

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



School Safety Engineering Project

FINAL REPORT: P.S. 220 (Edward Mandel School), Queens



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



October 13, 2006

**School Safety Engineering Project
Final Report: P.S. 220, Queens**

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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 600 speed reducers (humps) have been installed in the immediate vicinity of schools.

Under this consultant study, the School Safety Engineering Project, accident data in the vicinity of all program schools was reviewed. As a result, schools were ranked in terms of pedestrian safety, and 135 “priority” schools were identified Citywide. At each of these priority schools, safety improvements are being recommended (e.g., new school crosswalks, new traffic signals and signal timing modifications, new speed reducers). In addition, 32 of these schools will receive further investigation to design physical improvements (e.g., raised center medians, widened sidewalks, “neckdowns” or “bulbouts” at intersections). P.S. 220 (Edward Mandel School) in the Forest Hills section of Queens is one of the 135 “priority” schools identified by the New York City Department of Transportation, Office of School Safety Engineering.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

2.2 NEIGHBORHOOD DESCRIPTION

Exhibit 1 shows an aerial view of the neighborhood surrounding the school. P.S. 220 is bounded by the Horace Harding Expressway eastbound service road (Long Island Expressway) and 62nd Avenue to the north, 62nd Road to the south, 108th Street to the east, and Yellowstone Boulevard to the west. The neighborhood surrounding the school includes a mix of commercial uses and high-density residential uses.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Members of the consultant team visited the school site on the afternoon of June 23, 2004 to observe existing traffic and pedestrian safety conditions at and around the school. The consultant team was unable to arrange a meeting with school officials to help identify any concerns regarding safety problems facing P.S. 220 student pedestrians. For the purposes of this report, the consultant team used information obtained from the school's survey questionnaire response, the New York City (NYC) Department of Education (DOE) web site, and the June 23 site visit to help identify potential safety issues. Based on a review of information from these sources, the problems facing P.S. 220 student pedestrians are:

- The bus stop has become a loitering place for adults, and there is some concern about the level of interaction between school children and adults. There are also concerns about child abduction in this area. There was a request to relocate the bus stop to the far end of the intersection to reduce the potential danger, and to better accommodate senior citizens living in the housing project across the intersection by reducing their walking distance to the bus stop.
- Speeding vehicles on the 62nd Avenue (the Horace Harding Expressway eastbound service road).



2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

The school’s “catchment area” as defined by the Department of Education is shown in Exhibit 2. The catchment area is roughly bounded by the Long Island Expressway to the north, 64th Avenue to the south, the Grand Central Parkway to the east, and 102nd and 99th Streets to the west.

The modes of travel for students are typically estimated by the school officials during the meeting with the consultant team and/or provided as part of the school’s survey questionnaire response. However, the consultant team was unable to arrange a meeting with school officials, and the school’s questionnaire response did not supply this information. The NYCDOE web site indicates that there is one bus in the morning serving three students, two buses in the afternoon serving four students and six special education buses providing service to approximately 54 students. The web site also indicates that there is only one full-fare MetroCard issued. Consequently, it appears that most of the students either walk or are driven to school.

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There were no major student pedestrian generators observed in the vicinity of P.S. 220.

2.8 CROSSING GUARD LOCATIONS

Crossing guards are assigned to the signalized intersections of 108th Street/Horace Harding Expressway eastbound service road (62nd Avenue) and 108th Street/62nd Drive on school days (see Figure 2). Exhibit 4 at the end of this section identifies the assigned crossing guard locations for P.S. 220.



Figure 2: Looking west across north leg of the 108th Street/62nd Drive intersection, at the crossing guard

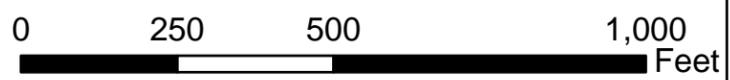
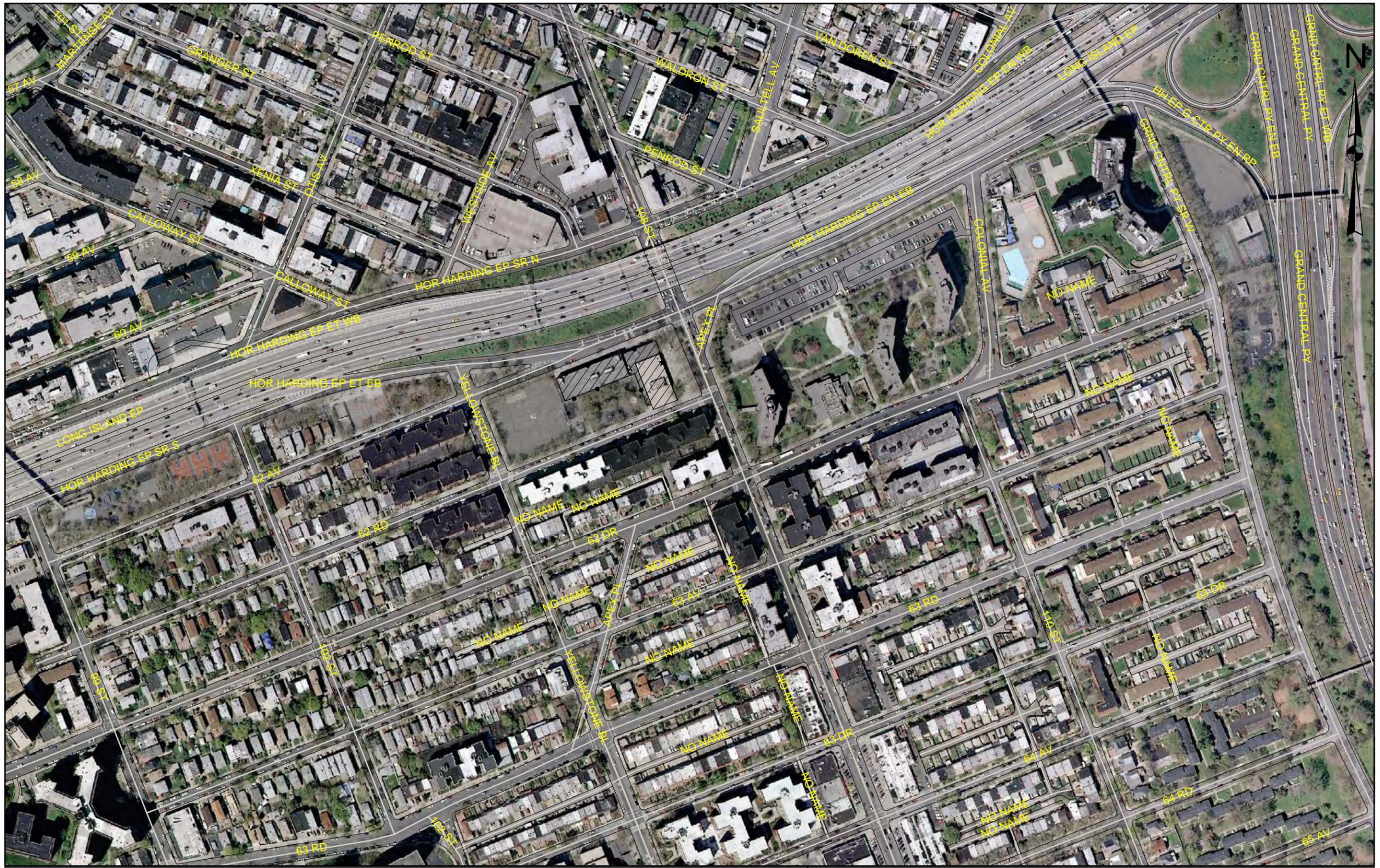


EXHIBIT 1
P.S. 220 QUEENS
EDWARD MANDEL SCHOOL
AERIAL PHOTOGRAPH

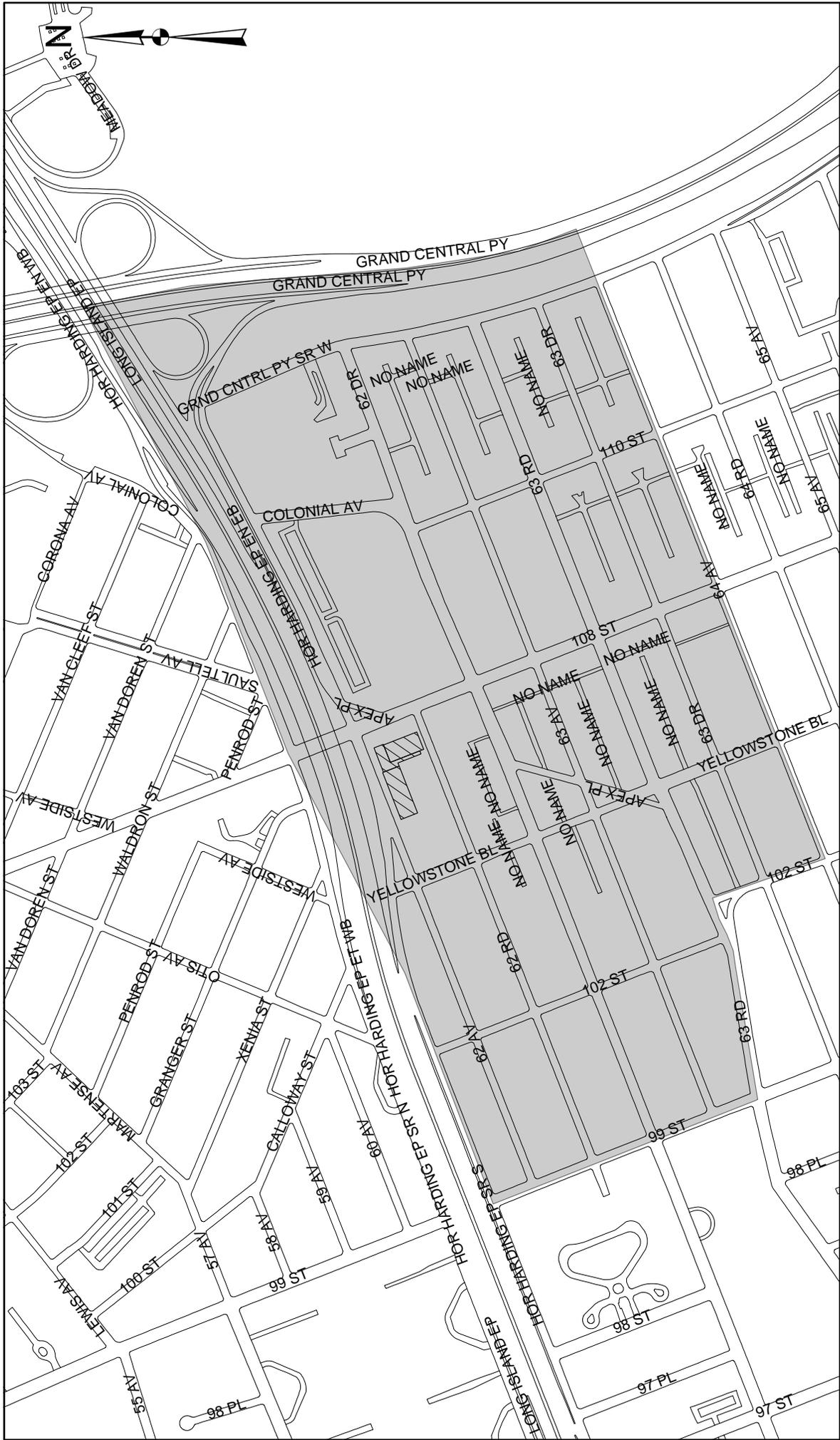


EXHIBIT 2

P.S. 220 QUEENS

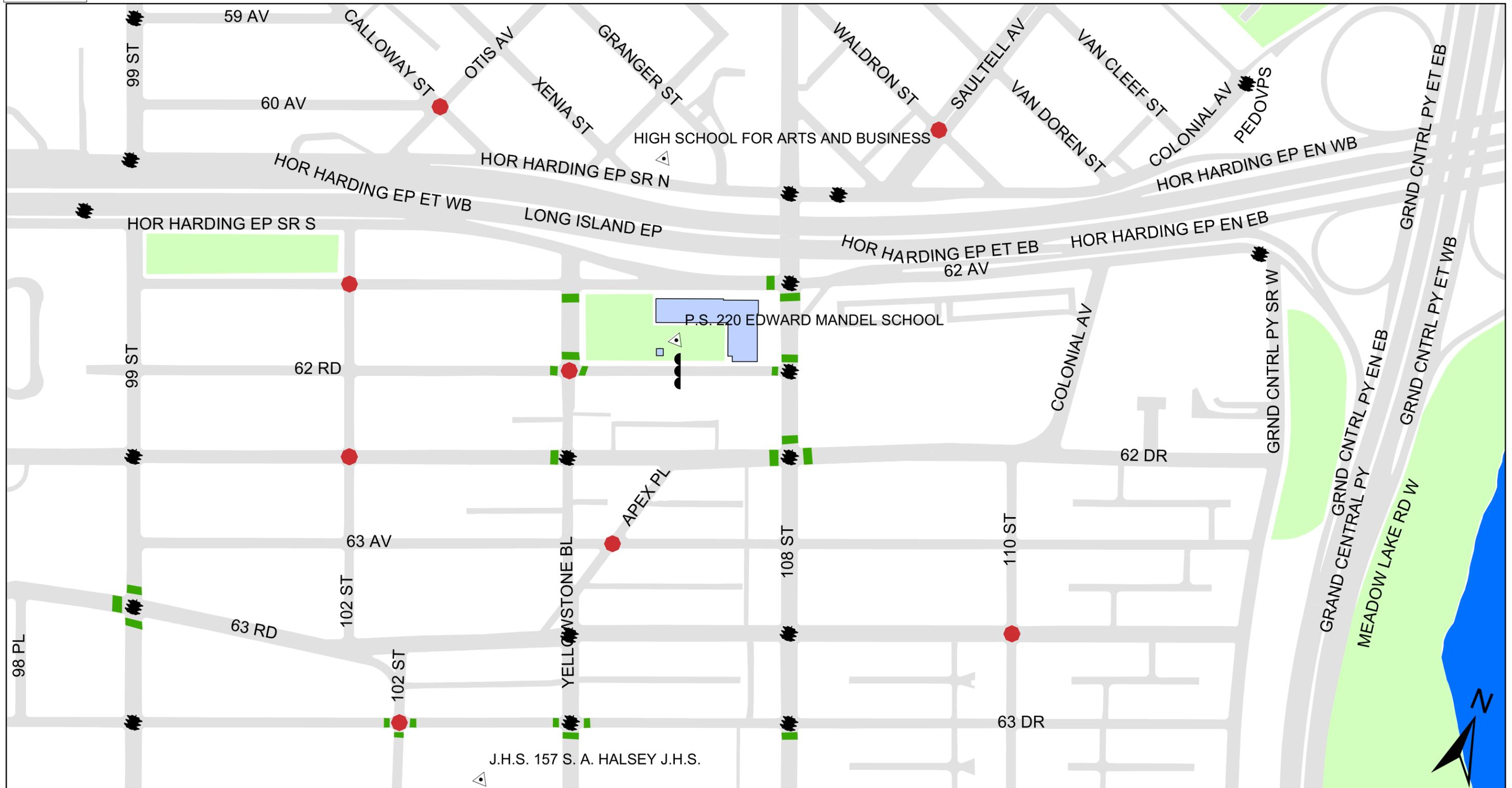
EDWARD MANDEL SCHOOL

CATCHMENT AREA



LEGEND:
 CATCHMENT AREA, (DEPARTMENT OF EDUCATION DESIGNATED AREA FROM WITHIN WHICH STUDENTS ARE ENTITLED TO ATTEND P.S. 220)





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

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

LEGEND:

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

PS 220 Queens
EDWARD MANDEL SCHOOL

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

Map created on 11/17/2006

EXHIBIT 3

COMM. BOARD: 406
 PRECINCT: 112

1.5.1

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

Because the consultant team was unable to arrange a meeting with school officials, and because the school's questionnaire response did not supply data regarding school bus operations, this information was obtained from the NYCDOE web site. The web site indicates that there are three yellow school buses servicing approximately four students, and six special education buses servicing approximately 54 students.

3.2 PARENT DROP-OFF OPERATIONS

Students were observed being picked up along both 62nd Avenue and 62nd Road during the afternoon dismissal period. Parents were observed double parking during this time.

3.3 PARKING REGULATIONS

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

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 3 shows the existing signals and pavement markings in the vicinity of P.S 220. 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 signs accompanied by downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing" in Exhibit 7.

3.5 ACCIDENT SUMMARY

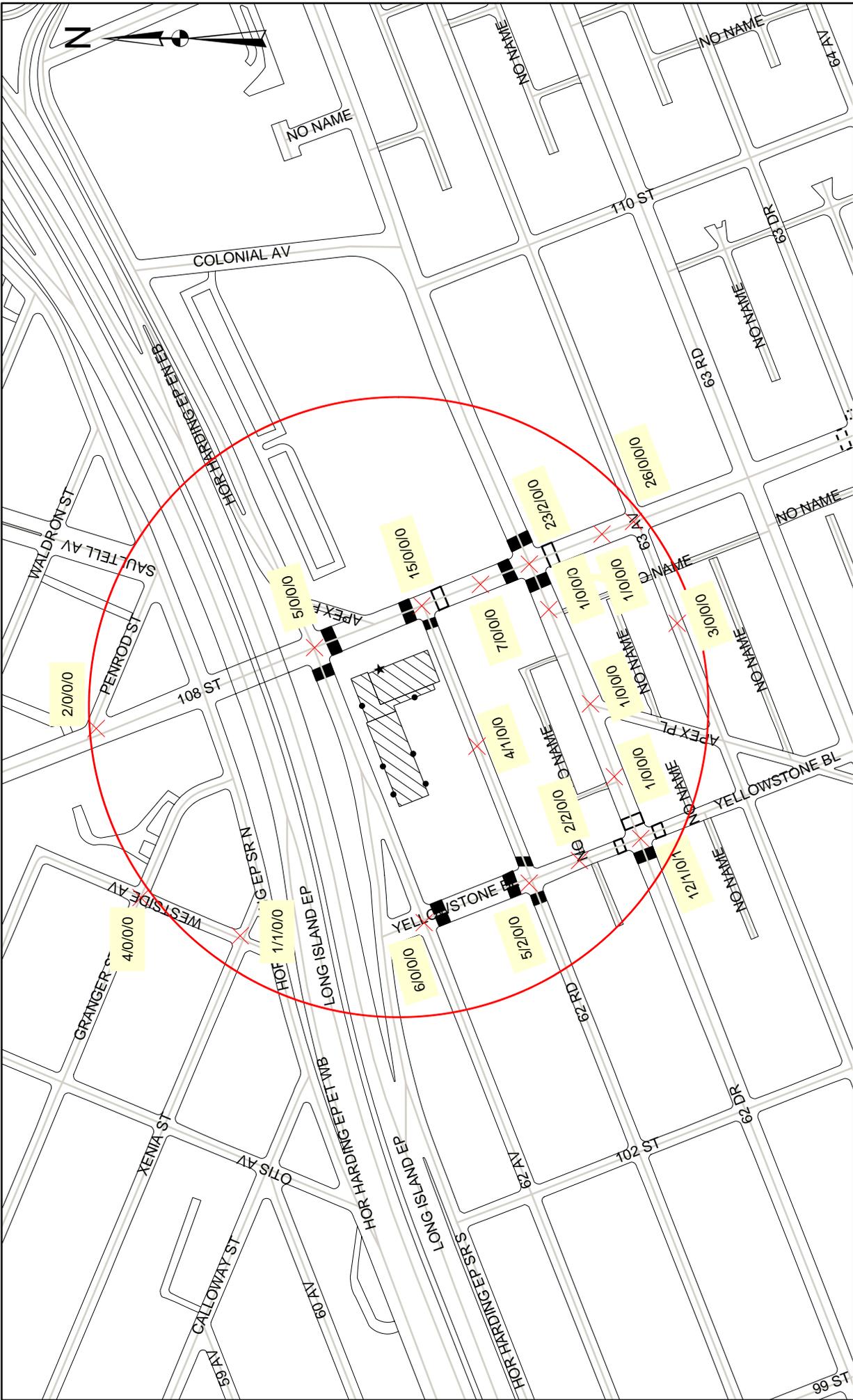
Exhibit 6 and Table 1 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of P.S. 220 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of the accident. Table 2 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.

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
108 th Street/Horace Harding Expressway eastbound service road (62 nd Avenue)	5	0	0	0
108 th Street/62 nd Road	15	0	0	0
108 th Street/62 nd Drive	23	2	0	0
Yellowstone Boulevard/62 nd Avenue	6	0	0	0
Yellowstone Boulevard/62 nd Road	5	2	0	0
Yellowstone Boulevard/62 nd Drive	12	1	0	1
TOTAL	66	5	0	1

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
108 th Street/Horace Harding Expressway eastbound service road (62 nd Avenue)	4	0	0	0
108 th Street/62 nd Road	27	4	0	0
108 th Street/62 nd Drive	36	7	0	0
Yellowstone Boulevard/62 nd Avenue	6	1	0	0
Yellowstone Boulevard/62 nd Road	13	2	0	0
Yellowstone Boulevard/62 nd Drive	15	3	0	2
TOTAL	101	17	0	2

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



LEGEND:

- ACCIDENT LOCATION
- SCHOOL CROSSWALK
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
- BORDER OF 700 FEET
- X/Y/Z/X

TOTAL ACCD / PED ACCD / PED FATAL / SCHOOL_PED ACCD

EXHIBIT 6

P.S. 220 QUEENS

EDWARD MANDEL SCHOOL

ACCIDENT SUMMARY (1998-2000)

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 specific conditions are required information when analyzing a location, and are the starting point for any revisions that may be considered to improve safety and/or efficiency.

The following sub-sections outline the physical conditions and issues concerning traffic operations and accidents at the intersections in the vicinity of P.S. 220.

3.6.1 108th Street and Horace Harding Expressway eastbound service road (62nd Avenue)

This is a signalized four-leg intersection with school crosswalks located across the west and south legs. A pedestrian crosswalk is located across the east leg of the intersection. North of P.S. 220, the Horace Harding Expressway service road merges with 62nd Avenue as a one-way eastbound street with four eastbound approach lanes west of 108th Street and three eastbound departure lanes east of 108th Street, and no on-street parking. (The northerly lane on the eastbound approach to the intersection is an exclusive left-turn lane, and therefore, does not continue through the intersection.)

South of the intersection with the Horace Harding Expressway eastbound service road, 108th Street is a two-way north-south street with two travel lanes on each side of the roadway and no on-street parking. However, north of this intersection, 108th Street has two northbound departure lanes and four southbound approach lanes, including two exclusive left-turn lanes and two exclusive through lanes. There is an on-ramp to the Long Island Expressway located east of this intersection (see Figures 3 and 4).

There was a total of five accidents reported at this intersection between 1998 and 2000 (Table 1), but none of these accidents involved pedestrians.

The school's survey response indicated a speeding problem on the Horace Harding Expressway eastbound service road (62nd Avenue). Therefore, a spot speed survey was conducted on this roadway between Yellowstone Boulevard and 108th Street in order to verify the existence of a speeding problem and to determine its extent.

In the analysis of vehicle speeds, the 85th percentile speed is considered to be the representative speed for a specified street segment. By definition, this is the speed at which 85 percent of the surveyed vehicles are traveling below and 15 percent of the surveyed vehicles are traveling above. An 85th percentile speed exceeding a 30 mph threshold indicates a potential speeding problem that may require appropriate traffic calming measures.

Based on the results of the spot speed survey, vehicles on the Horace Harding Expressway eastbound service road were found to be traveling at an 85th percentile speed of 40 mph between Yellowstone Boulevard and 108th Street. Because the 85th percentile

speed exceeds the 30 mph threshold, mitigation measures are recommended as described in Section 4.1.

The detailed results of the spot speed survey for the Horace Harding Expressway eastbound service road are shown in the Appendix at the end of this document.



Figure 3: Looking east on the Horace Harding Expressway eastbound service road (62nd Avenue) to the intersection with 108th Street



Figure 4: Looking north on 108th Street to the intersection with the Horace Harding Expressway eastbound service road (62nd Avenue)

3.6.2 108th Street and 62nd Road

This is a three-leg signalized “T”-intersection with school crosswalks located across the north and west legs, and a pedestrian crosswalk located across the south leg. South of 62nd Road, 108th Street is a two-way north-south street with one travel lane and one on-street parking lane on each side of the roadway. Between 108th Street and Yellowstone Boulevard 62nd Road is a one-way westbound street with one travel lane and on-street parking permitted on both sides of the roadway (see Figures 5 and 6).

There was a total of 15 accidents reported at this intersection between 1998 and 2000 (Table 1), but none of these accidents involved pedestrians.



Figure 5: Looking north along the east side of 108th Street to the intersection with 62nd Road



Figure 6: Looking west across the north leg of 108th Street at the intersection with 62nd Road

3.6.3 108th Street and 62nd Drive

This is a four-leg signalized intersection with school crosswalks located across the north, east and west legs, and a pedestrian crosswalk located across the south leg. 108th Street is a two-way north-south street with one travel lane and one on-street parking lane on each side of the roadway. East of the intersection with 108th Street, 62nd Drive is a two-way street with one travel lane and one on-street parking lane on each side of the roadway. West of this intersection, 62nd Drive is a one-way westbound street with two travel lanes and on-street parking permitted on both sides of the roadway (see Figures 7 and 8).

There was a total of 23 accidents reported at this intersection between 1998 and 2000 (Table 1), including two pedestrian accidents, neither of which were school-related. There were no pedestrian fatalities reported at this intersection between 1998 and 2000.



Figure 7: Looking north on 108th Street to the intersection with 62nd Drive



Figure 8: Looking east on 62nd Drive to the intersection with 108th Street

3.6.4 Yellowstone Boulevard and 62nd Avenue

This is a four-leg unsignalized intersection with a school crosswalk located across the south leg. Yellowstone Boulevard is a two-way north-south street with one travel lane and one on-street parking lane on each side of the roadway. West of the intersection with Yellowstone Boulevard, 62nd Avenue is a two-way east-west street with one travel lane and one on-street parking lane on each side of the roadway. East of this intersection, 62nd Avenue is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of the roadway. The eastbound approach on 62nd Avenue is stop-controlled at the intersection with Yellowstone Boulevard (see Figures 9 and 10).

There was a total of six accidents reported at this intersection between 1998 and 2000 (Table 1), but none of these accidents involved pedestrians.



Figure 9: Looking east on 62nd Avenue to the intersection with Yellowstone Boulevard



Figure 10: Looking southeast across the intersection of Yellowstone Boulevard/62nd Avenue (the schoolyard for P.S. 220 is visible on the opposite side of the intersection)

3.6.5 Yellowstone Boulevard and 62nd Road

This is a four-leg unsignalized all-way stop-controlled intersection with school crosswalks located across the north, east, and west legs. Yellowstone Boulevard is a two-way north-south street with two travel lanes and one on-street parking lane on each side of the roadway. West of the intersection with Yellowstone Boulevard, 62nd Road is a two-way east-west street with one travel lane and one on-street parking lane on each side of the roadway. East of this intersection, 62nd Road is a one-way westbound street with one travel lane and on-street parking permitted on both sides of the roadway (see Figures 11 and 12).

There was a total of five accidents reported at this intersection between 1998 and 2000 (Table 1), including two pedestrian accidents, neither of which was school-related. There were no pedestrian fatalities reported at this intersection between 1998 and 2000.



Figure 11: Looking south on Yellowstone Boulevard to the intersection with 62nd Road



Figure 12: Looking east on 62nd Road to the intersection with Yellowstone Boulevard

3.6.6 Yellowstone Boulevard and 62nd Drive

This is a four-leg signalized intersection with a school crosswalk located across the west leg, and pedestrian crosswalks located across the north, south, and east legs. Yellowstone Boulevard is a two-way north-south street with one travel lane and one on-street parking lane on each side of the roadway. 62nd Drive is a one-way westbound street with two travel lanes and on-street parking permitted on both sides of the roadway.

There was a total of 12 accidents reported at this intersection between 1998 and 2000 (Table 1), including one pedestrian accident that was also school-related. In the school related accident, an 11-year-old pedestrian was reported struck by a vehicle at approximately 6:00 pm on Monday, April 27, 1998 while crossing with the signal at the intersection. The pedestrian was reported to have sustained a “possible injury.” The roadway and weather conditions were reported as dry and clear, respectively. There were no pedestrian fatalities reported at this intersection between 1998 and 2000.



Figure 13: Looking north on Yellowstone Boulevard to the intersection with 62nd Drive

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of P.S. 220, and were found to be adequate based upon a child pedestrian walking at the rate of three feet per second. Signal timings are shown in Table 3.

TABLE 3: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
108 th Street and Horace Harding Expressway eastbound service road (62 nd Avenue)				
crossing 108 th Street	64	36	25	NO
crossing Horace Harding Expressway	44	37	18	NO
108 th Street and 62 nd Road				
crossing 108 th Street	51	20	20	NO
crossing 62 nd Road	41	38	17	NO
108 th Street and 62 nd Drive				
crossing 108 th Street	51	23	20	NO
crossing 62 nd Drive	50	35	20	NO
Yellowstone Boulevard and 62 nd Drive				
crossing Yellowstone Boulevard	32	26	14	NO
crossing 62 nd Drive	48	32	19	NO

Note: A child pedestrian walking rate of 3 feet/second, plus 3 seconds reaction time, was utilized to calculate the required pedestrian crossing times.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways and sidewalks in the vicinity of P.S. 220 were observed to be in fair condition. On the school block faces, sidewalk widths varied from 10 to 20 feet.

3.8.2 Pedestrian Ramps

Pedestrian ramps in the vicinity of the school were observed to be standard in most instances. However, the following locations were not standard:

- The pedestrian ramp located on the southeast corner of the Yellowstone Boulevard/62nd Avenue intersection, for the crosswalk located across the south leg, has a small lip.
- Both pedestrian ramps located on the northwest corner of the 108th Street/62nd Road intersection, for the crosswalks located across the north and west legs, have slopes that are steeper than standard.
- Both pedestrian ramps located on the northwest corner of the 108th Street/62nd Drive intersection, for the crosswalks located across the north and west legs, have slopes that are steeper than standard.

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes proposed measures to improve school pedestrian safety around P.S. 220. 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 the P.S. 220 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 7 AM – 4 PM SCHOOL DAYS” signs*

Signs should be installed reading: “NO STANDING 7 AM – 4 PM SCHOOL DAYS” for 30 feet in front of the main entrance to the school. (This is a typical requirement for all NYC schools in order to provide for emergency access to and from the school.)

➤ *Place stop bars ten feet in advance of school crosswalks*

The MUTCD and New York City DOT standard for placement of a stop bar is four feet in advance of a marked crosswalk. At signalized (or stop controlled) crosswalks, the vehicle stop line can be placed farther back from the crosswalk in order to maximize visibility of pedestrians and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all school crosswalks.

➤ *Request that NYPD assign a crossing guard to the intersection of Yellowstone Boulevard and 62nd Avenue*

The school crosswalk located across the south leg of Yellowstone Boulevard at 62nd Avenue is currently uncontrolled (i.e. there is no positive traffic control for vehicles traveling on Yellowstone Boulevard across the crosswalk). Therefore, the following is recommended:

- Assign a crossing guard to the intersection of Yellowstone Boulevard and 62nd Avenue to assist students in crossing Yellowstone Boulevard.

➤ *Administer student pedestrian safety education program*

The school should participate in the NYCDOT Safety Education Program to educate students to use designated school crosswalks while crossing the street, not to cross mid-block, not to cross against signals, and not to run out between cars.

➤ *Speeding on Horace Harding Expressway eastbound service road (62nd Avenue)*

In the school’s survey responses, school officials reported speeding as a problem on the Horace Harding Expressway eastbound service road (62nd Avenue).

Therefore, a spot speed survey was conducted on this roadway between Yellowstone Boulevard and 108th Street in order to verify the existence of a speeding problem and to determine its extent. The results of the spot speed survey indicated an 85th percentile speed of 40 mph. This finding suggests the need for speed reduction measures.

Therefore, it is recommended that:

- Install two speed boards on 62nd Avenue (eastbound) between Yellowstone Boulevard and 108th Street.

➤ Convert pedestrian crosswalk to school crosswalk

There is an existing pedestrian crosswalk located across the east leg of the signalized Yellowstone Boulevard/62nd Drive intersection. This crosswalk is on the same side of the roadway as P.S. 220, and is a logical route for students to use when traveling to and from the school. Therefore, the following is recommended:

- Convert the existing pedestrian crosswalk located across the east leg of the signalized Yellowstone Boulevard/62nd Drive intersection to a school crosswalk, and install all appropriate advance warning signs and pavement markings.

4.2 LONG-TERM MEASURES

➤ Construct pedestrian ramps

Most pedestrian ramps in the vicinity of P.S. 220 were observed to be standard. However, there are some locations that are not standard. Therefore, the following actions are recommended:

- Reconstruct both pedestrian ramps on the northwest corner of the 108th Street and 62nd Drive intersection to provide standard pedestrian ramps.

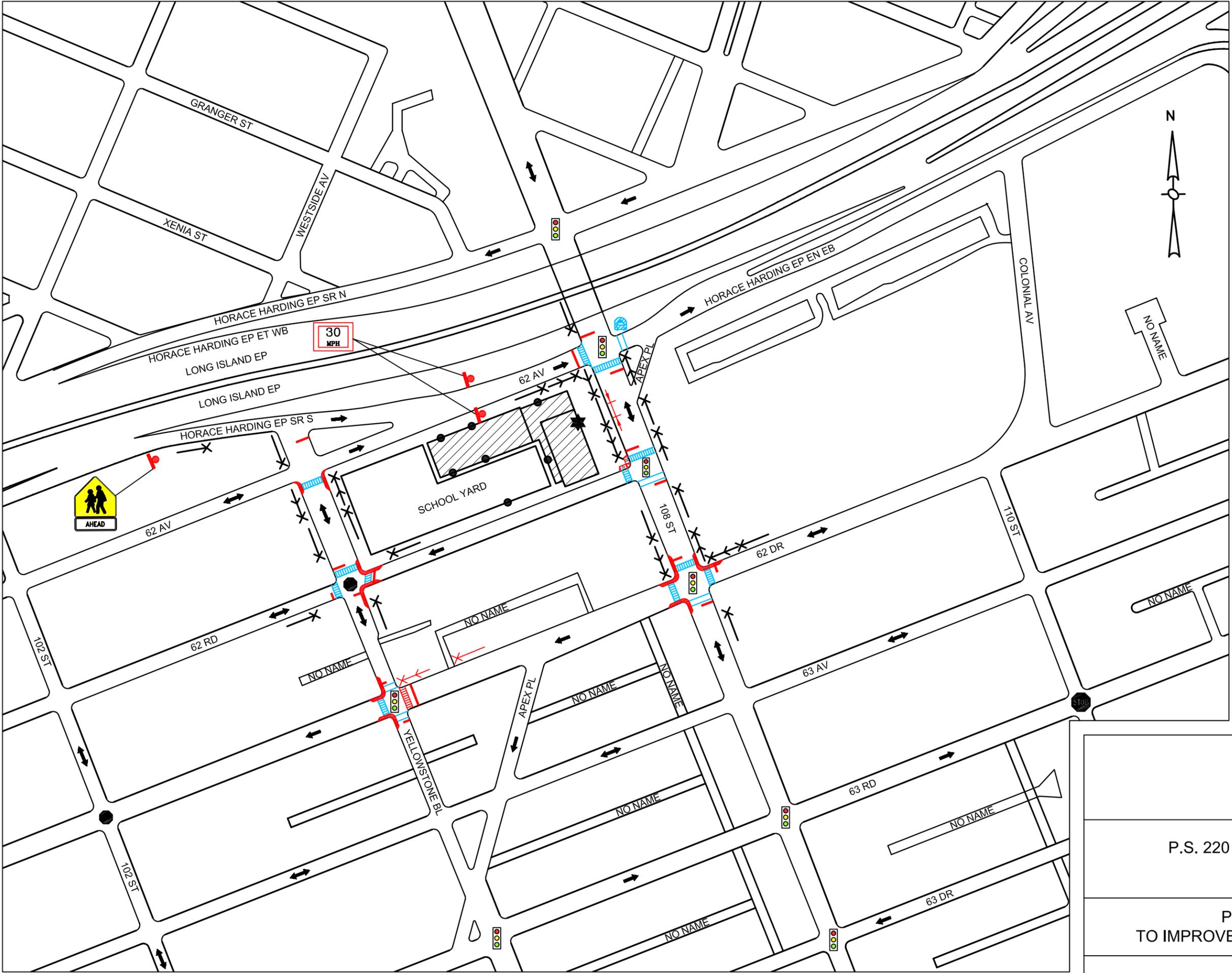
➤ Consider installing curb extensions at the following locations

Consideration should be given to installing curb extensions at the following locations, provided that the Final Design confirms that construction of the recommended curb extensions would be feasible and not interfere with traffic operations. Final details pertaining to the number, location and geometry of curb extensions will be developed during the Final Design/Contract Document preparation.

- Northeast, northwest, and southwest corners of the signalized 108th Street and 62nd Drive intersection.
- Northwest and southwest corners of the signalized Yellowstone Boulevard and 62nd Drive intersection.

- Northeast and southeast corners of the all-way stop-controlled Yellowstone Boulevard and 62nd Road intersection.
- Southwest and southeast corners of the Yellowstone Boulevard and 62nd Avenue intersection.

The purpose of the curb extensions is to shorten the crossing distance for pedestrians, and to reduce speeds of vehicles approaching and turning at these heavily utilized school crosswalks. These curb extensions would not eliminate or reduce the width of any moving lanes.



LEGEND

-  MAIN ENTRANCE
-  OTHER ENTRANCES
-  EXISTING TRAVEL DIRECTION
-  EXISTING SIGNALIZED LOCATION
-  EXISTING ALL WAY STOP LOCATION
-  EXISTING ADVANCE WARNING SIGN OR SCHEDULED TO BE INSTALLED
-  EXISTING SCHOOL CROSSWALK WARNING ASSEMBLY OR SCHEDULED TO BE INSTALLED
-  EXISTING SCHOOL CROSSWALK
-  EXISTING PEDESTRIAN CROSSWALK
-  EXISTING BUS STOP LOCATION TO BE RELOCATED
-  PROPOSED ADVANCE WARNING SIGN
-  PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
-  EXISTING PEDESTRIAN RAMP TO BE RECONSTRUCTED
-  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
-  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
-  PROPOSED SCHOOL CROSSWALK
-  PROPOSED TRAFFIC SIGN
-  PROPOSED CURB EXTENSION (NECKDOWN)
-  PROPOSED SPEED BOARD

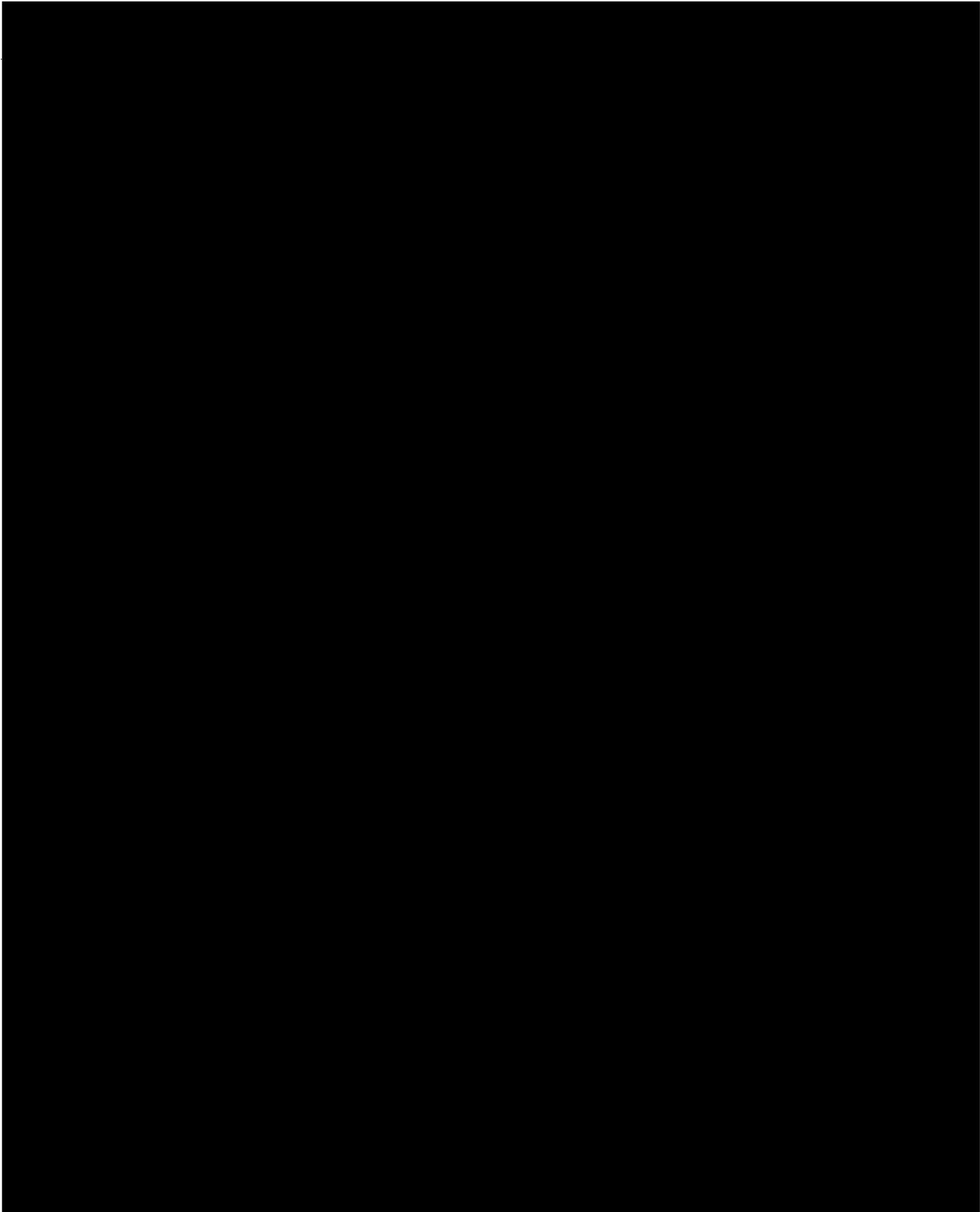
1" = 200'

EXHIBIT 7

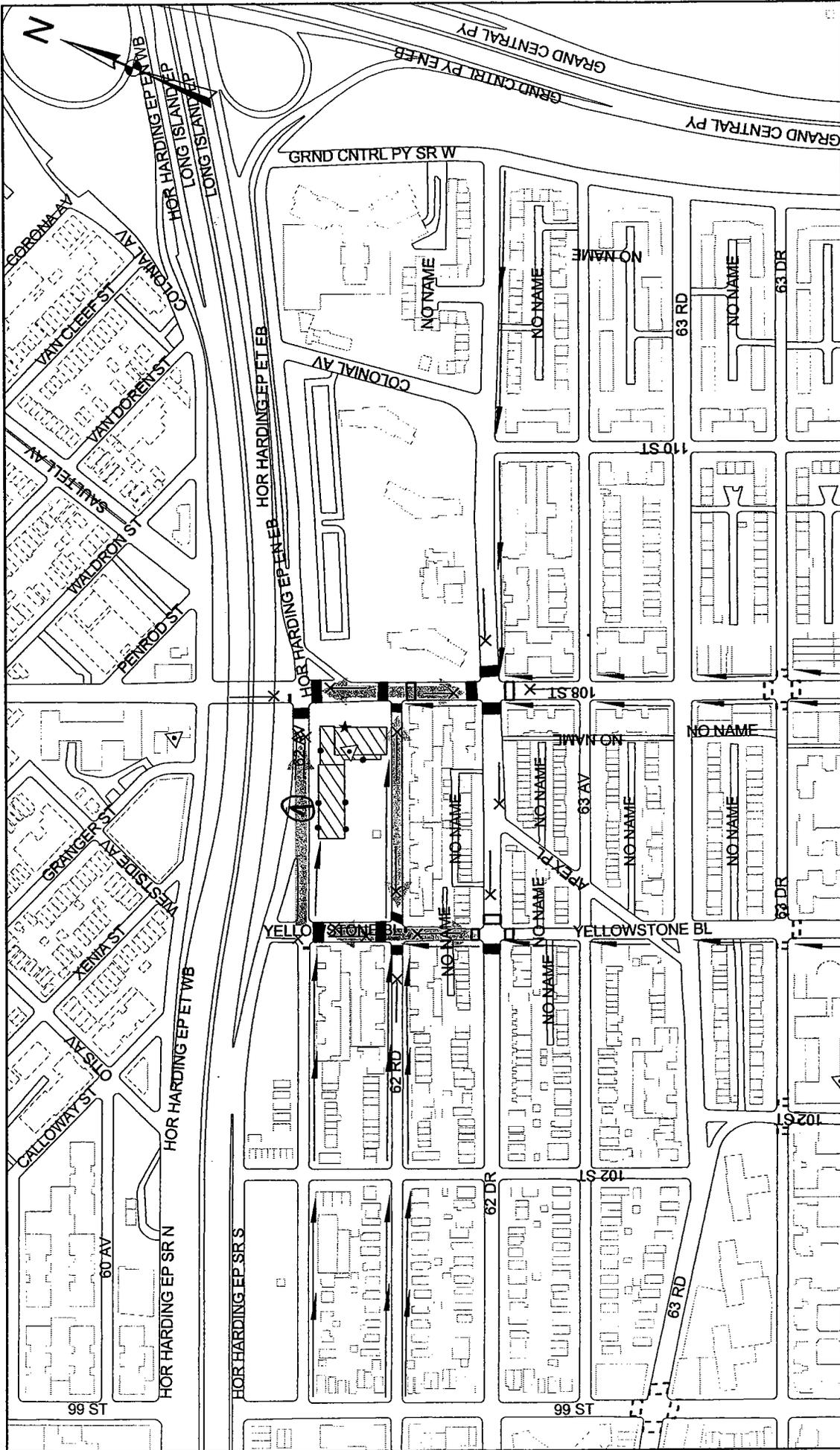
P.S. 220 EDWARD MANDEL SCHOOL
QUEENS

POTENTIAL MEASURES
TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX



**TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL**



**EDWARD MANDEL SCHOOL
P.S. 220**

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

ORIG. DATE: 11/19/1979
GIS CONVRT: 04/2002
REVISIONS:

COMM. BOARD: 6
BOROUGH: QUEENS
PRECINCT: 112

DRAWING NO. _____
QC: 984
MS: 5337

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

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: **October 27, 2005** Time: **9:45 am - 10:45 am**
 Location: **Horace Harding Expressway between Yellowstone Boulevard & 108 Street**
 Surveyor: **R. Calvache**

School: **P.S. 220**
 Direction: **EB 1**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	0	0.0%	0.0%	0	0
21	0	0.0%	0.0%	0	0
22	0	0.0%	0.0%	0	0
23	0	0.0%	0.0%	0	0
24	0	0.0%	0.0%	0	0
25	0	0.0%	0.0%	0	0
26	1	1.8%	1.8%	26	676
27	0	0.0%	1.8%	0	0
28	2	3.6%	5.5%	56	1568
29	2	3.6%	9.1%	58	1682
30	1	1.8%	10.9%	30	900
31	2	3.6%	14.5%	62	1922
32	6	10.9%	25.5%	192	6144
33	1	1.8%	27.3%	33	1089
34	4	7.3%	34.5%	136	4624
35	14	25.5%	60.0%	490	17150
36	4	7.3%	67.3%	144	5184
37	6	10.9%	78.2%	222	8214
38	3	5.5%	83.6%	114	4332
39	1	1.8%	85.5%	39	1521
40	3	5.5%	90.9%	120	4800
41	1	1.8%	92.7%	41	1681
42	1	1.8%	94.5%	42	1764
43	0	0.0%	94.5%	0	0
44	1	1.8%	96.4%	44	1936
45	1	1.8%	98.2%	45	2025
46	0	0.0%	98.2%	0	0
47	0	0.0%	98.2%	0	0
48	1	1.8%	100.0%	48	2304
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
	55	100.0%		1942	69516

Mean Speed = 35.3 mph
 Standard Deviation = 4.2 mph
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 35.3 mph
 15th Percentile Speed = 31.0 mph
 85th Percentile Speed = 39.6 mph

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School: **P.S. 220**

Location: **Horace Harding Expressway between Yellowstone Boulevard & 108 St**

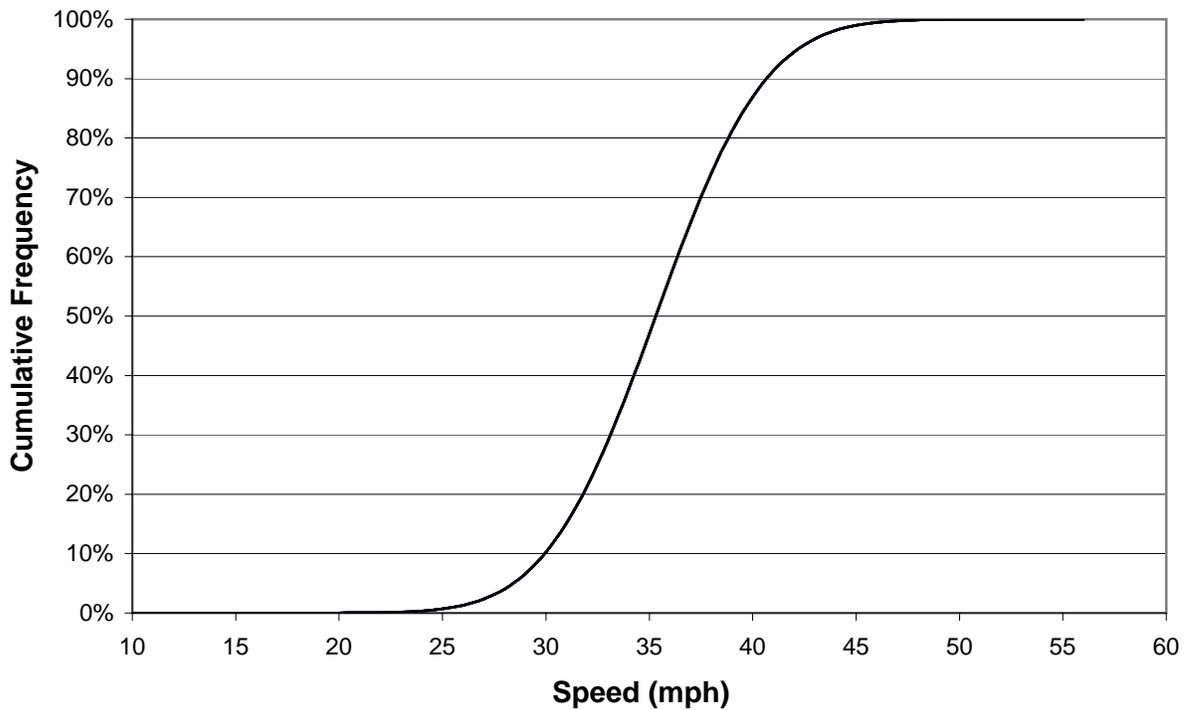
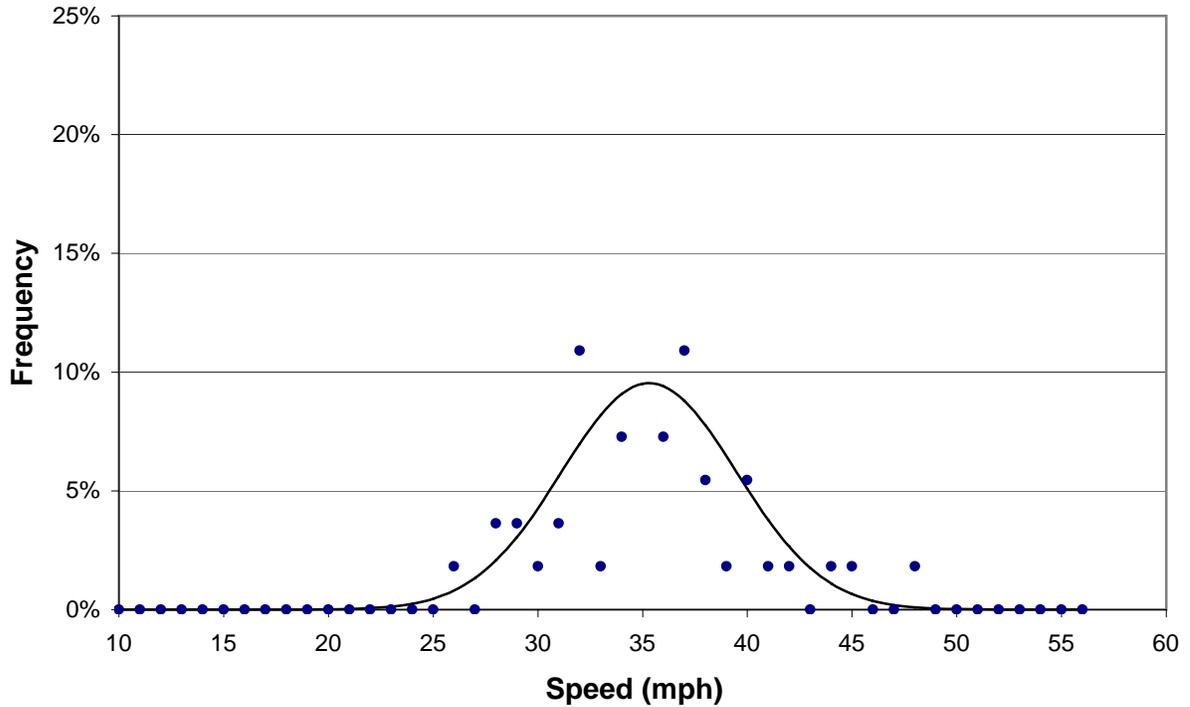
Direction: **EB 1**

Surveyor: **R. Calvache**

Comments:

Mean Speed = 35.3 mph
Standard Deviation = 4.2 mph
Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 35.3 mph
15th Percentile Speed = 31.0 mph
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SPOT SPEED STUDY

Date: **October 27, 2005** Time: **9:45 am - 10:45 am**
 Location: **Horace Harding Expressway between Yellowstone Boulevard & 108 Street**
 Surveyor: **R. Calvache**

School: **P.S. 220**
 Direction: **EB 2**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	0	0.0%	0.0%	0	0
21	0	0.0%	0.0%	0	0
22	0	0.0%	0.0%	0	0
23	2	10.5%	10.5%	46	1058
24	0	0.0%	10.5%	0	0
25	4	21.1%	31.6%	100	2500
26	2	10.5%	42.1%	52	1352
27	3	15.8%	57.9%	81	2187
28	4	21.1%	78.9%	112	3136
29	4	21.1%	100.0%	116	3364
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
	19	100.0%		507	13597

Mean Speed = 26.7 mph Median Speed = 26.7 mph
 Standard Deviation = 1.9 mph 15th Percentile Speed = 24.7 mph
 Margin of Error (95% Confidence) = ± 0.9 mph 85th Percentile Speed = 28.7 mph

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Surveyor: **R. Calvache** Comments:

Mean Speed = 26.7 mph Median Speed = 26.7 mph
Standard Deviation = 1.9 mph 15th Percentile Speed = 24.7 mph
Margin of Error (95% Confidence) = ± 0.9 mph 85th Percentile Speed = 28.7 mph

