

NEW YORK CITY DEPARTMENT OF TRANSPORTATION
Office of School Safety Engineering



School Safety Engineering Project
FINAL REPORT: P.S. 375, Jackie Robinson School, Brooklyn



Prepared by
The RBA Group/Urbitrans Associates



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School Safety Engineering Project
P.S. 375, Jackie Robinson School, Brooklyn

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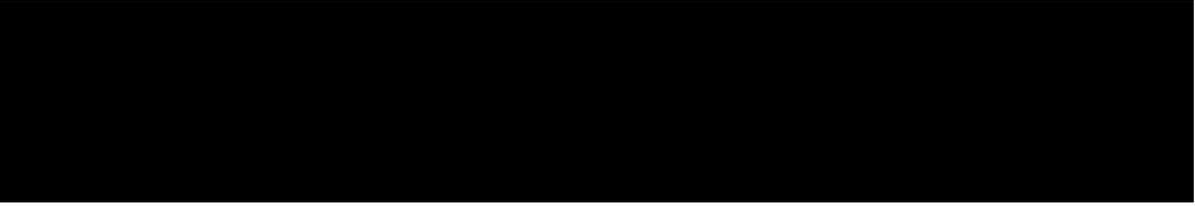
1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Department of Transportation has developed school safety maps for 1,471 schools throughout the City. Schools currently in the program are primarily elementary and intermediate schools with an enrollment of at least 250 students. The safety plans include the designation of official school crosswalks, identified by prominent warning signs and roadway markings. DOT also designates curbside locations for school bus loading and unloading and other parking controls to improve conditions for students. In addition, nearly 600 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. 375 (Jackie Robinson school) in Brooklyn is one of the 135 priority schools.

2. BACKGROUND—EXISTING CONDITIONS AND ANALYSIS



2.2 NEIGHBORHOOD DESCRIPTION

Located at 46 McKeever Place, P.S. 375 occupies most of a city block between Sullivan Place to the south, Montgomery Street to the north, Franklin Avenue to the west, and McKeever Place to the east. The school's main entrance faces McKeever Place. To the east of P.S. 375 is the Ebbetts Field housing complex, consisting of seven high-rise buildings. Medgar Evers College is located just one block north of P.S. 375. Also, The Brooklyn Botanical Garden, Brooklyn Museum and Prospect Park are in the vicinity of the school (see Exhibit 1 for Aerial Photograph and Exhibit 2 for the Catchment Area).



Figure 1: Looking west on Sullivan Place, P.S. 375 on the right

2.3 MEETING WITH SCHOOL REPRESENTATIVES

The consultant team and the school principal met at the school on May 10, 2004. According to the principal, the identifiable problems that student pedestrians encounter on a regular basis include the following:

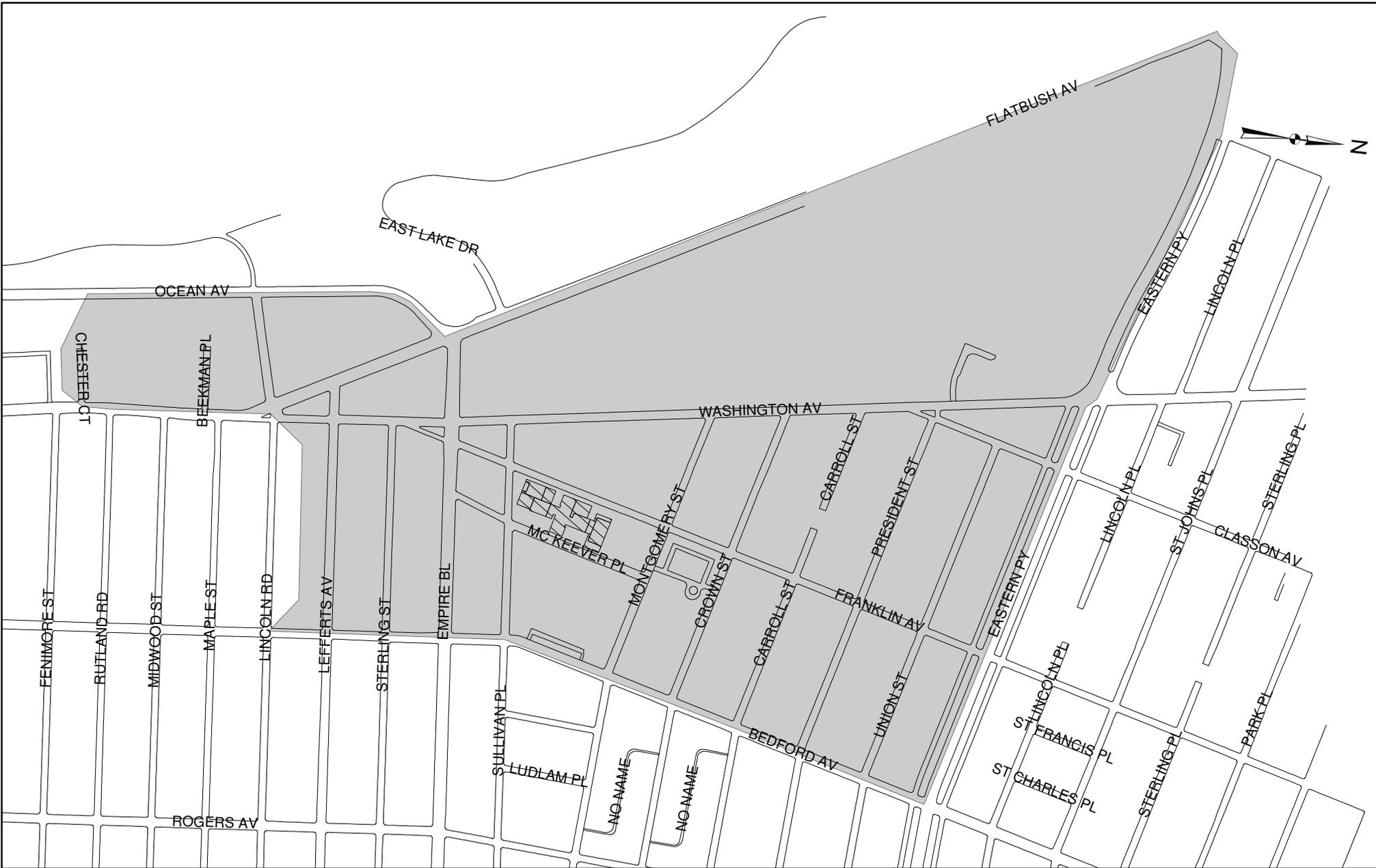
- Students crossing at the uncontrolled intersection of Sullivan Place and McKeever Place
- There are no school crosswalks between the school and the subway station on Flatbush Avenue
- Mid-block crossings on Sullivan Place during dismissal time





1 inch equals 200 feet

EXHIBIT 1
P.S. 375, BROOKLYN
JACKIE ROBINSON SCHOOL
AERIAL PHOTOGRAPH



 CATCHMENT AREA

EXHIBIT 2

**P.S. 375, BROOKLYN
JACKIE ROBINSON SCHOOL
CATCHMENT AREA**

2.6 PRIMARY MODES OF TRANSPORT TO AND FROM SCHOOL

According to the principal, approximately 10% of students walk to P.S. 375, 5% of students are driven by parents or guardians, 15% utilize the MTA bus or subway system, and the remaining 70% take school buses. 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	10%
Driven by parents or guardians	5%
School bus	70%
MTA bus or subway	15%
TOTAL	100%

2.7 ADDITIONAL STUDENT PEDESTRIAN TRAFFIC GENERATORS

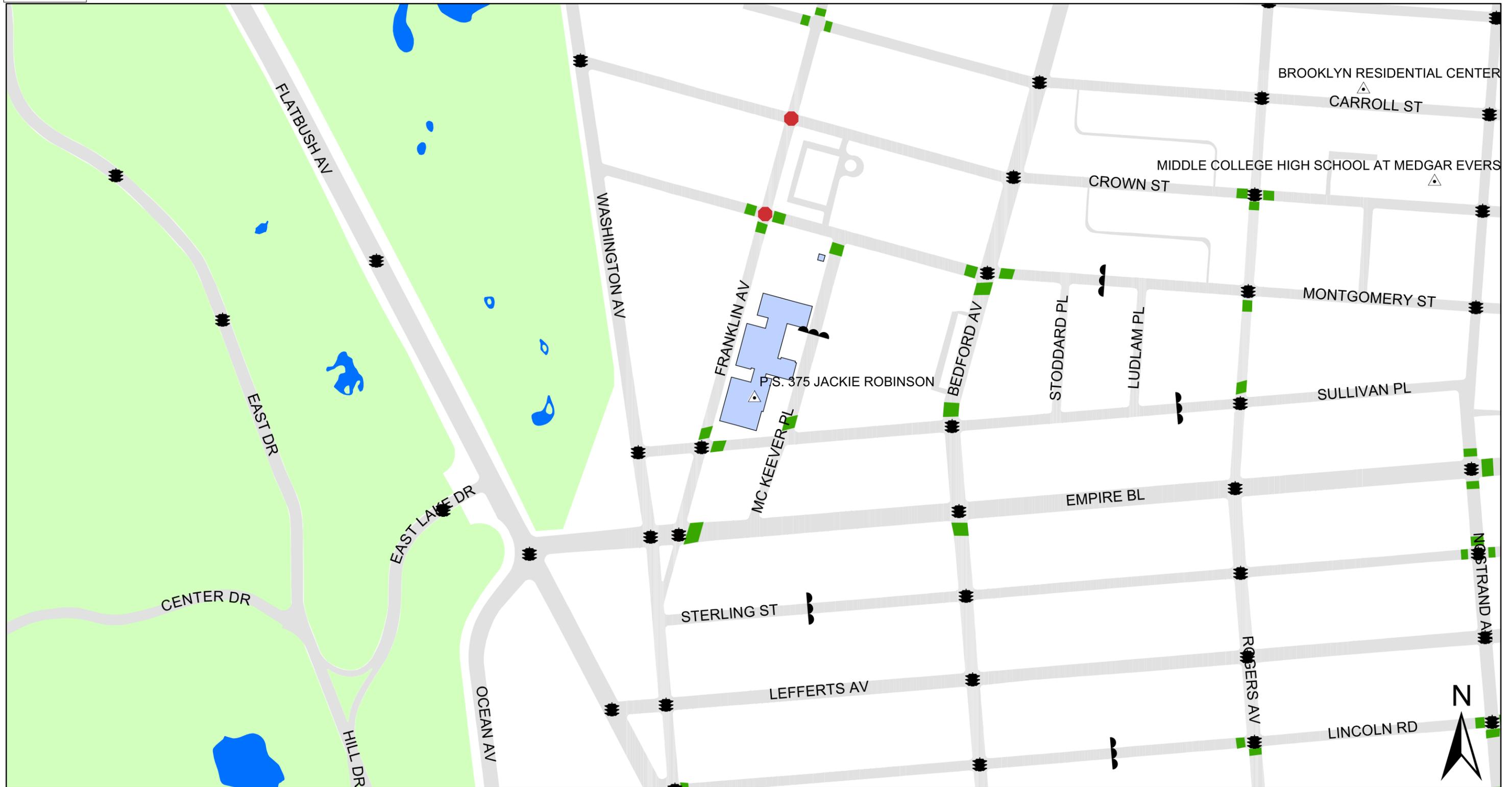
A McDonald's restaurant, located on Sullivan Place directly across from the school, is popular with students from P.S. 375. Ebbetts Field Houses – a residential development is located directly across McKeever Place. Medgar Evers College located to the north of the school is also a major student pedestrian generator.

2.8 CROSSING GUARD LOCATIONS

There are no crossing guards assigned to P.S. 375.



School Traffic Safety Map



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

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

LEGEND:

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

**PS 375 Brooklyn
 JACKIE ROBINSON**

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

EXHIBIT 3

Map created on 11/16/2006

COMM. BOARD: 309
 PRECINCT: 71

3. TRAFFIC OPERATIONS

3.1 SCHOOL BUS OPERATIONS

According to the school principal, there are seven school buses assigned to this school. Five buses drop off and pick up students on Franklin Avenue, and two other buses on McKeever Place. While waiting, buses line up on Franklin Avenue and McKeever Place, in the Board of Education parking area. School buses park or double-park depending on parking conditions.



Figure 3 – School buses parked on Franklin Avenue waiting for student dismissal

3.2 PARENT DROP OFF OPERATIONS

School representatives indicated that parents or guardians transport approximately 5% of P.S. 375 students. There is no defined drop-off/pick-up area for this. These vehicles typically double-park along McKeever Place and Franklin Avenue on both sides of the street. During afternoon dismissal time, it was observed that McKeever Place was moderately congested.



Figure 4 – Private vehicle picking up a student on Franklin Avenue during student dismissal

3.3 PARKING REGULATIONS

Exhibit 4 shows the parking regulations on the roadways surrounding the school.

Teacher parking for P.S. 375 is provided on Franklin Avenue. Parking regulation “NO PARKING 7 AM TO 4 PM, SCHOOL DAYS, EXCEPT BOARD OF EDUCATION” is posted for a length of approximately 400 feet. Parking is prohibited on alternating sides of the roadways facing the school between 8:30 am and 10:00 am. (See Exhibit 4 for details).



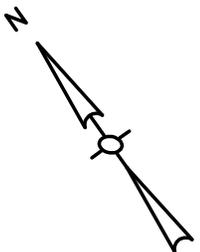
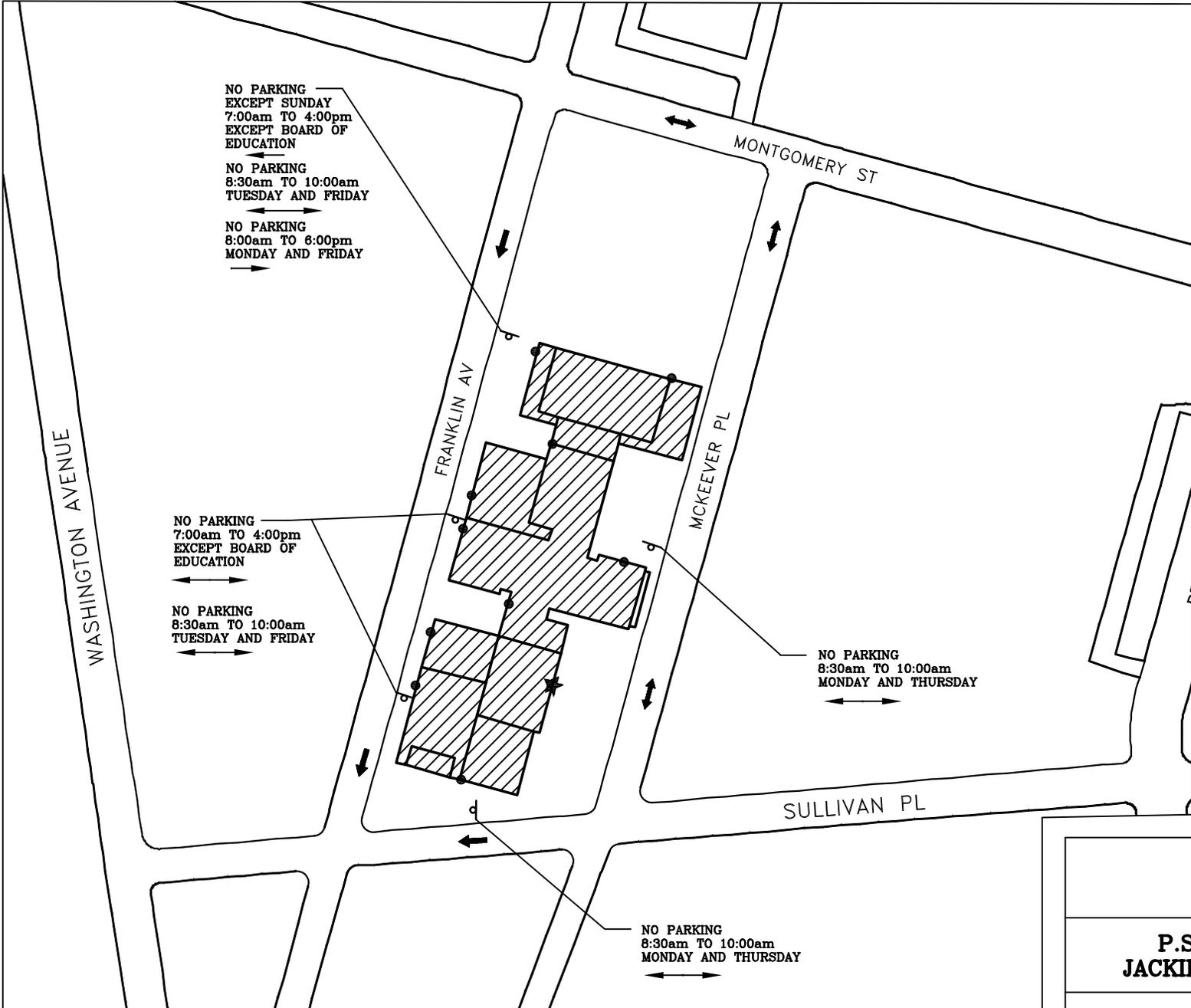
Figure 5 – Parking regulations on Franklin Avenue

3.4 EXISTING SCHOOL SIGNS AND MARKINGS

The Traffic Safety Plan, Exhibit 3, shows existing crosswalk pavement markings. It is noted that a citywide signage program is currently underway to upgrade school signage to current Federal Manual of Uniform Traffic Control Devices (MUTCD) standards of fluorescent yellow-green signs with downward pointing arrows. Signs scheduled to be installed under this program are shown as "existing" on Exhibit 7.



Figure 6 – A typical brick paver crosswalk at the intersection of Empire Boulevard and Franklin Avenue



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES
- ⊕ STREET SIGN

EXHIBIT 4

**P.S. 375, BROOKLYN
JACKIE ROBINSON SCHOOL**

EXISTING PARKING REGULATIONS

SCALE: 1" : 100'

3.5 ACCIDENT SUMMARY

Exhibit 5 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. 375 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
Franklin Ave. and Sullivan Place	3	0	0	0
Franklin Ave. and Montgomery St.	12	0	0	0
McKeever Place and Montgomery St.	11	0	0	0
McKeever Place and Sullivan St.	12	1	0	1
Empire Boulevard and McKeever Place	23	2	0	1
Bedford Ave. and Empire Blvd.	111	4	0	1
Bedford Ave. and Sullivan Place	16	2	0	0
Bedford Ave. and Montgomery St.	41	4	0	0
Washington Ave. and Empire Blvd	73	4	1	0
Franklin Ave. and Empire Blvd	18	2	0	1
TOTAL	320	19	1	4

TABLE 3: NYPD FOUR-YEAR ACCIDENT SUMMARY (2001-2004)				
INTERSECTION	TOTAL ACCIDENTS	PEDESTRIAN ACCIDENTS	PEDESTRIAN FATALITIES	SCHOOL-RELATED* ACCIDENTS
Franklin Ave. and Sullivan Place	5	0	0	0
Franklin Ave. and Montgomery St.	22	5	0	1
McKeever Place and Montgomery St.	15	1	0	0
McKeever Place and Sullivan St.	14	1	0	0
Empire Boulevard and McKeever Place	26	3	0	0
Bedford Ave. and Empire Blvd	112	13	0	4
Bedford Ave. and Sullivan Place	24	4	0	0
Bedford Ave. and Montgomery St	46	7	0	0
Washington Ave. and Empire Blvd.	74	7	0	0
Franklin Ave. and Empire Blvd.	29	1	0	1
TOTAL	367	42	0	6

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



ACCIDENT LOCATION *
 SCHOOL CROSSWALK ASSIGNED TO P.S. 375 [Solid Grey Box]
 SCHOOL CROSSWALK ASSIGNED TO ANOTHER SCHOOL [Dashed Grey Box]
 CROSSWALK [White Box]

1 inch equals 250 feet

X/X/X/X

TOTAL ACCIDENTS	PED ACCIDENTS	PED FATAL	SCHOOL PED ACCIDENTS
X	X	X	X

EXHIBIT 5
P.S. 375, BROOKLYN
JACKIE ROBINSON SCHOOL
ACCIDENT SUMMARY
THREE YEAR PERIOD
1998-2000

3.6 TRAFFIC OPERATIONS AND ISSUES

The following outlines the traffic accidents and operations issues at the intersections in the vicinity of P.S. 375.

3.6.1 – Montgomery Street at Franklin Avenue

This is an ALL WAY STOP controlled intersection. Franklin Avenue is a 35-foot wide, one-way (southbound) street with one travel lane and parking on both sides of the roadway. Montgomery Street is a 37-foot wide roadway with parking on both sides of the street. West of the intersection Montgomery Street is a one-way eastbound roadway with two moving lanes. East of the intersection. Montgomery Street is a two-way roadway with one travel lane in each direction. There are school crosswalks on the south, east and west legs of the intersection.

According to accident data (see Table 2 and Exhibit 5), twelve accidents occurred at this intersection in the three-year time period 1998-2000, none of which involved pedestrians.

3.6.2 - Montgomery Street at McKeever Place

McKeever Place is a 40-foot wide, two way street with one travel lane in each direction and parking along both sides of the roadway. McKeever Place and Montgomery Street form a “T” intersection. The northbound traffic on McKeever Place is stop-controlled at the intersection. There is a school crosswalk on the south leg of the intersection.

A speed reducer has been installed on McKeever Place, approximately 350 feet south of Montgomery Street (See Figure 7).



Figure 7 – Speed reducer on McKeever Place (looking south)

Eleven accidents occurred at this intersection between 1998 and 2000. None involved pedestrians.

3.6.3 - Montgomery Street at Bedford Avenue

This signalized intersection is at the entrance to Medgar Evers College. Bedford Avenue is a 54-foot wide, two-way street with one travel lane, and one bike lane in each direction. There is parking along both curbs. There are school crosswalks on the south, east and west legs of the intersection. Montgomery Street becomes a one-way street (eastbound) east of Bedford Avenue. Bedford Avenue is a bus-route and as noted, a striped bike route. All four corners of the intersection have substandard pedestrian ramps.

There were a total of 41 accidents at this intersection including four pedestrian accidents during the 1998-2000-study period. Two pedestrians were school age children, a seven-year-old and 12-year-old respectively. They were both struck when crossing outside of the crosswalk. These two accidents occurred outside of designated school hours and are therefore not classified as school-related accidents (see Table 2). Another two pedestrians were struck while crossing with the signal. One accident is attributed to the driver's disregard for the traffic control device and the other accident is attributed to the driver failing to yield to the pedestrian.

A nine-year old and a 12-year old pedestrian were struck on Bedford Avenue mid-block between Montgomery Street and Sullivan Place during school hours. Another pedestrian was struck due to a driver backing up his vehicle unsafely.

3.6.4 – Sullivan Place at Bedford Avenue

Sullivan Place is a one-way (westbound), 35-foot wide roadway east of Bedford Avenue, and 41-foot wide roadway, west of Bedford Avenue. There is parking along both curbs. Parking is prohibited on Bedford Avenue between Sullivan Place and Empire Boulevard where bike lanes are separated from the travel lanes by a striped buffer. A school crosswalk is in place on the north leg of the intersection.

Sixteen accidents occurred at this intersection during the 1998-2000 study period. Two accidents involved pedestrians, none of which were school-related. According to the accident data, one pedestrian was struck while crossing with the signal by a vehicle turning left. The second pedestrian was struck by a northbound vehicle while crossing against the signal.

3.6.5 – Bedford Avenue at Empire Boulevard

Empire Boulevard is a minor east-west arterial, which varies in width between 60 to 70 feet depending on the location. Empire Boulevard has two travel lanes in each direction and parking is allowed along both curbs. Bedford Avenue has left turn bays in both the southbound and northbound directions. A school crosswalk is in place on the south leg of the intersection. There is no school crosswalk on Empire Boulevard for students crossing at this location. Traffic and pedestrian counts were performed for this location on May 11, 2005 from 7:30 am to 8:30 am to better understand the pedestrian and vehicle

conflicts at this intersection. A total of 74 pedestrians crossed the west leg of Empire Boulevard, 33 of which were school children (see Exhibit 6).

There were one hundred and eleven accidents at this intersection during the 1998-2000 study period. Four accidents involved pedestrians, one of which was a school-related. Two pedestrians, including a six-year-old student, were struck by vehicles making left turns. The third accident involved a pedestrian crossing against the signal, and the last accident occurred when a pedestrian emerged from behind parked vehicles into oncoming traffic.

3.6.6 – Empire Boulevard at Franklin Avenue/Washington Avenue

The traffic signals at these two adjacent intersections are fully coordinated. The intersection was observed to be extremely busy with high traffic volumes in the east-west direction. Empire Boulevard, at this intersection, is a 70-foot wide, multi-lane two-way roadway. Franklin Avenue, south of Empire Boulevard, is a one-way northbound roadway with one travel lane. North of Empire Boulevard Franklin Avenue is a one-way, southbound roadway with one travel lane. Washington Avenue is a 42-foot wide, two-way roadway (north-south) with one travel lane in each direction and parking on both sides of the street.

Jaywalking was observed at this intersection (see Figure 8). There is a subway station entrance at the intersection of Empire Boulevard and Flatbush Avenue, 2 blocks west of the school. Students who come to P.S. 375 by subway generally cross Empire Boulevard and Washington Avenue at this location.

Crosswalks at the intersection of Franklin Avenue and Empire Boulevard consist of two parallel white lines with two-colored interlocking pavers in the middle. These pavers are worn and broken in several areas. There are no school crosswalks at this intersection.

A Pedestrian/Traffic Safety Mitigation project was prepared for the Office of the Borough President in 2002. The study identified this intersection as one of the eleven intersections in the borough that need significant improvements to pedestrian and traffic safety. Under that study a wide variety of improvements were recommended for of this intersection including:

- Traffic signal layout and timing improvements
- Traffic sign upgrade
- New pavement markings
- New pedestrian signal (see Appendix for further detail).

A total of eighteen accidents occurred at the intersection of Empire Boulevard and Franklin Avenue in the three-year period between 1998 and 2000. Two accidents involved pedestrians, one of which was school-related. Both pedestrians, including a 13-year-old child, were struck while crossing against the signal.

Seventy-three accidents occurred at the intersection of Washington Avenue and Empire Boulevard during the 1998-2000 study period, four of which involved pedestrians. On July 28, 1998 at 7:00 am, a forty-eight year old pedestrian was struck and killed by a

northbound vehicle. The accident cause was cited as driver's error, though no further details were reported. Another pedestrian was struck when crossing Empire Boulevard against the signal. There are no details on the other two accidents.

Five accidents occurred on Empire Boulevard in the area between Washington Avenue and Franklin Avenue during the 1998-2000 study period. One involved a pedestrian, though the accident was not school-related. This pedestrian was struck while crossing against the signal.



Figure 8 – Empire Boulevard, Franklin Avenue, and Washington Avenue (looking east)

3.6.7 – Sullivan Place at McKeever Place

School officials cited this intersection as a significant safety concern to P.S. 375 students. McKeever Place is stop controlled at this intersection. McKeever Place is a 40-foot wide, two way (north-south) street with parking on both sides. There is a school crosswalk on the north leg of the intersection. According to school officials, and verified by field observations, a large number of students also cross Sullivan Place (See Figure 9).

A total of 12 accidents occurred at this intersection during the 1998-2000 study period, one of which was school-related. The accident involved a 12-year-old pedestrian who was struck while playing in the roadway.

A signal warrant study for this intersection performed by NYCDOT in September of 2004 found that this intersection did not meet signal warrant criteria.



Figure 9 –Looking east on McKeever Place and Sullivan Place during dismissal time



Figure 10 – McKeever Place at Franklin Avenue (looking south) during dismissal time

A one-hour traffic count was conducted on March 22, 2005 between 7:30 am and 8:30 am to better understand the pedestrian and vehicle conflicts at this intersection. (Exhibit 6). A one-hour gap study was conducted on April 5, 2005 between 2:30 pm and 3:30 pm. The following are findings based on these studies:

- A total of 224 pedestrians crossed Sullivan Place in AM peak hour. Most of them were student pedestrians.
- A total of 143 students from P.S. 375 crossed Sullivan Place at the uncontrolled western leg of the intersection during the 2:30 pm - 3:30 pm student departure hour.

The number of pedestrians per hour crossing Sullivan Place (224) exceeds the minimum required (190 pedestrians) for a given study hour under Warrant 4 of the MUTCD. However the gap study shows that there were 83 gaps of 16 or more seconds (the time required to cross a 40 foot wide street at 3 feet per second plus 3 seconds of reaction time). The number of gaps cannot exceed one gap per minute or 60 gaps in the study hour to meet the warrant requirements. Therefore, the intersection does not meet the warrants for a traffic signal or an all-way stop at this time.

In addition, a spot speed survey was conducted on Sullivan Place between Bedford Avenue and McKeever Place on March 30, 2005 between 11:30 am and 12:30 pm. The objective of the survey was to determine if there is a speeding problem along Sullivan Place as reported by school officials.

The speed study results are shown Table 4 and in the Appendix. The 85% percentile speed was 32 mph, and 37% of the surveyed vehicles were exceeding the legal speed limit of 30 mph. However, due to the number of driveways on the street, speed reducers are not recommended on Sullivan Avenue. Alternative measures to improve student pedestrian safety are discussed in Section 4.

TABLE 4: SPOT SPEED STUDIES		
LOCATION	MEDIAN SPEED (MPH)	85TH PERCENTILE SPEED (MPH)
Sullivan Place between Bedford Avenue and McKeever Place	28	32

3.7.8 – Sullivan Place at Franklin Avenue

This intersection is located immediately southeast of P.S. 375. It is a signalized intersection with both streets operating as one-way; Sullivan Place in the westbound and Franklin Avenue in the southbound direction. School crosswalks are in place on the east and north legs of the intersection.

Although a large number of students cross at this location, there were only three accidents during the 1998-2000 study period, none of which were pedestrians. However, there were three pedestrian accidents along Franklin Avenue between Sullivan Place and Montgomery Street. All three accidents are attributed to mid-block crossings, two of which are school-related accidents.

3.6.9 Empire Boulevard and McKeever Place

This is an unsignalized T-intersection with a stop control for the southbound traffic on McKeever Place. There are no school crosswalks at this intersection. There is a pedestrian crosswalk across the north leg.

Twenty-three accidents occurred at this intersection during the 1998-2000 study period. Two involved pedestrians, of which one was school-related. According to the accident data, both pedestrians were struck while crossing against the signal.

3.7 SIGNAL TIMING: PEDESTRIAN PHASE

Pedestrian crossing time was field-verified at all signalized intersections in the vicinity of P.S. 375 and found to be adequate for a child pedestrian walking rate of three feet per second in all directions and approaches.

TABLE 5: PEDESTRIAN CROSSING TIME AT SIGNALIZED INTERSECTIONS				
Intersection Name	Crosswalk Width (Feet)	Ped. Phase Actual (Seconds)	Ped. Phase Req'd (Seconds)*	Timing Adjustment? (Yes/No)
Franklin Ave at Sullivan Place				
crossing Franklin Avenue	38	55	16	NO
crossing Sullivan Place	36	35	15	NO
Empire Blvd at Franklin Avenue				
crossing Empire Blvd	77	36	29	NO
crossing Franklin Avenue	36	48	15	NO
Empire Blvd at Washington				
crossing Empire Blvd	72	36	27	NO
Crossing Washington Avenue	42	48	17	NO
Bedford Ave at Montgomery St.				
crossing Bedford Ave	55	55	21	NO
crossing Montgomery St.	37	35	15	NO
Bedford Ave at Sullivan Place				
crossing Bedford Ave	52	55	20	NO
crossing Sullivan Place	40	35	16	NO
Bedford Ave at Empire Blvd				
crossing Bedford Ave	52	35	20	NO
crossing Empire Blvd.	60	25	23	NO

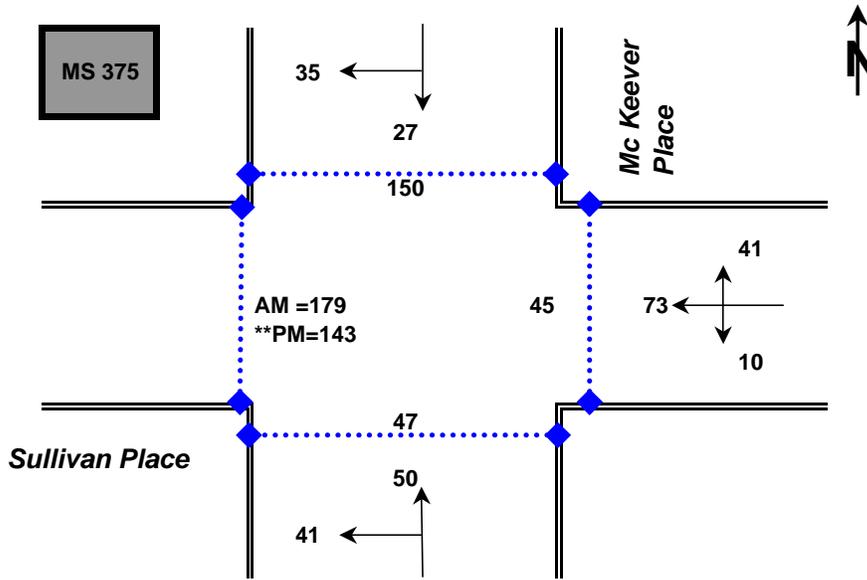
Note:

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

3.8 PHYSICAL CONDITIONS (ROADWAYS AND SIDEWALKS)

The roadways, sidewalks, and curbs in the vicinity of the project are in fair condition. Franklin Avenue has been recently repaved.

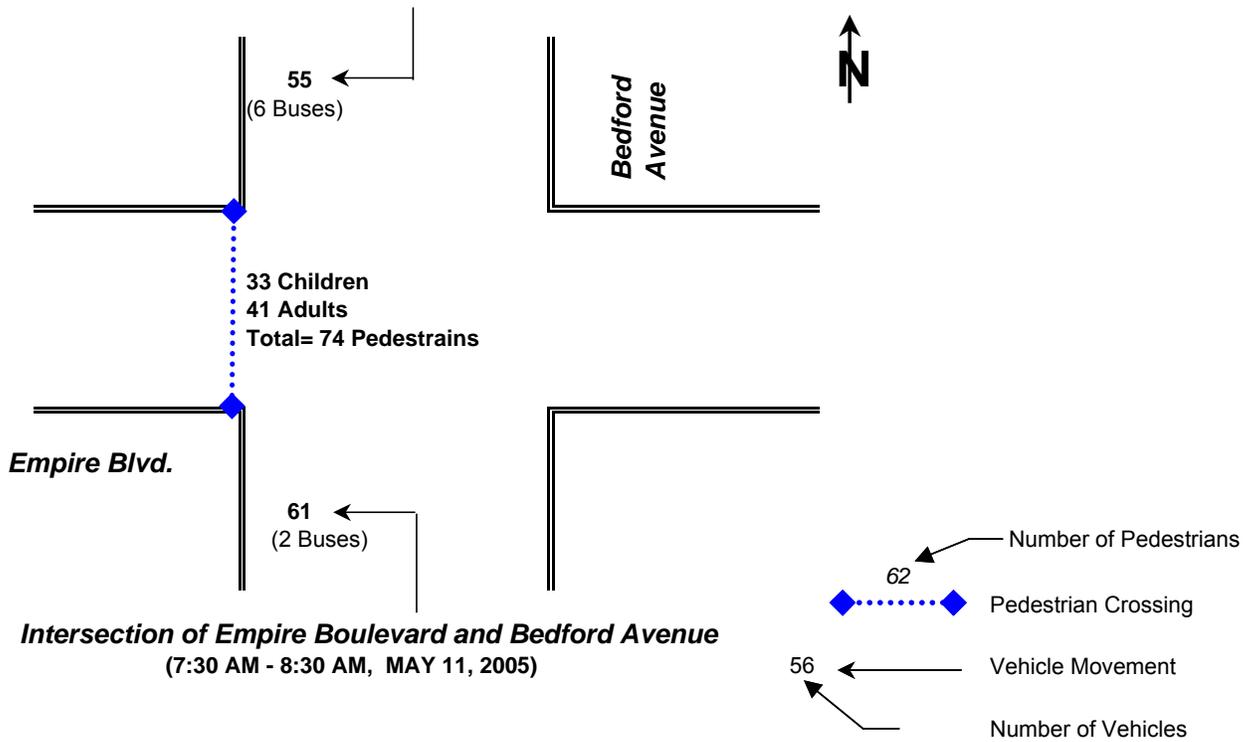
One Hour Traffic Count Volumes



Intersection of Sullivan Place and McKeever Place

(7:30 AM - 8:30 AM MARCH 22, 2005)

**Note: 143 pedestrians were students crossing from MS 352, between 2:30 and 3:30 PM (on April 5, 2005).



Intersection of Empire Boulevard and Bedford Avenue

(7:30 AM - 8:30 AM, MAY 11, 2005)

EXHIBIT 6
M.S 375 , BROOKLYN EBBETTS FIELD MIDDLE SCHOOL
TRAFFIC COUNTS

4. POTENTIAL 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.

4.1 SHORT-TERM MEASURES

- *Install graphic “Yield to Pedestrian Sign”*
A “YIELD TO PEDESTRIAN SIGN” should be installed on the northbound approach of Franklin Avenue at the intersection with Empire Boulevard.
- *No Standing Zone on McKeever Place*
“NO STANDING 7 AM - 4 PM, SCHOOL DAYS” parking regulation on Mc Keever Place in front of the school’s main entrance should be installed (see Exhibit 7). 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 from the school.
- *No Standing Zone on Franklin Avenue*
“NO STANDING 7 AM - 4 PM, SCHOOL DAYS” parking regulation on Franklin Avenue for a length of 100 feet in front of the school’s entrances should be installed. Teacher parking should be relocated north of the school on Franklin Avenue (see Exhibit 7).
- *Administer student pedestrian safety education program*
It is recommended that the NYCDOT, Safety Education Program work with the school to educate the students on pedestrian safety, including crossing the street with the WALK phase, and the meaning of WALK - FLASHING DON’T WALK - DON’T WALK pedestrian signal sequence. It is also recommended that the students be educated not to cross at mid-block locations.
- *Submit a request to the Police Department for a Crossing Guard*
As noted in section 3.6.7, the intersection of Sullivan Place and McKeever Place is not signalized. One-hour traffic counts indicated the existing traffic and pedestrian volumes do not meet the criteria for signaling the intersection or installing an all-way stop control. It is recommended that a crossing guard be requested for this intersection to assist students at this location.
- *Install new school crosswalks*
School officials cited Sullivan Place and McKeever Place as a significant safety concern to P.S. 375 students. According to school officials and verified by field observations, a large number of students cross Sullivan Place at this intersection.
 - Therefore, it is recommended that a school crosswalk be installed on the west leg and a standard pedestrian crosswalk be installed on the south leg

of Sullivan Place and McKeever Place. This measure in conjunction with the proposed crossing guard would facilitate students en route to school.

At the intersection of Empire Boulevard with Washington Avenue and Franklin Avenue the existing crosswalks are made of interlocking grey-colored pavers. It is recommended that these crosswalks be replaced with standard pavement and thermoplastic school crosswalks in order to increase their visibility. In addition there are no school crosswalks along the route from the subway station located on Flatbush Avenue to P.S. 375, which is heavily utilized by students. Therefore the following intersections should have school crosswalks installed:

- Empire Boulevard and Washington Avenue – north and west legs
- Empire Boulevard and Franklin Avenue –north and east legs
- Empire Boulevard, Ocean Avenue and Flatbush Avenue – north, east, south legs

Based on feedback from school officials and to ensure a continuous walking route, it is also recommended that school crosswalks be installed on Bedford Avenue at the following locations:

- Empire Boulevard and Bedford Avenue intersection – west leg
- Sullivan Place and Bedford Avenue intersection – west leg

According to school officials many students exit the Flatbush Avenue subway station and walk to P.S. 375. Currently there are no school crosswalks along the route from the subway station to P.S. 375. Therefore, it is recommended that school crosswalks be installed on the south, north and east leg of Flatbush Avenue and Empire Boulevard.

- *Place stop bars ten feet in advance of school crosswalks.*

The MUTCD and New York City DOT standard for placement of a stop bar is four feet in advance of a marked crosswalk. At signalized (or stop controlled) crosswalks, the vehicle stop line can be placed farther back from the crosswalk in order to maximize visibility of pedestrians and to minimize the potential for pedestrian/vehicle conflicts. Therefore, it is recommended that stop bars be placed ten feet in advance of all school crosswalks.

4.2 LONG-TERM MEASURES

- Consider curb extensions at the following intersections

Consideration should be given to installing a curb extension at the following locations, provided that the Final Design confirms that construction of the recommended curb extension would be feasible and would not interfere with traffic operations. Final details pertaining to the number, location and geometry of curb extensions will be developed during the Final Design/Contract Document preparation.

- Montgomery Street and Franklin Avenue – southeast corner
- Montgomery Street and McKeever Place – southeast and southwest corners
- Sullivan Place and McKeever Place – southeast, southwest, northwest
- Sullivan Place and Franklin Avenue – northeast corner

Curb extensions should be considered 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 these heavily utilized school crosswalks (or intersections). These curb extensions would not eliminate or reduce the width of any moving lanes.

- Install raised concrete medians on Empire Boulevard

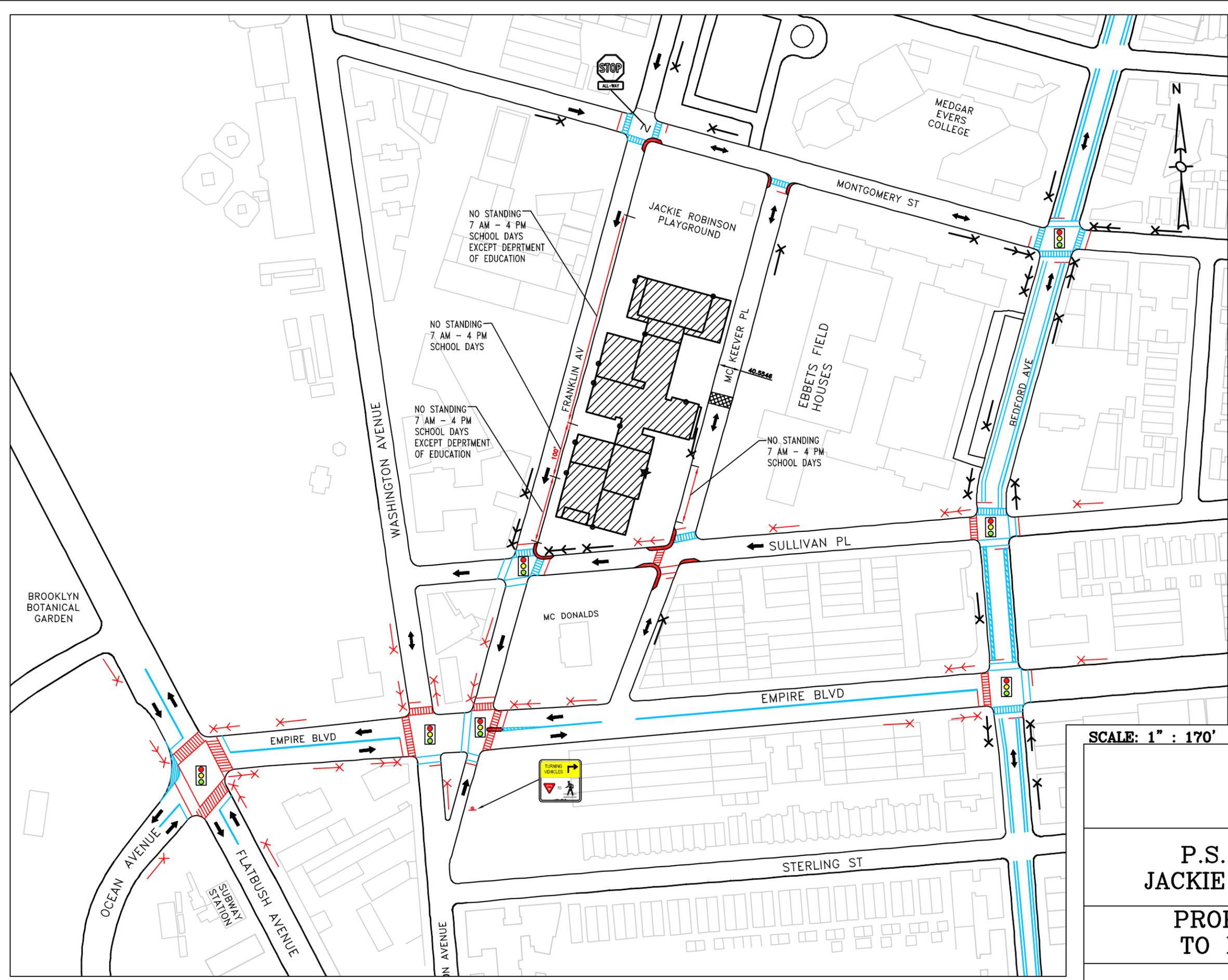
To improve safety conditions for pedestrians crossing at the east leg of Empire Boulevard and Franklin Avenue intersection, a raised median is proposed. The proposed raised median will replace the existing striped median provided that the Final Design confirms that construction of the recommended median would be feasible and would not interfere with traffic operations (See Exhibit 7).

The proposed raised median will extend through the crosswalk to provide refuge for pedestrians. The median should have an ADA compliant at-grade cut-through.

- Install/replace pedestrian ramps

Consideration should be given to the installation and/or replacement of pedestrian ramps per NYCDOT standards at the following locations:

- Bedford Avenue and Montgomery Street – all four corners



LEGEND

- ★ MAIN ENTRANCE
- OTHER ENTRANCES
- X EXISTING (OR SCHEDULED TO BE INSTALLED BY DOT) ADVANCE WARNING SIGN WITH ARROW
- X EXISTING ADVANCE WARNING SIGN
- ↔ EXISTING TRAVEL DIRECTION
- 🚦 SIGNALIZED INTERSECTION
- ▬ EXISTING SCHOOL CROSSWALK
- ▬ EXISTING STANDARD (NON-SCHOOL) CROSSWALK
- 🛑 EXISTING ALL-WAY STOP
- ▨ EXISTING SPEED REDUCER
- ▬ EXISTING BICYCLE LANES
- X PROPOSED ADVANCE WARNING SIGN WITH ARROW
- X PROPOSED ADVANCE WARNING SIGN
- PROPOSED STOP LINE
- ▬ PROPOSED SCHOOL CROSSWALK
- 👉 PROPOSED CURB EXTENSION (NECKDOWN)
- ↔ PROPOSED PARKING REGULATIONS
- ▬ PROPOSED PEDESTRAIN REFUGE ISLAND

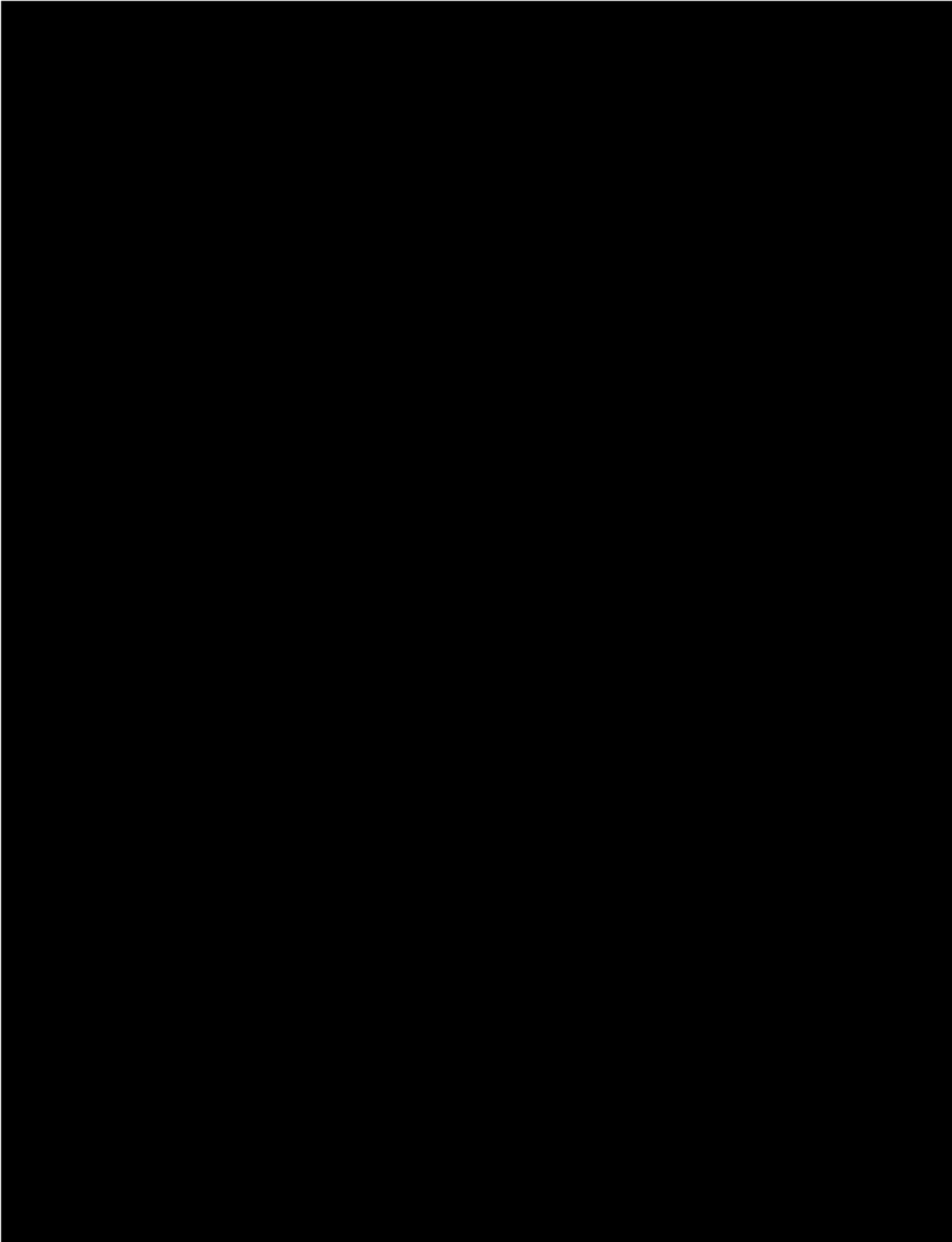
SCALE: 1" : 170'

EXHIBIT 7

**P.S. 375, BROOKLYN
JACKIE ROBINSON SCHOOL**

**PROPOSED MEASURES
TO IMPROVE SAFETY**

APPENDIX



SPOT SPEED STUDY

Date: **March 30, 2005** Time: **11:30 am - 12:30 pm**
 Location: **Sullivan Place between Bedford Avenue and McKeever Place**
 Surveyor: **The RBA Group**

School: **M.S. 375**
 Direction: **East-West**
 Comments:

Speed S (mph)	No. of Vehicles in Group n	% of Vehicles in Group	% Cumulative Vehicles	nS	nS ²
8	0	0.0%	0.0%	0	0
9	0	0.0%	0.0%	0	0
10	0	0.0%	0.0%	0	0
11	0	0.0%	0.0%	0	0
12	0	0.0%	0.0%	0	0
13	0	0.0%	0.0%	0	0
14	0	0.0%	0.0%	0	0
15	0	0.0%	0.0%	0	0
16	0	0.0%	0.0%	0	0
17	0	0.0%	0.0%	0	0
18	0	0.0%	0.0%	0	0
19	0	0.0%	0.0%	0	0
20	0	0.0%	0.0%	0	0
21	0	0.0%	0.0%	0	0
22	0	0.0%	0.0%	0	0
23	0	0.0%	0.0%	0	0
24	0	0.0%	0.0%	0	0
25	5	18.5%	18.5%	125	3125
26	4	14.8%	33.3%	104	2704
27	4	14.8%	48.1%	108	2916
28	2	7.4%	55.6%	56	1568
29	2	7.4%	63.0%	58	1682
30	3	11.1%	74.1%	90	2700
31	3	11.1%	85.2%	93	2883
32	1	3.7%	88.9%	32	1024
33	1	3.7%	92.6%	33	1089
34	1	3.7%	96.3%	34	1156
35	1	3.7%	100.0%	35	1225
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
	27	100.0%		768	22072

Mean Speed = 28.4 mph Median Speed = 28.4 mph
 Standard Deviation = 3.0 mph 15th Percentile Speed = 25.4 mph
 Margin of Error (95% Confidence) = ± 1.1 mph 85th Percentile Speed = 31.5 mph

SPOT SPEED STUDY

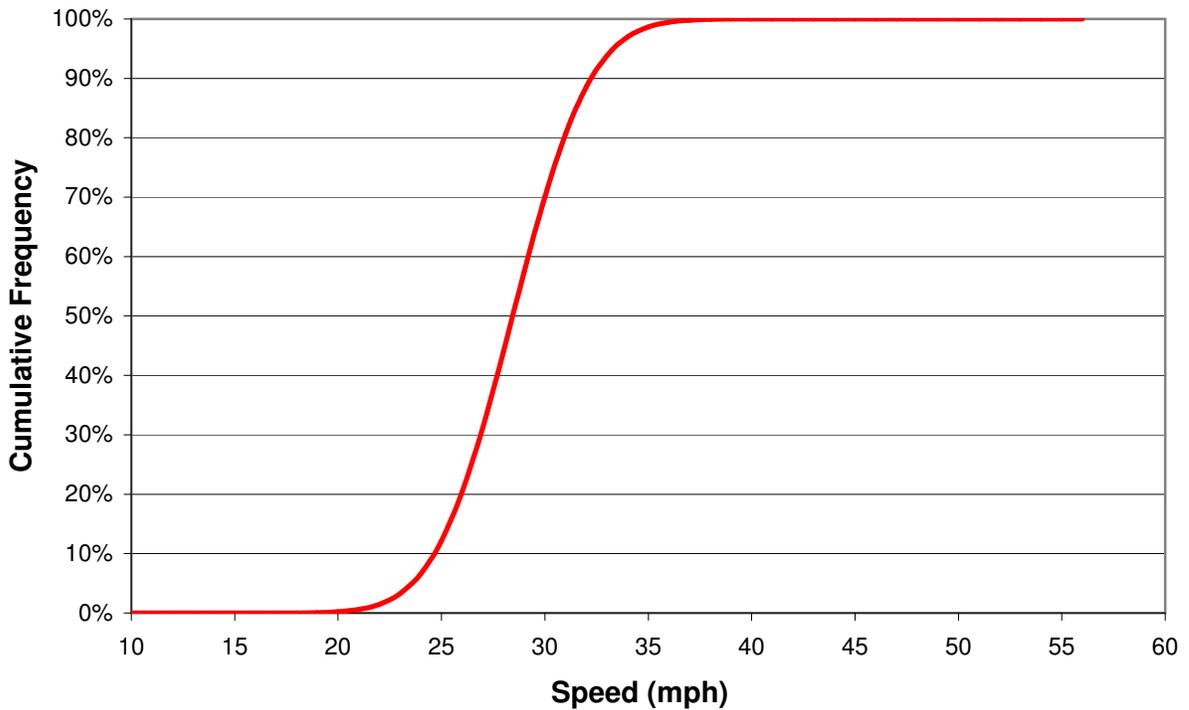
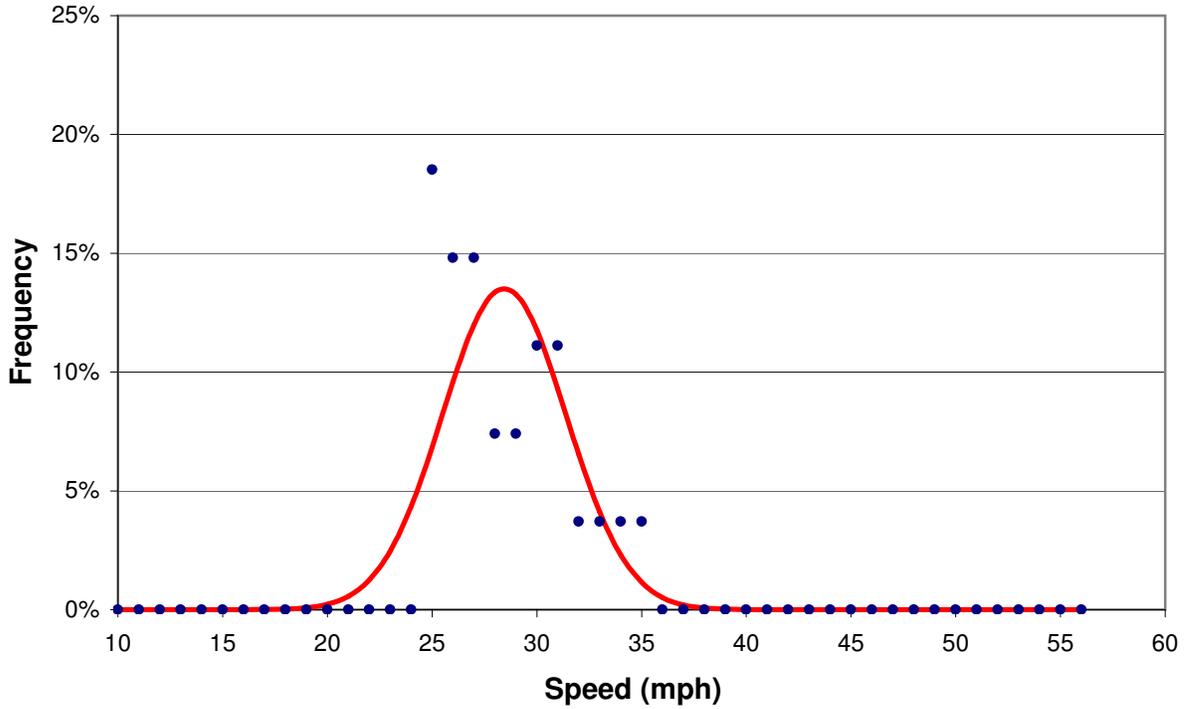
Date: **March 30, 2005**
Location: **Sullivan Place between Bedford Avenue and McKeever Place**
Surveyor: **The RBA Group**

Time: **11:30 am - 12:30 pm**

School: **M.S. 375**
Direction: **East-West**
Comments:

Mean Speed = 28.4 mph
Standard Deviation = 3.0 mph
Margin of Error (95% Confidence) = ± 1.1 mph

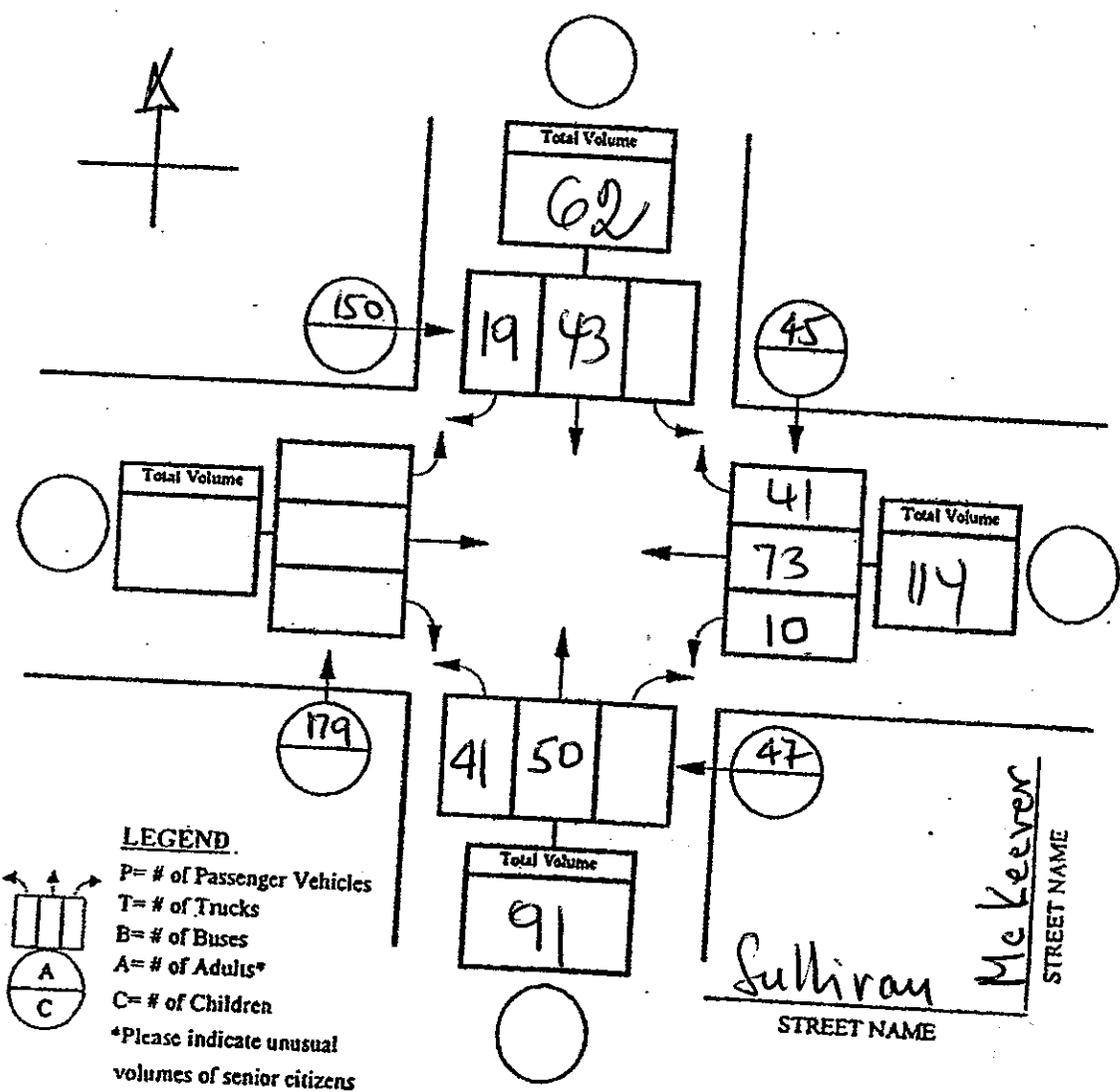
Median Speed = 28.4 mph
15th Percentile Speed = 25.4 mph
85th Percentile Speed = 31.5 mph



VOLUME CLASSIFICATION AND TURNING COUNTS

DATE: SEPT. 15/2004
 DAY: Wedn.

TIME: 7³⁰ - 8³⁰
 INSPECTOR: _____



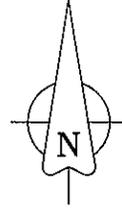
COMMENTS:

MAJOR	
MINOR	
PEDS	
SC	
Other	

INTERSECTION: McKeever @ Sullivan

TIME : 400-500 PM

DATE : 8/24/09



STREET NAME:

Sullivan Place

13	33(1)	

↖	22 (1)
←	45 (1)
↙	15

18 (1)	34 (1)	

STREET NAME:

McKeever Pl.

C- CARS
T-TRUCKS
B-BUSES

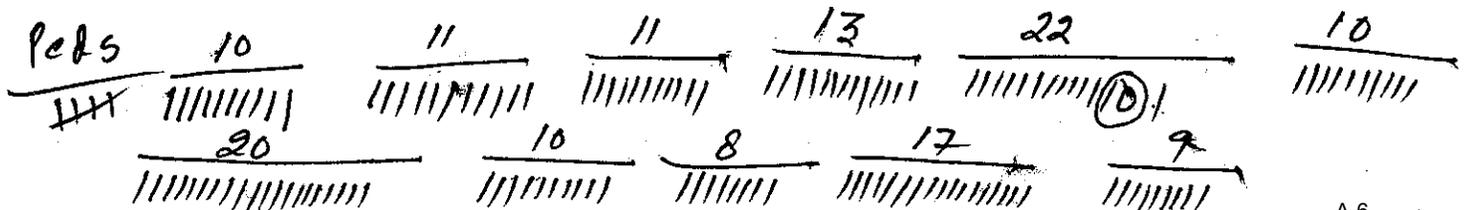
SCHOOL SAFETY ENGINEERING PROJECT

School: MS 375
 Location: Sullivan Place

Date: 4/5/05
 Time: 2-30 - 3-30 PM

	Gap Time	Veh #		Gap Time	Veh #		Gap Time	Veh #
1	55	1	41	26	1	81	1-03	1
2	51	1	42	24	1	82	4	1
3	1-02	1	43	27	1	83	54	1
4	40	1	44	9	1	84		
5	1-38	1	45	2	1	85		
6	20	1	46	55	1	86		
7	1-45	2	47	1-49	1	87		
8	1-16	1	48	603	1	88		
9	2-28	1	49	2	1	89		
10	12	1	50	20	1	90		
11	28	1	51	1-16	1	91		
12	10	1	52	1-10	1	92		
13	32	1	53	38	1	93		
14	25	1	54	18	1	94		
15	6	2	55	4	1	95		
16	43	1	56	5	1	96		
17	15	1	57	4	1	97		
18	15	1	58	23	2	98		
19	36	1	59	20	1	99		
20	51	1	60	18	1	100		
21	16	1	61	24	1	101		
22	24	1	62	25	1	102		
23	27	1	63	2-05	1	103		
24	29	2	64	1-03	1	104		
25	20	1	65	5	1	105		
26	5	2	66	6	1	106		
27	7	1	67	39	1	107		
28	67	2	68	9	1	108		
29	52	1	69	52	1	109		
30	47	1	70	26	1	110		
31	1-24	1	71	7	1	111		
32	47	1	72	9	1	112		
33	1-35	1	73	3	1	113		
34	13	1	74	36	1	114		
35	54	1	75	9	1	115		
36	1-20	1	76	1-57	1	116		
37	32	1	77	11	1	117		
38	1-52	1	78	87	1	118		
39	2-28	1	79	8	1	119		
40	36	1	80	5	1	120		

143 Peds



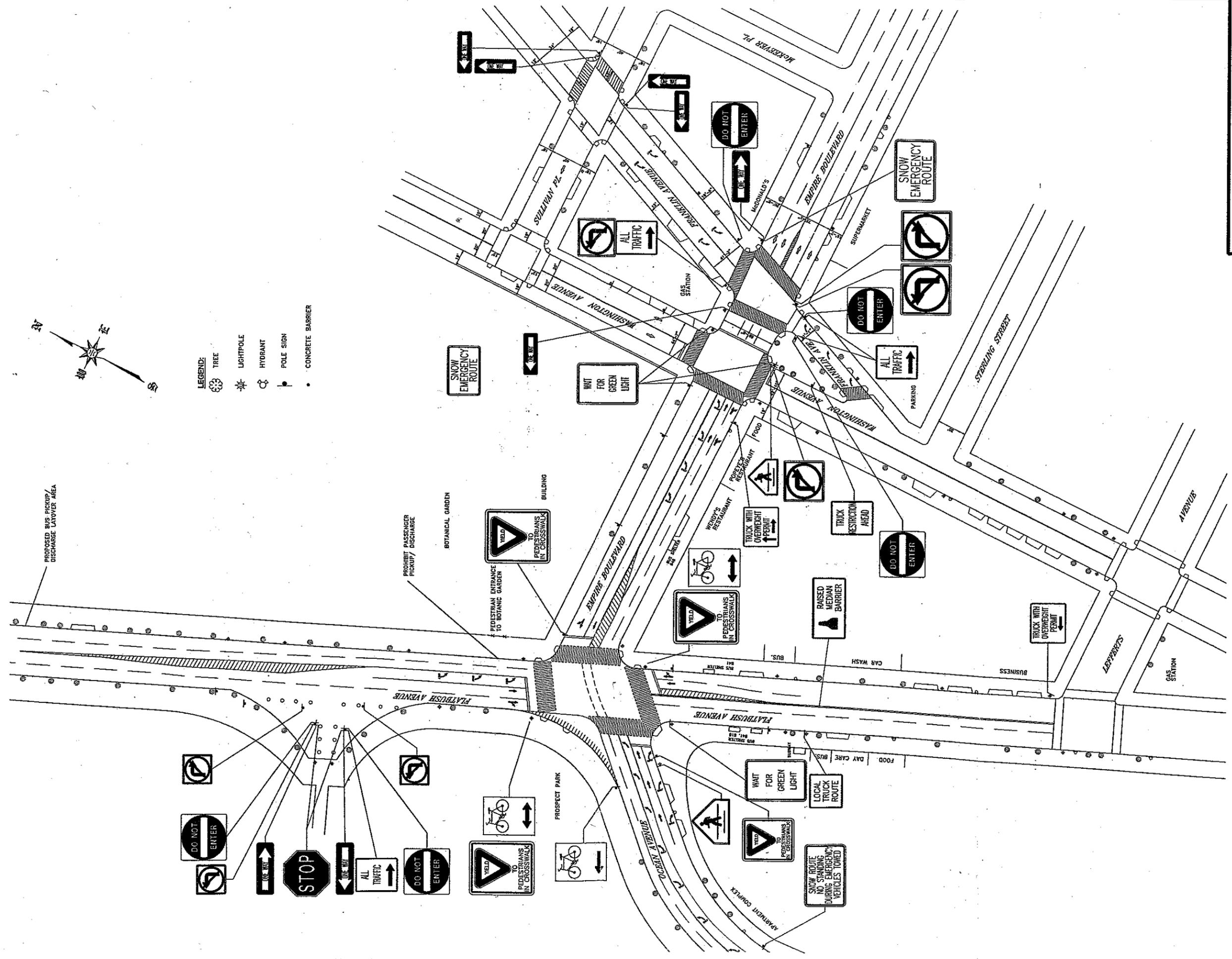
- Install "Traffic Signal Ahead" signs** for eastbound Atlantic Avenue viaduct traffic to inform motorists of the traffic signal at Georgia Avenue.
- Install "Wait for Green Signal" signs** on eastbound Atlantic Avenue facing motorists on both the viaduct and service road since these two movements are proposed to occur in separate phases instead of the current single phase.
- Install guide signs on eastbound Atlantic Avenue viaduct and service road** near the westerly end of the viaduct (near East New York Avenue) to inform motorists to keep left for Pennsylvania Avenue north and Jackie Robinson Parkway; and to keep right for Pennsylvania Avenue south, Belt Parkway, Conduit Avenue and Van Wyck Expressway.
- As of this writing, NYC Transit has proposed the elimination of the B40 bus route between Ralph Avenue and Pennsylvania Avenue as part of its consolidation of the B40 and B78 bus routes along Ralph Avenue.** This action would eliminate the B40 bus stops on northbound Georgia Avenue, south of Atlantic Avenue, and on eastbound Atlantic Avenue, west of Pennsylvania Avenue. If implemented, this action would supersede the recommended Atlantic Avenue bus stop and shelter relocation further to the west of the Pennsylvania Avenue intersection.
- Install a red light camera at the Atlantic Avenue/Georgia Avenue intersection, possibly on a trial basis, and possibly followed by a "dummy" camera to aid in the enforcement of traffic regulations at the intersection.**
- Provide increased traffic safety education and information, especially aimed at students and seniors, generally and particularly near high accident prone locations.**

Empire Boulevard/Washington Avenue; Empire Boulevard/Franklin Avenue; Flatbush Avenue between Empire Boulevard and Lefferts Avenue (see Figure ES-10)

- Reconfigure the traffic signal installation at the Empire Boulevard/Washington Avenue intersection to improve drivers' view of, and response to the eastbound left-turn signal.** In addition, provide additional green time for the entire eastbound approach to clear and reduce the queue spillback on eastbound Empire Boulevard between Washington Avenue and Flatbush Avenue.
- Extend the storage length of the eastbound left turn movement on Empire Boulevard at Washington Avenue, and upgrade the pavement markings at the intersection to clearly demarcate travel lanes.**
- Improve the coordination/synchronization of the traffic signals at Empire Boulevard/Washington Avenue and Washington Avenue/Sullivan Place to**

increase the capacity of northbound Washington Avenue between Empire Boulevard and Sullivan Place and to help reduce queue spillback on northbound Washington Avenue through the Empire Boulevard intersection.

- Install a concrete safety barrier (with or without fencing) atop the painted median on Flatbush Avenue between Ocean Avenue/Empire Boulevard and Lefferts Avenue.**
- Install right-turn pavement markings on northbound Franklin Avenue approaching Empire Boulevard to emphasize that only right turns are permitted.**
- Install advance warning signs on Washington Avenue south of Empire Boulevard (between Lefferts Avenue and Sterling Street) to inform motorists that the northbound right-turn movement from Washington Avenue onto eastbound Empire Boulevard, and the northbound left-turn movement from Franklin Avenue onto westbound Empire Boulevard are prohibited to all traffic at all times.**
- Install signs on both the east and west sides of Flatbush Avenue, south of Empire Boulevard, directing pedestrians to cross Flatbush Avenue at the signalized and marked crosswalks at Empire Boulevard and Lefferts Avenue.**
- Coordinate the installation of wayfinding signs among the major pedestrian destinations in the area such as the Brooklyn Botanical Garden, Prospect Park, Brooklyn Museum and Medgar Evers College, to help guide motorists and pedestrians to these destinations.**
- Consistent with NYCDOT's policies and practice, replace the existing (and traditional) WALK/DON'T WALK pedestrian signals at the intersection with the illuminated symbolic man/hand symbol, as recommended in the Manual of Uniform Traffic Control Devices (MUTCD).**
- As a long-term option, explore the feasibility of providing an alternate northerly entrance/exit at the Prospect Park subway station and closing the existing northerly entrance/exit located on the west side of Flatbush Avenue midblock between Ocean Avenue and Lefferts Street.**
- Continue strict traffic enforcement at these intersections to discourage illegal parking and illegal turning movements that inhibit the flow of traffic and pedestrians at the intersections.**
- Provide increased traffic safety education and information, especially aimed at students and seniors.**



- LEGEND:
- TREE
 - LIGHTPOLE
 - HYDRANT
 - POLE SIGN
 - CONCRETE BARRIER

PEDESTRIAN / TRAFFIC SAFETY MITIGATION PROJECT
 BOROUGH OF BROOKLYN

FIGURE ES-10
 EMPIRE BLVD, WASHINGTON AVE / FRANKLIN AVE,
 AND FLATBUSH AVE. BETWEEN EMPIRE BLVD.
 AND LEFFERTS AVE.
 CONCEPTUAL GEOMETRIC IMPROVEMENTS
 SCALE: NTS

PLACEMENT OF SIGNS ARE PRELIMINARY,
 SUBJECT TO FINAL DESIGN.