New York City Department of Transportation

Office of School Safety Engineering

School Safety Engineering Project

FINAL: P.S. 213, The New Lots School, Brooklyn

Prepared by

The RBA Group/Urbitran Associates

AUGUST 24, 2006

School Safety Engineering Project
P.S. 213, The New Lots School, Brooklyn

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[redacted]

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, accident data in the vicinity of all program schools were 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, and 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. 213 (The New Lots School) in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

[redacted]

2.2 NEIGHBORHOOD DESCRIPTION

Located at 580 Hegeman Avenue in Brooklyn, P.S. 213 is bounded by Hegeman Avenue to the north, Vermont Street to the east, Linden Boulevard to the south, and New Jersey Avenue to the west (Figure 1). The school building and its rear yard take up the entire city block. A mini-school facing Linden Boulevard was used to house the pre-kindergarten and kindergarten of P.S. 213. It is now called Linden Learning Center, occupied by a General Education Development (GED) program (see Exhibit 1, Aerial Photograph, and Exhibit 2, Catchment Area).

The surrounding land use is residential with mixed commercial use. Single and two family homes surround the school to the north, west, and east. Linden Boulevard on the south side of the school is a major arterial through Brooklyn. It has three through travel lanes and one left turn lane in each direction along the mainline and one additional travel lane in each direction along the service roads. Pennsylvania Avenue is one block to the west and has some commercial land use, in particular, two candy/grocery stores on the southwest and southeast corners at Hegeman Avenue.

A large urban park with athletic fields is located on the south side of Linden Boulevard opposite the school. The elevated Number 3 line train runs along Livonia Avenue three blocks north of the school with a stop on Pennsylvania Avenue. The B20 bus route operates on Pennsylvania Avenue with stops located at the northeast and southwest corners of the intersection of Pennsylvania Avenue and Hegeman Avenue.

Figure 1: Looking west on Hegeman Avenue, P.S. 213 is on the left

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from the consultant team, the school custodian, two crossing guards, and the principal of P.S. 213 met at the school on the morning of May 11, 2004. (See the Appendix for a list of attendees).

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

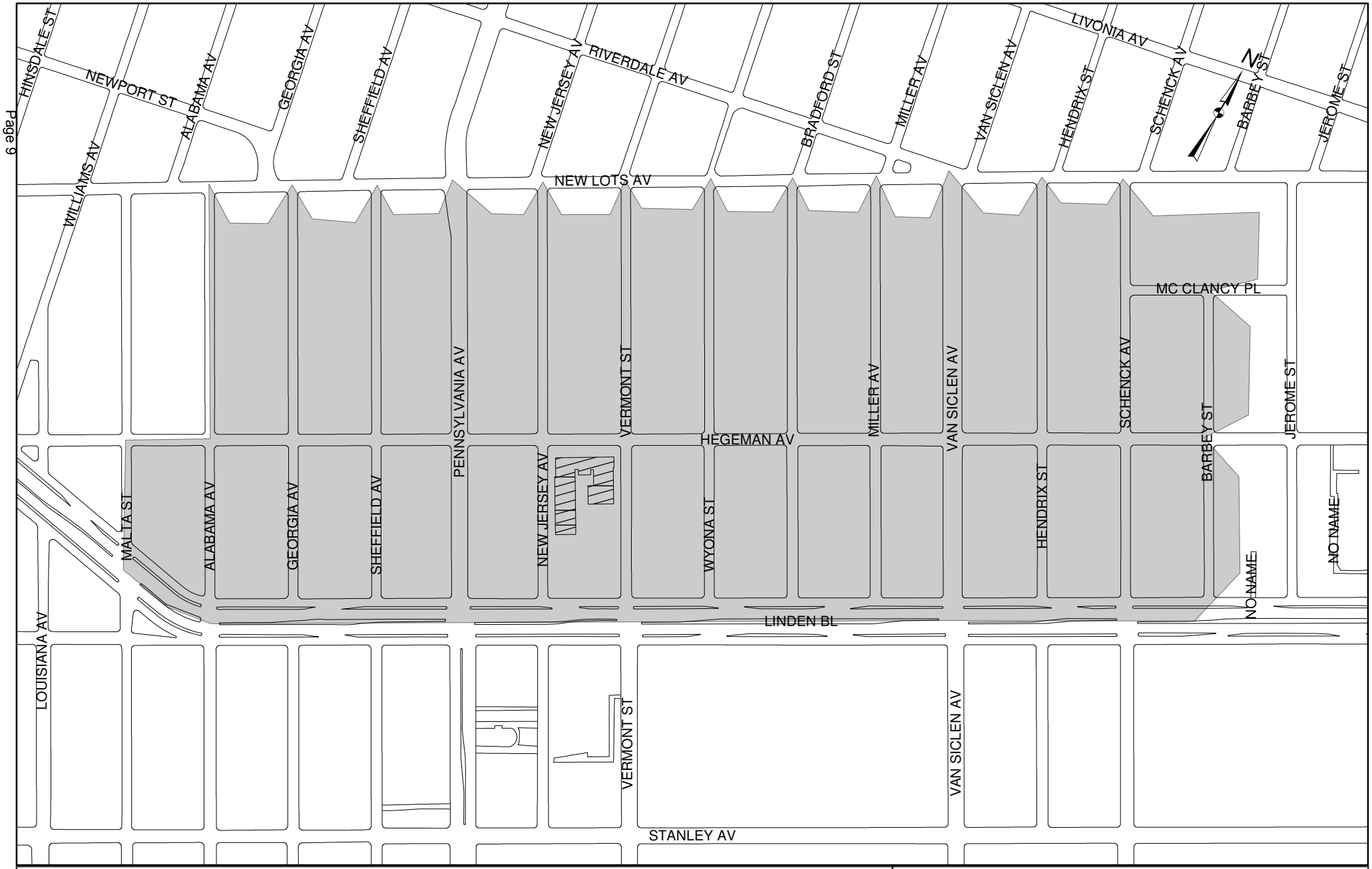
- The safety of students at three intersections; Hegeman Avenue at Vermont Street, New Jersey Avenue, and Pennsylvania Avenue
- Drivers not yielding to pedestrians at crosswalks
- Speeding on New Jersey Avenue

1 inch equals 200 feet

EXHIBIT 1

THE NEW LOTS SCHOOL
P.S. 213, BROOKLYN

AERIAL PHOTOGRAPH



1 inch equals 400 feet

CATCHMENT AREA

EXHIBIT 2

P.S. 213, BROOKLYN
THE NEW LOTS SCHOOL

CATCHMENT AREA

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to school officials, approximately 80% of the students walk to P.S. 213; 10% of the students are driven by parents or guardians, 6% of them by school buses, and the remaining 4% utilize the MTA bus or subway system. See Table 1 for school's estimate of modal split.

TABLE 1: MODES OF TRAVEL
(AS ESTIMATED BY SCHOOL OFFICIALS)

Description	Percentage
Walk	80%
Driven by parents or guardians	10%
School bus	6%
MTA bus or subway	4%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are two other public schools in the vicinity of P.S. 213: J.H.S 166 and P.S. 306. J.H.S 166 is also a priority school, located on Linden Boulevard between Vermont Street and Van Siclen Avenue. P.S. 306 is on Vermont Street south of Wortman Avenue. In addition, a private school, The East New York Family Academy, is on Linden Boulevard opposite to J.H.S 166.

Numerous retail stores are located along Hegeman Avenue. A subway stop for the Number 3 line is located on Pennsylvania Avenue at the intersection with Livonia Avenue, three blocks north of the school. There are also bus stops for the B20 route along Pennsylvania Avenue.

2.8 CROSSING GUARD LOCATIONS

Three crossing guards are assigned to P.S. 213. They are stationed at the following intersections:

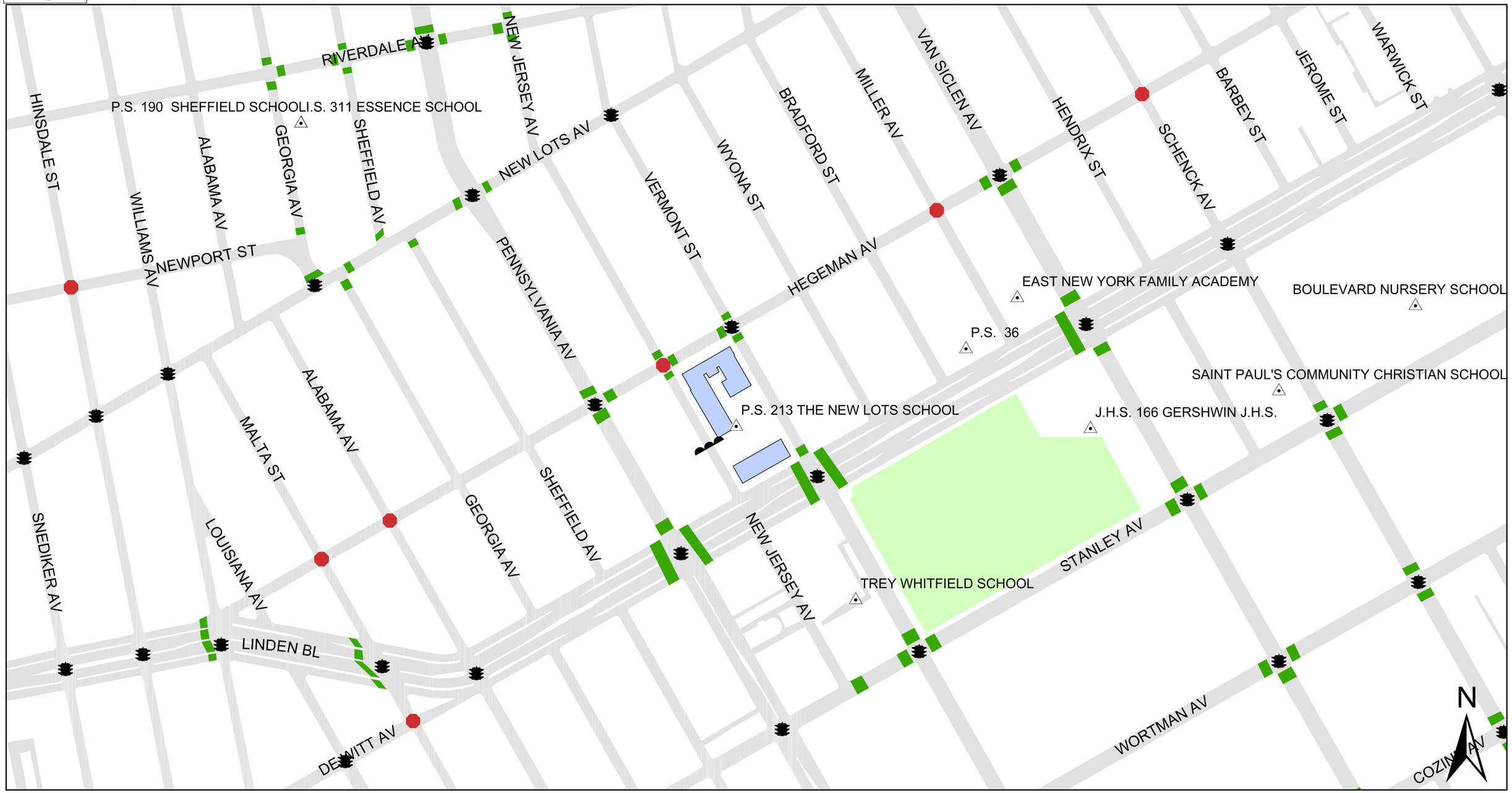
- Hegeman Avenue and Pennsylvania Avenue
- Hegeman Avenue and New Jersey Avenue
- Hegeman Avenue and Vermont Street

In addition, a crossing guard (assigned to P.S. 306) is stationed at Vermont Street and Linden Boulevard (see Exhibit 4).

New York City
Department of Transportation

School Traffic Safety Map

Traffic Operations Division



0 287.5 575 1,150 Feet

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 213 Brooklyn
THE NEW LOTS SCHOOL

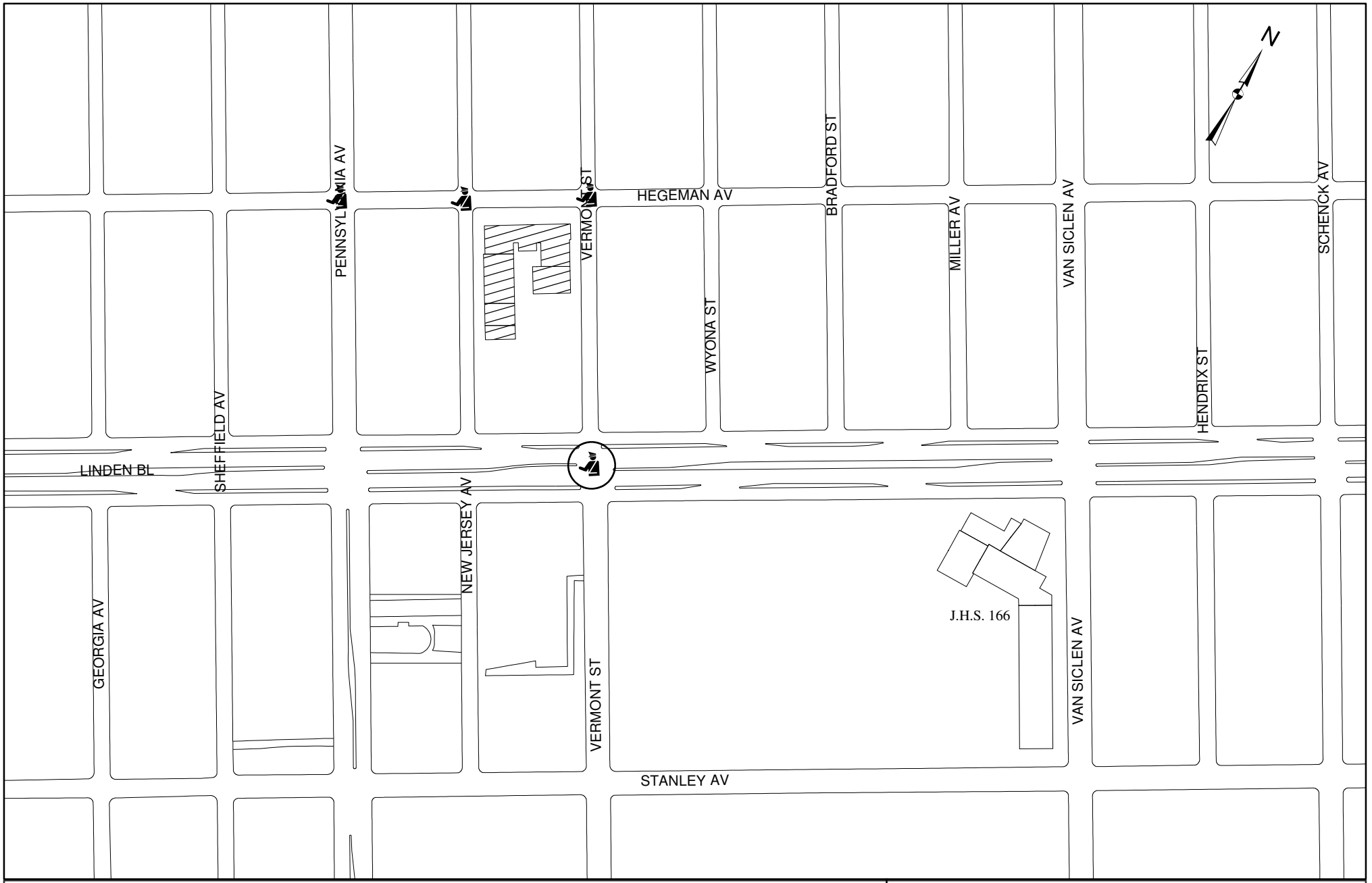
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinshall, COMMISSIONER.

EXHIBIT 3

Map created on 11/16/2006

COMM. BOARD: 305
PRECINCT: 75

1.5.1



1 inch equals 275 feet

CROSSING GUARDS ASSIGNED TO P.S. 213

CROSSING GUARDS ASSIGNED TO ANOTHER SCHOOL

EXHIBIT 4

P.S. 213, BROOKLYN
THE NEW LOTS SCHOOL

CROSSING GUARD

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school officials, 6% of students from P.S. 213 are transported to and from school by school buses. Six school buses drop off students on New Jersey Avenue in front of the main school entrance. Two other buses drop off students on Hegeman Avenue. During dismissal time all school buses pick up students on Hegeman Avenue (Figure 3).

School buses park or double-park, depending on traffic conditions, while dropping off or picking up students.

Figure 3: School buses along Hegeman Avenue

3.2 PARENT DROP-OFF OPERATIONS

According to school officials, about 10% of the P.S. 213 students are driven to and from school by parents or guardians. Most parents and guardians stop on New Jersey Avenue to drop off and pickup students. New Jersey Avenue is 30 feet wide with parking permitted on both sides. While parents stop to drop off /pick up students, traffic is forced to stop, which creates some congestion.

3.3 PARKING REGULATIONS

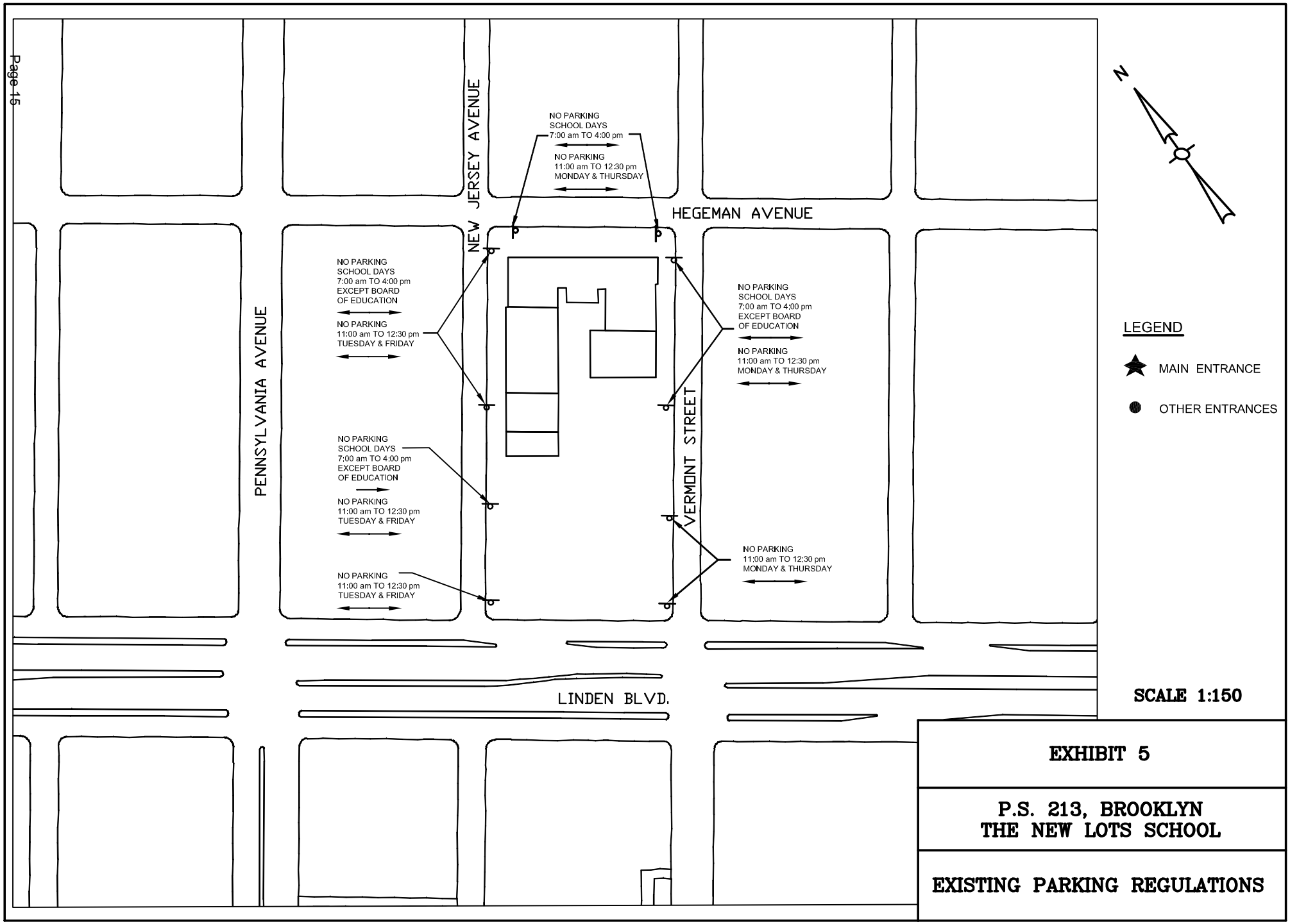
Exhibit 5 shows the parking regulations on the roadways surrounding the school. "NO PARKING, 7:00 AM – 4:00 PM SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" parking regulation is posted on New Jersey Avenue and Vermont Street (Figure 5). Teacher parking is provided along the east curbside of New Jersey Avenue and the west curbside of Vermont Street.

On Hegeman Avenue, "NO PARKING SCHOOL DAYS 7:00 AM – 4:00 PM" signs are posted in front of the school. Street cleaning regulations, which prohibit parking on alternating sides of the roadway, are in place near the school.

Figure 4: Parking regulation signs on Hegeman Avenue

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Map, Exhibit 3, shows existing crosswalk pavement markings. It is noted that a citywide signage program is currently underway to upgrade school signage to current 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" on Exhibit 8.



SCALE 1:150

EXHIBIT 5

P.S. 213, BROOKLYN
THE NEW LOTS 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. 213 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 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 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.

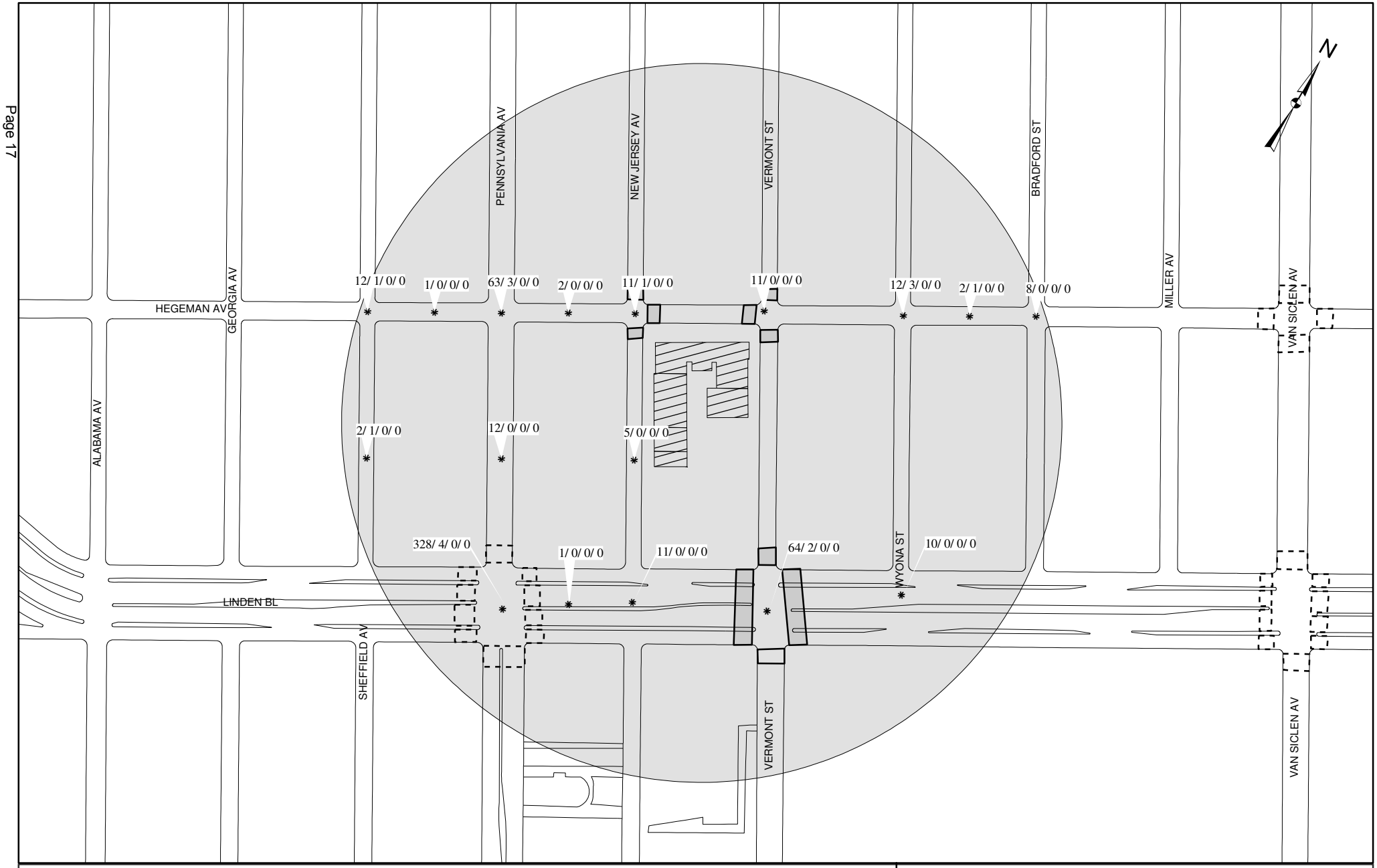
TABLE 2: DMV THREE-YEAR ACCIDENT SUMMARY (1998-2000)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Linden Blvd. and Vermont St.	64	2	0	0
Hegeman Ave. and Vermont St.	11	0	0	0
Hegeman Ave. and New Jersey Ave.	11	1	0	0
Hegeman Ave. and Pennsylvania Ave.	63	3	0	0
TOTAL	149	5	0	0

TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Linden Blvd. and Vermont St.	69	3	0	0
Hegeman Ave. and Vermont St.	21	1	0	0
Hegeman Ave. and New Jersey Ave.	10	1	0	0
Hegeman Ave. and Pennsylvania Ave.	117	6	0	1
TOTAL	217	11	0	1

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



ACCIDENT LOCATION *

SCHOOL CROSSWALK ASSIGNED TO P.S. 213

SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL

CROSSWALK

X/X/X/X

TOTAL ACCIDENTS	/	PED ACCIDENTS	/	PED FATAL	/	SCHOOL_PED ACCIDENTS

1 inch equals 250 feet

EXHIBIT 6

THE NEW LOTS SCHOOL

P.S. 213, BROOKLYN

ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The following describes traffic accident and operational issues for intersections in the vicinity of P.S. 213.

3.6.1 Linden Boulevard and Vermont Street

Vermont Street is a two-way roadway with one travel lane in each direction south of Linden Boulevard, and one-way (northbound) with one travel lane north of Linden Boulevard. Parking is allowed along both sides of the roadway. The mainline is a 145-foot wide (including service roads) two-way roadway. Linden Boulevard mainline is a two-way roadway with three through lanes and left turn bays in both directions. Two service roads are separated from the mainline traffic by raised concrete medians. Both eastbound and westbound service roads are 25-foot wide one-way roadways with one travel lane and parking on the right side. Several of the raised medians do not extend through the crosswalks (Figure 5). At-grade cut throughs for the medians are positioned outside of the crosswalks (Figure 6).

There are school crosswalks on the east, west, and north legs of the intersection.

Figure 5: Looking northwest on Linden Boulevard, at the intersection of Vermont Street and Linden Boulevard

Review of existing signal timing indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Linden Boulevard in one cycle at a walking rate of three feet per second plus a three second reaction time. A school age pedestrian needs two signal cycles to cross at three feet per second, stopping at the center raised medians (refuge) separating eastbound and westbound traffic to wait between cycles. However, both east and west center raised medians do not extend through the crosswalks.

Figure 6: Linden Boulevard at Vermont Street, at-grade cut through is outside of crosswalk

There were 64 accidents between 1998 and 2000 at this signalized intersection. Two accidents included pedestrians, none of which involved school age children. Both pedestrians were crossing with the signal when struck by vehicles making a left turn or right turn.

All the corners have pedestrian ramps. The intersection has one school crossing guard (assigned to P.S. 306).

3.6.2 Vermont Street and Hegeman Avenue

Vermont Street (north of Linden Boulevard) is a one-way (northbound) street. This intersection is stop controlled with a stop sign for northbound traffic on Vermont Street. Hegeman Avenue is a 35-foot wide two-way roadway with one travel lane in each direction and parking on both sides. Hegeman Avenue is not controlled at this intersection; therefore, the school crosswalk at the west leg is uncontrolled. There are school crosswalks on the west, north and south legs.

Eleven accidents occurred at this location between 1998 and 2000. None of the accidents involved pedestrians. There is a school crossing guard assigned to this location.

A one-hour traffic count was performed on Wednesday, June 15, 2005 from 7:30 am to 8:30 am. The results are shown in Exhibit 7. A total of 39 (21+18) pedestrians crossed Hegeman Avenue during this hour, while conflicting with 355 (129+158+48+20) vehicles. Based on MUTCD Section 4C.05 Signal Warrant 4 (Pedestrian Volume) the need for a traffic control signal at an intersection shall be considered if an engineering study finds that the pedestrian volume crossing the major street at an intersection during an average day is 190 or more during any one hour. Preliminary results show that existing conditions do not meet warrants (190 vs. 39 pedestrians/hour) for the installation of a traffic signal.

Figure 7: Looking west on Hegeman Avenue, at the intersection of Vermont Street and Hegeman Avenue

3.6.3 New Jersey Avenue and Hegeman Avenue

New Jersey Avenue is a one-way 30-foot wide southbound roadway with parking on both sides of the street. This is an all-way stop controlled intersection. There is a school crossing guard assigned to this location. Pedestrian ramps are either missing, or have sub-standard design. There are school crosswalks on the north, south, and east legs.

Figure 8: Looking south on New Jersey Avenue, at the intersection of New Jersey Avenue and Hegeman Avenue

There were 11 accidents between 1998 and 2000 at this location. There were no pedestrian accidents during this period.

A one-hour traffic count was performed on Wednesday, June 15, 2005 from 7:30 am to 8:30 am (Exhibit 7). The results show that 20 pedestrians used the school crosswalk at the

east leg to cross Hegeman Avenue, and 103 pedestrians crossed the west leg of Hegeman Avenue, where no crosswalk is provided (Figure 9).

Figure 9: Looking west on Hegeman Avenue, at the intersection of New Jersey Avenue and Hegeman Avenue

3.6.4 Pennsylvania Avenue and Hegeman Avenue

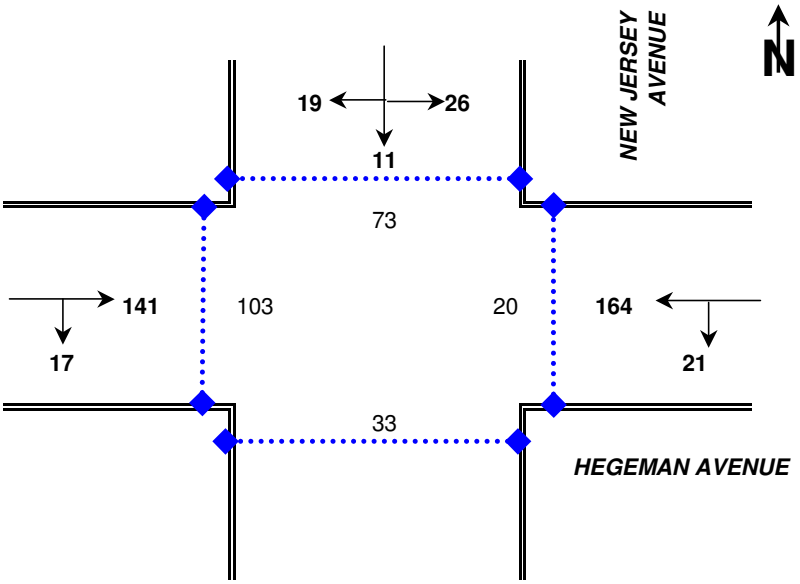
Pennsylvania Avenue is a 53-foot wide two-way roadway with one travel lane in each direction north of Hegeman Avenue and two travel lanes in each direction south of Hegeman Avenue (Figure 10). The intersection of Pennsylvania Avenue and Hegeman Avenue is controlled by a two-phase signal. There are crosswalks on all four legs at this intersection, but none of them are school crosswalks. A school crossing guard is assigned to this location. There are also bus stops for the B20 line along Pennsylvania Avenue.

Figure 10: Looking west on Hegeman Avenue, at the intersection of Pennsylvania Avenue and Hegeman Avenue

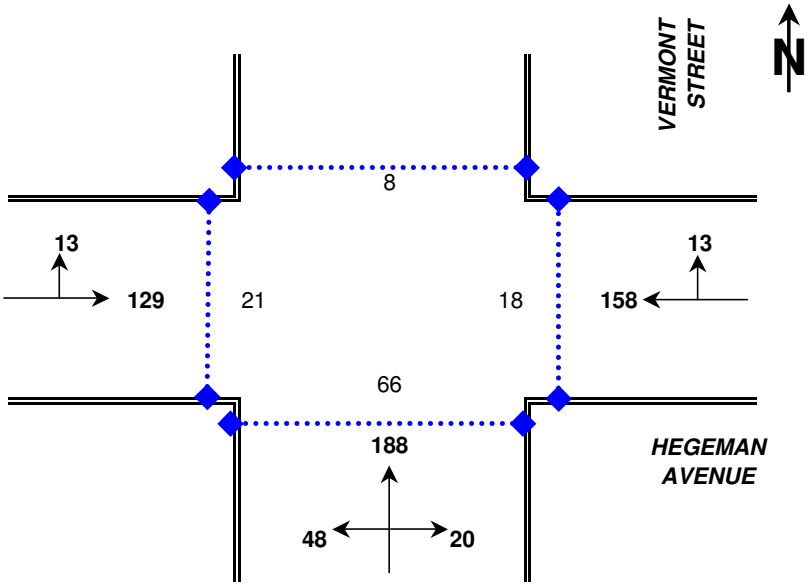
There were 63 accidents at this location between 1998 and 2000. There were three pedestrian accidents though none were school related. Two pedestrians were crossing

with the signal when struck by vehicles making a right turn. There is no information on the third accident.

One Hour Traffic Count Volumes



Intersection of Hegeman Avenue and New Jersey Avenue
(7:30 AM - 8:30 AM JUNE 15, 2005)



Intersection of Hegeman Avenue and Vermont Street
(7:30 AM - 8:30 AM JUNE 15, 2005)

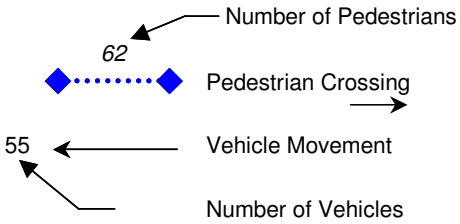


EXHIBIT 7
P.S 213 , BROOKLYN THE NEW LOTS SCHOOL
TRAFFIC COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S. 213, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

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)
Vermont Street and Linden Blvd.				
Crossing Linden Blvd.	75/75[1]	45/45[2]	28/28	NO
Crossing Vermont Street	50	65	20	NO
Hegeman Avenue and Pennsylvania Avenue				
Crossing Hegeman Avenue	36	76	15	NO
Crossing Pennsylvania Avenue	50	34	20	NO

Notes:

** A rate of 3 feet per second plus 3 seconds reaction time was utilized as the child pedestrian walking rate*

1. Linden Boulevard is 75 feet wide from the curb line to the raised center median.

2. A pedestrian needs two signal cycles to cross Linden Boulevard at a rate of three feet per second while stopping at the center raised medians separating eastbound and westbound traffic. The actual pedestrian phase in one signal cycle is 45 seconds to cross Linden Boulevard at Vermont Street.

3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

The roadways in the vicinity of P.S. 213 were generally observed to be in good condition with the exception of the following:

- On the north side of Hegeman Avenue, east of Vermont Street, there is an area of deteriorated sidewalk (Figure 11).
- Pedestrian ramps that are missing or sub-standard have been noted in Section 3.6.

Figure 11: North sidewalk on Hegeman Avenue, east of Vermont Street

4. PROPOSED 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 proposed capital improvements. See Section 4.3 for additional recommendations developed in conjunction with the study of nearby priority schools.

4.1 SHORT-TERM MEASURES

- *Upgrade No Parking Zone to No Standing Zone on Hegeman Avenue*

  "NO PARKING 7:00AM-4:00 PM, SCHOOL DAYS" parking regulations on Hegeman Avenue should be upgraded to "NO STANDING 7:00AM-4:00 PM, SCHOOL DAYS". This will allow school buses a place to load and unload students at the curb, and improve visibility of students arriving and leaving the school.

- *Install No Standing Zone on New Jersey Avenue*

  "NO STANDING 7:00 AM - 4:00 PM SCHOOL DAYS" parking regulation on New Jersey Avenue should be installed for a distance of 60 feet in front of the schools main entrance. The "NO PARKING 7:00 AM-4:00 PM, SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" regulation should be extended southbound for 60 feet to compensate for the lost teacher parking in front of school's main entrance. This will allow school buses a place to load and unload students at the curb.

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

  Installation of a pedestrian information sign adjacent to each school crosswalk at the wide intersections of Linden Boulevard and Vermont Street is recommended. The sign will explain signal phases and inform the pedestrian to wait at the refuge between 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, and the meaning of WALK - FLASHING DON'T WALK - DON'T WALK pedestrian signal sequence.

- *Install enlarged signal lenses*

  Install enlarged signal lens at the following intersection:

  - Linden Boulevard and Vermont Street

  The enlarged lens will improve drivers' ability to see the signal heads.

- *Install new school crosswalks, signs and roadway markings*

  Install new school crosswalk and associated signage at the following locations:

  - New Jersey Avenue and Hegeman Avenue - west leg
  - Pennsylvania Avenue and Hegeman Avenue – north, south, and east legs
  - Stanley Avenue and Vermont Avenue – north and east legs

  The new crosswalks and signage will alert drivers that students cross the street at these locations en route to school.

- *Review bus management / staging procedures*

  Curbside space has been provided for school bus operations on New Jersey Avenue and Hegeman Avenue. This may require some buses to stage at other locations until sufficient curbside space becomes available. School officials should review the bus operations at the school and consider the following:

  - Restrict drop-off/pick-up of students from school buses except at the designated curbside fronting the school
  - Define a staging area for buses to queue until they can pull into the curbside directly fronting the school for drop-off/pick-up operations.

  It is important that students not enter/exit buses while the buses are in the staging area. By reducing the number of students entering or exiting the buses at one time, it may be easier to manage the students' actions at arrival and dismissal times.

- *Install a speed reducer (hump) on New Jersey Avenue*

  The school officials indicated that vehicles were speeding on New Jersey Avenue in the vicinity of the school's main entrance. A spot speed study was conducted on New Jersey Avenue between Hegeman Avenue and Linden Boulevard on Tuesday, August 9, 2005 from 10:00am to 11:00 am. The spot speed study confirmed that the 85th percentile speed was 31 mph, which exceeds the statutory speed limit of 30 mph. To reduce speeding in the vicinity of the school, installation of a speed reducer (hump) on New Jersey Avenue directly in front of the school is recommended.

TABLE 5: SPOT SPEED STUDY

LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
New Jersey Ave. btw. Hegeman Ave. and Linden Blvd.	26	31

- *Place advanced stop bars ten feet 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.

4.2 LONG-TERM MEASURES

- *Install or replace pedestrian ramps*

  Install standard pedestrian ramps at all four corners of the New Jersey Avenue and Hegeman Avenue intersection.

- *Linden Boulevard and Vermont Street intersection*

  Review of existing signal timing at the intersection of Linden Boulevard and Vermont Street indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Linden Boulevard in one cycle at a walking rate of three feet per second plus a three second reaction time. It is assumed that a pedestrian will need two cycles to cross Linden Boulevard as shown in Section 3.7 – Signal Timing and medians should be provided as a refuge area where pedestrians can wait between cycles.

  - In order to provide a refuge that allows pedestrians to wait for the next walk phase and cross Linden Boulevard in two cycles, it is recommended that the center-raised medians be extended through the school crosswalks (as shown in Exhibit 8). This will provide a physically protected refuge location for pedestrians to wait between cycles.

  Review of the turning path of a Standard Unit Vehicle (SU) showed that these vehicles will be able to complete a left turn movement with the new extended center median. The final design should allow at least a six-foot clearance between turning vehicles on Linden Boulevard.

  ADA compliant at-grade cut-throughs should be provided at all medians within the crosswalk.

- *Install curb extensions at the following intersections:*

  - Hegeman Avenue and New Jersey Avenue
  - Hegeman Avenue and Vermont Street

  Curb extensions should be installed 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 school

crosswalks. These curb extensions will not eliminate or reduce the width of any moving lanes. Curb extensions are not proposed where they would hinder the ability of vehicles to turn. Final details pertaining to curb extensions will be developed during the Final Design/Contract Document preparation.

(See Section 4.3 for additional recommendations developed in conjunction with the study of nearby priority schools)

4.3 ADDITIONAL RECOMMENDATIONS FOR PRIORITY SCHOOLS IN THE VICINITY

4.3.1 RECOMMENDATIONS FOR J.H.S. 166:

(All references in Section 4.3.1 refer to the P.S. 166 Priority School Report)

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

  The safety of pedestrians at the wide intersections of Linden Boulevard and Van Siclen Avenue is the major concern of the school. Installation of a pedestrian information sign adjacent to each school crosswalk to explain the signal phases is recommended. The pedestrian should also be informed to wait at the refuge areas between signal cycles.

- *Submit Request to the Police Department for a Crossing Guard*

  It is recommended that a crossing guard be requested at the intersection of Linden Boulevard and Van Siclen Avenue. The crossing guard will help the students to cross this wide intersection and guide them to wait at the refuge area. The crossing guard will also help inform the students not to cross mid-block or to linger on Linden Boulevard.

- *Install enlarged signal lens*

  Install enlarged signal lens for vehicles at the following location:

  - Linden Boulevard at Van Siclen Avenue

  The enlarged lens will improve drivers' abilities to see the signal heads.

- *Install new school crosswalk at the following intersections:*

  - Van Siclen Avenue and Hegeman Avenue – south leg
  - Van Siclen Avenue and Wortman Avenue – north leg

  Crosswalks at these two locations should be installed as school crosswalks to facilitate students walking to J.H.S. 166.

- *Install painted buffers on Stanley Avenue*

  A spot speed survey was conducted on Stanley Avenue between Van Siclen Avenue and Vermont Street on Wednesday, July 27, 2005 from 10:00 am to

11:00 am. The objective of the survey was to determine whether there is a speeding problem on this section of Stanley Avenue.

The spot speed study shows that the 85th percentile speed was 35 mph, which exceeds the statutory speed limit of 30 mph. However, per DOT policy, speed reducers are not installed on streets over 40 feet wide, and Stanley Avenue is 50 feet wide. Therefore, to reduce speeding on Stanley Avenue, it is recommended to install 6-foot wide painted buffers that separate travel lanes and parking lanes on both sides of the street. With this alternative, travel lane widths will be narrowed from their existing 17 feet to 11 feet. It is expected that narrowing these lanes will encourage reduced operating speeds at this location. See Table 5 for a summary of the results and the Appendix for further detail.

TABLE 6: SPOT SPEED STUDY

(Wednesday, July 27, 2005 10:00 am – 11:00 am)

LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Stanley Ave between Van Siclen Ave and Vermont St.	30	35

- *Adjust signal timing for the intersection of Hegeman Avenue and Van Siclen Avenue*

  As shown in Table 4, at the intersection of Hegeman Avenue and Van Siclen Avenue, the pedestrian phase does not provide enough time for a pedestrian to cross Van Siclen Avenue in one cycle, at an assumed walking rate of three feet per second plus a three second reaction time. Therefore, it is recommended that the signal timing at this intersection be adjusted to provide additional walking time for pedestrians to safely cross Van Siclen Avenue.

- *Install pedestrian signal displays*

  Installation of pedestrian signal heads on the northeast and southeast sidewalk of Hegeman Avenue at Van Siclen Avenue is recommended. The proposed pedestrian heads will serve the school crosswalk on the east leg of the intersection.

- *Linden Boulevard and Van Siclen Avenue*

  Review of the existing signal timing at the intersection of Linden Boulevard and Van Siclen Avenue indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Linden Boulevard in one cycle at a walking rate of three feet per second plus a three second reaction time. A student pedestrian needs two cycles to cross Linden Boulevard as shown in Section 3.7 – Signal Timing.

- It is recommended that the center-raised medians be extended through the school crosswalks (as shown in Exhibit 7) at this intersection. This will provide a physically protected refuge area for pedestrians as they wait in the center for the second walk phase required to cross Linden Boulevard.

  Review of the turning path of a Standard Unit Vehicle (SU) showed that these design vehicles would be able to complete a left turn movement with the new extended center medians.

ADA-compliant at-grade cut-throughs should be provided at all medians within the crosswalk.

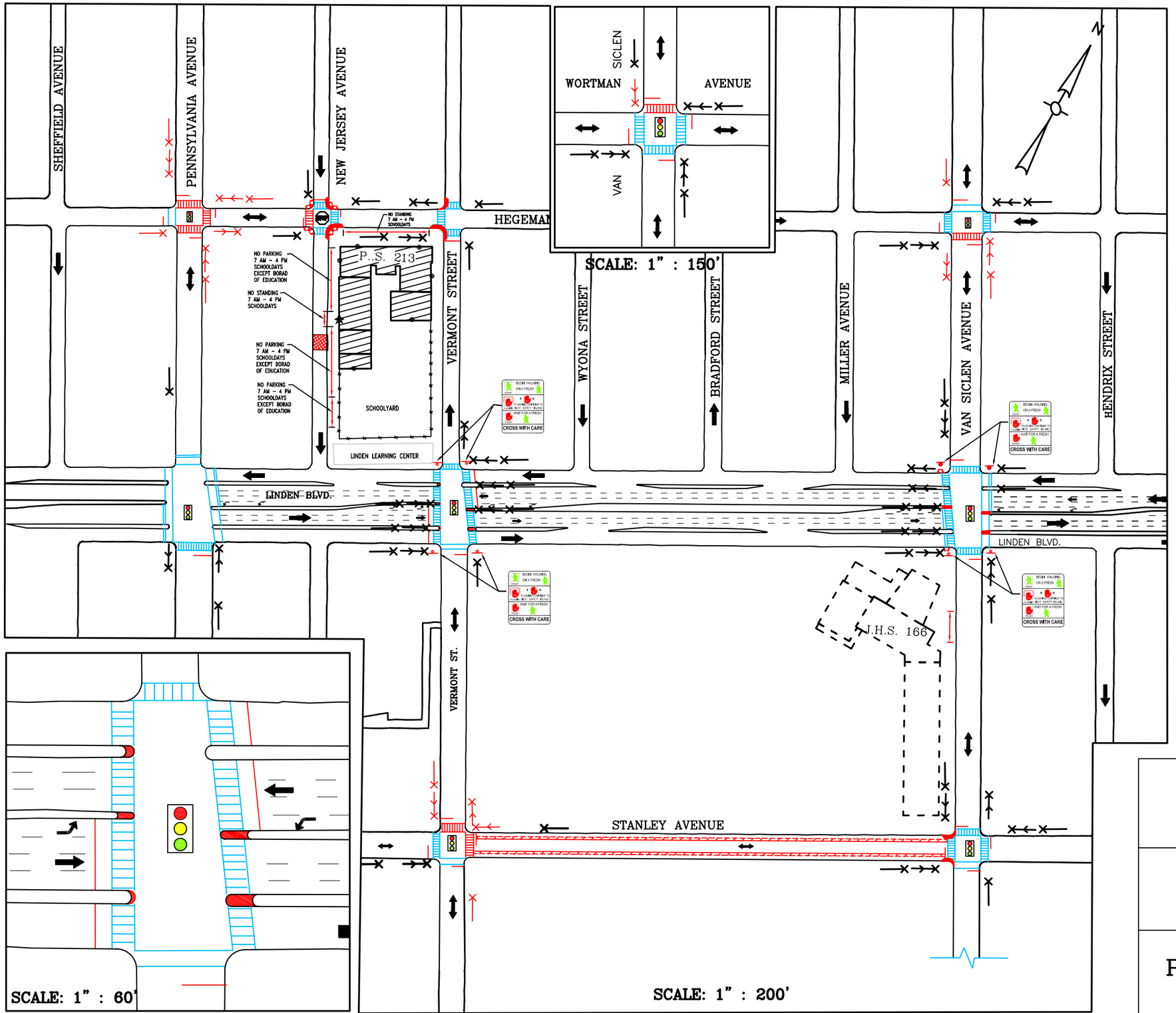
- *Install curb extensions at:*

  - Van Siclen Avenue and Stanley Avenue intersection

  Curb extensions should be installed 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 school crosswalks.

  These curb extensions will not eliminate or reduce the width of any moving lanes. Curb extensions are not proposed where they would hinder the ability of vehicles to turn. Final details pertaining to curb extensions will be developed during the Final Design/Contract Document preparation.



LEGEND

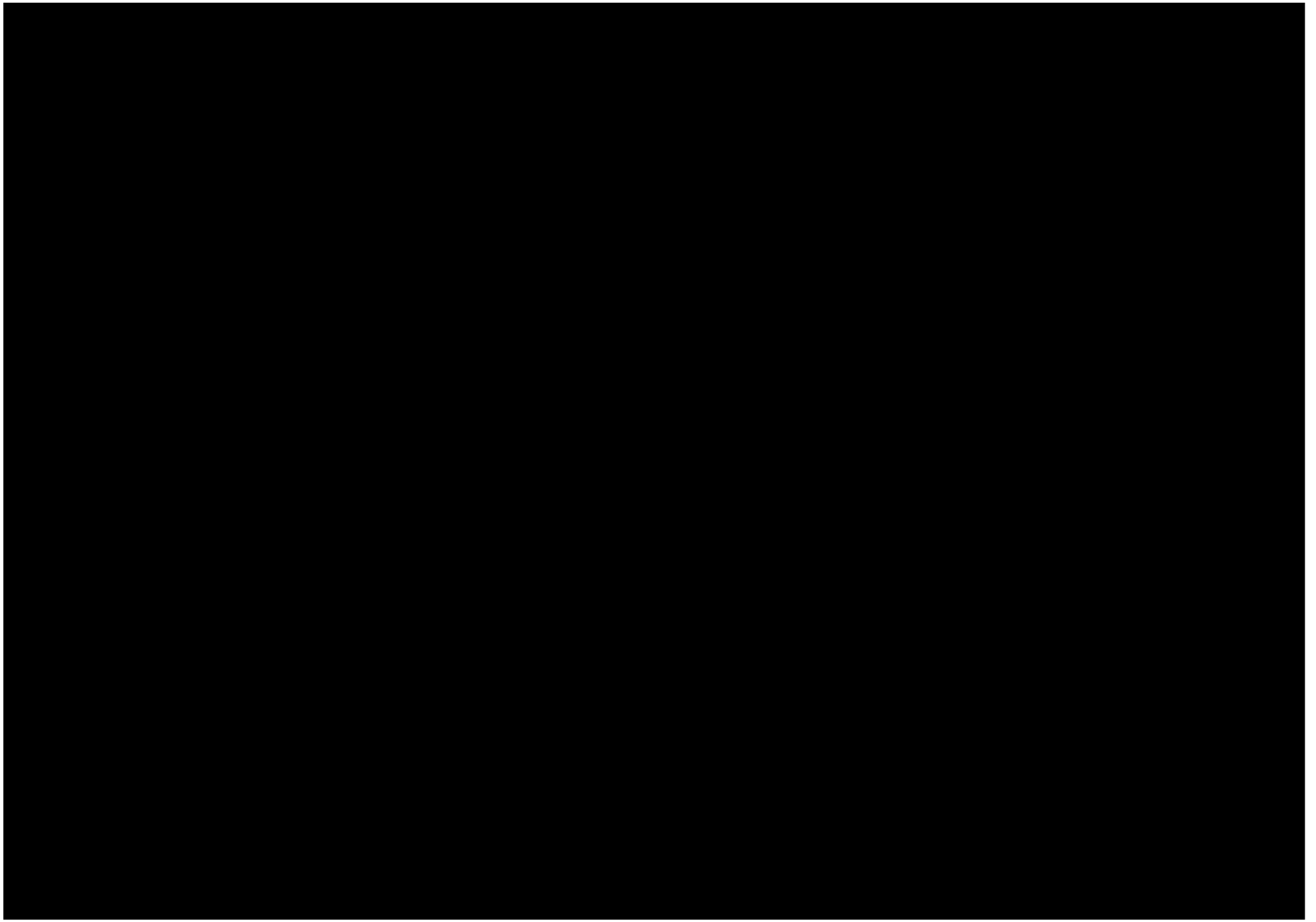
- MAIN ENTRANCE
- OTHER ENTRANCES
- EXISTING (OR SCHEDULED TO BE INSTALLED BY DOT) ADVANCE WARNING SIGN WITH ARROW
- EXISTING ADVANCE WARNING SIGN
- EXISTING TRAVEL DIRECTION
- SIGNALIZED INTERSECTION
- EXISTING ALL-WAY STOP INTERSECTION
- EXISTING SCHOOL CROSSWALK
- EXISTING SCHOOL CROSSWALK ASSOC. WITH OTHER SCHOOL
- EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- PROPOSED PEDESTRIAN RAMP
- PROPOSED ADVANCE WARNING SIGN WITH ARROW
- PROPOSED ADVANCE WARNING SIGN
- PROPOSED STOP LINE
- PROPOSED STANDARD CROSSWALK
- PROPOSED SCHOOL CROSSWALK
- PROPOSED TRAFFIC SIGN
- PROPOSED CURB EXTENSION (NECKDOWN)
- PROPOSED SPEED REDUCER (HUMP)
- PROPOSED MEDIAN EXTENSION
- PROPOSED PARKING REGULATIONS
- PROPOSED STRIPED BUFFER

EXHIBIT 8

P.S. 213, BROOKLYN
THE NEW LOTS SCHOOL

PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

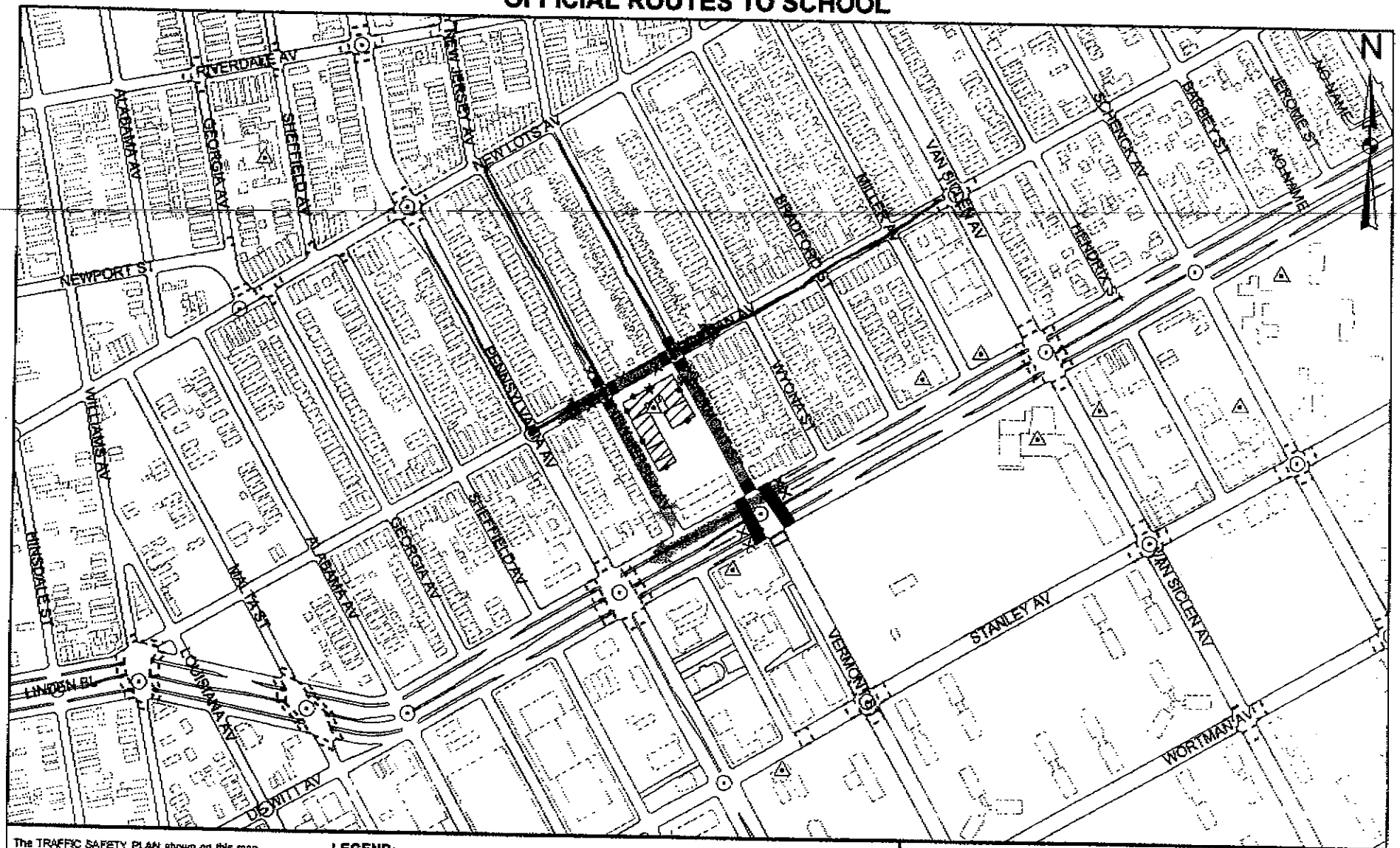
APPENDIX



NEW YORK CITY
DEPT. OF TRANSPORTATION

TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL

BUREAU OF TRAFFIC



The TRAFFIC SAFETY PLAN shown on this map was established to provide the maximum degree of safety for children going to and from school. It is required that all children follow the prescribed routes and use the designated crosswalks.

LEGEND:

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

THE NEW LOTS SCHOOL
P.S. 213

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

ORIG. DATE: 8/21/1961
GIS CONVRT: 04 / 2002
REVISIONS:

DRAWING NO.
QC- 395
MS- 3124

COMM. BOARD: 5
BOROUGH: BROOKLYN
PRECINCT: 75

SPOT SPEED STUDY

Date: **August 9, 2005** Time: **10:00 am - 11:00 am** School: **P.S. 213**
Location: **New Jersey Avenue between Hegeman Avenue and Linden Boulevard** Direction:
Surveyor: 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	2	8.0%	8.0%	34	578
18	0	0.0%	8.0%	0	0
19	0	0.0%	8.0%	0	0
20	2	8.0%	16.0%	40	800
21	1	4.0%	20.0%	21	441
22	0	0.0%	20.0%	0	0
23	0	0.0%	20.0%	0	0
24	3	12.0%	32.0%	72	1728
25	5	20.0%	52.0%	125	3125
26	0	0.0%	52.0%	0	0
27	2	8.0%	60.0%	54	1458
28	3	12.0%	72.0%	84	2352
29	0	0.0%	72.0%	0	0
30	1	4.0%	76.0%	30	900
31	4	16.0%	92.0%	124	3844
32	0	0.0%	92.0%	0	0
33	1	4.0%	96.0%	33	1089
34	1	4.0%	100.0%	34	1156
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
	25	100.0%		651	17471

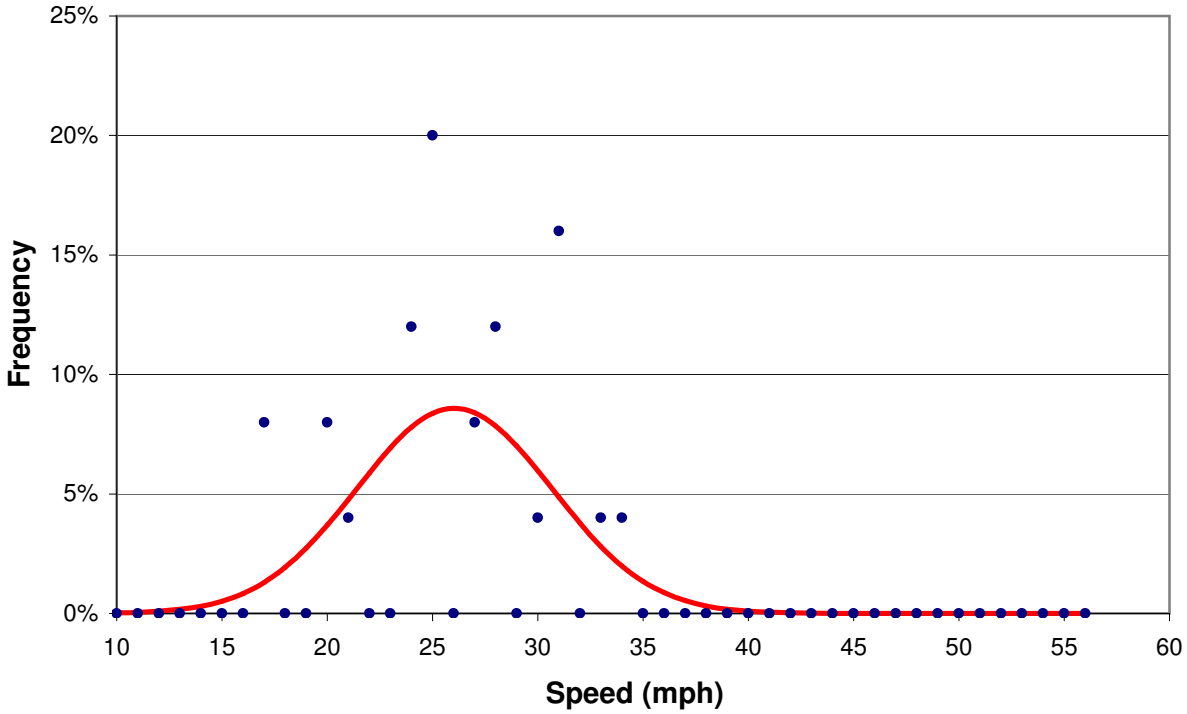
Mean Speed = 26.0 mph
Standard Deviation = 4.7 mph
Margin of Error (95% Confidence) = ± 1.8 mph

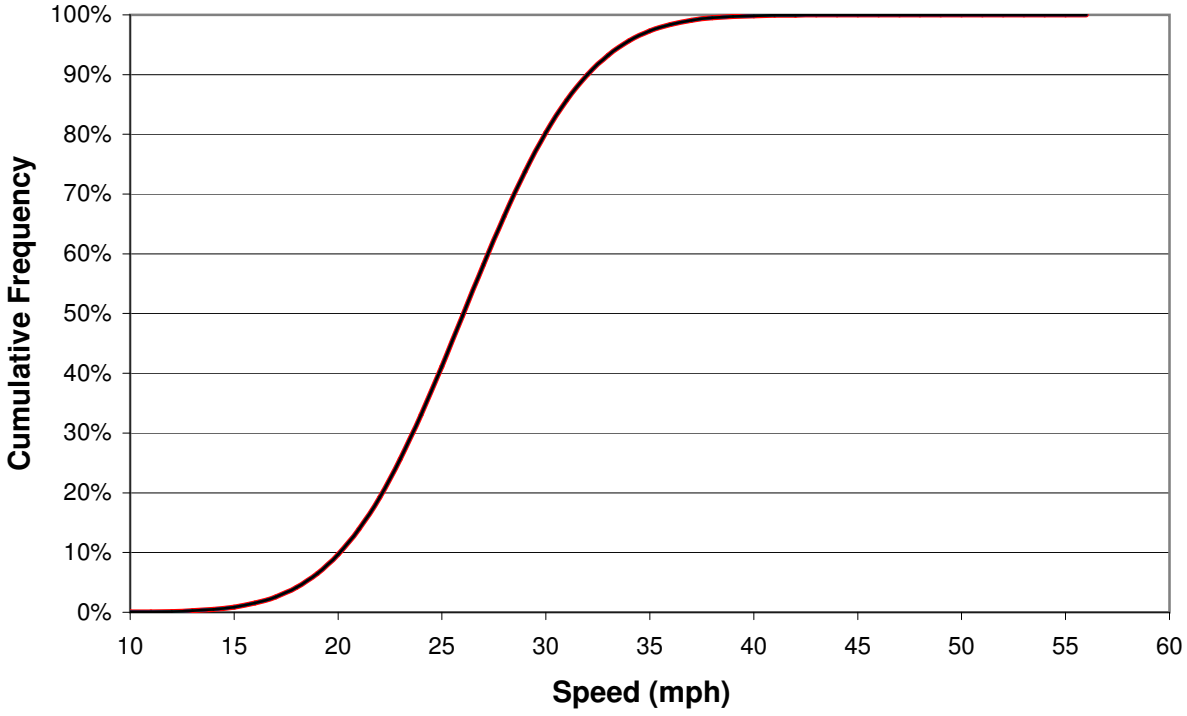
Median Speed = 26.0 mph
15th Percentile Speed = 21.2 mph
85th Percentile Speed = 30.9 mph

SPOT SPEED STUDY

Date: **August 9, 2005** Time: **10:00 am - 11:00 am** School: **P.S. 213**
Location: **New Jersey Avenue between Hegeman Avenue and Linden Boulevard** Direction:
Surveyor: Comments:

Mean Speed =	26.0 mph	Median Speed =	26.0 mph
Standard Deviation =	4.7 mph	15th Percentile Speed =	21.2 mph
Margin of Error (95% Confidence) =	± 1.8 mph	85th Percentile Speed =	30.9 mph





P.S. 213

June 15, 2005
7:30 am - 8:30 am

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

Site:
Date: 06/15/05

Combined
**Peds not included in table data*

Begin		VERMONT STREET			HEGEMAN AVENUE			VERMONT STREET			HEGEMAN AVENUE		
Time	**Total**				**W-R**	**W-T**		**N-R**	**N-T**	**N-R**		**E-T**	**E-L**
07:30:00	104	0	0	0	5	51	0	4	18	11	0	14	1
07:45:00	165	0	0	0	2	43	0	4	59	17	0	34	6
08:00:00	162	0	0	0	3	37	0	5	61	9	0	42	5
08:15:00	138	0	0	0	3	27	0	7	50	11	0	39	1
	569	0	0	0	13	158	0	20	188	48	0	129	13

Peak Volume Periods *(1 hour Res:15 min.)*

	Period			Peak Period			Volume
AM	05:00:00	To	10:00:00	07:30:00	To	08:30:00	569
Noon	10:00:00	To	15:00:00	NA	To	NA	0
PM	15:00:00	To	20:00:00	NA	To	NA	0

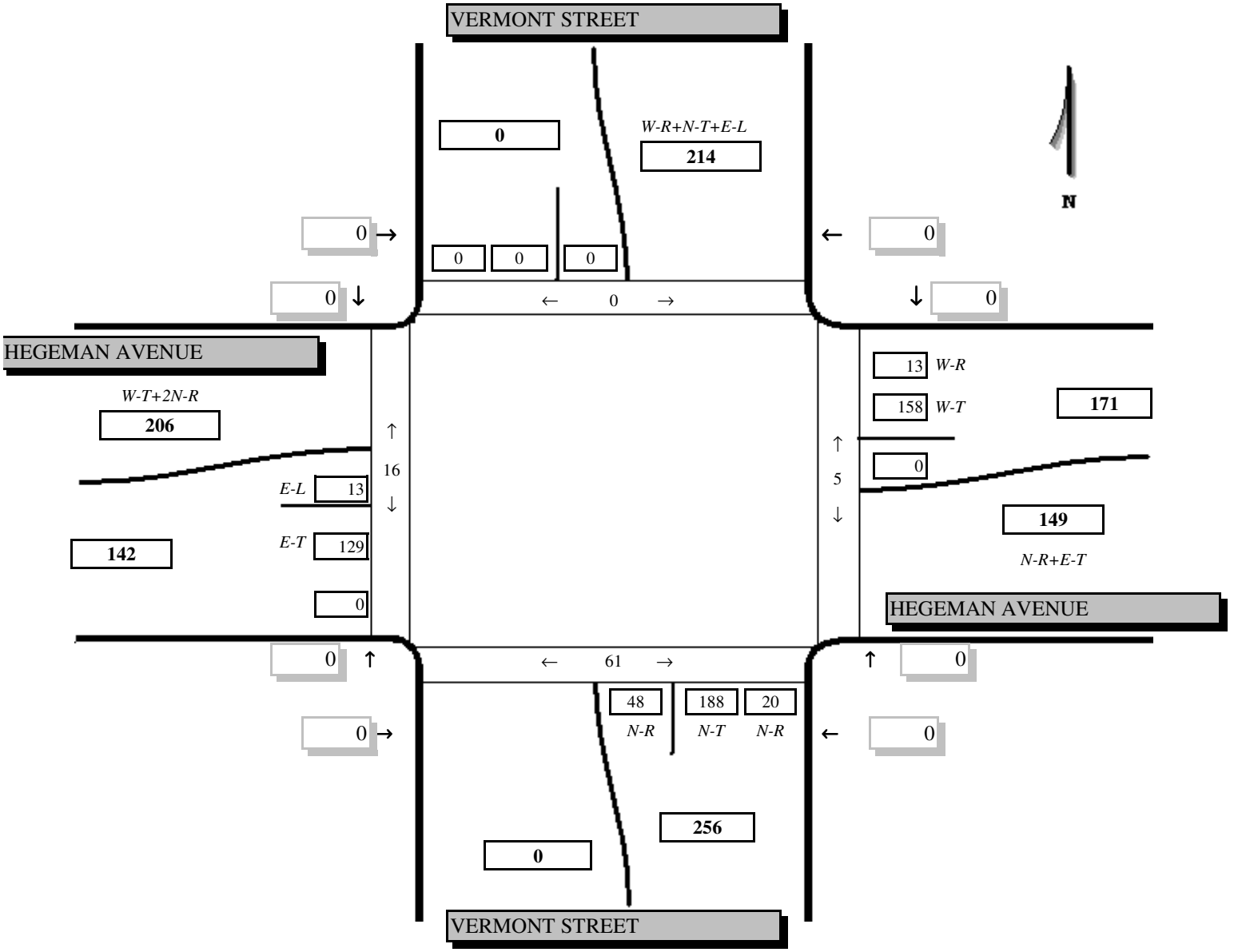
P.S. 213

June 15, 2005
7:30 am - 8:30 am

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

Site:
Date: 06/15/05

Combined
**Peds not included in table data*



P.S. 213

June 16, 2005
7:30 am - 8:30 am

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

Site:
Date: 06/15/05

Combined
**Peds not included in table data*

Begin Time	Total	NEW JERSEY AVE S-R	S-T	S-L	HEGEMAN AVENUE W-T	W-L	NEW JERSEY AVE			HEGEMAN AVENUE E-R	E-T	
07:30:00	105	6	3	9	0	46	6	0	0	0	2	33	0
07:45:00	86	2	0	3	0	42	4	0	0	0	6	29	0
08:00:00	111	6	3	9	0	42	5	0	0	0	6	40	0
08:15:00	97	5	5	5	0	34	6	0	0	0	3	39	0
	399	19	11	26	0	164	21	0	0	0	17	141	0

Peak Volume Periods *(1 hour @ 15 mins)*

	Period		Peak Period		Volume
AM	05:00:00	To 10:00:00	07:30:00	To 08:30:00	399
Noon	10:00:00	To 15:00:00	NA	To NA	0
PM	15:00:00	To 20:00:00	NA	To NA	0

P.S. 213

June 16, 2005
7:30 am - 8:30 am

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

Site:
Date: 06/15/05

Combined
**Peds not included in table data*