

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



**School Safety Engineering Project
FINAL REPORT: M.S. 54, Booker T. Washington School, Manhattan**



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



JUNE 15, 2006

School Safety Engineering Project
M.S. 54, Booker T. Washington School, 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). M.S. 54 (Booker T. Washington School) in Manhattan is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS

2.2 NEIGHBORHOOD DESCRIPTION

M.S.54 is located at 103 West 107th Street, situated along Columbus Avenue and occupying the entire block from West 107th Street to West 108th Street (see Exhibit 1 for Aerial Photograph). There is a schoolyard west of the school building.

The surrounding area is generally a mix of residential buildings and commercial establishments. West 109th Street, West 108th Street and West 107th Street are primarily residential roadways, with multi-story residential buildings on both sides of the street. Two public parking garages are on the north side of the West 108th Street, and one is just across from the school's main entrance. Various storefronts, hospitals, and multi-story building complexes are located along Cathedral Parkway and West 106th Street. Columbus Avenue and Amsterdam Avenue are major roadways, lined with residential buildings with first floor commercial establishments.

There are several bus routes operating in the vicinity of M.S. 54: M7, M11, M116, and M4. In addition, a subway station for the number 1 subway line is located on Broadway with entrances at Cathedral Parkway. A second subway station for the B and C lines is on Frederick Douglass Boulevard with entrances at Cathedral Parkway.



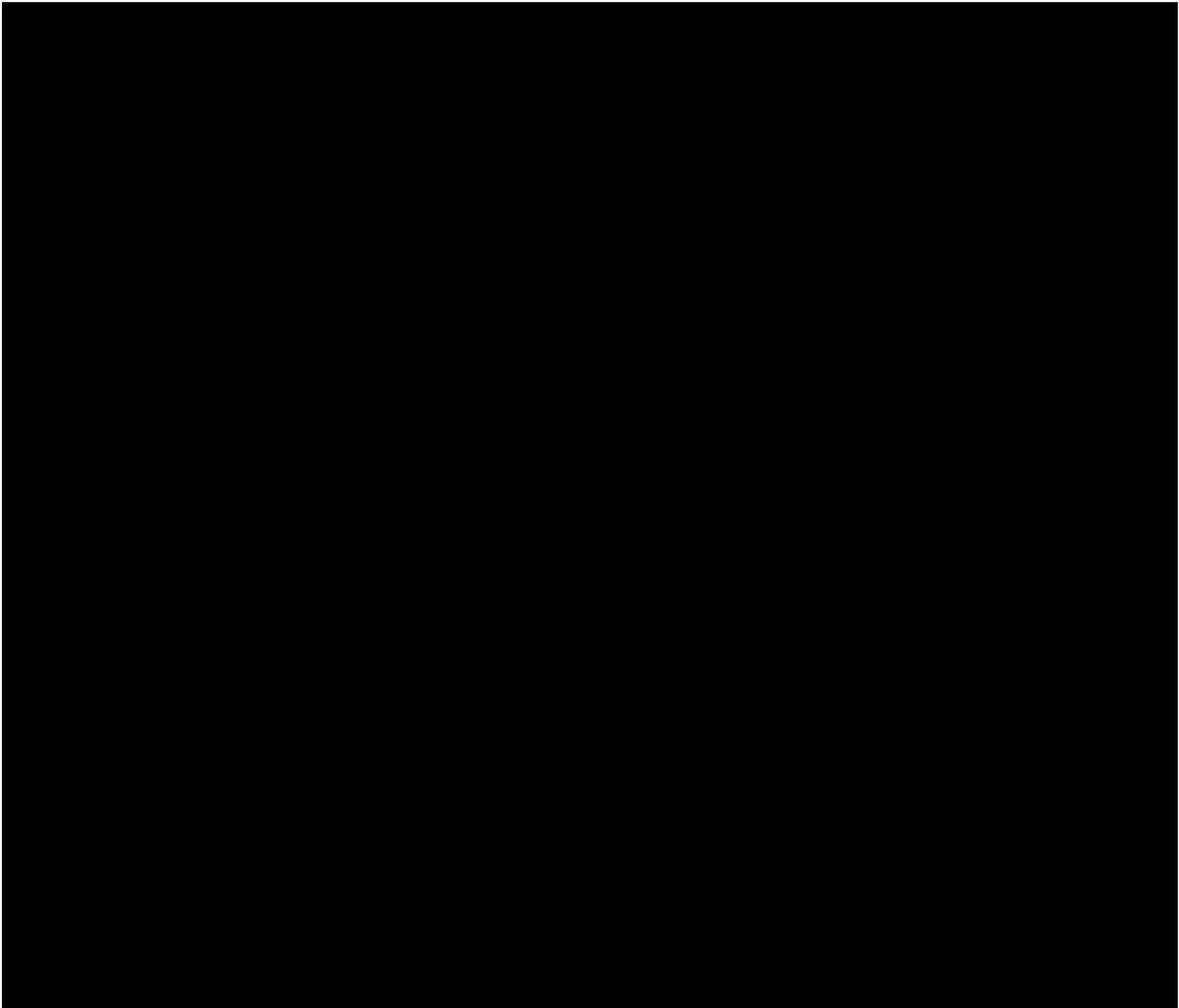
Figure 1: Looking east on West 108th Street, M.S. 54 is at the right side

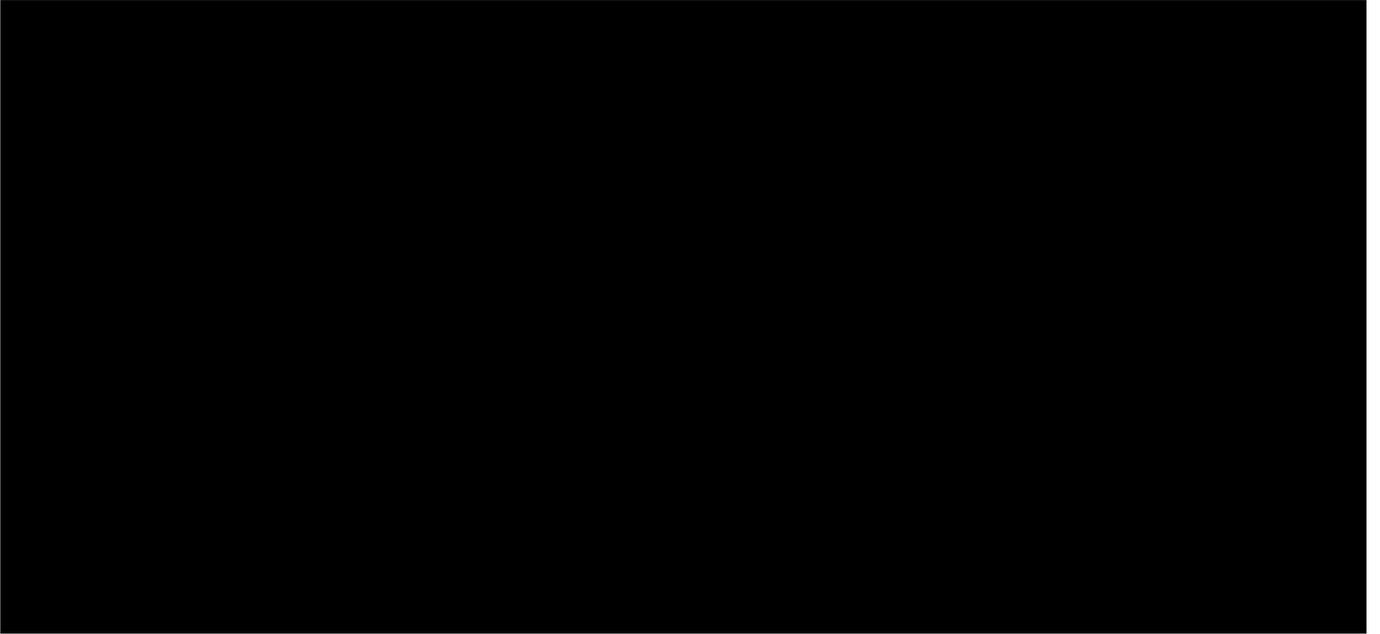
2.3 MEETING WITH SCHOOL REPRESENTATIVES

Representatives from the consultant team, NYCDOT, NYPD School Safety Officer and the principal of M.S. 54 met at the school on the morning of June 16, 2004. According to the representative, the identifiable problems that student pedestrians encounter on a regular basis include the following:

- Vehicles speeding on West 107th Street, West 108th Street
- Trucks traveling on West 107th Street
- Children crossing mid-block to the mini park on West 108th Street
- Parking garages on West 108th Street

See the Appendix for a list of attendees.

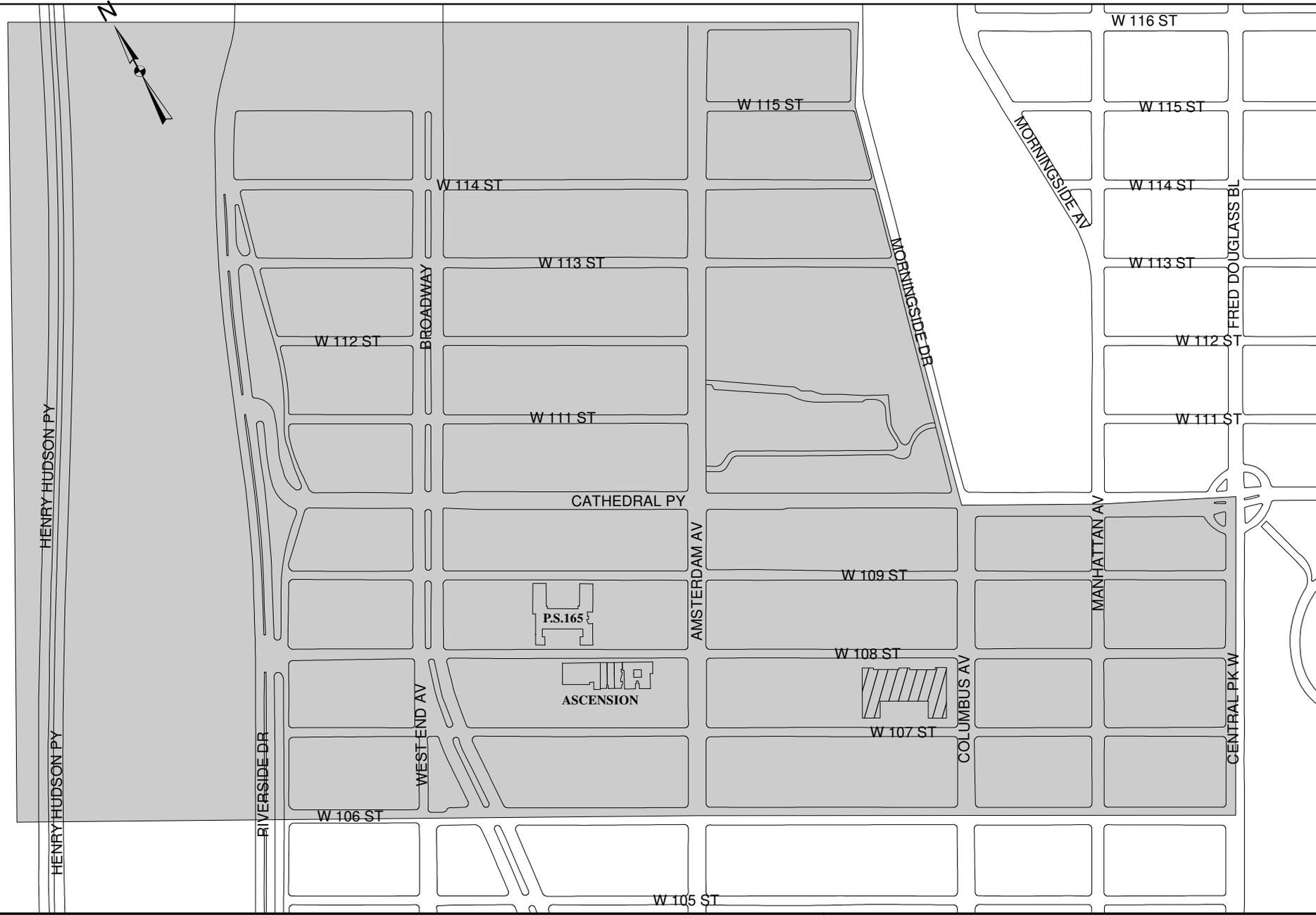
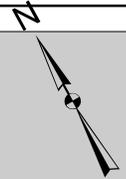






1 inch equals 150 feet

EXHIBIT 1
M.S. 54, MANHATTAN
BOOKER T. WASHINGTON SCHOOL
AERIAL PHOTOGRAPH



1 inch equals 450 feet

 CATCHMENT AREA

EXHIBIT 2
M.S. 54, MANHATTAN
BOOKER T. WASHINGTON SCHOOL
CATCHMENT AREA

2.6 PRIMARY MODE OF TRANSPORT TO AND FROM SCHOOL

According to school officials, approximately 15% of the students walk to M.S. 54, 83% arrive via public transportation, 1% are driven by a parent or guardian, and the remaining 1% of students ride on the school bus. See Table 1 for school’s estimate of mode of travel.

TABLE 1: MODE OF TRAVEL (As estimated by school officials)	
Description	Percentage
Walk	15%
Driven by a parent or guardian	1%
School bus	1%
MTA bus or subway	83%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

There are two other public schools in the vicinity of M.S. 54: P.S. 165 and P.S. 145. P.S. 165 is on West 109th Street between Broadway and Amsterdam Avenue; P.S. 145 is on West 105th Street between Amsterdam Avenue and Columbus Avenue. In addition, Ascension school, a private school, is on West 108th Street between Broadway and Amsterdam Avenue, one block west of M.S. 54. Both P.S. 165 and Ascension school are priority schools.

Both Amsterdam Avenue and Columbus Avenue are major pedestrian walking routes. Numerous stores, restaurants, and other commercial businesses are located along these avenues. Some students have lunch at a restaurant at the southeast corner of West 108th Street and Columbia Avenue.

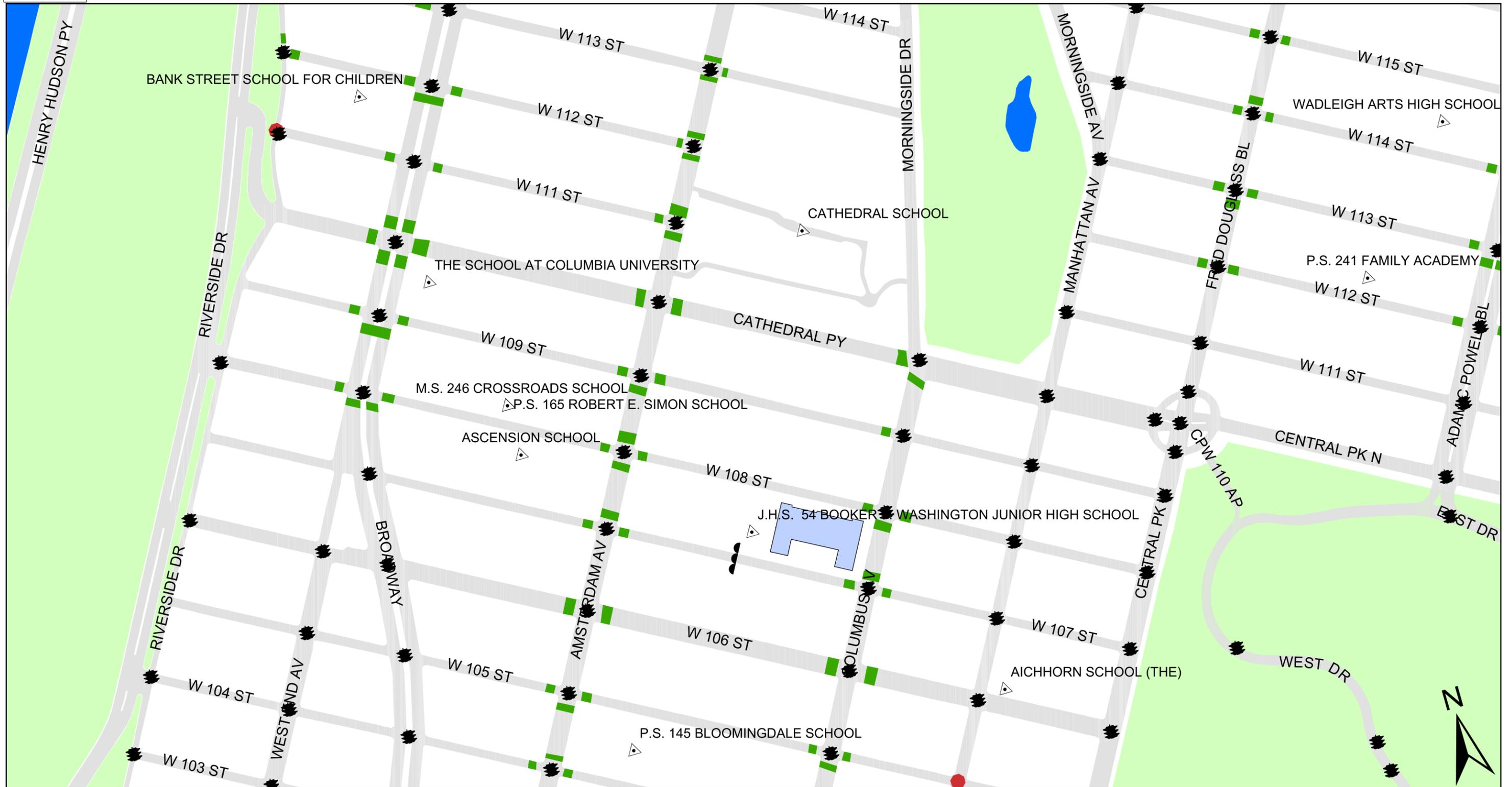
There are two bus stops for the northbound M11 in the vicinity of the school. One is on Columbus Avenue at West 108th Street and one is at Cathedral Parkway. A bus stop for the southbound M11 is on Amsterdam Avenue at West 106th Street. The bus stops for the M7 route are located at the intersection of Columbus Avenue and West 106th Street.

2.8 CROSSING GUARD LOCATIONS

According to the school principal, there are no crossing guards assigned to M.S. 54. However, a crossing guard from P.S. 165 is assigned to West 108th Street and Amsterdam Avenue.



School Traffic Safety Map



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

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

LEGEND:

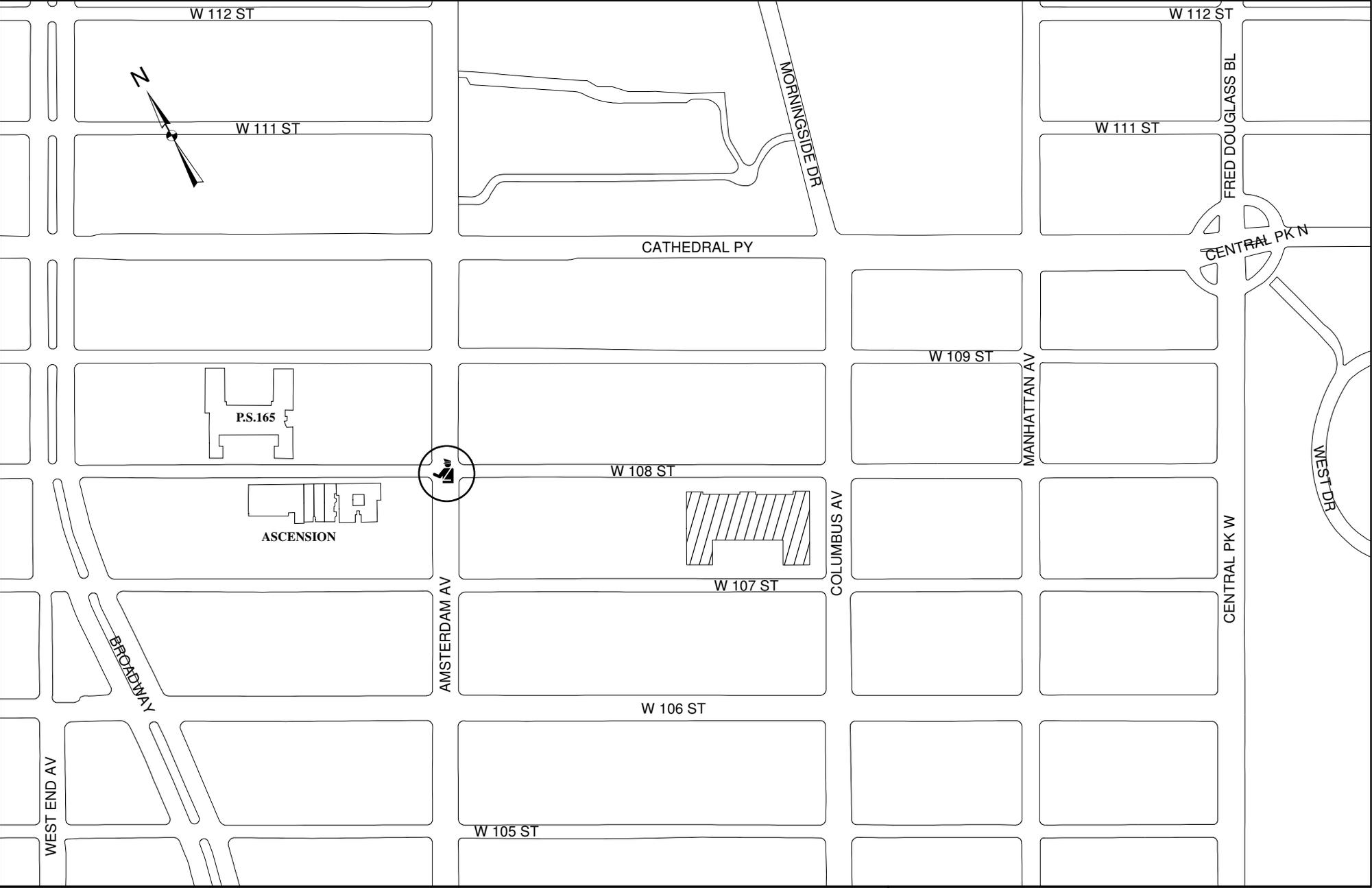
SCHOOL LOCATION	TRAFFIC SIGNAL
SCHOOL CROSSWALK	ALL - WAY STOP
	SPEED REDUCER

MS 54 Manhattan
BOOKER T. WASHINGTON MIDDLE SCHOOL

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

Map created on 11/16/2006 **EXHIBIT 3** COMM. BOARD: 107
PRECINCT: 24

1.5.1



1 inch equals 300 feet

EXHIBIT 4

**BOOKER T. WASHINGTON SCHOOL
M.S. 54, MANHATTAN**

CROSSING GUARD



CROSSING GUARD ASSIGNED TO ANOTHER SCHOOL

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to school officials, approximately seven or eight students ride a school bus to M.S. 54. There are two school buses, both of which are for students with special needs. School buses will park or double-park, depending on traffic conditions while dropping off or picking up students on West 108th Street, at the school's main entrance.

Due to the relatively narrow width of West 108th Street (30 feet), and parking on both sides of the roadway, a double-parked bus or car will block through traffic and cause queues that can approach the intersection of West 108th Street and Amsterdam Avenue (Figure 3).



Figure 3: School bus double-parked on West 108th Street

3.2 PARENT DROP-OFF OPERATIONS

School officials have indicated that, only 1% of M.S. 54 students are driven to and from school by parents or guardians. Most parents stop on West 107th Street to drop off or pick up students.

3.3 PARKING REGULATIONS

On the south side of West 108th Street, parking regulations are posted as “NO PARKING SCHOOL DAYS 7:00 AM - 4:00 PM” in front of the playground. However, street cleaning regulations are posted in front of school’s main entrance.

On the north side of West 107th Street, “NO PARKING, SCHOOL DAYS, 7:00 AM – 4:00 PM, EXCEPT BOARD OF EDUCATION” regulations are posted in front of the school. Further west, parking regulations are posted as “NO PARKING, 8:00 AM – 6:00 PM, MONDAY - FRIDAY”. “NO PARKING, SCHOOL DAYS, 7:00 AM – 4:00 PM, EXCEPT BOARD OF EDUCATION” is posted at the east corner of the playground.

On the west side of Columbus Avenue, parking regulations are posted as “NO STANDING 7:00 AM – 10:00 AM, MONDAY - FRIDAY OR DURING SNOW EMERGENCY”.

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

Exhibit 5 shows the existing parking regulations on the roadways surrounding M.S. 54.

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 with downward pointing arrows. Signs scheduled to be installed under this program are shown as “existing” on Exhibit 7.



Figure 4: Existing school sign and bicycle rack in front of M.S. 54

AMSTERDAM AVE.

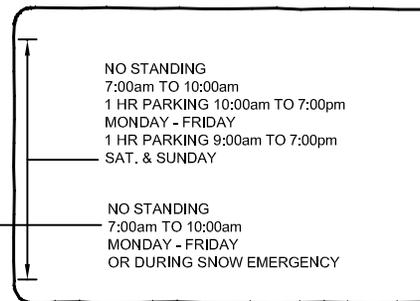
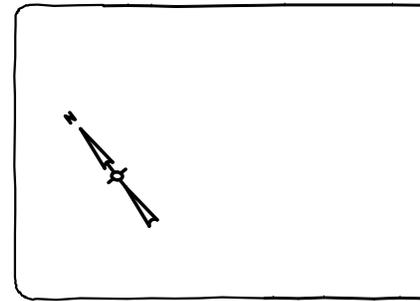
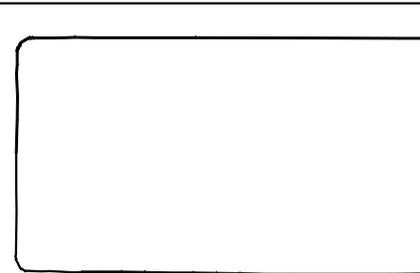
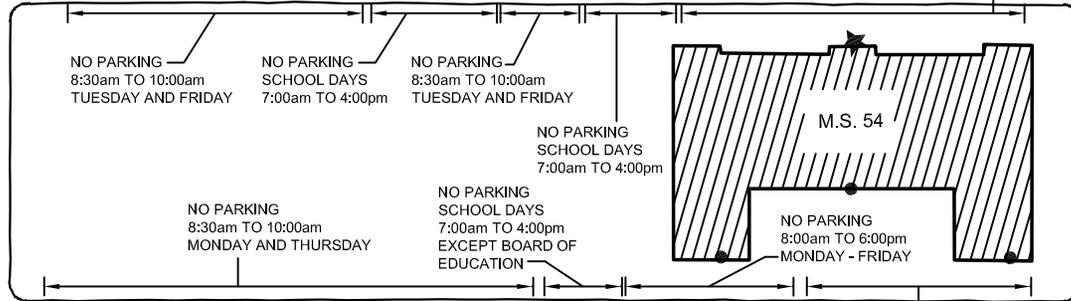
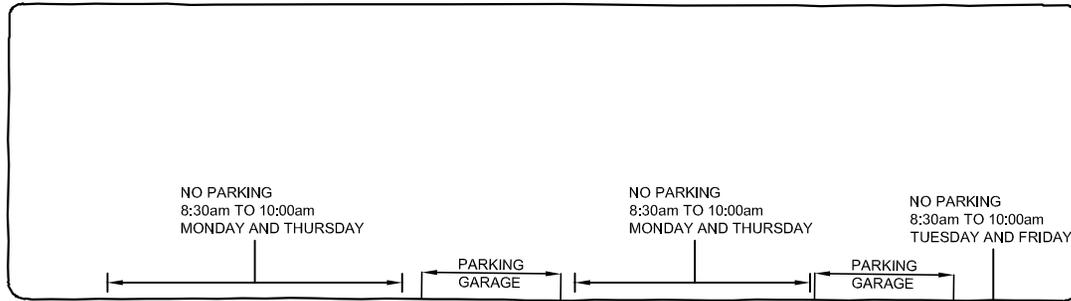
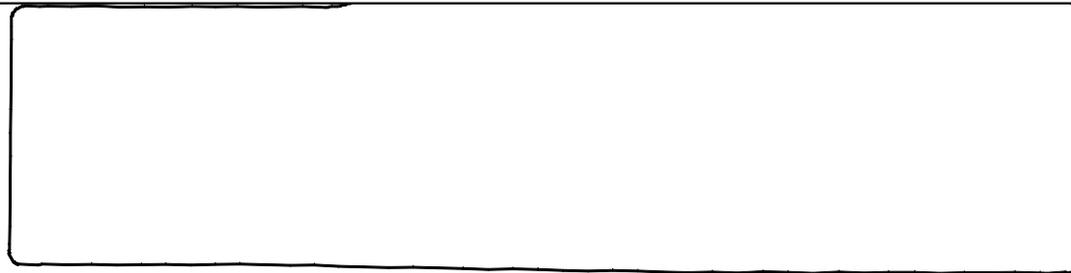
COLUMBUS AVE.

W. 109TH ST.

W. 108TH ST.

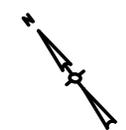
W. 107TH ST.

W. 106TH ST.



LEGEND

- ★ MAIN ENTRANCE
- ENTRANCE



BUS STOP

SCALE 1" : 150'

EXHIBIT 5

M.S. 54, MANHATTAN
BOOKER T. WASHINGTON SCHOOL

EXISTING PARKING REGULATIONS

NO PARKING 8:30am TO 10:00am MONDAY AND THURSDAY

NO PARKING 8:30am TO 10:00am MONDAY AND THURSDAY

NO PARKING 8:30am TO 10:00am TUESDAY AND FRIDAY

PARKING GARAGE

PARKING GARAGE

NO PARKING 8:30am TO 10:00am TUESDAY AND FRIDAY

NO PARKING 8:30am TO 10:00am TUESDAY AND FRIDAY

NO PARKING 8:30am TO 10:00am TUESDAY AND FRIDAY

NO PARKING SCHOOL DAYS 7:00am TO 4:00pm

NO PARKING SCHOOL DAYS 7:00am TO 4:00pm EXCEPT BOARD OF EDUCATION

NO PARKING 8:00am TO 6:00pm MONDAY - FRIDAY

M.S. 54

NO PARKING 8:30am TO 10:00am MONDAY AND THURSDAY

NO PARKING SCHOOL DAYS 7:00am TO 4:00pm EXCEPT BOARD OF EDUCATION

NO PARKING 8:30am TO 10:00am TUESDAY AND FRIDAY

NO PARKING SCHOOL DAYS 7:00am TO 4:00pm EXCEPT BOARD OF EDUCATION

NO STANDING 7:00am TO 10:00am
1 HR PARKING 10:00am TO 7:00pm
MONDAY - FRIDAY
1 HR PARKING 9:00am TO 7:00pm
SAT. & SUNDAY

NO STANDING 7:00am TO 10:00am
MONDAY - FRIDAY
OR DURING SNOW EMERGENCY

3.5 ACCIDENT SUMMARY

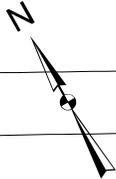
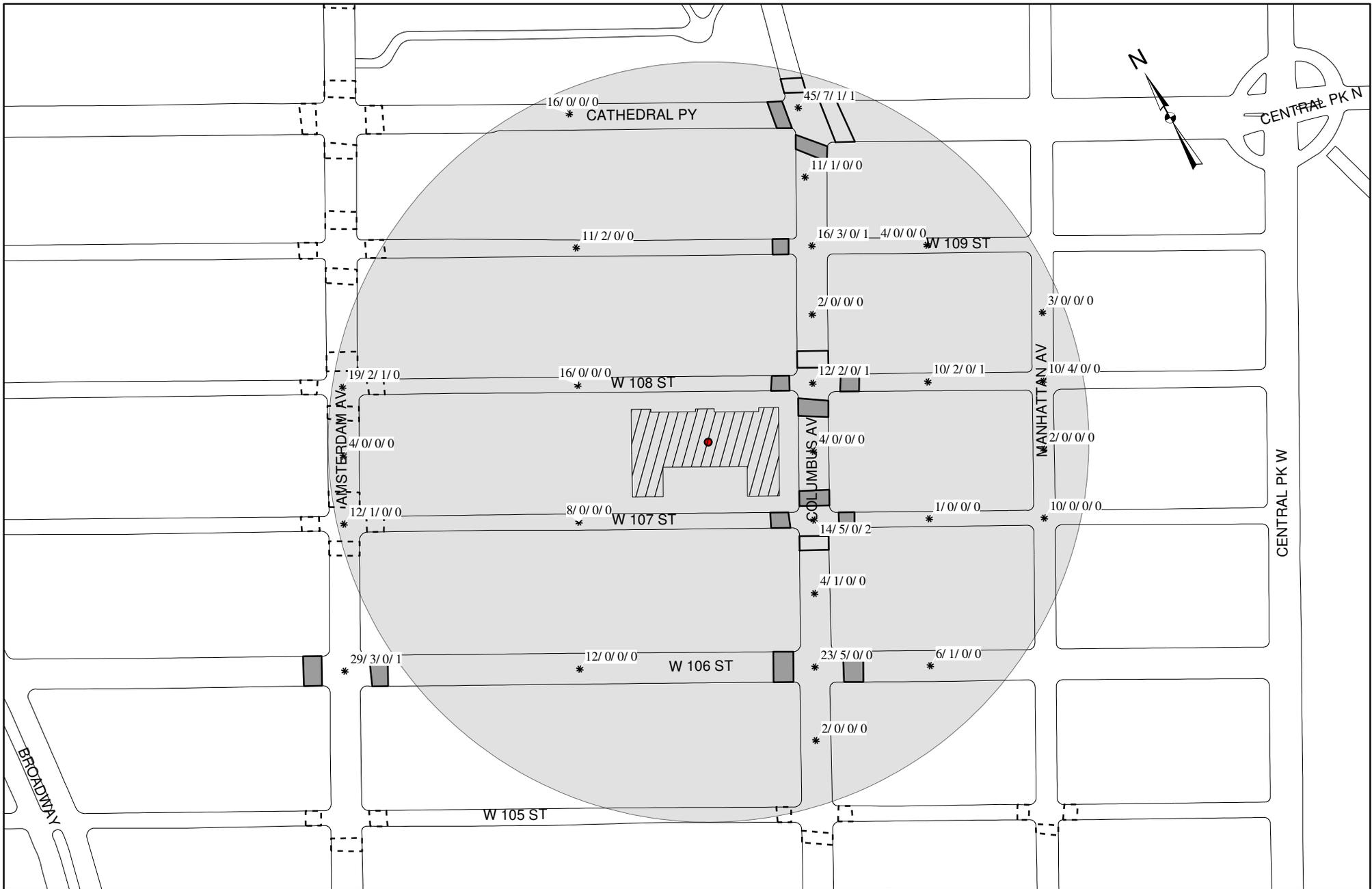
Exhibit 6 and Table 2 show a summary of accidents, as obtained from the New York State Department of Motor Vehicles (DMV), in the vicinity of M.S. 54 for the three-year period from January 1, 1998 through December 31, 2000. The DMV data provides some detail relating to the circumstances and cause of 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 concentration of student pedestrians occurs. Intersections farther from the school and locations for which detailed data was not available at the time of this study will be addressed with the ongoing work of DOT's School Safety Engineering Program. DMV Accident data is discussed in Section 3.6, Traffic Operations and Issues.

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Columbus Ave. and Cathedral Parkway	45	7	1	1
Columbus Ave. and West 109 th Street	16	3	0	1
Columbus Ave. and West 108 th Street	12	2	0	1
Columbus Ave. and West 107 th Street	14	5	0	2
Columbus Ave. and West 106 th Street	23	5	0	0
Amsterdam Ave. and W 106 th Street	29	3	0	1
Amsterdam Ave. and W 107 th Street	12	1	0	0
Amsterdam Ave. and W 108 th Street	19	2	1	0
TOTAL	170	28	2	6

INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Columbus Ave. and Cathedral Parkway	52	4	0	0
Columbus Ave. and West 109 th Street	18	4	0	1
Columbus Ave. and West 108 th Street	28	4	0	2
Columbus Ave. and West 107 th Street	19	1	0	1
Columbus Ave. and West 106 th Street	35	8	1	3
Amsterdam Ave. and W 106 th Street	47	3	0	1
Amsterdam Ave. and W 107 th Street	45	3	0	0
Amsterdam Ave. and W 108 th Street	40	3	0	0
TOTAL	284	34	1	8

* 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 M.S. 54

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	X / X / X / X	X / X / X / X	X / X / X / X

EXHIBIT 6

M.S. 54, MANHATTAN

BOOKER T. WASHINGTON SCHOOL

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

3.6 TRAFFIC OPERATIONS AND ISSUES

The following describes traffic accidents and operational issues at intersections in the vicinity of M.S. 54.

3.6.1 Columbus Avenue/Morningside Drive and Cathedral Parkway

This is a signalized four-leg intersection. South of Cathedral Parkway, Columbus Avenue is a 60-foot wide, one-way southbound roadway with three travel lanes and metered parking on both sides of the street (Figure 5). North of Cathedral Parkway, Columbus Avenue becomes Morningside Drive. Morningside Drive is a 40-foot wide, two-way street with one travel lane in each direction and parking on both sides of the street. East of this intersection, Cathedral Parkway is an 80-foot wide, two-way roadway with two travel lanes in each direction. There is an exclusive left turn lane for westbound approach traffic. West of this intersection, Cathedral Parkway is a 50-foot wide, two-way roadway with one travel lane in each direction. Parking is allowed on both sides of Cathedral Parkway. There is a small park north of the intersection.

The intersection is controlled by a three-phase traffic signal. School crosswalks are striped across the west and south legs. All four corners have standard pedestrian ramps. There is a bus shelter for the M11 line on Columbus Avenue south of the intersection.



Figure 5: Looking south on Columbus Avenue, at the intersection of Columbus Avenue and Cathedral Parkway

The westbound traffic on Cathedral Parkway has a left turn signal onto Columbus Avenue. Therefore, pedestrians utilizing the south leg school crosswalk to cross Columbus Avenue have a delayed pedestrian walk signal. During the field check, 20 seconds of crossing time were provided for pedestrians to cross the south leg of Columbus Avenue, which was not sufficient for student pedestrians to cross at a speed of 3 feet per second (23 seconds are needed for this distance). DOT has since added an additional three seconds to provide the required 23 seconds of crossing time.

Forty-five accidents occurred at this location between 1998 and 2000. Seven pedestrians were struck during this period, and there was one school-related fatality. A thirteen-year old student was crossing with the signal when struck and killed by a vehicle making a right turn. It was raining on the day of the accident, and the cause was cited as driver's error and a slippery roadway. Four more pedestrians were struck and injured by vehicles making left turns or right turns. Two other accidents were attributed to driver's inattention.

3.6.2 Columbus Avenue and West 109th Street

West 109th Street is a 30-foot wide, one-way westbound roadway with one travel lane and parking along both sides of the street. The intersection of Columbus Avenue and West 109th Street is controlled by a two-phase traffic signal (Figure 6). A school crosswalk is striped across the west leg. All four corners have standard pedestrian ramps.



Figure 6: Looking southwest at the intersection of Columbus Avenue and West 109th Street

There were sixteen accidents at this location between 1998 and 2000. Three accidents included pedestrians, one of which was school related. A twelve-year old child was crossing against the signal when struck. Two other accidents were attributed to drivers unsafely backing up their vehicles.

3.6.3 Columbus Avenue and West 108th Street

West 108th Street is a 30-foot wide, one-way eastbound roadway with one travel lane and parking along both sides of the street. The intersection of Columbus Avenue and West 108th Street is controlled by a two-phase traffic signal. School crosswalks are striped on the west, east, and south legs. All four corners have pedestrian ramps. A bus shelter is located on Columbus Avenue south of the intersection.



Figure 7: Looking West on West 108th Street, at the intersection of Columbus Avenue and West 108th Street

There were twelve accidents at this location between 1998 and 2000. Two accidents included pedestrians, one of which was school related. A fourteen-year old pedestrian was crossing against the signal when struck. Another pedestrian was crossing with the signal when struck by a driver making a right turn and failing to yield. (According to school officials, in June 2005, an M.S. 54 student was crossing with the signal when struck. No details on this accident are available at this time).

3.6.4 Columbus Avenue and West 107th Street

West 107th Street is a 30-foot wide, one-way westbound roadway with one travel lane and parking along both sides of the street. The intersection of Columbus Avenue and West 107th Street is controlled by a two-phase traffic signal. School crosswalks are striped on the west, east, and north legs. All four corners have pedestrian ramps.

There were fourteen accidents at this location between 1998 and 2000. Five accidents included pedestrians, two of which were school related. A twelve-year old pedestrian was crossing against the signal when struck. Another seven-year old child was struck during the school day, however no further information is available. The third accident was attributed to a driver backing up unsafely. Two other accidents were cited as pedestrian

errors: one was a left turn accident and the other one involved a pedestrian with a physical disability crossing against the signal.



Figure 8: Looking north on Columbus Avenue, at the intersection of Columbus Avenue and West 107th Street

3.6.5 Columbus Avenue and West 106th Street

West 106th Street is a 60-foot wide, two-way roadway with two travel lanes in each direction and parking along both sides of the street (Figure 9). The intersection of Columbus Avenue and West 106th Street is controlled by a two-phase traffic signal. School crosswalks are striped across all four legs. All four corners have pedestrian ramps.



Figure 9: Looking east on Columbus Avenue, at the intersection of Columbus Avenue and West 106th Street

There are two bus stops on West 106th Street east of the intersection. The existing graphic “YIELD TO PEDESTRIAN” signs at this intersection remind drivers that pedestrians have the right of way within the crosswalk.

There were twenty-three accidents at this location between 1998 and 2000. Five accidents included pedestrians, none of which were school related. Three pedestrians were crossing Columbus Avenue against the signal when struck. Another pedestrian was crossing Columbus Avenue outside of the crosswalk when struck by a vehicle backing up. The last accident was attributed to a driver making an improper left turn. According to school officials, one of the accidents involved an M.S. 54 student who was crossing with the signal when struck by a non-medallion cab. In addition, the NYPD data shows a fatality at this intersection, where a 56-year old pedestrian was struck and killed in November of 2002 (NYPD accident data does not provide detailed accident information).

3.6.6 Amsterdam Avenue and West 106th Street

Amsterdam Avenue is a major 60-foot wide one-way roadway in the northbound direction with four traveling lanes and metered parking along both sides of the street. The intersection of Amsterdam Avenue and West 106th Street is controlled by a two-phase traffic signal (Figure 10). School crosswalks are striped on the east and west legs. All four corners have pedestrian ramps. There is a bus shelter for the M11 line on Amsterdam Avenue north of the intersection.



Figure 10: Looking north on Amsterdam Avenue, at the intersection of Amsterdam Avenue and West 106th Street

There were twenty-nine accidents at this location between 1998 and 2000. Three accidents included pedestrians, one of which was school related. A 41-year old pedestrian with a six-year old child was crossing with the signal when struck by a vehicle making a

left turn. The second accident also involved a driver making a left turn and failing to yield to a pedestrian. The third accident was attributed to a driver backing up unsafely.

3.6.7 Amsterdam Avenue and West 107th Street

The intersection of Amsterdam Avenue and West 107th Street is controlled by a two-phase signal (Figure 11). School crosswalks are striped across the west, east and north legs of the intersection, all of which are assigned to another school.



Figure 11: Looking north on Amsterdam Avenue, at the intersection of Amsterdam Avenue and West 107th Street

Twelve accidents occurred at this intersection between 1998 and 2000, one of which was pedestrian accident. A 63-year old pedestrian was crossing against the signal when struck.

3.6.8 Amsterdam Avenue and West 108th Street

The intersection of Amsterdam Avenue and West 108th Street is controlled by a two-phase signal (Figure 12). School crosswalks are delineated on all four legs of the intersection and all of them are assigned to another school. Two city blocks north of West 108th Street, Amsterdam Avenue becomes a two-way street.

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 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.



Figure 12: Looking north on Amsterdam Avenue, at the intersection of Amsterdam Avenue and West 108th Street

3.6.9 Traffic conditions on West 108th Street between Amsterdam Avenue and Columbus Avenue

Most students arrive and leave the school through the entrances on West 108th Street. In addition, school buses load and unload students on West 108th Street in front of the school’s main entrance.

There are two public garages along the north side of West 108th Street, and one is just across from the school’s main entrance. A vehicle exiting the garage may block the sidewalk as school children are going to or from M.S. 54. A small park is located across West 108th Street from the M.S. 54 school building. According to school officials, the students cross mid-block to and from the park at the lunchtime.

The principal also noted that vehicles were speeding along West 108th Street. A spot speed was conducted on Monday, September 19, 2005 between 2:30 pm and 3:15 pm. The spot speed study showed that the 85th percentile speed on West 108th Street was 26 mph, which was below the statutory speed limit of 30 mph. See Table 4 for a summary of the results and the Appendix for further detail.

There were no pedestrian accidents or school-related accidents within this segment of roadway between 1998 and 2000.

TABLE 4: SPOT SPEED STUDY (W. 108 TH STREET)		
LOCATION	MEDIAN SPEED (MPH)	85 TH PERCENTILE SPEED (MPH)
West 108 th Street between Amsterdam Avenue and Columbus Avenue	22	26

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field verified at all signalized intersections in the vicinity of M.S. 54 and found to be adequate for a child pedestrian walking rate of three feet per second plus three-second reaction time in all directions and approaches.

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)*	Timing Adjustment? (Yes/No)
Columbus Avenue and Cathedral Parkway				
Crossing Cathedral Parkway	East Leg - 80	29	East Leg - 29	NO
Crossing Columbus Avenue	North Leg - 40 South Leg - 60	North Leg - 50 South Leg - 23	North Leg - 17 South Leg - (20) 23	NO NO ¹
Columbus Avenue and West 109th Street				
Crossing West 109 th Street	30	50	13	NO
Crossing Columbus Avenue	60	30	23	NO
Columbus Avenue and West 108th Street				
Crossing West 108 th Street	30	50	13	NO
Crossing Columbus Avenue	60	30	23	NO
Columbus Avenue and West 107th Street				
Crossing West 107 th Street	30	50	13	NO
Crossing Columbus Avenue	60	30	23	NO
Columbus Avenue and West 106th Street				
Crossing West 106 th Street	60	50	23	NO
Crossing Columbus Avenue.	60	30	23	NO
Amsterdam Avenue and West 106th Street				
Crossing West 106 th Street	60	45	23	NO
Crossing Amsterdam Avenue	60	45	23	NO
Amsterdam Avenue and West 107th Street				
Crossing West 107 th Street	60	45	13	NO
Crossing Amsterdam Avenue	30	45	23	NO
Amsterdam Avenue and West 108th Street				
Crossing West 108 th Street	30	45	13	NO
Crossing Amsterdam Avenue	60	45	23	NO

¹ An additional 3 seconds has been added to the existing 20 seconds for pedestrians to cross the south leg of Columbus Ave.

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

3.8 PHYSICAL CONDITIONS (ROADWAY AND SIDEWALK)

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

4. POTENTIAL MEASURES TO IMPROVE STUDENT PEDESTRAIN SAFETY

This section describes potential countermeasures. Recommendations are divided into short-term and long-term measures. Short-term measures are those that potentially can be performed in-house, long term measures are capital improvements.

4.1 SHORT-TERM OPTIONS

- *No-Standing Zone on West 108th Street*

“NO STANDING 7:00 AM-4:00 PM, SCHOOL DAYS” parking regulations should be considered in front of the school’s main entrance on West 108th Street. This will allow school buses a place to load and unload students at the curb, and also provide sufficient clear visibility of students arriving and leaving the school.

For the rest of the block on West 108th Street, existing “NO PARKING 7:00 AM – 4:00 PM, SCHOOL DAYS” parking regulations should be upgraded to “NO STANDING 7:00 AM – 4:00 PM, SCHOOL DAYS”.

- *Administer student pedestrian safety education program*

During a consultant field visit, it was noted that students en route to M.S. 54 attempted to cross Broadway in one pedestrian signal phase. The pedestrians should be informed to wait at the refuge island between signal cycles. It is recommended that the NYCDOT, Safety City Program work with the school to educate the students not to cross mid-block and not to cross against signals.

- *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 pedestrian signal phase. The pedestrian should be informed to wait at refuge 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 roadway. Pedestrians will benefit from informational signage even though they are provided with sufficient time to cross at these intersections.

- Submit Request to Police Department for Crossing Guard

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

- West 108th Street and Columbus Avenue
- West 106th Street and Columbus Avenue
- Cathedral Parkway and Columbus Avenue

- Place advance stop bar ten feet before school crosswalks at the following intersections:

- West 106th Street and Columbus Avenue
- West 107th Street and Columbus Avenue
- West 108th Street and Columbus Avenue

It is recommended that an 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, and allow pedestrians to proceed in a crosswalk before motor vehicles turn.

- Install new school crossings

- Columbus Avenue and West 109th Street – south and east legs

Based on the 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 (see Exhibit 7 for detail).

- Install speed reducers (humps) on West 107th Street in front of M.S. 54

A spot speed survey was conducted on West 107th 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 107th Street between Amsterdam Avenue and Columbus Avenue.

The speed study results are shown Table 6 and in the Appendix. The 85% percentile speed was 34 mph, which exceeded the legal speed limit of 30mph. Therefore, to reduce speeding along West 107th Street in the vicinity of M.S. 54, a speed reducer (hump) should be installed on West 107th Street between Amsterdam Avenue and Columbus Avenue. The actual number and location of speed reducers (humps) will be determined by NYCDOT prior to installation.

TABLE 6: SPOT SPEED STUDIES (W. 107TH STREET)		
LOCATION	MEDIAN SPEED	85TH PERCENTILE SPEED (MPH)
West 107 th Street between Amsterdam Avenue and Columbus Avenue	29	34

- Install “STOP” sign for vehicles exiting the parking garage on West 108th Street

It is recommended that the owners of the parking garages on West 108th Street be asked to install a mirror and stop sign so that vehicles exiting the parking garages would be required to stop before driving onto the sidewalk.

4.2 LONG-TERM OPTIONS

- Consider curb extensions at the following intersections:
 - Columbus Avenue and West 107th Street – northwest corner
 - Columbus Avenue and West 108th Street – southeast corner

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.

- Consider a curb extension at the southeast corner of Cathedral Parkway and Columbus Avenue

To normalize the intersection geometry and reduce the crossing distance on the east and south legs of the intersection, it is recommended that a 15-foot wide curb extension be installed at the southeast corner of the intersection. The narrowed east leg of the intersection will maintain one through and one left turn travel lane and parking in the westbound direction, and two travel lanes and parking in the eastbound direction. The crossing distance on the south leg of the intersection will be shortened by approximately 6 feet.

4.3 ADDITIONAL RECOMMENDATIONS FOR PRIORITY SCHOOLS IN THE VICINITY OF M.S. 54

4.3.1 RECOMMENDATIONS FOR P.S. 165:

- *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 St. 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

- *Submit Request to Police Department for Crossing Guard*

It is recommended that a crossing guard be requested for Broadway and West 108th Street intersection, to assist older students who may be without adult supervision.

4.3.2 RECOMMENDATIONS FOR ASCENSION SCHOOL:

- *Install graphic “YIELD TO PEDESTRIAN” sign*

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

- Broadway and West 106th Street
- Broadway and West 107th Street
- Amsterdam Avenue and West 106th 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 107th Street – east leg
- Broadway and West 106th Street – east leg

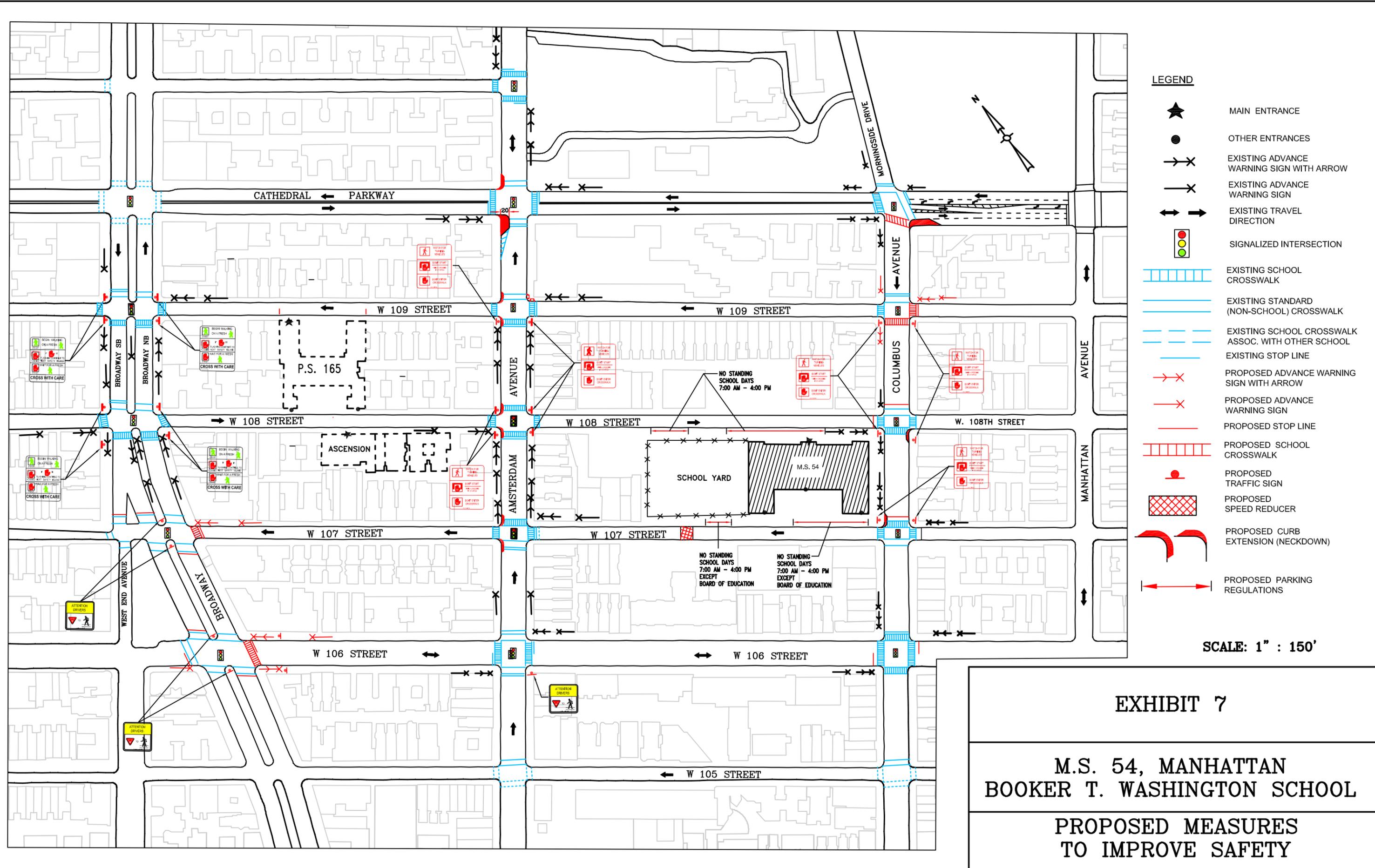
Based on feedback from school officials these intersections are utilized by Ascension School students en route to school. Therefore, it is recommended that the east legs of both intersections become school crosswalks (see Exhibit 7 for detail).

- Consider curb extensions at the following intersections:
 - Amsterdam Avenue and West 107th Street – northwest and southwest corners
 - Amsterdam Avenue and West 108th Street – northwest and southwest corners
 - Amsterdam Avenue and West 109th 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”.

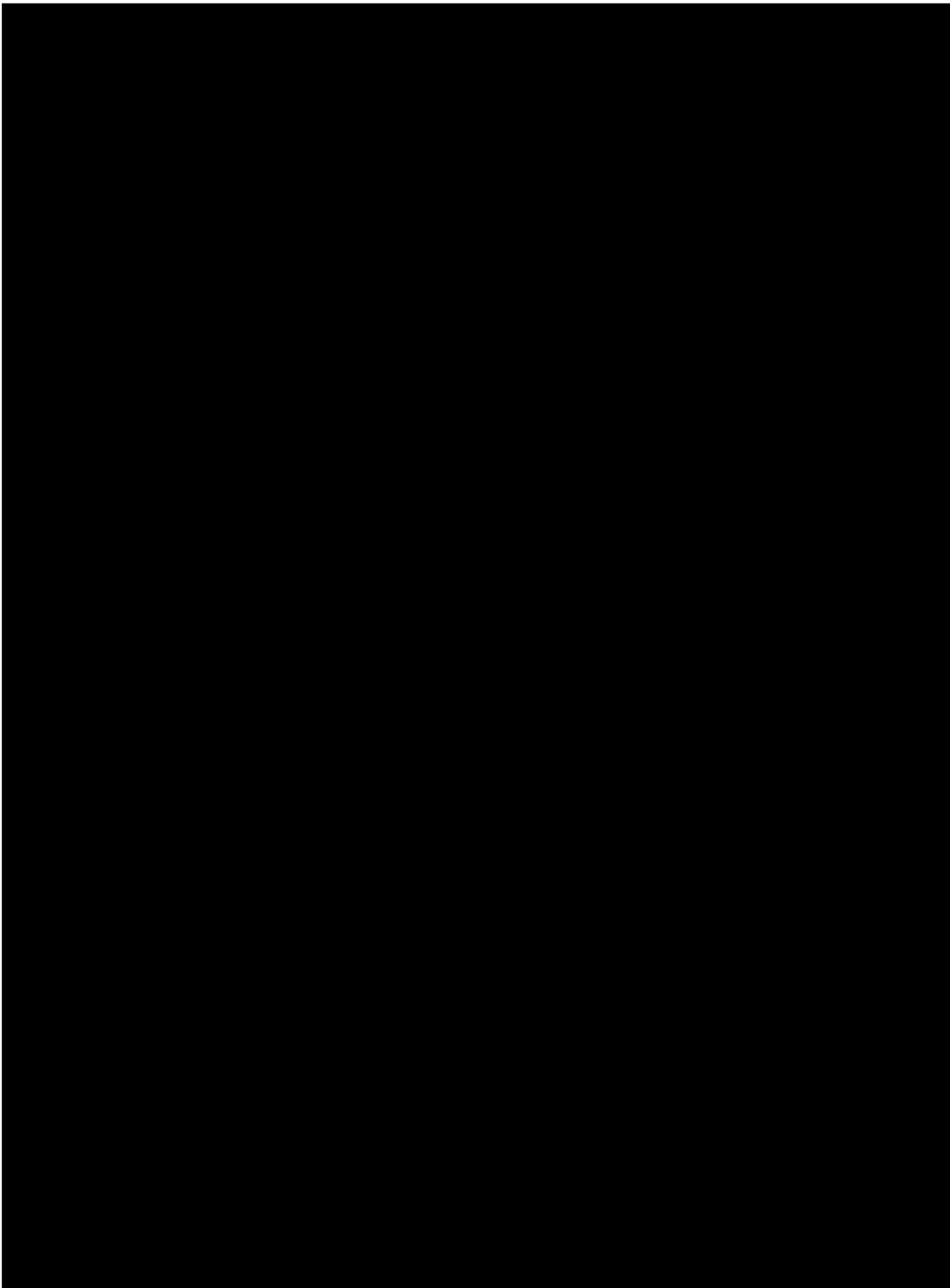
Curb extensions should be installed at the corners as shown in Exhibit 7.

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.



APPENDIX



SPOT SPEED STUDY

Date: **September 19, 2005** Time: **3:15 pm - 4:15 pm**
 Location: **West 107th Street between Amsterdam Avenue and Columbus Avenue**
 Surveyor:

School: **M.S. 54**
 Direction: **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	1	1.1%	1.1%	19	361
20	0	0.0%	1.1%	0	0
21	3	3.3%	4.4%	63	1323
22	1	1.1%	5.6%	22	484
23	9	10.0%	15.6%	207	4761
24	6	6.7%	22.2%	144	3456
25	3	3.3%	25.6%	75	1875
26	2	2.2%	27.8%	52	1352
27	18	20.0%	47.8%	486	13122
28	3	3.3%	51.1%	84	2352
29	3	3.3%	54.4%	87	2523
30	1	1.1%	55.6%	30	900
31	14	15.6%	71.1%	434	13454
32	0	0.0%	71.1%	0	0
33	10	11.1%	82.2%	330	10890
34	2	2.2%	84.4%	68	2312
35	1	1.1%	85.6%	35	1225
36	7	7.8%	93.3%	252	9072
37	3	3.3%	96.7%	111	4107
38	0	0.0%	96.7%	0	0
39	0	0.0%	96.7%	0	0
40	2	2.2%	98.9%	80	3200
41	0	0.0%	98.9%	0	0
42	0	0.0%	98.9%	0	0
43	1	1.1%	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
	90	100.0%		2622	78618

Mean Speed = 29.1 mph Median Speed = 29.1 mph
 Standard Deviation = 5.0 mph 15th Percentile Speed = 23.9 mph
 Margin of Error (95% Confidence) = ± 1.0 mph 85th Percentile Speed = 34.3 mph

SPOT SPEED STUDY

Date: **September 19, 2005**

Time: **3:15 pm - 4:15 pm**

School: **M.S. 54**

Location: **West 107th Street between Amsterdam Avenue and Columbus Avenue**

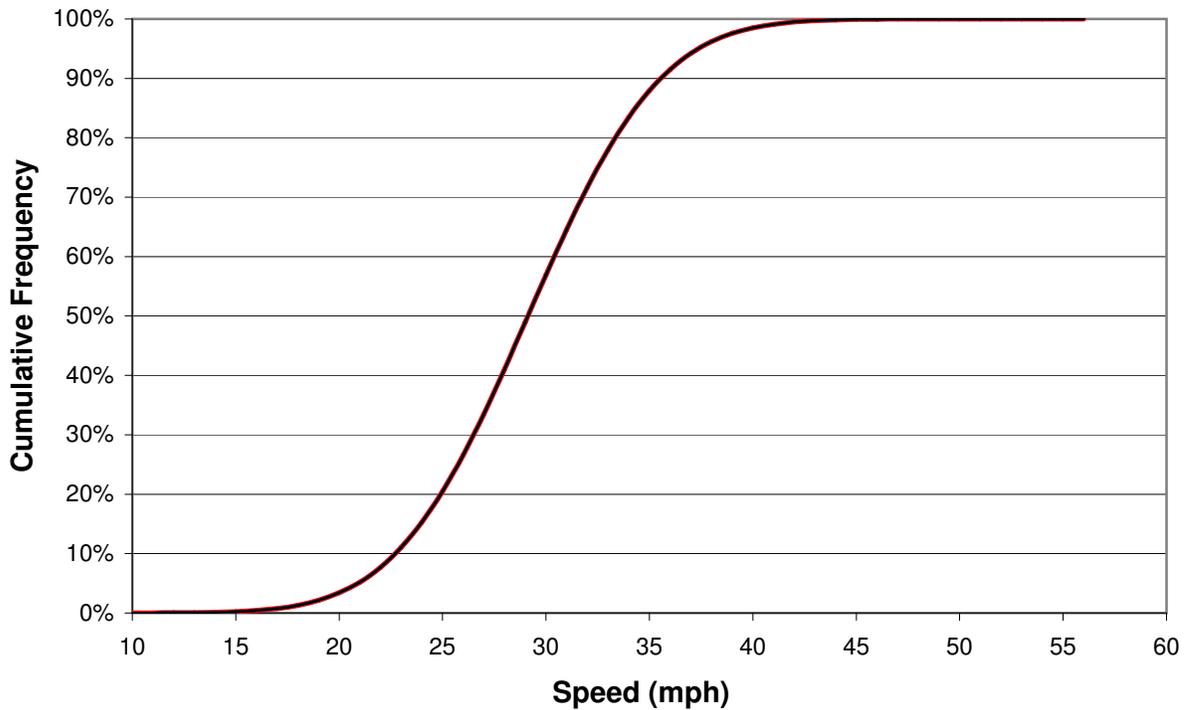
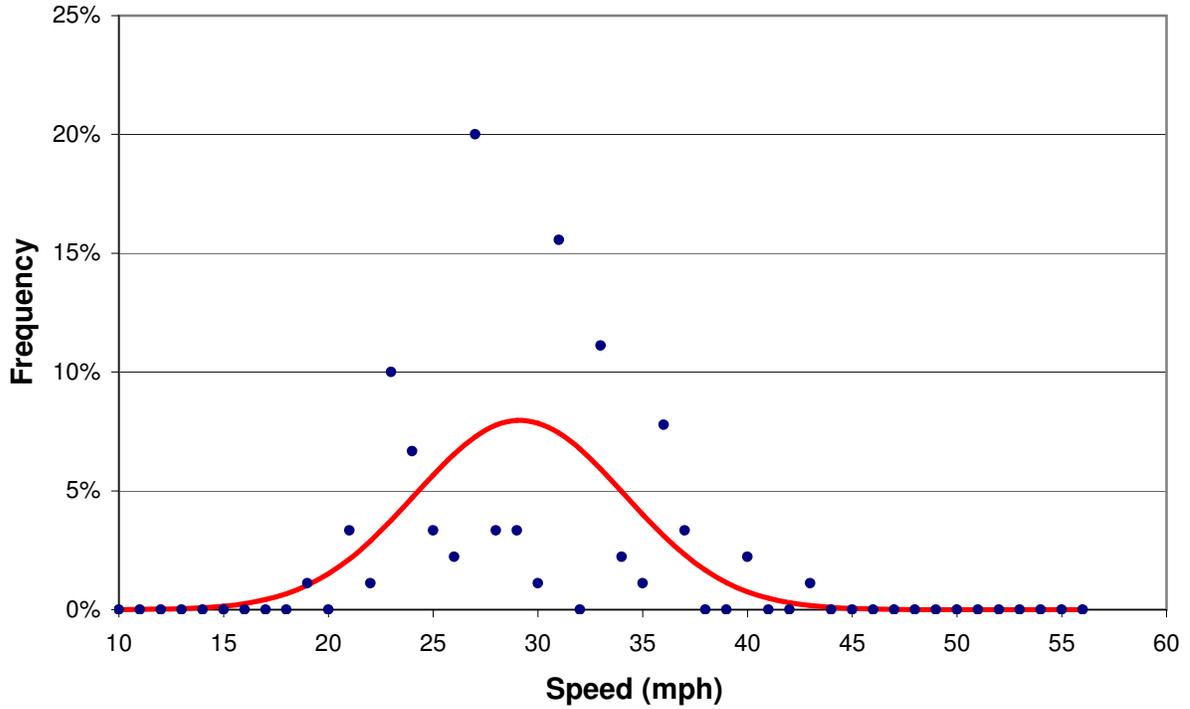
Direction: **West**

Surveyor:

Comments:

Mean Speed = 29.1 mph
Standard Deviation = 5.0 mph
Margin of Error (95% Confidence) = ± 1.0 mph

Median Speed = 29.1 mph
15th Percentile Speed = 23.9 mph
85th Percentile Speed = 34.3 mph



SPOT SPEED STUDY

Date: **September 19, 2005** Time: **2:30 pm - 3:15 pm**
 Location: **West 108th Street between Amsterdam Avenue and Columbus Avenue**
 Surveyor:

School: **M.S. 54**
 Direction: **East**
 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	12	7.8%	7.8%	192	3072
17	0	0.0%	7.8%	0	0
18	11	7.1%	14.9%	198	3564
19	13	8.4%	23.4%	247	4693
20	13	8.4%	31.8%	260	5200
21	12	7.8%	39.6%	252	5292
22	16	10.4%	50.0%	352	7744
23	13	8.4%	58.4%	299	6877
24	12	7.8%	66.2%	288	6912
25	27	17.5%	83.8%	675	16875
26	4	2.6%	86.4%	104	2704
27	0	0.0%	86.4%	0	0
28	21	13.6%	100.0%	588	16464
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
	154	100.0%		3455	79397

Mean Speed = 22.4 mph Median Speed = 22.4 mph
 Standard Deviation = 3.5 mph 15th Percentile Speed = 18.8 mph
 Margin of Error (95% Confidence) = ± 0.6 mph 85th Percentile Speed = 26.1 mph

SPOT SPEED STUDY

Date: **September 19, 2005**

Time: **2:30 pm - 3:15 pm**

School: **M.S. 54**

Location: **West 108th Street between Amsterdam Avenue and Columbus Avenue**

Direction: **East**

Surveyor:

Comments:

Mean Speed = 22.4 mph
Standard Deviation = 3.5 mph
Margin of Error (95% Confidence) = ± 0.6 mph

Median Speed = 22.4 mph
15th Percentile Speed = 18.8 mph
85th Percentile Speed = 26.1 mph

