

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



School Safety Engineering Project

FINAL REPORT: J.H.S. 22 (Jordan L. Mott Junior High School), Bronx



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



July 10, 2006

**School Safety Engineering Project
Final Report: J.H.S. 22, Bronx**

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation (DOT) has developed school safety maps for 1,471 schools throughout the City. Schools currently in the program are primarily elementary and intermediate schools with an enrollment of at least 250 students. The safety plans include the designation of official school crosswalks, identified by prominent warning signs and roadway markings. DOT also designates curbside locations for school bus loading and unloading and other parking controls to improve conditions for students. In addition, nearly 350 speed reducers (humps) have been installed in the immediate vicinity of schools.

Under this consultant study, the School Safety Engineering Project, crash data in the vicinity of all program schools was reviewed. As a result, schools were ranked in terms of pedestrian safety, and 135 “priority” schools were identified Citywide. At each of these priority schools, safety improvements are being recommended (e.g., new school crosswalks, new traffic signals and signal timing modifications, new speed reducers). In addition, 32 of these schools will receive further investigation to design physical improvements (e.g., raised center medians, widened sidewalks, “neckdowns” or “bulbouts” at intersections). J.H.S. 22 (Jordan L. Mott 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. J.H.S. 22 is bounded by a local park and East 166th Street to the south, Morris Avenue to the west, College Avenue to the east, and East 167th Street to the north. The area surrounding the school is generally residential and high density in character. East 167th Street is a commercial street combined with residential uses and it carries significant traffic volumes.



Figure 1: Looking west along East 167th Street at Morris Avenue

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Staff from the consultant team, the Principal, the Assistant Principal from J.H.S. 22, and the administrator assistant of Community Board 4 met at the school on the morning of Friday, June 11, 2004. According to the school representatives, the problems facing J.H.S. 22 student pedestrians are the following:

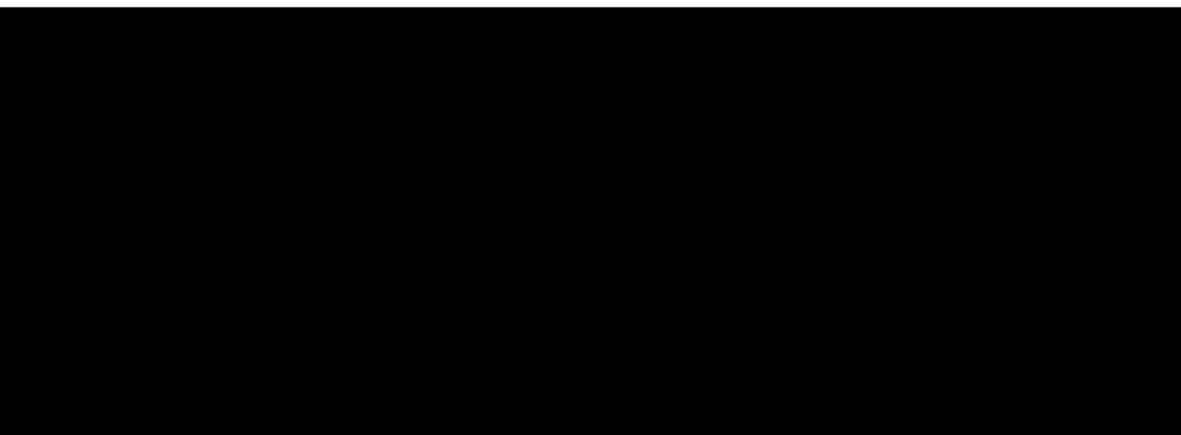
- Need of a crossing guard at the intersection of East 167th Street and College Avenue.

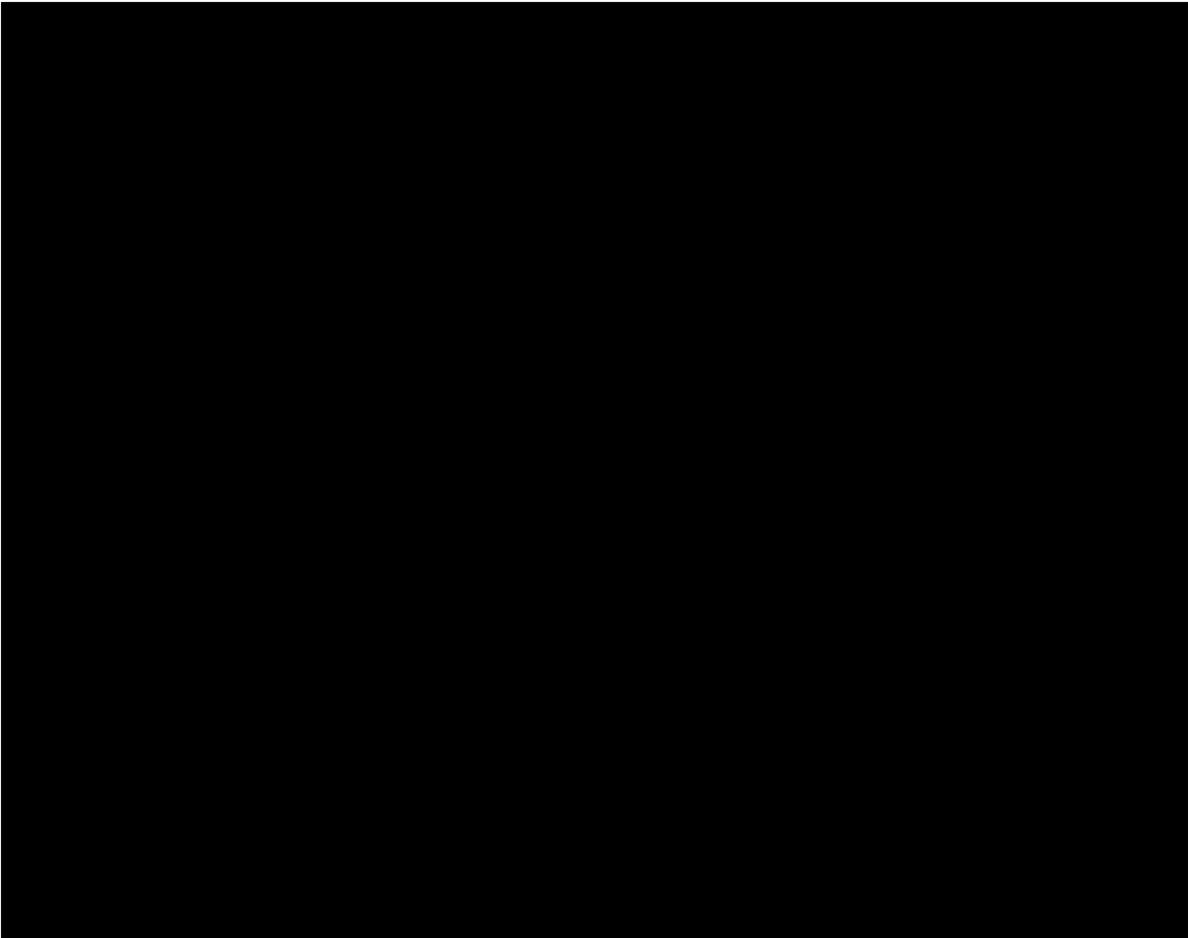
- Students frequently cross East 167th Street at College Avenue to reach stores located across the street (which the school representatives see as a high potential for accidents).
- Limited sight distance on East 167th Street eastbound approaching Morris Avenue.
- Main entrance is very crowded during dismissal time.
- Local livery cabs are speeding on East 167th Street between Morris and Webster Avenues.
- Not enough parking for faculty and staff members (about 50 staff members drive to school). School staff must leave the classrooms during school hours to relocate their cars due to alternate side parking regulations.

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



Figure 2: Looking west, Students crossing mid-block on East 167th Street near College Avenue





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 J.H.S. 22.

The school’s catchment area, verified by the school representatives, is roughly outlined by East 168th Street on the north; East 161st Street on the south; Grand Concourse on the west, and Washington Avenue on the east.

Table 1 presents the mode of travel for J.H.S. 22 as identified by school representatives.

TABLE 1: MODE OF TRAVEL	STUDENTS (Percentage)
Walk	80%
Driven by car	5%
School bus	5%
MTA Bus/Subway	10%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

East 167th Street has various commercial activities that attract students from the school. A Deli located on East 167th Street and College Avenue, a supermarket on East 167th Street between Morris and Grant Avenues, and a restaurant at the south corner of East 167th Street and Morris Avenue generate pedestrian and vehicular traffic, including students from J.H.S 22. A local park located south of the school is an additional attraction for the students.

2.8 CROSSING GUARD LOCATIONS

According to school representatives and field observations, there are no crossing guards assigned to J.H.S. 22.

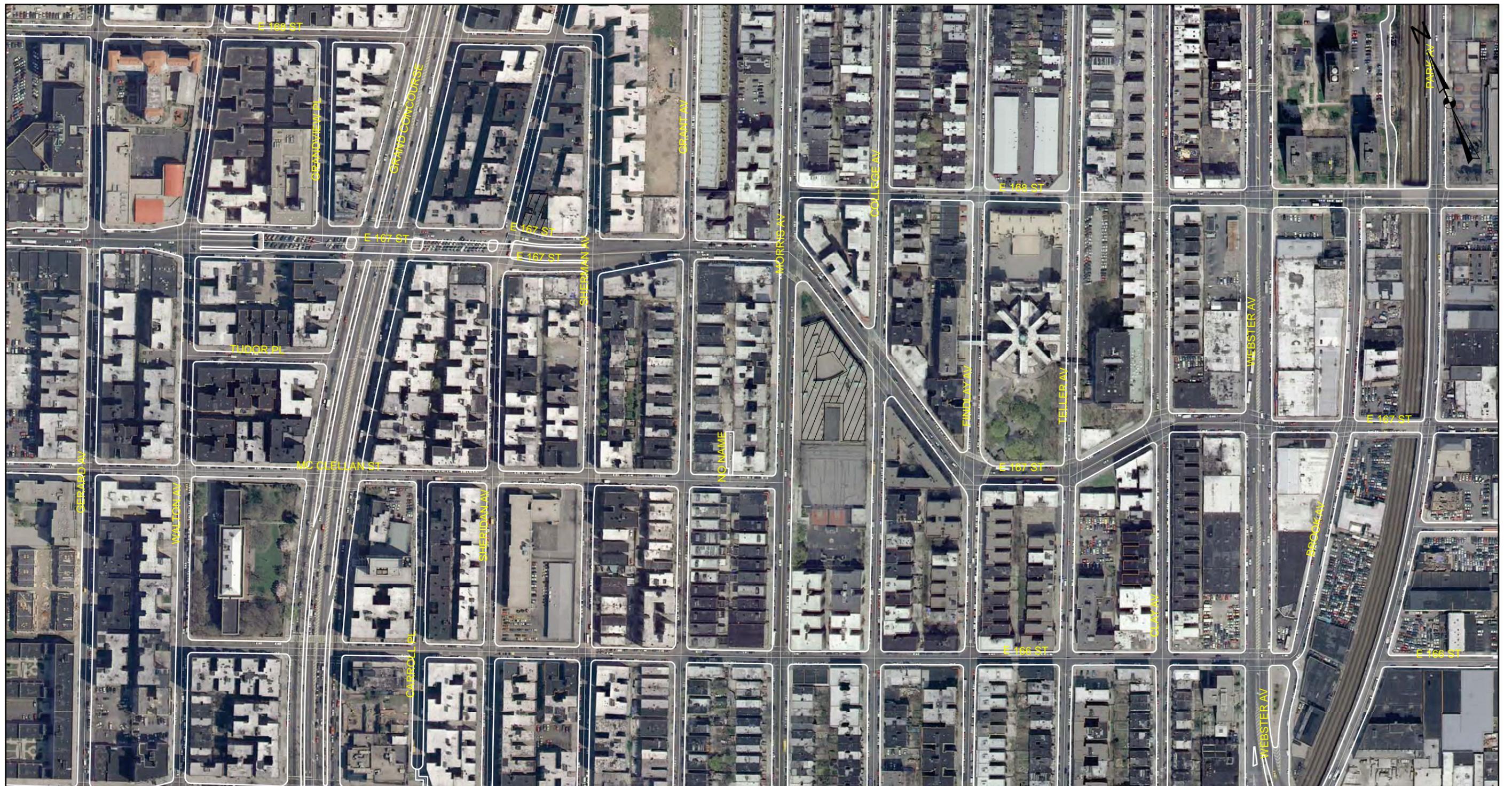
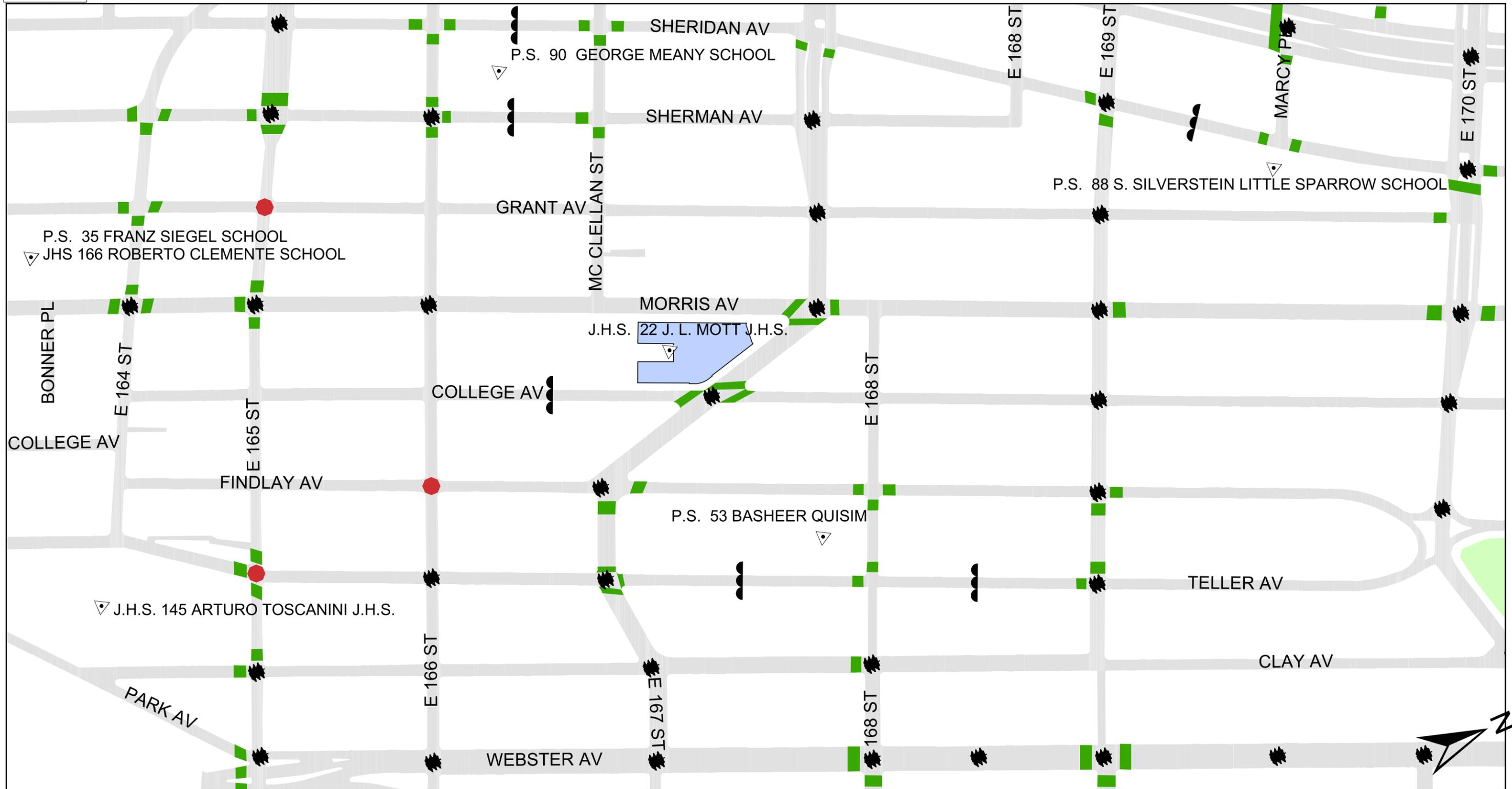


EXHIBIT 1
J.H.S 22 BRONX
JORDAN L. MOTT JUNIOR HIGH SCHOOL
AERIAL PHOTOGRAPH



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 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

JHS 22 Bronx
J. L. MOTT J.H.S.

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

EXHIBIT 3

Map created on 11/16/2006

1.5.1

COMM. BOARD: 204
PRECINCT: 44

8

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, there are approximately 80 students who ride an MTA bus to school, and approximately 45 who ride a yellow school bus to school. Bus transportation for the students consists of two Special Education buses. The Yellow buses stop at College Avenue (in front of the school) and the MTA bus (Bx35) stops on East 167th Street at College Avenue and at Morris Avenue.



Figure 4: Looking north on Morris Avenue at Yellow buses

3.2 PARENT DROP-OFF OPERATIONS

According to school representatives, 5% of the students are being dropped-off. Parents typically double-park vehicles near the school entrances on College Avenue and on Morris Avenue while dropping-off students in the morning or awaiting student dismissal in the afternoon. This effectively blocks the southbound lane of Morris Avenue and impedes northbound College Avenue traffic. Field observations made on June 11, 2004 indicated that double parking and U-turns occur during morning drop-off operations in the vicinity of the school's main entrance.



Figure 5: Looking north on Morris Avenue at note double-parking by parents (school is on the right)

3.3 PARKING REGULATIONS

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

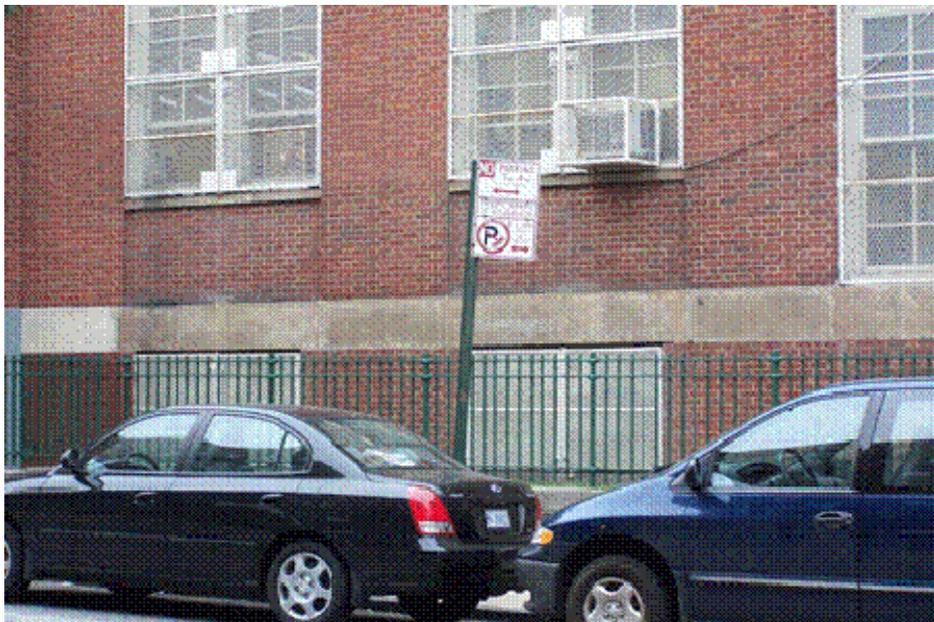


Figure 6: Parking regulation on Morris Avenue



Figure 7: Parking regulation on College Avenue

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

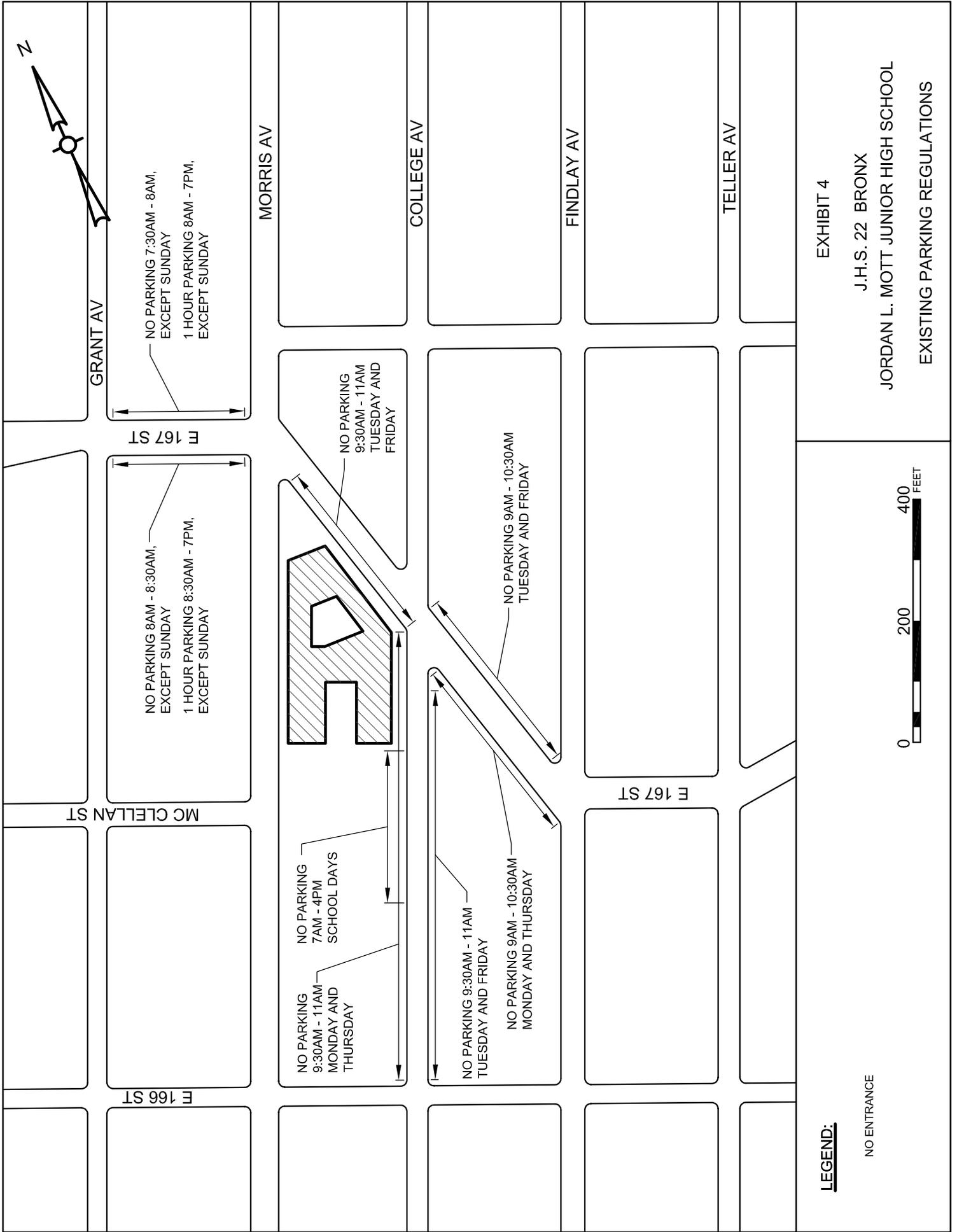
Exhibit 3, at the end of Section 2, shows the existing school signs, signals, and pavement markings around J.H.S. 22. It should be noted that a citywide signage program is currently underway to upgrade school signage to the current edition of the Federal Manual of Uniform Traffic Control Devices (MUTCD) 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 8: Looking south along Morris Avenue across East 167th Street



Figure 9: Looking north along Morris Avenue at McClellan Street, note no crosswalks (school is to the 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 J.H.S. 22 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of the accident. Table 3 is a summary of more recent accident data obtained from the NYC Police Department (NYPD). Though current through 2004, the NYPD data does not provide the same level of detail as the DMV data.

This report targets intersections closest to the school where the highest concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data was not available at the time of this study will be addressed with the ongoing work of DOT's School Safety Engineering Program. DMV Accident data is discussed in Section 3.6, Traffic Operations and Issues.

TABLE 2: ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East 167 St and Sherman Ave	6	1	0	0
East 167 St and Grant Ave	26	2	0	0
East 167 St and Morris Ave	24	4	0	1
East 167 St and College Ave	10	2	0	0
East 167 St and Findlay Ave	11	2	0	0
East 167 St and Teller Ave	17	1	0	0
East 168 St and Morris Ave	8	1	1	1
East 168 St and College Ave	11	2	0	1
East 168 St and Findlay Ave	4	1	0	0
Morris Ave and McClellan St	10	0	0	0
Sherman Ave and McClellan St	9	1	0	0
Grant Ave and McClellan St	4	0	0	0
TOTAL	140	17	1	3

TABLE 3: ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
East 167 St and Sherman Ave	44	2	0	0
East 167 St and Grant Ave	36	4	1	0
East 167 St and Morris Ave	51	12	0	3
East 167 St and College Ave	34	12	0	2
East 167 St and Findlay Ave	28	6	0	0
East 167 St and Teller Ave	19	1	0	1
East 168 St and Morris Ave	12	2	0	0
East 168 St and College Ave	21	3	0	1
East 168 St and Findlay Ave	14	1	0	0
Morris Ave and McClellan St	19	0	0	0
Sherman Ave and McClellan St	8	3	0	0
Grant Ave and McClellan St	10	0	0	0
TOTAL	296	46	1	7

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

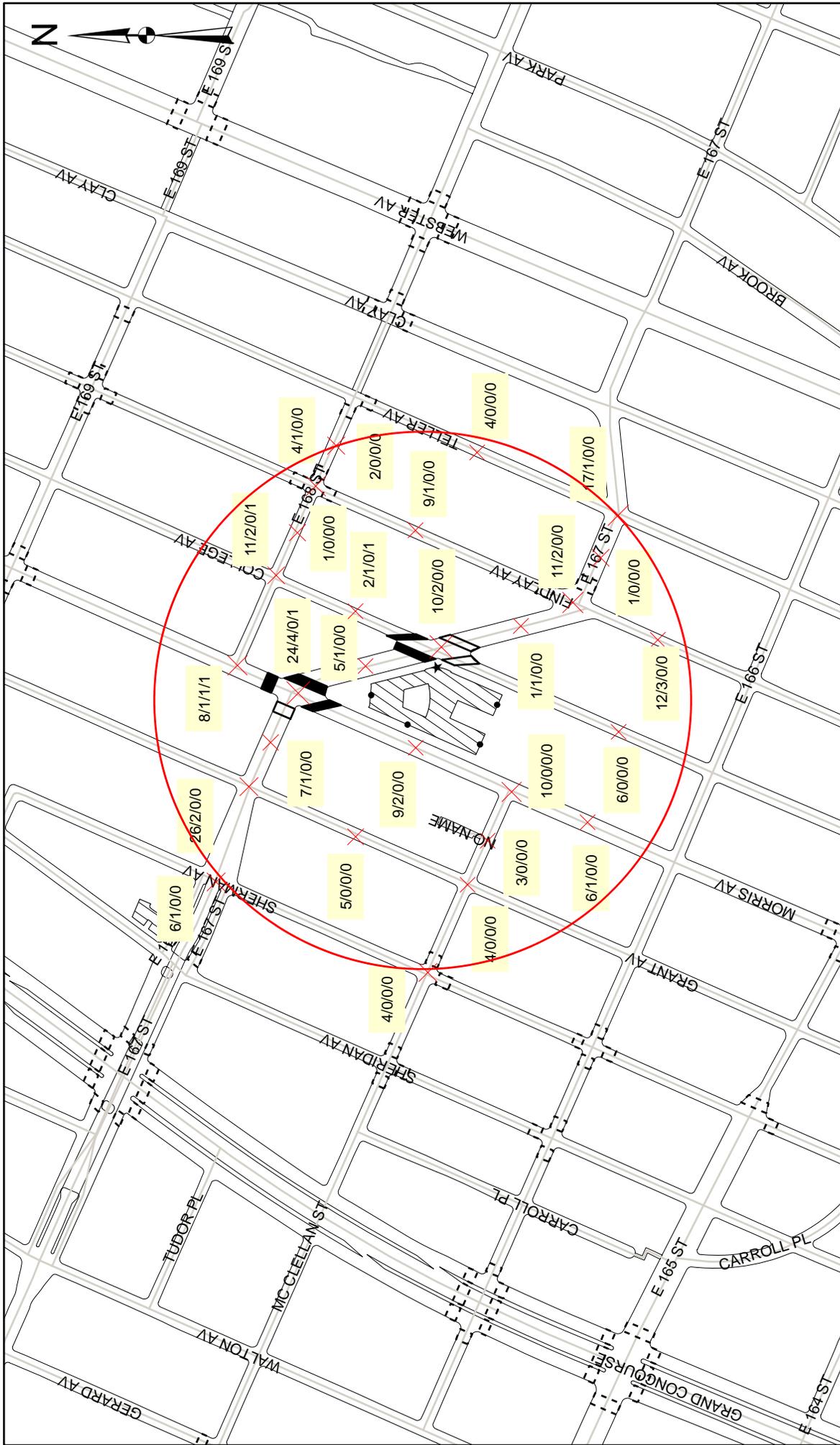


EXHIBIT 5
J.H.S. 22 BRONX
JORDAN L. MOTT JUNIOR HIGH SCHOOL
ACCIDENT SUMMARY (1998-2000)

LEGEND:

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

0 250 500 1,000 Feet

3.6 TRAFFIC OPERATIONS AND ISSUES

The specific roadway-related physical conditions for each location within the school's vicinity directly affect the safety and efficiency of operations for both pedestrian and vehicular traffic. These conditions are required information when analyzing a location, and are the starting point for any revisions that may be considered to improve safety and/or efficiency.

The following sub-sections outline the physical conditions and issues concerning traffic operations and accidents at the intersections in the vicinity of J.H.S. 22. Details on specific intersections or roadway segments are given in the following sections.

3.6.1 East 167th Street and Morris Avenue

This is a four-leg signalized intersection with school crosswalks located across the north and south legs of Morris Avenue, and the east leg of 167th Street. East 167th Street and Morris Avenue are both two-way streets with one travel lane and a parking lane on each side of the roadway. School representatives reported there is a limited sight distance for eastbound East 167th Street, approaching Morris Avenue (see Figures 9 and 10).

This intersection has been the site of 24 accidents between 1998 and 2000; four of these were pedestrian accidents, one of which was a school related accident. In school-related accident, a thirteen-year-old pedestrian sustained a "non-incapacitating injury" while crossing against the signal at the intersection on Tuesday, May 9, 2000 at 3:00 pm. The road was dry and the weather was clear. NYPD accident data (Table 3) shows 51 accidents including 12 pedestrian accidents between 2001 and 2004. There were three school-related accidents. No additional information about the school-related accidents is available. There were no fatalities reported during both time periods.

A spot speed survey was conducted on East 167th Street between Morris Avenue and College Avenue to determine if there is a speeding problem near the school. The detailed results of the spot speed survey are shown in the Appendix at the end of the document.

The 85th percentile speed for westbound vehicles on East 167th Street between Morris Avenue and College Avenue was found to be 26 mph. The 85th percentile speed for eastbound vehicles on East 167th Street, between Morris Avenue and College Avenue, was found to be 24 mph.

The 85th percentile speed is considered to be the representative speed of the street segment. Speeds above the 30 mph threshold would indicate a speeding problem and may require appropriate traffic calming measures. Possible counteractive measures are the installation of a speed reducer (hump) or a neckdown.



Figure 10: Looking west along East 167th Street across Morris Avenue



Figure 11: Looking north on Morris Avenue at East 167th Street

3.6.2 East 167th Street and College Avenue

This is a four-leg signalized intersection with school crosswalks located across the north leg of College Avenue and the west leg of East 167th Street. East 167th Street is a two-way street with one travel lane and a parking lane on each side of the roadway. College Avenue is a one-way northbound street with one travel lane and parking on both sides of the roadway. According to school representatives, students frequently cross East 167th

Street at College Avenue to access stores located across the street, sometimes crossing mid-block (see Figure 2 for mid-block crossing and Figure 12 for intersection).

This intersection has been the site of ten accidents between 1998 and 2000; two of these were pedestrian accidents, none of which were school-related. NYPD accident data (Table 3) shows 34 accidents including 12 pedestrian accidents between 2001 and 2004. There were two school-related accidents during the same four-year period. No additional information about the school-related accidents is available. There were no fatalities reported during both time periods.

To fully assess signal operations in the vicinity of J.H.S. 22, a search of the NYC DOT records for any signal warrant studies that may have been conducted for any of the study intersections was undertaken. NYC DOT performed a signal warrant study for both of the intersections on East 167th Street associated with the school, College Avenue and Morris Avenue, to determine the need for requested changes to the existing traffic signal operations. The results of warrant analysis found no warrants or justifications for any changes to existing signal operations, specifically for left turn phasing or Leading Pedestrian Intervals (LPI).



Figure 12: Looking west along East 167th Street at College Avenue Intersection

3.6.3 East 167th Street and Findlay Avenue

This is a four-leg signalized intersection with school crosswalks located across the north and east legs. East 167th Street is a two-way street with one travel lane and a parking lane on each side of the roadway. Findlay Avenue is a one-way southbound street with one moving lane and parking on both sides of the roadway.

This intersection has been the site of 11 accidents between 1998 and 2000; two of these were pedestrian accidents. None of the accidents were school-related. NYPD accident

data (Table 3) shows 28 accidents at this intersection, six of which were pedestrian accidents between 2001 and 2004. None of the accidents were school-related. There were no fatalities reported during both time periods.

3.6.4 East 167th Street and Teller Avenue

This is a four-leg signalized intersection with no school crosswalks located across any legs. East 167th Street is a two-way street with one travel lane and a parking lane on each side of the roadway. Teller Avenue is a one-way northbound street with one moving lane and parking on both sides of the roadway.

This intersection has been the site of 17 accidents between 1998 and 2000; one of these was a pedestrian accident, which was not a school-related accident. NYPD accident data (Table 3) shows 19 accidents at this intersection between 2001 and 2004; one of which was a pedestrian accident, which was also a school-related accident. There were no fatalities reported during both time periods.

3.6.5 Morris Avenue and McClellan Street

This is an unsignalized T-intersection with no school crosswalks. McClellan Street and Morris Avenue are both two-way streets with one travel lane and a parking lane on each side of the roadway. Although, one of the school entrances, the schoolyard and a local park are located near McClellan Street on Morris Avenue, there are no school crosswalks at this location. Students are reported to cross this street often (see Figures 8, 12, and 13)

This intersection has been the site of ten accidents between 1998 and 2000; four of these were pedestrian accidents, none of which were school-related or fatalities. NYPD accident data (Table 3) shows 19 accidents with no pedestrian accidents or fatalities between 2001 and 2004; none of the pedestrian accidents were school-related.



Figure 13: Looking north on Morris Avenue toward McClellan Street



Figure 14: Looking west along McClellan Street across Morris Avenue

3.6.6 East 168th Street and Morris Avenue

This is an unsignalized T-intersection with no school crosswalks. East 168th Street and Morris Avenue are both two-way streets with one travel lane and a parking lane on each side of the roadway. The westbound approach of East 168th Street is controlled by a stop sign.

This intersection has been the site of eight accidents between 1998 and 2000; one of these was a pedestrian accident, which was also a school-related pedestrian fatality. The school-related fatal accident occurred on Tuesday, May 16, 2000 at 8:00 am under daylight conditions. It involved a nine-year old pedestrian who was reported struck by a vehicle while crossing the street at the intersection with no signal and marked crosswalk, which resulted in pedestrian fatality. The accident occurred on straight and level segment, and the roadway and weather conditions were reported as dry and clear, respectively. Between 2001 and 2004, NYPD accident data (Table 3) shows 12 accidents including two pedestrian accidents. There were no pedestrian fatalities or school-related accidents during the same four-year period.

3.6.7 East 168th Street and College Avenue

This is a four-leg unsignalized intersection with no school crosswalks. East 168th Street is a two-way street with one travel lane and a parking lane on each side of the roadway. College Avenue is a one-way northbound street with one travel lane and parking on both sides of the roadway.

This intersection has been the site of 11 accidents between 1998 and 2000; two of these were pedestrian accidents, of which one was a school-related accident. The school-

related accident occurred on Thursday, April 20, 2000 at 9:00 am under daylight conditions. It involved a nine-year old pedestrian who was reported struck by a vehicle while crossing the street at the intersection with no signal and marked crosswalk. The pedestrian action was reported as “emerge from behind a parked vehicle.” The extent of injuries was reported as “incapacitating injury”. The accident location was on a straight and level segment, and the roadway and weather conditions were reported as dry and clear, respectively. NYPD accident data (Table 3) shows 21 accidents including three pedestrian accidents between 2001 and 2004; one of which was a school-related accident. No additional information about the school-related accident is available.

Between 1998 and 2000, there were two mid-block accidents on College Avenue between East 167th Street and East 168th Street; one of the accidents was a pedestrian accident which was also a school-related accident. The school-related accident, which involved a nine-year-old pedestrian, occurred on Thursday, May 27, 1999 around 4:00 pm. The pedestrian action prior to accident was reported as “other actions in roadway.” The accident occurred on a straight and level segment. The roadway surface condition at the time of the accident was not reported and the weather condition was reported as dry.

3.6.8 East 167th Street and Grant Avenue

This is a four-leg signalized intersection with no crosswalk located across any legs. East 167th Street is a two-way street with one travel lane and a parking lane on each side of the roadway. Grant Avenue is a one-way northbound street with one travel lane and parking on both sides of the roadway.

This intersection has been the site of 26 accidents between 1998 and 2000; two of these were pedestrian accidents. None of the pedestrian accidents were school-related. There were no pedestrian fatalities during the same three-year period. NYPD accident data (Table 3) shows 36 accidents at this intersection, four of which were pedestrian accidents between 2001 and 2004. There was one fatal pedestrian accident during the same four-year period. No further information about the fatal accident is available.

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of J.H.S. 22, and were found to be adequate in all directions and approaches based upon a child pedestrian walking at a rate of 3 feet per second. Signal timings are shown in Table 4.

TABLE 4: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
East 167 th St & Morris Ave				
crossing East 167th Street	50	22	20	NO
crossing Morris Avenue	44	66	18	NO
East 167 th Street and College Avenue				
crossing East 167th Street	50	46	20	NO
crossing College Avenue	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 J.H.S. 22 are generally in good condition. Sidewalks on the school block face are 18 feet wide on Morris Avenue, 10-15 feet wide on East 167th Street and 15 feet wide on College Avenue. Sidewalks are in fair condition.

3.8.2 Pedestrian Ramps

Overall, pedestrian ramps in the area of the school appear to be standard, except for the southwest corner of the East 167th Street and Morris Avenue intersection where a traffic signal pole is obstructing the path for the crosswalk located across the south leg of Morris Avenue. The pedestrian ramps are missing at both ends of this crosswalk. The pedestrian ramp on the southeast corner, for the crosswalk located across the west leg of East 167th Street is mis-located. The northeast corner of East 167th Street & Morris Avenue has a fire call box stanchion and a traffic signal pole obstructing the path for this same crosswalk, located across the west leg of East 167th Street (see Figure 16).



Figure 15: Looking north along College Avenue (school is on the left)



Figure 16: Northeast corner of East 167th Street & Morris Avenue showing traffic signal and fire call box obstructing path for westerly crosswalk.

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around J.H.S 22. 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 J.H.S 22 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*

There are existing signs of “NO PARKING 7AM-4PM SCHOOL DAYS” along the west curblineline of College Avenue just south of the school building. It is recommended to replace the existing signs with “NO STANDING 7AM-4PM SCHOOL DAYS” signs. In addition, install “NO STANDING 7AM-4PM SCHOOL DAYS” signs for a distance of thirty feet in front of the main entrance of the school. (This is a typical requirement for all NYC schools in order to provide for emergency access to and from the school.)

➤ *Install graphic “Yield to Pedestrian” sign*

Install “YIELD TO PEDESTRIAN” signs at intersection approaches with substantial vehicle–student pedestrian volumes at intersections assigned to this school. A “YIELD TO PEDESTRIAN” sign is recommended on the following approach of signalized intersections around J.H.S 22:

- Eastbound approach of East 167th Street at Morris Avenue

At the intersection of East 167th Street and Morris Avenue, the sign is suggested to improve visibility and safety of student-pedestrians.

➤ *Place advanced stop bar before school crosswalk*

The MUTCD and New York City DOT standard for placement of a stop bar is four feet in advance of a marked crosswalk. At signalized intersections and mid-block crossings, the vehicle stop line can be moved farther back from the pedestrian crosswalk.

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

Ten foot advanced stop bars before school crosswalks are recommended on the following approaches of signalized intersections surrounding P.S. 21:

- Westbound, northbound, and southbound approaches of East 167th Street and Morris Avenue intersection
- Eastbound and northbound approaches of East 167th Street and College Avenue intersection

- Westbound and southbound approaches of East 167th Street and Findlay Avenue intersection

➤ Designate school crosswalks and assign school crossing guard

Based on field observations, a new school crosswalk is needed at the intersection of McClellan Street and Morris Avenue. Students were observed crossing at this intersection, although there are no existing crosswalks across Morris Avenue and McClellan Street. It is therefore recommended to:

- Install school crosswalks across the west leg of McClellan Street and the north leg of Morris Avenue.
- Assign a crossing guard at the intersection of McClellan Street and Morris Avenue.

Students were also observed crossing the pedestrian crosswalk located across the south leg of College Avenue at its intersection with East 167th Street. It is therefore recommended to:

- Convert the existing pedestrian crosswalk located across the south leg of College Avenue at its intersection with East 167th Street to a school crosswalk.

➤ Provide pedestrian crosswalks at the following locations

The signalized intersection of East 167th Street and Grant Avenue has no marked pedestrian crosswalks. It is therefore, recommended to:

- Provide pedestrian crosswalks at all four legs and place stop bars four feet in advance of marked crosswalks.

There was a fatal pedestrian accident at the unsignalized intersection of Morris Avenue and East 168th Street which has no pedestrian or school crosswalks at any legs. It is therefore recommended to:

- Provide a pedestrian crosswalk at the east leg of East 168th Street at its intersection with Morris Avenue.

➤ Install Peg-A-Track

East 167th Street and Morris Avenue, is a skewed intersection, with East 167th Street intersecting Morris Avenue at an approximately 45 degree angle. Additional guidance may be appropriate for drivers on East 167th Street to better negotiate the intersection.

- It is therefore recommended that peg-a-track (skip lines) be provided for East 167th Street across its intersection with Morris Avenue.

➤ Reconfigure the intersection of East 167th Street and College Avenue to provide an exclusive left-turn lane

- Reconfigure the eastbound approach of East 167th Street at its intersection with College Avenue to provide a left-turn bay.

➤ Crossing guard at the intersection of East 167th Street and College Avenue

The school officials have requested a crossing guard at this location. During the field visit, students were crossings at this intersection and the school representatives see a high potential for pedestrian / vehicle conflicts. It is therefore recommended that:

- Consideration should be given to assign a crossing guard at the intersection of East 167th Street and College Avenue.

➤ Restrict Truck Delivery

Food delivery to the school occurs during the school peak arrival time. This interferes with school arrival and dismissal and obstructs traffic. There is a need to restrict deliveries during the school arrival and dismissal times.

- It is therefore recommended the school officials consider restricting food deliveries to times other than the arrival and dismissal times.
- The school should further consider relocating the loading shaft and trash storage away from the main entrance of the school.

➤ Illegal Parking

There was illegal parking observed in the vicinity of the school. This consisted of double-parked vehicles and vehicles blocking crosswalks. Parking across crosswalks and double-parking concerns near the school may require additional traffic enforcement during school days. School officials should discuss these concerns with the local police precinct. As shown in Exhibit 6, and listed as the first short-term measure in this section, there should be signs prohibiting standing for a length of thirty feet in front of the school at the main entrance.

- It is therefore recommended that the school officials consider discussing parking problems with the local police precinct.

➤ Crowding at Main Entrance at dismissal time

Crowding at the main entrance of the school was considered a problem during dismissal time.

- It is therefore recommended that the school officials consider alleviating this condition by such measures as a slightly staggered dismissal time for various grades or arranging for the use of additional exits for dismissal.

➤ Relocate Traffic Signal Pole

A traffic signal pole is obstructing the path for the crosswalk located across the south leg of Morris Avenue on the southwest corner of the East 167th Street and Morris Avenue intersection (see Figure 9).

- It is therefore recommended to relocate the traffic signal pole out of the path for the crosswalk for the south leg of Morris Avenue at East 167th Street.

➤ Relocate Traffic Signal Pole and Utility Stanchion

A traffic signal pole and utility stanchion are obstructing the path for the crosswalk located across the west leg of East 167th Street on the northeast corner of the East 167th Street and Morris Avenue intersection (see Figures 7 and 15).

- It is therefore recommended to relocate the traffic signal pole and the utility stanchion out of the path for the crosswalk for the west leg of East 167th Street at Morris Avenue.

4.2 LONG-TERM MEASURES

➤ Consider curb extension at the following locations:

The intersection of East 167th Street and Morris Avenue experienced 12 pedestrian accidents including three school-related accidents between 2001 and 2004. It is therefore recommended to:

- Provide curb extensions at the northeast, northwest, and southeast corners of East 167th Street and Morris Avenue intersection.

The intersection of East 167th Street and College Avenue also experienced 12 pedestrian accidents including two school-related accidents between 2001 and 2004. It is therefore recommended to:

- Extend the northwest, southeast, and southwest curbs at East 167th Street and College Avenue, as shown in Exhibit 6. In addition, parking should be prohibited along the west side of College Avenue for about twenty-five feet (25') from the south crosswalk to provide clear space for vehicles to negotiate the right turn from College Avenue onto East 167th Street without encroaching on the proposed striped center median.

The intersection of East 167th Street and Grant Avenue experienced 36 accidents between 2001 and 2004. There were four pedestrian accidents including one fatal pedestrian accident. This signalized intersection has no crosswalks at any legs. It is therefore recommended to:

- Provide curb extensions at all four legs of the intersection.
- Provide pedestrian crosswalks at all four legs and place stop bars four feet in advance of marked crosswalks.

Curb extensions (neckdowns) should be installed at the corners as shown in Exhibit 6. The purpose of the curb extension is to provide additional reservoir space for pedestrians, 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.

➤ Install Pedestrian Ramps

The pedestrian ramps are missing for the south leg crosswalk of Morris Avenue at East 167th Street.

- It is therefore recommended that pedestrian ramps be installed on both the southeast and on the southwest corners of Morris Avenue and East 167th Street for crosswalk located across the south leg of Morris Avenue.

➤ Relocate Pedestrian Ramp

The pedestrian ramp on the southwest corner, of East 167th Street at Morris Avenue for the crosswalk located across the west leg of East 167th Street is mis-located.

- It is therefore recommended that the pedestrian ramp be re-installed on the southwest corner of East 167th Street at Morris Avenue, for the crosswalk located across the west leg of East 167th Street

4.3 ADDITIONAL RECOMMENDATIONS FROM PRIORITY SCHOOLS IN THE VICINITY OF J.H. S. 22

4.3.1 RECOMMENDATIONS FOR P.S. 53 (BASHEER QUISIM SCHOOL):

The following recommendations are proposed as part of the proposed measures to improve school pedestrian safety around P.S. 53, which is also a priority school.

➤ Additional crossing guard

As mentioned in Section 3.6.2, school children from P.S. 53 often cross East 168th Street and Teller Avenue at the intersection and at mid block locations. There is an uncontrolled school crosswalk at south leg of Teller Avenue. It is therefore recommended to:

- Assign a crossing guard at East 168th Street and Teller Avenue intersection

It should be noted that as a result of a report from the school relating a possible speeding problem along Teller Avenue between 167th and 168th Streets, NYCDOT performed an in-house study and two speed reducers (humps) were installed on Teller Avenue: one just south of East 168th Street, and other one between East 168th Street and 169th Street.

➤ Change existing pedestrian crosswalk to a school crosswalk

Based on field observation and the general layout of the school in relation to the street system, consideration should be given to designating the pedestrian crosswalk across the south leg of the East 169th Street and Webster Avenue intersection as a school crosswalk.

Many students were observed crossing mid-block on Teller Avenue between East 168th Street and East 169th Street. To encourage these students to cross at the intersection, consideration should be given to designating the crosswalk across the

south leg of Teller Avenue at its intersection with 169th Street as a school crosswalk.

It is therefore recommended that school crosswalks be designated at the following locations:

- The south leg of the Webster Avenue and East 169th Street intersection
- The south leg of the Teller Avenue and East 169th Street intersection

➤ *Provide pedestrian crosswalk at the intersection of East 169th Street and Teller Avenue*

As mentioned in Section 3.6.6, a traffic signal was installed on June 19, 2004 at this location. Consequently, all the advanced warning signs were installed or upgraded with the exception of the pavement markings.

It is therefore recommended to:

- Provide pedestrian crosswalks at the north and east legs of the Teller Avenue and East 169th Street intersection

➤ *Place advanced stop bars before school crosswalk*

The MUTCD and New York City DOT standard for placement of a stop bar is four feet in advance of a marked crosswalk. At signalized intersections and mid-block crossings, the vehicle stop line can be moved farther back from the pedestrian crosswalk.

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

Ten foot advanced stop bars before school crosswalks are recommended on the following approaches of signalized intersections surrounding P.S. 53:

- Northbound and westbound approaches of Webster Avenue and East 168th Street intersection.
- Northbound, southbound and westbound approaches of Webster Avenue and East 169th Street intersection.
- Westbound and southbound approaches of East 169th Street and Findlay Avenue intersection.
- Northbound approach of Clay Avenue at its intersection with East 168th Street.

➤ Consider curb extension at the following intersection:

- Provide curb extensions at the northeast and southeast corners of Findlay Avenue at its intersection with East 168th Street.
- Provide curb extensions (neckdowns) at all four corners of East 169th Street at its intersection with Findlay Avenue.
- Provide curb extensions (neckdowns) at all four corners of East 169th Street at its intersection with Teller Avenue.
- Consider extending the east sidewalk of Teller Avenue by six feet in order to reduce the crossing distance at the uncontrolled leg of Teller Avenue at its intersection with East 168th Street.
- Provide curb extensions (neckdowns) at all four corners of Webster Avenue and East 168th Street intersection.
- Provide curb extensions at the northeast and southeast corners of Webster Avenue at its intersection with East 169th Street.
- Provide curb extension at the southwest corner of East 167th Street and Findlay Avenue. The northeast corner of East 167th Street and Findlay, which provides a gated access roadway, needs to be redesigned.

Curb extensions (neckdowns) should be installed at the corners. The purpose of the curb extensions 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:

There is a flush striped median at the north and south legs of Webster Avenue at its intersection with East 169th Street. This intersection experienced nine pedestrian accidents during a four-year period between January 2001 and December 2004. In addition to curb extensions at the northeast and southeast corners, it is also recommended to provide pedestrian refuge islands at the north and south legs of Webster Avenue.

- Provide refuge islands at the east leg of East 167th Street at its intersection with Findlay Avenue in conjunction with a flush striped median.
- Provide refuge islands at the east and west legs of East 167th Street at its intersection with Teller Avenue in conjunction with a flush striped median. The concept of a flush striped median should be extended with possible left-turn pocket between Morris Avenue and Webster Avenue.

The refuge islands with extended medians will provide a refuge for pedestrians who do not complete the crossing during the flashing “DON’T WALK” indication. The proposed median should be the same width as the existing striped

median, 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.

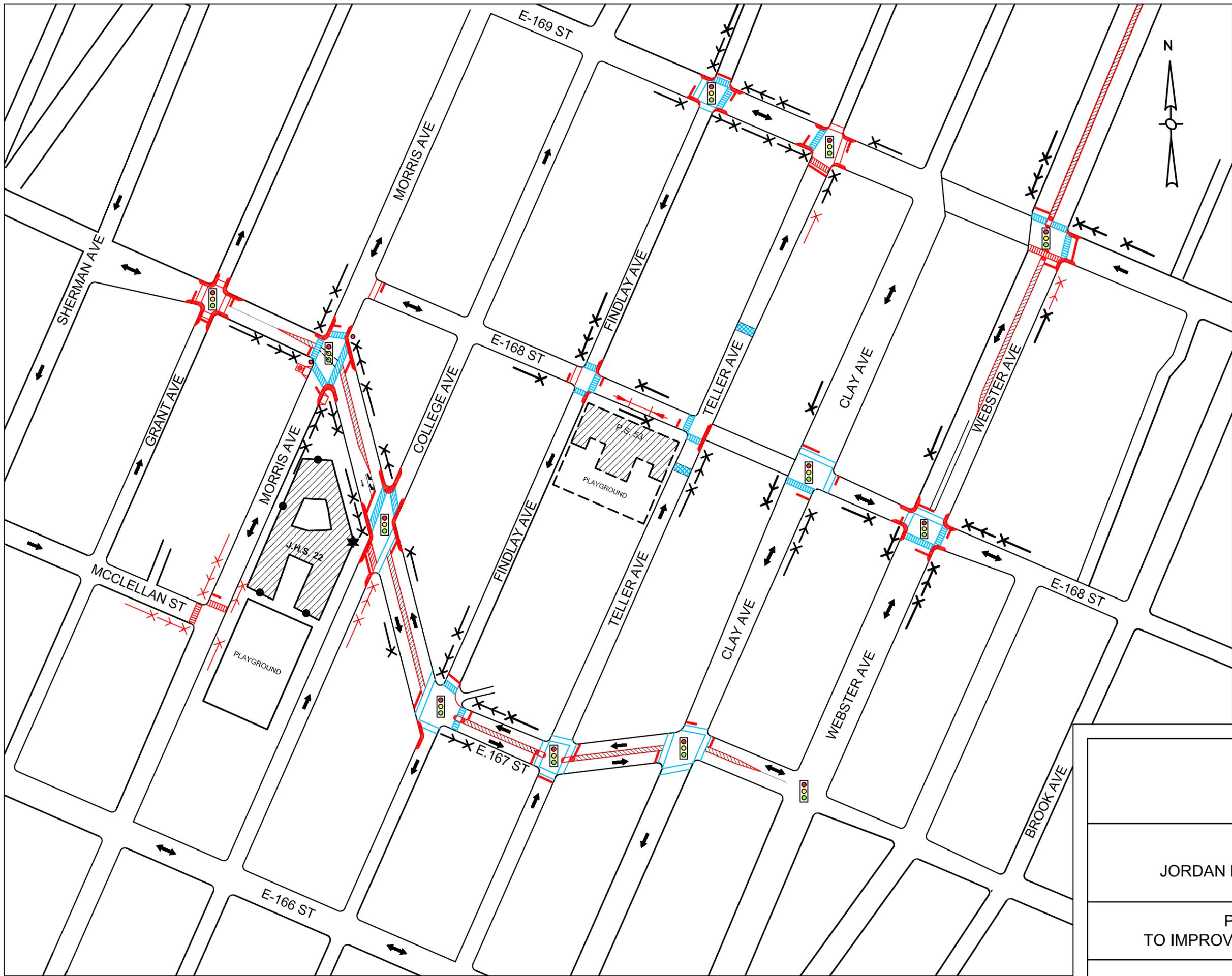
➤ *Reconstruct pedestrian ramps*

The pedestrian ramps on the north and south corners of the west leg of East 168th Street at its intersection with Teller Avenue are missing (see Figure 13). The following is therefore recommended:

- Install pedestrian ramps on the northwest and southwest corners of East 168th Street and Teller Avenue intersection.

There is a utility pole on the northwest corner of the East 169th Street and Findlay Avenue intersection obstructing the pedestrian ramp. In addition, there is a traffic signal pole obstructing the pedestrian ramp on the southwest corner of East 168th Street and Webster Avenue. The following is therefore recommended:

- Relocate the utility pole and traffic signal poles identified to provide clear pedestrian paths.



- LEGEND**
- MAIN ENTRANCE
 - OTHER ENTRANCES
 - EXISTING TRAVEL DIRECTION
 - EXISTING ADVANCE WARNING SIGN OR SCHEDULED TO BE INSTALLED
 - EXISTING SCHOOL CROSSWALK WARNING ASSEMBLY OR SCHEDULED TO BE INSTALLED
 - SIGNALIZED LOCATION
 - EXISTING SPEED REDUCERS
 - EXISTING SCHOOL CROSSWALK
 - EXISTING PEDESTRIAN CROSSWALK
 - PROPOSED ADVANCE WARNING SIGN
 - PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
 - PROPOSED SCHOOL CROSSWALK
 - PROPOSED PEDESTRIAN CROSSWALK
 - PROPOSED STRIPED MEDIAN
 - PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 - PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
 - PROPOSED CONCRETE REFUGE ISLAND
 - TRAFFIC SIGNAL POLE TO BE RELOCATED
 - PROPOSED PEDESTRIAN RAMP
 - POLE TO BE RELOCATED
 - PROPOSED CURB EXTENSION (NECKDOWN)

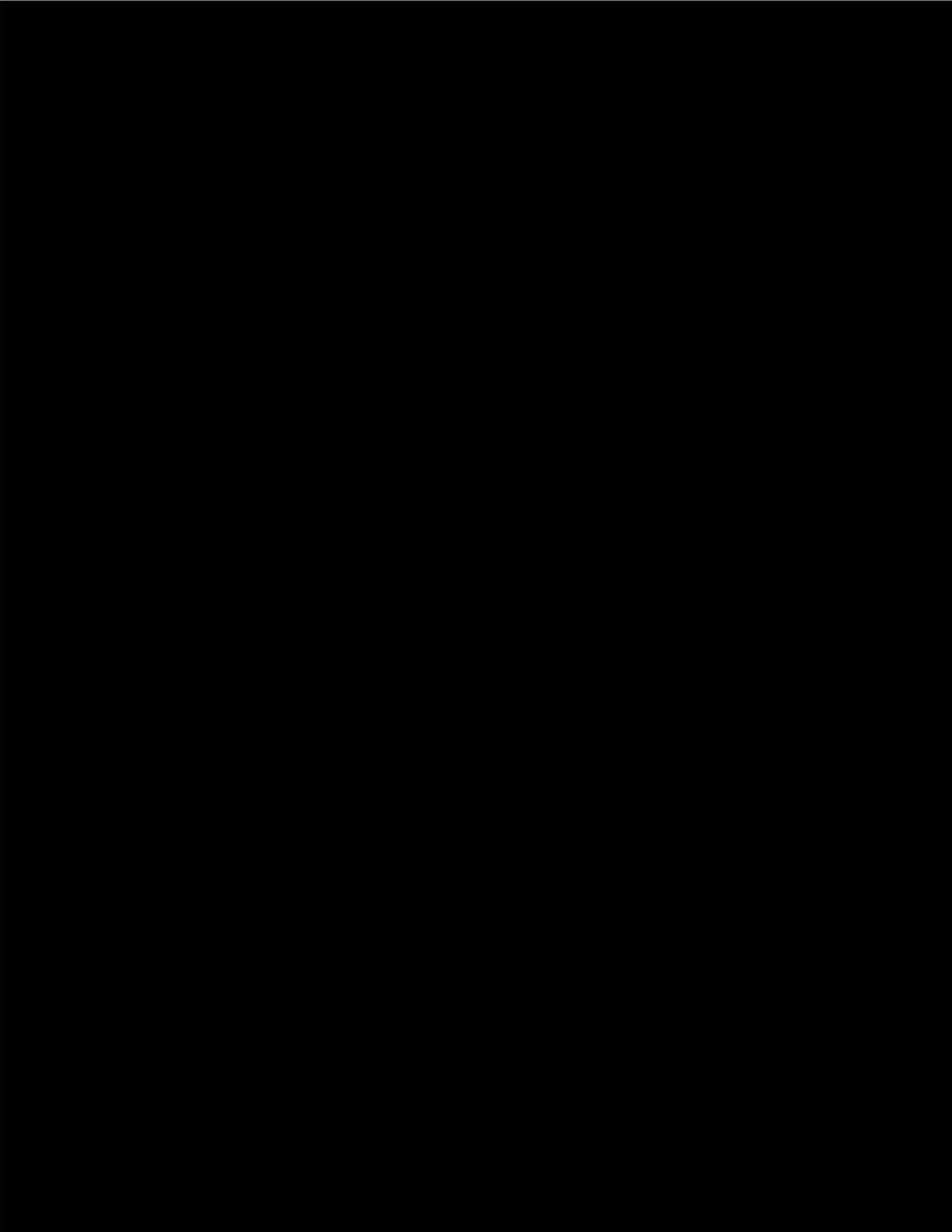
1" = 200'

EXHIBIT 6

J.H.S. 22 BRONX
 JORDAN L. MOTT JUNIOR HIGH SCHOOL

PROPOSED MEASURES
 TO IMPROVE SCHOOL PEDESTRIAN SAFETY

APPENDIX



SPOT SPEED STUDY

Date: _____ Time: **10:00 am**
 Location: **167th Street between College Avenue & Morris Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **J.H.S. 22**
 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	0	0.0%	0.0%	0	0
17	2	3.4%	3.4%	34	578
18	6	10.3%	13.8%	108	1944
19	2	3.4%	17.2%	38	722
20	11	19.0%	36.2%	220	4400
21	5	8.6%	44.8%	105	2205
22	12	20.7%	65.5%	264	5808
23	7	12.1%	77.6%	161	3703
24	8	13.8%	91.4%	192	4608
25	1	1.7%	93.1%	25	625
26	1	1.7%	94.8%	26	676
27	1	1.7%	96.6%	27	729
28	2	3.4%	100.0%	56	1568
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
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45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
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49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	58	100.0%		1256	27566

Mean Speed = 21.7 mph
 Standard Deviation = 2.5 mph
 Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 21.7 mph
 15th Percentile Speed = 19.0 mph
 85th Percentile Speed = 24.3 mph

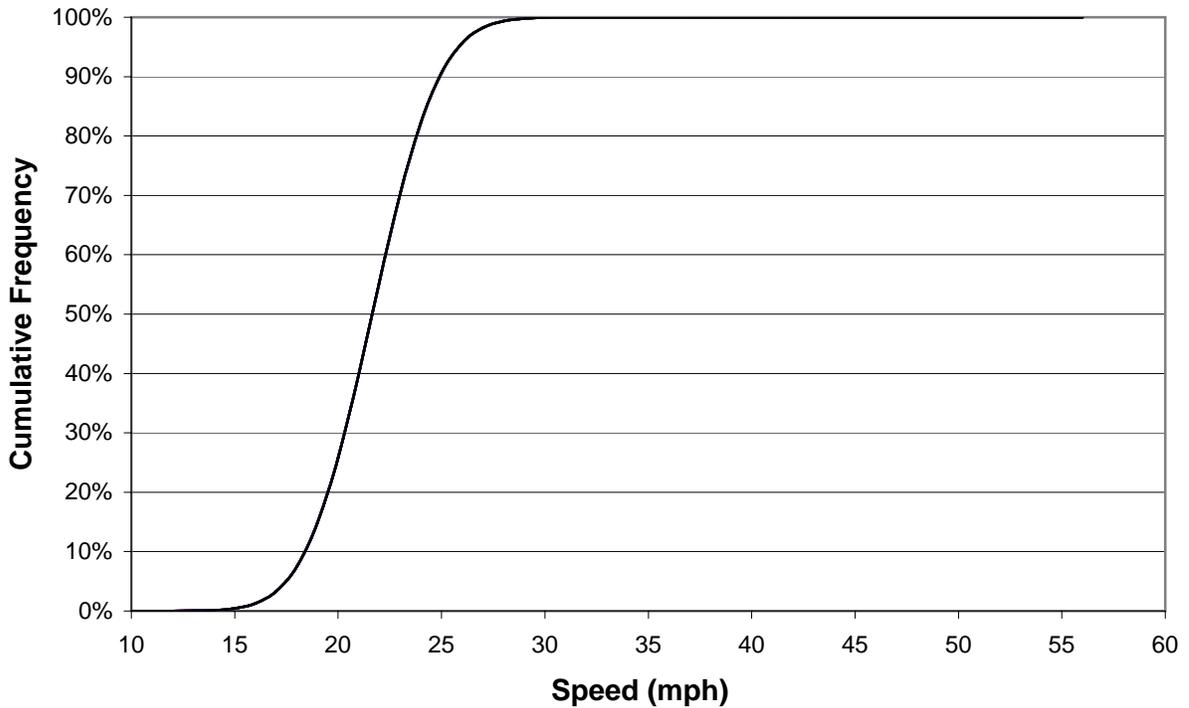
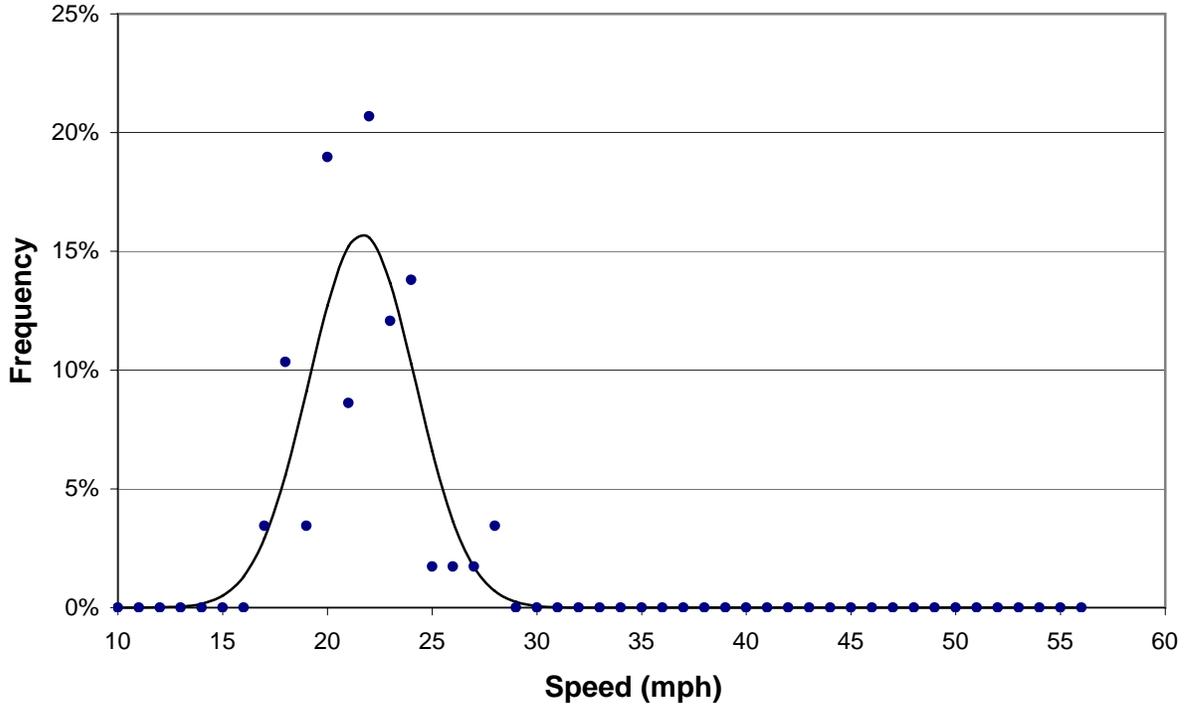
SPOT SPEED STUDY

Date: _____ Time: **10:00 am**
Location: **167th Street between College Avenue & Morris Avenue**
Surveyor: **Richard Calvache & Hugo Salinas**

School: **J.H.S. 22**
Direction: **Eastbound**
Comments: _____

Mean Speed = 21.7 mph
Standard Deviation = 2.5 mph
Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 21.7 mph
15th Percentile Speed = 19.0 mph
85th Percentile Speed = 24.3 mph



SPOT SPEED STUDY

Date: _____ Time: **10:00 am**
 Location: **167th Street between College Avenue & Morris Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **J.H.S. 22**
 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	1	1.4%	1.4%	18	324
19	0	0.0%	1.4%	0	0
20	10	14.5%	15.9%	200	4000
21	6	8.7%	24.6%	126	2646
22	10	14.5%	39.1%	220	4840
23	14	20.3%	59.4%	322	7406
24	9	13.0%	72.5%	216	5184
25	7	10.1%	82.6%	175	4375
26	3	4.3%	87.0%	78	2028
27	4	5.8%	92.8%	108	2916
28	5	7.2%	100.0%	140	3920
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
	69	100.0%		1603	37639

Mean Speed = 23.2 mph
 Standard Deviation = 2.4 mph
 Margin of Error (95% Confidence) = ± 0.6 mph

Median Speed = 23.2 mph
 15th Percentile Speed = 20.7 mph
 85th Percentile Speed = 25.7 mph

SPOT SPEED STUDY

Date: _____ Time: **10:00 am**
Location: **167th Street between College Avenue & Morris Avenue**
Surveyor: **Richard Calvache & Hugo Salinas**

School: **J.H.S. 22**
Direction: **Westbound**
Comments: _____

Mean Speed = 23.2 mph
Standard Deviation = 2.4 mph
Margin of Error (95% Confidence) = ± 0.6 mph

Median Speed = 23.2 mph
15th Percentile Speed = 20.7 mph
85th Percentile Speed = 25.7 mph

