

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



School Safety Engineering Project

FINAL REPORT: P.S. 92, Adrian Hegeman School, Brooklyn



**Prepared by
The RBA Group/Urbitran Associates**



AUGUST 9, 2006

School Safety Engineering Project
P.S. 92, Adrian Hegeman School, Brooklyn

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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, 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, 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. 92 (Adrian Hegeman School) in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

2.2 NEIGHBORHOOD DESCRIPTION

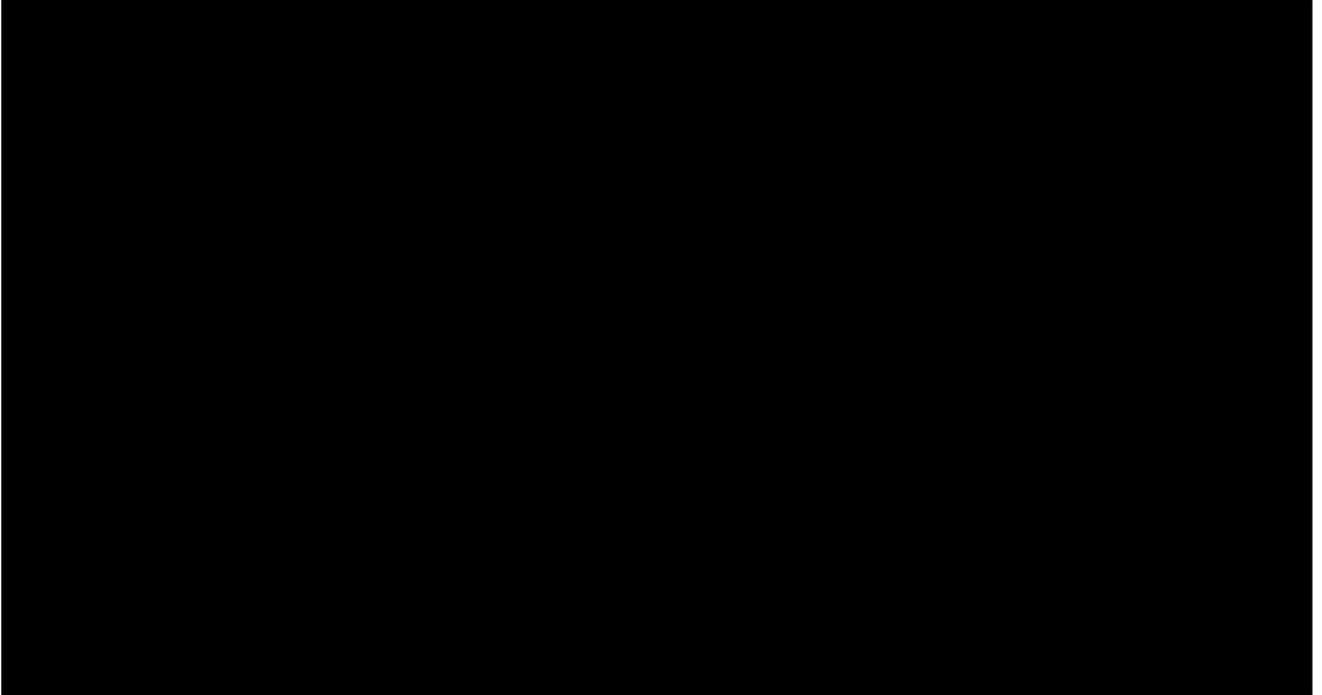
Parkside Avenue is a mostly residential street in the vicinity of P.S. 92. Kings County Hospital Center is located two blocks to the east of Nostrand Avenue. Subway stations are located on Nostrand Avenue at Parkside Avenue and on Parkside Avenue at 15th Street. I.S. 2 with approximately 1,200 students is located directly across Rogers Avenue from P.S. 92 (See Exhibit 1 for Aerial Photograph).

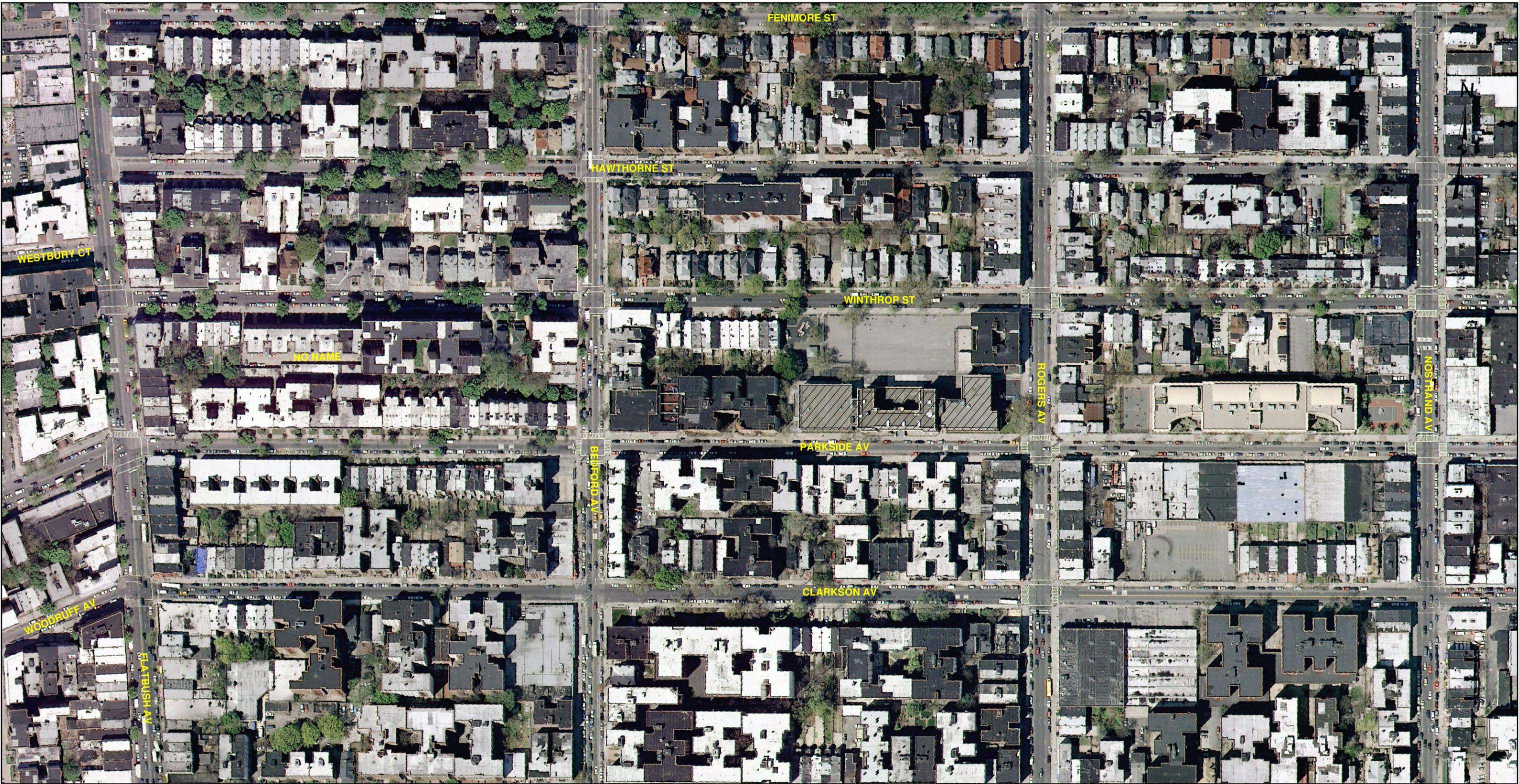
2.3 MEETING WITH SCHOOL REPRESENTATIVES

School officials were contacted by the consultant team but were unable to meet to discuss school safety operations. The following review, analysis, and recommendations for the school are based on the school's response to the school survey questionnaire conducted in 2004, consultant observations of field conditions and traffic data obtained for the streets surrounding the school.

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

- Vehicles speeding on Flatbush Avenue
- Vehicles speeding on Parkside Avenue
- Children crossing at mid-block locations
- Yellow school buses and private vehicles creating congestion by double-parking on Rogers Avenue





1 inch equals 190 feet

EXHIBIT 1
ADRIAN HEGEMAN SCHOOL
P.S. 92, BROOKLYN
AERIAL PHOTOGRAPH



CATCHMENT AREA

1 inch equals 600 feet

EXHIBIT 2
ADRIAN HEGEMAN SCHOOL
P.S. 92, BROOKLYN

CATCHMENT AREA



2.6 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

I.S. 2 is located directly across Rogers Avenue from P.S. 92 (I.S. 2 is also a priority school). Numerous restaurants, fast food restaurants, delis, supermarkets and other retail stores are located along Flatbush Avenue to the east, and Nostrand Avenue to the west. The subway stop for the number 2, 5, and Q trains, as well as Kings County Hospital Center and University Hospital of Brooklyn, are major pedestrian traffic generators in this area.

2.7 CROSSING GUARD LOCATIONS

Crossing guards are assigned at the following intersections:

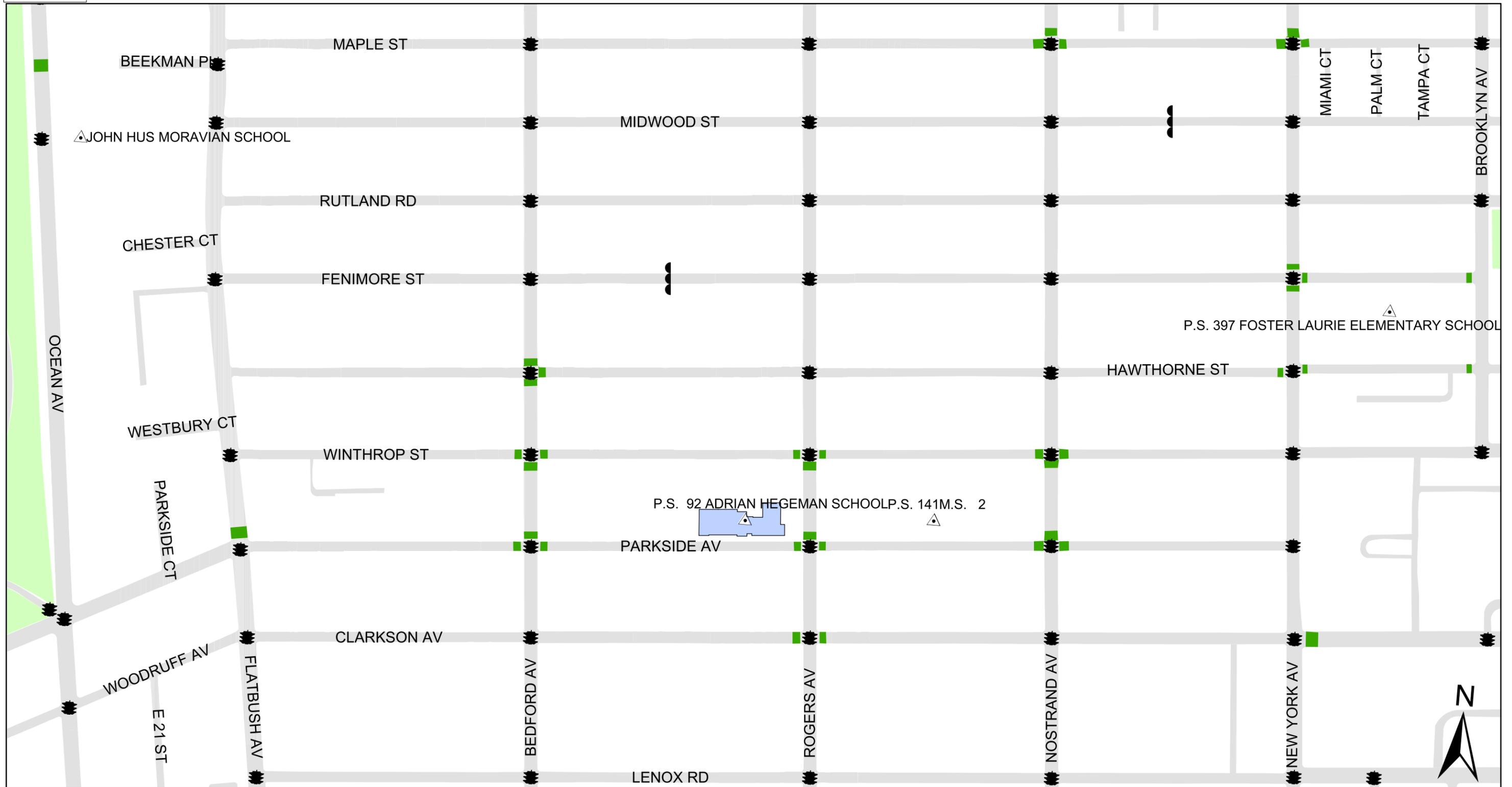
- Rogers Avenue and Parkside Avenue
- Bedford Avenue and Parkside Avenue intersection



Figure 2: A crossing guard assigned to P.S. 92 assisting students at Rogers Avenue and Parkside Avenue



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:

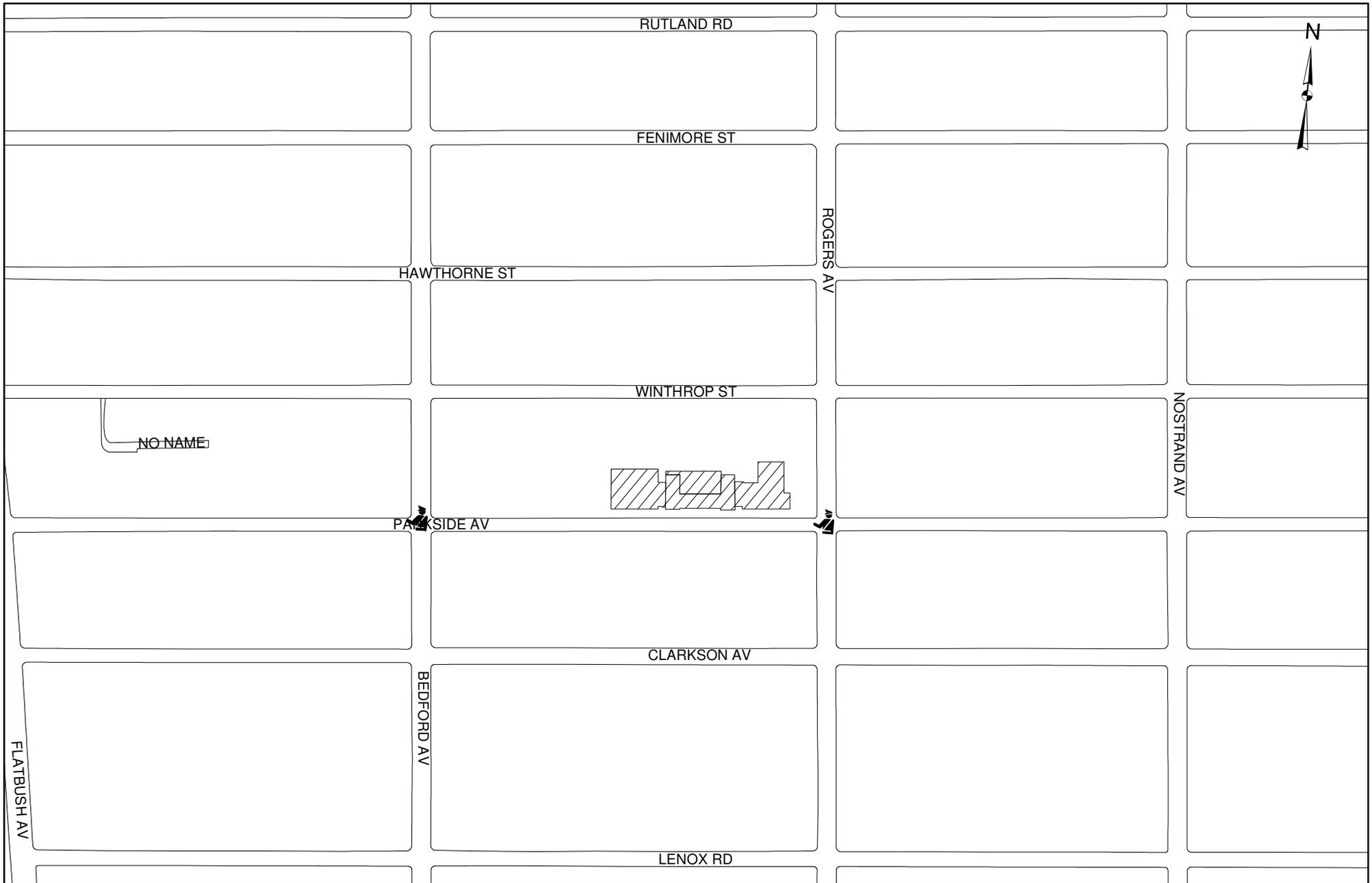
SCHOOL LOCATION		TRAFFIC SIGNAL	
SCHOOL CROSSWALK		ALL - WAY STOP	
		SPEED REDUCER	

**PS 92 Brooklyn
ADRIAN HEGEMAN SCHOOL**

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

Map created on 11/16/2006 **EXHIBIT 3** COMM. BOARD: 309
PRECINCT: 71

1.5.1



1 inch equals 300 feet



SCHOOL CROSSING GUARD ASSIGNED TO P.S. 92

EXHIBIT 4

**ADRIAN HEGEMAN SCHOOL
P.S. 92, BROOKLYN
CROSSING GUARD**

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school officials approximately 5% (45-50 students) of P.S. 92 students are transported to and from school by school bus. Rogers Avenue was identified as the drop-off and pick-up point for school buses. Buses often double-park during the student loading and unloading operations.

3.2 PARENT DROP-OFF OPERATIONS

School officials have indicated that approximately 20% of P.S. 92 students are driven to and from the school by their parents or guardians. Rogers Avenue has been identified as the primary location used as a student drop-off area.

3.3 PARKING REGULATIONS

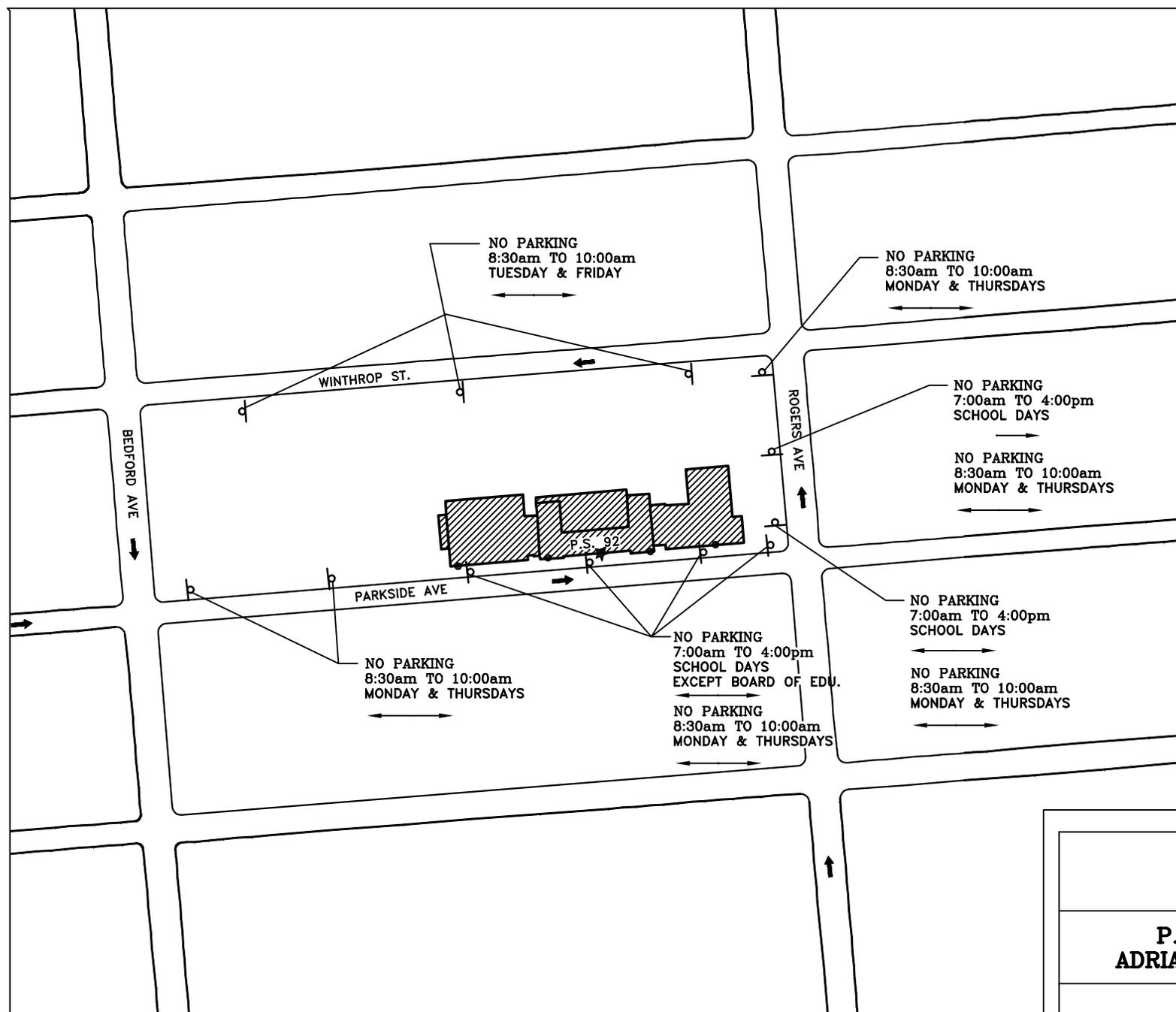
“NO PARKING, 7:00AM – 4:00PM, SCHOOL DAYS” parking regulations are posted on Rogers Avenue. “NO PARKING, 7:00AM – 4:00PM, EXCEPT BOARD OF EDUCATION” parking regulations are posted on Parkside Avenue in front of the school. Exhibit 5 displays parking regulations in the vicinity of P.S. 92.



Figure 3: Parked vehicles on both sides of Parkside Avenue in front of P.S. 92

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, 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 with downward pointing arrows. Signs scheduled to be installed under this program are shown as “existing” on Exhibit 8.



LEGEND

- ★ MAIN ENTRANCE
- ENTRANCE
- Ⓟ STREET SIGN

EXHIBIT 5

**P.S. 92, BROOKLYN
ADRIAN HEGEMAN SCHOOL**

EXISTING PARKING REGULATIONS

SCALE: 1"=200'

3.5 ACCIDENT SUMMARY

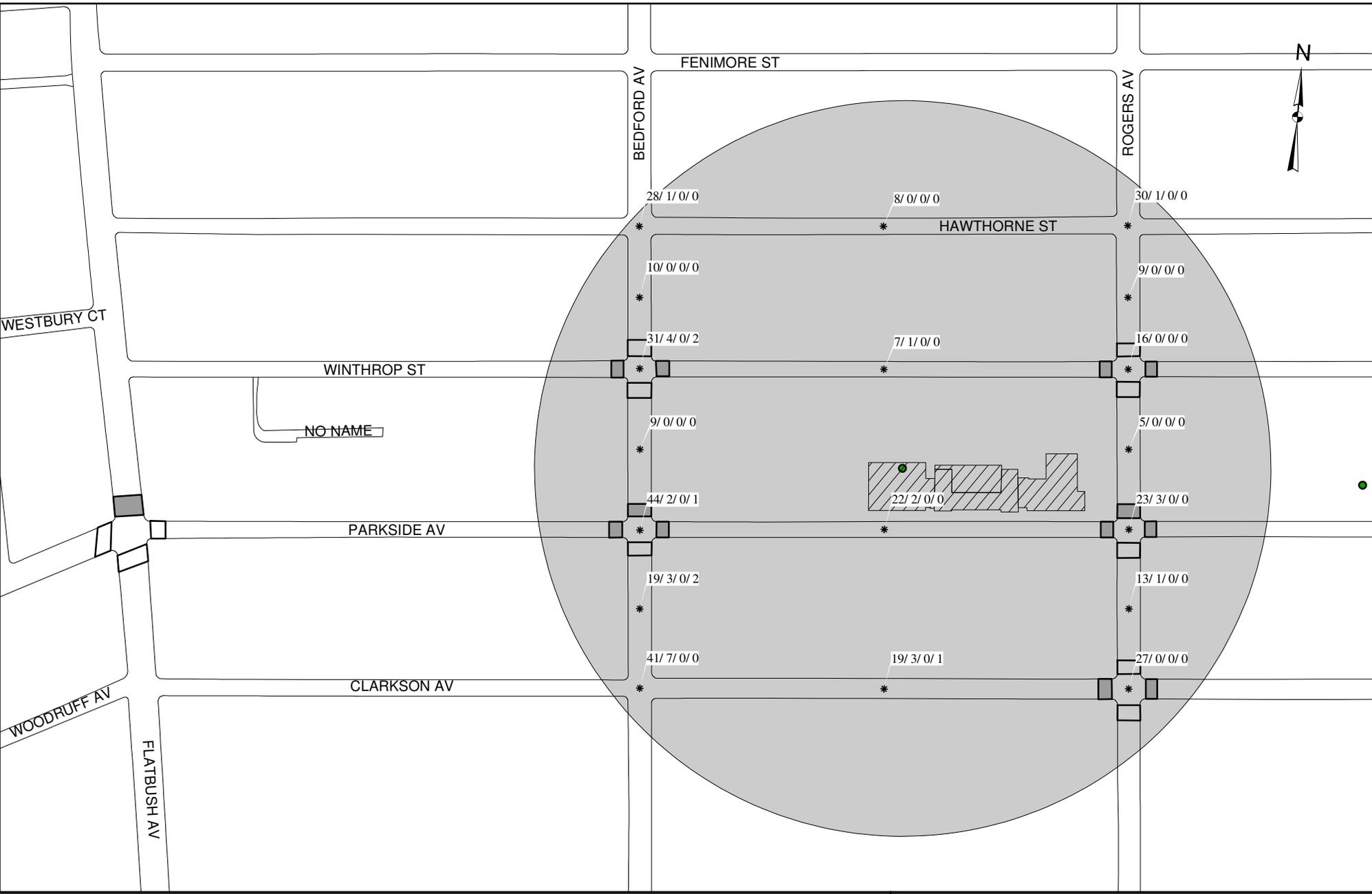
Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of P.S. 92 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of 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 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 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
Rogers Ave and Parkside Ave	23	3	0	0
Rogers Ave and Winthrop St	16	0	0	0
Rogers Ave and Clarkson Ave	27	0	0	0
Bedford Ave and Parkside Ave	44	2	0	1
Bedford Ave and Winthrop St	31	4	0	2
Flatbush Ave and Parkside Ave	99	12	0	3
TOTAL	240	21	0	6

TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Rogers Ave and Parkside Ave	28	4	0	0
Rogers Ave and Winthrop St	29	5	0	0
Rogers Ave and Clarkson Ave	57	8	0	0
Bedford Ave and Parkside Ave	63	15	0	3
Bedford Ave and Winthrop St	46	5	0	3
Flatbush Ave and Parkside Ave	161	15	0	0
TOTAL	384	52	0	6

* 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. 92

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. 92, BROOKLYN
ADRIAN HEGEMAN SCHOOL**

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

3.6 TRAFFIC OPERATIONS AND ISSUES

The following describes traffic accidents and operational issues at intersections in the vicinity of P.S. 92.

As shown on Table 2, a total of 240 accidents occurred at six intersections in the vicinity of P.S. 92. Twenty accidents were pedestrian accidents of which six were school related. I. S. 2 school officials stated that on January 12, 2004 at 6:00 pm a 12-year-old male student from P.S. 92 was struck and killed at the Clarkson Avenue and Bedford Avenue intersection. There is no information on what caused this accident (Note: This accident was not reported in the 2001-2004 NYPD accident data).

3.6.1 Parkside Avenue and Rogers Avenue

This is a signalized intersection that is heavily used by both P.S. 92 and I.S. 2 students. Parkside Avenue is a 30-foot wide one-way (eastbound) roadway with one travel lane and parking on both sides. Rogers Avenue is a 45-foot wide one-way (northbound) roadway with two travel lanes and parking on both sides. There are school crosswalks at the east, west and north legs of the intersection.

A total of 23 accidents occurred at this intersection in the three-year period from 1998 to 2000. Three pedestrians were struck during this period. No fatalities or school related accidents were reported. According to the accident data, a pedestrian was struck while crossing Rogers Avenue by a northbound vehicle that was attempting to park. The pedestrian was crossing with the signal, and the accident was attributed to the unsafe parking maneuver of the driver. The second pedestrian was crossing against the signal and was struck by a left turning northbound vehicle. There are no details provided for the third pedestrian accident.

To evaluate the level of pedestrian-vehicle conflict a one-hour traffic count was performed at this intersection between the hours of 2:30 pm – 3:30 pm on June 8, 2005. The results are shown in Exhibit 7. The traffic count at this intersection indicates that there are 147 vehicles/hour turning left from Parkside Avenue onto northbound Rogers Avenue. During the same period, 272 pedestrians crossed Rogers Avenue at the northern crosswalk.



Figure 4: An eastbound left-turning vehicle yielding to school students at the Rogers and Parkside Avenue intersection

3.6.2 Rogers Avenue and Winthrop Street

Winthrop Street is a 30-foot wide one-way (westbound) roadway with one travel lane and parking on both sides of the street. There are school crosswalks at the east and west legs of the intersection. This intersection is signalized.

A total of 16 accidents occurred at this location during the 1998-2000 period. There were no pedestrians accidents during that time.



Figure 5: Rogers Avenue and Winthrop Street intersection (on Winthrop Street looking east)

3.6.3 Rogers Avenue and Clarkson Avenue

Clarkson Avenue is a 38-foot wide two-way (east-west) street with one travel lane in each direction and parking on both sides. There are school crosswalks at the east and west legs of the intersection.

A total of 27 accidents occurred at this intersection during the 1998 –2000 study period. None of the accidents involved pedestrians.



Figure 6: Rogers Avenue and Clarkson Avenue intersection (looking northeast)

3.6.4 Bedford Avenue and Parkside Avenue

This is a signalized intersection with school crosswalks on the north, east, and west legs. Bedford Avenue at this intersection is a two-way (north-south) 45-foot wide roadway with one travel lane in each direction and parking on both sides. Bedford Avenue has bike lanes in both the northbound and southbound directions.

A total of 44 accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, of which one was school-related. According to the accident data, both accidents were attributed to driver error due to inattention and failing to yield.



Figure 7: Bedford Avenue and Parkside Avenue intersection (looking west)

3.6.5 Bedford Avenue and Winthrop Street

This is a signalized intersection with school crosswalks on the east and west legs.

A total of 31 accidents occurred at this intersection during the 1998 and 2000 study period. Four accidents involved pedestrians, of which two were school related. Three pedestrians were struck while crossing with the signal at the crosswalk. All three accidents were attributed to driver inattention and failure to yield to pedestrians. There is no information on the fourth pedestrian accident.



Figure 8: Bedford Avenue and Winthrop Street (on Winthrop Street looking west)

3.6.6 Flatbush Avenue and Parkside Avenue

Flatbush Avenue is a 55-foot wide, busy two-way (north-south) arterial with two travel lanes in each direction and parking on both sides. Parkside Avenue east of Flatbush Avenue is a 30-foot wide one-way (eastbound) street with one travel lane and parking on both sides, while west of Flatbush Avenue is a 50-foot wide two-way street with two travel lanes and parking on both sides. Parking on Flatbush Avenue is prohibited during the morning peak hours when both curbside lanes operate as moving lanes.

During morning and afternoon peak hours, large numbers of private vehicles, trucks, buses, school buses, and pedestrians utilize this intersection. Most pedestrians cross Flatbush Avenue at the north crosswalk en route to the Parkside Avenue subway stop. There is a school crosswalk at the north leg.

Traffic signals along Flatbush Avenue are progressed. The school’s questionnaire indicates that vehicles travel at excessive speeds on Flatbush Avenue. To verify the operating speeds, a speed study was conducted on Flatbush Avenue between Parkside Avenue and Winthrop Street on July 21, 2005 between 11:00 am and 12:00 am. The speed study results are shown in Table 5 and in the Appendix. The 85th percentile speed on Flatbush Avenue was found to be 25 mph, which is lower than the legal speed limit of 30 mph.

TABLE 4: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Flatbush Avenue between Parkside Avenue and Winthrop Street	21	25

According to “NYC Truck Route Management” Map (see Appendix), Flatbush Avenue is designated as a “through route” (major truck route).

In addition, Flatbush Avenue is an MTA route for the B41 bus line.

This intersection was the site of 99 accidents between 1998 and 2000, of which 12 were pedestrian accidents. Three accidents were school related. According to the accident data five pedestrian accidents occurred when pedestrians were crossing with the signal at the crosswalk while drivers did not yield to pedestrians. Five accidents were attributed to pedestrian error due to pedestrians crossing against the signal and/or crossing outside of the crosswalk areas. There is no further information on the other three pedestrian accidents.

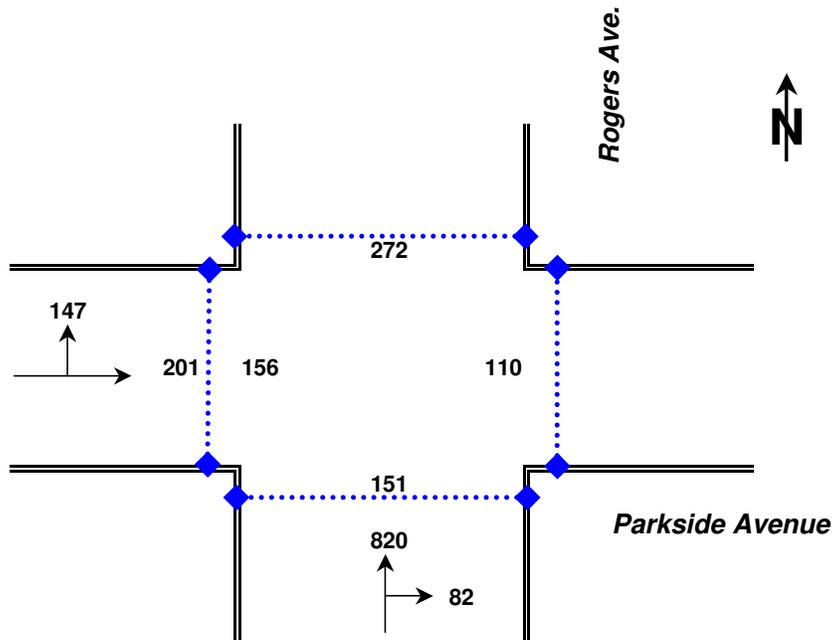


Figure 9: Flatbush Avenue and Parkside Avenue (on Flatbush Avenue looking north)

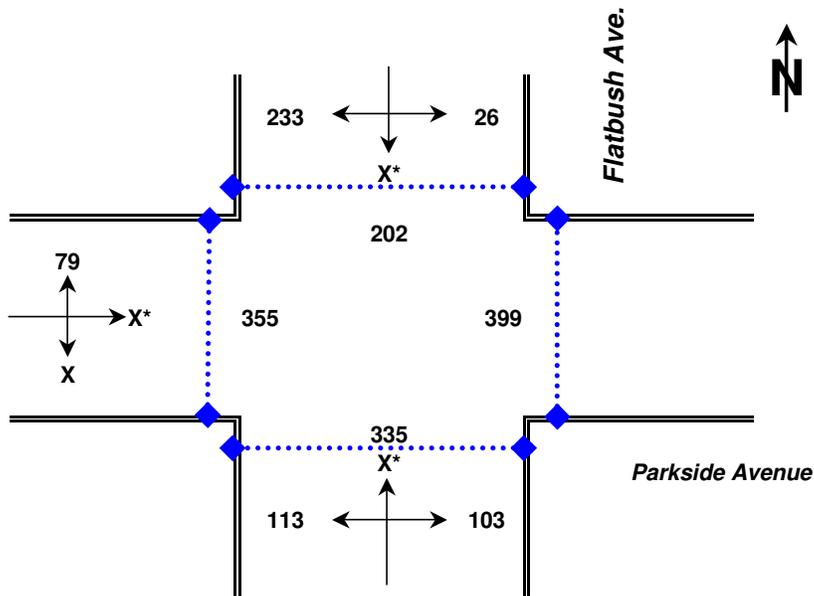


Figure 10: Flatbush Avenue and Parkside Avenue intersection (eastbound left turning vehicles yielding to crossing pedestrians)

One Hour Traffic Count Volumes



Intersection of Rogers Avenue and Parkside Avenue (2:30 PM - 3:30 AM June 8, 2005)



Intersection of Flatbush Avenue and Parkside Avenue (4:30 PM - 5:30 PM July 21, 2005)

Note
X* Through movement not counted

- Number of Pedestrians
- Pedestrian Crossing
- Vehicle Movement
- Number of Vehicles

EXHIBIT 7
P.S. 92, BROOKLYN ADRIAN HEGEMAN 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. 92, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)	Timing Adjustment? (Yes/No)
Rogers Ave and Parkside Ave				
Crossing Parkside Avenue	30	55	13	NO
crossing Rogers Avenue	45	35	18	NO
Rogers Ave and Winthrop St				
crossing Winthrop Street	28	55	12	NO
crossing Rogers Avenue	45	35	18	NO
Rogers Ave and Clarkson Ave				
crossing Clarkson Avenue	40	55	17	NO
crossing Rogers Avenue	45	35	18	NO
Bedford Ave and Parkside Ave				
crossing Bedford Avenue	45	25	18	NO
crossing Parkside Avenue	30	55	13	NO
Bedford Ave and Winthrop St				
crossing Bedford Avenue	45	25	18	NO
crossing Winthrop Street	28	85	13	NO
Flatbush Ave and Parkside Ave				
crossing Flatbush Avenue	55	25	24	NO
crossing Parkside Avenue	45*	55	18	NO

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

**- East leg of Parkside Avenue is a 45 feet wide street*

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways and sidewalks in the vicinity of the school were generally observed to be in good condition.

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 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

- Administer student pedestrian safety education program

It is recommended that the NYCDOT Safety Education Program work with the school to educate students on pedestrian safety, including crossing the street with the WALK phase, and the meaning of the WALK - FLASHING DON'T WALK - DON'T WALK pedestrian signal sequence. It is also recommended that students be educated not to cross at mid-block locations.

- Install graphic "Yield to Pedestrian" sign

A "YIELD TO PEDESTRIAN" sign should be installed at the intersection of Rogers Avenue and Clarkson Avenue (on the northbound approach of Rogers Avenue, as shown in Exhibit 8).

- Upgrade No-Parking regulation to No-Standing Zone on Parkside Avenue and Rogers Avenue

"NO PARKING 7AM-4PM, SCHOOL DAYS" parking regulations should be replaced by "NO STANDING 7AM-4PM, SCHOOL DAYS" for a length of 60 feet on Rogers Avenue to provide sufficient clear frontage for school buses to drop-off and pick-up students. Also, "NO STANDING 7AM-4PM, SCHOOL DAYS" for a length of 30 feet should be posted on Parkside Avenue in front of the school's main entrance.

- Review bus management / staging procedures

Sixty feet of curbside space has been provided for school bus operations. Some buses may still be required 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 to the designated curbside area fronting the school
- Define a staging area for buses to queue until they can safely 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 speed reducers (humps) on Parkside Avenue in front of P.S. 92 main entrance

A spot speed survey was conducted on Parkside Avenue between Nostrand Avenue and Rogers Avenue on July 21, 2005 from 12:00 pm to 3:00 pm. The objective of the survey was to determine if there is a speeding problem along Parkside Avenue between Flatbush Avenue and Nostrand Avenue.

The speed study results are shown Table 5 and in the Appendix. The 85th percentile speed is 33 mph, which exceeded the legal speed limit of 30 mph. Also, a previous speed study conducted on Parkside Avenue (for I.S. 2 report) shows that 41% of vehicles traveling on Parkside Avenue exceed the 30 mph speed limit. Therefore, to reduce speeding along Parkside Avenue in the vicinity of P.S. 92, speed reducers (humps) should be installed on Parkside Avenue.

(Since the original recommendation, NYCDOT has approved two speed reducers (hump) on Parkside Avenue.

TABLE 6: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Parkside Avenue btw. Bedford Avenue and Rogers Avenue	26	33

- Implement LPI (leading pedestrian interval) at Parkside Avenue and Flatbush Avenue

A one-hour traffic count was conducted on July 21, 2005 from 4:30 pm to 5:30 pm at this intersection. The results are shown in Exhibit 7. A total of 355 pedestrians crossed Parkside Avenue at the west crosswalk during this hour, while conflicting with 346 (233+113) turning vehicles/hour. During the same hour, 399 pedestrians crossed Parkside Avenue at the east crosswalk, while conflicting with 129 (103+26) vehicles. Therefore, a six second LPI (leading pedestrian interval) is recommended to be implemented for pedestrians crossing Parkside Avenue.

The Leading Pedestrian Interval (LPI) is a signal timing strategy that is designed to minimize turning vehicle/pedestrian conflicts. The LPI provides an exclusive "Walk" period (approximately six to ten seconds) at the start of the signal phase, long enough for pedestrians to establish their presence in the crosswalk.

NYCDOT will further investigate the feasibility of an LPI at this location.

- Install a new school crosswalk at:
 - Bedford Avenue and Hawthorne Street – East leg
 - Bedford Avenue and Winthrop Street – South leg

A school crosswalk at this location should be installed to facilitate students walking to P.S. 92 (see Exhibit 8).

- 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.

4.2 LONG-TERM MEASURES

- Consider curb extensions at the following intersections:
 - Bedford Avenue and Parkside Avenue
 - Bedford Avenue and Clarkson Avenue
 - Bedford Avenue and Winthrop Street
 - Rogers Avenue and Clarkson Avenue
 - Rogers Avenue and Parkside Avenue
 - Rogers Avenue and Winthrop Street

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

The purpose of the curb extensions is to reduce speeds of vehicles approaching and turning at these heavily utilized 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 I.S. 2:

(All references in section 4.3.1 refer to the I.S. 2 Priority School Report)

- Install a speed reducer on Parkside Avenue in front of I.S. 2 main entrance

A spot speed survey was conducted on Parkside Avenue between Nostrand Avenue and Rogers Avenue on June 9, 2005 from 2:00 pm to 3:00 pm. The objective of the survey was to determine if there is a speeding problem on this section of Parkside Avenue, as reported by several school officials.

The speed study results are shown Table 5 and in the Appendix. Forty-one percent of the surveyed vehicles were exceeding the legal speed limit of 30 mph. Therefore, to reduce speeding in the vicinity of I.S. 2, a speed reducer (hump) should be installed on Parkside Avenue directly in front of the I.S. 2.

TABLE 5: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Parkside Avenue between Nostrand Avenue and Rogers Avenue	29	35

- Submit Request to Police Department for Crossing Guard

It is recommended that a crossing guard be requested for the intersection of Nostrand Avenue and Parkside Avenue.

- Install a new school crosswalk at:

- Nostrand Avenue and Clarkson Avenue – north and west leg

A school crosswalk at this location should be installed to facilitate students walking to I.S. 2 (see Exhibit 8). The Nostrand Avenue and Clarkson Avenue intersection is signal-controlled.

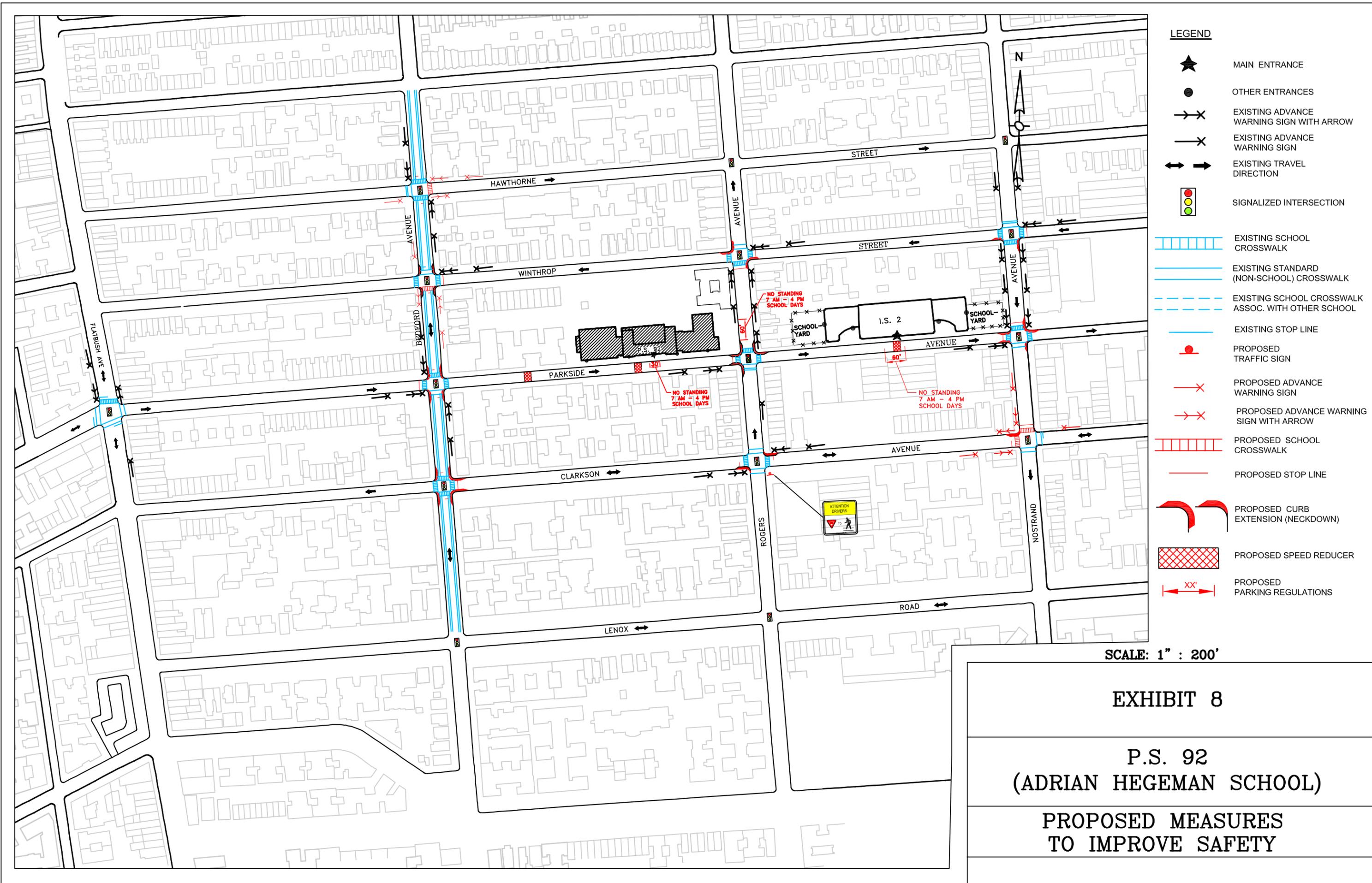
- Install curb extensions at the following intersections

- Nostrand Avenue and Parkside Avenue
- Nostrand Avenue and Winthrop Street
- Nostrand Avenue and Clarkson Avenue

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

The purpose of the curb extensions is to reduce speeds of vehicles approaching and turning at these heavily utilized 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 ADVANCE WARNING SIGN WITH ARROW
 -  EXISTING ADVANCE WARNING SIGN
 -  EXISTING TRAVEL DIRECTION
 -  SIGNALIZED INTERSECTION
 -  EXISTING SCHOOL CROSSWALK
 -  EXISTING STANDARD (NON-SCHOOL) CROSSWALK
 -  EXISTING SCHOOL CROSSWALK ASSOC. WITH OTHER SCHOOL
 -  EXISTING STOP LINE
 -  PROPOSED TRAFFIC SIGN
 -  PROPOSED ADVANCE WARNING SIGN
 -  PROPOSED ADVANCE WARNING SIGN WITH ARROW
 -  PROPOSED SCHOOL CROSSWALK
 -  PROPOSED STOP LINE
 -  PROPOSED CURB EXTENSION (NECKDOWN)
 -  PROPOSED SPEED REDUCER
 -  PROPOSED PARKING REGULATIONS

SCALE: 1" : 200'

EXHIBIT 8

**P.S. 92
(ADRIAN HEGEMAN SCHOOL)**

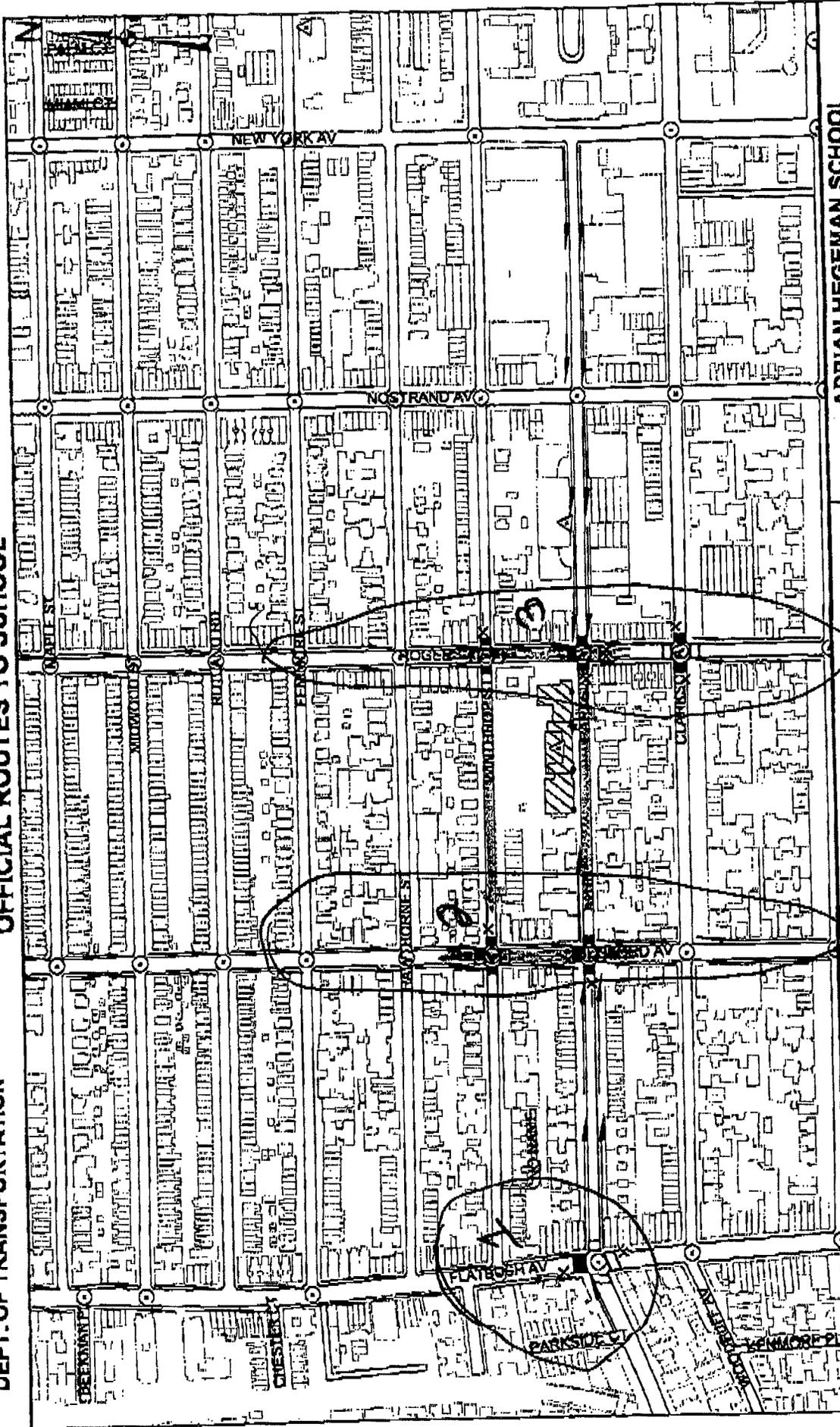
**PROPOSED MEASURES
TO IMPROVE SAFETY**

APPENDIX

**NEW YORK CITY
DEPT. OF TRANSPORTATION**

**TRAFFIC SAFETY PLAN
OFFICIAL ROUTES TO SCHOOL**

BUREAU OF TRAFFIC



ADRIAN HEGEGAN SCHOOL
P.S. 92

Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION
in cooperation with the NEW YORK CITY DEPARTMENT OF EDUCATION
POLICE OFFICIALS

COURT BOARD: 9
BOROUGH: BROOKLYN
PRECEPT: 1

DRAWING NO: 1004/003
DC 248
GIS COUNTY: 0472002
REVISIONS: 1

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

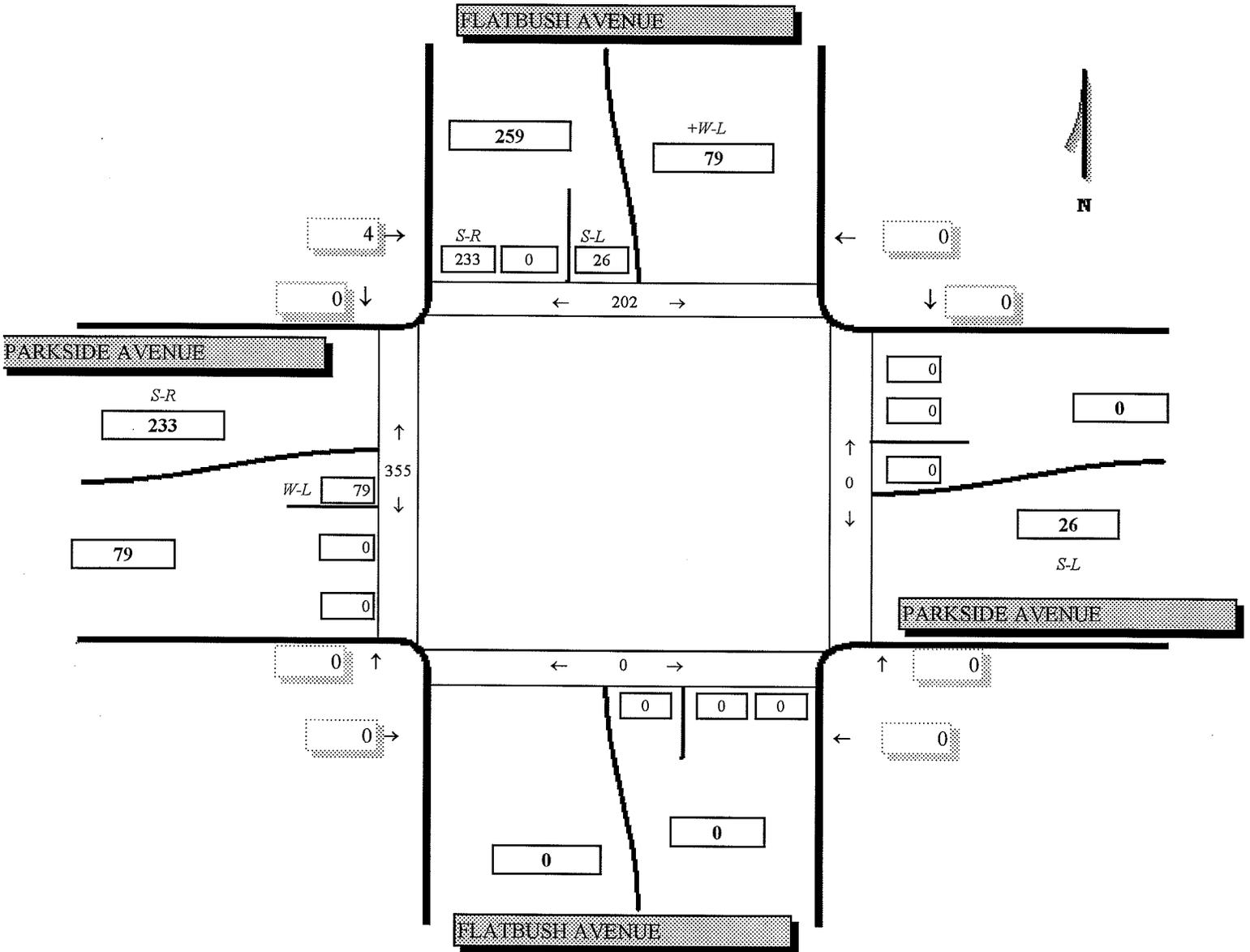
The TRAFFIC SAFETY PLAN shown on this map was established to provide the maximum degree of safety for children going to and from school. It is required that all drivers follow the prescribed routes and use the designated crossings.

P.S. 92
 July 21, 2005
 4:30 pm - 5:30 pm

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

Site:
 Date: 07/21/05

Combined
 *Peds not included in table data

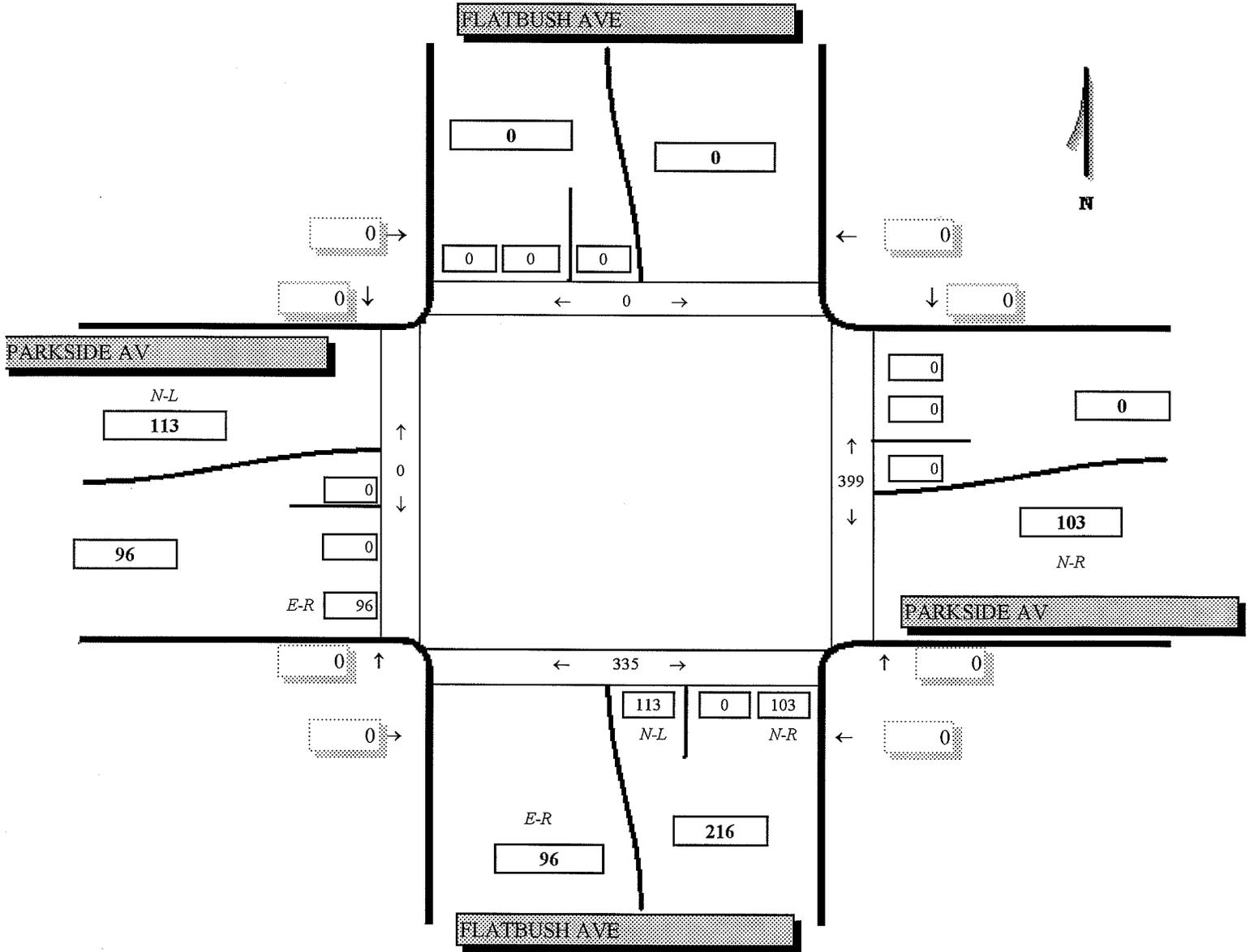


P.S. 92
 July 21, 2005
 4:30 pm - 5:30 pm

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

Site:
 Date: 07/21/05

Combined
 *Peds not included in table data



SPOT SPEED STUDY

Date: **July 21, 2005** Time: **12:00 pm - 1:00 pm**
 Location: **Parkside Avenue btw. Rogers Avenue & Bedford Avenue**
 Surveyor: **The RBA Group**

School: **P.S. 92**
 Direction: **East-West**
 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	4	4.3%	4.3%	68	1156
18	9	9.6%	13.8%	162	2916
19	3	3.2%	17.0%	57	1083
20	1	1.1%	18.1%	20	400
21	3	3.2%	21.3%	63	1323
22	5	5.3%	26.6%	110	2420
23	11	11.7%	38.3%	253	5819
24	7	7.4%	45.7%	168	4032
25	7	7.4%	53.2%	175	4375
26	3	3.2%	56.4%	78	2028
27	3	3.2%	59.6%	81	2187
28	5	5.3%	64.9%	140	3920
29	1	1.1%	66.0%	29	841
30	5	5.3%	71.3%	150	4500
31	3	3.2%	74.5%	93	2883
32	6	6.4%	80.9%	192	6144
33	5	5.3%	86.2%	165	5445
34	4	4.3%	90.4%	136	4624
35	3	3.2%	93.6%	105	3675
36	2	2.1%	95.7%	72	2592
37	2	2.1%	97.9%	74	2738
38	1	1.1%	98.9%	38	1444
39	1	1.1%	100.0%	39	1521
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
	94	100.0%		2468	68066

Mean Speed = 26.3 mph Median Speed = 26.3 mph
 Standard Deviation = 5.9 mph 15th Percentile Speed = 20.1 mph
 Margin of Error (95% Confidence) = ± 1.2 mph 85th Percentile Speed = 32.4 mph

SPOT SPEED STUDY

Date: July 21, 2005
Location: Parkside Avenue btw. Rogers Avenue & Bedford Avenue
Surveyor: The RBA Group

Time: 12:00 pm - 1:00 pm

School: P.S. 92
Direction: East-West
Comments:

Mean Speed = 26.3 mph
Standard Deviation = 5.9 mph
Margin of Error (95% Confidence) = ± 1.2 mph

Median Speed = 26.3 mph
15th Percentile Speed = 20.1 mph
85th Percentile Speed = 32.4 mph

