New York City Department of Transportation

Office of School Safety Engineering

School Safety Engineering Project

FINAL REPORT: Mary McLeod Bethune School (P.S. 92), Manhattan

Prepared by

The RBA Group/Urbitran Associates

SEPTEMBER 12, 2006

School Safety Engineering Project
Mary McLeod Bethune School (P.S. 92), Manhattan

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1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation has developed school safety maps for 1,471 schools throughout the City. Schools currently in the program are primarily elementary and intermediate schools with an enrollment of at least 250 students. The safety plans include the designation of official school crosswalks, identified by prominent warning signs and roadway markings. DOT also designates curbside locations for school bus loading and unloading and other parking controls to improve conditions for students. In addition, nearly 350 speed reducers (humps) have been installed in the immediate vicinity of schools.

Under this consultant study, the School Safety Engineering Project, accident 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. 92, Mary McLeod Bethune School, in Manhattan is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

[redacted]

2.2 NEIGHBORHOOD DESCRIPTION

P.S. 92 is located at 222 West 134th Street, which occupies the city block bounded by West 134th Street, West 133rd Street, Adam Clayton Powell Boulevard, and Frederick Douglass Boulevard (see Figure 1).

Figure 1: Looking west on West 134th Street, P.S. 92 is on the left side

The surrounding area is generally a mix of residential buildings and commercial establishments. West 133rd Street and West 134th Street are primarily lined by multi-story residential buildings on both sides of the street. Saint Philip's Church is located on the south side of West 134th Street. The Community Service for Greater Harlem is on West 133rd Street. There is a school park (playground) between West 133rd Street and West 134th Street, next to the school building. Adam Clayton Powell Boulevard and Frederick Douglass Boulevard are two major roadways, lined with residential buildings that have first floor commercial establishments. (See Exhibit 1 for Aerial Photograph).

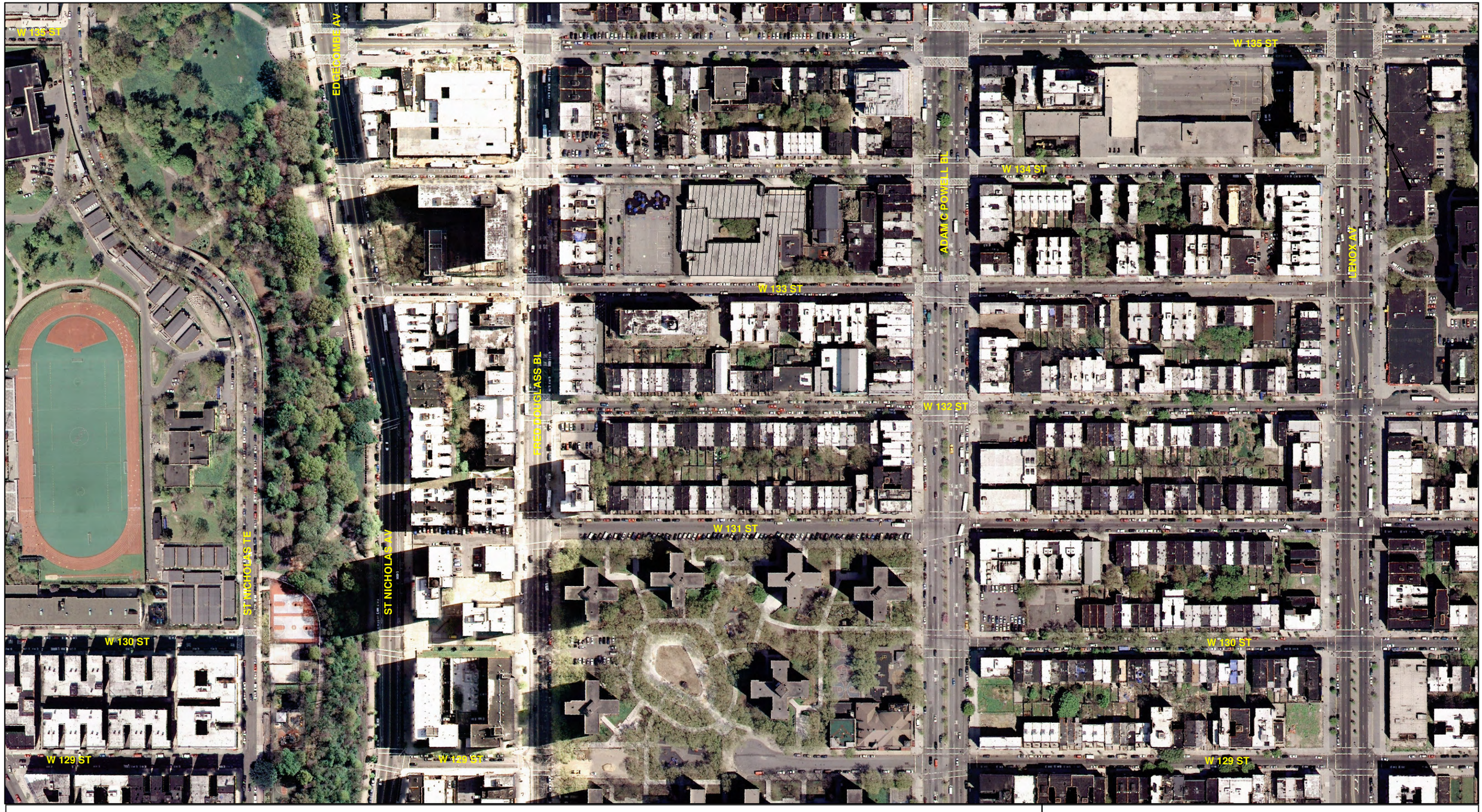
There are three bus routes operating in the vicinity of P.S. 92: M10, M12, and BX33. In addition, a subway station for the B and C lines is located on St. Nicholas Avenue with

entrances at West 135th Street. A second subway station for the 2 and 3 subway lines is located on Lenox Avenue with entrances at West 135th Street.

2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from P.S. 92 and the consultant staff met at the school on the afternoon of June 2, 2004. According to the representatives at the school, identifiable problems that student pedestrians encounter on a regular basis include the following:

- Vehicles speeding on West 133rd Street and West 134th Street
- Children crossing at mid-block locations on West 133rd Street and West 134th Street



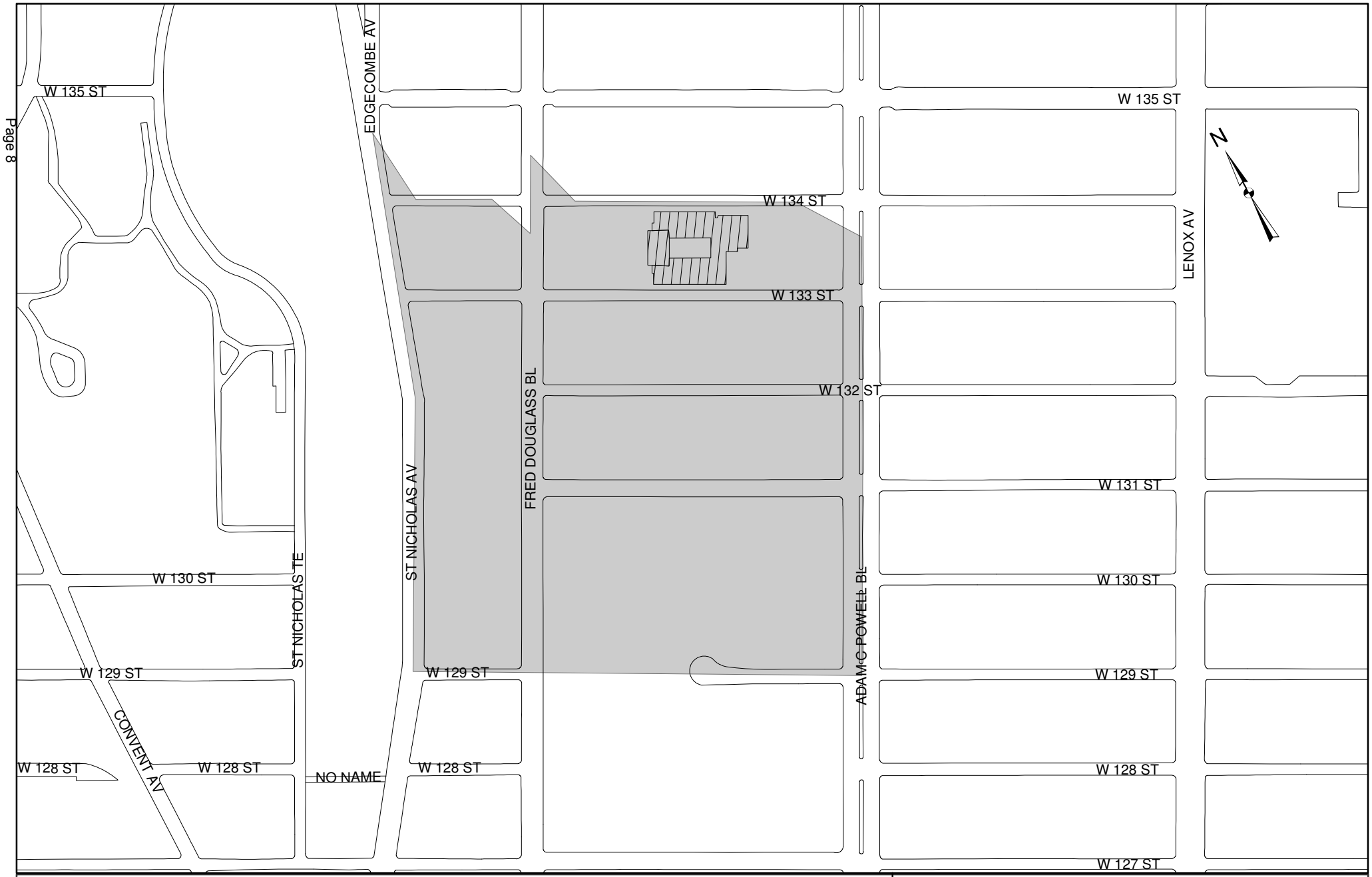
1 inch equals 200 feet

EXHIBIT 1

P.S. 92, MANHATTAN

MARY M. BETHUNE SCHOOL

AERIAL PHOTOGRAPH



1 inch equals 350 feet

CATCHMENT AREA

EXHIBIT 2

P.S. 92, MANHATTAN

MARY M. BETHUNE SCHOOL

CATCHMENT AREA

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

The school's catchment area is shown in Exhibit 2. According to the school principal, 80% of students walk to P.S. 92, 10% of students are driven by parents or guardians, 8% by school buses, and the remaining 2% arrive via public transportation. See Table 1 for the school's estimate of the modes of travel.

TABLE 1: MODES OF TRAVEL
(As estimated by school officials)

Description	Percentage
Walk	80%
Driven by a parent or guardian	10%
School bus	8%
MTA bus or subway	2%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There is one other public school in the vicinity of P.S. 92: J.H.S. 275/P.S. 175, which is located on West 135th Street between Adam Clayton Powell Boulevard and Lenox Avenue, one block east of P.S. 92. In addition, a private school, St. Aloysius School is on West 132nd Street between Frederick Douglass Boulevard and Adam Clayton Powell Boulevard, one block south of P.S. 92. Bread and Roses Integrated Arts High School is located on Edgecombe Avenue, north of West 135th Street. J.H.S. 275/P.S. 175 is one of the 135 priority schools.

According to the principal, most students walk to school from the St. Nicholas Housing Project, which occupies an entire city block between West 129th Street and West 131st Street. According to the principal, none of the students attending P.S. 92 come from east of Adam Clayton Powell Boulevard.

There is a bus stop for the M10 line on Frederick Douglass Boulevard north of West 133rd Street and a bus stop for the M2 line on Adam Clayton Powell Boulevard north of West 134th Street.

2.8 CROSSING GUARD LOCATIONS

Crossing guards assigned to P.S. 92 are stationed at the following intersections:

- Adam Clayton Powell Boulevard and West 134th Street
- Frederick Douglass Boulevard and West 134th Street (see Figure 2)
- Frederick Douglass Boulevard and West 133rd Street

In addition, two crossing guards assigned to school J.H.S.275/P.S.175 are on duty at West 135th Street and Adam Clayton Powell Boulevard.

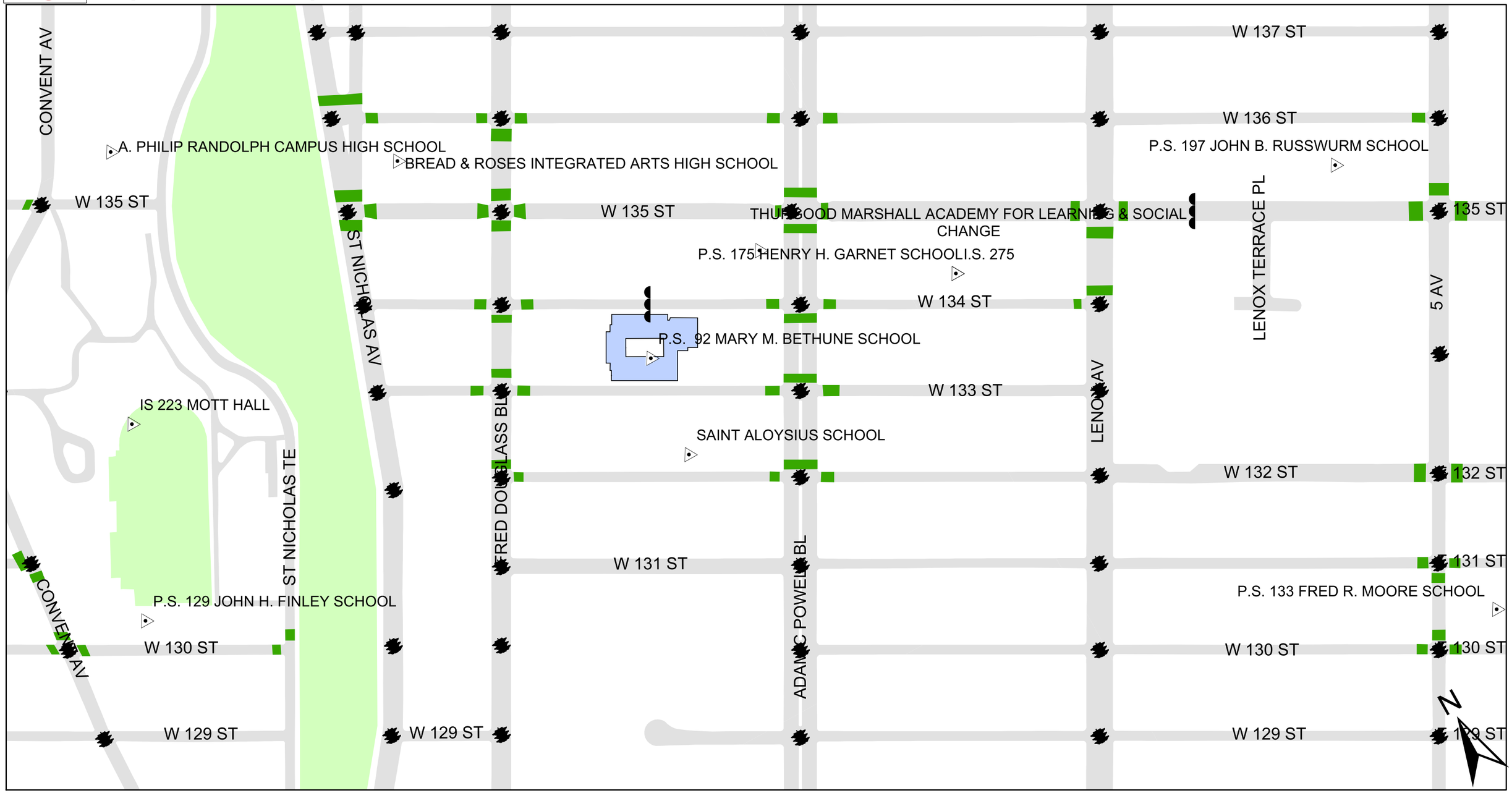
See Exhibit 4 for a map of crossing guard locations.

Figure 2: Crossing guard assisting students during dismissal time

New York City
Department of Transportation

School Traffic Safety Map

Traffic Operations Division



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

Manhattan
[P.S. 92]

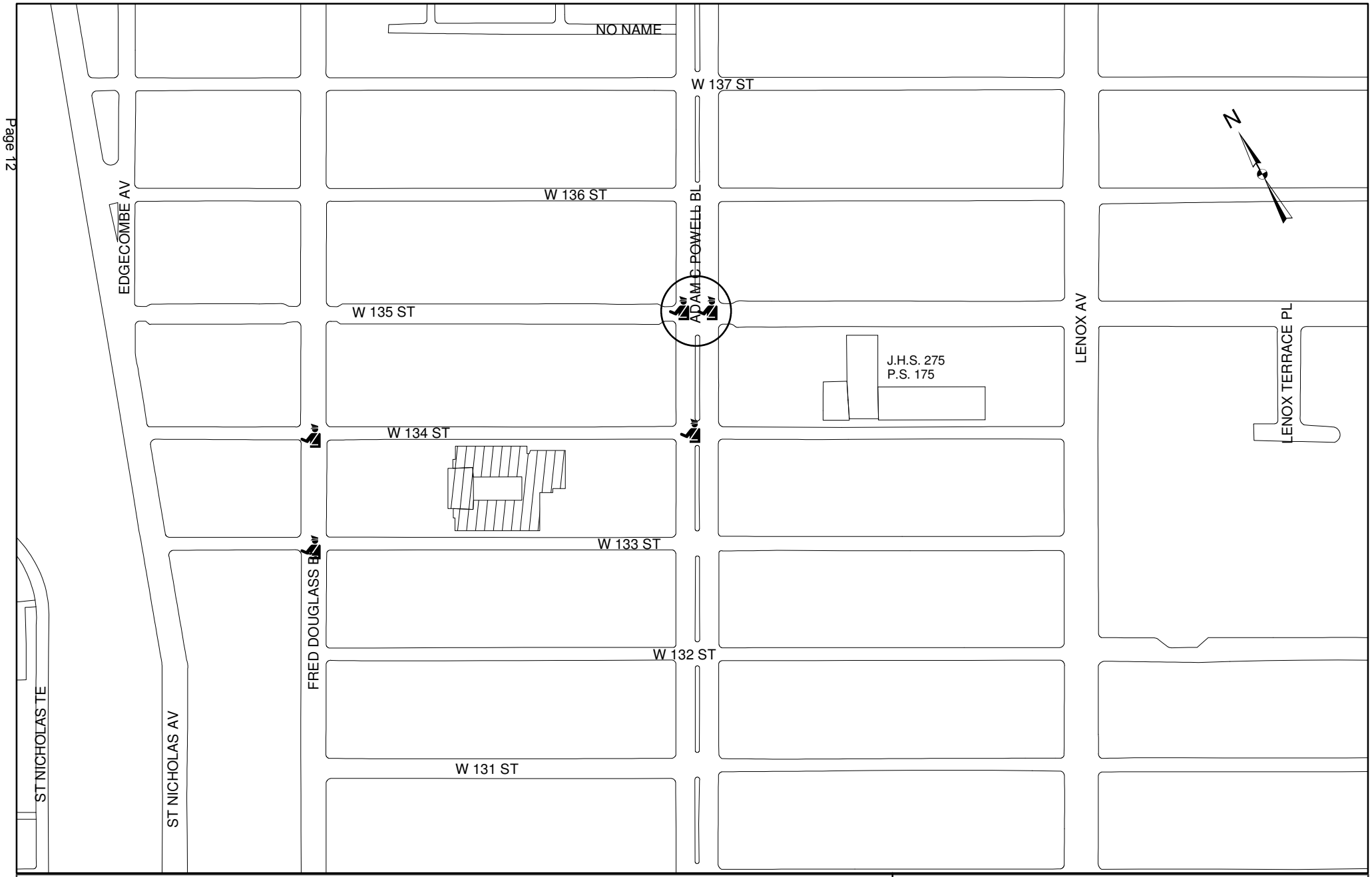
Prepared by the NEW YORK CITY DEPARTMENT OF TRANSPORTATION, Iris Weinshall, COMMISSIONER.

Map created on 11/16/2006

EXHIBIT 3

COMM. BOARD: 110
PRECINCT: 32

1.5.1



1 inch equals 300 feet

CROSSING GUARD ASSIGNED TO P.S. 92

CROSSING GUARD ASSIGNED TO J.H.S. 275/P.S. 175

EXHIBIT 4

P.S. 92, MANHATTAN

MARY M. BETHUNE SCHOOL

CROSSING GUARDS

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the principal, approximately 8% of students ride a school bus to P.S. 92. The buses only serve students with special needs. School buses double-park due to lack of curbside space while dropping off or picking up students at the school's secondary entrance on West 133rd Street.

Due to the width of West 133rd Street (30 feet) with parking permitted on both sides of the roadway, a double-parked school bus effectively blocks moving traffic (see Figure 3).

Figure3: Double-parked school bus on West 133rd Street

3.2 PARENT DROP-OFF OPERATIONS

The principal indicated that approximately 10% of P.S. 92 students are driven to and from school by a parent or guardian. Based on the field observations taken on June 2, 2004, most parents stop on West 134th Street to drop-off or pick-up students. Parents typically park their vehicles in the available spots, or they double-park their vehicles (Figure 4).

Figure 4: Parents pick up students on West 134th Street during dismissal time

3.3 PARKING REGULATIONS

On the south side of West 134th Street, the parking regulation is posted as "NO STANDING, 7 AM – 4 PM, SCHOOL DAYS" in front of the school's main entrance. "NO PARKING, 7 AM – 4 PM, SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" regulations are posted further east (Figure 5). "NO STANDING ANY TIME" is posted in front of Saint Philip's Church.

On the north side of West 133rd Street, "NO PARKING, 7 AM – 4 PM, SCHOOL DAYS, EXCEPT BOARD OF EDUCATION" is posted in front of the school. "NO STANDING ANY TIME" is posted further west, in front of the school playground.

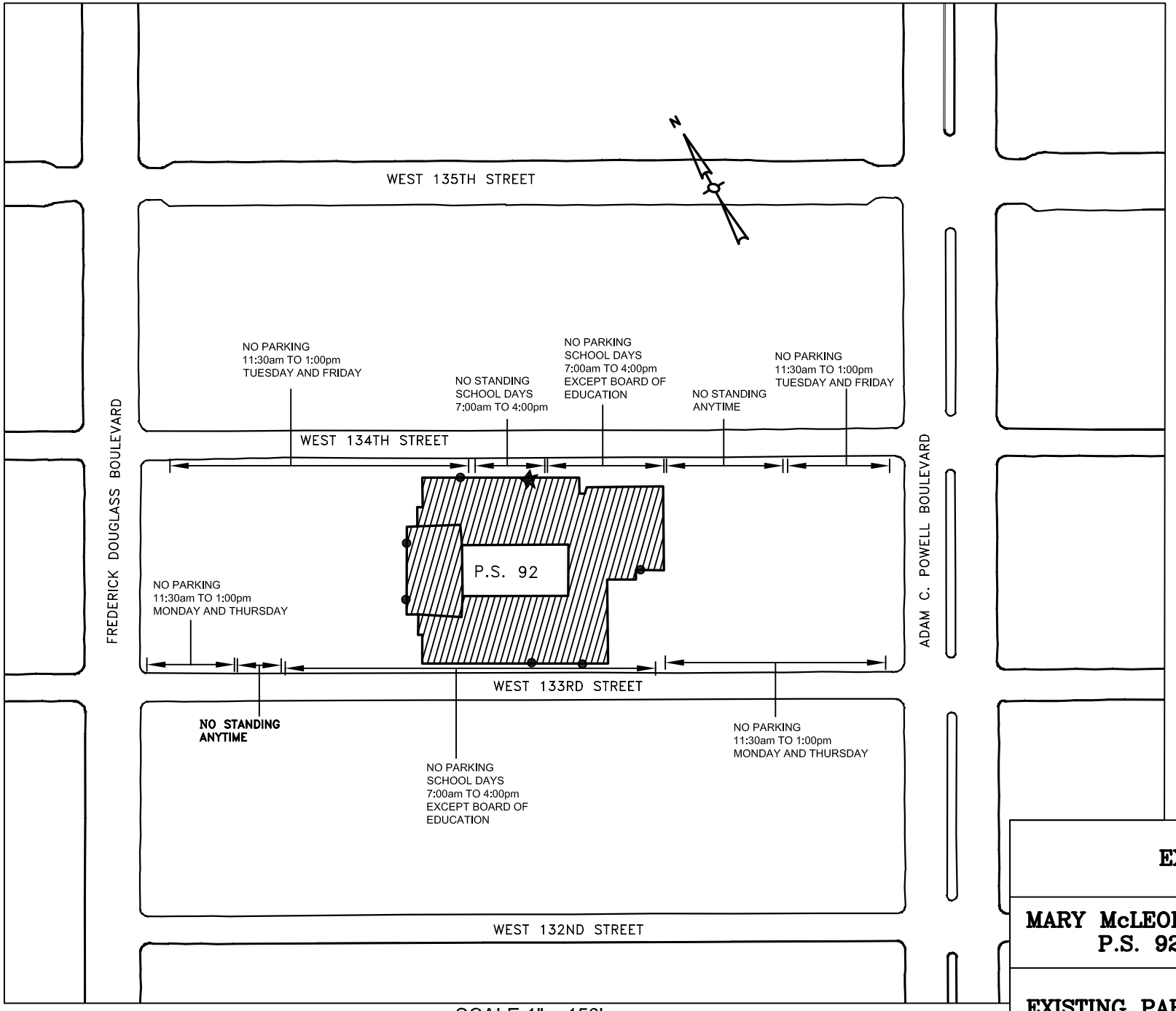
Alternate parking regulations are in effect 11:30 am – 1:00 pm. Exhibit 5 shows the parking regulations on the roadways surrounding P.S. 92.

Figure 5: Parking regulations on West 134th Street in front of P.S. 92

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 with downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing".

Figure 6: The existing advanced signs on West 133rd Street



SCALE 1" = 150'

EXHIBIT 5

MARY McLEOD BETHUNE SCHOOL
P.S. 92, MANHATTAN

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

This report targets intersections closest to the school where the highest concentrations of student pedestrians occur. Intersections that are farther from the school which did not have detailed data available at the time of this study will be addressed with DOT's School Safety Engineering Program's ongoing work. DMV accident data is discussed in Section 3.6, Traffic Operations and Issues.

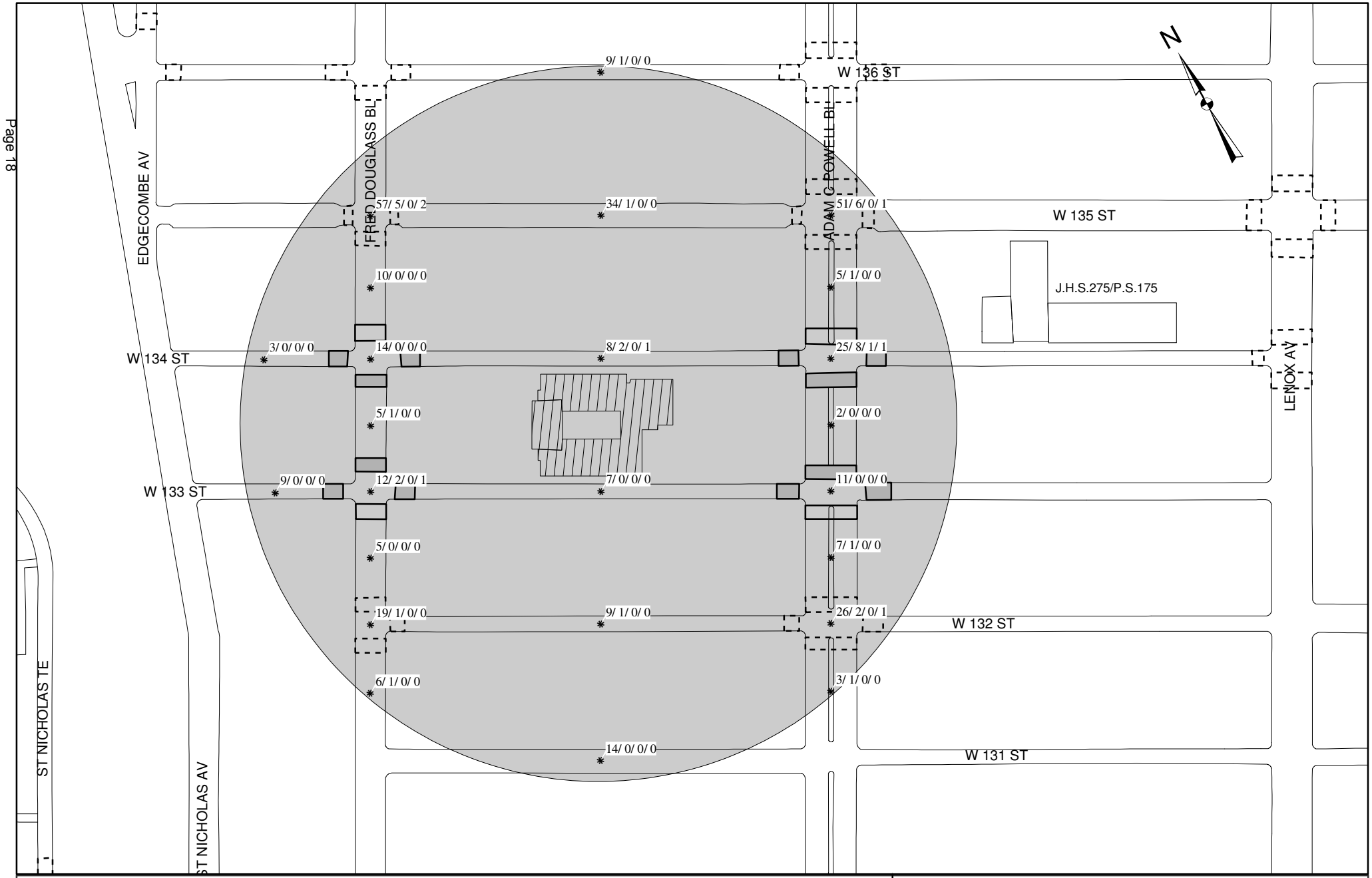
TABLE 2: DMV THREE-YEAR ACCIDENT SUMMARY (1998-2000)

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
West 134th St. and Adam C. Powell Blvd.	25	8	1	1
West 134th St. and Frederick Douglass Blvd.	14	0	0	0
West 133rd St. and Adam C. Powell Blvd.	11	0	0	0
West 133rd St. and Frederick Douglass Blvd.	12	2	0	1
West 135th St. and Adam C. Powell Blvd.	51	6	0	1
West 135th St. and Frederick Douglass Blvd.	57	5	0	2
West 132nd St. and Adam C. Powell Blvd.	26	2	0	1
TOTAL	**196**	**23**	**1**	**6**

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

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
West 134th St. and Adam C. Powell Blvd.	35	6	0	1
West 134th St. and Frederick Douglass Blvd.	42	7	0	1
West 133rd St. and Adam C. Powell Blvd.	32	2	0	0
West 133rd St. and Frederick Douglass Blvd.	24	8	0	0
West 135th St. and Adam C. Powell Blvd.	117	19	0	0
West 135th St. and Frederick Douglass Blvd.	102	19	1	3
West 132nd St. and Adam C. Powell Blvd.	45	3	0	0
TOTAL	**397**	**64**	**1**	**5**

* 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

TOTAL ACCIDENTS / PED ACCIDENTS / PED FATAL / SCHOOL_PED ACCIDENTS

1 inch equals 250 feet

EXHIBIT 6

P.S. 92, MANHATTAN
MARY M. BETHUNE SCHOOL

ACCIDENT SUMMARY
THREE YEAR PERIOD
(1998-2000)

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accidents and operational issues in the vicinity of P.S. 92.

3.6.1 West 134th Street and Adam Clayton Powell Boulevard

West 134th Street is a 30-foot wide, one-way eastbound roadway with one travel lane and parking allowed on both sides. Adam Clayton Powell Boulevard is a 99-foot wide, two-way street with three travel lanes in each direction and parking allowed on both sides (see Figure 7). Northbound and southbound traffic is separated by a raised concrete median.

Figure 7: Looking south on West 134th Street, at West 134th Street and Adam Clayton Powell Boulevard

School crosswalks are in place on the east, west, and south legs of the intersection. All four corners have pedestrian ramps. A school crossing guard is assigned to this intersection.

Review of the existing signal timing indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Adam Clayton Powell Boulevard in one cycle at a walking rate of three feet per second plus a three second reaction time. A school age pedestrian is expected to wait at the raised median between signal cycles and complete crossing the roadway on the second cycle. However, the raised medians do not extend through the crosswalks (see Figure 7).

This signalized intersection had 25 accidents during the 1998-2000 study period. Eight accidents involved pedestrians, one of which was fatal. A 41-year old pedestrian was crossing against the signal when struck and killed by a vehicle going north.

There was one school-related accident at this location. Three pedestrians, including an 11-year-old student, were struck while crossing against the signal. Two accidents were

attributed to drivers' failure to yield while making right turns. There was no detailed information for the last two accidents.

3.6.2 West 134th Street and Frederick Douglass Boulevard

Frederick Douglass Boulevard is a 59-foot wide, two-way roadway with two travel lanes in each direction and parking allowed on both sides of the street (see Figure 8). The intersection of West 134th Street and Frederick Douglass Boulevard is controlled by a two-phase traffic signal.

School crosswalks are in place on the west, east, and south legs of the intersection. All four corners have pedestrian ramps. A school crossing guard is assigned to this intersection. Existing graphic "Yield to Pedestrian" signs are installed at this intersection to remind the drivers that the pedestrians have the right of way within the crosswalk.

Figure 8: Looking east on West 134th Street, at West 134th Street and Frederick Douglass Boulevard

There were fourteen accidents at this intersection during the 1998-2000-study period. None of them involved pedestrians or were school related.

3.6.3 West 133rd Street and Adam Clayton Powell Boulevard

West 133rd Street is a 34-foot wide, one-way westbound street with one travel lane and parking allowed on both sides of the roadway. The intersection of West 133rd Street and Adam Clayton Powell Boulevard is controlled by a two-phase traffic signal (see Figure 9). Pedestrian crosswalks are in place on the east, west, and north legs. All four corners have pedestrian ramps.

Figure 9: Looking south on Adam Clayton Powell Boulevard, at West 133rd Street and Adam Clayton Powell Boulevard.

Review of the existing signal timing indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Adam Clayton Powell Boulevard in one cycle at a walking rate of three feet per second plus a three second reaction time. A school age pedestrian is expected to wait at the raised median between signal cycles and complete crossing the roadway on the second cycle

There were eleven accidents at this intersection during the 1998-2000-study period. None of them were pedestrian accidents or school-related.

3.6.4 West 133rd Street and Frederick Douglass Boulevard

The intersection of West 133rd Street and Frederick Douglass Boulevard is controlled by a two-phase traffic signal (see Figure 10). West 133rd Street is 30-foot wide at this location. School crosswalks are in place on the west, east, and north legs. All four corners have pedestrian ramps.

Existing pedestrian information signs that explain the signal phases are installed at this location adjacent to the school crosswalks (see Figure 11). A school crossing guard is assigned to this intersection.

Twelve accidents occurred at this location during the 1998-2000 study period. Two accidents included pedestrians, one of which was school related. A four-year old school child with a seventeen-year-old pedestrian was crossing against the signal when struck by a vehicle making a right turn. The second accident involved a pedestrian who was struck by a vehicle going north. It was attributed to pedestrian error.

Figure 10: Looking north on Frederick Douglass Boulevard, at West 133rd Street and Frederick Douglass Boulevard

Figure 11:Existing pedestrian information sign

3.6.5 West 135th Street and Adam Clayton Powell Boulevard

West 135th Street is a two-way street with parking on both sides. The east side of West 135th Street has two westbound moving lanes, one eastbound through lane, and one eastbound left turn lane. To the west of Adam Clayton Powell Boulevard, West 135th Street has one moving lane in each direction. This intersection is controlled by a traffic signal and all four corners have school crosswalks.

There were 51 accidents at this intersection during the 1998-2000 study period. Six accidents involved pedestrians, one of which was school related. Four pedestrians, including a 13-year-old student, were crossing with the signal when struck. The

accidents were attributed to drivers' inattention. One pedestrian was crossing against the signal and the other pedestrian was crossing outside of the crosswalk when struck.

3.6.6 West 135th Street and Frederick Douglass Boulevard

The intersection of West 135th Street and Frederick Douglass Boulevard is controlled by a traffic signal. School crosswalks are in place on all four legs.

There were 57 accidents at this intersection during the 1998-2000 study period. Five accidents involved pedestrians, two of which were school related. Both school related accidents were attributed to pedestrian error. The other three accidents were due to drivers' failure to yield when making left turns or right turns.

3.6.7 West 132nd Street and Adam Clayton Powell Boulevard

The intersection of West 132nd Street and Adam Clayton Powell Boulevard is controlled by a traffic signal. School crosswalks are in place on the north, east, and west legs.

There were 26 accidents at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, one of which was school related. A 14-year-old student was crossing Adam Clayton Powell Boulevard when stuck. It was attributed to pedestrian error. The other accident was due to the driver's failure to yield when making a right turn.

3.6.8 Speeds on West 134th Street and West 133rd Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard

The school principal noted that vehicles are speeding on West 134th Street and West 133rd Street in the vicinity of P.S. 92. Two existing speed reducers (humps) are installed on West. 134th Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard (see Figure 12).

Two spot speed studies were conducted on Monday, October 31, 2005. One was from 8:30 am to 9:30 am on West 134th Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard, and the second one was from 9:30 am to 10:30 am on West 133rd Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard. The results showed that the 85th percentile speed at both locations were under the statutory speed limit of 30 mph. See Table 4 for a summary of the results and the Appendix for further detail.

Figure 12:Existing speed reducer (hump) on West 134th Street, in front of P.S. 92

There were eight accidents in the mid-block of West 134th Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard during the 1998-2000 study period. Two accidents included pedestrians, one of which was school related. A nine-year-old student emerged from a parked vehicle when struck. The second accident was also attributed to pedestrian error.

There were seven accidents in the mid-block of West 133rd Street between Adam Clayton Powell Boulevard and Frederick Douglass Boulevard during the 1998-2000 study period, none of which involved pedestrians.

TABLE 4: SPOT SPEED STUDIES

(Monday, October 31, 2005)

LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
West 134th Street between Adam C. Powell Avenue and Frederick Douglass Avenue	21	25
West 133rd Street between Adam C. Powell Avenue and Frederick Douglass Avenue	21	25

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)[1]	Timing Adjustment? (Yes/No)
West 134th Street and Adam C. Powell Boulevard				
Crossing West 134th Street	30	49	13	NO
Crossing Adam C. Powell Blvd.	45/45[2]	31/31[3]	18/18	NO
West 134th Street and Frederick Douglass Boulevard				
Crossing West 134th Street	30	58	13	NO
Crossing Frederick Douglass Blvd.	59	22	22	NO
West 133rd Street and Adam C. Powell Boulevard				
Crossing West 133rd Street	34	49	15	NO
Crossing Adam C. Powell Blvd.	45/45[2]	31/31[3]	18/18	NO
West 133rd Street and Frederick Douglass Boulevard				
Crossing West 133rd Street	30	58	13	NO
Crossing Frederick Douglass Blvd.	59	22	22	NO

Notes:

1. *A rate of three feet per second plus three seconds reaction time was utilized as the child pedestrian walking rate*
2. *Adam Clayton Powell Boulevard is approximately 100-foot wide with a 10-foot raised center median.*
3. *A pedestrian needs two signal cycles to cross Adam Clayton Powell Boulevard at a rate of three feet per second while stopping at the raised center medians between the northbound and southbound traffic. The actual pedestrian phase in one signal cycle is 31 seconds.*

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, with the exception of the following:

- There is a depressed transformer box on the west crosswalk at the intersection of West 133rd Street and Frederick Douglass Boulevard (see Figure 13).
- Some curbs and sidewalks along the north side of West 133rd Street and the north side of West 134th Street were found to be in poor condition.

Figure 13: Depressed transformer box on the west crosswalk at West 133rd Street and Frederick Douglass Boulevard

4. PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

This section describes potential countermeasures. These countermeasures 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

- *No Standing Zone*

  It is recommended that "NO STANDING 7 AM - 4 PM, SCHOOL DAYS" PARKING regulations be posted 30 feet in front of the school's rear entrance on West 133rd Street. The teacher parking should be moved east of the proposed "No Standing" parking regulation (See Exhibit 7 for details). This will allow school buses a place to load and unload students at the curb, and also improve visibility of students arriving to and leaving the school.

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

  Installation of pedestrian information signs at the wide intersections of Adam Clayton Powell Boulevard and Frederick Douglass Boulevard at West 134th Street and West 133rd Street is recommended. The pedestrian should be informed to wait at the median between signal cycles. Pedestrians will benefit from informational signage even though they are provided with sufficient time to cross at these intersections.

- *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.

- *Place advance stop bar 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.

- *Install new school crosswalks at West 131st Street*

  According to the school principal, many students walk to school from the Douglass Housing Project, which is located south of West 131st Street between Adam Clayton

Powell Boulevard and Frederick Douglass Boulevard. It is recommended that school crosswalks be installed at the following two locations:

- West leg of West 131st Street and Adam Clayton Powell Boulevard
- East leg of West 131st Street and Frederick Douglass Boulevard

4.2 LONG-TERM MEASURES

- *Extend concrete raised median on Adam Clayton Powell Boulevard through adjacent school crosswalk and provide pedestrian ramps within the median*

  The signal timing (see Table 4) shows that pedestrians need two signal cycles to cross Adam Clayton Powell Boulevard. Therefore, raised medians should be extended through the adjacent crosswalks at these crossings. In addition, ADA compliant at-grade cut throughs should be provided at those medians. By extending the raised median, a physically protected refuge location can be provided for pedestrians as they wait for the next cycle to cross the street. The treatment should be considered at the following intersections (See Exhibit 7):

  - Adam Clayton Powell Blvd and West 134th Street (south side of the intersection)
  - Adam Clayton Powell Blvd and West 133rd Street

  Final details pertaining to raised medians will be developed during Final Design/Contract Document preparation.

4.3 ADDITIONAL RECOMMENDATIONS FOR PRIORITY SCHOOL IN THE VICINITY

All references in Section 4.3 refer to J.H.S. 275/P.S. 175 School Report.

- *Submit request to Police Department for Crossing Guards*

  It is recommended that a crossing guard be requested for Lenox Avenue and West 135th Street, to assist students who may be without supervision of their parents.

- *Install new school crosswalks*

  It is recommended that school crosswalks be installed on the west leg and south leg at Lenox Avenue and West 136th Street.

- *Extend raised medians on Adam Clayton Powell Blvd. and Lenox Avenue through adjacent school crosswalks and provide pedestrian ramps within the median*

  The signal timing shows that pedestrians need two signal cycles to cross both Adam Clayton Powell Boulevard and Lenox Avenue. Therefore, raised medians should be extended through the adjacent crosswalks at critical locations. In addition, ADA compliant at-grade cut throughs should be provided at those medians. By extending

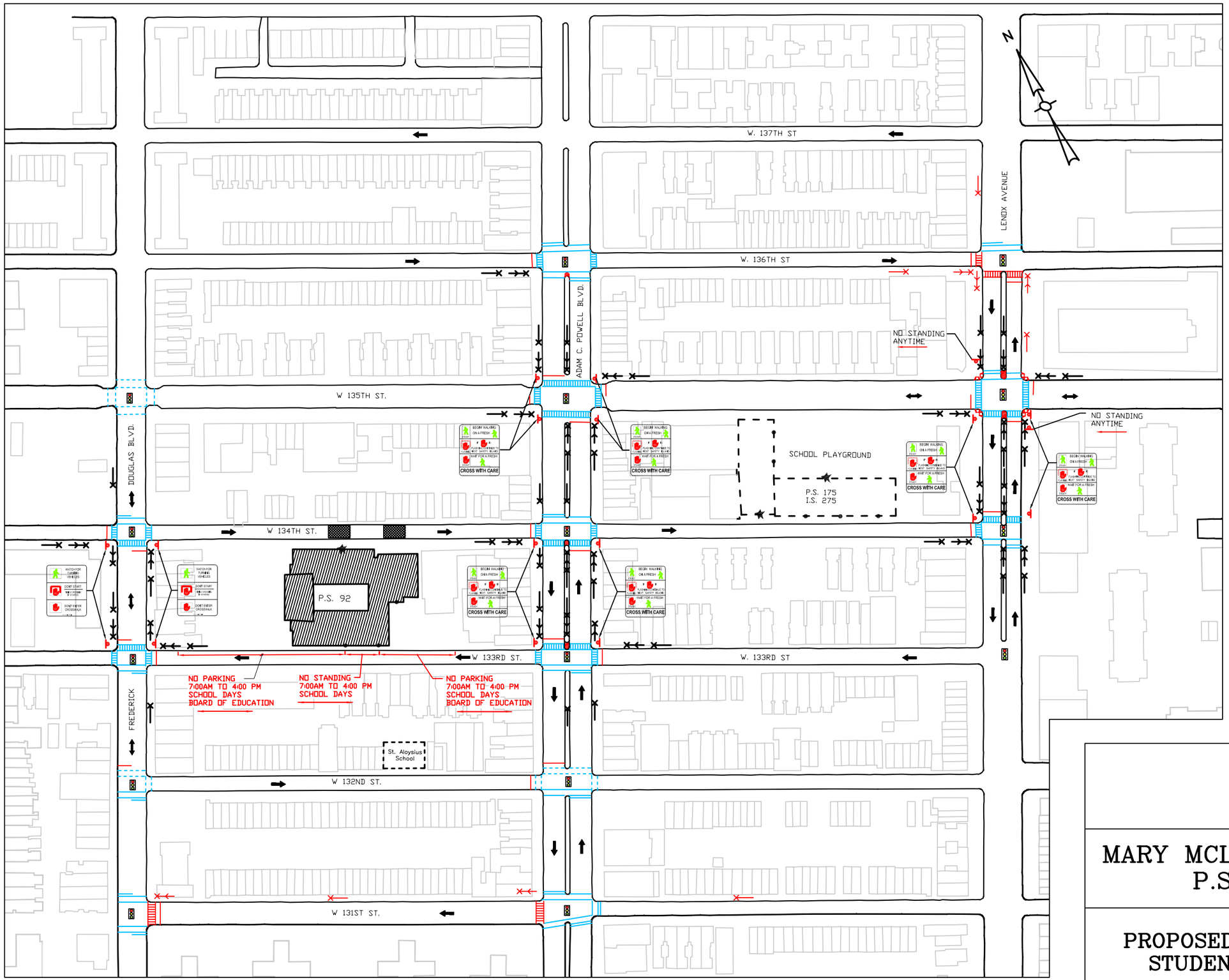
the raised median, a physically protected refuge location can be provided for pedestrians as they wait for the next cycle to cross the street. This treatment should be considered at the following intersections:

- Adam Clayton Powell Blvd and West 136th Street
- Lenox Avenue and West 135th Street

Final details pertaining to raised medians will be developed during Final Design/Contract Document preparation.

- *Install complex pedestrian ramps*

  The pedestrian ramps at Lenox Avenue and West 135th Street are missing or substandard. Due to existing conflicts with the subway entrances, the pedestrian ramps at all four corners are considered complex. Consideration should be given to the installation of pedestrian ramps per NYCDOT standards.



LEGEND

- MAIN ENTRANCE
- OTHER ENTRANCES
- EXISTING ADVANCE WARNING SIGN WITH ARROW
- EXISTING ADVANCE WARNING SIGN
- PROPOSED ADVANCE WARNING SIGN WITH ARROW
- PROPOSED ADVANCE WARNING SIGN
- EXISTING TRAVEL DIRECTION
- SIGNALIZED INTERSECTION
- EXISTING SPEED REDUCER (HUMP)
- EXISTING SCHOOL CROSSWALK
- EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- EXISTING SCHOOL CROSSWALK ASSOC. WITH OTHER SCHOOL
- PROPOSED STOP LINE
- PROPOSED TRAFFIC SIGN
- PROPOSED MEDIAN EXTENSION
- PROPOSED PEDESTRIAN RAMP
- XX' PROPOSED PARKING REGULATIONS

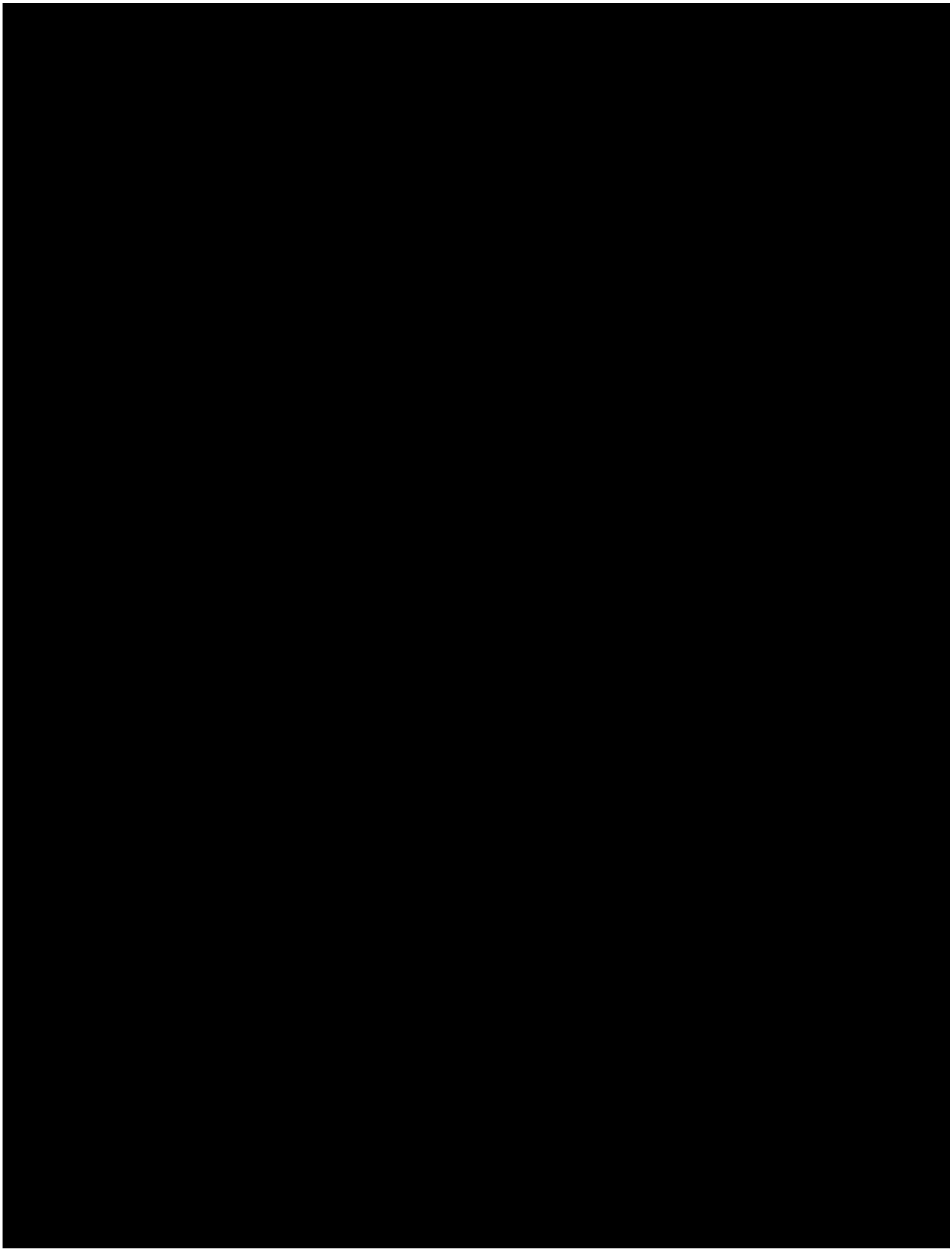
SCALE: 1" : 200'

EXHIBIT 7

MARY MCLEOD BETHUNE SCHOOL
P.S. 92, MANHATTAN

PROPOSED MEASURES TO IMPROVE STUDENT PEDESTRIAN SAFETY

APPENDIX



SPOT SPEED STUDY

Date: **October 31, 2005** Time: **8:30 am - 9:30 am** School: **P.S. 92**
Location: **West 134th Street between Fred Douglass Boulevard and Adam C. Powell Boulev** Direction: **East**
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	6	9.0%	9.0%	90	1350
16	3	4.5%	13.4%	48	768
17	3	4.5%	17.9%	51	867
18	0	0.0%	17.9%	0	0
19	6	9.0%	26.9%	114	2166
20	9	13.4%	40.3%	180	3600
21	11	16.4%	56.7%	231	4851
22	12	17.9%	74.6%	264	5808
23	3	4.5%	79.1%	69	1587
24	4	6.0%	85.1%	96	2304
25	0	0.0%	85.1%	0	0
26	4	6.0%	91.0%	104	2704
27	6	9.0%	100.0%	162	4374
28	0	0.0%	100.0%	0	0
29	0	0.0%	100.0%	0	0
30	0	0.0%	100.0%	0	0
31	0	0.0%	100.0%	0	0
32	0	0.0%	100.0%	0	0
33	0	0.0%	100.0%	0	0
34	0	0.0%	100.0%	0	0
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	67	100.0%		1409	30379

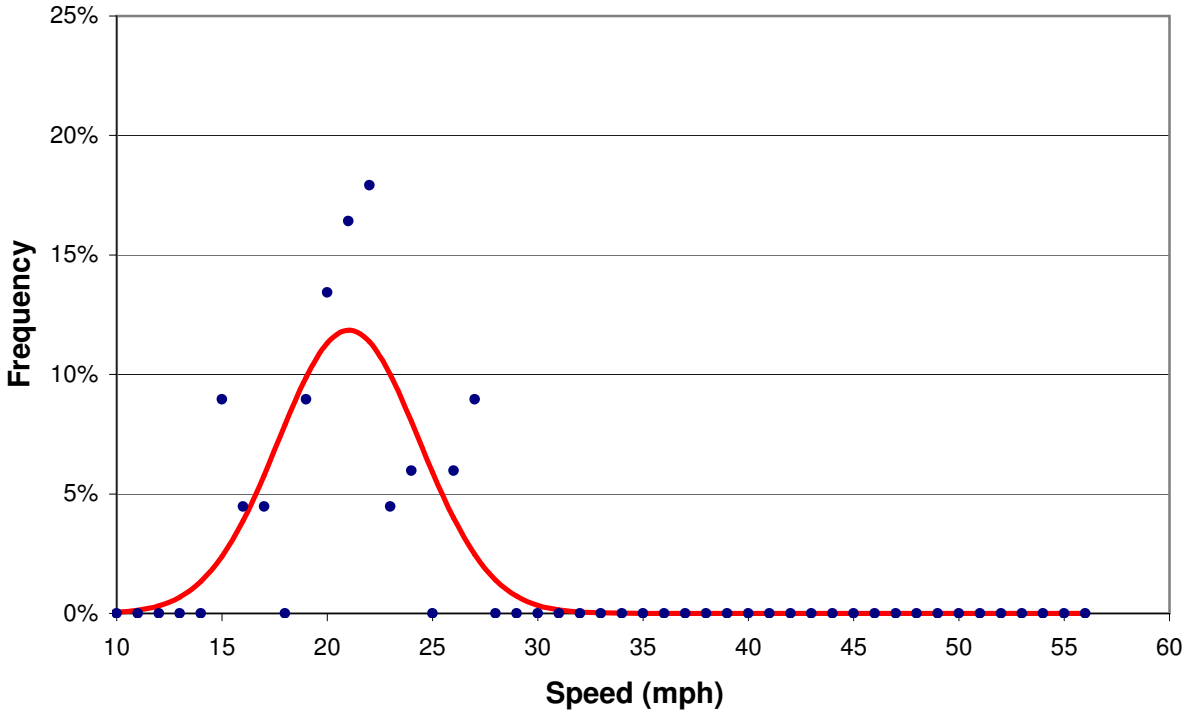
Mean Speed = 21.0 mph
Standard Deviation = 3.4 mph
Margin of Error (95% Confidence) = ± 0.8 mph

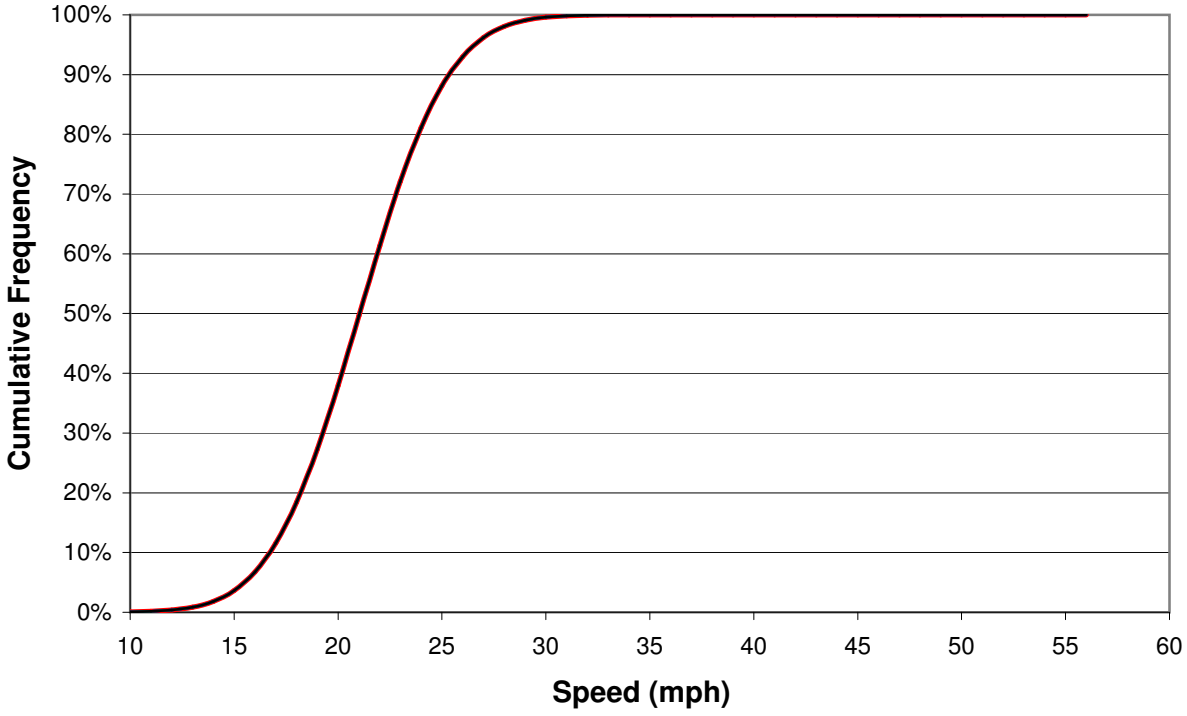
Median Speed = 21.0 mph
15th Percentile Speed = 17.5 mph
85th Percentile Speed = 24.5 mph

SPOT SPEED STUDY

Date: **October 31, 2005** Time: **8:30 am - 9:30 am** School: **P.S. 92**
Location: **West 134th Street between Fred Douglass Boulevard and Adam C. Pov** Direction: **East**
Surveyor: Comments:

Mean Speed =	21.0 mph	Median Speed =	21.0 mph
Standard Deviation =	3.4 mph	15th Percentile Speed =	17.5 mph
Margin of Error (95% Confidence) =	± 0.8 mph	85th Percentile Speed =	24.5 mph





SPOT SPEED STUDY

Date: **October 31, 2005** Time: **9:30 am - 10:30 am** School: **P.S. 92**
Location: **West 133rd Street between Fred Douglass Boulevard and Adam C. Powell Boulev** Direction: **West**
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	3	3.9%	3.9%	45	675
16	6	7.9%	11.8%	96	1536
17	3	3.9%	15.8%	51	867
18	6	7.9%	23.7%	108	1944
19	9	11.8%	35.5%	171	3249
20	6	7.9%	43.4%	120	2400
21	15	19.7%	63.2%	315	6615
22	12	15.8%	78.9%	264	5808
23	4	5.3%	84.2%	92	2116
24	0	0.0%	84.2%	0	0
25	0	0.0%	84.2%	0	0
26	6	7.9%	92.1%	156	4056
27	3	3.9%	96.1%	81	2187
28	1	1.3%	97.4%	28	784
29	0	0.0%	97.4%	0	0
30	1	1.3%	98.7%	30	900
31	0	0.0%	98.7%	0	0
32	0	0.0%	98.7%	0	0
33	0	0.0%	98.7%	0	0
34	0	0.0%	98.7%	0	0
35	0	0.0%	98.7%	0	0
36	0	0.0%	98.7%	0	0
37	0	0.0%	98.7%	0	0
38	0	0.0%	98.7%	0	0
39	0	0.0%	98.7%	0	0
40	0	0.0%	98.7%	0	0
41	0	0.0%	98.7%	0	0
42	0	0.0%	98.7%	0	0
43	1	1.3%	100.0%	43	1849
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
	76	100.0%		1600	34986

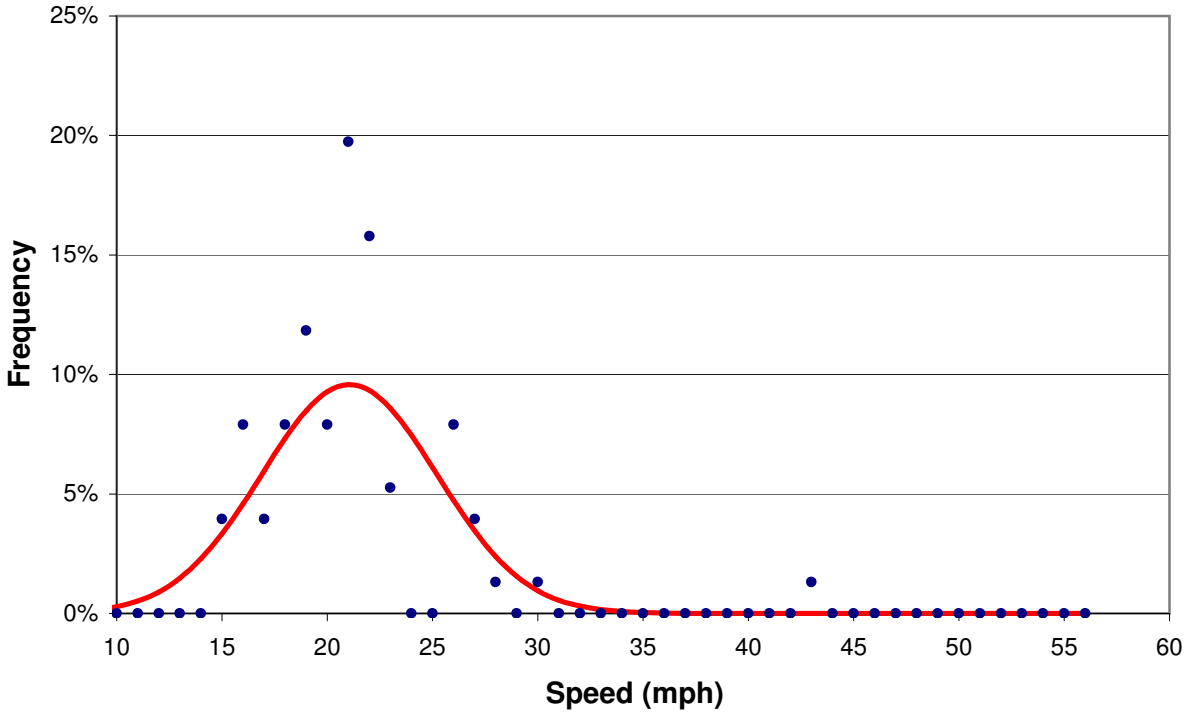
Mean Speed = 21.1 mph
Standard Deviation = 4.2 mph
Margin of Error (95% Confidence) = ± 0.9 mph

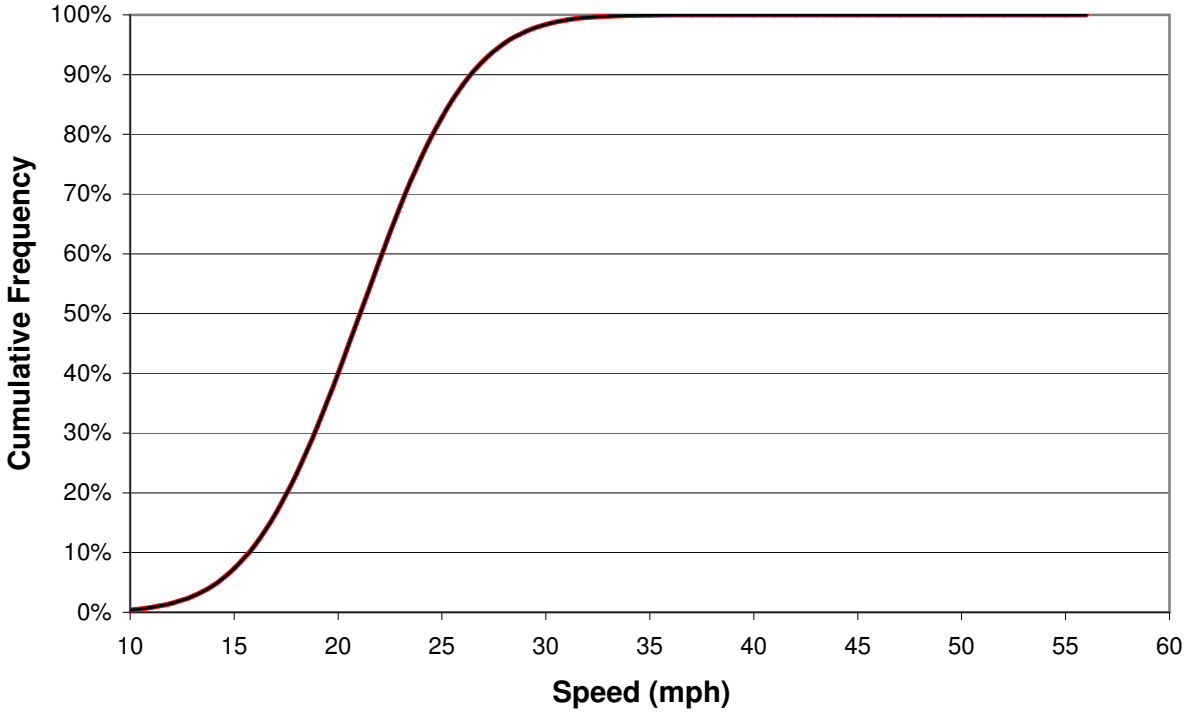
Median Speed = 21.1 mph
15th Percentile Speed = 16.7 mph
85th Percentile Speed = 25.4 mph

SPOT SPEED STUDY

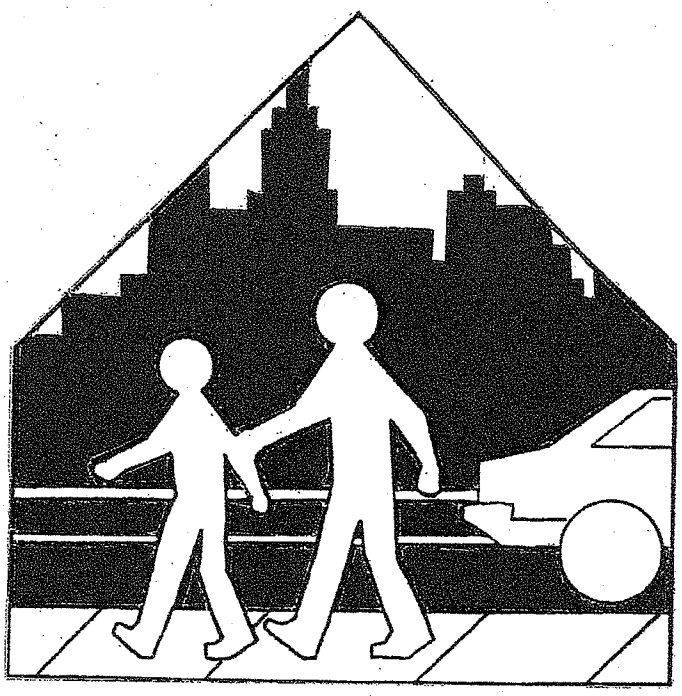
Date: **October 31, 2005** Time: **9:30 am - 10:30 am** School: **P.S. 92**
Location: **West 133rd Street between Fred Douglass Boulevard and Adam C. Pov** Direction: **West**
Surveyor: Comments:

Mean Speed =	21.1 mph	Median Speed =	21.1 mph
Standard Deviation =	4.2 mph	15th Percentile Speed =	16.7 mph
Margin of Error (95% Confidence) =	± 0.9 mph	85th Percentile Speed =	25.4 mph





Residential Model Safety Zones



Pilot Program

City of New York
Rudolph W. Giuliani, Mayor

New York City
Department of Transportation
Christopher R. Lynn, Commissioner

Residential Model Safety Zones

Program Elements

Safety Education

Motor vehicle-related collisions are the number one cause of death and injury to young children in New York City. Through a wide variety of programs scheduled at schools within the Safety Zones, children will learn the safety skills they need to help them make safer decisions in traffic situations. For each child we speak to at a presentation, many secondary contacts will be developed. As they become more aware that traffic safety touches many aspects of their lives, children will bring home safety information to share with parents and other family members. The whole Safety Zone community will be involved in safety education programs.

Traffic safety and decision-making training is most effective when integrated with the elementary and intermediate school core curriculum, and not taught as a separate subject. Students in the lower grades will receive instruction on how to make choices when walking outside, driving a bicycle, getting on and off a school bus, and riding in a car. School counselors, as well as classroom teachers in intermediate schools will be encouraged to set up Youth Educating for Safety (YES) chapters, which use positive peer pressure to make children think about the long-term consequences of their behavior, and become active participants in the safety of others in their community.

Although each Safety Zone has particular needs that will be addressed specifically, DOT has developed the basic traffic safety curriculum from traffic injury and fatality data for New York City children ages 5 - 14. The topics covered will address the most serious problems throughout New York City.

Issue Identification

DOT has surveyed the areas to quantify specific traffic flow and safety characteristics. Community and law enforcement concerns are also being addressed.

Program Inception

Implementation of all five model safety zones will be completed by November 15, 1996.

Review of Existing Conditions

All defects relating to the roadway, traffic signals, street lights, signs (both at intersections and along the curb) and markings were identified and repairs completed either by in-house or contract staff.

Evaluation of Intersection Control Devices

Intersections awaiting a traffic signal or multi-way stop study in any of the model zones were advanced and required control devices were installed.

Installation of Unique Treatments

DOT developed a ***Safety Zone Toolbox*** which identifies traffic engineering elements for various types of roadways and land uses. Figure 1 shows the treatments chosen for the Manhattan area. Appropriate elements have been selected for implementation in the other four zones.

Enforcement

Working with the Police Department's Traffic Control Division, the program will focus stringent enforcement against five types of moving violations:

- speed limit
- red lights
- yielding to pedestrians in crosswalk
- stopped school bus
- obstructing crosswalk

The Traffic Control Division is coordinating its effort with the local precincts.

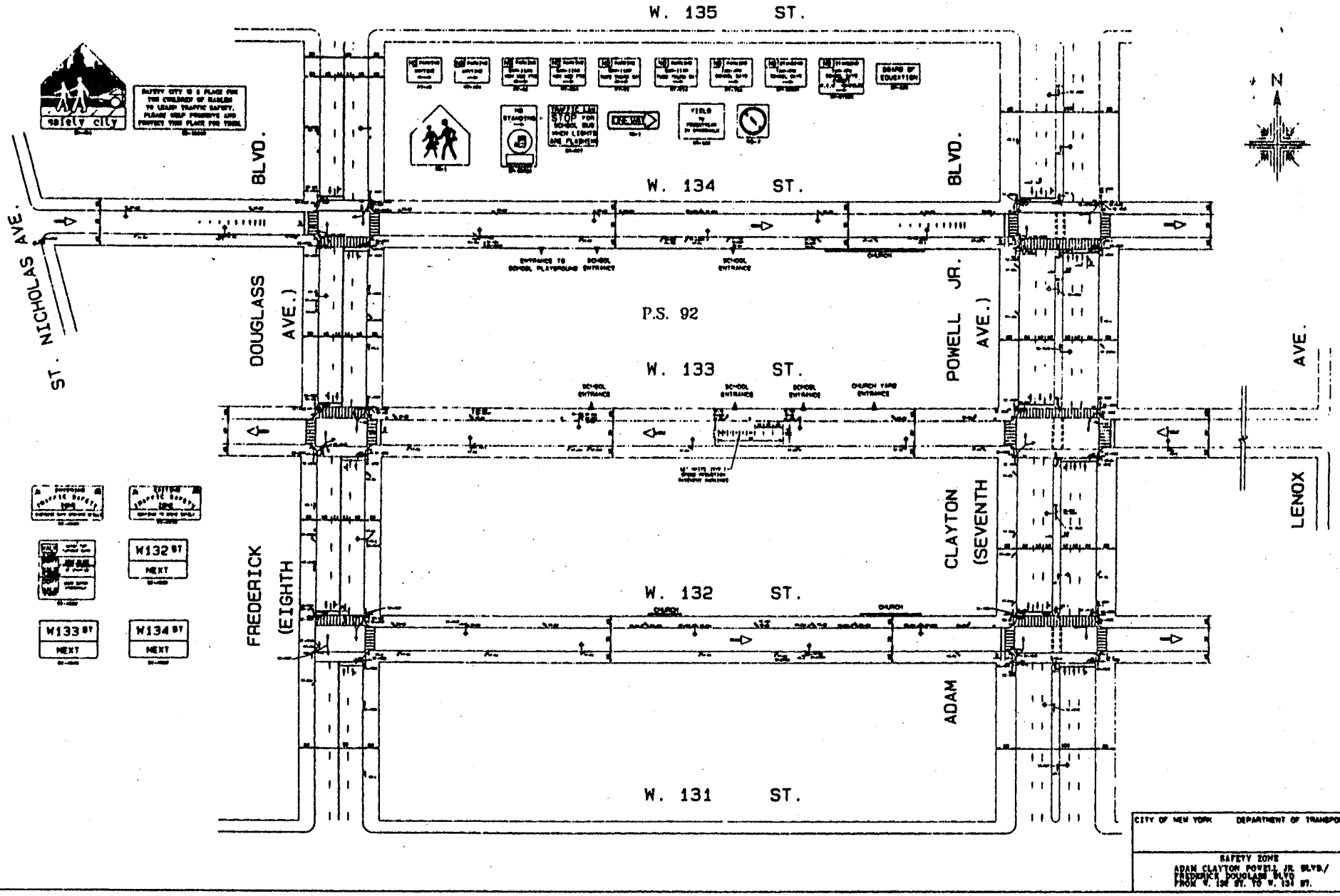
Evaluation Criteria

Utilizing the resources of DOT's Traffic Management Center and Traffic Analysis Unit rates and trends will be compared between conditions "before" and "after" implementation of the Safety Zones. Items that will be measured include, but are not limited to, the following:

- motor vehicle volumes, classifications and speeds
- pedestrian and bicycle volumes and behavior
- compliance with regulations and traffic control devices
- summons issuance for targeted violation types

Figure 1

MANHATTAN MODEL SAFETY ZONE



Residential Model Safety Zone

Toolbox Treatments

Markings

• Peg -A-Tracks	Employed at off-set intersections or to guide turning vehicles through an intersection.
• Speed Reduction Markings	"Zebra" markings consisting of twelve inch wide white bands perpendicular to the roadway, shorter upstream than downstream. The spacing is decreased approaching the intersection, creating the illusion of speeding.
• Word Messages/ Symbols	Used to supplement standard signage to guide, warn and regulate traffic (Figure 2).
• Crosswalks	Guides pedestrians along the proper paths (Figure 3).
• Stop Lines	Used at all intersections with control devices and is determined by intersection geometry and the design vehicle turning radius.
• Plowable Reflectors	Raised pavement markers to provide increased reflectorization under wet or low light conditions.

Engineering

• Daylighting	Parking will be prohibited at the approach to selected intersections to improve pedestrian safety and facilitate vehicular movements.
• Turn Restrictions	Where necessary, selected turning movements will be restricted (either full or part-time).
• Traffic Calming	Wide, low volume roadways will be narrowed (by using appropriate channelization markings) to reduce pedestrian crossing distance and encourage more orderly driving behavior.

Toolbox Treatments (con't)

Signs

• Entering/Exiting Signs	Unique signs identifying the Safety Zone will be used to increase motorist awareness of the areas (Figure 4).
• Pedestrian Crossing Signs	A new sign utilizing a "Don't Start" message to advise pedestrians of the actual meaning of the flashing "Don't Walk" clearance interval (Figure 5).
• Oversized Street Name Signs	Placed in advance of an approaching intersection to help guide motorists in selecting the appropriate travel lane and minimize last second lane changes.
• High Visibility School Crossing Signs	Upgraded School Crossing signs will be installed utilizing more highly reflective materials with a new background color (termed strong yellow-green) (Figure 6).
• Overhead Lane Control Signs	Wherever possible, lane control signs will be placed directly over the lanes to which they apply to increase driver awareness and safety.

Signals

• High Visibility Lenses	Highly visible twelve-inch traffic signal lenses will be introduced (Figure 7).