

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



School Safety Engineering Project

FINAL REPORT: School of the Transfiguration, Queens



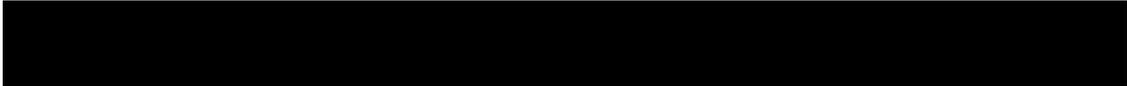
**Prepared by
The RBA Group and URBITRAN Associates Inc.**



October 4, 2006

**School Safety Engineering Project
Final Report: School of the Transfiguration, Queens**

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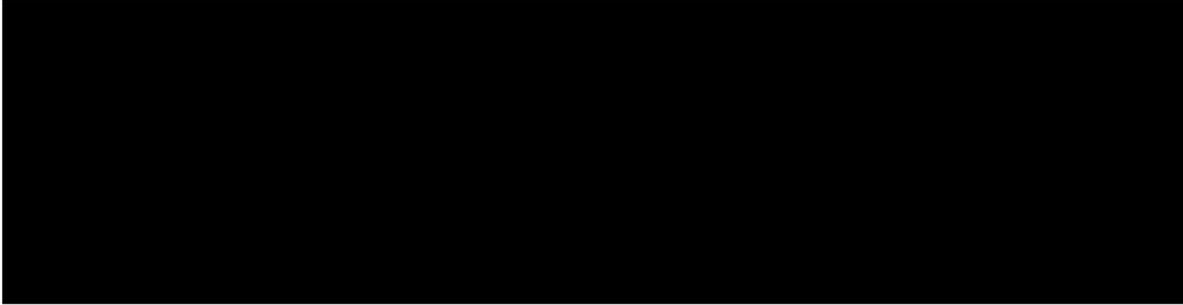
1. INTRODUCTION

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). School of the Transfiguration 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

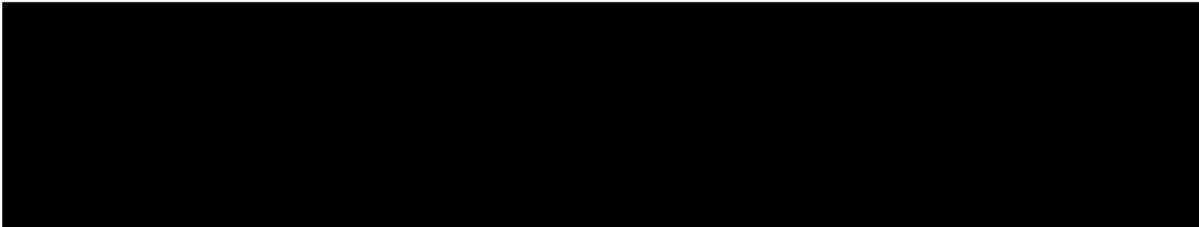
Exhibit 1 shows an aerial view of the neighborhood surrounding the school. School of the Transfiguration is bounded by 37th Avenue to the north, 38th Avenue to the south, 99th Street to the east, and 98th Street to the west. The neighborhood in the vicinity of the school consists primarily of low-rise, multi-family apartment buildings. Commercial uses are found one block north of the school along 37th Avenue, one block south of the school along Roosevelt Avenue, and two blocks west of the school along Junction Boulevard.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Members of the consultant team met with the principal at the school in the afternoon of Friday, June 4, 2004. The principal reported a problem with students crossing 38th Avenue on school days to access the church, which is located across the street from the school on the south side of 38th Avenue. The principal suggested the following measures to improve student pedestrian safety on 38th Avenue in front of the school:

- Install a traffic signal and/or assign a school crossing guard at the intersection of 38th Avenue and 98th Street.
- Install a speed reducer on 38th Avenue between 98th Street and 99th Street to slow vehicular traffic.
- Convert 38th Avenue from two-way traffic flow to one-way westbound traffic flow.

(See Appendix for a summary of the meeting with the principal.)



¹ At the time of the prioritization methodology, school enrollment was over 250.



2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

Typically, the school’s catchment area is defined by the Department of Education and shown in an Exhibit in this report. However, because the School of the Transfiguration is a private school, the actual “catchment area” is dependent upon other factors determined by the school administrators and, therefore, is not shown.

Table 1 presents the modes of travel for the School of the Transfiguration as identified by the school principal.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	STUDENTS (Percentage)
Walk	35%
Driven by Car	5%
Yellow School Bus	60%
MTA Bus	0%
MTA Subway	0%
Bicycle	0%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

Roosevelt Avenue, 37th Avenue, and Junction Boulevard are each located within one to two blocks of the school, and generate pedestrian activity and vehicular traffic in the vicinity of the school. P.S. 19 (The Marino Jeantet School), located at 98-02 Roosevelt Avenue (on the south side of Roosevelt Avenue between 98th Street and 99th Street), also generates pedestrian activity and vehicular traffic in the vicinity of the School of the Transfiguration.

2.8 CROSSING GUARD LOCATION

There are no school crossing guards assigned to the School of the Transfiguration.

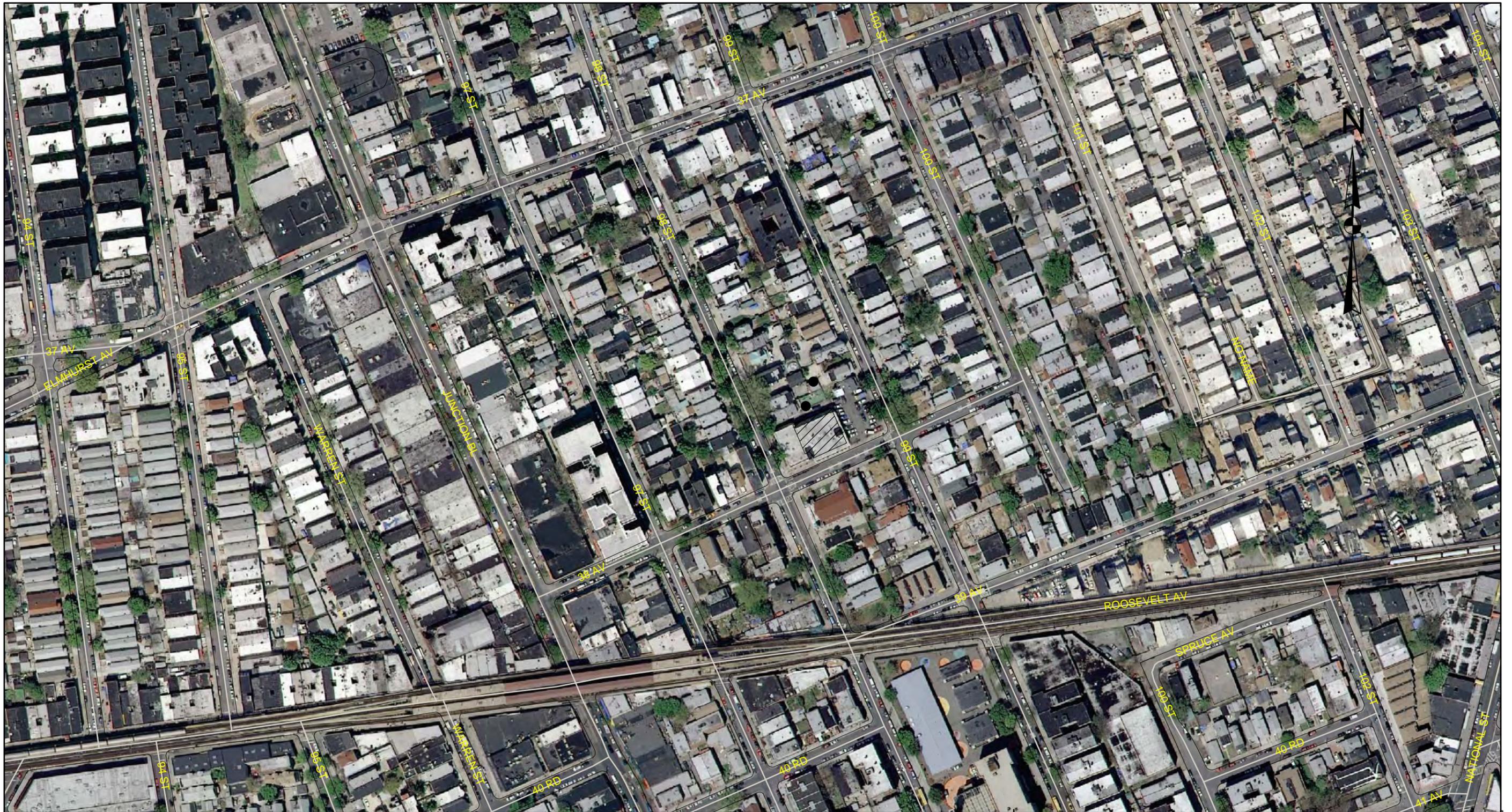


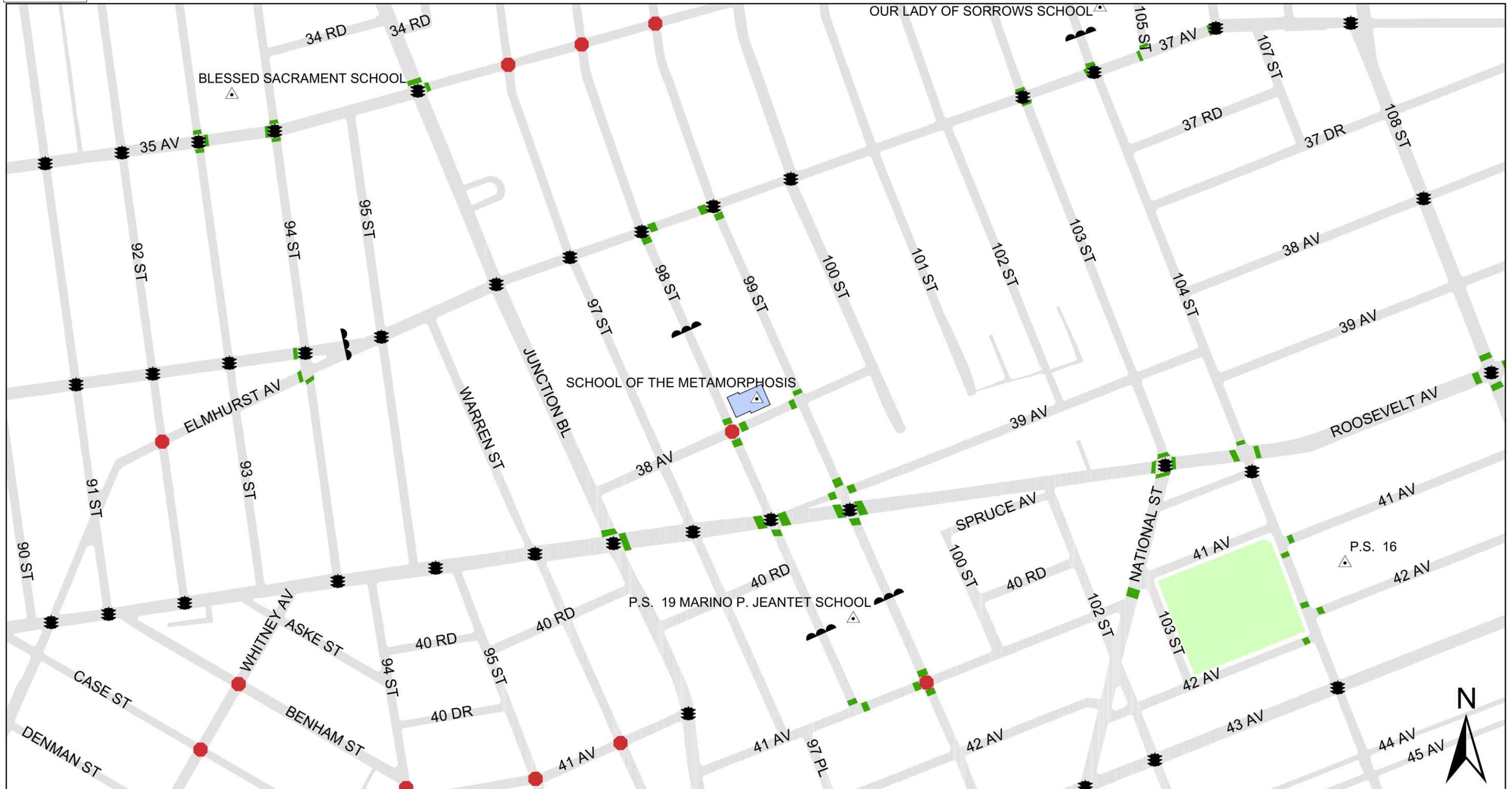
EXHIBIT 1
SCHOOL OF TRANSFIGURATION QUEENS

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 

Queens
SCHOOL OF THE METAMORPHOSIS

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

Map created on 11/17/2006

EXHIBIT 2

COMM. BOARD: 403
PRECINCT: 115

1.5.1 7

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the principal, approximately 60 percent of the students ride a yellow school bus to and from school. School bus operations consist of six school buses arriving in the morning and five buses departing in the afternoon. The buses park on 38th Avenue in front of the school to pick-up and drop-off students (see Figure 1).

In the vicinity of the school, public bus service is provided along Junction Boulevard via the Q72 bus, and along 103rd and 104th Streets via the Q23 bus. The nearest subway stop is a stop for the No. 7 subway line, located on Roosevelt Avenue at the intersection with Junction Boulevard (see Figure 2).

3.2 PARENT DROP-OFF OPERATIONS

According to the principal, approximately five percent of the students are dropped off in the morning and picked up in the afternoon. The principal reported that drop off operations were not a problem.

3.3 PARKING REGULATIONS

Parking regulations around the school block are shown in Exhibit 3.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

Exhibit 2 shows the existing school signals and pavement markings around the School of the Transfiguration as of May 2005. 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 signs accompanied by downward pointing arrows. Signs scheduled to be installed under this program are shown as “existing” in Exhibit 6.



Figure 1: School buses parked along north side of 38th Avenue, between 98th Street and 99th Street at dismissal time



Figure 2: Subway station for the No. 7 line at the Roosevelt Avenue/Junction Boulevard intersection

3.5 ACCIDENT SUMMARY

Exhibit 4 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of the School of the Transfiguration for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provide 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*
38 th Avenue and 98 th Street	7	0	0	0
38 th Avenue and 99 th Street	11	0	0	0
37 th Avenue and 98 th Street	12	0	0	0
37 th Avenue and 99 th Street	16	0	0	0
Roosevelt Avenue and Junction Boulevard	53	7	0	1
Roosevelt Avenue and 99 th Street	36	4	0	1
TOTAL	135	11	0	2

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
38 th Avenue and 98 th Street	14	2	0	0
38 th Avenue and 99 th Street	17	0	0	0
37 th Avenue and 98 th Street	18	3	0	0
37 th Avenue and 99 th Street	25	0	0	0
Roosevelt Avenue and Junction Boulevard	77	9	0	0
Roosevelt Avenue and 99 th Street	30	1	0	0
TOTAL	181	15	0	0

* School-related accidents are defined as accidents involving school-age pedestrians (age 4 to 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 School of the Transfiguration.

3.6.1 38th Avenue and 98th Street

This is a four-leg all-way stop-controlled intersection with school crosswalks located across the east leg of 38th Avenue, and the north and south legs of 98th Street. West of 98th Street, 38th Avenue is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of the roadway. East of 98th Street, 38th Avenue is a two-way street with one travel lane and one on-street parking lane on each side of the roadway. 98th Street is a one-way southbound street with one travel lane and on-street parking permitted on both sides of the roadway (see Figures 3 through 5).

There was a total of seven accidents reported at this intersection between 1998 and 2000 (Table 2), but none of these accidents involved pedestrians. However, one school-related accident, involving a six-year-old pedestrian, occurred mid-block on 98th Street between 37th Avenue and 38th Avenue, on May 3, 1998. The pedestrian was not killed or injured. No additional details regarding this accident were reported.

During the meeting with the consultant team, the school principal suggested the installation of a traffic signal at the intersection of 38th Avenue and 98th Street to help improve pedestrian safety. To determine if a traffic signal is warranted at this location, manual counts of both vehicle and pedestrian volumes were conducted from 7:30 to 9:00 am on Tuesday, October 25, 2005. The results of these counts during the peak hour (7:30 to 8:30 am) are shown in Tables 4 and 5, and in Exhibit 5A at the end of this section.

Using the traffic and pedestrian count data described above, a preliminary traffic signal warrant analysis was performed for the intersection of 38th Avenue and 98th Street to determine the need for a traffic signal installation at this location. The results of this preliminary analysis—based on traffic signal warrant 4 (Pedestrian Volumes) and warrant 5 (School Crossing) of the Federal MUTCD—are presented in Tables 6 and 7, respectively. Since neither warrant is satisfied, a traffic signal installation does not appear to be warranted at this time.

**TABLE 4: VEHICLE TURNING MOVEMENT VOLUMES AT 38TH AVENUE AND 98TH STREET
(7:30 - 8:30 AM)**

INTERSECTION	38 th Avenue EASTBOUND		38 th Avenue WESTBOUND	98 th Street SOUTHBOUND	
	Straight	Right	Left	Left	Straight
38 th Avenue and 98 th Street	30	36	39	58	159
TOTAL	66		39	217	

**TABLE 5: PEDESTRIAN CROSSING VOLUMES AT 38TH AVENUE AND 98TH STREET
(7:30 - 8:30 AM)**

INTERSECTION	Crossing 38 th Avenue: WEST-LEG CROSSWALK	Crossing 38 th Avenue: EAST-LEG CROSSWALK	Crossing 98 th Street: SOUTH-LEG CROSSWALK	Crossing 98 th Street: NORTH-LEG CROSSWALK
38 th Avenue and 98 th Street	91 (54 / 37) *	52 (24 / 28) *	110 (86 / 24) *	83 (71 / 12) *

* Numbers in parentheses indicate (adults / students).

TABLE 6: TRAFFIC SIGNAL WARRANT 4 ANALYSIS (PEDESTRIAN VOLUME)

Intersection	Total Hourly (7:30-8:30 AM) Pedestrian Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour*	Greater than 190 Pedestrians / hour	
38 th Avenue and 98 th Street	146	193	339	No	No	No

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 16 seconds.

TABLE 7: TRAFFIC SIGNAL WARRANT 5 ANALYSIS (SCHOOL CROSSING)

Intersection	Total Hourly (7:30-8:30) Student Volumes			Criteria		Traffic Signal Warranted
	Crossing Street			Gap	Crossing Major Street	
	Major	Minor	Total	Fewer than 60 gaps / hour ⁽¹⁾	Greater than 20 Students / hour	
38 th Avenue and 98 th Street	65	36	101	No	Yes	No

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 16 seconds.

The principal also reported a speeding problem in front of the school on 38th Avenue. In order to verify the existence of a speeding problem and to determine its extent, a spot speed survey of eastbound vehicles was conducted on 38th Avenue between 98th Street and 99th Street.

Spot speed surveys are used to identify the 85th percentile speed, which is considered to be the representative speed for a specified street segment. By definition, 85 percent of the surveyed vehicles are traveling below this speed and 15 percent of the surveyed vehicles are traveling above this speed. 85th percentile speeds above 30 mph indicate a potential speeding problem that may require appropriate traffic calming measures. The results of the spot speed survey on 38th Avenue indicated that eastbound vehicles were traveling at an 85th percentile speed of 24 mph, which is below the 30 mph threshold. A summary of the spot speed survey on 38th Avenue is provided in the Appendix at the end of this document.

The principal also reported a speeding problem near the school on 98th Street. In order to verify the existence of a speeding problem and to determine its extent, a spot speed survey of southbound vehicles was conducted on 98th Street between 37th and 38th Avenues. The results of the survey indicated that southbound vehicles on 98th Street were traveling at an 85th percentile speed of 31 mph, which exceeds the recommended 30 mph threshold. Recommendations to alleviate speeding on 98th Street are discussed in Section 4. A summary of the spot speed survey on 98th Street is provided in the Appendix at the end of this document.



Figure 3: Looking east along 38th Avenue to the intersection with 98th Street (the school is shown to the left and the church is shown to the right)



Figure 4: Looking north along 98th Street to the intersection with 38th Avenue

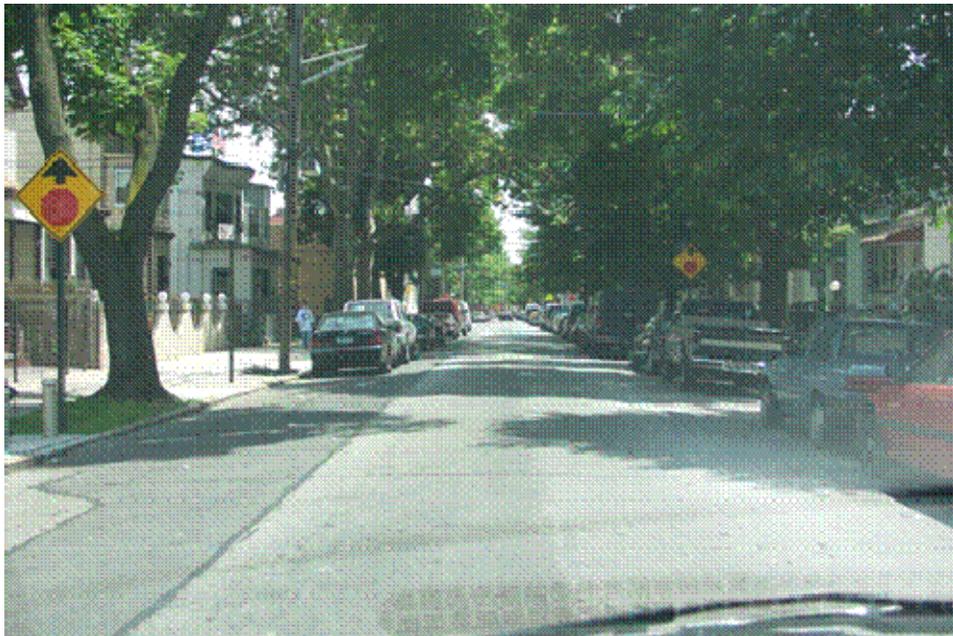


Figure 5: Looking south on 98th Street between 37th Street and 38th Street

3.6.2 38th Avenue and 99th Street

This is a four-leg all-way stop-controlled intersection with school crosswalks located across the west leg of 38th Avenue and the north leg of 99th Street. 38th Avenue, east of 98th Street, is a two-way street with one travel lane and one on-street parking lane on each side of the roadway. 99th Street is a one-way northbound street with one travel lane and on-street parking permitted on both sides of the roadway (see Figures 6 and 7).

There was a total of 11 accidents reported at this intersection between 1998 and 2000 (Table 2), but none of these were pedestrian accidents.

To assess pedestrian safety at the intersection of 38th Avenue and 99th Street, manual counts of both vehicle and pedestrian volumes were conducted from 7:30 to 9:00 am on Thursday, November 3, 2005. The results of these counts during the peak hour (7:45 to 8:45 am) are shown in Tables 8 and 9, and in Exhibit 5B at the end of this section.

Using the traffic and pedestrian count data described above, a preliminary traffic signal warrant analysis was performed to determine the need for a traffic signal installation at this intersection. The results of this preliminary analysis—based on traffic signal warrant 4 (Pedestrian Volumes) and warrant 5 (School Crossing) of the Federal MUTCD—are presented in Tables 10 and 11, respectively. Since neither warrant is satisfied, a traffic signal installation does not appear to be warranted at this time.



Figure 6: Looking north on 99th Street at the intersection with 38th Avenue

**TABLE 8: VEHICLE TURNING MOVEMENT VOLUMES AT 38TH AVENUE AND 99TH STREET
(7:45 - 8:45 AM)**

INTERSECTION	38 th Avenue EASTBOUND		38 th Avenue WESTBOUND		99 th Street NORTHBOUND		
	Left	Straight	Straight	Right	Left	Straight	Right
38 th Avenue and 99 th Street	48	34	7	0	33	148	44
TOTAL	82		7		225		

**TABLE 9: PEDESTRIAN CROSSING VOLUMES AT 38TH AVENUE AND 99TH STREET
(7:45 - 8:45 AM)**

INTERSECTION	Crossing 38 th Avenue WEST-LEG CROSSWALK	Crossing 38 th Avenue EAST-LEG CROSSWALK	Crossing 99 th Street SOUTH-LEG CROSSWALK	Crossing 99 th Street NORTH-LEG CROSSWALK
38 th Avenue and 99 th Street	86 (50 / 36) *	157 (89 / 68) *	78 (67 / 11) *	104 (65 / 39) *

* Numbers in parenthesis indicate (adults / students).

TABLE 10: TRAFFIC SIGNAL WARRANT 4 ANALYSIS (PEDESTRIAN VOLUME)

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	
38 th Avenue and 99 th Street	243	182	425	No	Yes	No

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 16 seconds.

TABLE 11: 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	
38 th Avenue and 99 th Street	104	47	151	No	Yes	No

* The available gap is based on the time needed for a pedestrian to walk across the street. The analysis assumed 16 seconds.

The principal also reported a speeding problem near the school on 99th Street. In order to verify the existence of a speeding problem and to determine its extent, a spot speed survey of northbound vehicles was conducted on 99th Street between 37th and 38th Avenues. The results of this survey indicated that northbound vehicles on 99th Street were traveling at an 85th percentile speed of 31 mph, which exceeds the recommended 30 mph threshold. Recommendations to alleviate speeding on 99th Street are discussed in Section 4. A summary of the spot speed survey on 99th Street is provided in the Appendix at the end of this document.



Figure 7: Looking west on 38th Avenue at the intersection with 99th Street

3.6.3 37th Avenue and 98th Street

This is a four-leg signalized intersection with school crosswalks located across the east leg of 37th Avenue and the south leg of 98th Street. Pedestrian crosswalks are located across the west leg of 37th Avenue and the north leg of 98th Street. In the vicinity of the School of the Transfiguration, 37th Avenue is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of the roadway. 98th Street is a one-way southbound street with one travel lane 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 2), but none of these involved pedestrians.



Figure 8: Looking south at the intersection of 37th Avenue and 98th Street



Figure 9: Looking east along 37th Avenue to the intersection with 98th Street

3.6.4 37th Avenue and 99th Street

This is a four-leg signalized intersection with school crosswalks located across the west leg of 37th Avenue and the south leg of 99th Street. Pedestrian crosswalks are located across the east leg of 37th Avenue and the north leg of 99th Street. 37th Avenue is a one-way eastbound street with one travel lane and on-street parking permitted on both sides of

the roadway. 99th Street is a one-way northbound street with one travel lane and on-street parking permitted on both sides of the roadway.

There was a total of 16 accidents reported at this intersection between 1998 and 2000 (Table 2), but none involved pedestrians.

3.6.5 Roosevelt Avenue and Junction Boulevard

This is a four-leg signalized intersection with school crosswalks located across the east leg of Roosevelt Avenue and the north leg of Junction Boulevard. Pedestrian crosswalks are located across the west leg of Roosevelt Avenue and the south leg of Junction Boulevard. In the vicinity of the School of the Transfiguration, Roosevelt Avenue is a two-way east-west street with one travel lane and one on-street parking lane on each side of the roadway (see Figure 10). Roosevelt Avenue also has elevated tracks for the No. 7 subway train aligned over the center of the roadway. The supports for this elevated structure are located outside of the roadway. Junction Boulevard is a two-way north-south street with one travel lane and one on-street parking lane on each side of the roadway (see Figure 11). Both Roosevelt Avenue and Junction Boulevard are designated truck and snow emergency routes.

There was a total of 53 accidents reported at this intersection between 1998 and 2000 (Table 2), including seven pedestrian accidents, one of which was school-related. The school-related accident occurred at approximately 4:00 pm on Thursday, October 1, 1998, when a 13-year-old pedestrian sustained a “possible injury” was after being struck by a vehicle while crossing the intersection in compliance with the traffic signal. The accident occurred on a straight and level segment during daylight conditions. At the time of the accident, the roadway and weather conditions were reported as dry and clear, respectively.

In addition, one school-related pedestrian accident occurred mid-block on 97th Street between Roosevelt Avenue and 38th Avenue on June 11, 1999. This particular accident involved an eight-year-old pedestrian who was struck at approximately 8:00 am and sustained a non-incapacitating injury while crossing 97th Street. The accident occurred during daylight conditions, and the road surface and weather conditions were reported as dry and clear, respectively.



Figure 10: Looking west along Roosevelt Avenue to the intersection with Junction Boulevard



Figure 11: Looking north along Junction Boulevard to the intersection with Roosevelt Avenue

3.6.6 Roosevelt Avenue and 99th Street

This is a four-leg signalized intersection with school crosswalks located across all legs. Roosevelt Avenue is a two-way east-west street with one travel lane and one on-street parking lane on each side of the roadway. 99th Street is a one-way northbound street with one travel lane and on-street parking permitted on both sides of the roadway.

There was a total of 36 accidents reported at this intersection between 1998 and 2000 (Table 2), including four pedestrian accidents, one of which was school-related. The school-related accident occurred at approximately 3:00 pm on Friday, April 30, 1998, when a nine-year-old pedestrian sustained a “non-incapacitating injury” after being struck by a vehicle while crossing at the intersection against the traffic signal. The accident was reported to have occurred during rainy, daylight conditions.

3.7 SIGNAL TIMING

Pedestrian crossing times were field-verified for crosswalks at signalized intersections in the vicinity of School of the Transfiguration, and were found to be adequate in all directions and on all approaches based upon a child pedestrian walking at a rate of three feet per second. Signal timings are shown in Table 12.

TABLE 12: PEDESTRIAN CROSSING TIMES AT SIGNALIZED INTERSECTIONS				
INTERSECTION	CROSSWALK LENGTH (FEET)	PEDESTRIAN TIME ACTUAL (SECONDS)	PEDESTRIAN TIME REQUIRED (SECONDS)	TIMING ADJUSTMENT REQUIRED?
37th Avenue and 98th Street				
crossing 37 th Avenue	30	30	13	NO
crossing 98 th Street	30	62	13	NO
37th Avenue and 99th Street				
crossing 37 th Avenue	30	30	13	NO
crossing 99 th Street	30	62	13	NO
Roosevelt Avenue and Junction Boulevard				
crossing Roosevelt Avenue	44	46	18	NO
crossing Junction Boulevard	44	70	18	NO

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

3.8 PHYSICAL CONDITIONS

3.8.1 Roadways and Sidewalks

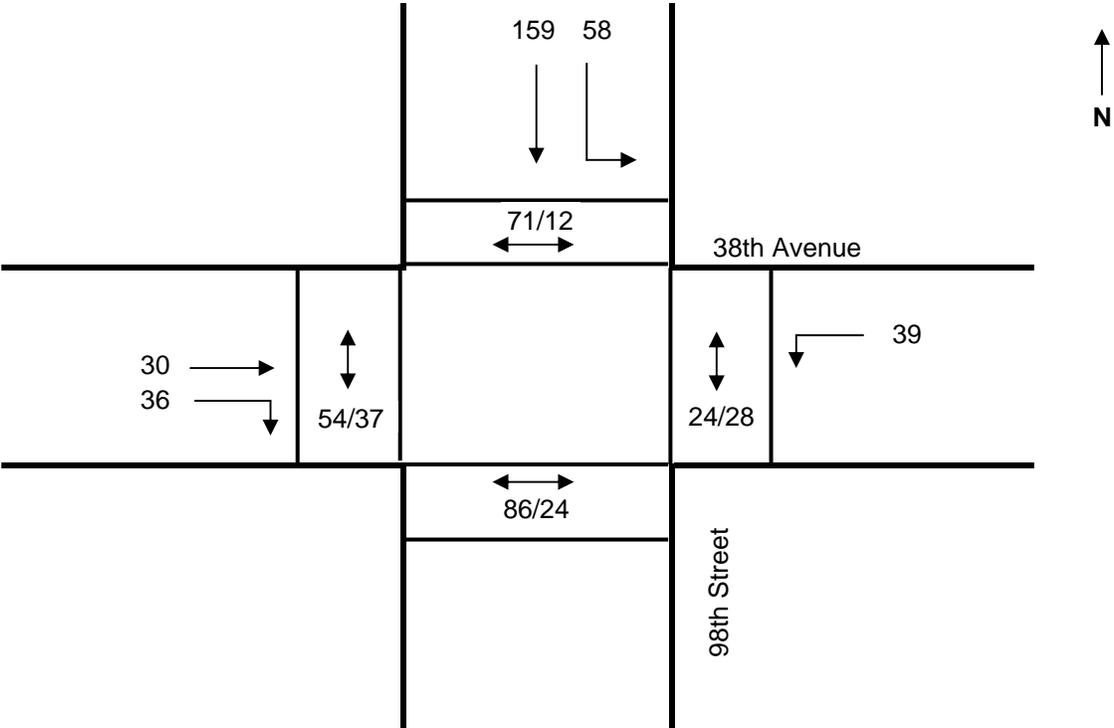
Roadways and sidewalks in the vicinity of the School of the Transfiguration, were observed to be in fair condition. Sidewalk widths varied from approximately 10 to 15 feet on the school block-faces.

3.8.2 Pedestrian Ramps

In general, pedestrian ramps in the vicinity of the school were observed to be standard and in fair condition. However, sub-standard pedestrian ramps were observed at the following locations:

- The pole for a street light is located in the center of the pedestrian ramp on the southwest corner of the 37th Avenue and 99th Street intersection, for the crosswalk located across the west leg of the intersection.
- A traffic signal pole is located in the center of the pedestrian ramp on the southeast corner of the 37th Avenue and 98th Street intersection, for the crosswalk located across the south leg of the intersection.
- A pedestrian traffic signal pole is located in the center of the pedestrian ramp on southwest corner of the Roosevelt Avenue and 98th Street intersection, for the crosswalk located across the west leg of the intersection.

One Hour Traffic Volumes
Tuesday, October 25th, 2005 7:30am - 8:30am



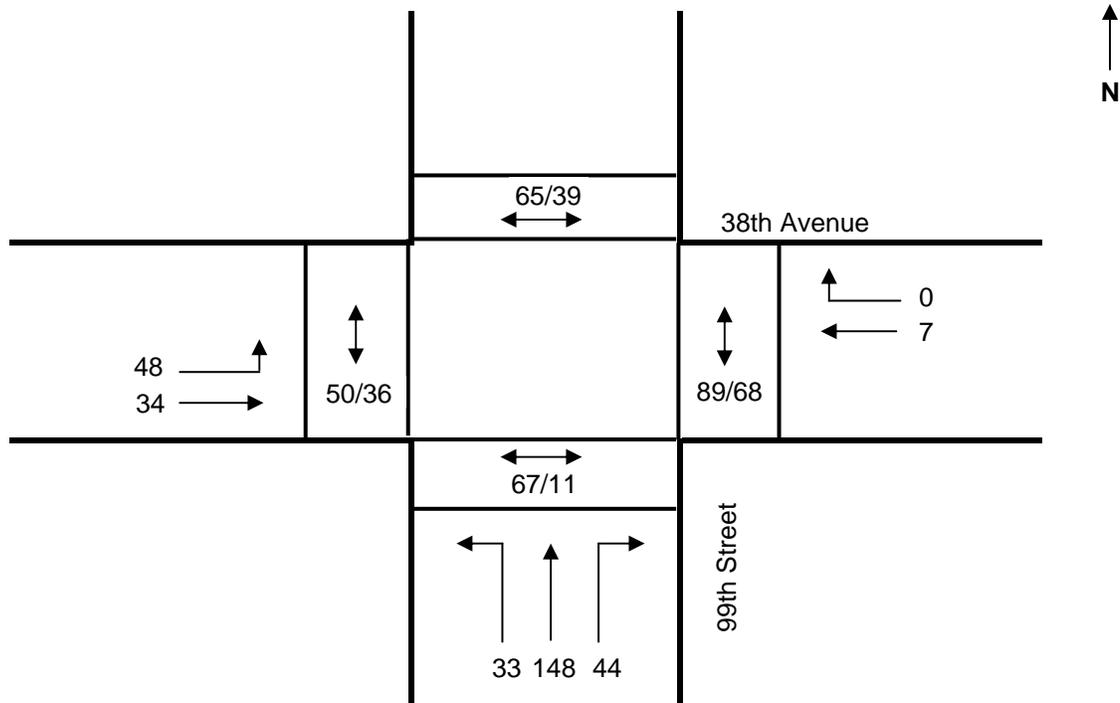
Intersection of 38th Avenue and 98th Street

Table of Content:

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

EXHIBIT 5A
SCHOOL OF TRANSFIGURATION QUEENS
TRAFFIC AND PEDESTRIAN COUNTS

One Hour Traffic Volumes
Thursday, November 3rd, 2005 7:45am - 8:45am



Intersection of 38th Avenue and 99th Street

Table of Content:

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

EXHIBIT 5B
SCHOOL OF TRANSFIGURATION QUEENS
TRAFFIC AND PEDESTRIAN COUNTS

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes the proposed measures to improve school pedestrian safety around the School of the Transfiguration. The proposed recommendations are divided into short-term and long-term measures. Short-term measures are those that potentially can be performed in-house by DOT. Long-term measures involve capital improvements. Each of the short- and long-term measures recommended for the School of the Transfiguration is shown in more detail in Exhibit 6 at the end of this section.

4.1 SHORT-TERM MEASURES

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

There are “NO STANDING 7AM - 4PM SCHOOL DAYS EXCEPT MIU VEHICLES” signs along the north side of 38th Avenue between 98th and 99th Streets, in front of the main entrance to the school. As the program has ended, it is recommended that the no standing exception for MIU vehicles be eliminated 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).

➤ *Install graphic “YIELD TO PEDESTRIAN” sign*

“YIELD TO PEDESTRIAN” signs are recommended at intersection approaches with substantial vehicle–student pedestrian volumes to improve driver awareness of student-pedestrians. A “YIELD TO PEDESTRIAN” sign is recommended on the following approach:

- Northbound approach of Junction Boulevard at 38th Avenue.

➤ *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.

➤ *Provide crosswalks at the following intersections*

- Provide a pedestrian crosswalk across the west leg of the 38th Avenue and 98th Street intersection.
- Provide a school crosswalk across the south leg of the 39th Avenue and 99th Street intersection.

➤ Speeding on 98th Street

The principal reported a speeding problem on 98th Street. Therefore, a speed survey was conducted on 98th Street between 37th and 38th Avenues in the southbound direction, in order to verify the existence of a speeding problem and to determine its extent (see Section 3.6.3).

The spot speed survey showed an 85th percentile speed of 31 mph for southbound vehicles on 98th Street, between 37th and 38th Avenues. This finding indicates the need for a speed reduction measure for this section of roadway.

Therefore, it is recommended to:

- Install a speed reducer (hump) on 98th Street, near the center of the block between 37th and 38th Avenues. A speed reducer at this location should help reduce speeds along this block. The speed reducer should be marked and signed per NYCDOT standards.

➤ Speeding on 99th Street

The principal also reported a speeding problem on 99th Street. Therefore, a speed survey was conducted on 99th Street between 37th and 38th Avenues in the northbound direction in order to verify the existence of a speeding problem and to determine its extent (see Section 3.6.4).

The spot speed survey showed an 85th percentile speed of 31 mph for northbound vehicles on 99th Street between 37th and 38th Avenues. This finding indicates the need for a speed reduction measure for this section of roadway.

Therefore, it is recommended to:

- Install a speed reducer (hump) on 99th Street, near the center of the block between 37th and 38th Avenues. A speed reducer at this location should help reduce speeds along this block. The speed reducer should be marked and signed per NYCDOT standards.

4.2 LONG-TERM MEASURES

➤ Relocate obstructions within pedestrian ramps

In general, pedestrian ramps in the vicinity of the school were observed to be standard and in fair condition. However, pedestrian ramps were found to be obstructed at several locations.

Therefore, it is recommended to:

- Relocate street light located in the center of the pedestrian ramp on the southwest corner of the 37th Avenue and 99th Street intersection.

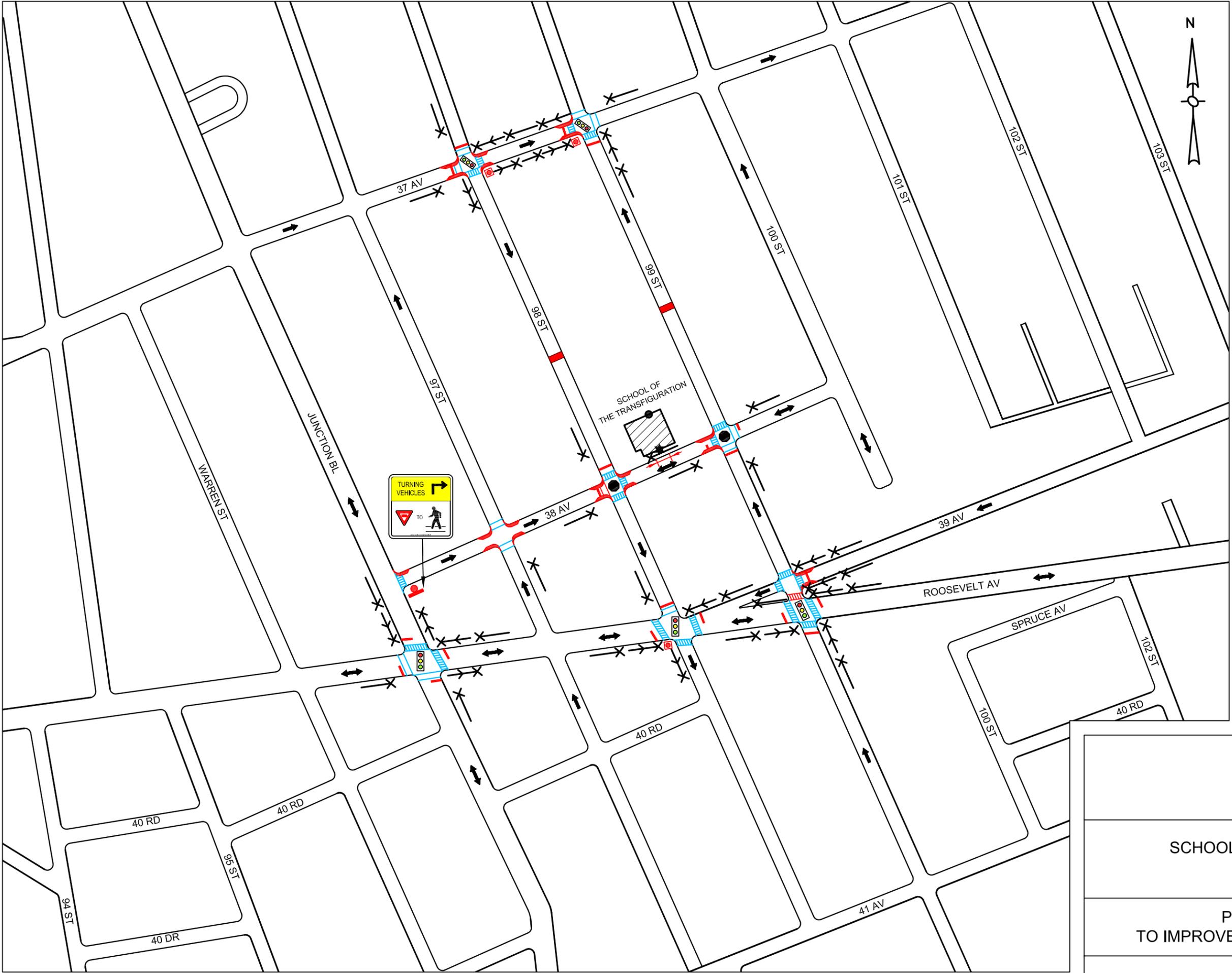
- Relocate the traffic signal pole located in the center of the pedestrian ramp on the southeast corner of the 37th Avenue and 98th Street intersection.
- Relocate the pedestrian traffic signal pole located in the center of the pedestrian ramp on southwest corner of the Roosevelt Avenue and 98th Street intersection.

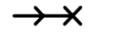
➤ Consider installing curb extensions at the following locations:

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

- All four corners of the 37th Avenue and 98th Street intersection.
- Northwest and southwest corners of the 37th Avenue and 99th Street intersection.
- Northeast corner of the 38th Avenue and Junction Boulevard intersection.
- All four corners of the 38th Avenue and 97th Street intersection.
- All four corners of the 38th Avenue and 98th Street intersection.
- Northwest and southwest corners of the 38th Avenue and 99th Street intersection.
- Northeast and southeast corners of the 39th Avenue and 99th Street 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 [or intersections]. These curb extensions would not eliminate or reduce the width of any moving lanes.



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

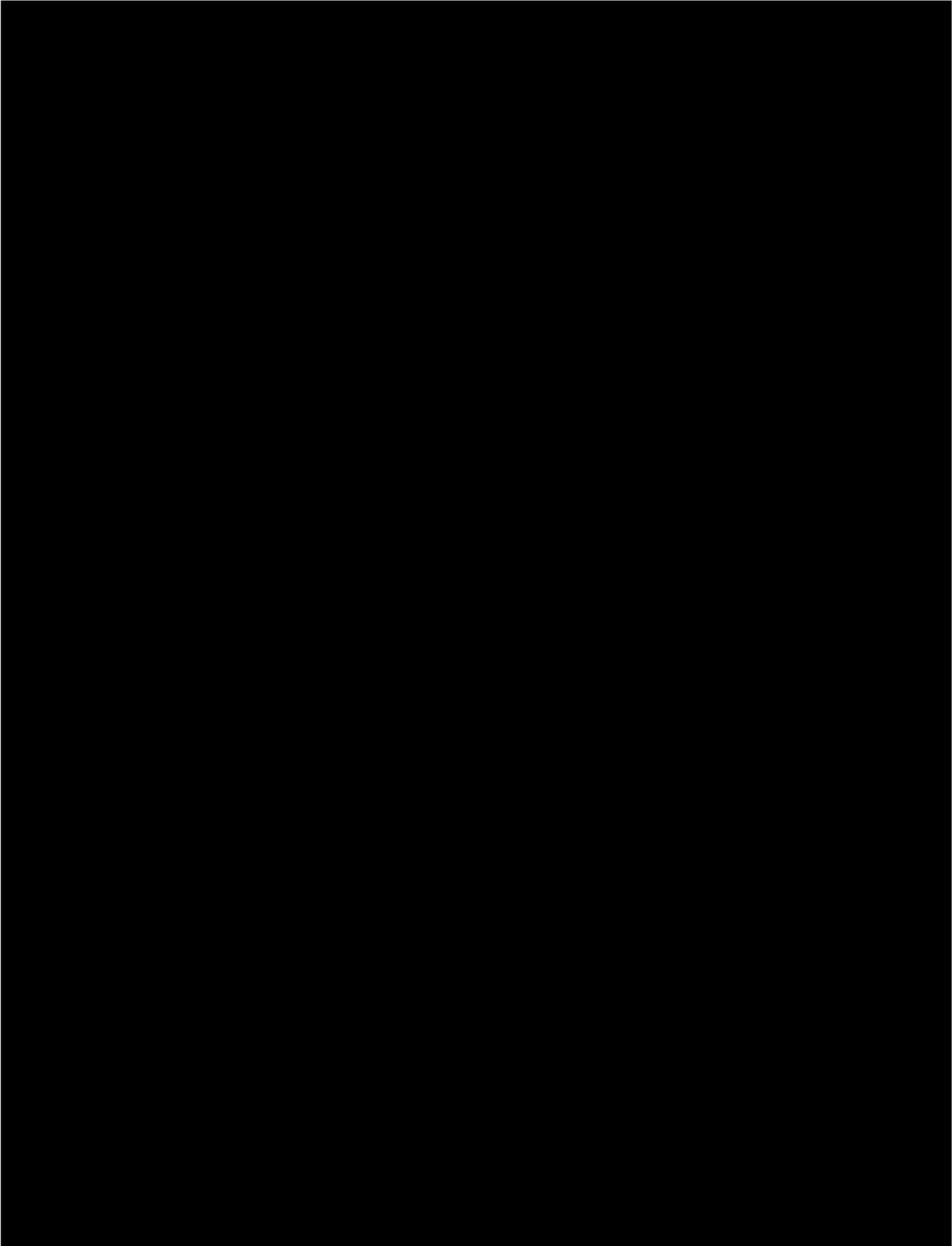
1" = 200'

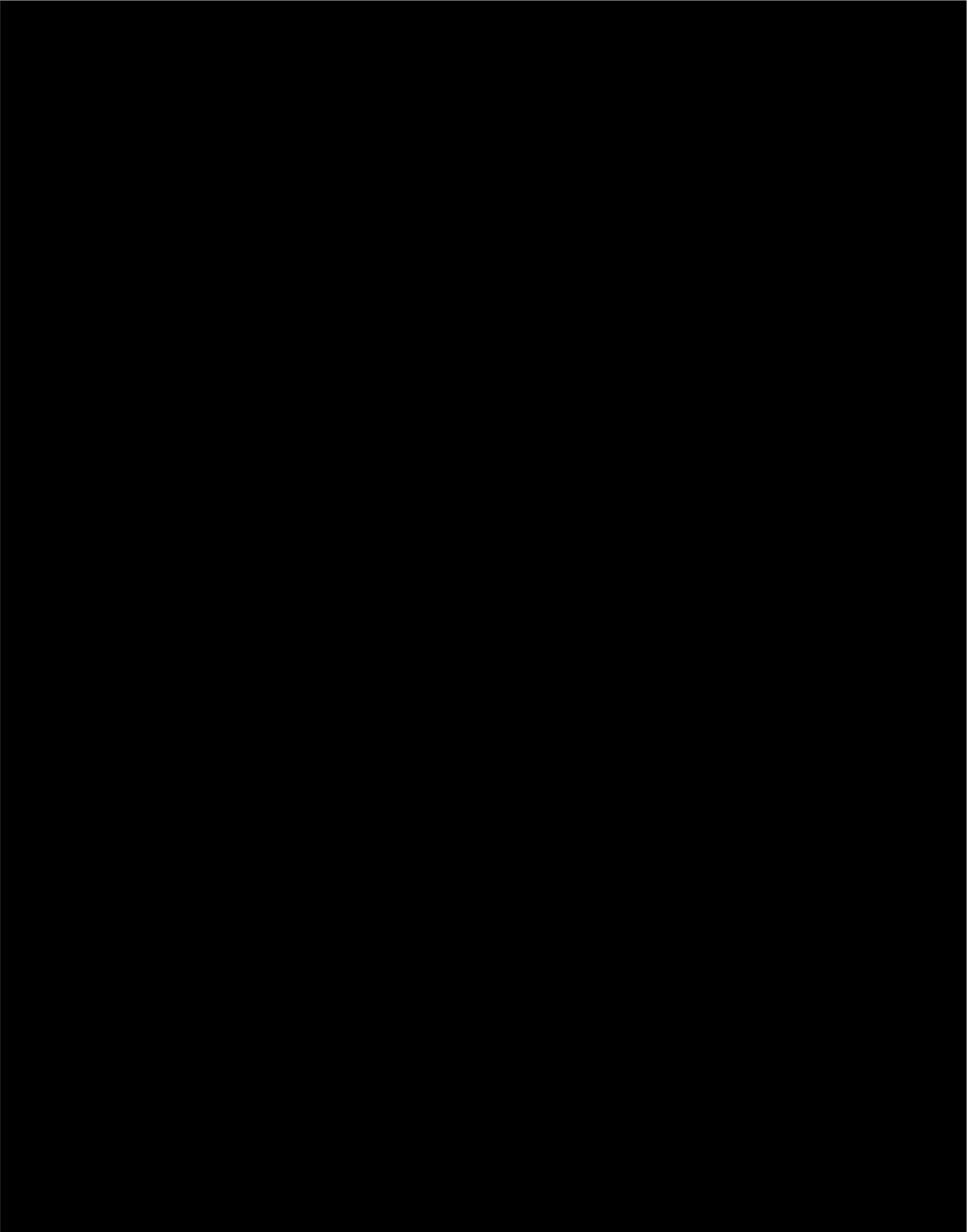
EXHIBIT 6

SCHOOL OF THE TRANSFIGURATION
QUEENS

POTENTIAL MEASURES
TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX





SPOT SPEED STUDY

Date: 10/25/05
 Location: 38 Ave between 98 St and 99 St
 Surveyor: Richard Calvache

Time: 9:30 AM

School: School of Transfiguration
 Direction: EB
 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	1	6.7%	6.7%	12	144
13	0	0.0%	6.7%	0	0
14	0	0.0%	6.7%	0	0
15	3	20.0%	26.7%	45	675
16	1	6.7%	33.3%	16	256
17	0	0.0%	33.3%	0	0
18	2	13.3%	46.7%	36	648
19	1	6.7%	53.3%	19	361
20	1	6.7%	60.0%	20	400
21	2	13.3%	73.3%	42	882
22	1	6.7%	80.0%	22	484
23	2	13.3%	93.3%	46	1058
24	0	0.0%	93.3%	0	0
25	0	0.0%	93.3%	0	0
26	0	0.0%	93.3%	0	0
27	0	0.0%	93.3%	0	0
28	0	0.0%	93.3%	0	0
29	1	6.7%	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
	15	100.0%		287	5749

Mean Speed = 19.1 mph
 Standard Deviation = 4.3 mph
 Margin of Error (95% Confidence) = ± 2.2 mph

Median Speed = 19.1 mph
 15th Percentile Speed = 14.7 mph
 85th Percentile Speed = 23.6 mph

SPOT SPEED STUDY

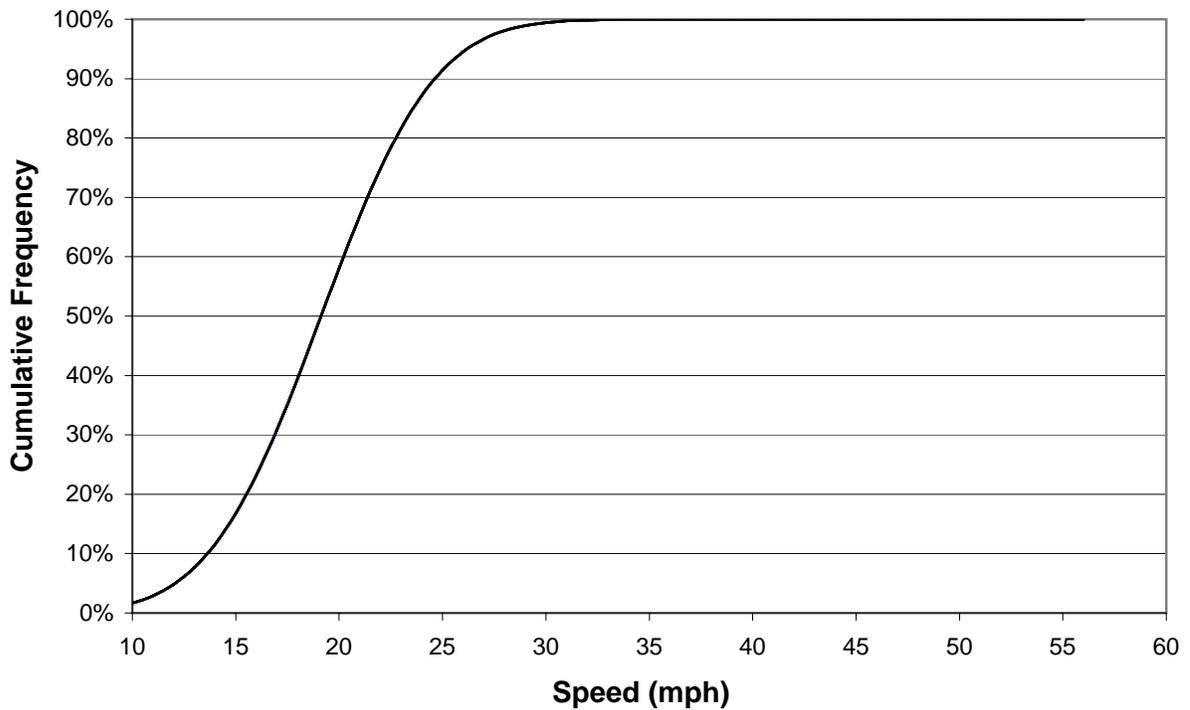
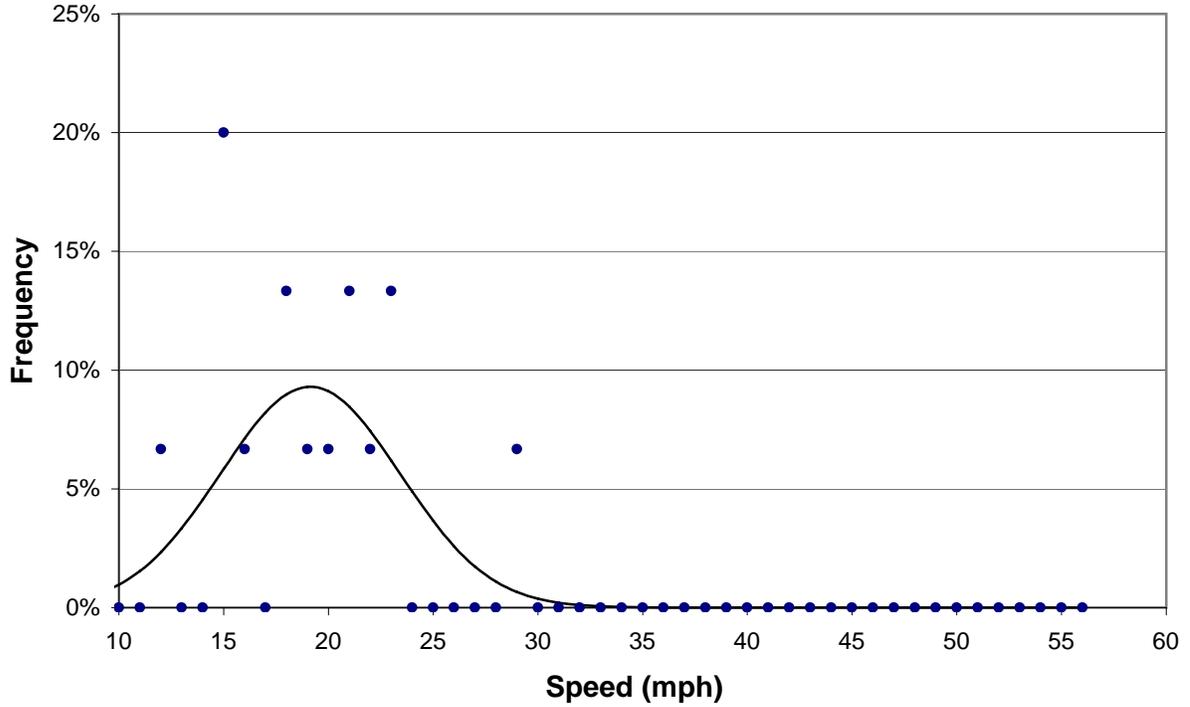
Date: 10/25/05
Location: 38 Ave between 98 St and 99 St
Surveyor: Richard Calvache

Time: 9:30 AM

School: School of Transfiguration
Direction: EB
Comments:

Mean Speed = 19.1 mph
Standard Deviation = 4.3 mph
Margin of Error (95% Confidence) = ± 2.2 mph

Median Speed = 19.1 mph
15th Percentile Speed = 14.7 mph
85th Percentile Speed = 23.6 mph



SPOT SPEED STUDY

Date: 11/3/05
 Location: 98 St between 37 Ave and 38 Ave
 Surveyor: Richard Calvache

Time: 10:00 AM

School: School of Transfiguration
 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	1	2.1%	2.1%	19	361
20	5	10.4%	12.5%	100	2000
21	1	2.1%	14.6%	21	441
22	2	4.2%	18.8%	44	968
23	7	14.6%	33.3%	161	3703
24	5	10.4%	43.8%	120	2880
25	1	2.1%	45.8%	25	625
26	5	10.4%	56.3%	130	3380
27	3	6.3%	62.5%	81	2187
28	5	10.4%	72.9%	140	3920
29	3	6.3%	79.2%	87	2523
30	1	2.1%	81.3%	30	900
31	0	0.0%	81.3%	0	0
32	1	2.1%	83.3%	32	1024
33	5	10.4%	93.8%	165	5445
34	1	2.1%	95.8%	34	1156
35	1	2.1%	97.9%	35	1225
36	0	0.0%	97.9%	0	0
37	0	0.0%	97.9%	0	0
38	1	2.1%	100.0%	38	1444
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
	48	100.0%		1262	34182

Mean Speed = 26.3 mph
 Standard Deviation = 4.6 mph
 Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.3 mph
 15th Percentile Speed = 21.5 mph
 85th Percentile Speed = 31.1 mph

SPOT SPEED STUDY

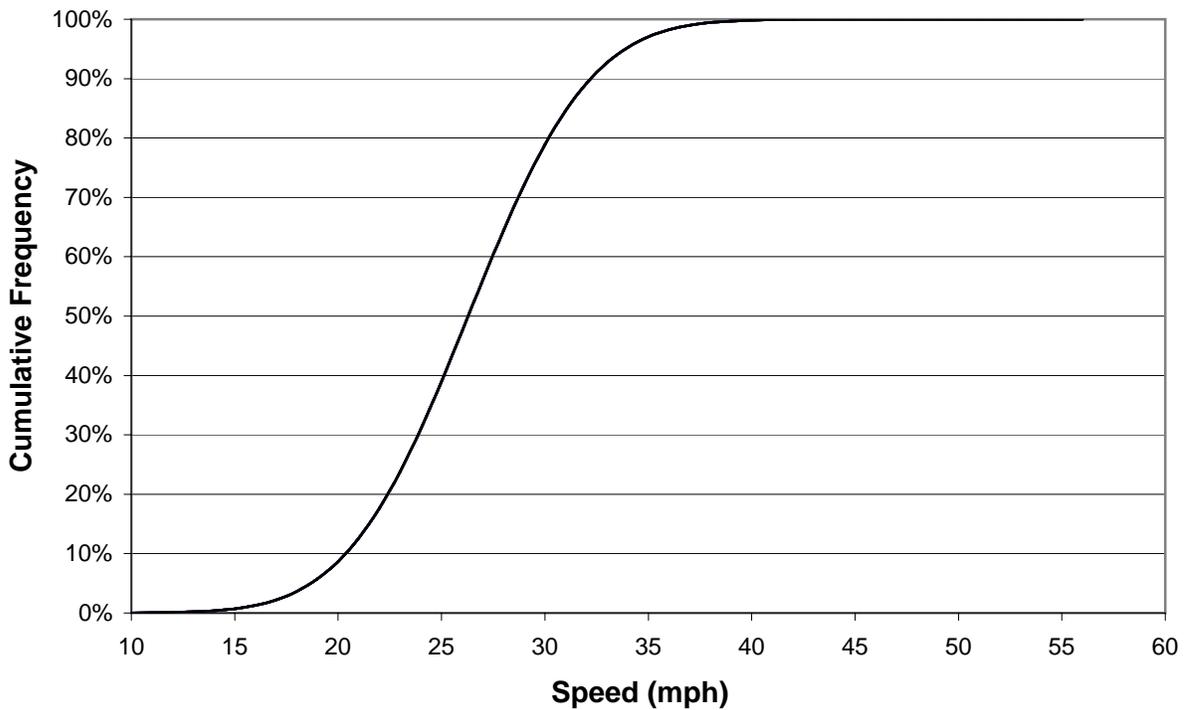
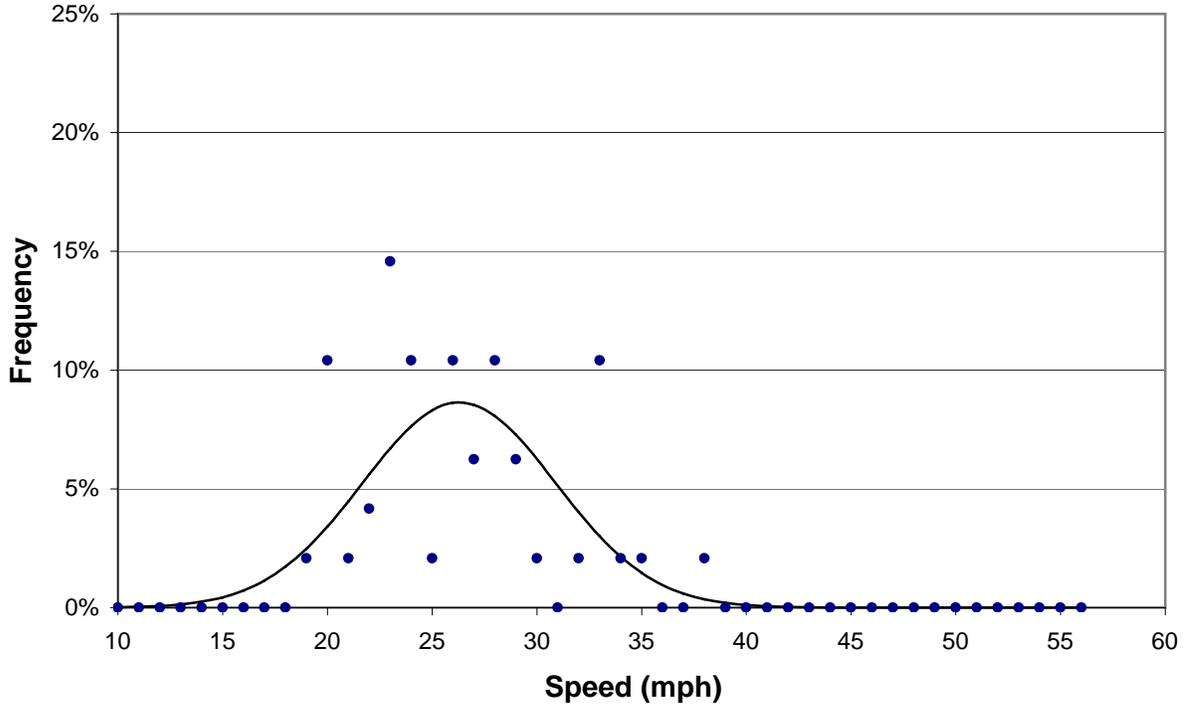
Date: 11/3/05
Location: 98 St between 37 Ave and 38 Ave
Surveyor: Richard Calvache

Time: 10:00 AM

School: School of Transfiguration
Direction: SB
Comments:

Mean Speed = 26.3 mph
Standard Deviation = 4.6 mph
Margin of Error (95% Confidence) = ± 1.3 mph

Median Speed = 26.3 mph
15th Percentile Speed = 21.5 mph
85th Percentile Speed = 31.1 mph



SPOT SPEED STUDY

Date: 11/3/05
 Location: 99 St between 37 Ave and 38 Ave
 Surveyor: Richard Calvache

Time: 11:00 AM

School: School of Transfiguration
 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	1	3.2%	6.5%	23	529
24	2	6.5%	12.9%	48	1152
25	3	9.7%	22.6%	75	1875
26	5	16.1%	38.7%	130	3380
27	5	16.1%	54.8%	135	3645
28	4	12.9%	67.7%	112	3136
29	3	9.7%	77.4%	87	2523
30	2	6.5%	83.9%	60	1800
31	2	6.5%	90.3%	62	1922
32	1	3.2%	93.5%	32	1024
33	1	3.2%	96.8%	33	1089
34	0	0.0%	96.8%	0	0
35	0	0.0%	96.8%	0	0
36	0	0.0%	96.8%	0	0
37	0	0.0%	96.8%	0	0
38	1	3.2%	100.0%	38	1444
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%		857	24003

Mean Speed = 27.6 mph
 Standard Deviation = 3.2 mph
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 27.6 mph
 15th Percentile Speed = 24.3 mph
 85th Percentile Speed = 31.0 mph

SPOT SPEED STUDY

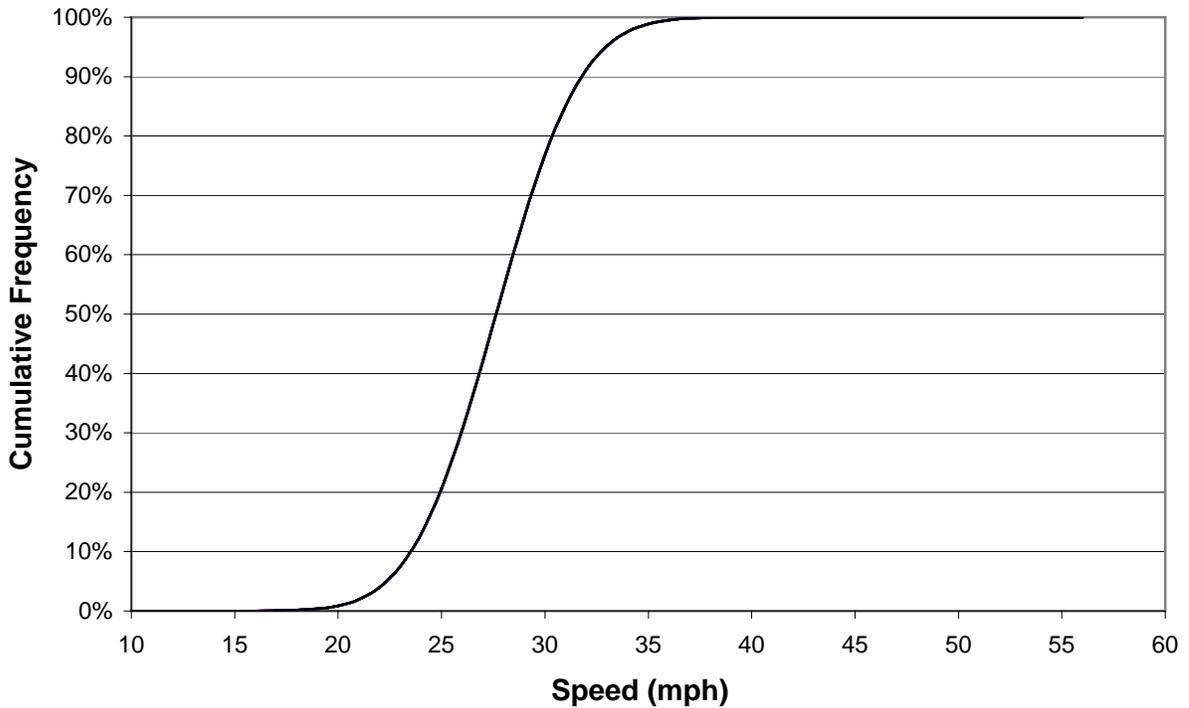
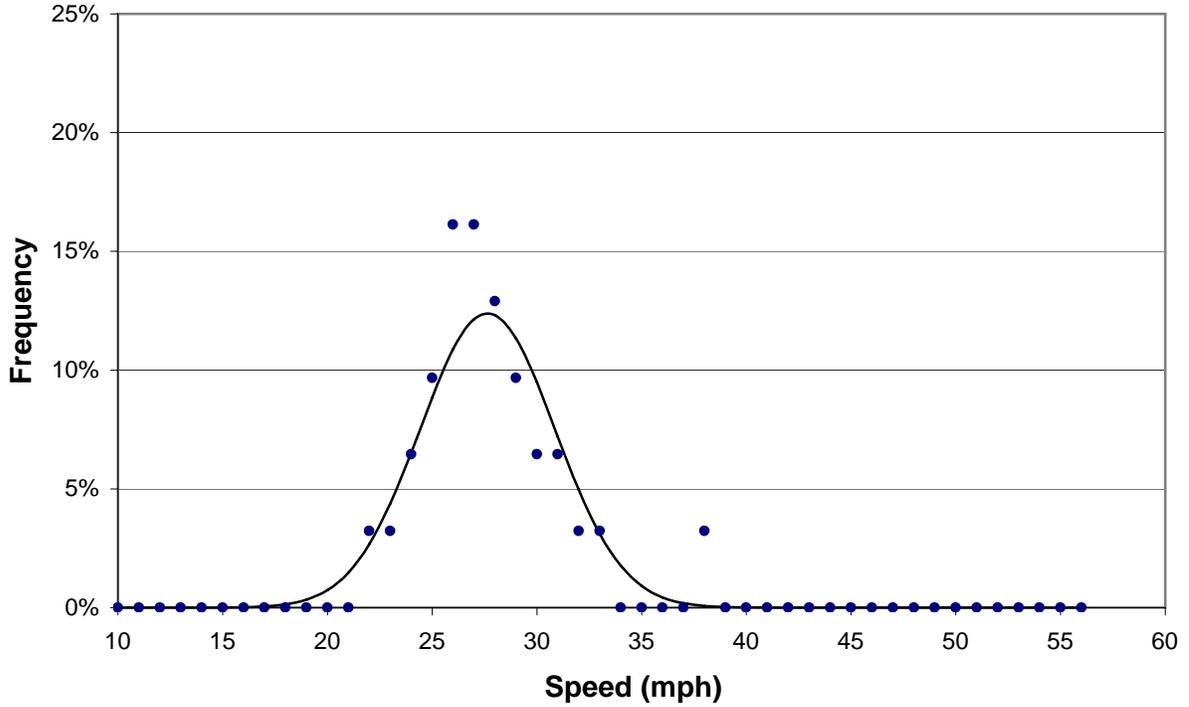
Date: 11/3/05
Location: 99 St between 37 Ave and 38 Ave
Surveyor: Richard Calvache

Time: 11:00 AM

School: School of Transfiguration
Direction: NB
Comments:

Mean Speed = 27.6 mph
Standard Deviation = 3.2 mph
Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 27.6 mph
15th Percentile Speed = 24.3 mph
85th Percentile Speed = 31.0 mph



GAP STUDY FIELD SHEET

Date: 11/03/05

Location: Transfiguration - 99th & 38 Ave

Gap Information:

Crossing Distance	<u>29</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	ft/sec
Minimum Acceptable Gap	<u>13</u>	sec

Gap Survey:

Time: From: 7:45 AM To: 8:30 AM

Gap (sec)	Tally	Total
10		0
11		
12	 DISCARD GAPS LESS THAN 12 SEC	3
13		<u>4 x 1 = 4</u>
14		<u>2 x 1 = 2</u>
15		<u>3 x 1 = 3</u>
16		<u>4 x 1 = 4</u>
17		<u>2 x 1 = 2</u>
18		<u>2 x 1 = 2</u>
19		
20		<u>2 x 1 = 2</u>
21		
22		<u>3 x 1 = 3</u>
23		
24		
25		<u>1 x 1 = 1</u>
26		<u>1 x 1 = 1</u>
27		
28		<u>1 x 2 = 2</u>
29		
30		<u>1 x 2 = 2</u>
31		
32		
33		
34		
35		<u>1 x 2 = 2</u>
36		
37		
38		
39		
40		<u>2 x 2 = 4</u>
41		<u>1 x 2 = 2</u>
42		<u>2 x 2 = 4</u>
43		<u>2 x 2 = 4</u>
44		<u>1 x 2 = 2</u>
45		<u>13 x 3 = 39</u>
<i>total</i>		<u>85</u>

GAP STUDY FIELD SHEET

Date: 10/25/05

Location: Transfiguration - 98 st & 38 Ave

Gap Information:

Crossing Distance	<u>29</u>	ft
Reaction Time	<u>3</u>	sec
Walking Speed	<u>3</u>	ft/sec
Minimum Acceptable Gap	<u>13</u>	sec

Gap Survey:

Time:	From: <u>7:45 AM</u>	To: <u>8:15 AM</u>	
Gap (sec)	Tally		Total
10			1
11			
12	DISCARD GAPS LESS THAN 13 SEC		1
13			
14			1x1 = 1
15			1x1 = 1
16			2x1 = 2
17			1x1 = 1
18			
19			
20			4x1 = 4
21			
22			1x1 = 1
23			
24			1x1 = 1
25			4x1 = 4
26			1x1 = 1
27			1x2 = 2
28			
29			
30			1x2 = 2
31			
32			2x2 = 4
33			1x2 = 2
34			1x2 = 2
35			
36			
37			
38			
39			
40			
41			
42			
43			1x2 = 2
44			
45			6x3 = 18
Total:			48