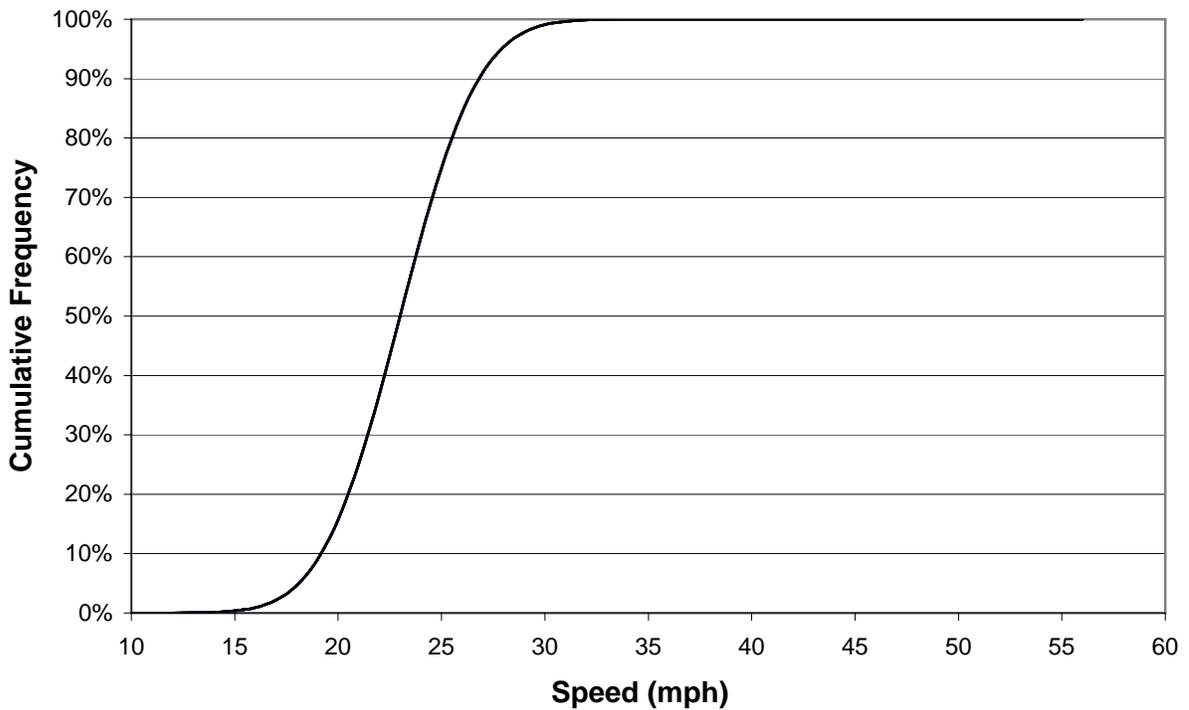
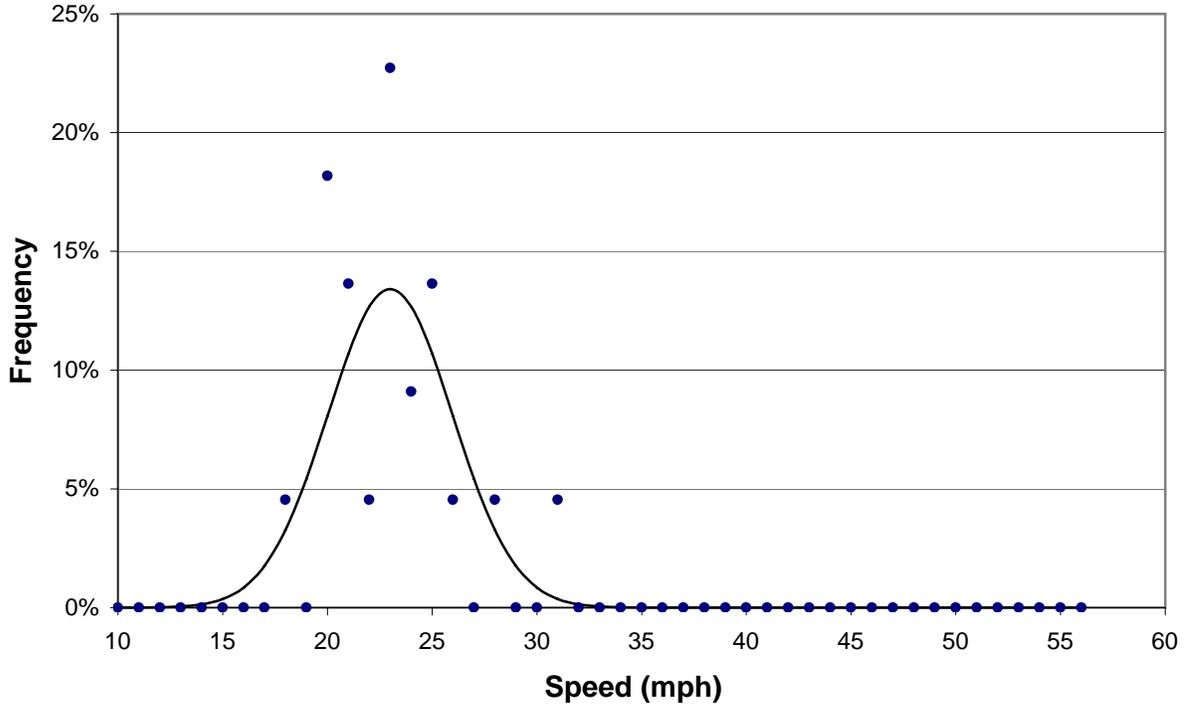


SPOT SPEED STUDY

Date: **6-15-05** Time: **10:15am**
 Location: **Underhill Avenue between Lafayette Avenue & Story Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 131**
 Direction: **Southbound**
 Comments:

Mean Speed = 23.0 mph Median Speed = 23.0 mph
 Standard Deviation = 3.0 mph 15th Percentile Speed = 19.9 mph
 Margin of Error (95% Confidence) = ± 1.2 mph 85th Percentile Speed = 26.1 mph



GAP STUDY FIELD SHEET

Date: June 14, 2005

Location: LAFAYETTE AVE & BOLTON AVE

Gap Information:

Crossing Distance	<u>70</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	sec/ft
Minimum Acceptable Gap	<u>26</u>	sec

Gap Survey:

Time:	From: <u>845 AM</u>	To: <u>945 AM</u>	
Gap (sec)	Tally		Total
10			
11			
12			2
13			
14			
15			2
16			
17			1
18			
19			3
20			
21			1
22			
23			1
24			2
25			
26			
27			
28			3
29			1
30			
31			2
32			1
33			3
34			
35			1
36			1
37			3
38			2
39			1
40			
41			2
42			
43			1
44			
45			2
<i>DISCARD GAPS LESS THAN 26 SEC</i>			<u>Total - 23</u>

GAP STUDY FIELD SHEET

Date: June 14, 2005

Location: LAFAYETTE AVE & UNDERHILL AVE

Gap Information:

Crossing Distance	<u>70</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	sec/ft
Minimum Acceptable Gap	<u>26</u>	sec

Gap Survey:

Time:	From: <u>7:45 AM</u>	To: <u>8:45 AM</u>	
Gap (sec)	Tally		Total
10			
11			
12			1
13			1
14			
15			2
16			
17			1
18			1
19			
20			3
21			
22			1
23			
24			3
25			
26			
27			3
28			3
29			1
30			2
31			2
32			3
33			1
34			3
35			1
36			2
37			2
38			
39			1
40			2
41			
42			
43			2
44			
45			
<i>Total</i>			<u>28</u>

DISCARD GAPS LESS THAN 26 SEC

GAP STUDY FIELD SHEET

Date: 1-8-06

Location: BX-STORY AVE / BOLTON AVE

Gap Information:

Crossing Distance	<u>50</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	sec/ft
Minimum Acceptable Gap	<u>20</u>	sec

Gap Survey:

Time:	From: <u>7:45 AM</u>	To: <u>8:45 AM</u>	
Gap (sec)	Tally		Total
10	1		6
11			1
12			3
13			2
14			
15			3
16			4
17			1
18			1
19			
20			2
21			1
22			4
23			1
24			2
25			
26			2
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			<u>Total - 12</u>

DISCARD GAPS LESS THAN 20 SEC