

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



School Safety Engineering Project

FINAL REPORT: I.S. 93 (Ridgewood Intermediate School), Queens



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



May 4, 2006

**School Safety Engineering Project
Final Report: I.S. 93, 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 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. 93 (Ridgewood Intermediate School) in 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

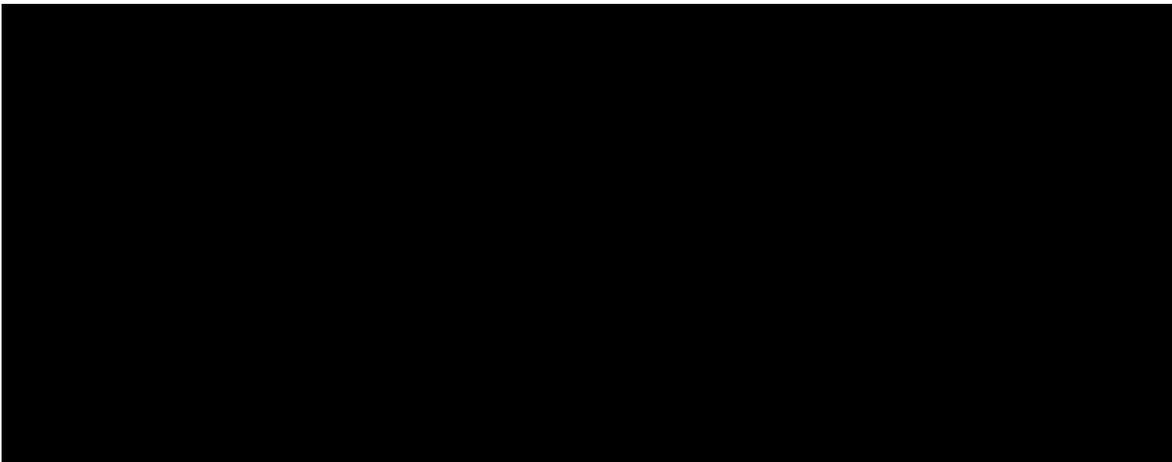
Exhibit 1, at the end of this section, shows an aerial view of the neighborhood surrounding the school. I.S. 93 is bounded by Woodbine Street on the west, Madison Street on the east, Fairview Avenue on the south, and Forest Avenue on the north. The area surrounding the school is generally residential in nature. Forest Avenue has commercial activities and carries higher traffic volumes.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The Consultant was unable to arrange a meeting at the school. This report is therefore based upon the school's survey response, information from the current Department of Education web site, and a school site visit on the morning of Friday, May 21, 2004. According to the school officials' survey response, the problems facing I.S. 93 student pedestrians are:

- Excessive speed on Forest Avenue.
- Children crossing at mid-block locations on Forest Avenue.

(See Appendix for the school's survey response).



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.

The catchment area is a slightly irregular triangular form and is roughly outlined by Metropolitan Avenue to the north; Palmetto Street and Madison Street to the southeast; and Cypress Avenue to the southwest.

Table 1 presents the mode of travel for I.S. 93 as identified by school representatives.

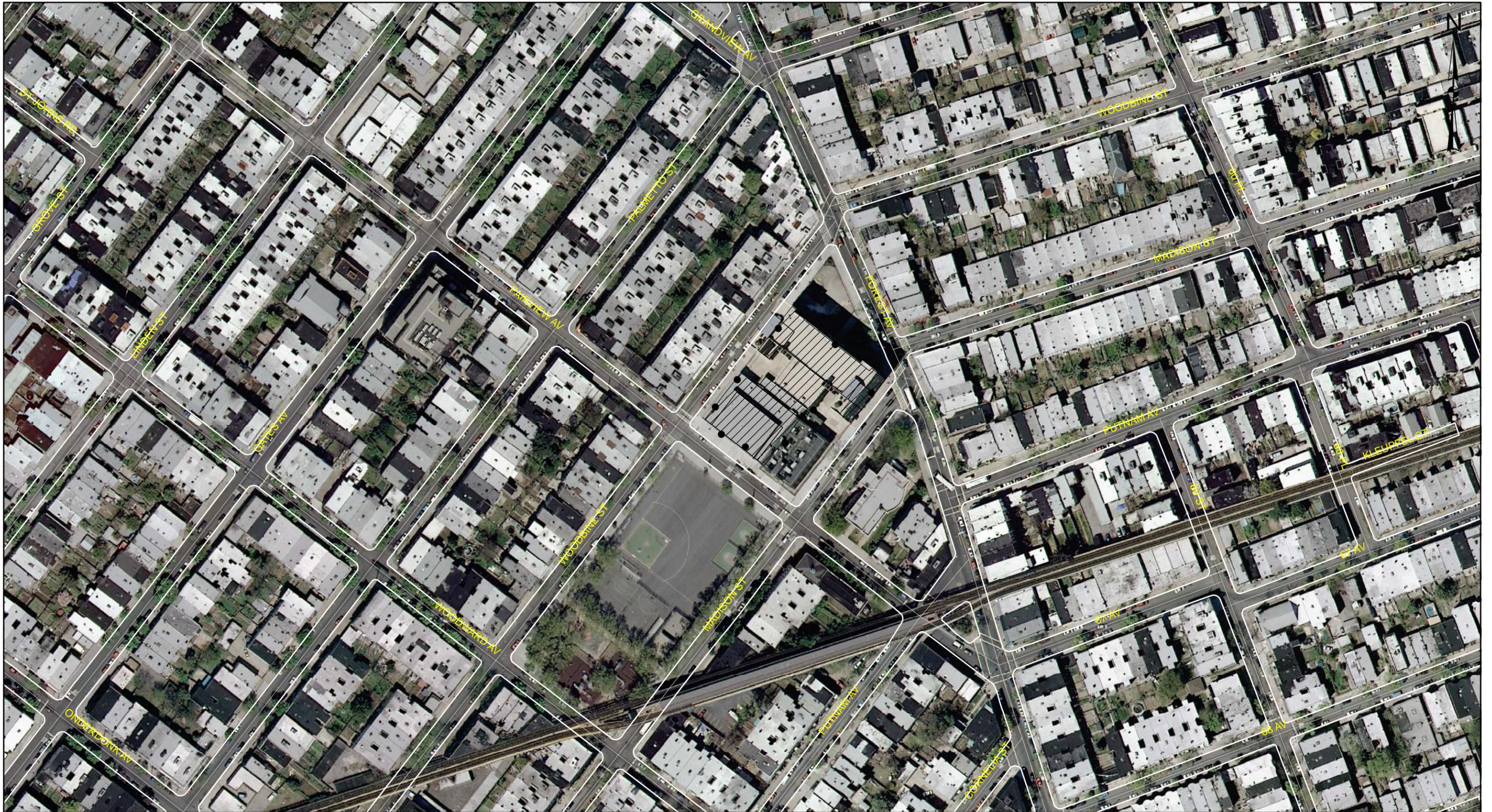
TABLE 1: MODE OF TRAVEL	STUDENTS (Percentage)
Walk	40%
Driven by car	0%
School bus	5%
MTA Bus / Subway	55%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are some stores and restaurants along Forest Avenue that are attractions for I.S. 93 student pedestrians and a deli-grocery on the corner of Woodbine Street & Fairview Avenue. The Ridgewood Branch of the Queens Public Library is across the street on the corner of Forest Avenue & Madison Street.

2.8 CROSSING GUARD LOCATIONS

Since I.S. 93 is a Junior High School, there are no crossing guards assigned to this school.

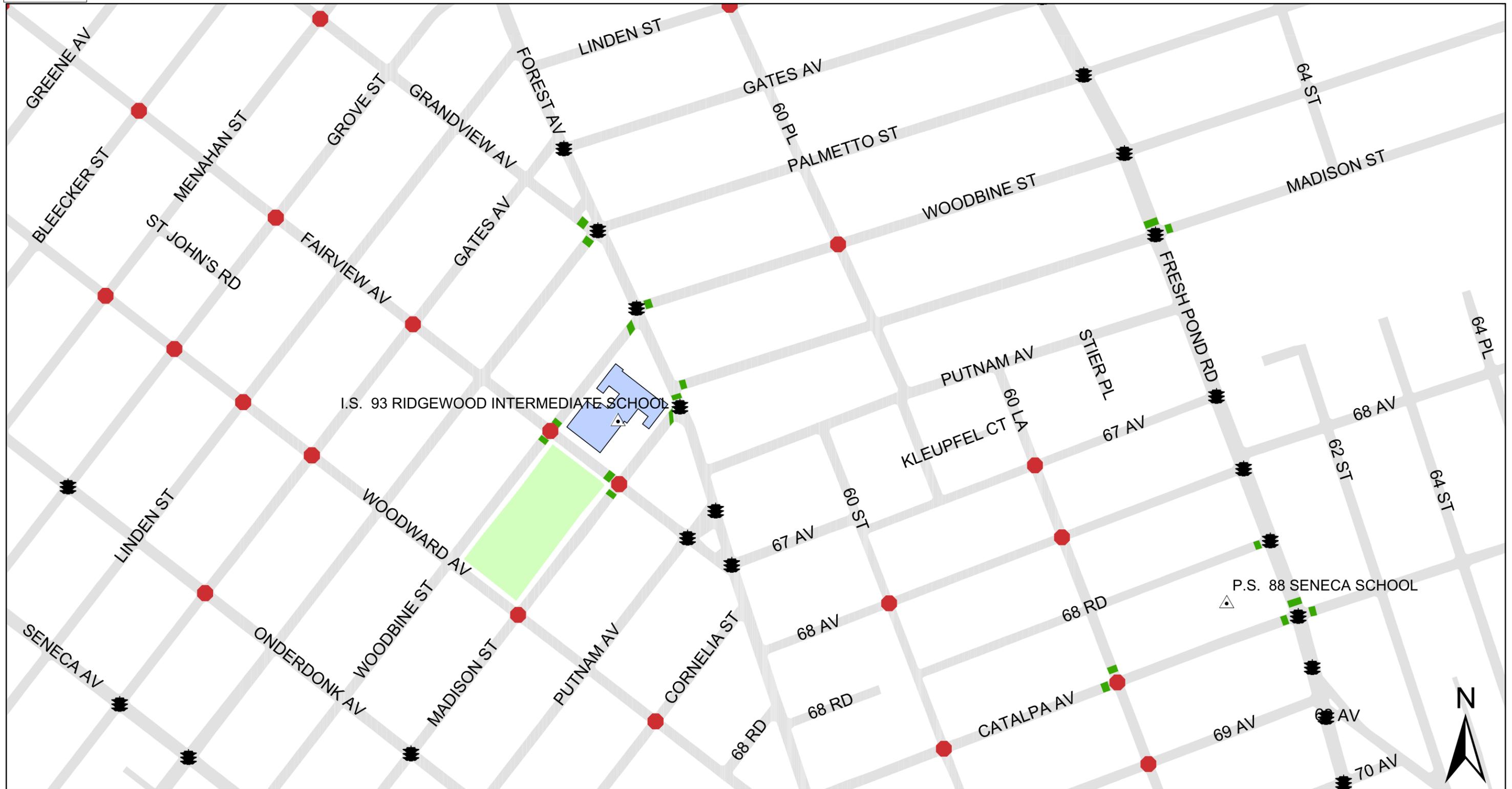


0 250 500 1,000 Feet

EXHIBIT 1
I.S. 93 QUEENS
RIDGEWOOD INTERMEDIATE 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 

IS 93 Queens
RIDGEWOOD INTERMEDIATE SCHOOL

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

Map created on 11/17/2006

EXHIBIT 3

1.5.1

COMM. BOARD: 405
PRECINCT: 104

6

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives, there are approximately seven hundred-fifty (750) students who ride an MTA bus to school, and approximately seventy (70) students who ride a yellow school bus to school. The current web site information shows no information on yellow buses. There are two buses that stop to pick up students in front of the school on Forest Avenue, which include the B-13 and Q-39 buses.

3.2 PARENT DROP-OFF OPERATIONS

According to the school survey response, virtually none of the students are being dropped off.

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 school signs, signals, and pavement markings around I.S. 93 as of June 2004. It should be noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual on Uniform Traffic Control Devices (MUTCD) standards of fluorescent yellow-green accompanied by downward pointing arrows. The MUTCD further directs that the School Crosswalk Warning assembly shall not be installed on approaches controlled by a STOP sign. Signs scheduled to be installed under this program are shown as “existing” in Exhibit 6.

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 5, 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. 93 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 an 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.

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

TABLE 2: I.S. 93 ACCIDENT SUMMARY OF NYS DMV DATA (1998-2000)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Forest Ave. & Palmetto St./Grandview Ave.	8	0	0	0
Forest Ave. & Woodbine St.	12	0	0	0
Forest Ave. & Madison St.	12	3	0	0
Fairview Ave. & Woodbine St.	15	2	0	1
Fairview Ave. & Madison St.	13	2	0	2
Fresh Pond Rd. & Madison St.	11	2	0	0
TOTAL	71	9	0	3
* School-related accidents are defined as accidents involving school-age pedestrians (age 4 – 14), occurring on weekdays during the school year.				

TABLE 3: I.S. 93 ACCIDENT SUMMARY OF NYPD DATA (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Forest Ave. & Palmetto St./Grandview Ave.	19	1	0	0
Forest Ave. & Woodbine St.	18	3	0	1
Forest Ave. & Madison St.	14	4	0	2
Fairview Ave. & Woodbine St.	15	0	0	0
Fairview Ave. & Madison St.	16	4	0	1
Fresh Pond Rd. & Madison St.	33	4	0	0
TOTAL	115	16	0	4
* School-related accidents are defined as accidents involving school-age pedestrians (age 4 – 14), occurring on weekdays during the school year.				

3.6 TRAFFIC OPERATIONS AND ISSUES

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

The following sub-sections outline the physical conditions and issues concerning traffic operations and accidents at the intersections in the vicinity of I.S. 93. Details on specific intersections or roadway segments are given in the following Sections.

3.6.1 Forest Avenue & Palmetto Street/Grandview Avenue

This is a signalized intersection with school crosswalks located across the west legs of Palmetto Street and across the north leg of Grandview Avenue. There are pedestrian crosswalks located across the north and south legs of Forest Avenue and the east leg of Palmetto Street. Forest Avenue is a two-way street with one travel lane and a parking lane on each side of the roadway. Palmetto Street is a one-way eastbound street with one

travel lane and parking on both sides of the roadway. Grandview Avenue is a two-way street with one travel lane and a parking lane on each side of the roadway and intersects with Palmetto Street just west of its intersection with Forest Avenue (see Figures 1 and 2). There is a triangular island at the intersection formed by the intersecting roadways, with Forest Avenue on the north, Grandview Avenue on the south and a short connecting roadway between Forest Avenue and Grandview Avenue on the west. The eastern apex of the triangle lies at the intersection of Forest Avenue and Palmetto Street. The connecting roadway and this area is known as Korean Square. A monument was placed here in May of 1955 as a memorial to those killed in the Korean Conflict.

There were eight (8) accidents reported at this intersection between 1998 and 2000; none of these accidents were pedestrian accidents (Table 2). The NYPD accident data (Table 3) shows nineteen (19) accidents including one (1) pedestrian accident between 2001 and 2004. The pedestrian accident was not a fatal or school-related accident.



Figure 1: Looking east on Forest Avenue toward intersection with Palmetto Street (Grandview Avenue is to right)



Figure 2: Looking east on Grandview Avenue toward Palmetto Street and Forest Avenue

3.6.2 Forest Avenue & Woodbine Street

This is a signalized intersection with school crosswalks located across the east and west legs of Woodbine Street and pedestrian crosswalks located across the north and south legs of Forest Avenue. Forest Avenue is a two-way street with one travel lane and a parking lane on each side of the roadway. Woodbine Street is a one-way westbound street with one travel lane and parking on both sides of the roadway. This is a slightly offset intersection with the east leg of Woodbine Street slightly north of the west leg. The east leg also intersects with Forest Avenue at an approximately right angle, whereas the west leg intersects with Forest Avenue at an approximately 45-degree angle (see Figures 3, 4, and 5).

There were twelve (12) accidents reported at this intersection between 1998 and 2000; none of these accidents were pedestrian accidents (Table 2). The NYPD accident data (Table 3) shows a total of eighteen (18) accidents; three (3) of these were pedestrian accidents, one (1) of which was a school-related accident reported at this intersection between 2001 and 2004. There is no further information available on the school-related accident. There were no pedestrian fatalities during either time period.



Figure 3: Looking South on Forest Avenue toward Woodbine Street intersection (I.S. 93 can be seen on far right)



Figure 4: Looking south along Forest Avenue at Woodbine Street intersection (I.S. 93 can be seen on far side of intersection)



Figure 5: Looking west on Woodbine Street toward Forest Avenue

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

The 85th percentile speed for northbound vehicles on Forest Avenue between Woodbine Street and Madison Street was found to be 30 mph. The 85th percentile speed for southbound vehicles on Forest Avenue between Woodbine Street and Madison Street was found to be 31 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 Forest Avenue between Woodbine Street and Madison Street are shown in the Appendix at the end of the document.

3.6.3 Forest Avenue & Madison Street

This is a signalized intersection with school crosswalks located across the east and west legs of Madison Street and also across the portion of Forest Avenue midway between the east and west legs of Madison Avenue. Pedestrian crosswalks are located across the north and south legs of Forest Avenue. Forest Avenue is a two-way street with one travel lane and a parking lane on each side of the roadway. Madison Street is a one-way eastbound street with one travel lane and parking on both sides of the roadway. This is an offset intersection with the east leg of Madison Street situated north of the west leg. The east leg also intersects with Forest Avenue at an approximately right angle, whereas the west leg intersects with Forest Avenue at an approximately 45-degree angle (see Figure 6).

This intersection has been the site of twelve (12) accidents between 1998 and 2000; three of these were pedestrian accidents, none of which was a school-related accident. There were no fatal pedestrian accidents during this time period. The NYPD accident data (Table 3) shows fourteen (14) accidents including four (4) pedestrian accidents between 2001 and 2004. There were two (2) school-related accidents. There is no further information available on the school-related accident. There were no pedestrian fatalities during the same four-year period.



Figure 6: Looking southwest from east leg of Woodbine Street across Forest Avenue toward west leg of Woodbine Street (corner of school building is on far right)

3.6.4 Fairview Avenue & Woodbine Street

This is an unsignalized all-way stop-controlled intersection with school crosswalks located across both legs of Woodbine Street. Fairview Avenue is a one-way southbound street with one travel lane and parking on both sides of the roadway. Woodbine Street is a one-way westbound street with one travel lane and parking on both sides of the roadway. There are stop signs for both roadway approaches to the intersection (see Figure 7).

This intersection has been the site of fifteen (15) accidents between 1998 and 2000; two (2) of these were pedestrian accidents, one of which was school-related. In the school-related accident, a thirteen-year old pedestrian sustained a “possible injury” on Tuesday, September 28, 1999 at 8:00 am and was reported as crossing, with no signal or crosswalk at the intersection. The road was dry and the weather was clear. The traffic control was a stop sign. There were no pedestrian fatalities during the same three-year period. The NYPD accident data (Table 3) also shows fifteen (15) accidents between 2001 and 2004. There were no pedestrian fatalities or school-related accidents during the same four-year period.

To more fully assess the situation for the area in the neighborhood of I.S. 93, the consultant performed a search of the NYC DOT records for any warrant studies that may have been performed at any of the intersections. A warrant study was completed for the intersection of Fairview Avenue & Woodbine Street to determine the need for a traffic signal installation. The study included a full warrant analysis including vehicle and pedestrian volumes, accident experience, vehicular speeds, visibility and signal spacing. It was determined as a result of the study that a traffic signal was unwarranted. It was determined, however, that an All-Way Stop control was appropriate for the intersection, which was subsequently approved on March 26, 2004. The All-Way Stop signs and markings for the intersection were installed subsequent to the approval.



Figure 7: Looking east on Woodbine Street across Fairview Avenue intersection (school is on far right side of intersection)

3.6.5 Fairview Avenue & Madison Street

This is an unsignalized all-way stop-controlled intersection with school crosswalks located across the north leg of Fairview Avenue and the west leg of Madison Street. Fairview Avenue is a one-way southbound street with one travel lane and parking on both sides of the roadway. Madison Street is a one-way eastbound street with one travel lane and parking on both sides of the roadway. There are stop signs for both approaches to the intersection (see Figures 8 and 9).

This intersection has been the site of thirteen (13) accidents between 1998 and 2000; two (2) of these were pedestrian accidents, both of which were school-related accidents. In the first school-related accident, a twelve-year old pedestrian sustained an “incapacitating injury” on Friday, March 26, 1999 at 3:00 pm and was reported as crossing with no signal or crosswalk at the intersection. The road was dry and the weather was clear. The traffic control was a stop sign. In the second school-related accident, a six-year old pedestrian sustained a “possible injury” on Thursday, November 30, 2000 at 6:00 pm. Although

reported as at the intersection, the young pedestrian's actions were not reported. The road was dry and the weather was clear, and the light condition was dark, with the roadway illuminated. The NYPD accident data (Table 3) shows sixteen (16) accidents including three pedestrian accidents between 2001 and 2004. One (1) of the pedestrian accidents was school related. No further information about the school-related accident is available. There were no pedestrian fatalities during either time period.



Figure 8: Looking south on Fairview Avenue toward Madison Street intersection



Figure 9: Looking east on Madison Street toward Fairview Avenue intersection (school is on far left)

3.6.6 Fresh Pond Road & Madison Street

This is a signalized intersection with school crosswalks located across the north leg of Fresh Pond Road and the east leg of Madison Street. Pedestrian crosswalks are located across the south leg of Fresh Pond Road and the west leg of Madison Street. Fresh Pond Road is a two-way street with one travel lane and a parking lane on each side of the roadway. Madison Street is a one-way eastbound street with one travel lane and parking on both sides of the roadway.

This intersection has been the site of eleven (11) accidents including two (2) pedestrian accidents between 1998 and 2000. There were no pedestrian fatalities or school-related accidents during the same three-year period. The NYPD accident data (Table 3) shows thirty-three (33) accidents including two (2) pedestrian accidents, neither of the pedestrian accidents was school-related. There were no pedestrian fatalities during the same four-year period.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of I.S. 93, 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?
Forest Avenue & Grandview Avenue				
crossing Forest Avenue	33	37	14	No
crossing Grandview Avenue	33	48	14	No
crossing Palmetto Street (east leg)	29	48	13	No
crossing Palmetto Street (west leg)	29	48	13	No
Forest Avenue & Woodbine Street				
crossing Forest Avenue	40	30	17	No
crossing Woodbine Street	30-34	57	13-15	No
Forest Ave & Madison St (east leg)				
crossing Forest Avenue	30	30	13	No
crossing Madison Street	29	57	13	No
Forest Ave & Madison St (west leg)				
crossing Forest Avenue	30	30	13	No
crossing Madison Street	54	57	21	No
Fresh Pond Road & Madison Street				
crossing Fresh Pond Road	45	26	18	No
crossing Madison Street	30	60	13	No

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

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways in the vicinity of I.S. 93 are generally in fair condition. Sidewalks are 10 to 15 feet wide on the school block face, and are in fair condition.

3.8.3 Pedestrian Ramps

Overall, pedestrian ramps in the area of the school appear to be standard, except for one location. The pedestrian ramps on the southeast corner of Fairview Avenue & Woodbine Street, for the school crosswalk located across the east leg of Woodbine Street, and the unmarked crosswalk located across the south leg of Fairview Avenue do not provide smooth transitions from pavement to sidewalk. The curbs have small lips. The roadway pavement at the curb on this corner, for the crosswalk located across the east leg of Woodbine Street, is also in need of repair.

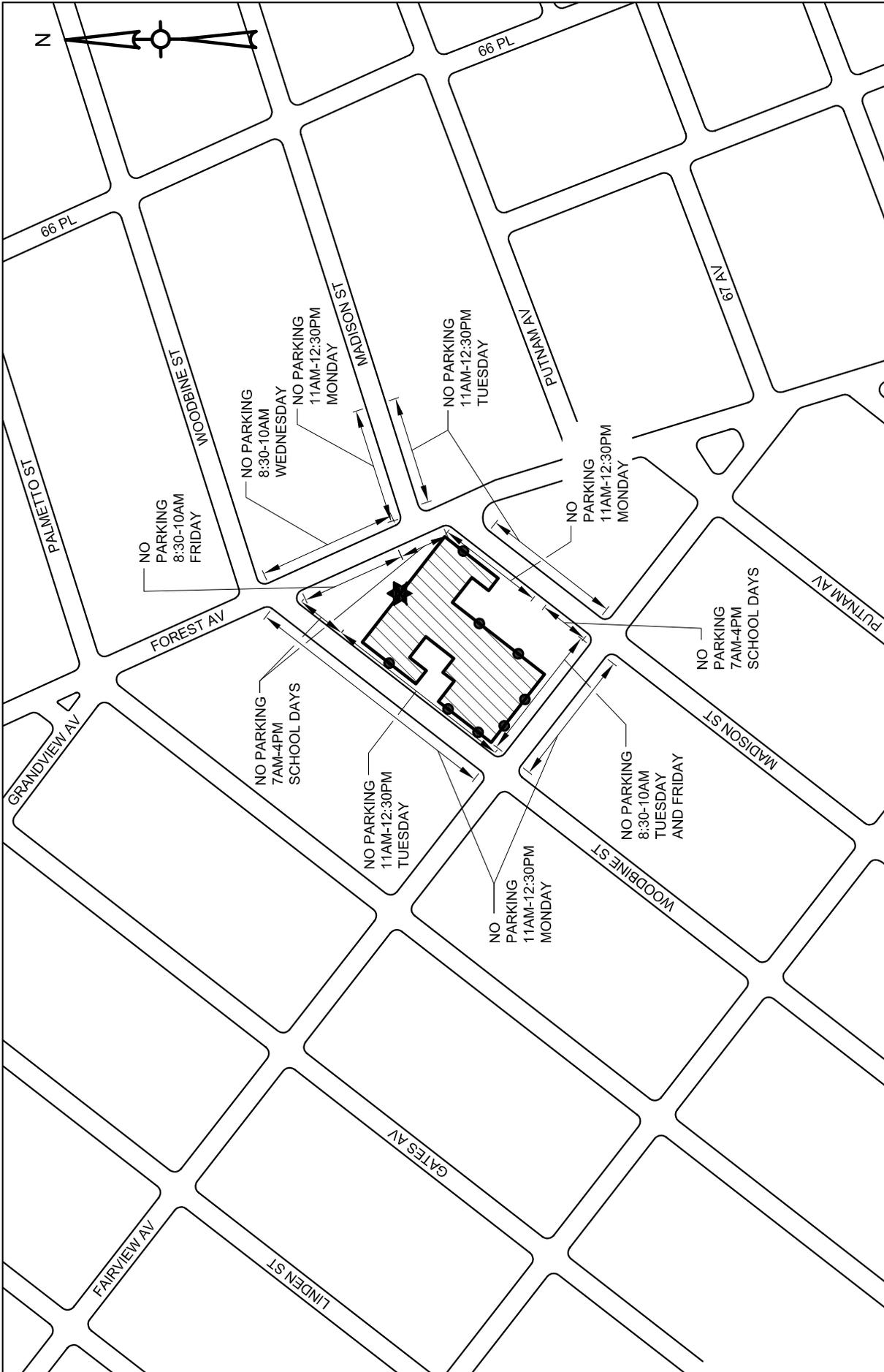
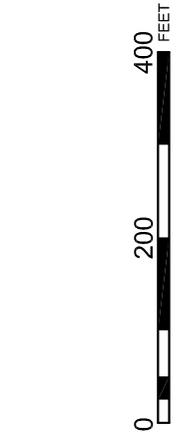


EXHIBIT 4
I.S. 93 QUEENS
RIDGEWOOD INTERMEDIATE SCHOOL
EXISTING PARKING REGULATIONS



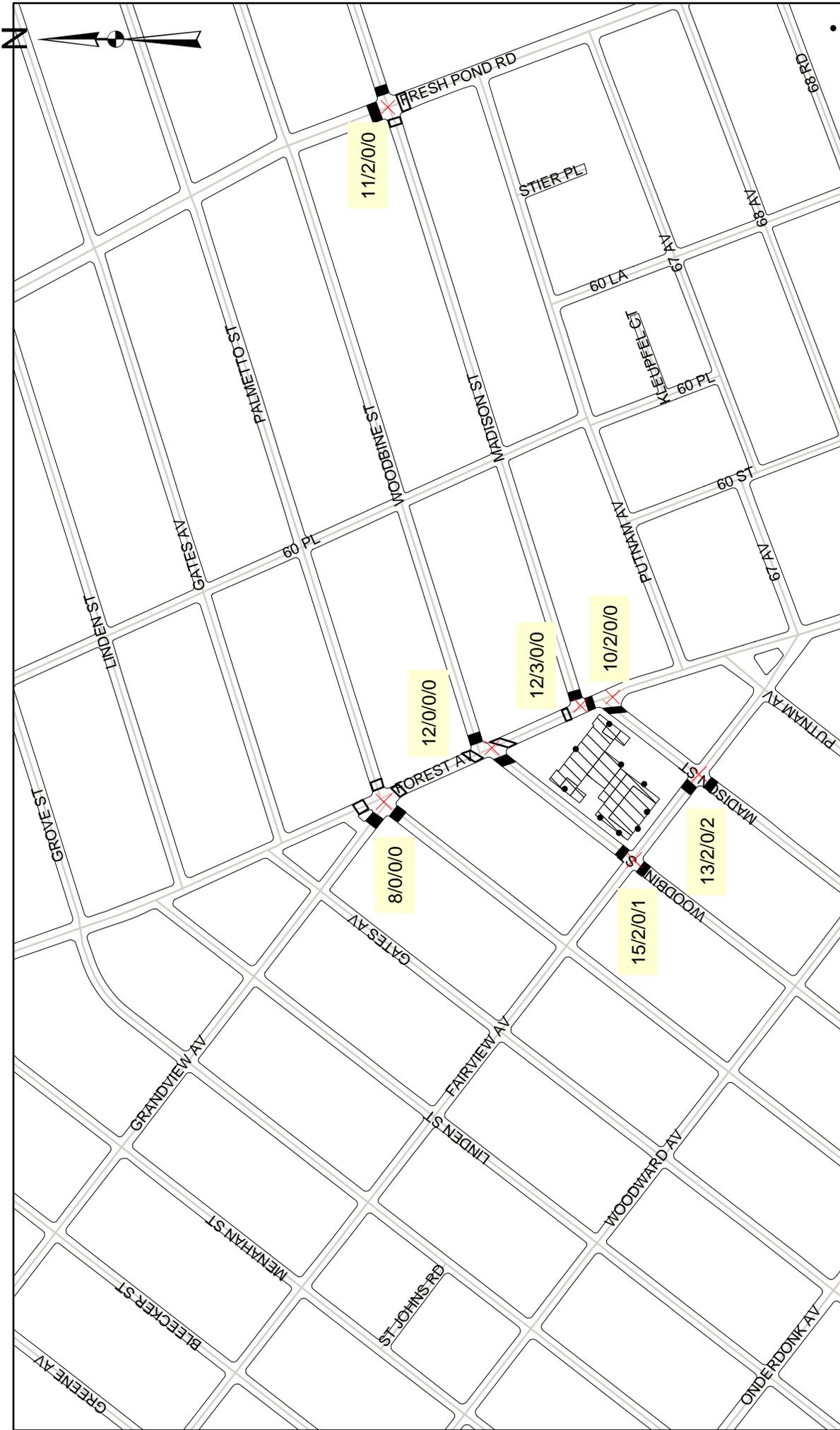


EXHIBIT 5
I.S. 93 QUEENS
RIDGEWOOD INTERMEDIATE SCHOOL
ACCIDENT SUMMARY (1998-2000)

LEGEND:

- ACCIDENT LOCATION
- SCHOOL CROSSWALK
- SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL
- TOTAL PED ACC
- PED SCHOOL PED ACC
- FATAL ACC

0 250 500 1,000 Feet

4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around I.S. 93. 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. 93 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*

The school’s main entrance is located on Forest Avenue. There are “No Parking 7Am-4PM School Days” signs along west side of Forest Avenue just south of the school’s main entrance. It is recommended to replace the existing “No Parking 7AM-4PM School Days” signs with “No Standing 7AM - 4PM School Days” signs. These signs should also be installed for thirty feet (30’) in front of the school at the main entrance of the school. (This is a typical requirement for all NYC public 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. “YIELD TO PEDESTRIAN” sign is recommended on the following approach of signalized intersection of:

- Southbound approach of Forest Avenue at Woodbine Street

This sign is suggested to improve driver awareness and the 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 (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. 93:

- Eastbound approach of Madison Street at Forest Avenue
- Southbound approach of Fresh Pond Road at Madison Street
- Southbound approach of Grandview Avenue at Palmetto Street

- Eastbound approach of Palmetto Street at Grandview Avenue
- Northbound and westbound approaches of Forest Avenue and Woodbine Street intersection

➤ Modify pedestrian ramps

The pedestrian ramps on the southeast corner of Fairview Avenue & Woodbine Street, for the school crosswalk located across the east leg of Woodbine Street, and the unmarked crosswalk located across the south leg of Fairview Avenue do not provide smooth transitions from pavement to sidewalk. The curbs have small lips. The roadway pavement at the curb for the crosswalk located across the east leg of Woodbine Street is also in need of repair.

The following is therefore recommended:

- Modify the pedestrian ramps on the southeast corner of Fairview Avenue & Woodbine Street, for the school crosswalk located across the east leg of Woodbine Street, and the unmarked crosswalk located across the south leg of Fairview Avenue, to provide a smooth transition from pavement to curb for the pedestrian ramp.
- Repair the roadway pavement at the southeast corner of Fairview Avenue & Woodbine Street along the curb for the crosswalk located across the east leg of Woodbine Street. .

➤ Re-designate existing pedestrian crosswalk as school crosswalk

The existing pedestrian crosswalk located across the south leg of Forest Avenue at Woodbine Street connects with a school block corner and is a natural crossing location for students destined for I.S. 93.

It is therefore recommended to:

- Re-designate the existing pedestrian crosswalk located across the south leg of Forest Avenue at Woodbine Street as a school crosswalk, and install all appropriate warning devices.

➤ Install New Standard Pedestrian Crosswalks

There are no marked crosswalks located across the north-west leg of Fairview Avenue at Woodbine Street, and across the north-east and south-east legs of the Fairview Avenue & Madison Street intersection.

It is therefore recommended to:

- Install the standard pedestrian crosswalk markings at the following locations:
 - ❖ Across the north-west leg of Fairview Avenue at Woodbine Street
 - ❖ Across the south-east leg of Fairview Avenue at Madison Street
 - ❖ Across the north-west leg of Madison Street at Fairview Avenue

➤ Administer student pedestrian safety education program

The school officials state in the questionnaire that they would be interested in participating in the DOT's Safety Education Program.

- It is therefore proposed that the NYCDOT Safety Education Program work with the school to educate the students to use the designated school crosswalks and not to cross mid-block and against signals.

4.2 LONG-TERM MEASURES

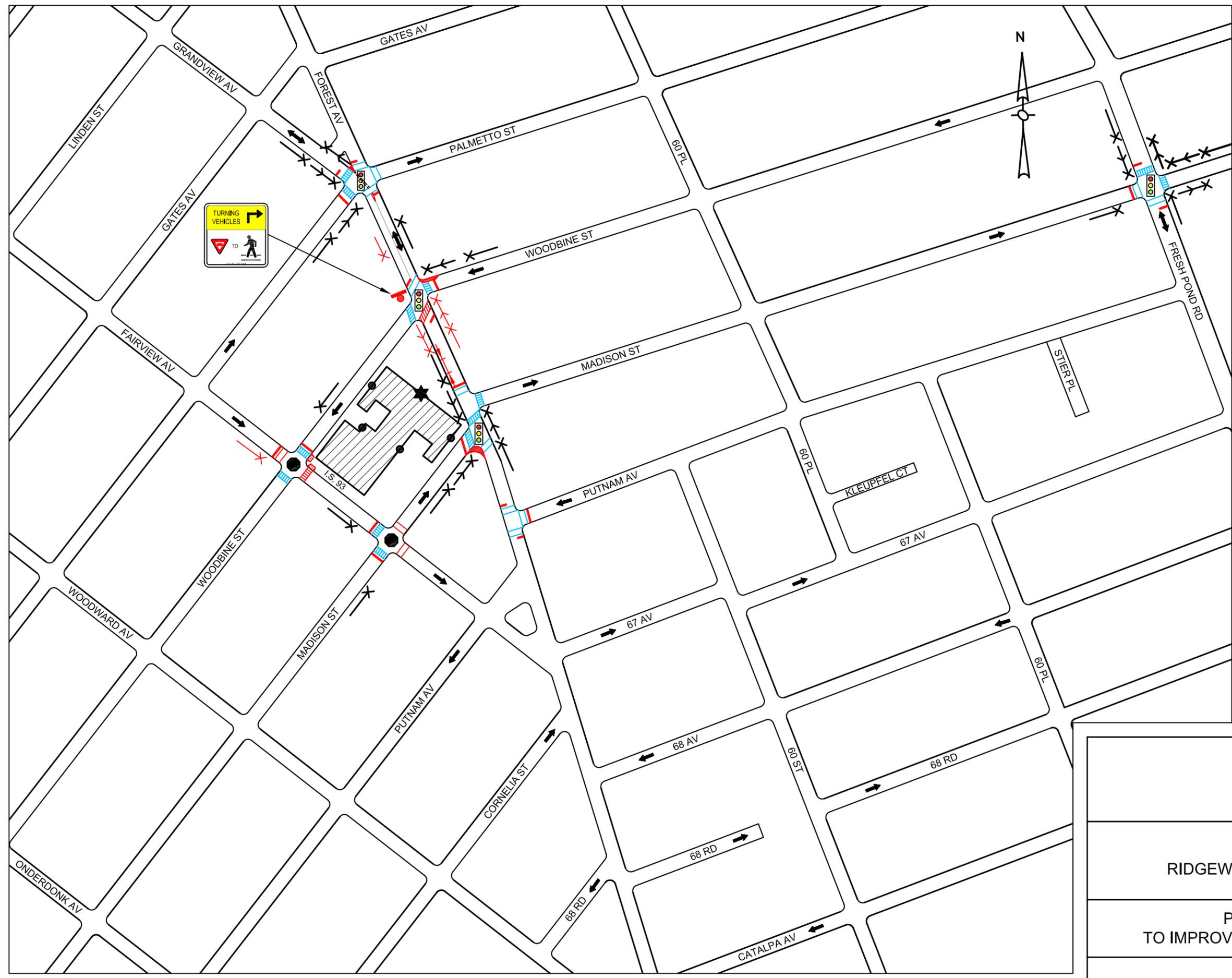
➤ Consider curb extension at the following locations:

- Provide curb extension at the northwest corner of Woodbine Street at its intersection with Forest Avenue.
- Provide curb extension at the southeast corner of Forest Avenue and Madison Street intersection.

There is a triangular island at the intersection of Grandview Avenue/Forest Avenue/Palmetto Street formed by the intersecting roadways, with Forest Avenue on the north, Grandview Avenue on the south and a short connecting roadway between Forest Avenue and Grandview Avenue on the west. The eastern apex of the triangle lies at the intersection of Forest Avenue and Palmetto Street. It is recommended to:

- Extend the eastern apex of the triangle to further east, as shown in Exhibit 6, and align both crosswalks across Grandview Avenue and Forest Avenues. Provide at least 5-foot at grade cut through section at the extended eastern apex of the triangle.

Curb extensions 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.



LEGEND

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

EXHIBIT 6

**I.S. 93 QUEENS
RIDGWOOD INTERMEDIATE SCHOOL**

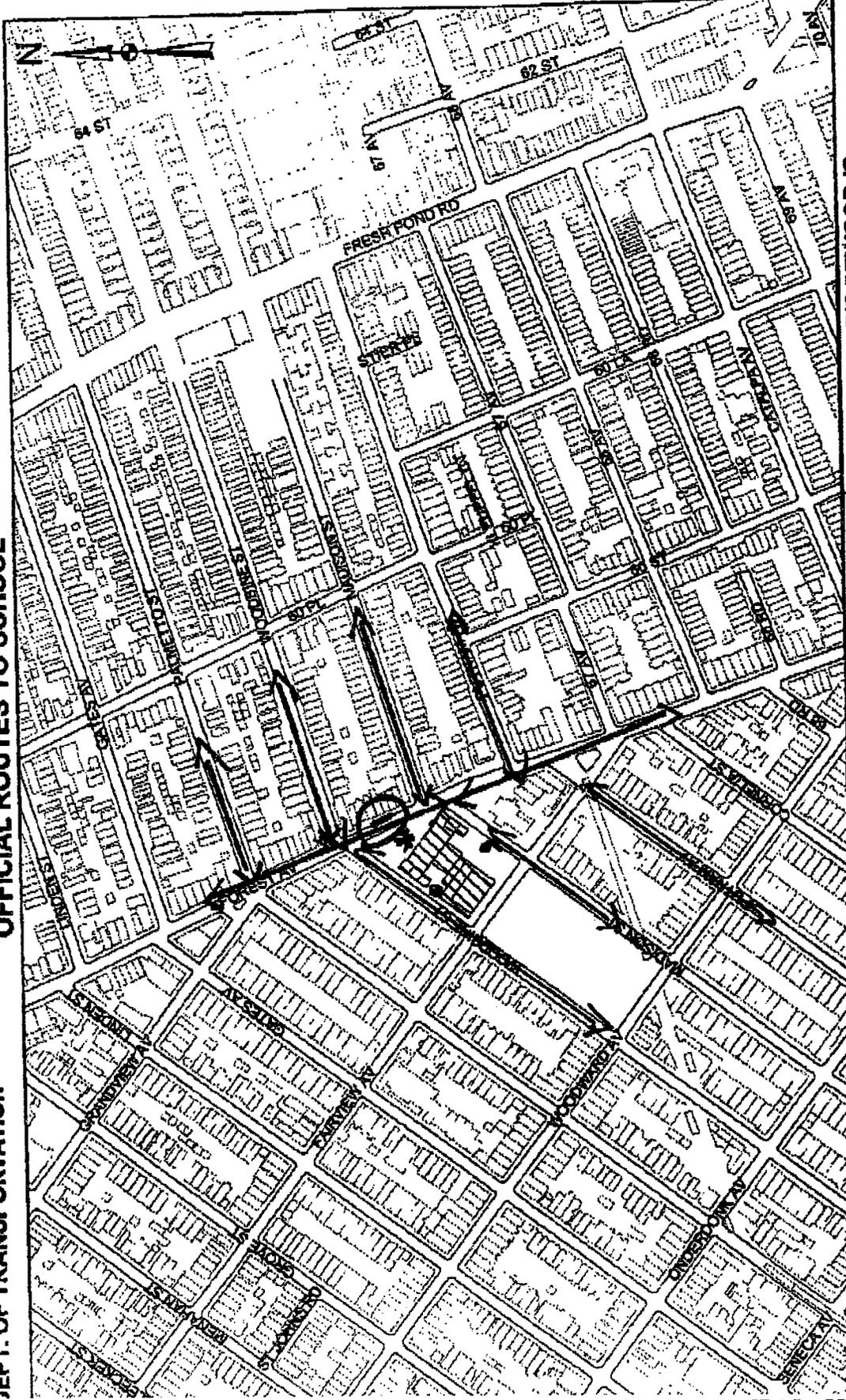
**PROPOSED MEASURES
TO IMPROVE SCHOOL PEDESTRIAN SAFETY**

APPENDIX

NEW YORK CITY
DEPT. OF TRANSPORTATION

TRAFFIC SAFETY PLAN OFFICIAL ROUTES TO SCHOOL

BUREAU OF TRAFFIC



RIDGEWOOD IS

I.S. 93

Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION,
 Mr. Nicholas J. ... COMMISSIONER, in cooperation with SCHOOL, BIK
 POLICE OFFICIALS.
 CONIAL BOARD: ...
 BOROUGH: ...
 PRECINCT: ...
 DRAWING NO. ...
 CC- 871 ...
 NS- 8910 ...
 DATE: 7/27/77 ...
 GIS CORVRT: ...
 REVISIONS:

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

IN TRAFFIC SAFETY PLAN shown on this map
 is assigned to ...
 key for children going to and from school. It is
 noted that all children follow the prescribed
 rules and use the designated crosswalks.

SPOT SPEED STUDY

Date: **October 28, 2005** Time: **9:45 AM**
 Location: **Forest Avenue between Woodbine St and Madison St**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 93**
 Direction: **NB**
 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	1	3.2%	3.2%	22	484
23	0	0.0%	3.2%	0	0
24	6	19.4%	22.6%	144	3456
25	3	9.7%	32.3%	75	1875
26	3	9.7%	41.9%	78	2028
27	2	6.5%	48.4%	54	1458
28	10	32.3%	80.6%	280	7840
29	2	6.5%	87.1%	58	1682
30	1	3.2%	90.3%	30	900
31	2	6.5%	96.8%	62	1922
32	0	0.0%	96.8%	0	0
33	0	0.0%	96.8%	0	0
34	0	0.0%	96.8%	0	0
35	0	0.0%	96.8%	0	0
36	1	3.2%	100.0%	36	1296
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
	31	100.0%		839	22941

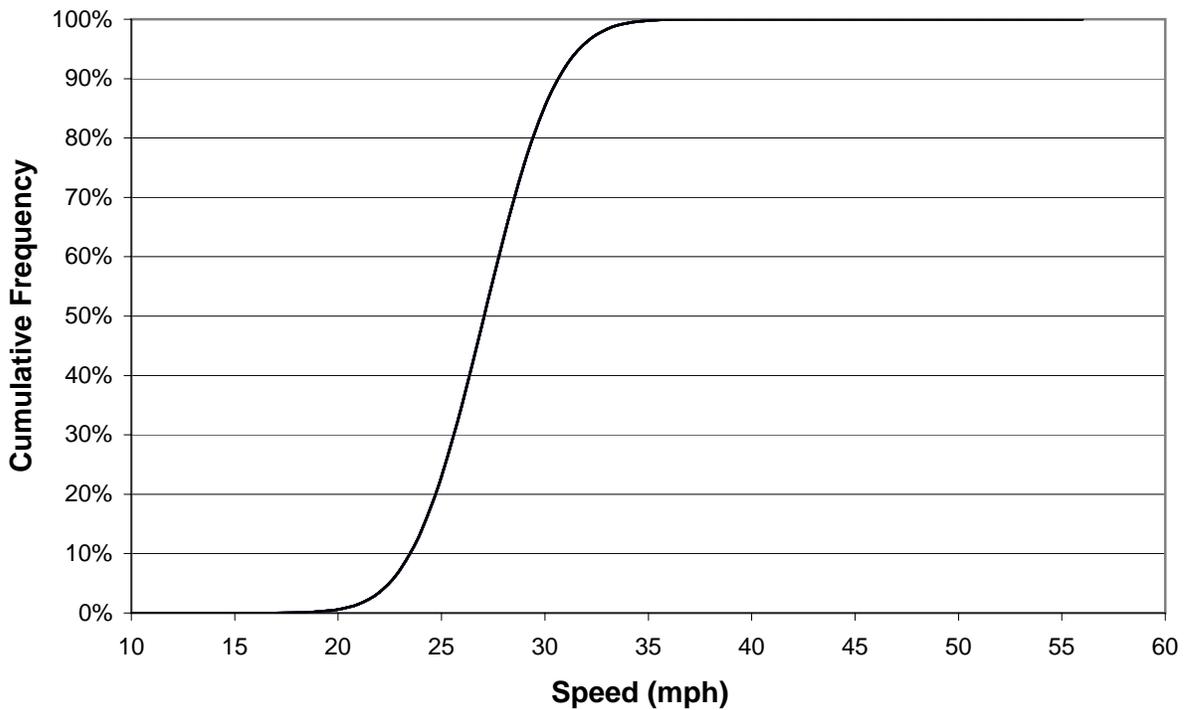
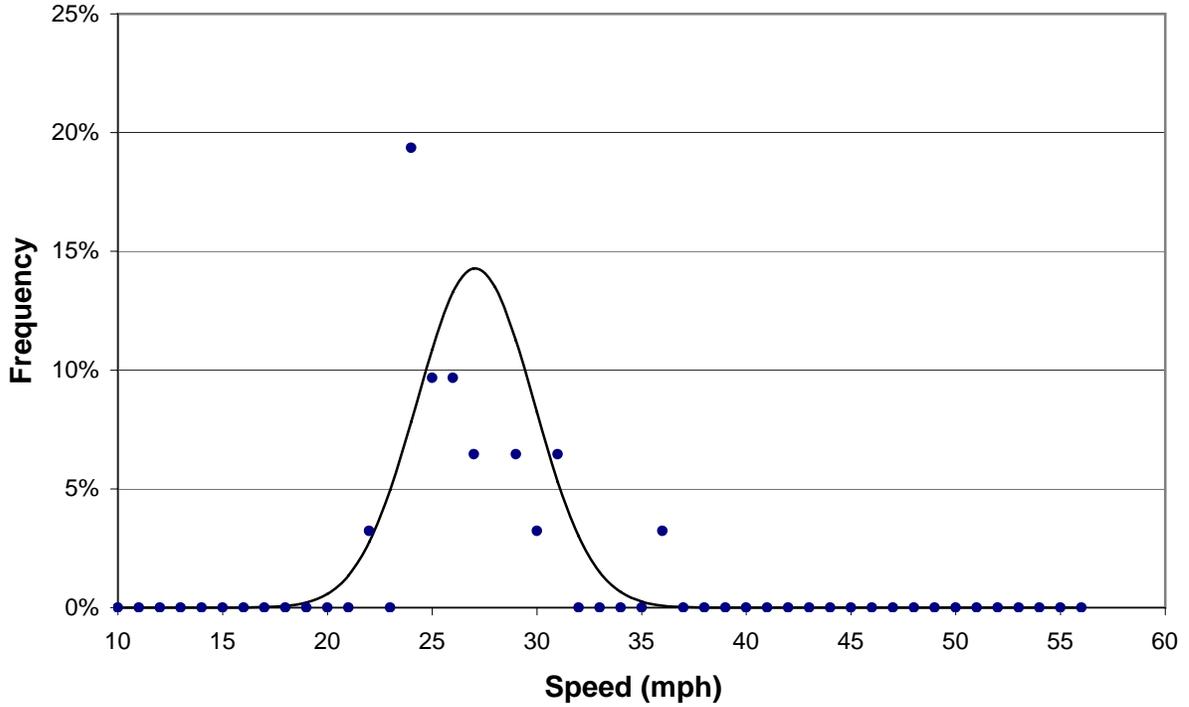
Mean Speed = 27.1 mph Median Speed = 27.1 mph
 Standard Deviation = 2.8 mph 15th Percentile Speed = 24.2 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 30.0 mph

SPOT SPEED STUDY

Date: **October 28, 2005** Time: **9:45 AM**
 Location: **Forest Avenue between Woodbine St and Madison St**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 93**
 Direction: **NB**
 Comments:

Mean Speed = 27.1 mph Median Speed = 27.1 mph
 Standard Deviation = 2.8 mph 15th Percentile Speed = 24.2 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 30.0 mph



SPOT SPEED STUDY

Date: **October 28, 2005** Time: **9:45 AM**
 Location: **Forest Avenue between Woodbine St and Madison St**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 93**
 Direction: **SB**
 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	3	7.3%	7.3%	66	1452
23	0	0.0%	7.3%	0	0
24	1	2.4%	9.8%	24	576
25	7	17.1%	26.8%	175	4375
26	7	17.1%	43.9%	182	4732
27	4	9.8%	53.7%	108	2916
28	4	9.8%	63.4%	112	3136
29	6	14.6%	78.0%	174	5046
30	5	12.2%	90.2%	150	4500
31	0	0.0%	90.2%	0	0
32	1	2.4%	92.7%	32	1024
33	0	0.0%	92.7%	0	0
34	0	0.0%	92.7%	0	0
35	2	4.9%	97.6%	70	2450
36	0	0.0%	97.6%	0	0
37	1	2.4%	100.0%	37	1369
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
	41	100.0%		1130	31576

Mean Speed = 27.6 mph Median Speed = 27.6 mph
 Standard Deviation = 3.3 mph 15th Percentile Speed = 24.2 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 31.0 mph

SPOT SPEED STUDY

Date: **October 28, 2005** Time: **9:45 AM**
 Location: **Forest Avenue between Woodbine St and Madison St**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **I.S. 93**
 Direction: **SB**
 Comments:

Mean Speed = 27.6 mph
Median Speed = 27.6 mph

Standard Deviation = 3.3 mph
15th Percentile Speed = 24.2 mph

Margin of Error (95% Confidence) = ± 1.0 mph
85th Percentile Speed = 31.0 mph

