

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



School Safety Engineering Project

FINAL REPORT: P.S. 136 (The Roy Wilkins School), Queens



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



August 31, 2006

**School Safety Engineering Project
Final Report: P.S. 136, 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). P.S. 136 (The Roy Wilkins School) in the St. Albans 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. 136 is bounded by Murdock Avenue to the north, 115th Avenue to the south, 202nd Street to the east, and 201st Street to the west. The neighborhood surrounding the school includes some commercial uses, but is primarily residential.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant team staff met with the school principal of P.S. 136 on May 24, 2004 to discuss traffic and pedestrian safety issues at and around the school. According to the school principal, P.S. 136 student pedestrians face the following problems:

- There is a need for a crossing guard to be assigned to the intersection of Murdock Avenue and 202nd Street.
- The installation of speed reducers (humps) should be investigated to reduce the propensity for speeding on the side streets.
- There is a need for police presence during dismissal time to generally manage traffic and double-parking, as well as maintain through traffic flow on 115th Avenue.

(See the Appendix for a summary of school concerns.)

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 112th Avenue to the north, 120th Avenue to the south, 212th Street to the east, Springfield Boulevard to the southeast, and 194th and 196th Streets to the west.

According to school officials, approximately 90% of the students walk to school and 10% arrive by private vehicles. The principal reported that one yellow school bus and a few private vans provide service to students, however, didn’t provided an estimate of the number of students using the yellow bus and private vans.

Table 1 presents the modes of travel for P.S. 136 students as identified by the Department of Education website.

TABLE 1: MODES OF TRAVEL (SOURCE : DEPARTMENT OF EDUCATION)	STUDENTS (Percentage)
Walk	64%
Driven by car	10%
School bus	17%
MTA Bus / Subway	9%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are no major student pedestrian generators in the vicinity of the school, although there is a small grocery store on the northeast corner of the Murdock Avenue and 201st Street intersection.

2.8 CROSSING GUARD LOCATIONS

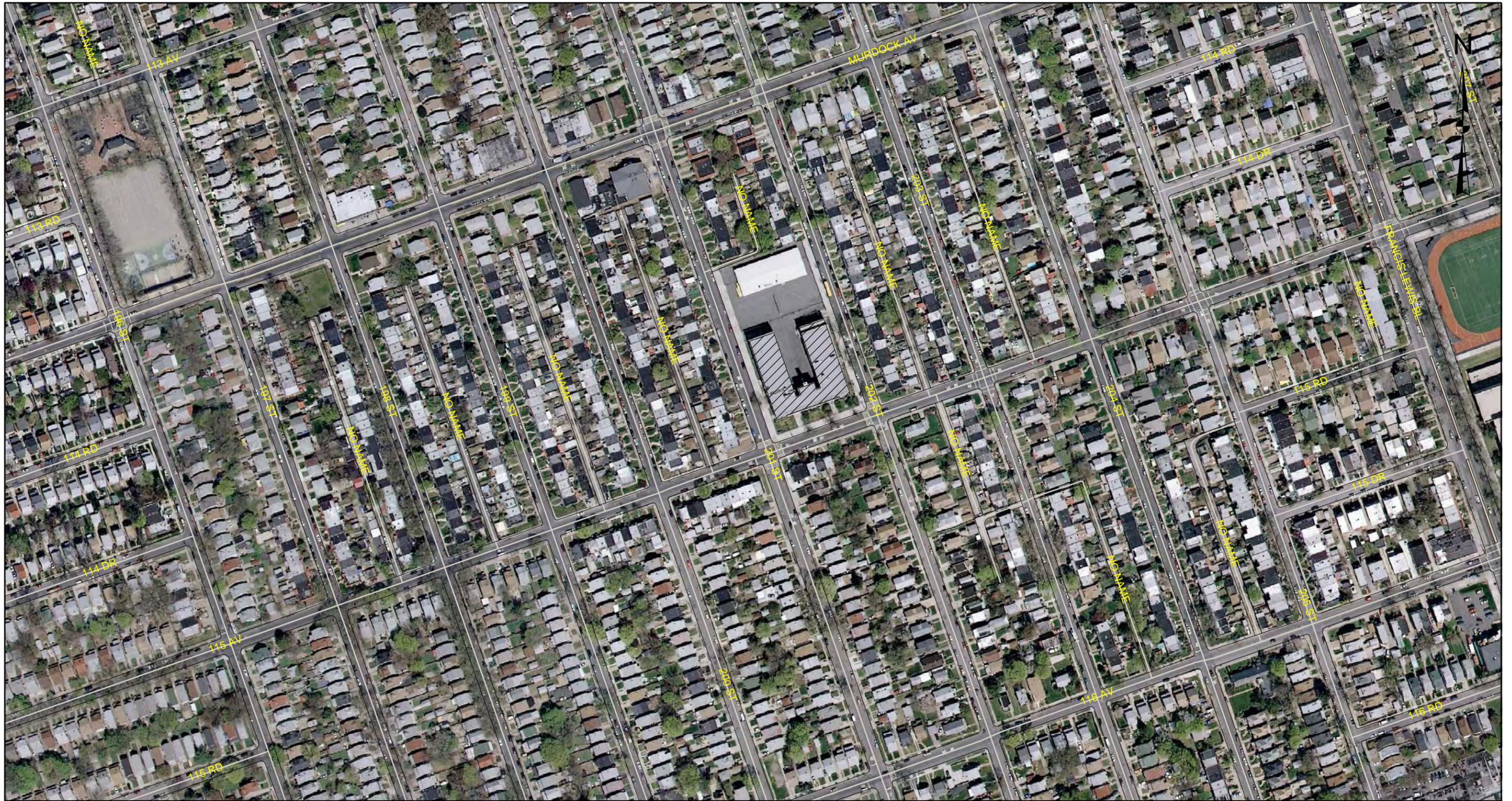
As shown in Figures 1 and 2, below, and Exhibit 4 a crossing guard is assigned to the intersection of 115th Avenue and 201st Street during school days.



Figure 1: School crossing guard at the intersection of 115th Avenue and 201st Street



Figure 2: Crossing guard on duty at intersection of 115th Avenue and 201st Street



0 250 500 1,000 Feet

EXHIBIT 1
P.S. 136 QUEENS
ROY WILKINS 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
- SCHOOL CROSSWALK
- TRAFFIC SIGNAL
- ALL - WAY STOP
- SPEED REDUCER

PS 136 Queens
ROY WILKINS SCHOOL

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

Map created on 11/17/2006

EXHIBIT 3

COMM. BOARD: 412
 PRECINCT: 113



EXHIBIT 4
P.S. 136 QUEENS
ROY WILKINS SCHOOL
CROSSING GUARD LOCATION



LEGEND:
 CROSSING GUARD LOCATION



3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

At the time of the school site visit (May 24, 2004), the school principal reported that no Metro Cards are issued, but one yellow school bus and a few private vans provide service to students. However, the principal provided no estimate of the number of students using the yellow bus and private vans for transport to and from school.

More recent (June 2006) information posted on the current Department of Education website indicates that P.S. 136 provides special education door-to-door transportation for 29 students using three buses, and the school issues 44 half-fare Metro Cards and 26 full-fare Metro Cards. The web site also showed three general education school buses for 99 students.

3.2 PARENT DROP-OFF OPERATIONS

According to the school principal, ten percent of the students are dropped off. Congestion typically occurs at arrival and dismissal times, and there is often double-parking around the school at these times. Parents were observed primarily dropping off students on 115th Avenue in front of the school.

3.3 PARKING REGULATIONS

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

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 3 shows the existing signals and pavement markings assigned to P.S. 136. 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 8.



Figure 3: Looking north on 201st Street at typical school advance warning sign and marking in the vicinity of P.S. 136

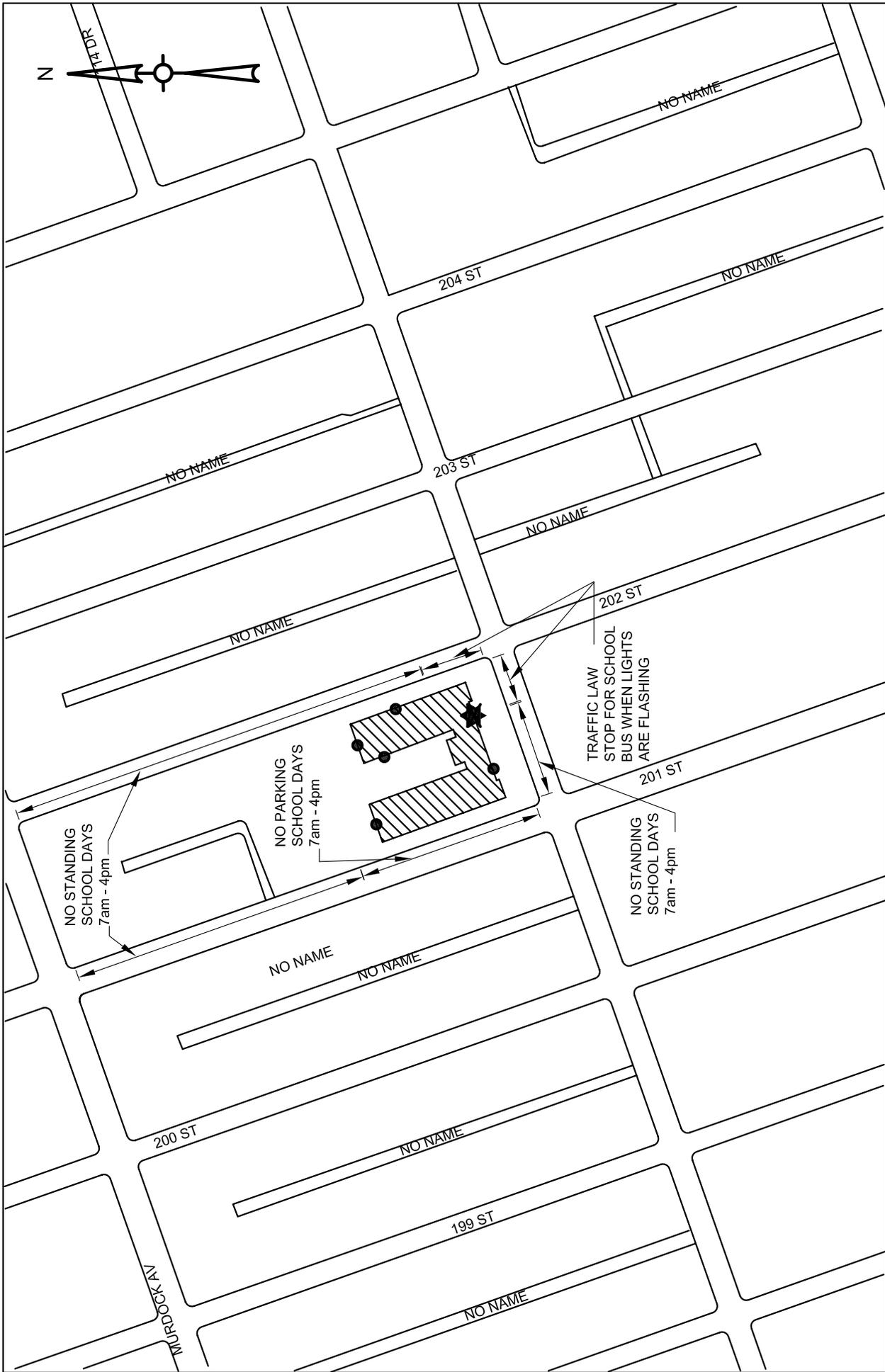


EXHIBIT 5
 P.S. 136 QUEENS
 ROY WILKINS SCHOOL
 EXISTING PARKING REGULATION

LEGEND:

- ★ MAIN ENTRANCE
- ENTRANCE

0 200 400 FEET

3.5 ACCIDENT SUMMARY

Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of P.S. 136 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.

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Murdock Avenue and 201 st Street	12	1	0	0
Murdock Avenue and 202 nd Street	7	0	0	0
115 th Avenue and 201 st Street	2	0	0	0
115 th Avenue and 202 nd Street	6	2	0	2
115 th Avenue and Francis Lewis Boulevard	23	0	0	0
201 st Street and 116 th Street	4	0	0	0
201 st Street and Linden Boulevard	4	0	0	0
TOTAL	58	3	0	2

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Murdock Avenue and 201 st Street	18	2	0	1
Murdock Avenue and 202 nd Street	11	2	0	0
115 th Avenue and 201 st Street	10	1	0	1
115 th Avenue and 202 nd Street	10	2	0	2
115 th Avenue and Francis Lewis Boulevard	41	1	0	0
201 st Street and 116 th Street	8	0	0	0
201 st Street and Linden Boulevard	0	0	0	0
TOTAL	98	8	0	4

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

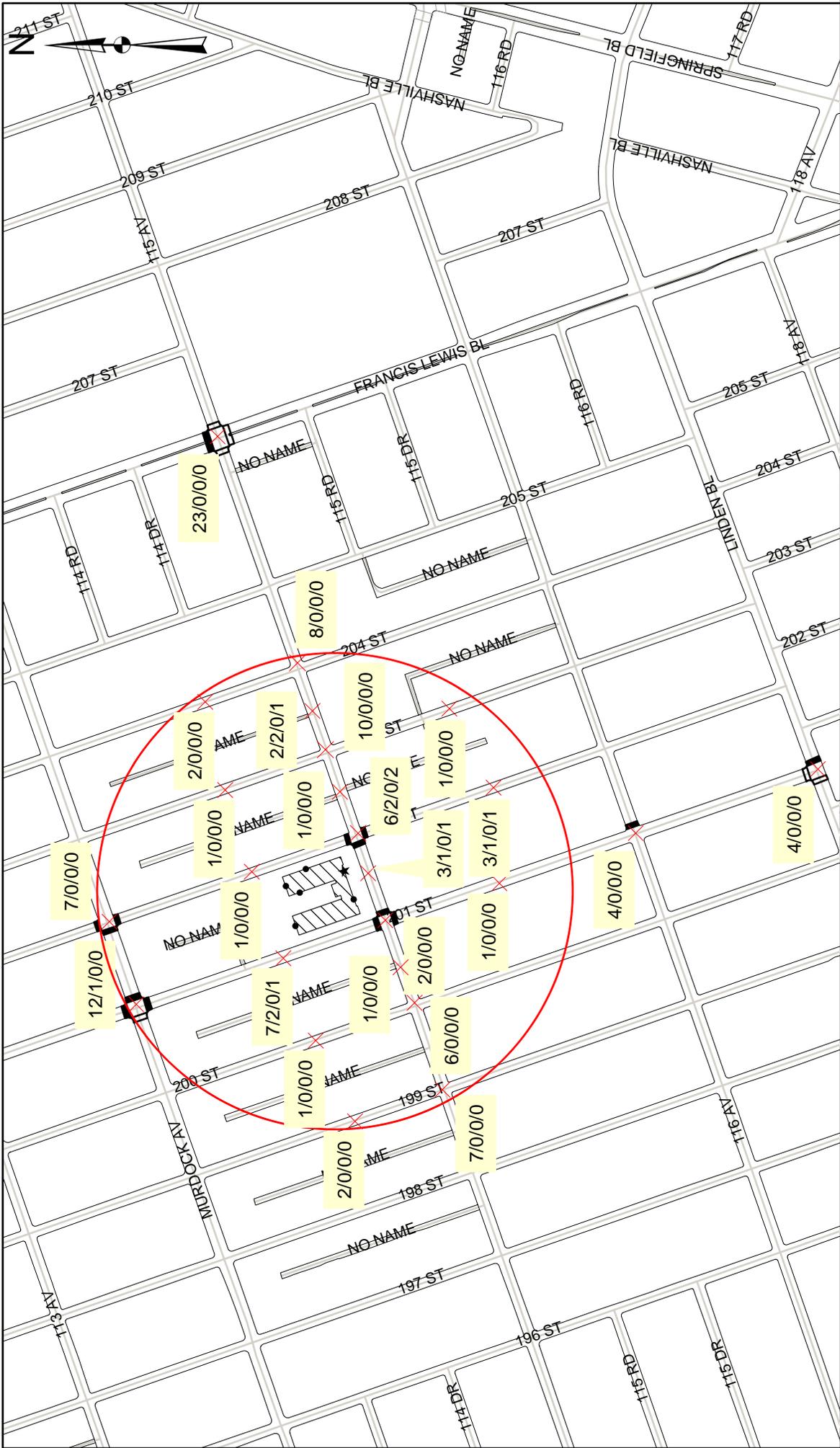


EXHIBIT 6
P.S. 136 QUEENS
ROY WILKINS SCHOOL
ACCIDENT SUMMARY (1998-2000)



3.6 TRAFFIC OPERATIONS AND ISSUES

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

The following sub-sections outline the physical conditions and issues concerning traffic operations and accidents at the intersections in the vicinity of P.S. 136.

3.6.1 115th Avenue and 201st Street

This is a four-leg, all-way stop-controlled intersection with school crosswalks located across the north and south legs of 201st Street, and the east leg of 115th Avenue. 115th Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. 201st Street is also a two-way street with one travel lane and on-street parking on each side of the roadway (see Figures 4 and 5).

In order to determine if a change in the type of traffic control at this intersection would be appropriate, the consultant team searched the NYCDOT records for any warrant studies that may have been performed for this intersection. A full warrant analysis--including vehicle and pedestrian counts, and accident analysis--was conducted in September and October of 2003 to determine the need for traffic signal control at the intersection. The investigation determined that a traffic signal control was unwarranted at that time.

There were two accidents reported at this intersection between 1998 and 2000 (Table 2), and neither were pedestrian accidents. However, there was one school-related pedestrian accident that occurred mid-block on 115th Avenue between 201st Street and 202nd Street. This particular accident occurred at approximately 3:00 pm on January 6, 1998 when an eight-year-old pedestrian sustained a possible injury when attempting to cross 115th Avenue at an uncontrolled location. The road surface was dry, the weather was clear, and the accident occurred under daylight conditions. There were no pedestrian fatalities reported at this intersection.



Figure 4: Looking north on 201st Street at the intersection with 115th Avenue (P.S. 136 can be seen to the right)



Figure 5: Looking east on 115th Avenue at the intersection with 201st Street (P.S. 136 can be seen to the left)

The school principal reported a speeding problem on 115th Avenue. Therefore, a speed survey was conducted on 115th Avenue, between 201st Street and 202nd Street, in order to verify the existence of a speeding problem and to determine its extent.

The 85th percentile speed for eastbound vehicles on 115th Avenue between 201st Street and 202nd Street was found to be 27 mph. Similarly, the 85th percentile speed for

westbound vehicles on 115th Avenue between 201st Street and 202nd Street was found to be 28 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 115th Avenue between 201st Street and 202nd Street are shown in the Appendix at the end of the document.

3.6.2 115th Avenue and 202nd Street

This is an unsignalized four-leg intersection with school crosswalks located across the north and south legs of 202nd Street, and the west leg of 115th Avenue. 115th Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. 202nd Street is also a two-way street with one travel lane and on-street parking on each side of the roadway. Stop signs exist on the eastbound and westbound approaches of 202nd Street (see Figures 6 and 7).

In order to determine if a change in the type of traffic control would be appropriate, the consultant team searched the NYCDOT records for any warrant studies that may have been performed for this intersection. A full warrant analysis—including vehicle and pedestrian counts and accident analysis—was conducted in January and February of 2003 to determine the need for all-way stop-control for the intersection. The investigation determined that all-way stop-control was unwarranted at that time.

There were a total of six accidents reported at this intersection between 1998 and 2000 (Table 2), including two pedestrian accidents, both of which were school-related. Neither of these was a fatal accident. The first school-related accident occurred at the intersection at approximately 8:00 am on Wednesday, March 29, 2000, when an eight-year-old pedestrian was reported struck by a vehicle while “crossing against the traffic signal.” It is not known what was meant by this, because there is no traffic signal present at this location. We surmise that the pedestrian was potentially crossing 115th Avenue, which is an uncontrolled leg. The extent of the pedestrian’s injuries was reported as non-incapacitating. The roadway and weather conditions were dry and clear, respectively. The second school-related accident occurred at approximately 3:00 pm on Monday, October 2, 2000 and involved a six-year old pedestrian who was reported struck by a vehicle while emerging from behind a vehicle at the intersection. The extent of the pedestrian’s injuries was reported as a “possible injury.” The roadway and weather conditions were dry and clear, respectively.

There were also three mid-block pedestrian accidents in the vicinity of this intersection. The first of these accidents occurred on 202nd Street between 115th and 116th Avenues. This particular accident occurred at approximately 8:00 am on May 12, 1999, when a five-year-old pedestrian was reported to have sustained an incapacitating injury. The pedestrian’s actions were not reported. The road surface was dry, the weather was clear, and the accident occurred under daylight conditions.

The remaining 2 mid-block accidents occurred on 115th Avenue between 203rd and 204th Streets. This accident occurred at approximately 4:00 pm on December 22, 1998, when a seven-year-old pedestrian sustained an incapacitating injury while emerging from behind

a parked vehicle. The road surface was dry, the weather was clear, and the accident occurred under daylight conditions. There were no pedestrian fatalities reported at this intersection.



Figure 6: Looking northwest across the 115th Avenue and 202nd Street intersection, toward P.S. 136



Figure 7: Looking west on 115th Avenue across the 202nd Street intersection (P.S. 136 is to the right).

The school principal reported a speeding problem on 202nd Street. Therefore, a speed survey was conducted on 202nd Street between 115th Avenue and Murdock Avenue in order to verify the existence of a speeding problem and to determine its extent.

The 85th percentile speed for northbound vehicles on 202nd Street between 115th Avenue and Murdock Avenue was found to be 24 mph. The 85th percentile speed for southbound vehicles on 202nd Street between 115th Avenue and Murdock Avenue was found to be 29 mph.

The 85th percentile speed is considered to be the representative speed for the street segment. Speeds above the 30 mph threshold would indicate a speeding problem and may require appropriate traffic calming measures.

The detailed results of the spot speed survey on 202nd Street between 115th Avenue and Murdock Avenue are shown in the Appendix at the end of the document.

3.6.3 Murdock Avenue and 201st Street

This is a signalized four-leg intersection with school crosswalks located across the north and south legs of 201st Street, and the east leg of Murdock Avenue. A pedestrian crosswalk is located across the west leg of Murdock Avenue. Murdock Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. 201st Street is also a two-way street with one travel lane and on-street parking on each side of the roadway (see Figures 8 and 9).

There were a total of 12 accidents reported at this intersection between 1998 and 2000 (Table 2), including one pedestrian accident which was not school-related. There were no pedestrian fatalities reported at this intersection.



Figure 8: Looking east on Murdock Avenue across 201st Street



Figure 9: Looking south on 201st Street toward the intersection with Murdock Avenue

The school principal reported a speeding problem on 201st Street. Therefore, a speed survey was conducted on 201st Street between 115th Avenue and Murdock Avenue in order to verify the existence of a speeding problem and to determine its extent.

The 85th percentile speed for northbound vehicles on 201st Street between 115th Avenue and Murdock Avenue was found to be 28 mph. The 85th percentile speed for the southbound vehicles on 201st Street between 115th Avenue and Murdock Avenue was found to be 27 mph.

The 85th percentile speed is considered to be the representative speed for the street segment. Speeds above the 30 mph threshold would indicate a speeding problem and may require appropriate traffic calming measures.

The detailed results of the spot speed survey on 201st Street between 115th Avenue and Murdock Avenue are shown in the Appendix at the end of the document.

3.6.4 Murdock Avenue and 202nd Street

This is an unsignalized four-leg intersection with school crosswalks located across the north and south legs of 202nd Street, and the west leg of Murdock Avenue. Murdock Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. 202nd Street is also a two-way street with one travel lane and on-street parking on each side of the roadway. Murdock Avenue is the through street, so stop signs are in place for the 202nd Street approaches to this intersection (see Figures 10 and 11). It should be noted that a stop sign on the northwest corner of the intersection is located in the path of the crosswalk located across the north leg.

There were a total of seven accidents reported at this intersection between 1998 and 2000 (Table 2), but none of these were pedestrian accidents school related.

In order to determine the appropriate type of traffic control for the school crosswalk across Murdock Avenue, a preliminary traffic signal warrant assessment was performed. As part of this assessment, a traffic count was conducted at the intersection of Murdock Avenue and 202nd Street from 7:30 to 9:00 am on Monday, September 26, 2005 to better understand the pedestrian/vehicle conflicts at the intersection. The results of the count during the weekday morning peak hour (7:30 to 8:30 am) are shown in Table 4 and in Exhibit 7 at the end of this section.

The results of the pedestrian count (Table 5) indicate that, during the weekday morning peak hour, there were 69 pedestrians (33 adults and 36 students) utilizing the existing school crosswalk located across the west leg of Murdock Avenue, and 12 pedestrians (4 adults and 8 students) utilizing the pedestrian crosswalk located across the east leg of Murdock Avenue. In total, 81 pedestrians were observed crossing Murdock Avenue at 202nd Street (37 adults and 44 students) during the 7:30 to 8:30 am peak hour.

INTERSECTION	Murdock Avenue EASTBOUND			Murdock Avenue WESTBOUND			202 nd Street NORTHBOUND			202 nd Street SOUTHBOUND		
	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right
Murdock Avenue and 202 nd Street	9	368	15	24	349	5	5	16	9	4	18	18
TOTAL	392			378			30			40		

INTERSECTION	Crossing Murdock Avenue WEST-LEG CROSSWALK	Crossing Murdock Avenue EAST-LEG CROSSWALK	Crossing 202 nd Street SOUTH-LEG CROSSWALK	Crossing 202 nd Street NORTH-LEG CROSSWALK
Murdock Avenue and 202 nd Street	69 (33 / 36) *	12 (4 / 8) *	25 (8 / 17) *	44 (13 / 31) *

* Numbers in parenthesis indicate (adults / students).

Intersection	Total Hourly (7:45-8:45 AM) Pedestrian Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour*	Greater than 190 Pedestrians / hour	
Murdock Avenue and 202 nd Street	81	69	150	Yes	No	No

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 14 seconds.

TABLE 7: TRAFFIC SIGNAL WARRANT 5 ANALYSIS (SCHOOL CROSSING)						
Intersection	Total Hourly (7:45-8:45) Student Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 20 Students / hour	
Murdock Avenue and 202nd Street	44	48	92	Yes	Yes	Yes

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 14 seconds.



Figure 10: Looking west on Murdock Avenue at the intersection of 202nd Street



Figure 11: Looking south on 202nd Street across the intersection of Murdock Avenue

3.6.5 Francis Lewis Boulevard and 115th Avenue

This is a signalized four-leg intersection with a school crosswalk located across the north leg of Francis Lewis Boulevard. There are also pedestrian crosswalks located across the south leg of Francis Lewis Boulevard, and the east and west legs of 115th Avenue. Francis Lewis Boulevard is a two-way street with two travel lanes and a parking lane on each side of the roadway, and a raised concrete median approximately six feet wide along the center of the roadway separating northbound and southbound traffic. 115th Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. Francis Lewis Boulevard carries higher volumes of traffic than 115th Avenue at this intersection.

There were a total of 23 accidents reported at this intersection between 1998 and 2000 (Table 2), but no pedestrian accidents. There were no pedestrian fatalities reported at this intersection.

3.6.6 116th Avenue and 201st Street

This is a four-leg, all-way stop-controlled intersection with a school crosswalk located across the east leg of 116th Avenue. 116th Avenue is a two-way street with one travel lane and on-street parking on each side of the roadway. 201st Street is also a two-way street with one travel lane and on-street parking on each side of the roadway.

There were a total of four accidents reported at this intersection between 1998 and 2000 (Table 2), although none of these were pedestrian accidents. There were no pedestrian fatalities reported at this intersection.

3.6.7 Linden Boulevard and 201st Street

This is a signalized, three-leg T-intersection with a school crosswalk located across the east leg of Linden Boulevard. There are also pedestrian crosswalks located across the west leg of Linden Boulevard and the north leg of 201st Street. Linden Boulevard is a two-way street with one travel lane and a parking lane on each side of the roadway. 201st Street is also a two-way street with one travel lane and a parking lane on each side of the roadway. Linden Boulevard carries higher traffic volumes than 201st Street at this intersection. 201st Street does continue south of Linden Boulevard. However the segment of 201st Street south of Linden Boulevard is located west of the north leg and forms a separate intersection.

There were a total of four accidents reported at this intersection between 1998 and 2000 (Table 2), but no pedestrian accidents.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of P.S. 136, and were found to be adequate based upon a child pedestrian walking at a rate of three feet per second. Signal timings are shown in Table 8.

TABLE 8: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
201st Street and Murdock Avenue				
crossing 201 st Street	35	35	16	NO
crossing Murdock Avenue	44	23	19	NO
Francis Lewis Boulevard and 115th Avenue				
crossing Francis Lewis Blvd. (NB)	27	28	13	NO
crossing Francis Lewis Blvd. (SB)	27	28	13	NO
crossing Francis Lewis Blvd.	60	28	24	NO
crossing 115 th Avenue	36	28	16	NO
201st Street and Linden Boulevard				
crossing 201 st Street	38	33	17	NO
crossing Linden Blvd.	43	23	18	NO

Note: A child pedestrian walking rate of 3 ft/sec, plus 3 seconds reaction time, was utilized for the calculation of the required pedestrian crossing time.

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

The roadways and sidewalks in the vicinity of P.S. 136 were observed to be in fair condition. Sidewalks are approximately 15 feet wide around the periphery of the school (on 115th Avenue and 201st and 202nd Streets), but are only approximately five feet wide for the remainder of the school block.

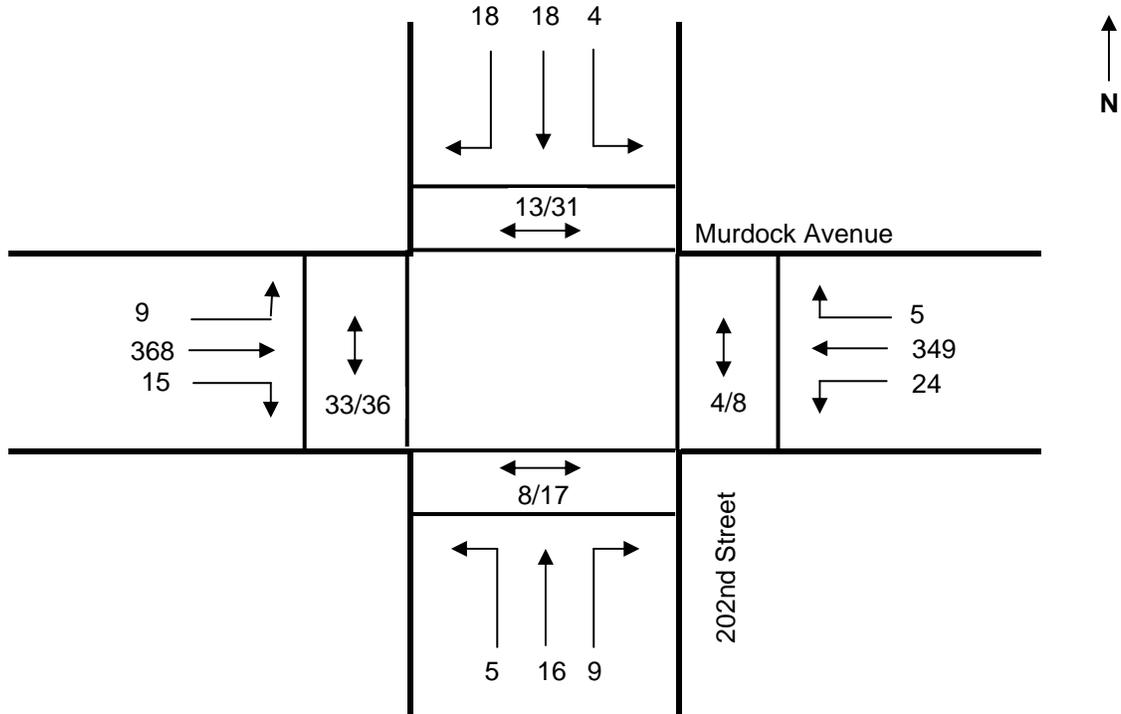
3.8.2 Pedestrian Ramps

Overall, pedestrian ramps in the vicinity of the school were observed to be standard. There were, however, several locations where pedestrian ramps were observed to be non-standard or were missing. These locations are as follows:

- Pedestrian ramps are missing on the northwest and northeast corners of the 115th Avenue and 202nd Street intersection, for the school crosswalk across the north leg of the intersection.
- A pedestrian ramp is missing on the northwest corner of the 115th Avenue and 202nd Street intersection for the school crosswalk located across the west leg of the intersection.
- On the northwest corner of the 115th Avenue and 201st Street intersection, the pedestrian ramp for the crosswalk located across the north leg of 201st Street has a small lip at the curb, which does not afford a smooth transition from the pavement.

- Pedestrian ramps are missing on the northwest corner of the Murdock Avenue and 202nd Street intersection for the school crosswalks across both the north and west legs.

One Hour Traffic Volumes
Monday, Sept 26, 2005 7:30 am - 8:30 am



Intersection of 202nd Street and Murdock Avenue

Table of Content:

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

EXHIBIT 7
P.S. 136 QUEENS ROY WILKINS SCHOOL
TRAFFIC AND PEDESTRIAN COUNTS

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes proposed measures to improve school pedestrian safety around P.S. 136. 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. 136 is discussed as follows, and is shown in more detail in Exhibit 8 at the end of this section.

4.1 SHORT-TERM MEASURES

➤ Install “NO STANDING 7AM-4PM SCHOOL DAYS” signs

Install “NO STANDING 7AM - 4PM SCHOOL DAYS” signs for 30 feet in front of the school at the main entrance of the school. (This is a typical requirement for all NYC schools in order to provide for emergency access to and from the school.)

➤ Install a traffic signal at the intersection of Murdock Avenue and 202nd Street

There is a school crosswalk located across the west leg of Murdock Avenue at 202nd Street. P.S. 136 students were observed crossing Murdock Avenue at 202nd Street, because the school is located on the southwesterly block of this intersection. In order to determine the appropriate type of traffic control for the school crosswalk, a preliminary traffic signal warrant assessment was performed. The traffic data collected to assess the need for a traffic signal included pedestrian and vehicle counts, and pedestrian gap data. The results of the preliminary assessment based on traffic signal warrants 4 (Pedestrian Volumes) and 5 (School Crossing) of the Federal MUTCD indicated the installation of a traffic signal is warranted under Warrant 5 (School Crossing). The results of the warrant analysis are shown in Tables 4, 5, 6, and 7 and in Exhibit 7. The need for the traffic control is warranted, and we therefore recommend the following:

- Install a traffic signal at the intersection of Murdock Avenue and 202nd Street.
- A pedestrian crosswalk should be provided across the east leg of the Murdock Avenue and 202nd Street intersection in conjunction with the traffic signal installation.

(Note: NYCDOT has confirmed that this traffic signal is warranted and has scheduled it to be installed in November 2006.)

➤ Designate pedestrian crosswalks

Field observations revealed pedestrians crossing at intersections where no crosswalks exist. Therefore, it is recommended that:

- A pedestrian crosswalk be installed across the west leg of the 115th Avenue and 201st Street intersection.

- Pedestrian crosswalks be installed across the north, south, and west legs of the 116th Avenue and 201st Street intersection.

➤ Place advance stop bars before 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.

➤ Additional crossing guard

Many student pedestrians were observed crossing the uncontrolled north and south legs of the 115th Avenue and 202nd Street intersection. A warrant study completed by NYCDOT for this intersection in January and February of 2003 determined that an all-way stop-control was not warranted at that time.

- It is therefore recommended that an additional crossing guard be requested for this intersection.

➤ Construct pedestrian ramps

There were several locations where pedestrian ramps were missing or needed some modification. Therefore, the following actions are recommended:

- Construct pedestrian ramps on the east and west sides of 202nd Street, north of 115th Avenue, for the crosswalk located across the north leg of this intersection.
- Construct a pedestrian ramp on the northeast corner of the 115th Avenue and 202nd Street intersection for the crosswalk located across the west leg of this intersection.
- Construct two pedestrian ramps on the northwest corner of the Murdock Avenue and 202nd Street intersection where pedestrian ramps are missing for the crosswalks located across both the west and north legs of the intersection.
- Modify or reconstruct the crosswalk located on the northwest corner of the 115th Avenue and 201st Street intersection where the pedestrian ramp for the crosswalk located across the north leg has a small lip at the curb which does not afford a smooth transition to and from the pavement.

➤ Relocate stop sign

A stop sign on the northwest corner of the 202nd Street at the Murdock Avenue intersection was observed to be located in the path of the crosswalk across the north leg of the intersection. Therefore, the following is recommended:

- Relocate the stop sign for southbound 202nd Street at Murdock Avenue away from the path for the crosswalk located across the north leg of the intersection.

(Note: NYCDOT has confirmed that the stop sign was relocated on April 2006)

4.2 LONG-TERM MEASURES

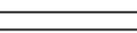
- Consider refuge islands at the intersection of Francis Lewis Boulevard and 115th Avenue, (see Exhibit 8):

There is a raised concrete median approximately six feet wide along the center of Francis Lewis Boulevard, separating the northbound and southbound travel lanes. A school crosswalk is located across the north leg of the intersection. Therefore, it is recommended to:

- Extend the raised concrete medians through the crosswalks across the north and south legs to provide refuge islands for pedestrians crossing Francis Lewis Boulevard at the intersection with 115th Avenue.

The extended medians provide a refuge for pedestrians who do not finish crossing during the flashing “DON’T WALK” indication. The proposed median should be at least five feet wide, should extend beyond the crosswalk, and should have at least a five-foot at-grade cut-through section. These medians are not proposed where they would hinder the ability of vehicles to turn. Design details pertaining to the proposed median extensions will be developed during Final Design.



- 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 ALL WAY STOP LOCATION
 -  EXISTING CONCRETE MEDIAN
 -  EXISTING SCHOOL CROSSWALK
 -  EXISTING PEDESTRIAN CROSSWALK
 -  EXISTING SIGNALIZED LOCATION
 -  RECONSTRUCTED PEDESTRIAN RAMP
 -  PROPOSED PEDESTRIAN RAMP
 -  PROPOSED STOP LINE IN ADVANCE OF SCHOOL CROSSWALK
 -  PROPOSED "NO STANDING 7:00AM - 4:00PM SCHOOL DAYS"
 -  PROPOSED SIGNALIZED LOCATION
 -  PROPOSED PEDESTRIAN CROSSWALK
 -  PROPOSED SCHOOL ADVANCE WARNING SIGN
 -  PROPOSED SCHOOL CROSSWALK WARNING ASSEMBLY
 -  POLE TO BE RELOCATED
 -  PROPOSED REFUGE ISLAND



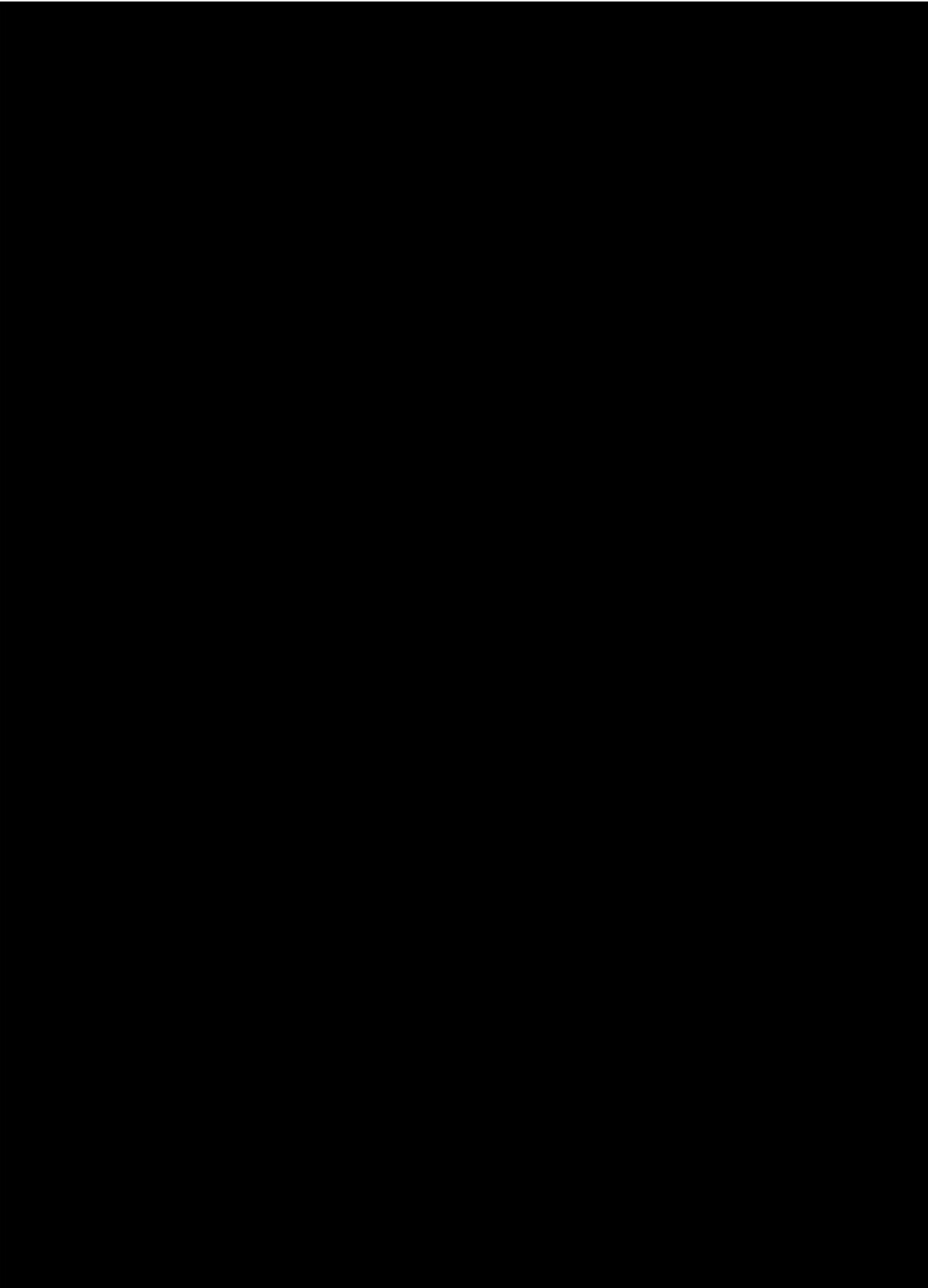
1" = 200'

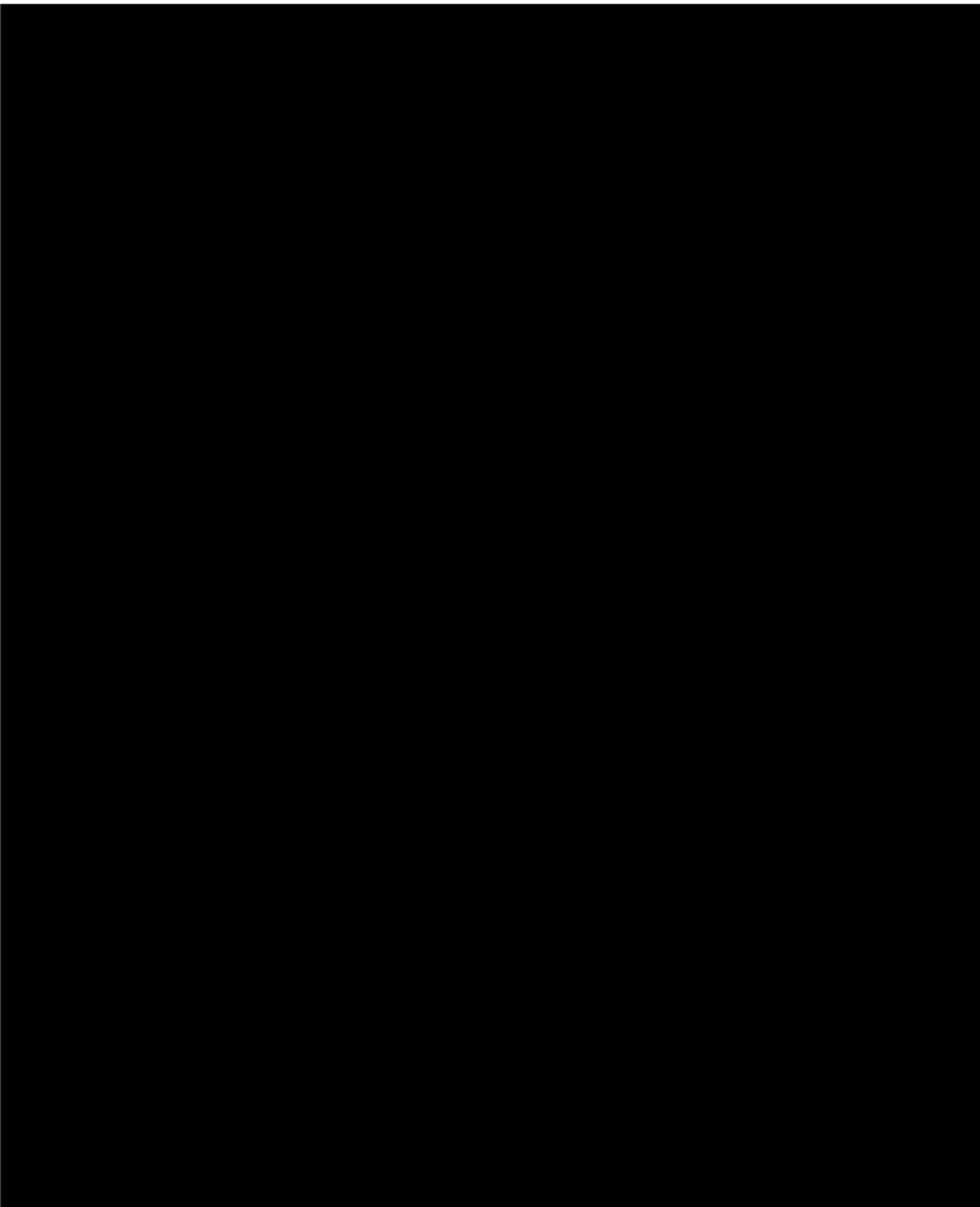
EXHIBIT 8

P.S. 136 QUEENS
ROY WILKINS SCHOOL

POTENTIAL MEASURES
TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX





SPOT SPEED STUDY

Date: **June 23, 2005** Time: **12:20 pm**
 Location: **115th Avenue 202nd Street & 201st Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **P.S. 136**
 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	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	3	6.0%	6.0%	60	1200
21	1	2.0%	8.0%	21	441
22	5	10.0%	18.0%	110	2420
23	9	18.0%	36.0%	207	4761
24	14	28.0%	64.0%	336	8064
25	5	10.0%	74.0%	125	3125
26	4	8.0%	82.0%	104	2704
27	3	6.0%	88.0%	81	2187
28	4	8.0%	96.0%	112	3136
29	0	0.0%	96.0%	0	0
30	1	2.0%	98.0%	30	900
31	0	0.0%	98.0%	0	0
32	0	0.0%	98.0%	0	0
33	1	2.0%	100.0%	33	1089
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	50	100.0%		1219	30027

Mean Speed = 24.4 mph
 Standard Deviation = 2.5 mph
 Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 24.4 mph
 15th Percentile Speed = 21.8 mph
 85th Percentile Speed = 27.0 mph

SPOT SPEED STUDY

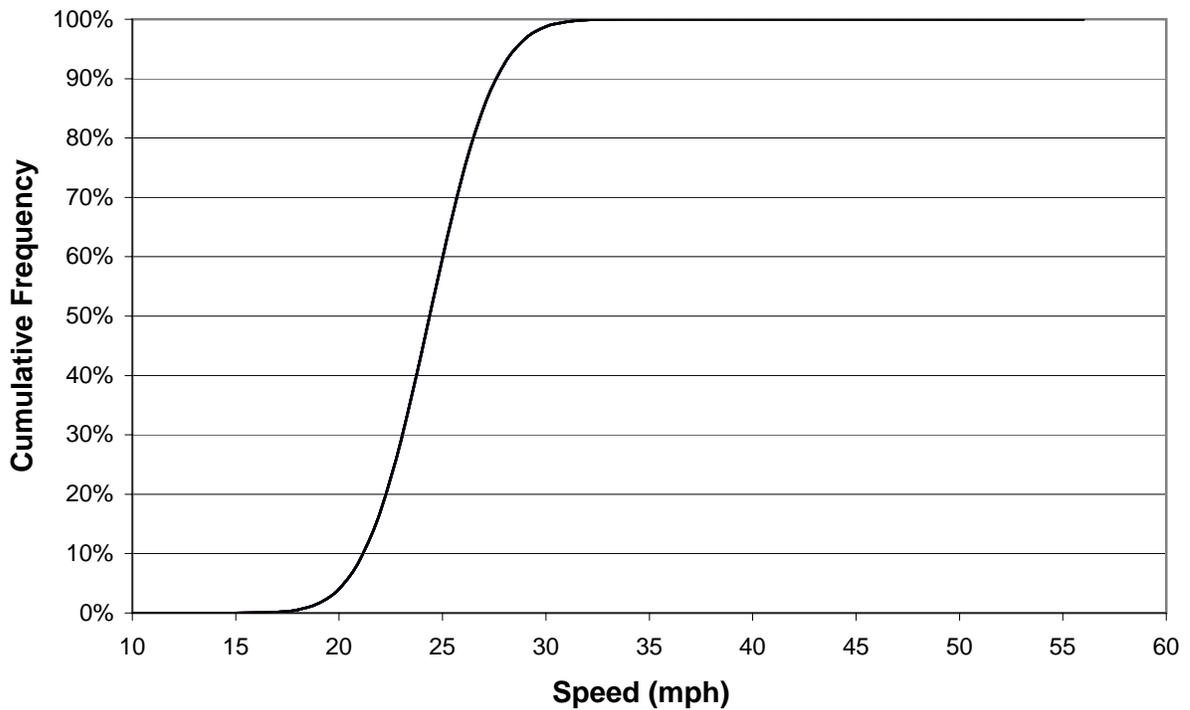
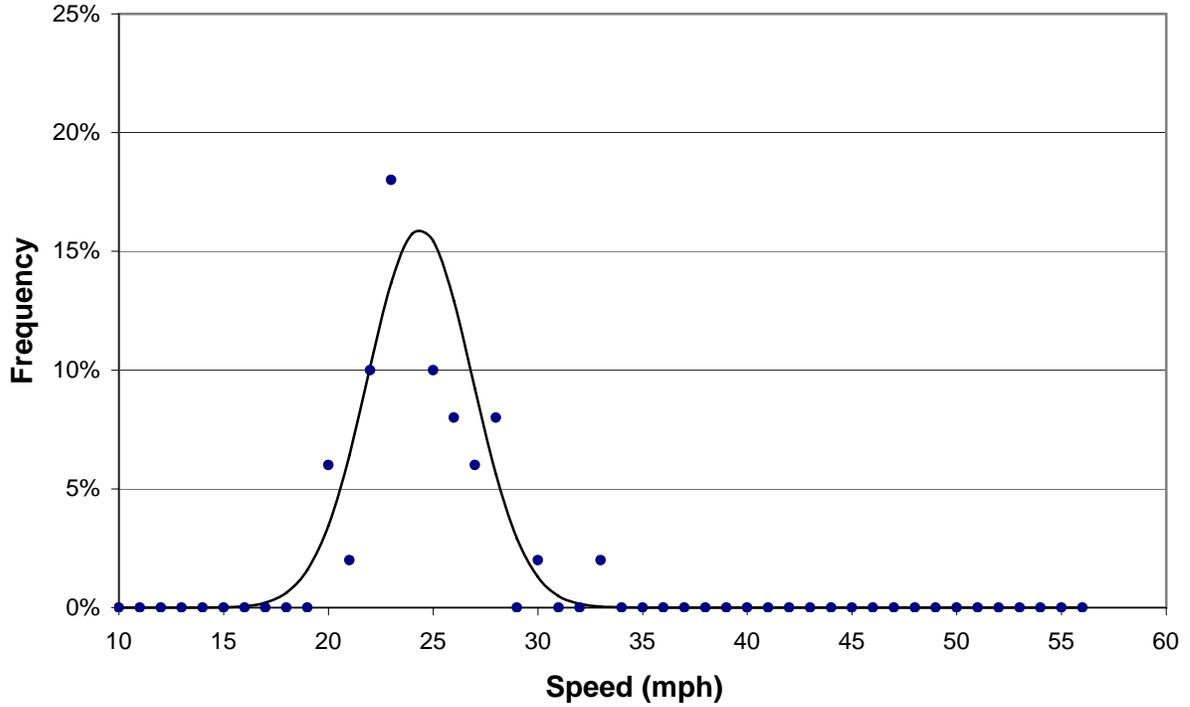
Date: **June 23, 2005**
Location: **115th Avenue 202nd Street & 201st Street**
Surveyor: **Richard Calvache & Hugo Salinas**

Time: **12:20 pm**

School: **P.S. 136**
Direction: **Eastbound**
Comments:

Mean Speed = 24.4 mph
Standard Deviation = 2.5 mph
Margin of Error (95% Confidence) = ± 0.7 mph

Median Speed = 24.4 mph
15th Percentile Speed = 21.8 mph
85th Percentile Speed = 27.0 mph



SPOT SPEED STUDY

Date: **June 23, 2005** Time: **12:20 pm**
 Location: **115th Avenue 202nd Street & 201st Street**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **P.S. 136**
 Direction: **Westbound**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	1	2.4%	2.4%	19	361
20	4	9.8%	12.2%	80	1600
21	3	7.3%	19.5%	63	1323
22	6	14.6%	34.1%	132	2904
23	4	9.8%	43.9%	92	2116
24	4	9.8%	53.7%	96	2304
25	7	17.1%	70.7%	175	4375
26	5	12.2%	82.9%	130	3380
27	2	4.9%	87.8%	54	1458
28	0	0.0%	87.8%	0	0
29	0	0.0%	87.8%	0	0
30	3	7.3%	95.1%	90	2700
31	2	4.9%	100.0%	62	1922
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
	41	100.0%		993	24443

Mean Speed = 24.2 mph Median Speed = 24.2 mph
 Standard Deviation = 3.1 mph 15th Percentile Speed = 21.0 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 27.5 mph

SPOT SPEED STUDY

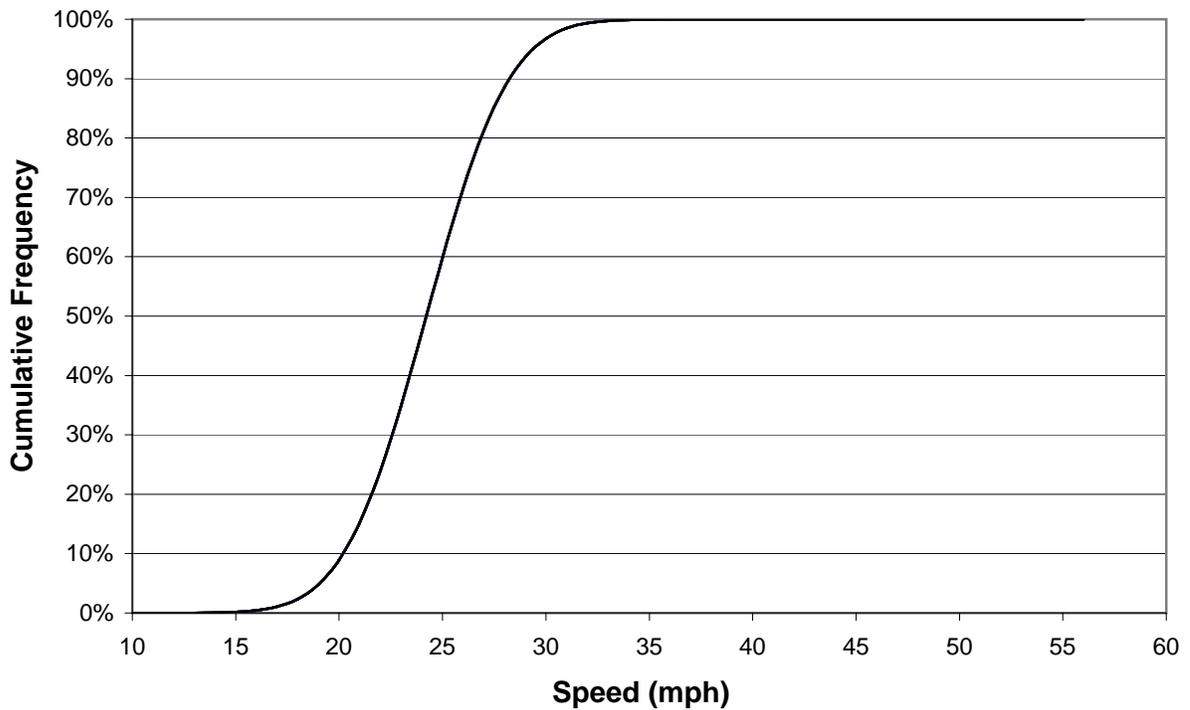
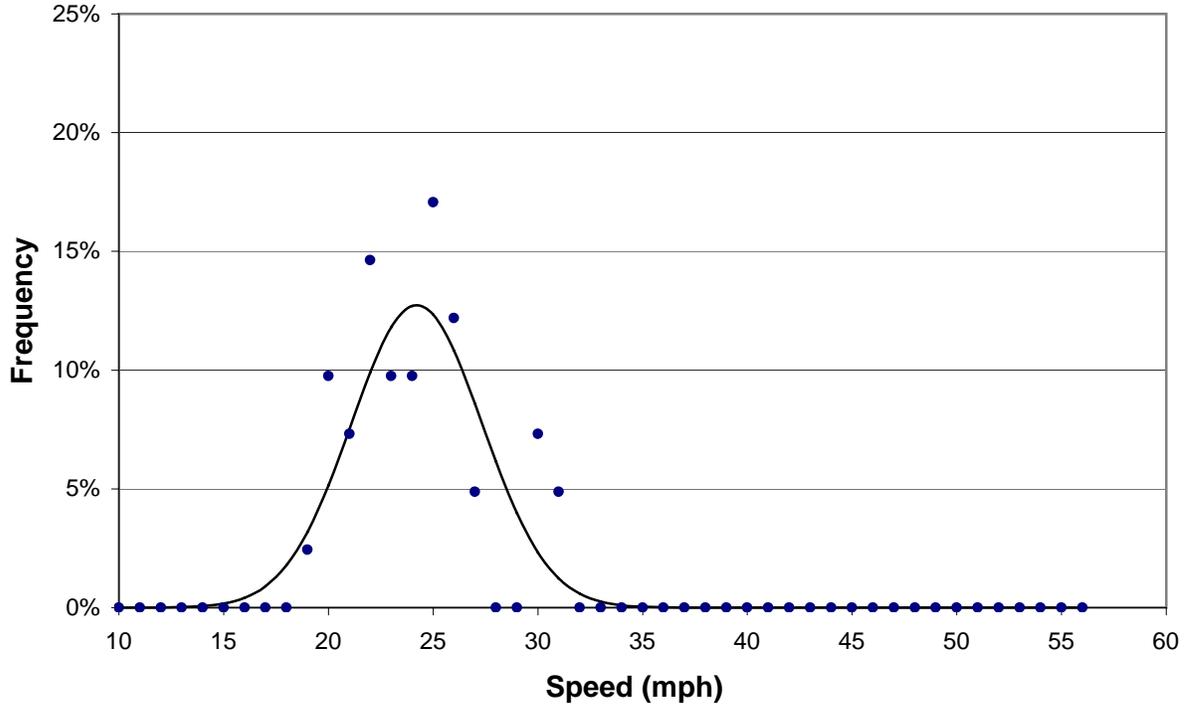
Date: June 23, 2005
Location: 115th Avenue 202nd Street & 201st Street
Surveyor: Richard Calvache & Hugo Salinas

Time: 12:20 pm

School: P.S. 136
Direction: Westbound
Comments:

Mean Speed = 24.2 mph
Standard Deviation = 3.1 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 24.2 mph
15th Percentile Speed = 21.0 mph
85th Percentile Speed = 27.5 mph



SPOT SPEED STUDY

Date: **June 23, 2005**
 Location: **201st Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **11:10 am**
 School: **P.S. 136**
 Direction: **Northbound**
 Comments: **narrow street**

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	2	11.1%	11.1%	40	800
21	0	0.0%	11.1%	0	0
22	2	11.1%	22.2%	44	968
23	2	11.1%	33.3%	46	1058
24	4	22.2%	55.6%	96	2304
25	2	11.1%	66.7%	50	1250
26	1	5.6%	72.2%	26	676
27	1	5.6%	77.8%	27	729
28	0	0.0%	77.8%	0	0
29	1	5.6%	83.3%	29	841
30	3	16.7%	100.0%	90	2700
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
	18	100.0%		448	11326

Mean Speed = 24.9 mph
 Standard Deviation = 3.2 mph
 Margin of Error (95% Confidence) = ± 1.5 mph

Median Speed = 24.9 mph
 15th Percentile Speed = 21.6 mph
 85th Percentile Speed = 28.2 mph

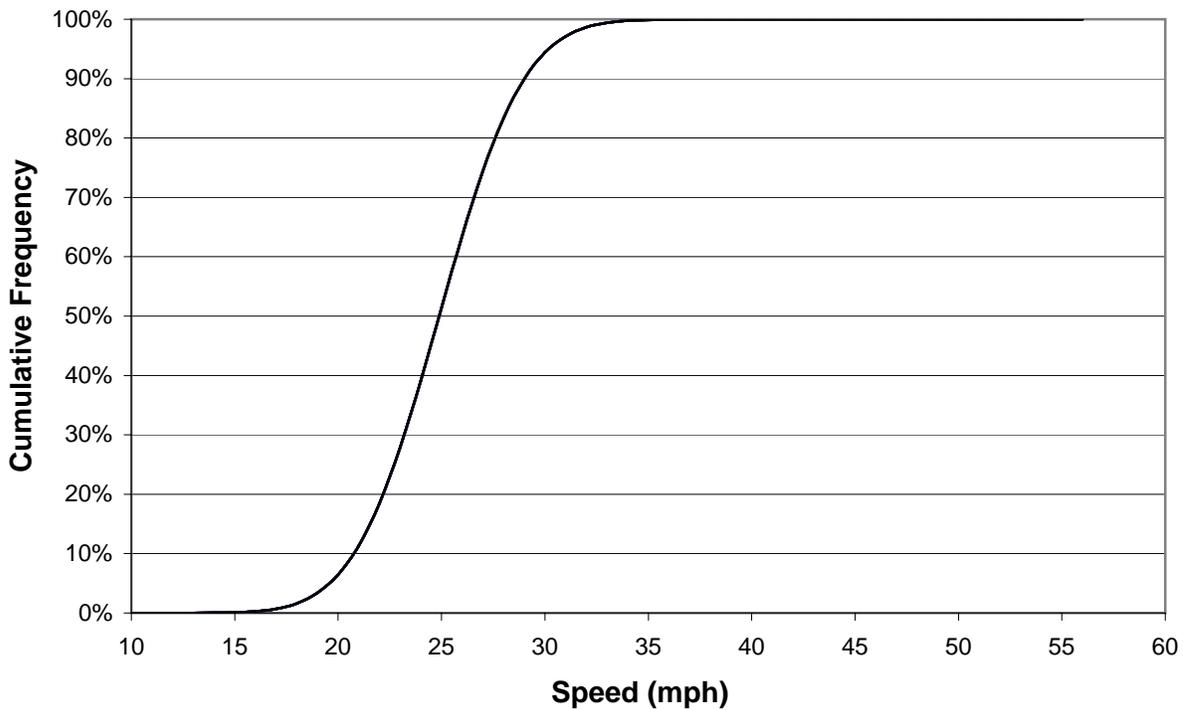
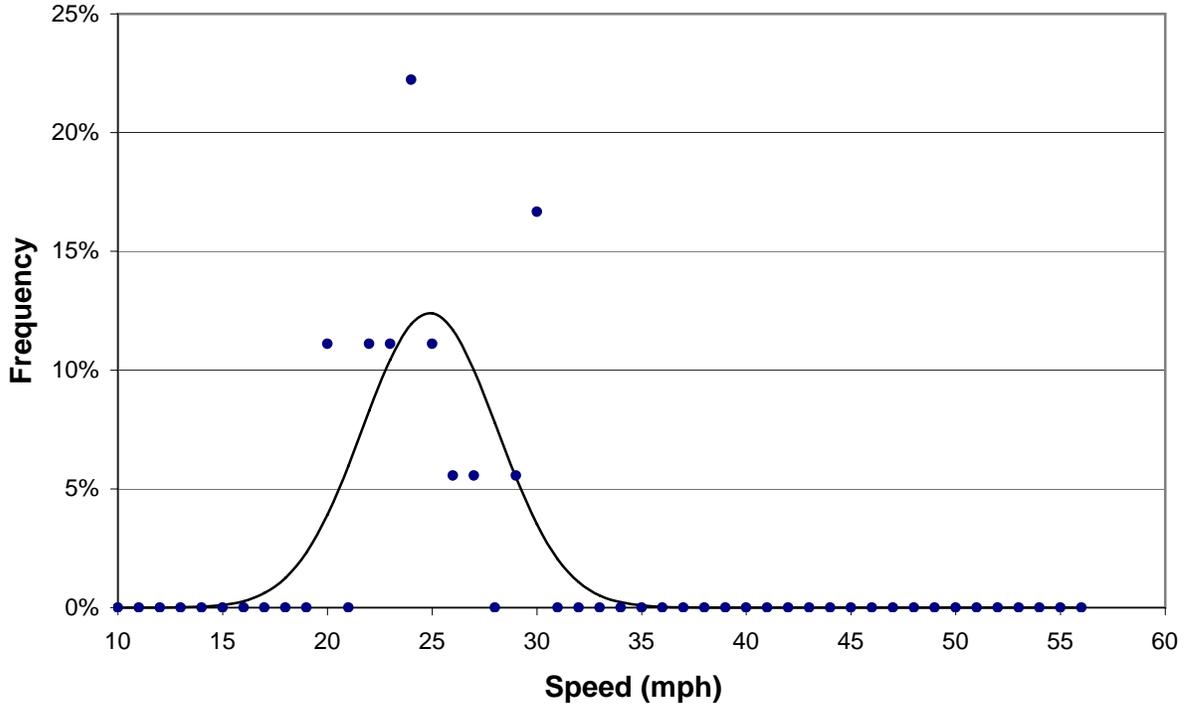
SPOT SPEED STUDY

Date: **June 23, 2005** Time: **11:10 am**
 Location: **201st Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

School: **P.S. 136**
 Direction: **Northbound**
 Comments: **narrow street**

Mean Speed = 24.9 mph
 Standard Deviation = 3.2 mph
 Margin of Error (95% Confidence) = ± 1.5 mph

Median Speed = 24.9 mph
 15th Percentile Speed = 21.6 mph
 85th Percentile Speed = 28.2 mph



SPOT SPEED STUDY

Date: **June 23, 2005**
 Location: **201st Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **11:10 am**
 School: **P.S. 136**
 Direction: **Southbound**
 Comments: **narrow street**

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	1	7.1%	7.1%	20	400
21	1	7.1%	14.3%	21	441
22	3	21.4%	35.7%	66	1452
23	3	21.4%	57.1%	69	1587
24	0	0.0%	57.1%	0	0
25	2	14.3%	71.4%	50	1250
26	0	0.0%	71.4%	0	0
27	1	7.1%	78.6%	27	729
28	2	14.3%	92.9%	56	1568
29	1	7.1%	100.0%	29	841
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
	14	100.0%		338	8268

Mean Speed = 24.1 mph
 Standard Deviation = 2.9 mph
 Margin of Error (95% Confidence) = ± 1.5 mph

Median Speed = 24.1 mph
 15th Percentile Speed = 21.2 mph
 85th Percentile Speed = 27.1 mph

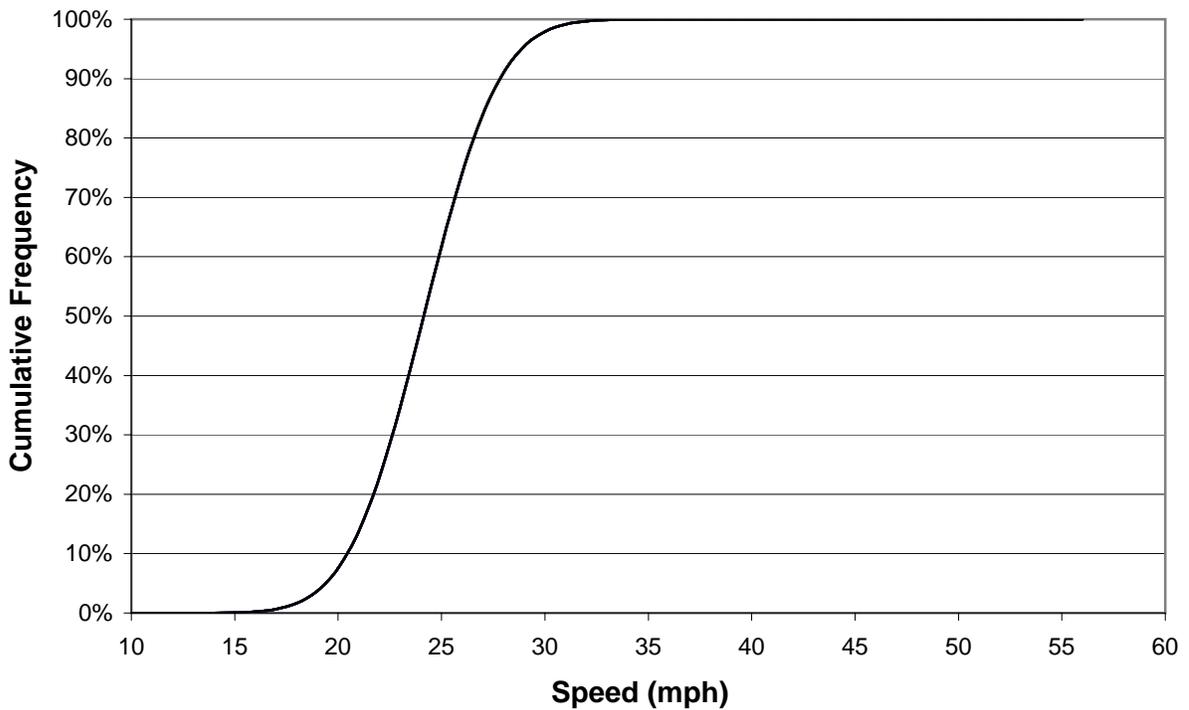
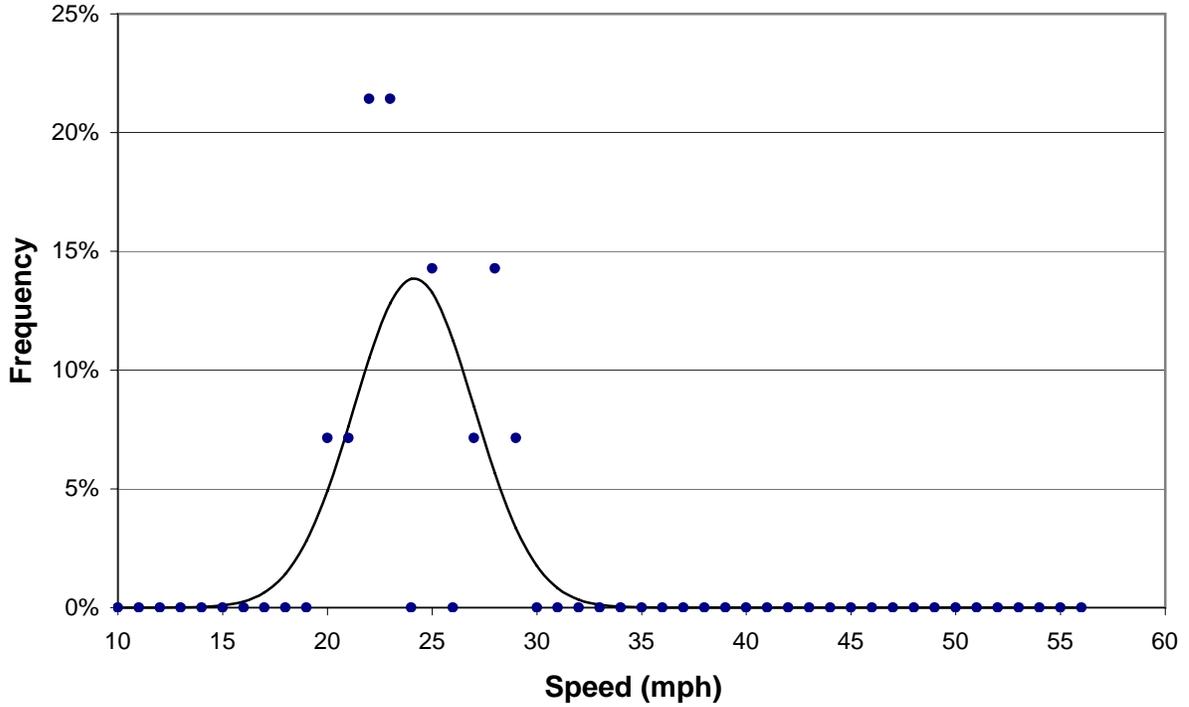
SPOT SPEED STUDY

Date: June 23, 2005
Location: 201st Street between 115th Avenue & Murdock Avenue
Surveyor: Richard Calvache & Hugo Salinas

School: P.S. 136
Direction: Southbound
Comments: narrow street

Mean Speed = 24.1 mph
Standard Deviation = 2.9 mph
Margin of Error (95% Confidence) = ± 1.5 mph

Median Speed = 24.1 mph
15th Percentile Speed = 21.2 mph
85th Percentile Speed = 27.1 mph



SPOT SPEED STUDY

Date: **June 23, 2005**
 Location: **202nd Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **P.S. 136**
 Direction: **Northbound**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	1	5.6%	5.6%	16	256
17	1	5.6%	11.1%	17	289
18	1	5.6%	16.7%	18	324
19	1	5.6%	22.2%	19	361
20	1	5.6%	27.8%	20	400
21	2	11.1%	38.9%	42	882
22	5	27.8%	66.7%	110	2420
23	3	16.7%	83.3%	69	1587
24	3	16.7%	100.0%	72	1728
25	0	0.0%	100.0%	0	0
26	0	0.0%	100.0%	0	0
27	0	0.0%	100.0%	0	0
28	0	0.0%	100.0%	0	0
29	0	0.0%	100.0%	0	0
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	18	100.0%		383	8247

Mean Speed = 21.3 mph
 Standard Deviation = 2.4 mph
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 21.3 mph
 15th Percentile Speed = 18.8 mph
 85th Percentile Speed = 23.8 mph

SPOT SPEED STUDY

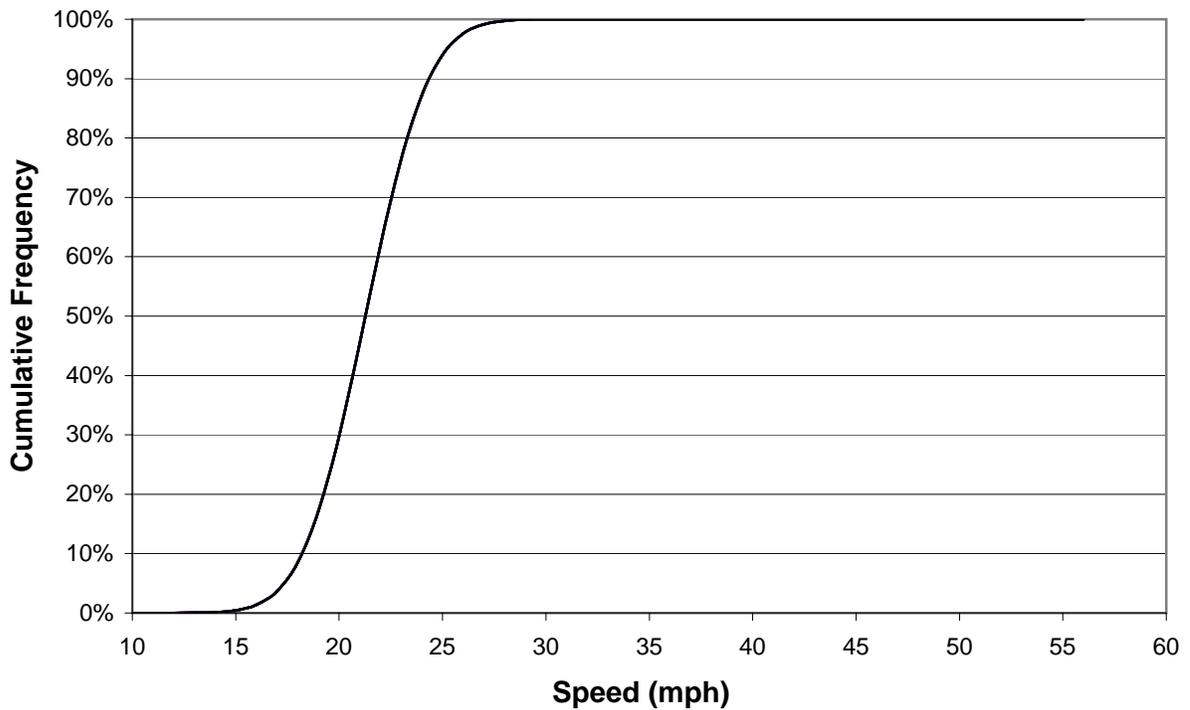
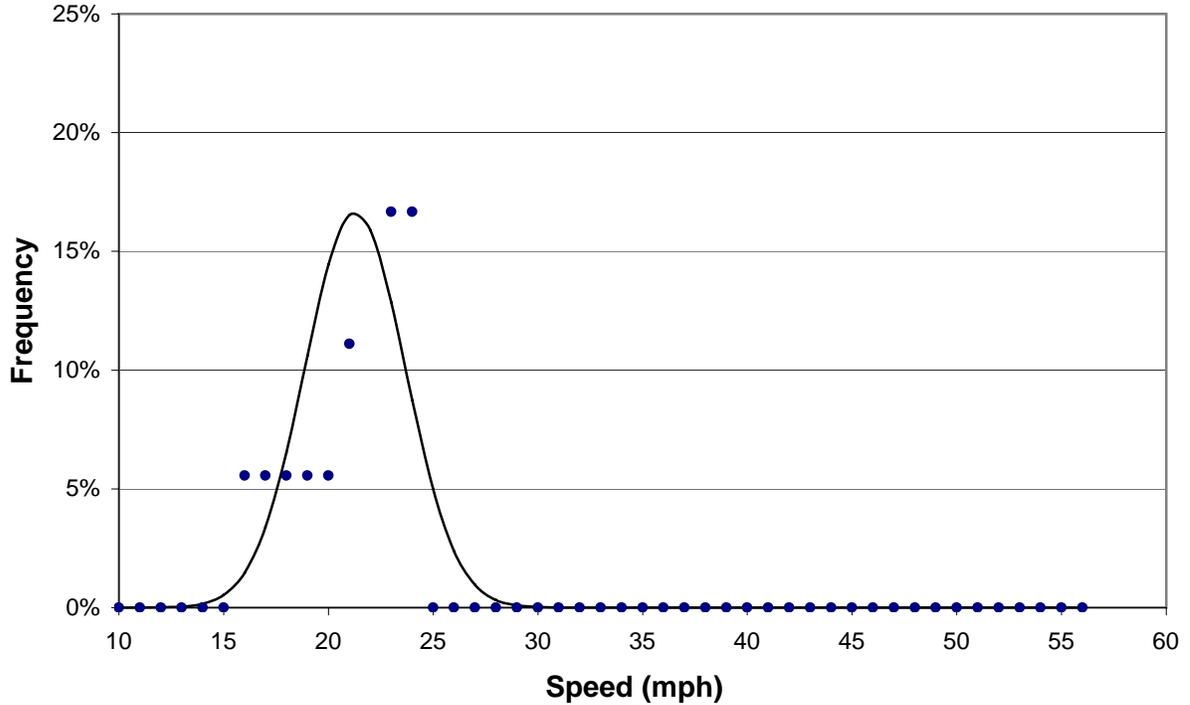
Date: **June 23, 2005**
 Location: **202nd Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **P.S. 136**
 Direction: **Northbound**
 Comments:

Mean Speed = 21.3 mph
 Standard Deviation = 2.4 mph
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 21.3 mph
 15th Percentile Speed = 18.8 mph
 85th Percentile Speed = 23.8 mph



SPOT SPEED STUDY

Date: **June 23, 2005**
 Location: **202nd Street between 115th Avenue & Murdock Avenue**
 Surveyor: **Richard Calvache & Hugo Salinas**

Time: **10:00 am**

School: **P.S. 136**
 Direction: **Southbound**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	0	0.0%	0.0%	0	0
21	3	12.5%	12.5%	63	1323
22	2	8.3%	20.8%	44	968
23	1	4.2%	25.0%	23	529
24	2	8.3%	33.3%	48	1152
25	3	12.5%	45.8%	75	1875
26	3	12.5%	58.3%	78	2028
27	3	12.5%	70.8%	81	2187
28	0	0.0%	70.8%	0	0
29	2	8.3%	79.2%	58	1682
30	3	12.5%	91.7%	90	2700
31	1	4.2%	95.8%	31	961
32	1	4.2%	100.0%	32	1024
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
	24	100.0%		623	16429

Mean Speed = 26.0 mph
 Standard Deviation = 3.3 mph
 Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.0 mph
 15th Percentile Speed = 22.5 mph
 85th Percentile Speed = 29.4 mph

SPOT SPEED STUDY

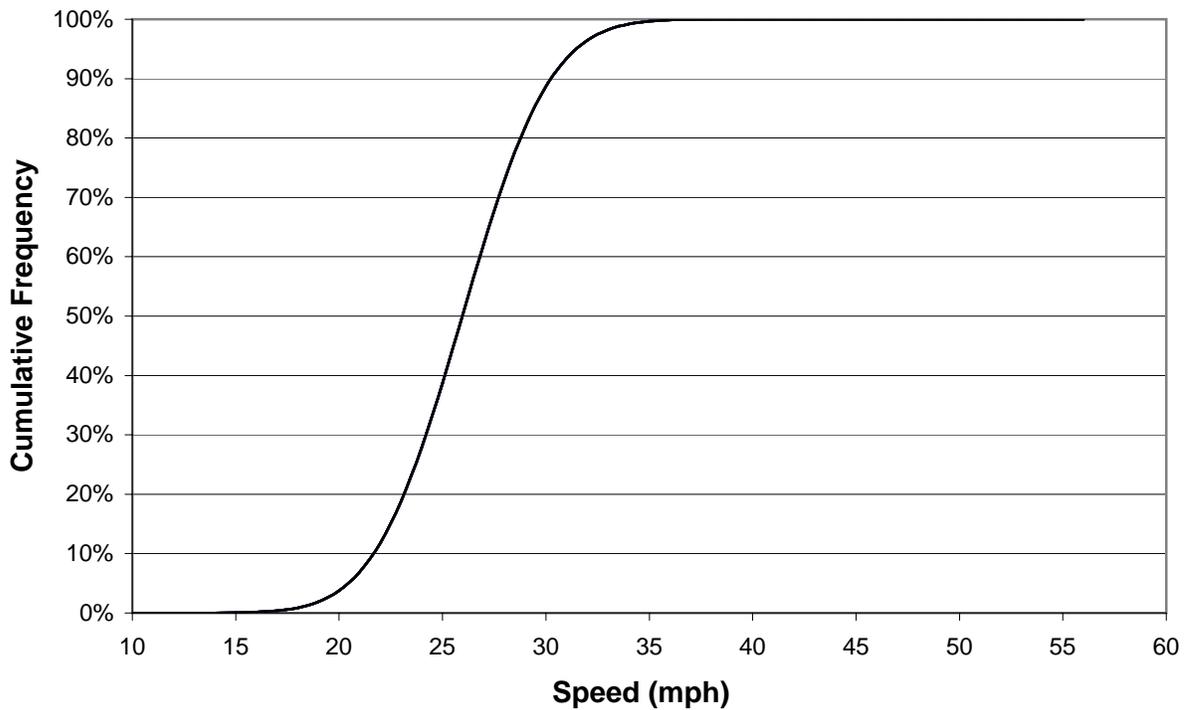
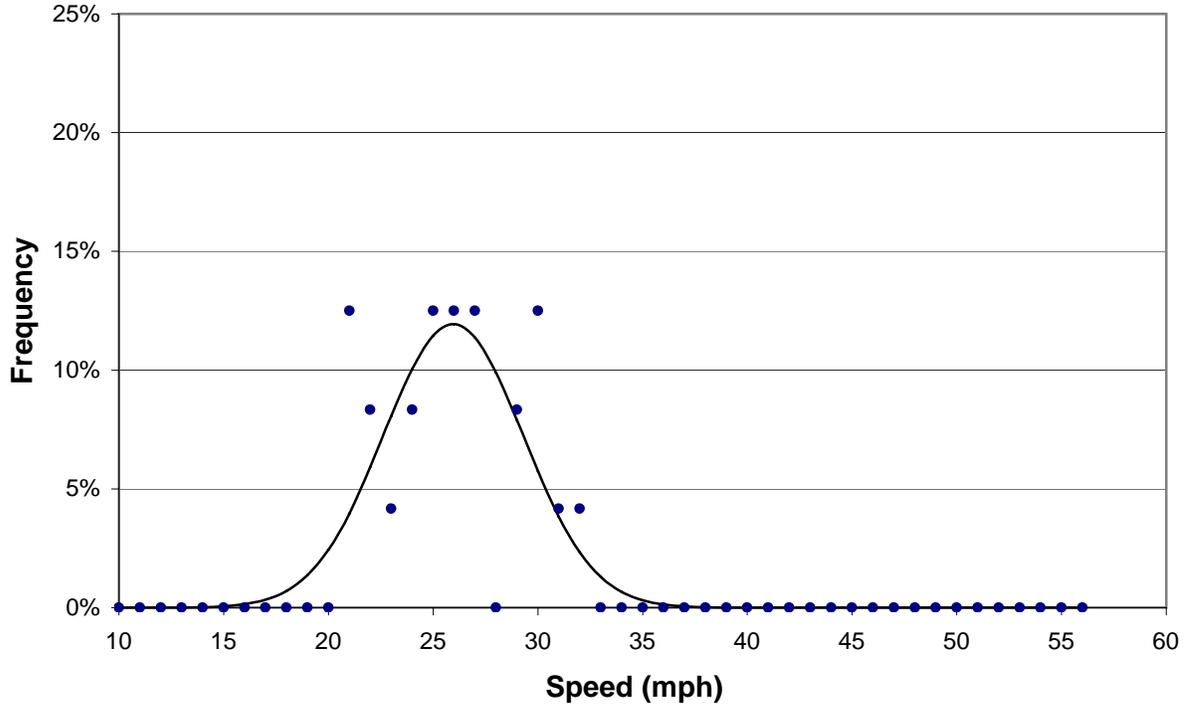
Date: June 23, 2005
Location: 202nd Street between 115th Avenue & Murdock Avenue
Surveyor: Richard Calvache & Hugo Salinas

Time: 10:00 am

School: P.S. 136
Direction: Southbound
Comments:

Mean Speed = 26.0 mph
Standard Deviation = 3.3 mph
Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.0 mph
15th Percentile Speed = 22.5 mph
85th Percentile Speed = 29.4 mph



GAP STUDY FIELD SHEET

Date: 9-26-05

Location: Murdock Ave / 202 St

Gap Information:

Crossing Distance	<u>44</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	sec/ft
Minimum Acceptable Gap	<u>18</u>	sec

Gap Survey:

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