

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



School Safety Engineering Project

FINAL REPORT: P. S. 5 (Ronald E. McNair School), Brooklyn



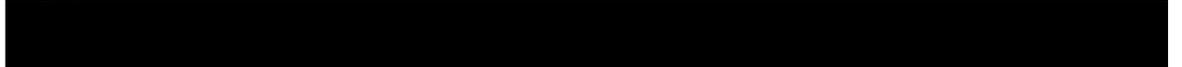
**Prepared by
The RBA Group/Urbitran Associates**



FEBRUARY 15, 2006

School Safety Engineering Project
P.S. 5, 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, 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. 5 in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

2.2 NEIGHBORHOOD DESCRIPTION

Hancock Street, Halsey Street and Howard Avenue are primarily residential roadways. Ralph Avenue is a mixed-use roadway with multi-story buildings with first floor commercial establishments. Located in the vicinity of P.S. 5 are grocery stores, other commercial store fronts, a public park and many multi-floor apartment buildings (See Exhibit 1 for aerial photograph).



Figure 1: From Hancock Street, looking south on Ralph Avenue, Brooklyn

2.3 MEETING WITH SCHOOL REPRESENTATIVES

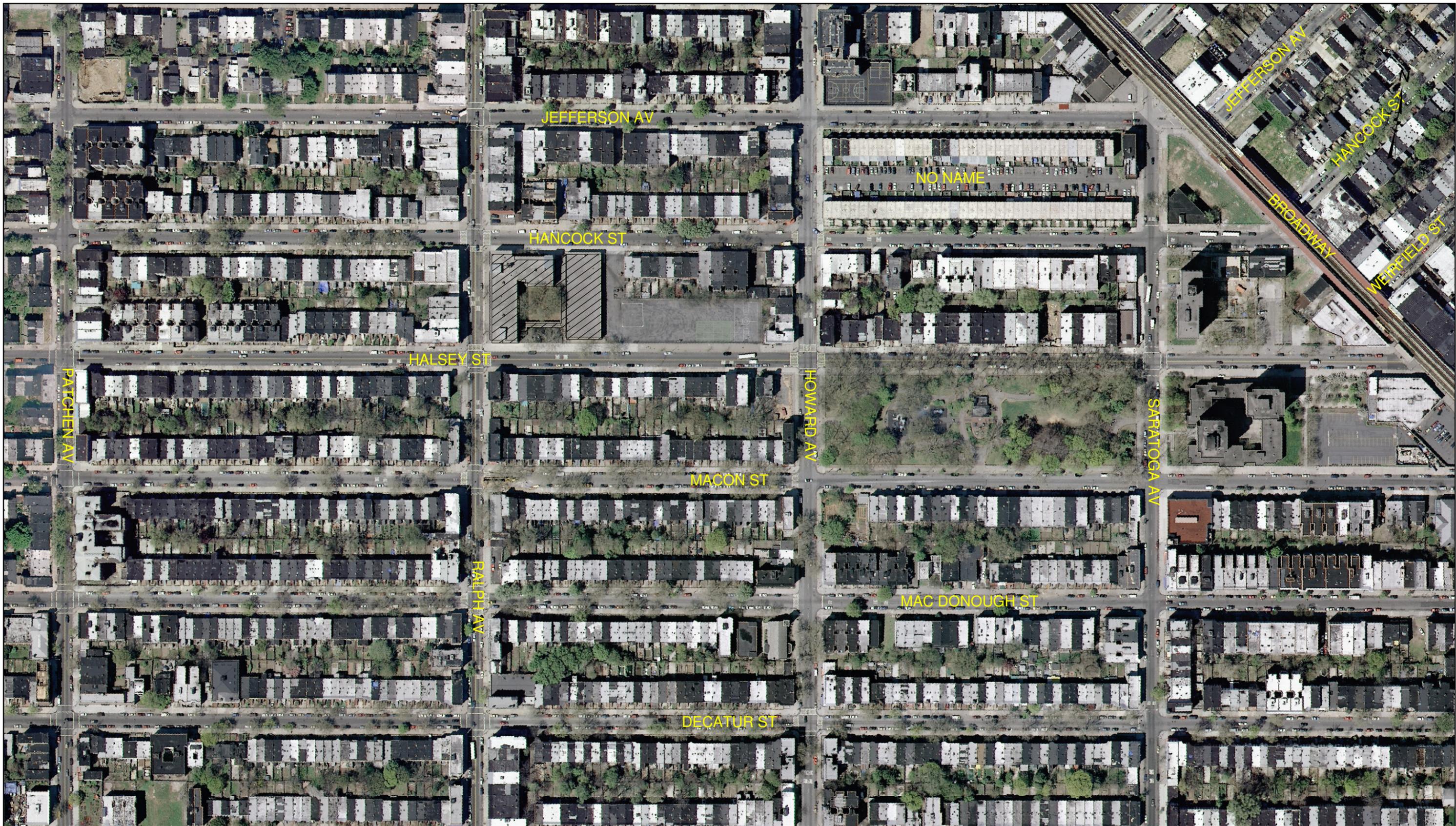
Representatives from P.S. 5 and the consultant team, met at the school on the morning of May 14th, 2004. The representatives from the school included the school principal, vice principal of P.S. 5 and the special education coordinator for P.S. 369A.

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

- The location of the B26 Bus Stop on the south side of Halsey Street, east of Ralph Avenue
- Vehicles speeding on Hancock Street and on Howard Avenue

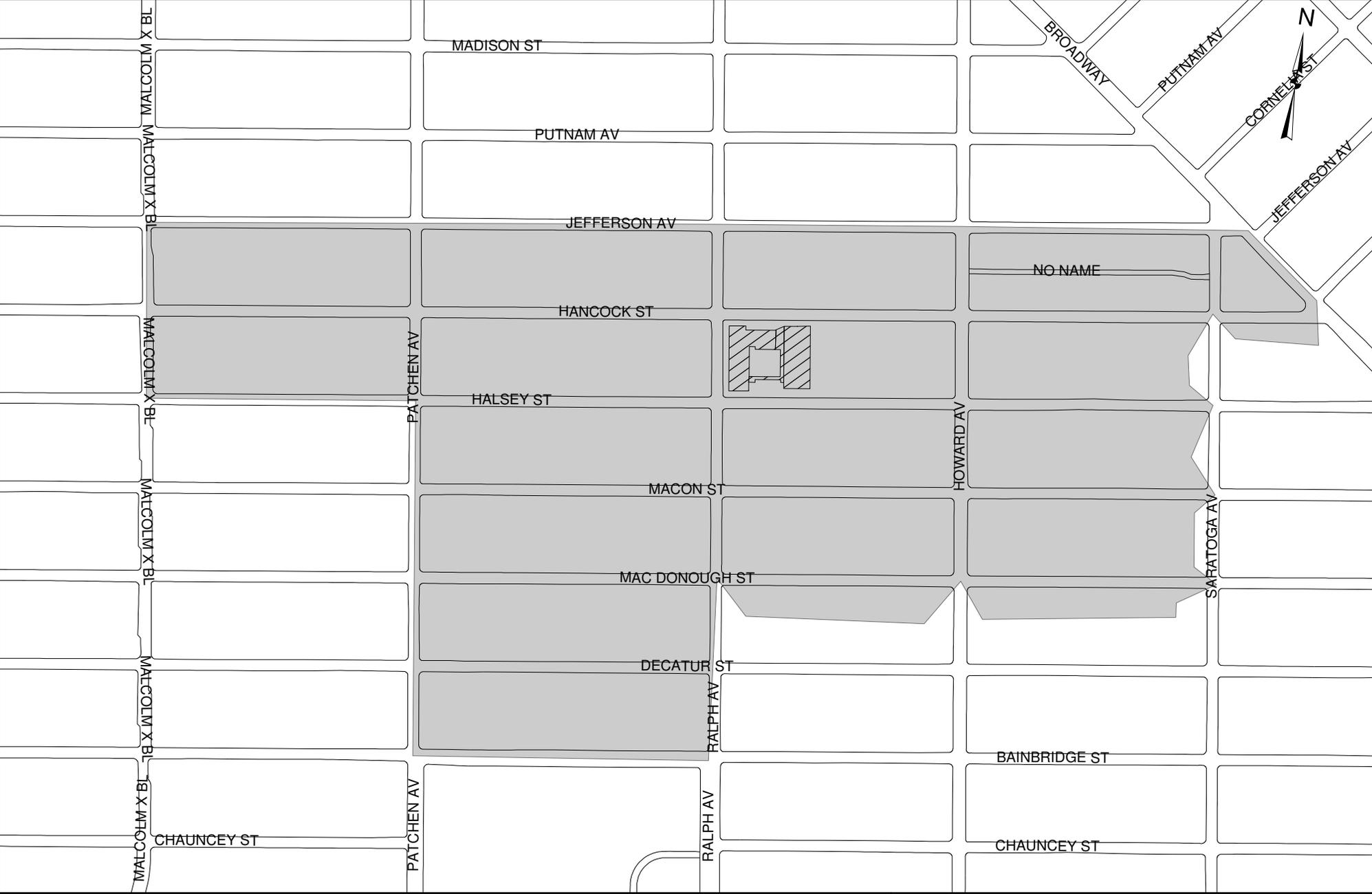
- Students crossing Howard Avenue, north of Hancock Street, away from the school crosswalk
- Uncontrolled crossings at the intersection of Hancock Street and Patchen Avenue
- Insufficient curbside area for buses to pick up and drop off students
- Crossing guard hours not coinciding with school dismissal hours





1 inch equals 200 feet

EXHIBIT 1
RONALD E. MCNAIR SCHOOL
P.S. 5, BROOKLYN
AERIAL PHOTOGRAPH



 **CATCHMENT AREA**

1 inch equals 400 feet

EXHIBIT 2
RONALD E. MCNAIR SCHOOL
P.S. 5, BROOKLYN

CATCHMENT AREA

2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL

According to school officials, approximately 75% of the students walk to P.S. 5, 10% arrive via public transportation, 8% arrive by private vehicles and the remaining 7% by school buses. See Table 1 for school's estimate of modal split.

TABLE 1: MODE OF TRAVEL (AS ESTIMATED BY SCHOOL OFFICIALS)	
Description	Percentage
Walk	75%
Driven by car, livery cab or mini-bus	8%
School bus	7%
MTA bus or subway	10%
TOTAL	100%

2.7 OTHER STUDENT PEDESTRIAN TRAFFIC GENERATORS

The grocery store at the northwest corner at the intersection of Ralph Avenue and Halsey Street and the grocery store at the northwest corner of Howard Avenue and Halsey Street are both popular with the schoolchildren.

2.8 CROSSING GUARD LOCATIONS

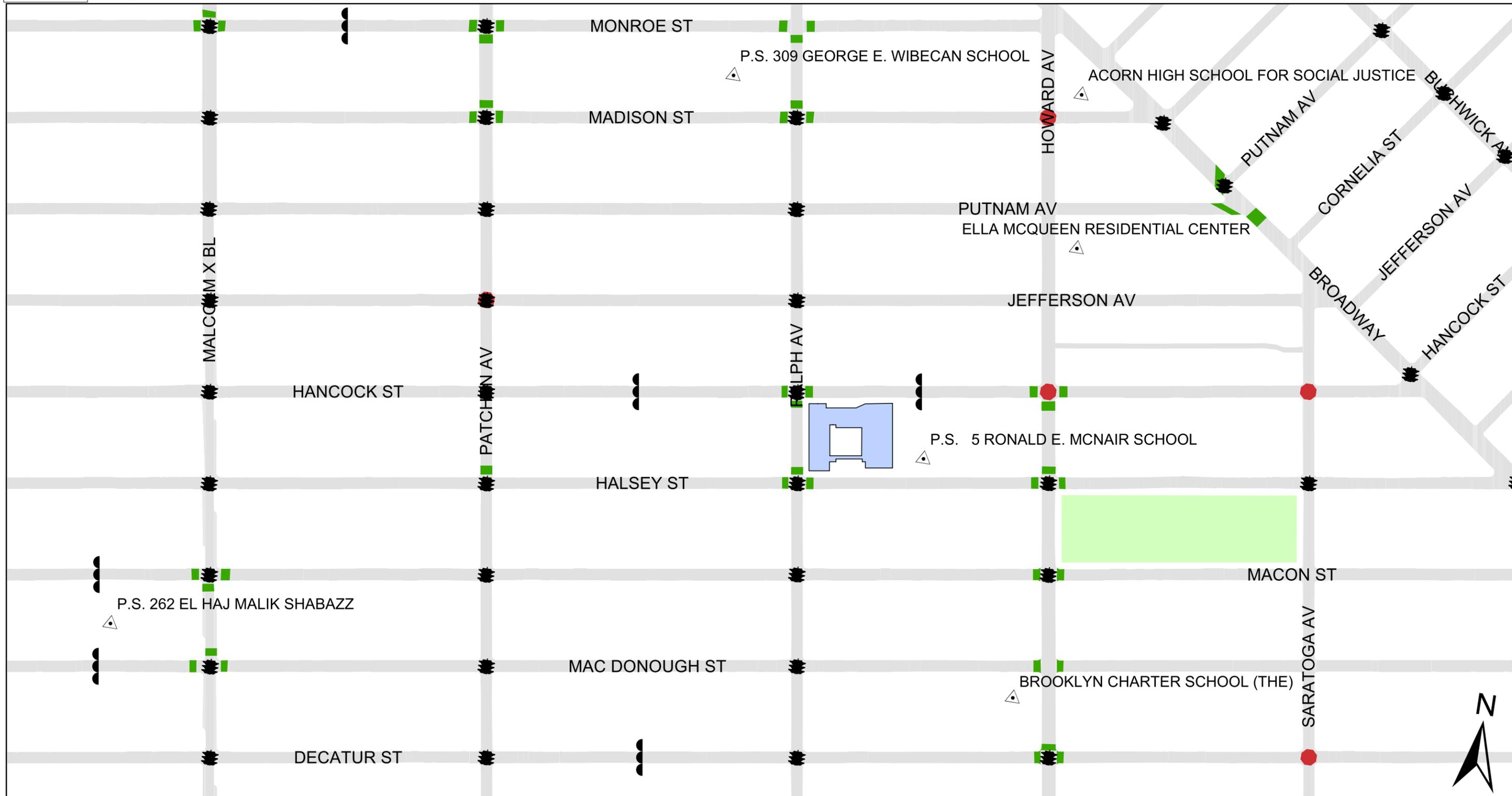
According to field observations, there are two crossing guards assigned to P.S. 5. Crossing guards are stationed at the Ralph Avenue and Halsey Street and Hancock Street and Howard Avenue intersections. See Exhibit 4 for a map of crossing guard locations.



Figure 2: Crossing guard at Ralph Avenue and Halsey Street intersection



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

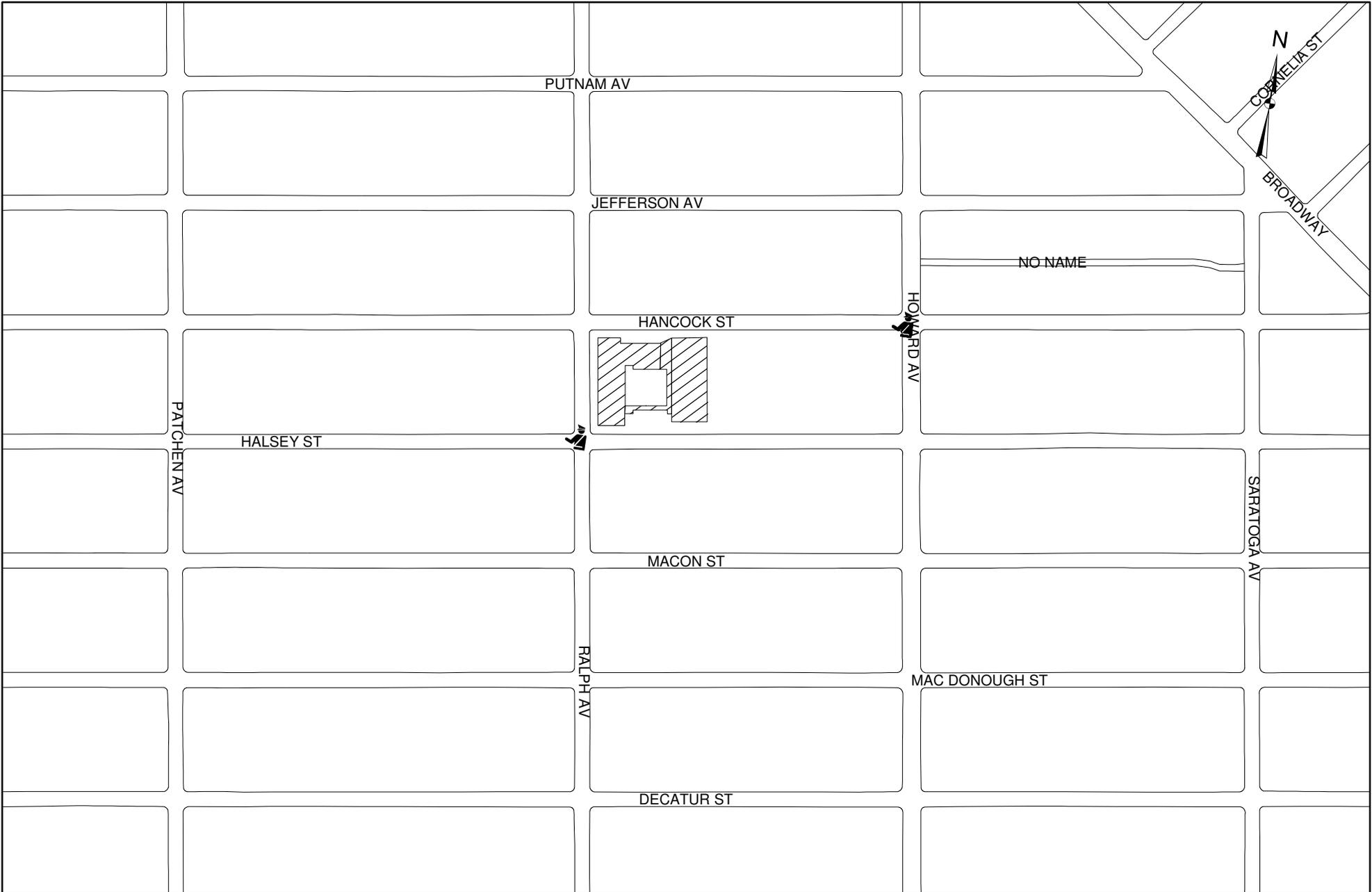
**PS 5 Brooklyn
RONALD E. MCNAIR SCHOOL**

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

EXHIBIT 3

Map created on 11/16/2006

COMM. BOARD: 303
PRECINCT: 81



1 inch equals 300 feet



School crossing guard assigned to P.S. 5

EXHIBIT 4

**RONALD E. MCNAIR SCHOOL
P.S. 5, BROOKLYN**

CROSSING GUARDS

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school representatives of P.S. 5, five school buses pick up and drop off P.S. 5 students, and eleven school buses transport P.S. 369A students.

According to the P.S. 5 principal, all school bus activity is on Halsey Street, near Ralph Avenue facing the rear door to the school. Buses double-park on Halsey Street and dismiss students at the curbside, within the No Parking Zone in front of the school. However, during field observations, some buses were observed dismissing students while double-parked, requiring students to navigate through parked vehicles in order to reach the school entrance (See Figures 3 and 4).



Figure 3: Double-parked school buses on Halsey Street in front of P.S. 5 entrance.



Figure 4: Double-parked school bus dropping students off on Halsey Street.

During the afternoon dismissal, students wait in the auditorium until their bus arrives. When a bus arrives, students are dismissed through the rear door, accompanied by a school aide. Students are dismissed early into the auditorium in order to minimize delays.

3.2 PARENT DROP-OFF OPERATIONS

School officials have indicated that approximately 8% of P.S. 5 students are driven to and from school by parents or guardians.

Field observations indicated that parents commonly use Hancock Street as a student drop-off point. Parents were observed to park on south side of Hancock Street and walking student to the school entrance; double-park on Hancock Street and letting students walk by themselves to the school; or, park on north side of Hancock Street and accompany students while performing a mid-block crossing.

There was no congestion observed on Hancock Street due to double-parked vehicles.



Figure 5: Vehicle double-parked in front of P.S. 5

3.3 PARKING REGULATIONS

Halsey Street, Ralph Avenue and Hancock Street are posted as “NO PARKING, SCHOOL DAYS, 7 AM - 4 PM” in the vicinity of the school. Parking is prohibited on alternating sides of the roadways between 12:00 pm and 1:30 pm. Exhibit 5 shows parking details in the vicinity of P.S. 5.

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 3, shows existing signs, signals and pavement markings as of June 2004. It is noted that a citywide signage program is currently underway to upgrade school signage to current MUTCD standards of fluorescent yellow-green with downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing".

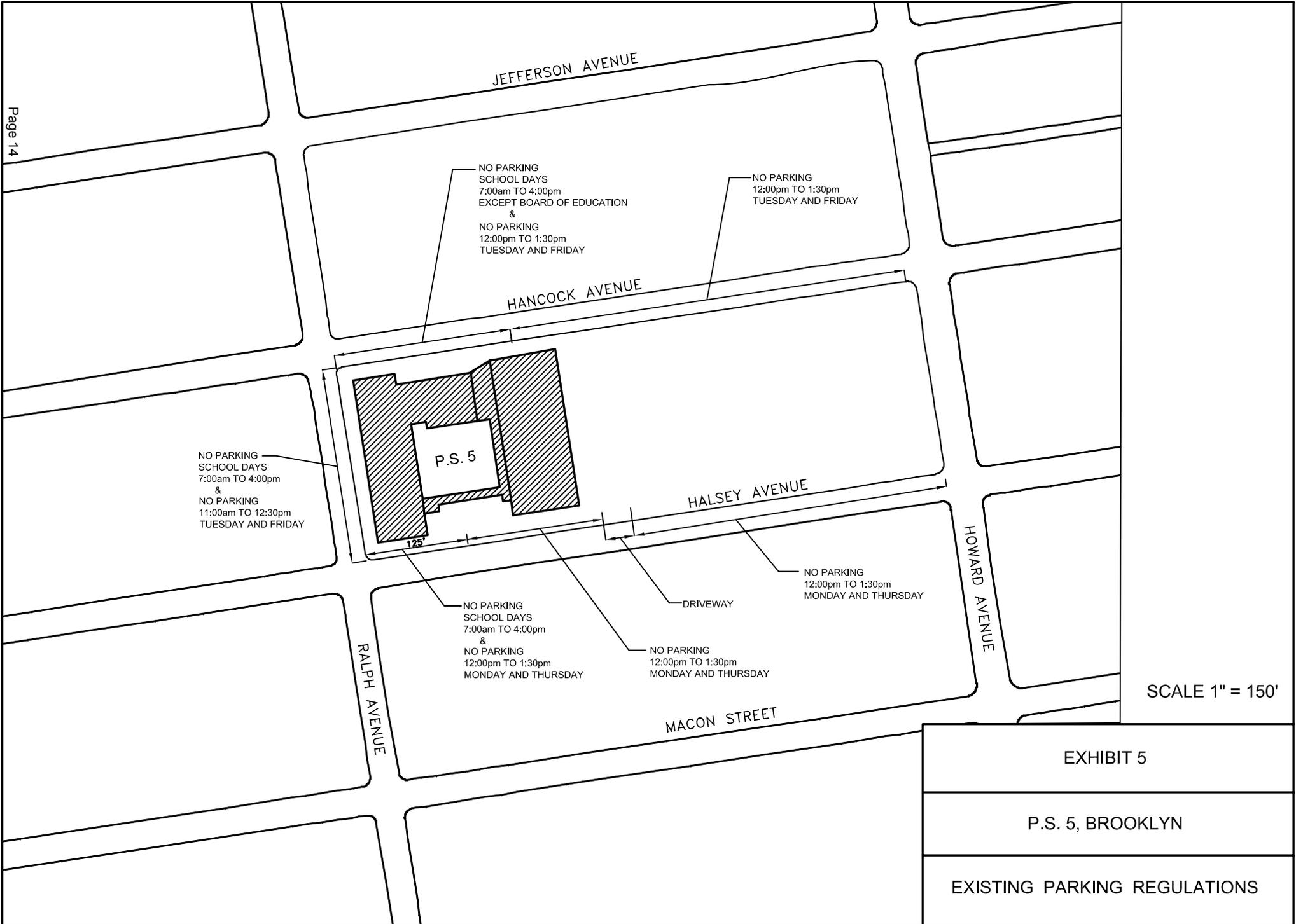


EXHIBIT 5
P.S. 5, BROOKLYN
EXISTING PARKING REGULATIONS

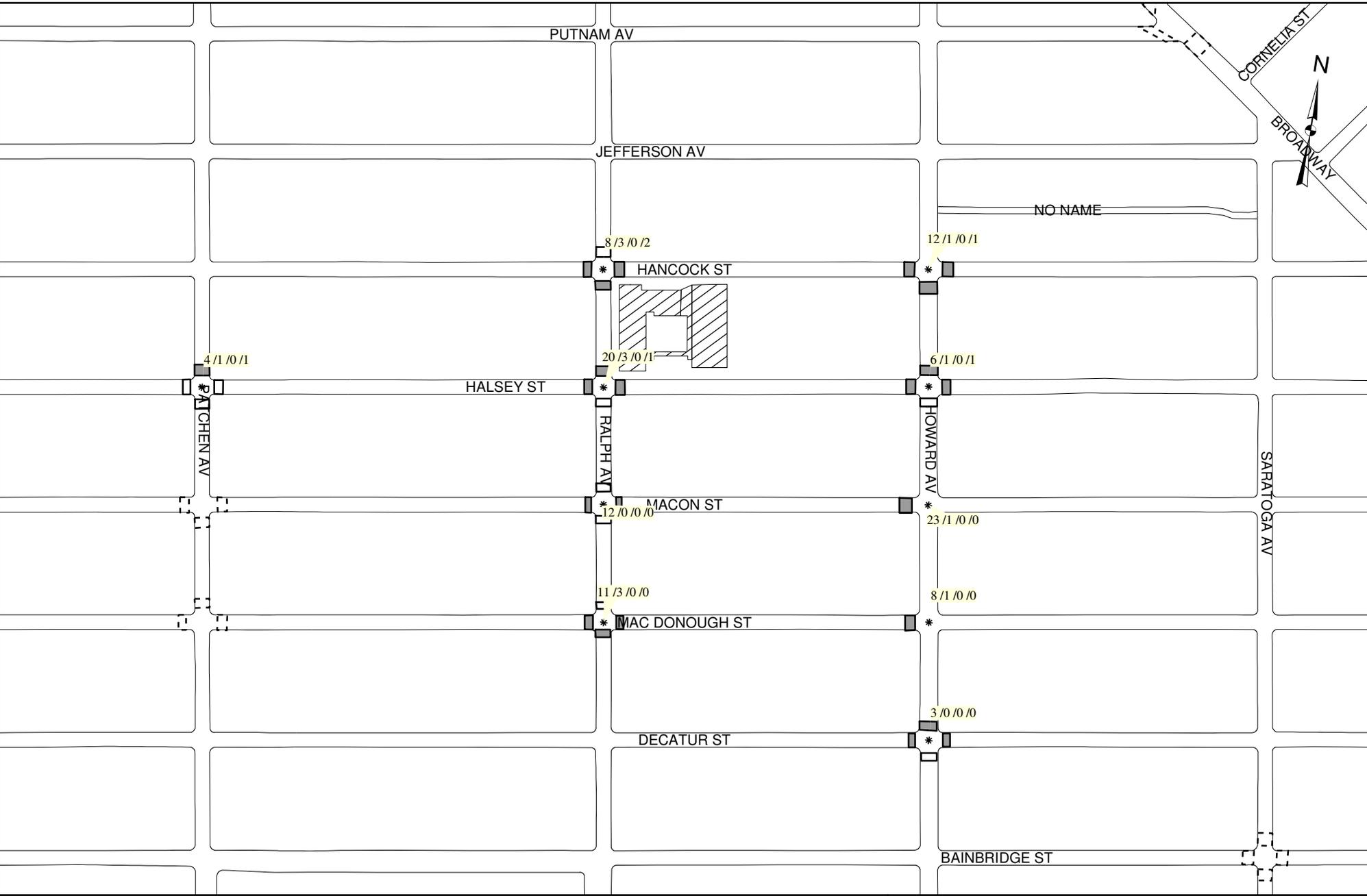
3.5 ACCIDENT SUMMARY

Exhibit 6 and Table 2 show a summary of accidents, as obtained from New York State Department of Motor Vehicles (DMV) in the vicinity of P.S. 5 for the three-year period from January 1, 1998 through December 1, 2000. The DMV data provides some detail relating to the cause of the accident. Table 3 is a summary of more recent accident data obtained from the NYC Police Department (NYPD). Though current through 2004, the NYPD data does not provide the same level of detail as the DMV data. Accidents are 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
Howard Ave./Hancock St.	12	1	0	1
Howard Ave./Halsey St.	6	1	0	1
Howard Ave./Macon St.	23	1	0	0
Howard Ave./MacDonough St.	8	1	0	0
Howard Ave./Decatur St.	3	0	0	0
Ralph Ave./Hancock St.	8	3	0	2
Ralph Ave./Halsey St.	20	3	0	1
Ralph Ave./Macon St.	12	0	0	0
Ralph Ave./MacDonough St.	11	3	0	0
Patchen Ave./Halsey St.	4	1	0	1
TOTAL	107	14	0	6

TABLE 3: NYPD FOUR YEAR ACCIDENT SUMMARY (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Howard Ave./Hancock St.	6	4	0	0
Howard Ave./Halsey St.	21	1	0	0
Howard Ave./Macon St.	30	1	0	0
Howard Ave./MacDonough St.	15	0	0	0
Howard Ave./Decatur St.	11	0	0	0
Ralph Ave./Hancock St.	23	7	0	2
Ralph Ave./Halsey St.	29	5	0	1
Ralph Ave./Macon St.	21	0	0	0
Ralph Ave./MacDonough St.	15	6	0	1
Patchen Ave./Halsey St.	20	4	0	0
TOTAL	191	28	0	4

* 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. 5

SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL

CROSSWALK

X/X/X/X

TOTAL ACCIDENTS	PED ACCIDENTS	PED FATAL	SCHOOL PED ACCIDENTS
/	/	/	/

*



1 inch equals 300 feet

EXHIBIT 6

**RONALD E. MCNAIR SCHOOL
P.S. 5, BROOKLYN
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. 5.

3.6.1 Ralph Avenue at Hancock Street

This is a signalized intersection with school crosswalks across the south, east and west legs. Ralph Avenue is a 34 feet wide two-way street (north-south) with one travel lane in each direction and parking lanes on both sides of the street. Hancock Street is 34 feet one-way street (westbound).

This intersection had eight accidents between 1998 and 2000. Three accidents involved pedestrians. Two accidents were school related. On November 24th, 1999 (Wednesday) at approximately 5:00 pm, a twelve year old was struck by a vehicle on a clear day as the pedestrian crossed against a traffic signal. The second accident occurred when a left turning northbound traveling vehicle struck a pedestrian while crossing with the signal. This accident was attributed to driver error due to failure to yield. Details for the third pedestrian accident were not available.

3.6.2 Ralph Avenue at Halsey Street

This is a signalized intersection with school crosswalks across the north, east and west legs. Ralph Avenue is a 34-foot wide two-way street (north-south) with one travel lane in each direction and parking lanes on both sides of the street. Halsey Street is a 34-foot wide two-way street with one travel lane in each direction and parking lanes on both curbs.

This intersection had twenty accidents between 1998 and 2000. Three accidents involved pedestrians. One was school related. Two pedestrian were struck while crossing with the signal when struck by vehicles traveling southbound and making left turns onto Halsey Street. There is no information provided on the third pedestrian accident.

3.6.3 Ralph Avenue at Macon Street

This is a signalized intersection with school crosswalks across the east and the west leg. Ralph Avenue at this intersection is a 34-foot wide two-way street (north-south) with one travel lane in each direction and parking lanes on both sides of the street. Macon Street is a 34-foot wide one-way street (eastbound) with one travel lane in each direction and parking lanes on both sides.

Twelve accidents occurred at this intersection between 1998 and 2000. There were no accidents that involved pedestrians.

3.6.4 Ralph Avenue at MacDonough Street

This is a signalized intersection with school crosswalks across the south, east and the west leg. Ralph Avenue continues as a 34-foot wide north-south roadway, and MacDonough Street is a 34-foot wide one-way (westbound) roadway.

There were a total of total of eleven accidents at this location between 1998 and 2000. There were three accidents that involved pedestrians. According to the accident data one pedestrian was struck while crossing against the signal; the second pedestrian was struck

while crossing with the signal by a southbound left turning vehicle, which failed to yield. There is no further detail provided for the third pedestrian accident.

3.6.5 Howard Avenue at Hancock Street

This is an unsignalized intersection that is stop controlled on Howard Avenue for northbound vehicles. According to school representatives, the stop sign was installed a few years ago. School crosswalks are striped on the south, east and west legs. Howard Avenue is a 40-foot wide (northbound) one-way street. Hancock Street is a 34-foot wide (westbound) one-way street (see Figure 7).

A total of twelve accidents occurred at this intersection between the 1998 and 2000 study period. There was one accident pedestrian accident and it was school-related. A pedestrian (age not reported) was struck by a vehicle on a rainy day as the pedestrian crossed at an area without a signal or a crosswalk.

Students were observed crossing on the north side of the intersection, without a crosswalk, instead of walking across Hancock Street to the south side of the intersection to the school crosswalk.

3.6.6 Howard Avenue at Halsey Street

This is an intersection with striped school crosswalks on the north, east and west legs. A total of six accidents occurred at this intersection during the 1998 and 2000 study period. One accident involved a pedestrian, which was a school related accident. On February 23rd, 1998 (Monday) at approximately 6:00 pm, a ten year old was struck by a vehicle on a rainy day as the pedestrian crossed at an area without a signal or a crosswalk.

3.6.7 Howard Avenue at Macon Street

This is an unsignalized intersection with school crosswalk on the west leg of the intersection. Both streets are one-way streets with two-way stop control. This intersection had three accidents between 1998 and 2000. There were no pedestrian accidents during this period.

3.6.8 Howard Avenue at Mac Donough Street

This is also an unsignalized intersection with a school crosswalk on the west leg of the intersection. Both streets are one-way with two-way stop control.

Eight accidents occurred at this intersection during 1998-2220-study period. One accident (not school related) involved a pedestrian, who was struck while crossing against the signal outside marked crosswalk.

3.6.9 Howard Avenue at Decatur Street

This is a signalized intersection with a striped school crosswalks on the north, east and west legs. Decatur Street is 40 feet wide (eastbound) one-way street. Howard Avenue is 40 feet wide at this intersection. Three accidents occurred at this location between 1998 and 2000. None involved pedestrians.

3.6.10 Patchen Avenue at Halsey Street

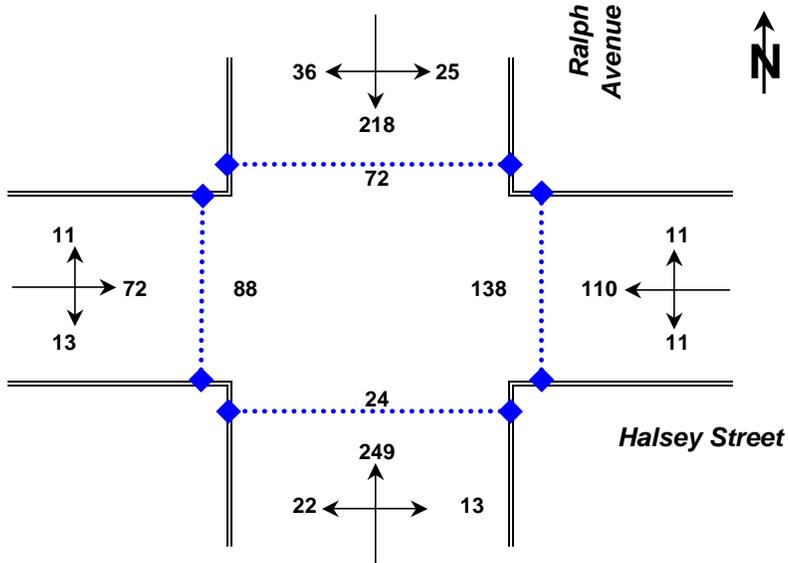
This is a signalized intersection located one block west of P.S. 5. Both Patchen Avenue and Halsey Street are two-way streets.

There were a total of four accidents at this intersection between 1998 and 2000. There was one accident that involved a pedestrian, and it was a student. According to accident data, the pedestrian was crossing against the signal when struck by a westbound traveling vehicle.

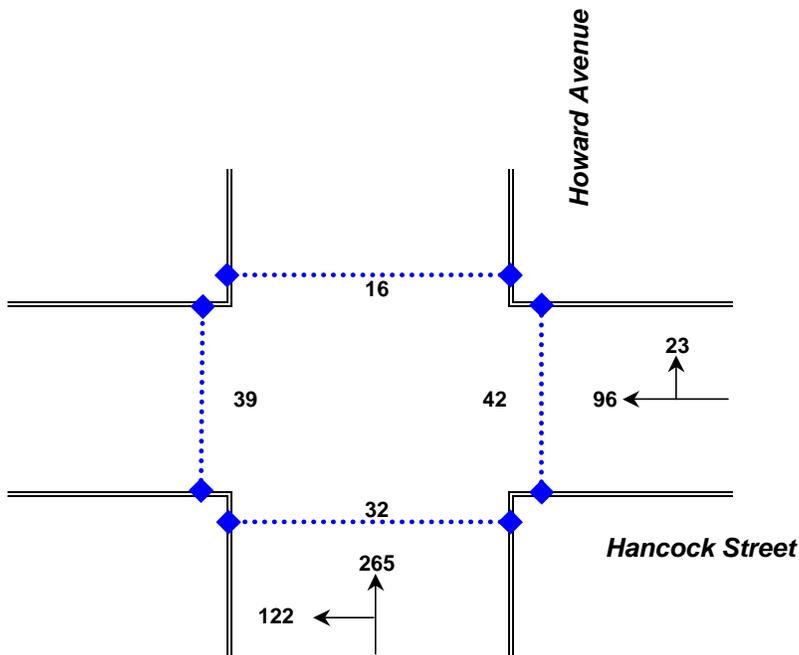


Figure 6: Formerly uncontrolled crosswalk at Howard Avenue and Hancock Street

One Hour Traffic Count Volumes



Intersection of Halsey Street and Ralph Avenue
(7:30 AM - 8:30 AM September 23, 2004)

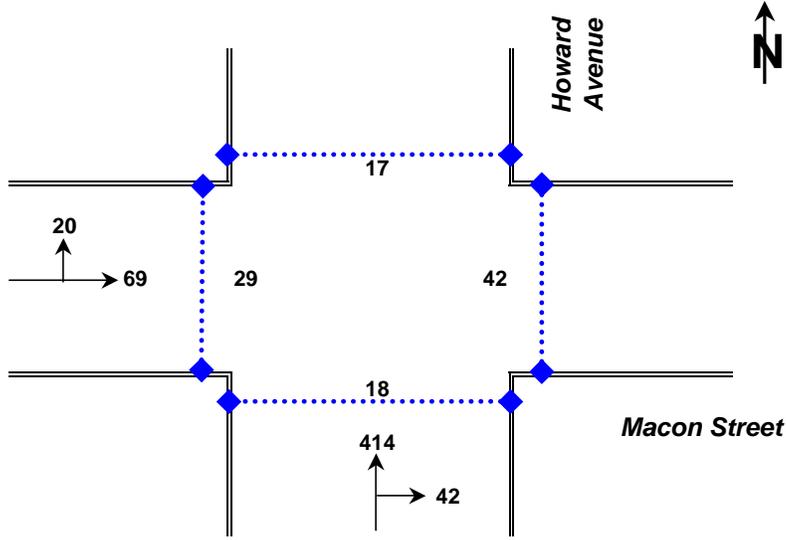


Intersection of Hancock Street and Howard Avenue,
(7:30 AM - 8:30 PM June 15, 2005)

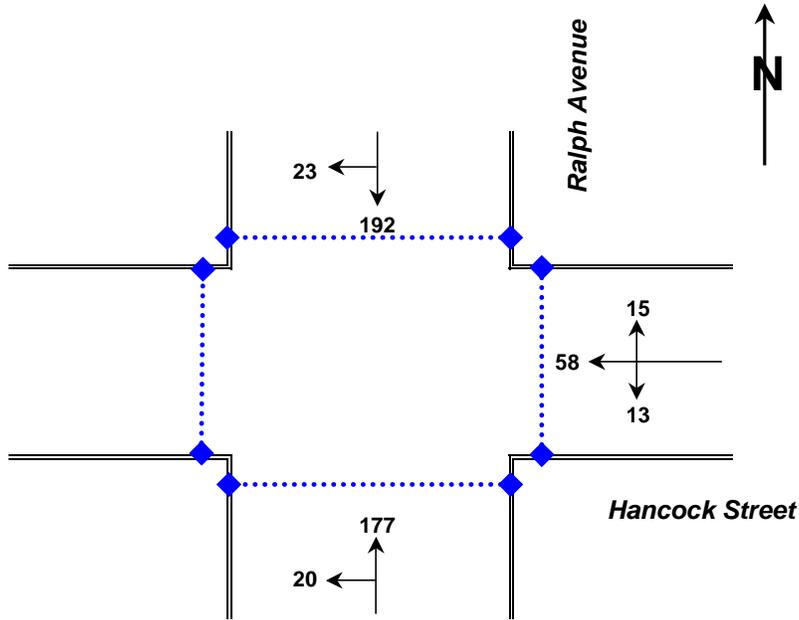
- Number of Pedestrians
- 62
- Pedestrian Crossing
- 53
- Vehicle Movement
- Number of Vehicles

EXHIBIT 7A
P.S. 5
TURNING MOVEMENT COUNTS

One Hour Traffic Count Volumes



**Intersection of Macon Street and Howard Avenue,
(7:30 AM - 8:30 AM June 15, 2005)**



**Intersection of Ralph Avenue and Hancock Street,
(7:30 AM - 8:30 AM August 26, 2004)**

- 62 — Number of Pedestrians
- ◆ — Pedestrian Crossing
- 53 ← — Vehicle Movement
- Number of Vehicles

EXHIBIT 7B
P.S. 5
TURNING MOVEMENT COUNTS

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S. 5, and found to be adequate (for a child pedestrian walking rate of 3ft/sec) 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)	Mitigation? (Yes/No)
Howard Ave. @ Halsey Street				
Howard Avenue	40	48	14	NO
Halsey Street	34	31	12	NO
Howard Ave. @ Decatur Street				
Howard Avenue	40	48	14	NO
Decatur Street	34	31	12	NO
Ralph Ave. @ Hancock Street				
Ralph Avenue	33	19	11	NO
Hancock Street	34	34	12	NO
Ralph Ave. @ Halsey Street				
Ralph Avenue	33	19	11	NO
Halsey Street	33	32	12	NO
Ralph Ave. @ Macon Street				
Ralph Avenue	33	20	11	NO
Macon Street	33	31	11	NO
Ralph Ave. @ MacDonough Street				
Ralph Avenue	33	20	11	NO
MacDonough Street	33	31	11	NO
Patchen Ave. @ Halsey Street				
Patchen Avenue	34	44	12	NO
Halsey Street	33	30	11	NO

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

3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

The roadways were found to generally be in good condition. However, on Halsey Street, 100 feet east of Patchen Avenue, there is some pavement settlement along a sewer trench. In addition, on Macon Street, west of Howard Avenue, there also appears to be subsidence in the location of a sewer line.

Within the north school crosswalk of Ralph Avenue at Halsey Street, there is a depressed area that is approximately one foot wide and 30 feet long.

The remaining asphalt roadways and the sidewalks were found to be in fair condition.

4. PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

4.1 SHORT-TERM OPTIONS

▪ No-Standing Zone on Halsey Street

“No Standing 7am – 4 pm, School Days” parking regulations should be extended approximately for the length of 60 feet in front of the school’s back entrance on Halsey Street in order to provide sufficient clear frontage for school buses to drop off and pick up students.

▪ Install speed reducers (humps) on Hancock Street

Spot speed surveys were conducted on August 17, 2005:

- Hancock Street between Ralph Avenue and Howard Avenue
- Howard Avenue between Hancock Avenue and Halsey Street

The objective of the survey was to confirm the school official’s observations on Hancock Street and Howard Avenue. In addition a study was conducted on Halsey Street to determine if speeding is a concern as noted during a field visit.

The speed study results are shown in Table 5 and in the Appendix. The 85th percentile speed is 33 mph on Hancock Street, 31 mph on Halsey Street and 29 mph on Howard Avenue. Therefore, to reduce speeding in the vicinity of P.S. 5, two speed reducers (humps) should be considered on Hancock Street between Howard Avenue and Ralph Avenue. Speed reducers (humps) are not recommended for Howard Avenue since the 85th percentile speed (29 mph) does not exceed the legal speed limit of 30 mph, and Halsey Street because it is a bus route.

LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Hancock Street between Ralph Avenue and Howard Avenue	28	33
Howard Avenue between Hancock Street and Halsey Street	23	29

▪ Proposed school crosswalks at the following intersections:

- Patchen Avenue and Hancock Street (East Leg)
- Patchen Avenue and Halsey Street (East Leg)

Based on feedback from school officials, these intersections are utilized by P.S. 5 students en route to school. Therefore, it is recommended that these intersections have school crosswalks.

- Install Advanced Stop Bars

Stop bars installed in advance of the school crosswalk reduces the incidence of motorists stopping in the crosswalk. This allows pedestrians to proceed in a crosswalk before motor vehicles turn, thus reducing pedestrian vehicle conflicts. Therefore, it is recommended that stop lines be installed in advance of pedestrian crosswalks at signalized intersections.

- Request a crossing guard time change with the NYPD

Three days a week, students are dismissed from an after school tutoring program after the crossing guards have ended their day. In fact, more than 50% of the students participate in after school programs and are dismissed when there are no longer crossing guards present. It is recommended that crossing guard hours be extended to cover after school dismissal.

- Repair the settled pavement on Halsey Street and Macon Street

The depressed areas should be repaved in accordance with NYCDOT standards for permanent pavement restoration.



Figure 7: Depressed sewer trench on Halsey Street, east of Patchen Avenue

- Install pedestrian ramps at the following locations:

- Hancock Street and Ralph Avenue, northwest and southwest corners
- Macon Street and Ralph Avenue, northwest and southwest corners

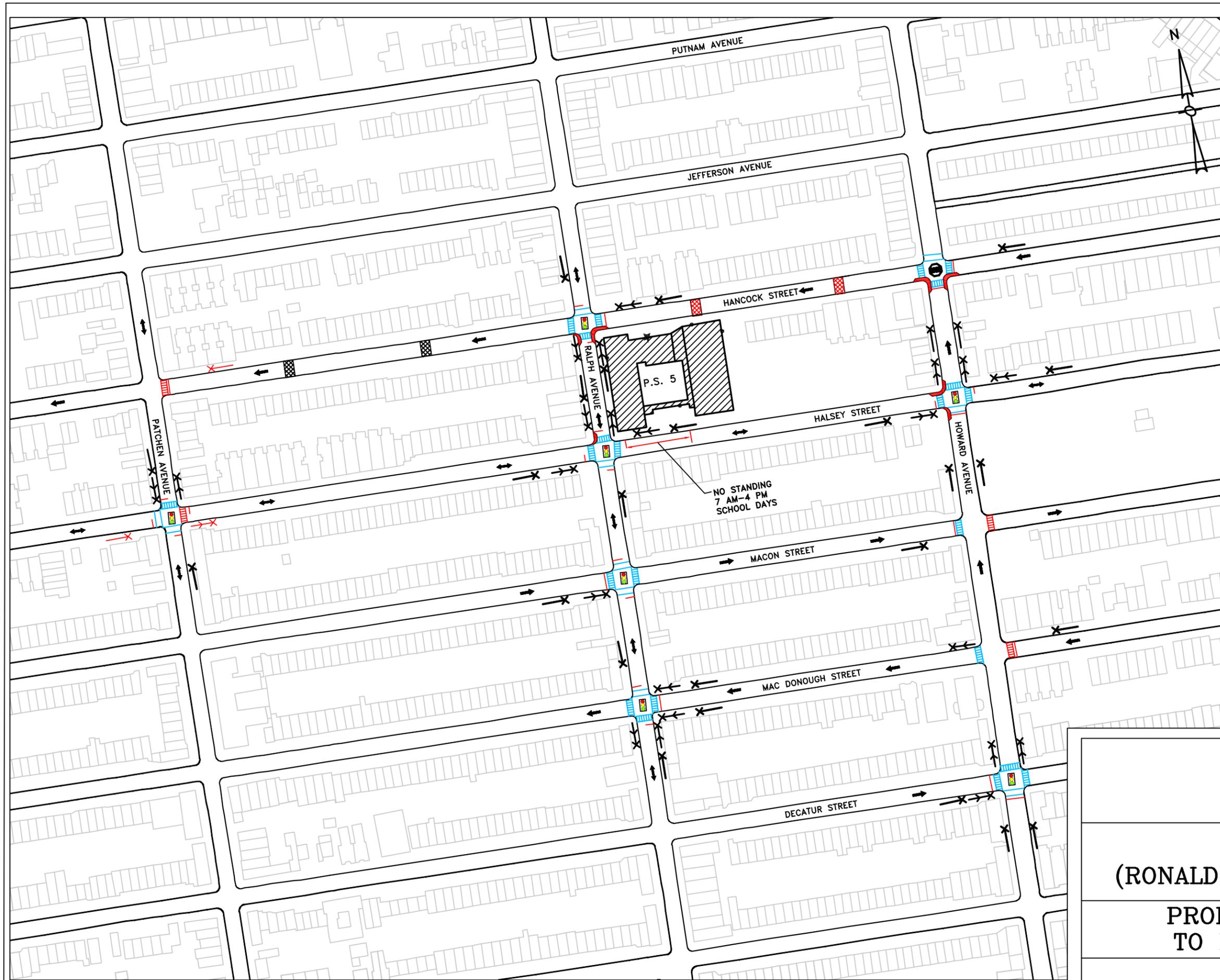
4.2 LONG-TERM OPTIONS

- Consider curb extensions at the following intersections:
 - Hancock Street and Ralph Avenue
 - Hancock Street and Howard Avenue
 - Ralph Avenue and Halsey Street
 - Howard Avenue and Halsey 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 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
 - X EXISTING ADVANCE WARNING SIGN WITH ARROW
 - X EXISTING ADVANCE WARNING SIGN
 - ↔ EXISTING TRAVEL DIRECTION
 - 🚦 SIGNALIZED INTERSECTION
 - 🛑 ALL-WAY STOP INTERSECTION
 - ▨ EXISTING SPEED REDUCER (HUMP)
 - ▤ EXISTING SCHOOL CROSSWALK
 - ▥ EXISTING STANDARD (NON-SCHOOL) CROSSWALK
 - ▧ EXISTING SCHOOL CROSSWALK ASSOC. WITH OTHER SCHOOL
 - X PROPOSED ADVANCE WARNING SIGN WITH ARROW
 - X PROPOSED ADVANCE WARNING SIGN
 - PROPOSED STOP LINE
 - ▤ PROPOSED SCHOOL CROSSWALK
 - 🚦 PROPOSED TRAFFIC SIGN
 - 📏 PROPOSED CURB EXTENSION (NECKDOWN)
 - ▨ PROPOSED SPEED REDUCER (HUMP)

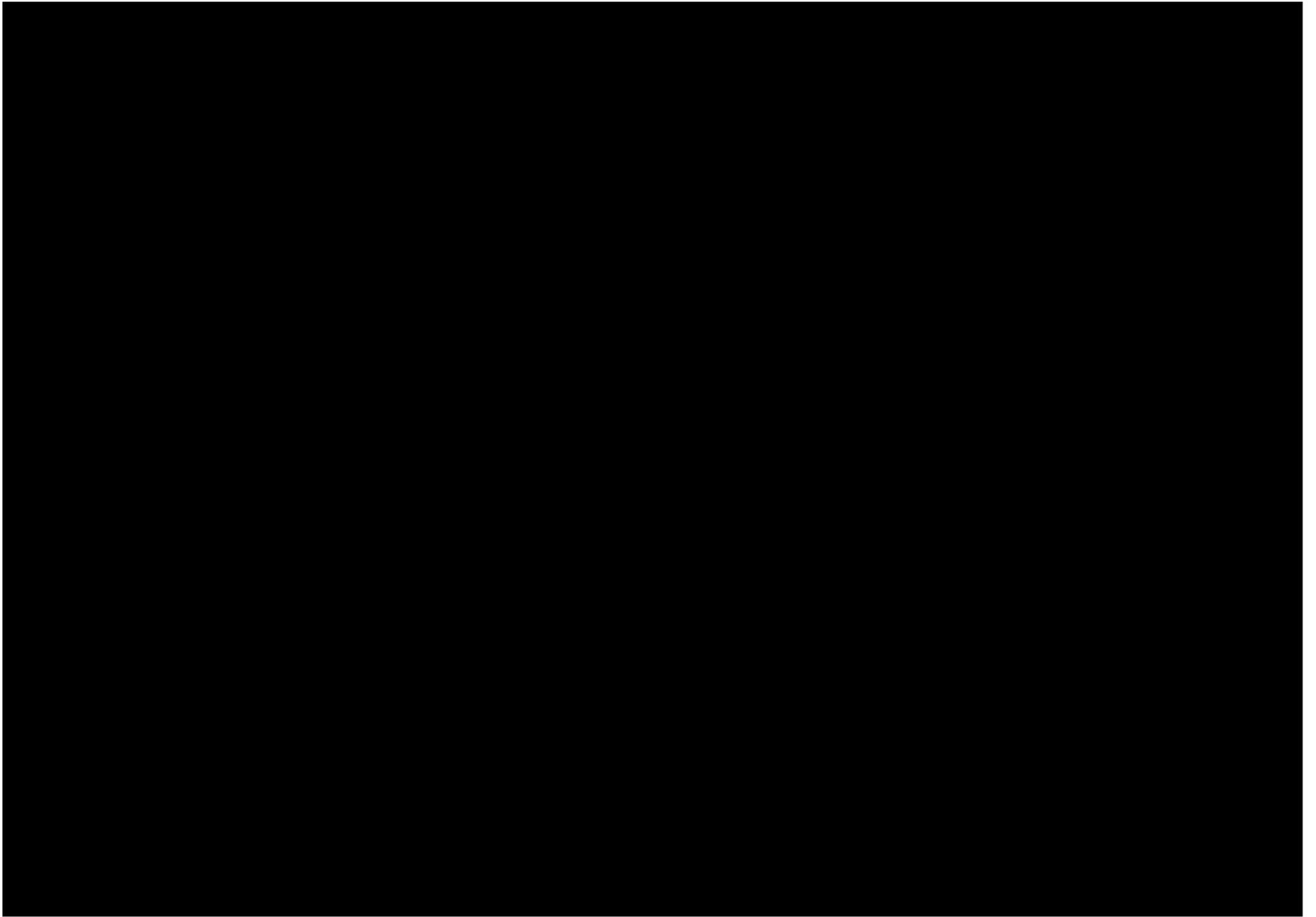
SCALE: 1" : 200'

EXHIBIT 8

P.S. 5 (BK)
(RONALD E. MC NAIR SCHOOL)

PROPOSED MEASURES
TO IMPROVE SAFETY

APPENDIX



SPOT SPEED STUDY

Date: **August 17, 2005** Time: **10:30 am - 11:30 am**
 Location: **Hancock Avenue btw. Ralph Avenue & Howard Avenue**
 Surveyor: **The RBA Group**

School: **P.S. 5**
 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	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	3	4.0%	4.0%	57	1083
20	0	0.0%	4.0%	0	0
21	0	0.0%	4.0%	0	0
22	4	5.3%	9.3%	88	1936
23	3	4.0%	13.3%	69	1587
24	5	6.7%	20.0%	120	2880
25	6	8.0%	28.0%	150	3750
26	9	12.0%	40.0%	234	6084
27	6	8.0%	48.0%	162	4374
28	8	10.7%	58.7%	224	6272
29	3	4.0%	62.7%	87	2523
30	6	8.0%	70.7%	180	5400
31	4	5.3%	76.0%	124	3844
32	5	6.7%	82.7%	160	5120
33	2	2.7%	85.3%	66	2178
34	4	5.3%	90.7%	136	4624
35	1	1.3%	92.0%	35	1225
36	3	4.0%	96.0%	108	3888
37	0	0.0%	96.0%	0	0
38	2	2.7%	98.7%	76	2888
39	0	0.0%	98.7%	0	0
40	1	1.3%	100.0%	40	1600
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
	75	100.0%		2116	61256

Mean Speed = 28.2 mph Median Speed = 28.2 mph
 Standard Deviation = 4.6 mph 15th Percentile Speed = 23.5 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 33.0 mph

SPOT SPEED STUDY

Date: August 17, 2005

Time: 10:30 am - 11:30 am

School: P.S. 5

Location: Hancock Avenue btw. Ralph Avenue & Howard Avenue

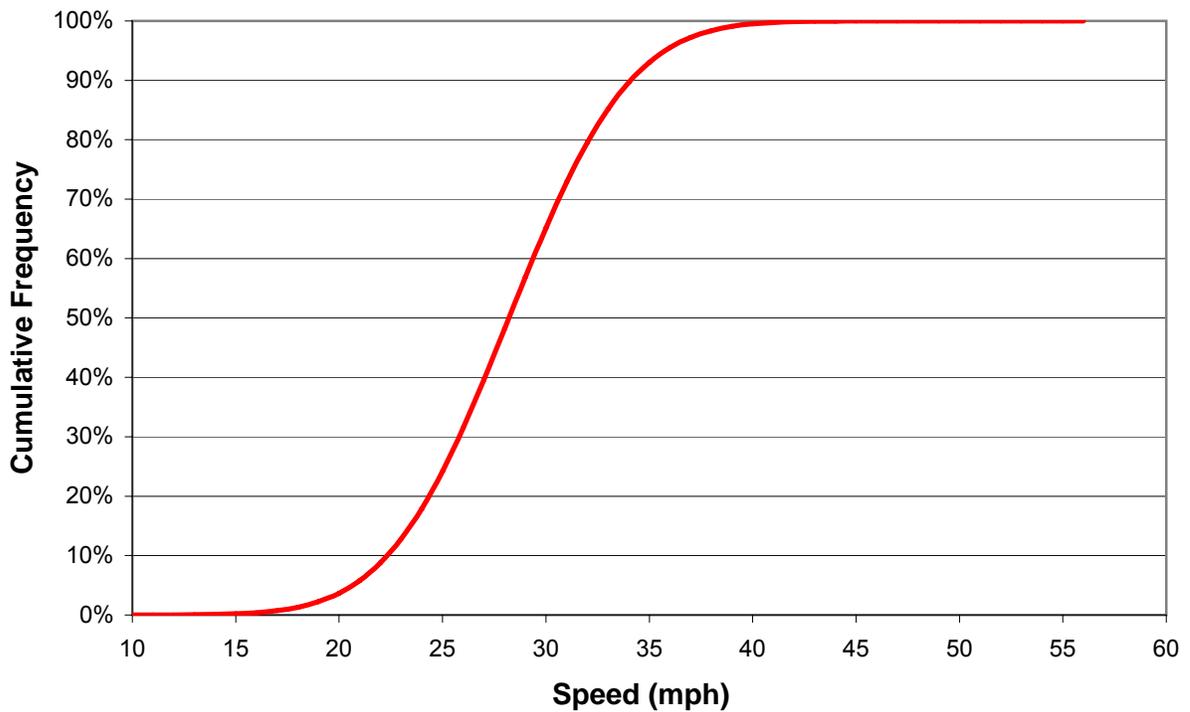
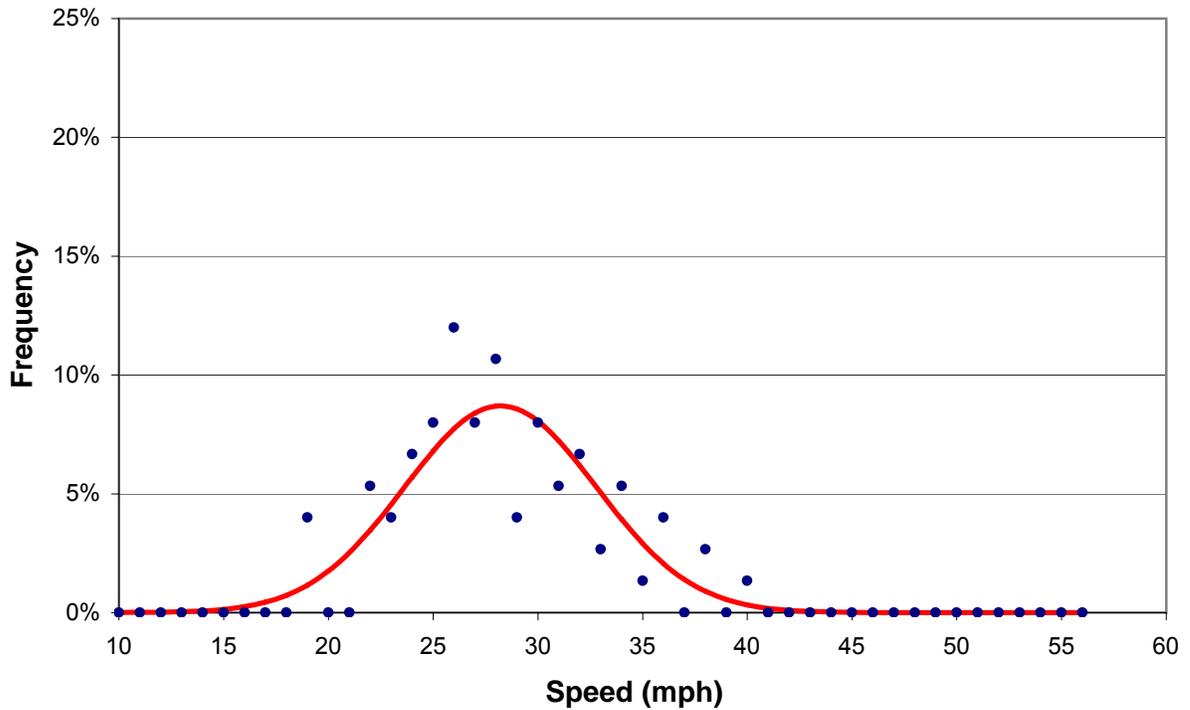
Direction: East-West

Surveyor: The RBA Group

Comments:

Mean Speed = 28.2 mph
Standard Deviation = 4.6 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 28.2 mph
15th Percentile Speed = 23.5 mph
85th Percentile Speed = 33.0 mph



SPOT SPEED STUDY

Date: **August 17, 2005** Time: **8:30 am - 9:30 am**
 Location: **Hasley Street btw. Ralph Avenue & Howard Street**
 Surveyor: **The RBA Group**

School: **P.S. 5**
 Direction: **Norht-South**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	3	2.5%	2.5%	57	1083
20	3	2.5%	5.0%	60	1200
21	0	0.0%	5.0%	0	0
22	3	2.5%	7.5%	66	1452
23	4	3.3%	10.8%	92	2116
24	18	15.0%	25.8%	432	10368
25	12	10.0%	35.8%	300	7500
26	21	17.5%	53.3%	546	14196
27	15	12.5%	65.8%	405	10935
28	12	10.0%	75.8%	336	9408
29	9	7.5%	83.3%	261	7569
30	6	5.0%	88.3%	180	5400
31	3	2.5%	90.8%	93	2883
32	0	0.0%	90.8%	0	0
33	6	5.0%	95.8%	198	6534
34	2	1.7%	97.5%	68	2312
35	1	0.8%	98.3%	35	1225
36	0	0.0%	98.3%	0	0
37	0	0.0%	98.3%	0	0
38	0	0.0%	98.3%	0	0
39	0	0.0%	98.3%	0	0
40	0	0.0%	98.3%	0	0
41	0	0.0%	98.3%	0	0
42	0	0.0%	98.3%	0	0
43	0	0.0%	98.3%	0	0
44	0	0.0%	98.3%	0	0
45	0	0.0%	98.3%	0	0
46	1	0.8%	99.2%	46	2116
47	0	0.0%	99.2%	0	0
48	0	0.0%	99.2%	0	0
49	0	0.0%	99.2%	0	0
50	1	0.8%	100.0%	50	2500
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
	120	100.0%		3225	88797

Mean Speed = 26.9 mph Median Speed = 26.9 mph
 Standard Deviation = 4.2 mph 15th Percentile Speed = 22.5 mph
 Margin of Error (95% Confidence) = ± 0.8 mph 85th Percentile Speed = 31.3 mph

SPOT SPEED STUDY

Date: **August 17, 2005**

Time: **8:30 am - 9:30 am**

School: **P.S. 5**

Location: **Hasley Street btw. Ralph Avenue & Howard Street**

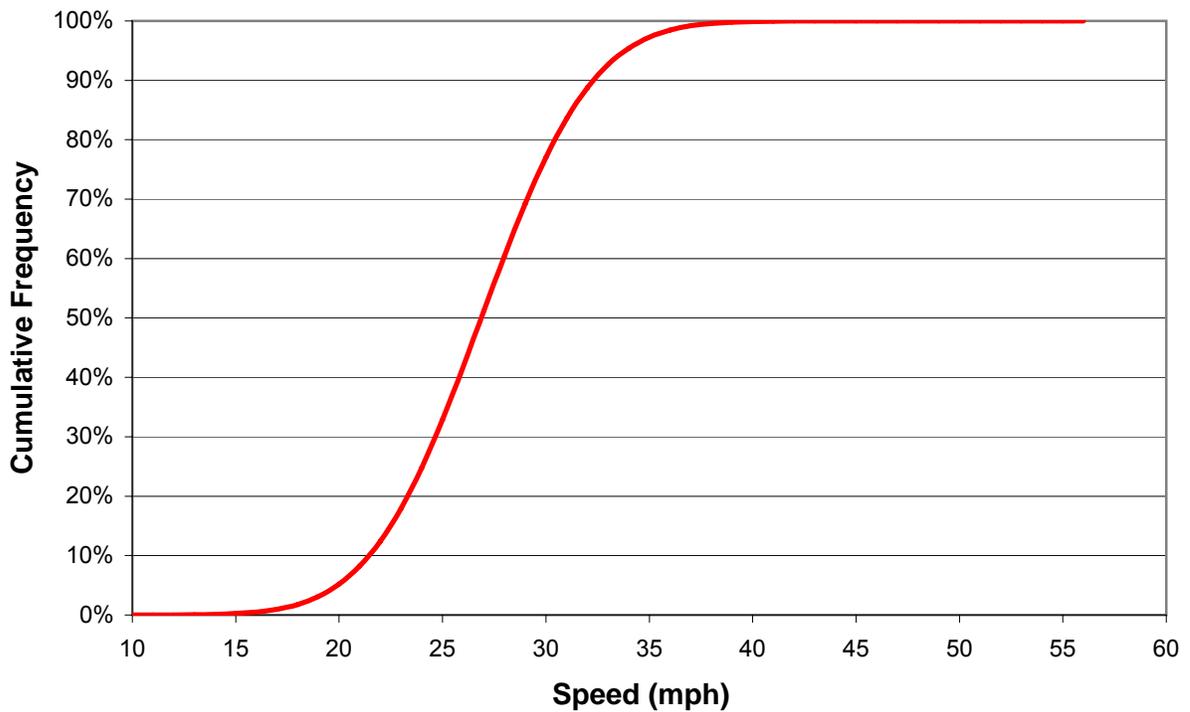
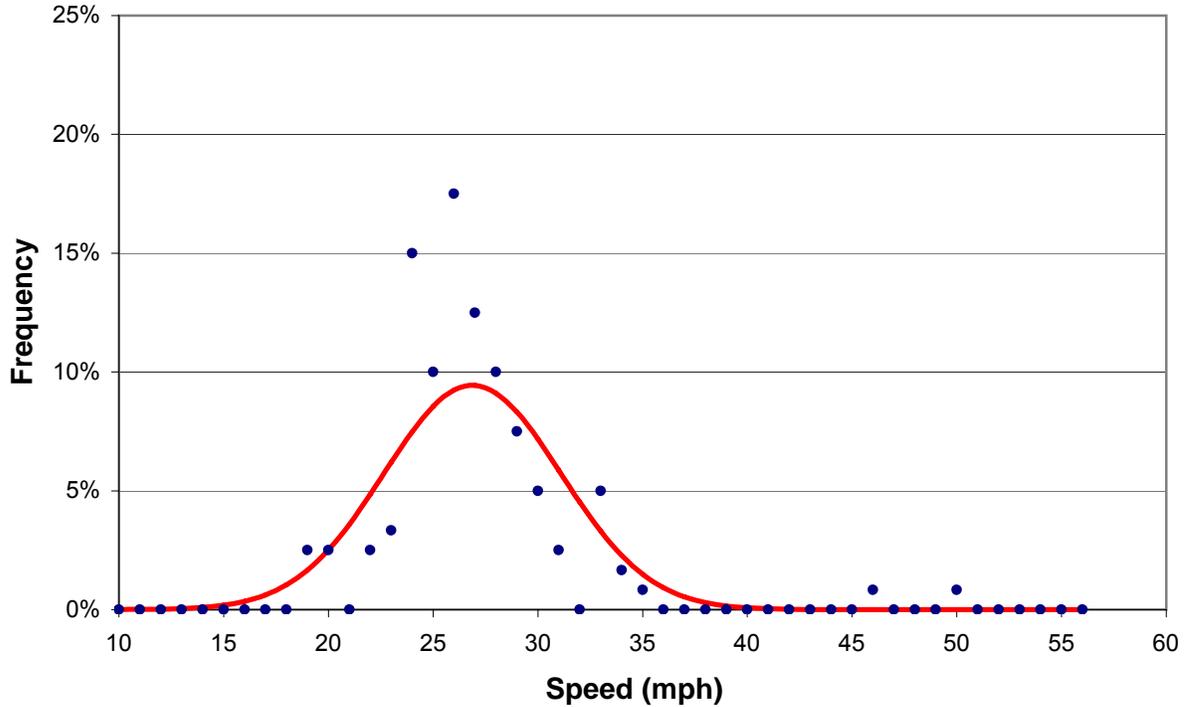
Direction: **Norht-South**

Surveyor: **The RBA Group**

Comments:

Mean Speed = 26.9 mph
Standard Deviation = 4.2 mph
Margin of Error (95% Confidence) = ± 0.8 mph

Median Speed = 26.9 mph
15th Percentile Speed = 22.5 mph
85th Percentile Speed = 31.3 mph



SPOT SPEED STUDY

Date: **August 17, 2005** Time: **9:30 am - 10:30 am**
 Location: **Howard Avenue btw. Hancock Avenue & Hasley Street**
 Surveyor: **The RBA Group**

School: **P.S. 5**
 Direction: **Norht-South**
 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	3	3.2%	3.2%	45	675
16	0	0.0%	3.2%	0	0
17	12	12.9%	16.1%	204	3468
18	0	0.0%	16.1%	0	0
19	15	16.1%	32.3%	285	5415
20	0	0.0%	32.3%	0	0
21	3	3.2%	35.5%	63	1323
22	9	9.7%	45.2%	198	4356
23	6	6.5%	51.6%	138	3174
24	9	9.7%	61.3%	216	5184
25	7	7.5%	68.8%	175	4375
26	6	6.5%	75.3%	156	4056
27	3	3.2%	78.5%	81	2187
28	2	2.2%	80.6%	56	1568
29	3	3.2%	83.9%	87	2523
30	0	0.0%	83.9%	0	0
31	6	6.5%	90.3%	186	5766
32	2	2.2%	92.5%	64	2048
33	2	2.2%	94.6%	66	2178
34	1	1.1%	95.7%	34	1156
35	3	3.2%	98.9%	105	3675
36	0	0.0%	98.9%	0	0
37	1	1.1%	100.0%	37	1369
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
	93	100.0%		2196	54496

Mean Speed = 23.6 mph Median Speed = 23.6 mph
 Standard Deviation = 5.4 mph 15th Percentile Speed = 18.1 mph
 Margin of Error (95% Confidence) = ± 1.1 mph 85th Percentile Speed = 29.2 mph

SPOT SPEED STUDY

Date: **August 17, 2005**

Time: **9:30 am - 10:30 am**

School: **P.S. 5**

Location: **Howard Avenue btw. Hancock Avenue & Hasley Street**

Direction: **Norht-South**

Surveyor: **The RBA Group**

Comments:

Mean Speed = 23.6 mph
Standard Deviation = 5.4 mph
Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 23.6 mph
15th Percentile Speed = 18.1 mph
85th Percentile Speed = 29.2 mph

