

**NEW YORK CITY DEPARTMENT OF TRANSPORTATION
Office of School Safety Engineering**



School Safety Engineering Project

FINAL REPORT: P.S. 42, The Benjamin Altman School, Manhattan



Prepared by
The RBA Group/Urbitran Associates



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School Safety Engineering Project
P.S. 42, The Benjamin Altman School, Manhattan

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation 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. 42 (The Benjamin Altman School) in Manhattan is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



2.2 NEIGHBORHOOD DESCRIPTION

Located at 71 Hester Street, P.S. 42 occupies the north side of the block between Orchard Street to the west and Ludlow Street to the east. The school's main entrance is on Hester Street. The immediate neighborhood is mostly apartment buildings with first story commercial operations (See Exhibit 1 for Aerial Photograph). There is a fish hatchery located immediately north of the school on Ludlow Street (Figure 1).



Figure 1: Hester Street looking west from Ludlow Street, P.S. 42 is on the right

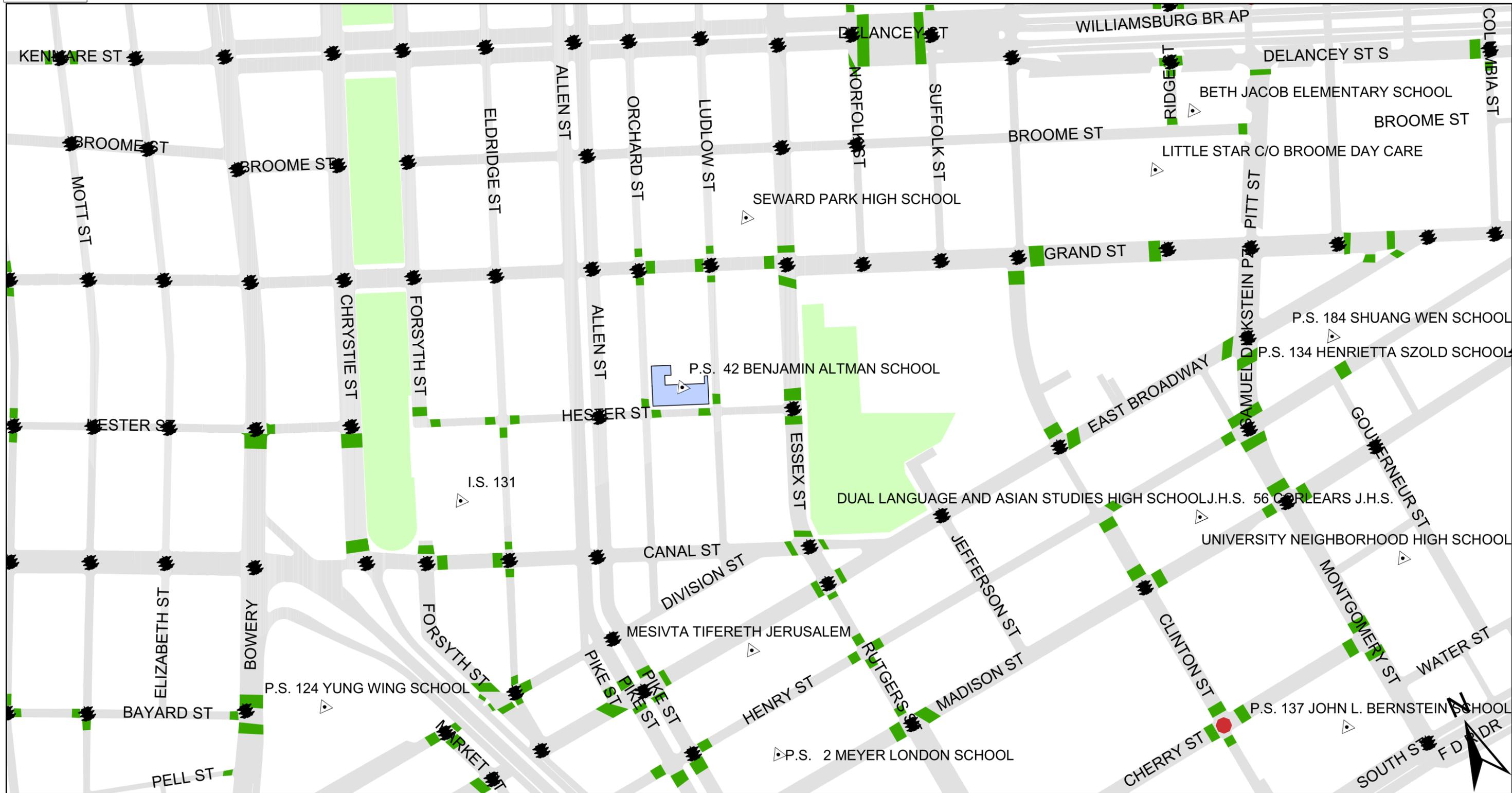


1 inch equals 200 feet

EXHIBIT 1
BENJAMIN ALTMAN SCHOOL
P.S. 42, MANHATTAN
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 42 Manhattan
BENJAMIN ALTMAN SCHOOL**

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

Map created on 11/16/2006

EXHIBIT 2

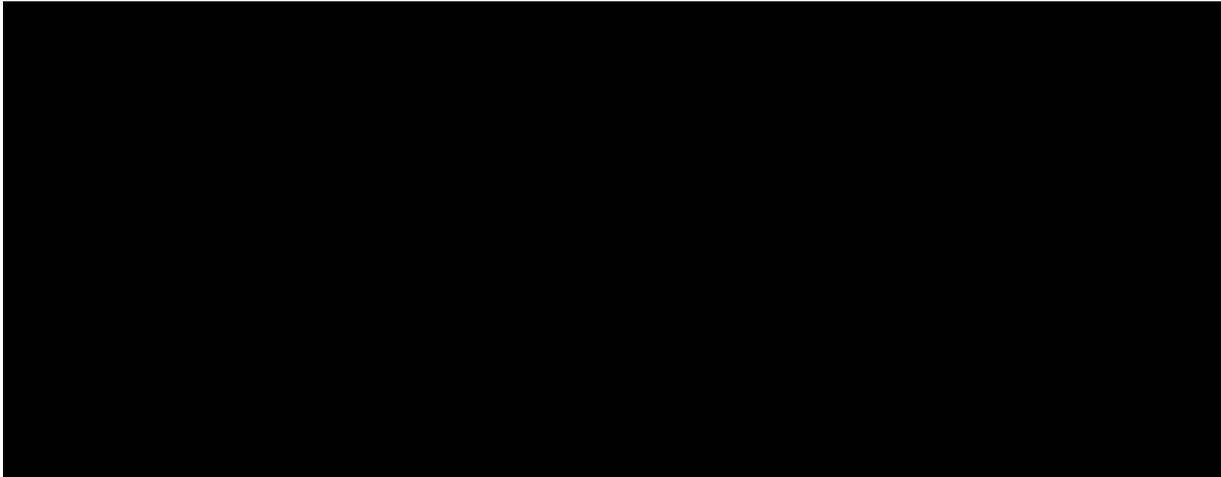
COMM. BOARD: 103
PRECINCT: 7

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant team and school representatives from P.S. 42 met at the school on May 13, 2004.

According to school officials, the identifiable problems that student pedestrians encounter on a regular basis include the following:

- Difficulty crossing Hester Street and Orchard Street
- Commercial delivery activities on Ludlow Street
- Difficulty crossing Hester Street and Grand Street due to conflicts with left-turning vehicles from Allen Street



2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to school officials, approximately 85% of students walk to school and 13% arrive by public bus or subway service. The remaining 2% of students ride school buses or are driven by a parent or guardian. See Table 1 for the school's estimate of modes of travel.

TABLE 1: MODES OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	
Description	Percentage
Walk	85%
Driven by parent or guardian	1%
School bus	1%
MTA bus or subway	13%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

The playground located between Chrystie Street and Forsyth Street, four blocks west of P.S. 42, is a major pedestrian attraction. There is also a playground at the apartment

complex two blocks east of the school, across Essex Street. I.S. 131, also a priority school, is located two blocks to the west of P.S. 42.

2.8 CROSSING GUARD LOCATIONS

According to school officials and as confirmed by the field observations, there are three crossing guards assigned to this school. The crossing guards are stationed at the following locations:

- Hester Street and Allen Street
- Hester Street and Orchard Street
- Hester Street and Ludlow Street

Exhibit 4 shows the crossing guard locations (Figure 2).



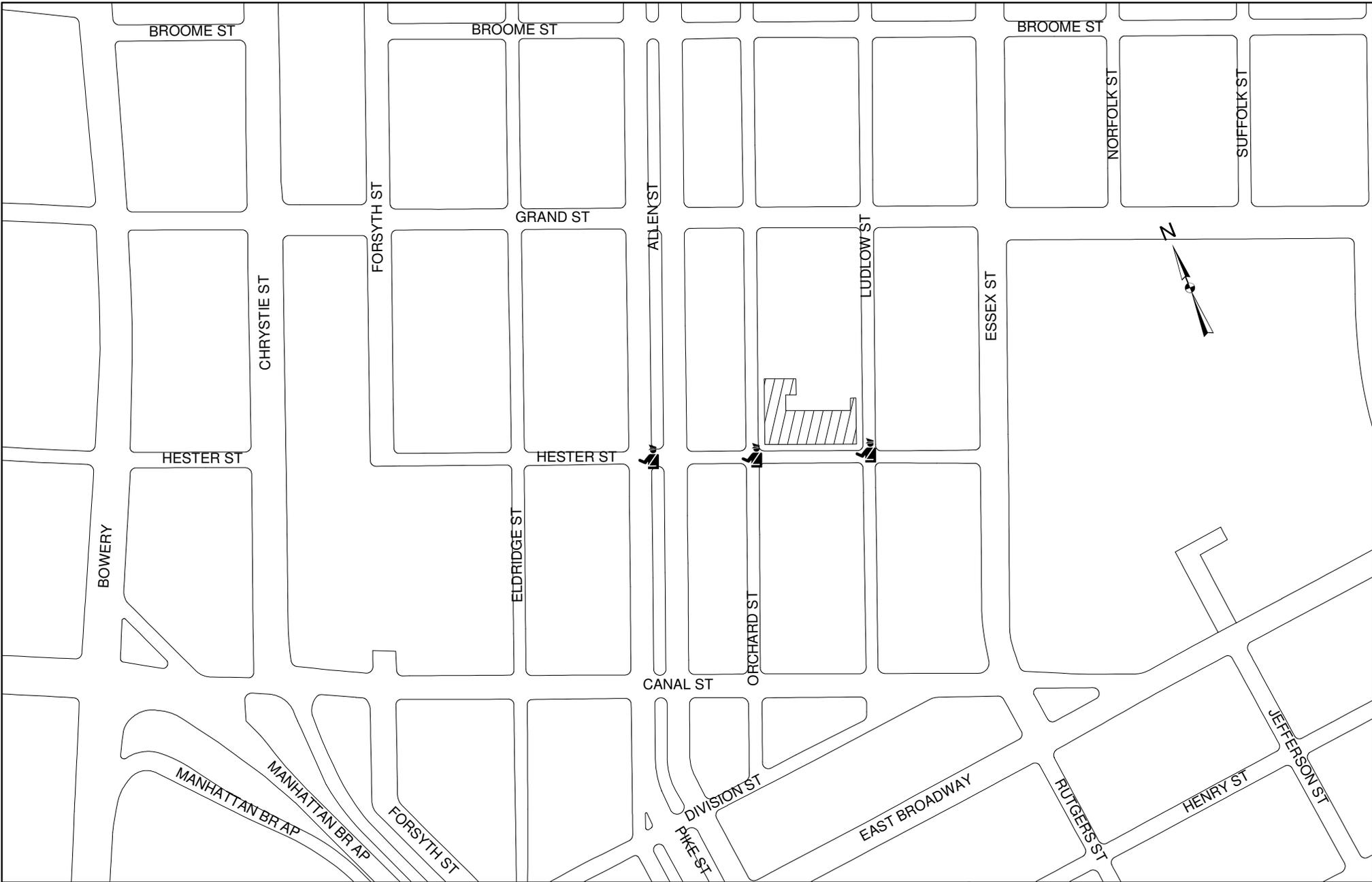
Figure 2 – Crossing guard at Allen Street and Hester Street



1 inch equals 300 feet

 CATCHMENT AREA

EXHIBIT 3
P.S. 42, MANHATTAN
BENJAMIN ALTMAN SCHOOL
CATCHMENT AREA



CROSSING GUARDS ASSIGNED TO P.S. 42

1 inch equals 250 feet

EXHIBIT 4
P.S. 42, MANHATTAN
BENJAMIN ALTMAN SCHOOL
CROSSING GUARD

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school officials, two school buses transport students to and from P.S. 42. These two school buses primarily carry special education students. Buses load and unload students on Hester Street, near the school's entrance. School buses park or double-park, depending on traffic conditions.

3.2 PARENT DROP-OFF OPERATIONS

The school officials indicated that only one percent of P.S. 42 students were driven to and from school by a parent or guardian. Field observations indicated that at dismissal times, vehicles typically park or double-park in front of the school's main entrance on Hester Street or along Ludlow Street to pick up or drop off students.

3.3 EXISTING PARKING REGULATIONS

"NO PARKING 7 AM – 4 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" parking regulation signs are posted for the full length of Hester Street.

"NO PARKING 7 AM – 4 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" parking regulation signs are posted on the east side of Orchard Street in front of the school.

Exhibit 5 shows the parking regulations on the roadways surrounding the school.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 2, shows existing crosswalk pavement markings in the vicinity of the school. It is noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual of Uniform Traffic Control (MUTCD) standards of fluorescent yellow-green signs accompanied by downward pointing arrows. Signs that are scheduled to be installed under this program are shown as "existing" on Exhibit 8.



LEGEND

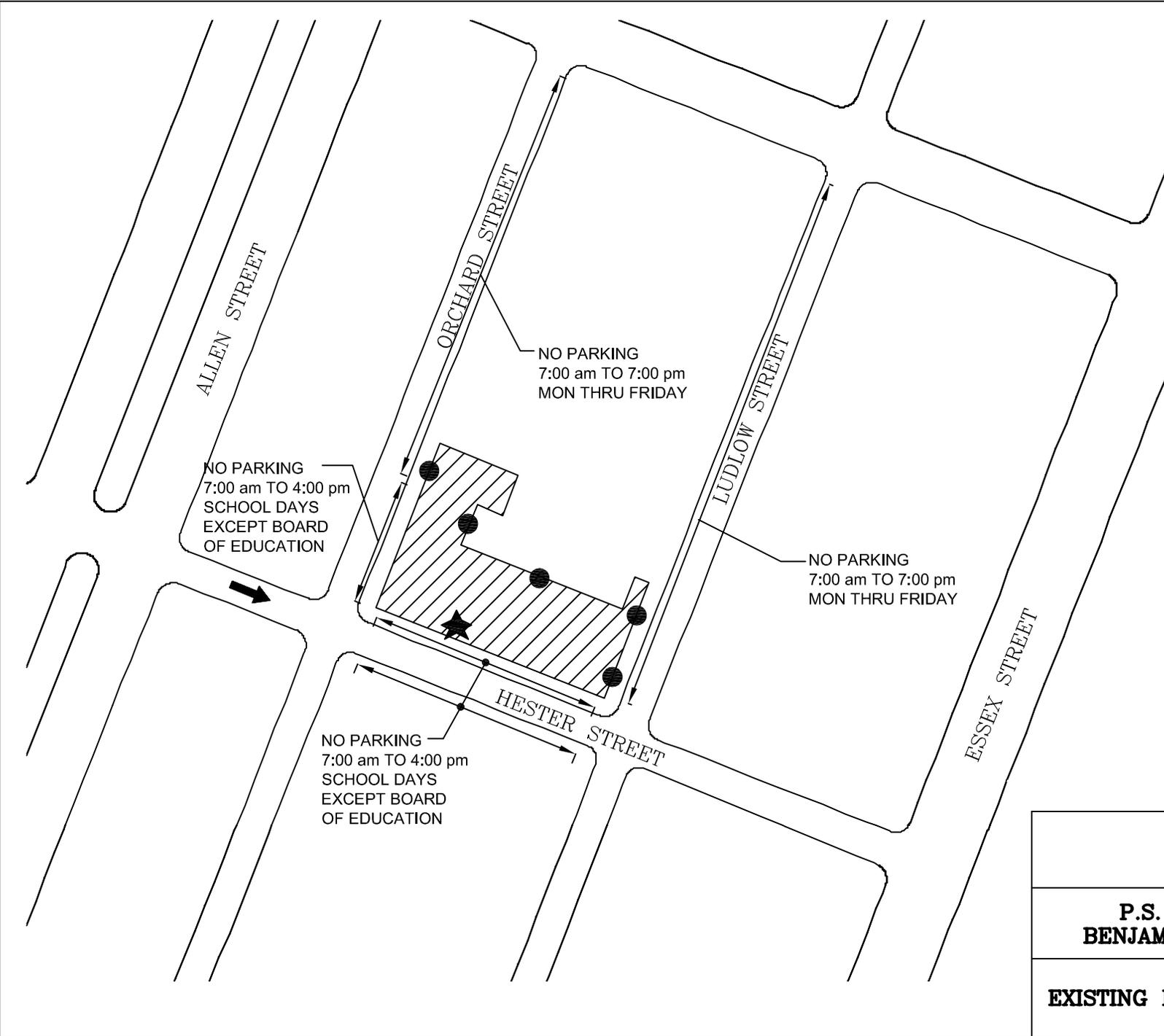
-  MAIN ENTRANCE
-  ENTRANCE
-  STREET SIGN

SCALE: 1" : 150'

EXHIBIT 5

**P.S. 42, MANHATTAN
BENJAMIN ALTMAN SCHOOL**

EXISTING PARKING REGULATIONS



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. 42 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 accidents. Table 3 is a summary of more recent accident data obtained from the NYC Police Department (NYPD). Though current through 2004, the NYPD data do not provide the same level of detail as the DMV data.

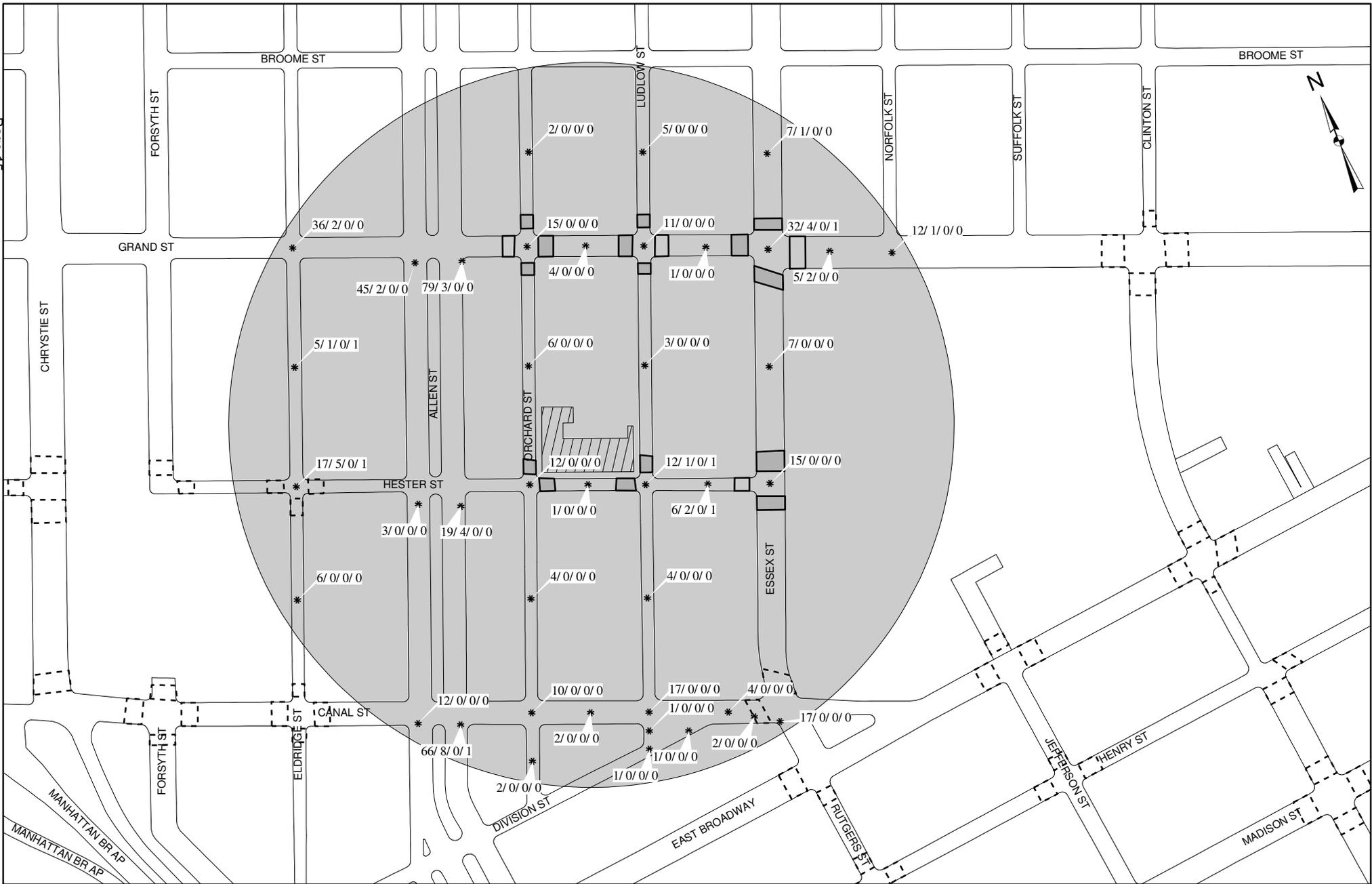
This report targets intersections closest to the school where the highest concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data were not available at the time of this study will be addressed with the ongoing work of DOT's School Safety 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*
Hester Street and Orchard Street	12	0	0	0
Hester Street and Ludlow Street	12	1	0	1
Hester Street and Essex Street	15	0	0	0
Grand Street and Orchard Street	15	0	0	0
Grand Street and Ludlow Street	11	0	0	0
Grand Street and Essex Street	32	4	0	1
Grand Street and Allen Street**	124	5	0	0
Canal Street and Allen Street **	78	8	0	1
Hester Street and Eldridge Street	17	5	0	1
TOTAL	316	23	0	4

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED ACCIDENTS*
Hester Street and Orchard Street	13	0	0	0
Hester Street and Ludlow Street	10	0	0	0
Hester Street and Essex Street	23	3	0	0
Grand Street and Orchard Street	22	1	0	0
Grand Street and Ludlow Street	21	2	0	0
Grand Street and Essex Street	43	3	0	0
Grand Street and Allen Street**	130	7	0	0
Canal Street and Allen Street **	78	13	0	0
Hester Street and Eldridge Street	17	2	0	0
TOTAL	357	31	0	0

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

** Accidents are summarized for both southbound and northbound directions



ACCIDENT LOCATION *

SCHOOL CROSSWALK ASSIGNED TO M.S. 42

SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL

CROSSWALK

X/X/X/X



1 inch equals 250 feet

TOTAL ACCIDENTS	PED ACCIDENTS	PED FATAL	SCHOOL_PED ACCIDENTS
X	X	X	X

**EXHIBIT 6
P.S. 42, MANHATTAN
BENJAMIN ALTMAN SCHOOL**

**ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)**

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accident and operational issues in the vicinity of P.S. 42:

3.6.1 Hester Street and Orchard Street

Orchard Street is a 25-foot wide, one-way northbound street with one travel lane and parking on both sides of the roadway. Hester Street is a 25-foot wide, one-way eastbound street with one travel lane and parking on both sides. At this intersection, Hester Street is controlled by a stop sign and Orchard Street is uncontrolled. There are school crosswalks on the north and east legs. The school crosswalk on the north leg is uncontrolled.

A traffic count was conducted on Wednesday May 18, 2005 to better understand vehicle and pedestrian conflicts at this intersection. The count showed that approximately 345 pedestrians used the north crosswalk during the study hour. The results also showed that 411 pedestrians used the south leg to cross Orchard Street where no crosswalk is in place. There were 99 vehicles (or less than two vehicles per minute) interfering with pedestrians crossing Orchard Street (Exhibit 7A). The low vehicle volumes do not warrant a signal control at this intersection at this time.

Twelve accidents occurred at this intersection during the 1998-2000 study period, none of which were pedestrian accidents.



Figure 3: Hester Street and Orchard Street looking northwest

3.6.2 Hester Street and Ludlow Street

Ludlow Street is a 25-foot wide, one-way southbound street with one moving lane and parking on both sides. Hester Street and Ludlow Street is an un-signalized intersection with a stop sign on Ludlow Street for southbound traffic (See Figure 4). There are school crosswalks on the north and west legs. The school crosswalk on the west approach is uncontrolled.

A traffic count conducted on Tuesday May 17, 2005 between 2:30 am and 3:30 am showed that approximately 946 pedestrians crossed Hester Street, interfering with 159

vehicles traveling on Hester Street during this hour (Exhibit 7A). The number of pedestrians per hour crossing Hester Street exceeds the required MUTCD Warrant 4 – Pedestrian Volume requirement of a minimum of 190 pedestrians of any given hour. However, the gap study performed on April 27, 2006 shows that more than 60 gaps of 12 seconds (the time required to cross a 25-foot wide street at three feet per second plus three seconds of reaction time) were available for pedestrians to cross Hester Street. Therefore, the intersection does not meet the warrants for a traffic signal.

Twelve accidents occurred at this intersection during the 1998-2000 study period, one of which was a school-related pedestrian accident. A student was struck while crossing Hester Street. The location is not controlled.

A nine-year-old student was struck on Hester Street between Ludlow Street and Essex Street while emerging from between parked vehicles.



Figure 4: Ludlow Street looking south toward Hester Street

3.6.3 Hester Street and Essex Street

Essex Street is a 55-foot wide, two-way street with two travel lanes in each direction and parking on both sides. Hester Street runs eastbound and terminates at this signalized intersection. School crosswalks are in place on the north and south legs.

Fifteen accidents occurred at this intersection during the 1998-2000 study period, none of which were pedestrian accidents.

3.6.4 Grand Street and Orchard Street

Grand Street and Orchard Street is a signalized intersection. Grand Street is a 40-foot wide, two-way street with one moving lane in each direction and parking on both sides of the street. There are school crosswalks in place on the north, south and east legs of the intersection.

There are single apex pedestrian ramps on the northwest, northeast and southeast corners of the intersection.

Fifteen accidents occurred at this intersection during the 1998-2000 study period, none of which were pedestrian accidents.

3.6.5 Grand Street and Ludlow Street

Grand Street and Ludlow Street is a signalized intersection. There are school crosswalks in place on the north, south and west legs of the intersection.

There are single apex pedestrian ramps on the northeast, southeast and southwest corners of the intersection.

Eleven accidents occurred at this intersection during the 1998-2000 study period, none of which were pedestrian accidents.

3.6.6 Grand Street and Essex Street

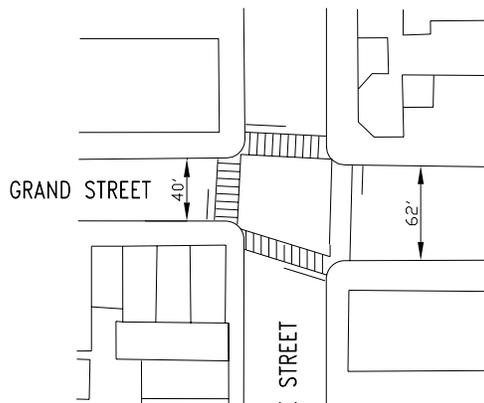
Grand Street and Essex Street is a signalized intersection (Figure 5). There are school crosswalks in place on the west, north and south legs.

The east approach of this intersection is 62 feet wide and the west approach is 42 feet wide. This alignment shift through the intersection increases pedestrian crossing distances when students use the school crosswalk on the south leg across Essex Street.



Figure 5: Grand Street at Essex Street looking west

Thirty-two accidents occurred at this intersection during the 1998-2000 study period. Four pedestrian accidents were reported, one of which was school-related. Two accidents, including the school-related accident, involved pedestrians crossing against the signal while drivers were traveling eastbound. The third involved a pedestrian crossing outside the crosswalk, and no details were available for the fourth accident.



3.6.7 Grand Street and Allen Street

Grand Street and Allen Street is a signalized intersection. Allen Street is 110-foot wide, two-way roadway with three travel lanes in each direction and parking on both sides. An approximately 23-foot wide median separates the northbound and southbound traffic. There are pedestrian crosswalks on all four approaches, none of which are school crosswalks.

A total of 124 accidents occurred at this intersection during the 1998-2000 study period. Five accidents involved pedestrians, none of which were school-related. Four pedestrian accidents occurred as a result of pedestrians crossing against the signal or outside of marked crosswalks. The last accident was attributed to a driver failing to yield to the crossing pedestrian.

According to school officials, this intersection has a large number of vehicle-pedestrian conflicts. They noted that students find it difficult to cross Grand Street because of the large number of vehicles turning from Allen Street into Grand Street. A traffic count conducted on Tuesday September 27, 2005 showed that approximately 97 vehicles (49 left turning vehicles, and 48 right turning vehicles) conflicted with 73 pedestrians crossing at the east leg of the intersection. On the west approach 158 vehicles (73 left turning vehicles, 85 right turning vehicles) conflicted with 134 pedestrians (Exhibit 7B). Less than three pedestrians per minute used the west or east crosswalk to cross Grand Street and less than three vehicles per minute entered the crosswalk during the study hour. The existing vehicle-pedestrian conflicts do not meet DOT requirements for a Lead Pedestrian Interval (LPI).

The pedestrian ramps on the northeast and southwest corners are not installed per NYCDOT standards due to conflicts with a utility pole.

3.6.8 Canal Street and Allen Street

Canal Street and Allen Street is a signalized intersection. Canal Street is a 45-foot wide, two-way street with parking on both sides. There are pedestrian crosswalks on all four approaches, none of which are school crosswalks.

There were 78 accidents at this location during the 1998-2000 study period. Eight accidents involved pedestrians, one of which was school-related. Two accidents, including the school-related accident, involved pedestrians crossing against the signal. Five accidents involved drivers failing to yield to pedestrians. There were no details for the last accident.

3.6.9 Hester Street and Eldridge Street

Eldridge Street is a one-way northbound roadway with parking on both sides. Hester Street and Eldridge Street is an un-signalized intersection with a stop sign on Hester Street for eastbound traffic. There are school crosswalks on the south, east and west legs. The crosswalk on Eldridge Street is an uncontrolled school crosswalk.

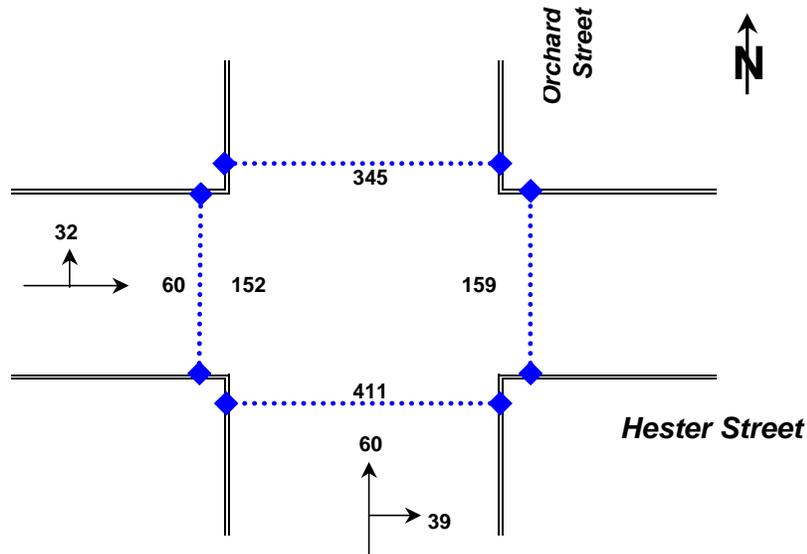
Traffic counts were performed on Thursday, May 16, 2005 between 2:30 pm to 3:30 pm (see Exhibit 7B). The traffic count indicated that a total of 305 vehicles per hour and 2092 pedestrians per hour utilized this intersection during the study hour, when students were being dismissed from I.S. 131. Many of the pedestrians were I.S. 131 students. In

addition, 159 (110+49) uncontrolled vehicles per hour traveled northbound on Eldridge Street, while conflicting with 946 pedestrians crossing Eldridge Street. The number of pedestrians per hour crossing Eldridge Street exceeds the required MUTCD Warrant 4 – Pedestrian Volume requirement of a minimum of 190 pedestrians of any given hour. However, the gap study performed on August 17, 2006 shows that more than 60 gaps of 12 seconds (the time required to cross a 25-foot wide street at three feet per second plus three seconds of reaction time) were available for pedestrians to cross Eldridge Street. Therefore, the intersection does not meet the warrants for a traffic signal.

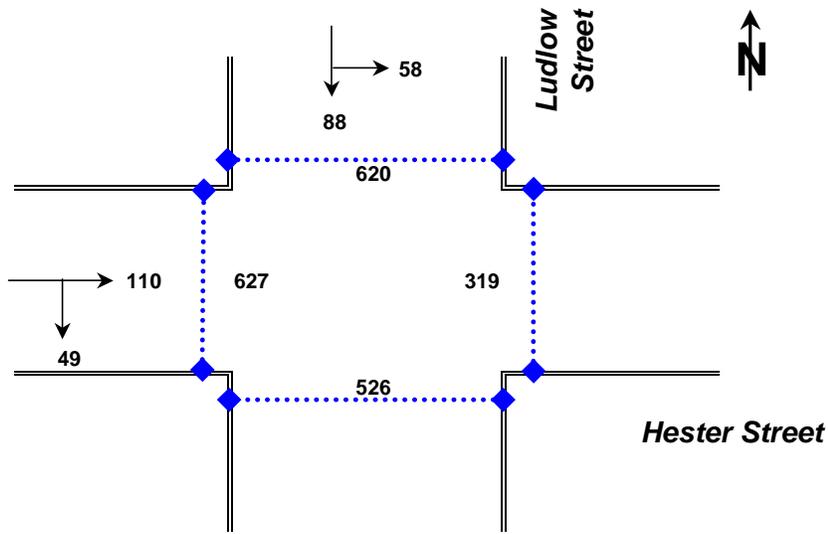
There were 17 accidents at this intersection during the 1998-2000 study period. Five accidents involved pedestrians, one of which was school-related. A pedestrian was struck while emerging from behind a parked vehicle. The other four accidents, including the school-related accident, were due to driver inattention, although two of these accidents involved pedestrians crossing Eldridge Street at the uncontrolled crosswalk or without crosswalk.

A seven-year-old student was struck while crossing mid-block on Eldridge Street between Hester Street and Grand Street.

One Hour Traffic Count Volumes



Intersection of Hester Street and Orchard Street - (2:30 PM - 3:30 PM May 18, 2005)



Intersection of Hester Street and Ludlow Street - (2:30 PM - 3:30 PM May 17, 2005)

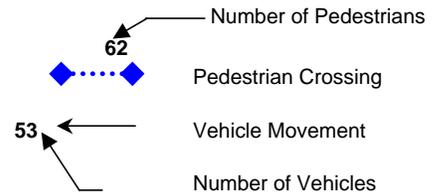
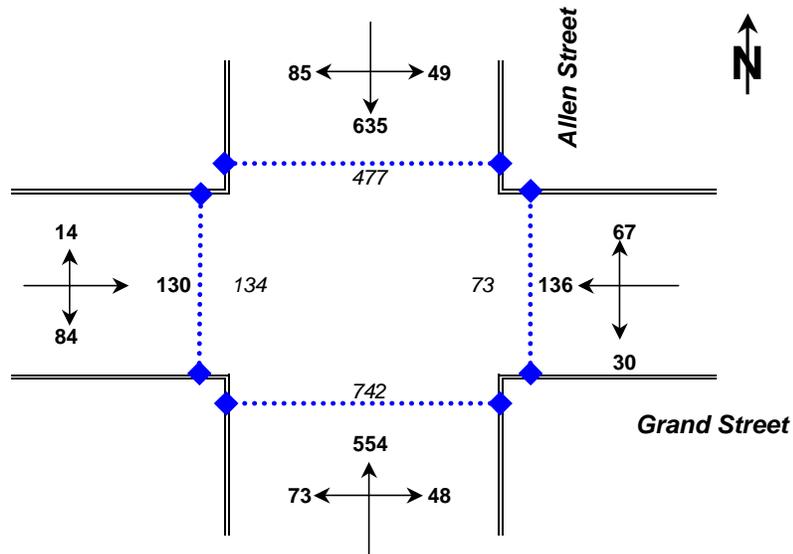
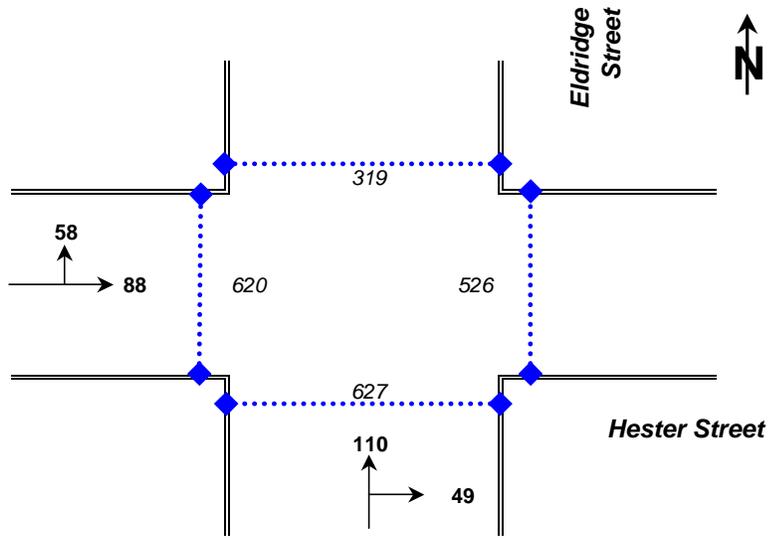


EXHIBIT 7A
P.S. 42, MANHATTAN BENJAMIN ALTMAN SCHOOL
TRAFFIC COUNTS

One Hour Traffic Count Volumes



Intersection of Grand Street and Allen Street - (2:30 PM - 3:30 PM September 27, 2005)



Intersection of Eldridge Street and Hester Street- (2:30 PM - 3:30 PM May 16, 2005)

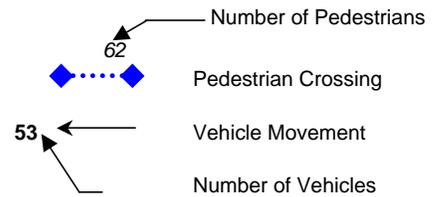


EXHIBIT 7B
P.S. 42, MANHATTAN BENJAMIN ALTMAN SCHOOL
TRAFFIC COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field-verified at all signalized intersections in the vicinity of P.S. 42, and found to be adequate (for a child pedestrian walking rate of three feet per second) in all directions and approaches (Table 4).

TABLE 4: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
Hester Street and Essex Street				
Crossing Hester Street	24	55	11	NO
Crossing Essex Street	50	25	20	NO
Grand Street and Orchard Street				
Crossing Grand Street	40	40	17	NO
Crossing Orchard Street	24	40	11	NO
Grand Street and Ludlow Street				
Crossing Grand Street	40	40	17	NO
Crossing Ludlow Street	24	40	11	NO
Grand Street and Essex Street				
Crossing Grand Street	40	40	17	NO
Crossing Essex Street	50	40	20	NO
Grand Street and Allen Street				
Crossing Grand Street	40	45	17	NO
Crossing Allen Street	44 / 44	34 / 34	18	NO

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

Allen Street is 100 feet wide with a wide center median separating the northbound and southbound traffic. It is assumed that a student pedestrian, at three feet per second, will cross the street in two signal phases and wait between phases at the center median.

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways, sidewalks, and curbs in the school vicinity were found to be in fair condition with the exception of the following:

- At Grand Street and Ludlow Street, there are single apex pedestrian ramps at the northeast, southeast and southwest corners and no pedestrian ramps at the northwest corner;
- At Grand Street and Orchard Street, there are apex pedestrian ramps at the northwest, northeast, and southeast corners and no pedestrian ramps at the southwest corner;
- At Grand Street and Allen Street, there is an apex pedestrian ramp at the southwest corner. In addition, the pedestrian ramps on the northeast corner are in poor condition and not in accordance with ADA requirements.

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes potential countermeasures. 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 are capital improvements.

4.1 SHORT-TERM MEASURES

- *Install No Standing Zone*

“NO STANDING 7AM - 4 PM, SCHOOL DAYS” parking regulations should be installed on Hester Street in front of the school’s main entrance for a length of 30 feet. This will allow school buses and parents a place to drop off and pick up students at the curb, and will also improve visibility of those students arriving and leaving the school. The lost teacher parking should be relocated to Orchard Street or Ludlow Street.

- *Install pedestrian information sign that explains the signal phases*

The safety of student pedestrians at the wide intersection of Allen Street and Grand Street is a major concern. Installation of a pedestrian information sign adjacent to each school crosswalk that explains the signal phases is recommended. The pedestrian should be informed to wait at refuge between signal cycles.

- *Administer student pedestrian safety education program*

It is recommended that the NYCDOT Safety Education Program work with the school to educate the students on pedestrian safety including crossing the street with the WALK phase, the meaning of the WALK - FLASHING DON’T WALK - DON’T WALK pedestrian signal sequence and instructing students not to cross at mid-block locations. It is also recommended that the school dedicate a staff member to act as valet or greeter to expedite the time required for students to disembark from or enter vehicles.

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

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

- *Install new school crosswalk at the following location*

- Allen Street and Grand Street – east and south legs
- Allen Street and Hester Street – east and north legs

There are no school crosswalks at these two busy intersections. The school officials stated that students of P.S. 42 use these intersections en route to school. Therefore, it is recommended that school crosswalks be installed at this intersection to facilitate students walking to school.

- Submit request to the Police Department for crossing guards at the following intersections:
 - Allen Street and Grand Street
 - Hester Street and Ludlow Street

According to school officials, the safety at Grand Street and Allen Street is one of their major concerns. Grand Street and Allen Street are both wide two-way streets. In addition, some P.S. 42 students cross Hester Street at Ludlow Street, an un-controlled crossing. Therefore, it is recommended that a crossing guard be requested at each of these two locations to assist students crossing the street.

4.2 LONG-TERM MEASURES

- Consider curb extensions

Consideration should be given to installing a curb extension at the following locations, provided that the Final Design confirms that construction of the recommended curb extension would be feasible and would 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.

- Hester Street and Orchard Street
- Hester Street and Ludlow Street
- Allen Street and Grand Street
- Allen Street and Hester Street

Curb extensions should be considered at the corners as shown in Exhibit 8.

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.

- Consider a curb extension at the southeast corner of Grand Street and Essex Street intersection

To normalize the intersection geometry and reduce the crossing distance on the east and south legs of the intersection, it is recommended that a 12-foot-wide curb extension be installed at the southeast corner of the intersection. The narrowed east leg of the intersection will maintain one travel lane and parking in the westbound direction, and two travel lanes and parking in the eastbound direction.

The crosswalk on the south leg of the intersection will decrease by approximately 6 feet, which provides pedestrians with a shorter crossing distance.

- Install/replace complex pedestrian ramps

Due to existing utility pole conflicts, the following pedestrian ramps are considered to be complex pedestrian ramp installations. Consideration should be given to the installation of pedestrian ramps per NYCDOT standards.

- Grand Street and Ludlow Street - all corners
- Grand Street and Orchard Street - all corners
- Grand Street and Allen Street – northeast corner

4.3 ADDITIONAL MEASURES FOR PRIORITY SCHOOL IN THE VICINITY OF P.S. 42

4.3.1 MEASURES FOR I.S. 131

- Submit a request to The Police Department for crossing guards at the following locations:

- Hester Street and Forsyth Street
- Hester Street and Eldridge Street

These two intersections are un-signalized and have uncontrolled school crosswalks. According to school officials, some I.S. 131 students cross these uncontrolled school crosswalks en route to school. Therefore, it is recommended that a crossing guard be requested at each of these two intersections.

- Install pedestrian ramps

Consideration should be given to the installation and /or replacement of pedestrian ramps per NYCDOT standards at the following locations:

- Eldridge Street and Hester Street - northwest and northeast corner
- Forsyth Street and Hester Street - northwest and northeast corner
- Forsyth Street and Canal Street - southwest and northeast corners
- Bowery and Canal Street - northwest and southwest corner

- Install new sidewalks at Eldridge Street and Hester Street

It is recommended to install new sidewalks at Eldridge Street and Hester Street to correct settled sidewalk area.

- Consider curb extensions at the following intersections:

Consideration should be given to installing a curb extension at the following locations, provided that the Final Design confirms that construction of the recommended curb extension would be feasible and would 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.

- Hester Street and Eldridge Street
- Canal Street and Eldridge Street
- Canal Street and Forsyth Street
- Hester Street and Chrystie Street

Curb extensions should be considered at the corners as shown in Exhibit 8.

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.

- *Bowery and Canal Street*

This intersection is being studied as part of the Canal Area Transportation Study (CAT Study) currently underway by New York Metropolitan Transportation Council (NYMTC). Measures developed for improving student pedestrian safety for this intersection have been forwarded to NYMTC for coordination with the larger CATS study.



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES
- X EXISTING ADVANCE WARNING SIGN WITH ARROW
- X EXISTING ADVANCE WARNING SIGN
- ↔ EXISTING TRAVEL DIRECTION
- 🚦 SIGNALIZED INTERSECTION
- ▬▬▬ EXISTING SCHOOL CROSSWALK
- ▬▬▬ EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- ▬▬▬ EXISTING HIGH VISIBILITY CROSSWALK
- ⌒ PROPOSED PEDESTRIAN RAMP
- X PROPOSED ADVANCE WARNING SIGN WITH ARROW
- X PROPOSED ADVANCE WARNING SIGN
- PROPOSED STOP LINE
- ▬▬▬ PROPOSED STANDARD CROSSWALK
- ▬▬▬ PROPOSED SCHOOL CROSSWALK
- PROPOSED TRAFFIC SIGN
- ⌒ PROPOSED CURB EXTENSION (NECKDOWN)
- ↔ PROPOSED PARKING REGULATIONS

SCALE: 1"=180'

EXHIBIT 8

P.S. 42 MANHATTAN BENJAMIN ALTMAN SCHOOL

PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX

P.S. 42
 May 18, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF MANHATTAN
 Title3 : NYC-DOT

Site:
 Date: 05/18/05

Combined
**Peds not included in table data*

Begin Time	Total	Orchard Street			Hester Street			Orchard Street			Hester Street		
								NB-T			EB-T		EB-L
14:30:00	35	0	0	0	0	0	0	9	11	0	0	8	7
14:45:00	44	0	0	0	0	0	0	6	16	0	0	12	10
15:00:00	44	0	0	0	0	0	0	6	17	0	0	15	6
15:15:00	68	0	0	0	0	0	0	18	16	0	0	25	9
	191	0	0	0	0	0	0	39	60	0	0	60	32

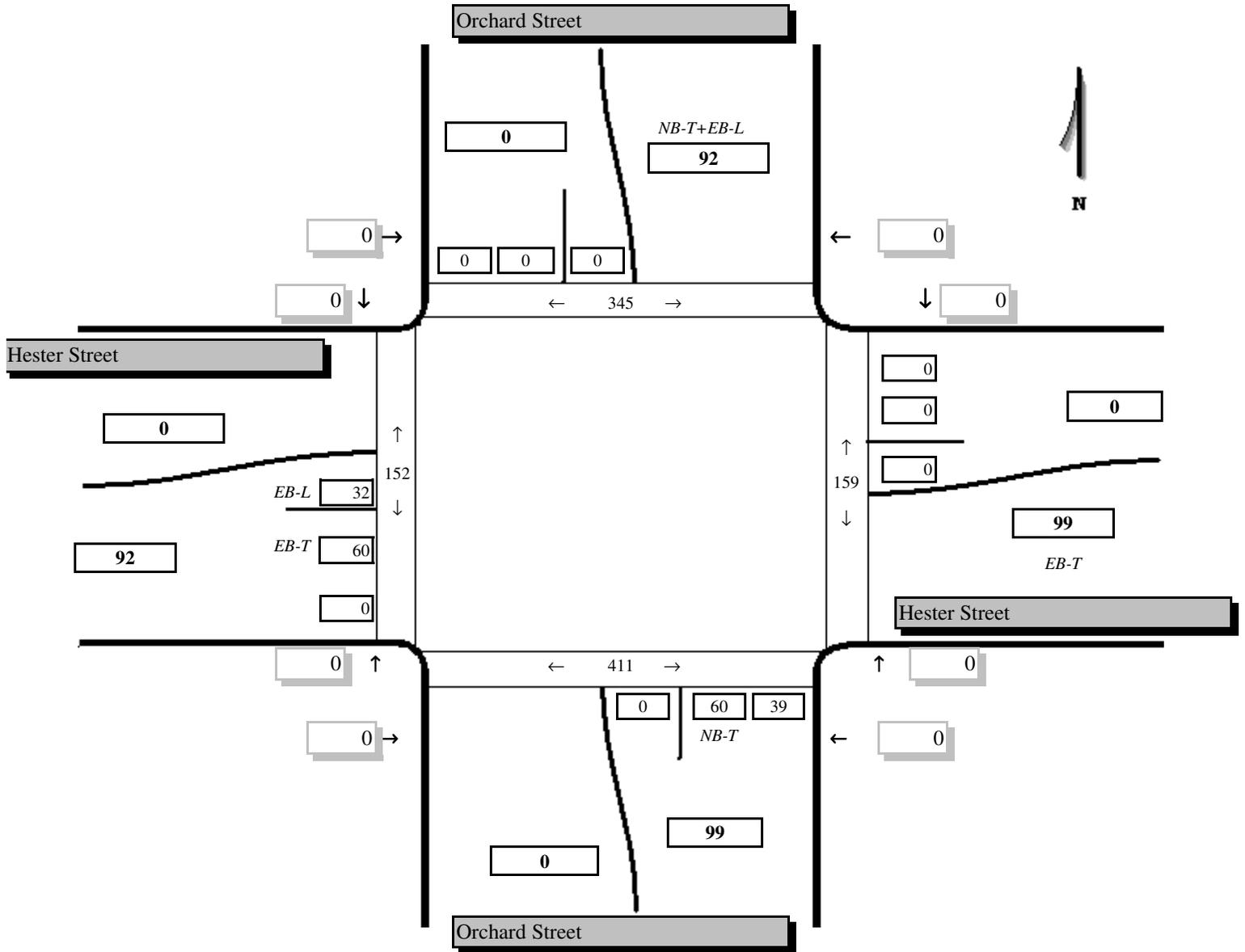
Peak Volume Periods (1 hour Res:15 min.)					
	Period		Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	79
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	191

P.S. 42
 May 18, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF MANHATTAN
 Title3 : NYC-DOT

Site:
 Date: 05/18/05

Combined
 *Peds not included in table data



P.S. 42
 May 17, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF MANHATTAN
 Title3 : NYC-DOT

Site:
 Date: 05/16/05

Combined
**Peds not included in table data*

Begin Time	Total	Ludlow Street			Hester Street			Ludlow Street			Hester Street		
		S-R	S-T	S-L	W-R	W-T	W-L	N-R	N-T	N-L	E-R	E-T	E-L
14:30:00	77	0	21	17	0	0	0	0	1	0	4	34	0
14:45:00	66	0	17	13	0	0	1	0	1	0	12	22	0
15:00:00	70	0	27	12	0	0	0	0	0	0	15	16	0
15:15:00	95	0	23	16	0	0	0	0	0	0	18	38	0
308		0	88	58	0	0	1	0	2	0	49	110	0

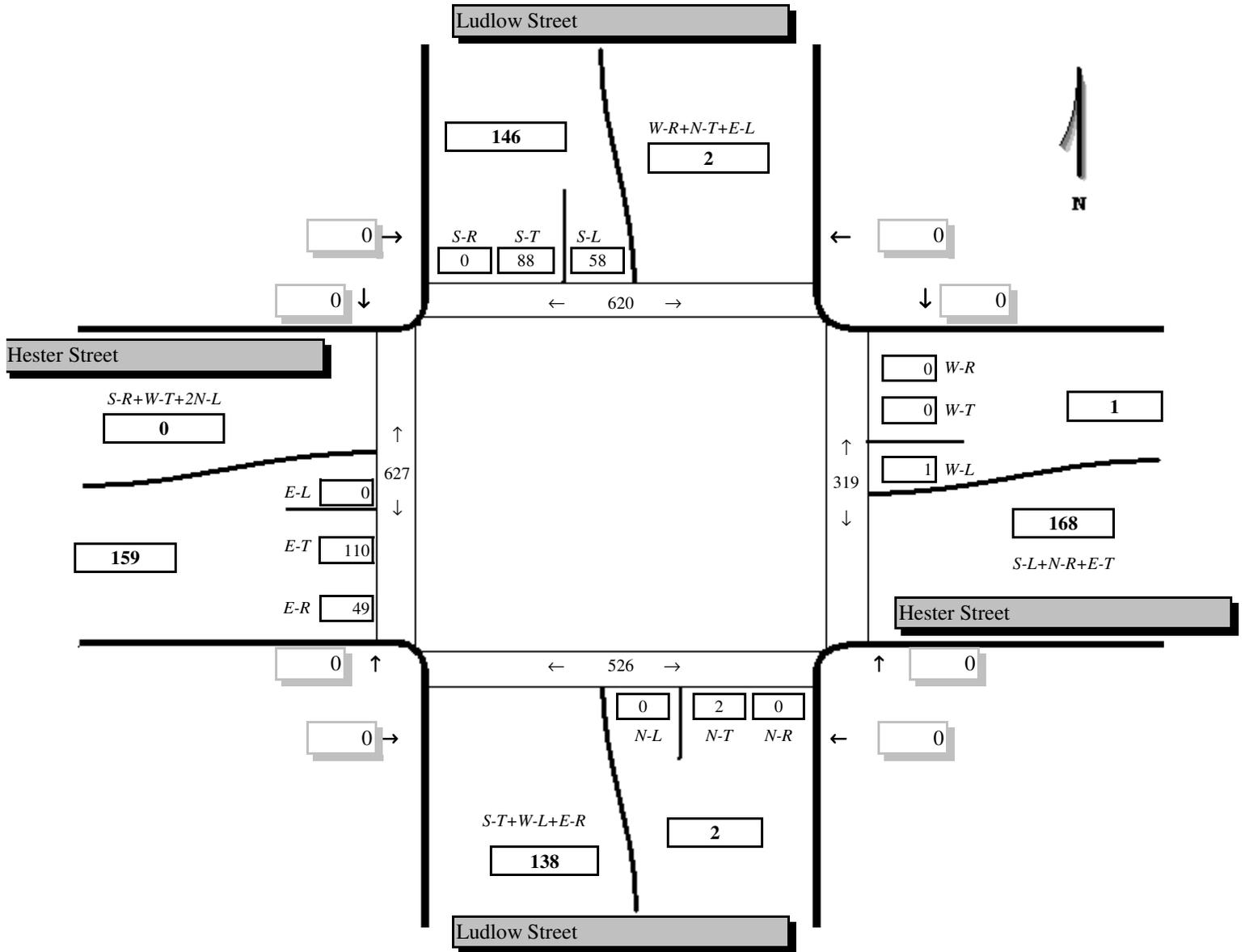
Peak Volume Periods <i>(1 hour Res:15 min.)</i>					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	143
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	308

P.S. 42
 May 17, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF MANHATTAN
 Title3 : NYC-DOT

Site:
 Date: 05/16/05

Combined
 *Peds not included in table data



P.S. 42

Septemebr 27, 2005
2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
Title2 : BOROUGH OF MANHATTAN
Title3 : NYC-DOT

Site:
Date: 09/27/05

Combined

**Peds not included in table data*

Begin		Allen Street			Grand Street			Allen Street			Grand Street		
Time	Total	S-R	S-T	S-L	W-R	W-T	W-L	N-R	N-T	N-L	E-R	E-T	E-L
14:30:00	507	25	180	14	18	40	7	8	144	18	17	34	2
14:45:00	448	15	149	10	19	40	7	14	123	17	23	31	0
15:00:00	496	30	162	14	18	36	11	15	133	21	19	35	2
15:15:00	454	15	144	11	12	20	5	11	154	17	25	30	10
	1,905	85	635	49	67	136	30	48	554	73	84	130	14

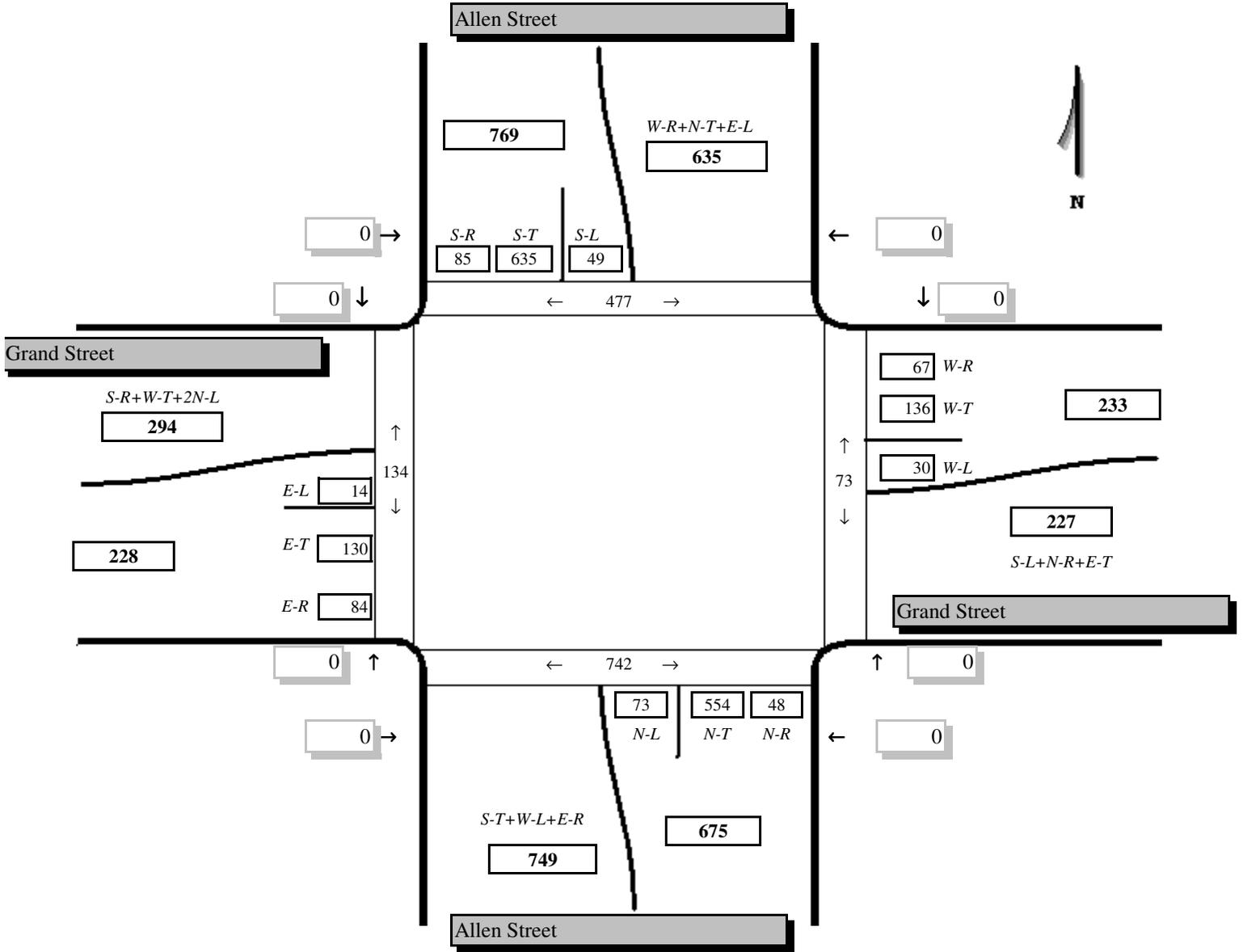
Peak Volume Periods (1 hour Res:15 min.)					
Period			Peak Period		Volume
AM	05:00:00	To 10:00:00	NA	To NA	0
Noon	10:00:00	To 15:00:00	14:15:00	To 15:15:00	955
PM	15:00:00	To 20:00:00	14:30:00	To 15:30:00	1,905

P.S. 42
 Septemebr 27, 2005
 2:30 pm - 3:30 pm

Title1 : SCHOOL SAFETY ENGINEERING
 Title2 : BOROUGH OF MANHATTAN
 Title3 : NYC-DOT

Site:
 Date: 09/27/05

Combined
 *Peds not included in table data



Stop Sign is
on Ludlow St.
NE Corner
&
NW Corner

SCHOOL SAFETY ENGINEERING PROJECT

School:
Location:

P. S. 42
Hester St & Ludlow St.

Date: 4/27/06
Time: 7:30 - 8:30 AM

	Gap Time	Veh #		Gap Time	Veh #		Gap Time	Veh #
1			41					81
2	//		42					82
3			43					83
4			44					84
5	/		45					85
6			46					86
7			47					87
8			48					88
9			49					89
10			50					90
11			51					91
12			52					92
13			53					93
14	//		54					94
15	//		55					95
16			56					96
17			57					97
18			58					98
19			59					99
20	//		60	//				100
21			61					101
22			62					102
23			63					103
24			64					104
25			65					105
26			66					106
27			67					107
28			68					108
29			69					109
30	//		70					110
31			71					111
32			72					112
33			73					113
34			74					114
35			75					115
36			76					116
37			77					117
38			78					118
39			79					119
40	//		80					120

480 sec |
240 sec |
132 |
165 |

100 - |