

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



**School Safety Engineering Project**

**FINAL REPORT: P.S. 165, Robert E. Simon School, Manhattan**



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



JULY 7, 2006

**School Safety Engineering Project  
P.S. 165, Robert E. Simon School, Manhattan**

**TABLE OF CONTENTS**

<b>1. INTRODUCTION.....</b>	<b>4</b>
1.1 PROJECT DESCRIPTION.....	4
<b>2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS .....</b>	<b>5</b>
2.2 NEIGHBORHOOD DESCRIPTION.....	5
2.3 MEETING WITH SCHOOL REPRESENTATIVES .....	6
2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL.....	7
2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS.....	11
2.8 CROSSING GUARD LOCATIONS.....	11
<b>3. TRAFFIC OPERATIONS .....</b>	<b>13</b>
3.1 SCHOOL BUS OPERATIONS .....	13
3.2 PARENT DROP-OFF OPERATIONS .....	13
3.3 PARKING REGULATIONS.....	13
3.4 EXISTING SCHOOL SIGNS AND MARKINGS.....	13
3.5 ACCIDENT SUMMARY.....	15
3.6 TRAFFIC OPERATIONS AND ISSUES .....	18
3.7 SIGNAL TIMING: PEDESTRIAN PHASE.....	24
3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK).....	24
<b>4. PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY. 25</b>	
4.1 SHORT-TERM OPTIONS .....	25
4.2 LONG-TERM OPTIONS.....	26
4.3 ADDITIONAL RECOMMENDATIONS FOR PRIORITY SCHOOLS IN THE VICINITY OF P.S. 165 ...	27

**EXHIBITS**

EXHIBIT 1 - AERIAL PHOTOGRAPH .....	8
EXHIBIT 2 – CATCHMENT AREA .....	9
EXHIBIT 3 – EXISTING TRAFFIC SAFETY MAP .....	10
EXHIBIT 4 - CROSSING GUARDS.....	12
EXHIBIT 5 – EXISTING PARKING REGULATIONS.....	14
EXHIBIT 6 – ACCIDENT SUMMARY .....	17
EXHIBIT 7 – PROPOSED MEASURES TO IMPROVE SCHOOL PEDESTRIAN SAFETY .....	29

**TABLES**

TABLE 1: MODE OF TRAVEL..... 7  
TABLE 2: DMV THREE-YEAR ACCIDENT SUMMARY (1998-2000)..... 15  
TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)..... 16  
TABLE 4: SPOT SPEED STUDIES ..... 23  
TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS ..... 24

**APPENDIX**

SPOT SPEED STUDY (WEST 108TH STREET)..... A-2  
SPOT SPEED STUDY (WEST 09TH STREET)..... A-4

## **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. 165 (Robert E. Simon School) in Manhattan is one of the 135 priority schools.

## **2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS**



### **2.2 NEIGHBORHOOD DESCRIPTION**

The immediate neighborhood surrounding the school building is a mixture of six-story walk-up apartment buildings and commercial properties (see Figure 1). Broadway is a main arterial for Manhattan with eight lanes of two-way traffic separated by a landscaped median. Amsterdam Avenue is a four lane, one-way northbound arterial, but changes to a two-way roadway north of Cathedral Parkway. Both West 108<sup>th</sup> and West 109<sup>th</sup> Streets have one lane, one-way traffic, and regulated parking on both sides. Traffic flows eastbound on West 108<sup>th</sup> Street and westbound on West 109<sup>th</sup> Street. P.S. 165 is surrounded by six-story residential buildings on West 108<sup>th</sup> Street and West 109<sup>th</sup> Street. Commercial properties, including banks, parking garages, and food services, are situated along Amsterdam Avenue and Broadway. There are two other priority schools located nearby, Ascension School and M.S. 54. The Ascension School is located on the south side of West 108<sup>th</sup> Street, directly across from P.S. 165. M.S. 54 is located one block to the east on West 108<sup>th</sup> Street. (Exhibit 1, Aerial Photograph)



*Figure 1 – Students congregate in front of P.S. 165 on West 109<sup>th</sup> Street.*

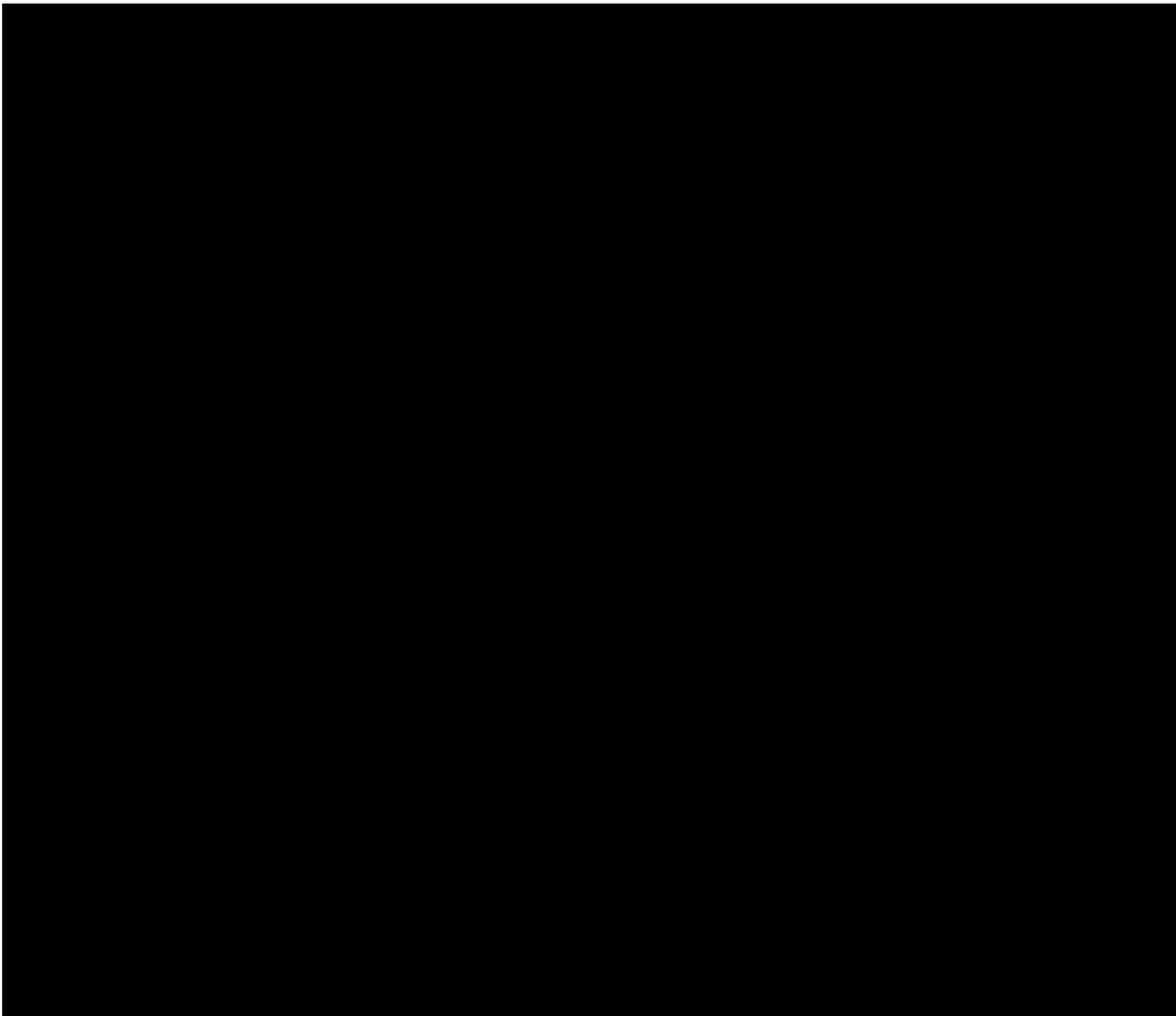


*Figure 2 – Entrance to the Ascension School on West 108<sup>th</sup> Street*

### **2.3 MEETING WITH SCHOOL REPRESENTATIVES**

Staff from New York City DOT, consultant staff, and representatives from P.S. 165 met at the school on the afternoon of June 1, 2004. Representatives from the school included the parent coordinator and the principal. Based on concerns expressed at the meeting, the current student pedestrian safety issues as presented are as follows:

- Motorists speeding on West 108<sup>th</sup> and West 109<sup>th</sup> Streets
- Double-parking for student pick-up on West 108<sup>th</sup> and West 109<sup>th</sup> Streets creates congestion as parents and children cross in the mid-block (see Figure 3)
- Overwhelming volume of children entering/exiting onto West 108<sup>th</sup> and West 109<sup>th</sup> Street at arrival/dismissal time due to the combined student enrollments of P.S.165, Mott Hall II, the Crossroads School, and the Ascension School



## 2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL

According to an estimate provided by P. S. 165 school officials, 70% of students walk to school, 22% are driven by parents or guardians, and 6% arrive by public bus or subway service. Two school buses drop off and pick up special education students, accounting for 2 % of the student body.

<b>TABLE 1: MODE OF TRAVEL</b>	
<b>(AS ESTIMATED BY SCHOOL OFFICIALS)</b>	
<b>Description</b>	<b>Percentage</b>
Walk	70%
Driven by a parent or guardian	22%
School bus	2%
MTA bus or subway	6%
<b>TOTAL</b>	<b>100%</b>



1 inch equals 150 feet

**EXHIBIT 1**  
**P.S. 165, MANHATTAN**  
**ROBERT E. SIMON SCHOOL**  
**AERIAL PHOTOGRAPH**



1 inch equals 600 feet

 CATCHMENT AREA

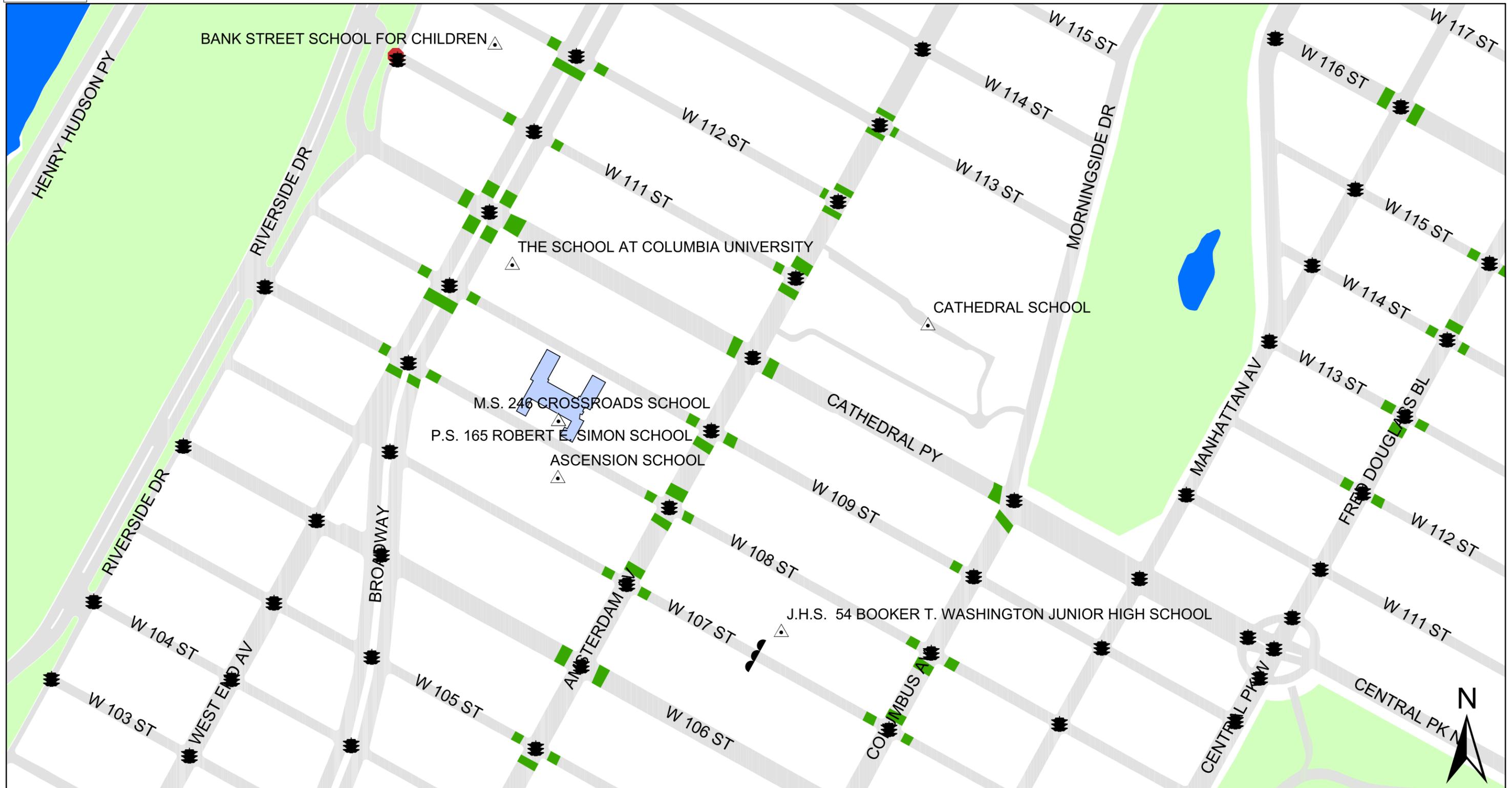
**EXHIBIT 2**

**ROBERT E. SIMON SCHOOL  
P.S. 165, MANHATTAN**

**CATCHMENT AREA**



# School Traffic Safety Map



The School Traffic Safety Map was established to help provide the maximum degree of safety for children going to and from school - by indicating the location of speed reducers, school crosswalks and some traffic control devices. (While virtually all intersections in NYC benefit from traffic control devices - such as stop signs, traffic signals, yield signs, and all way stop signs - this map shows only traffic signals and all way stop signs.) The school crosswalks that are shown are ladder striped and make the crosswalk more visible to drivers and help make the intersection safer. These crosswalks are where school children are recommended to cross.

Note: Every attempt has been made to provide complete and accurate information that is updated regularly. The City's streets are constantly changing and it is not always possible to present information without error.

**LEGEND:**

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

**PS 165 Manhattan**  
**ROBERT E. SIMON SCHOOL**

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

Map created on 11/16/2006

**EXHIBIT 3**

1.5.1

COMM. BOARD: 107  
 PRECINCT: 24

## **2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS**

Two other schools are located in the same building as P.S. 165. The Mott Hall II School occupies the fourth floor with an enrollment of 290 students from the sixth to eighth grade. The remaining floors house the Crossroads School with an enrollment of approximately 250 students, also from the sixth to eighth grade.

There are two other priority schools in the immediate vicinity of P.S. 165. The Ascension School, a Catholic school educating students from pre-kindergarten to eighth grade level, is situated on the south side of West 108<sup>th</sup> Street directly across from P.S. 165. M.S. 54, also known as Booker T. Washington Middle School, is located on the corner of West 108<sup>th</sup> Street and Columbus Avenue, two blocks east of P.S. 165. The Ascension School and M.S. 54 are also priority schools.

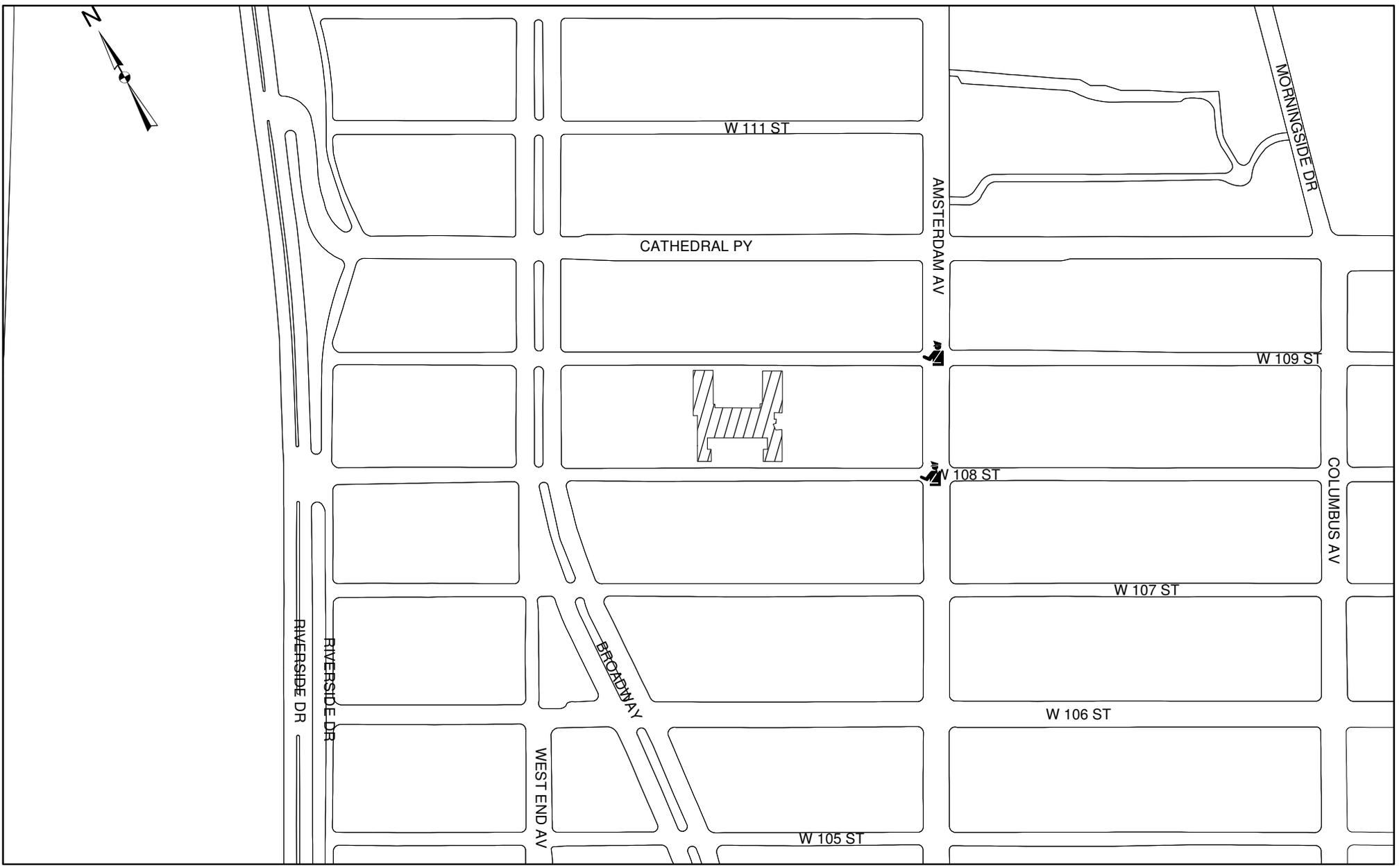
There are several local businesses and food service shops on Broadway and Amsterdam Avenue, while six story residential buildings surround the school on West 108<sup>th</sup> and West 109<sup>th</sup> Streets. Students congregate at dismissal time around the food service shops, including a juice shop and a deli.

## **2.8 CROSSING GUARD LOCATIONS**

School officials indicated that two crossing guards were assigned to P.S. 165. Crossing guards are stationed at the following intersections:

- West 108<sup>th</sup> Street and Amsterdam Avenue
- West 109<sup>th</sup> Street and Amsterdam Avenue

Crossing guard locations are shown in Exhibit 4.



1 inch equals 300 feet

 CROSSING GUARD

**EXHIBIT 4**  
**ROBERT E. SIMON SCHOOL**  
**P.S. 165, MANHATTAN**  
**CROSSING GUARD**

### **3. TRAFFIC OPERATIONS**

#### **3.1 SCHOOL BUS OPERATIONS**

According to the school officials, two percent of the students ride a school bus to P.S. 165. The buses double-park at arrival and dismissal times causing congestion on West 109<sup>th</sup> Street (see Figure 4).



*Figure 4 – School bus on West 109<sup>th</sup> Street, in front of P.S. 165*

#### **3.2 PARENT DROP-OFF OPERATIONS**

School officials have indicated that approximately 22% of P.S. 165 students are driven to and from school by parents or guardians. During the arrival and dismissal period parents typically park or double-park vehicles on West 108<sup>th</sup> Street and West 109<sup>th</sup> Street, to drop off or pickup students. Pre-kindergarten through second grade students are held in the P.S. 165 playground area until they are picked up by a parent or guardian and escorted out onto West 109<sup>th</sup> Street.

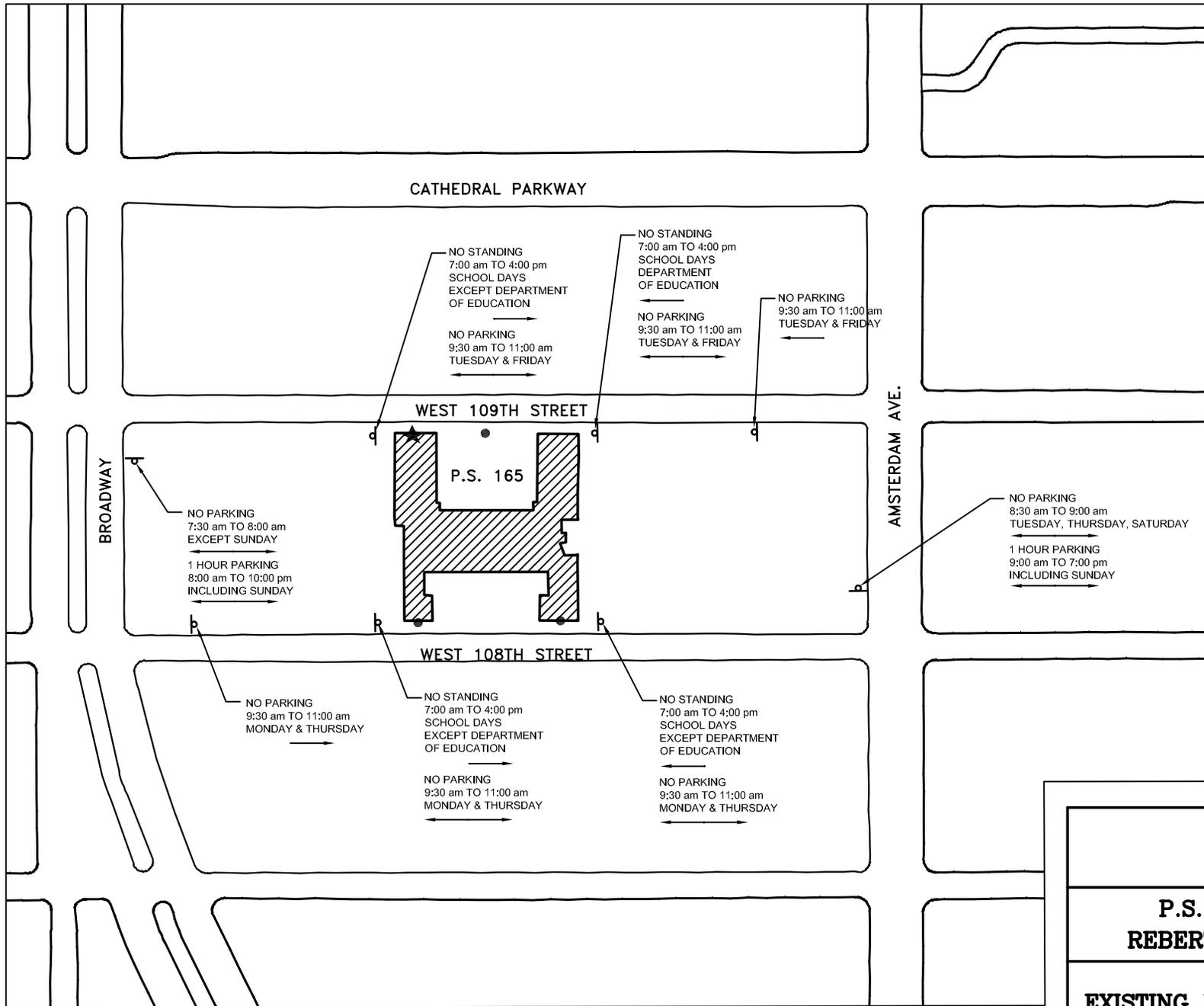
#### **3.3 PARKING REGULATIONS**

Exhibit 5 shows parking regulations on the roadways surrounding the school. On West 108<sup>th</sup> and West 109<sup>th</sup> Streets, “NO STANDING 7:00 AM – 4:00 PM SCHOOL DAYS EXCEPT DEPARTMENT OF EDUCATION” parking signs are posted in front of the school.

Street cleaning regulations, which prohibit parking on alternating sides of the roadway, are in place near the school.

#### **3.4 EXISTING SCHOOL SIGNS AND MARKINGS**

The Traffic Safety Plan (Exhibit 3) shows existing signs, signals and pavement markings. It is noted that a citywide signage program is currently underway to upgrade school signage to current MUTCD standards of fluorescent yellow-green accompanied by downward pointing arrows. Signs scheduled to be installed under this program are shown as “existing” on Exhibit 7.



**LEGEND**

- ★ MAIN ENTRANCE
- OTHER ENTRANCES

SCALE 1" = 200'

**EXHIBIT 5**

**P.S. 165. MANHATTAN  
REBERT E. SIMON SCHOOL**

**EXISTING PARKING REGULATIONS**

### 3.5 ACCIDENT SUMMARY

Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of P.S. 165 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provide some detail relating to the circumstances and cause of the accidents. Table 3 is a summary of more recent accident data obtained from the NYC Police Department (NYPD). Though current through 2004, the NYPD data do not provide the same level of detail as the DMV data.

This report targets intersections closest to the school where the highest concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data were not available at the time of this study will be addressed with the ongoing work of DOT's School Safety Engineering Program. DMV Accident data is discussed in Section 3.6, Traffic Operations and Issues.

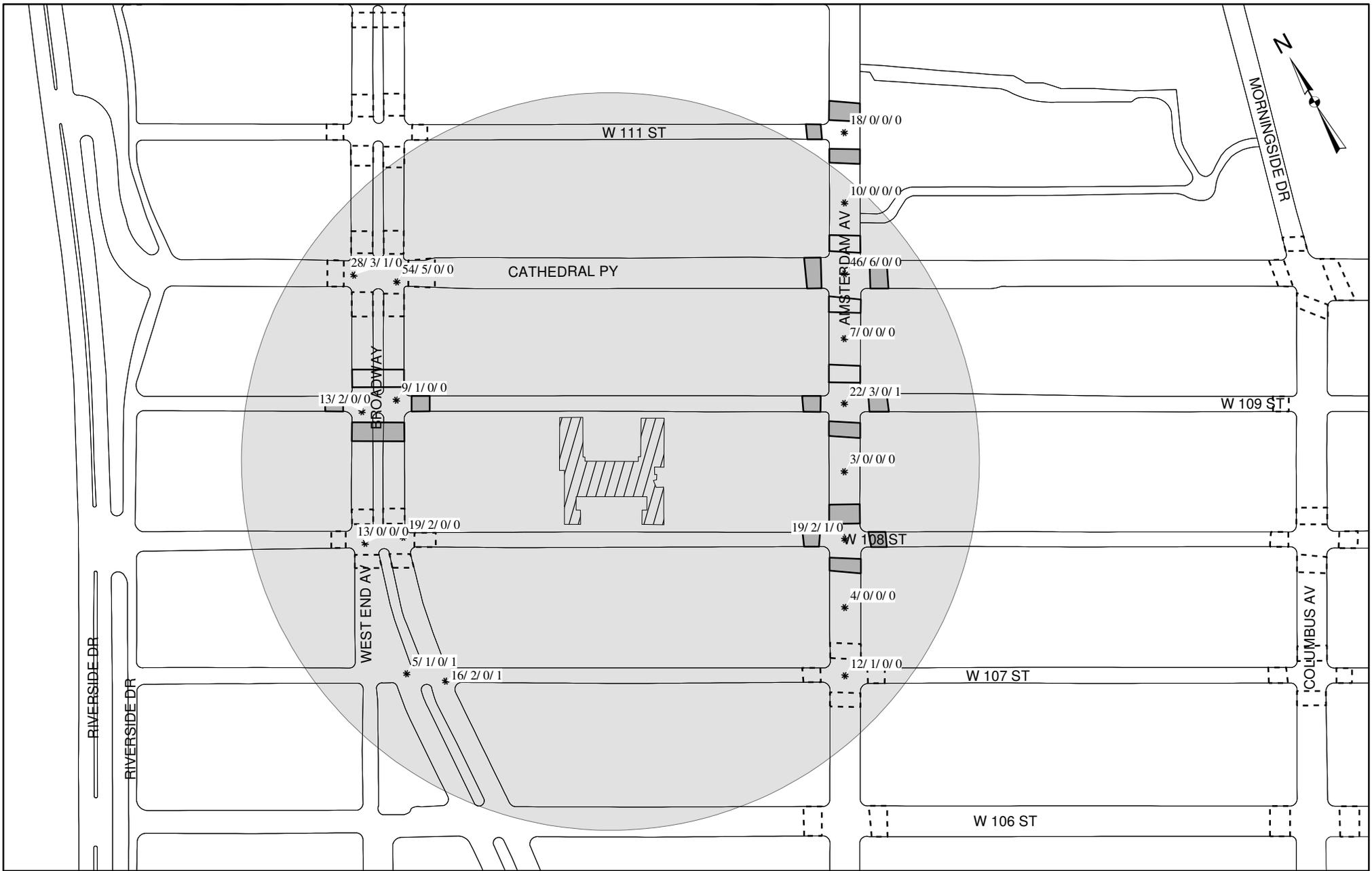
<b>TABLE 2: DMV THREE-YEAR ACCIDENT SUMMARY (1998-2000)</b>				
<b>INTERSECTION</b>	<b>TOTAL ACCIDENTS</b>	<b>PEDESTRIAN ACCIDENTS</b>	<b>PEDESTRIAN FATALITIES</b>	<b>SCHOOL-RELATED ACCIDENTS*</b>
Amsterdam Ave. at West 108 <sup>th</sup> Street	19	2	1	0
Amsterdam Ave. at West 109 <sup>th</sup> Street	22	3	0	1
Amsterdam Ave. at Cathedral Pkwy	46	6	0	0
Amsterdam Ave. at West 111 <sup>th</sup> Street	18	0	0	0
Broadway at West 107 <sup>th</sup> Street ***	21	3	0	2
Broadway at West 108 <sup>th</sup> Street ***	32	3	0	0
Broadway at West 109 <sup>th</sup> Street ***	22	3	0	0
Broadway at Cathedral Pkwy ***	82	8	1	0
<b>TOTAL</b>	<b>262</b>	<b>28</b>	<b>2</b>	<b>3</b>

<b>TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)</b>				
<b>INTERSECTION</b>	<b>TOTAL ACCIDENTS</b>	<b>PEDESTRIAN ACCIDENTS</b>	<b>PEDESTRIAN FATALITIES</b>	<b>SCHOOL-RELATED ACCIDENTS**</b>
Amsterdam Ave. at West 108th Street	40	3	0	0
Amsterdam Ave. at West 109th Street	35	4	0	0
Amsterdam Ave. at Cathedral Pkwy	75	8	0	0
Amsterdam Ave. at West 111th Street	29	1	0	1
Broadway at West 107 <sup>th</sup> Street ***	40	4	0	0
Broadway at West 108th Street ***	55	5	0	0
Broadway at West 109th Street ***	49	10	0	1
Broadway at Cathedral Pkwy ***	97	7	0	0
<b>TOTAL</b>	<b>420</b>	<b>42</b>	<b>0</b>	<b>2</b>

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

\*\* NYPD accident data does not always provide pedestrian age

\*\*\* Accident totals have been combined for the both northbound and southbound Broadway



ACCIDENT LOCATION

SCHOOL CROSSWALK ASSIGNED TO P.S. 165

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**

**ROBERT E. SIMON SCHOOL  
P.S. 165, MANHATTAN  
ACCIDENT SUMMARY  
THREE YEAR PERIOD  
(1998-2000)**

### 3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accident and operational issues at the intersections in the vicinity of P.S. 165.

#### 3.6.1 Amsterdam Avenue and West 108<sup>th</sup> Street

West 108<sup>th</sup> Street is a 33-foot wide one-way (eastbound) roadway, with one travel lane and parking permitted on both curb lines. Amsterdam Avenue is a 60-foot wide one-way roadway with four northbound moving lanes and parking on both sides of the roadway. This intersection has school crosswalks on all four approaches (see Figure 5).



*Figure 5- Looking northeast across intersection of Amsterdam Avenue and West 108<sup>th</sup> Street*

The intersection is controlled by a two-phase signal. The pedestrian crossing time was determined to be sufficient for pedestrians to cross the street at a walking rate of three feet per second. (Table 5)

There were nineteen accidents at this intersection between 1998 and 2000. Two accidents involved pedestrians. One incident involved an intoxicated pedestrian who was struck and killed at 4:00 am. No further information on the pedestrian or vehicle action and direction is available. The other accident occurred when a driver failed to yield to a pedestrian while making a left turn onto Amsterdam Avenue. There were no school related accidents at this location.

#### 3.6.2 Amsterdam Avenue and West 109<sup>th</sup> Street

West 109<sup>th</sup> Street is a one-way westbound roadway with one travel lane and parking permitted on both sides. There are school crosswalks located on the west, south, and east legs of this intersection.

There is no pedestrian ramp provided for the Amsterdam Avenue crosswalk on the east side of Amsterdam Avenue north of West 109<sup>th</sup> Street due to the presence of a traffic signal pole (see Figure 6).



*Figure 6- Northeast corner of West 109<sup>th</sup> Street and Amsterdam Avenue.*

This intersection is controlled by a two-phase signal. The pedestrian crossing time was determined to be sufficient for pedestrians to cross the street at a walking rate of three feet per second (see Table 5).

Twenty-two accidents occurred in the three-year period from 1998 to 2000. Three accidents involved pedestrians, one of which was school related. A nine-year-old school student was crossing against the signal when struck by a westbound vehicle failing to yield. The other two accidents involved a driver failing to yield while making a right turn onto Amsterdam Avenue, and the other occurred when a pedestrian crossed against the signal as a driver made a left turn onto West 109<sup>th</sup> Street.

### 3.6.3 Amsterdam Ave. and Cathedral Parkway

Cathedral Parkway is a two-way roadway with two travel lanes in each direction and parking permitted on both sides. South of Cathedral Parkway, Amsterdam Avenue operates one-way northbound. There are school crosswalks located on the east and west legs of this intersection (see Figure 7).

This intersection is controlled by a three-phase signal. The southbound traffic on Amsterdam Avenue has an exclusive turning phase onto Cathedral Parkway. The pedestrian crossing time was determined to be sufficient for pedestrians to cross Cathedral Parkway and Amsterdam Avenue at a walking speed of three feet per second.



*Figure 7 – Looking south on Amsterdam Avenue, across intersection with Cathedral Parkway*

Forty-six accidents occurred between 1998 and 2000. Six accidents involved pedestrians. Two accidents involved pedestrians crossing outside the crosswalk and against the signal. One driver was traveling westbound, the other eastbound. The four other accidents were the result of driver error as pedestrians crossed with the signal. One driver failed to yield going westbound. The other three drivers all failed to yield while turning; one was making a left to turn eastbound, the another driver was making a left to turn northbound, and the final driver was making a right to turn eastbound.

#### 3.6.4 Amsterdam Avenue and West 111<sup>th</sup> Street

This is a three-way intersection with school crosswalks in all directions (see Figure 8). West 111<sup>th</sup> Street is a one-way westbound roadway with one travel lane and parking permitted on both sides.

This intersection is controlled by a two-phase signal. The pedestrian crossing time was determined to be sufficient for pedestrians to cross the street at a walking rate of three feet per second (see Table 5).

Eighteen accidents occurred between 1998 and 2000. None of the accidents involved pedestrians.



*Figure 8 – Looking east across Amsterdam Avenue, at intersection with West 111<sup>th</sup> Street*

### 3.6.5 Broadway and West 107<sup>th</sup> Street

Broadway is a 175-foot wide (including medians) two-way (north-south) roadway at this intersection. Southbound traffic splits into two streets forming Broadway and West End Avenue. Broadway has six moving lanes (three in the northbound, and three in the southbound direction) and parking along both curbs. There are two medians separating northbound and southbound traffic. West 107<sup>th</sup> Street is a one-way (westbound) 30-foot wide roadway with one moving lane and parking on both sides. All four crosswalks are standard pedestrian crosswalks. No school crosswalks exist at this intersection.

Twenty-one accidents occurred during the three-year period between 1998 and 2000. Sixteen accidents occurred in the northbound direction, and five accidents occurred in the southbound direction of Broadway. Three accidents involved pedestrians including two school students being struck. All three pedestrian accidents were attributed to pedestrian error due to crossing against the signal and outside the crosswalk.

### 3.6.6 Broadway and West 108<sup>th</sup> Street

Broadway at West 108<sup>th</sup> Street has eight lanes of two-way traffic separated by a landscaped median with parking permitted on both sides. The medians extend through the crosswalks on both sides of Broadway (see Figure 9). There are school crosswalks on the south, east, and west legs of this intersection.

Review of the existing signal timing indicates that the pedestrian phase does not provide adequate time for pedestrians to cross Broadway from curb-to-curb in one cycle at a walking rate of three feet per second plus three seconds reaction time. A pedestrian is expected to wait in the center median between signal cycles. It is common practice to utilize the median as a refuge for pedestrians to wait between signal cycles (see Table 5).



*Figure 9 – Looking west, across Broadway at West 108th Street.*

This signalized intersection had thirty-two accidents between 1998 and 2000. Three accidents included pedestrians. Two pedestrians were crossing with the signal when struck by vehicles failing to yield. One driver was making an illegal U-turn. The other driver was backing up unsafely. There is no information on the third pedestrian accident. There were no school related accidents at this location.

### 3.6.7 Broadway and West 109th Street

Broadway at West 109th Street is controlled by a two-phase signal. The medians extend through the crosswalks on both sides of Broadway (see Figure 10). There are school crosswalks located on the east, west, and south legs of this intersection.



*Figure 10 – Looking northwest, across Broadway at West 109th Street.*

As previously discussed a pedestrian needs two signal cycles to cross Broadway. The medians provide a sufficient refuge for pedestrians to wait between cycles (see Table 5).

Twenty-two accidents occurred between 1998 and 2000. Three accidents included pedestrians. Two pedestrians were struck crossing with the signal by vehicles failing to yield. One driver was making an illegal U-turn. The other driver was traveling westbound and disregarded the signal. The third accident involved an intoxicated pedestrian while crossing against the signal as a vehicle made a right turn onto Broadway. There were no school related accidents at this location.

3.6.8 Broadway and Cathedral Parkway

Cathedral Parkway is a 60-foot wide two-way roadway with two travel lanes in each direction and parking permitted along both curb lines. There are school crosswalks at all four approaches.

A total of 82 accidents occurred at this intersection between 1998 and 2000. Eight accidents involved pedestrians, including one fatality. There were no school related accidents. According to the accident data a 51-year-old pedestrian was struck and killed by a southbound vehicle while crossing Broadway. This accident was attributed to both pedestrian and driver error. No detailed information on how this accident occurred is available. Two pedestrians were struck while crossing against the signal, and three other pedestrians were struck while crossing with the signal. One pedestrian was struck by a southbound vehicle while getting out of a parked car. No information was available for the eighth pedestrian accident.

3.6.9 Speeds on West 108<sup>th</sup> Street and West 109<sup>th</sup> Street between Broadway and Amsterdam Avenue

According to school officials, vehicles using West 108th Street and West 109th Street in the vicinity of P.S. 165 travel at excessive speeds.

On Thursday, October 4, 2005 two speed studies were conducted. One was from 1:00 pm to 2:00 pm on West 108<sup>th</sup> Street between Broadway and Amsterdam Avenue, and the second one was from 2:00 pm to 3:00 pm on West 109<sup>th</sup> Street between Broadway and Amsterdam Avenue. The results indicated that the 85<sup>th</sup> percentile speed at both locations was under the statutory speed limit of 30 mph. See Table 4 for a summary of results and the Appendix for further detail.

<b>TABLE 4: SPOT SPEED STUDIES</b>		
<b>LOCATION</b>	<b>MEDIAN SPEED (MPH)</b>	<b>85TH PERCENTILE SPEED (MPH)</b>
West 108 <sup>th</sup> Street between Broadway and Amsterdam Avenue	23	28
West 109 <sup>th</sup> Street between Broadway and Amsterdam Avenue	22	27

### 3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of P.S. 165, and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

<b>TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS</b>				
<b>Intersection Name</b>	<b>Crosswalk Width (Feet)</b>	<b>Ped. Phase Actual (Seconds)</b>	<b>Ped. Phase Req'd (Seconds)</b>	<b>Timing Adjustment? (Yes/No)</b>
<b>Amsterdam Ave. &amp; West 108th St</b>				
Crossing Amsterdam Ave.	60	40	23	NO
Crossing West 108th St.	30	40	13	NO
<b>Amsterdam Ave. &amp; West 109th St</b>				
Crossing Amsterdam Ave.	60	40	23	NO
Crossing West 109th St.	30	40	13	NO
<b>Amsterdam Ave. &amp; Cathedral PY</b>				
Crossing Amsterdam Ave.	60	25	23	NO
Crossing Cathedral Pkwy	60	30	23	NO
<b>Amsterdam Ave. &amp; West 111th St</b>				
Crossing Amsterdam Ave.	60	30	23	NO
Crossing 111 <sup>th</sup> St.	30	30	13	NO
<b>Broadway &amp; West 108th Street</b>				
Crossing Broadway	42/42 <sup>1</sup>	25/25 <sup>1</sup>	17/17	NO
Crossing West 108th St.	30	55	13	NO
<b>Broadway &amp; West 109th St</b>				
Crossing Broadway	40/40 <sup>1</sup>	25/25 <sup>1</sup>	17/17	NO
Crossing West 109th St.	30	55	13	NO

Note: –

- \* A rate of 3 ft/sec plus 3 seconds reaction time was utilized as the child pedestrian walking rate
- 1. A pedestrian needs two signal cycles to cross Broadway at a rate of three feet per second while stopping at the protected pedestrian median. The actual pedestrian phase for Broadway at West 108th St. and West 109th St. is 25 seconds.

### 3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

The roadways and sidewalks in the vicinity of P.S. 165 were generally observed to be in good condition with the exception of the following:

Pedestrian ramps that are missing or not positioned correctly have been noted in Section 3.6.

#### **4. PROPOSED MEASURES TO IMPROVE SCHOOL 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 OPTIONS**

- Upgrade parking Regulations on West 108<sup>th</sup> Street and West 109<sup>th</sup> Street

It is recommended that “NO STANDING 7AM-4 PM, SCHOOL DAYS” parking regulation be posted in front of P.S. 165 on West 109<sup>th</sup> Street. Also, “NO STANDING 7AM-4 PM, SCHOOL DAYS” is recommended in front of P.S. 165 on 108<sup>th</sup> Street for a length of 60 feet. The teacher parking on both West 108<sup>th</sup> and West 109<sup>th</sup> Street would be moved to the west of the proposed “No Standing” parking regulation (see Exhibit 7 for detail). This will allow for additional clear frontage for parents/school buses to drop-off and pick-up students.

- Install pedestrian information sign that explains the signal phases

The safety of pedestrians at the wide intersections of Broadway, Amsterdam Avenue, and Columbus Avenue at West 108th Street and West 109th Street is a major concern. Installation of a pedestrian information sign adjacent to each school crosswalk that explains the signal phases is recommended. During a consultant field visit, it was noted that students and others attempted to cross Broadway in one signal phase. The pedestrian should be informed to wait at the median between signal cycles. Installation of the pedestrian information signage is also recommended at the West 108th and West 109th Street intersections with Amsterdam Avenue and Columbus Avenue. Both Amsterdam Avenue and Columbus Avenue are wide, high volume roadways. 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 the students not to cross mid-block and not to cross against signals.

- Review bus management / staging procedures

Curbside space has been provided for school bus operations on West 108<sup>th</sup> Street and West 109<sup>th</sup> Street. This might require some buses to stage at other locations until sufficient curbside space becomes available. School officials should review the bus operations at the school and consider the following:

- Restrict drop-off/pick-up of students from school buses except at the designated curb 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.

- Submit Request to Police Department for Crossing Guard

Parents pick-up the pre-kindergarten through second grade students on West 109<sup>th</sup> Street, and grades three through five on West 108<sup>th</sup> Street. It is recommended that a crossing guard be requested for Broadway and West 108<sup>th</sup> Street, to assist older students who may be without supervision of their parents.

#### 4.2 LONG-TERM OPTIONS

- Install Pedestrian Ramps at West 109th Street and Amsterdam Avenue

Currently only one pedestrian ramp is provided on the east side of Amsterdam Avenue north of West 109th Street due to the presence of a signal pole. It is recommended that this corner quadrant be reconstructed to facilitate two pedestrian ramps, one for each crossing (see Exhibit 7).

*(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 OF P.S. 165**

#### *4.3.1 RECOMMENDATIONS FOR ASCENSION SCHOOL:*

- *Install graphic “Yield to Pedestrian”*

A “YIELD TO PEDESTRIAN” sign should be installed at the north-south approaches to the following intersections:

- Broadway and West 106<sup>th</sup> Street
- Broadway and West 107<sup>th</sup> Street
- Amsterdam Avenue and West 106<sup>th</sup> Street

The installation of the signs is intended to remind the drivers that the pedestrians have the right of way within the crosswalk.

- *Install school crosswalks at the following intersections:*

- Broadway and West 107<sup>th</sup> Street – east leg
- Broadway and West 106<sup>th</sup> Street – east leg

Based on feedback from school officials, these intersections are utilized by students en route to school. Therefore, it is recommended that the east legs of both intersections become school crosswalks to ensure continuous walking routes (see Exhibit 7 for detail).

- *Consider curb extensions at the following intersections:*

- Amsterdam Avenue and West 107<sup>th</sup> Street – northwest and southwest corners
- Amsterdam Avenue and West 108<sup>th</sup> Street – northwest and southwest corners
- Amsterdam Avenue and West 109<sup>th</sup> Street – northwest and southwest corners
- Amsterdam Avenue and Cathedral Parkway – northwest and southwest corners. The curb extension at the southwest corner is 20-foot wide, and partially replaces existing striped “blockbuster”.

Curb extensions should be installed at the corners as shown in Exhibit 7.

The purpose of the curb extensions is to shorten the crossing distance for pedestrians, and to reduce speeds of vehicles approaching and turning at school crosswalks.

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

#### 4.3.2 RECOMMENDATIONS FOR M.S. 54:

- Submit Request to Police Department for Crossing Guard

It is recommended that crossing guards be requested for the following intersections:

- West 108<sup>th</sup> Street and Columbus Avenue
  - West 106<sup>th</sup> Street and Columbus Avenue
  - Cathedral Parkway and Columbus Avenue
- Place advance stop bar ten feet before school crosswalks on the following intersections:
    - West 106<sup>th</sup> Street and Columbus Avenue
    - West 107<sup>th</sup> Street and Columbus Avenue
    - West 108<sup>th</sup> Street and Columbus Avenue

It is recommended that the advance stop bar be placed ten feet in advance of the crosswalks to maximize the safety benefit for school-aged pedestrians (Exhibit 7). This would improve visibility of pedestrians to motorists.

- Install new school crosswalks

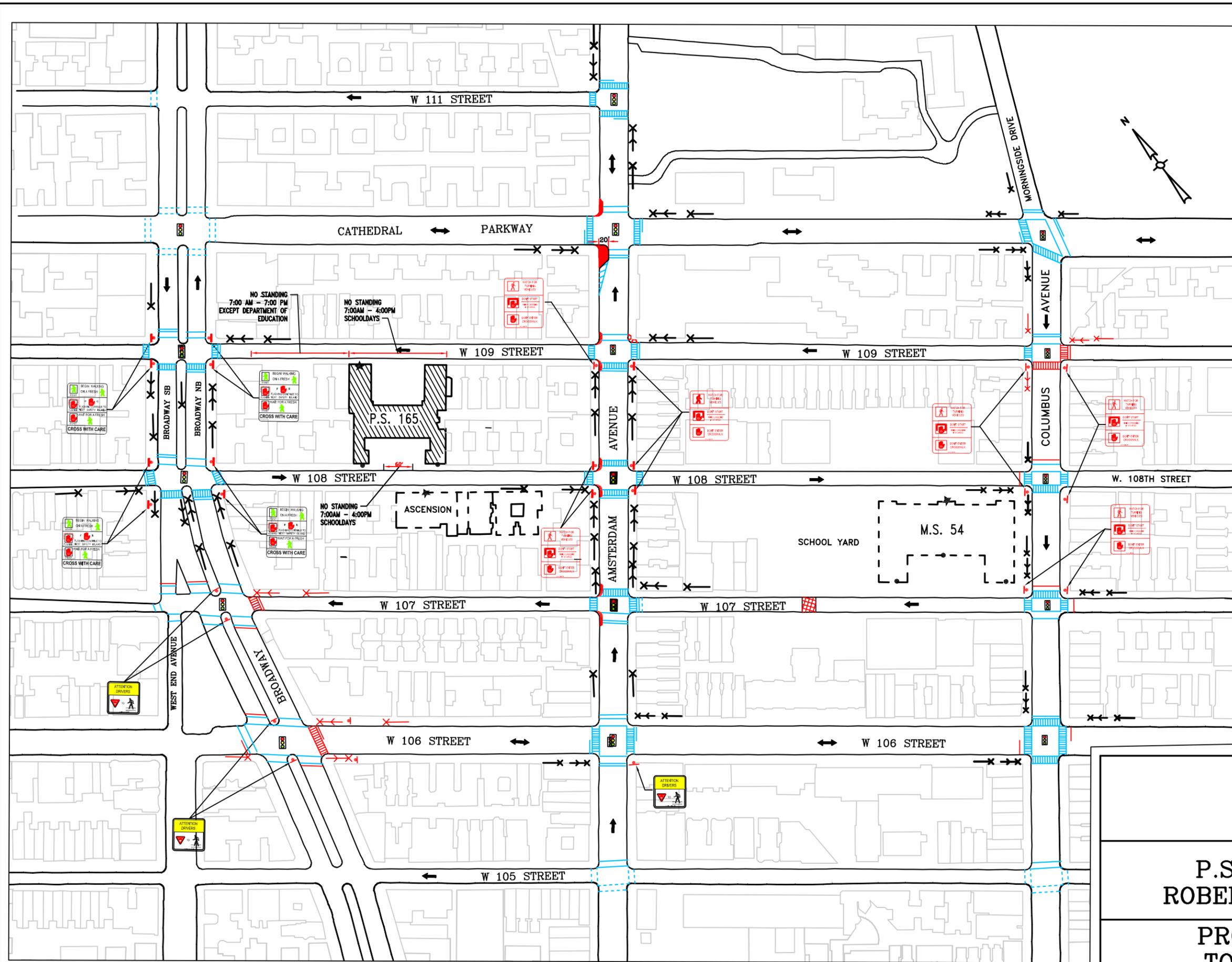
- Columbus Avenue and West 109<sup>th</sup> Street – south and east legs

Based on feedback from school officials these intersections are utilized by M.S. 54 students en route to school. Therefore, it is recommended that the east legs of both intersections become school crosswalks to ensure continuous walking routes (see Exhibit 7 for detail).

- Install speed reducers (humps) on West 107<sup>th</sup> Street between Amsterdam Avenue and Columbus Avenue

A spot speed survey was conducted on West 107<sup>th</sup> Street between Amsterdam Avenue and Columbus Avenue on September 19, 2005 between 3:15 pm-4:15 pm. The objective of the survey was to determine if there is a speeding problem along on West 107<sup>th</sup> Street between Amsterdam Avenue and Columbus Avenue.

The 85% percentile speed was 34 mph, which exceeding the legal speed limit of 30 mph. Therefore, to reduce speeding along West 107<sup>th</sup> Street in the vicinity of M.S. 54, a speed reducer (hump) should be installed on West 107<sup>th</sup> Street between Amsterdam Avenue and Columbus Avenue. The actual number and location of speed reducers (humps) will be determined by NYCDOT prior to installation.



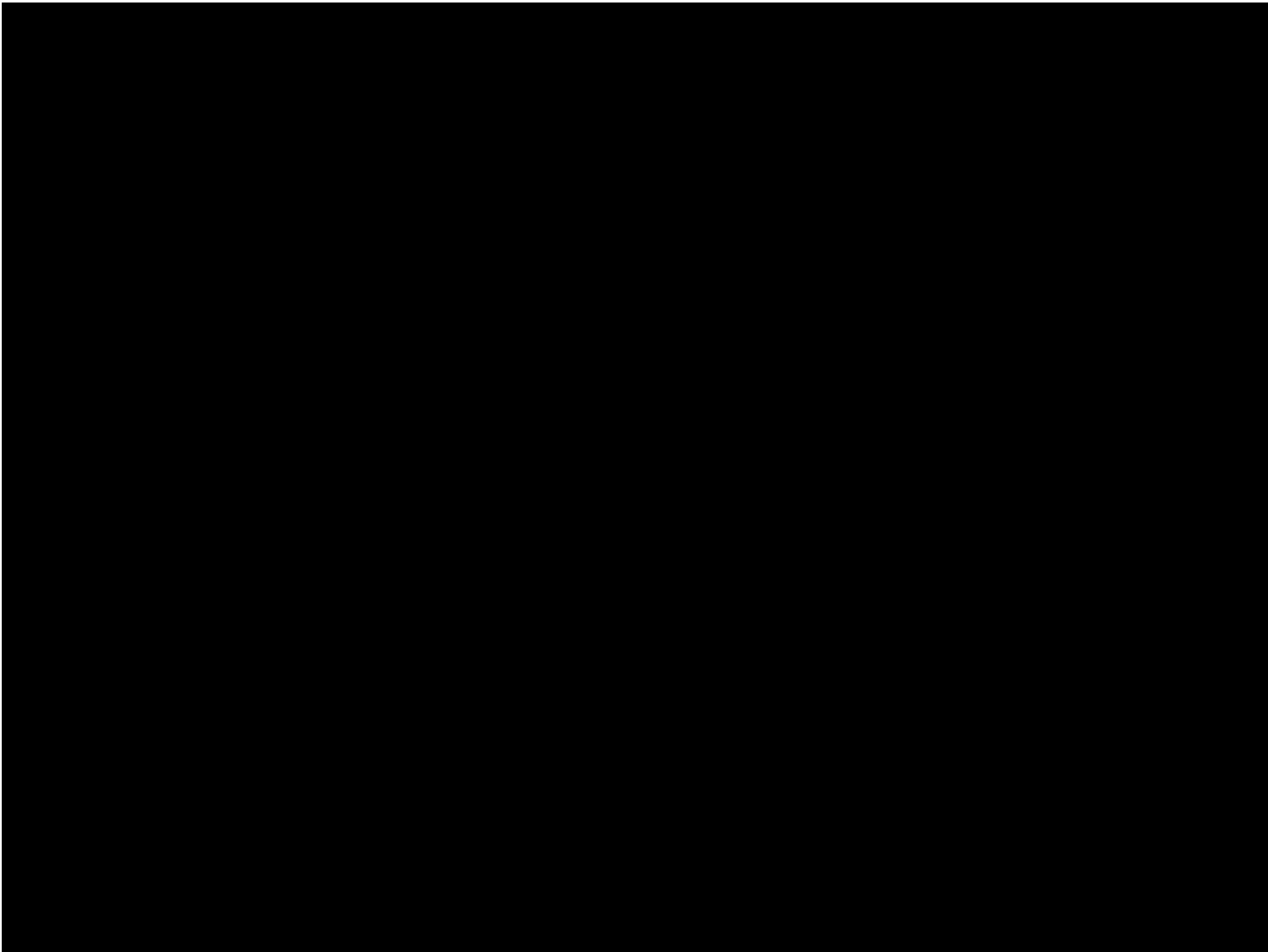
- LEGEND**
-  MAIN ENTRANCE
  -  OTHER ENTRANCES
  -  EXISTING (OR SCHEDULED TO BE INSTALLED BY DOT) ADVANCE WARNING SIGN WITH ARROW
  -  EXISTING ADVANCE WARNING SIGN
  -  EXISTING TRAVEL DIRECTION
  -  SIGNALIZED INTERSECTION
  -  EXISTING SCHOOL CROSSWALK
  -  EXISTING STANDARD (NON-SCHOOL) CROSSWALK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

SCALE: 1" : 150'

**EXHIBIT 7**

**P.S. 165, MANHATTAN  
ROBERT E. SIMON SCHOOL  
PROPOSED MEASURES  
TO IMPROVE SAFETY**

# APPENDIX



## SPOT SPEED STUDY

Date: **October 4, 2005**                      Time: **1:00 pm - 2:00 pm**  
 Location: **108th Street between Broadway and Amsterdam Avenue**  
 Surveyor:

School: **P.S. 165**  
 Direction: **East bound**  
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS <sup>2</sup>
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	2	2.9%	2.9%	30	450
16	3	4.4%	7.4%	48	768
17	4	5.9%	13.2%	68	1156
18	3	4.4%	17.6%	54	972
19	6	8.8%	26.5%	114	2166
20	4	5.9%	32.4%	80	1600
21	7	10.3%	42.6%	147	3087
22	8	11.8%	54.4%	176	3872
23	5	7.4%	61.8%	115	2645
24	4	5.9%	67.6%	96	2304
25	0	0.0%	67.6%	0	0
26	4	5.9%	73.5%	104	2704
27	5	7.4%	80.9%	135	3645
28	4	5.9%	86.8%	112	3136
29	1	1.5%	88.2%	29	841
30	2	2.9%	91.2%	60	1800
31	0	0.0%	91.2%	0	0
32	2	2.9%	94.1%	64	2048
33	0	0.0%	94.1%	0	0
34	2	2.9%	97.1%	68	2312
35	1	1.5%	98.5%	35	1225
36	0	0.0%	98.5%	0	0
37	1	1.5%	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
	<b>68</b>	<b>100.0%</b>		<b>1572</b>	<b>38100</b>

Mean Speed = 23.1 mph  
 Standard Deviation = 5.1 mph  
 Margin of Error (95% Confidence) = ± 1.2 mph

Median Speed = 23.1 mph  
 15th Percentile Speed = 17.8 mph  
 85th Percentile Speed = 28.4 mph

# SPOT SPEED STUDY

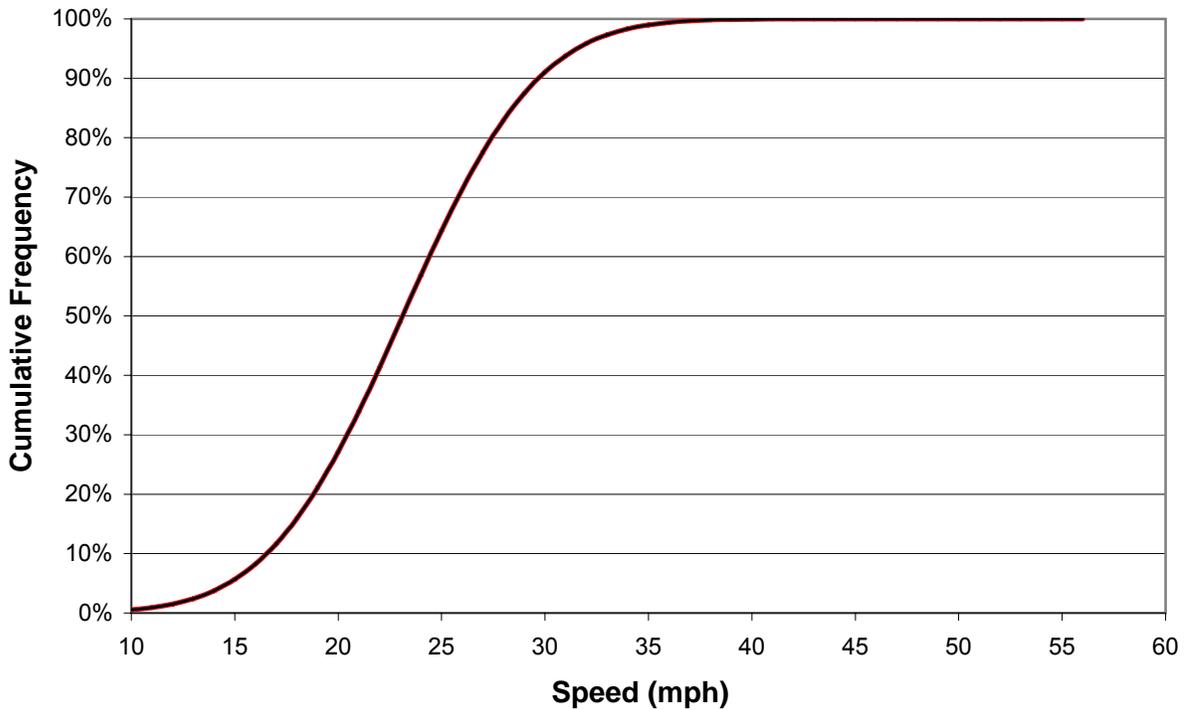
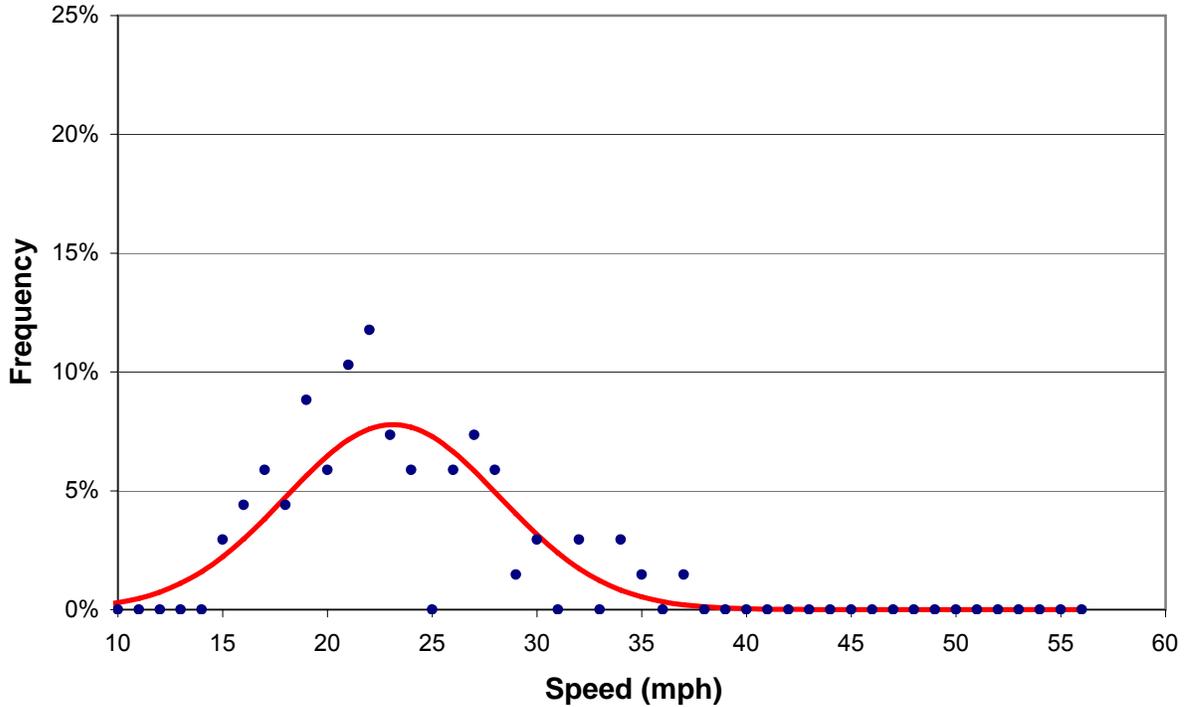
Date: **October 4, 2005**  
Location: **108th Street between Broadway and Amsterdam Avenue**  
Surveyor:

Time: **1:00 pm - 2:00 pm**

School: **P.S. 165**  
Direction: **East bound**  
Comments:

Mean Speed = 23.1 mph  
Standard Deviation = 5.1 mph  
Margin of Error (95% Confidence) =  $\pm 1.2$  mph

Median Speed = 23.1 mph  
15th Percentile Speed = 17.8 mph  
85th Percentile Speed = 28.4 mph



## SPOT SPEED STUDY

Date: **October 4, 2005**                      Time: **2:00 pm - 3:00 pm**  
 Location: **109th Street between Broadway and Amsterdam Avenue**  
 Surveyor:

School: **P.S. 165**  
 Direction: **West bound**  
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS <sup>2</sup>
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	4.8%	4.8%	45	675
16	2	3.2%	7.9%	32	512
17	5	7.9%	15.9%	85	1445
18	2	3.2%	19.0%	36	648
19	4	6.3%	25.4%	76	1444
20	6	9.5%	34.9%	120	2400
21	7	11.1%	46.0%	147	3087
22	9	14.3%	60.3%	198	4356
23	4	6.3%	66.7%	92	2116
24	5	7.9%	74.6%	120	2880
25	2	3.2%	77.8%	50	1250
26	0	0.0%	77.8%	0	0
27	4	6.3%	84.1%	108	2916
28	4	6.3%	90.5%	112	3136
29	2	3.2%	93.7%	58	1682
30	1	1.6%	95.2%	30	900
31	2	3.2%	98.4%	62	1922
32	0	0.0%	98.4%	0	0
33	0	0.0%	98.4%	0	0
34	1	1.6%	100.0%	34	1156
35	0	0.0%	100.0%	0	0
36	0	0.0%	100.0%	0	0
37	0	0.0%	100.0%	0	0
38	0	0.0%	100.0%	0	0
39	0	0.0%	100.0%	0	0
40	0	0.0%	100.0%	0	0
41	0	0.0%	100.0%	0	0
42	0	0.0%	100.0%	0	0
43	0	0.0%	100.0%	0	0
44	0	0.0%	100.0%	0	0
45	0	0.0%	100.0%	0	0
46	0	0.0%	100.0%	0	0
47	0	0.0%	100.0%	0	0
48	0	0.0%	100.0%	0	0
49	0	0.0%	100.0%	0	0
50	0	0.0%	100.0%	0	0
51	0	0.0%	100.0%	0	0
52	0	0.0%	100.0%	0	0
53	0	0.0%	100.0%	0	0
54	0	0.0%	100.0%	0	0
55	0	0.0%	100.0%	0	0
56	0	0.0%	100.0%	0	0
	63	100.0%		1405	32525

Mean Speed = 22.3 mph  
 Standard Deviation = 4.4 mph  
 Margin of Error (95% Confidence) = ± 1.1 mph

Median Speed = 22.3 mph  
 15th Percentile Speed = 17.8 mph  
 85th Percentile Speed = 26.8 mph

# SPOT SPEED STUDY

Date: **October 4, 2005**

Time: **2:00 pm - 3:00 pm**

School: **P.S. 165**

Location: **109th Street between Broadway and Amsterdam Avenue**

Direction: **West bound**

Surveyor:

Comments:

Mean Speed = 22.3 mph  
 Standard Deviation = 4.4 mph  
 Margin of Error (95% Confidence) =  $\pm 1.1$  mph

Median Speed = 22.3 mph  
 15th Percentile Speed = 17.8 mph  
 85th Percentile Speed = 26.8 mph

